PRODUCT CATALOGUE | EDITION 3

Electrification Products

Australia and New Zealand



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Electrification Products

Australia and New Zealand

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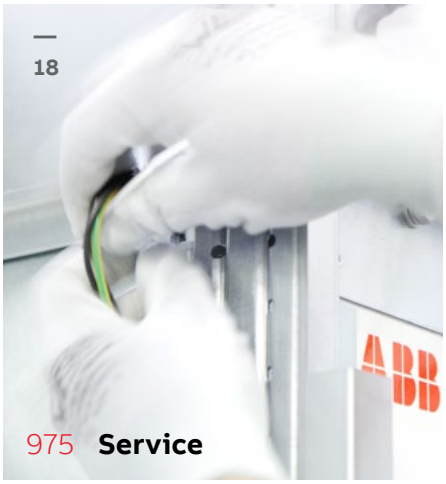

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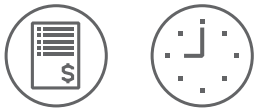

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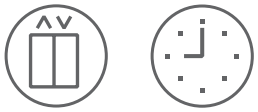

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Sales and Service icon legend

- Technical enquiries
- Quotations / projects
- Price and availability enquiries
- Order placing
- Returns/claims
- EP Service
- Available 24/7
- Available during standard working hours (Summer/ Winter)

Contact availability

Summer – Daylight savings time:
8am – 7pm (AEDT)
7:30am – 6:30pm (ACDT)/
5am – 4pm (AWST)

Winter – Standard time:
8am – 6pm (AEST)
7:30am – 5:30pm (ACST)/
6am – 4pm (AWST)

Emergency

Outside standard working hours
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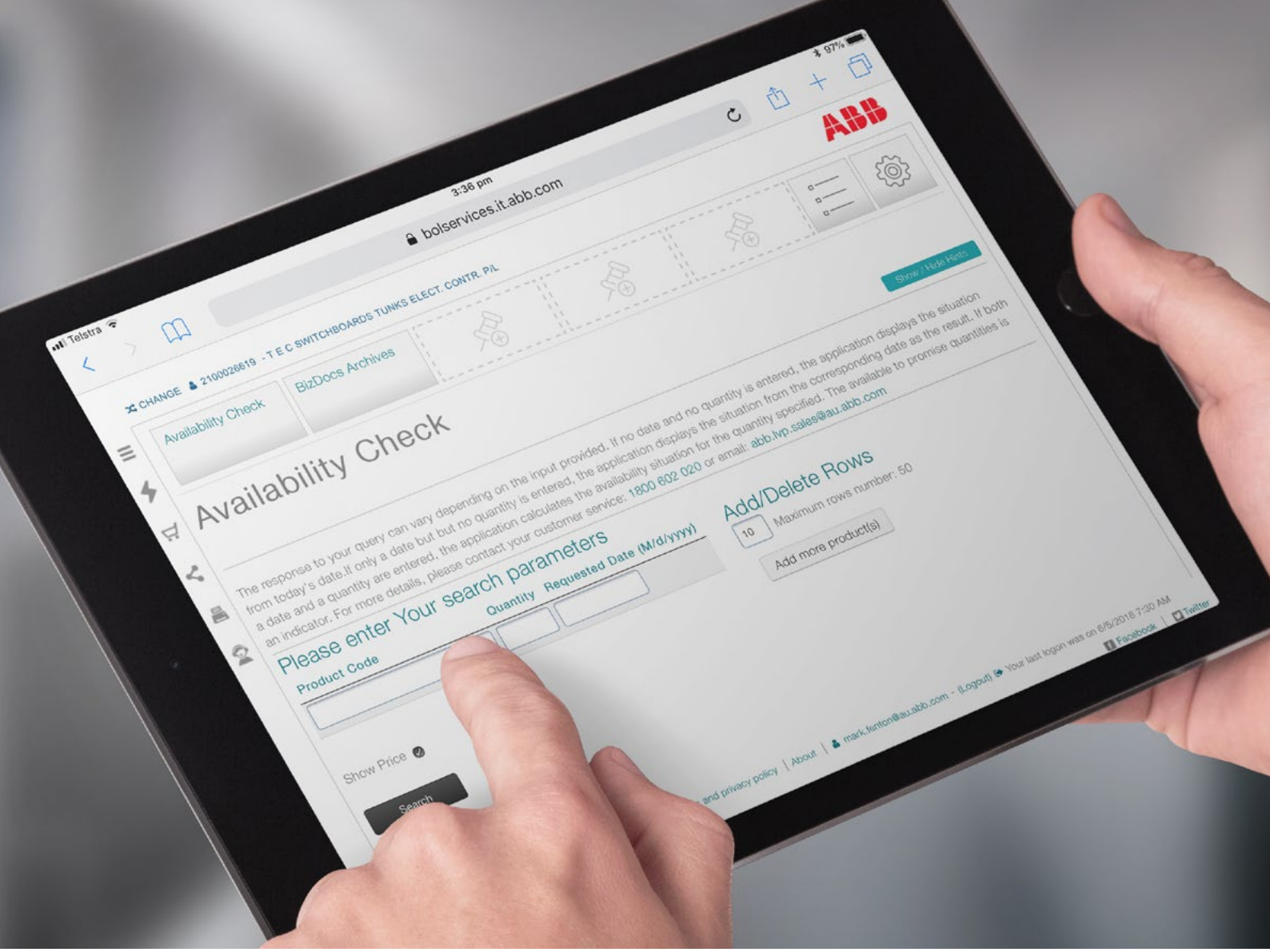

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How to use this book

Section header

This is the product group title

Description

Item specific product description

Product image

Helping you to find the correct product at a glance

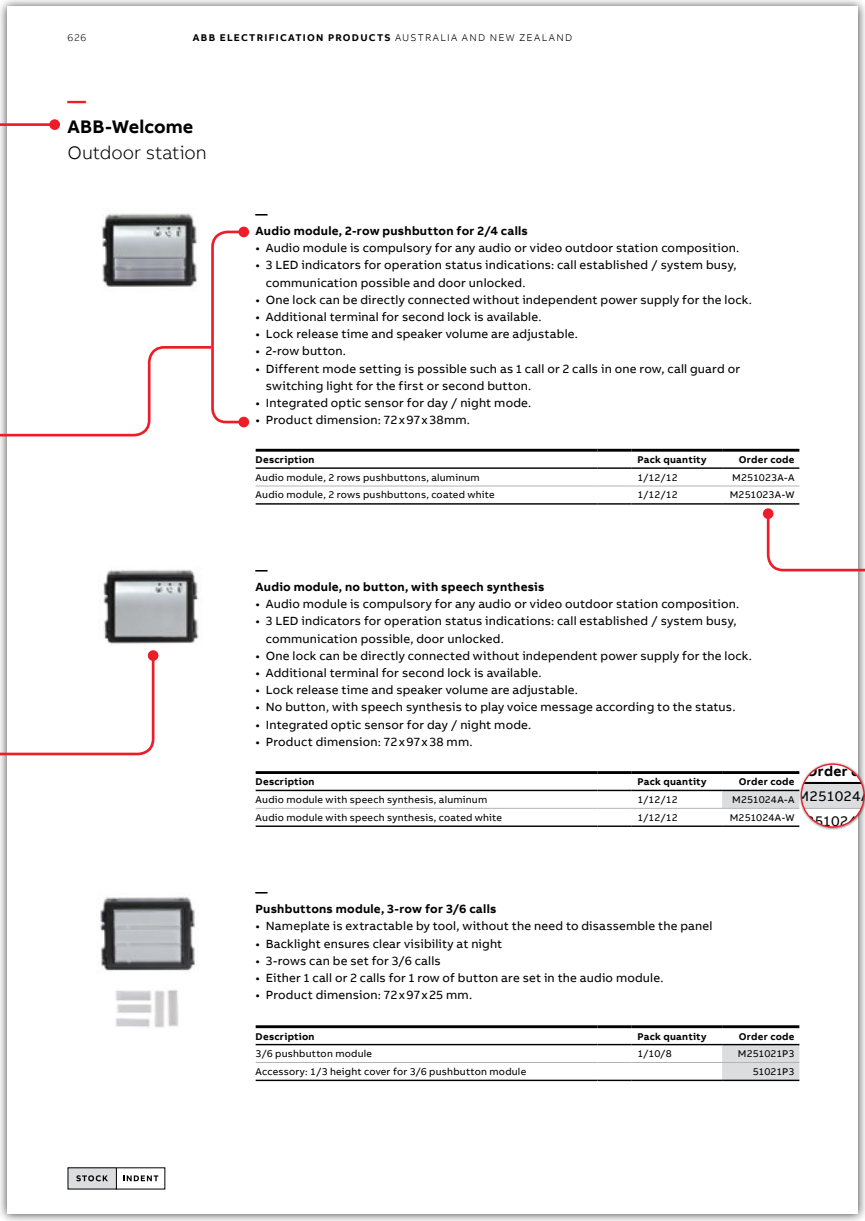

626 **ABB ELECTRIFICATION PRODUCTS** AUSTRALIA AND NEW ZEALAND

ABB-Welcome
Outdoor station

Audio module, 2-row pushbutton for 2/4 calls
- Audio module is compulsory for any audio or video outdoor station composition.
- 3 LED indicators for operation status indications: call established / system busy, communication possible and door unlocked.
- One lock can be directly connected without independent power supply for the lock.
- Additional terminal for second lock is available.
- Lock release time and speaker volume are adjustable.
- 2-row button.
- Different mode setting is possible such as 1 call or 2 calls in one row, call guard or switching light for the first or second button.
- Integrated optic sensor for day / night mode.
- Product dimension: 72x97x38mm.

Description	Pack quantity	Order code
Audio module, 2 rows pushbuttons, aluminum	1/12/12	M251023A-A
Audio module, 2 rows pushbuttons, coated white	1/12/12	M251023A-W

Audio module, no button, with speech synthesis
- Audio module is compulsory for any audio or video outdoor station composition.
- 3 LED indicators for operation status indications: call established / system busy, communication possible, door unlocked.
- One lock can be directly connected without independent power supply for the lock.
- Additional terminal for second lock is available.
- Lock release time and speaker volume are adjustable.
- No button, with speech synthesis to play voice message according to the status.
- Integrated optic sensor for day / night mode.
- Product dimension: 72x97x38 mm.

Description	Pack quantity	Order code
Audio module with speech synthesis, aluminum	1/12/12	M251024A-A
Audio module with speech synthesis, coated white	1/12/12	M251024A-W

Pushbuttons module, 3-row for 3/6 calls
- Nameplate is extractable by tool, without the need to disassemble the panel
- Backlight ensures clear visibility at night
- 3-rows can be set for 3/6 calls
- Either 1 call or 2 calls for 1 row of button are set in the audio module.
- Product dimension: 72x97x25 mm.

Description	Pack quantity	Order code
3/6 pushbutton module	1/10/8	M251021P3
Accessory: 1/3 height cover for 3/6 pushbutton module		51021P3

STOCK | INDENT

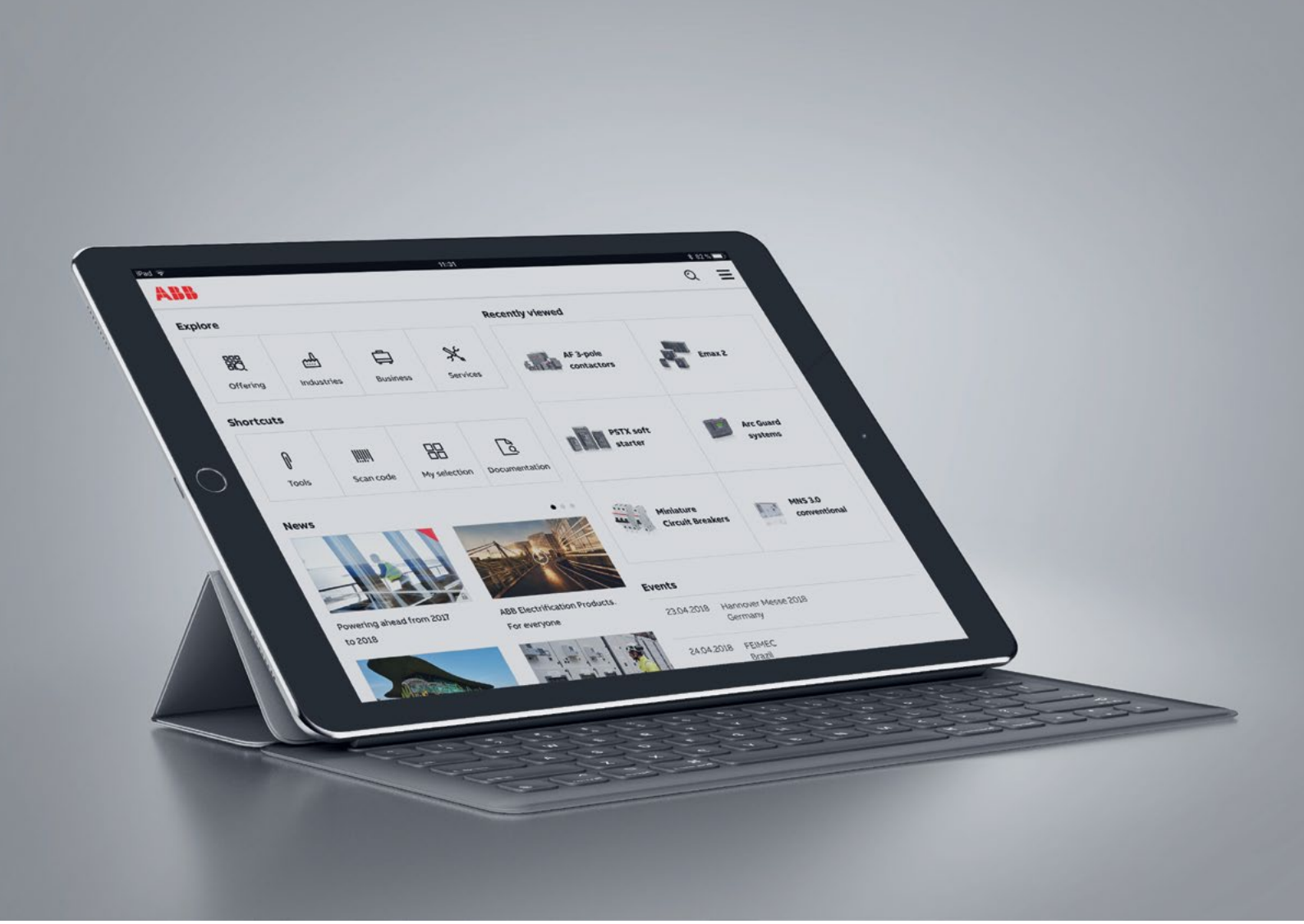
Order code

When placing an order this is the number to quote

Stock status

This is colour coded for convenience
Grey = Product stocked in Australia
White = Product available on quoted factory lead-times*

*** Factory lead-time product:** If the order code is in white this means that the product is not stocked in ABB Australia and is available on factory lead times. Please enquire with our customer service team regarding factory lead times as they vary depending on product group.



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01
Final distribution

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ABB
DSN201
C16
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Residential products

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For more detailed product information, please refer to the Technical Catalogue:

- Electrical installation solutions – 2CHC000002C0203
- System pro E comfort MISTRAL® – 1SLC801013D0201
- Surge protection devices – 1TXH000375C0202
- Time and twilight switches – 2CSC441022B0201

Residential products

Miniature circuit breakers

Miniature circuit breakers – Home range

- Protection against overloads and short circuits
- Not suitable for fitting System pro M accessories



Plug-in miniature circuit breakers (MCB) 3kA home range

Standard	Rating (A)	Description	Order code
AS/NZS 60898,	6	Plug-in MCB 3kA 6A C-curve	S91-C6
IEC/EN 60898	10	Plug-in MCB 3kA 10A C-curve	S91-C10
Rated short circuit capacity I_{cn}	16	Plug-in MCB 3kA 16A C-curve	S91-C16
3kA	20	Plug-in MCB 3kA 20A C-curve	S91-C20
Voltage range	25	Plug-in MCB 3kA 25A C-curve	S91-C25
1P : 230 – 240 V	32	Plug-in MCB 3kA 32A C-curve	S91-C32
	40	Plug-in MCB 3kA 40A C-curve	S91-C40
	Additional features		
	Ideally suited for retro-fitting into fuse bases in domestic applications		



Miniature circuit breakers (MCB) 6kA home range

Standard	Rating (A)	Description	Order code 1 Pole	Order code 3 Pole
AS/NZS 60898,	6	MCB, 6kA, 6A, C-curve	SH201C6	SH203C6
IEC/EN 60898	8	MCB, 6kA, 8A, C-curve	SH201C8	SH203C8
Rated short circuit capacity I_{cn}	10	MCB, 6kA, 10A, C-curve	SH201C10	SH203C10
6kA	13	MCB, 6kA, 13A, C-curve	SH201C13	SH203C13
Voltage range	16	MCB, 6kA, 16A, C-curve	SH201C16	SH203C16
1P : 230 – 240 V	20	MCB, 6kA, 20A, C-curve	SH201C20	SH203C20
3P : 230/415 V	25	MCB, 6kA, 25A, C-curve	SH201C25	SH203C25
	32	MCB, 6kA, 32A, C-curve	SH201C32	SH203C32
	40	MCB, 6kA, 40A, C-curve	SH201C40	SH203C40
	50	MCB, 6kA, 50A, C-curve	SH201C50	SH203C50
	63	MCB, 6kA, 63A, C-curve	SH201C63	SH203C63
	Additional features			
	Ideally suited for domestic and light commercial applications in consumer units			

STOCK | INDENT

Residential products

Residual current devices (RCCB)

Residual current device (RCCB) – Home range

- Protection against earth leakage faults
- Ideally suited for domestic and light commercial applications in consumer units
- Not suitable for fitting System pro *M* accessories



Residual current device (RCCB) Type AC home range

Standard	Sensitivity (mA)	Rating (A)	Description	Order code 2 Pole	Order code 4 Pole
AS/NZS 61008,	30	25	RCCB, 25A, 30mA, Type AC	FH20225	FH20425
IEC/EN 61008		40	RCCB, 40A, 30mA, Type AC	FH20240	FH20440
Rated short circuit capacity I_{cn}		63	RCCB, 63A, 30mA, Type AC	FH20263	FH20463
6kA with 63A fuse or MCB	**Additional features**				
Voltage range	Type AC, used where the earth fault waveform is sinusoidal				
230/400 V – 240/415 V	**Note:** Type AC devices are not suitable in New Zealand.				



Residual current device (RCCB) Type A home range

Standard	Sensitivity (mA)	Rating (A)	Description	Order code 2 Pole	Order code 4 Pole
AS/NZS 61008,	30	40	RCCB, 40A, 30mA, Type A	FH202A40	FH204A40
IEC/EN 61008		63	RCCB, 63A, 30mA, Type A	FH202A63	FH204A63
Rated short circuit capacity I_{cn}	**Additional features**				
6kA with 63A fuse or MCB	Type A, used where the earth fault waveform is sinusoidal or pulsating DC (computer loads etc)				
Voltage range					
230/400 V – 240/415 V					

Residential products

Residual current devices (RCBO)



Residual current device with overcurrent (RCBO) – Single module

- Compact single module size
- Protection against short circuit, thermal overload and earth leakage
- Connect supply from top or bottom
- Ideally suited for domestic and light commercial applications in consumer units
- Accepts accessories if interface module type SN201-IH is used

Residual current device with overcurrent (RCBO) Type AC – single module

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	30	6	RCBO, 1P, 6A, C-curve, 30mA, Type AC	DSN201C6
IEC/EN 61009-1		10	RCBO, 1P, 10A, C-curve, 30mA, Type AC	DSN201C10
Rated short circuit capacity I_{cn}		16	RCBO, 1P, 16A, C-curve, 30mA, Type AC	DSN201C16
6kA		20	RCBO, 1P, 20A, C-curve, 30mA, Type AC	DSN201C20
Voltage range		25	RCBO, 1P, 25A, C-curve, 30mA, Type AC	DSN201C25
230/400 V	**Additional features**			
	Type AC, used where the earth fault waveform is sinusoidal			

Note: Type AC devices are not suitable in New Zealand.



Residual current device with overcurrent (RCBO) Type A – single module

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	10	6	RCBO, 1P, 6A, C-curve, 10mA, Type A	DSN201C6A10
IEC/EN 61009-1		10	RCBO, 1P, 10A, C-curve, 10mA, Type A	DSN201C10A10
Rated short circuit capacity I_{cn}		16	RCBO, 1P, 16A, C-curve, 10mA, Type A	DSN201C16A10
6kA		20	RCBO, 1P, 20A, C-curve, 10mA, Type A	DSN201C20A10
Voltage range	30	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DSN201C6A30
230–240 V		10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DSN201C10A30
		16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DSN201C16A30
		20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DSN201C20A30
		25	RCBO, 1P, 25A, C-curve, 30mA, Type A	DSN201C25A30
	Additional features			
	Type A, used where the earth fault waveform is sinusoidal or pulsating DC (computer loads etc)			

Residential products

Residual current devices (RCBO)



Residual current device with overcurrent (RCBO) – Two module

- Two module size
- Protection against short circuit, thermal overload and earth leakage
- Ideally suited for domestic and light commercial applications in consumer units
- Contact position indicator

Residual current device with overcurrent (RCBO) – Two module

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	30	6	RCBO, 2P, 6A, C-curve, 30mA, Type AC	DS201BS-C6
IEC/EN 61009-1		10	RCBO, 2P, 10A, C-curve, 30mA, Type AC	DS201BS-C10
Rated short circuit capacity I_{cn}		16	RCBO, 2P, 16A, C-curve, 30mA, Type AC	DS201BS-C16
6kA		20	RCBO, 2P, 20A, C-curve, 30mA, Type AC	DS201BS-C20
Voltage range		25	RCBO, 2P, 25A, C-curve, 30mA, Type AC	DS201BS-C25
230/400V		32	RCBO, 2P, 32A, C-curve, 30mA, Type AC	DS201BS-C32
		40	RCBO, 2P, 40A, C-curve, 30mA, Type AC	DS201BS-C40
	Additional features			
	Type AC, used where the earth fault is sinusoidal			
	Can be used on ABB 3 phase busbar chassis due to isolated neutral terminal			

Note: Type AC devices are not suitable in New Zealand. Type DS201BS-C devices are not suitable for accessories



Residual current device with overcurrent (RCBO) – Two module, Type A

Standard	Sensitivity (mA)	Rating kA	(A)	Description	Order code
AS/NZS 61009.1,	10	6	10	RCBO, 1P, 10A, C-curve, 10mA, Type A	DS201C10A10
IEC/EN 61009-1			16	RCBO, 1P, 16A, C-curve, 10mA, Type A	DS201C16A10
Rated short circuit capacity I_{cn}	30	6	2	RCBO, 1P, 2A, C-curve, 30mA, Type A	DS201C2A30
6kA and 10kA			6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DS201C6A30
Voltage range			10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DS201C10A30
230–240V			16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DS201C16A30
			20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DS201C20A30
			25	RCBO, 1P, 25A, C-curve, 30mA, Type A	DS201C25A30
			32	RCBO, 1P, 32A, C-curve, 30mA, Type A	DS201C32A30
			40	RCBO, 1P, 40A, C-curve, 30mA, Type A	DS201C40A30
	10	10	10	RCBO, 1P, 10A, C-curve, 10mA, Type A	DS201MC10A10
			16	RCBO, 1P, 16A, C-curve, 10mA, Type A	DS201MC16A10
	30	10	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DS201MC6A30
			10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DS201MC10A30
			16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DS201MC16A30
			20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DS201MC20A30
			25	RCBO, 1P, 25A, C-curve, 30mA, Type A	DS201MC25A30
			32	RCBO, 1P, 32A, C-curve, 30mA, Type A	DS201MC32A30
			40	RCBO, 1P, 40A, C-curve, 30mA, Type A	DS201MC40A30
	Additional features				
	Type A, used where the earth fault waveform is sinusoidal or pulsating DC (computer loads etc)				

Note: Type AC and high immunity Type AP-R available on request. 100mA and 300mA versions available on request

Residential products

Arc fault detection and surge protection devices



AFDD - Arc fault detection device – S-ARC1 C-Curve

1P+N are fault detection device with integrated MCB Compact 4 module solution for 3 phase + neutral applications

AFDD - Arc fault detection devices - S-ARC1 C-Curve

Standard	Poles	Rating (A)	Description	Order code
IEC/EN 62606,	1+N	6	AFDD, 6A, 6kA, C-curve	S-ARC1C6
IEC/EN 60898-1		10	AFDD, 10A, 6kA, C-curve	S-ARC1C10
Rated short circuit capacity I_{cn}		13	AFDD, 13A, 6kA, C-curve	S-ARC1C13
6kA		16	AFDD, 16A, 6kA, C-curve	S-ARC1C16
Voltage range		20	AFDD, 20A, 6kA, C-curve	S-ARC1C20
230-240 V	**Additional features**			
	Compact 2 module width			
	Protection against series, parallel and earth arc faults in addition to overcorrect and short circuit			
	LED status indication			
	Contact position indicator			
	Compatible with auxiliary elements			

Note: 10kA model also available



Surge protection devices (SPD) Type 2, 8/20

The Australian Lightning Standard AS/NZS 1768 recommends the use of a 40kA SPD at the service entrance of a building. This is suitable for most domestic premises. In low lightning risk areas, load centres and submains, a surge capacity of 10-40kA is recommended. Larger sizes up to 100kA should be used where long overhead service lines are present, high lightning risk areas and in large industrial and commercial premises.

Surge protection devices (SPD) Type 2, 8/20

Standard	Max discharge Current	Modules (18mm)	Voltage level (kV)	Max backup fuse/MCB	Description	Order code
IEC 61643-1,	20	1	0.9	50	OVRT2-T3 20-275P QS SPD 20kA	2CTB803871R2400
EN 61643-11	40	1	1.25	50	OVR T2 40-275PTS QS SPD 40kA	2CTB803871R1700
Nominal voltage	**Additional features**					
230/400 V	Surge Protection Device					
Max. cont. operating voltage	Protection against indirect lightning strikes and transient overvoltages					
275 V	Rated for 8/20 current waveform					
	Pluggable design for easy cartridge replacement					
	Status indication via flag indicator					

Note: ABB also offer Type 1 SPD with high capacity for protection of electrical equipment against direct lightning strikes on or near the building. These devices are based on triggered spark gap technology. Refer to page 97 in the Modular DIN rail components section of this catalogue.

Residential products

Switch disconnectors


SHD 201


SHD 202


SHD 203


SHD 204

Switch disconnectors

- Suitable for under load operation
- Sealable toggle to lock in either OFF or ON position
- Red toggle for easy identification
- Ideal for consumer units, load centres and small distribution boards

Switch disconnectors

Standard	Rating (A)	Order code 1 Pole	2 Pole	3 Pole	4 Pole
AS/NZS 60947.3,	25	SHD20125	SHD20225	SHD20325	SHD20425
IEC/EN 60947-3	32	SHD20132	SHD20232	SHD20332	SHD20432
Voltage range	40	SHD20140	SHD20240	SHD20340	SHD20440
230/400 V	63	SHD20163	SHD20263	SHD20363	SHD20463
	80	E20180RD	E20280RD	E20380RD	E20480RD
	100	E201100RD	E202100RD	E203100RD	E204100RD
	125	E201125RD	E202125RD	E203125RD	E204125RD

STOCK | INDENT

Residential products

DIN switches and time switches


E213-16-001


E 213-16-002


E214-16-101


E214-16-202

DIN mounting changeover switches

- Space saving design – only 9 mm or 18 mm wide
- Suited for consumer units, load centres and distribution boards

Changeover switches and Group switches (I-0-II, manual-off-auto)

Standard	Current rating	Contacts	Width (mm)	Order code
EN 60669-1	**Changeover switches**			
Voltage range	16	1 C/O	9	E213-16-001
1 C/O, 2 C/O 250 V		2 C/O	18	E213-16-002
	25	1 C/O	9	E213-25-001
		2 C/O	18	E213-25-002
	Group switches (I-0-II, manual-off-auto)			
	16	1 C/O	9	E214-16-101
		2 C/O	18	E214-16-202
	25	1 C/O	9	E214-25-101
		2 C/O	18	E214-25-202


AT1e-R


D1

Time switches

- Space saving design
- Suited for consumer units, load centres and distribution boards
- Analogue and digital versions
- Reserve and non-reserve operation

Analogue time switch

Voltage	Contacts	Running reserve	Version	Modules	Order code
230 V	**Programs** Maximum 96 programs per cycle. Minimum switching 15 minutes.				
Contacts	1 N/O	100h	Daily	1	AT1e-R
16A	1 C/O	–	Daily	2	AT2e
	1 C/O	150h	Daily	2	AT2e-R
	1 C/O	150h	Weekly	2	AT2e-7R

Digital time switch

Voltage	Channels	Running reserve	Version	Modules	Order code
230 V	**Programs** Maximum 64 programs per cycle. Minimum switching 1 second. Permanent memory EEPROM.				
Contacts	1 C/O	6 years	Weekly	2	D1
16A	2 C/O	6 years	Weekly	2	D2

STOCK | INDENT

Residential products

Twilight switches


T1


T1 PLUS


T1POLE


LS-D

Twilight switches

- Space saving design
- Suited for consumer units, load centres and distribution boards
- Switch on and off according to a preset light level
- Switching delay to prevent unnecessary switching due to sudden changes in light intensity

T line modular twilight switch and Pole mounting twilight switch

Voltage	Brightness range (lux)	Contacts	Maximum loads Incandescent	Fluorescent	Electronic	Module width	Order code
230 V	**T line modular twilight switch**						
Contacts	2 : 200	1 N/O	960W	720W	200W	1	T1
16A (resistive),	2 : 15000	1 C/O	1080W	720W	200W	2	T1PLUS
3A inductive	**Pole mounting twilight switch**						
	2 : 200	1 N/O	960W	720W	200W	–	T1POLE

Accessories (spare parts)	
Description	**Order code**
IP65 Sensor	LS-D


TWA-1

Astronomical twilight switches

- Automatic control of lighting circuits according to the time of sunset and sunrise
- No need for external sensor
- Ideal for areas where an external sensor is not practical due to:
  - vandalism
  - air pollution
  - excessive brightness
- An internal algorithm calculates the rising and setting of the sun. Simply enter the date, time, geographical coordinates and time zone

TWA twilight astronomical switch

Voltage	Brightness range (lux)	Contacts	Maximum loads Incandescent	Fluorescent	Electronic	Module width	Order code
230 V	2 : 200	1 C/O	2300W	400W	500W	2	TWA1
Contacts	2 : 15000	2 C/O	2300W	400W	500W	2	TWA2
16A (resistive),							
3A inductive							

Residential products

Weatherguard range



Weatherguard socket outlets

Standard	Current rating	Type	Description	Order code
AS/NZS 3112	10	Single	Weather protected single 10A GPO, IP53	WSO110
Rated voltage	10	Double	Weather protected double 10A GPO, IP53	WSO210
250 V AC	**Features**			
Protection rating	General purpose outlet rated 10A			
IP53				



Weatherguard switches

Standard	Current rating	Description	Order code
AS/NZS 3112	16 AX	Weather protected single switch, 16A, IP66	WSW211
Rated voltage	16 AX	Weather protected double switch, 16A, IP66	WSW221
250 V AC	**Features**		
Protection rating	Weatherproof switches with modern design for lighting and general loads		
IP66			



Weatherguard enclosed isolators

Weatherguard enclosed isolators

- Weather protected isolator switch
- Ideal for applications where high level dust and water ingress protection is required
- Padlockable in OFF and ON positions
- Utilisation category AC23A

Standard	Current rating	Poles	Description	Order code
IEC 60947-3	20	2	Switch isolator, 2P, 20A, IP66	WSD220CL
Rated voltage	32	2	Switch isolator, 2P, 32A, IP66	WSD232CL
250 V AC	45	2	Switch isolator, 2P, 45A, IP66	WSD245CL
Protection rating	63	2	Switch isolator, 2P, 63A, IP66	WSD263CL
IP66	20	4	Switch isolator, 4P, 20A, IP66	WSD420CL
	32	4	Switch isolator, 4P, 32A, IP66	WSD432CL
	45	4	Switch isolator, 4P, 45A, IP66	WSD445CL
	63	4	Switch isolator, 4P, 63A, IP66	WSD463CL

STOCK | INDENT

Residential products

Economy consumer units

Economy consumer units

- Ideal for domestic homes and residential apartments
- Earth and neutral bars included
- 12 pole buscomb included
- Suits DIN profile products – MCB, RCD, RCBO, SPD, time switches
- Protection rating: IP40





Surface mount

Pole capacity	Rows	Dimensions (H x W x D)	Order code
Surface mount – white body, smoked transparent cover, E/N bars included			
12	1	210 mm x 256 mm x 95 mm	LC12ST
18	1	222 mm x 354 mm x 95 mm	LC18ST
24	2	325 mm x 270 mm x 95 mm	LC24ST
Surface mount – white body, white cover, E/N bars included			
12	1	210 mm x 256 mm x 95 mm	LC12SW
18	1	222 mm x 354 mm x 95 mm	LC18SW
24	2	325 mm x 270 mm x 95 mm	LC24SW





Flush mount

Pole capacity	Rows	Dimensions (H x W x D)	Base depth	Order code
Flush mount – white body, smoked transparent cover, E/N bars included				
12	1	222 mm x 256 mm x 27 mm	76 mm	LC12FMT
18	1	252 mm x 354 mm x 27 mm	76 mm	LC18FMT
24	2	345 mm x 270 mm x 27 mm	76 mm	LC24FMT
Flush mount – white body, white cover, E/N bars included				
12	1	222 mm x 256 mm x 27 mm	76 mm	LC12FMW
18	1	252 mm x 354 mm x 27 mm	76 mm	LC18FMW
24	2	345 mm x 270 mm x 27 mm	76 mm	LC24FMW

Accessories

Metal backing plate for cable protection in cavity walls (1mm galvanised steel) – supplied loose

Suits enclosure	Dimensions (H x W)	Order code
LC flush mount series, 12P	350mm x 260mm	ABB12WPP
LC flush mount series, 18P	370mm x 365mm	ABB18WPP
LC flush mount series, 24P	460mm x 260mm	ABB24WPP
Pole fillers		
4 module strip - RAL 9016 (white)		LA12859
12 module strip - RAL 7035 (grey)		SZBP12

Residential products

Designer consumer units

Designer consumer units

- Ideal for domestic homes and residential apartments
- Earth and neutral bars included as shown
- Suits DIN profile products – MCB, RCD, RCBO, SPD, time switches



IP41 Designer range of surface mount consumer units – MISTRAL 41W

Pole capacity	Rows	Dimensions (H x W x D)	Earth bar	Neutral bar	Order code
Surface mount - white body, transparent door					
4	1	210 mm x 96 mm x 93 mm			M41W04T
8	1	257 mm x 202 mm x 120 mm	1 x 6w	2 x 6w	M41W08TEN
12	1	257 mm x 292 mm x 120 mm	1 x 16w	3 x 6w	M41W12TEN
18	1	257 mm x 382 mm x 120 mm	1 x 21w	1 x 11w, 2 x 6w	M41W18TEN
24	2	382 mm x 292 mm x 120 mm	1 x 26w	2 x 11w, 2 x 6w	M41W24TEN
36	3	507 mm x 292 mm x 120 mm	1 x 26w, 1 x 11w	1 x 21w, 1 x 11w, 2 x 6w	M41W36TEN
Surface mount - white body, without door					
2	1	210 mm x 68 mm x 93 mm			M41W02
4	1	210 mm x 96 mm x 93 mm			M41W04
8	1	257 mm x 202 mm x 120 mm			M41W08
12	1	257 mm x 292 mm x 120 mm			M41W12

Note: Models available with opaque door. 48, 54 and 72 pole sizes also available.



IP41 Designer range of flush mount consumer units – MISTRAL 41F

Pole capacity	Rows	Dimensions (H x W x D)	Earth bar	Neutral bar	Order code
Flush mount - white body, transparent door					
4	1	202 mm x 152 mm x 105 mm			M41F04T
6	1	202 mm x 192 mm x 105 mm			M41F06T
8	1	250 mm x 232 mm x 108 mm	1 x 6w	2 x 6w	M41F08TEN
12	1	250 mm x 320 mm x 108 mm	1 x 16w	3 x 6w	M41F12TEN
18	1	250 mm x 430 mm x 108 mm	1 x 21w	1 x 11w, 2 x 6w	M41F18TEN
24	2	435 mm x 320 mm x 108 mm	1 x 26w	2 x 11w, 2 x 6w	M41F24TEN
36	3	600 mm x 320 mm x 108 mm	1 x 26w, 1 x 11w	1 x 21w, 1 x 11w, 2 x 6w	M41F36TEN

Note: Models available with opaque door. 48, 54 and 72 pole sizes also available.



IP65 Designer range of surface mount consumer units – MISTRAL 65

Pole capacity	Rows	Dimensions (H x W x D)	Earth bar	Neutral bar	Order code
Surface mount - white body, transparent door					
4	1	202mm x 152mm x 117mm			M65W04T
8	1	250mm x 232mm x 154mm	1 x 6w	2 x 6w	M65W08TEN
12	1	250mm x 320mm x 155mm	1 x 16w	3 x 6w	M65W12TEN
18	1	250mm x 430mm x 155mm	1 x 21w	1 x 11w, 2 x 6w	M65W18TEN
24	2	435mm x 320mm x 155mm	1 x 26w	2 x 11w, 2 x 6w	M65W24TEN
36	3	600mm x 320mm x 155mm	1 x 26w, 1 x 11w	1 x 21w, 2 x 11w, 2 x 6w	M65W36TEN

Note: Models available with opaque door. 48, 54 and 72 pole sizes also available.

Residential products

Accessories – consumer units



Wall fixing bracket

Accessories

Description	Order code
Wall fixing brackets (4pcs) for MISTRAL65	1SL1927A00
Lock with key MISTRAL65	1SL1931A00
4 module strip - RAL 9016 (white)	LA12859
12 module strip - RAL 7035 (grey)	SZBP12
Lock set - Mistral 41 to suit white door	M41W-LOCKWHITE
Lock set - Mistral 41 to suit transparent door	M41W-LOCKBLUE
Circuit identification stickers - B lue	GJF1707110P0011
Circuit identification stickers - Red	GJF1707110P0012

Accessories – metal backing plate for flush mount consumer units
Metal backing plate for cable protection in cavity walls (1mm galvanised steel) – supplied loose

Suits enclosure	Dimensions (H x W)	Order code
Mistral 41 flush series, 12P	380mm x 300mm	M41F12WPP
Mistral 41 flush series, 18P	380mm x 410mm	M41F18WPP
Mistral 41 flush series, 24P	555mm x 300mm	M41F24WPP
Mistral 41 flush series, 36P	555mm x 410mm	M41F36WPP



STOCK | INDENT

Residential products

Loaded consumer units

Loaded consumer units

- Ideal for domestic homes and residential apartments.
- Earth and neutral bars included
- 12 pole buscomb included
- Pre-loaded with combinations of RCD's, RCBO's and MCB according to minimum AS/NZS 3000 requirements.
- Choice of switch disconnector or MCB as main switch to suit local requirements
- Protection rating: IP40



Surface mount – white body, smoked transparent cover, E/N bars included

Pole capacity	Spare poles	Description	Order code
12	5	Surface mount enclosure LC12ST	ABBLB12
		1 x 80A isolator (main switch)	
		1 x 40A RCCB	
		1 x 10A RCBO (2 pole)	
		2 x 16A MCB	
12	5	Surface mount enclosure LC12ST	ABBLB12M63
		1 x 63A MCB (main switch)	
		1 x 40A RCCB	
		1 x 10A RCBO (2 pole)	
		2 x 16A MCB	
12	7	Surface mount enclosure LC12ST	ABBLB12DSN63
		1 x 63A isolator (main switch)	
		2 x 10A RCBO (single pole)	
		2 x 16A RCBO (single pole)	

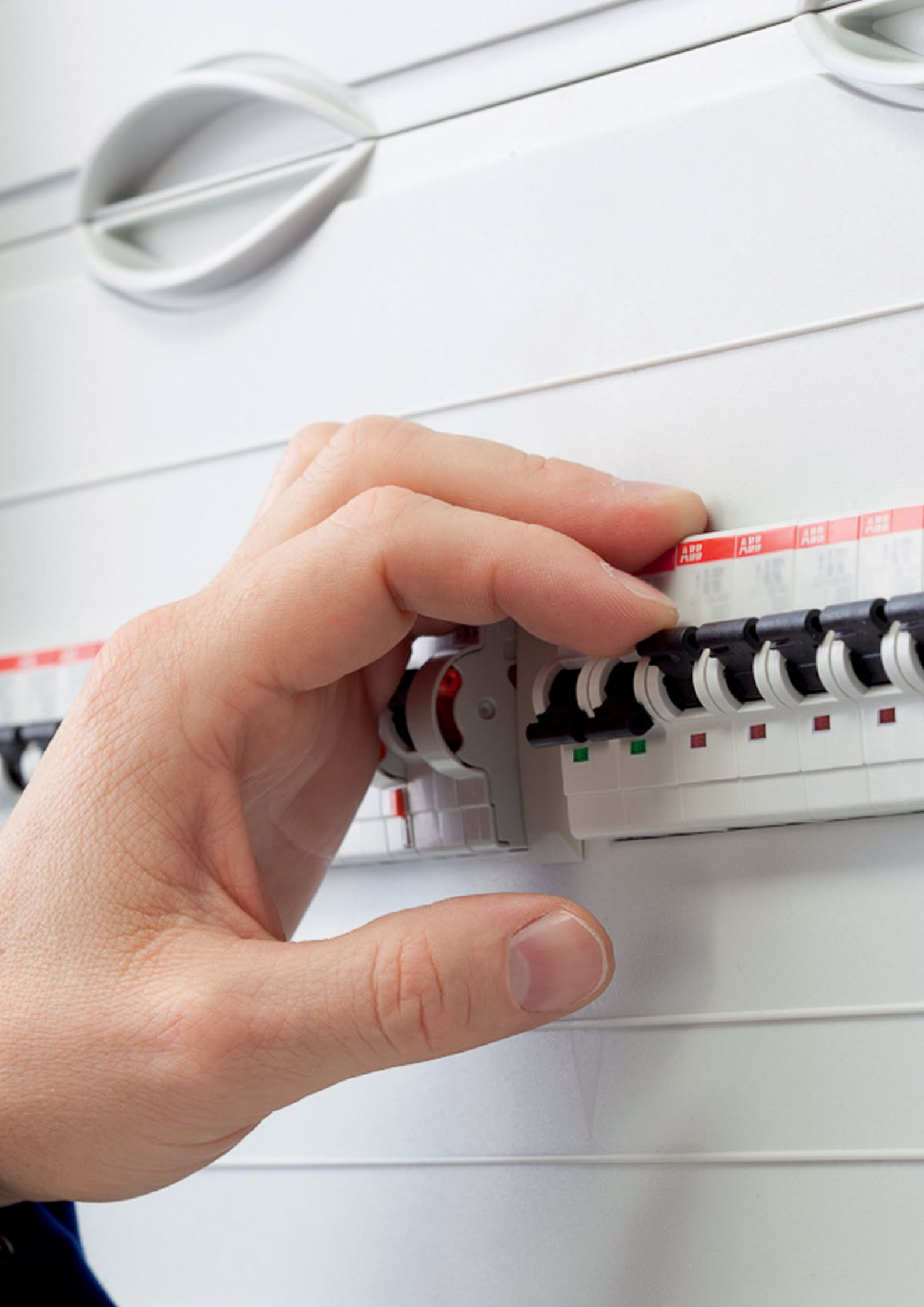
Other configurations are available. Please contact your ABB representative.



My world of installation

Electrical installation at home made easy

Our comprehensive product portfolio offers a complete range of solutions and services for all installation requirements in residential buildings. Our focus on easy installation speeds up your projects while meeting people's needs for safety and comfort in their home. Find more information about our complete offer at: **www.abb.com/world-of-installation**



Miniature circuit breakers (MCB)

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49	1000V miniature circuit breakers – 27mm pole width

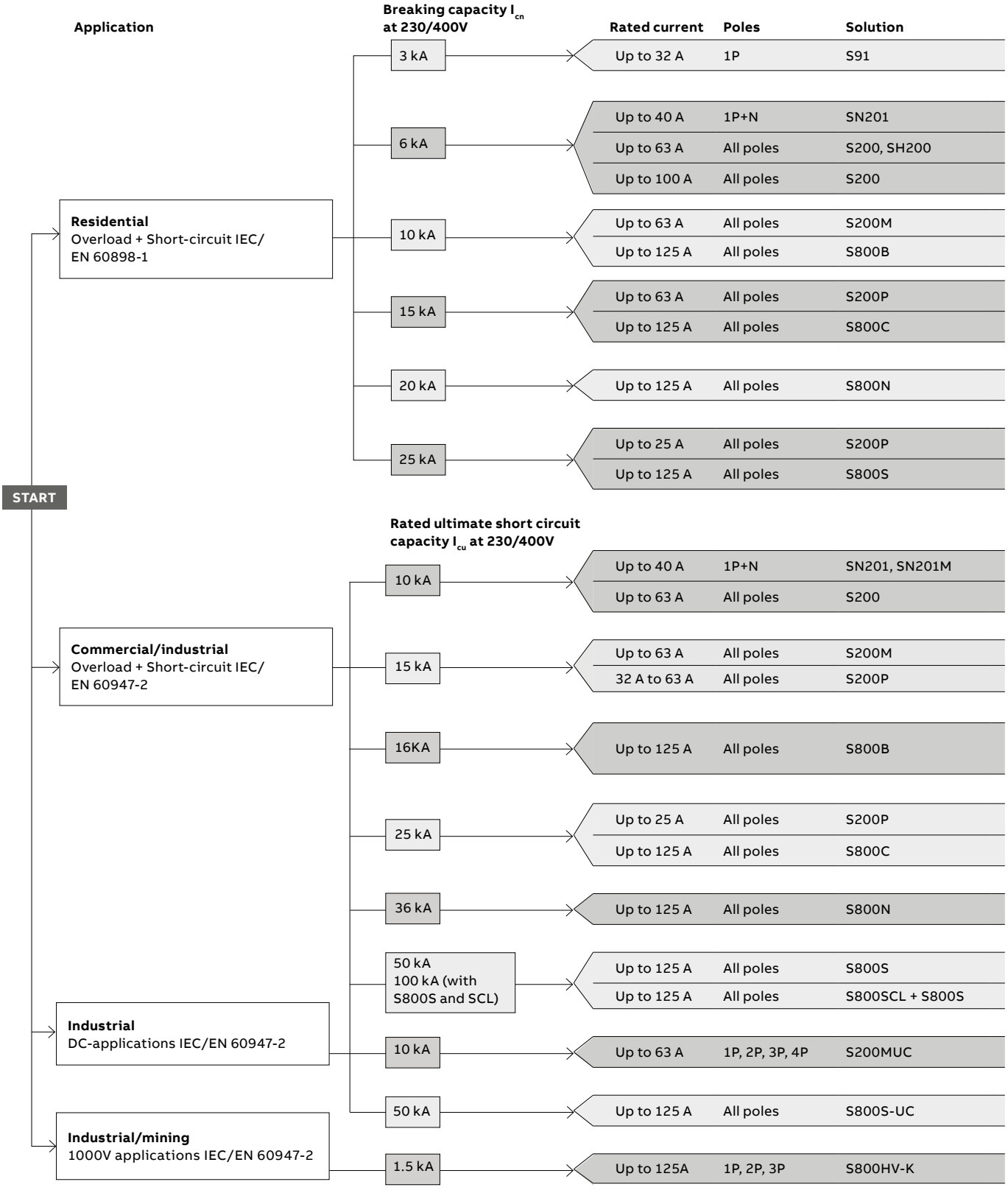
For more detailed product information, please refer to the Technical Catalogue:

- Electrical installation solutions – 2CHC000002C0203
- S800HV 1000V MCB – 2CCC413010L0201

Miniature circuit breakers

Quick selection of MCBs for residential and industrial applications

Find the right range at a glance using this selection chart.



Miniature circuit breakers

Selection table










Series				S 91	SH 201	S 200	S 200 M	S 200MUC	S 200 P		SN 201	SN 201 M	S 200
Characteristics				C	C	B, C, D, K, Z	B, C, D, K, Z	B, C, K, Z	B, C, D, K, Z	B, C, D, K, Z	B, C, D, K, Z	B, C, D	B, C	B, C
Rated current	[A]			6 ≤ In ≤ 40	6 ≤ In ≤ 63	0.5 ≤ In ≤ 63	0.5 ≤ In ≤ 63	0.2 ≤ In ≤ 63	0.2 ≤ In ≤ 25	32 ≤ In ≤ 40	50 ≤ In ≤ 63	2 ≤ In ≤ 40	2 ≤ In ≤ 40	80 ≤ In ≤ 100
Breaking capacity	[kA]													
Reference standard		**Number of poles**	**Ue[V]**											
IEC/EN 60898	I_{cn}		230/400	3	6	6	10	10	25	15	15	6	10	6
IEC/EN 60947-2 Alternating current	I_{cu}	1, 1P+N	133			20	25		40	25	25	15	20	20
			230			10	15		25	15	15	10	10	6
			253											
		2, 3, 4	230			20	25	10[1] / 6[2]	40	25	25			20
			400			10	15		25	15	15			6
			440			10	15	10[1] / 6[2]						
		2, 3, 4	500											
			690											
	I_{cs}	1, 1P+N	133			15	18.7		20	18.7	18.7	10	10	10
			230			7.5	11.2		12.5	11.2	7.5	6	7.5	6
			253					7.5[1] / 6[2]						
		2, 3, 4	230			15	18.7		20	18.7	18.7			10
			400			7.5	11.2		12.5	11.2	7.5			6
			440			7.5	11.2	7.5[1] / 6[2]						
		2, 3, 4	500											
			690											
IEC/EN 60947-2 Direct current T=I/R≤5ms for all series, except S280 UC and S800S-UC, where T=I/R<15ms	I_{cu}	1, 1P+N	24			20								
			60			10	10		15	10	10	15	15	
			125											
			220					10						
			250											
		2	48			20								
			125			10	10		15	10	10	15	15	
			250											
			440					10						
			500											
			800											
		3,4	375											
			500											
			750											
			1200											

1) ≤ 40 A
2) > 40 A

▶ Table continued on next page

Miniature circuit breakers

Selection table

▸ Table continued from previous page



Series				S800S					S800N	S800C	S800B	S800U	S800PV-SP	S800HV	
Characteristics				B, C, D	K	KM	UCB	UCK	B, C, D	B, C, D, K	B, C, D, K	Z, K, UCZ, PVS	PV-S	K	
Rated current	[A]			6 ≤ In ≤ 125	6 ≤ In ≤ 125	20 ≤ In ≤ 80	10 ≤ In ≤ 125	10 ≤ In ≤ 125	6 ≤ In ≤ 125	10 ≤ In ≤ 125	10 ≤ In ≤ 100/ 125[6]	5 ≤ In ≤ 100	10 ≤ In ≤ 125	6 ≤ In ≤ 63	80 ≤ In ≤ 125
Breaking capacity	[kA]														
Reference standard		**Number of poles**	**Ue[V]**												
IEC/EN 60898	I_{cn}		230/400	25[7]					20[7]	15	10				
IEC/EN 60947-2 Alternating current	I_{cu}	1, 1P+N	133												
			230	50	50	50[4]			36	25	16	30			
			253												
		2, 3, 4	230	50	50	50[4]			36	25	16	50			
			400	50	50	50[4]			36	25	16	50			
			440												
		2, 3, 4	500	15[1]	15[1]										
			690	6[1]	6[1]				4.5						
	I_{cs}	1, 1P+N	133												
			230	40	40				30	18	10	25			
			253												
		2, 3, 4	230	40	40	40[4]			30	18	10	40			
			400	40	40	40[4]			30	18	10				
			440												
		2, 3, 4	500	11[1]	11[1]										
			690	4[1]	4[1]				3						
	I_{cu}	1	580											4	3
		2, 3	1000											4	3
IEC/EN 60947-2 Direct current T=I/R≤5ms for all series, except S280 UC and S800S-UC, where T=I/R<15ms	I_{cu}	1, 1P+N	24												
			60												
			125	30	30				20	10					
			220												
			250				50	50							
		2	48												
			125												
			250	30	30				20	10					
			440												
			500				50	50							
			800										5[2]		
		3,4	375	30[4]	30[4]	30[4]	50	50	20[4]	10[4]					
			500	30[5]	30[5]		50	50	20[5]	10[5]					
			750				50	50							
			1200										5[3]		

1) values are not for all rated currents
2) 600 V DC for 100, 125 A
3) 1000 V DC for 100, 125 A
4) 3 poles
5) 4 poles
6) char. B, C
7) 10-80 A

MCB S200. The details make the difference

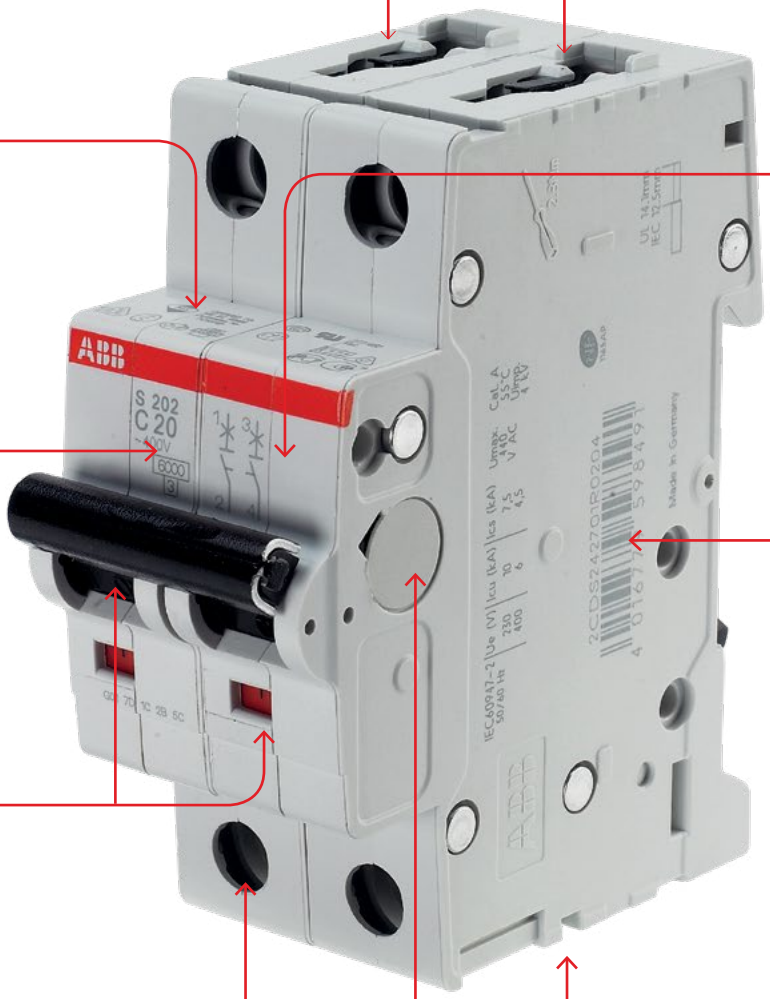
A range designed to ensure efficiency and protection

Twin terminal for separate feeding of busbar and conductor

IP20 - finger safety.

Easy identification of the product and highly resistant laser marking.

Save your time – all important data available right away.



Easy product name, easy identification, easy life.

Quick identification thanks to laser printed EAN marking.

Contact position indication

Captive screws: don't lose what's important for you.

Whatever your application requirements with a wide range of accessories.

Miniature circuit breakers

S200 technical features



			S 91	SH 200	S 200	S 200 M
General data	Standards		IEC/EN 60898-1,	IEC/EN 60898-1,	IEC/EN 60898-1, IEC/EN 60947-2	IEC/EN 60898-1, IEC/EN 60947-2
					UL 1077	UL 1077, CSA 22.2 No. 235
	Poles		1P	1P, 2P, 3P, 4P	1P, 2P, 3P, 4P, 1P+N, 3P+N	
	Tripping characteristics		C	C	B, C, D, K, Z	
	Rated current In	A	6…40 A	6…63 A	0.5…63 A	
	Rated frequency f	Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	
	Rated insulation voltage Ui acc. to IEC/EN 60664-1	V	250 V AC (phase to ground), 500 V AC (phase to phase)		250 V AC (phase to ground), 500 V AC (phase to phase)	
	Overvoltage category		III		III	
	Pollution degree		3		3	
Data acc. to IEC/EN 60898-1 (except S 200 M UC data acc. to IEC/EN 60898-2)	Rated operational voltage Un	V	1P: 250 V AC; 1P: 24 V DC	1P: 230 V AC; 2...4P: 400 V AC	1P: 230/400 V AC; 2...4P: 400 V AC;	
	Max. power frequency recovery voltage (U_{max})	V	1P: 253 V AC; 1P: 24 V DC	1P: 253 V AC; 2...4P: 400 V AC	1P: 253 V AC; 2P: 440 V AC; 3...4P: 440 V AC; 1P: 72 V DC; 2P: 125 V DC	
	Min. operating voltage	V	12 V AC – 12 V DC			
	Rated short-circuit capacity I_{cn}	kA	3 kA	6 kA	6 kA	10 kA
	Energy limiting class (B, C up to 40 A)		3			
	Rated impulse withstand voltage Uimp. (1.2/50µs)	kV	4 kV (test voltage 6.2 kV at sea level, 5 kV at 2,000 m)			
	Dielectric test voltage	kV	2 kV (50 / 60Hz, 1 min.)			
	Reference temperature for tripping characteristics	°C	30°C			
	Electrical endurance	ops.	20,000 ops (AC),			
Data acc. to IEC/EN 60947-2	Rated operational voltage Ue	V			1P: 230 V AC; 1P+N: 230 V AC; 2...4P: 440 V AC; 3P+N: 440 V AC	
	Max. power frequency recovery voltage (U_{max})	V			1P: 253 V AC; 1P+N: 253 V AC; 2P...4P: 462 V AC; 3P+N: 462 V AC; 1P: 72 V DC; 2P: 125 V DC	
	Min. operating voltage	V			12 V AC - 12 V DC	
	Rated ultimate short-circuit breaking capacity I_{cu}	kA			10 kA	15 kA
	Rated service short-circuit breaking capacity I_{cs}	kA			7.5 kA	≤ 40 A: 11.2 kA 50, 63 A: 7.5 kA
	Rated impulse withstand voltage Uimp. (1.2/50µs)	kV			4 kV (test voltage 6.2 kV at sea level, 5 kV at 2,000 m)	
	Dielectric test voltage	kV			2 kV (50 / 60Hz, 1 min.)	
	Reference temperature for tripping characteristics	°C			B, C, D: 55°C; K, Z: 20°C	
	Electrical endurance	ops.			In < 32A: 20,000 ops (AC), In ≥ 32A: 10,000 ops. (AC); 1,000 ops. (DC); (1 cycle 2s – ON, 13s – OFF, In ≤ 32A), (1 cyle 2s – ON, 28s – OFF, In > 32A)	

* Only acc. to IEC/EN 60898-1

▸ Table continued on next page

Miniature circuit breakers

S200 technical features



▸ Table continued from previous page

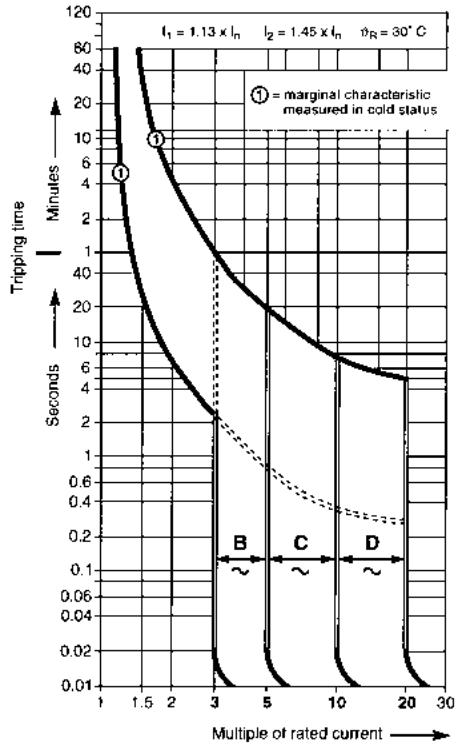
				S 91	SH 200	S 200	S 200 M
Mechanical data	Housing			Insulation group II, RAL 7035			
	Toggle			Insulation group II, black, sealable			
	Contact position indication			Marking on toggle (I ON / 0 OFF), Real CPI (red ON / green OFF)			
	Protection degree acc. to EN 60529			IP20**, IP40 in enclosure with cover			
	Mechanical endurance		ops.	20,000 ops.			
	Shock resistance acc. to IEC/EN 60068-2-27			25 g - 2 shocks - 13 ms			
	Vibration resistance acc. to IEC/EN 60068-2-6			5g - 20 cycles at 5…150…5 Hz with load 0.8In			
	Environmental conditions (damp heat) acc. to IEC/EN 60068-2-30		°C/ RH	28 cycles with 55°C/90-96% and 25°C/95-100%			
	Ambient temperature		°C	-25 … +55°C			
	Storage temperature		°C	-40 … +70°C			
Installation	Terminal			–	Cage	Fail safe bi-directional cylinder lift	
	Cross-section of conductors (top / bottom)	Solid / Stranded	mm^2	–	35 mm^2 / 35 mm^2	35 mm^2 / 35 mm^2	
		Flexible	mm^2	–	25 mm^2 / 25 mm^2	25 mm^2 / 25 mm^2	14 - 4 AWG
	Cross-section of busbars (top / bottom)		mm^2		10 mm^2	10 mm^2 / 10 mm^2	14 - 8 AWG
	Tightening torque		Nm		2.8 Nm	2.8 Nm	
	Screwdriver				No.2 Pozidrive	No.2 Pozidrive	
	Mounting			Fuse base	On DIN rail 35 mm	On DIN rail 35 mm acc. to EN 60715 by fast clip	
	Mounting position			Any		Any	
	Supply			Optional		Optional	
Dimensions and weight	Mounting dimensions acc. to DIN 43880					Mounting dimension 1	
	Pole dimensions (H x D x W)		mm	60 x 45 x 17.5 mm	88 x 68 x 17.5 mm	88 x 69 x 17.5 mm	
	Pole weight		g	approx. 70 g	approx. 125 g	approx. 115 g	
Combination with aux. elements	Auxiliary contact			No	No	Yes	Yes
	Signal contact			No	No	Yes	Yes
	Shunt trip			No	No	Yes	Yes
	Undervoltage release			No	No	Yes	Yes
	Motor operating device			No	No	Yes	Yes
	Integrated auxiliary switch			No	No	Yes	Yes

** Also fulfilling the requirement acc. to the protection degree IPXXB

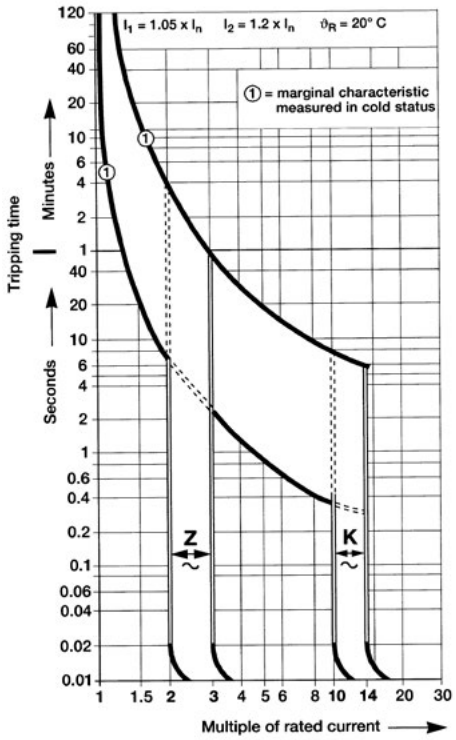
Miniature circuit breakers

Tripping characteristics

Tripping characteristic: B,C,D
According to AS/NZ60898-1 and IEC 60898 - 1, design requirements for circuit breakers for overcurrent protection for household and similar installations.



Tripping characteristic: Z,K
According to AS/NZ60947-2 and IEC 60947 - 2, design requirements for miniature circuit breakers.



Summary

Compared to tripping characteristics B, C and D, the K and Z types offer more protection for planning and during operation.

Applications

B Curve
Thermal tripping 1.3 x In
Electromagnetic tripping 3 – 5 x In
- for resistive loads
- for over current protection of cables.

C Curve
Thermal tripping 1.13 x In
Electromagnetic tripping 5 – 10 x In
- for general distribution loads
- for over current protection of cables.

D Curve
Thermal tripping 1.13 x In
Electromagnetic tripping 10 – 20 x In
- for circuits having high inrush characteristics or sudden current peaks
- for over current protection of cables.

K Curve
Thermal tripping 1.05 x In
Electromagnetic tripping 10 – 14 x In
- for circuits having high inrush characteristics or sudden current peaks
- for over current protection of cables
- less prone to nuisance tripping on high inductance loads.

Z Curve
Thermal tripping 1.05 In
Electromagnetic tripping 2 – 3 x In
- for control circuits with high impedances, but without current peaks
- for voltage transformer circuits
- for semiconductor protection
- for over current protection of cables.

Miniature circuit breakers

Tripping characteristics


S 201

B characteristic
Protection and control of the circuits against overloads and short-circuits; protection for people and long cable lengths.
Applications: residential, commercial and industrial.
Standard: AS/NZS 60898, AS/NZS 60947, IEC/EN 60898, IEC/EN 60947,
Available in 6kA, 10kA, 25 – 15kA, 36kA, 50kA

C characteristic
Protection and control of the circuits against overloads and short-circuits; protection for resistive and inductive loads with low inrush current.
Applications: residential, commercial and industrial.
Standard: AS/NZS 60898, AS/NZS 60947, IEC/EN 60898, IEC/EN 60947,
Available in 6kA, 10kA, 25 – 15kA, 36kA, 50kA


S 202

D characteristic
Protection and control of the circuits against overloads and short-circuits; protection for circuits which supply loads with high inrush currents at the circuit closing.
Applications: commercial and industrial.
Standard: IEC/EN 60898, AS/NZS 60947, IEC/EN 60898, AS/NZS 60947
Available in 6kA, 10kA, 25 – 15kA, 36kA, 50kA

K characteristic
Protection and control of the circuits supplying motors, transformers and auxiliary circuits, against overloads and short-circuits
Advantages: no nuisance tripping in the case of peak currents up to 8xIn, depending on the version; through its highly sensitive thermal trip, the K-type characteristic offers protection for sensitive elements in the overcurrent range; it also provides the best protection for cables and lines.
Applications: commercial and industrial.
Standard: AS/NZS 60947, IEC60947
Available in 6kA, 10kA, 25 – 15kA, 50kA


S 203

Z characteristic
Protection and control of electronic circuits against weak and long duration overloads and short-circuit
Applications: commercial and industrial.
Standard: AS/NZS 60947, IEC60947
Available in 6kA, 10kA, 25 – 15kA

Comparison of the new System pro M compact with the System pro M classic.

New compact range	Breaking capacity	In	Old classic range	
SH200C	6 kA	6 – 63A	S230	
S200B	6 kA	6 – 63A	S250 B	S260 B
S200C	6 kA	0.5 – 63A	S250 C	S260 C
S200D	6 kA	0.5 – 63A		S260 D
S200K	6 kA	0.5 – 63A	S250 K	S270 K
S200Z	6 kA	0.5 – 63A		S270 Z
S200MB	10 kA	6 – 63A		S270 B
S200MC	10 kA	0.5 – 63A		S270 C
S200PB	15 – 25 kA	6 – 63A		S280 B
S200PC	15 – 25 kA	0.5 – 63A		S280 C
S200PD	15 – 25 kA	0.5 – 63A		S280 D
S200PK	15 – 25 kA	0.5 – 63A		S280 K
S200PZ	15 – 25 kA	0.5 – 63A		S280 Z
S200B	6kA	80 – 100A		S280 B
S200C	6kA	80 – 100A		S280 C

Miniature circuit breakers

S91, SH200

Miniature circuit breakers (MCB) 3kA and 6kA – Home range

- Protection against overloads and short circuits
- Not suitable for fitting System pro M accessories



Plug-in miniature circuit breakers (MCB) 3kA home range

Standard	Rating (A)	Description	Order code
AS/NZS 60898,	6	Plug-in MCB 3kA 6A C-curve	S91-C6
IEC/EN 60898	10	Plug-in MCB 3kA 10A C-curve	S91-C10
Rated short circuit capacity I_{cn}	16	Plug-in MCB 3kA 16A C-curve	S91-C16
3kA	20	Plug-in MCB 3kA 20A C-curve	S91-C20
Voltage range	25	Plug-in MCB 3kA 25A C-curve	S91-C25
1P : 230 – 240 V	32	Plug-in MCB 3kA 32A C-curve	S91-C32
	40	Plug-in MCB 3kA 40A C-curve	S91-C40
	Additional features		
	Ideally suited for retro-fitting into fuse bases in domestic applications		



Miniature circuit breakers (MCB) 6kA home range

Standard	Rating (A)	Description	Order code 1 Pole	Order code 3 Pole
AS/NZS 60898,	6	MCB, 6kA, 6A, C-curve	SH201C6	SH203C6
IEC/EN 60898	8	MCB, 6kA, 8A, C-curve	SH201C8	SH203C8
Rated short circuit capacity I_{cn}	10	MCB, 6kA, 10A, C-curve	SH201C10	SH203C10
6kA	13	MCB, 6kA, 13A, C-curve	SH201C13	SH203C13
Voltage range	16	MCB, 6kA, 16A, C-curve	SH201C16	SH203C16
1P : 230 – 240 V	20	MCB, 6kA, 20A, C-curve	SH201C20	SH203C20
3P : 230/415 V	25	MCB, 6kA, 25A, C-curve	SH201C25	SH203C25
	32	MCB, 6kA, 32A, C-curve	SH201C32	SH203C32
	40	MCB, 6kA, 40A, C-curve	SH201C40	SH203C40
	50	MCB, 6kA, 50A, C-curve	SH201C50	SH203C50
	63	MCB, 6kA, 63A, C-curve	SH201C63	SH203C63
	Additional features			
	Ideally suited for domestic and light commercial applications in consumer units			

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Miniature circuit breakers

SN200

Compact 1P+N miniature circuit breakers (MCB) 6kA

- Compact MCB providing overload and short circuit protection with a switched neutral



SN 201

Compact 1P+N miniature circuit breakers (MCB) 6kA

Standard	Rating (A)	Description	Poles	Order code 1 Pole
AS/NZS 60898,	2	MCB 6kA 2A C-curve	1P+N	SN201C2
IEC/EN 60898	4	MCB 6kA 4A C-curve	1P+N	SN201C4
Rated short circuit capacity I_{cn}	6	MCB 6kA 6A C-curve	1P+N	SN201C6
6kA	10	MCB 6kA 10A C-curve	1P+N	SN201C10
(10kA model available in request)	13	MCB 6kA 13A C-curve	1P+N	SN201C13
Voltage range	16	MCB 6kA 16A C-curve	1P+N	SN201C16
1P: 230 – 240 V AC, 60 V DC	20	MCB 6kA 20A C-curve	1P+N	SN201C20
1P+N: 230 – 240 V AC, 125 V DC	25	MCB 6kA 25A C-curve	1P+N	SN201C25
	32	MCB 6kA 32A C-curve	1P+N	SN201C32
	40	MCB 6kA 40A C-curve	1P+N	SN201C40

B and D curves available on request

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Miniature circuit breakers

S200



S 201 S 202 S 203

Miniature circuit breakers (MCB) 6kA commercial and industrial range

- Protection against overloads and short circuits
- Ideally suited for commercial and industrial applications in consumer units, load centres and distribution boards
- Suits the range of System pro M accessories

Miniature circuit breakers (MCB) 6kA commercial and industrial range

Standard
AS/NZS 60898,
IEC/EN 60898,
AS/NZS60947,
IEC/EN60947
Rated short circuit capacity I_{cn}
6kA
Voltage range
1P: 230 – 240 V AC, 72 V DC
(DC rating to 63 A only)
2 – 4P: 440 V AC, 125 V DC
(DC rating to 63 A only)

C-Curve Rating (A)	Description	1 Pole	2 Pole	3 Pole	Order code 4 Pole
0.5	MCB 6kA 0.5A C-curve	S201C0.5	S202C0.5	S203C0.5	S204C0.5
1	MCB 6kA 1A C-curve	S201C1	S202C1	S203C1	S204C1
1.6	MCB 6kA 1.6A C-curve	S201C1.6	S202C1.6	S203C1.6	S204C1.6
2	MCB 6kA 2A C-curve	S201C2	S202C2	S203C2	S204C2
3	MCB 6kA 3A C-curve	S201C3	S202C3	S203C3	S204C3
4	MCB 6kA 4A C-curve	S201C4	S202C4	S203C4	S204C4
6	MCB 6kA 6A C-curve	S201C6	S202C6	S203C6	S204C6
8	MCB 6kA 8A C-curve	S201C8	S202C8	S203C8	S204C8
10	MCB 6kA 10A C-curve	S201C10	S202C10	S203C10	S204C10
13	MCB 6kA 13A C-curve	S201C13	S202C13	S203C13	S204C13
16	MCB 6kA 16A C-curve	S201C16	S202C16	S203C16	S204C16
20	MCB 6kA 20A C-curve	S201C20	S202C20	S203C20	S204C20
25	MCB 6kA 25A C-curve	S201C25	S202C25	S203C25	S204C25
32	MCB 6kA 32A C-curve	S201C32	S202C32	S203C32	S204C32
40	MCB 6kA 40A C-curve	S201C40	S202C40	S203C40	S204C40
50	MCB 6kA 50A C-curve	S201C50	S202C50	S203C50	S204C50
63	MCB 6kA 63A C-curve	S201C63	S202C63	S203C63	S204C63
80	MCB 6kA 80A C-curve	S201C80	S202C80	S203C80	S204C80
100	MCB 6kA 100A C-curve	S201C100	S202C100	S203C100	S204C100

B, K and Z curves available on request

D-Curve Rating (A)	Description	1 Pole	2 Pole	3 Pole	Order code 4 Pole
0.5	MCB 6kA 0.5A D-curve	S201D0.5	S202D0.5	S203D0.5	S204D0.5
1	MCB 6kA 1A D-curve	S201D1	S202D1	S203D1	S204D1
1.6	MCB 6kA 1.6A D-curve	S201D1.6	S202D1.6	S203D1.6	S204D1.6
2	MCB 6kA 2A D-curve	S201D2	S202D2	S203D2	S204D2
3	MCB 6kA 3A D-curve	S201D3	S202D3	S203D3	S204D3
4	MCB 6kA 4A D-curve	S201D4	S202D4	S203D4	S204D4
6	MCB 6kA 6A D-curve	S201D6	S202D6	S203D6	S204D6
8	MCB 6kA 8A D-curve	S201D8	S202D8	S203D8	S204D8
10	MCB 6kA 10A D-curve	S201D10	S202D10	S203D10	S204D10
13	MCB 6kA 13A D-curve	S201D13	S202D13	S203D13	S204D13
16	MCB 6kA 16A D-curve	S201D16	S202D16	S203D16	S204D16
20	MCB 6kA 20A D-curve	S201D20	S202D20	S203D20	S204D20
25	MCB 6kA 25A D-curve	S201D25	S202D25	S203D25	S204D25
32	MCB 6kA 32A D-curve	S201D32	S202D32	S203D32	S204D32
40	MCB 6kA 40A D-curve	S201D40	S202D40	S203D40	S204D40
50	MCB 6kA 50A D-curve	S201D50	S202D50	S203D50	S204D50
63	MCB 6kA 63A D-curve	S201D63	S202D63	S203D63	S204D63

B, K and Z curves available on request

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Miniature circuit breakers

S200M


S 201 M


S 202 M


S 203 M

Miniature circuit breakers (MCB) 10kA commercial and industrial range

- Protection against overloads and short circuits
- Ideally suited for commercial and industrial applications in consumer units, load centres and distribution boards
- Suits the range of System pro M accessories

Miniature circuit breakers (MCB) 10kA commercial and industrial range

Standard
AS/NZS 60898,
IEC/EN 60898,
AS/NZS60947,
IEC/EN60947
Rated short circuit capacity I_{cn}
10kA
Voltage range
1P: 230 – 240 V AC, 72 V DC
2 – 4P: 440 V AC, 125 V DC

C-Curve Rating (A)	Description	1 Pole	2 Pole	3 Pole	Order code 4 Pole
0.5	MCB 10kA 0.5A C-curve	S201MC0.5	S202MC0.5	S203MC0.5	S204MC0.5
1	MCB 10kA 1A C-curve	S201MC1	S202MC1	S203MC1	S204MC1
1.6	MCB 10kA 1.6A C-curve	S201MC1.6	S202MC1.6	S203MC1.6	S204MC1.6
2	MCB 10kA 2A C-curve	S201MC2	S202MC2	S203MC2	S204MC2
3	MCB 10kA 3A C-curve	S201MC3	S202MC3	S203MC3	S204MC3
4	MCB 10kA 4A C-curve	S201MC4	S202MC4	S203MC4	S204MC4
6	MCB 10kA 6A C-curve	S201MC6	S202MC6	S203MC6	S204MC6
8	MCB 10kA 8A C-curve	S201MC8	S202MC8	S203MC8	S204MC8
10	MCB 10kA 10A C-curve	S201MC10	S202MC10	S203MC10	S204MC10
13	MCB 10kA 13A C-curve	S201MC13	S202MC13	S203MC13	S204MC13
16	MCB 10kA 16A C-curve	S201MC16	S202MC16	S203MC16	S204MC16
20	MCB 10kA 20A C-curve	S201MC20	S202MC20	S203MC20	S204MC20
25	MCB 10kA 25A C-curve	S201MC25	S202MC25	S203MC25	S204MC25
32	MCB 10kA 32A C-curve	S201MC32	S202MC32	S203MC32	S204MC32
40	MCB 10kA 40A C-curve	S201MC40	S202MC40	S203MC40	S204MC40
50	MCB 10kA 50A C-curve	S201MC50	S202MC50	S203MC50	S204MC50
63	MCB 10kA 63A C-curve	S201MC63	S202MC63	S203MC63	S204MC63

B, K and Z curves available on request

D-Curve Rating (A)	Description	1 Pole	2 Pole	3 Pole	Order code 4 Pole
0.5	MCB 10kA 0.5A D-curve	S201MD0.5	S202MD0.5	S203MD0.5	S204MD0.5
1	MCB 10kA 1A D-curve	S201MD1	S202MD1	S203MD1	S204MD1
1.6	MCB 10kA 1.6A D-curve	S201MD1.6	S202MD1.6	S203MD1.6	S204MD1.6
2	MCB 10kA 2A D-curve	S201MD2	S202MD2	S203MD2	S204MD2
3	MCB 10kA 3A D-curve	S201MD3	S202MD3	S203MD3	S204MD3
4	MCB 10kA 4A D-curve	S201MD4	S202MD4	S203MD4	S204MD4
6	MCB 10kA 6A D-curve	S201MD6	S202MD6	S203MD6	S204MD6
8	MCB 10kA 8A D-curve	S201MD8	S202MD8	S203MD8	S204MD8
10	MCB 10kA 10A D-curve	S201MD10	S202MD10	S203MD10	S204MD10
13	MCB 10kA 13A D-curve	S201MD13	S202MD13	S203MD13	S204MD13
16	MCB 10kA 16A D-curve	S201MD16	S202MD16	S203MD16	S204MD16
20	MCB 10kA 20A D-curve	S201MD20	S202MD20	S203MD20	S204MD20
25	MCB 10kA 25A D-curve	S201MD25	S202MD25	S203MD25	S204MD25
32	MCB 10kA 32A D-curve	S201MD32	S202MD32	S203MD32	S204MD32
40	MCB 10kA 40A D-curve	S201MD40	S202MD40	S203MD40	S204MD40
50	MCB 10kA 50A D-curve	S201MD50	S202MD50	S203MD50	S204MD50
63	MCB 10kA 63A D-curve	S201MD63	S202MD63	S203MD63	S204MD63

B, K and Z curves available on request

Miniature circuit breakers

S200P



S 201 P S 202 P S 203 P

Miniature circuit breakers (MCB) 15kA commercial and industrial range

- Protection against overloads and short circuits
- Ideally suited for commercial and industrial applications in consumer units, load centres and distribution boards
- Suits the range of System pro M accessories

Miniature circuit breakers (MCB) 15kA commercial and industrial range

Standard	C-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole	4 Pole
AS/NZS 60898,	0.5	MCB 25kA 0.5A C-curve	S201PC0.5	S202PC0.5	S203PC0.5	S204PC0.5
IEC/EN 60898,	1	MCB 25kA 1A C-curve	S201PC1	S202PC1	S203PC1	S204PC1
AS/NZS60947,	1.6	MCB 25kA 1.6A C-curve	S201PC1.6	S202PC1.6	S203PC1.6	S204PC1.6
IEC/EN60947	2	MCB 25kA 2A C-curve	S201PC2	S202PC2	S203PC2	S204PC2
Rated short circuit capacity I_{cn}	3	MCB 25kA 3A C-curve	S201PC3	S202PC3	S203PC3	S204PC3
25kA (0.5A to 25A)	4	MCB 25kA 4A C-curve	S201PC4	S202PC4	S203PC4	S204PC4
15kA (32A to 63A)	6	MCB 25kA 6A C-curve	S201PC6	S202PC6	S203PC6	S204PC6
Voltage range	8	MCB 25kA 8A C-curve	S201PC8	S202PC8	S203PC8	S204PC8
1P: 230–240V AC, 72V DC	10	MCB 25kA 10A C-curve	S201PC10	S202PC10	S203PC10	S204PC10
2–4P: 230/400V AC,	13	MCB 25kA 13A C-curve	S201PC13	S202PC13	S203PC13	S204PC13
240/415V AC, 125V DC	16	MCB 25kA 16A C-curve	S201PC16	S202PC16	S203PC16	S204PC16
	20	MCB 25kA 20A C-curve	S201PC20	S202PC20	S203PC20	S204PC20
	25	MCB 25kA 25A C-curve	S201PC25	S202PC25	S203PC25	S204PC25
	32	MCB 15kA 32A C-curve	S201PC32	S202PC32	S203PC32	S204PC32
	40	MCB 15kA 40A C-curve	S201PC40	S202PC40	S203PC40	S204PC40
	50	MCB 15kA 50A C-curve	S201PC50	S202PC50	S203PC50	S204PC50
	63	MCB 15kA 63A C-curve	S201PC63	S202PC63	S203PC63	S204PC63

B, K , D and Z curves available on request

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Miniature circuit breakers

S200MUC


S 201 M UC


S 202 M UC


S 203 M UC

Miniature circuit breakers (MCB) 10kA for DC applications

- Protection against overloads and short circuits in DC applications
- Suits the range of System pro M accessories

(For DC applications, please note the polarity of the device)

Miniature circuit breakers (MCB) 10kA for DC applications

Standard	K-Curve Rating (A)	Description	1 Pole	2 Pole	3 Pole	Order code 4 Pole
AS/NZS 60898,	0.5	MCB DC 10kA 0.5A K-curve	S201MK0.5UC	S202MK0.5UC	S203MK0.5UC	S204MK0.5UC
IEC/EN 60898,	1	MCB DC 10kA 1A K-curve	S201MK1UC	S202MK1UC	S203MK1UC	S204MK1UC
AS/NZS60947,	1.6	MCB DC 10kA 1.6A K-curve	S201MK1.6UC	S202MK1.6UC	S203MK1.6UC	S204MK1.6UC
IEC/EN60947	2	MCB DC 10kA 2A K-curve	S201MK2UC	S202MK2UC	S203MK2UC	S204MK2UC
Rated short circuit capacity I_{cn}	3	MCB DC 10kA 3A K-curve	S201MK3UC	S202MK3UC	S203MK3UC	S204MK3UC
10kA	4	MCB DC 10kA 4A K-curve	S201MK4UC	S202MK4UC	S203MK4UC	S204MK4UC
Voltage range	6	MCB DC 10kA 6A K-curve	S201MK6UC	S202MK6UC	S203MK6UC	S204MK6UC
1P: 230 V AC, 220 V DC	8	MCB DC 10kA 8A K-curve	S201MK8UC	S202MK8UC	S203MK8UC	S204MK8UC
2P – 4P: 440 V AC, 440 V DC	10	MCB DC 10kA 10A K-curve	S201MK10UC	S202MK10UC	S203MK10UC	S204MK10UC
	13	MCB DC 10kA 13A K-curve	S201MK13UC	S202MK13UC	S203MK13UC	S204MK13UC
	16	MCB DC 10kA 16A K-curve	S201MK16UC	S202MK16UC	S203MK16UC	S204MK16UC
	20	MCB DC 10kA 20A K-curve	S201MK20UC	S202MK20UC	S203MK20UC	S204MK20UC
	25	MCB DC 10kA 25A K-curve	S201MK25UC	S202MK25UC	S203MK25UC	S204MK25UC

Miniature circuit breakers

S800 series technical features



S800

			S800S	S803S-KM
General data	Standards		IEC 60947-2,EN 60898-1	IEC / EN 60947-2
	Poles		1 … 4	3
	Tripping characteristics		B, C, D, K,	KM
	Rated current I_e	A	6 … 125	20 … 80
	Rated frequency f	Hz	50 / 60 Hz	50/60 Hz
	Rated insulation voltage U_i acc. to IEC/ EN 60664-1	V	690 V AC	690 V AC
	Rated impulse withstand voltage U_{imp} (1.2/50µs)	kV	8	8
	Overvoltage category		IV	IV
	Pollution degree		3	3
	Suitability for isolation		yes	yes
Data acc. to IEC/EN 60898-1	Rated operational voltage U_e	V	230/400V AC	–
	Min. operating voltage	V	12V AC	–
	Rated short-circuit capacity I_{cn}	kA	25kA (10 ... 80A)	–
	Energy limiting class		-	–
	Reference temperature for tripping characteristics	°C	B, C, D: 30° C	
	Electrical and Mechanical Endurance	ops.	10 … 32A: 10'000 electrical / mechanical 40 … 100A: 6'000 electrical / 4'000 mewchanical 125A: 4'000 electrical / 6'000 mechanical	–
	Service short-circuit capacity I_{cs}	kA	12.5kA (10 ... 80A)	–
Data acc. to IEC/EN 60947-2	Rated operational voltage U_e	V	400/690 V AC 1-pole: 125 V DC; 2-pole: 250 V DC; 3-pole: 375 V DC; 4-pole: 500 V DC	690 V AC
	Min. operating voltage	V	12 V AC	12 V AC
	Rated ultimate short-circuit capacity I_{cu}	kA	AC 240/415 V = 50kA	AC 240/415 V = 50kA
			AC 254/440 V = 30kA	AC 254/440 V = 30kA
			AC 400/690 V (up to 80A) = 6kA	AC 400/690 V (up to 80A) = 6kA
			AC 400/690 V (100 … 125A) = 4.5kA	AC 400/690 V (100 … 125A) = 4.5kA
			DC 125 V (1-pole) = 30kA	DC 375 V (3-pole) = 30kA
			DC 250 V (2-pole) = 30kA	
			DC 375 V (3-pole) = 30kA	
			DC 500 V (4-pole) = 30kA	
	Rated service short-circuit capacity I_{cs}	kA	240/415 V = 40kA	
			254/440 V (up to 80A) = 22.5kA	
			254/440 V (100 … 125A) = 15kA	
			400/690 V (up to 80A) = 4kA	
			400/690 V (100 … 125A) = 3kA	
			DC 125 V (1-pole) = 30kA	DC 375V (3-pole) = 30kA
			DC 250 V (2-pole) = 30kA	
			DC 375 V (3-pole) = 30kA	
			DC 500 V (4-pole) = 30kA	
	Dielectric test voltage	kV	acc. to standard	acc. to standard
	Reference temperature for tripping characteristics	°C	B, C, D: 30° K: 40° C	only magnetic release
	Electrical and Mechanical Endurance	ops.	6 … 32A: 10'000 electrical / mechanical 40 … 100A: 6'000 electrical / 4'000 mechanical 125A: 4'000 electrical / 6'000 mechanical	20 … 32A: 10'000 electrical / mechanical 40 … 80A: 6'000 electrical / 4'000 mechanical

1) (DC)<= 100 A; S800-D125 only IEC 60947-2

S800S-UC	S800N	S800C	S800B
IEC / EN 60947-2	IEC 60947-2,EN 60898-1	EN 60947-2, EN 60898-1	IEC 60947-2, EN60898-1
1 … 4	1 … 4	1 … 4	1 … 4
UCB, UCK	B,C,D	B, C, D, K	B, C, D, K
10 … 125	6 … 125	10 … 125	32 … 125 (Char. B, C) 32 … 100 (Char. D, K)
DC	50/60 Hz	50/60 Hz	
1000 V DC	690 V AC	500 V AC	500 V AC
8	8	8	6
IV	IV	IV	III
1- and 2-pole: 3 3- and 4-pole: 2	3	3	3
yes	yes	yes	yes
–	230/400V AC	230/400V AC	230/400 V AC
	12V AC	12V AC	–
–	20kA (10 … 80A)	15kA	10kA
–	-	-	–
	B, C, D: 30° C	B, C, D: 30° C	
–	10 … 32A: 10'000 electrical / mechanical 40 … 100A: 6'000 electrical / 4'000 mechanical 125A: 4'000 electrical / 6'000 mechanical	10 … 32A: 10'000 electrical / mechanical 40 … 100A: 6'000 electrical / 4'000 mechanical 125A: 4'000 electrical / 6'000 mechanical	–
–	10kA (10 … 80A)	7.5kA (B, C, D)	–
1-pole: 250V DC 2-pole: 500V DC 3- and 4-pole 750V DC (63-125A) 1000VDC (10-50A)	400/690V AC 1-pole: 125V DC; 2-pole: 250V DC; 3-pole: 375V DC; 4-pole: 500V DC	254/400V AC 1-pole: 125V DC; 2-pole: 250V DC; 3-pole: 375V DC; 4-pole: 500V DC	230/400V AC
-	12V AC	12V AC	12V AC
DC 250V (1-pole) = 50kA	AC240/415V = 36kA	AC 240/415V = 25kA	230/400V = 16kA
DC 500V (2-pole) = 50kA	AC 254/440V = 20kA	AC 254/440V = 15kA	
DC 750V (3-pole) = 50kA	AC 400/690V = 4.5kA		
DC 750V (4-pole) = 50kA			
	DC 125V (1-pole) = 20kA	DC 125V (1-pole) = 10kA	DC 75V (1-pole) = 10kA
	DC 250V (2-pole) = 20kA	DC 250V (2-pole) = 10kA	DC 150V (2-pole) = 10kA
	DC 375V (3-pole) = 20kA	DC 375V (3-pole) = 10kA	DC 225V (3-pole) = 10kA
	DC 500V (4-pole) = 20kA	DC 500V (4-pole) = 10kA	DC 300V (4-pole) = 10kA
DC 250V (1-pole) = 50kA	240/415V = 30kA	240/415V = 18kA	230/400V = 10kA
DC 500V (2-pole) = 50kA	254/440V (6 … 80 A) = 15kA	254/440V = 10kA	
DC 750V (3-pole) = 50kA	254/440V (100 … 125A) = 10kA		
DC 750V (4-pole) = 50kA	400/690V = 3kA		
	DC 125V (1-pole) = 20kA	DC 125V (1-pole) = 10kA	
	DC 250V (2-pole) = 20kA	DC 250V (2-pole) = 10kA	
	DC 375V (3-pole) = 20kA	DC 375V (3-pole) = 10kA	
	DC 500V (4-pole) = 20kA	DC 500V (4-pole) = 10kA	
acc. to standard	acc. to standard	acc. to standard	acc. to standard
UCB: 30°C; UCK: 40° C	B, C, D: 30°	B, C, D: 30° K: 40° C	B, C, D: 30° K: 40° C
10 … 100A: 1500 electric; 8500 mechanic 125A: 1000 electric, 7000 mechanic	6 … 32A: 10'000 electrical / mechanical 40 … 100A: 6'000 electrical / 4'000 mechanical 125A: 4'000 electrical / 6'000 mechanical	10 … 32A: 10'000 electrical / mechanical 40 … 100A: 6'000 electrical / 4'000 mechanical 125A: 4'000 electrical / 6'000 mechanical	32 … 100A: 1500 electric; 8500 mechanic 125A: 1000 electric, 7000 mechanic

▸ Table continued on next page

Miniature circuit breakers

S800 series technical features



S800

▶ Table continued from previous page

			S800S	S803S-KM
Mechanical data	Housing		Material group I, RAL 7035	
	Toggle		black, lockable	
	Classification acc. to NF F 126-101, NF F 16-102		I3, F2	
	Protection degree acc. to EN 60529		IP20; IP40 (actuating end only)	
	Mechanical endurance	ops.	10'000 cycles	
	Shock resistance acc. to IEC/EN 60068-2-30		IEC 61373 Cat. 1 Class B, 5g / 30ms acc. To IEC 60068-27 Test Ea	
	Vibration resistance acc. to IEC/EN 60068-2-6		IEC 60068-2-6 Test Fc; 2 - 13.2Hz /1mm 13.2 - 100Hz / 0.7g with load 100% x Ie	
	Environmental conditions (damp heat) acc. to IEC/EN 60068-2-30	°C/ RH	12 + 12 cycle with 55°C / 90-96% and 25% / 95-100%	
	Environmental conditions (dry heat) acc. to IEC/EN 60068-2-2 Test B	°C/ RH	16 hours 55°C / 2 hours 70°C with damp heat 55%	
	Ambient temperature	°C	-25... + 60	
	Storage temperature	°C	-40... + 70	
Installation	Terminal		Failsafe cage or ringlug terminal	Failsafe cage or ringlug terminal
	Stranded cross-section of conductors (top / bottom)	mm^2	1 ... 50	1 ... 50
		AWG		
	Flexible cross-section of conductors (top /bottom)	mm^2	1 ... 70	1 ... 70
		AWG		
	Tightening torque	Nm	3,5	
		in-lbs.	31	
	Screwdriver		POZI 2	
	Mounting		EN 60715	
	Mounting position		any	
	Supply		any	
Dimensions and weight	Pole dimensions (H x L x W)	mm	82.5 x 95 x 26.5	
	Pole weight	g	ca. 245 g	ca. 740 g
Combination with aux. elements	Auxiliary contact		Yes	
	Combined auxiliary- / signal contact		Yes	
	Shunt trip		Yes	
	Undervoltage release		Yes	
	Shunt open release		Yes	
	Motor operating device		Yes	

	S800S-UC	S800N	S800C	S800B
				–
				–
				–
				–
	Failsafe cage or ringlug terminal	Failsafe cage or ringlug terminal	Failsafe cage or ringlug terminal	Failsafe cage or ringlug terminal
	1 … 50	1 … 50	1 … 50	1 … 50
	1 … 70	1 … 70	1 … 70	1 … 70
	ca. 245 g	ca. 245 g	ca. 245 g	ca. 245 g

High performance miniature circuit breakers – 27mm pole width

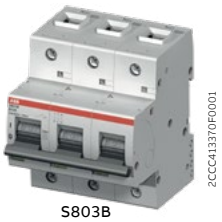
S800B – S800C



S801B



S802B



S803B

S800B – S800C
Miniature circuit breaker (MCB) 16kA and 25kA commercial and industrial range
The ABB S800B and S800C range of high performance miniature circuit breakers are designed to provide protection and control of the circuit against overloads and short circuits. Ideally suited for commercial and industrial applications.

S800B – Miniature circuit breaker (MCB) 16kA commercial and industrial range

Standard	C-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole	4 Pole
AS/NZS60947,	32	MCB 16kA 32A C-curve	S801BC32	S802BC32	S803BC32	S804BC32
IEC/EN60947,	40	MCB 16kA 40A C-curve	S801BC40	S802BC40	S803BC40	S804BC40
EN60898-1	50	MCB 16kA 50A C-curve	S801BC50	S802BC50	S803BC50	S804BC50
Rated short circuit capacity I_{cu}	63	MCB 16kA 63A C-curve	S801BC63	S802BC63	S803BC63	S804BC63
16kA	80	MCB 16kA 80A C-curve	S801BC80	S802BC80	S803BC80	S804BC80
Voltage range	100	MCB 16kA 100A C-curve	S801BC100	S802BC100	S803BC100	S804BC100
1P: 230 V AC	125	MCB 16kA 125A C-curve	S801BC125	S802BC125	S803BC125	S804BC125
2–4P: 230 / 400 V AC						

B, D and K curves available on request



S801C



S802C



S803C

S800C – Miniature circuit breaker (MCB) 25kA commercial and industrial range

Standard	C-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole	4 Pole
AS/NZS60947,	10	MCB 25kA 10A C-curve	S801CC10	S802CC10	S803CC10	S804CC10
IEC/EN60947	13	MCB 25kA 13A C-curve	S801CC13	S802CC13	S803CC13	S804CC13
Rated short circuit capacity I_{cu}	16	MCB 25kA 16A C-curve	S801CC16	S802CC16	S803CC16	S804CC16
25kA	20	MCB 25kA 20A C-curve	S801CC20	S802CC20	S803CC20	S804CC20
Voltage range	25	MCB 25kA 25A C-curve	S801CC25	S802CC25	S803CC25	S804CC25
1P: 125 V DC,	32	MCB 25kA 32A C-curve	S801CC32	S802CC32	S803CC32	S804CC32
2P: 250 V DC,	40	MCB 25kA 40A C-curve	S801CC40	S802CC40	S803CC40	S804CC40
3P: 375 V DC,	50	MCB 25kA 50A C-curve	S801CC50	S802CC50	S803CC50	S804CC50
4P: 500 V DC	63	MCB 25kA 63A C-curve	S801CC63	S802CC63	S803CC63	S804CC63
	80	MCB 25kA 80A C-curve	S801CC80	S802CC80	S803CC80	S804CC80
	100	MCB 25kA 100A C-curve	S801CC100	S802CC100	S803CC100	S804CC100
	125	MCB 25kA 125A C-curve	S801CC125	S802CC125	S803CC125	S804CC125
	Additional features					
	440V rated for industrial and mining applications.domestic applications					

B, D and K curves available on request

STOCK | INDENT

High performance miniature circuit breakers – 27mm pole width

S800N – S800S



S801N



S802N



S803N

S800N – S800S

Miniature circuit breaker (MCB) 36kA and 50kA commercial and industrial range

The ABB S800N and S800S range of high performance miniature circuit breakers are designed to provide protection and control of the circuit against overloads and short circuits. Ideally suited for commercial and industrial applications. 690V rated for industrial and mining applications.

S800N – Miniature circuit breaker (MCB) 36kA commercial and industrial range

Standard	C-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole	4 Pole
AS/NZS60947,	6	MCB 36kA 6A C-curve	S801NC6	S802NC6	S803NC6	S804NC6
IEC/EN60947	10	MCB 36kA 10A C-curve	S801NC10	S802NC10	S803NC10	S804NC10
Rated short circuit capacity I_{cu}	13	MCB 36kA 13A C-curve	S801NC13	S802NC13	S803NC13	S804NC13
36kA	16	MCB 36kA 16A C-curve	S801NC16	S802NC16	S803NC16	S804NC16
Voltage range	20	MCB 36kA 20A C-curve	S801NC20	S802NC20	S803NC20	S804NC20
1P: 125 V DC,	25	MCB 36kA 25A C-curve	S801NC25	S802NC25	S803NC25	S804NC25
2P: 250 V DC,	32	MCB 36kA 32A C-curve	S801NC32	S802NC32	S803NC32	S804NC32
3P: 375 V DC,	40	MCB 36kA 40A C-curve	S801NC40	S802NC40	S803NC40	S804NC40
4P: 500 V DC	50	MCB 36kA 50A C-curve	S801NC50	S802NC50	S803NC50	S804NC50
	63	MCB 36kA 63A C-curve	S801NC63	S802NC63	S803NC63	S804NC63
	80	MCB 36kA 80A C-curve	S801NC80	S802NC80	S803NC80	S804NC80
	100	MCB 36kA 100A C-curve	S801NC100	S802NC100	S803NC100	S804NC100
	125	MCB 36kA 125A C-curve	S801NC125	S802NC125	S803NC125	S804NC125

B, D and K curves available on request



S801S



S802S



S803S

S800S – Miniature circuit breaker (MCB) 50kA commercial and industrial range

Standard	C-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole	4 Pole
AS/NZS60947,	6	MCB 50kA 6A C-curve	S801SC6	S802SC6	S803SC6	S804SC6
IEC/EN60947	10	MCB 50kA 10A C-curve	S801SC10	S802SC10	S803SC10	S804SC10
Rated short circuit capacity I_{cu}	13	MCB 50kA 13A C-curve	S801SC13	S802SC13	S803SC13	S804SC13
50kA	16	MCB 50kA 16A C-curve	S801SC16	S802SC16	S803SC16	S804SC16
Voltage range	20	MCB 50kA 20A C-curve	S801SC20	S802SC20	S803SC20	S804SC20
400/690 V AC	25	MCB 50kA 25A C-curve	S801SC25	S802SC25	S803SC25	S804SC25
1P: 125 V DC,	32	MCB 50kA 32A C-curve	S801SC32	S802SC32	S803SC32	S804SC32
2P: 250 V DC,	40	MCB 50kA 40A C-curve	S801SC40	S802SC40	S803SC40	S804SC40
3P: 375 V DC,	50	MCB 50kA 50A C-curve	S801SC50	S802SC50	S803SC50	S804SC50
4P: 500 V DC	63	MCB 50kA 63A C-curve	S801SC63	S802SC63	S803SC63	S804SC63
	80	MCB 50kA 80A C-curve	S801SC80	S802SC80	S803SC80	S804SC80
	100	MCB 50kA 100A C-curve	S801SC100	S802SC100	S803SC100	S804SC100
	125	MCB 50kA 125A C-curve	S801SC125	S802SC125	S803SC125	S804SC125

B, D and K curves available on request. Short circuit limiter to increase capacity to 100kA – Refer to page 90 in the Auxiliary elements and accessories section of this catalogue.

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Solar photovoltaic string protection miniature circuit breakers – 27mm pole width

S800PVSP MCB and S800 PVSD Isolator



S802PVSP

Miniature circuit breaker (MCB) 5kA photovoltaic string protection range - non polarized

The ABB S800PVS range of high performance miniature circuit breakers are designed to provide protection and control of photovoltaic strings against overloads, short circuits and reverse currents. The S800PVS can be an ideal replacement for fuses due to simple string failure identification and signalisation.

Miniature circuit breaker (MCB) 5kA photovoltaic string protection range - non polarized

Standard	C-Curve Rating (A)	Description	Order code 2 Pole	Order code 4 Pole
AS/NZS60947,	6	MCB 6A for solar PV strings	S802PVSP6	S804PVSP6
IEC/EN60947	8	MCB 8A for solar PV strings	S802PVSP8	S804PVS8
Rated short circuit capacity I_{cu}	10	MCB 10A for solar PV strings	S802PVSP10	S804PVSP10
5kA	13	MCB 13A for solar PV strings	S802PVSP13	S804PVSP13
Voltage range	16	MCB 16A for solar PV strings	S802PVSP16	S804PVSP16
2P: 10A to 125A – 800 V DC	20	MCB 20A for solar PV strings	S802PVSP20	S804PVSP20
4P: 10A to 125A – 1500 V DC	25	MCB 25A for solar PV strings	S802PVSP25	S804PVSP25
	32	MCB 32A for solar PV strings	S802PVSP32	S804PVSP32
	40	MCB 40A for solar PV strings	S802PVSP40	S804PVSP40
	50	MCB 50A for solar PV strings	S802PVSP50	S804PVSP50
	63	MCB 63A for solar PV strings	S802PVSP63	S804PVSP63
	80	MCB 80A for solar PV strings	S802PVSP80	S804PVSP80
	100	MCB 100A for solar PV strings	S802PVSP100	S804PVSP100
	125	MCB 125A for solar PV strings	S802PVSP125	S804PVSP125

3 pole available on request



S802PVSD

DIN rail isolator 1.5 kA photovoltaic string isolator range - non polarized

The ABB S800PVSD range of high performance isolators are designed to provide control of photovoltaic strings.

DIN rail isolator 1.5 kA photovoltaic string isolator range - non polarized

Standard	Rating (A)	Description	Order code 2 Pole	Order code 4 Pole
IEC 60947-3 and Annex D	32	Isolator 32A for solar strings	S802PVSD32	S804PVSD32
Rated short circuit capacity I_{cu}	63	Isolator 63A for solar strings	S802PVSD63	S804PVSD63
1.5kA	125	Isolator 125A for solar strings	S802PVSD125	S804PVSD125
Voltage range				
2P: 800 V DC				
4P: 1500 V DC				

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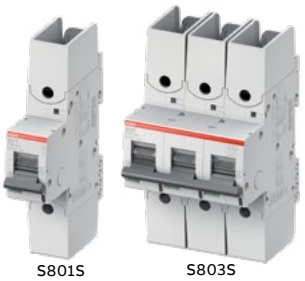
1000V miniature circuit breakers – 27mm pole width

S800HV



S801S S803S

Miniature circuit breaker (MCB) for 1000 V applications
The ABB S800HVK range of high performance miniature circuit breakers are designed to provide protection and control of the circuit against overloads and short circuits in 1000 V AC applications. Ideally suited for industrial and mining applications.

Miniature circuit breaker (MCB) for 1000 V applications

Standard	I_{cu} (kA)	K-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole
AS/NZS60947,	4	6	MCB, 4kA, 6A for 1000 V AC	S801HVK6	S802HVK6	S803HVK6
IEC/EN60947	4	8	MCB, 4kA, 8A for 1000 V AC	S801HVK8	S802HVK8	S803HVK8
Rated short circuit capacity I_{cu}	4	10	MCB, 4kA, 10A for 1000 V AC	S801HVK10	S802HVK10	S803HVK10
4kA (6–63A)	4	13	MCB, 4kA, 13A for 1000 V AC	S801HVK13	S802HVK13	S803HVK13
3kA (80–100A)	4	16	MCB, 4kA, 16A for 1000 V AC	S801HVK16	S802HVK16	S803HVK16
Voltage range	4	20	MCB, 4kA, 20A for 1000 V AC	S801HVK20	S802HVK20	S803HVK20
580/1000 V	4	24	MCB, 4kA, 25A for 1000 V AC	S801HVK25	S802HVK25	S803HVK25
	4	32	MCB, 4kA, 32A for 1000 V AC	S801HVK32	S802HVK32	S803HVK32
	4	40	MCB, 4kA, 40A for 1000 V AC	S801HVK40	S802HVK40	S803HVK40
	4	50	MCB, 4kA, 50A for 1000 V AC	S801HVK50	S802HVK50	S803HVK50
	4	63	MCB, 4kA, 63A for 1000 V AC	S801HVK63	S802HVK63	S803HVK63
	3	80	MCB, 4kA, 80A for 1000 V AC	S801HVK80	S802HVK80	S803HVK80
	3	100	MCB, 4kA, 100A for 1000 V AC	S801HVK100	S802HVK100	S803HVK100
	3	125	MCB, 4kA, 125A for 1000 V AC	S801HVK125	S802HVK125	S803HVK125



Self resetting short circuit current limiter

- For higher short circuit capacity applications, a self resetting short circuit limiter S803HV-SCL-SR can be installed upstream to the S803HVK
- Ultimate short circuit breaking capacity (I_{cu}) can be increased to 15kA
- S803HV-SCL-SR can be used either for line or group protection

Poles	Current Rating (A)	Description	Order code
3	32	Short circuit current limiter 100kA 3P 32A	S803HV-SCL32-SR
3	63	Short circuit current limiter 100kA 3P 63A	S803HV-SCL63-SR
3	125	Short circuit current limiter 100kA 3P 100A	S803HV-SCL100-SR

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Residual current devices RCD, RCCB, RCBO

52 **Functions and classification criteria for RCDs**

53 **Quick selection of RCDs for household and industrial applications**

57 **Residual current circuit breaker (RCCB)**

62 **RCD Block DDA**

64 **Residual current device with overcurrent (RCBO)**

75 **Residual current relays**

77 **Arc fault detection device integrated with MCB**

For more detailed product information, please refer to the Technical Catalogue:

- Electrical installation solutions – 9AKK107046A0424
- DSE201 RCBO – 2CSC423013B0201

Residual current devices

Functions and classification criteria for RCDs

Functions and classification criteria for RCDs
A residual current operated circuit-breaker is an amperometric protection device which is tripped when the system leaks a significant current to earth.

This device continuously calculates the vector sum of the single-phase or three-phase system line currents and while the sum is equal to zero allows electricity to be supplied. This supply is rapidly interrupted if the sum exceeds a value preset according to the sensitivity of the device.

Residual current operated circuit-breakers can be classed according to four parameters:
- type of construction
- detectable wave form
- tripping sensitivity
- tripping time.

Depending on the type of construction, RCDs may be classed as:
- RCBOs (magnetothermic with overcurrent protection)
- RCCBs (without overcurrent protection releaser incorporated)
- RCD blocks.

RCBOs combine, in a single device, the residual current function and the overcurrent protection function typical of MCBs. RCBOs are tripped by both current leakage to earth and overloads and short-circuits and they are self-protecting up to a maximum short-circuit current value indicated on the label.
RCCBs are only sensitive to current leakage to earth. They must be used in series with an MCB or fuse which protects them from the potentially damaging thermal and dynamic stresses of any overcurrents.

These devices are used in systems already equipped with MCBs which preferably limit the specific energy passing through, also acting as the main disconnecting switches upstream of any derived MCBs (e.g.: domestic consumer unit).

RCD blocks are residual current devices suitable for assembly with a standard MCB. IEC/EN 61009 app. G only allows assembly of RCBOs once on site, that is to say outside the factory, using adaptable RCD blocks and the appropriate MCBs. Any subsequent attempts to separate them must leave permanent visible damage. The residual current operated circuit-breaker obtained in this way maintains both the electrical characteristics of the MCB and those of the RCD block.

According to the wave form of the earth leakage currents they are sensitive to, the RCDs may be classed as:
- AC type (for alternating current only)
- A type (for alternating and/or pulsating current with DC components)
- B type (for alternating and/or pulsating current with DC components and continuous fault current).

AC type RCDs are suitable for all systems where users have sinusoidal earth current.

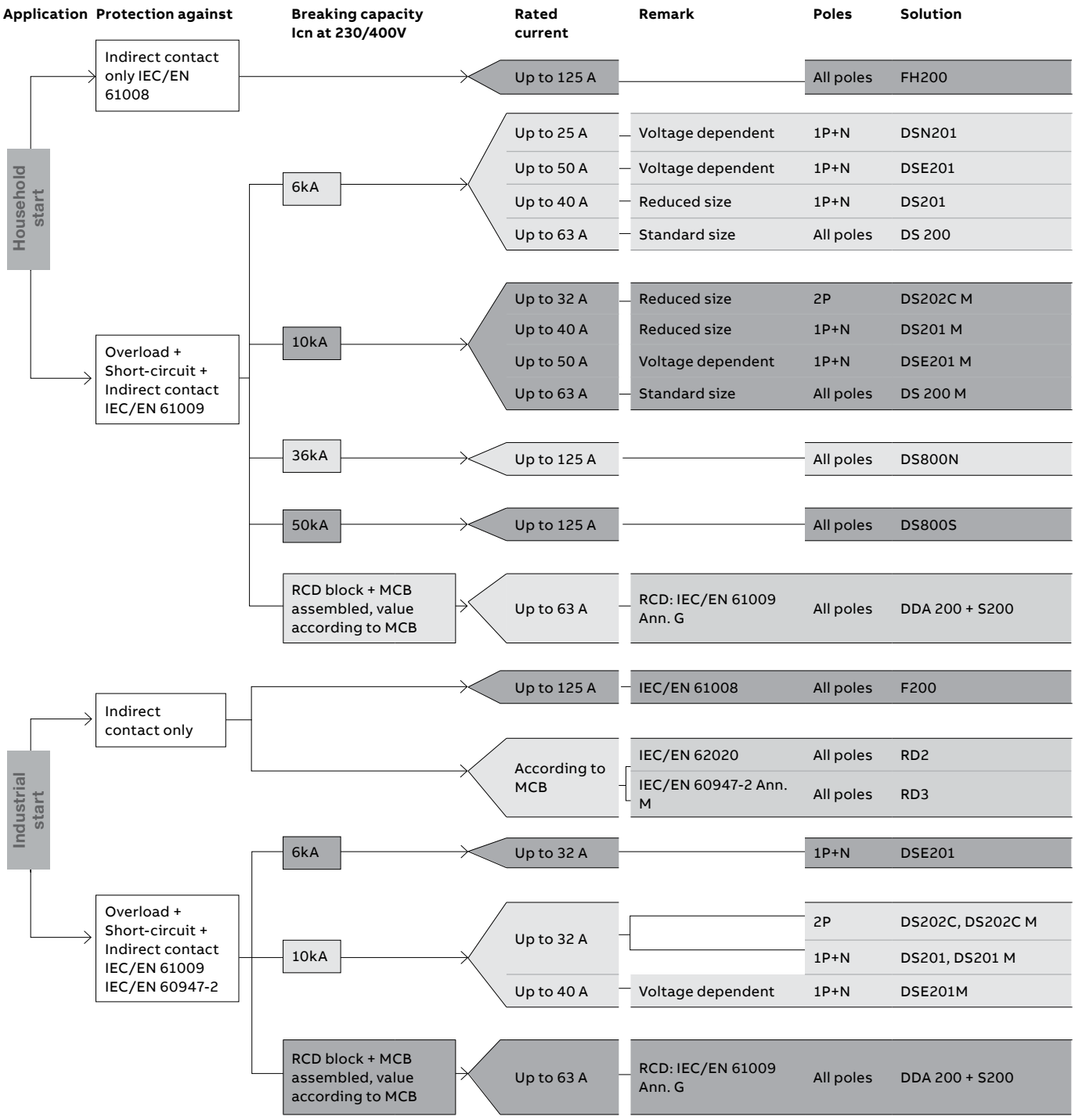
They are not sensitive to impulsive leakage currents up to a peak of 250 A (8/20 wave form) such as those which may occur due to overlapping voltage impulses on the mains (e.g.: insertion of fluorescent bulbs, X-ray equipment, data processing systems and SCR controls).

A type RCDs are not sensitive to impulsive currents up to a peak of 250 A (8/20 wave form).

They are particularly suitable for protecting systems in which the user equipment has electronic devices for rectifying the current or phase cutting adjustment of a physical quantity (speed temperature, light intensity, etc.) supplied directly by the mains without the insertion of transformers and insulated in class I (class II is, by definition, free of faults to earth).
These devices may generate a pulsating fault current with DC components which the A type RCD can recognise.

Residual current devices

Quick selection of RCDs for household and industrial applications



Residual current devices

Technical details

	Technical features		FH200	F200	F200 110V	DDA200
Electrical Features	Standards		IEC/EN 61008	IEC/EN 61008		IEC 60947-2 Ann G
	Operating characteristics: type (wave form of earth fault detected)		AC	AC, A, B, AP-R	A	AC, A, B, AP-R
	Poles		2P, 4P	2P, 4P	2P, 4P	2P, 3P, 4P
	Rated current In	A	25, 40, 63	25, 40, 63		25, 40, 63
	Rated voltage Ue	V	230-240	230-240		230-240
			230/400	230/400		230/400
			240/415	240/415		240/415
	Rated residual operating current	A	0.03	0.01, 0.03, 0.1, 0.3, 0.5		0.01, 0.03, 0.1, 0.3, 0.5, 1.0
	Insulation voltage Ui	V	500	500		500
	Max. operating voltage of test circuit	V	254	254		2P-254, 3P/4P - 440
	Min. operating voltage of test circuit	V	110 (170 for 30mA)	110 (170 for 30mA)	110	2P-170. 3P/4P-195
	Rated frequency		50…60	50…60		50…60
	Rated breaking capacity acc. to IEC 61009	Ultimate I_{cn} kA				per associated MCB
	Rated breaking capacity acc. to IEC 60947-2	Ultimate I_{cu} kA				per associated MCB
	Rated impulse withstand voltage (1.2/50) Uimp	kV				5
	Dielectrical test voltage at ind. freq. for 1 min	kV				2.5
	Overvoltage category		III, disconnector abilities	III, disconnector abilities		
	Surge current resistance (wave 8/20)	A	250	250		250
				3000 (for AP-R version)		3000 (for AP-R version)
Mechanical features	Toggle		Blue, sealable in ON-OFF	Blue, sealable in ON-OFF		Blue
	Electrical life		10000	10000		10000
	Mechanical life	housing	20000	20000		20000
	Protection degree	housing	IP4X	IP4X		IP4X
		terminals	IP2X	IP2X		IP2X
	Ref. temperature for setting of thermal element	°C				
	Ambient temperature	°C	-25…+55	-25…+55		-25…+55
	Storage temperature	°C	-40…+70	-40…+70		-40…+70
Installation	Terminal type		Bi-cylinder lift	Bi-cylinder lift		Bi-cylinder lift
			(cage for In > 63A)	(cage for In > 63A)		(cage for In > 63A)
	Terminal size top/bottom per cable	1P+N mm²	25/25	25/25		
		2P mm²	25/25	25/25		25
		3P mm²	25/25	25/25		In=25/40 16
		4P mm²	25/25	25/25		In=63 25
	Mounting		DIN rail	DIN rail		DIN rail (with MCB)
	Connection		top and bottom	top and bottom		
	Weight	1P g				
		2P g	200	200		
		4P g	350	350		
Combination with auxiliary elements	Configurable with	aux contact	No	Yes		Yes
		sig/aux contact	No	Yes		Yes
		shunt trip	No	Yes		Yes
		U/V release	No	Yes		Yes

	DSN201	**DS201**	**DS201M**	**DS201M 110V**	**DS203NC**	**DSE201**	**DSE201 M**
	IEC/EN 61009	IEC/EN 61009			IEC/EN 61009	IEC/EN 61009	IEC/EN 61009
	AC, A	AC, A, AP-R			AC, A, AP-R	AC, A	A
	1P+N	1P+N			3P+N	1P+N	1P+N
	6 ≤ In ≤ 32	1 ≤ In ≤ 40			6 ≤ In ≤ 32	6 ≤ In ≤ 50	6 ≤ In ≤ 50
	230-240	230-240			400-415	230-240	230-240
	0.01, 0.03	0.01, 0.03, 0.1, 0.3			0.03, 0.1, 0.3	0.03, 0.1	0.01, 0.03, 0.1, 0.3
	500	500			500	500	500
	254	254			440	264	264
	110 (170 for 30mA)	110 (170 for 30mA)	110 (170 for 30mA	110	300 (30mA); 195 (100mA, 300mA)	195	195
	50…60	50…60			50…60	50…60	50…60
	6000	6000	10000	10000	6000	6000	10000
	10	10	10	10	10	10	15 up to 40 A 10 for 50 A
	6	6			5		
	4	4			4	4	4
	2.5	2.5			2.5	2.5	2.5
	250	250			250	250	250
		3000 (for AP-R version)			3000 (for AP-R version)		
	Black, sealable in ON-OFF	Black, sealable in ON-OFF			Black, sealable in ON-OFF	Black	Black
	10000	10000			10000	10000	10000
	20000	20000			20000	20000	20000
	IP4X	IP4X			IP4X	IP4X	IP4X
	IP2X	IP2X			IP2X	IP2X	IP2X
	30	30				30	30
	-25…+55	-25…+55			-25…+55	-25…+55	-25…+55
	-40…+70	-40…+70			-40…+70	-40…+70	-40…+70
	Bi-cylinder lift	Bi-cylinder lift			Bi-cylinder lift	Bi-cylinder lift (line side)	Bi-cylinder lift (line side)
	(cage for In > 63A)						
	25/25	25/25					
					25	25/16	25/16
					In=25/40 16		
					In=63 25		
	DIN rail	DIN rail			DIN rail	DIN rail	DIN rail
	top and bottom	top and bottom					
	239	239			350	180	200
	Yes	Yes			Yes (with SN201-1H)	No	Yes
	Yes	Yes			Yes (with SN201-1H)	No	Yes
	Yes	Yes			Yes (with SN201-1H)	No	Yes
	Yes	Yes			Yes (with SN201-1H)	No	Yes

RCCB F 200. The details make the difference

A range designed to ensure efficiency and protection

Bi-directional cylindrical terminal ensure higher safety of connecting operations, making them easier.

Test pushbutton to verify the correct functioning of the device.



Contact position indicator (CPI): to always know the status of the contacts (red: closed contacts; green: open contacts) independently of the toggle position.

Information on the device are laser printed to make them clearly visible and long lasting.

Laser-marked order code on the front to make easier future orders.

Residual current devices

Residual current circuit breaker (RCCB)

FH200



RCCB FH200 AC Type

- Protection for people and buildings against earth leakage faults
- Ideally suited for domestic and commercial applications
- Not suitable for fitting System pro M Compact accessories

RCCB FH200 AC Type

Standard	Rated residual current In mA	Rated current	Description	Order code 2 Pole	Order code 4 Pole
AS/NZS 61008,	30	25	RCCB 25A 30mA Type AC	FH20225	FH20425
IEC/EN 61008		40	RCCB 40A 30mA Type AC	FH20240	FH20440
Rated conditional short circuit current I_{cn}		63	RCCB 63A 30mA Type AC	FH20263	FH20463
	100	25	RCCB 25A 100mA Type AC	FH20225/0.1	FH20425/0.1
6 kA with 63A MCB or fuse		40	RCCB 40A 100mA Type AC	FH20240/0.1	FH20440/0.1
Voltage range		63	RCCB 63A 100mA Type AC	FH20263/0.1	FH20463/0.1
1P : 230 – 240 V	300	25	RCCB 25A 300mA Type AC	FH20225/0.3	FH20425/0.3
3P : 230/415 V		40	RCCB 40A 300mA Type AC	FH20240/0.3	FH20440/0.3
		63	RCCB 63A 300mA Type AC	FH20263/0.3	FH20463/0.3

Note: Type AC devices are not suitable in New Zealand.



Residual current device (RCCB) Type A home range

- Protection against earth leakage faults
- Type A, used where the earth fault waveform is sinusoidal or pulsating DC
- Ideally suited for domestic and light commercial applications in consumer units
- Not suitable for fitting System pro M accessories

Residual current device (RCCB) Type A home range

Standard	Sensitivity (mA)	Rating (A)	Description	Order code 2 Pole	Order code 4 Pole
AS/NZS 61008,	30	40	RCCB, 40 A, 30mA, Type AC	FH202A40	FH204A40
IEC/EN 61008		63	RCCB, 63 A, 30mA, Type AC	FH202A63	FH204A63
Rated conditional short circuit current I_{cn}					
6kA with 63A fuse or MCB					
Voltage range					
230/400 V – 240/415 V					

Residual current devices

Residual current circuit breaker (RCCB)
F200 series A Type and AC Type



RCCB F200 AC Type and RCCB F200 A Type

- Protection for people and buildings against earth leakage faults
- Can be used with System pro M Compact accessories

RCCB F200 AC Type

Standard	Rated residual current In mA	Rated Current	Description	Order code 2 Pole	Order code 4 Pole
AS/NZS 61008,	30	25	RCCB 25A 30mA Type AC	F20225	F20425
IEC/EN 61008		40	RCCB 40A 30mA Type AC	F20240	F20440
Rated conditional short circuit current I_{cn}		63	RCCB 63A 30mA Type AC	F20263	F20463
		80	RCCB 80A 30mA Type AC	F20280	F20480
10kA with 100A MCB or fuse		100	RCCB 100A 30mA Type AC	F202100	F204100
Voltage range	**Additional features**				
230/400 V – 240/415 V	Ideally suited for domestic and commercial applications				

Note:
100mA, 300mA and 500mA models available on request
80A and 100A models available on request
Type AC devices are not suitable in New Zealand.



RCCB F200 A Type

Standard	Rated residual current In mA	Rated current	Description	Order code 2 Pole	Order code 4 Pole
AS/NZS 61008,	10	16	RCCB 16A 10mA Type A	F202A16/0.01	
IEC/EN 61008	30	25	RCCB 25A 30mA Type A	F202A25/0.03	F204A25/0.03
Rated conditional short circuit current I_{cn}		40	RCCB 40A 30mA Type A	F202A40/0.03	F204A40/0.03
		63	RCCB 63A 30mA Type A	F202A63/0.03	F204A63/0.03
10kA with 100A MCB or fuse	**Additional features**				
Voltage range	Ideally suited for commercial and industrial applications				
230/400 V – 240/415 V	Used where earth fault waveform may be sinusoidal or pulsating DC				

Note:
100mA, 300mA and 500mA models available on request
80A (2P, 4P), 100A (2P, 4P) and 125A (4P) models available on request
Special version for 400Hz and 16 $^{2}/_{3}$ Hz available. Please ask your ABB representative.

Residual current devices

Residual current circuit breaker (RCCB)
F200 110V series A Type



RCCB F200 110V A Type

- Protection for people and buildings against earth leakage faults
- Ideally suited for industrial, mining and naval applications where a 110V test circuit is required
- Used where earth fault waveform may be sinusoidal or pulsating DC
- Can be used with System pro M Compact accessories

RCCB F200 110V A Type

Standard
AS/NZS 61008,
IEC/EN 61008
Rated conditional short circuit current I_{cn}
10kA with 100A MCB or fuse
Voltage range
230/400 V – 240/415 V

Rated residual current In mA	Rated Current	Description	Order code 2 Pole	Order code 4 Pole
30	25	RCCB 25A 30mA Type A	F202A25/0.03	F204A25/0.03
	40	RCCB 40A 30mA Type A	F202A40/0.03	F204A40/0.03
	63	RCCB 63A 30mA Type A	F202A63/0.03	F204A63/0.03

Note:
80A and 100A models available on request

Residual current devices

Residual current circuit breaker (RCCB)
F200 series AP-R Type and B Type

RCCB F200 high immunity AP-R Type and RCCB F200 B Type

- Protection for people and buildings against earth leakage faults
- Can be used with System pro M Compact accessories



RCCB F200 high immunity AP-R Type

Standard	Rated residual current In mA	Rated current	Description	Order code 2 Pole	Order code 4 Pole
AS/NZS 61008, IEC/EN 61008	30	25	RCCB 25A 30mA Type AP-R	F202A25AP-R	F204A25AP-R
Rated conditional short circuit current I_{cn}		40	RCCB 40A 30mA Type AP-R	F202A40AP-R	F204A40AP-R
10kA with 100A MCB or fuse		63	RCCB 63A 30mA Type AP-R	F202A63AP-R	F204A63AP-R
Voltage range	**Additional features**				
230/400 V – 240/415 V	Ideally suited for commercial and industrial applications				
Surge current resistance	Used where earth fault waveform may be sinusoidal or pulsating DC				
(8/20 wave) 3000A	Can be used with System pro M Compact accessories				

Note:
80A (2P, 4P), 100A (2P, 4P) and 125A (4P) models available on request



RCCB F200 B Type

Standard	Rated residual current In mA	Rated current	Description	Order code 2 Pole	Order code 4 Pole
AS/NZS 61008,	30	16	RCCB 16A 30mA Type B	F202B16/0.03	F204B16/0.03
IEC/EN 61008		40	RCCB 25A 30mA Type B	F202B25/0.03	F204B25/0.03
Rated conditional short circuit current I_{cn}		40	RCCB 40A 30mA Type B	F202B40/0.03	F204B40/0.03
		63	RCCB 63A 30mA Type B	F202B63/0.03	F204B63/0.03
10kA with 100A MCB or fuse	**Additional features**				
Voltage range	Ideally suited for industrial applications				
230/400 V – 240/415 V	Used where earth fault waveform may be sinusoidal, pulsating DC or smooth DC				
	Recommended when earth fault protection is required for VSD applications				

Note:
80A and 125A models available on request
2P 300mA available on request
4P 300mA, 300mA S, 500mA, 500mA S available on request

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Residual current devices

Technical details for residual current circuit breaker (RCCB)

Type B RCDs

In industrial electrical applications it is more and more common to use devices where in the event of an earth fault current unidirectional direct currents or currents with a minimum residual ripple which flow through the PE conductor can emerge. These devices can be for example inverters, medical equipment (e.g. x-ray equipment and CAT), or UPS. Type A RCDs sensitive to pulsating currents (in addition to sinusoidal currents detected by RCD of type AC as well) cannot detect and break these earth fault direct currents or currents with a minimum level residual ripple. In case there are electrical appliances which generate this type of currents in the event of an earth fault, the use of RCDs of type AC or type A would not be appropriate.

In order to meet these new demands, type B RCDs have been designed (which are able to detect the same earth fault currents detected by type AC and type A RCDs).
This type of RCD (type B) is not mentioned in the reference standards for RCDs (IEC 61008-1 and IEC 61009-1). An international standard has been introduced in 2007 and it specifies additional requirements for B type RCDs.
This new standard, IEC 62423, can only be referred to together with IEC 61008-1 (for RCCBs) and IEC 61009-1 (for RCD-blocks and RCBOs), this means that B type RCDs have to be compliant to all the prescriptions of IEC 61008/9.

As already said, type B RCDs are not only sensitive to alternating and pulsating earth fault currents with DC components at a frequency of 50/60 Hz (type A), but they are also sensitive to:

- alternating currents up to a frequency of 1000 Hz;
- alternating and/or pulsating currents with DC components overlapping with a direct current;
- earth fault currents generated by a rectifier with two or more phases;
- direct earth fault currents without residual ripple

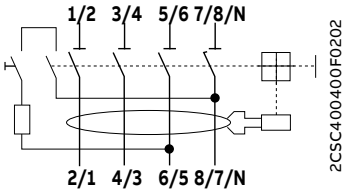
...independently of the polarity or whether the earth fault current appears suddenly or increases gradually.

Type B RCDs must be marked with the following symbols highlighting the switches' capacity to detect every type of current:



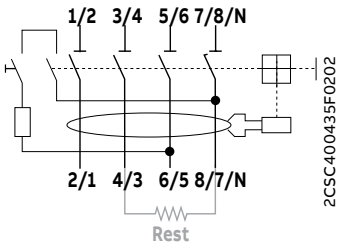
Use of a 4P RCCB in a 3-phase circuit without neutral

The test button circuit of these RCCBs 4P F 200 is wired inside the device between terminal 5/6 and 7/8/N as indicated below, and has been sized for an operating voltage between 110 and 254 V.



In case of installation in a 3 phase circuit without neutral.

In order to allow the correct operation of the test button in 3 phase networks at 400 V - 480 V it is necessary to connect normally the phases (supply to terminals 1/2 3/4 5/6 and load to terminals 2/1 4/3 6/5) and to jump terminal 4/3 and 8/7/N by mean of an electric resistance as indicated below.
In this way the test button circuit is fed at 400 V - 480 V – but for example in an RCCB with IΔn=0.03 A there will be the Rest=3.3 kOhm resistance in series to the test circuit resistance. Rest will cause a voltage drop that leaves in the test circuit a voltage less than 254 V - 277 V according to UL 1053. Rest resistance must have a power loss higher than 4 W.
In the normal operation of the RCCB (test circuit opened) the Rest resistance is not fed so it does not cause any power loss.



IΔn [A]	Rest [Ω]
0.03	3300
0.1	1000
0.3	330
0.5	200

Residual current devices

RCD Block DDA



RCD Block DDA200 AC Type

- Protection for people and buildings against earth leakage faults
- Can be assembled on-site with a S200 MCB to suit the application
- According to AS/NZS 61009 Annex G, once assembled with a MCB, the unit cannot be disassembled.
- Can be used with System pro *M* compact accessories

RCD Block DDA200 AC Type

Standard	Rated residual current In mA	Rated current	Modules without MCB	Description	Order code 2 Pole	3 Pole	4 Pole
AS/NZS 61009,	30	25	2	RCCB 25A 30mA Type AC	DDA20225	DDA20325	DDA20425
IEC/EN 61009 Annex G		40	2	RCCB 40A 30mA Type AC	DDA20240	DDA20340	DDA20440
Rated short circuit capcaity I_{cn}		63	4	RCCB 63A 30mA Type AC	DDA20263	DDA20363	DDA20463
According to the coupled MCB	100	25	2	RCCB 25A 100mA Type AC	DDA20225/0.1	DDA20325/0.1	DDA20425/0.1
Voltage range		40	2	RCCB 40A 100mA Type AC	DDA20240/0.1	DDA20340/0.1	DDA20440/0.1
230/415 V		63	4	RCCB 63A 100mA Type AC	DDA20263/0.1	DDA20363/0.1	DDA20463/0.1
	300	25	2	RCCB 25A 300mA Type AC	DDA20225/0.3	DDA20325/0.3	DDA20425/0.3
		40	2	RCCB 40A 300mA Type AC	DDA20240/0.3	DDA20340/0.3	DDA20440/0.3
		63	4	RCCB 63A 300mA Type AC	DDA20263/0.3	DDA20363/0.3	DDA20463/0.3

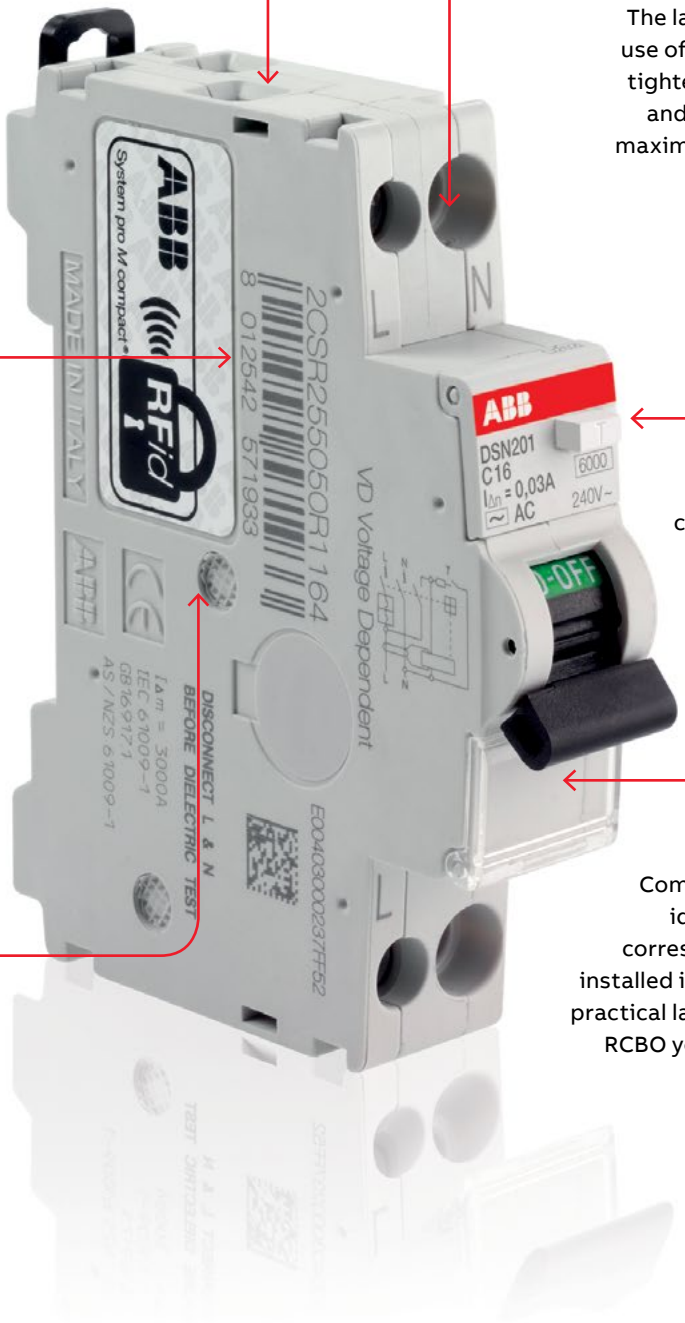
Note:
500mA, 1000mA and 2000mA models available on request.
Type A, high immunity Type AP-R and universal Type B models available on request.
Type AC devices are not suitable in New Zealand.
110V AC special version available on request

Residual current devices

RCBO Type DSN201

Terminals for flexible cabling
The terminals accept not only wires but also busbars. Supply is possible both from top and bottom terminals.

Space for insulated screwdrivers
The larger neutral hole allows the use of an insulated screwdriver to tighten the screws of both phase and neutral terminals, ensuring maximum safety of the operation.



Product coding
All the necessary technical and installation information can be found directly on the devices. Product range, tripping characteristics, rated currents, sensitivity, type, breaking capacity, rated voltage, order code, EAN code, electrical scheme, reference standards and many other specification are laser printed in the front and on the side of the units.

Test button
Test button allows regular checking of the functionality of the device.

Label carrier for a clear identification
Complex systems require easier identification of the sections corresponding to each single unit installed in the switchboard. With the practical label carrier fitted in the new RCBO you can guarantee maximum visibility protected loads.

Anti-counterfeiting
Each DSN201 is equipped with a RFid tag containing a unique serial number assigned by ABB according to ISO/IEC FCD 15693-3 standard in order to authenticate the product. Through this unique serial number, ABB can easily identify counterfeited products and verify the authenticity of each single device.

Residual current devices

Residual current device with overcurrent (RCBO)
Type DSN201

Residual current device with overcurrent (RCBO) – Single module, Type AC and Type A

- Compact single module size
- Protection against short circuit, thermal overload and earth leakage
- Connect supply from top or bottom
- Ideally suited for domestic and light commercial applications in consumer units
- Accepts accessories if interface module type SN201-IH is used



Residual current device with overcurrent (RCBO) Type AC – single module

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	30	6	RCBO, 1P, 6A, C-curve, 30mA, Type AC	DSN201C6
IEC/EN 61009-1		10	RCBO, 1P, 10A, C-curve, 30mA, Type AC	DSN201C10
Rated short circuit capacity I_{cn}		16	RCBO, 1P, 16A, C-curve, 30mA, Type AC	DSN201C16
6kA		20	RCBO, 1P, 20A, C-curve, 30mA, Type AC	DSN201C20
Voltage range		25	RCBO, 1P, 25A, C-curve, 30mA, Type AC	DSN201C25
230/400V	**Additional features**			
	Type AC, used where the earth fault waveform is sinusoidal			

Note: Type AC devices are not suitable in New Zealand.



Residual current device with overcurrent (RCBO) Type A – single module

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	10	6	RCBO, 1P, 6A, C-curve, 10mA, Type A	DSN201C6A10
IEC/EN 61009-1		10	RCBO, 1P, 10A, C-curve, 10mA, Type A	DSN201C10A10
Rated short circuit capacity I_{cn}		16	RCBO, 1P, 16A, C-curve, 10mA, Type A	DSN201C16A10
6kA		20	RCBO, 1P, 20A, C-curve, 10mA, Type A	DSN201C20A10
Voltage range	30	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DSN201C6A30
230–240V		10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DSN201C10A30
		16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DSN201C16A30
		20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DSN201C20A30
		25	RCBO, 1P, 25A, C-curve, 30mA, Type A	DSN201C25A30
	Additional features			
	Type A, used where the earth fault waveform is sinusoidal or pulsating DC (computer loads etc)			

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RCBO DS201 and DS202C. The details make the difference

A range designed to ensure efficiency and protection

Bi-directional cylindrical terminal ensure higher safety of connecting operations, making them easier.

Information on the device are laser printed to ensure readability over time.



Each RCBO of the DS201-DS202C range is equipped with an RFid tag containing a unique serial number assigned to ABB according to the standard ISO/IEC FCD 15693-3 in order to authenticate the product.

The label carrier to clearly identify the protected circuit.

Test push button to verify the correct functioning of the device

Residual current devices

Residual current device with overcurrent (RCBO)
Type DS201 and DS201 M



Residual current device with overcurrent (RCBO)
Two module, Type AC – with isolated neutral terminal, and Type AC

- Two module size
- Protection against short circuit, thermal overload and earth leakage
- Ideally suited for domestic and light commercial applications in consumer units
- Type AC, used where the earth fault waveform is sinusoidal
- Contact position indicator

Residual current device with overcurrent (RCBO)
Two module, Type AC, with isolated neutral terminal

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	30	6	RCBO, 1P+N, 6A, C-curve, 30mA, Type AC	DS201BS-C6
IEC/EN 61009-1		10	RCBO, 1P+N, 10A, C-curve, 30mA, Type AC	DS201BS-C10
Rated short circuit capacity I_{cn}		16	RCBO, 1P+N, 16A, C-curve, 30mA, Type AC	DS201BS-C16
6kA		20	RCBO, 1P+N, 20A, C-curve, 30mA, Type AC	DS201BS-C20
Voltage range		25	RCBO, 1P+N, 25A, C-curve, 30mA, Type AC	DS201BS-C25
230 – 240 V		32	RCBO, 1P+N, 32A, C-curve, 30mA, Type AC	DS201BS-C32
		40	RCBO, 1P+N, 40A, C-curve, 30mA, Type AC	DS201BS-C40
	Additional features			
	Can be used on 3 phase busbar chassis due to isolated neutral terminal (line side neutral wiring required)			

Note: Type AC devices are not suitable in New Zealand. DS201BS does not accept accessories.



Residual current device with overcurrent (RCBO)
Two module, Type AC

Standard	Sensitivity (mA)	Rating kA	(A)	Description	Order code
AS/NZS 61009.1,	30	6	6	RCBO, 1P+N, 6A, C-curve, 30mA, Type AC	DS201C6
IEC/EN 61009-1			10	RCBO, 1P+N, 10A, C-curve, 30mA, Type AC	DS201C10
Rated short circuit capacity I_{cn}			16	RCBO, 1P+N, 16A, C-curve, 30mA, Type AC	DS201C16
6kA and 10kA			20	RCBO, 1P+N, 20A, C-curve, 30mA, Type AC	DS201C20
Voltage range			25	RCBO, 1P+N, 25A, C-curve, 30mA, Type AC	DS201C25
230 – 240 V			32	RCBO, 1P+N, 32A, C-curve, 30mA, Type AC	DS201C32
			40	RCBO, 1P+N, 40A, C-curve, 30mA, Type AC	DS201C40
	30	10	6	RCBO, 1P+N, 6A, C-curve, 30mA, Type AC	DS201MC6
			10	RCBO, 1P+N, 10A, C-curve, 30mA, Type AC	DS201MC10
			16	RCBO, 1P+N, 16A, C-curve, 30mA, Type AC	DS201MC16
			20	RCBO, 1P+N, 20A, C-curve, 30mA, Type AC	DS201MC20
			25	RCBO, 1P+N, 25A, C-curve, 30mA, Type AC	DS201MC25
			32	RCBO, 1P+N, 32A, C-curve, 30mA, Type AC	DS201MC32
			40	RCBO, 1P+N, 40A, C-curve, 30mA, Type AC	DS201MC40

Note: High immunity Type AP-R available on request. 10mA, 100mA and 300mA versions available on request.
Type AC devices are not suitable in New Zealand.

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Residual current devices

Residual current device with overcurrent (RCBO)
Type DS201 and DS201 M



DS201

Residual current device with overcurrent (RCBO)
Two module, Type A

- Two module size
- Protection against short circuit, thermal overload and earth leakage
- Ideally suited for domestic and light commercial applications in consumer units
- Type A, used where the earth fault waveform is sinusoidal or pulsating DC
- Contact position indicator

Residual current device with overcurrent (RCBO)
Two module, Type A

Standard	Sensitivity (mA)	Rating kA	Rating (A)	Description	Order code
AS/NZS 61009.1,	10	6	10	RCBO, 1P, 10A, C-curve, 10mA, Type A	DS201C10A10
IEC/EN 61009-1			16	RCBO, 1P, 16A, C-curve, 10mA, Type A	DS201C16A10
Rated short circuit capacity I_{cn}	30	6	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DS201C6A30
6kA and 10kA			10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DS201C10A30
Voltage range			16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DS201C16A30
230 – 240 V			20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DS201C20A30
			25	RCBO, 1P, 25A, C-curve, 30mA, Type A	DS201C25A30
			32	RCBO, 1P, 32A, C-curve, 30mA, Type A	DS201C32A30
			40	RCBO, 1P, 40A, C-curve, 30mA, Type A	DS201C40A30
	10	10	10	RCBO, 1P, 10A, C-curve, 10mA, Type A	DS201MC10A10
			16	RCBO, 1P, 16A, C-curve, 10mA, Type A	DS201MC16A10
	30	10	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DS201MC6A30
			10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DS201MC10A30
			16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DS201MC16A30
			20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DS201MC20A30
			25	RCBO, 1P, 25A, C-curve, 30mA, Type A	DS201MC25A30
			32	RCBO, 1P, 32A, C-curve, 30mA, Type A	DS201MC32A30
			40	RCBO, 1P, 40A, C-curve, 30mA, Type A	DS201MC40A30

Note: High immunity Type AP-R available on request
100mA and 300mA versions available on request

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Residual current devices

Residual current device with overcurrent (RCBO)
Type DS202 and DS202 M



DS202C

Residual current device with overcurrent (RCBO) protection in each pole
Two module, Type A

- Two module size
- Protection against short circuit, thermal overload and earth leakage
- Ideally suited for mining and commercial applications
- Type A, used where the earth fault waveform is sinusoidal or pulsating DC
- Contact position indicator

Residual current device with overcurrent (RCBO) protection in each pole
Two module, Type A

Standard	Sensitivity (mA)	Rating kA	Rating (A)	Description	Order code
AS/NZS 61009.1,	30	6	6	RCBO, 2P, 6A, C-curve, 30mA, Type A	DS202CC6A30
IEC/EN 61009-1			10	RCBO, 2P, 10A, C-curve, 30mA, Type A	DS202CC10A30
Rated short circuit capacity I_{cn}			16	RCBO, 2P, 16A, C-curve, 30mA, Type A	DS202CC16A30
6kA and 10kA			20	RCBO, 2P, 20A, C-curve, 30mA, Type A	DS202CC20A30
Voltage range			25	RCBO, 2P, 25A, C-curve, 30mA, Type A	DS202CC25A30
230 – 240 V			32	RCBO, 2P, 32A, C-curve, 30mA, Type A	DS202CC32A30
	30	10	6	RCBO, 2P, 6A, C-curve, 30mA, Type A	DS202CMC6A30
			10	RCBO, 2P, 10A, C-curve, 30mA, Type A	DS202CMC10A30
			16	RCBO, 2P, 16A, C-curve, 30mA, Type A	DS202CMC16A30
			20	RCBO, 2P, 20A, C-curve, 30mA, Type A	DS202CMC20A30
			25	RCBO, 2P, 25A, C-curve, 30mA, Type A	DS202CMC25A30
			32	RCBO, 2P, 32A, C-curve, 30mA, Type A	DS202CMC32A30

Note: High immunity Type AP-R available on request
300mA versions available on request
B-curve available on request

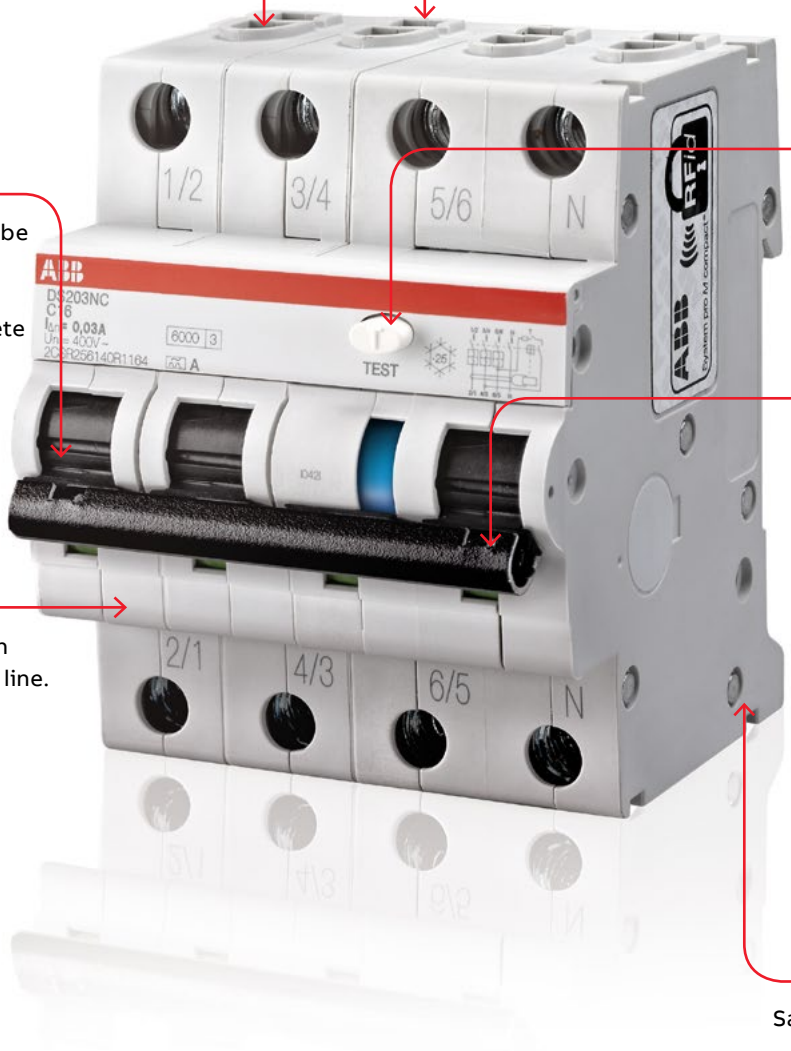
The effective choice

The benefits of a product with the highest quality standards

Compact size for easy installation in small spaces and retrofitting of already existing facilities.

Terminals designed to ease the installation.

Operating toggle can be sealed into on/off position to ensure maintenance in complete safety.



Test pushbutton to verify the correct functioning of the device.

The indication of the status of the contacts is done witha mechanical connection to the mobile contacts and independently from the toggle position. The contacts position indicator (CPI) allows to exactly know the status of the contacts of the device (green: open contacts, red: closed contacts).

Space for identification labels of the protected line.

Same profile as the System pro M compact® range.

Residual current devices – RCBO

Residual current device with overcurrent (RCBO)
Type DS203NC 6kA



Residual current device with overcurrent (RCBO)
DS203NC 3P+N, Type A, Type AC and Type AP-R

- Compact 4 module solution for 3 phase + neutral applications
- Protection against short circuit, thermal overload and earth leakage
- Earth fault indicator and real contact position indicator
- Can be used with auxiliary contacts in conjunction with SN201-IH interface
- Ideally suited for commercial panelboad applications

Residual current device with overcurrent (RCBO) DS203NC 3P+N, Type A and Type AC

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	**For Type A**			
IEC/EN 61009-1	30	6	RCBO, 3P+N, 6A, 6kA, C-curve, 30mA, Type A	DS203NCC6A30
Rated short circuit capacity I_{cn}		10	RCBO, 3P+N, 10A, 6kA, C-curve, 30mA, Type A	DS203NCC10A30
6kA		16	RCBO, 3P+N, 16A, 6kA, C-curve, 30mA, Type A	DS203NCC16A30
Voltage range		20	RCBO, 3P+N, 20A, 6kA, C-curve, 30mA, Type A	DS203NCC20A30
400 – 415 V		25	RCBO, 3P+N, 25A, 6kA, C-curve, 30mA, Type A	DS203NCC25A30
		32	RCBO, 3P+N, 32A, 6kA, C-curve, 30mA, Type A	DS203NCC32A30
	For Type AC			
	30	6	RCBO, 3P+N, 6A, 6kA, C-curve, 30mA, Type AC	DS203NCC6AC30
		10	RCBO, 3P+N, 6A, 6kA, C-curve, 30mA, Type AC	DS203NCC10AC30
		16	RCBO, 3P+N, 6A, 6kA, C-curve, 30mA, Type AC	DS203NCC16AC30
		20	RCBO, 3P+N, 6A, 6kA, C-curve, 30mA, Type AC	DS203NCC20AC30
		25	RCBO, 3P+N, 6A, 6kA, C-curve, 30mA, Type AC	DS203NCC25AC30
		32	RCBO, 3P+N, 6A, 6kA, C-curve, 30mA, Type AC	DS203NCC32AC30
	Additional features			
	Type A, used where the earth fault waveform is sinusoidal or pulsating DC			

Note: Type AC devices are not suitable in New Zealand.



Residual current device with overcurrent (RCBO) DS203NC 3P+N, high immunity Type AP-R

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	30	6	RCBO, 3P+N, 6A, 6kA, C-curve, 30mA, Type APR	DS203NCC6APR30
IEC/EN 61009-1		10	RCBO, 3P+N, 10A, 6kA, C-curve, 30mA, Type APR	DS203NCC10APR30
Rated short circuit capacity I_{cn}		16	RCBO, 3P+N, 16A, 6kA, C-curve, 30mA, Type APR	DS203NCC16APR30
6kA		20	RCBO, 3P+N, 20A, 6kA, C-curve, 30mA, Type APR	DS203NCC20APR30
Voltage range		25	RCBO, 3P+N, 25A, 6kA, C-curve, 30mA, Type APR	DS203NCC25APR30
400 – 415 V		32	RCBO, 3P+N, 32A, 6kA, C-curve, 30mA, Type APR	DS203NCC32APR30
	Additional features			
	Type AP-R, used where the earth fault waveform is sinusoidal or pulsating DC			
	Resistant to unwanted tripping due to electrical transients and indirect lightning strikes			

Note: 100mA and 300mA sensitivity models available on request

STOCK | INDENT

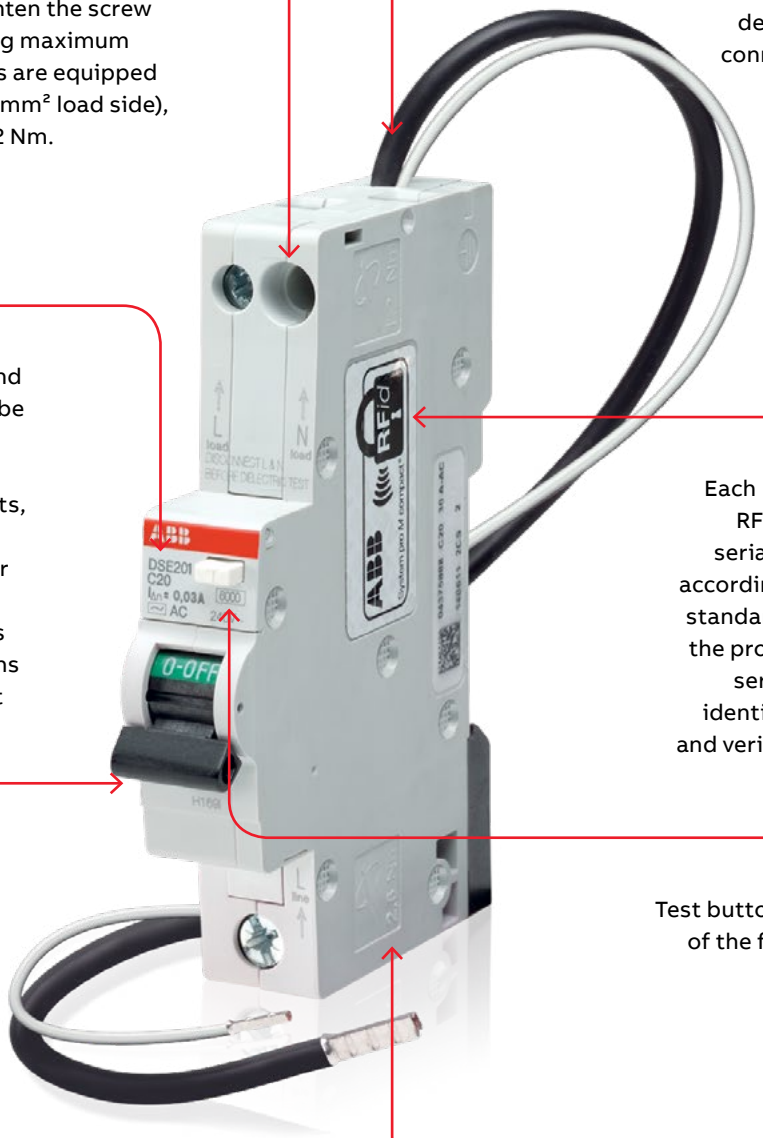
DSE201, the value of quality

Made in Italy with attention to detail

Space for insulated screwdrivers
The larger neutral hole allows the use of an insulated screwdriver to tighten the screw of neutral terminals, ensuring maximum operation safety. All versions are equipped with cage type terminals (16mm² load side), with tightening torque of 1.2 Nm.

Friendly and protected
Fast installation is supported by the two flying leads for neutral cable and functional earth, each integrated in the device, which can be directly connected to the main neutral bar and main earth bar.

Product coding
All the necessary technical and installation information can be found directly on the device. Product range, tripping characteristics, rated currents, sensitivity, type, breaking capacity, rated voltage, order code, EAN code, electrical scheme, reference standards and many other specifications are laser printed on the front and side of units.



Anti counterfeiting
Each DSE201 is equipped with a RFID tag containing a unique serial number assigned by ABB according to ISO/IEC FCD 15693-3 standard in order to authenticate the product. Through this unique serial number, ABB can easily identify counterfeited products and verify the authenticity of each single device.

Real contact position indicator on toggle
Directly connected to the moving contact of the device, it indicates the exact position of the contacts at all times (red: closed contacts, green: open contacts).

In control
Test button allows the regular check of the functionality of the device.

Reduced height
Thanks to its reduced height, only 100mm, DSE201 makes easier wiring operation inside the consumer unit or the distribution board.

Residual durrent devices

Residual current device with overcurrent (RCBO)
Type DSE201 6kA



DSE201

Residual current device with overcurrent (RCBO) DSE201
Single module, Type AC and Type A

- Single module width
- Protection against short circuit, thermal overload and earth leakage
- Real contact position indicator on toggle
- Ideally suited for commercial panelboard applications
- New compact design only 100mm high (50A model is 115mm high)

Residual current device with overcurrent (RCBO) DSE201
Single module, Type AC

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	30	6	RCBO, 1P+N+N, 6A, C-curve, 30mA, Type AC	DSE201C6AC30
IEC/EN 61009-1		10	RCBO, 1P+N, 10A, C-curve, 30mA, Type AC	DSE201C10AC30
Rated short circuit capacity I_{cn}		16	RCBO, 1P+N, 16A, C-curve, 30mA, Type AC	DSE201C16AC30
6kA		20	RCBO, 1P+N, 20A, C-curve, 30mA, Type AC	DSE201C20AC30
Voltage range		25	RCBO, 1P+N, 25A, C-curve, 30mA, Type AC	DSE201C25AC30
230 – 240 V		32	RCBO, 1P+N, 32A, C-curve, 30mA, Type AC	DSE201C32AC30
		40	RCBO, 1P+N, 40A, C-curve, 30mA, Type AC	DSE201C40AC30
		50	RCBO, 1P+N, 50A, C-curve, 30mA, Type AC	DSE201C50AC30
	Additional features			
	Type AC, used where the earth fault waveform is sinusoidal			

Note: Type AC devices are not suitable in New Zealand.
B curve available on request.



Residual current device with overcurrent (RCBO) DSE201
Single module, Type A

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	30	6	RCBO, 1P+N, 6A, C-curve, 30mA, Type A	DSE201C6A30
IEC/EN 61009-1		10	RCBO, 1P+N, 10A, C-curve, 30mA, Type A	DSE201C10A30
Rated short circuit capacity I_{cn}		16	RCBO, 1P+N, 16A, C-curve, 30mA, Type A	DSE201C16A30
6kA		20	RCBO, 1P+N, 20A, C-curve, 30mA, Type A	DSE201C20A30
Voltage range		25	RCBO, 1P+N, 25A, C-curve, 30mA, Type A	DSE201C25A30
230 – 240 V		32	RCBO, 1P+N, 32A, C-curve, 30mA, Type A	DSE201C32A30
		40	RCBO, 1P+N, 40A, C-curve, 30mA, Type A	DSE201C40A30
		50	RCBO, 1P+N, 50A, C-curve, 30mA, Type A	DSE201C50A30
	Additional features			
	Type A, used where the earth fault waveform is sinusoidal or pulsating DC			

Note: B curve available on request.

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DSE201 M, unique solution

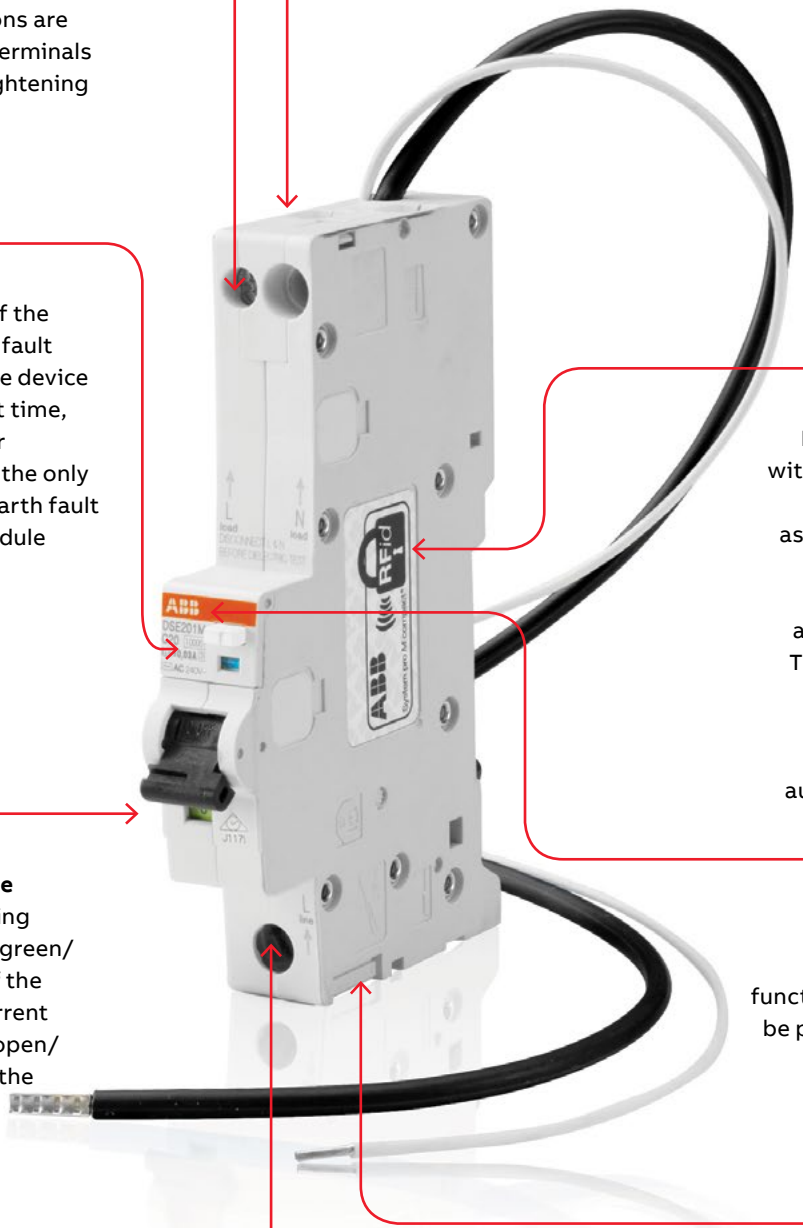
New features to make operations friendly

Space for insulated screwdrivers
The larger neutral hole allows the use of an insulated screwdriver to tighten the screw of neutral terminals, ensuring maximum operation safety. All versions are equipped with cage type terminals (16mm² load side), with tightening torque of 1.2 Nm.

Earth fault indicator
Blue window in the front of the device to detect any earth fault trip: the cause of trip of the device can be identified in a short time, reducing the downtime for maintenance. DSE201 M is the only device equipped with an earth fault indicator between one module width electronic RCBOs.

Real contact position indicator below the toggle
Directly linked to the moving contact of the device, the green/red window in the front of the device can identify the current position of the contacts (open/closed) independently on the toggle position.

Combination with auxiliary elements
New platform suitable for quick installation in combination with the standard auxiliary elements that can be mounted with RCDs and MCBs.



Easy to install
Fast installation is supported by the two flying leads for neutral cable and functional earth, each integrated in the device, which can be directly connected to the main neutral bar and main earth bar.

Anti counterfeiting
Each DSE201 is equipped with a RFID tag containing a unique serial number assigned by ABB according to ISO/IEC FCD 15693-3 standard in order to authenticate the product. Through this unique serial number, ABB can easily identify counterfeited products and verify the authenticity of each single device.

In control
Test button allows the regular check of the functionality of the device: to be pushed every six months.

Reduced height
Thanks to its reduced height, only 115mm, DSE201M makes easier wiring operation inside the consumer unit or the distribution board.

Residual current devices

Residual current device with overcurrent (RCBO)
Type DSE201 M 10kA



Residual current device with overcurrent (RCBO) DSE201 M
Single module, Type A

- Single module width
- Protection against short circuit, thermal overload and earth leakage
- Earth fault indicator to identify if trip has been caused by an earth leakage fault
- Real contact position indicator
- Ideally suited for commercial panelboad applications
- Type A, used where the earth fault waveform is sinusoidal or pulsating DC
- New compact space saving design, only 115mm high
- Use with standard MCB and RCCB accessories

Residual current device with overcurrent (RCBO) DSE201 M
Single module, Type A

Standard	Sensitivity (mA)	Rating (A)	Description	Order code
AS/NZS 61009.1,	10	6	RCBO, 1P+N, 6A, 10kA, C-curve, 10mA, Type A	DSE201MC6A10
IEC/EN 61009-1		10	RCBO, 1P+N,10A, 10kA, C-curve, 10mA, Type A	DSE201MC10A10
Rated short circuit capacity I_{cn}		16	RCBO, 1P+N, 16A, 10kA, C-curve, 10mA, Type A	DSE201MC16A10
10kA		20	RCBO, 1P+N, 20A, 10kA, C-curve, 10mA, Type A	DSE201MC20A10
Voltage range		25	RCBO, 1P+N, 25A, 10kA, C-curve, 10mA, Type A	DSE201MC25A10
230 – 240 V		32	RCBO, 1P+N, 32A, 10kA, C-curve, 10mA, Type A	DSE201MC32A10
		40	RCBO, 1P+N, 40A, 10kA, C-curve, 10mA, Type A	DSE201MC40A10
		50	RCBO, 1P+N, 50A, 10kA, C-curve, 10mA, Type A	DSE201MC50A10
	30	6	RCBO, 1P+N, 6A, 10kA, C-curve, 30mA, Type A	DSE201MC6A30
		10	RCBO, 1P+N,10A, 10kA, C-curve, 30mA, Type A	DSE201MC10A30
		16	RCBO, 1P+N, 16A, 10kA, C-curve, 30mA, Type A	DSE201MC16A30
		20	RCBO, 1P+N, 20A, 10kA, C-curve, 30mA, Type A	DSE201MC20A30
		25	RCBO, 1P+N, 25A, 10kA, C-curve, 30mA, Type A	DSE201MC25A30
		32	RCBO, 1P+N, 32A, 10kA, C-curve, 30mA, Type A	DSE201MC32A30
		40	RCBO, 1P+N, 40A, 10kA, C-curve, 30mA, Type A	DSE201MC40A30
		50	RCBO, 1P+N, 50A, 10kA, C-curve, 30mA, Type A	DSE201MC50A30

Note: 100mA and 300mA sensitivity models available on request.
B-curve trip characteristic available on request

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Residual current devices

Residual current relays – DIN rail mounting



RD2

Residual current relay Type RD2

- Residual current relay operates with a external toroid transformer type TR (sold separately)
- Mini-DIP switches allow setting of sensitivity and intervention time

Residual current relay Type RD2

Standard	Sensitivity (A)	Trip time (s)	Operating voltage	Order code
IEC/EN 62020	0.03-0.1-0.3-0.5-1-2	Instantaneous- 0.3-0.5-1-2-5	230–400 VAC	RD2
			48–150 VAC/VDC	RD2-48



RD3M

Residual current relay Type RD3

- Residual current relay operates with a external toroid transformer type TR (sold separately)
- Mini-DIP switches allow setting of sensitivity and intervention time
- RD3 residual current relays can be used with all S200 MCB and Tmax MCCB up to T5 in accordance with the protection and monitoring functions defined in IEC60947-2 Annex M.
- RD3M and RD3P have a frequency filter and settable contact for pre-alarm threshold at 60%
- RD3P has LED bar indicator for % earth leakage current
- Fail safe feature in case of power loss
- Local and remote reset

Residual current relay Type RD3

Standard	Sensitivity (A)	Trip time (s)	Operating voltage	Order code
IEC/EN 60947-2	0.03-0.1-0.3-0.5-1-2-3-5-10-30	0-0.06-0.2-0.3-0.5-1-2-3-5-10	230–400 VAC	RD3
Annex M			12–48 VAC/VDC	RD3-48
			230–400 VAC	RD3M
			12–48 VAC/VDC	RD3M-48
			230–400 VAC	RD3P
			12–48 VAC/VDC	RD3P-48

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Residual current devices

Residual current relays – panel mounting


ELR48P


ELR72


ELR96


ELR96PD

Residual current relay Type ELR

- Residual current relay operates with a external toroid transformer type TR (sold separately)
- Mini-DIP switches allow setting of sensitivity and intervention time
- ELR residual current relays can be used with all S200 MCB and Tmax MCCB up to T5 in accordance with the protection and monitoring functions defined in IEC60947-2 Annex M.
- ELR96PF and ELR96PD have a frequency filter
- ELR96PD version has a digital display for an instantaneous view of the residual current
- Fail safe feature in case of power loss
- Local and remote reset

Residual current relay Type ELR

Standard	Sensitivity (A)	Trip Time (s)	Panel size (mm)	Contacts	Operating voltage	Order code
IEC/EN 60947-2	from 0.03 to 30	from 0 to 5	48x48	2	110 VAC/ VDC, 230 VAC	ELR48P
Annex M			48x48	2	24–48 VAC/ VDC	ELR48V24P
			72x72	1	110 VAC/ VDC, 230 VAC	ELR72
			72x72	1	24–48 VAC/ VDC	ELR72V24
			72x72	2	110–230–400 VAC	ELR72P
			72x72	2	24–48 VAC/ VDC	ELR72V24P
			96x96	1	110–230–400 VAC	ELR96
			96x96	1	24–48 VAC/ VDC	ELR96V24
			96x96	2	110–230–400 VAC	ELR96P
			96x96	2	24–48 VAC/ VDC	ELR96V24P
			96x96	2	110–230–400 VAC	ELR96PF
			96x96	2	110–230–400 VAC	ELR96PD



Toroidal transformers –TR

- Suitable for use with RD2, RD3 and ELR residual current relays

Window dimension diameter (mm)	Description	Order code
29	Toroid 29mm	TRM
35	Toroid 35mm	TR1
60	Toroid 60mm	TR2
80	Toroid 80mm	TR3
110	Toroid 110mm	TR4
110 (split CT style)	Toroid 110mm split	TR4A
160	Toroid 160mm	TR160
160 (split CT style)	Toroid 160mm split	TR160A
210	Toroid 210mm	TR5
210 (split CT style)	Toroid 210mm split	TR5A

AFDD S-ARC1

Arc fault detection device integrated with MCB

Test pushbutton and self test
Test pushbutton to verify the correct functioning of the arc fault detection device. Internal self test is also continuously running in order to check the arc detection circuit proper functioning.

LED for troubleshooting
LED troubleshooting indicator to monitor the operation of the AFDD and give indication of the cause of the trip.

Guaranteed security
Contact position indicator (CPI) to always know the status of the contacts (red: closed; green: open). Independent from the toggle position.



Easy to install
Twin terminals for separate feeding with busbar and cables. Connection possible both from top and bottom side.

Anti counterfeiting
RFid tag containing a unique serial number assigned to ABB in order to authenticate the product.

Combination with auxiliary elements
Platform suitable for combination with System Pro M compact® accessories.

Laser printed information
Information on the device are laser printed to ensure readability over time.

STOCK | INDENT

AFDD

Technical features and overall dimensions

				S-ARC1	S-ARC1 M
	Standards			IEC/EN 62606; IEC/EN 60898-1	IEC/EN 62606; IEC/EN 60898-1
Electrical Functions	Number of poles			1P + N	1P + N
	Rated current I_n		A	6 ≤ In ≤ 20	6 ≤ In ≤ 20
	Rated voltage U_e		V	230 - 240	230 - 240
	Insulation voltage U_i		V	500 V AC	500 V AC
	Overvoltage category			III	III
	Pollution degree			2	2
	Min. operating voltage		V	170	170
	Threshold for protection against overvoltage		V	275	275
	Rated frequency		Hz	50/60	50/60
	Rated breaking capacity acc. to IEC 60898-1	ultimate I_{cn}	A	6000	10000
	Rated breaking capacity acc. to IEC 60947-2	ultimate I_{cu}	kA	7.5	10
		service I_{cs}	kA	6	7.5
	Rated residual breaking capacity $I_{cn}1$		A	6000	6000
	Rated impulse withstand voltage (1.2/50) U_{imp}		kV	4 (test voltage 6.2kV at sea level; 5kV at 2000 m)	4 (test voltage 6.2kV at sea level; 5kV at 2000 m)
	Dielectric test voltage at ind. freq. for 1 min.		kV	2 (50/60 Hz, 1 min.)	2 (50/60 Hz, 1 min.)
	Thermomagnetic release – characteristic	B: 3 I_n ≤ I_m ≤ 5 I_n		■	■
		C: 5 I_n ≤ I_m ≤ 10 I_n		■	■
	Energy limiting class			3	3
Mechanical Main features	Housing			Insulation group II, RAL 7035	Insulation group II, RAL 7035
	Toggle			Insulation group IIIA, Orange RAL 2004, sealable in ON-OFF-positions	Insulation group IIIA, Orange RAL 2004, sealable in ON-OFF-positions
	Contact position indication			Green/red window	Green/red window
	Electrical life			10000 operations	10000 operations
	Mechanical life			20000 operations	20000 operations
	Protection degree acc. to EN 60529	housing		IP4X	IP4X
		terminals		IP2X	IP2X
	Shock resistance acc. to IEC/EN 60068-2-27			30 g - 2 shocks - 13 ms	30 g - 2 shocks - 13 ms
	Vibration resistance acc. to IEC/EN 60068-2-6			0.35 mm or 5g - 20 cycles at 5…150…5 Hz without load	0.35 mm or 5g - 20 cycles at 5…150…5 Hz without load
	Environmental conditions (damp heat) acc. to IEC/EN 60068-2-30		°C/ RH	28 cycles with 55°C/90 - 96% and 25°C/95 - 100%	28 cycles with 55°C/90 - 96% and 25°C/95 - 100%
	Reference temperature for setting of thermal element		°C	30	30
	Ambient temperature (with daily average ≤ +35 °C)		°C	-25…+55	-25…+55
	Storage temperature		°C	-40…+70	-40…+70
Assembly	Terminal type	top/bottom		failsafe bi-directional cylinder-lift terminal (shock-protected)	failsafe bi-directional cylinder-lift terminal (shock-protected)
	Terminal size for cables	top/bottom	mm²	25/25	25/25
	Terminal size for busbars	top/bottom	mm²	10/10	10/10
	Tightening torque	top/bottom	Nm	2.8	2.8
	Stripping length of the cable		mm	12.5	12.5
	Mounting			on DIN rail EN 60715 (35 mm) by means of mounting clip	on DIN rail EN 60715 (35 mm) by means of mounting clip
	Mounting position			any	any
	Supply from			Top/bottom terminals	Top/bottom terminals
Dimensions and weight	Dimensions (H x D x W)		mm	85 x 69 x 35	85 x 69 x 35
	Weight		g	180	180
Combination with auxiliary elements	See next page for details				

STOCK | **INDENT**

AFDD

Arc fault detection device



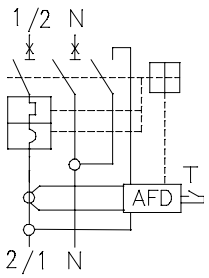
S-ARC1 C-curve 6kA

- 1P+N arc fault detection device with integrated MCB Compact 4 module solution for 3 phase + neutral applications
- Compact 2 module width
- Protection against series, parallel and earth arc faults in addition to overcurrent and short circuit
- LED status indication
- Compatible with auxiliary elements

S-ARC1 C-curve 6kA

Standard
IEC/EN 62606,
IEC/EN 60898-1
Rated short circuit capacity I_{cn}
6kA
Voltage range
230 – 240 V

Poles	Rating (A)	Description	Order code
1+N	6	AFDD, 6A, 6kA, C-curve	S-ARC1C6
	10	AFDD, 10A, 6kA, C-curve	S-ARC1C10
	13	AFDD, 13A, 6kA, C-curve	S-ARC1C13
	16	AFDD, 16A, 6kA, C-curve	S-ARC1C16
	20	AFDD, 20A, 6kA, C-curve	S-ARC1C20



S-ARC1 M C-curve 10kA

- 1P+N arc fault detection device with integrated MCB Compact 4 module solution for 3 phase + neutral applications
- Compact 2 module width
- Protection against series, parallel and earth arc faults in addition to overcurrent and short circuit
- LED status indication
- Compatible with auxiliary elements

S-ARC1 M C-curve 10kA

Standard
IEC/EN 62606,
IEC/EN 60898-1
Rated short circuit capacity I_{cn}
10kA
Voltage range
230 – 240 V

Poles	Rating (A)	Description	Order code
1+N	6	AFDD, 6A, 6kA, C-curve	S-ARC1MC6
	10	AFDD, 10A, 6kA, C-curve	S-ARC1MC10
	13	AFDD, 13A, 6kA, C-curve	S-ARC1MC13
	16	AFDD, 16A, 6kA, C-curve	S-ARC1MC16
	20	AFDD, 20A, 6kA, C-curve	S-ARC1MC20



Auxiliary elements and accessories

82 **Selection tables**

85 **Auxiliary elements for S200, SN200, F200, DS200, DS203NC, DSE201M, SD200**

86 **Shunt trip and undervoltage trip**

88 **Busbar systems**

90 **Short circuit limiter for S800 MCB**

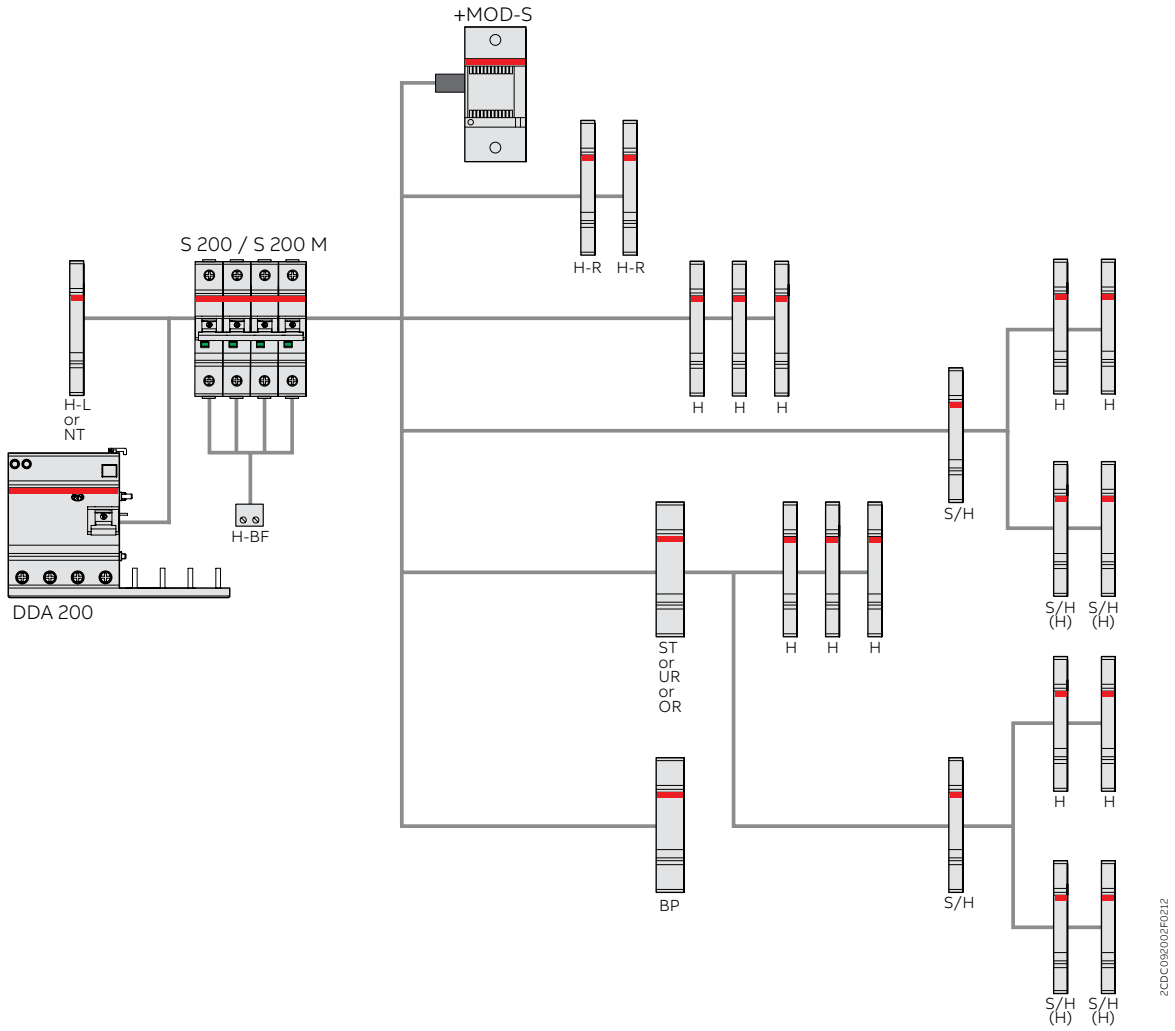
For more detailed product information, please refer to the Technical Catalogue:

Electrical installation solutions – 2CHC000002C0203

Auxiliary elements and accessories

Selection tables

Combination of auxiliary elements with S 200, DDA 200 + S 200, DS200, SD200



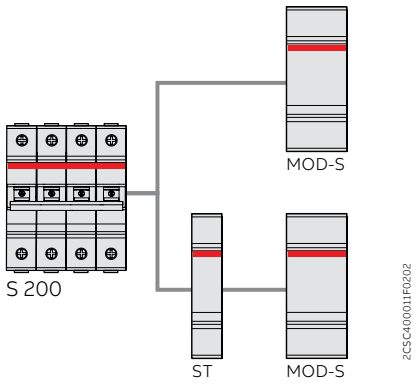
H	Auxiliary contact	S2C-H6R
H-R	Auxiliary contact	S2C-H6-...R
S/H	Signal/Auxiliary contact	S2C-S/H6R
S/H (H)	Signal/Auxiliary contact used as auxiliary contact	S2C-S/H6R
ST	Shunt trip for S 200 MCB	S2C-A...
UR	Undervoltage release	S2C-UA
OR	Overvoltage release	S2C-OVP
H-L	Auxiliary contact for S 200 MCBs to be mounted on the left	S2C-H...L
H-BF	Auxiliary contact for MCBs bottom fitting (1 for each pole of MCB)	S2C-H01/S2C-H10
BP	Mechanical tripping device	S2C-BP
NT	Switched neutral	S2C-Nt

In case of using rotary operating mechanism S2C-DH (only right side mountable) the auxiliary devices left side and bottom fitting auxiliary contact could be used.
H-L and H-BF cannot be coupled with DDA200.

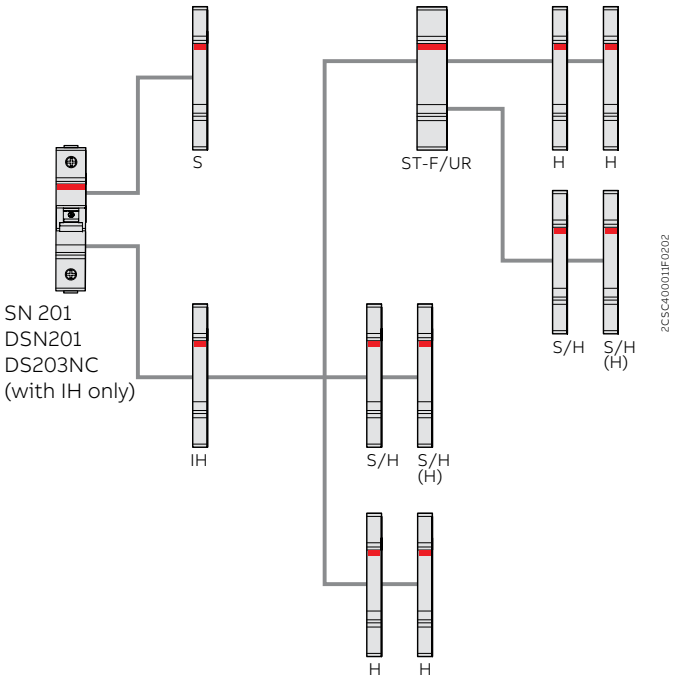
Auxiliary elements and accessories

Selection tables

Combination of S200 with motor operating device



Combination of auxiliary elements with SN201, DSN201 DS203NC



ST	Shunt trip for S 200 MCB S	S2C-A...
MOD-S*	Motor operating device	S2C-CM...

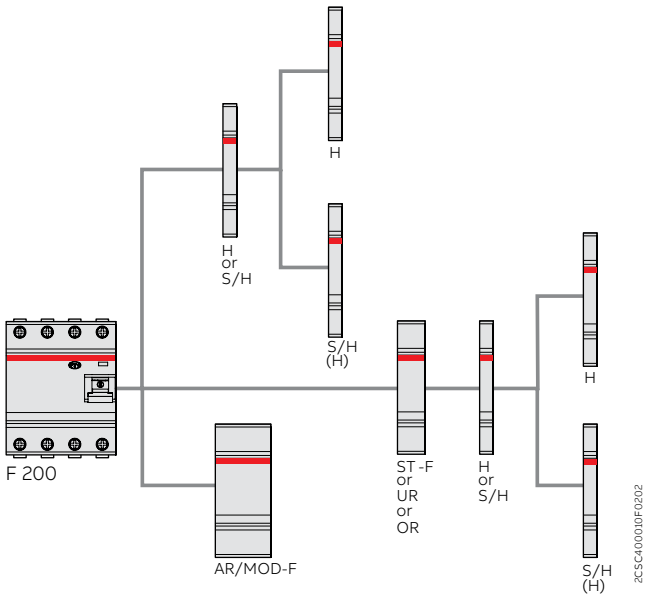
* In case of using S 200 coupled with DDA 200, MOD-S doesn't operate in case of earth-leakage fault.
* Motor operated not suitable for S200 80-100A.

IH	Coupling interface/ auxiliary contact	SN201-IH
S	Signal contact	SN201-S
H	Auxiliary contact	S2C-H6R
S/H	Signal/auxiliary contact	S2C-S/H6R
S/H (H)	Signal/auxiliary contact used as auxiliary contact	S2C-S/H6R
ST-F	Shunt trip of F200 RCD	F2C-A
UR	Undervoltage release	S2C-UA

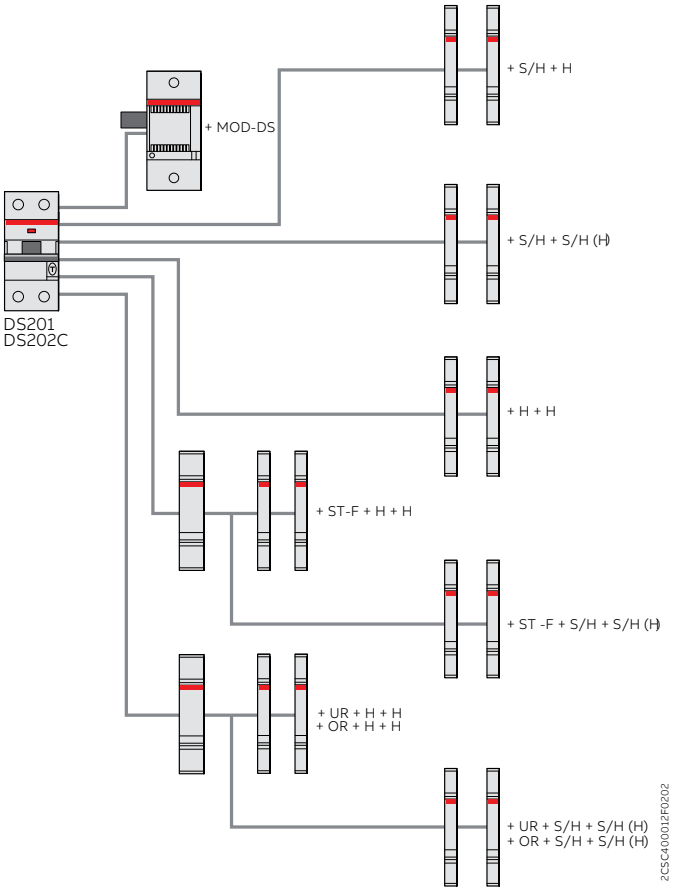
Auxiliary elements and accessories for MCBs and RCDs

Selection tables

Combination of auxiliary elements with F 200



Combination of auxiliary elements with DS201, DS202C, DSE201M



H	Auxiliary contact	S2C-H6R
S/H	Signal/Auxiliary contact	S2C-S/H6R
S/H (H)	Signal/Auxiliary contact used as auxiliary contact	S2C-S/H6R
UR	Undervoltage release	S2C-UA
OR	Overvoltage release	S2C-OVP
AR	Auto reclosing unit	F2C-ARI
MOD-F	Motor operating device	F2C-CM
ST-F	Shunt trip for F 200 RCCB	F2C-A

H	Auxiliary contact	S2C-H6R
S/H	Signal/Auxiliary contact	S2C-S/H6R
S/H (H)	Signal/Auxiliary contact used as auxiliary contact	S2C-S/H6R
ST-F	Shunt trip for F 200 RCCB	F2C-A
UR	Undervoltage release	S2C-UA
OR	Overvoltage release	S2C-OVP
MOD-DS	Motor operating device	DS2C-CM

Auxiliary elements and accessories

Auxiliary elements for S200, SN200, F200, DS200, DS203NC, DSE201M, SD200

Signal/auxiliary contacts

Signal contacts	Signal of a fault (overcurrent/short circuit) for MCB and RCBO's and earth fault for RCCB and RCBO.
Auxiliary contacts	Indication of the position of the devices contacts for MCB, RCCB, RCBO and switch disconnector.
Signal/auxiliary contacts	Selectable to indicate the position of the devices contacts (auxiliary contact) and signalling of a fault (overcurrent/short circuit for MCB's and RCBO's and earth fault for RCCB's and RCBO's).
Interface modules	For DSN201, SN201 and DS203NC. Allows other auxiliary contacts and accessories to be fitted.



Signal/auxiliary contacts

Description	Configuration	Suits	Order code
Signal contact/auxiliary contact	1CO	S200, F200, DS201, DS202C, DSE201M, SD200	S2CSH6R
Signal contact/auxiliary contact	1CO	S800	S800AUX/ALT

* Accessories not suitable with DS201BS and SH200



Auxiliary contacts

Description	Configuration	Suits	Order code
Auxiliary contact	1CO	S200, F200, DS201, DS202C, SD200, DSE201M	S2CH6R
Auxiliary contact	1NO/1NC	S200, F200, DS201, DS202C, SD200, DSE201M	S2CH11L
Auxiliary contact	2NO	S200, F200, DS201, DS202C, SD200, DSE201M	S2CH20L
Auxiliary contact	2NC	S200, F200, DS201, DS202C, SD200, DSE201M	S2CH02L
Auxiliary contact	1CO	S800	S800AUX

* Accessories not suitable with DS201BS and SH200



2CSC400683F0001

SN201-S

Interface module/auxiliary contact

Description	Configuration	Suits	Order code
Interface module/ auxiliary contact	1CO	SN201, DSN201, DS203NC	SN201-IH

Signalling contact

Description	Configuration	Suits	Order code
Signal contact	1CO	SN201, DS201	SN201S

* Accessories not suitable with DS201BS and SH200



2CSC400155F0201

S2C-H

Bottom fitting auxiliary contacts
Unique auxiliary contact that fits to the bottom of an MCB saving space on the DIN rail

Description	Configuration	Suits	Order code
Bottom fitting auxiliary contact	1NC	S200, DSE201M	S2CH01
Bottom fitting auxiliary contact	1NO	S200, DSE201M	S2CH10

STOCK | INDENT

Auxiliary elements and accessories for MCBs and RCDs

Shunt trip and undervoltage trip



S2C-A

Shunt trip

Description	Voltage	Suits	Order code
Shunt trip	12-60V AC/DC	S200	S2CA1
Shunt trip	110-415V AC/ 110-250V DC	S200	S2CA2
Shunt trip	12-60V AC/DC	SN201, F200, DS200, DSN201*, DSE201M	F2CA1
Shunt trip	110-415V AC/ 110-250V DC	SN201, F200, DS200, DSN201*, DSE201M	F2CA2
Shunt trip	24V AC/DC	S800	S800SOR24
Shunt trip	110-250V AC/DC	S800	S800SOR250

* Must be used with SN201-IH inteface module
* Accessories not suitable with DS201BS and SH200



S2C-UA

Undervoltage trip

Description	Voltage	Suits	Order code
Undervoltage release	12VDC	S200, F200, DS201, DS202C, SD200, SN201*,	S2CUA12DC
Undervoltage release	24VAC	DSE201M	S2CUA24AC
Undervoltage release	24VDC		S2CUA24DC
Undervoltage release	48VAC		S2CUA48AC
Undervoltage release	48VDC		S2CUA48DC
Undervoltage release	110VAC		S2CUA110AC
Undervoltage release	110VDC		S2CUA110DC
Undervoltage release	230VAC'		S2CUA230AC
Undervoltage release	230VDC		S2CUA230DC
Undervoltage release	400VAC		S2CUA400AC
Undervoltage release	24-36V AC/DC	S800	S800UVR36
Undervoltage release	220-250V AC/DC	S800	S800UVR250

* Must be used with SN201-IH inteface module
* Accessories not suitable with DS201BS and SH200

Busbar systems

Selection table

Short description
ABB busbar systems enable the safe and economic cross connection of MCBs, RCCBs and RCBOs.

For a correct busbar selection the following points need to be considered:
- MCB terminal type (Twin terminal or cage terminal)
- Number of poles (1, 2, 3, 4, 1+N or 3+N)
- Device type (MCB, RCCB or RCBO)
- Combinations (e.g. RCCB + MCB or RCCB 3+N + RCCB 1+N)
- Use of side mounted auxiliary elements on MCB *)
- Busbar cross section (for current carrying capacity calculation)
- Number of modules (choice of standard busbar or busbar for cutting)

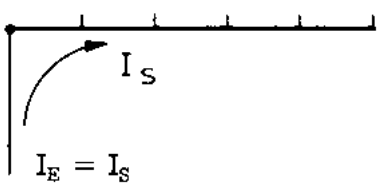
Coding of PS busbars

PS	[ ] /	[ ][ ] /	[ ][ ]	[ ][ ][ ]
	1	2 3	4 5	6 7 7
Phases				
1 phase	1			
2 phases	2			
3 phases	3			
4 phases	4			
Number of pins				
Diameter				
10 mm²			– –	
6 mm²			6 –	
16 mm²			1 6	
30 mm²			3 0	
Application				
Cross connection of RCCB and MCB (4th pin removed for RCCB 3+N)				F I
Use of neutral conductor (phase sequence e.g. L1-N-L2-N-L3-N-L1...)			N	
Space for 1 side mounted auxiliary contact			H	
Space for 2 side mounted auxiliary contacts				H 2
Pins for breaking off				A
Cross connection of devices 3P+N + 1P+N (phase sequence L1-L2-L3-N-L1-N-L2-N-L1-N-...)				N N

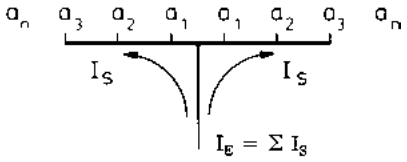
Note: Combinations of above applications are possible

* Only right side mounted auxiliary elements and bottom fixed auxiliary contacts can be considered for busbar connection

		10mm²	16mm²
Current carrying capacity of busbars	End feed	63A	80 A
	Centre feed	80 A	130 A



Feed in from the end of the busbar

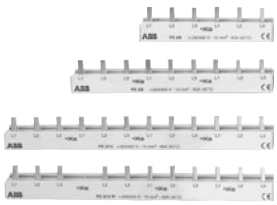


Auxiliary elements and accessories

Busbar systems

Pre-assembled busbar systems (not to be cut)

Phases	Number of pins	Cross section	Amps	Suits	Order code
1	12	10 mm²	63	SH200, S200, DSE201, DS271	PS1/12
3	12	10 mm²	63	SH200, S200, DSE201, DS271	PS3/12



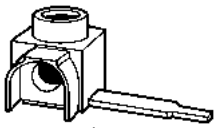
PS 3/6 - PS 3/12

Busbar systems suitable to be cut to length

Phases	Number of pins	Cross section	Amps	Suits	End cap	Order code
1	4	10 mm²	63	SH200, S200, SD200, DSE201,	–	PS1/4
1	12	10 mm²	63	DSE201M	–	PS1/12N
1	60	10 mm²	63		PS-END 0	PS1/60
1	60	16 mm²	80		PS-END 0	PS1/60/16
1	12	10 mm²	63	SN201, DSN201	–	BS91/12
1	12	10 mm²	63		–	BS91/12NA
1	56	10 mm²	63		–	BS91/56
2	12	10 mm²	63	SH200, S200, SD200,	PS-END	PS2/12
2	58	10 mm²	63	DSE201, DSE201M	PS-END	PS2/58
2	58	16 mm²	80		PS-END	PS2/58/16
3	6	10 mm²	63		–	PS3/6
3	60	10 mm²	63		PS-END	PS3/60
3	60	16 mm²	80		PS-END	PS3/60/16
3	12	10 mm²	63		–	BS93/12
3	57	10 mm²	63	SN201, DSN201	BS9-END 3P	BS93/57
3	24	60 mm²	125	S800	S800-END	S803-BB250

Busbar system end caps

Description	Suits	Order code
End cap for busbar	PS2/** and PS3/**	PS-END
End cap for busbar	PS1/**	PS-END0
End cap for busbar	BS93/**	BS9-END3P
End cap for busbar	S803-BB250	S800-END



AST 50/32 Q

Insulated terminals (feed-in terminals for busbars)

Connection capacity	Type of connection	Terminal lug L (mm)	Current rating (A)	Suits busbar type	Order code
25	pin	15	80	BS9	FEED-IN25/151P
25	pin	30	80	BS9	FEED-IN25/303P
6 - 50	pin	15	125	PS	AST50/15
6 - 50	pin	15	125	PS	AST50/15Q
6 - 50	pin	32	125	PS	AST50/32Q



SZ-ESK 2

Feeder terminal - single pole, can be mounted side by side to create multipole terminal for busbars

Connection capacity	Current rating (A)	Order code
6 - 35	100	SZESK2
6 - 50	125	SZESK3

Auxiliary elements and accessories

Busbar systems



SZ-BSK

Shock protection cap – protects unused poles on PS busbars

Description	Order code
5 pole strip	SZBSK5



F200LINK

RCD Connector – allows 3 terminations on RCCB's

Capacity	Suits	Order code
3 x 10mm²	FH200, F200	F200LINK



S2C-DH



S800-RHE-M

Rotary operating mechanism

Description		Suits	Order code
Rotary drive for 2, 3, 4 pole MCB via 5 or 6mm² shaft		S200	S2CDH
Handle – Black		S200	OHBS2AJ
Handle – Red/Yellow		S200	OHYS2AJ
6mm² Shaft	L = 120 mm	S200	OXS6X120
6mm² Shaft	L = 180 mm	S200	OXS6X180
6mm² Shaft	L = 250 mm	S200	OXS6X250
6mm² Shaft	L = 330 mm	S200	OXS6X330
Rotary drive		S800	S800RD
Handle – Anthracite		S800	S800RHEEM
Handle – Red		S800	S800RHEH
S800 drive shaft	L = 500mm	S800	S800RHES



SA 1

Locking device for MCB – allows padlocking in ON or OFF position

Description	Hasp diameter	Suits	Order code
Locking device	3 mm	S200, DSE201(M), F200	SA1
For padlock bar	6 mm		SA1-E
Padlock with 2 keys	3 mm		SA2
Lock adapter incl. padlock with 3 keys in transparent box	6 mm		SA3



Locking device for MCB – allows padlocking in OFF position – clamps to toggle to allow operation of the device when padlocking is not required

Description	Hasp diameter	Suits	Order code
Special locking device that clamps to toggle	6.5 mm	S200, DSE201M, SHD200	S2C-PD-S200
Special locking device that clamps to toggle	6.5 mm	DS201	S2C-PD-DS201e
Locking device	4 mm	S800	S800PLL

Auxiliary elements and accessories

Short circuit limiter for S800 MCB

Short circuit limiter for enhanced protection

- Max. continuous current ratings of 32, 63, 125A
- Rated operating voltage 400/690V
- Short circuit breaking capacity up to 100kA
- Can be used with S800 and MS325/MS132
- Ideal for marine, power generation, mining, wind power applications where high short circuit currents are present



S800S-SCL

Manual reset short circuit current limiter with cage terminals

Pole	Current rating (A)	Description	Order code
3	32	Short circuit current limiter 100kA 3P 32A	S803S-SCL32
	63	Short circuit current limiter 100kA 3P 63A	S803S-SCL63
	125	Short circuit current limiter 100kA 3P 125A	S803S-SCL125



S800W-SCL-SR

Self resetting short circuit current limiter with cage terminals

Pole	Current rating (A)	Description	Order code
1	32	Short circuit current limiter 100kA 1P 32A	S801S-SCL32-SR
	63	Short circuit current limiter 100kA 1P 63A	S801S-SCL63-SR
	125	Short circuit current limiter 100kA 1P 100A	S801S-SCL100-SR
2	32	Short circuit current limiter 100kA 2P 32A	S802S-SCL32-SR
	63	Short circuit current limiter 100kA 2P 63A	S802S-SCL63-SR
	125	Short circuit current limiter 100kA 2P 100A	S802S-SCL100-SR
3	32	Short circuit current limiter 100kA 3P 32A	S803S-SCL32-SR
	63	Short circuit current limiter 100kA 3P 63A	S803S-SCL63-SR
	125	Short circuit current limiter 100kA 3P 100A	S803S-SCL100-SR

Notes

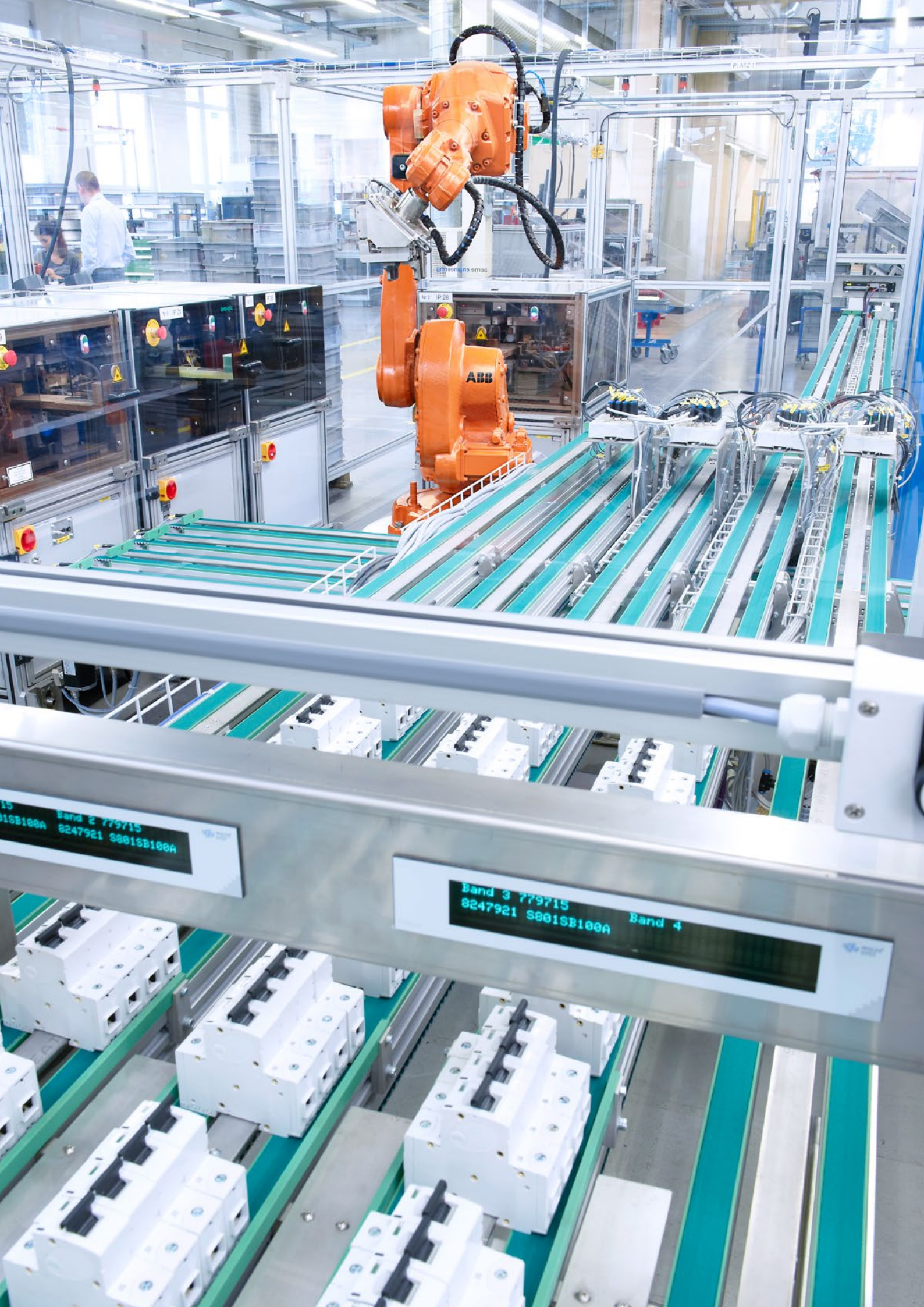


ABB
Band 2 779715
8247921 S801SB100A
Band 3 779715
8247921 S801SB100A
Band 4

Modular DIN rail components

94	Selection of surge protective devices
99	Switch disconnectors, changeover switches, man-off-auto switches
100	DIN pushbuttons and indicators
101	E90 fuse switch disconnectors
102	DIN contactors
103	Lamp load tables
104	New ESB / EN installation contactors
106	Lamp load table for new ESBs
107	DIN latching relays and time switches
108	Twilight switches
109	Other products

For more detailed product information, please refer to the Technical Catalogue:

- Electrical installation solutions – 2CHC000002C0203
- Surge protection devices – 1TXH000375C0202
- Time and twilight switches – 2CSC441022B0201

Modular DIN rail components

Selection of surge protective devices

Australian Standards

The Australian Lightning Protection Standard AS/NZS1768 provides details of the risk analysis required to assess a structure against the potential for damage. To simplify selection the Lightning Protection Standard AS/NZS 1768 and the Australian Wiring Rules AS/NZS 3000 provide a simple selection recommendation as follows. The table only considers the use of Type 2 SPD with an I_{max} rating based upon a 8/20 waveform.

Category	SPD Location	I_{max} rating
A	Long final sub-circuits and electricity supply outlets	3 – 10 kA
B	Major sub-mains, short final sub-circuits and load centres	10 – 40 kA
C1	Service entrance, other than below	40 kA
C2	Servic entrance, building fed by long overhead service lines, or is a large industrial or commercial premises	40 – 100 kA
C3	Service entrance, building in a high lightning area, or fitted with a Lightning Protection System	100 kA

In the IEC Standards a Type 1 SPD with an I_{imp} rating based upon a 10/350 waveform is considered most appropriate for high lightning risk locations. In order to compare the two ratings it is generally considered that a factor of 10 may be applied to give an equivalence between these ratings.

For example, an SPD withstanding a 100kA 8/20 impulse may be expected to withstand a 10kA impulse. Similarly a Type 1 SPD with a 25kA 10/350 rating would have an equivalent withstand capacity to a 250kA Type 2 8/20 SPD. It is common practice in larger installations to include a number of SPD in the network.

The first (or primary) SPD will be designed to handle to bulk of the energy (surge current). The subsequent (or secondary) SPD are not required to have as high value of surge current and can be installed close to the equipment to be protected and offer lower values of Up (protection voltage level).

To enable SPD's to operate independently and provide the best levels of protection it is generally considered best to allow at least 10 – 20 metres of electrical cabling between these devices.

Protection level and impulse withstand voltage

The protection level (Up) of the SPD shall be selected according to the level of overvoltage given to the equipment to be protected against transient surge. All equipment is rated with an impulse withstand voltage (Uw) depending on its category. Equipment is protected if its Uw is greater than the expected transient overvoltage between the live conductors and earth (common mode). If not, an SPD must be installed. The SPD is protecting the equipment if its protection level (Up), which is calculated under the nominal current (In), is equal or lower to the impulse withstand voltage of the equipment:

Up/f ≤ Uw

The IEC 60364-4-44 defines the required impulse withstand voltage as described in the table below:

Categories*		Un	Examples
	230 /400 V	400 /690 V	
I	1500 V	2500 V	Equipment containing particularly sensitive electronic circuits: – computer workstations, computers, TV, HiFi, video, alarms, etc.; – household appliances with electronic programmers, etc.
II	2500 V	4000 V	Domestic electrical equipment with mechanical programmers, portable tools, etc.
III	4000 V	6000 V	Equipment subject to special requirements. Distribution panels, switches, breakers, etc.
IV	6000 V	8000 V	Equipment for use at the origin of the installation. Electricity meters, circuit-breakers, etc.

IEC 60664-1

Modular DIN rail components

Selection of surge protective devices

QuickSafe® technology

An SPD can reach an end of life of the MOV in normal operating conditions. On average the end of life is about 20 years however this can vary depending upon the conditions of the installation. When an end of life condition is reached, the current passing through the MOV increases progressively creating a rapid temperature increase. This phenomenon will slowly damage the MOV itself until the MOV goes into a short circuit condition. This event is known as thermal runaway.

In order to avoid the thermal runaway effect, ABB MOV SPD's incorporate a thermal disconnection device that will detect the temperature increase and will open the circuit

Changes to the IEC 61643-11 standard for Low Voltage Surge Protective Devices has lead ABB to develop a new, patented, range of Type 2 and Type 3 SPD's with QuickSafe® technology to provide a more rapid disconnection in the event of thermal runaway.QuickSafe® technology means better protection for the installation and prolonged life of the SPD.



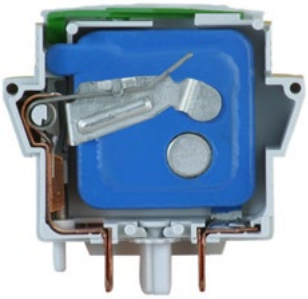
1

Here the disconnection system in Close position. During the test simulating and end of life of the SPD, the SPD has to bear a high voltage that forces a current passing through it. In this example, the passing current is 10 A.



2

Few seconds later, the MOV achieves a temperature that is high enough to melt the special metallic alloy that guarantees the contact and the mechanical position of the metallic arm. This releases the metallic arm pushed far away by the junction spring.



3

The tension in the spring is enough to quickly push up the arm and guarantee the insulation of the MOV. The speed of this movement is a key feature to interrupt the electric arc that will appear between the MOV core and the metallic arm. This movement combined with the characteristics of the MOV will guarantee the complete extinction of the arc.



4

At the end of this movement,the metallic arm will stop without any bouncing. There is no risk of a new electric arc development. At this moment, the MOV has not suffered any thermal runaway, so it is not in short-circuit. The distance between the MOV electrode and the metallic arm guarantees an insulation voltage of over 6000 V, avoiding any risks for the installation.

Modular DIN rail components

Technical selection of surge protective devices

Type 1, Type 1+Type 2, Type 2, Type 2+3 and Dataline surge protection devices for direct and indirect lightning protection

Protected lines	Impulse current I_{imp} (kA)	Max discharge current I_{max} (kA)	Voltage protection level U_p	Max. cont operating voltage U (V)z	Backup fuse/MCB	Module width	Type description	Order code
Type 1								
1	25	60	2.5 kV	255	≤ 125	2	OVRT1 25-255	2CTB815101R0100
3	25	60	2.5 kV	255	≤ 125	6	OVRT1 3L 25-255TS	2CTB815101R0600
Type 1 - Type 2								
1	12.5	80	1.1 kV	275	≤ 125	2	OVRT1-T2 12.5-275 sPTS QS	2CTB815710R0000
3	12.5	80	1.1 kV	275	≤ 125	7	OVRT1-T2 3L 12.5-275 sPTS QS	2CTB815710R0600
Type 2 - Type 3								
1	2	20	0.9 kV	275	≤ 125	1	OVRT2-T3 20-275 P QS	2CTB803871R2400
Type 2 - Type 3								
1	2	40	1.25 kV	275	≤ 125	1	OVRT2 40-275 PTS QS	2CTB803871R1700
1	6.25	80	1.8 kV	275	≤ 125	1	OVRT2 80-275 sPTS QS	2CTB815708R0000
3+1	2	40	1.25 kV	275	≤ 125	4	OVRT2 3N 40-275 sPTS QS	2CTB815704R0800
3+1	6.25	80	1.8 kV	275	≤ 125	4	OVRT2 3N 80-275 sPTS QS	2CTB815708R0800
Type 1 Photovoltaic								
2	6.25	—	1.9 kV	670	—	9	OVR PV T1 6.25-600 PTS	2CTB803953R5700
2	6.25	—	2.5 kV	1000	—	9	OVR PV T1 6.25-1000 PTS	2CTB803953R6700
Type 2 Photovoltaic								
2	—	40	1.4 kV	670	—	3	OVR PV 40-600 PTS	OVRPV40-600PTS
2	—	40	3.8 kV	1100	—	3	OVR PV 40-1000 PTS	OVRPV40-1000PTS

Cross reference chart OVR to OVR QS

OVR	OVR QS description	Order code
OVR T1 25 255	OVR T1 25 255	2CTB815101R0100
OVRHL15-440 sPTS	OVR T1+2 12.5-440 sPTS QS	2CTB815710R2900
OVR T1+2 25 255	OVR T1+2 12.5-275 sPTS QS	2CTB815710R0000
OVR T2 15-275 P	OVR T2+T3 20-275 P QS	2CTB803871R2400
OVR T2 40-275 P	OVR T2 40-275 P QS	2CTB803871R2300
OVR T2 3N 15-275 P	OVR T2+T3 3N 20-275 P QS	2CTB803973R1200
OVR T2 40-275 sPTS	OVR T2 40-275 sPTS QS	2CTB815704R0000
OVR T2 70-275 sPTS	OVR T2 80-275 sPTS	2CTB815708R0000
OVR T2 3N 40-275 sPTS	OVR T2 3N 40-275 sPTS QS	2CTB815704R0800
OVR T2 3N 70-275 sPTS	OVR T2 3N 80-275 sPTS	2CTB815708R0800

Modular DIN rail components

Selection of surge protective devices



OVR T1

Surge protection devices – Type 1 – Unpluggable

- Type 1 surge protective devices are designed to discharge high current surges varistors or triggered spark gap technology without any destruction of the installation.
- Type 1 SPD can be installed in the main switchboard for complete protection of the electrical installation.
- These surge protective devices are characterised by their capacity to withstand impulse currents with 10/350s wave form which simulate natural lightning currents.

Protected poles	Impulse current I_{imp}	Max discharge current I_{max}	Type description	Order code
1	25	60	OVRT1 25-255 Type 1 25kA 1 Phase	2CTB815101R0100
3	25	60	OVRT1 3L 25-255TS Type 1 25kA 3 Phase	2CTB815101R0600



OVR T1-T2 12.5-275s P QS

Surge protection devices – Type 1+2

- Combines the characteristics of a Type 1 and Type 2 SPD in one convenient device with high withstand characteristics and low voltage protection level (Up)
- Type 1+2 SPD's can be installed in the main switchboard for complete protection of the electrical installation.
- For three phase applications use one SPD per phase

Protected poles	Impulse current I_{imp}	Max discharge current I_{max}	Type description	Order code
1	12.5	80	OVRT1-T2 12.5-275 sPTS QS Type 1-2 12.5/80kA 1 Phase	2CTB815710R0000
3	12.5	80	OVRT1-T2 3L 12.5-275 sPTS QS Type 1-2 12.5/80kA 3 Phase	2CTB815710R0600



OVR T2 40-275 P QS

Surge protection devices – Type 2 single phase and Type 2-3 single phase

- Plug in replacement cartridges
- Models with ts suffix have signalling contact
- End of life service indicator on front of SPD

Protected poles	Impulse current I_{imp}	Max discharge current I_{max}	Type description	Order code
1	2	20	OVRT2-T3 20-275 P QS Type 2-3 20kA 1 Phase	2CTB803871R2400
1	2	40	OVRT2 40-275 PTS QS Type 2 40kA 1 Phase	2CTB803871R1700
1	6.25	80	OVRT2 80-275 sPTS QS Type 2 80kA 1 Phase	2CTB815708R0000



OVR T2 4L 40-275 P QS

Surge protection devices – Type 2 – 3P+N

- Plug in replacement cartridges
- Models with ts suffix have signalling contact
- End of life service indicator on front of SPD

Protected poles	Impulse current I_{imp}	Max discharge current I_{max}	Type description	Order code
3+1	2	40	OVRT2 3N 40-275 sPTS QS Type 2 40kA 3P+N	2CTB815704R0800
3+1	6.25	80	OVRT2 3N 80-275 sPTS QS Type 2 80kA 3P+N	2CTB815708R0800

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Modular DIN rail components

Selection of surge protective devices

Photovoltaic application surge protection devices

- Specifically designed for photovoltaic DC installations
- Plug in replacement cartridges
- Models with ts suffix have signalling contact
- End of life service indicator on front of SPD



OVR PV T1 6.25-600 P TS

Type 1 PV

Protected poles	Impulse current I_{imp}	Max discharge current I_{max}	Type description	Order code
2	6.25	–	OVR PV T1 6.25-600 sPTS Type 1 PV 6.25kA 600V	2CTB803953R5700
2	6.25	–	OVR PV T1 6.25-1000 sPTS Type 1 PV 6.25kA 1000V	2CTB803953R6700



OVR PV 40-1000 P TS

Type 2 PV

Protected poles	Impulse current I_{imp}	Max discharge current I_{max}	Voltage protection level U_p	Max. cont operating voltage U_{cpv}	Backup fuse/MCB	Modules	Order code
2	–	40	1.4	670	–	3	OVRPV40-600PTS
2	–	40	3.8	1100	–	3	OVRPV40-1000PTS

Modular DIN rail components

Switch disconnectors, changeover switches, man-off-auto switches



SHD 201 SHD 202 SHD 203 SHD 204

Switch disconnectors

- Suitable for under load operation
- Sealable toggle to lock in either OFF or ON position
- Red toggle for easy identification
- Ideal for consumer units, load centres and small distribution boards

Switch disconnectors

Standard	Rating (A)	1 Pole	2 Pole	3 Pole	Order code 4 Pole
AS/NZS 60947.3,	25	SHD20125	SHD20225	SHD20325	SHD20425
IEC/EN 60947-3	32	SHD20132	SHD20232	SHD20332	SHD20432
Voltage range	40	SHD20140	SHD20240	SHD20340	SHD20440
230/400V – 240/415V	63	SHD20163	SHD20263	SHD20363	SHD20463
	80	E20180RD	E20280RD	E20380RD	E20480RD
	100	E201100RD	E202100RD	E203100RD	E204100RD
	125	E201125RD	E202125RD	E203125RD	E201125RD



E213-16-001 E 213-16-002 E214-16-101 E214-16-202

DIN mounting changeover switches

- Space saving design – only 9 mm or 18 mm wide
- Suited for consumer units, load centres and distribution boards

Changeover switches and Group switches (I-0-II, manual-off-auto)

Standard	Current rating	Contacts	Width (mm)	Order code
EN 60669-1	**Changeover switches**			
Voltage range	16	1 C/O	9	E213-16-001
1 C/O, 2 C/O 250 V		2 C/O	18	E213-16-002
	25	1 C/O	9	E213-25-001
		2 C/O	18	E213-25-002
	Group switches (I-0-II, manual-off-auto)			
	16	1 C/O	9	E214-16-101
		2 C/O	18	E214-16-202
	25	1 C/O	9	E214-25-101
		2 C/O	18	E214-25-202

Modular DIN rail components

DIN pushbuttons and indicators



E 215

DIN pushbuttons

Standard	Current rating		Contacts	Width (mm)	Order code
EN 60669-1	16	Grey	1 N/O + 1 N/C	9	E215-16-11B
Rated voltage		Red	1 N/O + 1 N/C	9	E215-16-11C
250V AC		Green	1 N/O + 1 N/C	9	E215-16-11D
		Black	1 N/O + 1 N/C	9	E215-16-11F

Notes:
Yellow and Blue buttons available on request



E 219

DIN single indicator lights

Standard	Power loss (W)	LED colour	Width (mm)	Order code
EN 60669-1	0.47	Red	9	E219C
Rated voltage		Green	9	E219D
115 – 250V AC		Yellow	9	E219E
		Blue	9	E219G

Notes
White LED available on request
LED range for 12–48V AC/DC and 60–220V DC also available on request



2CCC441165F0001

E 219-2CD



E 219-3CDE

DIN double indicator lights and DIN triple indicator lights

Standard	Power loss (W)	LED colour	Width (mm)	Order code
EN 60669-1	**DIN double indicator lights**			
Rated voltage	0.8	Red, Green	9	E219-2CD
115 – 250V AC	**DIN triple indicator lights**			
	1.2	Red, Red, Red	9	E219-3C
		Green, Green, Green	9	E219-3D
		Red, Yellow, Green	9	E219-3CDE

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Modular DIN rail components

E90 fuse switch disconnectors


E 92


E 931

E90 fuse switch disconnector

- Standard: IEC 60947-3

Poles	Rated current	Modules	Order code
E90 fuse switch disconnector for 8.5 x 31.5mm fuses			
1	20	1	E91/20
2	20	2	E92/20
3	20	3	E93/20
E90 fuse switch disconnector for 10.3 x 38mm fuses			
1	32	1	E91/32
1 + N	32	1	E91N/32
2	32	2	E92/32
3	32	3	E93/32
E90 fuse switch disconnector for 14 x 51mm fuses			
1	50	1.5	E91
2	50	3	E92
3	50	4.5	E93


E 9F14 AM

Cylindrical fuses – 10.3 x 30 type gG

Rated current (A)	Size	Order code
1	10.3 x 38 mm	1038F1
2	10.3 x 38 mm	1038F2
4	10.3 x 38 mm	1038F4
6	10.3 x 38 mm	1038F6
8	10.3 x 38 mm	1038F8
10	10.3 x 38 mm	1038F10
16	10.3 x 38 mm	1038F16
20	10.3 x 38 mm	1038F20
25	10.3 x 38 mm	1038F25
32	10.3 x 38 mm	1038F32


E 92

E90PV fuse disconnector for 8.5 x 31.5mm fuses

- Rated 1000VDC for photovoltaic applications
- Padlockable in open position
- DC-20B
- Standard: IEC 60947-3

Poles	Rated current	Modules	Order code
1	32	1	E91/32PV
2	32	2	E92/32PV

Modular DIN rail components

DIN contactors


ESB20


ESB24


ESB40


ESB63

Description

ESB20 contactors are used for the control of single phase loads up to 20 A.
They operate with an AC coil. ESB24/ESB40/ESB63 contactors are used for the control of single and three-phases loads up to 63 A. Due to their DC solenoid actuator, they can be connected to AC or DC voltages. This provides the following benefits:

- Hum-free operating system, low power consumption, integrated high overvoltage protection
- One add-on auxiliary contact block for side mounting can be used with ESB24, ESB40 & ESB63

IEC Rated curent θ ≤ 40°C AC-1/AC-7a	IEC Rated motor load AC-3/AC-7b	Rated control voltage U_c		Main poles		Factory code	Order code
A	kW	V 50Hz	DC				
2 main poles, 3 or 4 main poles							
20	1,1	24 V		2	0	GHE3211102R0001	ESB202024
		230 V		2	0	GHE3211102R0006	ESB2020230
		240 V		2	0	GHE3211102R0005	ESB2020240
		24 V		0	2	GHE3211202R0001	ESB200224
		230 V		0	2	GHE3211202R0006	ESB2002230
		240 V		0	2	GHE3211202R0005	ESB2002240
		24 V		1	1	GHE3211302R0001	ESB201124
		230 V		1	1	GHE3211302R0006	ESB2011230
		240 V		1	1	GHE3211302R0005	ESB2011240
24	4	24 V	24 V	2	0	GHE3291402R0001	ESB242024
		230 V	230 V	2	0	GHE3291402R0006	ESB2420230
40	22	24 V	24 V	2	0	GHE3491402R0001	ESB402024
		230 V	230 V	2	0	GHE3491402R0006	ESB4020230
24	4	24 V	24 V	4	0	GHE3291102R0001	ESB244024
		230 V	230 V	4	0	GHE3291102R0006	ESB2440230
		24 V	24 V	0	4	GHE3291202R0001	ESB240424
		230 V	230 V	0	4	GHE3291202R0006	ESB2404230
		24 V	24 V	2	2	GHE3291302R0001	ESB242224
		230 V	230 V	2	2	GHE3291302R0006	ESB2422230
		24 V	24 V	3	1	GHE3291602R0001	ESB243124
		230 V	230 V	3	1	GHE3291602R0006	ESB2431230
40	22	24 V	24 V	4	0	GHE3491102R0001	ESB404024
		230 V	230 V	4	0	GHE3491102R0006	ESB4040230
		240 V	240 V	4	0	GHE3491102R0005	ESB4040240
		24 V	24 V	2	2	GHE3491302R0001	ESB402224
		230 V	230 V	2	2	GHE3491302R0006	ESB4022230
		24 V	24 V	3	1	GHE3491602R0001	ESB403124
		230 V	230 V	3	1	GHE3491602R0006	ESB4031230
		24 V	24 V	3	0	GHE3491502R0001	ESB403024
		230 V	230 V	3	0	GHE3491502R0006	ESB4030230
63	30	24 V	24 V	4	0	GHE3691102R0001	ESB634024
		230 V	230 V	4	0	GHE3691102R0006	ESB6340230
		240 V	240 V	4	0	GHE3691102R0005	ESB6340240
		230 V	230 V	3	1	GHE3691602R0006	ESB6331230

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 2CDC103023C0201

Ordering details accessories


EH04 ...


ESBPLK24


ESBDIS

Description		Factory code	Order code
Aux. switches	2 N.O.	1SAE901901R1020	EH0420N
	1 N.O. + 1 N.C.	1SAE901901M1011	EH0411
Distance piece	ESB25..N, ESB40..N, ESB63..N,	GHE3201902R0001	ESBDIS[1]
	EN25..N, EN40..N, ESB100..N,	GHE3201903R0001	ESBPLK24
Sealing covers	ESB25..N, EN25..N	GHE3401903R0001	ESB-PLK40/63
	ESB40..N, ESB63..N	GHE3201903R0002	ESBSPK24
Protection Cover	ESB25..N	GHE3401903R0002	ESBSPK40/63
	ESB40..N, ESB63..N		

1) If several contactors are mounted adjacently and the ON time is longer than one hour, every second contactor needs a distance piece,Type ESB-DIS (1/2 module). This is not necessary at an ambient temperature ≤ 40 °C or on Type ESB16..N and ESB/EN20..N.

Modular DIN rail components

Lamp load tables

Please note: Switching lamps is a capacitor load application where high inrush current peaks could occur. These are influenced by the length and cross section of the wire as well as the type of power supply unit and specifications of the lamp brand. For example long cables can increase the possible number of lamps per pole. The table shows the allowed max. current for 1 pole and considers already the startup current peaks.

The following selection table show the current values and the maximum switchable capacitor load for compensated lamps. These two limits have to be considered in the selection of contactors

		ESB20	ESB24	ESB40	ESB63
Permitted compensating capacity per phase	Cmax [µF]	75	100	350	500
Lamp types		Maximum load of the current paths during switching of electric lamps Ie [A]			
Incandescent and halogen lamps (230 V)	Ie [A]	6	7	20	30
Mixing lamps without ballast	Ie [A]	6	7	20	30
Fluorescent lamps with conventional ballast					
single lamp uncompensated	Ie [A]	9	22	36	56
single lamp parallel compensated	Ie [A]	3	3.5	10	15
series compensation, duo circuit	Ie [A]	9	22	36	56
Fluorescent lamps with electronic ballast or CFL	Ie [A]	3	7	20	30
LED lamps	Ie [A]	31)	7	20	30
High pressure mercury-vapor lamps					
single lamp without compensation	Ie [A]	9	11	18	28
single lamp with parallel compensation	Ie [A]	3	3.5	10	15
Halogen metal-vapor lamps					
single lamp without compensation	Ie [A]	9	11	18	28
single lamp with parallel compensation	Ie [A]	3	3.5	10	15
High pressure sodium-vapor lamps					
single lamp without compensation	Ie [A]	9	11	18	28
single lamp with parallel compensation	Ie [A]	3	3.5	10	15
Low pressure sodium-vapor lamps					
single lamp without compensation	Ie [A]	9	11	18	28
single lamp with parallel compensation	Ie [A]	3	3.5	10	15
Electronic ballast devices	Ie [A]	3	7	20	30

Example of lamp load calculation:
Due to many varieties of lamps and ballasts we advise to take the current load as base for reference. The lamp table considers already the inrush peaks and other lamp parameters.
The formula I=P/U can be used for calculation if only the voltage and power is known.

Please see the following examples for a reliable project lamp calculation:

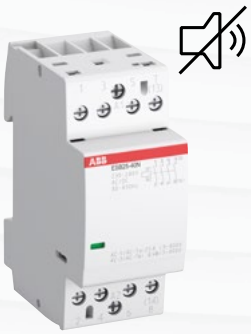


- Fluorescent lamp with conventional ballast, uncompensated,
  the lamp operating current I = 1.5 A, voltage U = 230 V
  1 pole of ESB24 can be loaded with max. 22 A, see lamp table => 22A/1.5A = 14.66 => 14 lamps
  1 pole of ESB20 can be loaded with max. 9 A, see lamp table => 9A/1.5A = 6 => 6 lamps
- Fluorescent lamp with conventional ballast, uncompensated,
  the lamp power P = 140 W, U = 230 V, I = P/U = 140/230 = 0.6 A
  1 pole of ESB24 can be loaded with max. 22 A, see lamp table => 22A/0.6A = 36.66 => 36 lamps
  1 pole of ESB20 can be loaded with max. 9 A, see lamp table => 9A/0.6A = 15 => 15 lamps

Modular DIN rail components

New ESB / EN installation contactors

Available from July 2018



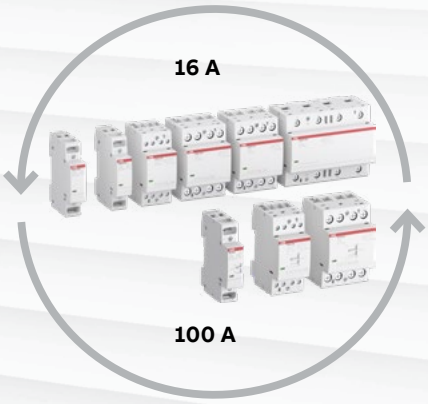
Noise-free operation

With an innovative AC/DC design that eliminates hum, therange meets the needs of applications demanding silent operation, for example hotel rooms and residential buildings.



Built-in protective circuit

Protect the contactor without additional space-demanding components against remote lightning strikes and overvoltages.



Comprehensive solution

ABB's ESB and EN installation contactors range offers a complete solution from 16A to 100A, offering an answer to all customer needs from a single supplier. With 16 A, 25 A and 100 A versions, tender specifications can be met with competitive pricing.

Modular DIN rail components

New ESB / EN installation contactors

Available from July 2018

Description

ESB16 contactors are used for the control of single phase loads up to 20 A. They operate with an AC/DC coil. ESB25/ESB40/ESB63/ESB100 contactors are used for the control of single and three-phases loads up to 63 A. Due to their DC solenoid actuator, they can be connected to AC or DC voltages.

This provides the following benefits:

- Hum-free operating system, low power consumption, integrated high overvoltage protection
- One add-on auxiliary contact block for side mounting can be used with ESB25, ESB40, ESB63 and ESB100.

IEC Rated curent θ ≤ 40°C AC-1/AC-7a	Rated Control Voltage Uc	Main poles		Factory code	Order code
A	AC/DC				
2 main poles, 3 or 4 main poles					
16	24	2	0	1SBE111111R0120	ESB1620N01
	24	1	1	1SBE111111R0111	ESB1611N01
	230	2	0	1SBE111111R0620	ESB1620N06
	230	1	1	1SBE111111R0611	ESB1611N06
20	24	2	0	1SBE121111R0120	ESB2020N01
	230	0	2	1SBE121111R0602	ESB2002N06
	230	1	1	1SBE121111R0611	ESB2011N06
	230	2	0	1SBE121111R0620	ESB2020N06
25	24	4	0	1SAE231111R0140	ESB2540N01
	230...240	2	0	1SAE231111R0620	ESB2520N06
	230...240	3	0	1SAE231111R0630	ESB2530N06
	230...240	4	0	1SAE231111R0640	ESB2540N06
	230...240	0	4	1SAE231111R0604	ESB2504N06
	230...240	3	1	1SAE231111R0631	ESB2531N06
	230...240	2	2	1SAE231111R0622	ESB2522N06
40	24	2	0	1SAE341111R0122	ESB4022N01
	24	3	0	1SAE341111R0130	ESB4030N01
	24	4	0	1SAE341111R0140	ESB4040N01
	24	2	2	1SAE341111R0122	ESB4022N01
	230	2	0	1SAE341111R0620	ESB4020N06
	230	3	0	1SAE341111R0630	ESB4030N06
	230	4	0	1SAE341111R0640	ESB4040N06
	230	2	2	1SAE341111R0622	ESB4022N06
63	24	4	0	1SAE351111R0140	ESB6340N01
	230	2	0	1SAE351111R0620	ESB6320N06
	230	3	0	1SAE351111R0630	ESB6330N06
	230	3	1	1SAE351111R0631	ESB6331N06
	230	4	0	1SAE351111R0640	ESB6340N06
	230	2	2	1SAE351111R0622	ESB6322N06
	230	1	1	1SAE351111R0611	ESB6311N06
100	24	2	0	1SAE361111R0120	ESB10020N01
	24	4	0	1SAE661111R0140	ESB10040N01
	230	2	0	1SAE361111R0620	ESB10020N06
	230	4	0	1SAE361111R0640	ESB10040N06

Other control voltages: see voltage code table and contact ABB for availability of products
For more detailed product information, please refer to the Technical Catalogue: 2CDC103034C0201

Ordering details accessories

Description		Factory code	Order code
Aux. switches	2 N.O.	1SAE901901R1020	EH0420N
	1 N.O. + 1 N.C.	1SAE901901M1011	EH0411
Distance piece	ESB25..N, ESB40..N, ESB63..N	GHE3201902R0001	ESBDIS[1)]
	EN25..N, EN40..N, ESB100..N		
Sealing covers	ESB25..N, EN25..N	GHE3201903R0001	ESBPLK24
	ESB40..N, ESB63..N	GHE3401903R0001	ESB-PLK40/63
Protection Covers	ESB25..N		ESBSPK24
	ESB40..N, ESB63..N		ESBSPK40/63

1) If several contactors are mounted adjacently and the ON time is longer than one hour, every second contactor needs a distance piece, Type ESB-DIS (1/2 module). This is not necessary at an ambient temperature ≤ 40 °C or on Type ESB16..N and ESB/EN20..N."

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Modular DIN rail components

Lamp load table for new ESBs

Available from July 2018

Please note: Switching lamps is a capacitor load application where high inrush current peaks could occur. These are influenced by the length and cross section of the wire as well as the type of power supply unit and specifications of the lamp brand. For example long cables can increase the possible number of lamps per pole. The table shows the allowed max. current for 1 pole and considers already the startup current peaks.

The following selection table show the current values and the maximum switchable capacitor load for compensated lamps. These two limits have to be considered in the selection of contactors

Contactor type		**ESB25..N/ EN25**	**ESB40..N /**	**EN40 ESB63..N**
Permitted compensating capacity per phase Cmax		100 µF	350 µF	500 µF
Lamp types				
Incandescent and halogen lamps (230 V)		7	20	30
Mixing lamps without ballast		7	20	30
Fluorescent lamps with conventional ballast	single lamp uncompensated	22	36	56
	single lamp parallel compensated	3.5	10	15
	series compensation, duo circuit	22	36	56
Fluorescent lamps with electronic ballast or CFL		7	20	30
LED lamps		7	20	30
High pressure mercury-vapor lamps	single lamp without compensation	11	18	28
	single lamp with parallel compensation	3.5	10	15
Halogen metal-vapor lamps	single lamp without compensation	11	18	28
	single lamp with parallel compensation	3.5	10	15
High pressure sodium-vapor lamps	single lamp without compensation	11	18	28
	single lamp with parallel compensation	3.5	10	15
Low pressure sodium-vapor lamps	single lamp without compensation	11	18	28
	single lamp with parallel compensation	3.5	10	15
Electronic ballast devices		7	20	30



Example for lamp load calculation

Due to many varieties of lamps and ballasts we advice to take the current load as base for reference. The lamp table considers already the inrush peaks and other lamp parameters.

Please see the following examples for a reliable project lamp calculation:

- Fluorescent lamp with conventional ballast, uncompensated the lamp operating current I = 1.5 A, voltage U = 230 V
  1 pole of ESB24 can be loaded with max. 22 A, see lamp table => 22 A / 1.5 A = 14.66 => 14 lamps
  1 pole of ESB20 can be loaded with max. 9 A, see lamp table => 9 A / 1.5 A = 6 lamps

Please use the referring value in the table stated above and divide it with the current stated on the lamp. This will lead to the number of lamps which can be switched.
Example: ESB25..N used for LED lamps: 7 A (= 7000 mA) / 85 mA = 82.23 => 82 lamps

Modular DIN rail components

DIN latching relays and time switches



E 290

Latching relay type E290

- Allows switching of the contacts via a pulse sent to the coil (Pulse ON, pulse OFF)
- Suits lighting circuits requiring pulse on/pulse off operation
- Ideal for step functions in control circuits

E290

Current	Main poles	Coil voltage	Modules	Order code
AC-1				
16	1 N/O	230 VAC/ 110 VDC	1	E290-16-10/230

Note:
Other coil voltages and contact configurations available on request



CT-MFD.12

Time delay relay type CT MFD

- 7 different timing functions. ON delay, OFF delay, Impulse ON, Impulse OFF, Flasher starting with ON, Flasher starting with OFF, Pulse former
- 7 time ranges from 0.05s to 100h

Multi-purpose time delay relay

Current	Configuration	Coil voltage	Modules	Order code
AC-1				
16	1 C/O	12 – 240 V AC/DC	1	CT-MFD.12



AT1e-R D1

Time switches

- Space saving design
- Suited for consumer units, load centres and distribution boards
- Analogue and digital versions
- Reserve and non-reserve operation

Analogue time switch

Voltage	Contacts	Running reserve	Version	Modules	Order code
230 V	**Programs Maximum 96 programs per cycle. Minimum switching 15 minutes.**				
Contacts	1 N/O	100h	Daily	1	AT1e-R
16A	1 C/O	–	Daily	2	AT2e
	1 C/O	150h	Daily	2	AT2e-R
	1 C/O	150h	Weekly	2	AT2e-7R

Digital time switch

Voltage	Channels	Running reserve	Version	Modules	Order code
230 V	**Programs Maximum 64 programs per cycle. Minimum switching 1 second. Permanent memory EEPROM.**				
Contacts	1 C/O	6 years	Weekly	2	D1
16A	2 C/O	6 years	Weekly	2	D2

STOCK | INDENT

Modular DIN rail components

Twilight switches


T1


T1 PLUS


T1POLE


LS-D

Twilight switches

- Space saving design
- Suited for consumer units, load centres and distribution boards
- Switch on and off according to a preset light level
- Switching delay to prevent unnecessary switching due to sudden changes in light intensity

T line modular twilight switch and Pole mounting twilight switch

Voltage	Brightness range (lux)	Contacts	Maximum loads Incandescent	Fluorescent	Electronic	Module width	Order code
230 V	**T line modular twilight switch**						
Contacts	2 : 200	1 N/O	960W	720W	200W	1	T1
16A (resistive),	2 : 15000	1 C/O	1080W	720W	200W	2	T1PLUS
3A inductive	**Pole mounting twilight switch**						
	2 : 200	1 N/O	960W	720W	200W	–	T1POLE

Accessories (spare parts)	
Description	**Order code**
IP65 Sensor	LS-D


TWA-1

Astronomical twilight switches

- Automatic control of lighting circuits according to the time of sunset and sunrise
- No need for external sensor
- Ideal for areas where an external sensor is not practical due to:
  - vandalism
  - air pollution
  - excessive brightness
- An internal algorithm calculates the rising and setting of the sun. Simply enter the date, time, geographical coordinates and time zone

TWA twilight astronomical switch

Voltage	Brightness range (lux)	Contacts	Maximum loads Incandescent	Fluorescent	Electronic	Module width	Order code
230 V	2 : 200	1 C/O	2300W	400W	500W	2	TWA1
Contacts	2 : 15000	2 C/O	2300W	400W	500W	2	TWA2
16A (resistive),							
3A inductive							

STOCK | INDENT

Modular DIN rail components

Other products



TM fail safe bell transformer

- Safety extra low voltage secondary (SELV)
- Suitable for loads that require a discontinuous supply, such as a door bell.

Maximum rated discontinuous power (VA)	Secondary voltage	Modules	Order code
15	12-24	2	TM15/24
30	12-24	3	TM30/24



2CSC400407F0001

SM 1-230

RM electro-mechanical buzzer

- Sound level at 1 metre 82 dB
- Maximum permanent working time 15 min.

Rated voltage (v)		Modules	Order code
230	Discontinuous rated	1	RM1230



2CSC400459F0201

E 233



2CSC400524F0201

HMT

E233 electro-mechanical hour counter

- Used to record operating times as well as idle times of industrial machinery
- No reset functionality

Rated voltage (V)	Count capacity	Modules	Order code
230	99.999 h	1	E233-230
230	99,999.9 h	2	HMT1-230

STOCK | INDENT



Consumer units, load centres and distribution boards

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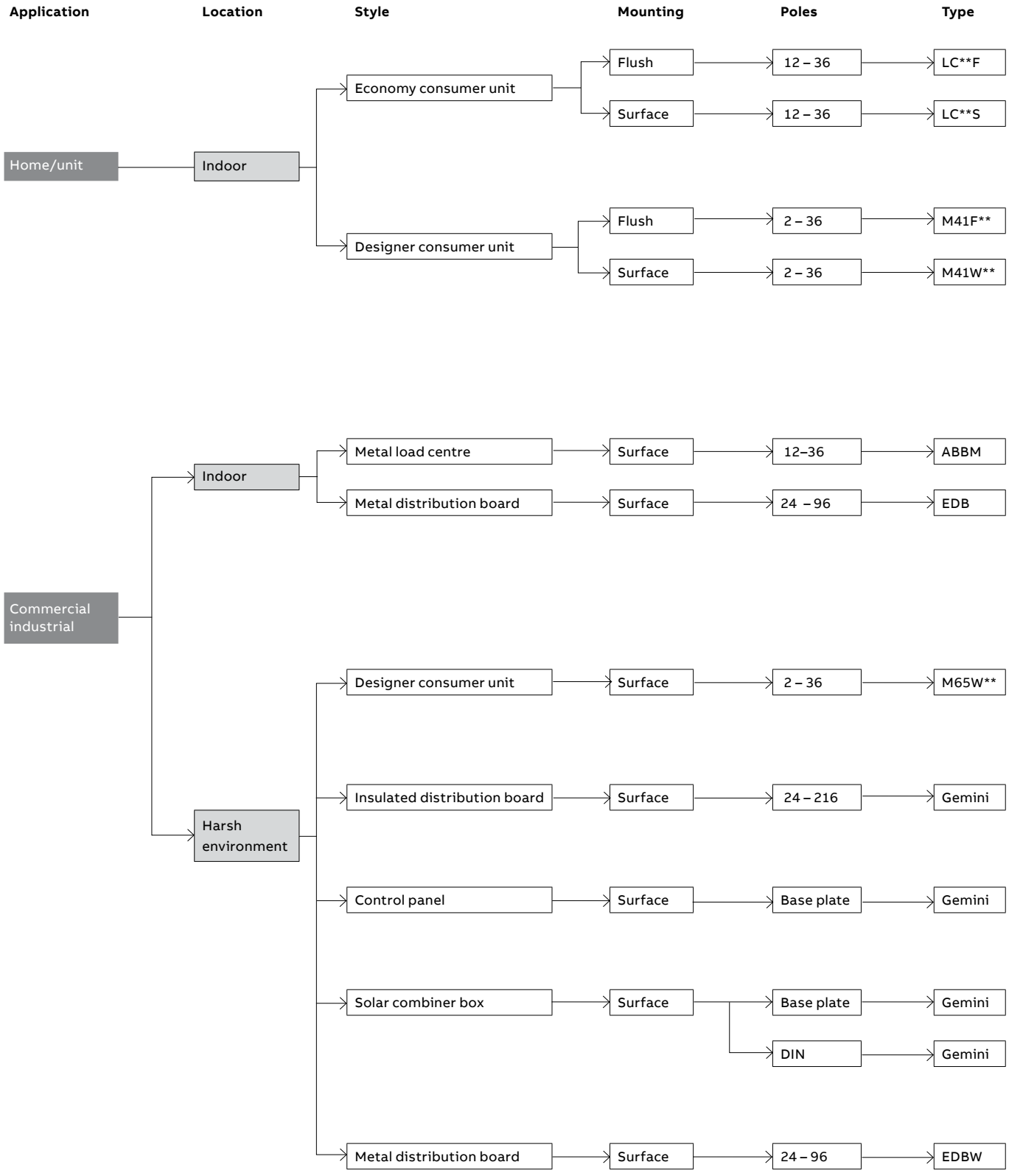
114	Economy range consumer units
115	MISTRAL® – designer range consumer units
124	Economy range – loaded consumer units
125	Metal load centres
126	Distribution boards
131	Miniature circuit breaker chassis
133	Encapsulated miniature circuit breaker chassis
137	Isolatable encapsulated miniature circuit breaker chassis
138	Emergency lighting test unit

For more detailed product information, please refer to the Technical Catalogue:

System pro E comfort MISTRAL® – 1SLC801013D0201

Consumer units, load centres and distribution boards

Quick selection guide



Consumer units, load centres and distribution boards

Quick selection guide for plastic consumer units

Range	IP Rating	Mounting	Cover	2 pole	4 pole	8 pole	12 pole	18 pole	24 pole	36 pole
LC Economy range	IP40	Flush	Transparent				LC12FMT	LC18FMT	LC24FMT	
			Opaque				LC12FMW	LC18FMW	LC24FMW	
		Surface	Transparent				LC12ST	LC18ST	LC24ST	
			Opaque				LC12SW	LC18SW	LC24SW	
MISTRAL® Designer range	IP41	Flush	Transparent		M41F04T	M41F08T	M41F10T	M41F18T	M41F24T	M41F36T
			Opaque		M41F04W	M41F08W	M41F12W	M41F18W	M41F24W	M41F36W
			No door							
		Surface	Transparent	M41W02T	M41W04T	M41W08T	M41W10T	M41W18T	M41W24T	M41W36T
			Opaque	M41W02W	M41W04W	M41W08W	M41W12W	M41W18W	M41W24W	M41W36W
			No door	M41W02	M41W04	M41W08				
	IP65	Surface	Transparent		M65W04T	M65W08T	M65W12T	M65W18T	M65W24T	M65W36T
			Opaque		M65W04W	M65W08W	M65W12W	M65W18W	M65W24W	M65W36W

Cross reference guide from new MISTRAL® range to previous Europa and Fly series

IP Rating	Mounting	Poles	E/N bars	Europa	Fly	MISTRAL®
IP40	**Flush Mount**	**Transparent cover**				
		12	yes	LF12061		M41F12TEN
		24	yes	LF12063		M41F24TEN
		36	yes	LF12065		M41F36TEN
		Opaque cover				
		12	yes	LF12041		M41F12WEN*
		24	yes	LF12043		M41F24WEN*
		36	yes	LF12045		M41F36WEN*
	Surface mount	**No cover**				
		2	no	LE12402		M41W02
		4	no	LE12404		M41W04
		6	no	LE12406		
		8	no	LE12408		M41W08
		Transparent cover				
		12	yes	LS12462		M41W12TEN
		24	yes	LS12464		M41W24TEN
		36	yes	LS12466		M41W36TEN
		Opaque cover				
		12	yes	LS12442		M41W12WEN*
		24	yes	LS12444		M41W24WEN*
		36	yes	LS12446		M41W36WEN*
IP55	**Surface mount**	**Transparent cover**				
		4	no	LE12644		M65W04T
		6	no	LE12646		
		8	no			M65W08T
		10	no	LE12650		
		12	yes			M65W12TEN
		18	yes			M65W18TEN
		20	no	LE12652		
		24	yes			M65W24TEN
		36	yes			M65W36TEN
IP65	**Surface mount**	**Transparent cover**				
		4	no	LS12744	LE12742	M65W04T
		6	no			M65W06T
		8	no	LS12748	LE12743	M65W08T
		10	no			
		12	yes	LS12752	LE12745	M65W12TEN
		18	yes			M65W18TEN
		24	yes	LS12754		M65W24TEN
		36	yes	LS12756		M65W36TEN

* Availability to be advised. Please consult your ABB representative.

Consumer units, load centres and distribution boards

Economy range consumer units

Economy consumer units

- Ideal for domestic homes and residential apartments.
- Earth and neutral bars included
- 12 pole buscomb included
- Suits DIN profile products - MCB, RCD, RCBO, SPD, time switches
- Protection rating: IP40



Surface mount – white body, smoked transparent cover, E/N bars included

Pole capacity	Rows	Dimensions (H x W x D)	Order code
12	1	210mm x 256mm x 100mm	LC12ST
18	1	222mm x 364mm x 100mm	LC18ST
24	2	325mm x 270mm x 100mm	LC24ST

36 pole available on request

Surface mount – white body, white cover, E/N bars included

Pole capacity	Rows	Dimensions (H x W x D)	Order code
12	1	210mm x 256mm x 100mm	LC12SW
18	1	222mm x 364mm x 100mm	LC18SW
24	2	325mm x 270mm x 100mm	LC24SW

36 pole available on request



Flush mount – white body, smoked transparent cover, E/N bars included

Pole capacity	Rows	Dimensions (H x W x D)	Order code
12	1	247mm x 305mm x 93mm	LC12FMT
18	1	270mm x 415mm x 103mm	LC18FMT
24	2	355mm x 305mm x 103mm	LC24FMT

36 pole available on request

Flush mount – white body, white cover, E/N bars included

Pole capacity	Rows	Dimensions (H x W x D)	Order code
12	1	247mm x 305mm x 93mm	LC12FMW
18	1	270mm x 415mm x 103mm	LC18FMW
24	2	355mm x 305mm x 103mm	LC24FMW

36 pole available on request

Accessories

Metal backing plate for cable protection in cavity walls (1mm galvanised steel) – supplied loose

Suits enclosure	Dimensions (H x W)	Order code
LC flush mount series, 12P	350mm x 260mm	ABB12WPP
LC flush mount series, 18P	370mm x 365mm	ABB18WPP
LC flush mount series, 24P	460mm x 260mm	ABB24WPP

Pole fillers

Description	Order code
Pole fillers – 4 module strip - RAL 9016 (white)	LA12859
Pole fillers – 12 module strip - RAL 7035 (grey)	SZBP12

Sticker cards

Description	Order code
Circuit identification card – Blue	GJF1707110P0011
Circuit identification card – Red	GJF1707110P0012

Consumer units, load centres and distribution boards
MISTRAL® – designer range consumer units

Fast and easy to be installed. Design and simplicity 'all in one'.



Endless installation possibilities

Door opens up to 180° allowing full access to the interior of the unit.

Door available in two versions: petrol blue and opaque. Units without doors are also available.

Concealed rear mounts for secure wall installation.

The symmetrical design allows opening of the reversible door either from the left or from the right.

Consumer units, load centres and distribution boards

MISTRAL® – designer range consumer units

Endless installation possibilities

Invisible cable entry and exit
Pre-cut knockout slots allow cable entry and exit from the top and bottom. When not used, the slots remain invisible on the outside maintaining the consumer unit's sleek look and feel.

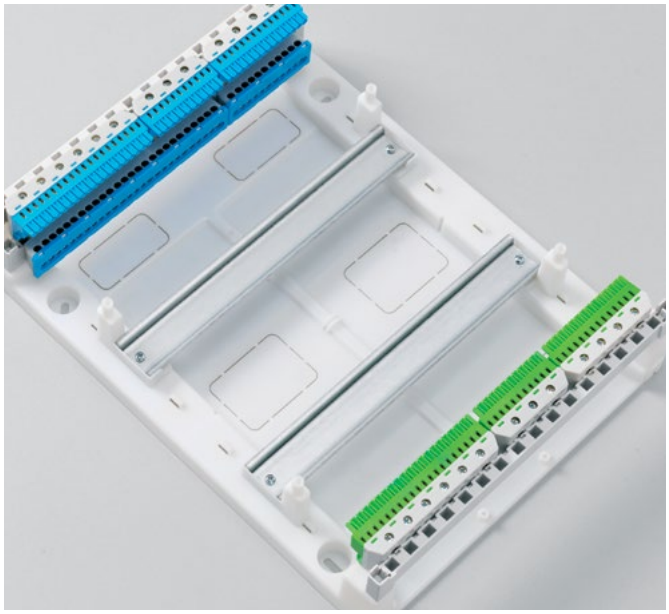


More than enough internal space
Lots of internal space makes cabling even easier. Cable clips and holes allow wires to be fastened to the frame with simple cable ties.





Easy installation of extra modules
An extra module can be added by removing two pre-cut elements. This offers a quick and easy solution when unexpected additional installation is required.



Fast and tidy cabling
Various snap-on terminal blocks for N and PE connection be installed in the upper and lower part of the unit.
Two versions offer screw or spring couplings.

Consumer units, load centres and distribution boards

MISTRAL® – designer range consumer units

IP41 designer range of surface mount consumer units – MISTRAL® 41W – without earth/neutral bars

- Ideal for domestic homes and residential apartments.
- Customisable earth and neutral bars (Refer to pages 121 – 122)
- Suits DIN profile products - MCB, RCD, RCBO, SPD, time switches











2 modules

Surface mount - white body, transparent door

Pole capacity	Rows	Dimensions (H x W x D)	Order code
4	1	210mm x 96mm x 93mm	M41W04T
8	1	257mm x 202mm x 120mm	M41W08T
12	1	257mm x 292mm x 120mm	M41W12T
18	1	257mm x 382mm x 120mm	M41W18T
24	2	382mm x 292mm x 120mm	M41W24T
36	3	507mm x 292mm x 120mm	M41W36T
48	4	656mm x 292mm x 120mm	M41W48T
54	3	507mm x 382mm x 120mm	M41W54T
72	4	656mm x 382mm x 120mm	M41W72T

Surface mount - white body, opaque door

Pole capacity	Rows	Dimensions (H x W x D)	Order code
4	1	210mm x 96mm x 93mm	M41W04W
8	1	257mm x 202mm x 120mm	M41W08W
12	1	257mm x 292mm x 120mm	M41W12W
18	1	257mm x 382mm x 120mm	M41W18W
24	2	382mm x 292mm x 120mm	M41W24W
36	3	507mm x 292mm x 120mm	M41W36W
48	4	656mm x 292mm x 120mm	M41W48W
54	3	507mm x 382mm x 120mm	M41W54W
72	4	656mm x 382mm x 120mm	M41W72W

Surface mount - white body, without door

Pole capacity	Rows	Dimensions (H x W x D)	Order code
2	1	210mm x 68mm x 93mm	M41W02
4	1	210mm x 96mm x 93mm	M41W04
8	1	257mm x 202mm x 120mm	M41W08
12	1	257mm x 292mm x 120mm	M41W12

M 41 W 12 T EN

- Mistral range
- 41 = IP41
65 = IP65
- W = Wall mount
F = Flush mount
- xx = Number of poles
- T= Transparent door
W = White (opaque)
Blank = No door
- EN = Fitted earth and neutral bar
Blank = No earth/neutral bar fitted

STOCK | INDENT

Consumer units, load centres and distribution boards

MISTRAL® – designer range consumer units

IP41 designer range of flush mount consumer units – MISTRAL® 41F – without earth/neutral bars

- Ideal for domestic homes and residential apartments.
- Customisable earth and neutral bars (Refer to pages 121 – 122)
- Suits DIN profile products - MCB, RCD, RCBO, SPD, time switches





Flush mount – white body, transparent door

Pole capacity	Rows	Dimensions (H x W x D)	Order code
4	1	202mm x 152mm x 105mm	M41F04T
6	1	202mm x 192mm x 105mm	M41F06T
8	1	250mm x 232mm x 108mm	M41F08T
12	1	250mm x 320mm x 108mm	M41F12T
18	1	250mm x 430mm x 108mm	M41F18T
24	2	435mm x 320mm x 108mm	M41F24T
36	3	600mm x 320mm x 108mm	M41F36T
48	4	735mm x 320mm x 108mm	M41F48T
54	3	600mm x 430mm x 108mm	M41F54T
72	4	735mm x 430mm x 108mm	M41F72T



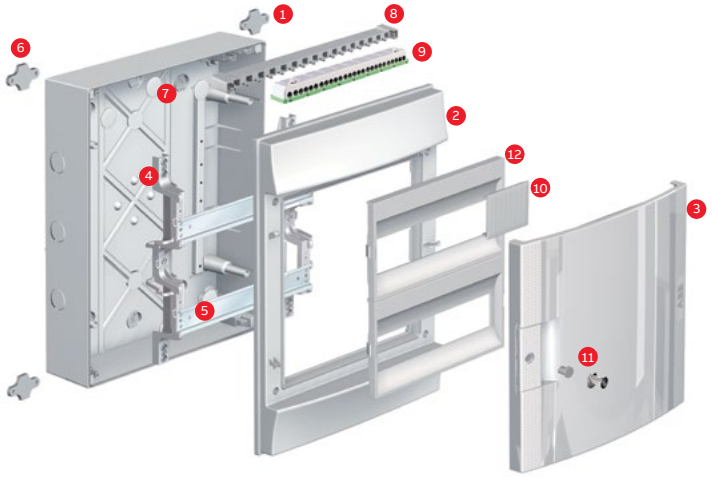


Flush mount – white body, opaque door

Pole capacity	Rows	Dimensions (H x W x D)	Order code
4	1	202mm x 152mm x 105mm	M41F04W
6	1	202mm x 192mm x 105mm	M41F06W
8	1	250mm x 232mm x 108mm	M41F08W
12	1	250mm x 320mm x 108mm	M41F12W
18	1	250mm x 430mm x 108mm	M41F18W
24	2	435mm x 320mm x 108mm	M41F24W
36	3	600mm x 320mm x 108mm	M41F36W
48	4	735mm x 320mm x 108mm	M41F48W
54	3	600mm x 430mm x 108mm	M41F54W
72	4	735mm x 430mm x 108mm	M41F72W

Consumer units, load centres and distribution boards

MISTRAL® – designer range consumer units



1) Box for wall mounting
2) Reversible front panel
3) Opaque door, RAL 7035
4) Fixed support for DIN rail
5) DIN rail
6) Wall fastening brackets
7) Plugs, protection class II
8) Jumper for terminals
9) Quick-coupling terminals
10) Module cover
11) Finish or closure elements (lock and key optional)
12) Reversible panels

Accessories

Metal backing plate for cable protection in cavity walls (1mm galvanised steel) – supplied loose

Suits enclosure	Dimensions (H x W)	Order code
Mistral 41 flush series, 12P	380mm x 300mm	M41F12WPP
Mistral 41 flush series, 18P	380mm x 410mm	M41F18WPP
Mistral 41 flush series, 24P	555mm x 300mm	M41F24WPP
Mistral 41 flush series, 36P	555mm x 410mm	M41F36WPP

Lock set

Description	Order code
Mistral 41 lockset to suit white door 380mm x 300mm	M41W-LOCKWHITE
Mistral 41 lockset to suit transparent door	M41W-LOCKBLUE

Pole fillers

Description	Order code
Pole fillers – 4 module strip – RAL 9016 (white)	LA12859
Pole fillers – 12 module strip – RAL 7035 (grey)	SZBP12

Sticker cards

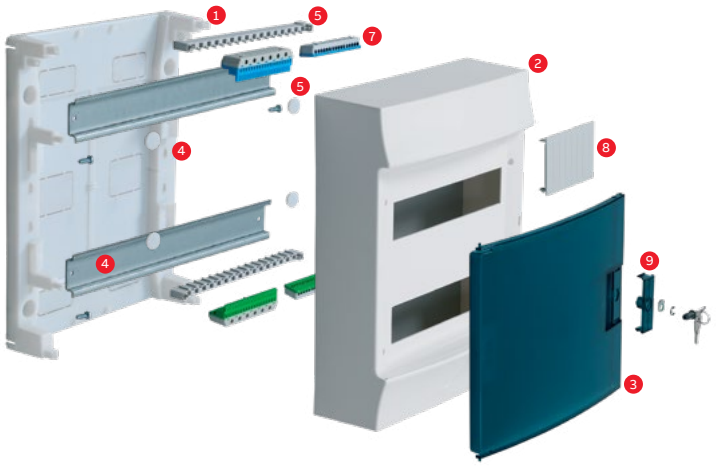
Description	Order code
Circuit identification card – Blue	GJF1707110P0011
Circuit identification card – Red	GJF1707110P0012

Consumer units, load centres and distribution boards

MISTRAL® – designer range consumer units

IP65 designer range of surface mount consumer units – MISTRAL® 65 – without earth/ neutral bars

- Ideal for where weather protection is required.
- Customisable earth and neutral bars
- Suits DIN profile products – MCB, RCD, RCBO, SPD, time switches



1) Base for wall mounting
2) Reversible cover
3) Transparent door
4) DIN rail
5) Plugs, protection class II
6) Terminal carrier
7) Quick coupling terminal blocks
8) Module cover
9) Finish or closure element (optional lock)



Surface mount - white body, transparent door

Pole capacity	Rows	Dimensions (H x W x D)	Order code
4	1	202mm x 152mm x 117mm	M65W04T
8	1	250mm x 232mm x 154mm	M65W08T
12	1	250mm x 320mm x 155mm	M65W12T
18	1	250mm x 430mm x 155mm	M65W18T
24	2	435mm x 320mm x 155mm	M65W24T
36	3	600mm x 320mm x 155mm	M65W36T
48	4	735mm x 320mm x 155mm	M65W48T
54	3	600mm x 430mm x 155mm	M65W54T
72	4	735mm x 430mm x 155mm	M65W72T



Surface mount - white body, opaque door

Pole capacity	Rows	Dimensions (H x W x D)	Order code
4	1	202mm x 152mm x 117mm	M65W04W
8	1	250mm x 232mm x 154mm	M65W08W
12	1	250mm x 320mm x 155mm	M65W12W
18	1	250mm x 430mm x 155mm	M65W18W
24	2	435mm x 320mm x 155mm	M65W24W
36	3	600mm x 320mm x 155mm	M65W36W
48	4	735mm x 320mm x 155mm	M65W48W
54	3	600mm x 430mm x 155mm	M65W54W
72	4	735mm x 430mm x 155mm	M65W72W

Accessories

Description	Order code
Wall fixing brackets (4pcs) for MISTRAL65	1SL1927A00
Lock with key MISTRAL65	1SL1931A00
Pole fillers – 4 module strip – RAL 9016 (white)	LA12859
Pole fillers – 12 module strip – RAL 7035 (grey)	SZBP12
Circuit identification card – Blue	GJF1707110P0011
Circuit identification card – Red	GJF1707110P0012

Consumer units, load centres and distribution boards

MISTRAL® – designer range consumer units

Earth and neutral bars for MISTRAL® range

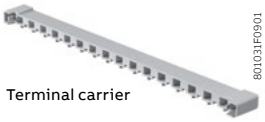
- Easily customised to suit application requirements











Terminal carriers

Description	Suits MISTRAL enclosures	Order code
Terminal carrier 8 module	M41F**, M41W**, M65W** 8 pole	TB08
Terminal carrier 12 module	M41F**, M41W**, M65W** 12, 24, 36, 48 pole	TB12
Terminal carrier 18 module	M41F**, M41W**, M65W** 18, 54, 72 pole	TB18

Neutral terminal blocks

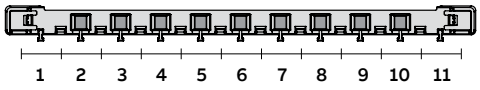
Configuration	Space in terminal carrier	Maximum current	Order code
3 x 16mm² + 3 x 6mm²	3 modules	100A	NKS06
5 x 16mm² + 6 x 6mm²	5 modules	100A	NKS11
7 x 16mm² + 9 x 6mm²	7 modules	100A	NKS16
9 x 16mm² + 12 x 6mm²	9 modules	100A	NKS21
11 x 16mm² + 15 x 6mm²	11 modules	100A	NKS26

Earth terminal blocks

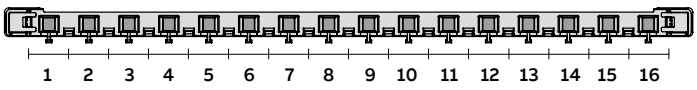
Configuration	Space in terminal carrier	Maximum current	Order code
3 x 16mm² + 3 x 6mm²	3 modules	100A	PEKS06
5 x 16mm² + 6 x 6mm²	5 modules	100A	PEKS11
7 x 16mm² + 9 x 6mm²	7 modules	100A	PEKS16
9 x 16mm² + 12 x 6mm²	9 modules	100A	PEKS21
11 x 16mm² + 15 x 6mm²	11 modules	100A	PEKS26

Terminal carrier

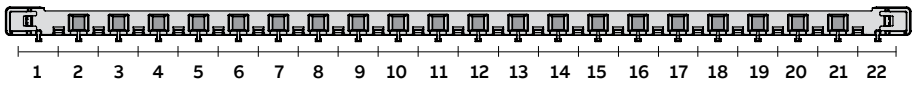
1SPE007715F0751



1SPE007715F0752

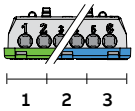


1SPE007715F0753



Terminal block

1SPE007715F0741
1SPE007715F0731



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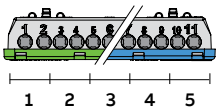

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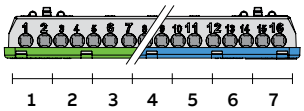

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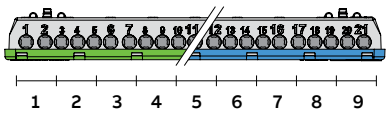

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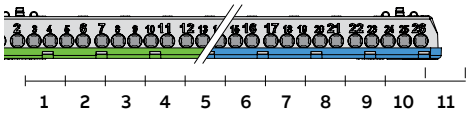


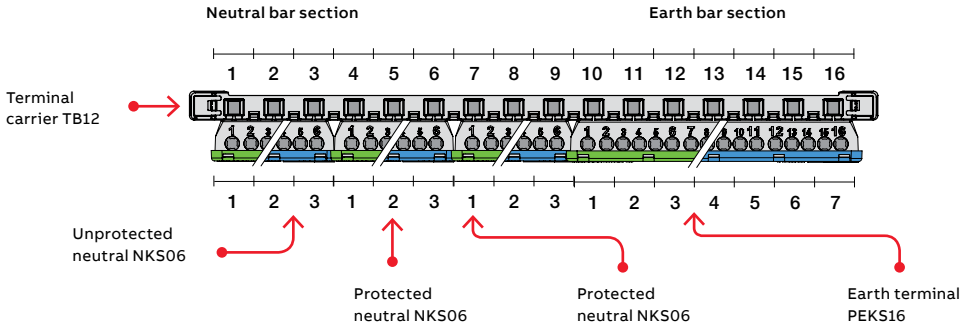
STOCK | INDENT

Consumer units, load centres and distribution boards

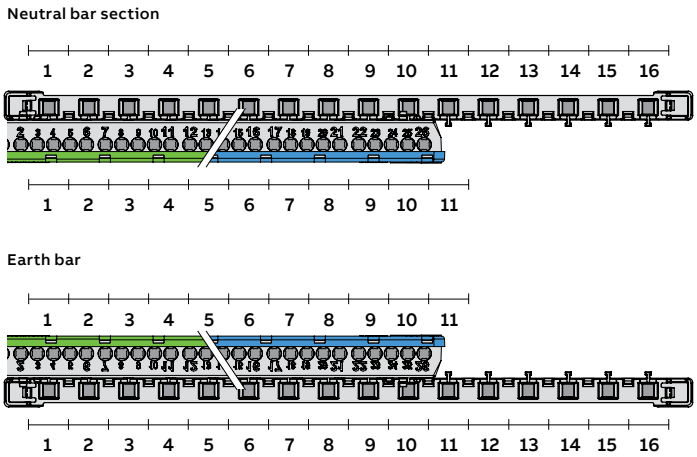
MISTRAL® – designer range consumer units

Earth and neutral bars for MISTRAL® range – assembly examples

12 pole consumer board application where RCD's are used with up to three final sub-circuit MCB as per AS/NZS 3000



Quantity	Description	Order code
1	Terminal carrier 12M	TB12
3	Neutral terminal block 3 x 16mm², 3 x 6mm²	NKS06
1	Earth terminal block 7 x 16mm², 9 x 6mm²	PEKS16



24 pole consumer board application with full neutral bar and earth bar
Parts required

Quantity	Description	Order code
2	Terminal carrier 12M	TB12
1	Neutral terminal block 11 x 16mm², 15 x 6mm²	NKS26
1	Earth terminal block 11 x 16mm², 15 x 6mm²	PEKS26

Consumer units, load centres and distribution boards

MISTRAL® – designer range consumer units

Designer consumer units with earth/neutral bars fitted

- Ideal for domestic homes and residential apartments.
- Earth and neutral bars included as shown
- Suits DIN profile products - MCB, RCD, RCBO, SPD, time switches



IP41 designer range of surface mount consumer units – MISTRAL® 41W

Pole capacity	Rows	Dimensions (H x W x D)	Earth bar	Neutral bar	Order code
Surface mount - white body, transparent door					
8	1	257 mm x 202 mm x 120 mm	1 x 6w	2 x 6w	M41W08TEN
12	1	257 mm x 292 mm x 120 mm	1 x 16w	3 x 6w	M41W12TEN
18	1	257 mm x 382 mm x 120 mm	1 x 21w	1 x 11w, 2 x 6w	M41W18TEN
24	2	382 mm x 292 mm x 120 mm	1 x 26w	2 x 11w, 2 x 6w	M41W24TEN
36	3	507 mm x 292 mm x 120 mm	1 x 26w, 1 x 11w	1 x 21w, 1 x 11w, 2 x 6w	M41W36TEN
48	4	735 mm x 320 mm x 120 mm	2 x 26w	1 x 26w, 1 x 11w, 3 x 6w	M41W48TEN
54	3	600 mm x 430 mm x 120 mm	2 x 26w	1 x 26w, 1 x 21w, 1x16w, 1 x 11w, 2 x 6w	M41W54TEN
72	4	735 mm x 430 mm x 120 mm	2 x 26w, 2 x 11w	1 x 26w, 1 x 21w, 1 x 16w,1 x 11w, 2 x 6w	M41W72TEN

Note:
Models available with opaque door



IP41 designer range of flush mount consumer units – MISTRAL® 41F

Pole capacity	Rows	Dimensions (H x W x D)	Earth bar	Neutral bar	Order code
Flush mount - white body, transparent door					
8	1	250 mm x 232 mm x 108 mm	1 x 6w	2 x 6w	M41F08TEN
12	1	250 mm x 320 mm x 108 mm	1 x 16w	3 x 6w	M41F12TEN
18	1	250 mm x 430 mm x 108 mm	1 x 21w	1 x 11w, 2 x 6w	M41F18TEN
24	2	435 mm x 320 mm x 108 mm	1 x 26w	2 x 11w, 2 x 6w	M41F24TEN
36	3	600 mm x 320 mm x 108 mm	1 x 26w, 1 x 11w	1 x 21w, 1 x 11w, 2 x 6w	M41F36TEN
48	4	735mm x 320mm x 108mm	2 x 26w	1 x 26w, 1 x 11w, 3 x 6w	M41F48TEN
54	3	600mm x 430mm x 108mm	2 x 26w	1 x 26w, 1 x 21w, 1x16w, 1 x 11w, 2 x 6w	M41F54TEN
72	4	735mm x 430mm x 108mm	2 x 26w, 2 x 11w	1 x 26w, 1 x 21w,1 x 16w, 1 x 11w, 2 x 6w	M41F72TEN

Note:
Models available with opaque door



IP65 designer range of surface mount consumer units – MISTRAL® 65

Pole capacity	Rows	Dimensions (H x W x D)	Earth bar	Neutral bar	Order code
Surface mount - white body, transparent door					
8	1	250mm x 232mm x 154mm	1 x 6w	2 x 6w	M65W08TEN
12	1	250mm x 320mm x 155mm	1 x 16w	3 x 6w	M65W12TEN
18	1	250mm x 430mm x 155mm	1 x 21w	1 x 11w, 2 x 6w	M65W18TEN
24	2	435mm x 320mm x 155mm	1 x 26w	2 x 11w, 2 x 6w	M65W24TEN
36	3	600mm x 320mm x 155mm	1 x 26w, 1 x 11w	1 x 21w, 2 x 11w, 2 x 6w	M65W36TEN
48	4	735mm x 320mm x 155mm	2 x 26w	1 x 26w, 1 x 11w, 3 x 6w	M65W48TEN
54	3	600mm x 430mm x 155mm	2 x 26w	1 x 26w, 1 x 21w,1x16w, 1 x 11w, 2 x 6w	M65W54TEN
72	4	735mm x 430mm x 155mm	2 x 26w, 2 x 11w	1 x 26w, 1 x 21w, 1 x 16w,1 x 11w, 2 x 6w	M65W72TEN

Consumer units, load centres and distribution boards


Wall fixing bracket

Designer consumer units with earth/neutral bars fitted (cont.)
Accessories

Description	Order code
Wall fixing brackets (4pcs) for MISTRAL65	1SL1927A00
Lock with key MISTRAL65	1SL1931A00
Pole fillers – 4 module strip – RAL 9016 (white)	LA12859
Pole fillers – 12 module strip – RAL 7035 (grey)	SZBP12
Circuit identification card – Blue	GJF1707110P0011
Circuit identification card – Red	GJF1707110P0012

Accessories – Metal backing plate
Metal backing plate for cable protection in cavity walls (1mm galvanised steel)– supplied loose

Suits enclosure	Dimensions (H x W)	Order code
Mistral 41 flush series, 12P	380mm x 300mm	M41F12WPP
Mistral 41 flush series, 18P	380mm x 410mm	M41F18WPP
Mistral 41 flush series, 24P	555mm x 300mm	M41F24WPP
Mistral 41 flush series, 36P	555mm x 410mm	M41F36WPP

Economy range – loaded consumer units

Loaded consumer units
- Ideal for domestic homes and residential apartments.
- Earth and neutral bars included
- 12 pole buscomb included
- Pre-loaded with combinations of RCD's, RCBO's and MCB according to minimum AS/NZS 3000 requirements.
- Choice of switch disconnector or MCB as main switch to suit local requirements
- Protection rating: IP40



Surface mount – white body, smoked transparent cover, E/N bars included

Pole capacity	Spare poles	Description	Order code
12	5	Surface mount enclosure LC12ST	ABBLB12
		1 x 80A isolator (main switch)	
		1 x 40A RCCD	
		1 x 10A RCBO (2 pole)	
		2 x 16A MCB	
12	5	Surface mount enclosure LC12ST	ABBLB12M63
		1 x 63A MCB (main switch)	
		1 x 40A RCCB	
		1 x 10A RCBO (2 pole)	
		2 x 16A MCB	
12	7	Surface mount enclosure LC12ST	ABBLB12DSN63
		1 x 63A isolator (main switch)	
		2 x 10A RCBO (single pole)	
		2 x 16A RCBO (single pole)	

Other configurations are available. Please contact your ABB representative.

Consumer units, load centres and distribution boards

Metal load centres

ABBM series metal load centres

- for applications requiring a robust load centre - commercial and light industrial
- Earth and neutral bars included
- 1mm zinc annealed sheet steel material
- DIN rail fitted
- IP30 (IP40 with door fitted)
- Circuit schedule labels provided



ABBM series – IP30, enclosure base and surface mount escutcheon, E/N bars included

Pole capacity	Configuration	Dimensions H x W x D (mm)	Order code
12	1 x 12	250 x 340 x 70	ABBM12SM
18	1 x 18	250 x 490 x 70	ABBM18SM
24	2 x 12	420 x 340 x 70	ABBM24SM

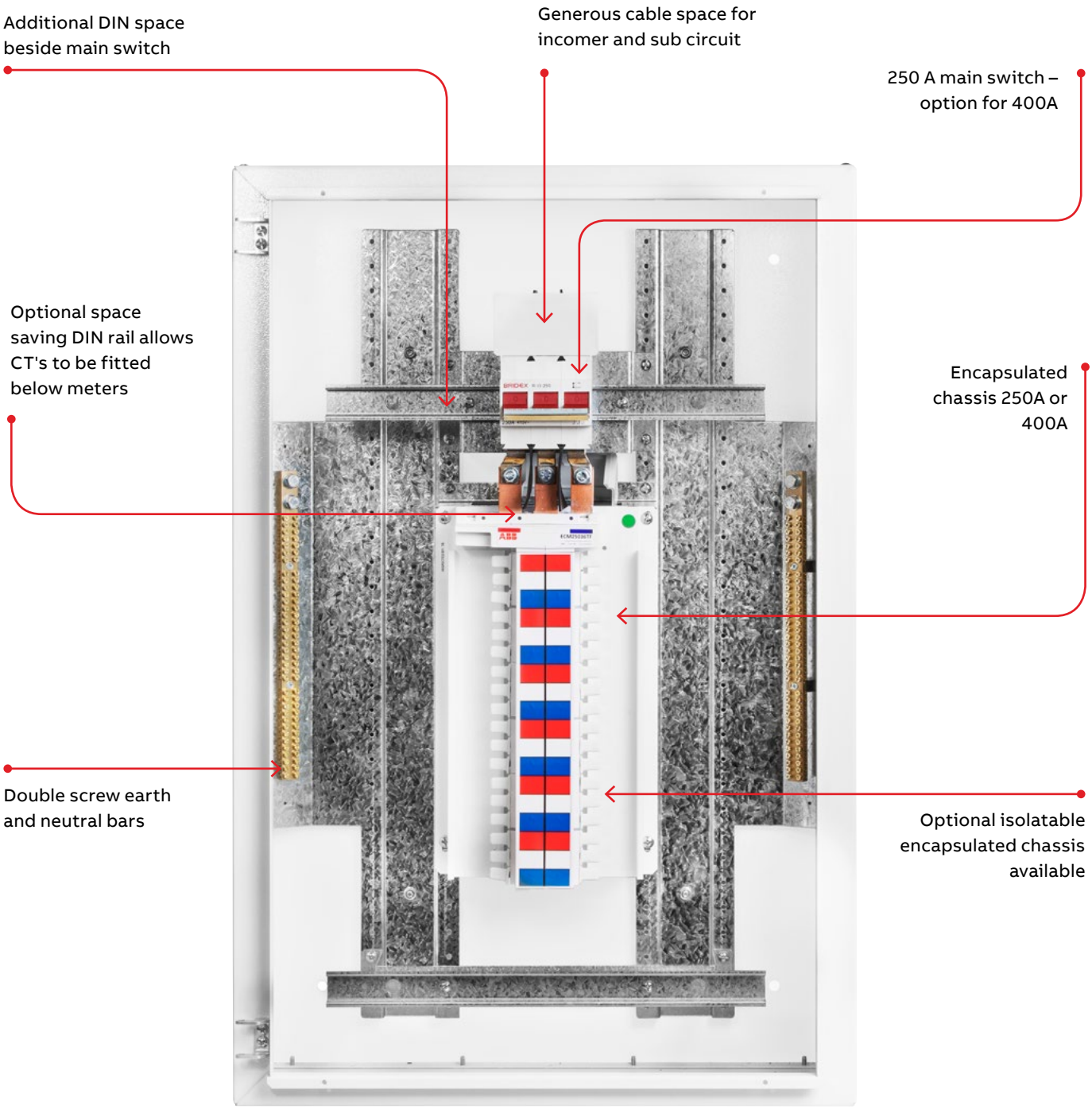


ABBM accessories

Description		Order code
Flush escutcheon – 12 pole	H 300 x W 390mm	ABBM12FMESC
Flush escutcheon – 18 pole	H 300 x W 540mm	ABBM18FMESC
Flush escutcheon – 24 pole	H 470 x W 390mm	ABBM24FMESC
Door – 12 pole	Includes lock (CL001) and latch	ABBM12DC
Door – 18 pole	Includes lock (CL001) and latch	ABBM18DC
Door – 24 pole	Includes lock (CL001) and latch	ABBM24DC
Pole filler – 4 module strip – RAL 9016 (white)		LA12859
Pole filler – 12 module strip – RAL 7035 (grey)		SZBP12
Busbar comb – single phase – 12 pole		PS1/12
Busbar comb – three phase – 12 pole		PS3/12

Consumer units, load centres and distribution boards

Distribution boards



Consumer units, load centres and distribution boards

Distribution boards – IP42



EDB surface mount distribution board

- 250A main switch as standard
- For commercial and industrial applications
- Suits pro M MCB, RCD and RCBO
- Earth and neutral bars included
- 42 modules of DIN rail space available for accessories
- Optional emergency lighting test units, surge protection, metering with/without CT's
- Circuit schedule labels provided

	Body	Escutcheon	Door
Standard width across the range	600mm	—	—
Standard depth across the range	228mm	—	—
Material	1.6mm steel	1.2mm steel	1.6mm steel
Key lock	CL001 (standard)	—	—
Pole capacity	24-96 (other sizes on request)	—	—
Standard colour	RAL7035 Grey or X15 Orange	Gloss white	RAL7035 Grey or X15 Orange
Paint finish	Ripple texture	—	—
Paint thickness	50 micron minimum	50 micron minimum	50 micron minimum
Gland plates	Removable top and bottom	—	—
Additional DIN rail accessory capacity	42 poles	—	—
Hinge location	—	Left hand hinge	Left hand hinge
Protection Rating	—	—	IP30 without door
			IP42 with door

EDB surface mount distribution board with encapsulated chassis for increased safety

Main switch	Pole capacity	Height (mm)	Width (mm)	Depth (mm)	RAL 7035 Grey	Order code X15 Orange
250A	24	700	600	228	EDB24M250G	EDB24M250OR
	36	900	600	228	EDB36M250G	EDB36M250OR
	48	1100	600	228	EDB48M250G	EDB48M250OR
	60	1100	600	228	EDB60M250G	EDB60M250OR
	72	1300	600	228	EDB72M250G	EDB72M250OR
	84	1500	600	228	EDB84M250G	EDB84M250OR
	96	1500	600	228	EDB96M250G	EDB96M250OR

Note:
other variants are available
– no main switch – 400A main switch – MCCB in place of switch disconnector main switch

EDB-i surface mount distribution board with isolating encapsulated chassis for superior performance and safety in critcal power applications

Main switch	Pole capacity	Height (mm)	Width (mm)	Depth (mm)	RAL 7035 Grey	Order code X15 Orange
250A	24	700	600	228	EDBI24M250G	EDBI24M250OR
	36	900	600	228	EDBI36M250G	EDBI36M250OR
	48	1100	600	228	EDBI48M250G	EDBI48M250OR
	60	1100	600	228	EDBI60M250G	EDBI60M250OR
	72	1300	600	228	EDBI72M250G	EDBI72M250OR
	84	1500	600	228	EDBI84M250G	EDBI84M250OR
	96	1500	600	228	EDBI96M250G	EDBI96M250OR

Note:
other variants are available
– no main switch – 400A main switch – MCCB in place of switch disconnector main switch

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Consumer units, load centres and distribution boards

Distribution boards – IP42



Pole capacity	DIN Format	Height (mm)	Width (mm)	Depth (mm)	RAL 7035 Grey	Order code X15 Orange
EDB surface mount DIN distribution board						
54	3 x 18p	700	600	228	EDB54DING	EDB54DINOR
72	4 x 18p	900	600	228	EDB72DING	EDB72DINOR
90	5 x 18p	1100	600	228	EDB90DING	EDB90DINOR
108	6 x 18p	1300	600	228	EDB108DING	EDB108DINOR
EDB surface mount equipment box - with gear tray (no escutcheon)						
		300	600	228	EDB300MAG	EDB300MAOR
		400	600	228	EDB400MAG	EDB400MAOR
		600	600	228	EDB600MAG	EDB600MAOR
EDB surface mount distribution board - empty (no escutcheon) for customised assembly						
		700	600	228	EDB700AG	EDB700AOR
		900	600	228	EDB900AG	EDB900AOR
		1100	600	228	EDB1100AG	EDB1100AOR
		1300	600	228	EDB1300AG	EDB1300AOR
		1500	600	228	EDB1500AG	EDB1500AOR
		1800	600	228	EDB1800AG	EDB1800AOR

EDB internal accessories

Description	RAL 7035 Grey	Order code X15 Orange
24 pole standard punched escutcheon - gloss white	EDB24ESC	
36 pole standard punched escutcheon - gloss white	EDB36ESC	
48 pole standard punched escutcheon - gloss white	EDB48ESC	
60 pole standard punched escutcheon - gloss white	EDB60ESC	
72 pole standard punched escutcheon - gloss white	EDB72ESC	
84 pole standard punched escutcheon - gloss white	EDB84ESC	
96 pole standard punched escutcheon - gloss white	EDB96ESC	
Blank (unpunched) escutcheon suits EDB400 - gloss white	EDB400ESC	
Blank (unpunched) escutcheon suits EDB600 - gloss white	EDB600ESC	
Blank (unpunched) escutcheon suits EDB700 - gloss white	EDB700ESC	
Blank (unpunched) escutcheon suits EDB900 - gloss white	EDB900ESC	
Blank (unpunched) escutcheon suits EDB1100 - gloss white	EDB1100ESC	
Blank (unpunched) escutcheon suits EDB1300 - gloss white	EDB1300ESC	
Blank (unpunched) escutcheon suits EDB1500 - gloss white	EDB1500ESC	
Blank (unpunched) escutcheon suits EDB1800 - gloss white	EDB1800ESC	
Blank (unpunched) escutcheon suits EDB2000 - gloss white	EDB2000ESC	
EDB optional D handle for escutcheon (2 required)	EDBDHANDLE	
Main switch top hat assembly suits R-I3-250 isolator	EDBMSDINASSY	
250A Main switch R-I3-250	RI-3250	
Top hat assembly for XT1 MCCB	EDBXT1DINASSY	
Top hat assembly for XT3 MCCB	EDBXT3DINASSY	
Top hat assembly for T5 MCCB	EDBT5DINASSY	
DIN rail assenmbly to suit standard DIN accessories	EDBDINASSY	
DIN rail and CT assembly for 3x TRFM CT	EDB3CTDINASSY	
DIN rail and CT assembly for 6x TRFM CT	EDBCTDINASSY	
Chassis mounting bracket (2 required up to 60P, 3 required above 72P)	EDBCHASSISBRKT	
Mounting bracket to suit 96 x 96 panel meter (M2M or similar)	EDBM2MBRKT	
EDB Internal segregation plate	EDBSEG	
Pole filler - 4 module strip - RAL 9016 (white)	LA12859	
Pole filler - 12 module strip - RAL 7035 (grey)	SZBP12	

—

EDB accessories

Description	Order code	
	RAL 7035 Grey	X15 Orange
EDB flush lock CL001 (spare)	EDBCL001LOCK	
EDB flush lock keyed 92268 (optional)	EDB92268LOCK	
EDB flush lock keyed NSW E-Lock (optional)	EDBELOCK	
EDB top or bottom gland plate to suit non-ferrous gland (gland plate not included)	EDBGLANDOPENG	EDBGLANDOPENOR
EDB Gland plate insert - 3mm aluminium	EDBGP3AL	
EDB Gland plate insert - 4mm aluminium	EDBGP4AL	
EDB Gland plate insert - 3mm brass	EDBGP3BR	
EDB Gland plate insert - 6mm brass	EDBGP6BR	
EDB Plinth – grey	EDBPLINTHG	
EDB Plinth – black	EDBPLINTHBL	
EDB Plinth – galvanised	EDBPLINTHGAL	

Distribution boards – IP55

EDBW distribution board

- 250A main switch as standard
- For commercial and industrial applications
- Suits pro M MCB, RCD and RCBO
- Earth and neutral bars included
- 42 modules of DIN rail space available for accessories
- Optional emergency lighting test units, surge protection, metering with/without CT's
- Circuit schedule labels provided



	Body	Escutcheon	Door
Standard width across the range	600mm	—	—
Standard depth across the range	265mm	—	—
Material	1.6mm steel	1.6mm steel	1.6mm steel
Key lock (3 point locking)	CL001 (standard)	—	—
Pole capacity	24-96 (other sizes on request)	—	—
Standard colour	RAL7035 Grey or X15 Orange	Gloss white	RAL7035 Grey or X15 Orange
Paint finish	Ripple texture	—	—
Paint thickness	50 micron minimum	50 micron minimum	50 micron minimum
Gland plates	Removable top and bottom	—	—
Additional DIN rail accessory capacity	42 poles	—	—
Hinge location	—	Left hand hinge	Left hand hinge

Main switch	Pole capacity	Height (mm)	Width (mm)	Depth (mm)	Order code RAL 7035 Grey	Order code X15 Orange
250A	24	900	600	275	EDBW24M250G	EDBW24M250OR
	36	900	600	275	EDBW36M250G	EDBW36M250OR
	48	1100	600	275	EDBW48M250G	EDBW48M250OR
	60	1100	600	275	EDBW60M250G	EDBW60M250OR
	72	1300	600	275	EDBW72M250G	EDBW72M250OR
	84	1500	600	275	EDBW84M250G	EDBW84M250OR
	96	1500	600	275	EDBW96M250G	EDBW96M250OR

Note:
other variants are available
– no main switch
– 400A main switch
– MCCB in place of switch disconnector main switch

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Consumer units, load centres and distribution boards

Distribution boards – IP55



EDBW equipment box and PDBW distribution board

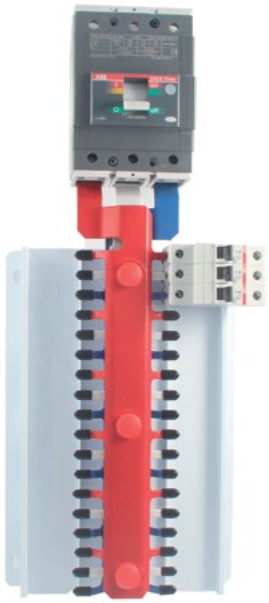
Height (mm)	Width (mm)	Depth (mm)	RAL 7035 Grey	Order code X15 Orange
PDBW equipment box - complete with mounting plate and escutcheon				
400	600	275	EDBW400MAG	EDBW400MAOR
600	600	275	EDBW600MAG	EDBW600MAOR
PDBW distribution board - empty (no escutcheon)				
900	600	275	EDBW900AG	EDBW900AOR
1100	600	275	EDBW1100AG	EDBW1100AOR
1300	600	275	EDBW1300AG	EDBW1300AOR
1500	600	275	EDBW1500AG	EDBW1500AOR
1800	600	275	EDBW1800AG	EDBW1800AOR

EDBW accessories

Description	Order code
24 pole escutcheon	EDBW24ESC
36 pole escutcheon	EDBW36ESC
48 pole escutcheon	EDBW48ESC
60 pole escutcheon	EDBW60ESC
72 pole escutcheon	EDBW72ESC
84 pole escutcheon	EDBW84ESC
96 pole escutcheon	EDBW96ESC
Floor standing plinth (black powder coated)	EDBWPLINTHBL
Floor standing plinth (galvanised)	EDBWPLINTHGAL
Main switch top hat assembly suits R-I3-250 isolator	EDBMSDINASSY
250A Main switch R-I3-250	RI-3250
Top hat assembly for XT1 MCCB	EDBXT1DINASSY
Top hat assembly for XT3 MCCB	EDBXT3DINASSY
Top hat assembly for T5 MCCB	EDBT5DINASSY
DIN rail assembly to suit standard DIN accessories	EDBDINASSY
DIN rail and CT assembly for 3x TRFM CT	EDB3CTDINASSY
DIN rail and CT assembly for 6x TRFM CT	EDBCTDINASSY
Chassis mounting bracket (2 required up to 60P, 3 required above 72P)	EDBCHASSISBRKT
EDB Internal segregation plate	EDBSEG
Pole filler - 4 module strip - RAL 9016 (white)	LA12859
Pole filler - 12 module strip - RAL 7035 (grey)	SZBP12

Consumer units, load centres and distribution boards

Miniature circuit breaker chassis



Compact chassis system to suit the System pro M miniature circuit breaker range. Suitable for S200, S200M, S200P, DSE201, RCBO's and DDA200 RCBO Blocks. Where DSE201 RCBO's are utilised all MCB's and RCBO's are bottom fed. For DDA blocks all components are top fed and should not be mixed with DSE RCBO's. CM chassis are available as a universal (dual feed), Top feed or bottom feed according to the installation requirements.

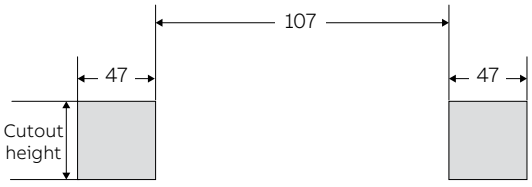
Technical data

- 250A and 400A
- Type tested to AS 3439.1 20kA 0.2sec (400A), 20kA 0.1sec (250A)
- Chassis suitable for S200, S200M, S200P, S200 80/100A, E200, DS271, DSE201, DDA200
- Splayed busbar for incomer connections
- Tee offs stripped and 100% capped
- Improved insulation capability
- 3 phase and neutral available on request
- 1 phase and neutral or 2 pole DC available on request

Pole capacity	Height (mm)	Cutout height (mm)	Order code Universal feed	Order code Top feed
250A CM chassis				
12 pole	107	108	CM25012U	CM25012TF
18 pole	160	163	CM25018U	CM25018TF
24 pole	214	218	CM25024U	CM25024TF
30 pole	267	269	CM25030U	CM25030TF
36 pole	320	323	CM25036U	CM25036TF
42 pole	374	376	CM25042U	CM25042TF
48 pole	428	430	CM25048U	CM25048TF
60 pole	534	536	CM25060U	CM25060TF
72 pole	641	643	CM25072U	CM25072TF
84 pole	748	750	CM25084U	CM25084TF
96 pole	855	850	CM25096U	CM25096TF
400A CM chassis				
12 pole	107	108	CM40012U	CM40012TF
18 pole	160	163	CM40018U	CM40018TF
24 pole	214	218	CM40024U	CM40024TF
30 pole	267	269	CM40030U	CM40030TF
36 pole	320	323	CM40036U	CM40036TF
42 pole	374	376	CM40042U	CM40042TF
48 pole	428	430	CM40048U	CM40048TF
60 pole	534	536	CM40060U	CM40060TF
72 pole	641	643	CM40072U	CM40072TF
84 pole	748	750	CM40084U	CM40084TF
96 pole	855	850	CM40096U	CM40096TF

Note:
Bottom feed available on request

Escutcheon cutout details



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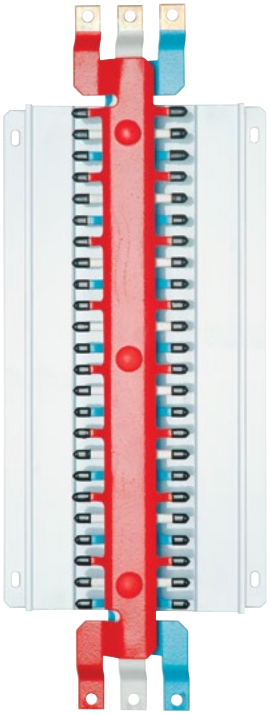
Consumer units, load centres and distribution boards

Miniature circuit breaker chassis



Hybrid chassis for high performance circuit breakers

For use with S800 high performance circuit breakers. The hybrid chassis arrangement provides 6 poles of 27mm pitch with the balance available in the conventional 17.5mm. Also available are complete chassis in the 27mm pitch for 250A and 400A. CMP chassis are available as a top feed as standard. Bottom feed and universal feed is available as indent.

Technical data

- 250A and 400A
- Type tested to AS3439.1, 20kA, 0.1sec (250A). 20kA, 0.2sec (400A)
- Chassis suitable for S800 high performance circuit breakers
- Splayed busbar for incomer connections
- Tee offs stripped and 100% capped
- Improved insulation capability

Hybrid chassis for high performance breakers with 6 poles @ 27mm (S800)

Total pole capacity	Current rating	Pole capacity 27mm pitch	17.8mm pitch	Order code
18 pole	250A	6	12	CMP2506H12TF
24 pole	250A	6	18	CMP2506H18TF
36 pole	250A	6	30	CMP2506H30TF
48 pole	250A	6	42	CMP2506H42TF
18 pole	400A	6	12	CMP4006H12TF
24 pole	400A	6	18	CMP4006H18TF
36 pole	400A	6	30	CMP4006H30TF
48 pole	400A	6	42	CMP4006H42TF

Chassis for high performance breakers with total capacity @ 27mm (S800)

Total pole capacity	Current rating	Pole capacity 27mm pitch	Order code
12 pole	250A	12	CMP25012TF
18 pole	250A	18	CMP25018TF
12 pole	400A	12	CMP40012TF
18 pole	400A	18	CMP40018TF

Note: Larger pole capacities available on request

Earth and neutral bars (mounting feet included)

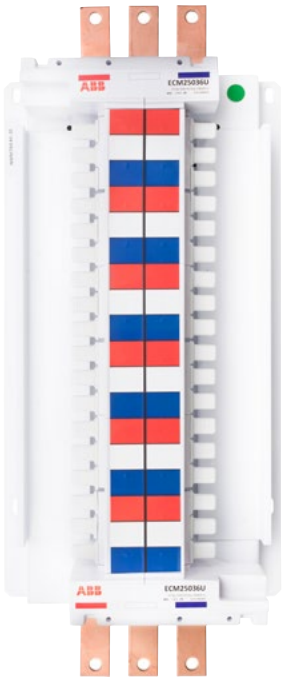
- 165 A
- 2 x MB studs
- 2 screw
- Accepts 16mm^2 ferruled cable

Description		165A	Order code 250A
E & N Bar	12 way	EN12	EN25012
	18 way	EN18	EN25018
	24 way	EN24	EN25024
	36 way	EN36	EN25036
	42 way	EN42	EN25042
	48 way	EN48	EN25048
	60 way	EN60	EN25060
	72 way	EN72	EN25072
	84 way	EN84	EN25084
	96 way	EN96	EN25096
	6 x M10 studs		NB6S

STOCK | INDENT

Consumer units, load centres and distribution boards

Encapsulated miniature circuit breaker chassis



New encapsulated chassis system to suit the System pro M MCB and RCBO range. Suitable for S200, S200M, S200P MCB's, DSE201 RCBO's, DS203NC RCBO's and DDA200 RCD blocks. Where DSE201 RCBO's are utilised all MCB's and RCBO's are bottom fed. For DDA blocks all components are top fed and should not be mixed with DSE201 RCBO's. ECM chassis are available as universal (dual feed), top feed or bottom feed according to installation requirements. Top / bottom feed chassis are supplied with a loose phase identification label that can be applied to the chassis according to the installation requirements.

Technical data

- 250A and 400A
- Type tested to AS3439.1
- Encapsulated design requires no plastic coating
- 250A withstand rating 25kA 0.1 s, 10kA for 1.0 s
- 400A withstand rating 30kA 0.1 s
- Peak withstand current 52.5kA (250A), 63kA (400A)
- All tee offs fitted with easily removable caps for safety
- 4 pole arrangements R-W-B-N and R-N-W-N-B-N available on request
- 2 pole single phase R-N and DC available on request

250A ECM encapsulated chassis – 3 phase

Pole capacity	Cutout height (mm)	Universal feed	Order code Top / Bottom feed
12	108	ECM25012U	ECM25012
18	163	ECM25018U	ECM25018
24	218	ECM25024U	ECM25024
30	269	ECM25030U	ECM25030
36	323	ECM25036U	ECM25036
42	376	ECM25042U	ECM25042
48	430	ECM25048U	ECM25048
60	536	ECM25060U	ECM25060
72	643	ECM25072U	ECM25072
84	750	ECM25084U	ECM25084
96	850	ECM25096U	ECM25096

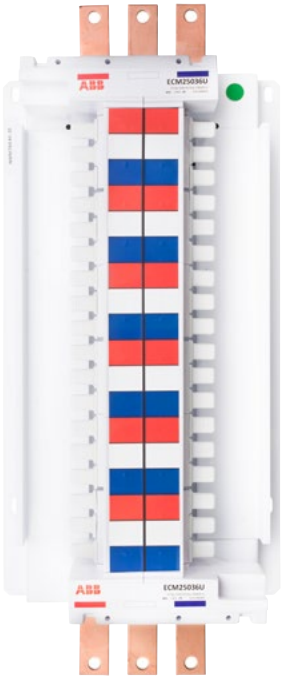
400A ECM encapsulated chassis – 3 phase

Pole capacity	Cutout height (mm)	Universal feed	Order code Top / Bottom feed
12	108	ECM40012U	ECM40012
18	163	ECM40018U	ECM40018
24	218	ECM40024U	ECM40024
30	269	ECM40030U	ECM40030
36	323	ECM40036U	ECM40036
42	376	ECM40042U	ECM40042
48	430	ECM40048U	ECM40048
60	536	ECM40060U	ECM40060
72	643	ECM40072U	ECM40072
84	750	ECM40084U	ECM40084
96	850	ECM40096U	ECM40096

STOCK | INDENT

Consumer units, load centres and distribution boards

Encapsulated miniature circuit breaker chassis



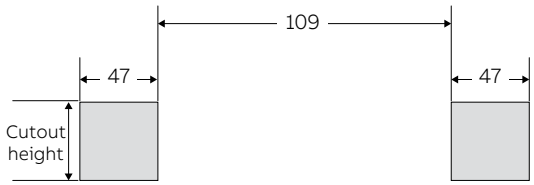
250A ECM encapsulated chassis – 3 phase and neutral (R-W-B-N)

Pole capacity	Cutout height (mm)	Universal feed	Order code Top / Bottom feed
24	218	ECM2502443U	ECM2502443
32	290	ECM2503043U	ECM2503043
48	430	ECM2504843U	ECM2504843
64	572	ECM2506443U	ECM2506443
72	643	ECM2507243U	ECM2507243

250A ECM encapsulated chassis – 3 phase and neutral (R-N-W-N-B-N)

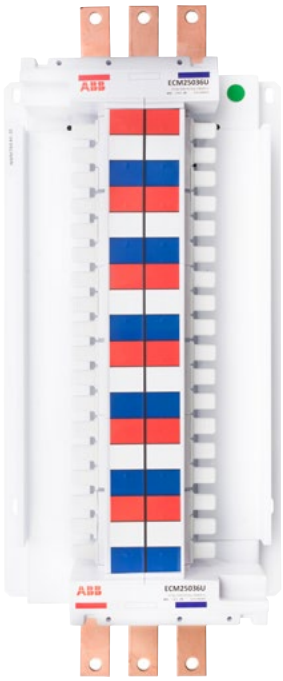
Pole capacity	Cutout height (mm)	Universal feed	Order code Top / Bottom feed
24	218	ECM2502441U	ECM2502441
32	290	ECM2503241U	ECM2503241
36	323	ECM2503641U	ECM2503641
40	358	ECM2504041U	ECM2504041
48	430	ECM2504841U	ECM2504841
64	572	ECM2506441U	ECM2506441
72	643	ECM2507241U	ECM2507241

Escutcheon cutout details



Consumer units, load centres and distribution boards

Encapsulated miniature circuit breaker chassis



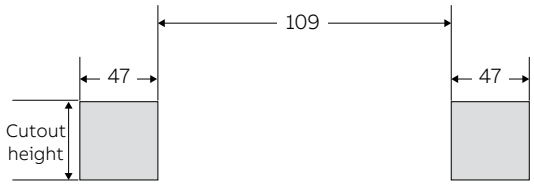
400A ECM encapsulated chassis – 3 phase and neutral (R-W-B-N)

Pole capacity	Cutout height (mm)	Universal feed	Order code Top / Bottom feed
24	218	ECM4002443U	ECM4002443
32	290	ECM4003043U	ECM4003043
48	430	ECM4004843U	ECM4004843
64	572	ECM4006443U	ECM4006443
72	643	ECM4007243U	ECM4007243

400A ECM encapsulated chassis – 3 phase and neutral (R-N-W-N-B-N)

Pole capacity	Cutout height (mm)	Universal feed	Order code Top / Bottom feed
24	218	ECM4002441U	ECM4002441
32	290	ECM4003241U	ECM4003241
36	323	ECM4003641U	ECM4003641
40	358	ECM4004041U	ECM4004041
48	430	ECM4004841U	ECM4004841
64	572	ECM4006441U	ECM4006441
72	643	ECM4007241U	ECM4007241

Escutcheon cutout details



STOCK | INDENT

Consumer units, load centres and distribution boards

Encapsulated miniature circuit breaker chassis

250A ECMP ecapsulated hybrid chassis – 6 poles @ 27mm (S800) plus 18mm poles

Poles capacity		Cutout height		Order code
27mm	18mm		Universal feed	Top / Bottom feed
6	12	190	ECMP2506H12U	ECMP2506H12
6	18	245	ECMP2506H18U	ECMP2506H18
6	24	300	ECMP2506H24U	ECMP2506H24
6	30	351	ECMP2506H30U	ECMP2506H30
6	36	405	ECMP2506H36U	ECMP2506H36
6	42	458	ECMP2506H42U	ECMP2506H42

400A ECMP encapsulated hybrid chassis – 6 poles @ 27mm (S800) plus 18mm poles

Poles capacity		Cutout height		Order code
27mm	18mm		Universal feed	Top / Bottom feed
6	12	190	ECMP4006H12U	ECMP4006H12
6	18	245	ECMP4006H18U	ECMP4006H18
6	24	300	ECMP4006H24U	ECMP4006H24
6	30	351	ECMP4006H30U	ECMP4006H30
6	36	405	ECMP4006H36U	ECMP4006H36
6	42	458	ECMP4006H42U	ECMP4006H42

250A ECMP encapsulated S800 chassis

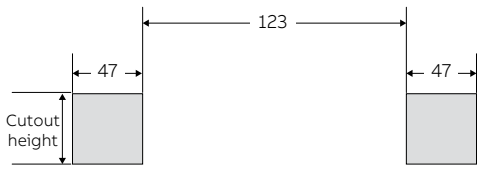
Poles capacity	Cutout height		Order code
27mm		Universal feed	Top / Bottom feed
12	164	ECMP25012U	ECMP25012
18	245	ECMP25018U	ECMP25018
24	326	ECMP25024U	ECMP25024

400A ECMP encapsulated S800 chassis

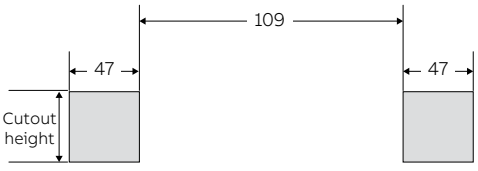
Poles capacity	Cutout height		Order code
27mm		Universal feed	Top / Bottom feed
12	164	ECMP40012U	ECMP40012
18	245	ECMP40018U	ECMP40018
24	326	ECMP40024U	ECMP40024

Escutcheon cutout details

S800 high performance MCB's



Standard 6kA, 10kA and 15kA MCB's and RCBO's



Consumer units, load centres and distribution boards

Isolatable encapsulated miniature circuit breaker chassis



New isolatable encapsulated chassis system to suit the System pro M, MCB and RCBO range. Suitable for S200, S200M, S200P MCB's, DSE201 RCBO's, DS203NC RCBO's and DDA200 RCD blocks. ICM switching mechanism and MCB take-off is rated 63A. Do not use with 80A or 100A MCB's.

Where DSE201 RCBO's are utilised all MCB's and RCBO's are bottom fed. For DDA blocks all components are top fed and should not be mixed with DSE201 RCBO's. ICM chassis are available as universal (dual feed), top feed or bottom feed according to installation requirements.

Technical data

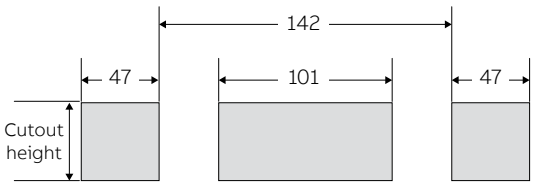
- Busbar rating 250A
- Type tested to AS3439.1
- Encapsulated design requires no plastic coating
- Short time current withstand rating 36 kA 0.1 s, 10 kA for 1.0 s
- Peak withstand current 75 kA
- A safer method of connecting, powering and disconnecting an MCB from a chassis
- Chassis switch mechanism rated to AS/NZS 60947-3
- Internal locking mechanism removes power from the tee off until correct fitment of the MCB or RCBO
- 4 pole arrangements R-W-B-N and R-N-W-N-B-N available on request
- Split chassis options without loss of pole space available on request

ICM isolatable encapsulated chassis

Pole capacity	Cutout height (mm)	Order code	
		Universal feed	Top feed
12	109	ICM25012U	ICM25012TF
18	163	ICM25018U	ICM25018TF
24	218	ICM25024U	ICM25024TF
30	272	ICM25030U	ICM25030TF
36	326	ICM25036U	ICM25036TF
42	380	ICM25042U	ICM25042TF
48	435	ICM25048U	ICM25048TF
60	543	ICM25060U	ICM25060TF
72	652	ICM25072U	ICM25072TF
84	760	ICM25084U	ICM25084TF
96	869	ICM25096U	ICM25096TF

Note:
Bottom feed available on request

Escutcheon cutout details



STOCK | INDENT

Consumer units, load centres and distribution boards

Emergency lighting test unit

Emergency lighting test

- Suitable for centralised control of the automatic discharge testing of a group of emergency escape lights or exit signs.
- Key switch operation
- Settable timing function to suit test requirements
- Pre-wired
- 4 N/C DIN contactor



Pre-wired emergency lighting test unit - enclosed

Description	Dimensions W x H x D (mm)	Order code
Emergency light test unit enclosed – key switch	230 x 200 x 90	ELTU4EKS



Pre-wired emergency lighting test Unit - DIN rail mount

Description	Order code
Emergency light test unit DIN mount – selector switch	ELTU4DSS

Notes


PORTNET
PORTNET
S.W.L.
50 t - 45.7 m WS
65 t - 25.0 m WS
ITEL
msc

Industrial plugs and sockets

142 Product overview

143 IEC 60309 plugs and connectors

145 Accessories

For more detailed product information, please refer to the Technical Catalogue:

- Industrial plugs and sockets – 2CMC700014C0008

Industrial plugs and sockets – IEC 60309-1, -2, -4

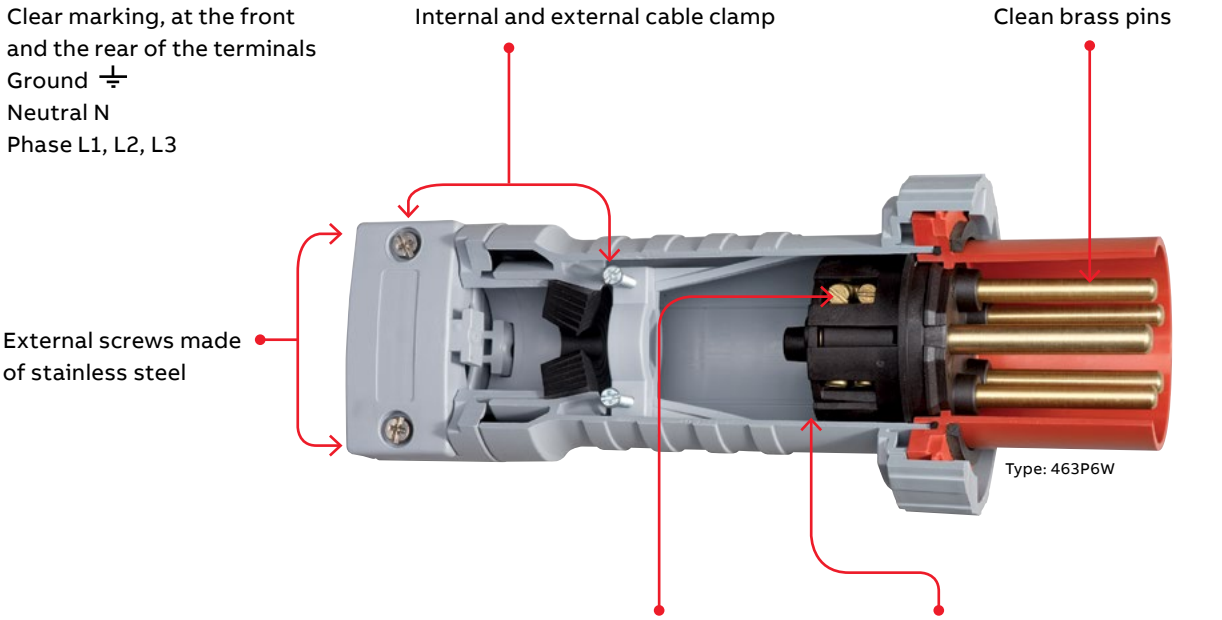
Product overview

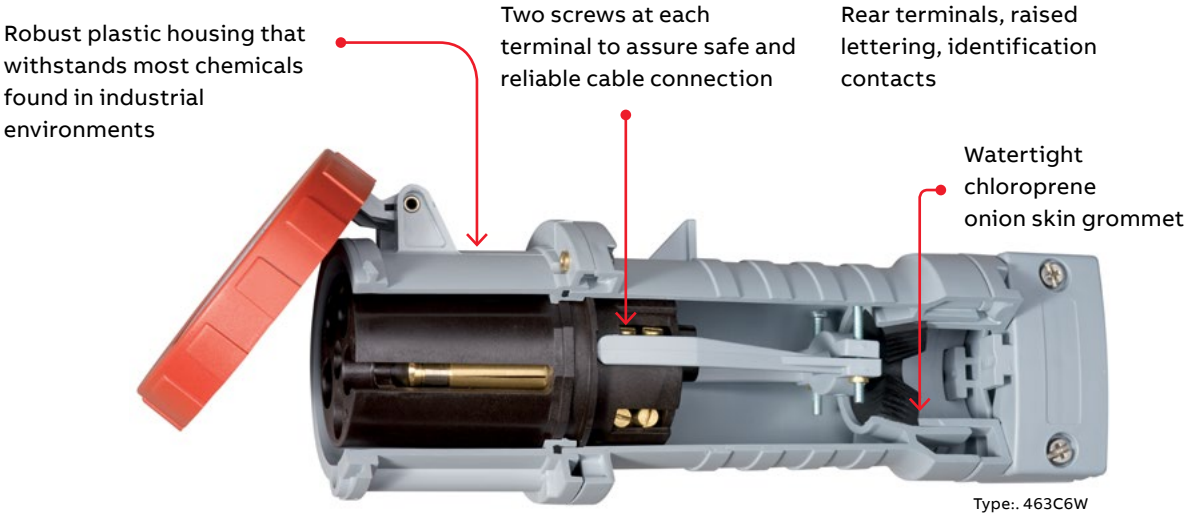
Tough & Safe is the range for applications in environments that have high demand of functionality and safety.
The robust housing is made of PBT plastic.

The range Tough & Safe is available as watertight (IP67, 16 –125 A) and splashproof (IP44, 16– 63 A).
The devices are equipped with internal and external cable clamps. The 125A devices are equipped with two screws on each terminal.

Features
- IP67 Watertight or IP44 Splashproof
- 16 –125 A, 50 – 690 V AC
- IEC 60309-1, -2
- All external screws are made of stainless steel.

Application examples
- Industry / workshops
- Harbours / shipyards
- Mines
- Food and beverage





Industrial plugs and sockets

IEC 60309 plugs and connectors

IP44

P6



IP44 Splash proof plugs

Poles Voltage 50–60Hz	Rating A	Order code
2P + E 200-250 V	16	216EP6
	32	232EP6
	63	263EP6
3P +E 380-415V	16	316EP6
	32	332EP6
	63	363EP6
3P + N + E 346-415V	16	416EP6
	32	432EP6
	63	463P6

Cable entry: compression gland (≤ 32A), membrane (63A)

C6



IP44 Splash proof connectors

Poles Voltage 50–60Hz	Rating A	Order code
2P + E 200-250 V	16	216EC6
	32	232EC6
	63	263EC6
3P +E 380-415V	16	316EC6
	32	332EC6
	63	363EC6
3P + N + E 346-415V	16	416EC6
	32	432EC6
	63	463C6

Cable entry: compression gland (≤ 32A), membrane (63A)

RS6



IP44 Splash proof surface mounted socket outlets

Poles Voltage 50–60Hz	Rating A	Order code
2P + E 200-250 V	16	216RS6
	32	232RS6
	63	263RS6
3P +E 380-415V	16	316RS6
	32	332RS6
	63	363RS6
3P + N + E 346-415V	16	416RS6
	32	432RS6
	63	463RS6

Cable entry: Membrane (included) Knock-outs on rear, M20 on top (≤ 32A), M32 on top (63A)

RAM6



IP44 Splash proof outlets angled flange

Poles Voltage 50–60Hz	Rating A	Order code
2P + E 200-250 V	16	216RAM6
	32	232RAM6
3P +E 380-415V	16	316RAM6
	32	332RAM6
3P + N + E 346-415V	16	416RAM6
	32	432RAM6

Note: For inlet units in surface and flange mount, refer to the technical catalogue: Industrial Plugs and Sockets – 2CMC700014C0008

Industrial plugs and sockets

IEC 60309 plugs and connectors



P6W

IP67 Watertight plugs

Poles Voltage 50–60Hz	Rating A	Order code
2P + E 200-250 V	16	216P6W
	32	232P6W
	63	263P6W
	125	2125P6W
3P +E 380-415V	16	316P6W
	32	332P6W
	63	363P6W
	125	3125P6W
3P + N + E 346-415V	16	416P6W
	32	432P6W
	63	463P6W
	125	4125P6W

Cable entry: Compression gland (included)



C6W

IP67 Watertight connectors

Poles Voltage 50–60Hz	Rating A	Order code
2P + E 200-250 V 6h	16	216C6W
	32	232C6W
	63	263C6W
	125	2125C6W
3P +E 380-415V 6h	16	316C6W
	32	332C6W
	63	363C6W
	125	3125C6W
3P + N + E 346-415V 6h	16	416C6W
	32	432C6W
	63	463C6W
	125	4125C6W

Cable entry: Compression gland (included)



S6W

IP67 Watertight surface mounted socket outlets

Poles Voltage 50–60Hz	Rating A	Order code
2P + E 200-250 V 6h	16	216RS6W
	32	232RS6W
	63	263RS6W
	125	2125RS6W
3P +E 380-415V 6h	16	316RS6W
	32	332RS6W
	63	363RS6W
	125	3125RS6W
3P + N + E 346-415V 6h	16	416RS6W
	32	432RS6W
	63	463RS6W
	125	4125RS6W

Cable entry: Knock-outs, Compression gland (not included)

Industrial plugs and sockets

IEC 60309 plugs and connectors
IP67 (cont.)


RAU6W

IP67 Watertight angled flange outlet

Poles Voltage 50 – 60Hz	Rating (A)	Order code
2P + E 200-250 V 6h	16	216RAU6W
	32	232RAU6W
	63	263RAU6W
3P +E 380-415V 6h	16	316RAU6W
	32	332RAU6W
	63	363RAU6W
3P + N + E 346-415V 6h	16	416RAU6W
	32	432RAU6W
	63	463RAU6W


RU6W

IP67 Watertight Straight Flange – 125A

2P + E	200 – 250V 6h	2125RU6W
3P + E	380 – 415V 6h	3125RU6W
3P + N	346 – 415V 6h	4125RU6W

Accessories

Plugblocker

The plugblocker CLF16-125 prevents the plug from being inserted into a socket-outlet or connector. The plugblocker can also be mounted on an inlet to prevent a connector to be in engagement. CLF is delivered with two keys. For use with both IP44 and IP67 products.


CLF16-125

To fit	Order code
Plugs 16 – 125A Panel mounted inlets 16 – 125A Surface mounted inlets 16 – 125A	CLF16-125

Protective cover, 16 – 125A

Degree of protection: IP44/67
Material: EPDM Rubber 60sh


GP125

For inlet and plug	Order code
16A, 2P+E	GP216
16A, 3P+E	GP316
16A, 3P+N+E	GP416
32A, 2P+E AND 3P+E	GP232/332
32A, 3P+N+E	GP432
63A, 2P+E, 3P+E and 3P+N+E	GP63
125A, 2P+E, 3P+E and 3P+N+E	GP125

02
Power distribution

149 ABB Ability™

161 Air circuit breakers (ACB)

177 Moulded case circuit breakers (MCCB)

211 Load break switches

257 Compact automatic transfer switches

265 Automatic transfer switches

283 Enclosed switches

295 Switch fuses

309 Fuse switch disconnectors

317 Fusegear

325 Arc Guard System™


COLLECT
SEE
CONTROL
ANALYZE
OPTIMIZE
PREDICT
UPGRADE

ABB Ability™

150	**ABB Ability™ Electrical Distribution Control System (EDCS)**
154	**Supported devices**
156	**Ekip UP**

For more detailed product information, please refer to the Technical Catalogue:

- ABB Ability™ Electrical Distribution Control System: Understanding power – 1SDC200061B0202
- Ekip com hub – 1SDC200063B0202
- ABB Ekip UP – 1SDC001051D0201

ABB Ability™ Electrical Distribution Control System (EDCS)

Overview

What is ABB Ability™ EDCS?

ABB Ability™ Electrical Distribution Control System (EDCS) - is an innovative cloud based platform designed to 'Monitor', 'Optimise' and 'Control' electrical distribution systems.

ABB Ability™ Electrical Distribution Control System is built on a state of the art cloud architecture for data collection, processing and storage. The latest collaboration is a successful result of partnership with Microsoft Azure cloud based platform where highest level of 'security' and 'reliability' is a main focus.

Features and benefits

Overview

Through a compelling web app interface accessible via smartphone, tablet or personal computer. This can provide access at anytime and anywhere. The user can:

Monitor
Discover plant performance, supervise electrical system and allocate cost.

Optimise
Schedule and analyse automatic reports, improve the use of assets and take the right business decision.

Control
Set up alerts and notify key personnel. Remotely implement an effective power management strategy to achieve energy saving in a simple way.

ABB Ability™ Electrical Distribution Control System can provide access for a multi-site level, which means, monitoring and performance comparison of different facilities simultaneously. Furthermore, user's access level is another feature that can be managed through this system. It can restrict or grant access to multiple users dependent on their user profile portfolio which can be defined by the user's organisation.



Energy savings
- Save up to 30% on operational costs
- Monitoring energy consumption
- Implementing power management strategies
- Removing inefficiencies



Easy to install
- Connect the panel to the cloud in 10 minutes
- Reduced components numbers
- Plug-in function
- User friendly menu



Continuous operations
- Take action in 1 minute, anywhere, anytime
- Monitoring functions to prevent downtime
- Reduced maintenance time and cost
- System alert



Speed up your projects
- Increase the value of your projects by 15%
- Direct access to documentation
- Simplified information exchange
- Comprehensive set of data and trends

ABB Ability™ Electrical Distribution Control System (EDCS)

Typical architecture

Based on customers preference, whether the project is a new design or existing engineered solution, there are two configurations that ABB Ability™ Electrical Distribution Control System can be implemented. It can be implemented as ‘embedded’ or ‘external’ to the system.

Embedded solution with Ekip Com Hub

The advanced measurement functions and connectivity features of Emax 2 air circuit breakers set a new perspective for innovation. An Emax 2 equipped with the new Ekip Com Hub establishes the cloud connection for the entire switchboard. This dedicated cartridge-type communication module simply needs to be inserted into the terminal box and connected to the internet. Once connected the Ekip Com Hub will collect data from the other devices equipped with one of the following communication modules:

- Ekip Com Modbus RS-485
- Ekip Com Modbus TCP
- Ekip Link

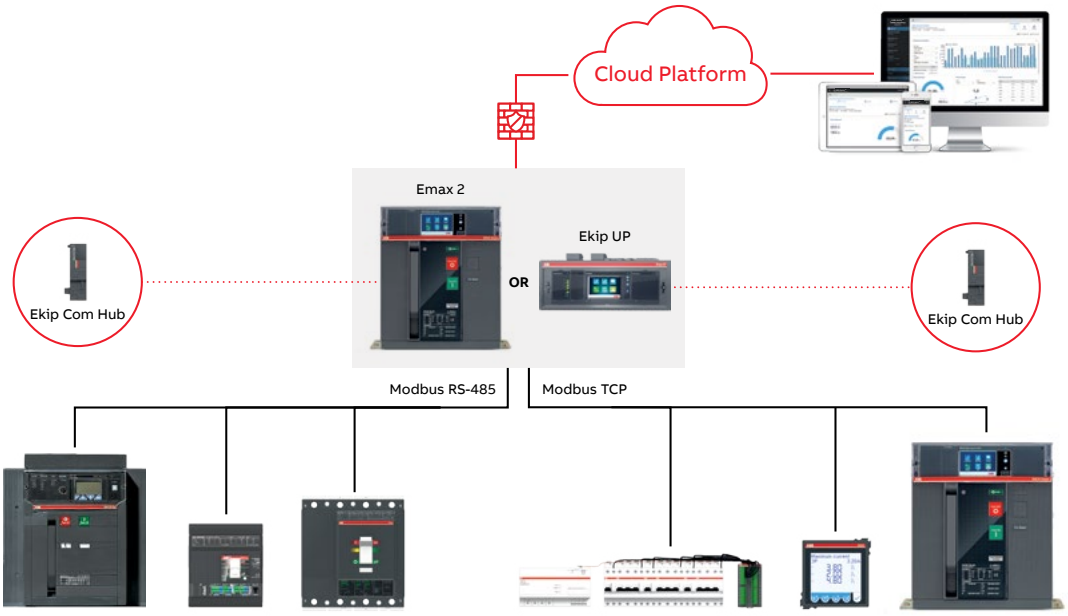
Using the Ekip Connect software, it is possible to achieve guided commissioning in just a few minutes thanks to a wizard and self-configuring connections.

External

It is possible to retrofit the installed base, with both ABB components’ supply and 3rd party vendor’s, through Ekip Com Hub module plugged into Ekip UP units.

Ekip UP equipped with Ekip Com Hub establishes the cloud connection for a specific feeding line, load or even for the whole distribution system. This dedicated cartridge type communication module just needs to be inserted into the terminal box and connected to the internet using an external router.

ABB Ability™ Electrical Distribution Control System immediately connects to the power distribution panel, also down to the smallest loads by means of CMS 700, with no impact on the installed components and plug and play approach.



Example of a typical architecture

ABB Ability™ Electrical Distribution Control System (EDCS)

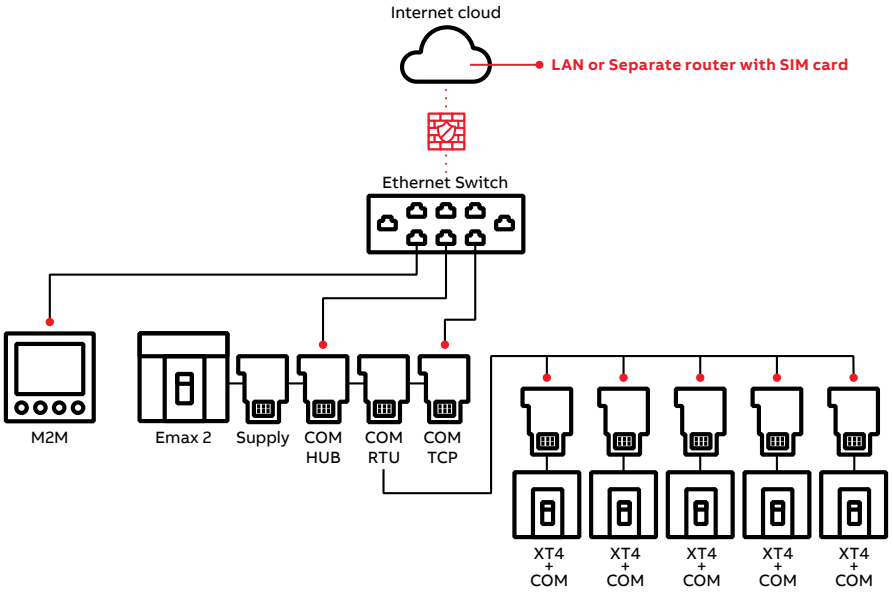
Architecture examples

Qualitative architecture examples

Please note that a single Ethernet network with internet connectivity, as depicted, shall be considered only during the provisioning of the system. After provisioning, the internal Ethernet network for TCP devices communication shall be segregated from the Ekip Com Hub network with internet connectivity.

Distribution board

As an example, the illustration below shows how to wire a panel board with one Emax 2, five XT4s and an M2M Ethernet multimeter.



Power center - switchboard

In case of a big plant with more than one Emax 2 or Ekip UP, here is an example on how you can wire it. Here you have three Emax 2, one with an Ekip Com Hub, dedicated for the connection of all the RTU network (four Tmax as slaves). The other one with another Ekip Com Hub dedicated for the connection of all the Ethernet network (one Emax 2 and two M2M Ethernet).

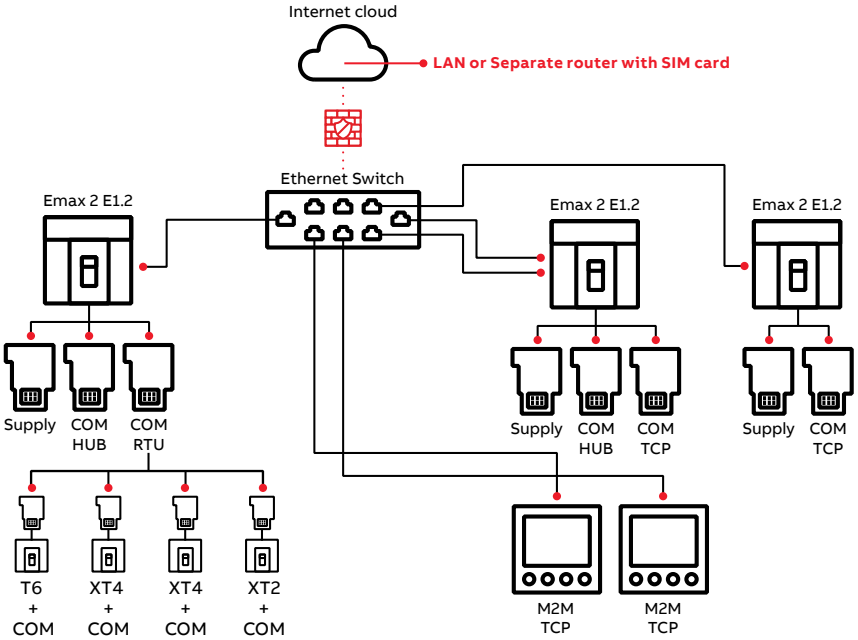
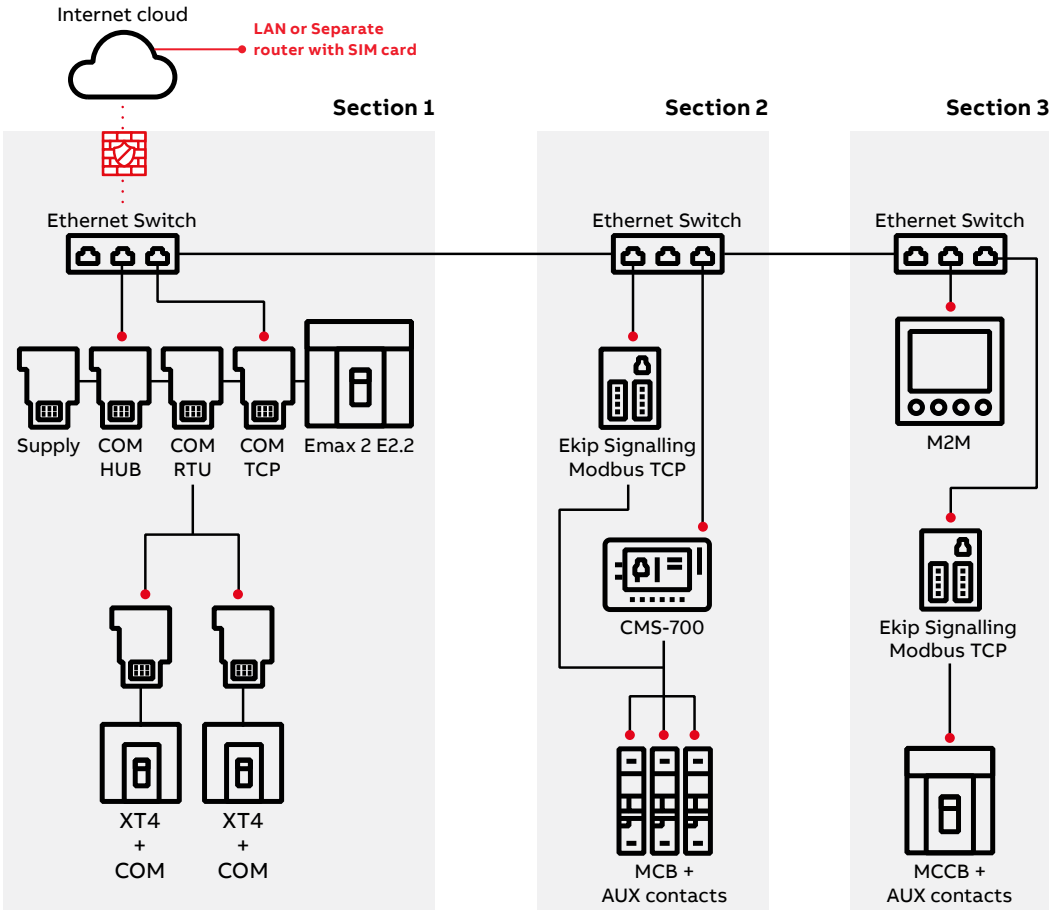


ABB Ability™ Electrical Distribution Control System (EDCS)

Architecture examples

From distribution board to branches -
From switchboard to load center
In an application where we have the main and sub-distribution panels in different locations, this is how they could be wired.



Ekip Com Hub performance

Each Ekip Com Hub can connect up to 50 devices. The limit for Modbus RS-485 connection is up to 32 devices. It is possible to provide multiple Ekip Com Hub in one installation. It is only possible to install one Ekip Com Hub module in an Emax 2 or Ekip UP circuit breaker.

Data logging time and data refresh on the web app is 30 seconds. However, performance could decrease if a large number of devices (typically more than 20) are connected to ABB Ability™ EDCS by means of one single Ekip Com Hub.

Also, the type of devices that are connected and the communication protocol used can affect the performance. In order to ensure high data logging performance, it is suggested to use more than one Ekip Com Hub when more than 15 devices are to be connected via Modbus RS-485.

Supported devices

	Low Voltage molded case circuit breakers and trip units													
Device	**XT2**		**XT4**				**T4-T5-T6**				**T5**		**T7**	
Trip unit type	**EKIP LS/I - TM**	**EKIP LSI +LSIG**	**EKIP LS/I - TM**	**EKIP M - LRIU**	**EKIP LSI +LSIG**	**Ekip E**	**PR222DS/PD**	**PR222DS/PD**	**PR223DS**	**PR223DS**	**Ekip E (+COM)**	**Ekip E (+COM)**	**PR332**	**PR332**
Additional modules and communication	**Ekip COM**	**Ekip COM**	**Ekip COM**	**Ekip COM**	**Ekip COM**	**Ekip COM**		**AUX-E**		**VM10**		**AUX-E**	**PR330/DM**	**PR330/DM + PR330/V**
Currents		•				•	•	•	•	•	•	•	•	•
Voltages						•				•	•	•		•
Frequency						•				•	•	•		•
Power						•				•	•	•		•
Energy										•	•	•		•
Power factor						•				•	•	•		•
Max I and P values						•			•	•	•	•	•	•
Power quality						•					•	•		
Total number of operations		•		•	•	•		•	•	•		•	•	•
Number of trips		•		•	•	•	•	•	•	•	•	•	•	•
Number of trip tests		•		•	•	•	•	•	•	•	•	•	•	•
Contact wear		•		•	•	•	•	•	•	•	•	•	•	•
Number of manual operations		•				•	•	•	•	•	•	•	•	•
Protection alarms		•		•	•		•	•	•	•	•	•	•	•
Diagnostic alarms	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Device information (firmware version, serial number...)	•	•	•	•	•	•	•	•	•	•	•	•	•	•
State information (open/close, alarms)	•	•	•	•	•	•		•	•	•		•	•	•
Pulse meters														
Analog meters														

Power, energy and asset management parameters:

		Information							
Family	**Device**	**State**	**Current**	**Voltage**	**Power**	**Energy**	**Power Factor**	**Alarms**	**Maintenance & Diagnostics**
ACB	Emax 2 (*)	•	•	•	•	•	•	•	•
ACB	New Emax (*)	•	•	•	•	•	•	•	•
MCCB	Tmax T (*)	•	•	•	•	•	•	•	•
MCCB	Tmax XT (*)	•	•	•	•	•	•	•	•
Metering device	M2M		•	•	•	•	•		
Metering device	CMS 700		•	•	•	•	•		
Fusegear	Slimline XR ITS 2	•	•	•	•	•	•	•	•
Signalling module for digital inputs (e.g. for MCBs)	Ekip Signalling Modbus TCP	•							
Digital meters/Sensor	Pulse meter (**)								
Analog meters/Sensor	Analog meter (**)								
Arc guard	TVOC-2	•						•	
And many others to come...		* Provided the product with dedicated accessories for communication and metering functions							** only with Ekip E-Hub module

Low voltage Air circuit breakers and trip units									**Digital inputs interface**	**Ekip E-Hub**	**Power meters**	**Branch monitoring and MCBs**	**Medium voltage relays**
New Emax			**Emax 2**				**Ekip UP**		**Ekip Signalling MODBUS TCP**	**Ekip E-Hub**	**M2M**	**CMS700**	**REF 5xx**
PR122	**PR122**	**PR123**	**Ekip Touch**	**Ekip Touch**	**Ekip Hi Touch**	**Ekip G-Touch**	**Ekip UP Monitor**	**Ekip UP Protect / Control**	**through digital inputs**				**REF 542 PLUS**
PR120/DM	**PR120/DM + PR120/V**	**PR120/DM**	**Ekip Supply + Ekip COM Hub**	**Ekip Supply + Ekip COM Hub + Ekip Measuring**	**Ekip Supply + Ekip COM Hub**	**Ekip Supply + Ekip COM Hub**	**Ekip Com Hub**	**Ekip Com Hub**	**(Modbus TCP)**		**(Modbus TCP, RTU)**	**(Modbus TCP)**	**(Modbus TCP)**
•	•	•	•	•	•	•	•	•			•	•	•
	•	•		•	•	•	•	•			•	•	•
	•	•		•	•	•	•	•			•	•	•
	•	•		•	•	•	•	•			•	•	•
	•	•		•	•	•	•	•			•	•	•
	•	•		•	•	•	•	•			•		•
•	•	•	•	•	•	•	•	•			•	•	•
	•	•			•	•	•	•			•		
•	•	•	•	•	•	•			•				•
•	•	•	•	•	•	•		•	•				
•	•	•	•	•	•	•		•	•				
•	•	•	•	•	•	•							
•	•	•	•	•	•	•			•				
•	•	•	•	•	•	•		•	•				
•	•	•	•	•	•	•	•	•	•				
•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•*)	•*)	•*)	•*)	•*)	•*)	•	•**)			
										•**)			
										•**)			

Note:
*) also from other devices through Ekip Signalling 4K inputs
**) from 3rd party sensors through digital or analog inputs

				Communication
Power Quality	**Load management**	**Environmental parameters**	**General Info**	**Protocol**
•	•		•	Modbus RS-485, Modbus TCP, Ekip Link
			•	Modbus RS-485
			•	Modbus RS-485
			•	Modbus RS-485
•			•	Modbus RS-485, Modbus TCP
			•	Modbus RS-485, Modbus TCP
			•	Modbus RS-485
			•	Modbus TCP
		•	•	Digital I/O
		•	•	Analog I/O
			•	Modbus RS-485

Ekip UP
Overview

The innovative Ekip UP digital units are the new benchmark for the protection, measurement and control for low voltage electrical systems.



The result is a single unit suitable for all the different applications including every required functionalities without the need for other external devices. The ABB ‘plug and play’ solution improves the plant efficiency, increases awareness of resources and process behaviours, and delivers an easier, more intuitive user experience.

As multifunctional unit, there are five different commercial versions that guarantees flexibility and modularity to match all market opportunities in measurement, protection and control applications.

- **Ekip UP Monitor**
- **Ekip UP Protect**
- **Ekip UP Protect +**
- **Ekip UP Control**
- **Ekip UP Control +**

Besides standard accessory supply, all the unit types can be equipped with connectivity and signalling modules. Besides, advanced software functions can be uploaded into Ekip UP Protect, Protect+ and Control+. These same versions are ready for external toroids that enable more earth fault protections.



	Ekip UP Monitor	Ekip UP Protect	Ekip UP Protect +	Ekip UP Control	Ekip UP Control +
Control				●	●
Protection		●	●		●
Metering	●	●	●	●	●

● = standard functions
● = advanced functions

Ekip UP
Ekip UP units





Monitor
Ekip UP Monitor is more than a measurement unit:

- Power quality network analyser according to IEC61000-4-30 (up to 50th harmonics)
- Fault analysis datalogger based on events with two independent memory buffers
- Maximum, minimum and average value registers

Ekip UP Accuracy		
Measure	Ekip UP unit	→ with Sensors *
Current	0.50%	1.00%
Voltage	0.50%	0.70%
Power	1.00%	2.00%

* With Type C current sensors based on installation conditions mentioned in dedicated manual, doc 1SDH002003A1001 and in case of VT (voltage transformer) used cl. 0,2 or below.

Advanced communication capabilities are unlocked by 8 fieldbus protocol + 1 property bus to get it easily integrated in systems. Thanks to cartridge modules and four available slots, it is very simple to share its up to 3000 data with supervision systems, guaranteeing modularity for each application.

Using an optional gateway module, it can be connected also to the cloud-platform ABB Ability™ Electrical Distribution Control System thanks to a simple architecture able to connect most of the ABB low voltage devices to the cloud.

This follows the technology focus for big data in the commercial and industrial market segments. Ekip UP Monitor is the perfect solution for comprehensive plant energy metering, full connectivity for integration in every supervision system, power grid hub for energy management platform to make every switchgear smart.

Protect
Ekip UP Protect and Protect+ add the protection functions besides the monitoring and connectivity ones.

Ekip UP Protect enables protection based on current, voltage, frequency and power as a basic protective relay for power feeders. Ekip UP Protect+ has, instead, also generator protections, adaptive and overcurrent directional ones for power distribution grids. Using Ekip Protect+ is possible to get digital selectivity with proprietary bus, plus distinguish restricted/unrestricted earth fault.

Ekip UP Protect and Ekip UP Protect+ can be equipped with the software kits from ‘all-in-one’ platform, like ATS (automatic transfer switch), load shedding innovations, synchro reclosing capability, interface certified protections.

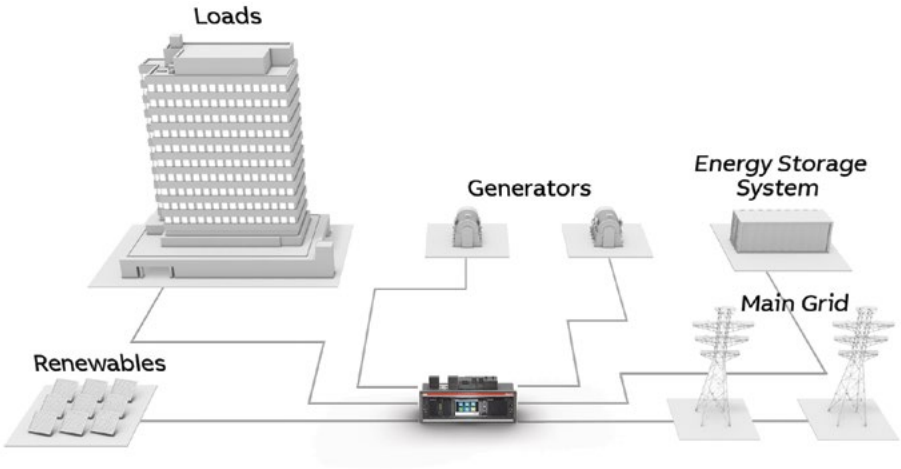
Those advanced features can ensure service continuity and energy efficiency in the plants, reducing the complexity of different device installation.

Typical application of Ekip UP Protect and Ekip UP Protect+ are:

- Adding protection functionalities to switch-disconnectors, guaranteeing short-circuit breaking capacity as their short time withstand current.
- Leveraging on more ANSI protections and other innovations for installed circuit breaker with simple trip unit, like thermo-magnetic, with the possibility to maintain current short-circuit values. Ekip UP can be also the best solution when trip unit spare parts are anymore available or as relay backup.

Ekip UP

Ekip UP units



Control

Ekip UP Control add to Ekip UP Monitor version the power management algorithm. This demand management function cuts power billing for end-users meanwhile it makes the plants ready for demand response programs.

Demand response is a new business that from US is going to be global. It consists of remote power management: utilities or load aggregators change the power consumption or generation on the plant sites sending specific signals, according on grid services required, weather forecasts or pricing strategies.

Using embedded dedicated protocols, like openADR, Ekip UP is able to set the power locally the load power absorption at the threshold fixed remotely in a single smart unit.

Besides, Ekip UP Control enables electricity bill reduction thanks to peak shaving and load shifting strategies.

This capability is also integrated in ABB Ability™ Electrical Distribution Control System, so that it can be managed directly for the webapp everywhere directly from tablet or smartphone.

Ekip UP Control+ is the top version of the Ekip UP family. It completes the Ekip Protect+ with control features, making it really a Microgrid controller. Ekip UP Control+ is ready for 'all-in-one' software platform so to achieve every target in power distribution and automation.

Ekip UP Control and Ekip UP Control+ answer the requests of energy efficiency, understanding power and acting to enhance plant productivity with optimisation logics.



Ekip UP

Ordering part numbers

The innovative Ekip UP digital units are the new benchmark for protection, measurement and control for low voltage electrical systems.



Description	Order code
Ekip UP Monitor	1SDA083359R1
Ekip UP Protect	1SDA083360R1
Ekip UP Protect +	1SDA083361R1
Ekip UP Control	1SDA083362R1
Ekip UP Control +	1SDA083363R1



Current Senors

Description	Order code
Open CS 3P type C 80	1SDA085566R1
Open CS 4P type C 80	1SDA085564R1
Open CS 3P type C 120	1SDA083372R1
Open CS 4P type C 120	1SDA083373R1
Open CS 3P type C 200	1SDA085565R1
Open CS 4P type C 200	1SDA085563R1

*For other compatible accessory please refer to Emax2 section of Catalogue 1SDC001051D0201 or from the Ekip modules sections

Example

Shopping list for unit with advanced protection to be installed in existing 4 pole-plant, rating plug 2000, Modbus TCP/IP connectivity, connection to cloud platform and cartridge signalling module.

Mandatory accessories

Description	Order code
Ekip UP Protect +	1SDA083361R1

Mandatory accessories

Description	Order code
Open CS 4P type C 120	1SDA083373R1
Rating Plug 2000A	1SDA074227R1
Ekip Supply 24-48Vdc	1SDA074173R1

Optional accessories

Description	Order code
Ekip Com Modbus TCP	1SDA074151R1
Ekip Com Hub	1SDA082894R1
Ekip Signalling 2K-1	1SDA074167R1

STOCK | INDENT

Air circuit breakers (ACB)

162	Technical data
164	Automatic circuit breakers
165	Switch-disconnectors
166	Emax 2 – accessories, standard supply
167	Electrical accessories
169	Mechanical accessories
171	Ekip modules – accessories
172	Mechanical interlock
174	Extended warranty

For more detailed product information, please refer to the Technical Catalogue:

- Emax 2 – 1SDC200023D0208

Air circuit breakers
Technical data

Common data		
Rated service voltage Ue	[V]	690
Rated insulation voltage Ui	[V]	1000
Rated impulse withstand voltage Uimp	[kV]	12
Frequency	[HZ]	50 – 60
Number of poles		3 – 4
Version		Fixed – Withdrawable
Isolation behaviour		IEC 60947-2



Emax 2			**E1.2**			
Performance levels			**B**	**C**	**N**	**L**
Rated uninterrupted current Iu @ 40°C		[A]	630	630	250	630
		[A]	800	800	630	800
		[A]	1000	1000	800	1000
		[A]	1250	1250	1000	1250
		[A]	1600	1600	1250	
		[A]			1600	
		[A]				
Neutral pole current-carrying capacity for 4-pole CBs		[%Icu]	100	100	100	100
Rated ultimate short-circuit breaking capacity Icu	400-415 V	[kA]	42	50	66	150
	440 V	[kA]	42	50	66	130
	500-525 V	[kA]	42	42	50	100
	690V	[kA]	42	42	50	60
Rated service short-circuit breaking capacity Ics		[%Icu]	100	100	100[1)]	100
Rated short-time withstand current Icw	(1s)	[kA]	42	42	50	15
	(3s)	[kA]	24	24	36	–
Rated short-circuit making capacity (peak value) Icm	400-415 V	[kA]	88	105	145	330
	440 V	[kA]	88	105	145	286
	500-525 V	[kA]	88	88	105	220
	690 V	[kA]	88	88	105	132
Utilization category (according to IEC 60947-2)			B	B	B	A
Breaking	Breaking time for I<Icw		40	40	40	40
	Breaking time for I>Icw		25	25	25	10
Dimensions	H – Fixed/Withdrawable	[mm]	296/363.5	296/363.5	296/363.5	296/363.5
	D – Fixed/Withdrawable	[mm]	183/271	183/271	183/271	183/271
	W – Fixed 3p/4p/4p FS	[mm]	210/280			
	W – Withdrawable 3p/4p/4p FS	[mm]	278/348			

1) Ics : 50kA for 400V...440V voltage

Emax 2			**E1.2**			
Mechanical and electrical life with regular ordinary maintenance prescribed by the manufacturer		[Iu]	≤1000	1250	1600	1600 L
		[No.oper.x 1000]	20	20	20	20
	Frequency	[Oper./Hour]	60	60	60	60
Electrical life	440 V	[No.oper.x 1000]	8	8	8	3
	690 V	[No.oper.x 1000]	8	6,5	6,5	1
	Frequency	[Oper./Hour]	30	30	30	30







E2.2				**E4.2**				**E6.2**		
B	**N**	**S**	**H**	**N**	**S**	**H**	**V**	**H**	**V**	**X**
1600	800	250	800	3200	3200	3200	2000	4000	4000	4000
2000	1000	800	1000	4000	4000	4000	2500	5000	5000	5000
	1250	1000	1250				3200	6300	6300	6300
	1600	1250	1600				4000			
	2000	1600	2000							
	2500	2000	2500							
		2500								
100	100	100	100	100	100	100	100	50–100	50–100	50–100
42	66	85	100	66	85	100	150	100	150	200
42	66	85	100	66	85	100	150	100	150	200
42	66	66	85	66	66	85	100	100	130	130
42	66	66	85	66	66	85	100	100	100	120
100	100	100	100	100	100	100	85	100	100	100
42	66	66	85	66	66	85	100	100	100	120
42	50	50	66	36	50	66	75	100	100	100
88	145	187	220	145	187	220	330	220	330	440
88	145	187	220	145	187	220	330	220	330	440
88	145	145	187	145	145	187	220	220	286	286
88	145	145	187	145	145	187	220	220	220	264
B	B	B	B	B	B	B	B	B	B	B
40	40	40	40	40	40	40	40	40	40	40
25	25	25	25	25	25	25	25	25	25	25
371/425	371/425	371/425	371/425	371/425	371/425	371/425	371/425	371/425	371/425	371/425
270/383	270/383	270/383	270/383	270/383	270/383	270/383	270/383	270/383	270/383	270/383
276/366				384/510				762/888/1014		
317/407				425/551				803/929/1069		

E2.2				**E4.2**				**E6.2**		
<1600	1600	2000	2500	<2500	2500	3200	4000	4000	5000	6300
25	25	25	20	20	20	20	15	12	12	12
60	60	60	60	60	60	60	60	60	60	60
15	12	10	8	10	8	7	5	4	3	2
15	10	8	7	10	8	7	4	4	2	2
30	30	30	30	20	20	20	20	10	10	10

Air circuit breakers

Automatic circuit breakers



Fixed version



Withdrawable version
Moving part



Withdrawable version
Fixed part

Fixed version for power distribution	**Withdrawable version for power distribution**	
3 and 4 Poles **Trip unit – Ekip Touch LSIG**	**3 Poles** **Trip unit – Ekip Touch LSIG**	**4 Poles** **Trip unit – Ekip Touch LSIG**
E1.2...E4.2 have 100% rated neutral. E6.2 has 50% rated neutral.	Withdrawable ACB consists of Fixed Part and Moving Part, both part numbers need to be ordered. Withdrawable Fixed Part is supplied as standard with adjustable rear terminals (mounted in HR-HR).	Withdrawable ACB consists of Fixed Part and Moving Part, both part numbers need to be ordered. Withdrawable Fixed Part is supplied as standard with adjustable rear terminals (mounted in HR-HR). E1.2...E4.2 have 100% rated neutral. E6.2 has 50% rated neutral.

Icu	**In**	**Icw (1s)**		**Order code**		**Order code**		**Order code**	
kA	**A**	**kA**	**size**	**3 Poles**	**4 Poles**	**Fixed Part 3 Poles**	**Moving Part 3 Poles**	**Fixed Part 4 Poles**	**Moving Part 4 Poles**
66	1600	50	E1.2N	1SDA070886R1	1SDA071516R1	1SDA073907R1	1SDA072236R1	1SDA073908R1	1SDA072866R1
	2000	66	E2.2N	1SDA071036R1	1SDA071666R1	1SDA073909R1	1SDA072386R1	1SDA073910R1	1SDA073016R1
	2500	66	E2.2N	1SDA071066R1	1SDA071696R1	1SDA073911R1	1SDA072416R1	1SDA073912R1	1SDA073046R1
	3200	66	E4.2N	1SDA071146R1	1SDA071776R1	1SDA073913R1	1SDA072496R1	1SDA073914R1	1SDA073126R1
100	4000	85	E4.2H	1SDA071216R1	1SDA071846R1	1SDA073915R1	1SDA072566R1	1SDA073916R1	1SDA073196R1
	5000	100	E6.2H	1SDA071266R1	1SDA071896R1	1SDA073917R1	1SDA072616R1	1SDA073918R1	1SDA073246R1
	6300	100	E6.2H	1SDA071296R1	1SDA071926R1	1SDA073920R1	1SDA072646R1	1SDA073921R1	1SDA073276R1

Note:

1) For nominal currents less than 1600A, please order in addition to the ACB the desired rating plug on page 171 of this chapter.
2) Please note E1.2 fixed version comes as standard with Front terminals (F). If you require rear terminals please order 2 of part number 1SDA073989R1 HR/VR 3 piece terminal kit.

Air circuit breakers
Switch-disconnectors



Fixed version



Withdrawable version
Moving part



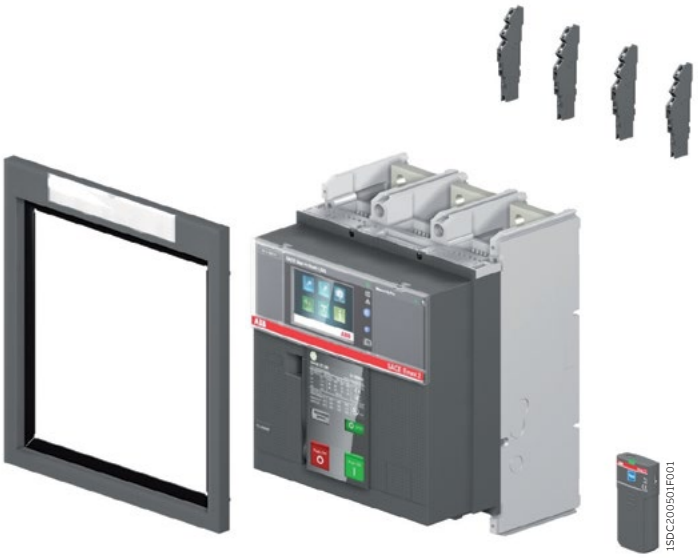
Withdrawable version
Fixed part

Fixed version for power distribution	**Withdrawable version for power distribution**	
3 and 4 Poles	**3 Poles**	**4 Poles**
E1.2...E4.2 have 100% rated neutral. E6.2 have 50% rated neutral.	Withdrawable ACB consists of Fixed Part and Moving Part, both part numbers need to be ordered. Withdrawable Fixed Part is supplied as standard with adjustable rear terminals (mounted in HR-HR).	Withdrawable ACB consists of Fixed Part and Moving Part, both part numbers need to be ordered. Withdrawable Fixed Part is supplied as standard with adjustable rear terminals (mounted in HR-HR). E1.2...E4.2 have 100% rated neutral. E6.2 has 50% rated neutral.

In	**Icw (1s)**		**Order code**		**Order code**		**Order code**	
A	**kA**	**size**	**3 Poles**	**4 Poles**	**Fixed Part 3 Poles**	**Moving Part 3 Poles**	**Fixed Part 4 Poles**	**Moving Part 4 Poles**
1600	50	E1.2N/MS	1SDA073401R1	1SDA073440R1	1SDA073907R1	1SDA073485R1	1SDA073908R1	1SDA073524R1
2000	66	E2.2/MS	1SDA073412R1	1SDA073415R1	1SDA073911R1	1SDA073496R1	1SDA073912R1	1SDA073535R1
2500	66	E2.2N/MS	1SDA073414R1	1SDA073453R1	1SDA073911R1	1SDA073498R1	1SDA073912R1	1SDA073537R1
3200	66	E4.2N/MS	1SDA073418R1	1SDA073457R1	1SDA073913R1	1SDA073502R1	1SDA073914R1	1SDA073541R1
4000	85	E4.2H/MS	1SDA073422R1	1SDA073461R1	1SDA073915R1	1SDA073506R1	1SDA073916R1	1SDA073545R1
5000	100	E6.2H/MS	1SDA073426R1	1SDA073465R1	1SDA073917R1	1SDA073510R1	1SDA073918R1	1SDA073549R1
6300	100	E6.2H/MS	1SDA073428R1	1SDA073467R1	1SDA073920R1	1SDA073512R1	1SDA073921R1	1SDA073551R1

Air circuit breakers

Emax 2 – accessories, standard supply



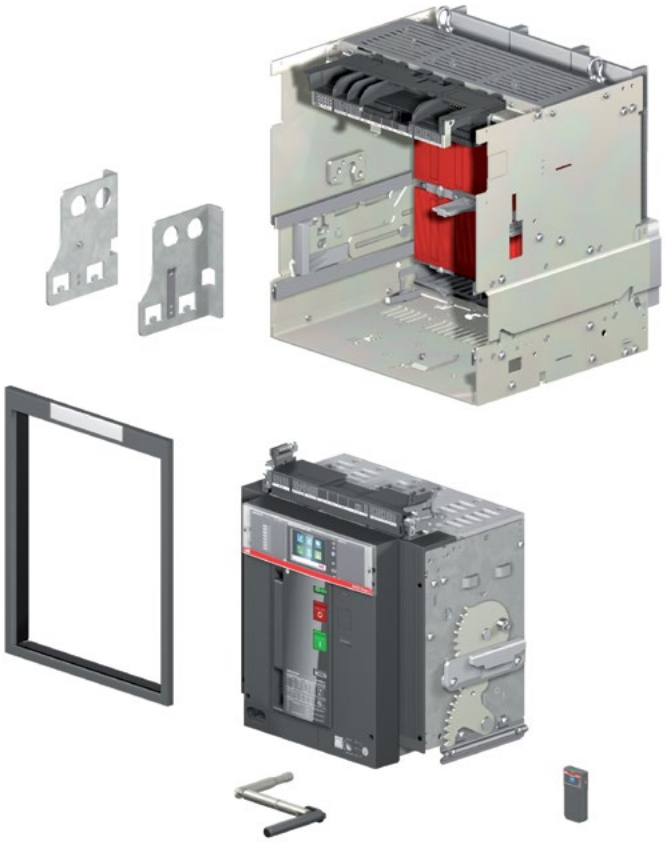
Fixed versions

The fixed versions of Emax 2 automatic circuit-breakers and switch-disconnectors are always supplied as standard with the following accessories:

- IP30 protection for switchgear door
- lifting plates for E2.2 ... E6.2 circuit-breaker
- front terminals for E1.2 circuit-breaker
- adjustable rear terminals for E2.2 ... E6.2 circuit-breaker, mounted in HR – HR configuration
- screws for securing in the switchgear
- flange

In addition, for fixed automatic circuit-breakers only:

- four standard open/closed auxiliary contacts - AUX 4Q
- four terminals for auxiliary connections
- mechanical signalling of the tripping of the protection trip unit - TU Reset
- Ekip TT power supply and test unit, when a protection trip unit is present with display
- contact signalling tripping of Ekip protection trip unit S51



Withdrawable versions

The withdrawable versions of automatic circuit-breakers and switch-disconnectors are always supplied as standard with the following accessories:

- closed circuit-breaker racked-out mechanism lock
- lifting plates for E2.2 ... E2.6 circuit-breakers
- lever for racking in and racking out
- anti-insertion lock
- flange

In addition, for withdrawable automatic circuit-breakers only:

- four standard open/closed auxiliary contacts - AUX 4Q
- four terminals for auxiliary connections
- mechanical signalling of the tripping of the protection trip unit - TU Reset
- Ekip TT power supply and test unit, when a protection trip unit is present with display
- contact signalling tripping of Ekip protection trip unit S51

The fixed parts feature:

- IP30 protection for switchgear door
- anti-insertion lock
- standard shutter lock – SL
- screws for securing to the floor
- adjustable rear terminals, mounted in HR – HR configuration

Air circuit breakers
Electrical accessories

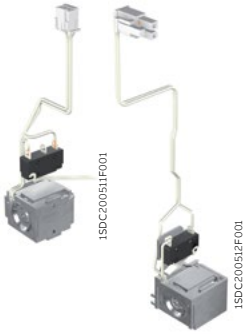


First and Second Opening Release – YO
Opening and Closing releases are interchangeable.

Suitable size	Type	Order code
E1.2...E6.2	24 V AC/DC	1SDA073668R1
	110-120 V AC/DC	1SDA073672R1
	240-250 V AC/DC	1SDA073675R1

First and Second Closing Release – YC
Opening and Closing releases are interchangeable.

Suitable size	Type	Order code
E1.2...E6.2	24 V AC/DC	1SDA073681R1
	110-120 V AC/DC	1SDA073685R1
	240-250 V AC/DC	1SDA073688R1

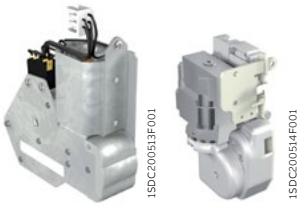


Undervoltage release – YU

Suitable size	Type	Order code
E1.2...E6.2	24 V AC/DC	1SDA073694R1
	110-120 V AC/DC	1SDA073698R1
	240-250 V AC/DC	1SDA073701R1

Remote Reset – YR

Suitable size	Type	Order code
E1.2	24 V DC	1SDA073744R1
E2.2...E6.2	24 V DC	1SDA073747R1



Motor – M
The motor is always supplied with a limit switch contact S33 M/2 which signals the status of the springs.

Suitable size	Type	Order code
E1.2	24-30 V AC/DC	1SDA073708R1
	100-130 V AC/DC	1SDA073710R1
	220-250 V AC/DC	1SDA073711R1
E2.2...E6.2	24-30 V AC/DC	1SDA073722R1
	100-130 V AC/DC	1SDA073724R1
	220-250 V AC/DC	1SDA073725R1

Air circuit breakers

Electrical accessories – Emax 2


1SDC200687F001

Current sensor for neutral conductor outside the ACB

This is only for three-pole ACB. It enables protection of the neutral conductor to be achieved through connection to Ekip trip unit.

Suitable size	Type	Order code
E1.2-E2.2	External CS N up to 2000A	1SDA073736R1
E2.2	External CS N up to 2500A	1SDA073737R1
E4.2	External CS N up to 3200A	1SDA073738R1


1SDC200504F001

Open/Close auxiliary contacts – AUX

AUX 4Q is always provided with the ACBs.
On the MS versions, parts should be ordered as an accessory.
AUX 6Q is an alternative to the Ekip Signalling 4K module.
An extra module of 6Q has to be added to the 4Q.

Suitable size	Type	Order code
E1.2	4Q 400V	1SDA073750R1
E2.2...E6.2	4Q 400V	1SDA073753R1
	6Q 400V	1SDA073756R1


1SDC200505F001

15 Additional auxiliary contacts – AUX 15Q

AUX 15Q is an alternative to the mechanical interlock (MI), DLP and DLC locks mounted on the right hand side.

Suitable size	Type	Order code
E1.2	15Q 400V	1SDA073758R1
E2.2...E6.2	15Q 400V	1SDA073760R1


1SDC200506F001

Auxiliary position contacts – AUP

Accessory to be fitted on the Fixed Part of the Withdrawable Version.

Suitable size	Type	Order code
E1.2	6 contacts 400V	1SDA073762R1
E2.2...E6.2	5 contacts 400V	1SDA073764R1

Air circuit breakers
Mechanical accessories



1SDC200524F001

Mechanical operation counter – MOC

Suitable size	Order code
E1.2	1SDA073780R1
E2.2...E6.2	1SDA073781R1


1SDC200515F001

Key lock in open position – KLC

The key lock must be supplied by customer on Ronis and Castell systems.
Fortress key lock available upon request, please contact ABB.


1SDC200516F001

Suitable size	Type	Order code
E1.2	KLC-D (different keys)	1SDA073782R1
	KLC-S (same key with N.20005)	1SDA073783R1
	KLA Castell	1SDA073788R1
	KLA Ronis Profalux	1SDA073790R1
E2.2...E6.2	KLC-D (different keys)	1SDA073791R1
	KLC-S (same key with N.20005)	1SDA073792R1
	KLA Castell*	1SDA073797R1
	KLA Ronis Profalux	1SDA073799R1

***** Cannot be supplied as a loose component and has to be ordered together with the ACB.


1SDC200518F001

Padlocks in open position – PLC

Locking device with plastic structure for up to a maximum of three padlocks of 4 mm or 8 mm. Padlocks supplied by customer. The PLC disables any closed command by constantly engaging the open button in the locked position.

Suitable size	Padlock	Order code
E1.2	D = 4 mm	1SDA073800R1
	D = 8 mm	1SDA073802R1
E2.2...E6.2	D = 4 mm	1SDA073803R1
	D = 8 mm	1SDA073805R1


1SDC200519F001

Key lock in racked-in / test / racked-out position – KLP

When the PLP is present, the KLP 2nd key has to be ordered and not the KLP 1st key.

Suitable size	Type	Order code
E1.2	KLP-D 1st Key lock	1SDA073822R1
E2.2...E6.2	KLP-D 1st Key lock	1SDA073806R1


1SDC200521F001

Padlock in racked-in / test / racked-out position – PLP

This device can hold up to three padlocks of 8 mm diameter.

Suitable size	Padlock	Order code
E1.2	D = 4/6/8 mm	1SDA073840R1
E2.2...E6.2	D = 4/6/8 mm	1SDA073841R1

Air circuit breakers

Mechanical accessories



Protection device for opening and closing pushbuttons – PBC

PBC is not compatible with PLC padlocks.

Suitable size	Order code
E1.2	1SDA073854R1
E2.2...E6.2	1SDA073858R1
E1.2 with 8mm padlockable hasp	1SDA073857R1
E2.2 – E6.2 with 8mm padlockable hasp	1SDA073861R1



Flange IP30

The flange IP30 is always supplied with the standard version of the ACBs.

Suitable size	Type	Order code
E1.2	Fixed version	1SDA073862R1
	Withdrawable version	1SDA073863R1
E2.2...E6.2	Fixed version	1SDA073864R1
	Withdrawable version	1SDA073865R1



Flange IP54 Escutcheon

This accessory is provided with double key lock (same key combination for both locks).

Suitable size	Order code
E1.2	1SDA073868R1
E2.2...E6.2	1SDA073869R1



Sealable trip unit cover

Suitable size	Order code
E2.2...E6.2	1SDA073870R1

High Terminal Shrouds - HTC

Suitable size	Order code
E1.2 - 3 Poles version	1SDA073871R1

Test and Configuration Unit

Ekip T&P allows you to perform trip test simulations, configure circuit breaker settings and download reports with ABB software Ekip Connect.

Terminal type	Description	Order code
All Emax 2 and Tmax ranges	Ekip T&P (Test and Programing)	1SDA066989R1

Air circuit breakers

Ekip modules – accessories


1SDC200539F001

Power Supply modules – Ekip Supply

Suitable size	Type	Order code
E1.2...E6.2	24-48 V DC*	1SDA074173R1
	110-240 V AC/DC*	1SDA074172R1

* Mandatory requirement when Ekip Com and/or Signalling modules are ordered.


1SDC200540F001

Connectivity module – Ekip Com

Ekip Com modules are supplied complete with auxiliary position contacts (AUP) and ready to close contacts (RTC).Ekip Com Actuator module enables Emax 2 to be opened and closed remotely through Ekip Com modules.

Suitable size	Type	Order code
E1.2...E6.2	Ekip Com Modbus RS485	1SDA074150R1
	Ekip Com Modbus TCP	1SDA074151R1
	Ekip Com Ethernet/IP	1SDA074155R1
	Ekip Com Actuator	1SDA074166R1
	Ekip Com Hub	1SDA082894R1


1SDC200544F001

Signalling modules

Ekip 2K supplies 2 input and 2 output contacts for control and remote signalling of alarms and ACB trips. Ekip 4K supplies 4 input and 4 output contacts for control and remote signalling of alarms and ACB trips. Ekip 4K is an alternative to the AUX 6Q.

Suitable size	Type	Order code
E1.2...E6.2	Ekip 2K-1	1SDA074167R1
E2.2...E6.2	Ekip 4K	1SDA074170R1



1SDC200548F001

Measuring and protection modules

The Ekip Measuring module enables the trip unit to measure the phase and neutral voltages, power and energy.
The voltage connections are installed by default on the lower terminals.
In addition, the Ekip Measuring Pro version has:

- Protection parameters based on the voltage and power values.
- Ekip trip unit power supply from busbar voltage (for line voltages greater than 85V).
- LED signalling voltage on main busbars.

Suitable size	Type	Order code
E1.2	Ekip Measuring	1SDA074184R1
	Ekip Measuring Pro	1SDA074185R1
E2.2	Ekip Measuring	1SDA074186R1
	Ekip Measuring Pro	1SDA074187R1
E4.2	Ekip Measuring	1SDA074188R1
	Ekip Measuring Pro	1SDA074189R1

Note:
E6.2 Ekip Measuring available. Please contact ABB.



1SDC200554F001

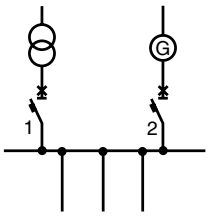
Rating plug for Ekip trip units – Replacements

Suitable size	Type	Order code
E1.2...E6.2	630A	1SDA074222R1
	800A	1SDA074223R1
	1000A	1SDA074224R1
	1250A	1SDA074225R1
	1600A	1SDA074226R1
	2000A	1SDA074227R1
	3200A	1SDA074229R1

STOCK | INDENT

Air circuit breakers
Mechanical interlock

Type A



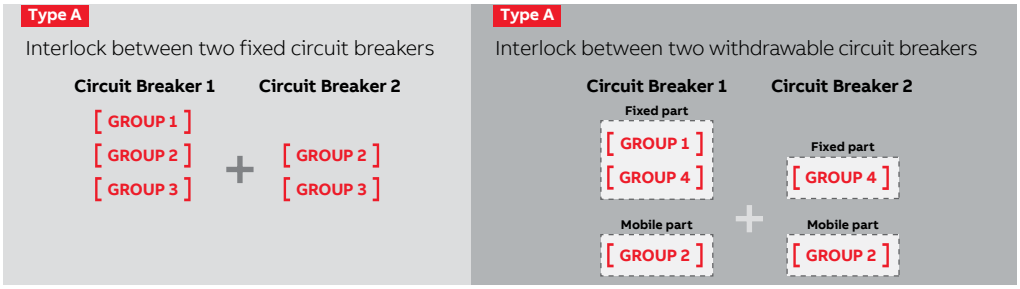
Main line power supply and emergency power supply.

Excludes the possibility of having two circuit-breakers in the closed position at the same time.

Logic

1	2
O	O
I	O
O	I

Mechanical Interlock selection guide



Interlock of three ACBs available, please contact ABB.

Suitable size	Type	Order code
[Group 1] Cables for mechanical interlock Order one type of cable for each interlock. The cable must be ordered on the Fixed ACB or on the Fixed Part of Withdrawable ACB.		
E1.2...E6.2	HR - Horizontal interlock for two ACBs	1SDA073881R1
	VR - Vertical interlock for two ACBs	1SDA073885R1
[Group 2] Lever for mechanical interlock of Fixed ACB or ACB Withdrawable Moving Part E1.2 – The lever for mechanical interlock is not required.		
E2.2		1SDA073889R1
E4.2		1SDA073890R1
E6.2	3 Poles	1SDA073891R1
	4 Poles	1SDA073892R1
[Group 3] Support for mechanical interlock of Fixed ACB		
E1.2		1SDA073893R1
E2.2...E6.2		1SDA073895R1
[Group 4] Support for mechanical interlock of ACB Withdrawable Fixed Part		
E1.2		1SDA073896R1
E2.2...E6.2		1SDA073895R1



Automatic Transfer Switch – ATS022

One ATS022 and one loom kit should be ordered for a complete Type A interlock. Loom kit accessory consist of all wiring and components necessary to enable the ATS performance.

Suitable size	Type	Order code
E1.2...E6.2	ATS022	1SDA065524R1
	Loom kit	1SDAA99203A1

In order to perform an automatic transfer switch suitable interlock, each ACB should be ordered with:

- 1 Opening release – YO
- 1 Closing release – YC
- 1 Motor – M
- 1 Auxiliary contact – AUX (standard supply in ACBs, to be ordered in MS)
- 1 Contact signalling tripping of Ekip protection trip unit – S51 (standard supply in ACB)
- 1 Auxiliary position contact – AUP (only for the ACB Withdrawable Fixed Part)
- Mechanical interlock

Air circuit breakers
Mechanical interlock

Mechanical Interlock selection guide

Type C

Type C with bus tie Interlock between three fixed circuit-breakers: **Available for E2.2 – E6.2 only**

Circuit Breaker 1		Circuit Breaker 2		Circuit Breaker 3
[GROUP 1] [GROUP 2] [GROUP 3]	+	[GROUP 2] [GROUP 3]	+	[GROUP 2] [GROUP 3]

Type C

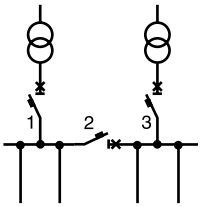
Type C with bus tie Interlock between three withdrawable circuit-breakers: **Available for E2.2 – E6.2 only**

Circuit Breaker 1		Circuit Breaker 2		Circuit Breaker 3
Fixed part [GROUP 1] [GROUP 4] Mobile part [GROUP 2]	+	Fixed part [GROUP 4] Mobile part [GROUP 2]	+	Fixed part [GROUP 4] Mobile part [GROUP 2]

Type C

Between three circuit-breakers
The two half-busbars can be powered by a single transformer (bus-tie closed) or by both at the same time (bus-tie open)

Typical circuit



O = Circuit-breaker open
I = Circuit-breaker closed

Possible interlocks

One or two circuit-breakers out of three can be closed at the same time.

1	2	3
O	O	O
I	O	O
O	I	O
O	O	I
O	I	I
I	I	O
I	O	I

Air circuit breakers
Extended warranty

1 year

A free of charge one year warranty is included with all ABB circuit breakers. An extensions of this warranty is available as specified below:

2 years

Simply by registering your installation site details within 6 months from purchasing, you are entitled to a **free of charge** extension of your warranty for one additional year, which will add up the total number of your warranty to 2 years. The address for online web registration platform: https://abbextendedwarranty.azurewebsites.net

Note: The system will return the 2 year warranty based on the production date (Factory Warranty). ABB Australia will cover the warranty for the rest of the time.

4 years

With a fee. No registration is required.

Note: This option can only be purchased within the first 6 months duration past the original purchase order.

5 years

Same price as 4 years, simply by registering your installation site details, you are entitled for a **free of charge** extension of your warranty for one additional year, which will add up the total number of our warranty to 5 years. The address for online web registration platform: https://abbextendedwarranty.azurewebsites.net

Note: This option can only be purchased within the first 6 months duration past the original purchase order.

For 'Existing' systems & installations

4 Years			
E1.2	1SDA082443R1	Warranty 4 years product already purchased E1.2	Stand-alone part without circuit breaker
E2.2	1SDA082444R1	Warranty 4 years product already purchased E2.2	Stand-alone part without circuit breaker
E4.2	1SDA082445R1	Warranty 4 years product already purchased E4.2	Stand-alone part without circuit breaker
E6.2	1SDA082446R1	Warranty 4 years product already purchased E6.2	Stand-alone part without circuit breaker
5 Years			
E1.2	1SDA082462R1	Warranty 5 years product already purchased E1.2	Stand-alone part without circuit breaker
E2.2	1SDA082463R1	Warranty 5 years product already purchased E2.2	Stand-alone part without circuit breaker
E4.2	1SDA082464R1	Warranty 5 years product already purchased E4.2	Stand-alone part without circuit breaker
E6.2	1SDA082465R1	Warranty 5 years product already purchased E6.2	Stand-alone part without circuit breaker

Notes



Moulded case circuit breakers (MCCB)

178	Technical data
182	Moulded case circuit breakers
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193	Mechanical accessories
199	Basic transfer switches (BTS)
202	Chassis
208	Extended warranty

For more detailed product information, please refer to the Technical Catalogue:

- Tmax XT – 1SDC210033D0204
- Tmax T – 1SDC210015D0208

Technical data

Moulded case circuit breakers XT

				XT1				
Size			[A]	160				
Poles			[No.]	3, 4				
Rated service voltage, Ue		(AC) 50-60Hz	[V]	690				
		(DC)	[V]	500				
Rated insulation voltage, Ui			[V]	800				
Rated impulse withstand voltage, Uimp			[kV]	8				
Versions				Fixed, Plug-in[2]				
Breaking capacities according to IEC 60947-2				B	C	N	S	H
Rated ultimate short-circuit breaking capacity, Icu								
	Icu @ 220-230-240V 50-60Hz (AC)		[kA]	25	40	65	85	100
	Icu @ 380V 50-60Hz (AC)		[kA]	18	25	36	50	70
	Icu @ 415V 50-60Hz (AC)		[kA]	18	25	36	50	70
	Icu @ 440V 50-60Hz (AC)		[kA]	15	25	36	50	65
	Icu @ 500V 50-60Hz (AC)		[kA]	8	18	30	36	50
	Icu @ 525V 50-60Hz (AC)		[kA]	6	8	22	35	35
	Icu @ 690V 50-60Hz (AC)		[kA]	3	4	6	8	10
	Icu @ 250V (DC) 2 poles in series		[kA]	18	25	36	50	70
	Icu @ 500V (DC) 2 poles in series		[kA]	–	–	–	–	–
	Icu @ 500V (DC) 3 poles in series[3]		[kA]	18	25	36	50	70
Rated service short-circuit breaking capacity, Ics								
	Ics @ 220-230-240V 50-60Hz (AC)		[kA]	100%	100%	75% (50)	75%	75%
	Ics @ 380V 50-60Hz (AC)		[kA]	100%	100%	100%	100%	75%
	Ics @ 415V 50-60Hz (AC)		[kA]	100%	100%	100%	75%	50% (37.5)
	Ics @ 440V 50-60Hz (AC)		[kA]	75%	50%	50%	50%	50%
	Ics @ 500V 50-60Hz (AC)		[kA]	100%	50%	50%	50%	50%
	Ics @ 525V 50-60Hz (AC)		[kA]	100%	100%	50%	50%	50%
	Ics @ 690V 50-60Hz (AC)		[kA]	100%	100%	75%	50%	50%
	Ics @ 250V (DC) 2 poles in series		[kA]	100%	100%	100%	100%	75%
	Ics @ 500V (DC) 2 poles in series		[kA]	–	–	–	–	–
	Ics @ 500V (DC) 3 poles in series[3]		[kA]	100%	100%	100%	100%	75%
Rated short-circuit making capacity, Icm								
	Icm @ 220-230-240V 50-60Hz (AC)		[kA]	52.5	84	143	187	220
	Icm @ 380V 50-60Hz (AC)		[kA]	36	52.5	75.6	105	154
	Icm @ 415V 50-60Hz (AC)		[kA]	36	52.5	75.6	105	154
	Icm @ 440V 50-60Hz (AC)		[kA]	30	52.5	75.6	105	143
	Icm @ 500V 50-60Hz (AC)		[kA]	13.6	36	63	75,6	105
	Icm @ 525V 50-60Hz (AC)		[kA]	9.18	13.6	46.2	73.5	73.5
	Icm @ 690V 50-60Hz (AC)		[kA]	4.26	5.88	9.18	13.6	17
Breaking capacities according to NEMA-AB1								
	@ 240V 50-60Hz (AC)		[kA]	25	40	65	85	100
	@ 480V 50-60Hz (AC)		[kA]	8	18	30	36	65
Utilisation Category (IEC 60947-2)				A				
Reference Standard				IEC 60947-2				
Isolation behaviour				✔				
Mounted on DIN rail				DIN EN 50022				
Mechanical life			[No. Operations]	25000				
			[No. Hourly operations]	240				
Electrical life @ 415 V (AC)			[No. Operations]	8000				
			[No. Hourly operations]	120				
Dimensions - Fixed (Width x Depth x Height) 		3 poles	[mm]	76.2 x 70 x 130				
		4 poles	[mm]	101.6 x 70 x 130				
Total opening time								
	Circuit-breaker with shunt opening release		[ms]	15				
	Circuit-breaker with undervoltage release		[ms]	15				
Trip units for power distribution								
	TMD/TMA							
	TMD			■				
	Ekip LS/I							
	Ekip I							
	Ekip LSI							
	Ekip LSIG							
	Ekip E							
Trip units for motor protection								
	MF/MA							
	Ekip M-I							
	Ekip M-LIU							
	Ekip M-LRIU							
Trip units for generator protection								
	TMG							
	Ekip G-LS/I							
Trip units for oversized Neutral Protection								
	Ekip N-LS/I							
Interchangeable protection trip units								
Weight	Fixed	3/4 poles	[kg]	1.1 / 1.4				
	Plug in (EF terminals)	3/4 poles	[kg]	2.21 / 2.82				
	Withdrawable (EF terminals)	3/4 poles	[kg]					

1) 90kA@690V only for XT4 160. Available shortly, please ask ABB

2) XT1 plug-in In max=125A

3) XT1 500V DC 4 poles in series

4) XT4 750V DC please ask ABB for availability

XT2					**XT3**		**XT4**				
160					250		160 / 250				
3, 4					3, 4		3, 4				
690					690		690				
500					500		500[4]				
1000					800		1000				
8					8		8				
Fixed, Withdrawable, Plug-in					Fixed, Plug-in		Fixed, Withdrawable, Plug-in				
N	S	H	L	V	N	S	N	S	H	L	V
65	85	100	150	200	50	85	65	85	100	150	200
36	50	70	120	150	36	50	36	50	70	120	150
36	50	70	120	150	36	50	36	50	70	120	150
36	50	65	100	150	25	40	36	50	65	100	150
30	36	50	60	70	20	30	30	36	50	60	70
20	25	30	36	50	13	20	20	25	45	50	50
10	12	15	18	20	5	6	10	12	15	20	25 (90[1])
36	50	70	85	100	36	50	36	50	70	85	100
–	–	–	–	–	–	–	36	50	70	85	100
36	50	70	85	100	36	50	36	50	70	85	100
100%	100%	100%	100%	100%	75%	50%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	75%	50% (27)	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	75%	50% (27)	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	75%	50%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	75%	50%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	75%	50%	100%	100%	100%	100%	100%
100%	100%	100%	100%	75%	75%	50%	100%	100%	100%	100%	75% (20)
100%	100%	100%	100%	100%	100%	75%	100%	100%	100%	100%	100%
–	–	–	–	–	–	–	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	75%	100%	100%	100%	100%	100%
143	187	220	330	440	105	187	143	187	220	330	440
75.6	105	154	264	330	75.6	105	75.6	105	154	264	330
75.6	105	154	264	330	75.6	105	75.6	105	154	264	330
75.6	105	143	220	330	52.5	84	75.6	105	143	220	330
63	75.6	105	132	154	40	63	63	75.6	105	132	154
40	52.5	63	75.6	105	26	40	40	52.5	94.5	105	105
17	24	30	36	40	7.65	13.6	17	24	30	40	52.5
65	85	100	150	200	50	85	65	85	100	150	200
30	36	65	100	150	25	35	30	36	65	100	150
A					A		A				
IEC 60947-2					IEC 60947-2		IEC 60947-2				
✔					✔		✔				
DIN EN 50022					DIN EN 50022		DIN EN 50022				
25000					25000		25000				
240					240		240				
8000					8000		8000				
120					120		120				
90 x 82.5 x 130					105 x 70 x 150		105 x 82.5 x 160				
120 x 82.5 x 130					140 x 70 x 150		140 x 82.5 x 160				
15					15		15				
15					15		15				
■							■				
					■						
■							■				
■							■				
■							■				
■							■				
							■				
■					■		■				
■											
▲							▲				
▲							▲				
■					■						
▲							▲				
▲							▲				
✔							✔				
1.2 / 1.6					1.7 / 2.1		2.5 / 3.5				
2.54 / 3.27					3.24 / 4.1		4.19 / 5.52				
3.32 / 4.04							5 / 6.76				

■ Complete circuit-breaker
▲ Loose trip unit

Circuit breakers for power distribution

Electrical characteristics

				Tmax T4					Tmax T5				
Rated uninterrupted current		[A]		320					400/630				
Poles		[No.]		3/4					3/4				
Rated service voltage, Ue	(AC) 50-60 Hz	[V]		690					690				
	(DC)	[V]		750					750				
Rated impulse withstand voltage, Uimp		[kV]		8					8				
Rated insulation voltage, Ui		[V]		1000					1000				
Test voltage at industrial frequency for 1 min.		[V]		3500					3500				
Rated ultimate short-circuit breaking capacity, Icu				N	S	H	L	V	N	S	H	L	V
	(AC) 50-60 Hz 220/230 V	[kA]		70	85	100	200	200	70	85	100	200	200
	(AC) 50-60 Hz 380/400/415 V	[kA]		36	50	70	120	200	36	50	70	120	200
	(AC) 50-60 Hz 440 V	[kA]		30	40	65	100	180	30	40	65	100	180
	(AC) 50-60 Hz 500 V	[kA]		25	30	50	85	150	25	30	50	85	150
	(AC) 50-60 Hz 690 V	[kA]		20	25	40	70	80	20	25	40	70	80
	(DC) 250 V - 2 poles in series	[kA]		36	50	70	100	150	36	50	70	100	150
	(DC) 250 V - 3 poles in series	[kA]		–	–	–	–	–	–	–	–	–	–
	(DC) 500 V - 2 poles in series	[kA]		25	36	50	70	100	25	36	50	70	100
	(DC) 500 V - 3 poles in series	[kA]		–	–	–	–	–	–	–	–	–	–
	(DC) 750 V - 3 poles in series	[kA]		16	25	36	50	70	16	25	36	50	70
Rated service short-circuit breaking capacity, Ics													
	(AC) 50-60 Hz 220/230 V	[%Icu]		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	(AC) 50-60 Hz 380/400/415 V	[%Icu]		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	(AC) 50-60 Hz 440 V	[%Icu]		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	(AC) 50-60 Hz 500 V	[%Icu]		100%	100%	100%	100%	100%	100%	100%	100%	100%(1)	100%(2)
	(AC) 50-60 Hz 690 V	[%Icu]		100%	100%	100%	100%	100%	100%	100%	100%(1)	100%(2)	100%(2)
Rated short-circuit making capacity, Icm													
	(AC) 50-60 Hz 220/230 V	[kA]		154	187	220	440	660	154	187	220	440	660
	(AC) 50-60 Hz 380/400/415 V	[kA]		75.6	105	154	264	440	75.6	105	154	264	440
	(AC) 50-60 Hz 440 V	[kA]		63	84	143	220	396	63	84	143	220	396
	(AC) 50-60 Hz 500 V	[kA]		52.5	63	105	187	330	52.5	63	105	187	330
	(AC) 50-60 Hz 690 V	[kA]		40	52.5	84	154	176	40	52.5	84	154	176
Opening time (415 V)		[ms]		5	5	5	5	5	6	6	6	6	6
Utilisation category (IEC 60947-2)				A					B (400 A)(3) - A (630 A)				
Reference Standard				IEC 60947-2					IEC 60947-2				
Isolation behaviour				■					■				
Trip units: thermomagnetic													
	T fixed, M fixed	TMF		–					–				
	T adjustable, M adjustable (5…10 x In)	TMA		–					■ (up to 500 A)				
	T adjustable, M fixed (3 x In)	TMG		–					–				
	T adjustable, M adjustable (2.5…5 x In)	TMG		–					■ (up to 500 A)				
	magnetic only	MA		■					–				
	electronic	PR221DS		■					■				
		PR221GP/PR221MP		–					–				
		PR222DS		■					■				
		PR223DS		■					■				
		PR231/P		–					–				
		PR232/P		–					–				
		PR331/P		–					–				
		PR332/P		–					–				
Interchangeability				■					■				
Versions				F-P-W					F-P-W				
Terminals fixed				F-FC Cu-FC CuAl-EF-ES-R-MC					F-FC CuAl-EF-ES-R-RC				
	plug-in			EF-ES-HR-VR-FC Cu-FC CuAl					EF-ES-HR-VR-FC Cu-FC CuAl				
	withdrawable			EF-ES-HR-VR-FC Cu-FC CuAl					EF-ES-HR-VR-FC Cu-FC CuAl				
Fixing on DIN rail				–					–				
Mechanical life		[No. operations]		20000					20000				
		[No. Hourly operations]		240					120				
Electrical life @ 415 V AC		[No. operations]		6000 (320 A)					7000 (400 A) - 5000 (630 A)				
		[No. Hourly operations]		120					60				
Basic dimensions - fixed version		3 poles	W [mm]	105					140				
		4 poles	W [mm]	140					186				
			D [mm]	103.5					103.5				
			H [mm]	205					205				
Weight fixed		3/4 poles	[kg]	2.35/3.05					3.25/4.15				
	plug-in	3/4 poles	[kg]	3.6/4.65					5.15/6.65				
	withdrawable	3/4 poles	[kg]	3.85/4.9					5.4/6.9				

Tmax T6[9]				**Tmax T7**[10]				**Tmax T8**	
630/800/1000				800/1000/1250/1600				2000/2500/3200	
3/4				3/4				3/4	
690				690				690	
750				–				–	
8				8				12	
1000				1000				1000	
3500				3500				3500	
N	S	H	L	S	H	L	V(6)	L	V
70	85	100	200	85	100	200	200	85	130
36	50	70	100	50	70	120	150	85	130
30	45	50	80	50	65	100	130	85	130
25	35	50	65	40	50	85	100	65	100
20	22	25	30	30	42	50	60	50	80
36	50	70	100	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
20	35	50	65	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
16	20	36	50	–	–	–	–	–	–
100%	100%	100%	75%	100%	100%	100%	100%	100%	75%
100%	100%	100%	75%	100%	100%	100%	100%	100%	75%
100%	100%	100%	75%	100%	100%	100%	100%	100%	75%
100%	100%	100%	75%	100%	100%	75%	100%	100%	75%
75%	75%	75%	75%	100%	75%	75%	75%	100%	75%
154	187	220	440	187	220	440	440	187	286
75.6	105	154	220	105	154	264	330	187	286
63	94.5	105	176	105	143	220	286	187	286
52.5	73.5	105	143	84	105	187	220	143	220
40	46	52.5	63	63	88.2	105	132	105	176
10	9	8	7	15	10	8	8	30	
B (630A - 800A)[5] - A (1000A)				B[7]				B (Icw = 40 kA)	
IEC 60947-2				IEC 60947-2				IEC 60947-2	
■				■				■	
–				–				–	
■ (up to 800 A)[4]				–				–	
–				–				–	
–				–				–	
–				–				–	
■				–				–	
–				–				–	
■				–				–	
■				–				–	
–				■				–	
–				■				■ PR232/P-T8	
–				■				■	
–				■				■	
■				■				■	
F-W[4]				F-W				F	
F-FC CuAl-EF-ES-R-RC				F-EF-ES-FC CuAl-HR/VR				F-HR/VR-ES-VR[11]	
–				–				–	
EF-HR-VR				EF-HR/VR-RS-ES				–	
–				–				–	
20000				10000				15000	
120				60				60	
7000 (630A) - 5000 (800A) - 4000 (1000A)				2000 (S, H, L versions) / 3000 (V version)				4500 (2000A) - 4000 (2500A) - 3000 (3200A)	
60				60				20	
210				210				427	
280				280				553	
103.5				154 (manual) /178 (motorizable)				282	
268				268				382	
9.5/12				9.7/12.5 (manual) - 11/14 (motorizable)				73/95 (2000-2500A) - 107/140 (3200A)	
–				–				–	
12.1/15.1				29.7/39.6 (manual) - 32/42.6 (motorizable)				–	

Terminal Caption

F:	Front
EF:	Front extended
ES:	Front extended spread
FC Cu:	Front for copper cables
FC CuAl:	Front for copper-aluminium cables
R:	Rear orientated
HR:	Rear flat horizontal
VR:	Rear flat vertical
HR/VR:	Rear flat orientated
MC:	Multicable
F:	Fixed circuit-breakers
P:	Plug-in circuit-breakers
W:	Withdrawable circuit-breakers
	*:The breaking capacity for settings In = 16 A and In = 20 A is 16 kA

1) 75% for T5 630
2) 50% for T5 630
3) Icw = 5 kA
4) W version is not available on T6 1000 A
5) Icw = 7.6 kA (630 A) - 10 kA (800 A)
6) Only for T7 800/1000/1250 A
7) Icw = 20 kA (S,H,L versions) – 15 kA (V version)
8) For availability, please contact ABB
9) For T6V version, please contact ABB
10) For T7V version, please contact ABB
11) On T8 3200 A only VR terminals are available

Notes:
In the plug-in version T5 630 and in the withdrawable version of T5 630 the maximum rated current available is derated by 10% at 40 °C

Moulded case circuit breakers

Circuit breakers



XT1 circuit breaker



XT2 circuit breaker



XT3 circuit breaker



XT4 circuit breaker



T6 circuit breaker

MCCB for power distribution

3 and 4 Poles

Available XT versions fitted with TMD trip unit for In from 1.6A to 12.5A, please contact ABB.
Available versions up to Icu=200kA, please contact ABB.

Icu 415V kA	In A	Tmax type	Trip unit version	3 poles	Order code 4 poles
18	16	XT1B	TMD	1SDA066799R1	1SDA066810R1
	20	XT1B	TMD	1SDA066800R1	1SDA066811R1
25	25	XT1C	TMD	1SDA067391R1	1SDA067400R1
36	32	XT1N	TMD	1SDA067411R1	1SDA067419R1
	40	XT1N	TMD	1SDA067412R1	1SDA067420R1
	50	XT1N	TMD	1SDA067413R1	1SDA067421R1
	63	XT1N	TMD	1SDA067414R1	1SDA067422R1
		XT2N	Ekip LS/I	1SDA067056R1	1SDA067092R1
			Ekip LSI	1SDA067069R1	1SDA067104R1
		XT3N	TMD	1SDA068053R1	1SDA068060R1
	80	XT1N	TMD	1SDA067415R1	1SDA067423R1
		XT3N	TMD	1SDA068054R1	1SDA068061R1
	100	XT1N	TMD	1SDA067416R1	1SDA067424R1
		XT2N	Ekip LS/I	1SDA067057R1	1SDA067093R1
			Ekip LSI	1SDA067070R1	1SDA067105R1
		XT3N	TMD	1SDA068055R1	1SDA068062R1
	125	XT1N	TMD	1SDA067417R1	1SDA067427R1
		XT3N	TMD	1SDA068056R1	1SDA068067R1
	160	XT1N	TMD	1SDA067418R1	1SDA067428R1
		XT2N	Ekip LS/I	1SDA067058R1	1SDA067095R1
			Ekip LSI	1SDA067071R1	1SDA067107R1
		XT3N	TMD	1SDA068057R1	1SDA068068R1
		XT4N	Ekip LS/I	1SDA068125R1	1SDA068146R1
	200	XT3N	TMD	1SDA068058R1	1SDA068069R1
		XT4N	TMA	1SDA068090R1	1SDA068109R1
	250	XT3N	TMD	1SDA068059R1	1SDA068070R1
		XT4N	TMA	1SDA068092R1	1SDA068111R1
			Ekip LS/I	1SDA068126R1	1SDA068147R1
	320	T4N	PR221DS LS/I	1SDA054117R1	1SDA054121R1
		T5N	TMA	1SDA054436R1	1SDA054477R1
	400	T5N	TMA	1SDA054437R1	1SDA054478R1
			PR221DS LS/I	1SDA054317R1	1SDA054325R1
	500	T5N	TMA	1SDA054456R1	1SDA054487R1
	630	T6N	TMA	1SDA060202R1	1SDA060210R1
		T5N	PR221DS LS/I	1SDA054396R1	1SDA054400R1
	800	T6N	PR221DS LS/I	1SDA060268R1	1SDA060273R1

▶ Table continued on next page

TMD/TMA = Thermomagnetic adjustable down to 0.7 x In
Ekip/PR = Electronic adjustable down to 0.4 x In

Moulded case circuit breakers
Circuit breakers


XT1 circuit breaker


XT2 circuit breaker


XT3 circuit breaker


T6 circuit breaker


T7 circuit breaker

▶ Table continued from previous page

Icu 415V kA	In A	Tmax type	Trip unit version	Order code 3 poles	Order code 4 poles
50	50	XT1S	TMD	1SDA067431R1	1SDA067439R1
	63	XT1S	TMD	1SDA067432R1	1SDA067440R1
		XT2S	TMA	1SDA067556R1	1SDA067577R1
		XT3S	TMD	1SDA068215R1	1SDA068222R1
		XT4S	Ekip LS/I	1SDA068472R1	1SDA068492R1
	80	XT1S	TMD	1SDA067433R1	1SDA067441R1
		XT3S	TMD	1SDA068216R1	1SDA068223R1
	100	XT1S	TMD	1SDA067434R1	1SDA067442R1
		XT2S	TMA	1SDA067558R1	
		XT3S	TMD	1SDA068217R1	1SDA068224R1
		XT4S	Ekip LS/I	1SDA068473R1	1SDA068493R1
	125	XT1S	TMD	1SDA067435R1	1SDA067445R1
		XT3S	TMD	1SDA068218R1	1SDA068229R1
	160	XT1S	TMD	1SDA067436R1	1SDA067446R1
		XT2S	TMA	1SDA067560R1	1SDA067583R1
		XT3S	TMD	1SDA068219R1	1SDA068230R1
		XT4S	Ekip LS/I	1SDA068474R1	1SDA068494R1
	200	XT3S	TMD	1SDA068220R1	1SDA068231R1
	250	XT3S	TMD	1SDA068221R1	1SDA068232R1
		XT4S	Ekip LS/I	1SDA068475R1	
	320	T4S	PR221DS LS/I	1SDA054125R1	1SDA054129R1
	400	T5S	TMA	1SDA054441R1	1SDA054479R1
			PR221DS LS/I	1SDA054333R1	1SDA054341R1
			PR222DS/P LSI	1SDA054337R1	1SDA054345R1
	630	T5S	PR221DS LS/I	1SDA054404R1	1SDA054408R1
			PR222DS/P LSI	1SDA054406R1	1SDA054410R1
		T6S	TMA	1SDA060204R1	1SDA060211R1
		T6S	PR222DS/P LSI	1SDA060238R1	1SDA060243R1
	800	T6S	TMA	1SDA060216R1	1SDA060223R1
			PR221DS LS/I	1SDA060278R1	1SDA060283R1
			PR222DS/P LSI	1SDA060280R1	1SDA060285R1
	1000	T7S Manual	PR231/P LS/I	1SDA062738R1	1SDA062746R1
		T7S Manual	PR232/P LSI	1SDA062739R1	1SDA062747R1
		T7S M Motorizable	PR231/P LS/I	1SDA062754R1	1SDA062762R1
		T7S M Motorizable	PR232/P LSI	1SDA062755R1	1SDA062763R1
	1250	T7S Manual	PR231/P LS/I	1SDA062866R1	1SDA062874R1
		T7S Manual	PR232/P LSI	1SDA062867R1	1SDA062875R1
		T7S M Motorizable	PR231/P LS/I	1SDA062882R1	1SDA062890R1
		T7S M Motorizable	PR232/P LSI	1SDA062883R1	1SDA062891R1
	1600	T7S Manual	PR231/P LS/I	1SDA062994R1	1SDA063002R1
		T7S Manual	PR232/P LSI	1SDA062995R1	1SDA063003R1
		T7S M Motorizable	PR231/P LS/I	1SDA063010R1	1SDA063018R1
		T7S M Motorizable	PR232/P LSI	1SDA063011R1	1SDA063019R1

TMD/TMA = Thermomagnetic adjustable down to 0.7 x In
Ekip/PR = Electronic adjustable down to 0.4 x In

▶ Table continued on next page

Moulded case circuit breakers

Circuit breakers



XT1 circuit breaker



XT2 circuit breaker



XT4 circuit breaker



T6 circuit breaker



T7 circuit breaker

Table continued from previous page

Icu 415V kA	In A	Tmax type	Trip unit version	Order code 3 poles	Order code 4 poles
70	32	XT2H	TMD	1SDA067597R1	1SDA067618R1
	50	XT1H	TMD	1SDA067449R1	1SDA067457R1
	63	XT1H	TMD	1SDA067450R1	1SDA067458R1
		XT2H	TMA	1SDA067600R1	1SDA067621R1
			Ekip LS/I	1SDA067859R1	1SDA067892R1
	80	XT1H	TMD	1SDA067451R1	1SDA067459R1
	100	XT1H	TMD	1SDA067452R1	1SDA067460R1
		XT2H	TMA	1SDA067602R1	1SDA067623R1
			Ekip LS/I	1SDA067860R1	1SDA067893R1
	125	XT1H	TMD	1SDA067453R1	1SDA067463R1
		XT2H	TMA	1SDA067603R1	1SDA067626R1
	160	XT1H	TMD	1SDA067454R1	1SDA067464R1
		XT2H	TMA	1SDA067604R1	1SDA067627R1
			Ekip LS/I	1SDA067861R1	1SDA067895R1
			Ekip LSIG	1SDA067876R1	1SDA067913R1
		XT4H	Ekip LS/I	1SDA068514R1	1SDA068534R1
	200	XT4H	TMA	1SDA068343R1	1SDA068362R1
	250	XT4H	TMA	1SDA068345R1	1SDA068364R1
			Ekip LS/I	1SDA068515R1	1SDA068535R1
			Ekip LSIG	1SDA068530R1	1SDA068550R1
	320	T4H	PR221/P LS/I	1SDA054133R1	1SDA054137R1
			PR222DS/P LSI	1SDA054135R1	1SDA054139R1
		T5H	TMA	1SDA054444R1	1SDA054481R1
	400	T5H	TMA	1SDA054445R1	1SDA054482R1
			PR221DS LS/I	1SDA054349R1	1SDA054356R1
			PR222/P LSI	1SDA054353R1	1SDA054360R1
	630	T5H	PR221DS LS/I	1SDA054412R1	1SDA054416R1
			PR222DS/P LSI	1SDA054414R1	1SDA054418R1
		T6H	TMA	1SDA060206R1	1SDA060212R1
	800	T6H	TMA	1SDA060218R1	1SDA060224R1
			PR221DS LS/I	1SDA060289R1	1SDA060294R1
			PR222DS/P LSI	1SDA060291R1	1SDA060296R1
	1000	T7S Manual	PR231/P LS/I	1SDA062770R1	1SDA062778R1
		T7S Manual	PR232/P LSI	1SDA062771R1	1SDA062779R1
		T7S M Motorizable	PR231/P LS/I	1SDA062786R1	1SDA062794R1
		T7S M Motorizable	PR232/P LSI	1SDA062787R1	1SDA062795R1
	1250	T7S Manual	PR231/P LS/I	1SDA062898R1	1SDA062906R1
		T7S Manual	PR232/P LSI	1SDA062899R1	1SDA062907R1
		T7S M Motorizable	PR231/P LS/I	1SDA062914R1	1SDA062922R1
		T7S M Motorizable	PR232/P LSI	1SDA062915R1	1SDA062923R1
	1600	T7S Manual	PR231/P LS/I	1SDA063026R1	1SDA063034R1
		T7S Manual	PR232/P LSI	1SDA063027R1	1SDA063035R1
		T7S M Motorizable	PR231/P LS/I	1SDA063042R1	1SDA063050R1
		T7S M Motorizable	PR232/P LSI	1SDA063043R1	1SDA063051R1
85	2000	T8L	PR331/P LSI	1SDA065723R1	1SDA065729R1
	2500	T8L	PR331/P LSI	1SDA065758R1	1SDA065764R1

TMD/TMA = Thermomagnetic adjustable down to 0.7 x In
Ekip/PR = Electronic adjustable down to 0.4 x In

Moulded case circuit breakers
Circuit breakers


XT4 circuit breaker

MCCB with embedded energy measurement and communication
Available from 0.2 x In in Vaux mode and starting from 0.5 x In in self supply mode; external current or voltage transformers are not required.
Measuring:
- Currents
  - three phases (L_1, L_2, L_3),
  - neutral (Ne)
  - earth fault
  - accuracy: Class 1
- Voltage: phase-phase, phase-neutral
- Power: active, reactive and apparent
- Power factor
- Frequency and peak factor
- Energy: active, reactive, apparent, counter

Icu 415V kA	In A	Tmax type	Order code 3 poles
36	40*	XT4	1SDA069601R1
	100*	XT4	1SDA069603R1
	250*	XT4	1SDA069605R1
	630**	T5	1SDA081063R1
70	40*	XT4	1SDA069621R1
	100*	XT4	1SDA069623R1
	250*	XT4	1SDA069625R1
	630**	T5	1SDA081065R1

Note:
*Please order **1SDA068661R1** Ekip com to have an embedded communication with this circuit breaker
Please order **1SDA081094R1 to have an embedded communication dialogue with this circuit breaker


XT1 circuit breaker

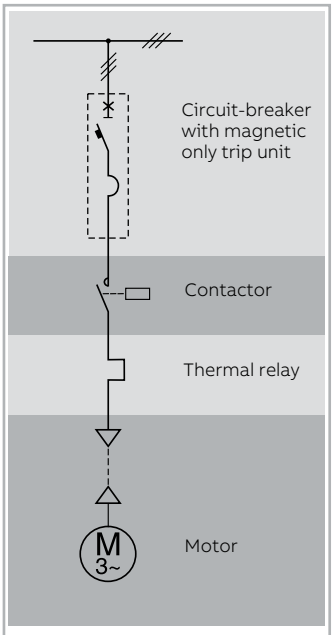

XT3 circuit breaker

Moulded case switch-disconnectors
3 and 4 Poles

In A	Tmax type	Order code 3 poles	4 poles
160	XT1D	1SDA068208R1	1SDA068209R1
250	XT3D	1SDA068210R1	1SDA068211R1
320	T4D	1SDA054597R1	1SDA054598R1
400	T5D	1SDA054599R1	1SDA054600R1
630	T5D	1SDA054601R1	1SDA054602R1
800	T6D	1SDA060345R1	1SDA060346R1
1000	T7D Manual	1SDA062032R1	1SDA062033R1
	T7D Motorizable	1SDA062034R1	1SDA062035R1
1250	T7D Manual	1SDA062036R1	1SDA062037R1
	T7D Motorizable	1SDA062038R1	1SDA062039R1
1600	T7D Manual	1SDA062040R1	1SDA062041R1
	T7D Motorizable	1SDA062042R1	1SDA062043R1

Moulded case circuit breakers

Circuit breakers

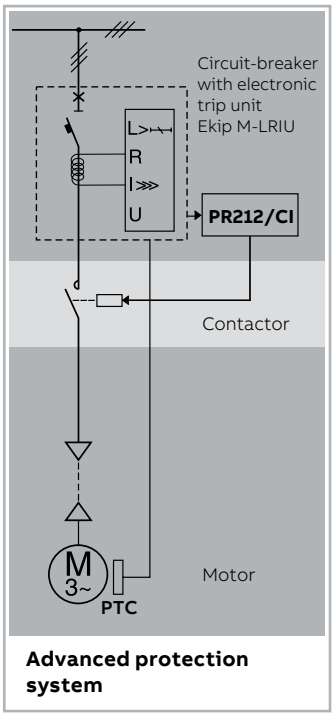


Conventional system

MCCB for motor protection
3 Poles – conventional system

A conventional system with three poles a circuit-breaker equipped with a magnetic only trip unit for protection against short-circuits, a thermal relay for protection against overloads and phase failure or imbalance, and a contactor to operate the motor
Available from 1A to 8A and from 400A to 1600A, please contact ABB.
Available versions up to Icu=200kA, please contact ABB.

Icu 415V kA	In A	Tmax type	Trip unit version	Order code 3 poles
50	20	XT2S	MA	1SDA067765R1
	52	XT2S	MA	1SDA067767R1
	100	XT2S	MA	1SDA067769R1
	200	XT3S	MA	1SDA068282R1
	250	XT4S	Ekip I	1SDA068480R1
70	320	T4H	PR221DS I	1SDA054134R1
	400	T5H	PR221DS I	1SDA054351R1



Advanced protection system

MCCB for motor protection
3 Poles – advanced protection system

An advanced protection system which integrates all the protection and monitoring functions and a contractor for operating the motor, in the circuit-breaker itself.

Icu 415V kA	Frame size	Tmax type	Trip unit version	Order code 3 poles
36	160	XT2N	Breaking part	1SDA068163R1

Note:
In order to complete the part number for an advanced motor protection circuit breaker, it is necessary to order 1 x breaking part + 1 x loose trip unit.

Loose trip units XT2

Icu 415V kA	In A	Tmax type	Trip unit version	Order code 3 poles
Only trip unit	25	XT2	Ekip M-LRIU	1SDA067357R1
Only trip unit	63	XT2	Ekip M-LRIU	1SDA067358R1
Only trip unit	100	XT2	Ekip M-LRIU	1SDA067359R1

Note:
In order to complete the part number for an advanced motor protection circuit breaker, it is necessary to order 1 x breaking part + 1 x loose trip unit.

Moulded case circuit breakers
Circuit breakers


XT2 circuit breaker

MCCB for generator protection

Icu 415V kA	In A	Tmax type	Trip unit version	Order code 3 poles	4 poles
36	63	XT2N	TMG	1SDA067722R1	1SDA067733R1
	100	XT2N	TMG	1SDA067724R1	1SDA067735R1
	160	XT2N	TMG	1SDA067726R1	1SDA067737R1
	250	XT4N	Breaking part	1SDA068173R1	1SDA068178R1

Note:
In order to complete the part number a 250A, it is necessary to order 1 x breaking part + 1 x loose trip unit.

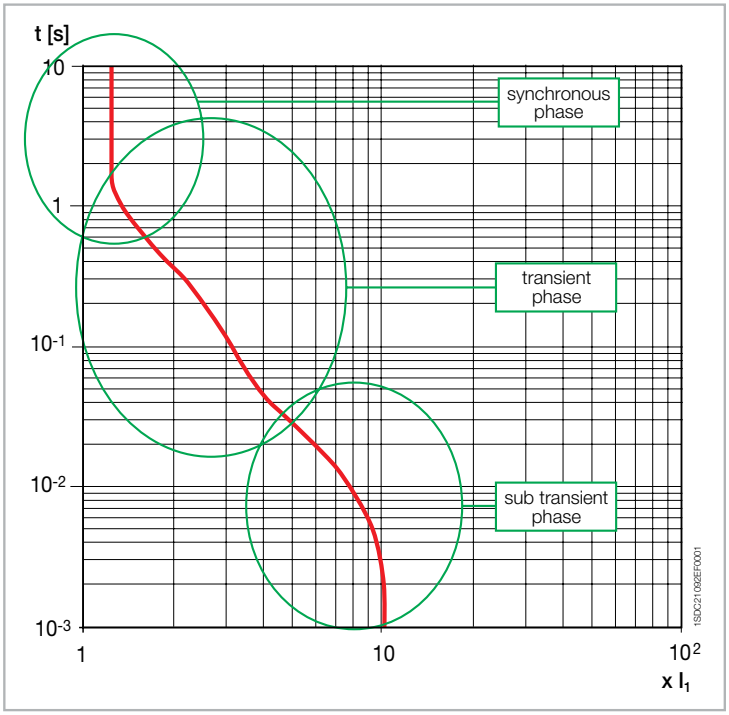

XT4 circuit breaker

Loose trip units XT4

These trip units have been designed and made so as to provide a solution for protecting small generators and distribution networks with very long cables (slight end of line fault current owing to the high cable impedance).
Generator protection requires a low magnetic threshold, typically about three times circuit-breaker's rated current, so as to 'cut' the short-circuit current in the 'transient' zone of the decrement curve of the generator fault current.

Icu 415V kA	In A	Tmax type	Trip unit version	Order code 3 poles	4 poles
Only trip unit	250	XT4	Ekip G-LS/I	1SDA068042R1	1SDA068047R1

Note:
Several different factors must be considered when choosing and coordinating the protection and operating devices, e.g.:
1) the electrical specifications of the motor (type, power rating, efficiency, cos phi);
2) the starting type and diagram;
3) the fault current and voltage in the part of the network where the motor is installed.



STOCK | INDENT

Moulded case circuit breakers
Conversion kits



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Conversion kit from FIXED to PLUG-IN
Tmax XT1...XT4, T5

The complete assembly is composed by:
Plug-in Fixed part
+ Tmax Fixed circuit breaker
+ Conversion kit

Plug-in, fixed part
Fixed part supplied with Frontal Extended terminals (EF). Other terminal combinations available, please contact ABB.
Available 4 pole versions, please contact ABB.

Suitable type	Order code 3 poles
XT1	1SDA068183R1
XT2	1SDA068187R1
XT3	1SDA068192R1
XT4	1SDA068196R1
T5 (Max. 570A)	1SDA054762R1

+

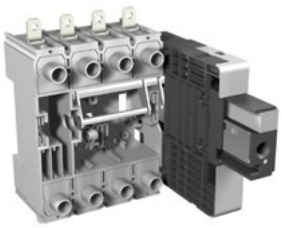
Tmax fixed circuit breaker

+

Conversion kit

Suitable type	Order code 3 poles
XT1	1SDA066276R1
XT2	1SDA066278R1
XT3	1SDA066280R1
XT4	1SDA066282R1
T5 (Max. 570A)	1SDA054847R1

Moulded case circuit breakers
Conversion kits



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Conversion kit from fixed to withdrawable
Tmax XT2, XT4, T5, T6

The complete assembly is composed by:
Withdrawable fixed part
- + Tmax Fixed circuit breaker
- + Conversion kit
- + Frontal Accessory (could be FLD, RH_ or MOE). FLD as standard delivery on fitted accessories.

Withdrawable, fixed part
Fixed part supplied with Frontal Extended terminals (EF). Other terminal combinations available, please contact ABB.

Suitable type	Order code 3 poles	Order code 4 poles
XT2	1SDA068200R1	1SDA068202R1
XT4	1SDA068204R1	1SDA068206R1
T5 (Max. 400A)	1SDA054755R1	1SDA054758R1
T6	1SDA060384R1	1SDA060387R1

+

Tmax fixed circuit breaker

+

Conversion kit

Suitable type	Order code 3 poles	Order code 4 poles
XT2	1SDA066284R1	1SDA066285R1
XT4	1SDA066286R1	1SDA066287R1
T5 (Max. 400A)	1SDA054845R1	1SDA054846R1
T6	1SDA060390R1	1SDA060391R1

+

FLD (Front for lever operating mechanism) or RH_ (Rotary handle) or MOE (Motor)

STOCK | INDENT

Moulded case circuit breakers
Conversion kits











Conversion kit from fixed to withdrawable
Tmax T7-T7M
The complete assembly is composed by:

Withdrawable fixed part
- Tmax Fixed circuit breaker
- Conversion kit
- Sliding contacts for automatic circuit breaker or electronic accessories

Withdrawable, fixed part

Suitable type	Description	Order code 3 poles	Order code 4 poles
T7-T7M	Fixed part with Rear terminals (HR VR)	1SDA062044R1	1SDA062048R1

+

Moulded case circuit breaker, fixed version

+

Conversion kit

Suitable type	Order code 3 poles	Order code 4 poles
T7-T7M	1SDA062162R1	1SDA062163R1

+

Sliding contacts

Moving part
Standard delivery on fitted accessories.

Suitable type	Description	Order code
T7-T7M	Left block	1SDA062164R1
	Central block	1SDA062165R1
	Right block	1SDA062166R1

Fixed part
Standard delivery on fitted accessories

Suitable type	Description	Order code
T7	Left block	1SDA063572R1
T7M	Left block	1SDA062167R1
T7-T7M	Central block	1SDA062168R1
	Right block	1SDA062169R1

Which block is necessary for every accessory?

Left block	Central block	Right block
Spring charging motor	PR331	Auxiliary contacts (Q or SY)
Spring charged contact (AUX-SC)	PR332	Shunt opening release
Ready to close contact (AUX-RTC)	Communication module	Shunt closing release
Early auxiliary contacts (AUE)	Voltage module	Under voltage release
Contact for signalling trip coil release trip (AUX-SA)	PR231/232 don't need central block	
Trip reset		

STOCK | INDENT

Moulded case circuit breakers
Electrical accessories



Residual current devices
Special frame supplied. Do not need an auxiliary supply as they are powered directly from the mains. Supplied with the residual current release and also available as a spare part.

RC Inst
Trip threshold adjustment: IΔn = 0,03 – 0,1 – 0,3 – 0,5 – 1 – 3A
t = Inst

RC Sel
Trip threshold adjustment: IΔn = 0,03 – 0,05 – 0,1 – 0,3 – 0,5 – 1 – 3 – 5 – 10A
t = 0,1 – 0,2 – 0,3 – 0,5 – 1 – 2 – 3s



RC222 standard supply
Emergency stop device provided with one button opening input without auxiliary supply.
1 contact N.O. for prealarm signalling.
1 contact N.O. for alarm signalling.

RC222
Trip threshold adjustment: IΔn = 0,03 – 0,05 – 0,1 – 0,3 – 0,5 – 1 – 3 – 5 – 10A
t = Inst – 0,1 – 0,2 – 0,3 – 0,5 – 1 – 2 – 3

Suitable type	Description	Order code 3 poles	Order code 4 poles
XT1	RC Inst	1SDA067122R1	1SDA067124R1
	RC Sel	1SDA067123R1	1SDA067125R1
XT2	RC Sel		1SDA067126R1
XT3	RC Inst	1SDA067127R1	1SDA067129R1
XT4	RC Sel		1SDA067131R1
T5	RC222/5		1SDA054955R1



Shunt open release – SOR
Uncabled versions.



Suitable type	Description	Order code
XT1...XT4	24-30V AC/DC	1SDA066314R1
	110-127V AC / 110-125V DC	1SDA066316R1
	220-240V AC / 220-250V DC	1SDA066317R1
T4...T6	24-30V AC/DC	1SDA054863R1
	110-120V AC/DC	1SDA054865R1
	220-240V AC / 220-250V DC	1SDA054866R1
T7-T7M	24V AC/DC	1SDA062065R1
	110-120V AC/DC	1SDA062069R1
	220-240V AC/DC	1SDA063548R1



Shunt closing release – SCR
Uncabled versions.

Suitable type	Description	Order code
T7-T7M	24V AC/DC	1SDA062076R1
	110-120V AC/DC	1SDA062080R1
	220-240V AC/DC	1SDA063550R1

STOCK | INDENT

Moulded case circuit breakers
Electrical accessories

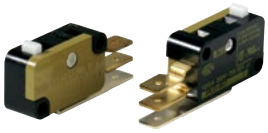




Undervoltage release – UVR
Uncabled versions.

Suitable type	Description	Order code
XT1...XT4	24-30V AC/DC	1SDA066389R1
	110-127V AC / 110-125V DC	1SDA066391R1
	220-240V AC / 220-250V DC	1SDA066392R1
T4...T6	24-30V AC/DC	1SDA054880R1
	110-120V AC/DC	1SDA054883R1
	220-240V AC / 220-250V DC	1SDA054884R1
T7-T7M	24V AC/DC	1SDA062087R1
	110-120V AC/DC	1SDA062091R1
	220-240V AC/DC	1SDA063552R1





Auxiliary contacts – AUX
Q, open/closed: indication of the position of the circuit-breaker power contacts.
SY, trip: signalling CB opening due to current release tripping (owing to overload or short-circuit), residual current device, the opening or undervoltage releases, the emergency push button of the motor, or owing to use of the test button.
Uncabled versions.

Suitable type	Description	Order code
XT1...XT4	1Q 24V DC	1SDA066423R1
Fixed or Plug-in	1Q+1SY 24V DC	1SDA066446R1
	1Q 250V AC/DC	1SDA066422R1
	1Q+1SY 250V AC	1SDA066431R1
T4...T6	1Q+1SY 250V AC/DC	1SDA051368R1
	3Q+1SY 250V AC/DC	1SDA051369R1
	3Q+1SY 24V DC	1SDA054914R1
T7	1Q+1SY 400V AC	1SDA062104R1
T7-T7M	2Q 400V AC	1SDA062102R1

T7-T7M available Auxiliary contacts combinations.

T7	SY	Q1			1Q + 1SY	T7M			Q2	Q3	2Q
			Q2	Q3	2Q		Q4	Q1			2Q
	SY	Q1	Q2	Q3	3Q + 1SY		Q4	Q1	Q2	Q3	4Q

Auxiliary contact for signaling trip coil release trip – S51
S51, trip unit tripping: indicates that one of the trip unit protection functions has tripped.
Uncabled versions. 250V AC versions.

Suitable type	Order code
XT2 and XT4	1SDA066424R1
T4...T6	1SDA055050R1
T7	1SDA062105R1
T7M	1SDA063553R1

Moulded case circuit breakers
Mechanical accessories











Motor operator – MOD / MOE

Motor is not compatible with 2Q+1SY on XT1, but allows 1Q+1SY.
Motor is not compatible with 3Q+1SY on XT3, but allows 2Q+1SY.

Suitable type	Description	Order code
XT1 and XT3	24V DC	1SDA066457R1
	110…125V AC/DC	1SDA066459R1
	220…250V AC/DC	1SDA066460R1
XT2 and XT4	24V DC	1SDA066463R1
	110…125V AC/DC	1SDA066465R1
	220…250V AC/DC	1SDA066466R1
T4-T5	24V DC	1SDA054894R1
	110…125V AC/DC	1SDA054896R1
	220…250V AC/DC	1SDA054897R1
T6	24V DC	1SDA060395R1
	110…125V AC/DC	1SDA060397R1
	220…250V AC/DC	1SDA060398R1
T7M	24…30V AC/DC	1SDA062113R1
	100…130V AC/DC	1SDA062115R1
	220…250V AC/DC	1SDA062116R1

Rotary direct handle operating mechanism – RHD

Available for fixed or plug-in versions.

Suitable type	Description	Order code
XT1 and XT3	Normal	1SDA066475R1
	Emergency	1SDA066477R1
XT2 and XT4	Normal	1SDA069053R1
	Emergency	1SDA069054R1
T4-T5	Normal	1SDA054926R1
	Emergency	1SDA054927R1
T6	Normal	1SDA060405R1
	Emergency	1SDA060406R1
T7	Normal	1SDA062120R1
	Emergency	1SDA062121R1

Moulded case circuit breakers
Mechanical accessories



Rotary transmitted handle operating mechanism - RHE
Available for Fixed or Plug-in versions. T7 part number is available for Withdrawal and Fixed versions. Shaft length = 500mm.

Suitable type	Description	Order code
XT1 and XT3	Normal	1SDA066479R1
	Emergency	1SDA066481R1
XT2 and XT4	Normal	1SDA069055R1
	Emergency	1SDA069056R1
T4–T5	Normal	1SDA054929R1
	Emergency	1SDA054930R1
T6	Normal	1SDA060409R1
	Emergency	1SDA060410R1
T7	Normal	1SDA062122R1
	Emergency	1SDA062123R1



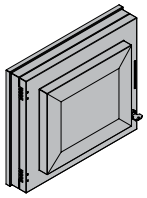
IP54 Protection for transmitted rotary handle (RHE)

Suitable type	Order code
XT1…XT4	1SDA066587R1
T4…T7	1SDA054938R1



Transparent protection for buttons

Suitable type	Description	Order code
T7M	One dependant cover for both buttons	1SDA062132R1
	Two Independent covers for both buttons	1SDA062133R1



IP54 Door protection

Suitable type	Order code
T7M	1SDA062161R1

Padlock lever lock – PLL
PLL for T4…T6 not available.



Suitable type	Description	Order code
XT1 and XT3	Removable lock with padlocks in open position	1SDA066588R1
	Fixed lock with padlocks in open/closed position	1SDA066591R1
XT2 and XT4	Fixed lock with padlocks in open/closed position	1SDA066592R1
T7		1SDA062150R1
T7M		1SDA069656R1

Moulded case circuit breakers
Mechanical accessories



Key lock for frontal accessory (FLD) or rotary handle – KLF

Suitable type	Description	Order code
XT1...XT4	Different keys	1SDA066617R1
	Same key (type A) for different groups of CBs	1SDA066618R1
T4-T5	Different keys	1SDA054939R1
	Same key (no. 20005) for different groups of CBs	1SDA054940R1
T6	Different keys	1SDA060658R1
	Same key (no. 20005) for different groups of CBs	1SDA060659R1
T7	Different keys	1SDA063555R1
	Same key (no. 20005) for different groups of CBs	1SDA063556R1



Front lever operating mechanism – FLD

Suitable type	Description	Order code
XT2 and XT4	Withdrawable	1SDA066636R1
	Fixed or Plug-in	1SDA066635R1
T4-T5	Withdrawable	1SDA054945R1
	Fixed or Plug-in	1SDA054944R1
T6	Withdrawable	1SDA060418R1
	Fixed or Plug-in	1SDA060417R1



Key lock on the motor – MOL-M

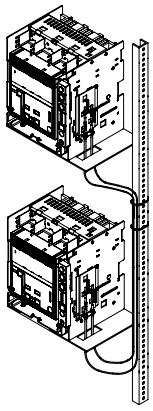
Suitable type	Description	Order code
XT2 and XT4	Against manual operation	1SDA066634R1



Mechanical interlock – MIR

Type	Order code
MIR-HB - frame unit horizontal interlock	1SDA054946R1
MIR-VB - frame unit vertical interlock	1SDA054947R1
T5 400 (F-P-W) or T5 630 (F)	1SDA054949R1
T5 630 (P-W)	1SDA054950R1
MIR-P - plate for interlock type D T5 400 (F-P-W) or T5 630 (F) + T5 400 (F-P-W) or T5 630 (F)	1SDA054951R1
MIR-P - plate for interlock type E T5 400 (F-P-W) or T5 630 (F) + T5 630 (P-W)	1SDA054952R1
MIR-P - plate interlock type F T5 630 (P-W) + T5 630 (P-W)	1SDA054953R1

Note: To interlock two circuit-breakers you have to order a frame unit interlock and a plate (for type A or B or C or D or E or F) interlock.



Mechanical interlock – MIR

Type	Description	Order code
Horizontal interlock		1SDA060685R1
Vertical interlock		1SDA060686R1

Mechanical interlock with cables between T7/T7M and T7/T7M

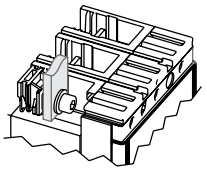
Suitable type	Description	Order code
Cables kit for interlock		1SDA062127R1
Plate	For Fixed versions - wall fixed	1SDA062129R1
	For Withdrawable unit	1SDA062131R1

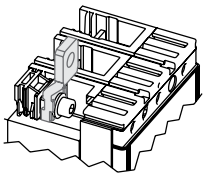
Moulded case circuit breakers

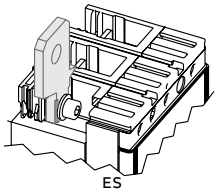
Mechanical accessories

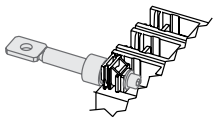
Terminals

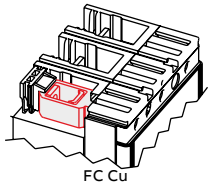
EF and ES versions include phase barrier separators as standard.
R versions includes LTC terminal shrouds as standard.
To add terminals to both sides of the MCCB, the same part number should be ordered twice.


F


EF


ES


R


FC Cu

Terminal type	Suitable type	Order code 3 poles	Order code 4 poles
F - Front terminals	XT1	1SDA066849R1	1SDA066850R1
	XT2	1SDA066853R1	1SDA066854R1
	XT3	1SDA066857R1	1SDA066858R1
	XT4	1SDA066861R1	1SDA066862R1
	T4	1SDA054976R1	1SDA054977R1
	T5	1SDA055012R1	1SDA055013R1
	T6 (max. 800A)	1SDA060421R1	1SDA060422R1
	T7-T7M	1SDA063099R1	1SDA063100R1
EF - Front extended terminals	XT1	1SDA066865R1	1SDA066866R1
	XT2	1SDA066869R1	1SDA066870R1
	XT3	1SDA066873R1	1SDA066874R1
	XT4	1SDA066877R1	1SDA066878R1
	T4	1SDA055000R1	1SDA055001R1
	T5	1SDA055036R1	1SDA055037R1
	T6 (max. 630A)	1SDA023379R1	1SDA023389R1
	T6 (max. 800A)	1SDA023383R1	1SDA023393R1
	T7-T7M	1SDA063103R1	1SDA063104R1
ES - Front extended spread terminals	XT1	1SDA066889R1	1SDA066890R1
	XT2	1SDA066893R1	1SDA066894R1
	XT3	1SDA066897R1	1SDA066898R1
	XT4	1SDA066901R1	1SDA066902R1
	T4	1SDA055004R1	1SDA055005R1
	T5	1SDA055040R1	1SDA055041R1
	T6 upper kit	1SDA050692R1	
	T6 lower kit	1SDA050704R1	
	T6 complete		1SDA050693R1
	T7-T7M upper kit	1SDA063107R1	
	T7-T7M lower kit	1SDA063108R1	
	T7-T7M complete		1SDA063109R1
R - Rear terminals	XT1	1SDA066937R1	1SDA066938R1
	XT2	1SDA066941R1	1SDA066942R1
	XT3	1SDA066945R1	1SDA066946R1
	XT4	1SDA066949R1	1SDA066950R1
	T4	1SDA055008R1	1SDA055009R1
	T5	1SDA055044R1	1SDA055045R1
	T6 (max. 800A)	1SDA060425R1	1SDA060426R1
	T7-T7M	1SDA063116R1	1SDA063117R1
FC Cu - Front terminals for copper cables	XT1	1SDA066905R1	1SDA066906R1
	XT2	1SDA066909R1	1SDA066910R1
	XT3	1SDA066913R1	1SDA066914R1
	XT4	1SDA066917R1	1SDA066918R1
	T4	1SDA054980R1	
	T5	1SDA055016R1	
	T6 (max. 630A)	1SDA023380R1	
HR - Rear flat horizontal terminals	T7-T7M	1SDA063120R1	

Moulded case circuit breakers
Mechanical accessories



Bracket for fixing onto DIN rail

Suitable type	3 poles	Order code 4 poles
XT1	1SDA066652R1	1SDA066419R1
XT2	1SDA080704R1	1SDA080325R1
XT3	1SDA066420R1	1SDA066421R1
XT4	1SDA080326R1	1SDA080327R1



Terminal shrouds

Standard supply comes as a pair.

- LTC: Low size terminal shroud
- HTC: High size terminal shroud

Suitable type	Description	3 poles	Order code 4 poles
XT1	LTC	1SDA066655R1	1SDA066656R1
	HTC	1SDA066664R1	1SDA066665R1
XT2	LTC	1SDA066657R1	1SDA066659R1
	HTC	1SDA066666R1	1SDA066667R1
XT3	LTC	1SDA066660R1	1SDA066661R1
	HTC	1SDA066668R1	1SDA066669R1
XT4	LTC	1SDA066662R1	1SDA066663R1
	HTC	1SDA066670R1	1SDA066671R1
T4	LTC	1SDA054966R1	1SDA054967R1
	HTC	1SDA054958R1	1SDA054959R1
T5	LTC	1SDA054968R1	1SDA054969R1
	HTC	1SDA054960R1	1SDA054961R1
T6	LTC	1SDA014038R1	1SDA014039R1
	HTC	1SDA014040R1	1SDA014041R1
T7-T7M	LTC	1SDA063093R1	1SDA063094R1
	HTC	1SDA063091R1	1SDA063092R1



Phase barriers separators – PB

4 pieces suitable for 3 pole versions.
6 pieces suitable for 4 pole versions.

Terminal type	Description	4 pieces	Order code 6 pieces
XT1 and XT3	100mm height	1SDA066676R1	1SDA066681R1
XT2 and XT4	100mm height	1SDA066675R1	1SDA066680R1
T4-T5-T7-T7M	100mm height	1SDA054970R1	1SDA054971R1
	200mm height	1SDA054972R1	1SDA054973R1
T6	100mm height	1SDA050696R1	1SDA050697R1

Note:
When ordering terminal shrouds or phase barriers, please order sealable screw kit
XT1 – XT4: 1SDA066672R1
T4 – T5: 1SDA051504R1
T6 – T7/T7M: 1SDA013699R1



Accessories for electronic trip units

Terminal type	Description	Order code
XT2 and XT4	For fixed or plug-in circuit breaker	1SDA068661R1
	Ekip Com for Withdrawable	1SDA068662R1
	For fixed or plug-in circuit breaker	1SDA068660R1
	For fixed or plug-in circuit breaker	1SDA068659R1

Moulded case circuit breakers
Mechanical accessories



Test and configuration unit
Ekip T&P allows you to perform trip test simulations, configure circuit breaker settings and download reports with ABB software Ekip Connect.

Terminal type	Description	Order code
All Tmax range	Ekip T&P (Test and Programing)	1SDA066989R1

Interface screen on the front of the switchgear – HMI030

Terminal type	Order code
XT2-XT4-T4-T5-T6-T7-T7M	1SDA063143R1

Connectors for PR222DS or PR223DS trip units – X3/X4

Terminal type	Description	Order code
T4...T6	X3 connector for Fixed versions	1SDA055059R1
	X3 connector for Plug-in/Withdrawable versions	1SDA055061R1
	X4 connector for Fixed versions	1SDA055060R1
	X4 connector for Plug-in/Withdrawable versions	1SDA055062R1

Measurement module for PR223DS or PR223EF – VM210

Terminal type	Order code
T4...T6	1SDA059602R1

Moulded case circuit breakers

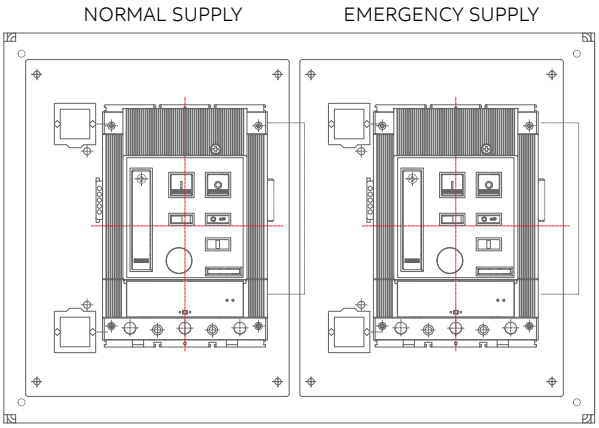
Basic transfer switches (BTS)

What is a BTS?
A basic transfer switch (BTS) consists of two circuit breakers assembled on a backplate, which are mechanically interlocked and equipped with motor operators that allows remote or manual operation.

The BTS consist of:
2 x Moulded case circuit breaker
+ Motor operator

BTS =
+ Mechanical Interlock
+ Auxiliaries to signal operation

BTS is designed to work as a standard transfer switch. However, it can also be



FRONT VIEW

BTW is designed to work as a standard transfer switch However, it can also be updated to work as a smart unit capable of automatically transferring the supply of a load. To do this it is necessary to add an ATS controller and a Loom kit (that consists of required devices) to operate the BTS.

Automatic Transfer Supply consist of:

Automatic Transfer Supply = BTS
+ ATS controller
+ Loom Kit

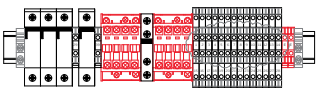


BTS + **ATS Controller** + **Loom Kit**



ATS022 controller

Suitable for	Order code
Tmax XT -Tmax T	1SDA065524R1



Loom kit

Suitable for	Order code
XT1 and XT3	1SDAA99205A1
XT2, XT4, TmaxT and Emax2	1SDAA99203A1

STOCK | INDENT

Moulded case circuit breakers

Basic transfer switches (BTS)

			Thermo magnetic - TMA/TMD				Electronic			
Icu	**In**			**Order code**				**Order code**		
[kA]	**[A]**		**Trip unit**	**3–3 pole**	**3–4 pole**	**4–4 pole**	**Trip unit**	**3–3 pole**	**3–4 pole**	**4–4 pole**
36KA	63	XT1	TMD	1SDAA99301A1	1SDAA99331A1	1SDAA99361A1		—	—	—
		XT2	TMA	1SDAA99820A1	1SDAA99431A1	1SDAA99461A1	Ekip LS/I	—	1SDAA99440A1	1SDAA99470A1
	100	XT2	TMA	1SDAA99821A1	1SDAA99822A1	1SDAA99823A1	Ekip LS/I	1SDAA99411A1	1SDAA99441A1	1SDAA99471A1
		XT3	TMD	1SDAA99508A1	1SDAA99507A1	1SDAA99824A1		—	—	—
	125	XT1	TMD	1SDAA99302A1	1SDAA99332A1	1SDAA99362A1		—	—	—
		XT2	TMA	1SDAA99402A1	1SDAA99432A1	1SDAA99462A1		—	—	—
	160	XT1	TMD	1SDAA99303A1	1SDAA99333A1	1SDAA99363A1		—	—	—
		XT2	TMA	1SDAA99403A1	1SDAA99433A1	1SDAA99463A1	Ekip LS/I	1SDAA99412A1	1SDAA99442A1	1SDAA99472A1
		XT3	TMD	1SDAA99501A1	1SDAA99531A1	1SDAA99561A1		—	—	—
	200	XT3	TMD	1SDAA99502A1	1SDAA99532A1	1SDAA99562A1		—	—	—
	250	XT3	TMD	1SDAA99503A1	1SDAA99533A1	1SDAA99563A1		—	—	—
	400	T5	TMA	1SDAA99825A1	1SDAA99826A1	1SDAA99827A1	PR221DS-LS/I	1SDAA99062A1	1SDAA99064A1	1SDAA99063A1
	630	T5		—	1SDAA99829A1	—	PR221DS-LS/I	1SDAA99068A1	1SDAA99070A1	1SDAA99069A1
50KA	63	XT1	TMD	1SDAA99304A1	1SDAA99334A1	1SDAA99364A1		—	—	—
		XT2	TMA	1SDAA99404A1	1SDAA99434A1	1SDAA99464A1	Ekip LS/I	1SDAA99413A1	1SDAA99443A1	1SDAA99473A1
	100	XT2	TMA	1SDAA99831A1	1SDAA99832A1	1SDAA99833A1	Ekip LS/I	1SDAA99414A1	1SDAA99444A1	1SDAA99474A1
		XT3	TMD	1SDAA99510A1	1SDAA99509A1	1SDAA99834A1		—	—	—
	125	XT1	TMD	1SDAA99305A1	1SDAA99335A1	1SDAA99365A1		—	—	—
		XT2	TMA	1SDAA99405A1	1SDAA99435A1	1SDAA99465A1		—	—	—
	160	XT1	TMD	1SDAA99306A1	1SDAA99336A1	1SDAA99366A1		—	—	—
		XT2	TMA	1SDAA99406A1	1SDAA99436A1	1SDAA99466A1	Ekip LS/I	1SDAA99415A1	1SDAA99445A1	—
		XT3	TMD	1SDAA99504A1	1SDAA99534A1	1SDAA99564A1		—	—	—
	200	XT3	TMD	1SDAA99505A1	1SDAA99535A1	1SDAA99565A1		—	—	—
	250	XT3	TMD	1SDAA99506A1	1SDAA99536A1	1SDAA99566A1		—	—	—
	630	T6	TMA	1SDAA99835A1	1SDAA99836A1	1SDAA99837A1	PR222DS/P-LSI	1SDAA99074A1	1SDAA99075A1	1SDAA99076A1
	800	T6	TMA	1SDAA99838A1	1SDAA99839A1	1SDAA99092A1	PR221DS-LS/I	1SDAA99080A1	1SDAA99082A1	1SDAA99081A1
	1000	T6		—	—	—	PR222DS/P-LSI	1SDAA99086A1	1SDAA99088A1	1SDAA99087A1
		T7M		—	—	—	PR232/P-LSI	1SDAA99140A1	1SDAA99142A1	1SDAA99141A1
	1250	T7M		—	—	—	PR232/P-LSI	1SDAA99108A1	1SDAA99109A1	1SDAA99094A1
	1600	T7M		—	—	—	PR232/P-LSI	1SDAA99096A1	1SDAA99095A1	1SDAA99110A1
70KA	63	XT1	TMD	1SDAA99307A1	1SDAA99337A1	1SDAA99367A1		—	—	—
		XT2	TMA	1SDAA99407A1	1SDAA99437A1	1SDAA99467A1	Ekip LS/I	1SDAA99416A1	1SDAA99446A1	1SDAA99476A1
	100	XT2	TMA	1SDAA99852A1	1SDAA99853A1	1SDAA99854A1	Ekip LS/I	1SDAA99417A1	1SDAA99447A1	1SDAA99477A1
		XT3	TMA	1SDAA99855A1	1SDAA99856A1	1SDAA99664A1		—	—	—
		XT4	TMA	1SDAA99857A1	1SDAA99858A1	1SDAA99859A1	Ekip LS/I	1SDAA99604A1	1SDAA99634A1	
	125	XT1	TMD	1SDAA99308A1	1SDAA99338A1	1SDAA99368A1		—	—	—
		XT2	TMA	1SDAA99408A1	1SDAA99438A1	1SDAA99468A1		—	—	—
	160	XT1	TMD	1SDAA99309A1	1SDAA99339A1	1SDAA99369A1		—	—	—
		XT2	TMA	1SDAA99409A1	1SDAA99439A1	1SDAA99469A1	Ekip LS/I	1SDAA99418A1	1SDAA99448A1	1SDAA99478A1
		XT3	TMD	1SDAA99860A1	1SDAA99861A1	1SDAA99665A1		—	—	—
		XT4	TMA	1SDAA99601A1	1SDAA99631A1	1SDAA99661A1		1SDAA99886A1	1SDAA99887A1	1SDAA99888A1
	200	XT4	TMA	1SDAA99602A1	1SDAA99632A1	1SDAA99662A1	Ekip LS/I	1SDAA99605A1	1SDAA99635A1	1SDAA99889A1
	250	XT4	TMA	1SDAA99603A1	1SDAA99633A1	1SDAA99663A1	Ekip LS/I	1SDAA99606A1	1SDAA99636A1	1SDAA99666A1
	320	T4	TMA	1SDAA99059A1	1SDAA99061A1	1SDAA99060A1		1SDAA99890A1	1SDAA99891A1	1SDAA99892A1
	400	T5	TMA	1SDAA99862A1	1SDAA99863A1	1SDAA99864A1	PR221DS-LS/I	1SDAA99065A1	1SDAA99067A1	1SDAA99066A1
	630	T5	TMA (up to 500A)	1SDAA99865A1	1SDAA99866A1	1SDAA99867A1	PR221DS-LS/I	1SDAA99071A1	1SDAA99073A1	1SDAA99072A1
		T6	TMA	1SDAA99868A1	1SDAA99869A1	1SDAA99870A1	PR222DS/P-LSI	1SDAA99077A1	1SDAA99079A1	1SDAA99078A1
	800	T6	TMA	1SDAA99871A1	1SDAA99872A1	1SDAA99873A1	PR222DS/P-LSI	1SDAA99083A1	1SDAA99085A1	1SDAA99084A1
	1000	T6		—	—	—	PR222DS/P-LSI	1SDAA99089A1	1SDAA99091A1	1SDAA99090A1
		T7M		—	—	—	PR232DS/P-LSI	1SDAA99150A1	1SDAA99152A1	1SDAA99151A1
	1250	T7M		—	—	—	PR232DS/P-LSI	1SDAA99160A1	1SDAA99162A1	1SDAA99161A1
	1600	T7M		—	—	—	PR231/P-LS/I	1SDAA99170A1	1SDAA99172A1	1SDAA99171A1

STOCK | **INDENT**

Moulded case circuit breakers

Other chassis combinations

Chassis codification

Variables	C	X	X	X	X	X	X	X
Chassis Feed	Top Feed	T						
	Bottom Feed	B						
	Universal Feed	U						
Chassis Base Frame	up to 800A		B					
	up to 1250A		C					
	up to 1600A		D					
Number of Circuit Breakers	One circuit breaker (on T6 1600A and T5 on 1250A)			L				
	One circuit breaker (on T6 1600A and T5 on 1250A)			R				
	Two circuit breakers			2				
	Three circuit breakers			4				
				...				
	Twenty third circuit breakers			22				
	Twenty forth circuit breakers			24				
Circuit Breaker Model	Tmax XT1				X1			
	Tmax XT2				X2			
	Tmax XT3				X3			
	Tmax XT4				X4			
	Tmax T4 (320A only)				T4			
	Tmax T5				T5			
	Tmax T6				T6			

Repeat final three codes for additional breaker combination

Comment

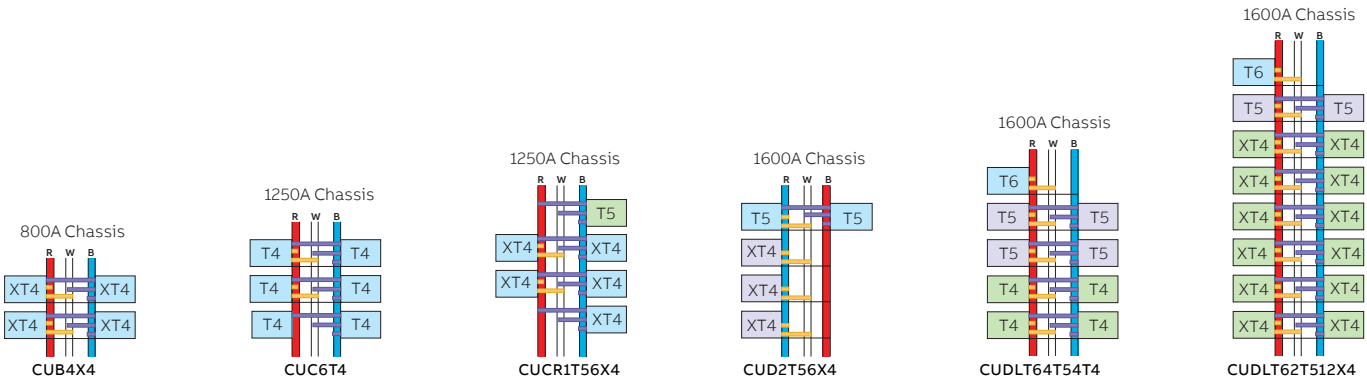
800A version: Maximum 24 circuit breakers
1250A version: Maximum 24 circuit breakers
1600A version: Maximum 24 circuit breakers

Comment

Suitable for 800A chassis
Suitable for 800A chassis
Suitable for 800A, 1250A, 1600A chassis
Suitable for 800A, 1250A, 1600A chassis
Suitable for 1250A, 1600A chassis
Suitable for 1250A single sided only, 1600A single and double sided
Suitable for 1600A only single sided (Max. 2 pcs).

Ordering example

For odd combinations of circuit breakers ABB will provide the even sided equivalent and shroud. For instance, the CUC6T4 would be supplied for either 5 x T4 breakers or 6 x T4 breakers.



Moulded case circuit breakers
Chassis

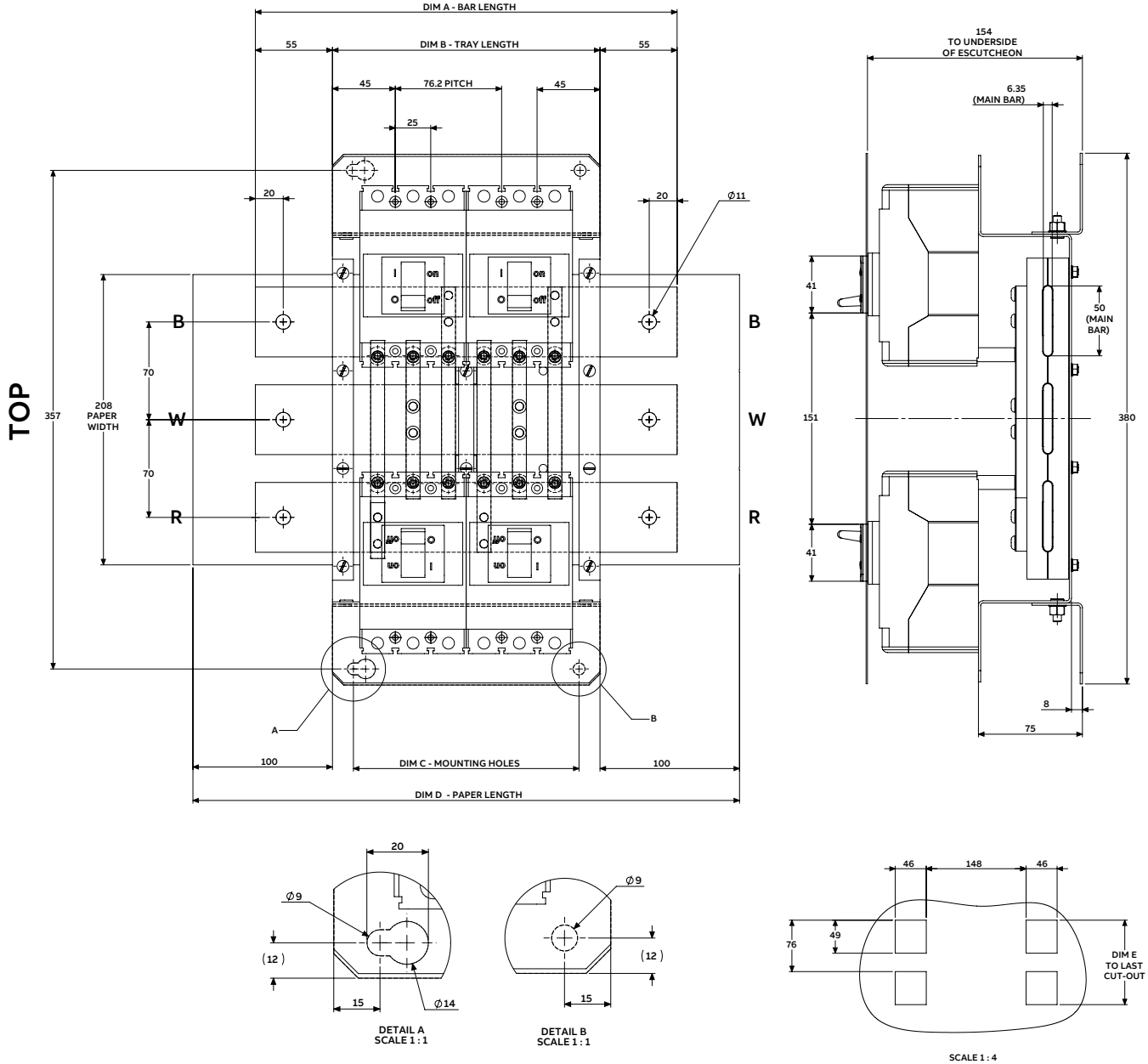
Chassis range

Chassis size	Breaker size	Number of breakers	Number of poles	Order code
Up to 800 A	Tmax XT1 double sided	up to 4	12	CUB4X1
Lovag testing up to Icw = 50 kA (1 sec)		up to 6	18	CUB6X1
		up to 8	24	CUB8X1
		up to 12	36	CUB12X1
		up to 16	48	CUB16X1
		up to 20	60	CUB20X1
	Tmax XT2 double sided	up to 4	12	CUB4X2
		up to 6	18	CUB6X2
		up to 8	24	CUB8X2
		up to 12	36	CUB12X2
		up to 16	48	CUB16X2
		up to 20	60	CUB20X2
	Tmax XT3 double sided	up to 4	12	CUB4X3
		up to 6	18	CUB6X3
		up to 8	24	CUB8X3
		up to 12	36	CUB12X3
		up to 16	48	CUB16X3
		up to 20	60	CUB20X3
	Tmax XT4 double sided	up to 4	12	CUB4X4
		up to 6	18	CUB6X4
		up to 8	24	CUB8X4
		up to 12	36	CUB12X4
		up to 16	48	CUB16X4
		up to 20	60	CUB20X4
Up to 1250 A	Tmax XT4 double sided	up to 4	12	CUC4X4
Lovag testing up to Icw = 50 kA (1 sec)		up to 6	18	CUC6X4
		up to 8	24	CUC8X4
		up to 10	30	CUC10X4
		up to 12	36	CUC12X4
		up to 16	48	CUC16X4

Any other combination not listed in the above table is available on request. Please see Chassis combinations on page 201.

Moulded case circuit breakers

Chassis



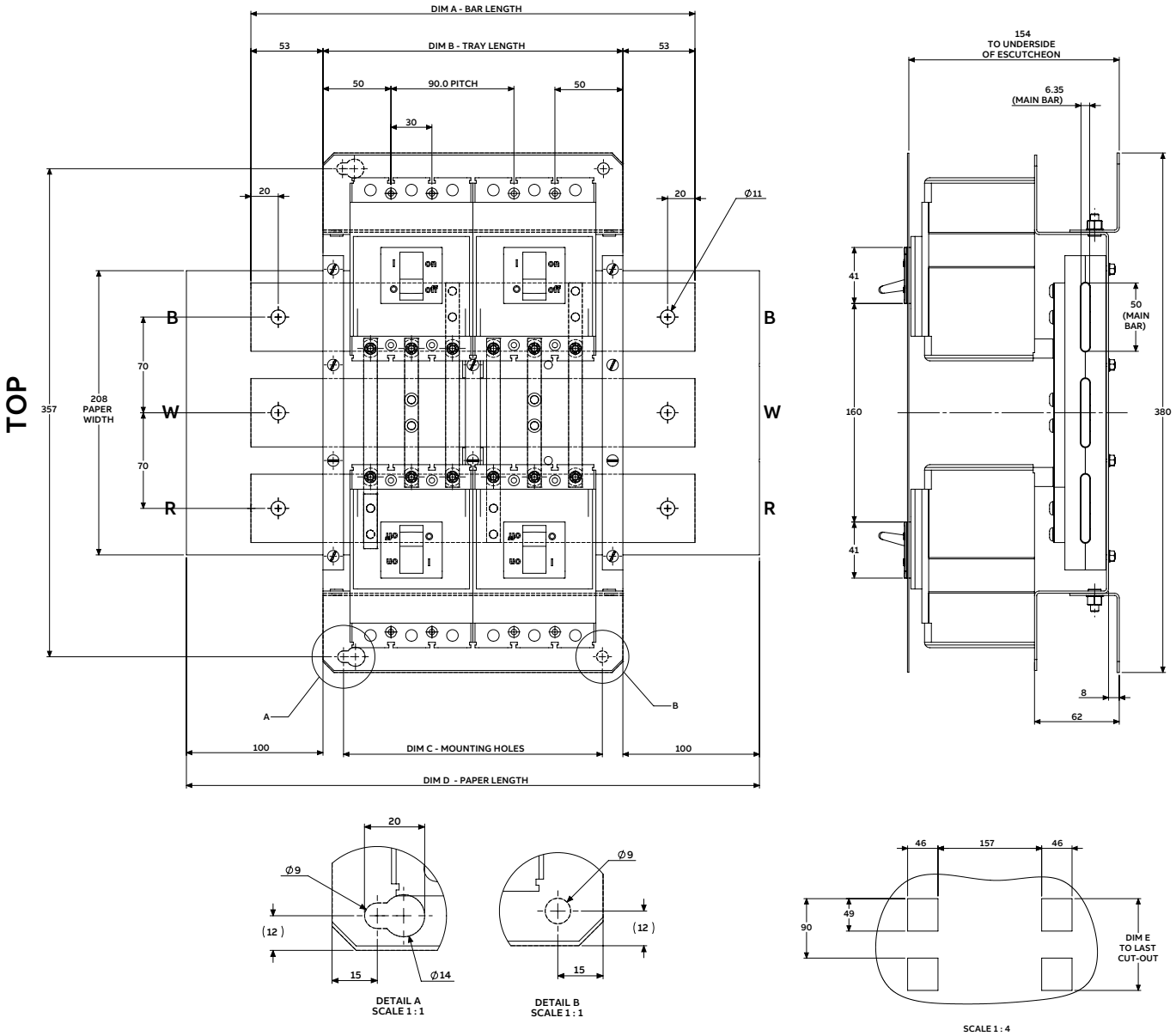
XT1 800A

Range	Base Plate					Number of poles	Order code
	A	B	C	D	E		
	Bar length (mm)	Tray length (mm)	Mounting holes (m)	Paper length (mm)	Last cut out (mm)		
XT1 800A	302.2	191.7	161.7	391.7	125.2	12	CUB4X1
	378.4	267.9	237.9	467.9	201.4	18	CUB6X1
	454.6	344.1	314.1	544.1	277.6	24	CUB8X1
	607.0	496.5	466.5	696.5	430.0	36	CUB12X1
	759.4	648.9	618.9	848.9	582.4	48	CUB16X1
	911.8	801.3	771.3	1001.3	734.8	60	CUB20X1
	1064.2	953.7	923.7	1153.7	887.2	72	CUB24X1

STOCK | INDENT

Moulded case circuit breakers

Chassis



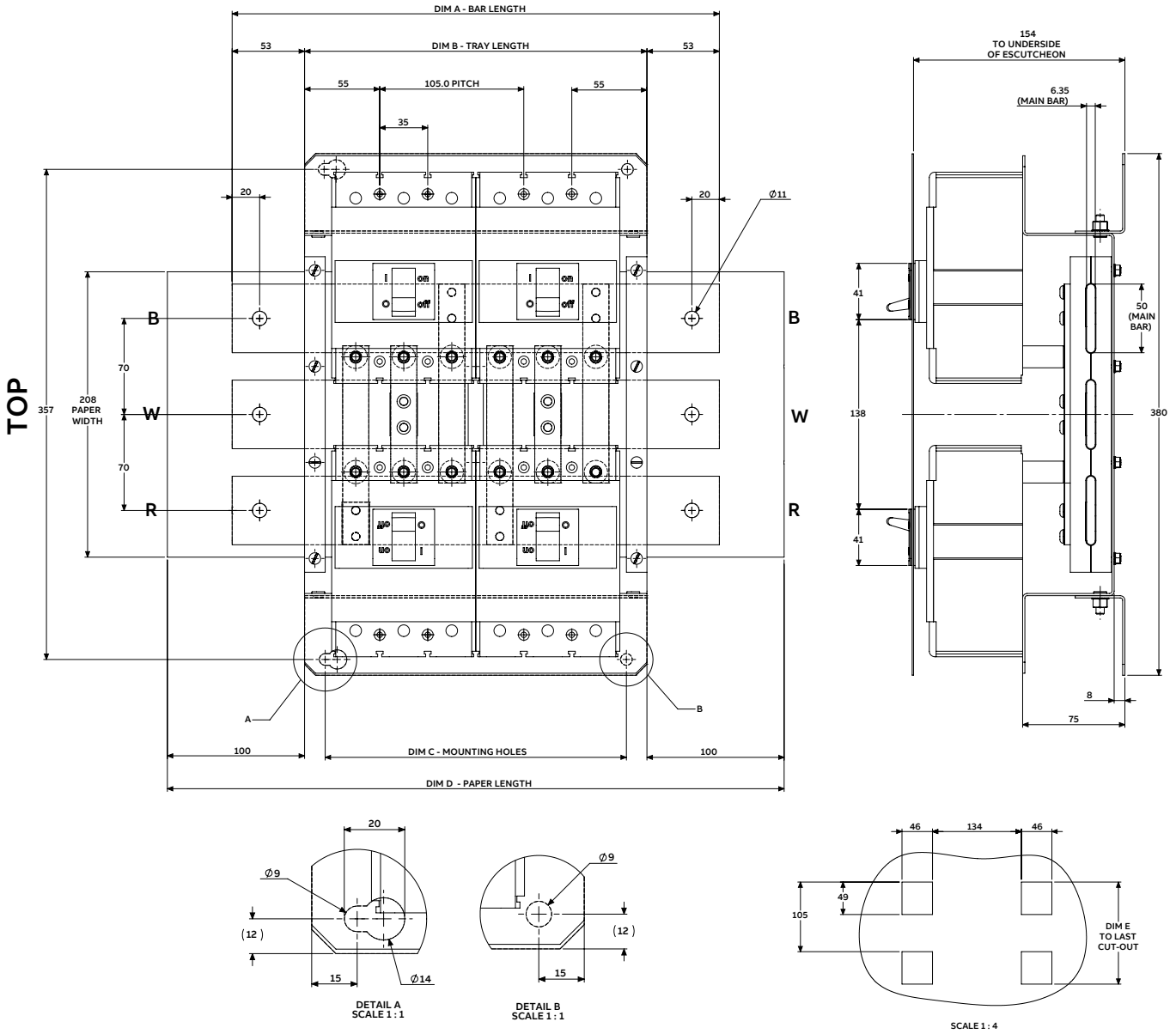
XT2 800A

Range	Base plate					Number of poles	Order code
	A	B	C	D	E		
	Bar length (mm)	Tray length (mm)	Mounting holes (m)	Paper length (mm)	Last cut out (mm)		
XT2 800A	325.0	219.5	189.5	419.5	139.0	12	CUB4X2
	415.0	309.5	279.5	509.5	229.0	18	CUB6X2
	505.0	399.5	369.5	599.5	319.0	24	CUB8X2
	685.0	579.5	549.5	779.5	499.0	36	CUB12X2
	865.0	759.5	729.5	959.5	679.0	48	CUB16X2
	1045.0	939.5	909.5	1139.5	859.0	60	CUB20X2
	1225.0	1119.5	1089.5	1319.5	1039.0	72	CUB24X2

STOCK | INDENT

Moulded case circuit breakers

Chassis



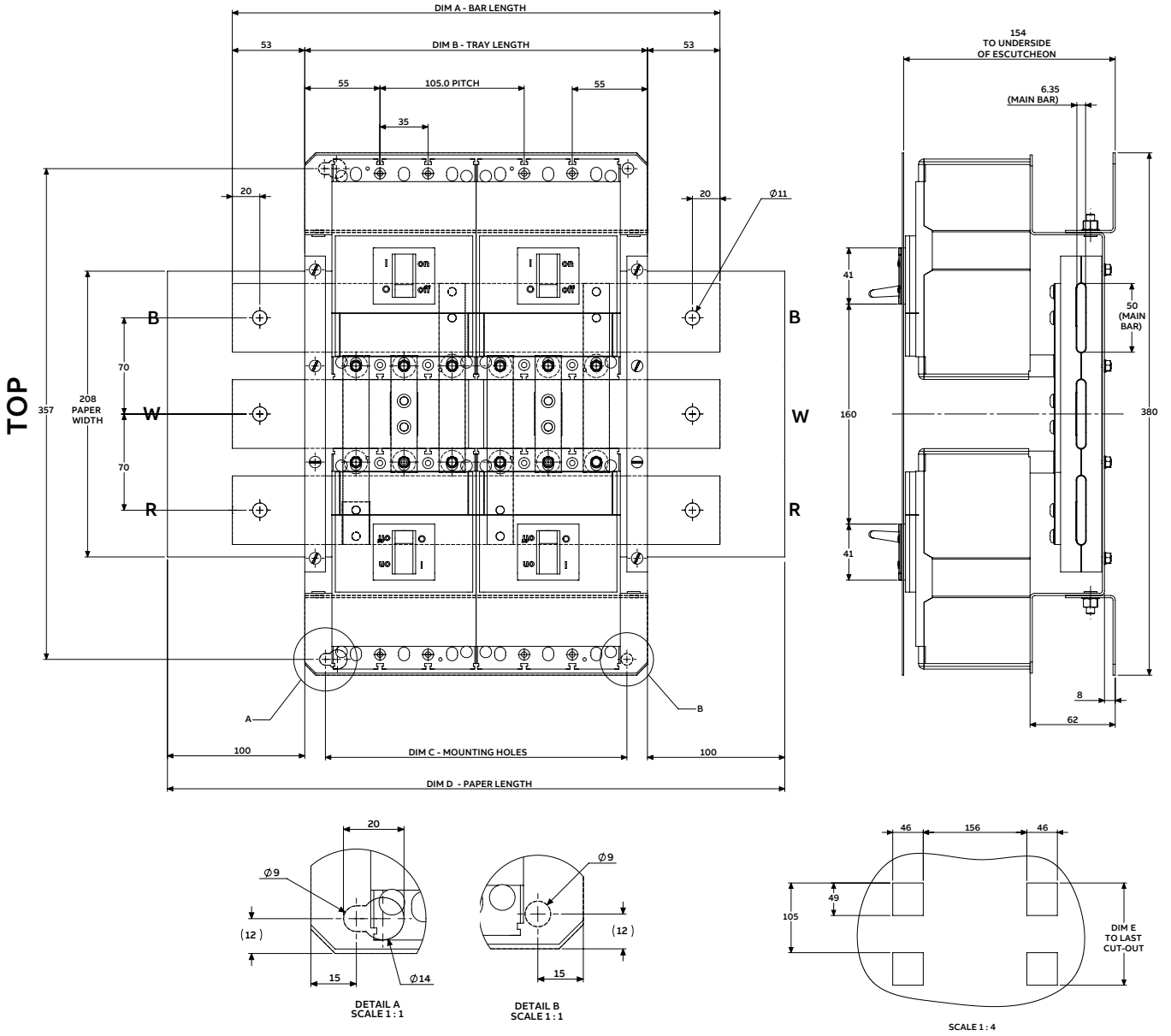
XT3 800A

Range	Base plate					Number of poles	Order code
	A	B	C	D	E		
	Bar length (mm)	Tray length (mm)	Mounting holes (m)	Paper length (mm)	Last cut out (mm)		
XT3 800A	355.0	249.5	219.5	449.5	154.0	12	CUB4X3
	460.0	354.5	324.5	554.5	259.0	18	CUB6X3
	565.0	459.5	429.5	659.5	364.0	24	CUB8X3
	775.0	669.5	639.5	869.5	574.0	36	CUB12X3
	985.0	879.5	849.5	1079.5	784.0	48	CUB16X3
	1195.0	1089.5	1059.5	1289.5	994.0	60	CUB20X3
	1405.0	1299.5	1269.5	1499.5	1204.0	72	CUB24X3

STOCK | INDENT

Moulded case circuit breakers

Chassis



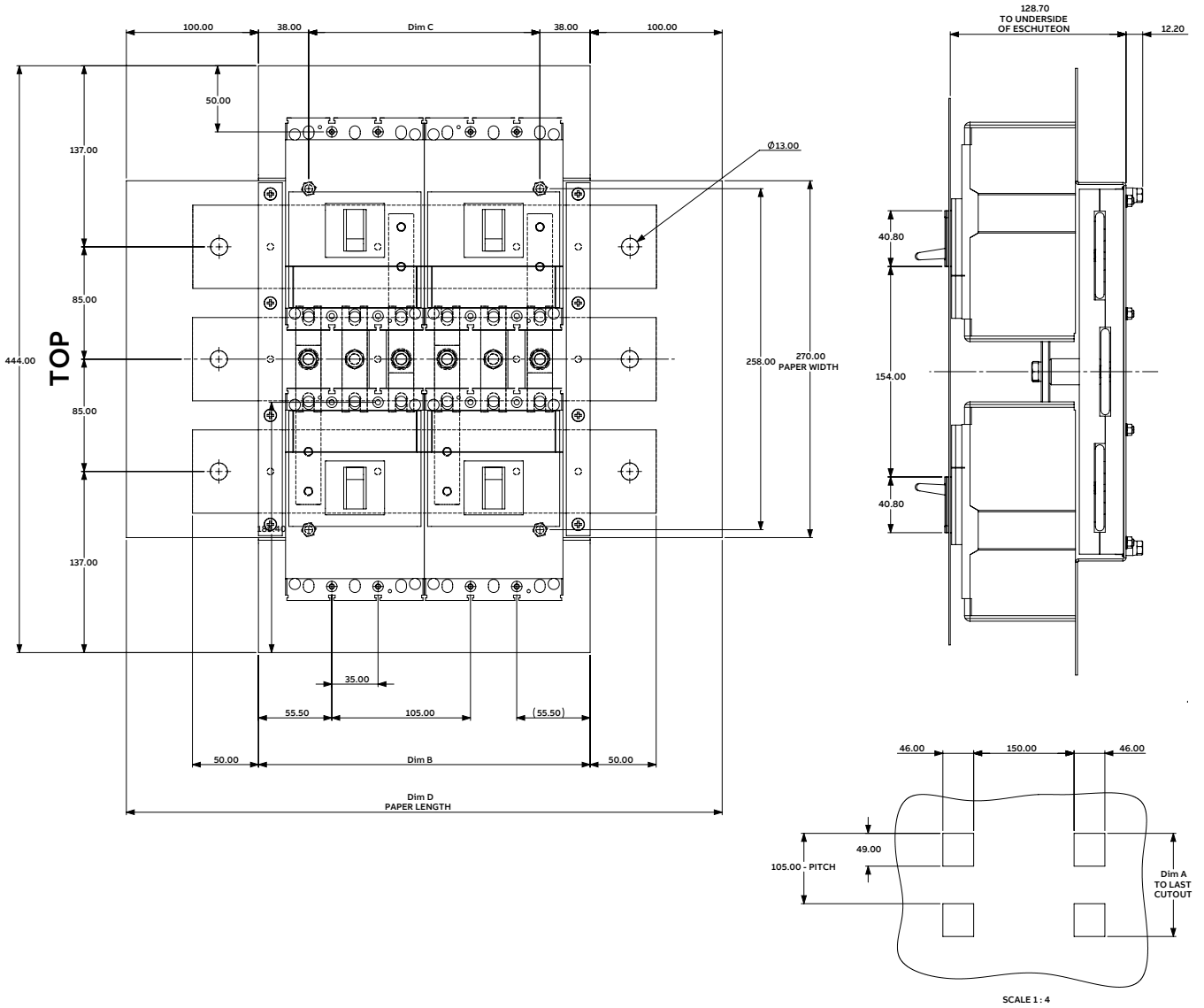
XT4 800A

Range	Base plate					Number of poles	Order code
	A	B	C	D	E		
	Bar length (mm)	Tray length (mm)	Mounting holes (m)	Paper length (mm)	Last cut out (mm)		
XT4 800A	355.0	249.5	219.5	449.5	154.0	12	CUB4X4
	460.0	354.5	324.5	554.5	259.0	18	CUB6X4
	565.0	459.5	429.5	659.5	364.0	24	CUB8X4
	775.0	669.5	639.5	869.5	574.0	36	CUB12X4
	985.0	879.5	849.5	1079.5	784.0	48	CUB16X4
	1195.0	1089.5	1059.5	1289.5	994.0	60	CUB20X4
	1405.0	1299.5	1269.5	1499.5	1204.0	72	CUB24X4

STOCK | INDENT

Moulded case circuit breakers

Chassis



XT4 1250A

Range	Base plate				Number of poles	Order code
	A	B	C	D		
	Bar length (mm)	Tray length (mm)	Mounting holes (m)	Paper length (mm)		
XT4 1250A	152	251	175	451	12	CUC4X4
	257	356	280	556	18	CUC6X4
	362	461	385	661	24	CUC8X4
	467	566	490	766	30	CUC10X4
	572	671	595	871	36	CUC12X4
	782	881	805	1081	48	CUC16X4

STOCK | INDENT

Moulded case circuit breakers

Extended warranty

1 year

A free of charge one year warranty is included with all ABB circuit breakers. An extensions of this warranty is available as specified below:

2 years

Simply by registering your installation site details within 6 months from purchasing, you are entitled to a **free of charge** extension of your warranty for one additional year, which will add up the total number of your warranty to 2 years. The address for online web registration platform: https://abbextendedwarranty.azurewebsites.net

Note: The system will return the 2 year warranty based on the production date (Factory Warranty). ABB Australia will cover the warranty for the rest of the time.

4 years

With a fee. No registration is required.

Note: This option can only be purchased within the first 6 months duration past the original purchase order.

5 years

Same price as 4 years, simply by registering your installation site details, you are entitled for a **free of charge** extension of your warranty for one additional year, which will add up the total number of our warranty to 5 years. The address for online web registration platform: https://abbextendedwarranty.azurewebsites.net

Note: This option can only be purchased within the first 6 months duration past the original purchase order.

For 'Existing' systems and installations

4 years warranty			
XT1	1SDA082447R1	Warranty 4 years product already purchased XT1	Stand-alone part without circuit breaker
XT2	1SDA082448R1	Warranty 4 years product already purchased XT2	Stand-alone part without circuit breaker
XT3	1SDA082449R1	Warranty 4 years product already purchased XT3	Stand-alone part without circuit breaker
XT4	1SDA082450R1	Warranty 4 years product already purchased XT4	Stand-alone part without circuit breaker
T4	1SDA082405R1	Warranty 4 years product already purchased Tmax T4	Stand-alone part without circuit breaker
T5	1SDA082433R1	Warranty 4 years product already purchased Tmax T5	Stand-alone part without circuit breaker
T6	1SDA082434R1	Warranty 4 years product already purchased Tmax T6	Stand-alone part without circuit breaker
T7	1SDA082435R1	Warranty 4 years product already purchased Tmax T7	Stand-alone part without circuit breaker
T8	1SDA082436R1	Warranty 4 years product already purchased Tmax T8	Stand-alone part without circuit breaker
5 years warranty			
XT1	1SDA082466R1	Warranty 5 years product already purchased XT1	Stand-alone part without circuit breaker
XT2	1SDA082467R1	Warranty 5 years product already purchased XT2	Stand-alone part without circuit breaker
XT3	1SDA082468R1	Warranty 5 years product already purchased XT3	Stand-alone part without circuit breaker
XT4	1SDA082469R1	Warranty 5 years product already purchased XT4	Stand-alone part without circuit breaker
T4	1SDA082451R1	Warranty 5 years product already purchased Tmax T4	Stand-alone part without circuit breaker
T5	1SDA082452R1	Warranty 5 years product already purchased Tmax T5	Stand-alone part without circuit breaker
T6	1SDA082453R1	Warranty 5 years product already purchased Tmax T6	Stand-alone part without circuit breaker
T7	1SDA082454R1	Warranty 5 years product already purchased Tmax T7	Stand-alone part without circuit breaker
T8	1SDA082455R1	Warranty 5 years product already purchased Tmax T8	Stand-alone part without circuit breaker

Notes


ABB
ABB

Load break switches

212 **Switch-disconnectors – Technical data**

213 **Switch-disconnectors**

231 **Change-over switches – Technical data**

232 **Change-over switches**

250 **Manual and motorized bypass switches – Technical data**

251 **Manual and motorized bypass switches**

For more detailed product information, please refer to the Technical Catalogue:

- Switch disconnectors-OT – 1SCC301020C0201
- Transfer, changeover and bypass switches – 1SCC303003C0201

Manual switch-disconnectors OT16...125, IEC

Technical data

				Switch type						
Technical data according to IEC 60947-3				**OT16F**	**OT25F**	**OT40F**	**OT63F**	**OT80F**	**OT100F**	**OT125F**
Rated insulation voltage and rated operational voltage AC20/DC20	Pollution degree 3		V	750	750	750	750	750	750	750
Dielectric strength		50 Hz 1min.	kV	6	6	6	6	6	6	6
Rated impulse withstand voltage			kV	8	8	8	8	8	8	8
Rated thermal current and rated operational current AC20/DC20	Ambient 40°C[2]	In open air	A	25	32	40	63	80	115	125
	Ambient 40°C[2]	In enclosure	A	25	32	40	63	80	115	125
	Ambient 60°C	In enclosure	A	20	25	32	50	63	80	100
...with minimum conductor cross section		Cu	mm^2	4	6	10	16	25	35	50
Rated operational current, AC-21A		up to 415 V	A	16	25	40	63	80	100	125
		440...690 V	A	16	25	40	63	80	100	125
Rated operational current,AC-22A		up to 415 V	A	16	25	40	63	80	100	125
		440...690 V	A	16	25	40	63	80	100	125
Rated operational current, AC-23A		up to 415 V	A	16	20	23	63	75	80	90
		440 V	A	16	20	23	63	65	65	78
		500 V	A	16	20	23	45	58	60	70
		690 V	A	10	11	12	20	20	40	50
Rated operational current / poles in series, DC-21A		24...48 V[1]	A	16/1	25/1	32/1	63/1	80/1	100/1	125/1
		110 V	A	16/2	25/2	32/2	63/2	80/2	100/2	125/2
		220 V	A	16/3	25/3	32/3	63/4	80/4	100/4	125/4
		440 V	A	16/4	16/4	16/4	16/4	16/4		
		500 V	A	16/4	16/4	16/4	16/4	16/4		
		750 V	A	16/8	25/8	32/8				
Rated operational current / poles in series, DC-22A		24...48 V[1]	A	16/1	25/1	32/1	63/1	80/1	100/1	125/1
		110 V	A	16/2	25/2	32/2	63/2	80/2	100/2	125/2
		220 V	A	16/3	25/3	32/4	45/4	45/4	63/4	80/4
		440 V	A	10/4	10/4	10/4	10/4	10/4		
		750 V	A	16/8	25/8	25/8				
Rated operational current / poles in series, DC-23A		24...48 V[1]	A	16/1	25/1	32/1	63/1	80/1	100/1	125/1
		110 V	A	16/2	25/2	32/2	63/2	80/2	100/2	125/2
		220 V	A	16/4	25/4	32/4	45/4	45/4	63/4	63/4
		440 V	A	10/4	10/4	10/4	10/4	10/4		
		750 V	A	16/8	16/8	16/8				
Rated operational power, AC-23A (These values are given for guidance and may vary acc. to the motor manufacturer)		220...240 V	kW	3	4	5.5	11	22	22	22
		400...415 V	kW	7.5	9	11	22	37	37	45
		440...500 V	kW	7.5	9	11	22	37	37	45
		690 V	kW	7.5	9	11	15	18.5	37	45
Rated breaking capacity, AC-23A		up to 415 V	A	128	160	184	360	640	640	720
		440 V	A	128	160	184	360	448	520	624
		500 V	A	128	160	184	360	464	480	560
		690 V	A	80	88	96	160	160	320	400
Rated breaking capacity/ poles in series, DC-23A		24...48 V	A	64/1	100/1	128/1	180/1	252/1	400/1	500/1
		220 V	A	64/3	100/4	128/4	180/4	180/4	252/4	252/4
		110 V	A	64/2	100/2	128/2	180/2	252/2	400/2	500/2
		440 V	A	40/4	40/4	40/4	40/4	40/4		
		750 V	A	64/8	64/8	64/8				
Rated conditional short-circuit current I_{cc}(r.m.s.) and corresponding max. allowed cut-off current $\hat{i}_c$. The cut-off current $\hat{i}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269)	I_{cc}(r.m.s.)	50 kA	kA	6.5	6.5	6.5	13	13	16.5	16.5
	Max. OFA_ fuse size gG/aM	≤ 415 V	A	40/32	40/32	40/32	100/80	100/80	125/125	125/125
	I_{cc}(r.m.s.)	100 kA	kA				17	17		
	Max. OFA_ fuse size gG/aM	≤ 500 V	A				100/80	100/80		
	I_{cc}(r.m.s.)	10 kA	kA						8.2	8.2
	Max. OFA_ fuse size gG/aM	≤ 690 V	A						125/100	125/100
	I_{cc}(r.m.s.)	50 kA	kA	4	4	4	11	11	10	10
	Max. OFA_ fuse size gG/aM	≤ 690 V	A	25/16	25/16	25/16	80/63	80/63	63/63	63/63
Rated short-time withstand current	r.m.s. -value I_{cw}	690 V, 1 s	kA	0.5	0.5	0.5	1	1.5	2.5	2.5
Rated short circuit making capacity	Peak value I_{cm}	690 V/500 V	kA	0.71	0.71	0.71	1.4	2.1	3.6	3.6
Rated capacitor power (the capacitor ratings are limited by the fuse link.)		400...415 V	kVAr	6.5	10	15	25	30	40	50
Power loss/pole	At rated operational current		W	0.3	0.6	1.6	2.8	4.5	4.0	6.3
Mechanical endurance	Divide by two for operation cycles		Oper.	20 000	20 000	20 000	20 000	20 000	20 000	20 000
Weight without accessories	3-pole		kg	0.11	0.11	0.11	0.27	0.27	0.36	0.36
	4-pole		kg	0.15	0.15	0.15	0.35	0.35	0.50	0.50
Cable size	Cu-wire size suitable		mm^2	0.75...10	0.75...10	0.75...10	1.5...35	1.5...35	10...70	10...70
	for terminal clamps		AWG	18-8	18-8	18-8	14-4	14-4	8-00	8-00
Terminal tightening torque	Counter torque required		Nm	0.8	0.8	0.8	2	2	6	6
Operating torque	3-pole switch-disconnector		Nm	1	1	1	1.2	1.2	2	2

1) Below 48 V, two poles in parallel up to OT80 are recommended particularly in polluted atmosphere.
2) Acc. to IEC 60947-1, § 6.1.1.

Manual switch-disconnectors OT16...160

Type designation key

Type codes

Understanding the type code keys below will help you quickly identify the correct product for your needs. The simple naming system allows you to see the products type, Ampere rating, standard classification and number of poles, all in one glance.

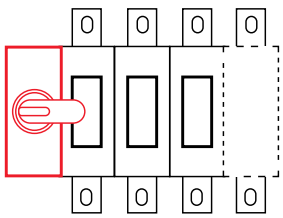
Explanation of the types OT16..160

OT	16	F	4	N2
1	2	3	4	5

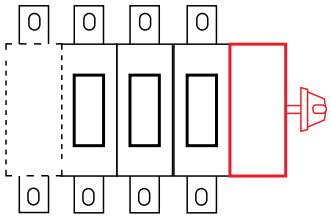
1	**Brand**
OT:	ABB switch-disconnector brand
2	**Switch size**
16...160:	16...160
3	**Mounting / Construction**
F:	Base and DIN-rail mounting, front operated
FT:	Door mounting, front operated
G:	Base and DIN-rail mounting, front and side operated
GT:	Door mounting, front and side operated
FL:	Base and DIN-rail mounting, extended terminals on both sides of the switch, front operated
FLA:	Base and DIN-rail mounting, extended terminals on top side only, front operated
FLB:	Base and DIN-rail mounting, extended terminals on bottom side only, front operated
M, ML:	Installation switches for 45 mm standard opening, base and DIN -rail mounting, front operated
4	**Number of poles**
3	3 poles
4	4 poles
6	6 poles
8	8 poles
03	3 poles, operating mechanism at the left end of the switch
04	4 poles, operating mechanism at the left end of the switch
30	3 poles, operating mechanism at the right end of the switch
40	4 poles, operating mechanism at the right end of the switch
5	**Included accessories**
N2:	Fourth pole, simultaneous function with the main contacts
_(blank):	no accessories included
P:	Pistol handle + shaft
K:	Direct mount handle (for base mounting versions only)

Pole configuration table, OT160G

Front operated
Configuration 03, 04, 12, 22



Side operated
Configuration 30, 40 or 03, 04:



Load break switches

Switch-disconnectors OT16…125

Front operated switch-disconnectors


OT16…40F3


OT63…80F3


OT100…125F3

3 Poles, base and DIN rail mounted

Included protected terminal clamps, IP20. Direct knob handle provided as standard.
Fourth pole available, mounting the OTPS_ accessory on the side of the switch - see below
Extension shaft (OXP6X_) and pistol handle (OH_J6) available as an accessory.

In A	Rated operational current AC22…23 – 415V A/A	Cable cross section mm²	Order code
16	16/16	0.75…10	OT16F3
25	25/20	0.75…10	OT25F3
40	40/23	0.75…10	OT40F3
63	63/45	1.5…35	OT63F3
80	80/75	1.5…35	OT80F3
100	100/80	10…70	OT100F3
125	125/90	10…70	OT125F3


OT16…40FT3


OT63…80FT3


OT100…125FT3

3 Poles, door mounted

Included protected terminal clamps, IP20.
Fourth pole available, mounting the OTPS_ accessory on the side of the switch.
Compulsory selector handle (OH_S_) available as an accessory.

In A	Rated operational current AC22…23 – 415V A/A	Cable cross section mm²	Order code
16	16/16	0.75…10	OT16FT3
25	25/20	0.75…10	OT25FT3
40	40/23	0.75…10	OT40FT3
63	63/45	1.5…35	OT63FT3
80	80/75	1.5…35	OT80FT3
100	100/80	10…70	OT100FT3
125	125/90	10…70	OT125FT3

4 pole switch ordering example

Selector handle								
OT16F3	+	OHBS3AH1	+	OXS6x180	+	OTPS40FPN2	+	OTS40T3
Load break switch	+	Selector handle	+	Shaft	+	Fouth Pole	+	Shrouds

Pistol handle								
OT16F3	+	OHB45J6	+	OXP6x290	+	OTPS40FPN2	+	OTS40T3
Load break switch	+	Pistol handle	+	Shaft	+	Fouth Pole	+	Shrouds

Door mount – Selector handle		
OT16FT3	+	OHBS2PJ
Load break switch	+	Selector handle

Manual switch-disconnectors OT16...160
Ordering information



Accessory guide for OT16F...125F
(base and DIN-rail mounted switch-disconnectors)

1. Switch-disconnector
2. Extended shaft
3. Terminal clamp
4. Fourth pole
5. N- and PE-terminals
6. Auxiliary contact
7. Terminal shroud
8. Shaft aligment ring
9. Legend plate
10. Selector handle
11. Handle knob
12. Pistol handle
13. Conversion kit
14. Labelling accessories

Please note that listed accessories are not automatically included in your order.

Load break switches

Accessories: Switch-disconnectors OT16…125


OHBS1


OHBS3


OHRS3

Optional handle knobs, for base and DIN rail mounted switches

Mounted directly to the switch, no shaft required. IP20.

Suitable switches	Handle description	Knob length mm	Colour	Order code
OT16…80F3 & F4	Non padlockable	31	Black	OHBS1
OT16…125F3 & F4	Padlockable on O-OFF position	40	Black	OHBS2
	Non padlockable	39	Black	OHBS3
			Red	OHRS3


OHBS2AJ


OHYS2AJ

Optional selector type handles, for base and DIN rail mounted switches

For shaft diameter 6mm (to be ordered separately, type OXS6X_), door drilling 22.5mm. Indication I-O/ON-OFF.
OH_S3AH1 padlock diameter: 5…6.3mm. OH_S2AJ padlock diameter: 5…8mm.

Suitable switches	Handle description	Colour	Order code
OT16…125F_	Padlockable with 1 padlock in pos. O-OFF and door lock in pos I-ON. 45mm. IP54	Black	OHBS3AH1
		Red-Yellow	OHYS3AH1
	Padlockable with 3 padlock in pos. O-OFF and door lock in pos I-ON. 65mm. IP65	Black	OHBS2AJ
		Red-Yellow	OHYS2AJ

Compulsory selector type handles, for door mounted switches

Shaft not required. Indication I-O/ON-OFF. Padlockable with max. 3 padlocks.
Padlock diameter: 5…8mm. IP65.

Suitable switches	Handle description	Colour	Order code
OT16…40FT_	Snap-on mounted, door drilling 22.5mm	Black	OHBS2PJ
		Red-Yellow	OHYS2PJ
OT16…125FT_	Screw mounted, hole distance 36mm	Black	OHBS2RJ
		Red-Yellow	OHYS2RJ


OHB45J6

Optional pistol handle, for base and DIN rail mounted switches

Forwarded handle, IP65. Screw fixing from the back side of the handle. No screws on the front ensures double insulation.
Indication I-O/ON-OFF. Padlockable with 3 padlocks in O-OFF position, door interlock in I-ON position.
For shaft diameter 6mm (to be ordered separately, type OXP6X_).

Suitable switches	Handle description	Colour	Order code
OT16…125F_	45mm handle length	Black	OHB45J6

Load break switches

Accessories: Switch-disconnectors OT16…125



OHM65L6

Stainless steel pistol handle

Forwarded handle, IP66. Screw fixing from the back side of the handle. No screws on the front ensures double insulation.
Indication I-O/ON-OFF. Padlockable with 3 padlocks in O-OFF position, door interlock in I-ON position. Shaft to be ordered separately.

Suitable switches	Handle length mm	Suitable shaft mm	Order code
OT16…125F_	65	6	OHM65L6



OXS6X_



OXP6X_

Shafts

Shaft diameter 6mm.

Suitable	Shaft length mm	Order code
Selector type handles		
OT16…125F_	120	OXS6X120
	180	OXS6X180
	250	OXS6X250
	330	OXS6X330
Pistol type handles		
OT16…125F_	150	OXP6X150
	210	OXP6X210
	265	OXP6X265
	290	OXP6X290
	360	OXP6X360
	430	OXP6X430



OA1G_

Auxiliary contact blocks

IP20. Snap-on mounted to both sides of the switch. I=16A, cable cross section max. 2x2.5mm^2. Early-break type OA1G10. OA2G11 not mountable on 4 pole versions.
OA2G11 - OT16…32: Max. 2 N.O.+ 2 N.C. / OT45…125: Max. 4 N.O.+ 4 N.C.

Suitable switches	Description	Order code
OT16…125F_, FT_	1 N.C. mounted on the left side, max. 2 units	OA1G01
	1 N.O. mounted on the right side, max. 2 units	OA1G10
OT16..125F_	1 N.C. + 1 N.O. not mountable on the same side as fourth pole	OA2G11



OTP_63_

Fourth poles

IP20. Mountable on the side of the switch. Simultaneous function with main contacts.

Suitable switches	Order code
OT16…40F3	OTPS40FPN1*
OT63…80F3	OTPS80FP
OT100…125F3	OTPS125FP
OT16…40FT3	OTPS40FDN1*
OT63…80FT3	OTPS80FD
OT100…125FT3	OTPS125FD

***Note:** N1 = on left hand side of switc. N2 = on right hand side of switch.

STOCK | INDENT

Load break switches

Accessories: Switch-disconnectors OT16…125



OTS63T3



OTS63T1

Terminal shrouds

IP20. Snap-on mounted, transparent. Suitable for upper and lower terminals.
For full protection switch 2 times the same part number required. For 4 poles protection, 3 poles shroud and 1 pole shroud required.

Suitable switches	Number of poles	Order code
OT16…40F3, FT3	3 poles	OTS40T3
	4th pole	OTS40T1
OT63…80F3, FT3	3 poles	OTS63T3
	4th pole	OTS63T1
OT100…125F3, FT3	3 poles	OTS125T3
	4th pole	OTS125T1

Conversion kits for front operated switch combinations



OWP6D40



OWP6D80

6 and 8-pole switch mechanism

Parallel attachment for connecting two 3- or 4 Pole switches.
The switches work simultaneously. Mounted directly on the top of 2 switch-disconnectors, snap-on mounting.
The switch size is printed on stickers for the different switch sizes. The fourth pole or auxiliary contacts can be mounted on the outer side of the combination.

Suitable switches	Order code
OT16...40	OWP6D40
OT63...80	OWP6D80
OT100...125	OWP6D125

Order shaft and handle seperately for D80 - D125

6 - 8 pole conversion ordering example

Selector handle								
OWP6D125	+	OT125F3 x2	+	OTS125T3 x2	+	OXP6X...	+	OHB45J6
Switch mech	+	Switch	+	Shroud (optional)	+	Shaft	+	Handle

Load break switches

Accessories: Switch-disconnectors OT16…125



OWC6D40



OWC6D125



OESAZW2

Change-over switch mechanism

Two switches (3 or 4-pole) are connected with a mechanism operating between I-O-II -positions. The modular change-over switches can be built by adding a compact snap-on kit on the top of two switch-disconnectors. The kits do not require any additional foot print area, only the height is increased 12 mm.

Suitable for switches	Shaft distance [mm]	Order code
Change-over kits		
OT16…40		OWC6D40
OT63…80		OWC6D80
OT100…125		OWC6D125
Attachment levers		
OT16…160	90+(0…10)x15	OESAZW1

See the table of the handles and shafts included in the conversion kits on the following spread.
Order shaft and handle seperately for D80 - D125

Changeover kit ordering example

Selector handle								
OWC6D125	+	OT125F3 x2	+	OTS125T3 x2	+	OXP6X…	+	OHB45J6
Changover mech	+	Switches	+	Shroud (optional)	+	Shroud	+	Handle

Manual switch-disconnectors OT160...4000, IEC

Technical data

				Switch type						
Technical data according to IEC 60947-3				**OT160EV**	**OT200E**	**OT250E**	**OT315E**	**OT400E**	**OT630E**	**OT800E**
Rated insulation voltage and rated operational voltage AC-20, DC-20	Pollution degree 3		V	1 000	1 000	1 000	1 000	1 000	1 000	1 000
Dielectric strength		50 Hz 1min.	kV	10	10	10	10	10	10	10
Rated impulse withstand voltage			kV	12	12	12	12	12	12	12
Rated thermal current and rated operational current AC-20, DC-20	In open air		A	200	200	250	315	400	630	800
in ambient 40 °C[4]	In enclosure		A	160	200	250	315	400	630	800
...with minimum cable cross section		Cu	mm^2	70	95	120	185	240	2x185	2x240
Rated operational current, AC-21A		≤ 500 V	A	200	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
		1000 V	A	160	200	250	315	400	630	800
Rated operational current, AC-22A		≤ 500 V	A	200	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
		1000 V	A	160	200	250	315	400	630	800
Rated operational current, AC-23A		≤ 500 V	A	160	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
		1000 V	A	135	135	135	200	200	400	400
Rated operational current / poles in series, DC-21A[1]		24...110 V	A	160/2	200/2	250/2	315/1[2]	400/1[2]	630/1	800/1
		220 V	A	160/2	200/2	250/2	315/2[2]	400/2[2]	630/1	800/1
		440 V	A	160/3	200/3	250/3	315/3	360/3	630/2	800/2
		660 V	A	160/4	200/4	230/4[2]	315/4	360/4	630/4[2]	650/4[2]
Rated operational current / poles in series, DC-21B		800 V	A	160/5	200/5	250/5	315/5	400/5	600/5	600/5
		1000 V	A	160/6	200/6	250/6	315/6	400/6	600/6	600/6
Rated operational power, AC-23[3]		230 V	kW	48	60	75	100	132	200	250
		400 V	kW	80	110	140	160	220	355	450
		415 V	kW	88	110	145	180	230	355	450
		500 V	kW	112	132	170	220	280	400	560
		690 V	kW	144	200	250	315	400	630	800
Rated breaking capacity		≤ 500 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
in category AC-23		690 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
Rated conditional short-circuit current I_{cc}	I_{cc} (r.m.s.)	100 kA, 500 V	kA	40.5	40.5	40.5	61.5	61.5	90	90
(r.m.s.) and corresponding max. allowed	Max. OFA_ fuse size	gG/aM	A	315/315	315/315	315/315	500/450	500/450	800/1 000	800/1 000
cut-off current $\hat{i}_c$. The cut-off current $\hat{i}_c$.	I_{cc} (r.m.s.)	80 kA, 690 V	kA	40.5	40.5	40.5	59	59	83.5	83.5
refers to values listed by fuse manufacturers (single phase test acc. to IEC60269)	Max. OFA_ fuse size	gG/aM	A	355/315	355/315	355/315	500/500	500/500	800/1 000	800/1 000
Rated short-time withstand current	r.m.s. value I_{cw}	≤ 1000 V 0,15 s	kA	15	15	15	31	31	38	38
		≤ 1000 V 0,25 s	kA	15	15	15	24	24	36	36
		≤ 1000 V 1 s	kA	8	8	8	15	15	20	20
Rated short-circuit making capacity	Peak value I_{cm}	≤ 1000 V	kA	30	30	30	65	65	80	80
Rated capacitor power when no initial charge on the capacitor	The capacitor ratings are limited by the fuse links	415 V	kVAr	80	100	115	145	180	250	310
		500 V	kVAr	96	120	135	175	215	300	375
		690 V	kVAr	128	160	190	250	325	450	550
Power loss / pole	With rated current		W	3.2	4	6.5	6.5	10	25	40
Mechanical endurance	Divide by two for oper. cycles		Oper.	20 000	20 000	20 000	16 000	16 000	10 000	10 000
Weight without accessories	3-pole switch		kg	1.2	1.2	1.2	2.2	2.2	5.2	5.2
Terminal bolt size	Metric thread diameter x length		mm	M8x25	M8x25	M8x25	M10x30	M10x30	M12x40	M12x40
Terminal tightening torque	Counter torque required		Nm	15-22	15-22	15-22	30-44	30-44	50-75	50-75
Operating torque	3-pole switch disconnector		Nm	7	7	7	16	16	27	27

1) Further ratings on request.
2) Category B.
3) These values are given for guidance and may vary acc. to the motor manufacturer.
4) Acc. to IEC 60947-1, § 6.1.1.

Manual switch-disconnectors OT160...4000, IEC

Technical data

				Switch type						
Technical data according to IEC 60947-3				**OT1000E**	**OT1250E**	**OT1600E**	**OT2000E**	**OT2500E**	**OT3200E**	**OT4000E**
Rated insulation voltage and rated operational voltage AC20/DC20	Pollution degree 3		V	1 000	1 000	1 000	1 000	1 000	1 000	1 000
Dielectric strength		50 Hz 1min.	kV	10	10	10	10	10	10	10
Rated impulse withstand voltage			kV	12	12	12	12	12	8	8
Rated thermal current and rated operational current AC20/DC20	Ambient 40°C[1]	In open air	A	1 000	1 250	1 600	2 000	2 500	3 200	3 800, 4000[5]
	Ambient 40°C[1]	In enclosure	A	1 000	1 250	1 600				
..with minimum conductor cross section	Cu		mm^2	2x300	2x400	2x500	3x500	4x500	4x1 000	5x1 000
Rated operational current, AC-21A		up to 690 V	A	1 000	1 250	1 600	2 000[2]	2 500[2]	3 200[2]	3 800
		1000 V	A	1 000	1 250	1 600				
Rated operational current, AC-22A		up to 415 V	A	1 000	1 250	1 600	2 000[2]	2 500[2]	3 200[2]	3 800[2], 4000[2] [5]
		500 - 690 V	A	1 000	1 250	1 600	2 000[2] [3]	2 500[2] [3]		
Rated operational current, AC-23A		up to 500 V	A	1 000	1 250	1 250				
		690 V	A	1 000	1 250	1 250				
Rated operational power, AC-23A (These values are given for guidance and may vary acc. to the motor manufacturer)		400...415 V	kW	560	710	710				
		440 V	kW	630	800	800				
		500 V	kW	710	900	900				
		690 V	kW	1 000	1 200	1 200				
Rated breaking capacity, AC-23A		up to 500 V	A	10 000	10 000	10 000				
		690 V	A	10 000	10 000	10 000				
Rated conditional short-circuit current I_{cc} (r.m.s.) and corresponding max. allowed cut-off current $\hat{i}_c$. The cut-off current $\hat{i}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	I_{cc} (r.m.s.)	80 kA	kA	100	100	100				
	Max. OFA_ fuse size gG/aM	≤ 415 V	A	1 250/ 1 250	1 250/ 1 250	1 250/ 1 250	1 250/ 1 250			
	I_{cc} (r.m.s.)	100 kA	kA	106	106	106				
	Max. OFA_ fuse size gG/aM	≤ 500 V	A	1 250/ 1 250	1 250/ 1 250	1 250/ 1 250	1 250/ 1 250			
Rated short-time withstand current	r.m.s. -value I_{cw}	690 V, 0.25 s	kA	50	50	50	80	80	80	80, 100[5]
		690 V, 1 s	kA	50	50	50	55	55	65	80
Rated short circuit making capacity	Peak value I_{cm}	690 V	kA	110[4]	110[4]	110[4]	176	176	176	176, 220[5]
	Max. distance from switch frame to nearest busbar/ cable support		mm	150	150	150	150	150	150	150
Rated capacitor power when no initial charge on the capacitor	The capacitor ratings are limited by the fuse links	415 V	kVAr	460	575	575				
		500 V	kVAr	550	690	690				
		690 V	kVAr	750	950	950				
Power loss/pole	At rated operational current		W	19	29	48	55	85	95	130
Mechanical endurance	Divide by two for operation cycles		Oper.	6 000	6 000	6 000	6 000	6 000	5 000	5 000
Weight without accessories	3-pole		kg	14.1	14.1	15.2	22	22	24.7	28.9
	4-pole		kg	18	18	19.5	28	28	32.1	37.7
Terminal bolt size	Metric thread diameter x length		mm	M12x50	M12x50	M12x60	M12x60	M12x60	M12x60	M12x60
Terminal tightening torque	Counter torque required		Nm	50...75	50...75	50...75	50...75	50...75	50...75	50...75
Operating torque	3-pole switch-disconnector		Nm	65	65	65	65	65	65	65

1) Acc. to IEC60947-1, § 6.1.1.
2) IEC 947-3, utilization category B, infrequent operation.
3) Phase barriers or terminal shrouds must be used on both sides of the switch at voltages ≥ 500 V.
4) The value is 92 kA for 4-pole switch-disconnectors.
5) OT4000E_W8

Manual switch-disconnectors OT160...4000

Type designation key

Type codes

Understanding the type code keys below will help you quickly identify the correct product for your needs. The simple naming system allows you to see the products type, Ampere rating, standard classification and number of poles, all in one glance.

Explanation of the types OT160..4000

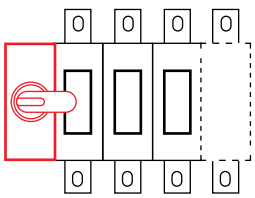
OT	400	E	03	W	P
1	2	3	4	5	6

1	**Brand**
OT:	ABB switch-disconnector brand
OTM:	ABB motorized switch-disconnector brand
2	**Switch size / Ampere rating**
160...4000:	160 A...4000 A
3	**Mounting / Construction**
E, EV:	Front operated, base mounting, IEC
U:	Front operated, base mounting, UL/CSA
ES, EVS:	Side operated, base mounting, IEC
EM:	Earthing switches, bottom mounted, IEC, the mechanism is turned 90 degrees for space saving
EP:	Earthing switches, base mounted, IEC
4	**Number of poles and placing of the operating mechanism**
03:	3-poles, operating mechanism at the left end of the switch
04:	4-poles, operating mechanism at the left end of the switch
12:	3-poles, operating mechanism between the poles
22:	4-poles, operating mechanism between the poles
30:	3-poles, operating mechanism at the right end of the switch
40:	4-poles, operating mechanism at the right end of the switch
5	**Construction 1**
K:	With direct mounted handle
W:	With wide phase distance
6	**Construction 2**
P:	External handle and shaft included

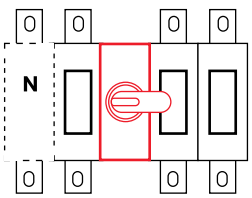
Pole configuration table

The various placing options of the operating mechanism in relation to the 3 or 4 poles is illustrated below. The operating mechanism may be placed at the end of the switch or between poles.

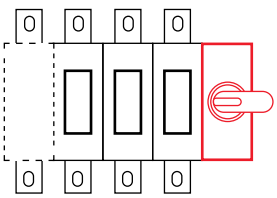
Front operated
Configuration 03, 04:



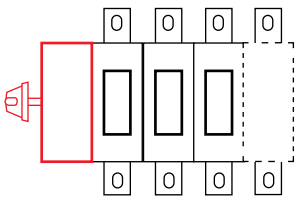
Front operated
Configuration 12, 22:



Front operated
Configuration 30, 40:



Side operated
Configuration 03, 04:



Load break switches

Switch-disconnectors OT160…4000



OT315…400E03P



OT630…800E03P



OT1000…1250E03P



OT3200…4000E03P



OT630…800E12P



OT1600E12P

Switch-disconnectors, with pistol handle

Including an IP65 black I-O/ON-OFF plastic handle and shaft as standard. Padlockable with 3 padlocks in O-OFF position, door interlock in I-ON position.
Screw fixing from the back side of the handle. No screws on the front ensures double insulation. The shaft is adjustable for a range of installation depths. 4 Pole version available by mounting a 4th pole accessory.

In A	Rated operational current AC22…23 – 415V A/A	Order code
3 Poles, Mechanism on the left		
160	160	OT160G03
160	200/160	OT160EV03P
200	200/200	OT200E03P
250	250/250	OT250E03P
315	315/315	OT315E03P
400	400/400	OT400E03P
630	630/630	OT630E03P
800	800/800	OT800E03P
1000	1000/1000	OT1000E03P
1250	1250/1250	OT1250E03P
1600	1600/1250	OT1600E03P
2000	2000/-	OT2000E03P
2500	2500/-	OT2500E03P
3200	3200/-	OT3200E03P
4000	3800/-	OT4000E03P
3 Poles, Mechanism between poles		
160	200/160	OT160EV12P
200	200/200	OT200E12P
250	250/250	OT250E12P
315	315/315	OT315E12P
400	400/400	OT400E12P
630	630/630	OT630E12P
800	800/800	OT800E12P
1000	1000/1000	OT1000E12P
1250	1250/1250	OT1250E12P
1600	1600/1250	OT1600E12P
2000	2000/-	OT2000E12P
2500	2500/-	OT2500E12P

4 pole switch ordering example

Selector handle				
OT250E03P	+	OTZ250E	+	OTS250G1L
3P switch	+	Fourth Pole	+	Shrouds

Shafts, handles and terminals included as standard

Suitable for switches	Included shaft	Included handle	Included terminals
OT160EV…250_P	OXP6X210	OHB65J6	M8x25
OT315…400_P	OXP12X185	OHB95J12	M10x30
OT630…800_P	OXP12X185	OHB125J12	M12x40
OT1000…1250_P	OXP12X280	OHB274J12	M12x50
OT1600…4000_P	OXP12X280	OHB274J12	M12x60

STOCK | INDENT

Manual switch-disconnectors OT160...4000, IEC

Ordering information for side operated switch-disconnectors



OT160EVS04K
OT200...250ES04K



OT630...800ES03K



OT630...800ES04



OT630...800ES04K

Side operated switch-disconnectors, base mounting, IEC

Including terminal bolt-kit. In OT_K -types a black ON-OFF direct mount handle as standard. The handle is padlockable in the OFF-position.

Open air thermal current I_{th} [A]	Rated operat. currents AC22A/AC23A 400...415V [A/A]	Order code
200	200/160	OT160EVS03
200	200/160	OT160EVS04
200	200/200	OT200ES03
200	200/200	OT200ES04
250	250/250	OT250ES03
250	250/250	OT250ES04
315	315/315	OT315ES03
315	315/315	OT315ES04
400	400/400	OT400ES03
400	400/400	OT400ES04
630	630/630	OT630ES03
630	630/630	OT630ES04
800	800/800	OT800ES03
800	800/800	OT800ES04

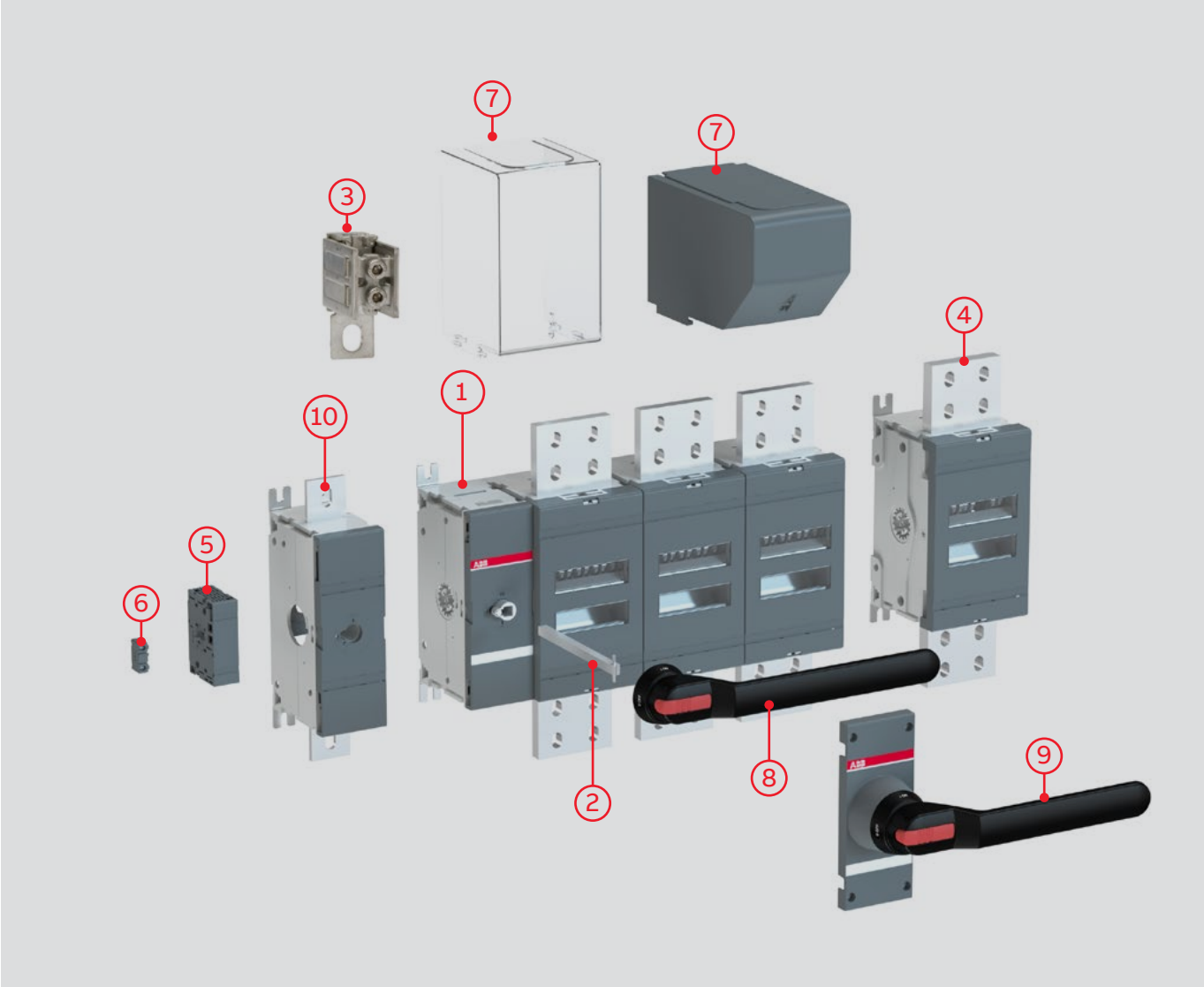
Note:
- Different pole configuration available e.g. OT400ES30P
- Left or right side switch configuration ES03P or ES30P

Ordering example

Selector handle						
OT200U_	+	OXP6X210	+	OHB65J6	+	M8x25
OT400U_	+	OXP12X185	+	OHB95J12	+	M10x30
OT600U_	+	OXP12X185	+	OHB125J12	+	M12x40
OT800U...2000U_	+	OXP12X280	+	OHB274J12	+	M12x60
Suitable for switches	+	Shaft	+	Handle	+	Terminal bolt kits included

Note: Direct mount handle + shaft place 'K' end of part number...**ES03K.**

Manual switch-disconnectors OT160...4000
Ordering information



Accessory guide for OT2000...4000

1. Switch-disconnector
2. Extended shaft
3. Terminal clamp
4. Fourth pole
5. Module for auxiliary contact
6. Auxiliary contact
7. Terminal shroud
8. Pistol handle
9. Direct mounting handle
10. Datachable neutral link

Please note that listed accessories are not automatically included in your order.

Load break switches

Accessories: Switch-disconnectors OT160…4000


OHB_


OHB274_

Pistol handle

Forwarded handle, IP65. Screw fixing from the back side of the handle. No screws on the front ensures double isolation.
Indication I-O/ON-OFF. Padlockable with 3 padlocks in O-OFF position, door interlock in I-ON position.
Shaft to be ordered separately.

Suitable switches	Handle length mm	Suitable shaft mm	Colour	Order code
OT160EV...250	65	6	Black	OHB65J6
			Red-Yellow	OHY65J6
OT315...400	95	12	Black	OHB95J12
			Red-Yellow	OHY95J12
OT630...800	125	12	Black	OHB125J12
			Red-Yellow	OHY125J12
OT1000...4000	274	12	Black	OHB274J12


OHM65L6

Stainless steel pistol handle

Forwarded handle, IP66. Screw fixing from the back side of the handle. No screws on the front ensures double insulation.
Indication I-O/ON-OFF. Padlockable with 3 padlocks in O-OFF position, door interlock in I-ON position.
Shaft to be ordered separately.

Suitable switches	Handle length mm	Suitable shaft mm	Order code
OT160EV...250	65	6	OHM65L6
OT315...800	125	12	OHM125L12
	175	12	OHM175L12
OT1000...4000	275	12	OHM275L12



OTV400EK

Direct mounted pistol handle

Includes a shaft and a mechanism cover.
Indication I-O-TEST/ON-OFF-TEST. Padlockable with 3 padlocks in O-OFF position.

Suitable switches	Handle length mm	Order code
OT160EV...250	65	OTV250EK
OT315...400	95	OTV400EK
OT630...800	125	OTV800EK
OT1000...4000	274	OTV1000EK

Load break switches

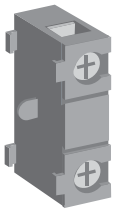
Accessories: Switch-disconnectors OT160…4000


OXP6X_


OXP12X_

Shafts

Suitable switches	Shaft length mm	Order code
OT160EV…250	150	OXP6X150
	210	OXP6X210
	265	OXP6X265
	290	OXP6X290
	360	OXP6X360
	430	OXP6X430
OT315…4000	166	OXP12X166
	185	OXP12X185
	250	OXP12X250
	280	OXP12X280
	325	OXP12X325
	395	OXP12X395
	465	OXP12X465
	535	OXP12X535


OA_


OEA28

Auxiliary contact blocks

IP20. Snap-on mounted inside of the switch. I=16A, cable cross section max. 2 x 2.5mm^2
OT160EV…250: Max. 4 test contacts or 2 test contacts + 2 test indication contacts.
OT315…800: Max. 4 test contacts + 4 test indication contacts. Switches with _P handle: 4 + 4 auxiliary contacts, with _K handle: 2 + 4 auxiliary contacts.
OT1000…4000: Max 4 test indication contacts + 6 test contacts + 2 early operation test contacts.
The test contacts can be used as standard auxiliary contacts as well.
The ‘test’ contacts operate in ON- and OFF-positions as well as when the handle is turned to TEST-position = 45 degrees over the OFF-position.
The ‘test indication’ contacts operate only when the handle is turned to TEST-position.

Suitable for	Description	Order code
OT160EV…4000	1 N.O.	OA1G10[1)]
	1 N.C.	OA3G01[2)]

Note:
1) Early break contact
2) Early make contact

Additional auxiliary contact case

Screw mounted to the left side of the switch. Auxiliary contacts not included.

Suitable for	Description	Order code
OT160EV…4000	Max. 8 additional auxiliary contact blocks inside the OEA28 module	OEA28

Load break switches

Accessories: Switch-disconnectors OT160…4000



OTZ800E

Fourth poles

IP20. Mountable on both sides of the switch. Simultaneous function with main contacts.

Suitable for	Order code
OT160EV…250 (3 poles)	OTZ250E
OT1315…400 (3 poles)	OTZ400E
OT630…800 (3 poles)	OTZ800E
OT1000…1250 (3 poles)	OTZ1250E
OT1600 (3 poles)	OTZ1600E
OT2000…2500 (3 poles)	OTZ2500E
OT3200…4000 (3 poles)	OTZ4000E



OXN_

Neutral links

Detachable, mounted separately to the base plate.

Suitable for	Order code
OT160EV…250	OXN250
OT315…400	OXN400
OT630…800	OXN800T
OT1000…4000	OXN1250T



OTS1600G1L



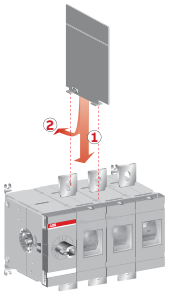
OTS1600G1S

Terminal shrouds

Snap-on mounted. Pack with 3 pieces of single pole shrouds, IP3X. Grey plastic.
For full switch disconnector protection 2 times the same part number should be ordered.

Suitable for	Description	Order code
OT160EV…250	Long type	OTS250G1L/3
	Short type	OTS250G1S/3
OT315…400	Long type	OTS400G1L/3
	Short type	OTS400G1S/3
OT630…800	Long type	OTS800G1L/3
	Short type	OTS800G1S/3
OT1000…1600	Long type	OTS1600G1L/3
	Short type	OTS1600G1S/3

OTS…G1L/4 4P shrouds



Phase separators

Snap-on mounted. Grey plastic plate for maintaining extra clearance between the phases without terminal shrouds.

Suitable for	Order code
OT630…800	OTB800/6
OT1000…2500	OTB1600/6

Load break switches

Accessories: Switch-disconnectors OT160…4000

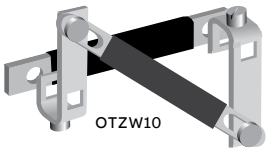
Conversion kits for front operated switch combinations

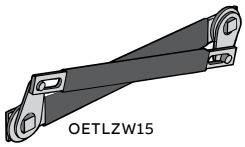


OESAZW2

Attachment levers for connecting two 3- or 4 Pole switches
Attachment levers provided with holes, enabling different shaft distances.
The combination switches can be mounted either horizontally or vertically.
Two 3 or 4 Pole switches needed. Handle order separately.

Suitable switches	Distance mm	Order code
OT160EV…250	45+(0…13)x15 mm	OESAZW2
OT315…800	60+(0…19)x20 mm	OETLZW9


OTZW10


OETLZW15

Mechanical interlock mechanism
Prevents one switch from moving to ON-position, if the other is not in OFF-position.
When mounted upside down, prevents one switch from moving to OFF-position, if the other is not in ON-position. (UPS-usage, make-before-break).

Suitable switches	Distance mm	Order code
OT160…250	190	OTZW10
OT315…400	250	OETLZW14
OT315…800	300	OETLZW3
OT315…4000	500	OETLZW15

For more infromation on locking accessories, please refer to main Technical Catalogue 1SCC301020C0201

Ordering information for locking accessories


OHZX4

Door interlock bracket for pistol handles
Prevents defeating the door interlock.

Suitable for switches	Order code
For pistol handles OH_45…275	OHZX4


OETLZW5

Cam attachment
Cam attachment for Castell, Lowe & Fletcher and Ronis interlock. Lock, handle or shaft are not included. Mounting on OXP shaft working together with external OH door handle.

Suitable for switches	Order code
OT315…4000	OETLZW5

Accessories for manual switch-disconnectors OT160...4000

Ordering information for mechanical interlocks



OTZT1A



OTZT2A



OTZT3A



OTZL4



PDAL2



PG400S3



PG400S4

Mechanism interlock kits and electrical interlocks

OT160EV... 4000 switch-disconnectors can be interlocked in the OFF-position using padlocks or a mechanical interlock kit mounted on the mechanism.
The diameter of the lock bail can be max 8 mm.

Suitable for switches	Order code
Interlocking in the OFF-position	
OT200U, OT160EV...250	OTZT1A
OT400U, OT315...400E	OTZT2A
OT600U, OT630...800E	OTZT3A
OT800U, OT1000...4000	OTZT4A
Interlocking in the OFF- and ON-positions	
OT200U, OT160EV...250	OTZT1L
OT400U, OT315...400E	OTZT2L
OT600U, OT630...800E	OTZT3L
OT800U, OT1000...4000	OTZT4L

Coils for OTZT_ and OTZM_ electrical interlocks

By installing a coil inside the housing of the interlock kit the switch can be interlocked electrically in the OFF-position or both in the OFF- and ON-positions. The electrical interlock works using the “closed circuit principle”, meaning that when the control voltage is not connected to the coil, the switches provided with A-type interlocks cannot be turned to the ON-position and switches with L-type interlocks cannot be turned to the ON- or OFF-positions.

Suitable for switches	Order code
AC coils	
24 VAC, 60Hz	PDAL2/24AC60Hz
110 VAC, 50Hz	PDAL2/110AC50Hz
110 VAC, 60Hz	PDAL2/110AC60Hz
120 VAC, 60 Hz	PDAL2/120AC60Hz
208 VAC, 60Hz	PDAL2/208AC60Hz
230 VAC, 50Hz	PDAL2/230AC50Hz
240 VAC, 60Hz	PDAL2/240AC60Hz
Technical data for the coil	
Operating voltage	U = 0.8...1.1 x U_n
Operating ambient temperature	- 40°C...+65°C
Power consumption	with AC 6.5 W
	with DC 9 VA

DC coils available e.g. PDA2/24DC

Accessories

Description	Order code
400 AMP 3 pole plug adaptor	PG400S3
400 AMP 4 pole plug adaptor	PG400S4

STOCK | INDENT

Manual change-over switches

Technical data for OT16...125_C

Manual change-over switches

				Switch size						
Data according to IEC 60947-3				**OT16_**	**OT25_**	**OT40_**	**OT63_**	**OT80_**	**OT100_**	**OT125_**
Rated insulation voltage and rated operational voltage AC20/DC20		Pollution degree 3	V	750	750	750	750	750	750	750
Dielectric strength		50 Hz 1min.	kV	6	6	6	6	6	6	6
Rated impulse withstand voltage			kV	8	8	8	8	8	8	8
Rated thermal current and rated operational current AC20/DC20	/ ambient 40°C	In open air	A	25	32	40	63	80	115	125
	/ ambient 40°C	In enclosure	A	25	32	40	63	80	115	125
	/ ambient 60°C	In enclosure	A	20	25	32	50	63	80	100
..with minimum conductor cross section		Cu	mm^2	4	6	10	16	25	35	50
Rated operational current, AC-21A		up to 500 V	A	16	25	40	63	80	100	125
		690 V	A	16	25	40	63	80	100	125
Rated operational current, AC-22A		up to 500 V	A	16	25	40	63	80	100	125
		690 V	A	16	25	40	63	80	100	125
Rated operational current, AC-23A		up to 415 V	A	16	20	23	45	75	80	90
		440 V	A	16	20	23	45	65	65	78
		500 V	A	16	20	23	45	58	60	70
		690 V	A	10	11	12	20	20	40	50
Rated operational current / poles in series, DC-21A		up to 48 V[1]	A	16/1	25/1	32/1	63/1	80/1	100/1	125/1
		110 V	A	16/2	25/2	32/2	63/2	80/2	100/2	125/2
		220 V	A	16/3	25/3	32/3	63/4	63/4	100/4	100/4
		440 V	A	16/4	16/4	16/4	16/4	16/4		
		500 V	A	16/4	16/4	16/4	16/4	16/4		
Rated operational current / poles in series, DC-22A		up to 48 V[1]	A	16/1	25/1	32/1	63/1	80/1	100/1	125/1
		110 V	A	16/2	25/2	32/2	63/2	80/2	100/2	125/2
		220 V	A	16/3	25/3	32/4	45/4	45/4	63/4	80/4
		440 V	A	10/4	10/4	10/4	10/4	10/4		
Rated operational current / poles in series, DC-23A		up to 48 V[1]	A	16/1	25/1	32/1	63/1	80/1	100/1	125/1
		110 V	A	16/2	25/2	32/2	63/2	80/2	100/2	125/2
		220 V	A	16/4	25/4	32/4	45/4	45/4	63/4	63/4
		440 V	A	10/4	10/4	10/4	10/4	10/4		
Rated operational power, AC-23A[2]		230 V	kW	3	4	5,5	11	22	22	22
The kW-ratings are accurate for 3-phase		400 V	kW	7.5	9	11	22	37	37	45
1500 R.P.M. standard asychronous motors		415 V	kW	7.5	9	11	22	37	37	45
		500 V	kW	7.5	9	11	22	37	37	45
		690 V	kW	7.5	9	11	15	18.5	37	45
Rated breaking capacity in category AC-23		up to 415 V	A	128	160	184	360	640	640	720
		500 V	A	128	160	184	360	464	480	560
		690 V	A	80	88	96	160	160	320	400
Rated conditional short-circuit current I_p (r.m.s.) and corresponding max. allowed cut-off current $\hat{i}_c$ (peak) value. The cut-off current $\hat{i}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	I_p (r.m.s.) 50 kA, 415 V	$\hat{i}_c$ (peak)	kA	6.5	6.5	6.5	13	13	16.5	16.5
	Max. OFA_ fuse size	gG/aM	A/A	40/32	40/32	40/32	100/80	100/80	125/125	125/125
	I_p (r.m.s.) 100 kA, 500 V	$\hat{i}_c$ (peak)	kA				17	17		
	Max. OFA_ fuse size	gG/aM	A				100/80	100/80		
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 1s	kA	0.5	0.5	0.5	1	1.5	2.5	2.5
Rated short-time making capacity[3]	I_{cm} (peak)	690 V	kA	0.7	0.7	0.7	1.4	2.1	3.6	3.6
Power loss / pole	With rated current		W	0.3	0.6	1.6	2.8	4.5	4.0	6.3
Mechanical endurance	Number of oper. cycles[4]		Cycles	10 000	10 000	10 000	10 000	10 000	10 000	10 000
Cable size	Cu-wire size suitable		mm^2	0.75-10	0.75-10	0.75-10	1.5-35	1.5-35	10-70	10-70
	for terminal clamps		AWG	18-8	18-8	18-8	14-4	14-4	8-00	8-00
Terminal tightening torque	Counter torque required		Nm	0.8	0.8	0.8	2	2	6	6
Operating torque	Typical for 3-pole switches		Nm	1	1	1	1.2	1.2	2	2
Weight without accessories	3-pole switch		kg	0.25	0.25	0.25	0.64	0.64	0.90	0.90
	4-pole switch		kg	0.31	0.31	0.31	0.70	0.70	1.18	1.18
Data according to UL508 (Listed)										
Current			A	16	25	40	60	80		
Horsepower, 3-phase		200 V	HP	3	7.5	10	15	20		
		208 V	HP	3	7.5	10	15	20		
		240 V	HP	5	7.5	10	15	20		
		480 V	HP	10	15	20	30	40		
		600 V	HP	10	20	25	30	40		

1) Below 48 V, two poles in parallel up to OT80 are recommended particularly in polluted atmosphere
2) These values are given for guidance and may vary according to the motor manufacturer
3) Short circuit duration >50ms, without fuse protection
4) Operating cycle: O - I - O - II - O

Manual change-over switches

Type codes and pole configuration table

Type codes

Understanding the type code keys below will help you quickly identify the correct product for your needs. The simple naming system allows you to see the products type, Ampere rating, standard classification and number of poles, all in one glance.

Explanation of the types OT16..125_C

Option:	**OT40F**		**3**	**C**
Position:	**1**	**2**	**3**	**4**

1	**Brand and Switch size / Ampere rating**
2	**IEC**
3	**Number of the poles**
	3: 3-poles
	4: 4-poles
4	**Change over switch**
	C: I-0-II -operation

Explanation of the types OT160...3200_C

Option:	**OT250**	**E**	**03**	**C**	**-**	**P**
Position:	**1**	**2**	**3**	**4**	**5**	**6**

1	**Brand and Switch size / Ampere rating**
2	**Standard**
	E: IEC
	U: UL
3	**Number of the poles**
	03: 12
	04: 13
	22: 33
4	**Change-over switch**
5	**Operation type**
	Standard change-over switch I-0-II
	L: Closed transition change-over switch I-I+II-II
	F: Fast transition change-over swithc I-0-II
6	**Included handle**
	_(blank): Handle + shaft not included
	P: Pistol handle + shaft
	K: Direct mounted handle

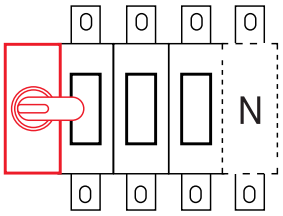
Pole configuration table

The various placing options of the operating mechanism in relation to the 3 or 4 poles is illustrated below. The operating mechanism may be placed at the end of the switch or between poles.

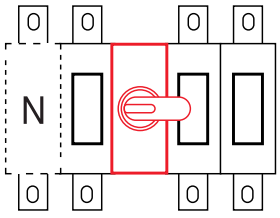
For example:

03: (Without N) 3-poles, operating mechanism at the left end of the switch*
04: (Including N) 4-poles, operating mechanism at the left end of the switch*
12: (Without N) 3-poles, operating mechanism between the poles**
22: (Including N) 4-poles, operating mechanism between the poles**
30: 3-poles, operating mechanism at the right end of the switch
40: 4-poles, operating mechanism at the right end of the switch

*Configuration 03 & 04:



**Configuration 12 & 22:



Change-over switches OT16...125_C


OT16...40F3C


OT63...80F3C


OT100...125F3C

Front operated change-over switch, I-O-II operation, open transition
Base and DIN rail mounted.Included protected terminal clamps, IP20. Direct knob handle provided as **standard up to 40A only.**
Extension shaft (OXP6X_) and pistol handle (OH_J6E_11) available as an accessory over 40A.
On 4 pole versions the Neutrals are mounted one on the left side and the other on the right side of the change-over.

In A	Rated current and power AC23A - 415V I[A] / P[kW]	Number of poles	Order code
16	16/7.5	3	OT16F3C
		4	OT16F4C
25	20/9	3	OT25F3C
		4	OT25F4C
40	23/11	3	OT40F3C
		4	OT40F4C
63	45/22	3	OT63F3C
		4	OT63F4C
80	75/37	3	OT80F3C
		4	OT80F4C
100	80/37	3	OT100F3C
		4	OT100F4C
125	90/45	3	OT125F3C
		4	OT125F4C

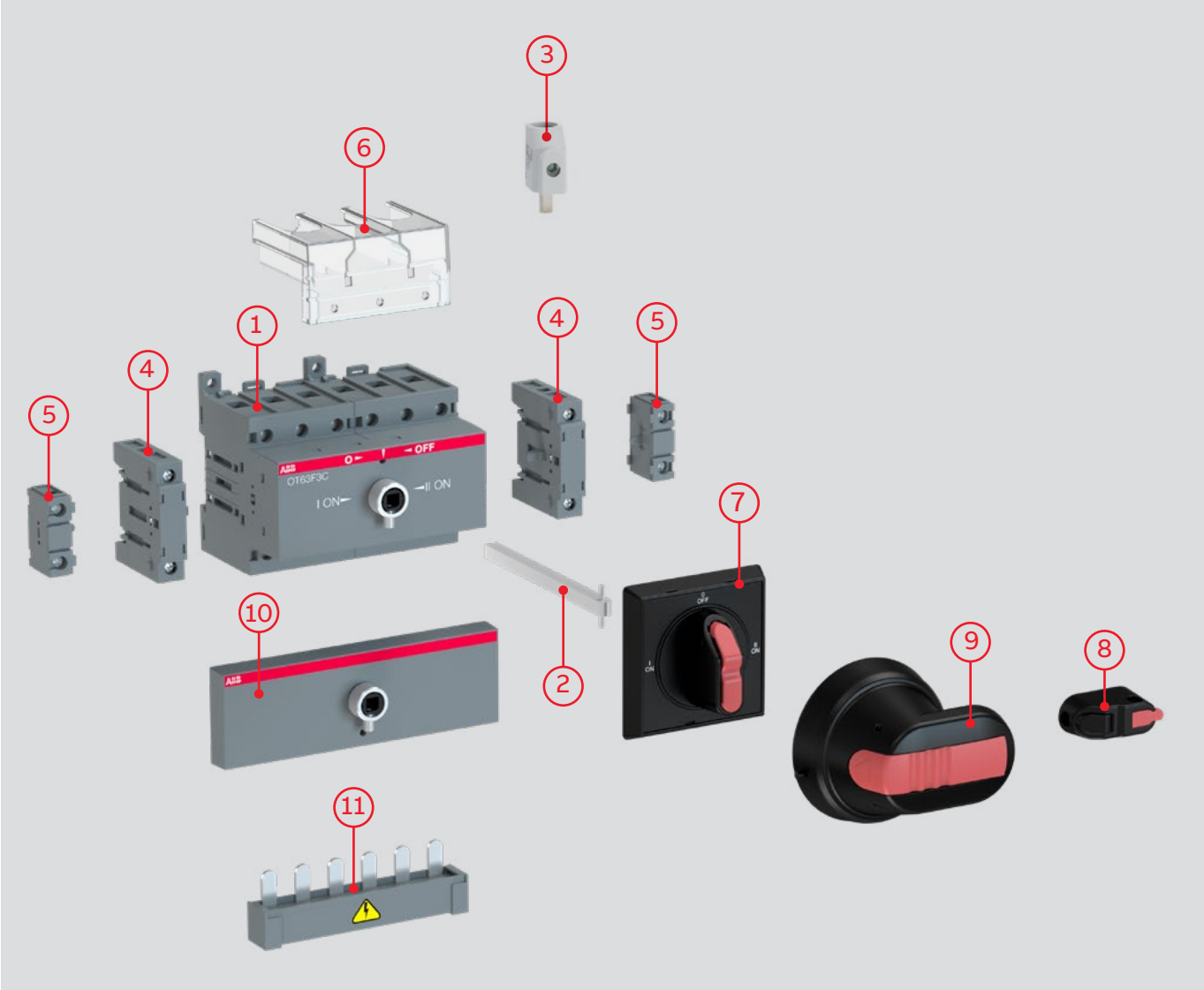
Ordering example

Selector handle										
OT16F3C	+	OHBS2AJE011	+	OXS6x120	+	OTPS40N1	+	OTS40T3	+	OZXA33
Change-over switch	+	Selector handle	+	Shaft	+	Forth Pole	+	Shroud (optional)	+	Connection Bars

Pistol handle										
OT16F3C	+	OHB45J6E311	+	OXS6x150	+	OTPS40N1	+	OTS40T3	+	OZXA33
Change-over switch	+	Pistol handle	+	Shaft	+	Forth Pole	+	Shroud (optional)	+	Connection Bars

Manual change-over switches

Ordering information for OT16...OT125_C



Manual change-over switch accessory guide

1. Manual change-over switch
2. Extended shaft
3. Terminal clamp
4. Fourth pole
5. Auxiliary contact
6. Terminal shroud
7. Selector handle, black or red/yellow
8. Direct handle knob
9. Pistol handle, black or red/yellow
10. Conversion kit
11. Parallel connection kit

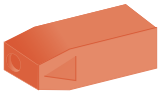
Please note that listed accessories are not automatically included in your order.
See next page for recommendations.

Load break switches

Accessories: Change-over switches OT16…125_C



OHRS2_



OHRS3_

Optional handle knobs, for base and DIN rail mounted switches

Mounted directly to the switch, no shaft required. IP20.

Suitable switches	Handle description	Knob length mm	Colour	Order code
OT16…80_C	Padlockable on O-OFF position	40	Black	OHBS2
			Red	OHRS2
	Non padlockable	39	Black	OHBS3
			Red	OHRS3
OT100…125_C	Non padlockable	72	Black	OHBS9
			Red	OHRS9



OHBS2_

Optional Selector type handles, for base and DIN rail mounted switches

For shaft diameter 6mm (to be ordered separately, type OXS6X_), door drilling 22.5mm. IP65
Indication I-O-II. Padlockable in O-position with maximum 3 padlocks.
Door interlock in I- and II- position and when padlocked in O-position.

Suitable switches	Knob length mm	Colour	Order code
OT16…125_C	45	Black	OHBS2AJE011



OHB_

Optional Pistol handle, for base and DIN rail mounted switches

Forwarded handle, IP65. Screw fixing from the back side of the handle. No screws on the front ensures double insulation.
Indication I-O-II. Padlockable with 3 padlocks.
For shaft diameter 6mm (to be ordered separately, type OXP6X_).

Suitable switches	Handle description	Knob length mm	Colour	Order code
OT16…125_C	Padlockable in all positions	45	Black	OHB45J6E311
	Padlockable in the O-position	45	Black	OHB45J6E011
		65	Black	OHB65J6E011

Shafts

Suitable switches	Shaft length mm	Order code
For Selector type handles Shaft diameter 6mm		
OT16…125_C	120	OXS6X120
	180	OXS6X180
	250	OXS6X250
	330	OXS6X330
For Pistol type handle Shaft diameter 6mm		
OT16…125_C	150	OXP6X150
	210	OXP6X210
	265	OXP6X265
	290	OXP6X290
	360	OXP6X360
	430	OXP6X430



OXS6X_



OXP6X_

STOCK | INDENT

Load break switches

Accessories: Change-over switches OT16…125_C



OA1G_

Auxiliary contact blocks

IP20. Snap-on mounted to both sides of the switch. I=16A, cable cross section max. 2x2.5mm². Early-break type OA1G10. OA2G11 not mountable on 4 pole versions.

Suitable switches	Contact functions	Installation side	Maximum auxiliaries	Order code
OT16…125_C	1 N.O.	Right	2	OA1G10
		Left	2	OA7G10
	1 N.C.	Right	2	OA8G01
		Left	2	OA1G01
OT63…125F3C	1 N.O. + 1 N.C.	Either	4	OA2G11



OTS63T3



OTS63T1

Terminal shrouds

IP20. Snap-on mounted, transparent. Suitable for upper and lower terminals.
For full protection switch 2 times the same part number required. For 4 poles protection, 3 poles shroud and 1 pole shroud required.

Suitable switches	Number of poles	Order code
OT16…40_C	3 poles	OTS40T3
	4th pole	OTS40T1
OT63…80_C	3 poles	OTS63T3
	4th pole	OTS63T1
OT100…125_C	3 poles	OTS125T3
	4th pole	OTS125T1



OTP_63_

Fourth poles

IP20. Mountable on both sides of the switch. Simultaneous function with main contacts.

Suitable switches	Installation side	Order code
OT16…40F3C	Left	OTPS40FPN1
OT63…80F3C	Either	OTPS80FP
OT100…125F3C	Either	OTPS125FP



Parallel connection kits

Finger protected connection bars for parallel connection of the upper or lower terminals. The bars accept additional cables, the maximum size is stated below.

Suitable switches	Cable cross section (mm²)	Order Code
OT16…40F3C	6 (fine stranded), 10 (stranded)	OZXA33
OT16…40F4C	6 (fine stranded), 10 (stranded)	OZXA32
OT63…80F3C	25	OZXA38
OT63…80F4C	25	OZXA39
OT100…125F3C	50	OZXA40
OT100…125F4C	50	OZXA41

Manual change-over switches

Technical data for OT160...800_C

Manual change-over switches

				Switch size						
Data according to IEC 60947-3				**OT_160_**	**OT_200_**	**OT_250_**	**OT_315_**	**OT_400_**	**OT_630_**	**OT_800_**
Rated insulation voltage and rated operational voltage AC20/DC20		Pollution degree 3	V	1 000	1 000	1 000	1 000	1 000	1 000	1 000
Dielectric strength		50 Hz 1min.	kV	10	10	10	10	10	10	10
Rated impulse withstand voltage			kV	12	12	12	12	12	12	12
Rated thermal current and	/ ambient 40°C	In open air	A	160	200	250	315	400	630	800
rated operational current AC20/DC20	/ ambient 40°C	In enclosure	A	160	200	250	315	400	630	800
..with minimum conductor cross section		Cu	mm^2	70	95	120	185	240	2x185	2x240
Rated operational current, AC-21A		up to 500 V	A	160	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
Rated operational current, AC-22A		up to 500 V	A	160	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
Rated operational current, AC-23A		up to 415 V	A	160	200	250	315	400	630	800
		440 V	A	160	200	250	315	400	630	800
		500 V	A	160	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
Rated operational current / poles in series, DC-21A[6]		≤ 110 V	A	160/2	200/2	250/2	315/1[1]	400/1[1]	630/1	800/1
		220 V	A	160/2	200/2	250/2	315/2[1]	400/2[1]	630/1	800/1
		440 V	A	160/3	200/3	230/3	315/3	360/3	630/2	720/2
		660 V	A	160/4	200/4	200/4	315/4	315/4	630/4[1]	630/4[1]
Rated operational power, AC-23A[2]		230 V	kW	45	60	75	100	132	200	250
The kW-ratings are accurate		400 V	kW	90	110	140	160	220	355	450
for 3-phase 1500 R.P.M. standard		415 V	kW	90	110	145	180	230	355	450
asychronous motors		500 V	kW	110	132	170	220	280	400	560
		690 V	kW	160	200	250	315	400	630	800
Rated breaking capacity in category AC-23		up to 415 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
		500 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
		690 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
Rated conditional short-circuit current	I_p (r.m.s.) 80 kA, 415 V	$\hat{i}_c$ (peak)	kA	40.5	40.5	40.5	59	59	83.5	83.5
I_p (r.m.s.) and cut-off current $\hat{i}_c$ (peak)	Max. OFA_ fuse size	gG/aM	A/A	355/315	355/315	355/315	500/500	500/500	800/1 000	800/1 000
value. The cut-off current $\hat{i}_c$ refers to	I_p (r.m.s.) 100 kA, 500 V	$\hat{i}_c$ (peak)	kA	40.5	40.5	40.5	61.5	61.5	90	90
values listed by fuse manufacturers	Max. OFA_ fuse size	gG/aM	A	315/315	315/315	315/315	500/450	500/450	800/800	800/800
(single phase test acc. to IEC60269).	I_p (r.m.s.) 80 kA, 690 V	$\hat{i}_c$ (peak)	kA	40.5	40.5	40.5	59	59	83.5	83.5
	Max. OFA_ fuse size	gG/aM	A	355/315	355/315	355/315	500/500	500/500	800/1 000	800/1 000
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.15s	kA	15	15	15	31	31	38	38
		690 V 0.25s	kA	15	15	15	24	24	36	36
		690 V 1s	kA	8	8	8	15	15	20	20
Rated short-time making capacity[3]	I_{cm} (peak)[4]	690 V	kA	30	30	30	65	65	80	80
Power loss / pole	With rated current		W	2.4	4	6.5	6.5	10	25	40
Mechanical endurance	Number of oper. cycles[5]		Cycles	8 000	8 000	8 000	8 000	8 000	5 000	5 000
Terminal bolt size	Metric thread diameter x length		mm	M8x25	M8x25	M8x25	M10x30	M10x30	M12x40	M12x40
Terminal tightening torque	Counter torque required		Nm	15-22	15-22	15-22	30-44	30-44	50-75	50-75
Operating torque	3-pole change-over switches		Nm	7	7	7	16	16	27	27
Weight without accessories	Manual change-over switches	3-poles	kg	2.5	2.5	2.5	4.7	4.7	12.8	12.8
		4-poles	kg	3.2	3.2	3.2	5.8	5.8	15.6	15.6
Data according to IEC 60947-6-1										
Class of equipment				PC	PC	PC	PC	PC	PC	PC
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.1s	kA	15	15	15	25	25	38	38
Rated operational current, AC-31B		up to 415 V	A	160	200	250	315	400	630	800
Rated operational current, AC-33B		up to 415 V	A	160	200	250	315	400	630	800

1) Utilization category B
2) These values are given for guidance and may vary acc. to the motor manufacturer
3) Short circuit duration > 50ms, without fuse protection
4) Max. distance from switch frame to nearest busbar / cable support 150 mm
5) Operating cycle: O - I - O - II - O
6) Further ratings on request
7) **1000 V ratings on request**

Manual change-over switches

Technical data for OT1000...3200_C

Manual change-over switches

				Switch size , OT_					
Data according to IEC 60947-3				**OT_1000_**	**OT_1250_**	**OT_1600_**	**OT_2000_**	**OT_2500_**	**OT_3200_**
Rated insulation voltage and rated operational voltage AC20/DC20		Pollution degree 3	V	1 000	1 000	1 000	1 000	1 000	1 000
Dielectric strength		50 Hz 1min.	kV	10	10	10	10	10	10
Rated impulse withstand voltage			kV	12	12	12	12	12	12
Rated thermal current and	/ ambient 40°C	In open air	A	1 000	1 250	1 600	2 000	2 500	3 200
rated operational current AC20/DC20	/ ambient 40°C	In enclosure	A						
..with minimum conductor cross section		Cu	mm^2	2x300	2x400	2x500	3x500	4x500	4x1000
Rated operational current, AC-21A		up to 500 V	A	1 000	1 250	1 600	2 000[5]	2 500[5]	3 200[5]
		690 V	A	1 000	1 250	1 600			
Rated operational current, AC-22A		up to 500 V	A	1 000	1 250	1 600			
		690 V	A	1 000	1 250	1 600			
Rated operational current, AC-23A		up to 415 V	A	1 000	1 250	1 250			
		440 V	A	1 000	1 250	1 250			
		500 V	A	1 000	1 250	1 250			
		690 V	A	1 000	1 250	1 250			
Rated operational power, AC-23A[1]		230 V	kW	315	400	400			
The kW-ratings are accurate		400 V	kW	560	710	710			
for 3-phase 1500 R.P.M. standard		415 V	kW	560	710	710			
asychronous motors		500 V	kW	710	900	900			
		690 V	kW	1 000	1 200	1 200			
Rated breaking capacity in category AC-23		up to 415 V	A	10 000	10 000	10 000			
		500 V	A	10 000	10 000	10 000			
		690 V	A	10 000	10 000	10 000			
Rated conditional short-circuit current	I_p (r.m.s.) 80 kA, 415 V	$\hat{I}_c$ (peak)	kA	100	100	100			
I_p (r.m.s.) and cut-off current $\hat{I}_c$ (peak)	Max. OFA_ fuse size	gG/aM	A/A	1 250/1 250	1 250/1 250	1 250/1 250			
value. The cut-off current $\hat{I}_c$ refers to	I_p (r.m.s.) 100 kA, 500 V	$\hat{I}_c$ (peak)	kA	106	106	106			
values listed by fuse manufacturers	Max. OFA_ fuse size	gG/aM	A	1 250/1 250	1 250/1 250	1 250/1 250			
(single phase test acc. to IEC60269).									
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.15s	kA	50	50	50	50	50	
		690 V 0.25s	kA	50	50	50	50	50	
		690 V 1s	kA	50	50	50	55	55	65
Rated short-time making capacity[2]	I_{cm} (peak)[3]	690 V	kA	92	92	92	110	110	143
Power loss / pole	With rated current		W	19	29	48	55	85	95
Mechanical endurance	Number of oper. cycles[4]		Cycles	3 000	3 000	3 000	2 000	2 000	2 000
Terminal bolt size	Metric thread diameter x length		mm	M12x60	M12x60	M12x60	M12x60	M12x60	M12x100
Terminal tightening torque	Counter torque required		Nm	50-75	50-75	50-75	50-75	50-75	50-75
Operating torque	3-pole change-over switches		Nm	78	78	78	78	78	80
Weight without accessories	Manual change-	3-poles	kg	32.3	32.3	34.8	48	48	57
	over switches	4-poles	kg	40.2	40.2	43.3	60	60	72
Data according to IEC 60947-6-1									
Class of equipment				PC	PC	PC	PC	PC	
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.1s	kA	50	50	50	50	50	
Rated operational current, AC-31B		up to 415 V	A	1 000	1 250	1 600	2 000	2 000	
Rated operational current, AC-33B		up to 415 V	A	1 000	1 000	1 000			

1) These values are given for guidance and may vary acc. to the motor manufacturer
2) Short circuit duration > 50ms, without fuse protection
3) Max. distance from switch frame to nearest busbar / cable support 150 mm
4) Operating cycle: O - I - O - II - O
Category AC-21B, up to 415V
5) **1000 V ratings on request**

Change-over switches OT160...3200_C


OT160...250E03CP


OT630...800E03CP


OT630...800E04P


OT1250E03CP


OT3200E03CP

Front operated change-over switch, I-O-II operation, open transition
Base and DIN rail mounted
Included protected terminal clamps, IP20. Direct knob handle provided as standard.
Extension shaft (OXP_X_) and pistol handle (OH_J_E_11) available as an accessory.
Closed transition available change CP to CLP.

In A	Rated current and power AC23A - 415V I[A] / P[kW]	Number of poles	Order Code
160	160/90	3	OT160E03CP
		4	OT160E04CP
200	200/110	3	OT200E03CP
		4	OT200E04CP
250	250/140	3	OT250E03CP
		4	OT250E04CP
315	315/160	3	OT315E03CP
		4	OT315E04CP
400	400/220	3	OT400E03CP
		4	OT400E04CP
630	630/355	3	OT630E03CP
		4	OT630E04CP
800	800/450	3	OT800E03CP
		4	OT800E04CP
1000	1000/560	3	OT1000E03CP
		4	OT1000E04CP
1250	1250/710	3	OT1250E03CP
		4	OT1250E04CP
1600	—	3	OT1600E03CP
		4	OT1600E04CP
2000	—	3	OT2000E03CP
		4	OT2000E04CP
2500	—	3	OT2500E03CP
		4	OT2500E04CP
3200	—	3	OT3200E03CP
		4	OT3200E04CP

Closed transition available 1.1-11-11 OTM...CLP

Ordering example

Selector handle				
OT200C03CP	+	OTZC13	+	OTS250G1T/3
Switch + shift/handle	+	Bridging Bars	+	Shrouds

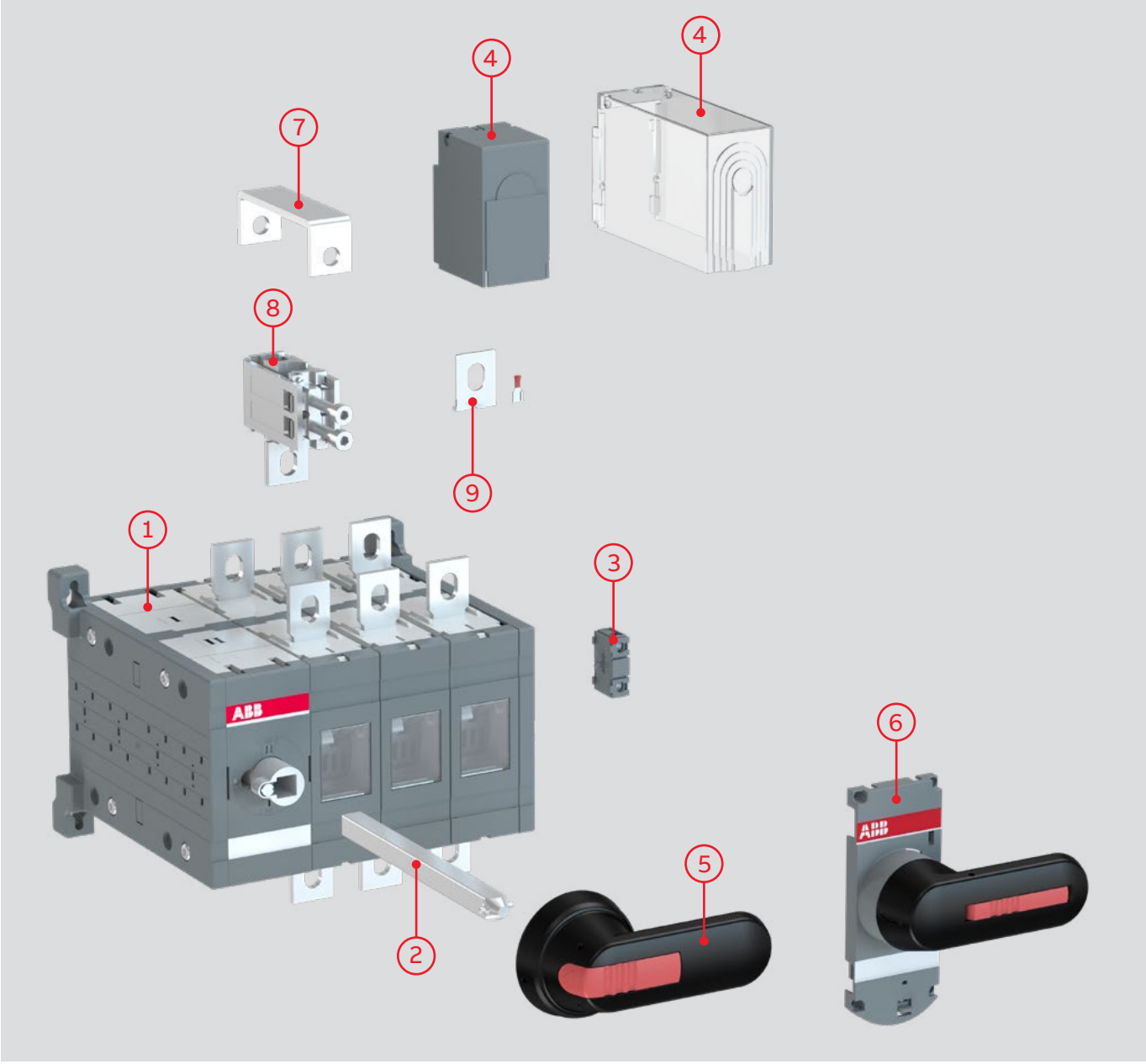
Shafts, handles and terminals included as standard

Suitable for switches	Included shaft	Included handle	Included terminals
OT160...250_CP	OXP6X161	OHB65J6E011	M8x25
OT315...400_CP	OXP12X166	OHB95J12E011	M10x30
OT630...800_CP	OXP12X185	OHB125J12E011	M12x40
OT1000...2500_CP	OXP12X185	OHB200J12PE011	M12x60
OT3200_CP	OXP12X185	OHB200J12PE011	M12x100

STOCK | INDENT

Manual change-over switches

Ordering information for OT160...OT800_C, OT200...OT600U_C



Manual change-over switch accessory guide

1. Manual change-over switch
2. Extended shaft
3. Auxiliary contact
4. Terminal shroud
5. Pistol handle
6. Direct mount handle*
7. Bridging bar
8. Terminal clamp
9. Voltage sensing connector

Please note that not all listed accessories are automatically included in your order.
See next page for recommendations.

Load break switches

Accessories: Change-over switches OT160…3200_C



OHB_



OHB200_P_

Optional pistol handle, for base and DIN rail mounted switches

Forwarded handle, IP65. Screw fixing from the back side of the handle. No screws on the front ensures double insulation.
Indication I-O-II. Padlockable in the O-position with 3 padlocks, door interlock in I- and II-position and when padlocked.
Shaft to be ordered separately.

Suitable switches	Shaft diameter mm	Knob length mm	Colour	Order code
OT160…250_C	6	65	Black	OHB65J6E011
OT315…400_C	12	95	Black	OHB95J12E011
OT630…800_C	12	125	Black	OHB125J12E011
OT1000…3200_C	12	200	Black	OHB200J12PE011



OXP6X_



OXP12X_

Shafts

Suitable switches	Shaft length mm	Order code
OT160…250_C	150	OXP6X150
	210	OXP6X210
	265	OXP6X265
	290	OXP6X290
	360	OXP6X360
	430	OXP6X430
OT315…3200	166	OXP12X166
	185	OXP12X185
	250	OXP12X250
	280	OXP12X280
	325	OXP12X325
	395	OXP12X395
	465	OXP12X465
	535	OXP12X535



OA1G_

Auxiliary contact blocks

IP20. Snap-on mounted on the right side of the switch. I=16A, cable cross section max. 2x2.5mm^2. Maximum 4 auxiliary contact blocks/switch (totally 8 blocks).
Simultaneous action with the main contacts.

Suitable switches	Description	Order code
OT160…3200_C	1 N.O.	OA1G10
	1 N.C.	OA3G01

Load break switches

Accessories: Change-over switches OT160…3200_C



OTS1600G1L



OTS1600G1S

Terminal shrouds

Snap-on mounted. Pack with either 3 or 4 pieces of single pole shrouds, IP3X. Grey plastic. For full change-over protection 4 times the same part number should be ordered.

Suitable switches	Number of poles	Description	Order code
OT160EV...250_C	3	Long type	OTS250G1L/3
		Short type	OTS250G1S/3
	4	Long type	OTS250G1L/4
		Short type	OTS250G1S/4
OT315...400_C	3	Long type	OTS400G1L/3
		Short type	OTS400G1S/3
	4	Long type	OTS400G1L/4
		Short type	OTS400G1S/4
OT630...800_C	3	Long type	OTS800G1L/3
		Short type	OTS800G1S/3
	4	Long type	OTS800G1L/4
		Short type	OTS800G1S/4
OT1000...1600_C	3	Long type	OTS1600G1L/3
		Short type	OTS1600G1S/3
	4	Long type	OTS1600G1L/4
		Short type	OTS1600G1S/4



OTZC13...34



OTZC43...44

Bridging bars

The bridging bars provide a connection link either on the incoming or outcoming side of the switch.

Suitable switches	Number of poles	Order code
OT160...250_C	3	OTZC13
	4	OTZC14
OT315...400_C	3	OTZC23
	4	OTZC24
OT600...800_C	3	OTZC33
	4	OTZC34
OT1000...1250_C	3	OTZC43
	4	OTZC44
OT1600_C	3	OTZC53
	4	OTZC54
OT2000...2500_C	3	OTZC63
	4	OTZC64
OT3200_C	3	OTZC73
	4	OTZC74

Motorized change-over switches

Technical data for OTM16...125_C

Motorized change-over switches

				Switch size				
Data according to IEC 60947-3				**OTM40_**	**OTM63_**	**OTM80_**	**OTM100_**	**OTM125_**
Rated insulation voltage and rated operational voltage AC20/DC20		Pollution degree 3	V	800	800	800	800	800
Dielectric strength		50 Hz 1min.	kV	6	6	6	6	6
Rated impulse withstand voltage			kV	8	8	8	8	8
Rated thermal current and rated operational current AC20/DC20	/ ambient 40°C	In open air	A	40	63	80	115	125
	/ ambient 40°C	In enclosure	A	40	63	80	115	125
	/ ambient 60°C	In enclosure	A	32	50	63	80	100
..with minimum conductor cross section		Cu	mm^2	10	16	25	35	50
Rated operational current, AC-21A		up to 500 V	A	40	63	80	100	125
		690 V	A	40	63	80	100	125
Rated operational current, AC-22A		up to 500 V	A	40	63	80	100	125
		690 V	A	40	63	80	100	125
Rated operational current, AC-23A		up to 415 V	A	40	63	80	80	90
		500 V	A	40	60	60	60	70
		690 V	A	40	40	40	40	50
Rated operational current / poles in series, DC-21A		up to 48 V	A	40/1	63/1	80/1	100/1	125/1
		110 V	A	40/2	63/2	80/2	100/2	125/2
		220 V	A	40/4	63/4	80/4	100/4	100/4
Rated operational current / poles in series, DC-22A		up to 48 V	A	40/1	63/1	80/1	100/1	125/1
		110 V	A	40/2	63/2	80/2	100/2	125/2
		220 V	A	40/4	63/4	80/4	80/4	80/4
Rated operational current / poles in series, DC-23A		up to 48 V	A	40/1	63/1	80/1	100/1	125/1
		110 V	A	40/2	63/2	80/2	100/2	125/2
		220 V	A	40/4	63/4	63/4	63/4	63/4
Rated operational power, AC-23A[1]		230 V	kW	7.5	15	22	22	22
The kW-ratings are accurate for 3-phase 1500		400 V	kW	18.5	30	37	37	45
R.P.M. standard asychronous motors		415 V	kW	18.5	30	37	37	45
		500 V	kW	22	37	37	37	45
		690 V	kW	37	37	37	37	45
Rated breaking capacity in category AC-23		up to 415 V	A	320	504	640	640	720
		500 V	A	320	480	480	480	560
		690 V	A	320	320	320	320	400
Rated conditional short-circuit current I_p (r.m.s.) and corresponding max. allowed cut-off current $\hat{i}_c$ (peak) value. The cut-off current $\hat{i}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	I_p (r.m.s.) 50 kA, 415 V	$\hat{i}_c$ (peak)	kA	16.5	16.5	16.5	16.5	16.5
	Max. OFA_ fuse size	gG/aM	A/A	125/125	125/125	125/125	125/125	125/125
	I_p (r.m.s.) 18 kA, 690 V	$\hat{i}_c$ (peak)	kA	11	11	11	11	11
	Max. OFA_ fuse size	gG	A	125	125	125	125	125
	I_p (r.m.s.) 50 kA, 690 V	$\hat{i}_c$ (peak)	kA	10	10	10	10	10
	Max. OFA_ fuse size	gG/aM	A/A	63/63	63/63	63/63	63/63	63/63
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 1s	kA	2.5	2.5	2.5	2.5	2.5
Rated short-time making capacity[2]	I_{cm} (peak)	690 V	kA	3.6	3.6	3.6	3.6	3.6
Power loss / pole	With rated current		W	1.6	2.8	3.5	4.0	6.3
Mechanical endurance	Number of oper. cycles[3]		Cycles	10 000	10 000	10 000	10 000	10 000
Cable size	Cu-wire size suitable		mm^2	2.5-25/2x2.5-16	10-70	10-70	10-70	10-70
	for terminal clamps		AWG	14-4/2x14-6	8-00	8-00	8-00	8-00
Terminal tightening torque	Counter torque required		Nm	6	6	6	6	6
Operating torque	3-pole switches		Nm	5	5	5	5	5
Weight without accessories	3-pole switch		kg	1.37	1.37	1.37	1.37	1.37
	4-pole switch		kg	1.60	1.60	1.60	1.60	1.60
Data according to IEC 60947-6-1								
Class of equipment				PC	PC	PC	PC	PC
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.1s	kA	5	5	5	5	5
Conditional short-circuit current	I_{cc} (r.m.s.)	415 V	kA	50	50	50	50	50
Corresponding fuse rating	gG/aM fuse	415 V	A	125	125	125	125	125
Rated operational current, AC-31B		up to 415 V	A	40	63	80	100	125
Rated operational current, AC-32B		up to 415 V	A	40	63	80	100	125
Rated operational current, AC-33B		up to 415 V	A	40	63	80	80	80

1) These values are given for guidance and may vary according to the motor manufacturer
2) Short circuit duration > 50ms, without fuse protection
3) Operating cycle: O - I - O - II - O

Motorized change-over switches

Technical data for OTM160...800_C

Motorized change-over switches

				Switch size						
Data according to IEC 60947-3				**OT_160_**	**OT_200_**	**OT_250_**	**OT_315_**	**OT_400_**	**OT_630_**	**OT_800_**
Rated insulation voltage and rated operational voltage AC20/DC20[1]		Pollution degree 3[2]	V	1000	1000	1000	1000	1000	1000	1000
Dielectric strength		50 Hz 1min.	kV	10	10	10	10	10	10	10
Rated impulse withstand voltage[3]			kV	12	12	12	12	12	12	12
Rated thermal current and rated operational current AC20/DC20 ..with minimum conductor cross section	/ ambient 40°C	In open air	A	160	200	250	315	400	630	800
	/ ambient 40°C	In enclosure	A	160	200	250	315	400	630	800
		Cu	mm^2	70	95	120	185	240	2x185	2x240
Rated operational current, AC-21A		up to 500 V	A	160	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
Rated operational current, AC-22A		up to 500 V	A	160	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
Rated operational current, AC-23A		up to 415 V	A	160	200	250	315	400	630	800
		440 V	A	160	200	250	315	400	630	800
		500 V	A	160	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
Rated operational current / poles in series, DC-21A[6]		≤ 110 V	A	160/2	200/2	250/2	315/1[1]	400/1[1]	630/1	800/1
		220 V	A	160/2	200/2	250/2	315/2[1]	400/2[1]	630/1	800/1
		440 V	A	160/3	200/3	230/3	315/3	360/3	630/2	720/2
		660 V	A	160/4	200/4	200/4	315/4	315/4	630/4[1]	630/4[1]
Rated operational power, AC-23A[2] The kW-ratings are accurate for 3-phase 1500 R.P.M. standard asychronous motors		230 V	kW	45	60	75	100	132	200	250
		400 V	kW	90	110	140	160	220	355	450
		415 V	kW	90	110	145	180	230	355	450
		500 V	kW	110	132	170	220	280	400	560
		690 V	kW	160	200	250	315	400	630	800
Rated breaking capacity in category AC-23		up to 415 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
		500 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
		690 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
Rated conditional short-circuit current I_p (r.m.s.) and cut-off current $\hat{i}_c$ (peak) value. The cut-off current $\hat{i}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	I_p (r.m.s.) 80 kA, 415 V	$\hat{i}_c$ (peak)	kA	40.5	40.5	40.5	59	59	83.5	83.5
	Max. OFA_ fuse size	gG/aM	A/A	355/315	355/315	355/315	500/500	500/500	800/1 000	800/1 000
	I_p (r.m.s.) 100 kA, 500 V	$\hat{i}_c$ (peak)	kA	40.5	40.5	40.5	61.5	61.5	90	90
	Max. OFA_ fuse size	gG/aM	A	315/315	315/315	315/315	500/450	500/450	800/800	800/800
	I_p (r.m.s.) 80 kA, 690 V	$\hat{i}_c$ (peak)	kA	40.5	40.5	40.5	59	59	83.5	83.5
	Max. OFA_ fuse size	gG/aM	A	355/315	355/315	355/315	500/500	500/500	800/1 000	800/1 000
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.15s	kA	15	15	15	31	31	38	38
		690 V 0.25s	kA	15	15	15	24	24	36	36
		690 V 1s	kA	8	8	8	15	15	20	20
Rated short-time making capacity[3]	I_{cm} (peak)[4]	690 V	kA	30	30	30	65	65	80	80
Power loss / pole	With rated current		W	2.4	4	6.5	6.5	10	25	40
Mechanical endurance	Number of oper. cycles[5]		Cycles	8 000	8 000	8 000	8 000	8 000	5 000	5 000
Terminal bolt size	Metric thread diameter x length		mm	M8x25	M8x25	M8x25	M10x30	M10x30	M12x40	M12x40
Terminal tightening torque	Counter torque required		Nm	15-22	15-22	15-22	30-44	30-44	50-75	50-75
Operating torque	3-pole change-over switches		Nm	7	7	7	16	16	27	27
Weight without accessories	3-pole switch		kg	5.7	5.7	5.7	10.2	10.2	17.5	17.5
	4-pole switch		kg	6.4	6.4	6.4	11.4	11.4	20.4	20.4
Data according to IEC 60947-6-1										
Class of equipment				PC	PC	PC	PC	PC	PC	PC
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.1s	kA	15	15	15	25	25	38	38
Rated operational current, AC-31B		up to 415 V	A	160	200	250	315	400	650	720
Rated operational current, AC-33B		up to 415 V	A	160	200	250	315	400	650	650

1) Utilization category B
2) These values are given for guidance and may vary acc. to the motor manufacturer
3) Short circuit duration > 50ms, without fuse protection
4) Max. distance from switch frame to nearest busbar / cable support 150 mm
5) Operating cycle: O - I - O - II - O
6) Further ratings on request

Motorized change-over switches

Technical data for OTM1000...3200_C

Motorized change-over switches

				Switch size					
Data according to IEC 60947-3				**OT_1000_**	**OT_1250_**	**OT_1600_**	**OT_2000_**	**OT_2500_**	**OT_3200_**
Rated insulation voltage and rated operational voltage AC20/DC20[1]		Pollution degree 3[2]	V	1 000	1 000	1 000	1 000	1 000	1 000
Dielectric strength		50 Hz 1min.	kV	10	10	10	10	10	10
Rated impulse withstand voltage[3]			kV	12	12	12	12	12	12
Rated thermal current and rated operational current AC20/DC20	/ ambient 40°C / ambient 40°C	In open air In enclosure	A A	1 000	1 250	1 600	2 000	2 500	3 200
..with minimum conductor cross section		Cu	mm^2	2x300	2x400	2x500	3x500	4x500	4x1 000
Rated operational current, AC-21A		up to 500 V	A	1 000	1 250	1 600	2 000[5]	2 500[5]	3 200[5]
		690 V	A	1 000	1 250	1 600			
Rated operational current, AC-22A		up to 500 V	A	1 000	1 250	1 600			
		690 V	A	1 000	1 250	1 600			
Rated operational current, AC-23A		up to 415 V	A	1 000	1 250	1 250			
		440 V	A	1 000	1 250	1 250			
		500 V	A	1 000	1 250	1 250			
		690 V	A	1 000	1 250	1 250			
Rated operational power, AC-23A[1]		230 V	kW	315	400	400			
The kW-ratings are accurate for		400 V	kW	560	710	710			
3-phase 1500 R.P.M. standard		415 V	kW	560	710	710			
asychronous motors		500 V	kW	710	900	900			
		690 V	kW	1 000	1 200	1 200			
Rated breaking capacity		up to 415 V	A	10 000	10 000	10 000			
in category AC-23		500 V	A	10 000	10 000	10 000			
		690 V	A	10 000	10 000	10 000			
Rated conditional short-circuit	I_p (r.m.s.) 80 kA, 415 V	$\hat{i}_c$ (peak)	kA	100	100	100			
current I_p (r.m.s.) and cut-off	Max. OFA_ fuse size	gG/aM	A/A	1 250/1 250	1 250/1 250	1 250/1 250			
current $\hat{i}_c$ (peak) value. The cut-off	I_p (r.m.s.) 100 kA, 500 V	$\hat{i}_c$ (peak)	kA	106	106	106			
current $\hat{i}_c$ refers to values listed by	Max. OFA_ fuse size	gG/aM	A	1 250/1 250	1 250/1 250	1 250/1 250			
fuse manufacturers (single phase	I_p (r.m.s.) 80 kA, 690 V	$\hat{i}_c$ (peak)	kA						
test acc. to IEC60269).	Max. OFA_ fuse size	gG/aM	A						
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.15s	kA	50	50	50	50	50	
		690 V 0.25s	kA	50	50	50	50	50	
		690 V 1s	kA	50	50	50	55	55	65
Rated short-time making capacity[2]	I_{cm} (peak)[3]	690 V	kA	92	92	92	110	110	143
Power loss / pole	With rated current		W	19	29	48	55	85	95
Mechanical endurance	Number of oper. cycles[4]		Cycles	3 000	3 000	3 000	2 000	2 000	2 000
Terminal bolt size	Metric thread diameter x length		mm	M12x60	M12x60	M12x60	M12x60	M12x60	M12x100
Terminal tightening torque	Counter torque required		Nm	50-75	50-75	50-75	50-75	50-75	50-75
Operating torque	3-pole change-over switches		Nm	78	78	78	78	78	80
Weight without accessories	3-pole switch		kg	42	42	44	56	56	83
	4-pole switch		kg	50	50	52	70	70	101
Data according to IEC 60947-6-1									
Class of equipment				PC	PC	PC			
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.1s	kA	50	50	50			
Rated operational current, AC-31B		up to 415 V	A	1 000	1 250	1 600			
Rated operational current, AC-33B		up to 415 V	A	1 000	1 000	1 000			

1) These values are given for guidance and may vary acc. to the motor manufacturer
2) Short circuit duration > 50ms, without fuse protection
3) Max. distance from switch frame to nearest busbar / cable support 150 mm
4) Operating cycle: O - I - O - II - O
5) Category AC-21B, up to 415V

Motorized change-over switches

Type codes

Type codes

Understanding the type code keys below will help you quickly identify the correct product for your needs. The simple naming system allows you to see the products type, Ampere rating, standard classification and number of poles, all in one glance.

Explanation of the types OTM40...125_C

Option:	OTM125	F	3	C	M	A	230	V
Position:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**

1	**Brand and Switch size / Ampere rating**
2	**IEC**
3	**Number of the poles**
	3: 3-poles
	4: 4-poles
4	**Change over switch: I-0-II -operation**
5	**Remote control**
6	**Automatic operation available with OMD control unit (controller not included in the delivery)**
7	**Voltage for motor operator**
	230: 110...240 V AC/DC
	24: 24 V AC/DC
8	**Motor voltage type**
	V=AC/DC

Explanation of the types OTM160...2500_C

Option:	OTM250	E	3	C	M	230	C
Position:	**1**	**2**	**3**	**4**	**5**	**6**	**7**

1	**Brand and Switch size / Ampere rating**
2	**IEC**
3	**Number of the poles**
	2: 2-poles
	3: 3-poles
	4: 4-poles
4	**Change-over switch: I-0-II -operation**
5	**Motorized change-over switch**
6	**Voltage for motor operator**
	230: 220...240 V AC [1)]
	110: 110...125 V AC/DC
	48: 48 V AC/DC
	24: 24 V AC/DC
7	**Motor voltage type**
	V: AC/DC
	C: AC
	D: DC

1) 2-pole versions, motor voltage Ue 220...240V AC/DC

Motorized change-over switches

Motorised Change-over switches OTM40…3200_C



OTM40...125F3C_

Front operated change-over switch, I-O-II operation, open transition
Base and DIN rail mounted
Motor voltage: 0.85...1.10 x Un. IP20.
Including an IP65 black I-O-II direct plastic handle for manual operation and the male connectors for control circuits.



OTM40...125F4C_

OTM160...3200
Frontal switch allowing: motorised operation or manual operation (through the handle). connectors for control circuits, bolt kit with nuts and washers for all terminals.
Padlock interlock on O-position (maximum 3 padlocks). Bridging bars should be ordered separately (OMZC_ or OTZC_).



OTM160...250E3C



OTM1000...1250E3C_



OTM2000...2500E3C_

In 415V A	Rated Power 415V S [kVA]	Rated current AC31B/ AC33B, 415V I [A]	Number of poles	Order code
63	43	63/63	3	OTM63F3CMA230V
			4	OTM63F4CMA230V
100	70	100/80	3	OTM100F3CMA230V
			4	OTM100F4CMA230V
125	86	125/80	3	OTM125F3CMA230V
			4	OTM125F4CMA230V
160	110	160/160	3	OTM160E3CM230C
			4	OTM160E4CM230C
200	135	200/200	3	OTM200E3CM230C
			4	OTM200E4CM230C
250	170	250/250	3	OTM250E3CM230C
			4	OTM250E4CM230C
400	275	400/400	3	OTM400E3CM230C
			4	OTM400E4CM230C
630	435	650/650	3	OTM630E3CM230C
			4	OTM630E4CM230C

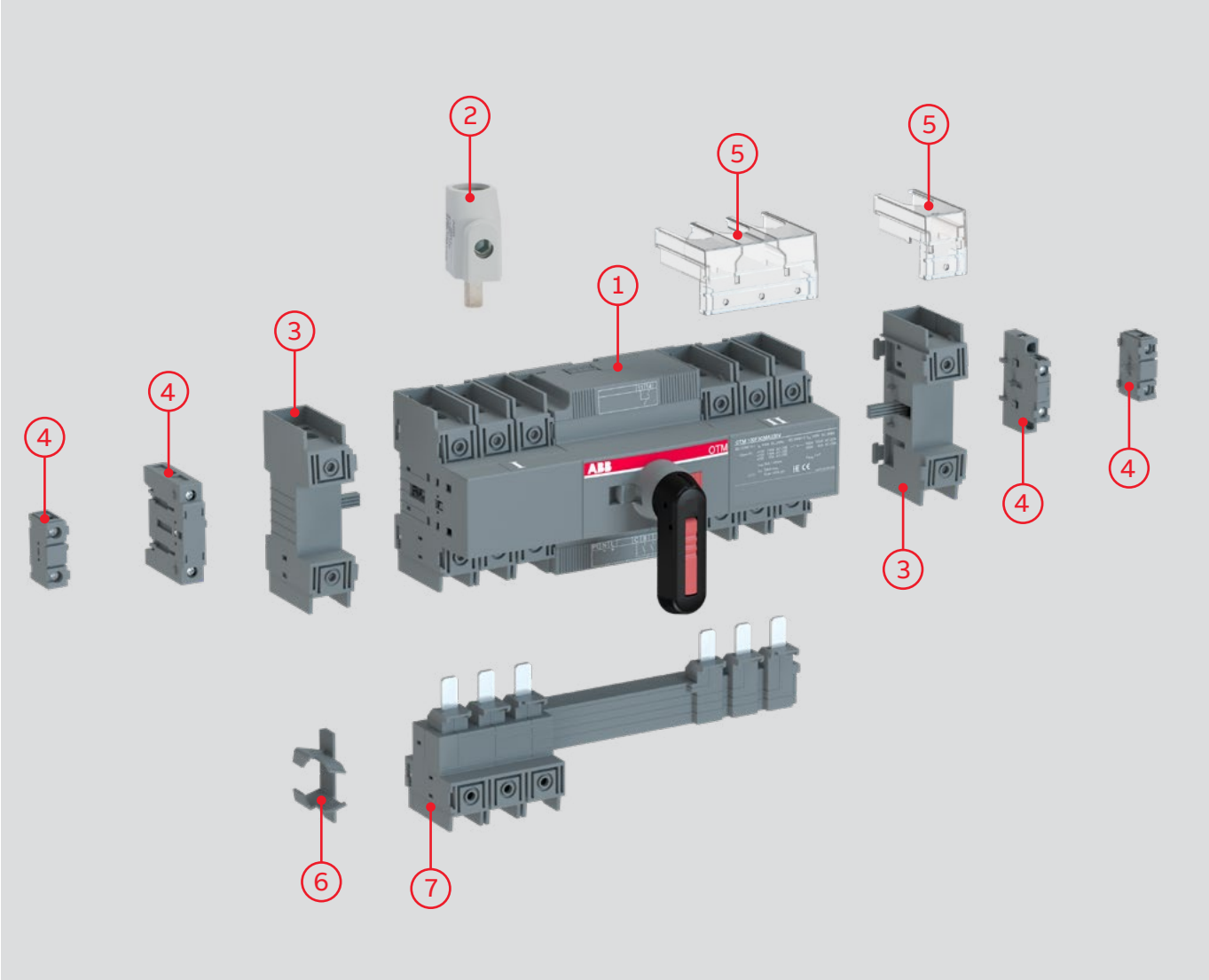
Ordering example

Selector handle				
OTM125F3CMA230V	+	OM2C03	+	OTS125T3
Switch	+	Parallel Bars	+	Shrouds

STOCK | INDENT

Motorized change-over switches

Ordering information for OTM40...OTM125_CMA



Motorized change-over switch accessory guide

1. Motorized change-over switch
2. Terminal clamp including voltage sensing connector
3. Fourth pole
4. Auxiliary contact (Different types for left and right side)
5. Terminal shroud
6. Handle storage clip
7. Parallel connection kit

Please note that not all listed accessories are automatically included in your order.
See next page for recommendations.

Motorized change-over switches

Accessories: Motorised Change-over switches OTM40…2500_C



OTVS0

Bridging Bars

The bridging bars provide a connection link either on the incoming or outcoming side of the switch.

Suitable switches	Number of poles	Order code
OTM40…125F3C_	3	OMZC03
OTM40…125F4C_	4	OMZC04
OT160…250_C	3	OTZC13
	4	OTZC14
OT315…400_C	3	OTZC23
	4	OTZC24
OT600…800_C	3	OTZC33
	4	OTZC34

Up to 3000A available



OTZC13…34



OMD800

Automatic control units

OMD automatic control units can be used with OTM40…2500_CM_ motorised change-over switches in order to assemble an automatic transfer switch. The type and ordering codes include the OMD control unit, PCB connectors and 2 OMZD1 fasteners for door mounting.

Suitable switches	Order code
OTM40…2500_C	OMD800E480C-A1

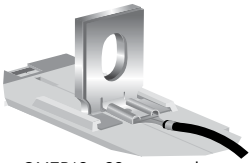
Note:

If used with OTM40…125_CMA_:

1 x OTM40…125_CMA_motorised change-over switch and 2 or 3 x OZXT6 terminal clamp sets (including voltage sensing connection) must be ordered separately to be able to assemble an automatic transfer switch.

If used with OTM160…2500_CM_:

1 x OTM160…2500_CM_motorised change-over switch, 1 x OMZB_voltage sensing connectors and 2 x OA1G10 auxiliary contacts must be ordered separately to be able to assemble an automatic transfer switch. The control unit can be mounted on a door or on DIN rail.



OMZB18…28 mounted

Voltage sensing connectors

For 0.5…1.5mm² voltage sensing connection of the top or bottom power poles. The connector package includes also the faston terminals (see the picture). One package includes 8 connectors and 8 faston terminals. Wires are not included.

Suitable switches	Order code
OT_160…250_C	OMZB18
OT_315…400_C	OMZB28
OT_630…800_C	OMZB38
OT_1000…2500_C	OMZB48

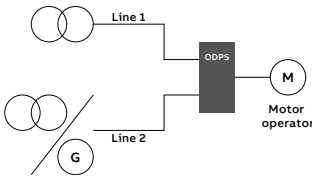


ODPSE230C

Dual power source

Provides power supply to the motor operator by using two lines. The device has two inputs, from line I (LN I) and line II (LN II), and one output for the motor operator. The motor operator is automatically energised whenever power is available in one of the lines. Can be used with 230VAC motor operators. Snap-on mounted PCB connectors are included in the delivery. The device can be DIN rail or screw mounted.

Suitable switches	Order code
OTM40…2500	ODPSE230C



Connection diagram

Manual and motorized bypass switches

Technical data for OT and OTM160...800_Y_

Manual and motorized bypass switches

				Switch size , OTM_						
Data according to IEC 60947-3				**OTM160_**	**OTM200_**	**OTM250_**	**OTM315_**	**OTM400_**	**OTM630_**	**OTM800_**
Rated insulation voltage and rated operational voltage AC20/DC20		Pollution degree 3	V	1000	1000	1000	1000	1000	1000	1000
Dielectric strength		50 Hz 1min.	kV	10	10	10	10	10	10	10
Rated impulse withstand voltage			kV	12	12	12	12	12	12	12
Rated thermal current and rated operational current AC20/DC20	/ ambient 40°C	In open air	A	160	200	250	315	400	630	800
	/ ambient 40°C	In enclosure	A	160	200	250	315	400	630	800
..with minimum conductor cross section		Cu	mm^2	70	95	120	185	240	2x185	2x240
Rated operational current, AC-21A		up to 500 V	A	160	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
Rated operational current, AC-22A		up to 500 V	A	160	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
Rated operational current, AC-23A		up to 415 V	A	160	200	250	315	400	630	800
		440 V	A	160	200	250	315	400	630	800
		500 V	A	160	200	250	315	400	630	800
		690 V	A	160	200	250	315	400	630	800
Rated operational current / poles in series, DC-21A1)		≤ 110 V	A	160/2	200/2	250/2	315/14)	400/14)	630/1	800/1
		220 V	A	160/2	200/2	250/2	315/24)	400/24)	630/1	800/1
		440 V	A	160/3	200/3	230/3	315/3	360/3	630/2	720/2
		660 V	A	160/4	200/4	200/4	315/4	315/4	630/44)	630/44)
Rated operational power, AC-23A[2)] The kW-ratings are accurate for 3-phase 1500 R.P.M. standard asychronous motors		230 V	kW	45	60	75	100	132	200	250
		400 V	kW	90	110	140	160	220	355	450
		415 V	kW	90	110	145	180	230	355	450
		500 V	kW	110	132	170	220	280	400	560
		690 V	kW	160	200	250	315	400	630	800
Rated breaking capacity in category AC-23		up to 415 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
		500 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
		690 V	A	1 280	1 600	2 000	2 520	3 200	5 040	6 400
Rated conditional short-circuit current Ip (r.m.s.) and cut-off current îc (peak) value. The cut-off current îc refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	Ip (r.m.s.) 80 kA, 415 V	îc (peak)	kA	40.5	40.5	40.5	59	59	83.5	83.5
	Max. OFA_ fuse size	gG/aM	A/A	355/315	355/315	355/315	500/500	500/500	800/1 000	800/1 000
	Ip (r.m.s.) 100 kA, 500 V	îc (peak)	kA	40.5	40.5	40.5	61.5	61.5	90	90
	Max. OFA_ fuse size	gG/aM	A	315/315	315/315	315/315	500/450	500/450	800/800	800/800
	Ip (r.m.s.) 80 kA, 690 V	îc (peak)	kA	40.5	40.5	40.5	59	59	83.5	83.5
	Max. OFA_ fuse size	gG/aM	A	355/315	355/315	355/315	500/500	500/500	800/1 000	800/1 000
Rated short-time withstand current	Icw (r.m.s.)	690 V 0.15s	kA	15	15	15	31	31	38	38
		690 V 0.25s	kA	15	15	15	24	24	36	36
		690 V 1s	kA	8	8	8	15	15	20	20
Rated short-time making capacity3)	Icm (peak)[4)]	690 V	kA	30	30	30	65	65	80	80
Power loss / pole	With rated current		W	2.4	4	6.5	6.5	10	25	40
Mechanical endurance	Number of oper. cycles[5)]		Cycles	8 000	8 000	8 000	8 000	8 000	5 000	5 000
Terminal bolt size	Metric thread diameter x length		mm	M8x25	M8x25	M8x25	M10x30	M10x30	M12x40	M12x40
Terminal tightening torque	Counter torque required		Nm	15-22	15-22	15-22	30-44	30-44	50-75	50-75
Operating torque	Typical for 3-pole bypass switches		Nm	14	14	14	32	32	54	54
Weight without accessories	Manual bypass switches	3-pole switch	kg	4.3	4.3	4.3	8.2	8.2	19.9	19.9
		4-pole switch	kg	5.8	5.8	5.8	11.0	11.0	26.6	26.6

1) Further ratings on request
2) These values are given for guidance and may vary acc. to the motor manufacturer
3) Short circuit duration > 50ms, without fuse protection
4) Max. distance from switch frame to nearest busbar / cable support 150 mm
5) Operating cycle: O - I - O - II - O

Manual and motorized bypass switches

Technical data for motor operators

Motorized bypass switches, motor operator

				Switch size		
Data according to IEC 60947				**160...250**	**315...400**	**630...800**
Rated operational voltage Ue	Pollution degree 3	50/60 Hz	V AC	220 - 240		
Operating voltage range				0,85 - 1,1 x Ue		
Operating time1)	90° I-0, 0-I, 0-II, II-0	220-240VAC	s	0.4-1.0	0.4-1.0	0.4-1.0
Operating transfer time1)	180° I-0-II, II-0-I	220-240VAC	s	1.0-2.0	0.9-2.0	0.9-2.0
OFF -time when operating I-II or II-I1)	180° I-II, II-I	220-240VAC	s	0.4-1.0	0.4-1.0	0.4-1.0
Nominal current In1)		220-240VAC	A	0.2	0.5	0.7
Current inrush1)		220-240VAC	A	1.3	2.1	2.8
Overload fuse	Type / In / Capacity	220-240VAC	mA	T/315/H	T/500/H	T/1 000/H
Operating rate	Cycle 0-I-0-II-0,	220-240VAC	cycles/min	1	1	1
Overvoltage category				III		
Rated impulse withstand voltage Uimp			kV	4		
Dielectric strength		50 Hz 1 min.	kV	1.5		
Impulse command		Min. impulse duration	ms	100		
Terminals						
Voltage supply wiring for Ue				PE - N - L		
Cross section		solid/stranded	mm2	1.5 - 2.5		
Short-circuit protection device		max. MCB	A	C16		
Control terminal (no SELV)				C - II - I - O		
Cross section		solid/stranded	mm2	1.5 - 2.5		
Maximum cable length			m	100		
State information of locking (no SELV)						
Handle attached or motor operator locked		11-12-14 (C/O)		5A/250V/cosφ=1		
Locking motor operator		23-24 (NO)		5A/250V/cosφ=1		
Short-circuit protection device		Max. MCB	A	C2		
Protection degree				IP20		
Operating temperature			°C	-25...+55		
Transportation and storage temperature			°C	-40...+70		
Max. altitude			m	2 000		

1) Under nominal conditions

Manual and motorized bypass switches

Technical data for OT and OTM160...800_Y_

Type codes

Understanding the type code keys below will help you quickly identify the correct product for your needs. The simple naming system allows you to see the products type, Ampere rating, standard classification and number of poles, all in one glance.

Explanation of the manual bypass switces types OT160...3200_C

Option:	**OT250**	**E**	**03**	**C**	**P**
Position:	1	2	3	4	5

1	**Brand and Switch size / Ampere rating**
2	**Standard**
	E: IEC
3	**Number of the poles**
	03: 12
	04: 13
	22: 33
4	**Bypass switch**
5	**Included handle**
	P: Pistol handle + shaft

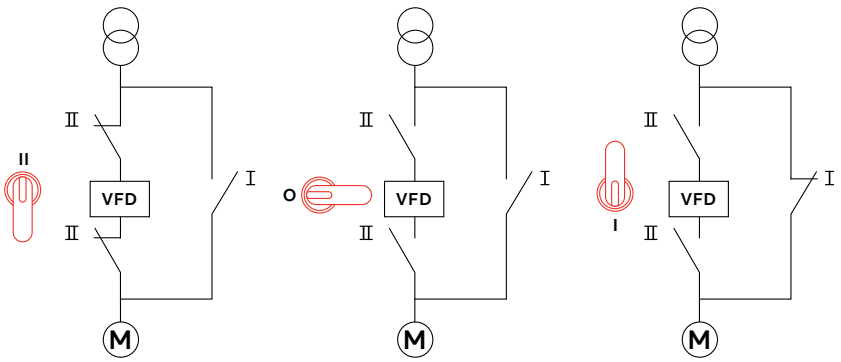
Explanation of the motorized bypass switces types OTM160...2500_C

Option:	**OTM250**	**E**	**3**	**Y**	**M**	**230C**
Position:	1	2	3	4	5	5

1	**Brand and Switch size / Ampere rating**
2	IEC
	E: IEC
3	**Number of the poles**
	3: 3-poles
	4: 4-poles
4	**Bypass switch**
5	**Motorized bypass switch**
6	**Voltage for motor operator**
	230C: 220...240 V AC

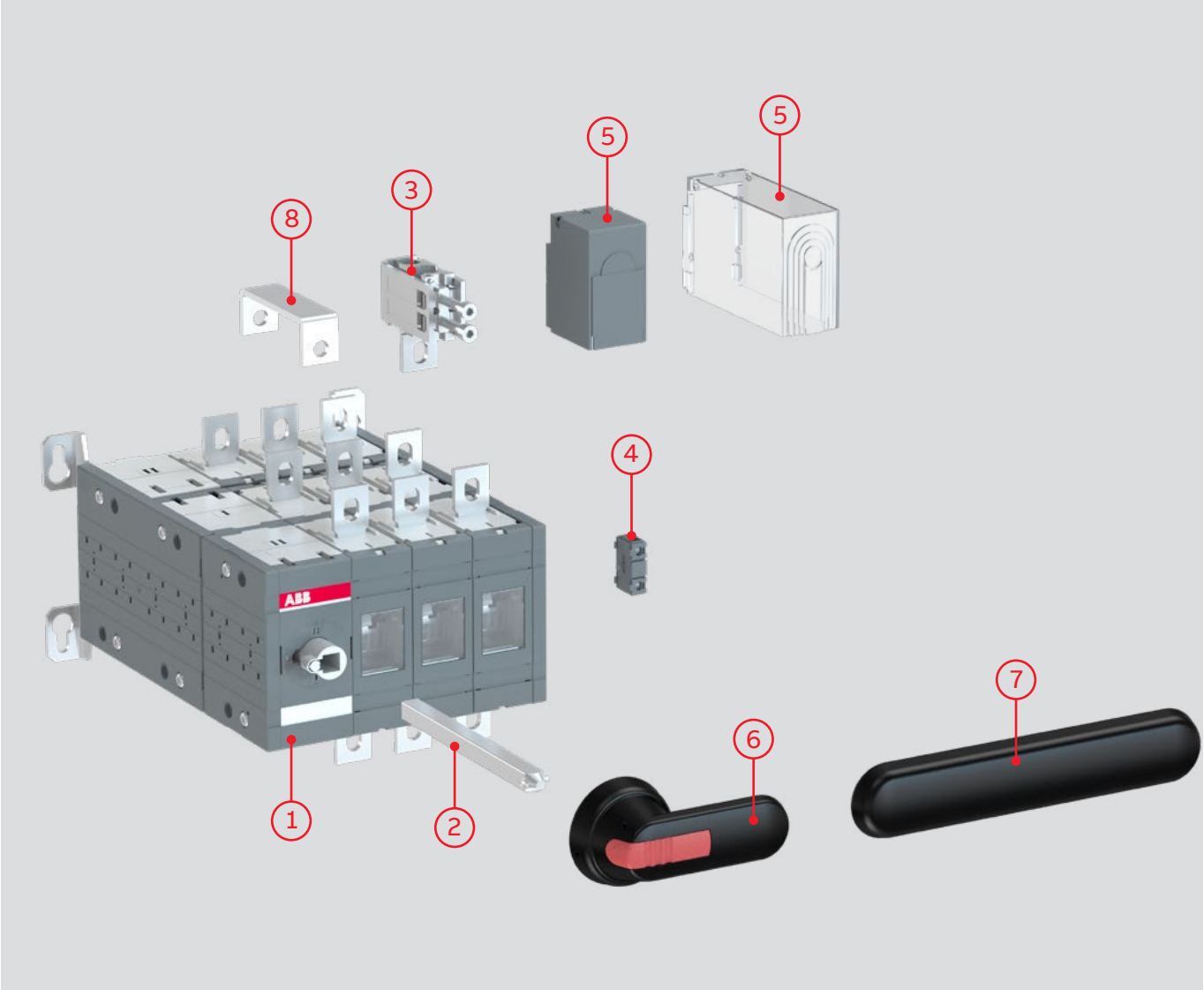
Functionality in brief

This simplified diagram illustrates the basic functionality and application of these switch products.



Manual and motorized bypass switches

Ordering information for OT160...800E03_Y



Bypass switches accessory guide

1. Manual bypass switch
2. Extended shaft
3. Terminal clamp
4. Auxiliary contact
5. Terminal shroud
6. Pistol handle
7. Handle extension
8. Bridging bar

Please note that not all listed accessories are automatically included in your order.
See next page for recommendations.

Load break switches

Accessories: Change-over switches OT160…3200_C



OT160...250E03_YP



OT315...400E03_YP



OT630...800E03_YP

Manual bypass switches, open transition, OT160...800E_YP

Delivered with a black plastic IP65 I-0-II pistol handle and a handle extension for enabling smooth manual operation, shaft and bolt set for the cable connection. The handle extension is snap-on mounted on the standard handle for manual operation. The handle extension shall be removed when padlocking the standard handle. Handle padlockable in the 0-position, door interlock in the I- and II-positions and when padlocked.

Rated current and power			Number of poles	Order code
AC-21A/AC-22A		AC-23A		
≤ 415V I[A]	400V S[kVA]	400...415V I[A]/P[kW]		
160	110	160/90	3	OT160E03YP
160	110	160/90	4	OT160E04YP
200	135	200/110	3	OT200E03YP
200	135	200/110	4	OT200E04YP
250	170	250/140	3	OT250E03YP
250	170	250/140	4	OT250E04YP
315	215	315/160	3	OT315E03YP
315	215	315/160	4	OT315E04YP
400	275	400/220	3	OT400E03YP
400	275	400/220	4	OT400E04YP
630	435	630/355	3	OT630E03YP
630	435	630/355	4	OT630E04YP
800	550	800/450	3	OT800E03YP
800	550	800/450	4	OT800E04YP

- motorised bypass available
- closed transition available - change YP to YLP

Notes



Compact automatic transfer switches

258	ABB Compact ATS
259	Technical data
261	Product overview
262	Accessories

For more detailed product information, please refer to the Technical Catalogue:

- ABB Compact ATS – 1SCC308001B0201

ABB Compact ATS
Compact without compromise

The new Compact ATS by ABB is just that – It's a compact, economical and innovative all-in-one solution that delivers all the safety and performance you would expect from a product supplying your most valuable assets. An automatic transfer switch does not need to be complex and difficult to use. Compared to conventional solutions, the ABB Compact ATS offers 100% easier and simpler operation in a 40% more compact package.

The Compact ATS is an ideal device for securing the availability of stand-by power in a wide variety of residential, commercial, industrial and agricultural structures. The IEC 60947-6-1 tested devices fulfil the requirements of Part 6-1, making them multiple function apparatus. ABB Compact ATS is a safe and approved solution for any application where a reliable and complete source transfer device is required.

Typical end use applications:
ABB Compact ATS devices work best when providing an alternative power source for any HVAC machinery. Here are just a few of the most typical locations where they are used:

- Residential, commercial and industrial facilities
- Telecommunication and data centres
- Agricultural applications
- And more…



Safety and protection
All current-carrying parts of the device are fully enclosed without exposed wiring, providing protection against direct contact. In case of an emergency or testing event, an external, easily accessible manual handle provides a safe and easy (electrical or non-electrical) source transfer.

Space saving
The device has been designed to be extremely compact and fully enclosed. Compared to a conventional solution, the Compact ATS takes up approximately 40% less cabinet space. The all-in-one design means that no additional accessories are needed. You don't even need an extra external power source.

Affordable range
Affordability has been one of the key objectives for this device. The available functionalities have been carefully selected to meet market requirements without added niche features that would elevate price. It is simple, reliable and functional.

Compact automatic transfer switches
Technical data

Compact automatic transfer switches

				Switch size		
Data according to IEC 60947-3				**OTM40_**	**OTM63_**	**OTM125_**
Rated insulation voltage and rated operational voltage AC20/DC20		Pollution degree 3	V	800	800	800
Dielectric strength		50 Hz 1min.	kV	6	6	6
Rated impulse withstand voltage			kV	8	8	8
Rated thermal current and rated operational current AC20/DC20	/ ambient 40°C	In open air	A	40	63	125
	/ ambient 40°C	In enclosure	A	40	63	125
	/ ambient 60°C	In enclosure	A	32	50	100
..with minimum conductor cross section		Cu	mm^2	10	16	50
Rated operational current, AC-21A		up to 500 V	A	40	63	125
		690 V	A	40	63	125
Rated operational current, AC-22A		up to 500 V	A	40	63	125
		690 V	A	40	63	125
Rated operational current, AC-23A		up to 415 V	A	40	63	90
		500 V	A	40	60	70
		690 V	A	40	40	50
Rated operational current / poles in series, DC-21A		up to 48 V	A	40/1	63/1	125/1
		110 V	A	40/2	63/2	125/2
		220 V	A	40/4	63/4	100/4
Rated operational current / poles in series, DC-22A		up to 48 V	A	40/1	63/1	125/1
		110 V	A	40/2	63/2	125/2
		220 V	A	40/4	63/4	80/4
Rated operational current / poles in series, DC-23A		up to 48 V	A	40/1	63/1	125/1
		110 V	A	40/2	63/2	125/2
		220 V	A	40/4	63/4	63/4
Rated operational power, AC-23A[1)]		230 V	kW	7.5	15	22
The kW-ratings are accurate for 3-phase 1500 R.P.M. standard asychronous motors		400 V	kW	18.5	30	45
		415 V	kW	18.5	30	45
		500 V	kW	22	37	45
		690 V	kW	37	37	45
Rated breaking capacity in category AC-23		up to 415 V	A	320	504	720
		500 V	A	320	480	560
		690 V	A	320	320	400
Rated conditional short-circuit current Ip (r.m.s.) and corresponding max. allowed cut-off current îc (peak) value.	Ip (r.m.s.) 50 kA, 415 V	îc (peak)	kA	16.5	16.5	16.5
	Max. OFA_ fuse size	gG/aM	A/A	125/125	125/125	125/125
	Ip (r.m.s.) 18 kA, 690 V	îc (peak)	kA	11	11	11
The cut-off current îc refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	Max. OFA_ fuse size	gG	A	125	125	125
	Ip (r.m.s.) 50 kA, 690 V	îc (peak)	kA	10	10	10
	Max. OFA_ fuse size	gG/aM	A/A	63/63	63/63	63/63
Rated short-time withstand current	Icw (r.m.s.)	690 V 1s	kA	2.5	2.5	2.5
Rated short-time making capacity2)	Icm (peak)	690 V	kA	3.6	3.6	3.6
Power loss / pole	With rated current		W	1.6	2.8	6.3
Mechanical endurance	Number of oper. cycles[3)]		Cycles	10 000	10 000	10 000
Cable size	Cu-wire size suitable for terminal clamps		mm^2	2.5-25/2x2.5-16	10-70	10-70
			AWG	14-4/2x14-6	8-00	8-00
Terminal tightening torque	Counter torque required		Nm	6	6	6
Operating torque	Typical for 3-pole switches		Nm	5	5	5
Weight without accessories	3-pole switch		kg	1.75	1.75	1.75
	4-pole switch		kg	2.00	2.00	2.00

Compact automatic transfer switches
Technical data

Compact automatic transfer switches

				Switch size		
Data according to IEC 60947-6-1				**OTM40_**	**OTM63_**	**OTM125_**
Class of equipment				PC	PC	PC
Rated short-time withstand current	Icw (r.m.s.)	690 V 0.1s	kA	5	5	
Conditional short-circuit current	Icc (r.m.s.)	415 V	kA	50	50	50
Corresponding fuse rating	gG/aM fuse	415 V	A	125	125	125
Rated operational current, AC-31B		up to 415 V	A	40	63	125
Rated operational current, AC-32B		up to 415 V	A	40	63	125
Rated operational current, AC-33B		up to 415 V	A	40	63	80

1) These values are given for guidance and may vary according to the motor manufacturer
2) Short circuit duration > 50ms, without fuse protection
3) Operating cycle: O - I - O - II - O

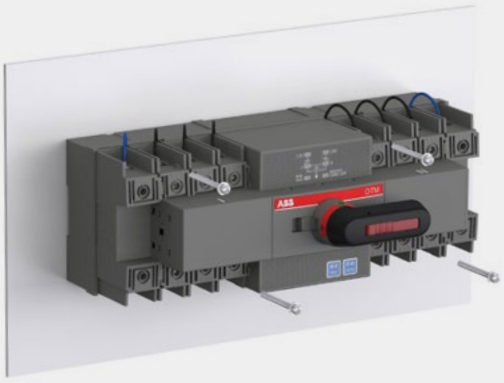
Compact ATS
Easy use and installation



01 Easy manual operation with the handle in case of emergency



02 DIN- rail mounting



03 Base mounting with screws

Compact automatic transfer switches

Product overview



OTM_C20D

For Network/Network application

Fixed version with pre-defined delay times and voltage thresholds

Fixed version

Number of poles	Rated current [A]	Rated voltage [V]	Voltage sensing	Order code
2	63	230:220-240	Top in	OTM63F2C20D230C
2	125	230:220-240	Top in	OTM125F2C20D230C
3	63	400:380-415	Top in	OTM63F3C20D400C
3	125	400:380-415	Top in	OTM125F3C20D400C
4	40	400:380-415	Top in	OTM40F4C20D400C
4	63	400:380-415	Top in	OTM63F4C20D400C
4	125	400:380-415	Top in	OTM125F4C20D400C



OTM_C21D

For Network/Network and Network/Genset applications

Adjustable version with configurable transfer and back-switching delays
Adjustable over and under-voltage thresholds

Adjustable version

Number of poles	Rated current [A]	Rated voltage [V]	Voltage sensing	Order code
2	63	230:220-240	Top in	OTM63F2C21D230C
2	125	230:220-240	Top in	OTM125F2C21D230C
3	63	400:380-415	Top in	OTM63F3C21D400C
3	125	400:380-415	Top in	OTM125F3C21D400C
4	40	400:380-415	Top in	OTM40F4C21D400C
4	63	400:380-415	Top in	OTM63F4C21D400C
4	125	400:380-415	Top in	OTM125F4C21D400C
4	40	400:380-415	Bottom in	OTM40F4CB21D400C
4	63	400:380-415	Bottom in	OTM63F4CB21D400C
4	125	400:380-415	Bottom in	OTM125F4CB21D400C

STOCK | INDENT

Compact automatic transfer switches
Accessories


OMZC_

Parallel connection kits
Finger protected connection bars for parallel connection of the upper or lower terminals. The bars accept additional cables, the maximum size is stated below.

Suitable for switches	Order code
OTM40F3CM_	OMZC003
OTM40F4CM_	OMZC004
OTM40...125F3CM_	OMZC03
OTM40...125F4CM_	OMZC04

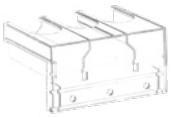
* Terminal shrouds can also be mounted on parallel connection kits.


OA1G01
OA7G10


OA1G10
OA8G01

Auxiliary contacts
Snap-on mounting to the switch, IP 20, max. 2 blocks/ side. I_{th} = 16 A, suitable for cable cross sections max. 2 x 2.5 mm². Simultaneous action with the main contacts. The type and ordering number is for one piece.

Suitable for switches	Order code
OTM40...125F_CM	OA1G10
OTM40...125F_CM	OA8G01
OTM40...125F_CM	OA7G10
OTM40...125F_CM	OA1G01


OTS_T3


OTS_T1

Terminal shrouds
Transparent plastic, snap-on mounting to the switches, IP20. The full shrouding of a 3-pole change-over switch is achieved with four 3-pole shrouds.*

Suitable for switches	Order code
For three pole switches	
OTM40...125F_CM	OTS125T3
For fourth pole	
OTPS60FP, OTPS125FP	OTS125T1


OTVS0

Handles, direct mounting
Plastic I - O - II handle.

Suitable for switches	Order code
OTM40...125F_CM	OHB65D6CM

Notes


ABB
S1
S2
LOAD
AUTO
59 s
System overview
S1
OK


ABB
S1
S2
LOAD
AUTO
AUTO
LOAD
A
L1
SOURCE
LOAD
B
L2
SOURCE
LOAD
C
L3
SOURCE
LOAD
N
SOURCE

Automatic transfer switches

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For more detailed product information, please refer to the Technical Catalogue:

- TruONE® ATS – 1SCC303008C0201

Automatic transfer switches

TruONE® part number key

Example key and product description:
OXB1000E3S4Q54B
ABB TruONE® automatic transfer switch, delayed transition, 1000 amperes, IEC, 3 phase + Neutral (3ph, 4 wire), Level 4 controls, 200–480 VAC voltage area, enclosed style IP54 – bottom in/bottom out

ABB TruONE® ATS
OX

ATS type
A Open transition I - II (without stable OFF position for load disconnection)
B Delayed transition I - O - II (with stable OFF position for load disconnection)

ATS size
30, 60, 100, 125, 160, 200, 250, 260, 315, 400, 500, 600, 630, 800, 1000, 1200, 1250, 1600

Standard
E IEC
U UL

Phase poles
1 1-pole
2 2-pole
3 3-pole

Neutral
S Switched Neutral
O Overlapping Neutral
X None

Controller
2 Level 2 controls (DIP)
3 Level 3 controls (LCD)
4 Level 4 controls (Touch)

Voltage code
Q 200–480 VAC

Enclosure rating
1 Type 1 (UL)
54 IP54 (IEC)
_(blank) Open style, no enclosure

Cabling direction
Open style, no enclosure
B Bottom entry (sources on bottom, load on top)
T Top entry (sources on the top, load on the bottom)
Enclosed style
B Bottom in / Bottom out
D Bottom in / Top out

Note: Contact ABB for more details on the available versions.

Automatic transfer switches

Targeted product performance



Open style ATS
UL 30-200 A
IEC 200-250 A



Open style ATS
UL 260 A
IEC 315-400 A



Open style ATS
UL 400-600 A
IEC 500-800 A



Open style ATS
UL 800-1200 A
IEC 1000-1600 A

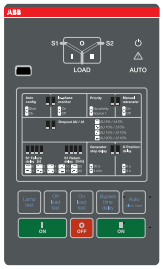


Enclosed style ATS
IEC 200-1600 A

ATS Frame size		30-400 A	260-800 A	800-1600 A
Rated operational current	IEC 60947-6-1, GB 14048-11: AC-33B	200-400 A	630-800 A	1000-1600 A
	GB 14048-11: AC-33iA	30-200 A	260-600 A	800-1200 A
	UL1008: Emergency systems–total system load	30-200 A	260-600 A	800-1200 A
Short-circuit characteristics	Icc (rated conditional short-circuit current)	100 kA	100 kA	100 kA
	Icw (rated short-time withstand current)/Short-time current ratings, 100ms	18-30 kA	42 kA	50 kA
	Icw (rated short-time withstand current)/Short-time current ratings, 500ms		30 kA	50 kA
	Withstand and Close-on ratings (any breaker) 480V	42 kA	50 kA	85 kA
	Withstand and Close-on ratings, with current limiting fuses	200 kA	200 kA	200 kA

Automatic transfer switches

TruONE® feature comparison





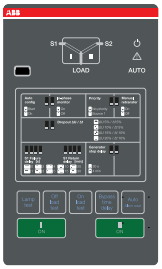


Feature comparison

	Level 2 controls	Level 3 controls	Level 4 controls
Ampere sizes available	IEC: 200-1600 A	IEC: 200-1600 A	IEC: 200-1600 A
	UL: 30-1200 A	UL: 30-1200 A	UL: 30-1200 A
Rated voltage	200-480Vac	200-480Vac	200-480Vac
Rated frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Phase system	Single and Three	Single and Three	Single and Three
Number of poles	2, 3 and 4	2, 3 and 4	3 and 4
Neutral configuration			
Switched	Yes	Yes	Yes
Overlapping	No	Yes	Yes
Product type			
Open transition (I-II)	Yes	Yes	Yes
Delayed transition (I-O-II)	Yes	Yes	Yes
Voltage and frequency settings			
Pick up Voltage Source 1	Fixed 2% above drop out	81…99%, 101…119%	81…99%, 101…119%
Drop out Voltage Source 1	+/-5, 10, 15, 20%	80…98%, 102…120%	80…98%, 102…120%
Pick up Voltage Source 2	Fixed 2% above drop out	81…99%, 101…119%	81…99%, 101…119%
Drop out Voltage Source 2	+/-5, 10, 15, 20%	80…98%, 102…120%	80…98%, 102…120%
Pick up Frequency Source 1	Fixed 1% above drop out	80,5…99,5%, 100,5…119,5%	80,5…99,5%, 100,5…119,5%
Drop out Frequency Source 1	+/-5, 10 %	80…99%, 101…120%	80…99%, 101…120%
Pick up Frequency Source 2	Fixed 1% above drop out	80,5…99,5%, 100,5…119,5%	80,5…99,5%, 100,5…119,5%
Drop out Frequency Source 2	+/-5, 10 %	80…99%, 101…120%	80…99%, 101…120%
Time delay settings			
Override momentary Source 1 Outage, sec	0, 1, 2, 3, 4, 5, 10, 15, 20, 25, 30	0…60	0…60
Transfer from Source 1 to Source 2, sec	Fixed 2 seconds	0…3600	0…3600
Override momentary Source 2 Outage, sec	Fixed 1,5 seconds	0…60	0…60
Transfer from Source 2 to Source 1, min	0, 1, 2, 3, 4, 5, 10, 15, 20, 25, 30	0…120	0…120
Generator stop delay, min	30 secs or 4 mins	0…60	0…60
Center-OFF delay, sec	0 or 4	0…300	0…300
Pre-transfer delay S1 to S2, sec	No	0…60	0…60
Post-transfer delay S1 to S2 , sec	No	0…60	0…60
Pre-transfer delay S2 to S1, sec	No	0…60	0…60
Post-transfer delay S2 to S1, sec	No	0…60	0…60
Load shed delay, sec	No	0…60	0…60
Source failure detections			
No voltage	Yes	Yes	Yes
Undervoltage	Yes	Yes	Yes
Overvoltage	Yes	Yes	Yes
Phase missing	Yes	Yes	Yes
Voltage unbalance	Yes	Yes	Yes
Invalid frequency	Yes	Yes	Yes
Incorrect phase sequence	Yes	Yes	Yes

Automatic transfer switches

TruONE® feature comparison







Feature comparison

	Level 2 controls	Level 3 controls	Level 4 controls
Features			
Controls	DIP + keys	LCD + keys	Touch + keys
LED indications for ATS, S1 and S2 status	Yes	Yes	Yes
Open transition - Standard digital inputs/outputs	0 / 1	1 / 1	2 / 1
Delayed transition - Standard digital inputs/outputs	1 / 1	2 / 1	3 / 1
Programmable digital inputs/outputs	No	Yes	Yes
Auto config (voltage, frequency, phase system)	Yes	Yes	Yes
Source priority	Source 1, No priority	Source 1/2, No priority	Source 1/2, No priority
Manual re-transfer	Yes	Yes	Yes
In-phase monitor	Yes	Yes	Yes
Genset exercising: on-load, off-load	Yes	Yes	Yes
In-built power meter module	No	No	Yes
Load shedding	No	Yes	Yes
Real time clock	No	Yes	Yes
Event log	No	Yes	Yes
Predictive maintenance	No	No	Yes
Field-mount accessories			
Auxiliary contacts for position indication	Yes	Yes	Yes
Digital input/output modules	No	Yes	Yes
12-24 Vdc aux supply module for controller	No	Yes	Yes
Communication modules	No	Yes	Yes
Connectivity			
Modbus RS485	No	Yes	Yes
Modbus/TCP	No	Yes	Yes
Profibus DP	No	Yes	Yes
ProfiNet	No	Yes	Yes
DeviceNet	No	Yes	Yes
Ethernet IP	No	Yes	Yes
IEC 61850	No	Yes	Yes
Monitoring via ABB Ability™: EDCS	No	Yes	Yes
Enclosures			
Open style	Yes	Yes	Yes
IP54	No	Yes	Yes
For applications			
Mains - Mains	Yes	Yes	Yes
Mains - Generator	Yes	Yes	Yes

Automatic transfer switches

IEC, Open style, Level 2 DIP controls
Open transition

Delayed transition
I-O-II –operation with stable OFF position between positions I and II.
Delivery includes handle for manual operation, 2 m connection cable between detachable HMI and ATS

Bottom entry - Source 1 and Source 2 connections on bottom, load connections on top

No. of poles	Rated current	Order code
2	200	OXB200E1S2QB
2	250	OXB250E1S2QB
2	315	OXB315E1S2QB
2	400	OXB400E1S2QB
2	500	OXB500E1S2QB
2	630	OXB630E1S2QB
2	800	OXB800E1S2QB
3	200	OXB200E3X2QB
3	250	OXB250E3X2QB
3	315	OXB315E3X2QB
3	400	OXB400E3X2QB
3	500	OXB500E3X2QB
3	630	OXB630E3X2QB
3	800	OXB800E3X2QB
3	1000	OXB1000E3X2QB
3	1250	OXB1250E3X2QB
3	1600	OXB1600E3X2QB
4	200	OXB200E3S2QB
4	250	OXB250E3S2QB
4	315	OXB315E3S2QB
4	400	OXB400E3S2QB
4	500	OXB500E3S2QB
4	630	OXB630E3S2QB
4	800	OXB800E3S2QB
4	1000	OXB1000E3S2QB
4	1250	OXB1250E3S2QB
4	1600	OXB1600E3S2QB

Note:
- Top or bottom feed needs to be stipulated in order
- Closed transition available on request

STOCK | **INDENT**

Automatic transfer switches

IEC, Open style, Level 2 DIP controls
Open transition

Top entry - Source 1 and Source 2 connections on top, load connections on bottom

No. of poles	Rated current	Order code
2	200	OXB200E1S2QT
2	250	OXB250E1S2QT
2	315	OXB315E1S2QT
2	400	OXB400E1S2QT
2	500	OXB500E1S2QT
2	630	OXB630E1S2QT
2	800	OXB800E1S2QT
3	200	OXB200E3X2QT
3	250	OXB250E3X2QT
3	315	OXB315E3X2QT
3	400	OXB400E3X2QT
3	500	OXB500E3X2QT
3	630	OXB630E3X2QT
3	800	OXB800E3X2QT
3	1000	OXB1000E3X2QT
3	1250	OXB1250E3X2QT
3	1600	OXB1600E3X2QT
4	200	OXB200E4S2QT
4	250	OXB250E4S2QT
4	315	OXB315E4S2QT
4	400	OXB400E4S2QT
4	500	OXB500E4S2QT
4	630	OXB630E4S2QT
4	800	OXB800E4S2QT
4	1000	OXB1000E4S2QT
4	1250	OXB1250E4S2QT
4	1600	OXB1600E4S2QT

Note:
- Top or bottom feed needs to be stipulated in order
- Closed transition available on request

Automatic transfer switches

IEC, Open style, Level 3 LCD controls

Delayed transition

I-O-II –operation with stable OFF position between positions I and II.
Delivery includes handle for manual operation, 2 m connection cable between detachable HMI and ATS frame and bolt kit with nuts and washers for all terminals.

Bottom entry - Source 1 and Source 2 connections on bottom, load connections on top

No. of poles	Rated current	Order code
2	200	OXB200E1S3QB
2	250	OXB250E1S3QB
2	315	OXB315E1S3QB
2	400	OXB400E1S3QB
2	500	OXB500E1S3QB
2	630	OXB630E1S3QB
2	800	OXB800E1S3QB
3	200	OXB200E3X3QB
3	250	OXB250E3X3QB
3	315	OXB315E3X3QB
3	400	OXB400E3X3QB
3	500	OXB500E3X3QB
3	630	OXB630E3X3QB
3	800	OXB800E3X3QB
3	1000	OXB1000E3X3QB
3	1250	OXB1250E3X3QB
3	1600	OXB1600E3X3QB
4	200	OXB200E3S3QB
4	250	OXB250E3S3QB
4	315	OXB315E3S3QB
4	400	OXB400E3S3QB
4	500	OXB500E3S3QB
4	630	OXB630E3S3QB
4	800	OXB800E3S3QB
4	1000	OXB1000E3S3QB
4	1250	OXB1250E3S3QB
4	1600	OXB1600E3S3QB

Note:
- Top or bottom feed needs to be stipulated in order
- Closed transition available on request

Automatic transfer switches

IEC, Open style, Level 3 LCD controls

Top entry - Source 1 and Source 2 connections on top, load connections on bottom

No. of poles	Rated current	Order code
2	200	OXB200E1S3QT
2	250	OXB250E1S3QT
2	315	OXB315E1S3QT
2	400	OXB400E1S3QT
2	500	OXB500E1S3QT
2	630	OXB630E1S3QT
2	800	OXB800E1S3QT
3	200	OXB200E3X3QT
3	250	OXB250E3X3QT
3	315	OXB315E3X3QT
3	400	OXB400E3X3QT
3	500	OXB500E3X3QT
3	630	OXB630E3X3QT
3	800	OXB800E3X3QT
3	1000	OXB1000E3X3QT
3	1250	OXB1250E3X3QT
3	1600	OXB1600E3X3QT
4	200	OXB200E3S3QT
4	250	OXB250E3S3QT
4	315	OXB315E3S3QT
4	400	OXB400E3S3QT
4	500	OXB500E3S3QT
4	630	OXB630E3S3QT
4	800	OXB800E3S3QT
4	1000	OXB1000E3S3QT
4	1250	OXB1250E3S3QT
4	1600	OXB1600E3S3QT

Note:
- Top or bottom feed needs to be stipulated in order
- Closed transition available on request

Automatic transfer switches

IEC, Open style, Level 4 Touch controls

Delayed transition

I-O-II –operation with stable OFF position between positions I and II.
Delivery includes handle for manual operation, 2 m connection cable between detachable HMI and ATS frame and bolt kit with nuts and washers for all terminals.

Bottom entry - Source 1 and Source 2 connections on bottom, load connections on top

No. of Poles	Rated current	Order code
3	200	OXB200E3X4QB
3	250	OXB250E3X4QB
3	315	OXB315E3X4QB
3	400	OXB400E3X4QB
3	500	OXB500E3X4QB
3	630	OXB630E3X4QB
3	800	OXB800E3X4QB
3	1000	OXB1000E3X4QB
3	1250	OXB1250E3X4QB
3	1600	OXB1600E3X4QB
4	200	OXB200E3S4QB
4	250	OXB250E3S4QB
4	315	OXB315E3S4QB
4	400	OXB400E3S4QB
4	500	OXB500E3S4QB
4	630	OXB630E3S4QB
4	800	OXB800E3S4QB
4	1000	OXB1000E3S4QB
4	1250	OXB1250E3S4QB
4	1600	OXB1600E3S4QB

Note:
- Top or bottom feed needs to be stipulated in order
- Closed transition available on request

Automatic transfer switches

IEC, Open style, Level 4 Touch controls

Top entry - Source 1 and Source 2 connections on top, load connections on bottom

No. of Poles	Rated current	Order code
3	200	OXB200E3X4QT
3	250	OXB250E3X4QT
3	315	OXB315E3X4QT
3	400	OXB400E3X4QT
3	500	OXB500E3X4QT
3	630	OXB630E3X4QT
3	800	OXB800E3X4QT
3	1000	OXB1000E3X4QT
3	1250	OXB1250E3X4QT
3	1600	OXB1600E3X4QT
4	200	OXB200E3S4QT
4	250	OXB250E3S4QT
4	315	OXB315E3S4QT
4	400	OXB400E3S4QT
4	500	OXB500E3S4QT
4	630	OXB630E3S4QT
4	800	OXB800E3S4QT
4	1000	OXB1000E3S4QT
4	1250	OXB1250E3S4QT
4	1600	OXB1600E3S4QT

Note:
- Top or bottom feed needs to be stipulated in order
- Closed transition available on request

Automatic transfer switches

IEC, Enclosed style, Level 3 LCD controls - professional

Delayed transition

I-O-II –operation with stable OFF position between positions I and II.
Delivery includes handle for manual operation, transparent IP54 protection cover and bolt kit with nuts and washers for all terminals. Enclosure rating IP54, ATS manually operable without opening the door

Bottom entry - Source 1 and Source 2 connections on bottom, load connections on top

No. of poles	Rated current	Feed	Order code
3	200	B	OXB200E3X3Q54B
3	250	B	OXB250E3X3Q54B
3	315	B	OXB315E3X3Q54B
3	400	B	OXB400E3X3Q54B
3	630	B	OXB630E3X3Q54B
3	800	B	OXB800E3X3Q54B
3	1000	B	OXB1000E3X3Q54B
3	1250	B	OXB1250E3X3Q54B
3	1600	B	OXB1600E3X3Q54B
4	200	B	OXB200E3S3Q54B
4	250	B	OXB250E3S3Q54B
4	315	B	OXB315E3S3Q54B
4	400	B	OXB400E3S3Q54B
4	630	B	OXB630E3S3Q54B
4	800	B	OXB800E3S3Q54B
4	1000	B	OXB1000E3S3Q54B
4	1250	B	OXB1250E3S3Q54B
4	1600	B	OXB1600E3S3Q54B

Note:
- 2 pole available
- Top feed change end letter from B-T

STOCK | **INDENT**

Automatic transfer switches

IEC, Enclosed style, Level 4 LCD controls - professional

Delayed transition

I-O-II –operation with stable OFF position between positions I and II.
Delivery includes handle for manual operation, transparent IP54 protection cover and bolt kit with nuts and washers for all terminals. Enclosure rating IP54, ATS manually operable without opening the door

Bottom entry - Source 1 and Source 2 connections on bottom, load connections on top

No. of poles	Rated current	Feed	Order code
3	200	B	OXB200E3X4Q54B
3	250	B	OXB250E3X4Q54B
3	315	B	OXB315E3X4Q54B
3	400	B	OXB400E3X4Q54B
3	630	B	OXB630E3X4Q54B
3	800	B	OXB800E3X4Q54B
3	1000	B	OXB1000E3X4Q54B
3	1250	B	OXB1250E3X4Q54B
3	1600	B	OXB1600E3X4Q54B
4	200	B	OXB200E3S4Q54B
4	250	B	OXB250E3S4Q54B
4	315	B	OXB315E3S4Q54B
4	400	B	OXB400E3S4Q54B
4	630	B	OXB630E3S4Q54B
4	800	B	OXB800E3S3Q54B
4	1000	B	OXB1000E3S4Q54B
4	1250	B	OXB1250E3S4Q54B
4	1600	B	OXB1600E3S4Q54B

Note:
- 2 pole available
- Top feed change end letter from B-T

Automatic transfer switches
Accessories

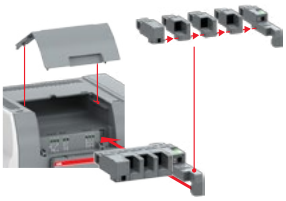


OXEA1

Auxiliary power supply module
Aux power supply is used to power connectivity modules of the switch.

Suitable for switches	Aux voltage	Order code
OX30...1600	12-24Vdc	OXEA1

Note:
12-24VDC Power Supply is not required when line power is available but required during power outages.



Connectivity modules
Used in conjunction with power supply module.
Ekip Com Modules allow TruONE to be integrated into an industrila communication network for remote supervision and control of the switch.
Several Ekip modules can be installed at the same time allowing communication to systems using different protocals.
Modbus RTU, Profibus & DP module contain a terminating resisitor & dip switch optional activation to terminate the serial network or bus.



Ekip Com

Communication modules for Level 3 and Level 4 controllers

Suitable for switches	Protocol	Type	Order code
OX30...1600	Modbus RTU	Ekip Com Modbus RS-485-OX	1SDA104051R1
OX30...1600	Modbus TCP	Ekip Com Modbus TCP-OX	1SDA104052R1
OX30...1600	Profibus DP	Ekip Com Profibus	1SDA074152R1
OX30...1600	Profinet	Ekip Com Profinet	1SDA074153R1
OX30...1600	EtherNet/IP	Ekip Com EtherNet / IP	1SDA074155R1
OX30...1600	DeviceNet	Ekip Com DeviceNet	1SDA074154R1



Ekip 2K Signalling

Signalling
EKIP 2K Modules add 2 input and 2 output for remote siganlling and control.
Allow programming from the HMI unit display or through EKIP connect software.
3 versions of the Ekip signalling modules are available as per below.

Signalling modules for Level 3 and Level 4 controllers

Suitable for switches	No. of DI/DO	Type	Order code
OX30...1600	2/2	Ekip Signalling 2K-1-OX	1SDA104053R1
OX30...1600	2/2	Ekip Signalling 2K-2-OX	1SDA104054R1
OX30...1600	2/2	Ekip Signalling 2K-3-OX	1SDA104055R1

Automatic transfer switches
Accessories


Ekip Programming

Ekip Programming module
Used for programming the TruONE via USB conneted to PC in conjunction with EKIP connect Software. Allows both online and off line programming.
Used with Level 3 and 4 controllers.

Suitable for switches	Order code
OX30...1600	1SDA076154R1


OXES_S

Terminal shrouds
Snap-on mounting to the switches, IP 20. A kit includes three or four shrouds which can be used on both top and bottom of the switch. Order 2 x sets to cover both top and bottom terminals.


OXES_L

Suitable for switches	No. of poles	Description	Order code
IEC 200-250 Amps UL 30-200 Amps	3	Short type	OXES250G1S/3
	4	Short type	OXES250G1S/4
	3	Long type	OXES250G1L/3
IEC 315-800 Amps UL 260-600 Amps	4	Long type	OXES250G1L/4
	3	Short type	OXES800G1S/3
	4	Short type	OXES800G1S/4
	3	Long type	OXES800G1L/3
	4	Long type	OXES800G1L/4
EC 1000-1600 Amps UL 800-1200 Amps	3	Long type	OXES1600G1L/3
	4	Long type	OXES1600G1L/4


OXEB_

Phase barriers
Grey plastic barriers for maintaining 1” clearance between the phases without terminal shrouds. Snap-on mounting. Included as standard for the LOAD side terminals with IEC 500-1600 Amps and UL 400-1200 Amps.

Suitable for switches	No. of poles	Order code
OX30...1600	3	OXEB1600/4
OX30...1600	4	OXEB1600/6


OXEW1600_

Wide blade kit
Needed with IEC 1000-1600 Amps, UL 800-1200 Amps on the LOAD side terminals, when wiring is done with four cables and using mechanical compression lugs.

Suitable for switches	No. of poles	Order code
OX800U...1600	3	OXEW1600/3
OX800U...1600	4	OXEW1600/4

Note: These codes are only for spare part purposes as the items are already included in the standard delivery.

Automatic transfer switches
Accessories



OXEC21

HMI protective cover, IP54

IP54 padlockable transparent cover, providing protection against accidental contact.

Suitable for switches	Order code
OX30...1600	OXEC21

Terminal kits

Factory recommended: terminal kits with bolts, washers and nuts used for connecting the cables/bus bars to the switch terminals.
For IEC 200-800 Amps, UL 30-600 Amps, order 1 x kit with 2-pole switches and 2 x kits with 3- and 4-pole switches.
For IEC 1000-1600 Amps, UL 800-1200 Amps, order 3 x kits with 3-pole switches and 4 x kits with 4-pole switches

Suitable for switches	Order code
IEC 200-250 Amps UL 30-200 Amps	OZXE51/3E
IEC 315-800 Amps UL 260-600 Amps	OZXE54/3E
IEC 1000-1600 Amps UL 800-1200 Amps	OZXE3/3E

HMI cable

For connecting the HMI module to the ATS controller when HMI is mounted to the door.
Cat5(RJ45), 2m cable.

Suitable for switches	Type	Order code
OX30...1600	Cat.5 (RJ45)	3BSC950245R3

Notes



Enclosed switches

284	**Safety switches**
288	**Enclosed switch-disconnectors**
291	**Fireman's switches**
292	**Enclosed change-over switches**
293	**Enclosed switch fuses**

For more detailed product information, please refer to the Technical Catalogue:

- Enclosed safety switches – 1SCC340006C0201
- Enclosed switches – 1SCC340009C0201
- Switch-disconnectors OTDCP – 1SCC301021C0203

Safety switches
Side operated switches

Side operated safety switches, 3, 4 and 6-pole, IP65

Enclosure in robust thermoplastic (PBT). Colors: Box in light grey, cover and handle according to the table below. The safety switch comes complete with neutral, PE terminal, one N.O auxiliary contact, cable entries with metric threaded knock-outs, IP65 membrane glands. Cover interlock included.


BWS316 TPN, BWS416 TPSN


BWS325 TPN, BWS425 TPSN


BWS616 TPN, BWS625 TPSN

Dark grey sided-operated handle, dark grey cover
Cable entry position: Up/Down

Max. motor output/ AC-23A A15V		Cable openings/side	Enclosure dimensions			Order code
			Height	Width	Depth	
kW/A	kW/A		mm	mm	mm	
3 Pole Auxiliary contacts: 1NO • Auxiliary contacts max: 1NO						
7,5/16 111 60	7,5/10	2xM25/2xM25	130	111	60	BWS316TPN
Nov-25	Nov-16	2xM32/2xM32+M16	168	138	68	BWS325TPN
Auxiliary contacts: not included • Auxiliary contacts max: 1NO						
7,5/16 111 60	7,5/10	2xM25/2xM25	130	111	60	BWS316FTPN
4-pole Auxiliary contacts: 1NO • Auxiliary contacts max: 1NO						
7,5/16	7,5/10	2xM25/2xM25	130	111	60	BWS416TPSN
11/25	11/16	2xM32/2xM32+M16	168	138	68	BWS425TPSN
6-pole Auxiliary contacts: 1NO • Auxiliary contacts max: 1NO						
7,5/16	7,5/10	2xø25.5+ø16.5/2xø25.5+ø16.5	130	190	130	BWS616TPN
Nov-25	Nov-16	2xø25.5+ø16.5/2xø25.5+ø16.5	130	190	130	BWS625TPN


BWS325 TPN, BWS425 TPSN


BWS616 TPN, BWS625 TPSN

Red side-operated handle, yellow cover
Cable entry position: Up/Down

Max. motor output/ AC-23A A15V		Cable openings/side	Enclosure dimensions			Order code
			Height	Width	Depth	
kW/A	kW/A		mm	mm	mm	
3 Pole Auxiliary contacts: 1NO • Auxiliary contacts max: 1NO						
7,5/16 111 60	7,5/10	2xM25/2xM25	130	111	60	BWS316YTPN
Nov-25	Nov-16	2xM32/2xM32+M16	168	138	68	BWS325YTPN
4-pole Auxiliary contacts: 1NO • Auxiliary contacts max: 1NO						
7,5/16	7,5/10	2xM25/2xM25	130	111	60	BWS416YTPSN
Nov-25	Nov-16	2xM32/2xM32+M16	168	138	68	BWS425YTPSN
6-pole Auxiliary contacts: 1NO • Auxiliary contacts max: 1NO						
7,5/16	7,5/10	2xø25.5+ø16.5/2xø25.5+ø16.5	130	190	130	BWS616YTPN
Nov-25	Nov-16	2xø25.5+ø16.5/2xø25.5+ø16.5	130	190	130	BWS625YTPN

Note: Compression glands or flangers to be ordered separately

Safety switches

3-pole, IP65, black or red/yellow handle

Plastic enclosed safety switches



OTP16T_, OTP25T_, OTP36T_, OTP63T



OTP75T_, OTP90T_



OT160_...630_

Cable entries from top and bottom

The delivery includes a black or red/yellow handle (I-O/ON-OFF), PE-terminal, knock-out openings and auxiliary contacts according to the table below. IP65.
For red/yellow handle change letter 'T' to 'A' e.g. OTP36A3M

Max. motor output/ AC-23A 230V [kW]	400V [kW]	500V [kW]	690V [kW]	Cable outlets/ side	Auxiliary contacts included	Auxiliary contacts max.	Order code
Selector handle Include N-terminal. Knock-out openings, also for control cables. Compression glands have to be ordered separately.							
5.5	7.5	7.5	7.5	2xM25+M16	1no	2no+2nc	OTP16T3M
7.5	15	15	15	2×M32+M16	1no	2no+2nc	OTP25T3M
11	22	22	15	2×M32+M16	1no	2no+2nc	OTP36T3M
18.5	30	30	30	2×M32+M16	1no	2no+2nc	OTP63T3M
22	37	37	37	2×M50+M16	1no	2no+2nc	OTP75T3M
22	45	45	45	2×M50+M16	1no	2no+2nc	OTP90T3M
Pistol handle Flanges have to be ordered separately.							
30	45	45	45	II-flange	1no+1nc	2no+2nc	OT90AFCC3T
37	55	55	55	II-flange	1no+1nc	1no+1nc	OT125GFCC3T
45	75	75	75	II-flange	1no+1nc	1no+1nc	OT160EVFCC3T

Note:
Switches up to 1000 A
For 4-pole switches change T3M to T4M, C3T to C4T
For 6 pole switches part number T6M C6T

Steel sheet enclosed safety switches



OTL16...36T3M S01211A



OTL63T3M S01335A

Hinged cover, cable entries from top and bottom

The delivery includes a black or red/yellow handle (I-O/ON-OFF) PE-terminal and auxiliary contact 1 no. Knock-out type cable openings included, cable outlets also for control cable. Compression glands and flanges have to be ordered separately. Equipped with hinges and lock. IP65. For red/yellow handle change letter 'T' to 'A' e.g. OT236A3M

Max. motor output/ AC-23A 230V [kW]	400V [kW]	500V [kW]	690V [kW]	Cable outlets/ side	Auxiliary contacts included	Auxiliary contacts max.	Order code
Selector handle							
7.5	15	15	15	2×ø32.5+ø16.5	1no	2no+2nc	OTL25T3M
11	22	22	15	2×ø32.5+ø16.5	1no	2no+2nc	OTL36T3M
Pistol handle							
18.5	30	30	30	2×ø32.5+ø16.5	1no	2no+2nc	OTL63T3M
22	37	37	37	–	1no	2no+2nc	OTL75T3U
22	45	45	45	–	1no	2no+2nc	OTL90T3U

Note:
Switches over 1000 A available
4 pole switches available change T3M to T4M
6 pole switches available change T3M to T6M

STOCK | INDENT

Safety switches

3-pole, IP65, black or red/yellow handle

Aluminum enclosed safety switches

3-pole, cable entries from top and bottom

The delivery includes: enclosure in aluminum and handle in black plastic, neutral and PE terminal, 1 NO auxiliary contact, cable entries with metric threaded holes with membrane glands/sealing plugs IP54. For IP65 protection compression glands must be used. The switch-disconnector is lockable.



LBAS_ TPN

Rated operational current / power AC-23A			Cable entries Up/Down	Enclosure size [mm]			Order code
500V	690V	690V					
[A]	[A]	[kW]		W	H	D	
Selector handle, dark grey cover							
45	20	22	2xM40/2xM40+1xM16	160	230	145	LBAS345TPN
58	20	37	2xM40/2xM40+1xM16	160	230	145	LBAS375TPN
70	50	45	2xM40/2xM40+1xM16	160	230	145	LBAS390TPN

Note:
3, 4 and 6 pole available

Stainless steel sheet enclosed safety switches

Cable entries from top and bottom

The delivery includes a black handle (I-O/ON-OFF), auxiliary contact 1 no and PE-terminal. Knock-out type cable openings included, cable outlets also for control cable. Compression glands and flanges have to be ordered separately. Equipped with hinges and lock. IP65.



OTR16...36T3M

Max. motor output/ AC-23A				Cable outlets/side	Auxiliary contacts included	Auxiliary contacts max.	Order code
230V	400V	500V	690V				
[kW]	[kW]	[kW]	[kW]				
Selector handle							
5.5	7.5	7.5	7.5	2xø25.5+ø16.5	1no	2no+2nc	OTR16T3M
7.5	15	15	15	2xø32.5+ø16.5	1no	2no+2nc	OTR25T3M
11	22	22	15	2xø32.5+ø16.5	1no	2no+2nc	OTR36T3M
Pistol handle							
18.5	30	30	30	2xø32.5+ø16.5	1no	2no+2nc	OTR63T3M
22	37	37	37	B-flange	1no	2no+2nc	OTR75T3B
22	45	45	45	B-flange	1no	2no+2nc	OTR90T3B

Note:
4 and 6 pole available
For red/yellow handle change letter 'T' to 'A'
Acid proof IP65 stainless switches available up to 6 pole – please refer to main technical catalogue 1SCC340006C0201

Safety switches

EMC safety switches, 3-pole, IP65, black or red/yellow handle

Plastic enclosed EMC safety switches



OTE16...36T_



OTE75T_, OTE90T_

Cable entries from top and bottom

The delivery includes a black or red/yellow handle type handle (I-O/ON-OFF), auxiliary contacts according to the table below, and PE-terminal. IP65.
For red/yellow handle change 'T' to 'A' e.g. OTE36A3M

Max. motor output/ AC-23A				Cable outlets/ side	Auxiliary contacts included	Auxiliary contacts max.	Order code
230V	400V	500V	690V				
[kW]	[kW]	[kW]	[kW]				
The handles are padlockable with three padlocks in O-position Threaded knock-out openings, compression glands have to be ordered separately. Standard compression glands may be used (no EMC).							
7.5	15	15	15	2xM32+M16	1no	2no+2nc	OTE25T3M
11	22	22	15	2xM32+M16	1no	2no+2nc	OTE36T3M
22	37	37	37	2xM50+M16	1no	2no+2nc	OTE75T3M
22	38	45	45	2xM50+M16	1no	2no+2nc	OTE90T3M

Note:
4 and 6 pole available

Steel sheet enclosed EMC safety switches

3-pole, cable entries from top and bottom

The delivery includes a black or red/yellow handle (I-O/ON-OFF), auxiliary contact 1 no and PE-terminal. Knock-out openings included, cable outlets also for control cable. Compression glands have to be ordered separately, see Accessories for EMC Safety switches. Equipped with hinges and lock. IP65.



OT16...36_3TE

Max. motor output/ AC-23A				Cable outlets/ side	Auxiliary contacts included	Auxiliary contacts max.	Order code
230V	400V	500V	690V				
[kW]	[kW]	[kW]	[kW]				
Selector handle							
7.5	15	15	15	2xø32.5+ø16.5	1no	2no+2nc	OT25ETMM3TE
11	22	22	15	2xø32.5+ø16.5	1no	2no+2nc	OT36ETMM3TE
Pistol handle							
18.5	30	30	30	2xø32.5+ø16.5	1no	2no+2nc	OT63ETMM3TE

Note:
6 pole switches available

Enclosed switch-disconnectors

2-pole sided operated switches-disconnectors



BW225DP



BW240DP

Plastic enclosed, IP65

Enclosure in robust PBT plastic with metric threaded cable entries. Light grey box with dark grey cover and operating handle. Delivery includes PE terminal and membrane glands (IP54)/sealing plugs. For IP65 degree of protection compression glands must be used.

Rated operational current [A]			Cable entries Up/Down	Enclosure size [mm]			Order code
AC224		AC23A					
230V	400V	400V					
[A]	[A]	[kW]		W	H	D	
25	25	16	2xM25/2xM25	130	111	60	BW225DP
40	40	32	2xM32/2xM32+1xM16	168	138	68	BW240DP

3-pole sided operated switches-disconnectors

Plastic enclosed, IP65

Enclosure in robust PBT plastic with metric threaded cable entries. Light grey box with dark grey cover and operating handle. Delivery includes PE+neutral terminal and membrane glands (IP54)/sealing plugs. For IP65 degree of protection compression glands must be used.

Rated operational current [A]				Cable entries Up/Down	Enclosure size [mm]			Order code
AC22A		AC23A						
400V	500V	690V	500V		W	H	D	
16	16	10	10	2xM25/2xM25	130	111	60	BW316TPN
25	25	16	16	2xM25/2xM25	130	111	60	BW325TPN
40	40	32	25	2xM32/2xM32+1xM16	168	138	68	BW340TPN

Enclosed switch-disconnectors

4-pole sided operated switches-disconnectors


BWS425PSN


BW440PTSN

Plastic enclosed, IP65

Enclosure in robust PBT plastic with metric threaded cable entries. Light grey enclosure with dark grey operating handle. Delivery includes PE terminal and membrane glands (IP54)/sealing plugs. For IP65 degree of protec tion compression glands must be used.

Rated operational current [A]				Cable entries Up/Down	Enclosure size [mm]			Order code
AC22A			AC23A					
400V	500V	690V	500V		W	H	D	
25	25	16	16	2xM25/2xM25	130	111	60	BW425TPSN
40	40	32	25	2xM32/2xM32+1xM16	168	111	68	BW440TPSN

6-pole sided operated switches-disconnectors


BW625TPN, BW640TPN

Plastic enclosed, IP65

Enclosure in robust PBT plastic with non-threaded cable entries. Light grey box with dark grey cover and operating handle. Delivery includes PE+neutral terminal and membrane glands (IP54). For IP65 degree of protection compression glands (with prolonged thread) must be used.

Rated operational current [A]				Cable entries Up/Down	Enclosure size [mm]			Order code
AC22A			AC23A					
400V	500V	690V	500V		W	H	D	
25	25	16	16	2xØ25+1xØ16/2xØ25+1xØ16	130	190	65	BW625TPN
40	40	32	25	2xØ25+1xØ16/2xØ25+1xØ16	168	190	65	BW640TPN

Enclosed switch-disconnectors

3-pole front operated, IP65, black or red/yellow handle



OTP25B_, OTP32B_



OT45B_, OTP63B_



OTP100...125B3M



OTL16...63 B_



OTL100...125B3B



OTR16...63B3M



OTR100...125B3B

Plastic enclosed switch-disconnectors, IP65

Rated operational current [A] AC22A ≤690V	AC23A ≤415V	Cable outlets/ side	Enclosure size [mm] H	W	D	Order code
16	10	2xM25+M16	150	130	60	OTP16B3M
25	20	2xM25+M16	150	130	60	OTP25B3M
40	23	2xM25+M16	150	130	60	OTP32B3M
63	45	2xM32+M16	200	145	90	OTP45B3M
80	75	2xM32+M16	200	145	90	OTP63B3M
100	80	2xM50+M16	400	200	140	OTP100B3M

Note:
Threaded knock-outs, compression glands have to be ordered separately
Includes selector-type black handle (I-0 and ON-OFF indication), N- and PE-terminals
Up to 800 A
For red/yellow handle change 'B' to 'BA'
4 pole available – change 'B3M' to 'B4M'
6 pole available – change 'B3M' to 'B6M'

Steel sheet enclosed switch-disconnectors, IP65

Rated operational current [A] AC22A ≤690V	AC23A ≤415V	Cable outlets/ side	Enclosure size [mm] H	W	D	Order code
Includes selector type code black handle (I-0 and ON-OFF indication), N- and PE-terminals. Cable knock-outs as standard, compression glands have to be ordered separately.						
16	16	2xø25+ø16	200	150	100	OTL16B3M
25	20	2xø25+ø16	200	150	100	OTL25B3M
40	23	2xø25+ø16	200	150	100	OTL32B3M
63	45	2xø32+ø16	200	150	100	OTL45B3M
80	75	2xø32+ø16	200	150	100	OTL63B3M
Includes pistol type code black handle (I-0 and ON-OFF indication), N- and PE-terminals. Cable knock-outs as standard, flanges have to be ordered separately.						
100	80	–	300	200	135	OTL100B3U
125	90	–	300	200	135	OTL125B3U

Note:
Up to 1600 A
4 pole available – change 'B3M' to 'B4M'
6 pole available – change 'B3M' to 'B6M'
IP54 available for 3, 4 and 6 pole

Stainless steel sheet enclosed switch-disconnectors, IP65

Rated operational current [A] AC22A ≤690V	AC23A ≤415V	Cable outlets/ side	Enclosure size [mm] H	W	D	Order code
Includes selector type black handle (I-0 and ON-OFF indication), N- and PE-terminals. Cable knock-outs as standard, compression glands have to be ordered separately.						
25	20	2xø25+ø16	200	150	100	OTR25B3M
40	23	2xø25+ø16	200	150	100	OTR32B3M
63	45	2xø32+ø16	200	150	100	OTR45B3M
80	75	2xø32+ø16	200	150	100	OTR63B3M
Includes pistol type black handle (I-0 and ON-OFF indication), N- and PE-terminals. Cable knock-outs as standard, flanges have to be ordered separately.						
100	80	–	300	200	135	OTR100B3U
125	90	–	300	200	135	OTR125B3U

Note:
4 pole available – change 'B3M' to 'B4M'
6 pole available – change 'B3M' to 'B6M'
For red/yellow handle change 'B4M' to 'BA4M'
Higher ratings available on request

Fireman's switches

2-pole side operated Fireman's switches



KSF225DP, KSF325TPN, KSF425TPSN

Aluminum enclosed, IP65, red

Red painted switch-disconnectors for use by firemen to disconnect in case of fire. Enclosure in Aluminum alloy (Silumin) with metric threaded cable entries and special operating handle with loop and interlocking mechanism. Delivery includes PE terminal and membrane glands (IP54) / sealing plugs. For IP65 degree of protection compression glands must be used.

Rated operational current [A]			Cable sizes Up/Down	Enclosure size [mm]			Order code
AC22A		AC23A					
230V	400V	400V		H	W	D	
25	25	16	2xM25/2xM25	130	111	60	KSF225DP

Note:
Higher temperature rated fire switches available. Please contact ABB.
Please ask about fire rated switches.



KSF340TPN, KSF440TPSN

3-pole side operated Fireman's switches

Aluminum enclosed, IP65, red

Red painted switch-disconnectors for use by firemen to disconnect in case of fire. Enclosure in Aluminum alloy (Silumin) with metric threaded cable entries and special operating handle with loop and interlocking mechanism. Delivery includes PE+neutral terminal and membrane glands (IP54) / sealing plugs. For IP65 degree of protection compression glands must be used. **Please ask about fire rated switches.**

Rated operational current [A]				Cable sizes Up/Down	Enclosure size [mm]			Order code
AC22A			AC23A					
400V	500V	690V	500V		H	W	D	
25	25	16	16	2xM25/2xM25	130	111	60	KSF325TPN
40	40	32	25	2xM32/2xM32+1xM16	168	138	68	KSF340TPN

Note:
Higher temperature rated fire switches available. Please contact ABB.
Please ask about fire rated switches.

4-pole side operated Fireman's switches

Aluminum enclosed, IP65, red

Red painted switch-disconnectors for use by firemen to disconnect in case of fire. Enclosure in Aluminum alloy (Silumin) with metric threaded cable entries and special operating handle with loop and interlocking mechanism. Delivery includes PE+neutral terminal and membrane glands (IP54) / sealing plugs. For IP65 degree of protection compression glands must be used. **Please ask about fire rated switches.**

Rated operational current [A]				Cable sizes Up/Down	Enclosure size [mm]			Order code
AC22A			AC23A					
400V	500V	690V	500V		H	W	D	
25	25	16	16	2xM25/2xM25	130	111	60	KSF425TPSN
40	40	32	25	2xM32/2xM32+1xM16	168	138	68	KSF440TPSN

Note:
Higher temperature rated fire switches available. Please contact ABB.

STOCK | INDENT

Enclosed change-over switches

Steel sheet enclosed change-over switches

3-pole front operated change-over switches



OT125...800_3C



OT125...800_4C

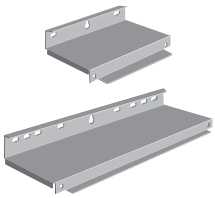
Steel sheet enclosed, IP54*

Rated operational current [A]		Cable outlets/ side	Enclosure size [mm]			Order code
AC22A	AC23A					
≤690V	≤415V		H	W	D	
Includes pistol-type black handle (I-O-II indication), N- and PE-terminals. Cable knock-outs as standard, compression glands and connection bars for parallel connection have to be ordered separately.						
16	16	2xø25+ø16	350	233	140	OTL16C3M
25	20	2xø25+ø16	350	233	140	OTL25C3M
40	23	2xø25+ø16	350	233	140	OTL40C3M
63	45	2xø32+ø16	350	233	140	OTL63C3M
80	63	2xø32+ø16	350	233	140	OTL80C3M
Delivery without cable entries, top and bottom sides are open. Cable entries for C-flanges or for ring-flanges have to be ordered separately, see accessories. These entries are used also for fixing the enclosed switches. Flanges and connection bars for parallel connection have to be ordered separately too. Includes pistol-type black handle (I-O-II indication), N- and PE-terminals.						
160	135	Open	600	400	230	OT160KLAA3CZ
200	200	Open	600	400	230	OT200KLAA3CZ
250	250	Open	600	400	230	OT250KLAA3CZ
315	315	Open	800	400	330	OT315KLAA3C
400	400	Open	800	400	330	OT400DLAA3CZ
570	570	Open	1000	800	330	OT630KLAA3CZ
720	720	Open	1000	800	330	OT800KLAA3CZ

Note:
Up to 800 A
4 pole available: change 3C to 4C
6 pole available
*IP65 available on request

Cable entry plates for steel sheet enclosures

These cable entries and plates are also used for fixing the enclosed switches. The flanges have to be ordered separately.



OEZXP__0

Size of cable entry W x D [mm]	Number of C-flange entries [pcs]	Number of ring-flange entries [pcs]	Order code
Blank entries, no flange entries			
250x180	–	–	OEZXP120[1)]
400x230	–	–	OEZXPE240
400x330	–	–	OEZXP340
800x230	–	–	OEZXPE280
800x330	–	–	OEZXPE380

Note:
Includes knock-outs ø 10, 12.5, 20.5 and 25.5

Enclosed switch fuses

3-pole front operated switch fuses, BS-type


OS20...32P


OS32G...400

Plastic enclosed, IP65

I_{th} +40ºC [A]	Rated operational current AC22A/ AC23A 500V [A/A]	Suitable for fuse type BS 88	Cable outlets/ side	Enclosure size [mm] H	W	D	Order code
Includes pistol-type black handle (I-0 and ON-OFF indication), N- and PE-terminals. Delivery with blank cable entries.							
20	20/20	A1	-	250	175	150	OS20PA1FUU3B
Includes pistol-type black handle (I-0 and ON-OFF indication), N- and PE-terminals. Cable knock-outs as standard, flanges have to be ordered separately.							
200	200/200	B1-B2	II-flange	560	380	280	OS200BB2FCC3B
315	315/315	B1-B3	II-flange	560	380	280	OS315BB3FCC3B
400	400/400	B1-B4	II-flange	560	380	280	OS400BB4FCC3B

Note:
2 and 4 pole switches available
Metal enclosure available

3-pole front operated switch fuses, DIN-type


OS00-32...400

Plastic enclosed, IP65

I_{th} +40ºC [A]	Rated operational current AC22A/ AC23A 500V [A/A]	Suitable for fuse type DIN	Cable outlets/ side	Enclosure size [mm] H	W	D	Order code
Includes pistol-type black handle (I-0 and ON-OFF indication), N- and PE-terminals. Cable knock-outs as standard, flanges have to be ordered separately.							
250	250/250	0-1	II-flange	560	380	280	OS250D1FCC3B
400	400/400	0-2	II-flange	560	380	280	OS400D2FCC3B

Note:
Steel enclosed switches available
4 pole switches available
BS fuse switches available – change 'D' to 'B'
Metal enclosure available


ABB

Switch fuses

296	Technical data
299	Type designation key
300	OS32...1250
302	Selection overview for OS100...1250
303	Accessories



For more detailed product information, please refer to the Technical Catalogue:

- Switch fuses-OS – 1SCC311013C0201

Manual operated switch fuses, IEC

Technical data for OS32...160G

Technical data according to IEC 60947-3

Switch type			A	OS_ 32G	OS_ 50G	OS_ 63G	OS_ 100G	OS_ 125G	OS_ 160G
Rated insulation voltage			V	1000	1000	1000	1000	1000	1000
Dielectric strength	Pollution degree 3	50 Hz 1min.	kV	10	10	10	10	10	10
Rated impulse withstand voltage			kV	12	12	12	8	8	8
Rated thermal current in ambient	In open air		A/W	32/7.5	50/7.5	63/7.5	100/12	125/12	160/12
35 °C and temporarily 40 °C[1] /	In enclosure		A/W	32/7.5	50/7.5	63/7.5	100/12	125/12	160/12
max. fuse power dissipation									
...with minimum cable cross section		Cu	mm^2	6	10	16	50	50	70
Power loss / pole	With rated current, without fuse		W	1	2.5	4	4	5	9
Derating, mounting on	In open air or ventilated enclosure		%	0	0	0	0	0	0
wall horizontal fuses									
	Totally enclosed		%	5	5	5	5	5	5
Derating, mounting on ceiling			%	10	10	10	10	10	10
Derating at 60˚C	In open air/ in enclosure		%	20/20	20/20	20/20	20/20	20/20	20/20
Rated operational voltage			V	1000	1000	1000	1000	1000	1000
AC-20 and DC-20									
Rated operational current, AC-21A		up to 500 V	A	32	50	63	100	125	160
		690 V	A	32	50	63	100	125	160
Rated operational current, AC-22A		up to 500 V	A	32	50	63	100	125	160
		690 V	A	32	50	63	100	125	160
Rated operational current, AC-23A		up to 500 V	A	32	50	63	100	125	160
		690 V	A	32	50	63	100	125	160
Rated operational current / poles in series DC-21A		48 V	A	32/2	50/2	63/2	100/2	125/2	160/2
		110-220 V	A	32/2*	50/2*	63/2*	100/2*	125/2*	125/2*
		440 V	A	32/4*	50/4*	50/4*	100/4*	125/4*	125/4*
Rated operational current / poles in series DC-22A		48 V	A	32/2	50/2	63/2	100/2	125/2	160/2
		110-220 V	A	32/2*	50/2*	63/2*	100/2*	125/2*	125/2*
Rated operational current / poles in series DC-23A		48 V	A	32/2	50/2	63/2	100/2	125/2	160/2
		110-220 V	A	32/2*	50/2*	63/2*	100/2*	125/2*	125/2*
Rated operational power, AC-23[2]	The kW-ratings are accurate for	230 V	kW	7.5	11	18.5	30	37	45
	three-phase 1500 R.P.M.	400 V	kW	15	22	30	55	55	75
	standard asynchronous motors.	415 V	kW	15	22	30	55	55	75
		500 V	kW	18.5	30	37	55	75	90
		690 V	kW	22	37	55	90	110	132
Rated breaking capacity in category AC-23		≤ 690 V	A	504	504	504	1280	1280	1280
Rated breaking capacity / poles in series		up to 220 V	A	252/2	252/2	252/2	640/2	640/2	640/2
in category DC-23									
Rated conditional short-circuit current	at prospective SC-current	80 kA, 415 V	kA	13.5	13.5	13.5	23.5	23.5	23.5
I_p (r.m.s.) and corresponding max.	Max OFA_ fuse size gG/aM		A	80/63	80/63	80/63	160/160	160/160	160/160
allowed cut-off current $\hat{I}_c$	at prospective SC-current	100 kA, 500 V	kA	12.5	12.5	12.5	25.5	25.5	25.5
	Max OFA_ fuse size gG/aM		A	63/50	63/50	63/50	160/160	160/160	160/160
The cut-off current $\hat{I}_c$ refers to values	at prospective SC-current	50 kA, 690 V	kA	9.5	9.5	9.5	17.5	17.5	17.5
listed by fuse manufacturers	Max OFA_ fuse size gG/aM		A	63/50	63/50	63/50	125/160	125/160	1257160
(single phase test acc. to IEC60269).	at prospective SC-current	80 kA, 690 V	kA	11.5	11.5	11.5	20.5	20.5	20.5
	Max OFA_ fuse size gG/aM		A	50/50	50/50	50/50	125/160	125/160	125/160
Rated short-time withstand	r.m.s. -value		kA	2.5	2.5	2.5	5	5	5
current, 1 s.									
Rated capacitor power	The capacitor rating of the	400 V	kVAr	15	20	25	40	50	60
when no initial charge on the capacitor	switch-fuse is limited by	415 V	kVAr	15	25	32	42	55	65
	the fuse link.	690 V	kVAr	25	42	50	75	90	100
Mechanical endurance	Divide by two for operation cycles		Oper.	20 000	20 000	20 000	20 000	16 000	16 000
Fuse types, IEC 60269-2	DIN 43620			000		000		000, 00	000, 00
	NFC 63210, 63211				14x51			22x58	
	BS 88-2, -6			A2-A3[5]		A2-A3[3]	A2-A4[4]	A2-A4[4]	A2-A4[4]
	distance of fuse-link bolts		mm	M5/73		M5/73	M5/73	M5/73	M5/73
							M8/94	M8/94	M8/94
Cable size		Cu	mm^2	2.5...25	2.5...25	2.5...25			
Terminal tightening torque	Counter torque required		Nm	3/4[5]	3/4[5]	3/4[5]	15-22	15-22	15-22
Fuse-links bolts tightening torque			Nm	3.5		3.5	M5:3.5	M5:3.5	M5:3.5
							M8:5	M8:5	M8:5
Operating torque	Typical for 3-pole switch fuses		Nm	5	5	5	7	7	7

*= Utilization category B.

1) Acc. to IEC 60947-1, § 6.1.1. Minimum ambient temperature -5°C. Category B: -5°C...-35°C.

2) Some fuse links limit these figures further. Starting current characteristics must be considered separately.

3) Max. fuse body diam. 22 mm.

4) Max. fuse body diam. 32 mm.

5) 3 Nm with cable sizes 2.5...6 mm^2, 4 Nm with cable sizes 10...25 mm^2.

Manual operated switch fuses, IEC

Technical data for OS200...400

Technical data according to IEC 60947-3

Switch type			A	OS_ 200_	OS_ 200_	OS_ 250_	OS_ 315_	OS_ 400_
Rated insulation voltage and rated operational voltage AC-20 and DC-20	Pollution degree 3	50 Hz 1min.	V	1000	1000	1000	1000	1000
Dielectric strength			kV	10	10	10	10	10
Rated impulse withstand voltage			kV	8	12	12	12	12
Rated thermal current in ambient 35 °C and temporarily 40 °C[1] / max. fuse power dissipation ...with minimum cable cross section	In open air		A/W	200/14	200/17	250/23	315/32	400/45
	In enclosure		A/W	200/14	200/15	250/20	315/32	400/30
		Cu	mm^2	70	95	120	185	240
Derating, mounting on wall horizontal fuses	In open air or ventilated enclosure		%	0	0	0	0	4
	Totally enclosed		%	5	5	5	5	8
Derating, mounting on ceiling			%	10	10	10	10	10
Derating at 60 °C	In open air / in enclosure		%	20/20	20/20	20/20	20/20	20/20
Power loss / pole	With rated current, without fuse		W	9	8	13	19	30
Rated operational current AC-22B		≤ 415 V	A	200				
Rated operational current AC-21A		≤ 500 V	A	160	200	250	315	400
		690 V	A	160	200	250	315	400
Rated operational current AC-22A		≤ 415 V	A	160	200	250	315	400
		500 V	A	160	200	250	315	400
		690 V	A	160	200	250	315	400
Rated operational current AC-23A		≤ 415 V	A	160	200	250	315	400
		500 V	A	160	200	250	315	400
		690 V	A	160	200	250	315	400
Rated operational current / poles in series DC-21A, DC-22A and DC-23A		≤ 220 V	A	125/2[2]	200/1	250/1	315/2	400/2
		440 V	A	125/4[2]	200/2	250/2	315/3*	400/3*
		660 V	A		200/3	250/3	315/4*	400/4*
		750 V	A		180/4	230/4	315/4*	400/4*
		880 V	A		180/4	230/4		
Rated operational power AC-23[3]		230 V	kW	45	60	75	100	132
		400 V	kW	75	110	140	160	220
		415 V	kW	75	110	145	180	230
		500 V	kW	90	132	170	220	280
		690 V	kW	132	200	250	315	400
Rated breaking capacity AC-23		≤ 690 V	A	1280	1600	2000	3200	3200
Rated conditional short-circuit current I_p (r.m.s.) and corresponding max. allowed cut-off current $\hat{i}_c$	at prospective SC-current	80 kA,	kA	23.5	35	40.5		59
	Max. OFA_ fuse size gG/aM	415 V	A	160/160	250/200	355/315		500/500
	at prospective SC-current	100 kA,	kA	25.5	37.5	37.5		63.5
	Max. OFA_ fuse size gG/aM	500 V	A	160/160	250/200	250/250		500/500
The cut-off current $\hat{i}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269). Rated short-time withstand current, 1s.	at prospective SC-current	80 kA,	kA	20.5	25	32.5		46
	Max. OFA_ fuse size gG/aM	690 V	A	125/160	160/-	200/250		315/400
	at prospective SC-current	50 kA,	kA	17.5	28	28	44	44
	Max. BS fuse size gG/gM	415 V	A	125/160	200/200M315	250/200M315	400/400M500	400/400M500
	at prospective SC-current	80 kA,	kA	20.5	28	28	48	48
	Max. BS fuse size gG/gM	690 V	A	125/160	200/200M250	250/200M250	400/400M450	400/400M450
	r.m.s. -value		kA	5	8	8	14	14
	Max. distance from switch frame to nearest busbar/cable support		mm	150	150	150	150	150
Rated capacitor power when no initial charge of the capacitor	The capacitor ratings of the switch-fuses are limited by the fuse links	400 V	kVAr	60	90	105	145	180
		415 V	kVAr	65	100	115	160	200
		500 V	kVAr		120	135	175	215
		690 V	kVAr	100	160	190	250	325
Mechanical endurance	Divide by two for operation cycles		Oper.	16 000	20 000	20 000	16 000	16 000
Fuse types, IEC 60269-2	DIN 43620				0	0-1		0-2
	NFC 0-3 Ref.A, 4a Ref.B				1	1		2
	BS 88-2, -6			A2-A4	B1-B2	B1-B3[4]	B1-B4[5]	B1-B4[5]
	Size / distance of fuse-link bolts		mm	M5/73, M8/94	M6/111	M8/111	M8/111	M8/111
Terminal tightening torque	Counter torque required		Nm	15-22	15-22	30-44	30-44	30-44
Fuse-links bolts tightening torque			Nm	M5:3.5 M8:5	4	5	20	20
Operating torque	Typical for 3-pole switch fuses		Nm	7	7	7	19	19

* = Utilization category B.

1) Acc. to IEC 60957-2, IEC 60947-1, § 6.1.1. Minimum ambient temperature -5°C. Category B: -5°C...-35°C.

2) Utilization category DC21-B.

3) These values are given for guidance and may vary acc. to the motor manufacturer.

4) Max fuse body diam 52 mm.

5) Max fuse body diam 62 mm.

Manual operated switch fuses, IEC

Technical data for OS630...1250

Technical data according to IEC 60947-3

Switch type			A	OS_ 630_	OS_ 800_	OS_ 1250_
Rated insulation voltage and rated operational voltage AC-20 and DC-20	Pollution degree 3	50 Hz	V	1000	1000	1000
Dielectric strength		1min.	kV	10	10	10
Rated impulse withstand voltage			kV	12	12	12
Rated thermal current in	In open air		A/W	630/60	800/65	1250/110
ambient 35 °C and temporarily in 40 °C[1] /	In enclosure		A/W	570/50	720/55	1000/85
max. fuse power dissipation						
...with minimum cable cross section		Cu	mm^2	2 x 185	2 x 240	2 x 400
Derating, mounting on	In open air or ventilated enclosure		%	0	4	4
wall horizontal fuses	Totally enclosed		%	5	8	8
Derating, mounting on 'ceiling'			%	10	10	10
Derating at 60 °C	In open air / in enclosure		%	20/20	20/20	20/20
Power loss / pole	With rated current, without fuse		W	46	75	75
Rated operational current AC-21A		≤ 500 V	A	630	800	1250[2]
		690 V	A	630	800	1250[2]
Rated operational current AC-22A		≤ 415 V	A	630	800	1250
		500 V	A	630	800	1250[2]
		690 V	A	630	800	1250[2]
Rated operational current AC-23A		≤ 415 V	A	630	800	1000
		500 V	A	630	800	1000[2]
		690 V	A	630	800	1000[2]
Rated operational current /		≤ 220 V	A	630/1*	800/1*	
poles in series DC-21A, DC-22A and DC-23A		440 V	A	630/2*	800/2*	
		660 V	A	630/3*	720/3*	
		750 V	A	630/4*	720/4*	
		880 V	A	630/4*	720/4*	
Rated operational power AC-23[3]		230 V	kW	200	250	315
		400 V	kW	355	450	560
		415 V	kW	355	450	560
		500 V	kW	450	560	710
		690 V	kW	630	710	1000
Rated breaking capacity AC-23		≤ 690 V	A	6400	6400	8000
Rated conditional short circuit current	at prospective SC-current	80 kA,	kA	77	77	89
I_p (r.m.s.) and corresponding max.	Max. OFA_ fuse size gG/aM		A	800/800	800/800	1250/1250
allowed cut-off current $\hat{I}_c$	at prospective SC-current	100 kA,	kA	83	83	105
	Max. OFA_ fuse size gG/aM		A	800/800	800/800	1250/-
The cut-off current $\hat{I}_c$ refers to values	at prospective SC-current	80 kA	kA	55	55	88
listed by fuse manufacturers	Max. OFA_ fuse size gG/aM		A	500/630	500/630	1000/1000
(single phase test acc. to IEC60269)	at prospective SC-current	50 kA	kA	67	67	90
Rated short-time withstand current, 1s.	Max. BS fuse size gG/gM		A			
	r.m.s. -value		kA	18	18	40
	Max. distance from switch frame		mm	150	150	150
	to nearest busbar/cable support					
Rated capacitor power	The capacitor ratings of the	400 V	kVAr	250	310	440
when no initial charge of the capacitor	switch-fuses are limited by	415 V	kVAr	270	340	460
	the fuse links	500 V	kVAr	300	375	550
		690 V	kVAr	450	550	750
Mechanical endurance	Divide by two for operation cycles		Oper.	10 000	6000	6000
Fuse types, IEC 60269-2	DIN 43620			3	3	4, 4 a
	NFC 0-3 Ref.A, 4a Ref.B			3	3	4 a
	BS 88-2, 6			C1-C2	C1-C3	D1
	Size / distance of fuse-link bolts		mm	M10/133, 184	M10/133, 184	2xM12/149
Terminal tightening torque	Counter torque required		Nm	50-75	50-75	50-75
Fuse-links bolts tightening torque			Nm	M10:30 M12:40	M10:30 M12:40	M12:40
Operating torque	Typical for 3-pole switch fuses		Nm	38	38	65

* = Utilization category B.

1) Acc. to IEC 60957-2, IEC 60947-1, § 6.1.1. Minimum ambient temperature -5°C. Category B: -5°C...-35°C.

2) Category B.

3) These values are given for guidance and may vary acc. to the motor manufacturer.

Manual operated switch fuses 32...1250 A

Type designation key

Type codes

Understanding the type code keys below will help you quickly identify the correct product for your needs. The simple naming system allows you to see the products type, Ampere rating, standard classification and number of poles, all in one glance.

Explanation of the types OS32...1250 A

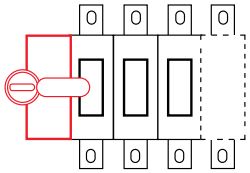
OS	125G	D	_	04	N2	_	P
1	2	3	4	5	6	7	8

1	**Brand**
OS	ABB switch fuse/fusible switch
2	Switch size / Ampere rating
32G...200G	Gamma, 32A...200A
200...1250	200A...1250 A
3	**Fuse type**
D	DIN
B	BS
F	NFC
J	J
L	L
4	**Switch operation**
Blank	Front operation
S	Side operation
5	**Number of poles and placing of the operating mechanism**
03	3 poles, operating mechanism at the left end of the switch
04	4 poles, operating mechanism at the left end of the switch
12	3 poles, operating mechanism between the poles
22	4 poles, operating mechanism between the poles
30	3 poles, operating mechanism at the right end of the switch
40	4 poles, operating mechanism at the right end of the switch
6	**Fourth pole/neutral terminal**
Blank	Neutral terminal not included
N1	Non-fused switched neutral on the left side
N2	Non-fused switched neutral on the right side
N3	Includes a detachable neutral link integrated into the mechanism
F	Fused switch neutral
7	**Terminals for special connection (only IEC)**
Blank	No special connection
BB	Back in, back out
LR	Left in, right out
8	**Included handle**
Blank	No handle included
P	Pistol handle and shaft
K	Direct mount handle

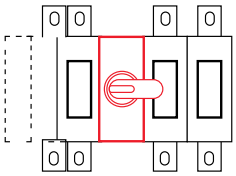
Pole configuration table

The various placing options of the operating mechanism in relation to the 3 or 4 poles is illustrated below. The operating mechanism may be placed at the end of the switch or between poles.

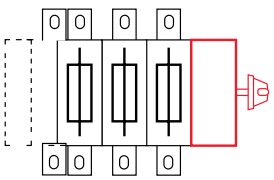
At the end of the switch fuse OS_03 or 04:



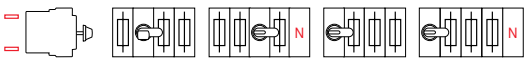
Between the poles OS_12 or 22:



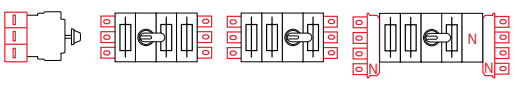
Side operated types OS_30 or 40 / OS_03 or 04:



BB-types:

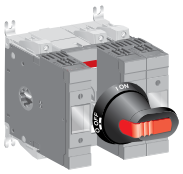


LR-types:

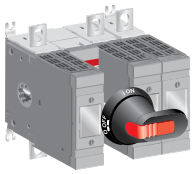


Switch fuses

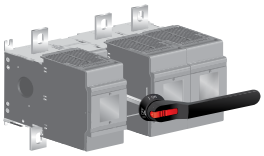
OS32...1250



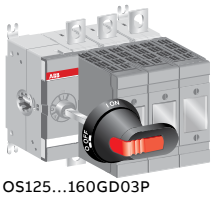
OS32...63GD12P



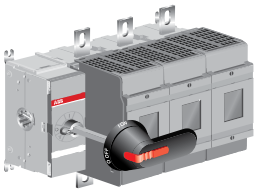
OS125...160GD12P



OS1250GD12P



OS125...160GD03P



OS400GD03P

DIN-type, front operated switch-disconnector
3 Poles
Including an IP65 black I-O/ON-OFF plastic handle and shaft as standard. Padlockable with 3 padlocks in O-OFF position, door interlock in I-ON position.
Screw fixing from the back side of the handle. No screws on the front ensures double insulation.
The shaft is adjustable for a range of installation depths.

In A	Rated operational current AC23 - 415/500/690V kW	Fuse Size	Order code
Mechanism between poles			
32	15/18.5/22	000	OS32GD12P
63	30/37/55	000	OS63GD12P
125	55/75/110	000, 00	OS125GD12P
160	75/90/132	000, 00	OS160GD12P
200	110/132/200	0	OS200D12P
250	145/170/250	0-1	OS250D12P
400	230/280/400	0-2	OS400D12P
630	355/450/630	3	OS630D12P
800	450/560/710	3	OS800D12P
1250	560/710/1000	4	OS1250D12P
Mechanism at the end of the switch fuse			
32	15/18.5/22	000	OS32GD03P
63	30/37/55	000	OS63GD03P
125	55/75/110	000, 00	OS125GD03P
160	75/90/132	000, 00	OS160GD03P
200	110/132/200	0	OS200D03P
250	145/170/250	0-1	OS250D03P
400	230/280/400	0-2	OS400D03P
630	355/450/630	3	OS630D03P
800	450/560/710	3	OS800D03P
1250	560/710/1000	4	OS1250D03P

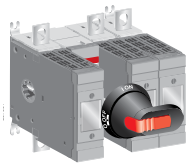
4P switch ordering example

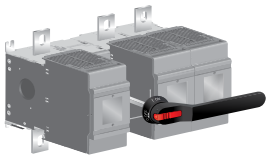
OS400DO3P	+	OXN400	+	OSS400G1L/3
Switch include shaft/handle	+	Neutral link	+	Shrouds

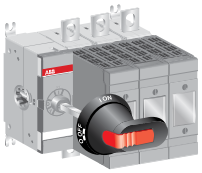
Shafts, handles and terminals included as standard

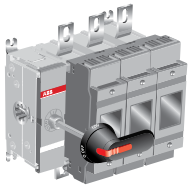
Suitable for switches	Included shaft	Included handle	Included terminals
OS32...63_	OXP6X161	OHB45J6	Tunnel terminals
OS125...160_	OXP6X161	OHB65J6	Tunnel terminals
OS200_	OXP6X210	OHB65J6	M8X25
OS250_	OXP6X210	OHB65J6	M10x30
OS400_	OXP12X250	OHB95J12	M10x30
OS630...800_	OXP12X280	OHB145J12	M12x40
OS1250_	OXP12X395	OHB274J12	M12x50

Switch fuses
OS32...1250


OS32...63GB12P


OS1250GB12P


OS100...160GB03P


OS200...250GB03P

BS-type, front operated switch-disconnector
3 Poles
Including an IP65 black I-O/ON-OFF plastic handle and shaft as standard. Padlockable with 3 padlocks in O-OFF position, door interlock in I-ON position.
Screw fixing from the back side of the handle. No screws on the front ensures double insulation.
The shaft is adjustable for a range of installation depths.

In A	Rated operational current AC23 - 415/500/690V kW	Fuse Size	Order code
Mechanism between poles			
32	15/18.5/22	A2, A3	OS32GB12P
63	30/37/55	A2, A3	OS63GB12P
100	55/55/90	A2-A4 (max. 32mm)	OS100GB12P
125	55/75/110	A2-A4 (max. 32mm)	OS125GB12P
160	75/90/132	A2-A4 (max. 32mm)	OS160GB12P
200	110/132/200	B1-B2	OS200B12P
250	145/170/250	B1-B3	OS250B12P
315	180/220/315	B1-B4	OS315B12P
400	230/280/400	B1-B4	OS400B12P
630	355/450/630	C1-C2	OS630B12P
800	450/560/710	C1-C3	OS800B12P
1250	560/710/1000	D1	OS1250B12P
Mechanism at the end of the switch fuse			
32	15/18.5/22	A2, A3	OS32GB03P
63	30/37/55	A2, A3	OS63GB03P
100	55/55/90	A2-A4 (max. 32mm)	OS100GB03P
125	55/75/110	A2-A4 (max. 32mm)	OS125GB03P
160	75/90/132	A2-A4 (max. 32mm)	OS160GB03P
200	110/132/200	B1-B2	OS200B03P
250	145/170/250	B1-B3	OS250B03P
315	180/220/315	B1-B4	OS315B03P
400	230/280/400	B1-B4	OS400B03P
630	355/450/630	C1-C2	OS630B03P
800	450/560/710	C1-C3	OS800B03P
1250	560/710/1000	D1	OS1250B03P

- motorised switch fuse available
- side operated switches available
- special connected switches available e.g. left to right

4P switch ordering example

OS400GO3P	+	OXN400	+	OSS400G1L/3
Switch include shaft/handle	+	Neutral link	+	Shrouds

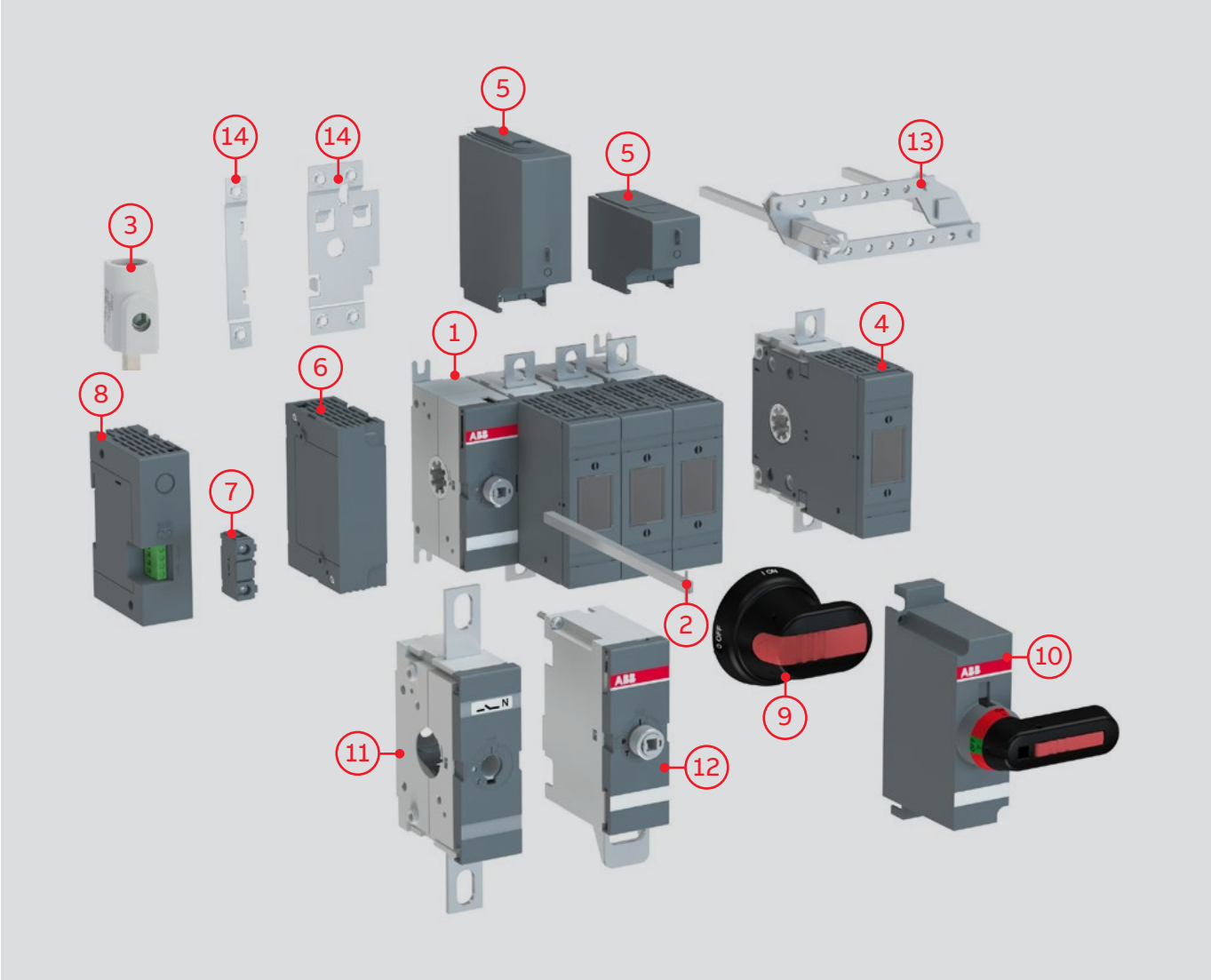
Shafts, handles and terminals included as standard

Suitable for switches	Included shaft	Included handle	Included terminals
OS32...63_	OXP6X161	OHB45J6	Tunnel terminals
OS100...160_	OXP6X161	OHB65J6	M8X25
OS200_	OXP6X210	OHB65J6	M8X25
OS250_	OXP6X210	OHB65J6	M10x30
OS315...400_	OXP12X250	OHB95J12	M10x30
OS630...800_	OXP12X280	OHB145J12	M12x40
OS1250_	OXP12X395	OHB274J12	M12x50

STOCK | INDENT

Manual operated switch fuses

Selection overview for OS100...1250

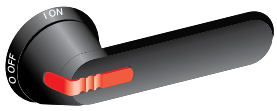


Accessory guide for OS100...1250

1. Switch fuse
2. Shaft
3. Terminal clamp
4. Fourth pole
5. Terminal shroud
6. Module for auxiliary contact
7. Auxiliary contact
8. Fuse monitor
9. Pistol handle
10. Direct mount handle
11. Detachable neutral link
12. Electrical interlock
13. Conversion kit
14. DIN rail mounting kit

Please note that listed accessories are not automatically included in your order.

Switch fuses
Accessories



OHB_



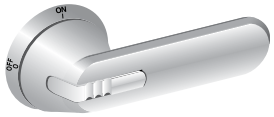
OHB274J12

Pistol handle

Forwarded handle, IP65. Screw fixing from the back side of the handle. No screws on the front ensures double insulation.
Indication I-O/ON-OFF. Padlockable with 3 padlocks in O-OFF position, door interlock in I-ON position.
Shaft to be ordered separately.

Suitable switches	Handle length mm	Suitable shaft mm	Colour	Order code
OS32...250_	45	6	Black	OHB45J6
	65	6	Black	OHB65J6
			Red-Yellow	OHY65J6
OS315...400_	95	12	Black	OHB95J12
			Red-Yellow	OHY95J12
OS630...800_	125	12	Black	OHB125J12
			Red-Yellow	OHY125J12
OS1250	274	12	Black	OHB274J12


OHM65L6

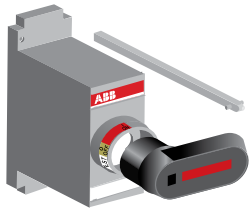


OHM_

Stainless steel pistol handle

Forwarded handle, IP66. Screw fixing from the back side of the handle. No screws on the front ensures double insulation.
Indication I-O/ON-OFF. Padlockable with 3 padlocks in O-OFF position, door interlock in I-ON position.
Shaft to be ordered separately.

Suitable switches	Handle length mm	Suitable shaft mm	Order code
OS32...250_	65	6	OHM65L6
OS315...800_	125	12	OHM125L12
	175	12	OHM175L12
OS1200_	275	12	OHM275L12



OSV_

Direct mounted handles

Plastic handles for front operated switch fuses. Indication: Test-OFF-ON/Test-O-I indication.
Panel board handle, can be padlocked in the OFF-position. Includes shaft and mechanism cover.
Padlockable with three padlocks in the OFF-position.

Suitable switches	Colour	Order code
OS32...160_	Black	OSV200BK
OS200...250D/B_	Black	OSV250DK
OS400D_	Black	OSV400DK
OS600...800_	Black	OSV800DK
OS1250_	Black	OSV1250DK

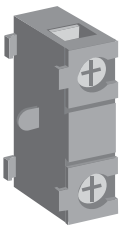
Switch fuses
Accessories


OXP6X_


OXP12X_

Shafts

Suitable switches	Shaft length mm	Order code
OS32...250	150	OXP6X150
	210	OXP6X210
	265	OXP6X265
	290	OXP6X290
	360	OXP6X360
	430	OXP6X430
OS315...1250	166	OXP12X166
	185	OXP12X185
	250	OXP12X250
	280	OXP12X280
	325	OXP12X325
	395	OXP12X395
	465	OXP12X465
	535	OXP12X535


OA1G_

Auxiliary contact blocks

IP20. Snap-on mounted inside of the switch. I=16A, cable cross section max. 2x2.5mm^2.
OS32...250: Max. 4 test contacts or 2 test contacts + 2 test indication contacts.
OS315...800: Max. 4 test contacts + 4 test indication contacts.
OS1250: Max 4 test indication contacts + 6 test contacts + 2 early operation test contacts.
The test contacts can be used as standard auxiliary contacts as well.
The 'test' contacts operate in ON- and OFF-positions as well as when the handle is turned to TEST-position = 45 degrees over the OFF-position.
The 'test indication' contacts operate only when the handle is turned to TEST-position.

Suitable switches	Description	Order code
OS32...1250_	1 N.O.	OA1G10
	1 N.C.	OA3G01


OEA28

Additional auxiliary contact case

Screw mounted to the left side of the switch. Auxiliary contacts not included.

Suitable switches	Description	Order code
OS32...1250_	Max. 8 additional auxiliary contact blocks inside the OEA28 module	OEA28

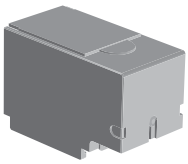
Switch fuses
Accessories


OXN_

Neutral Links
Detachable, mounted separately to the base plate.

Suitable switches	Order code
OS200...250_	OXN250
OS315...400_	OXN400
OS600...800_	OXN800S
OS1250_	OXN1250S


OSS_L


OSS_S

Terminal Shrouds
Snap-on mounted. Pack with 3 pieces of single pole shrouds, IP3X. Grey plastic.
For full switch fuse protection 2 times the same part number should be ordered.

Suitable switches	Description	Order code
OS100...160_	Long type	OSS160GG1L/3
	Short type	OSS160GG1S/3
OS200_	Long type	OSS200G1L/3
	Short type	OSS200G1S/3
OS250_	Long type	OSS250G1L/3
	Short type	OSS250G1S/3
OS315...400_	Long type	OSS400G1L/3
	Short type	OSS400G1S/3
OS630...800_	Long type	OSS800G1L/3
	Short type	OSS800G1S/3
OS1250_	Long type	OSS1250G1L/3
	Short type	OSS1250G1S/3

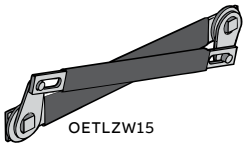
4 pole switches OSS...GG1214



OESAZW2

Attachment levers for connecting two 3 Pole switches
Attachment levers provided with holes, enabling different shaft distances.
The combination switches can be mounted either horizontally or vertically.
Two 3 Pole switches needed.

Suitable switches	Shaft distance mm	Order code
OS32...250_	45+(0...13)x15 mm	OESAZW2
OS315...400_	60+(0...19)x20 mm	OETLZW9


OETLZW15

Mechanical interlock mechanism
Prevents one switch from closing to ON -position, if the other is not in OFF - position.
OTZW/OETLZW-types: When mounted upside down, prevents one switch from opening to OFF-position, if the other is not in the ON-position. (UPS-usage, make-before-break).

Suitable switches	Shaft distance mm	Order code
OS32...250_	190	OTZW10
OS315...1250_	500	OETLZW15

Switch fuses
Accessories


OSP200-400D


OSP160GN


OSP250N


OSP800N

Fourth poles

Snap-on mounting to the side of the switch (not suitable for OSM-types).

Suitable for 3-pole switches	Mounting side	Order code
Fusible 4. poles		
OS125GD...160GD	Left/right	OSP160GD
OS200D	Left/right	OSP200D
OS250D	Left/right	OSP250D
OS400D	Left/right	OSP400D
OS630...800D	Left/right	OSP800D
OS1250D	Left/right	OSP1250D
OS1250DA	Left/right	OSP1250DA
OS1250B	Left/right	OSP1250B
Switched 4. poles		
OS100G...160G	Left/right	OSP160GN
OS200_	Left/right	OSP200N
OS250_	Left/right	OSP250N
OS400_	Left/right	OSP400N
OS630...800	Left/right	OSP800N
OS1200...1250	Left/right	OSP1250N

- For BS fuse change D to B


PG400S3


PG400S4

Accessories

Description	Order Code
400 AMP 3 pole plug adaptor	PG400S3
400 AMP 4 pole plug adaptor	PG400S4

Notes



Fuse switch disconnectors

310	**SlimLine XR, 63 – 630A**
311	**SlimLine XR accessories**
312	**Technical data for XLP**
314	**XLP ordering details**

For more detailed product information, please refer to the Technical Catalogue:

- Slimline XR - switch disconnector – 1SEC311001D0201
- Easyline XLP- fuse switch disconnector – 1SEC312012D0201

Fuse switch disconnectors

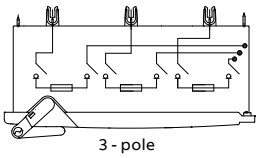
SlimLine XR, 63 – 630A

Apparatus overview – DIN- and BS version

DIN
XR00 160 A



BS
XR 63 A, 100 A, 160 A

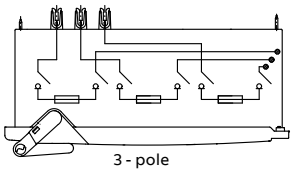


3 - pole

SlimLine XR switch disconnector fuse - 185 mm busbar distance

Number of poles	Rated operation current (A)	Order code
3	160	XRE00-185-3P
3	250	XRE1-185-3P
3	400	XRE2-185-3P
3	630	XRE3-185-3P

Note:
DIN fuse units



3 - pole

SlimLine XR switch disconnector fuse - 50 mm busbar distance

Number of poles	Rated operation current (A)	Order code
3	160	XRE00-50-3P
3	250	XRE1-50-3P
3	400	XRE2-50-3P
3	630	XRE3-50-3P

Note:
DIN fuse units

SlimLine XR switch disconnector fuse - 185 mm busbar distance

Suitable for	Order code
XR00, 1, 2, 3	CAS-XR-185/500
XR00, 1, 2, 3	CAS-XR-185/1000
XR00, 1, 2, 3	CAS-XR-185/1500
XR00, 1, 2, 3	CAS-XR-185/2000

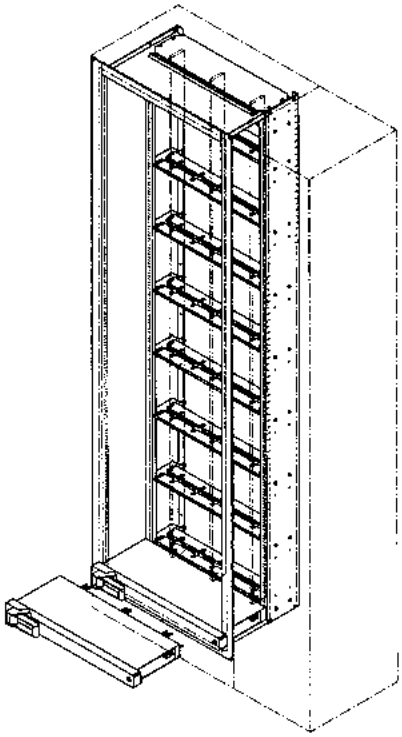
XR is available in:
- 2 and 4 pole combination
- Fuse monitoring version EFM
- DC versions
- Motor operation (MOT)
- Current measurement

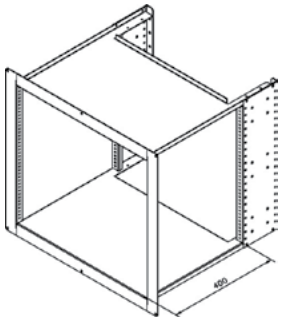
STOCK | INDENT

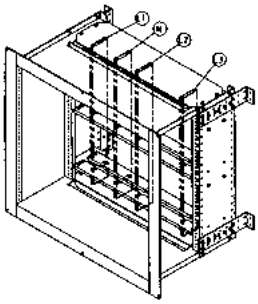
Fuse switch disconnectors

SlimLine XR accessories

Cassette and busbar cover kit







Cassette for 185 mm busbar distance 3- and 4-pole
H = 500 mm
H = 1000 mm
H = 1500 mm
H = 2000 mm

SlimLine Cassette
The SlimLine cassette is a complete steel framework with busbar supports. It is used as a framework for easy installation of the SlimLine product range into switchgear systems which do not accept the SlimLine directly.

Facts about the SlimLine cassette:
Available in 4 sizes:

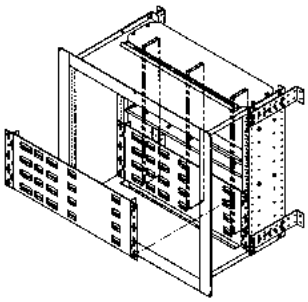
Height	= 500 mm, max 10 pcs. 00-devices
Height	= 1000 mm, max 20 pcs. 00-devices
Height	= 1500 mm, max 30 pcs. 00-devices
Height	= 2000 mm, max 40 pcs. 00-devices

- Supplied as a flat package without busbars
- Easy and fast assembly using self tapping screws
- For vertical or horizontal installation
- Aluzink coated profiles
- Front profiles as well as top- and bottom plates are black
- Extendable in the busbar direction
- Type tested busbar system
- 65 kA 10 x 40 -> 100 mm cu-busbars
- 3- and 4-pole solutions
- Available for 185 mm busbar distance

IP 20 busbar cover kit
Kit with busbar covers for IP 20 degree of protection.
These can be snapped directly into the cassette.

Kit for 400 mm depth
In order to extend the normal depth of 200 mm in a standard cassette to 400 mm, a special 400 mm extra top and bottom unit is available for replacing the standard top and bottom units.
Two (2) units are required as replacements in one cassette.

Order code 1SEP102079P0001 for 1 unit.



IP20 busbar cover kit Universal 3- and 4-pole, 185 mm kit for
H = 500 mm
H = 1000 mm
H = 1500 mm
H = 2000 mm

Fuse switch disconnectors

Technical data for XLP

XLP 3-pole

		XLP000			XLP00			XLP1			XLP2		XLP3	
For NH fuse links acc. to IEC60269-2-1		NH00C max width = 21mm			NH00			NH1			NH2		NH3	
Rated operational voltage U_e AC	(V)	400	500	690	400	500	690	500	800	690	500	690	500	690
Rated operational current I_e AC	(A)	80	100	50	125	160	125	250	160	200	400	315	630	500
Thermal current with fuse link I_{th}	(A)	100				160			250		400		630	
Utilisation category		AC23B	AC22B	AC21B	AC23B	AC22B	AC21B	AC22B	AC22B	AC21B	AC22B	AC21B	AC22B	AC21B
Rated insulation voltage U_i	(V)	690			1000			1000			1000		1000	
Rated impulse withstand voltage U_{imp}	(kV)	6			8			8			8		8	
Rated conditional short circuit current	(kArms)	50			50			50			50		50	
Rated frequency	(Hz)	50 - 60			50- 60			50 - 60			50 - 60		50 - 60	
Power loss at (I_{th}) without fuse link/per phase	(W)	1,4			3,5			7,5			13		24	
Max allowed poweloss in the Fuse per phase	(W)	7,5			12			23			30		48	
Electrical durability		300			200			200			200		200	
Mechanical durability		1700			1400			1400			800		800	
Degree of protection from the front acc. to IEC60529	Open	IP20			IP20			IP20			IP20		IP20	
	Closed	IP30			IP30			IP30			IP30		IP30	

XLP 1-pole

		XLP00			XLP1			XLP2			XLP3		
For NH fuse links acc. to IEC60269-2-1		NH00			NH1			NH2			NH3		
Rated operational voltage U_e AC	(V)	-	500	690	-	500	690	-	500	690	-	500	690
Rated operational voltage U_e DC	(V)	220	-	-	220	-	-	220	-	-	220	-	-
Rated operational current I_e	(A)	160	160	125	250	250	200	400	400	315	630	630	500
Thermal current with fuse-link I_{th}	(A)	160	160	160	250	250	250	400	400	-	630	630	-
Utilisation category		DC22B	AC22B	AC21B	DC22B	AC22B	AC21B	DC22B	AC22B	AC21B	DC22B	AC22B	AC21B
Rated insulation voltage U_i	(V)	1000			1000			1000			1000		
Rated impulse withstand voltage U_{imp}	(kV)	8			8			8			8		
Rated conditional short circuit current	(kArms)	50			50			50			50		
Rated frequency	(Hz)	50 - 60			50 - 60			50 - 60			50 - 60		
Power loss (I_{th}) without fuselink, per phase	(W)	3,5			7,5			13			24		
Electrical durability		200			200			200			200		
Mechanical durability		1400			1400			800			800		
Degree of protection from the front according to IEC60529	Open	IP20			IP20			IP20			IP20		
	Closed	IP30			IP30			IP30			IP30		

Fuse switch disconnectors

Technical data for XLP

XLP 2-pole

		XLP00			XLP1			XLP2			XLP3		
For NH fuse links acc. to IEC60269-2-1		NH00			NH1			NH2			NH3		
Rated operational voltage U_e AC	(V)	-	500	690	-	500	690	-	500	690	-	500	690
Rated operational voltage U_e DC	(V)	220	-	-	440	-	-	440	-	-	440	-	-
Rated operational current I_e	(A)	160	160	125	250	250	200	400	400	315	630	630	500
Thermal current with fuse-link I_{th}	(A)	160	160	160	250	250	250	400	400	-	630	630	-
Utilisation category		DC22B	AC22B	AC21B	DC22B	AC22B	AC21B	DC22B	AC22B	AC21B	DC22B	AC22B	AC21B
Rated insulation voltage U_i	(V)	1000			1000			1000			1000		
Rated impulse withstand voltage U_{imp}	(kV)	8			8			8			8		
Rated conditional short circuit current	(kArms)	50			50			50			50		
Rated frequency	(Hz)	50 - 60			50 - 60			50 - 60			50 - 60		
Power loss (I_{th}) without fuselink, per phase	(W)	3,5			7,5			13			24		
Electrical durability		200			200			200			200		
Mechanical durability		1400			1400			800			800		
Degree of protection from the front according to IEC60529	Open	IP20			IP20			IP20			IP20		
	Closed	IP30			IP30			IP30			IP30		

XLP 4-pole

		XLP00	XLP1	XLP2	XLP3
For NH fuse links acc. to IEC60269-2-1		NH00	NH1	NH2	NH3
Rated operational voltage U_e AC	(V)	500	500	500	500
Rated operational current I_e	(A)	160	250	400	630
Thermal current with fuse-link Ith	(A)	160	250	400	630
Utilisation category		AC22B	AC22B	AC22B	AC22B
Rated insulation voltage U_i	(V)	1000	1000	1000	1000
Rated impulse withstand voltage U_{imp}	(kV)	8	8	8	8
Rated conditional short circuit current	(kArms)	50	50	50	50
Rated frequency	(Hz)	50 - 60	50 - 60	50 - 60	50 - 60
Power loss (I_{th}) without fuselink, per phase	(W)	3,5	7,5	13	24
Electrical durability		200	200	200	200
Mechanical durability		1400	1400	800	800
Degree of protection from the front according to IEC60529	Open	IP20	IP20	IP20	IP20
	Closed	IP30	IP30	IP30	IP30

Fuse switch disconnectors

XLP ordering details



XLP range

Fuse Switch disconnectors – XLP

3 Poles

Fuse standard according to DIN 43620 IEC/EN 60629-2-1.
Integrated IP20 cable termination. IP30 degree of protection from the front.
XLP000 / XLP00 / XLP1 standard supply with build-in terminals.
XLP2–XLP3 terminal bridge clamps supplied as standard.

In A	Fuse size	Order code 3 poles
100	000	XLP000-6CC
160	00	XLP00-6M8
250	1	XLP1-6M10
400	2	XLP2-6BC
630	3	XLP3-6BC
160	00	XLP00
250	1	XLP1
400	2	XLP2
630	3	XLP3



1-pole



2-pole



4-pole

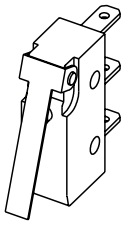
Description	Rated operational current (A)	Fuse size	Order Code
1-pole			
without clamps or bolts	160A	NH00	XLP00-1P
without clamps or bolts	250A	NH1	XLP1-1P
without clamps or bolts	400A	NH2	XLP1-2P
without clamps or bolts	630A	NH3	XLP3-1P
2-pole			
without clamps or bolts	160A	NH00	XLP00-2P
without clamps or bolts	250A	NH1	XLP1-12P
without clamps or bolts	400A	NH2	XLP12-2P
without clamps or bolts	630A	NH3	XLP3-2P
4-pole			
without clamps or bolts	160A	NH00	XLP00-4P
without clamps or bolts	250A	NH1	XLP1-4P
without clamps or bolts	400A	NH2	XLP1-4P
without clamps or bolts	630A	NH3	XLP3-4P

Full catalogue please refer to 1SEC312012D0201

STOCK | INDENT

Fuse switch disconnectors

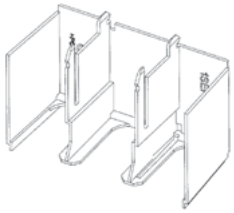
XLP ordering details



Micro auxiliary switch

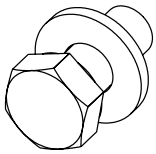
Not available for XLP000.

In A	Order code
XLP00...3	MS-XLP00123
Padlock deviceXLP00...3	PLD-XLP00123



Terminal shrouds

In A	Order code
XLP00	CS-XLP00-3P
XLP1	CS-XLP1-3P
XLP2 and 3	CS-XLP2/3-3P



Terminals

Every kit include three bolts and washers.

In A	Description	Order code
XLP00	M8x16mm	NHP400940R0006
XLP1	M10x20mm	NHP403625R0001
XLP2 and 3	M12x30mm	NHP403626R0001

For more accessories please refer main catalogue 1SEC312012D0201



Fusegear

318 **HRC fuse links**

319 **Fuse links, DIN-type, gG**

321 **Fuse links, DIN-type, aM**

323 **Fuse bases OFAZ and OFAX**

For more detailed product information, please refer to the Technical Catalogue:

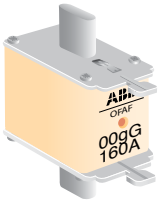
- HRC fuse links – 1SCC317001C0201
- Baseline fuse bases – 1SCC3162001K0201

Fusegear

HRC fuse links



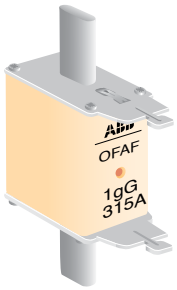
OFAF000H_



OFAF00H_



OFAF0H_



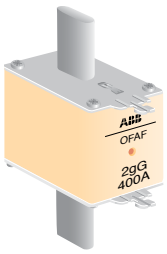
OFAF1H_

HRC fuse links, gG, general application OFAF_H_, _<500V

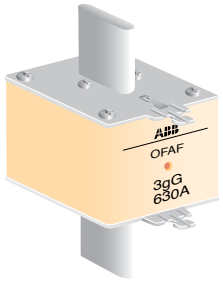
NH-size	Rated voltage AC / DC	Rated current In A	Power loss Ph W	Order code
000	500V / 250VC	2	1.9	OFAF000H2
		4	1.5	OFAF000H4
		6	1.6	OFAF000H6
		10	1.1	OFAF000H10
		16	1.8	OFAF000H16
		20	2.3	OFAF000H20
		25	2.4	OFAF000H25
		32	3.1	OFAF000H32
		35	3.0	OFAF000H35
		40	3.7	OFAF000H40
		50	4.1	OFAF000H50
		63	5.4	OFAF000H63
		80	6.5	OFAF000H80
		100	7.5	OFAF000H100
00	500V / 250VC	125	10	OFAF00H125
		160	11.3	OFAF00H160
1	500V / 250VC	16	1.8	OFAF1H16
		20	2.3	OFAF1H20
		25	2.4	OFAF1H25
		32	3.1	OFAF1H32
		35	3.0	OFAF1H35
		40	3.7	OFAF1H40
		50	4.1	OFAF1H50
		63	6.6	OFAF1H63
		80	8.0	OFAF1H80
		100	9.4	OFAF1H100
		125	11.8	OFAF1H125
		160	14.6	OFAF1H160
		200	18.0	OFAF1H200
		224	19.0	OFAF1H224
		250	20.0	OFAF1H250
		315	20.5	OFAF1H315
		355	23.7	OFAF1H355

Fusegear

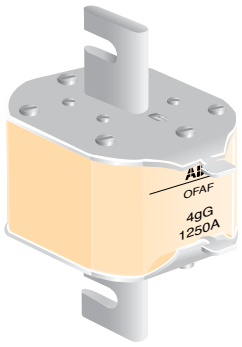
Fuse links, DIN-type, gG



OFAF2H_



OFAF3H_



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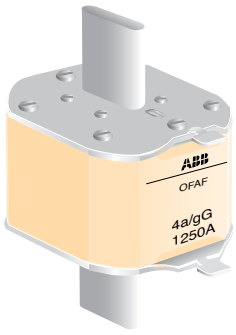


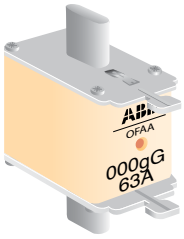
OFAF4AH_

HRC fuse links, gG, general application OFAF_H_, _<500V

NH-size	Rated voltage AC / DC	Rated current In A	Power loss Ph W	Order code
2	500V / 250VC	25	2.4	OFAF2H25
		35	3.0	OFAF2H35
		40	3.7	OFAF2H40
		50	4.1	OFAF2H50
		63	6.3	OFAF2H63
		80	8.3	OFAF2H80
		100	10.7	OFAF2H100
		125	12.2	OFAF2H125
		160	15	OFAF2H160
		200	18.5	OFAF2H200
		224	19.2	OFAF2H224
		250	20.6	OFAF2H250
		300	21.0	OFAF2H300
		315	25.0	OFAF2H315
		355	31.5	OFAF2H355
		400	32.0	OFAF2H400
		425	32.2	OFAF2H425
		500	35.6	OFAF2H500
3	500V /250VC	250	21.1	OFAF3H250
		300	20.0	OFAF3H300
		315	25.0	OFAF3H315
		355	32.0	OFAF3H355
		400	34.0	OFAF3H400
		425	34.0	OFAF3H425
		450	38.0	OFAF3H450
		500	43.0	OFAF3H500
		630	43.1	OFAF3H630
		800	53.2	OFAF3H800
4	500V /250VC	400	31.5	OFAF4H400
		500	38.0	OFAF4H500
		630	46.0	OFAF4H630
		800	62.0	OFAF4H800
		1000	73.5	OFAF4H1000
		1250	87.0	OFAF4H1250
4a	500V / 250VC	500	42.5	OFAF4AH500
		630	53.0	OFAF4AH630
		800	65.0	OFAF4AH800
		1000	78.0	OFAF4AH1000
		1250	90.0	OFAF4AH1250

Fusegear

Fuse links, DIN-type, gG



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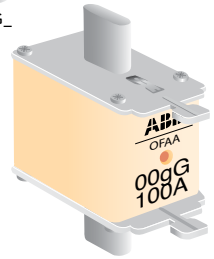
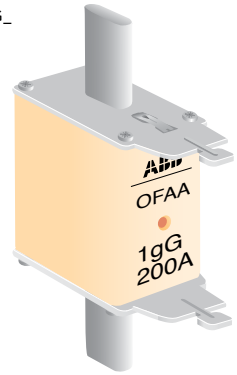


OFAA00GG_



OFAA0GG_



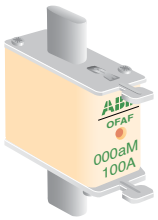
OFAA1GG_

HRC fuse links, gG, general application OFAA_GG_, _<690V

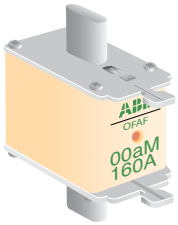
NH-size	Rated voltage AC / DC	Rated current In A	Power loss Ph W	Order code
000	690V / 250VC	2	1.9	OFAA000GG2
		4	1.5	OFAA000GG4
		6	1.6	OFAA000GG6
		10	1.1	OFAA000GG10
		16	1.8	OFAA000GG16
		20	2.3	OFAA000GG20
		25	2.4	OFAA000GG25
		32	3.1	OFAA000GG32
		35	3.0	OFAA000GG35
		40	3.7	OFAA000GG40
		50	4.1	OFAA000GG50
		63	5.4	OFAA000GG63
00	690V / 250VC	80	6.8	OFAA00GG80
		100	7.5	OFAA00GG100
		125	10.0	OFAA00GG125
1	690V / 400VC	16	1.8	OFAA1GG16
		20	2.3	OFAA1GG20
		25	2.4	OFAA1GG25
		32	3.1	OFAA1GG32
		35	3.0	OFAA1GG35
		40	3.7	OFAA1GG40
		50	4.1	OFAA1GG50
		63	6.6	OFAA1GG63
		80	8.0	OFAA1GG80
		100	9.4	OFAA1GG100
		125	11.8	OFAA1GG125
		160	14.6	OFAA1GG160
		200	18	OFAA1GG200
		250	19	OFAA1GG250

Fusegear

Fuse links, DIN-type, aM



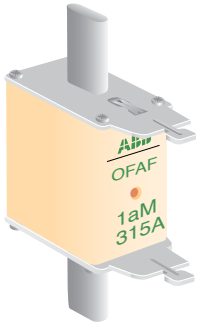
OFAF000AM_



OFAF00AM_



OFAF0AM_



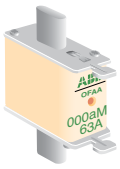
OFAF1AM_

HRC fuse links for motor protection, aM, OFAF_AM_, _500V

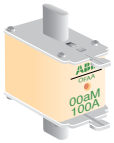
NH-size	Rated voltage AC	Rated current In A	Power loss Ph W	Order code
000	500VC	2	0.1	OFAF000AM2
		4	0.2	OFAF000AM4
		6	0.3	OFAF000AM6
		10	0.5	OFAF000AM10
		16	0.7	OFAF000AM16
		20	0.9	OFAF000AM20
		25	1.2	OFAF000AM25
		32	1.5	OFAF000AM32
		35	1.6	OFAF000AM35
		40	1.8	OFAF000AM40
		50	2.3	OFAF000AM50
		63	2.9	OFAF000AM63
		80	3.6	OFAF000AM80
00	500VC	100	5.2	OFAF00AM100
		125	6.4	OFAF00AM125
		160	7.9	OFAF00AM160
1	500VC	16	1.0	OFAF1AM16
		20	1.2	OFAF1AM20
		25	1.4	OFAF1AM25
		32	1.9	OFAF1AM32
		35	2.0	OFAF1AM35
		40	2.3	OFAF1AM40
		50	2.9	OFAF1AM50
		63	3.6	OFAF1AM63
		80	4.6	OFAF1AM80
		100	5.8	OFAF1AM100
		125	7.5	OFAF1AM125
		160	10.4	OFAF1AM160
		200	14.2	OFAF1AM200
		224	15.8	OFAF1AM224
		250	17.5	OFAF1AM250
		315	22.1	OFAF1AM315

Fusegear

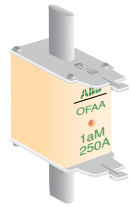
Fuse links, DIN-type, aM



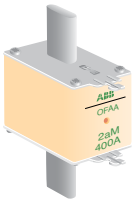
OFAA000AM_



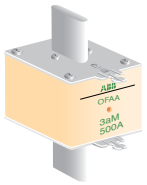
OFAA00AM_



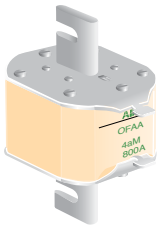
OFAA1AM_



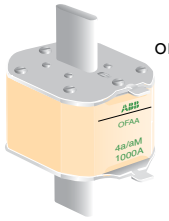
OFAA2AM_



OFAA3AM_



OFAA4AM_



OFAA4AAM_

HRC fuse links for motor protection, aM, OFAA_AM_, _690V

NH-size	Rated voltage AC	Rated current In A	Power loss Ph W	Order code
000	690VC	2	0.1	OFAA000AM2
		4	0.2	OFAA000AM4
		6	0.3	OFAA000AM6
		10	0.5	OFAA000AM10
		16	0.7	OFAA000AM16
		20	0.9	OFAA000AM20
		25	1.2	OFAA000AM25
		32	1.5	OFAA000AM32
		35	1.6	OFAA000AM35
		40	1.8	OFAA000AM40
		50	2.3	OFAA000AM50
		63	2.9	OFAA000AM63
00	690VC	80	3.6	OFAA00AM80
		100	5.2	OFAA00AM100
		125	6.4	OFAA00AM125
1	690V	125	7.5	OFAA1AM125
		160	10.4	OFAA1AM160
		200	14.2	OFAA1AM200
		250	17.5	OFAA1AM250
2	690VC	125	6.4	OFAA2AM125
		160	9.3	OFAA2AM160
		200	11.3	OFAA2AM200
		250	16.8	OFAA2AM250
		315	23.1	OFAA2AM315
		355	25.0	OFAA2AM355
		400	29.7	OFAA2AM400
3	690VC	315	21.0	OFAA3AM315
		355	23.3	OFAA3AM355
		400	29.1	OFAA3AM400
		500	42.0	OFAA3AM500
4	690VC	500	38.0	OFAA4AM500
		630	50.0	OFAA4AM630
		800	65.0	OFAA4AM800
		1000	80.0	OFAA4AM1000
4a	690VC	500	38.0	OFAA4AAM500
		630	50.0	OFAA4AAM630
		800	65.0	OFAA4AAM800
		1000	80.0	OFAA4AAM1000



OFAE506

Accessories

Fuse replacement handles

Remark: Fuse size 4a, fuse replacement with the cover of switch fuse OS1250 or fuse base OFAX4.

Suitable for DIN-fuse link size	Type code
000, 00, 0, 1, 2, 3	OFAE506

Fusegear

Fuse bases OFAZ and OFAX


OFAZ00P1L


OFAZ00P3L


OFAZ00S1L


OFAZ00S2L


OFAZ1P1; OFAZ2P1


OFAZ3P3


OFAZ1S1; OFAZ2S1


OFAZ1S3; OFAZ2S3


OFAZ3A1


OFAZ3A3

Fuse bases

Standard delivery including terminal bolt set in sizes 00...3.
Standard delivery including terminal bolt set (M16 x 50) in size 4a.

Number of poles	Terminal Width mm	Rated current In A	Order code
Fuse bases for fuse size 00			
Open with phase barriers IP 00			
1	20	160	OFAZ00P1L
2	20	160	OFAZ00P3L
Full protection IP 20			
1	20	160	OFAZ00S1L
2	20	160	OFAZ00S2L
3	20	160	OFAZ00S3L
Fuse bases for fuse size 1			
Open with phase barriers IP 00			
1	35	250	OFAZ1P1
3	35	250	OFAZ1P3
Full protection IP 20			
1	35	250	OFAZ1S1
2	35	250	OFAZ1S2
3	35	250	OFAZ1S3
Fuse bases for fuse size 2			
Open with phase barriers IP 00			
1	35	400	OFAZ2P1
3	35	400	OFAZ2P3
Full protection IP 20			
1	35	400	OFAZ2S1
2	35	400	OFAZ2S2
3	35	400	OFAZ2S3
Fuse bases for fuse size 3			
Open (phase barriers only between the poles) IP 00			
1	35	630	OFAZ3A1
3	35	630	OFAZ3A3
Open with phase barriers IP 00			
1	35	630	OFAZ3P1
3	35	630	OFAZ3P3
Full protection IP 20			
1	35	630	OFAZ3S1
2	35	630	OFAZ3S2
3	35	630	OFAZ3S3
Fuse bases for fuse size 4			
Full protection IP 20			
1	60	1250	OFAX4AS1
3	60	1250	OFAX4AS1[1)]
3	60	1250	OFAX4AS31[2)]

1) 1-pole cover
2) 3-pole cover



Arc Guard System™

326 **Overview**

327 **Ordering details**

329 **Basic installation tips**

330 **Diagrams**

For more detailed product information, please refer to the Technical Catalogue:

- Arc Guard System™, TVOC-2 – 1SFC170001C0201 Rev I
- Arc Guard System™, TVOC-2 Installation and maintenance guide – 1SFC170011M0201
- Arc Guard System™, TVOC-2-COM Modbus configuration manual – 1SFC170017M0201
- Current Sensing Unit: Maintenance and installation guide – 1SFC170015M0201

Arc Guard System™
Overview

Arc Monitor
With its modular concept, the Arc Monitor is designed to fit all types and sizes of low- and medium-voltage switchgears. It is designed according to Functional Safety, and is SIL 2-certified according to IEC 61508 and IEC 62061 which puts full focus on reliability. This corresponds to performance level d according to EN ISO 13849-1. Safety functions are exclusively handled by hardware. In addition, the system, trip logs and user-interface are all microprocessor-monitored.

The system can be configured to trip selected breakers, depending on which sensor that detects the light. The DIP-switches that take care of this function also handle settings like auto-reset and Current Sensing Units.

Energy is stored in the unit for operation up to 0.2 s if the supply voltage fails. This is sufficient to close the tripping circuit even if voltage disappears at a short-circuit fault.

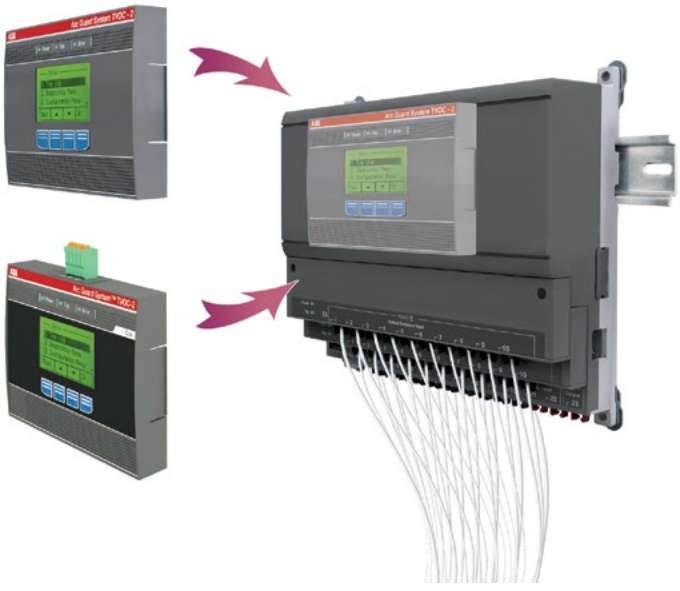
Note:
The circuit breaker still needs a back-up energy source for its tripping circuit.

Connections
All connections can be accessed from the front of the arc monitor. Pluggable terminal blocks allow electrical wiring before mounting TVOC-2 into the cabinet.
The solid state tripping contacts are type IGBT, which guarantees fast and reliable tripping.

HMI (Human Machine Interface)
- Handles settings with key-pad and full text display
- Holds error log and trip information after power loss
- Error log and trip log include time/date stamp from a real-time clock
- TVOC-2 can handle two separate HMI:s (cabinet door and on product)
- Three-meter cable included
- COM Module available using Modbus RTU.

Sensor and Sensor modules
- Fiber-optic sensors not affected by electrical noise
- Pre-calibrated sensors remove need for manual configuration
- Up to 30 detectors can be connected

Current Sensing Unit (optional)
The Current Sensing Unit (CSU) is an accessory needed only in those few specific applications where strong light is expected on a regular basis.
CSUs are connected with an optical fiber using light as signal for normal current. If this was removed by accident, the system would treat it as an over-current and trip if an arc flash is seen of reliability reasons.
Adding a CSU will result in an additional operating time depending on the size of the over-current and the number of phases measured. Under normal conditions the time from over-current occurring to actuating optical output is in the region between 2 and 8 milliseconds.



Arc Monitor connections
- 3 IGBT solid state tripping contacts
- 2 change-over trip signal relays
- 1 change-over self supervision alarm relay (IRF)
- 2 current sensing unit inputs
- 1 current sensing unit output

Mounting alternatives
- DIN-rail
- Wall mounting

Optical detector inputs
- 1-10 Main unit X1
- 1-10 Extension module X2
- 1-10 Extension module X3

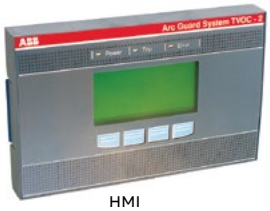
HMI
- Can be mounted on door
- IP54
- Additional HMI possible
- User-friendly start up menu
- COM Module version available

Arc Guard System™
Ordering details


Arc monitor with HMI


Arc monitor with COM Module


Extension unit


HMI


COM Module


Detector cable

Arc Monitor

Description	Rated supply voltage Uc		Order code
	V 50/60 Hz	V DC	
including one COM Module and door mounting accessories	–	24...48	TVOC-2-48-C
	100...240	100...250	TVOC-2-240-C

Accessories

Description	Order code
Extension	
10 optical inputs	TVOC-2-E1
10 optical inputs for cable TVOC-2-DP60 only	TVOC-2-E3
HMI (Human machine interface)	
additional	TVOC-2-H1
COM Module	
with communication interface (Modbus RTU) and door mounting accessories	TVOC-2-COM

Detectors

Cable length	Order code
1 m	TVOC-2-DP1
2 m	TVOC-2-DP2
4 m	TVOC-2-DP4
6 m	TVOC-2-DP6
8 m	TVOC-2-DP8
10 m	TVOC-2-DP10
15 m	TVOC-2-DP15
20 m	TVOC-2-DP20
25 m	TVOC-2-DP25
30 m	TVOC-2-DP30
60 m*	TVOC-2-DP60

* Only to be used with TVOC-2-E3

STOCK | INDENT

Arc Guard System™
Ordering details


CSU


Optical cable TVOC-2 – CSU

Current sensing unit

Description	Order code
Current sensing unit	TVOC-CSU

Optical cable between TVOC-2 Arc monitor and Current sensing unit

Cable length	Order code
0.5 m	TVOC-1T02-OP05
1 m	TVOC-1T02-OP1
2 m	TVOC-1T02-OP2
4 m	TVOC-1T02-OP4
6 m	TVOC-1T02-OP6
8 m	TVOC-1T02-OP8
10 m	TVOC-1T02-OP10
15 m	TVOC-1T02-OP15
20 m	TVOC-1T02-OP20
25 m	TVOC-1T02-OP25
30 m	TVOC-1T02-OP30


Optical cable TVOC-2 – TVOC-2

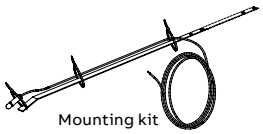
Optical cable between two TVOC-2 – Arc monitors (transfering CSU signal)

Cable length	Order code
0.5 m	TVOC-2-OP05
1 m	TVOC-2-OP1
2 m	TVOC-2-OP2
4 m	TVOC-2-OP4
6 m	TVOC-2-OP6
8 m	TVOC-2-OP8
10 m	TVOC-2-OP10
15 m	TVOC-2-OP15
20 m	TVOC-2-OP20
25 m	TVOC-2-OP25
30 m	TVOC-2-OP30


Cable strap

Cable straps

Description	Order code
1 set incl. 50 pcs	TVOC-2-MK1


Mounting kit

Mounting kit

Description	Order code
600 mm	TVOC-2-MTGK600
800/1000 mm	TVOC-2-MTGK1000



Label

Label

Description	Order code
1 set incl.10 pcs	TVOC-2-LABEL


Mounting bracket

Mounting bracket

Description	Order code
1 set incl. 5 bracket pcs and 10 cable strap pcs	TVOC-2-MTGB

STOCK | INDENT

Applications

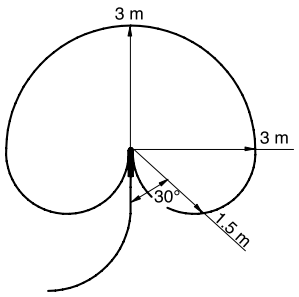
Basic installation tips

Arc Monitor (TVOC-2)

The Arc Monitor can be mounted anywhere in the switchgear, e.g. in the breaker cubicle or in a separate control cabinet. Tripping is handled by a separate tripping circuit. The task of the Arc Monitor is to close the circuit very quickly. You can connect up to 3 breakers in this way and, if required, trip different breakers depending on where the arc occurs.

Detectors

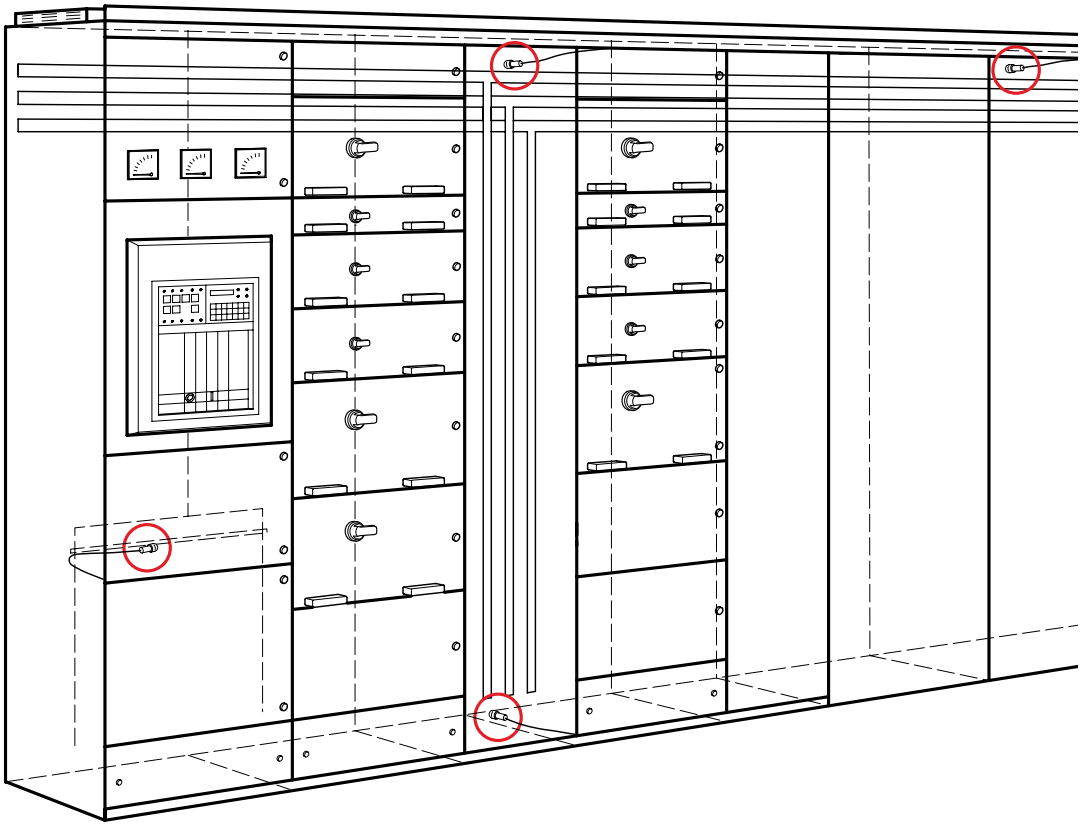
Detector cables are available in standard lengths (see ordering details). They cannot be cut or joined. Avoid sharp bends or pinching when installing the cables. The plastic fiber is made of polymethylene acrylate (PMMA) with a polyethylene jacket. Each detector consists of an optical cable and a lens that are calibrated together to give the same sensitivity independent of cable length. The detector has a plug-in connector that fits the arc monitor. The lens collects light from all directions, with the exception of a small shaded area behind the detector (see the polar diagram). Practical experiments have shown that arc light reflected between metallic surfaces is normally sufficient to cause tripping.



Polar diagram of detector

Detector positioning

The basic strategy for positioning the sensors is to make sure to cover all parts that may suffer from an arc. Typically this involves the horizontal and vertical bus bar system and the breaker cubicle. If possible, it's also normally preferable to supervise each cubicle. Avoid placing the detector so that it sees the normal light from a breaker. The sensor can detect arcs within a 3-meter distance (see illustration). To raise the safety level even higher, you can separate them at a 1.5-meter distance, thereby creating redundancy between them.

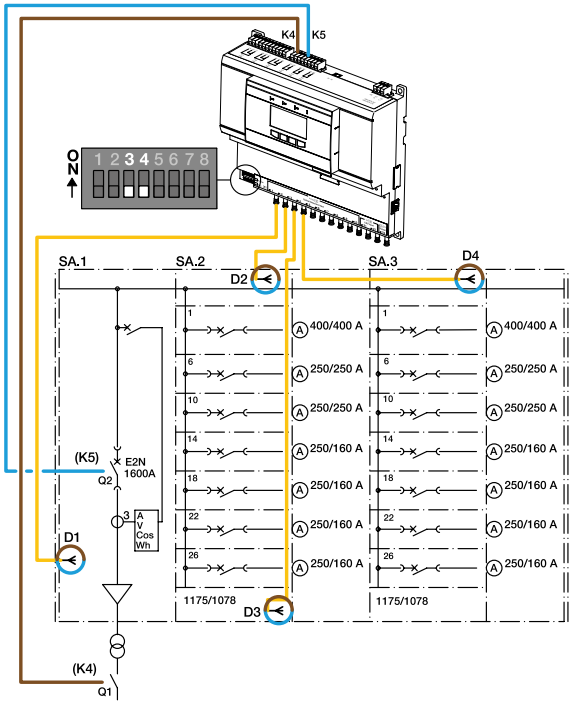


Example showing the position of detectors in:
1. Horizontal and vertical bus bar system
2. Circuit-breaker cubicle

Applications

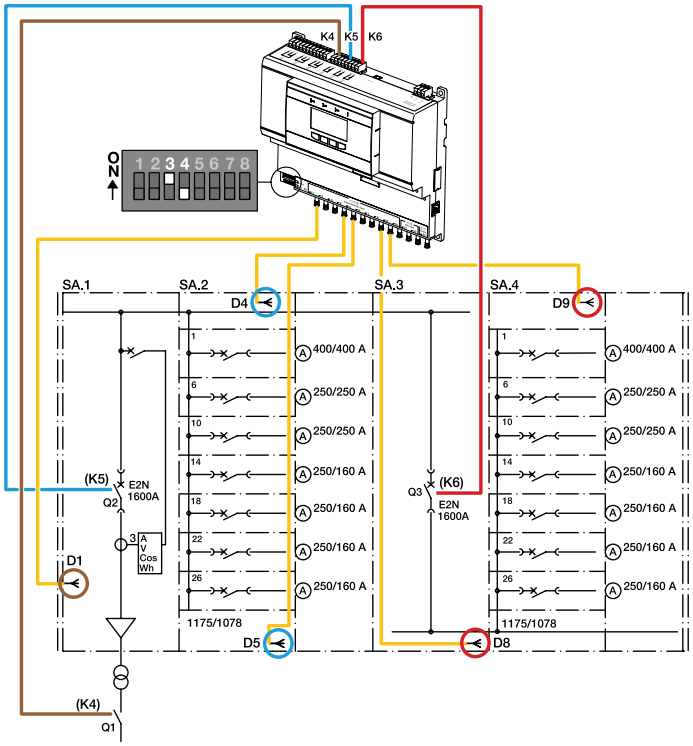
Diagrams

Example 1:
Arc Guard System™ installed to trip all breakers in case of an arc.



SA1... SA3	Switchgear
K4, K5	Solid state tripping contacts
Q1, Q2	Circuit-breaker
D1...D4	Detectors

Example 2:
Arc Guard System™ installed to trip different breakers depending on where the arc occurs.



SA1... SA4	Switchgear
K4, K5, K6	Solid state tripping contacts
Q1, Q2	Circuit breaker
Q3	Bus coupler
D1...D9	Detectors

Notes

03
Meters and measurement

334 **Quick selection guide for meters and power analysers**

337 **Energy efficiency**

340 **EQ electricity meters**

343 **Measurement current transformers**

349 **CMS – Circuit Monitoring System**

For more detailed product information, please refer to the Technical Catalogue:

- Electrical installation solutions – 9AKK107046A0424
- Circuit measuring system – 2CCC481003C0201

Meters and measurement

Quick selection guide for meters and power analysers






		M2M	M2M LV	ANR96	ANR96P	DMTME	DMTME-96
DIN Mount						•	
Panel mount		•	•	•	•		•
Distribution networks							
LV		•	•	•	•	•	•
MV		•		•	•	•	•
Single phase		•	•				
Three phase		•	•	•	•	•	•
Direct connect							
CT Connect		•	•	•	•	•	•
Accuracy	Voltage	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Current	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Power	1%	1%	1%	1%	1%	1%
	Energy	Cl. 1	Cl. 1	Cl. 1	Cl. 1	Cl. 1	Cl. 1
Voltage	L-L	•	•	•	•	•	•
	L-N	•	•	•	•	•	•
Current	Phase	•	•	•	•	•	•
	Neutral			•	•		
Frequency		•	•	•	•	•	•
Power factor		•	•	•	•	•	•
Total Power	Active	•	•	•	•	•	•
	Reactive	•	•	•	•	•	•
	Apparent	•	•	•	•	•	•
Phase power	Active	•	•	•	•	•	•
	Reactive	•	•	•	•	•	•
	Apparent	•	•	•	•	•	•
Energy	Active	•	•	•	•	•	•
	Reactive	•	•	•	•	•	•
	Apparent	•	•	•	•		
Import/export		•	•	•	•		
Hour counter		•	•	•	•	•	•
THD Voltage		•	•	•	•		
THD Current		•	•	•	•		
Harmonic order		10	10	31	31		
Max demand							
Active power		•	•	•	•	•	•
Apparent power		•	•	•	•	•	•
Communication							
RS-485 port		OPT	OPT	•	•	OPT	OPT
Modbus		OPT	OPT	•	•	OPT	OPT
Ethernet		OPT	OPT	•	•		
Profibus		OPT	OPT	•	•		
Inputs and outputs							
Internal memory				•	•		
Digital inputs		OPT	OPT	2	2		
Digital outputs		2	2	2	2	2	2
Analogue outputs		OPT	OPT	•	•		
Alarm output		OPT	OPT	•	•	OPT	OPT
Pulse output		•	•	•	•	OPT	OPT

Note: OPT = option available depending upon model chosen








		C11	C13	B21	B23	B24	A41	A42	A43	A44
DIN Mount		•	•	•	•	•	•	•	•	•
Panel mount										
Distribution networks										
LV		•	•	•	•	•	•	•	•	•
MV								•		•
Single phase		•		•			•	•		
Three phase			•		•	•			•	•
Direct connect		•	•	•	•		•		•	
CT Connect						•		•		•
Accuracy	Voltage	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Current	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Power	1%	1%	1%	1%	1%	1%	1%	1%	1%
	Energy	Cl. 1	Cl. 1	Cl. 1	Cl. 1	Cl. 1/ Cl. 0.5	Cl. 1	Cl. 1/ Cl. 0.5	Cl. 1	Cl. 1/ Cl. 0.5
Voltage	L-L				•	•			•	•
	L-N	•	•	•	•	•	•	•	•	•
Current	Phase	•	•	•	•	•	•	•	•	•
	Neutral						OPT	OPT	OPT	OPT
Frequency				•	•	•	•	•	•	•
Power factor		•	•	•	•	•	•	•	•	•
Total power	Active	•	•	•	•	•	•	•	•	•
	Reactive				OPT	OPT	OPT	OPT	OPT	OPT
	Apparent				OPT	OPT	OPT	OPT	OPT	OPT
Phase power	Active		•		•	•			•	•
	Reactive				OPT	OPT			OPT	OPT
	Apparent				OPT	OPT			OPT	OPT
Energy	Active	•	•	•	•	•	•	•	•	•
	Reactive			OPT	OPT	OPT	OPT	OPT	OPT	OPT
	Apparent			OPT	OPT	OPT	OPT	OPT	OPT	OPT
Import/export				OPT	OPT	OPT	OPT	OPT	OPT	OPT
Hour counter										
THD Voltage							OPT	OPT	OPT	OPT
THD Current							OPT	OPT	OPT	OPT
Harmonic order							16	16	16	16
Max demand										
Active power							OPT	OPT	OPT	OPT
Apparent power							OPT	OPT	OPT	OPT
Communication										
RS-485 port				OPT	OPT	OPT	OPT	OPT	OPT	OPT
Modbus				OPT	OPT	OPT	OPT	OPT	OPT	OPT
Ethernet										
Profibus										
Inputs and outputs										
Internal memory							OPT	OPT	OPT	OPT
Digital inputs				2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)
Digital outputs				2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)
Analogue outputs										
Alarm output		•	•	•	•	•	•	•	•	•
Pulse output		•	•	•	•	•	•	•	•	•

Note: OPT = option available depending upon model chosen

M2M. The measure of efficiency

Measurement and advanced analysis of electrical parameters

Easy fixing system with clips which ensure the device is held reliably on the front-panel.

Multi-voltage auxiliary power supply range, from 24 V DC to 230 V AC

Real time display of energy consumption also in Euros and kg CO_2



Multilingual backlit display with two lines of scrolling text to guide and help the user in reading data and programming.

Communication without limits thanks to the availability of different protocols for any types of network

Reduced depth: only 57mm inside the panel.

Intuitive and easy-to-use front keypad for navigating in the menu and configuring the device.

Meters and measurement

Energy efficiency



M2M

—

M2M Network analyser
96 x 96 mm panel mount

- Accurate measurement of main electrical parameters
  - Voltages – phase-neutral and phase-phase and relative peak values
  - Currents and relative peak values
  - Power factors or PF phases and the 3-phase system
  - Frequency
  - Active, reactive and apparent phase energy and 3-phase system (2 quadrant)
  - Active, reactive and apparent phase power and 3-phase system (4 quadrant)
  - Average power values on a time period programmed by the user
  - Maximum calculated demand on active and apparent power
  - Voltage and current THdF expressed in absolute and percent values up to 10th harmonic
  - 2 Programmable outputs with pulses or threshold alarms
  - Communication options – Modbus RTU, Modbus TCP/IP, Profibus
  - Multivoltage supply voltage input
  - Multi-language display
  - Self-diagnosis
  - Password protection
  - Suitable for low and medium voltage networks (via VT) except for M2M LV models
  - Compact depth, only 57 mm inside the panel

Communication protocol	Programmable outputs x 2	Relay outputs x 2	Digital inputs x3 Analogue outputs x 2	Order code
—	•			M2M
Modbus RTU RS-485	•			M2M MODBUS
Ethernet RJ45	•			M2M ETHERNET
Profibus RS-485	•			M2M PROFIBUS
Modbus RTU RS-485	•	•		M2M ALARM
Modbus RTU RS-485	•		•	M2M I/O
—	•			M2M LV
Modbus RTU RS-485	•			M2M LV MODBUS

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Meters and measurement

Energy efficiency



ANR

ANR Network analyser
96 x 96 mm panel mount

- Accurate measurement of main electrical parameters
  - Voltages - phase-neutral and phase-phase and relative peak values
  - Currents and relative peak values
  - Power factors or PF phases and the 3-phase system
  - Frequency
  - Active, reactive and apparent phase energy and 3-phase system (2 quadrant)
  - Active, reactive and apparent phase power and 3-phase system (4 quadrant)
  - Average power values on a time period programmed by the user
  - Maximum calculated demand on active and apparent power
  - Voltage and current THdF expressed in absolute and percent values up to 31st harmonic
  - 2 Programmable outputs with pulses or threshold alarms
  - Graphical representation of voltage and current waveforms
  - All codes have built in communication options - Modbus RTU, Modbus TCP/IP, Profibus DP
  - Multivoltage supply voltage input
  - Storage of parameters in 128 kbyte internal memory, optional 1 Mbyte capacity
  - Suitable for low and medium voltage networks (via VT)

Auxiliary supply V AC/DC	Programmable display input	Storage	Comms	Order code
20 ...60	2	128kb	Modbus RTU, TCP/IP, Profibus	ANR96-24
85 ... 265	2	128kb	Modbus RTU, TCP/IP, Profibus	ANR96-230
20 ...60	4	1mb	Modbus RTU, TCP/IP, Profibus	ANR96P-24
85 ... 265	4	1mb	Modbus RTU, TCP/IP, Profibus	ANR96P-230
85 ... 265	2	128kb	Modbus TCP / IP	ANR96LAN-230

Meters and measurement

Energy efficiency



DMTME



DMTME-96

DMTME Multimeters

DIN rail and panel mount

- True RMS measurement of main electrical parameters
  - Voltage - phase-neutral and phase-phase
  - Current
  - Power factor
  - Frequency
  - Active and reactive energy
  - Active, reactive and apparent phase power
  - Maximum calculated demand on active, reactive and apparent power
  - Pulse output
- Automatic detection of CT's current flow direction
- Displayed max values
- Voltage - phase-neutral
  - Current
  - Active, reactive and apparent power
- Displayed min values
  - Voltage - phase-neutral
  - Current
  - Active, reactive and apparent power

Auxiliary supply	RS-485 serial port	Programmable digital output	Dimensions	Order code
DIN rail mounting				
110/115-230/240			6 DIN modules	DMTME
110/115-230/240	•	2	6 DIN modules	DTMTE-I-485
Panel mounting				
110/115-230/240			96 x 96 mm	DMTME-96
110/115-230/240	•	2	96 x 96 mm	DMTME-I-485-96

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Meters and measurement

EQ electricity meters



A41



A42

DIN rail mount A-Series

- Accuracy Class 1 (direct connect) Class 0.5S (CT connect)
- Accurate measurement of main electrical parameters
  - Voltage - phase-neutral and phase-phase
  - Current
  - Power factor
  - Frequency
  - Active, reactive and apparent energy (Active energy only A**_111)
  - Active, reactive and apparent power
  - Maximum calculated demand on active, reactive and apparent power
  - Pulse output
- Automatic detection of CT's current flow direction
  - Displayed min/max values
  - Voltage – phase-neutral
  - Current
  - Active, reactive and apparent power
- Resettable active and reactive energy registers on some models

Single phase A-Series electricity meters (4 DIN modules)

Voltage range	Pulse output	Alarm output	I/O 2 in, 2 out	Modbus	Import/ export	Min/max demand	V, I, PF WHr	Var, VA VARh, VA	Resettable register	Order code
80A Direct connect										
57.7 ... 288 V AC	•	•					•			A41-111-100
57.7 ... 288 V AC	•	•	•	•	•	•	•	•	•	A41-412-100
5A CT/VT connect										
57.7 ... 288 V AC	•	•					•			A42-111-100
57.7 ... 288 V AC	•	•	•	•	•		•	•		A42-312-100
57.7 ... 288 V AC	•	•	•	•	•	•	•	•	•	A42-412-100



A43



A44

Three phase A-Series electricity meters (7 DIN modules)

Voltage range	Pulse output	Alarm output	I/O 2 in, 2 out	Modbus	Import/ export	Min/max demand	V, I, PF WHr	Var, VA VARh, VA	Resettable register	Order code
80A Direct connect										
57.7 ... 288 V AC	•	•					•			A43-111-100
57.7 ... 288 V AC	•	•		•	•		•	•		A43-212-100
57.7 ... 288 V AC	•	•	•	•	•	•	•	•	•	A43-512-100
5A CT/VT connect										
57.7 ... 288 V AC	•	•					•			A44-111-100
57.7 ... 288 V AC	•	•		•	•		•	•		A44-212-100
57.7 ... 288 V AC	•	•	•	•	•	•	•	•	•	A44-452-100

Meters and measurement

EQ electricity meters



B21



B23



B24

DIN rail mount B-Series

- Accuracy Class 1 (direct connect) Class 0.5S (CT connect)
- Accurate measurement of main electrical parameters
  - Voltage - phase-neutral and phase-phase
  - Current
  - Power factor
  - Frequency
  - Active, reactive and apparent energy (Active energy only on B**-111)
  - Active, reactive and apparent power
  - Pulse output
- Automatic detection of CT's current flow direction
- Resettable active and reactive energy registers on some models

Single phase B-Series electricity meters (2 DIN modules)

Voltage range	Pulse output	Alarm output	I/O 2 in, 2 out	Modbus	Import/ export	Min/max demand	V, I, PF WHr	Var, VA VARh, VA	Resettable register	Order code
65A Direct connect										
220 ... 240 VAC	•	•					•			B21-111-100
220 ... 240 VAC	•	•	•	•	•		•	•	•	B21-312-100

Three phase B-Series electricity meters (4 DIN modules)

Voltage range	Pulse output	Alarm output	I/O 2 in, 2 out	Modbus	Import/ export	Min/max demand	V, I, PF WHr	Var, VA VARh, VA	Resettable register	Order code
65A Direct connect										
220 ... 240 VAC	•	•					•			B23-111-100
220 ... 240 VAC	•	•		•	•		•	•		B23-212-100
220 ... 240 VAC	•	•	•	•	•		•	•	•	B23-312-100
5A CT connect										
220 ... 240 VAC	•	•					•			B24-111-100
220 ... 240 VAC	•	•		•	•		•	•		B24-212-100
220 ... 240 VAC	•	•	•	•	•		•	•	•	B24-352-100



C11



C13

DIN rail mount C-Series

- Accuracy Class 1
- Accurate measurement of main electrical parameters
  - Voltage
  - Current
  - Power factor
  - Active energy
  - Active power
  - Pulse output

40A Direct connect

Voltage range	Description	V, I, PF WHr	Var, VA VARh, VA	Order code
Single phase C-Series electricity meters (single DIN module)				
230 VAC	Configurable pulse/alarm output	•		C11-110-300
Three phase C-Series electricity meters (3 DIN modules)				
230 VAC	Configurable pulse/alarm output	•		C13-110-300

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EQ meters

Keep track of your energy usage and get the hard facts

Energy prices are rising, and as a result, electricity bills grow. Keeping track of how the electricity is used is more important than ever. With ABB's EQ meters you can identify areas in need of improvement and allocate costs while reducing waste of energy. Installing an EQ meter lets you keep track of your electricity. Install one today!
Read more under Modular DIN Rail Products on **abb.com/lowvoltage**

Meters and measurement

Measurement current transformers

Rated Current (A)	Old series		Current models						Split core			Class
	CT3	CT4	TRFM	CTPROXT	CTMAX	CT6	CT8	CT12	CT30	CT80	CT120	
40	CT3/40		TRFM-40									3
50	CT3/50											3
60	CT3/60											3
80	CT3/80											3
100	CT3/100		TRFM-100	CTPROXT100								1
150	CT3/150		TRFM-150	CTPROXT150								0.5
200	CT3/200	CT4/200	TRFM-200	CTPROXT200								0.5
250	CT3/250	CT4/250	TRFM-250	CTPROXT250					CT30/250			0.5
300	CT3/300	CT4/300			CTMAX300							0.5
400		CT4/400	TRFM-400	CTPROXT400	CTMAX400				CT30/400			0.5
500		CT4/500			CTMAX500							0.5
600		CT4/600			CTMAX600	CT6/600				CT80/600		0.5
800		CT4/800			CTMAX800	CT6/800				CT80/800	CT120/800	0.5
1000		CT4/1000			CTMAX1000					CT80/1000	CT120/1000	0.5
1200						CT6/1200	CT8/1200				T120/1200	0.5
1500											T120/1500	0.5
2000							CT8/2000	CT12/2000				0.5
2500							CT8/2500	CT2/2500				0.5
3000							CT8/3000	CT12/3000				0.5
4000								CT12/4000				0.5



TRF M

TRF M modular current transformers

- DIN profile CT
- 29mm diameter through primary

Primary rated current	Accuracy class	Rated power	Order code
100	1	2	TRFM-100
150	0.5	3	TRFM-150
250	0.5	4	TRFM-250
400	0.5	6	TRFM-400

Meters and measurement

Measurement current transformers

Standard type current transformers .../5A

- DIN rail mounting clip and busbar mounting accessory included
- Secondary terminal cover included
- Other models available on request including ratios up to 6000A and wound primary CT's
- SELV models available with safety in case of accidental disconnection of the secondary circuit



CT PRO XT

CT PRO XT series through primary		Max section (mm)
cable	○	18
horizontal bar	▭	20 x 10
vertical bar	▯	–

CT PRO XT current transformers

Primary rated current	Accuracy class	Rated power	Order code
100	1	3	CTPROXT100
150	1	5	CTPROXT150
200	1	5	CTPROXT200
250	0.5	5	CTPROXT250
400	0.5	5	CTPROXT400

Notes:
Other primary ratios available on request



CT MAX

CT MAX series through primary		Max section (mm)
cable	○	30
horizontal bar	▭	30 x 15, 40 x 10
vertical bar	▯	–

CT MAX current transformers

Primary rated current	Accuracy class	Rated power	Order code
300	0.5	4	CTMAX300
400	0.5	5	CTMAX400
500	0.5	6	CTMAX500
600	0.5	10	CTMAX600
800	0.5	10	CTMAX800
1000	0.5	10	CTMAX1000

Meters and measurement

Measurement current transformers

Standard type current transformers .../5A

- Busbar mounting accessory included
- Secondary terminal cover included
- Other models available on request including ratios up to 6000A and wound primary CT's



CT6

CT6 series through primary	Max section (mm)
cable ○	50
horizontal bar ▭	60 x 20
vertical bar ▯	–

CT 6 .../5A current transformers

Primary rated current	Accuracy class	Rated power	Order code
600	0.5	10	CT6/600
800	0.5	10	CT6/800
1200	0.5	20	CT6/1200

Notes:
Other primary ratios available on request



CT8

CT8 series through primary	Max section (mm)
cable ○	2 x 30
horizontal bar ▭	80 x 30
vertical bar ▯	–

CT 8 .../5A current transformers

Primary rated current	Accuracy class	Rated power	Order code
800	0.5	10	CT8/800
1200	0.5	15	CT8/1200
2000	0.5	20	CT8/2000
2500	0.5	20	CT8/2500
3000	0.5	20	CT8/3000

Notes:
Other primary ratios available on request



CT12

CT12 series through primary	Max section (mm)
cable ○	2 x 50
horizontal bar ▭	125 x 50
vertical bar ▯	–

CT 12 .../5A current transformers

Primary rated current	Accuracy class	Rated power	Order code
2000	0.5	30	CT12/2000
2500	0.5	40	CT12/2500
3000	0.5	40	CT12/3000
4000	0.5	50	CT12/4000

Notes:
Other primary ratios available on request

Meters and measurement

Measurement current transformers

Split core measurement current transformers .../5A

- Ideal for installation during maintenance or expansions to existing systems
- Secondary terminal cover included
- Fastening accessories included



CT30

CT30 series through primary		Max section (mm)
cable	○	–
horizontal bar	▭	–
vertical bar	▯	2 x 30 x 10

CT 30 .../5A current transformers

Primary rated current	Accuracy class	Rated power	CT Window size (mm)	Order code
250	0.5	1.5	20 x 30	CT30/250
400	0.5	2.5	20 x 30	CT30/400

Notes:
Other primary ratios available on request



CT80

CT80 series through primary		Max section (mm)
cable	○	–
horizontal bar	▭	–
vertical bar	▯	3 x 80 x 10

CT 80.../5A current transformers

Primary rated current	Accuracy class	Rated power	CT Window size (mm)	Order code
600	0.5	2.5	50 x 80	CT80/600
800	0.5	3	50 x 80	CT80/800
1000	0.5	5	50 x 80	CT80/1000

Notes:
Other primary ratios available on request



CT120

CT120 series through primary		Max section (mm)
cable	○	–
horizontal bar	▭	–
vertical bar	▯	4 x 120 x 10

CT 120 .../5A current transformers

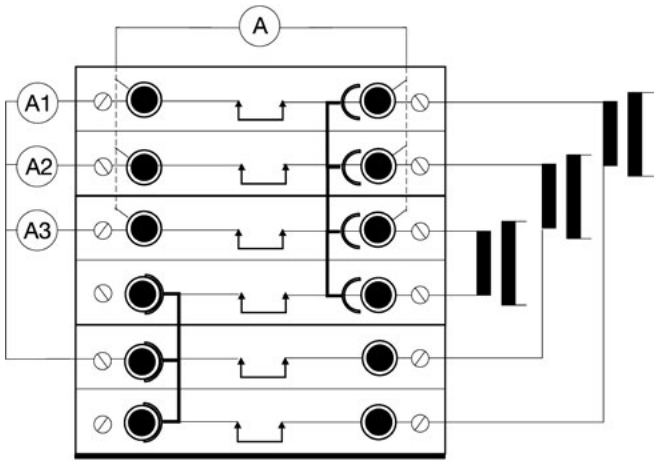
Primary rated current	Accuracy class	Rated power	CT Window size (mm)	Order code
800	0.5	3	80 x 120	CT120/800
1000	0.5	5	80 x 120	CT120/1000
1200	0.5	6	80 x 120	CT120/1200
1500	0.5	8	80 x 120	CT120/1500

Notes:
Other primary ratios available on request

Meters and measurement

Measurement current transformers

Current transformer terminals



Current transformers with star mounting

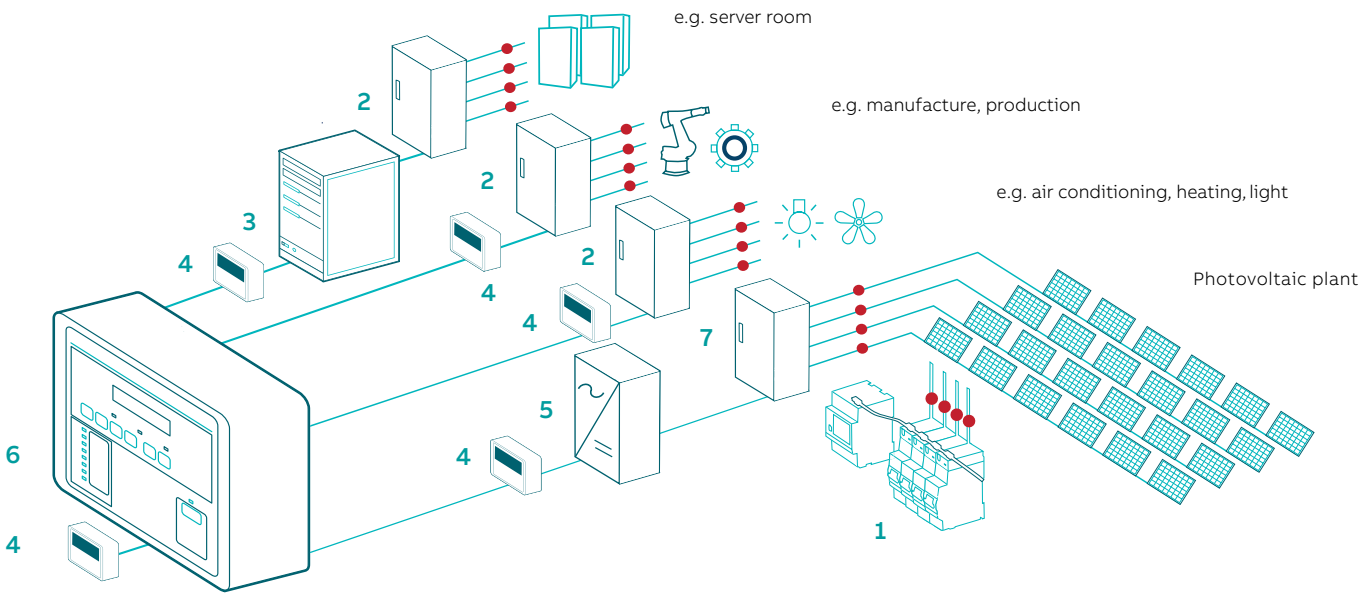
CT terminal components

Quantity required	Description	Order code
6	Disconnect terminal block	ZS10-ST-T4
1	End section	ES10-ST
1	Jumper bar – 3 pole	JB6-3
1	Jumper bar – 4 pole	JB6-4

CMS – Circuit Monitoring System

A system packed with benefits

The CMS is a compact AC and DC multichannel branch monitoring system.
The measurement system consists of a Control Unit and sensors. The components can be installed quite simply and very clearly arranged inside control and distribution cabinets. During the system's development, special attention was paid to achieve the best possible user friendliness, a large measurement range (up to 160 A) and scalable solutions for every application. Thanks to its special design, the system is also ideal as a simple retrofit upgrade solution for existing installations. After all, no-one today wants to spend lots of time contemplating and installing the latest technology – all we want to do is make use of the technical benefits.



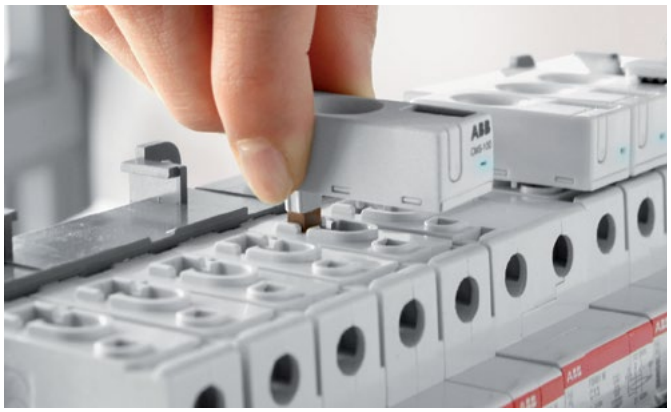
1 CMS system (•Measuring points)
2 Sub-distribution
3 UPS system
4 Energy meter
5 Power inverter
6 Main distribution
7 Combiner box

Meters and measurement

CMS – Circuit Monitoring System

Integrate however you want. Thanks to multiple mounting options.
Depending on the application, choose between up to four different mounting options to make integrating the CMS sensors in your installation as simple and as uncomplicated as possible.

Special sensors for ABB installation devices





System pro M, SMISSLINE installation
CMS-120PS and CMS-100PS series sensors can be mounted on all ABB instal lation devices with twin terminals.



Installation on S800 installation devices
CMS-100S8 and CMS-200S8 series sensors can be mounted on all S800 high performance circuit breakers with cage terminals.



Universal use sensors design





Mounting on a DIN rail
CMS-120DR, CMS-100DR, and CMS-200DR series sensors can be mounted on all DIN rails with the aid of a DIN rail mounting.



Cable tie mounting
If space is at a real premium, CMS-120CA, CMS-100CA, and CMS-200CA series sensors can be secured directly to the cable(s) to be measured by means of cable ties.

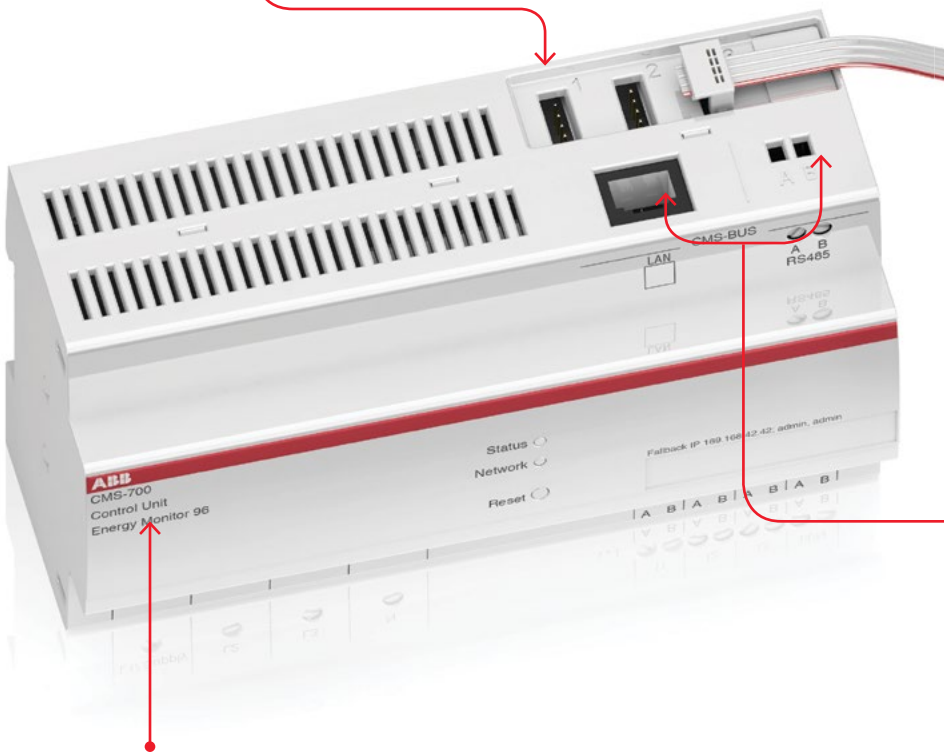


CMS – reliable interfaces

System overview

The quality of a Circuit Monitoring System is dependent on the strengths of the individual components and how well they interact. ABB's CMS sets the bar particularly high. Regardless of whether we're talking compactness, technology, measurement results, user friendliness or flexibility, every component and every feature of this CMS has been fully optimised in terms of practicality and functionality.

CMS bus interface
A bus interface allows up to 32 sensors to be connected to the Control Unit.



—
Example illustration:
Control Unit CMS-700 in combination with CMS open-core sensors



CMS-600 CMS-700

Control units
The control unit is a kind of computing and communication center that, depending on the equipment connected to it, evaluates the different data picked up by the sensors and makes it available via the built-in interfaces.

You have a choice of two different units depending on your applications: CMS-600 and CMS-700.

Connection technology
Connecting the sensors to the Control Unit is extremely simple and requires no special tools. All sensors are connected to the Control Unit by means of a flexible flat cable and insulation displacement connectors. The positioning of sensors is fully customizable so that they sit exactly where a measurement is required.







Sensors
The CMS sensors form the heart of the system and they can be mounted everywhere without any problem. Initializing the sensors is also child's play, with the desired identifier being assigned to each individual sensor via the Control Unit in just a few simple steps. The entire configuration and commissioning procedure takes just a matter of minutes. All measurement functions are available immediately following initialization.

Serial interfaces
Depending on the unit, numerous interfaces and protocols are available to ensure smooth network implementation: RS485 (Modbus RTU), LAN (TCP/IP and Modbus TCP), SNMP v1/v2 and encrypted v3.



Thanks to the built-in web server, an internet browser or a free Android or iOS app can be used to visualize the values measured. What's more, the measured values can also be exported to CSV files.

Meters and measurement

CMS – Circuit Monitoring System



CMS-600

CMS-600 Control Unit, current sensor with Modbus

- Auxiliary supply voltage 24 VDC
- up to 64 current sensors
- Current measurement up to 125A, AC or DC
- Modbus RTU protocol
- RS-485 2-wire interface
- DIN rail mounting

Description	Sensors	Modules width	Order code
CMS-600 Control unit, Modbus RTU	64 (2 x32)	4	CMS600



CMS-700

CMS-700 Control Unit, energy monitor

- Auxiliary supply voltage 80 – 277 VAC
- Three phase measurement device for power and energy
- Captures various electrical parameter for up to 96 circuits
  - voltage
  - current
  - frequency
  - power factor
  - active power
  - reactive power
  - apparent power
- Suitable for LAN or WLAN network
- DIN rail mounting

Description	Sensors	Modules width	Order code
CMS-700 Control unit, Energy monito	96 (3 x 32)	9	CMS700

Meters and measurement

CMS – Circuit Monitoring System



MCB mount



DIN rail mount



Cable tie mount



Open core sensor

CMS Current sensors – open core and solid core

- Up to 160A
- Measures TRMS AC or DC
- LED status indication

Maximum current (A)	Description	Cable window size	Order code
Open core sensors 18mm wide to suit ABB devices with double terminals (S200, F200, DS201, DSE201)			
80	CMS-120PS Sensor 18mm 80A Open Core	10 mm	CMS120PS
40	CMS-121PS Sensor 18mm 40A Open Core	10 mm	CMS121PS
20	CMS-122PS Sensor 18mm 20A Open Core	10 mm	CMS122PS
Open core sensors 18mm wide to suit DIN rail mounting (universally usable)			
80	CMS-120DR Sensor 18mm 80A Open Core	10 mm	CMS120DR
40	CMS-121DR Sensor 18mm 40A Open Core	10 mm	CMS121DR
20	CMS-122DR Sensor 18mm 20A Open Core	10 mm	CMS122DR
Open core sensors 18mm wide to suit cable tie mounting (universally usable)			
80	CMS-120CA Sensor 18mm 80A Open Core	10 mm	CMS120CA
40	CMS-121CA Sensor 18mm 40A Open Core	10 mm	CMS121CA
20	CMS-122CA Sensor 18mm 20A Open Core	10 mm	CMS122CA
Solid core sensors 18mm wide to suit ABB devices with double terminals (S200, F200, DS201, DSE201)			
80	CMS-100PS Sensor 18mm 80A Solid Core	10 mm	CMS100PS
40	CMS-101PS Sensor 18mm 40A Solid Core	10 mm	CMS101PS
20	CMS-102PS Sensor 18mm 20A Solid Core	10 mm	CMS102PS
Solid core sensors 18mm wide to suit S800 MCB's			
80	CMS-100S8 Sensor 18mm 80A Solid Core	10 mm	CMS100S8
40	CMS-101S8 Sensor 18mm 40A Solid Core	10 mm	CMS101S8
20	CMS-102S8 Sensor 18mm 20A Solid Core	10 mm	CMS102S8
Solid core sensors 18mm wide to suit DIN rail mounting (universally usable)			
80	CMS-100DR Sensor 18mm 80A Solid Core	10 mm	CMS100DR
40	CMS-101DR Sensor 18mm 40A Solid Core	10 mm	CMS101DR
20	CMS-102DR Sensor 18mm 20A Solid Core	10 mm	CMS102DR
Solid core sensors 18mm wide to suit cable tie mounting (universally usable)			
80	CMS-100CA Sensor 18mm 80A Solid Core	10 mm	CMS100CA
40	CMS-101CA Sensor 18mm 40A Solid Core	10 mm	CMS101CA
20	CMS-102CA Sensor 18mm 20A Solid Core	10 mm	CMS102CA
Solid core sensors 25mm wide to suit S800 MCB's			
160	CMS-100S8 Sensor 25mm 80A Solid Core	10 mm	CMS200S8
80	CMS-101S8 Sensor 25mm 40A Solid Core	10 mm	CMS201S8
40	CMS-102S8 Sensor 25mm 20A Solid Core	10 mm	CMS202S8
Solid core sensors 25mm wide to suit DIN rail mounting (universally usable)			
160	CMS-100DR Sensor 25mm 80A Solid Core	10 mm	CMS200DR
80	CMS-101DR Sensor 25mm 40A Solid Core	10 mm	CMS201DR
40	CMS-102DR Sensor 25mm 20A Solid Core	10 mm	CMS202DR
Solid core sensors 25mm wide to suit cable tie mounting (universally usable)			
160	CMS-100CA Sensor 25mm 80A Solid Core	10 mm	CMS200CA
80	CMS-101CA Sensor 25mm 40A Solid Core	10 mm	CMS201CA
40	CMS-102CA Sensor 25mm 20A Solid Core	10 mm	CMS202CA

Accessories

Description	Order code
Flat cable 2m	CMS800
Flat cable 5m	CMS802
Connector set (35pcs)	CMS820
WiFi Antenna	CMS870

Flat cable also available as 10m and 30m

STOCK | INDENT

04
Enclosures and switchboard systems

357 **Insulating enclosures and enclosures for automation**

367 **Modular switchboard systems – up to 800A**

379 **Modular switchboard systems – up to 6300A: System pro E power**



Insulating enclosures and enclosures for automation

358 **IP65 thermoplastic and IP65 polycarbonate enclosures**

360 **IP65 Europa polycarbonate enclosures**

361 **IP66 Gemini weatherproof range**

364 **IP65 SR2 sheet steel enclosures**

For more detailed product information, please refer to the Technical Catalogue:

- IP55 and IP65 Boxes – 1SLC001001D0204
- Gemini enclosures – 1STC804013D0207
- SR2 – 1STC804013D0204
- System pro E power catalogue – 2CPC000311B0201

Insulating enclosures and enclosures for automation

IP65 thermoplastic and IP65 polycarbonate enclosures

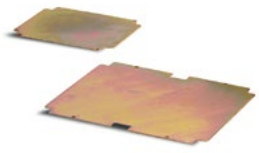




IP65 Thermoplastic enclosures

- RAL7035 grey colour
- Opaque and transparent screw on lid versions
- Operating temperature from -25°C to +75°C
- Shock resistance to 6 joules
- High resistance to heat, chemical and atmospheric agents
- Lids have stainless steel screws or quarter turn plastic screws, depending upon the enclosure size

Cover	External dimensions H x W x D (mm)	Internal dimensions H x W x D (mm)	Lid screw type	Order code
Opaque	113 x 113 x 67	100 x 100 x 50	Stainless	LE00846
	114 x 79 x 67	105 x 70 x 50	Stainless	LE00850
	113 x 113 x 87	100 x 100 x 80	Stainless	LE00851
	162 x 120 x 73	153 x 110 x 66	Stainless	LE00852
	170 x 145 x 87	160 x 135 x 77	¼ turn plastic	LE00854
	231 x 181 x 89	220 x 170 x 80	¼ turn plastic	LE00856
	323 x 251 x 117	310 x 240 x 110	¼ turn plastic	LE00858
	170 x 145 x 156	160 x 135 x 150	¼ turn plastic	LE00860
	231 x 181 x 160	220 x 170 x 150	¼ turn plastic	LE00862
	323 x 251 x 170	310 x 240 x 160	¼ turn plastic	LE00864
Clear	162 x 120 x 73	153 x 110 x 66	¼ turn plastic	LE00872
	170 x 145 x 87	160 x 135 x 77	¼ turn plastic	LE00874
	231 x 181 x 89	220 x 170 x 80	¼ turn plastic	LE00876
	323 x 251 x 117	310 x 240 x 110	¼ turn plastic	LE00878
	170 x 145 x 156	160 x 135 x 150	¼ turn plastic	LE00880
	231 x 181 x 160	220 x 170 x 150	¼ turn plastic	LE00882
	323 x 251 x 170	310 x 240 x 160	¼ turn plastic	LE00884



Accessories for IP65 thermoplastic enclosures

Description	Suits enclosure type	Order code
Mounting plate	LE00874-LE00854-LE00860-LE00880	LP00900
	LE00876-LE00856-LE00862-LE00882	LP00902
	LE00878-LE00858-LE00864-LE00884	LP00904
35mm DIN rail - slotted - 2metre length		DR12849

Insulating enclosures and enclosures for automation

IP65 thermoplastic and IP65 polycarbonate enclosures

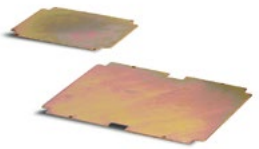




IP65 polycarbonate enclosures

- RAL7035 grey colour
- Opaque and transparent screw on lid versions
- Operating temperature from -25°C to +75°C
- Shock resistance to 20 joules
- High resistance to UV rays, heat, chemical and atmospheric agents
- Hinged lid screws included with each enclosure to allow hinging on left or right with 140° opening

Cover	External dimensions H x W x D (mm)	Order code
Opaque	140 x 220 x 140	LE12804
	205 x 220 x 140	LE12808
	275 x 220 x 140	LE12812
	275 x 370 x 140	LE12814
	275 x 570 x 140	LE12816
	380 x 570 x 140	LE12818







Accessories for IP65 thermoplastic enclosures

Description	Suits enclosure type	Order code
Mounting plate	LE12804	LP12842
	LE12808	LP12844
	LE12812	LP12845
	LE12814	LP12846
	LE12816	LP12847
	LE12818	LP12848
Wall mounting brackets for IP65 enclosures (Pack of 4)		LA12858
35mm DIN rail – slotted – 2metre length		DR12849

Spare lid screws for enclosure

Description	Suits enclosure type	Order code
Steel lid screw	LEOO846, LE0050, LE00851, LE00852, LE00872	M910520000
¼ turn standard lid screw	LEOO854, LE00856, LE00858, LE00860, LE00862, LE00864, LEOO874, LE00876, LE00878, LE00880, LE00882, LE00884	M912890000
¼ turn hinged lid screw	LEOO854, LE00856, LE00858, LE00860, LE00862, LE00864, LEOO874, LE00876, LE00878, LE00880, LE00882, LE00884	M912880000
Threaded standard lid screw	LE12804, LE12808, LE12812, LE12814, LE12816, LE12818	M952310000
Threaded hinged lid screw	LE12804, LE12808, LE12812, LE12814, LE12816, LE12818	M911020000

Insulating enclosures and enclosures for automation

IP65 Europa polycarbonate enclosures



IP65 Europa Thermoplastic enclosures

- RAL7035 grey colour
- Opaque and transparent vertically hinged doors
- Operating temperature from -25°C to +60°C
- Shock resistance to 20 joules (Ik level 10)
- High resistance to heat, chemical and atmospheric agents

Door	External dimensions H x W x D (mm)	Order code
Opaque	220 x 140 x 140	LE12764
	220 x 205 x 140	LE12768
	220 x 275 x 140	LE12772
	370 x 275 x 140	LE12774
	570 x 275 x 140	LE12776
	570 x 380 x 140	LE12778
Transparent	220 x 140 x 140	LE12784
	220 x 205 x 140	LE12788
	220 x 275 x 140	LE12792
	370 x 275 x 140	LE12794
	570 x 275 x 140	LE12796
	570 x 380 x 140	LE12798



Accessories for IP65 thermoplastic enclosures

Description	Suits enclosure type	Order code
Metal Mounting plate	LE12764 - LE12784	LP12842
	LE12768 - LE12788	LP12844
	LE12772 - LE12792	LP12845
	LE12774 - LE12794	LP12846
	LE12776 - LE12796	LP12847
	LE12778 - LE12798	LP12848
35mm DIN rail - slotted - 2metre length		DR12849

Insulating enclosures and enclosures for automation

IP66 Gemini weatherproof range



The Gemini series ensures maximum protection in the toughest environments

- Ideal for control panels and distribution boards in harsh environments such as food industry washdown areas
- Provides the strength of glass reinforced polyester without the environmental and personal risk
- Lightweight
- Strong

Technical characteristics

Rated service voltage	CEI EN 50298, CEI 23-48, CEI23-49,
	IEC 60670, CEI EN 60439-1, CEI EN 62208,
	IEC 61439-1-2
Compliance with standards	Ue 1000 V AC - 1500V DC
Operating temperature °C	-25°C +100°C
Resistance to abnormal heat and fire	up to 750°C
Degree of resistance to impacts	IK10 (IEC 62262)
Degree protection (CEI EN 60529)	IP30 open door
	IP66 closed door
Recyclable	100%

The Gemini range is revolutionising the market of low voltage electrical insulating switchboards as it is the first switchboard made of thermoplastic material, to which the co-injection moulding technique gives the same mechanical characteristics as polyester.

Extremely sturdy, with its rigid covering and expanded internal core Gemini switchboards are IP66, IP30 with the door open afford a very high resistance to chemical and atmospheric agents and guarantees excellent performances even in severe operating conditions.

In distribution and mixed applications, the Gemini switchboard is designed to be fitted with System pro M modular devices and Tmax moulded-case circuit breakers. Gemini switchboards are designed to be compatible with ABB components for low voltage control, protection, monitoring and switching.

ABB is the first manufacturer in the electrical field to use co-injection moulding technique. This process is a ‘sandwich’ of two materials with a compact external covering and an expanded core, guaranteeing the highest level of mechanical protection against impacts (IK10).



Ordering guide

Select enclosure base (box) size

Size	1400 x 335 x 210
Size 2	550 x 460 x 260
Size 3	700 x 460 x 260
Size 4	700 x 590 x 260
Size 5	855 x 590 x 360
Size 6	1006 x 840 x 360

Select door style

Opaque
Transparent

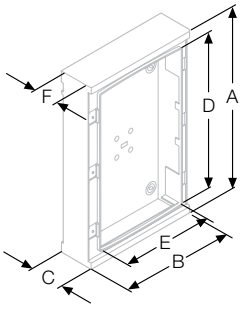
Base plate required?

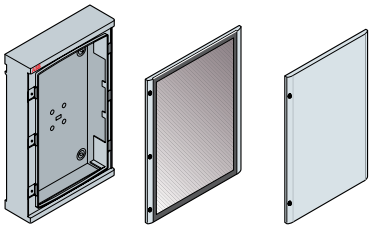
- **Yes** → **Select base plate**
- **No** → **Select uprights** → **Select accessories: DIN rail, Drilled panels, Tmax mounting kits etc**

STOCK | INDENT

Insulating enclosures and enclosures for automation

IP66 Gemini weatherproof range

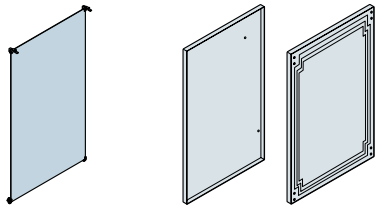


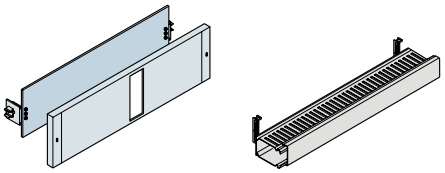


Basic configuration

Size	Number of installable DIN modules	Number of vertical modules	External dimensions			Internal dimensions			Box	Door	
	(mod. x row)	H=150 mm	A	B	C	D	E	F		Transparent	Opaque
1	24 (12x2)	2	400	335	210	300	250	180	1SL0221A00	1SL0241A00	1SL0231A00
2	54 (18x3)	3	550	460	260	450	375	230	1SL0222A00	1SL0242A00	1SL0232A00
3	72 (18x4)	4	700	460	260	600	375	230	1SL0223A00	1SL0243A00	1SL0233A00
4	96 (24x4)	4	700	590	260	600	500	230	1SL0224A00	1SL0244A00	1SL0234A00
5	120 (24x5)	5	855	590	360	750	500	330	1SL0225A00	1SL0245A00	1SL0235A00
6	216 (36x6)	6	1005	840	360	900	750	330	1SL0226A00	1SL0246A00	1SL0236A00

Note:
Upright are required to fit DIN rail panels and modular plate. Upright not required for base plates.





Components for automation

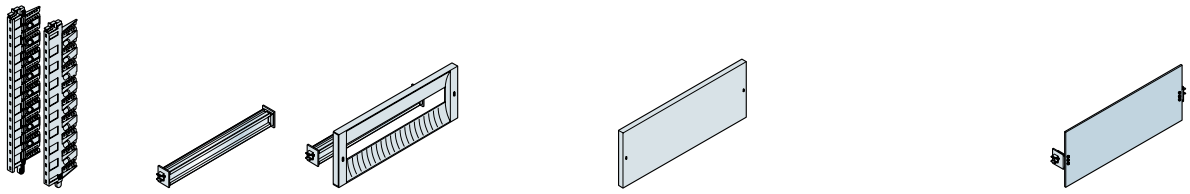
Size	Base plate	Inner door
	Blank	
1	1SL0259A00	1SL0251A00
2	1SL0260A00	1SL0252A00
3	1SL0261A00	1SL0253A00
4	1SL0262A00	1SL0254A00
5	1SL0263A00	1SL0255A00
6	1SL0264A00	1SL0256A00

Accessories for distribution

Size	Kit for Tmax XT		x-O-Rapid kit with wiring duct	
	H. 150 mm	H. 300 mm	25x60 mm	40x60 mm
1	–	–	1SL0353A00	1SL0360A00
2	1SL0373A00	1SL0376A00	1SL0354A00	1SL0361A00
3	1SL0373A00	1SL0376A00	1SL0354A00	1SL0361A00
4	1SL0374A00	1SL0377A00	1SL0355A00	1SL0362A00
5	1SL0374A00	1SL0377A00	1SL0355A00	1SL0362A00
6	1SL0375A00	1SL0378A00	1SL0356A00	1SL0363A00

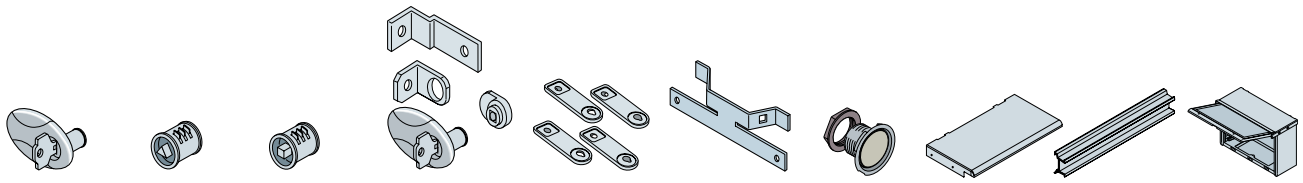
Insulating enclosures and enclosures for automation

IP66 Gemini weatherproof range



Components for automation

Size	Uprights	DIN rail	DIN panel kit Panel + DIN rail		Blank panel			Modular plate	
			H=150 mm	H=225 mm	H=75 mm	H=150mm	H=300 mm	H=150 mm	H=300 mm
1	1SL0283A00	1SL0290A00	1SL0307A00	–	1SL0318A00	1SL0324A00	1SL0330A00	1SL0296A00	–
2	1SL0284A00	1SL0291A00	1SL0308A00	1SL0313A00	1SL0319A00	1SL0325A00	1SL0331A00	1SL0297A00	1SL0302A00
3	1SL0285A00	1SL0291A00	1SL0308A00	1SL0313A00	1SL0319A00	1SL0325A00	1SL0331A00	1SL0297A00	1SL0302A00
4	1SL0285A00	1SL0292A00	1SL0309A00	1SL0314A00	1SL0320A00	1SL0326A00	1SL0332A00	1SL0298A00	1SL0303A00
5	1SL0286A00	1SL0292A00	1SL0309A00	1SL0314A00	1SL0320A00	1SL0326A00	1SL0332A00	1SL0298A00	1SL0303A00
6	1SL0287A00	1SL0293A00	1SL0310A00	1SL0315A00	1SL0321A00	1SL0327A00	1SL0333A00	1SL0299A00	1SL0304A00



Accessories common to the whole range

Size	Lock with handle	Lock with triangular impression	Lock with square impression	Anti tampering locking kit	Bounting brackets	Pole installation kit	Anti condensation kit	Integral cover	Depth adapter	Horizontal kit
1	1SL0340A00	1SL0341A00	1SL0339A00	1SL0458A00	1SL0342A00	1SL0343A00	1SL0351A00	1SL0451A00	AP6000	–
2						1SL0344A00		1SL0452A00		1SL0470A00
3						1SL0344A00		1SL0452A00		1SL0471A00
4						1SL0345A00		1SL0454A00		
5						1SL0345A00		1SL0455A00		1SL0472A00
6						1SL0346A00		1SL0456A00		1SL0473A00

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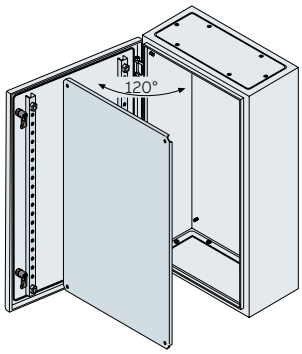
Insulating enclosures and enclosures for automation

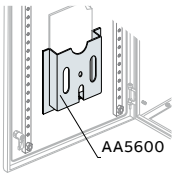
IP65 SR2 sheet steel enclosures

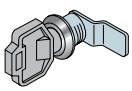


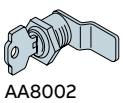
- The SR2 enclosures range is a complete offer of monobloc enclosures for constructing small and medium sized automation, switching and control switchboards for industrial applications.
- IP65 rated according to AS/NZS 60529
- 1.5mm steel
- Welded steel construction
- Top and bottom gland plates
- 2mm galvanised steel mounting plate included

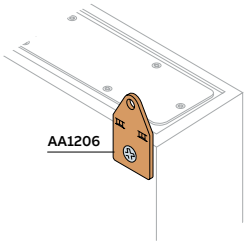
SR2 metal enclosures IP65 – (indoor use only)

	Height (mm)	Width (mm)	Depth (mm)	Order code
SR2 enclosure	300	200	150	SRN3215K
		300	150	SRN3315K
	400	300	150	SRN4315K
		300	200	SRN4320K
		400	200	SRN4420K
	500	400	200	SRN5420K
		400	250	SRN5425K
	600	400	200	SRN6420K
		400	250	SRN6425K
		600	250	SRN6625K
	700	500	250	SRN7525K
	800	600	300	SRN8630K
	1000	600	300	SRN10630K
		800	300	SRN10830K
	1200	800	300	SRN12830K




AA800


AA8002



Accessories for SR2 metal enclosures IP65

Description	Order code
Document pocket	AA5600
Wall mounting brackets (Packet of 4 pcs)	AA1206
Double tongue lock and key (spare part	AA8001
Flush key lock with Yale type key	AA8002

Notes



Availability subject to regional release

Modular switchboard systems – up to 800A

368 **TwinLine S 43 modular wall and floor mounting cabinet system**

373 **Twinline S 43 CombiLine S distribution panel system**

For more detailed product information, please refer to the Technical Catalogue:

- TwinLine S 43 catalogue – 2CPC 000 310 C0201

Modular switchboard systems – up to 800A

TwinLine S 43 modular wall and floor mounting cabinet system

Availability subject to regional release

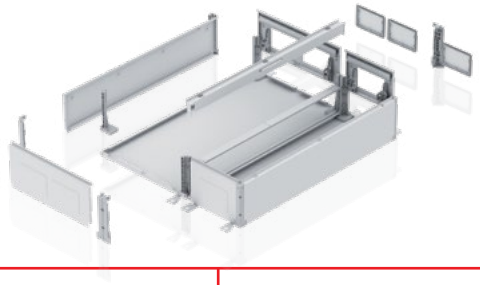
With the new TwinLine S 43 system, ABB offers a tailored and proven concept of modular wall-mounting and floor-standing cabinets.

The comprehensive product range provides a solution for every distribution board application. All cabinets are designed according to IEC 61439. The modular system is simple in planning, quick in assembly and safe in application. TwinLine cabinets offer unrestricted access during operation, expansion, maintenance and functional monitoring.

With 180-degree door opening, the door locking system and the possibility to easily switch the doors from right to left the system guarantees excellent flexibility. The removable frame comes as standard and gives the possibility to remove all covers in one operation and provides for quick assembly.

Product benefits

- Innovative flange technology
- Significantly more usable area for cable entry
- All flanges are compatible with all flange openings and knockouts within the entire TwinLine system
- Simple connection of all cabinets in both, horizontally and vertically
- Modular plinth concept
- Optimal accessibility and ease of installation thanks to 180 degree door opening angle
- Wide range of the new modular distribution panel system, called CombiLine S
- Simplified accessories concept for reduced inventory levels
- Speedy and concise planning and calculations with the software





Rear wall



Top and bottom plate



Side walls



Installation set for removable frame



Uprights for side-by-side positioning of cabinets



Internal cable container



Transparent or sheet steel doors



Flanges



Plinth

STOCK | **INDENT**

Modular switchboard systems – up to 800A

TwinLine S 43 modular wall and floor mounting cabinet system

Availability subject to regional release



Technical specifications

Standards / regulations	IEC 61439 -1/-2/-3*
Protection class	I, earthed, in combination with CAEC6
Degree of protection	IP43
	Without door IP30
Mechanical impact strength	IK 08 for the cabinet enclosure
	IK 07 in the area of the flange knockouts
	IK 07 for transparent doors
	IK 08 for sheet steel doors
Conditions of installation	Indoor installation
	Ambient air temperature max. + 40°C
	Ambient air temperature min. - 5°C
	Operating temperature max. + 55°C
	Storage temperature max. + 55°C
	Storage temperature min. - 40°C

Product features

Housing and door	Sheet steel, RAL 7035, powder-coated
	Door opening angle: 180 degrees
	Doors with espagnolette closure (multiple locking points)
	Doors for wall-mounting cabinets: with latch plate and 3 mm double bit pin
	Doors for floor-standing cabinets: with swivel handle and 3 mm double bit pin
Assembly options	Prepared to be fitted with CombiLine S modules and mounting plates
Forms of delivery	Build-up cabinets out of sets

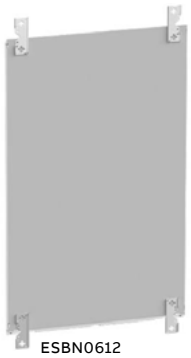
* Powerloss determinated by calculation with the method of IEC 60890 in accordance with IEC 61439-1 par. 10.10.4

STOCK | INDENT

Modular switchboard systems – up to 800A

TwinLine S 43 modular wall and floor mounting cabinet system

Availability subject to regional release



ESBN0612

Rear walls

Description	Height (mm)	Order code
Width 300mm	400	ESBN0304
	600	ESBN0306
	800	ESBN0308
	1200	ESBN0312
	1600	ESBN0316
	2000	ESBN0320
Width 600mm	400	ESBN0604
	600	ESBN0606
	800	ESBN0608
	1200	ESBN0612
	1600	ESBN0616
	2000	ESBN0620



ESCL0600

Top and bottom plates

Kit includes two flanges

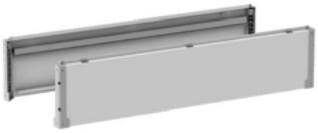
Description	Width (mm)	Order code
Depth 275 mm - one plate with open flange, one plate with closed flange	300	ESPL0300
Depth 275 mm - both plates with closed flanges	600	ESCL0600



TZ107

Flanges

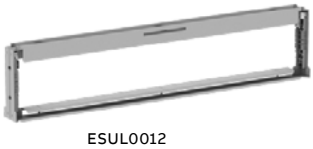
Description	Order code
Material: Plastic	TZ107
Material: Sheet steel	TZ106



ESSL0012

Side walls/uprights

Description	Height (mm)	Order code
Depth 275mm	400	ESSL0004
	600	ESSL0006
	800	ESSL0008
	1200	ESSL0012
	1600	ESSL0016
	2000	ESSL0020



ESUL0012

Uprights for side by side

Description	Height (mm)	Order code
Depth 275mm	400	ESUL0004
	600	ESUL0006
	800	ESUL0008
	1200	ESUL0012
	1600	ESUL0016
	2000	ESUL0020

Modular switchboard systems – up to 800A

TwinLine S 43 modular wall and floor mounting cabinet system

Availability subject to regional release



ESIN0012

Installation set with removable frame

Description	Height (mm)	Order code
For internal conffiguration in 300mm and 600mm wide cabinets	400	ESIN0004
	600	ESIN0006
	800	ESIN0008
	1200	ESIN0012
	1600	ESIN0016
	2000	ESIN0020



TZM304

Mounting plates

Description	Height (mm)	Width (mm)	Order code
Sheet steel 2mm galvanised	600	600	TZM204
	1200	600	TZM208



ESAS0612



ESAT0612

Doors for cabinets

Description	Width (mm)	Order code
Sheet steel doors		
Width 300mm	400	ESAS0304
	600	ESAS0306
	800	ESAS0308
	1200	ESAS0312
	1600	ESAS0316
	2000	ESAS0320
Width 600mm	400	ESAS0604
	600	ESAS0606
	800	ESAS0608
	1200	ESAS0612
	1600	ESAS0616
	2000	ESAS0620
Transparent doors		
Width 600mm	600	ESAT0606
	800	ESAT0608
	1200	ESAT0612
	1600	ESAT0616
	2000	ESAT0620

STOCK | INDENT

Modular switchboard systems – up to 800A

TwinLine S 43 modular wall and floor mounting cabinet system

Availability subject to regional release



ESAL0610

Plinths, Colour RAL 7012

Description	Height (mm)	Width (mm)	Order code
Plinth, closed sides	50	300	EASL0305
Plinth, closed sides	50	600	EASL0605
Plinth, side knockouts 1 x M32/ M50 or 80x80 mm	100	300	ESAL0310
Plinth, side knockouts 1 x M32/ M50 or 80x80 mm	100	600	ESAL0610

Note:
Plinths can be stacked on top of each other for extra height (max 3 plinths)



ESAC3001P2



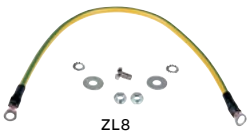
ESAC3003P4



ESAC3004P2

General accessories

Description	Pieces per pack	Order code
Mounting brackets, to mount the cabinet to the wall, to connect the plinth with the back of the cabinet or to connect cabinets in the back when using ESAC3002	2	ESAC3001P2
Transport lugs	4	ESAC3003P4
Lifting reinforcement for transporting side-by-side structures	2	ESAC3004P2
Door earthing kit	1	ZL8
Document holder A4 - self adhesive	1	ZA13
Document holder support plate for ZA13 to screw on to the door strengthening profiles	1	ZA123
Universal key - Double bit 3mm/5mm, Triangle 8mm, Square 6mm/8mm	1	ZH91
Key - Double bit 3mm	1	ZH160



ZL8



ZA5



ZA123



ZH91



ZH160

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Modular switchboard systems – up to 800A

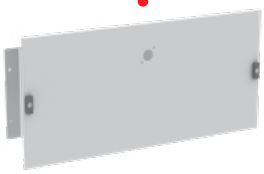
Twinline S 43 CombiLine S distribution panel system

Availability subject to regional release

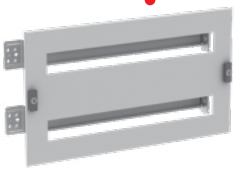




Tmax breakers



OT breakers



DIN rail components



Standard covers



Covers for measuring instruments



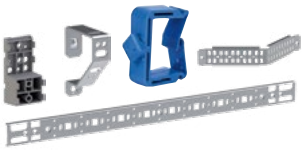
Mounting plates



Internal form of separation form 2b



Busbar systems



Accessories

Technical specifications

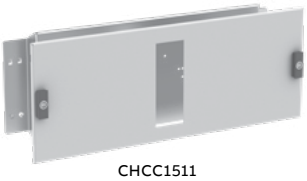
Standards / regulations	IEC 61439 -1/-2/-3
Protection class	I, earthed
Degree of protection	IPXXC
Electrical characteristics	
Rated impulse withstand voltage (U_{imp})	6 kV
Overvoltage category	III
Pollution degree	3
Rated current (I_n)	up to 800 A
Rated peak withstand current (I_{pk})	up to 74 kA
Rated short-time withstand current (I_{cw}) 1.0 sec.	up to 35 kA
Rated frequency (f)	50 – 60 Hz
Rated insulation voltage (U_i)	1000 V
Rated operational voltage (U_e)	690 V

STOCK | INDENT

Modular switchboard systems – up to 800A

Twinline S 43 CombiLine S distribution panel system

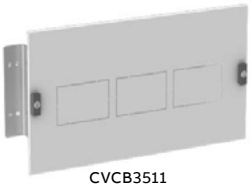
Availability subject to regional release



CHCC1511

Moulded case circuit breaker Tmax, horizontal

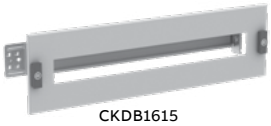
Width (mm)	Height (mm)	For device I_n max A	Type	No.of breakers	Poles	Order code
600	150	160	Tmax XT1	1	3/4	CHCA1511
	200	160	Tmax XT2	1	3/4	CHCB1511
	200	250	Tmax XT3	1	3/4	CHCC1511
	200	250	Tmax XT4	1	3/4	CHCD1511
	200	320	Tmax T4	1	3/4	CHCE1511
	300	630	Tmax T5	1	3/4	CHCF1511
	400	800	Tmax T6	1	3/4	CHCG1511



CVCB3511

Moulded case circuit breaker Tmax, vertical, up to 3 MCCB

Width (mm)	Height (mm)	For device I_n max A	Type	No.of breakers	Poles	Order code
600	300	160	Tmax XT1	3	3/4	CVCA3511
	300	160	Tmax XT2	3	3/4	CVCB3511
	300	250	Tmax XT3	3	3/4	CVCC3511
	300	250	Tmax XT4	3	3/4	CVCD3511



CKDB1615

DIN rail components

Width (mm)	Height (mm)	Additional information I_n max A	Modules	DIN rail distance	No.of rows	Order code
300	200	250	12	200	1	CKDC1320
600	150	160	24	150	1	CKDB1615
600	200	250	24	200	1	CKDC1620
600	300	160	24	150	1	CKDB2630



CACP3030



CACP6030



CACP6060

Closed covers

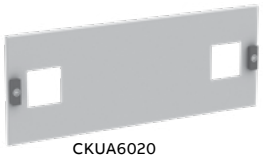
Width (mm)	¼ turn quick-lock on each side	Height (mm)	Order code
300	1	50	CACP3005
	1	100	CACP3010
	1	150	CACP3015
	1	200	CACP3020
	1	250	CACP3025
	1	300	CACP3030
	1	400	CACP3040
	2	500	CACP3050
	2	600	CACP3060
	2	800	CACP3080
600	1	50	CACP6005
	1	100	CACP6010
	1	150	CACP6015
	1	200	CACP6020
	1	250	CACP6025
	1	300	CACP6030
	1	400	CACP6040
	2	500	CACP6050
	2	600	CACP6060
	2	800	CACP6080

STOCK | **INDENT**

Modular switchboard systems – up to 800A

Twinline S 43 CombiLine S distribution panel system

Availability subject to regional release



CKUA6020

Covers for panel mount measuring instruments

Description	Width (mm)	Height (mm)	Order code
For two measuring instruments 96 x 96mm	600	200	CKUB6020
Cover fixed by ¼ turn screws on each side			



CAEC6



CAHCP10

Hinge set for covers

Description	Order code
Hinge set for covers - opening angle 90° - 2pcs required per cover	CAHCP10
Cover earthing set - cable diameter 6mm²	CAEC6



CAMF3030



CAMF6030

Mounting plates

Width (mm)	Height (mm)	Usable space Height (mm)	Usable space Width (mm)	Order code
300	300	295	216	CAMF3030
600	150	145	432	CAMF6015
	200	195	432	CAMF6020
	250	245	432	CAMF6025
	300	295	432	CAMF6030
	400	395	432	CAMF6040
	500	495	432	CAMF6050
	600	595	432	CAMF6060
	800	795	432	CAMF6080

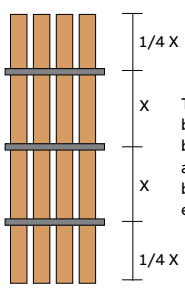


CKBS1161

Busbar supports

For flat busbars with 15x5, 25x5 and 30x10 profiles

Description	Order code
For mounting behind the device area	CKBS1161
Rated (In) max 630A	
Rated peak withstand current (Ipk) up to 48kA	
Rated short -time withstand current (Icw) 1.0 sec up to 23kA	
Refer table below for number of supports to achieve the short-circuit rating	



The distance between the first busbar holder and the end of the busbar must not exceed 1/4 of 'X'.

Table for rated short-time withstand current (I_{cw}) 1.0 sec

Busbar type	I_n in A	Bars per phase	Max dist 'X' (mm) 16kA	20kA	23kA	32kA
15x5	250	1	500	350	200	–
25x5	400	1	500	350	200	–
30x10	630	1	–	600	600	210

STOCK | INDENT

Modular switchboard systems – up to 800A

Twinline S 43 CombiLine S distribution panel system

Availability subject to regional release



CASHP2



CAHB16



CASWP2



CAHW6

Accessories

Description	Height (mm)	Order code
Universal support for DIN rail or cable fastening or earth bars 20x5mm		CASHP2
Horizontal mounting support for busbar support and cable fixing	300	CAHB3
	600	CAHB6
Support for wiring duct – 60 mm and 80 mm height (2 pcs)		CASWP2
Horizontal mounting profile for wiring system – mounted on CASHP2 support for wiring duct - width 600 mm		CAHW6

Notes


ABB

Modular switchboard systems – up to 6300A: System pro E power

381	Software and training
382	Structure
392	Internal kits
409	Busbar systems
420	Form of segregation

For more detailed product information, please refer to the Technical Catalogue:

- System pro E power catalogue – 1STC803005D0206
- Instruction handbook – 1STM604200R0001






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ABB
XX
XX

Modular switchboard systems – up to 6300A
Software and training

ABB presents e-Design, the new engineering software suite launched as a tool to meet the needs of electrical sector professionals working in a constantly changing market.

e-Design makes it possible to design an electrical system, optimizing production times to the maximum, thanks to the ability to access a product portfolio to be used in synergy through intuitive and simple functionalities.

The suite's appealing and brand-new look, combined with a general optimization of the functionalities that have always characterized ABB software, make it an innovative tool in step with the technologies currently available in the sector. ABB's commitment in developing engineering software has always been driven by the rigorous preparation of its engineers and its sharp focus on the needs of professionals working in the sector. In such a rapidly changing context as exists today, it is essential to support the supply of increasingly technologically complex equipment with solutions that ensure that such equipment is simple to use.

Conscious of market requirements, ABB is capitalizing on its own experience and presents the new e-Design suite as a practical response to every critical aspect of the design process.
Advantages


ABB

Certificate no.: 15097

Certificate of Training

ABB E-Design and System pro *E* power

CERTIFICATE

Assembly and software training

AWARDED TO

James, Matthews

Australia

This is to certify Mr. James Matthews has been trained on the design and assembly of ABB's modular switchboard system – System pro *E* power

Date: 25th January 2017

Dipyaman Basu
Product Marketing Manager
Electrification Products
Power Enclosures

Francesco Prestinari
Product Marketing Director
Electrification Products
Protection and Connection

Advantages

Flexibility
- 4 interconnected modules accessible during all stages of the project
- Project reusable by all the professionals involved in its creation

Speed
- Ability to save, duplicate and edit product and switchboard configurations
- Calculation of single-line diagram and automatic dimensioning of conductors and control and protection equipment

Simplicity
- Drawing of single-line diagram using predefined macros
- Guided configuration of switchboards and products

Training and Certificate

ABB's training and certification program provides you and your employees a hands on experience to design and assemble ABB's modular switchboard range – System Pro E Power. The training is delivered by product experts – to become more efficient in designing, procuring, planning, and assembly; based on local rules and regulations.

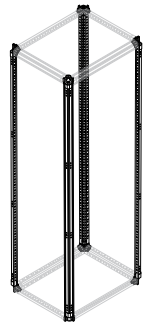
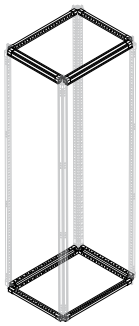
The program is free of cost, however, to maintain a productive session, the spots for each program will be limited. For the next trainings scheduled in your state, kindly contact your ABB's account manager.

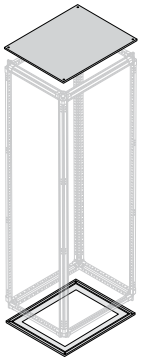
Link to download:
http://new.abb.com/low-voltage/support/software/e-design/download

Structure

Choice of the structure

H=2000mm quick selection guide



Functional dimensions		External dimensions *		Frame						External Covers			
				Uprights	Structure crosspieces		H=100mm plinth			Top/bottom panels			
					Galvanized sheet metal In≤4000A		Galvanized sheet metal			Top/Bottom		Bottom	
Height 2000mm		Height 2213mm						Plinth flanges		Blind	Open[1] **	Without plinth	
W (mm)	D (mm)	W (mm)	D (mm)	Galvanized sheet metal In≤4000A	Front/ Rear	Sides	Angle pieces	Front/Rear	Sides	IP65	IP65	IP40[2]	
	500		616			PCFM0500			PPFM1050	PTBB3056	PTBO3050	PBWP3050	
300	700	416	816	PUPM2000	PCFM0300	PCFM0700	PPAM0100	PPFM1030	PPFM1070	PTBB3076	PTBO3070	PBWP3070	
	900		1016			PCFM0900			PPFM1090	PTBB3096	PTBO3090	PBWP3090	
	500		616			PCFM0500			PPFM1050	PTBB4056	PTBO4050	PBWP4050	
400	700	516	816	PUPM2000	PCFM0400	PCFM0700	PPAM0100	PPFM1040	PPFM1070	PTBB4076	PTBO4070	PBWP4070	
	900		1016			PCFM0900			PPFM1090	PTBB4096	PTBO4090	PBWP4090	
	500		616			PCFM0500			PPFM1050	PTBB6056	PTBO6050	PBWP6050	
600	700	716	816	PUPM2000	PCFM0600	PCFM0700	PPAM0100	PPFM1060	PPFM1070	PTBB6076	PTBO6070	PBWP6070	
	900		1016			PCFM0900			PPFM1090	PTBB6096	PTBO6090	PBWP6090	
	500		616			PCFM0500			PPFM1050	PTBB8056	PTBO8050	PBWP8050	
800	700	916	816	PUPM2000	PCFM0800	PCFM0700	PPAM0100	PPFM1080	PPFM1070	PTBB8076	PTBO8070	PBWP8070	
	900		1016			PCFM0900			PPFM1090	PTBB8096	PTBO8090	PBWP8090	
	500		616			PCFM0500			PPFM1050	PTBB1056	PTBO1050	PBWP1050	
1000	700	1116	816	PUPM2000	PCFM1000	PCFM0700	PPAM0100	PPFM1010	PPFM1070	PTBB1076	PTBO1070	PBWP1070	
	900		1016			PCFM0900			PPFM1090	PTBB1096	PTBO1090	PBWP1090	
1250	900		1016	PUPM2000	PCFM1250	PCFM0900	PPAM0100	PPFM1250	PPFM1090		PTBO1290	PBWP1290	

Note: To complete the selection for Inline see page 408

1) Use the dedicated incoming cable flanges to obtain protection class IP65.

2) Bottom for switchboard without plinth complete with the dedicated set of brackets, which can be ordered separately.

* The external dimensions include the H=100mm plinth and the panels.

** For structures with internal cable container and open top/base, please see special covers and flanges page 386.

STOCK | INDENT

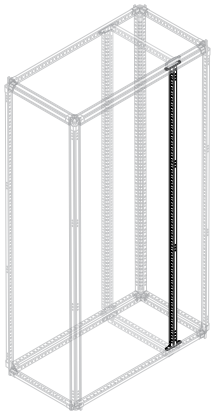


InLine II

Front/side panels

Rear panel	Side panel	Glass door 12/24 36/48 mod. DIN	Glass door 12/24/36 mod. DIN + internal cable compartment				
Blind	**Blind**		**Cable comp. W=200mm**	**Cable comp. W=400mm**			
IP65	**IP65**	**IP65**	**IP65**	**IP65**	**InLine II kit**	**Fixed frame**	**Front panels**
PPEB2036	PPEB2056				PKNL1260	PFNL1860	No.2 PPNL3060
	PPEB2076						
	PPEB2096						
PPEB2046	PPEB2056	PDLG2046			PKNL1280	PFNL1880	No.2 PPNL3080
	PPEB2076						
	PPEB2096						
PPEB2066	PPEB2056	PDLG2066	PDLG2042		PKNL1210	PFNL1810	No.2 PPNL3010
	PPEB2076						
	PPEB2096						
PPEB2086	PPEB2056	PDLG2086	PDLG2062	PDLG2044	PKNL1260	PFNL2060	No.2 PPNL4060
	PPEB2076						
	PPEB2096						
PPEB2016	PPEB2056	PDLG2016	PDLG2082	PDLG2064	PKNL1280	PFNL2080	No.2 PPNL4080
	PPEB2076						
	PPEB2096						
					PKNL1210	PFNL2010	No.2 PPNL4010

Structure
Frame

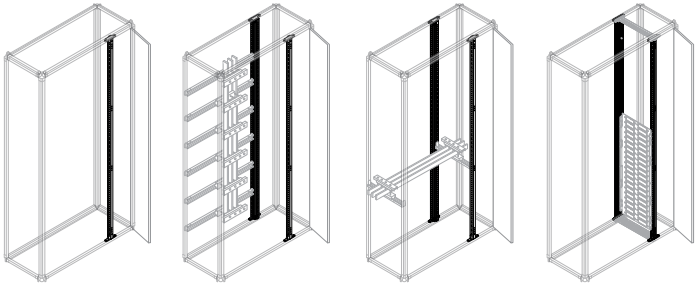


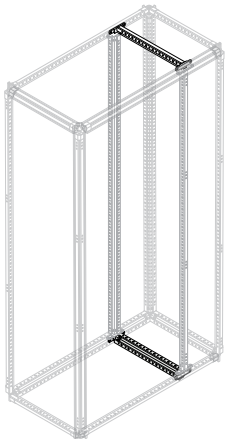
Uprights for internal cable compartment – Galvanized sheet metal

Upright formed by a closed profile in galvanized sheet metal for internal cable compartment with fixing brackets. For applications with In ≤4000A.

Description	Dimensions H (mm)	Package/ No. pcs	Order code
No.1 galv. sheet metal upright for cable compartment	2000	1/1	PUCM2000

Application examples





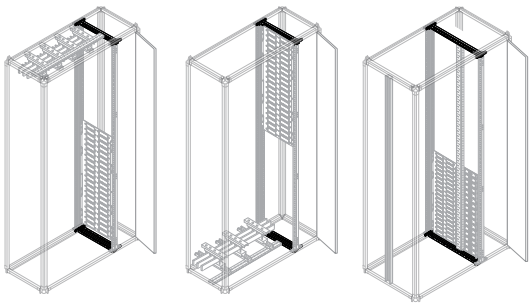
Crosspieces for internal cable compartment – Galvanized sheet metal

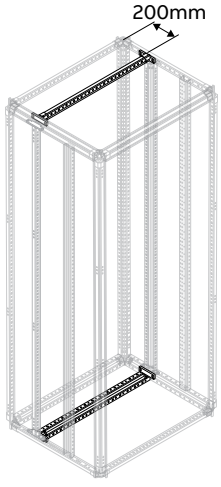
Crosspieces for internal cable compartment in galvanized sheet metal.
For applications with In ≤4000A with fixing brackets.

Description	Dimensions D (mm)	Package/ No. pcs	Order code
No.2 galvanized sheet cable cont. crosspieces	500	1/2	PCCM0500
No.2 galvanized sheet cable cont. crosspieces	700	1/2	PCCM0700
No.2 galvanized sheet cable cont. crosspieces	900	1/2	PCCM0900

To be ordered when there is an intermediate upright for mounting kit PUKI.... or an intermediate crosspiece for installing busbars horizontally under the top or on the bottom of the PCKI.... structure or when vertical side partitions are installed. Not compatible with IP40 PBWP....

Application examples





Crosspieces for structures – Galvanized sheet metal

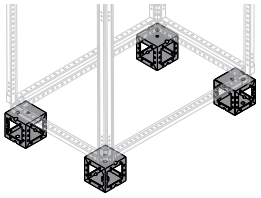
Allows the creation of a cable compartment with D=200mm at the back of the stuctures.
To be assembled with 2 intermediate uprights for internal cable container PUCM.... o PUCS....

Description	Dimensions W (mm)	Package/ No. pcs	Order code
No.2 galvanized sheet crosspieces for structures	400	1/2	PCCM0400
No.2 galvanized sheet crosspieces for structures	600	1/2	PCCM0600
No.2 galvanized sheet crosspieces for structures	800	1/2	PCCM0800
No.2 galvanized sheet crosspieces for structures	1000	1/2	PCCM1000

Structure

Frame

PPAM0100

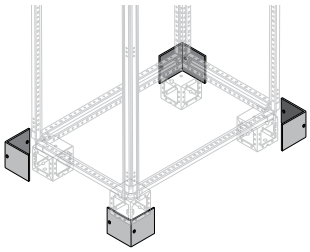


Universal angle pieces for plinths in galvanized sheet metal

Not pre-assembled to the structure. New angle piece with high mechanical strength.
Can be fixed from the outside and from the inside of the structure even at a later date.
Equipped with anti-rotation system and bottom that can be transported with a transpallet.

Description	Dimensions H (mm)	Package/ No. pcs	Order code
No.4 plinth angle pieces	100	1/4	PPAM0100

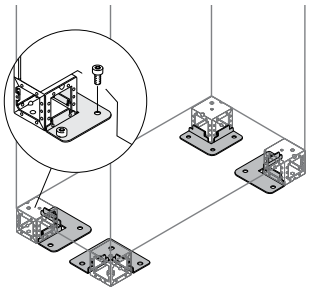
*Order no. 2 pieces of H=100mm covering flange kits to complete the H=200mm plinth.



'L' covers for plinth angle-pieces

Used for covering the sides of the plinth when the flanges are not used.

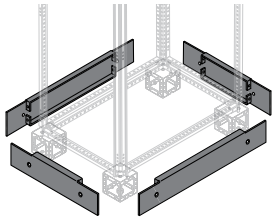
Description	Dimensions H (mm)	Package/ No. pcs	Order code
No.4 angle-piece covers	100	1/4	PCPA0004



Brackets for fixing to the floor

The kit allows the floor or on container fixing of the structure by means of M12 screws.

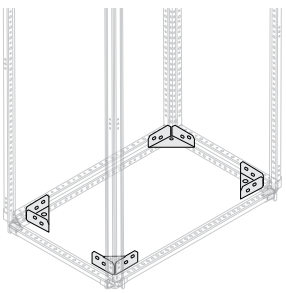
Description	Package/ No. pcs	Order code
No.4 floor fixing brackets	1/4	ZN1041



Plinth flanges

Side and front/rear plinth flanges H=100mm RAL 7012.

Description	Dimensions (mm) W	D	Package/ No. pcs	Order code
Front/rear plinth flanges				
No.2 plinth flanges	300		1/2	PPFM1030
No.2 plinth flanges	400		1/2	PPFM1040
No.2 plinth flanges	600		1/2	PPFM1060
No.2 plinth flanges	800		1/2	PPFM1080
No.2 plinth flanges	1000		1/2	PPFM1010
Side plinth flanges				
No.2 plinth flanges		500	1/2	PPFM1050
No.2 plinth flanges		700	1/2	PPFM1070
No.2 plinth flanges		900	1/2	PPFM1090

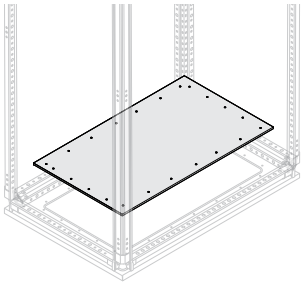


Brackets for bottoms without plinth

The kit allows the mounting of the angle pieces PPAM…. from the inside of the structure or the application of enclosures without plinth when combined with the proper internal bottom PBWP…. IP40 or the other bottom codes available that have
to be cut according to the drilling indication in chapter 8 of the System pro E power technical catalogue – 1STC803005D0206.

Description	Package/ No. pcs	Order code
No. 4 brackets for bottoms without plinth	1/4	PBRB0004

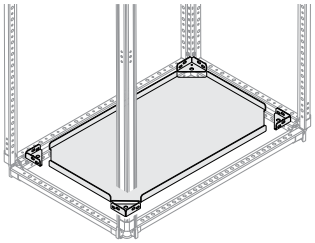
Structure
Frame



Fixed incoming cable flange

Fixed incoming cable flange in sheet metal to use in conjunction with the open bottom to guarantee IP65 protection class. With internal cable compartment crosspieces it is necessary to mount the fixed flange first.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	W	D		
Fixed incoming cable flange	300	500	1/1	PFCF3050
Fixed incoming cable flange	300	700	1/1	PFCF3070
Fixed incoming cable flange	300	900	1/1	PFCF3090
Fixed incoming cable flange	400	500	1/1	PFCF4050
Fixed incoming cable flange	400	700	1/1	PFCF4070
Fixed incoming cable flange	400	900	1/1	PFCF4090
Fixed incoming cable flange	600	500	1/1	PFCF6050
Fixed incoming cable flange	600	700	1/1	PFCF6070
Fixed incoming cable flange	600	900	1/1	PFCF6090
Fixed incoming cable flange	800	500	1/1	PFCF8050
Fixed incoming cable flange	800	700	1/1	PFCF8070
Fixed incoming cable flange	800	900	1/1	PFCF8090
Fixed incoming cable flange	1000	500	1/1	PFCF1050
Fixed incoming cable flange	1000	700	1/1	PFCF1070
Fixed incoming cable flange	1000	900	1/1	PFCF1090
Fixed incoming cable flange	1250	900	1/1	2xPFCF6090



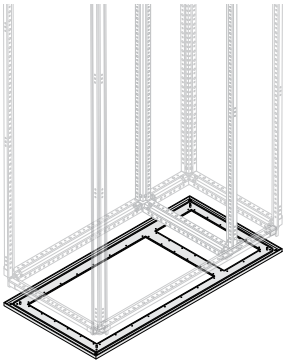
Internal bottom IP40

Internal galvanized steel bottom with special brackets kit included (special brackets kit available also as spare part with the code PBRB0004).

Description	Dimensions (mm)		Package/ No. pcs	Order code
	W	D		
Internal bottom	300	500	1/1	PBWP3050
Internal bottom	300	700	1/1	PBWP3070
Internal bottom	300	900	1/1	PBWP3090
Internal bottom	400	500	1/1	PBWP4050
Internal bottom	400	700	1/1	PBWP4070
Internal bottom	400	900	1/1	PBWP4090
Internal bottom	600	500	1/1	PBWP6050
Internal bottom	600	700	1/1	PBWP6070
Internal bottom	600	900	1/1	PBWP6090
Internal bottom	800	500	1/1	PBWP8050
Internal bottom	800	700	1/1	PBWP8070
Internal bottom	800	900	1/1	PBWP8090
Internal bottom	1000	500	1/1	PBWP1050
Internal bottom	1000	700	1/1	PBWP1070
Internal bottom	1000	900	1/1	PBWP1090

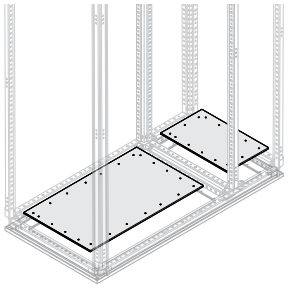
Structure

External covers



Open bottom IP65 – for internal cable container

Pickled sheet steel with IP65 gasket. In order to reach IP65 protection degree, use the dedicated fixed cable incoming flanges both for equipment compartment and internal cable compartment.



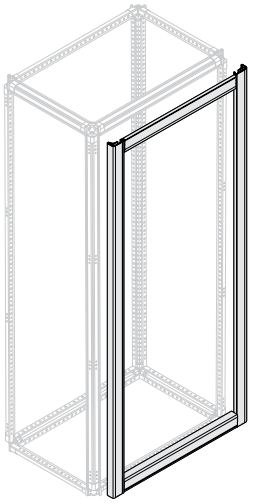
Description	Dimensions (mm)		Package/ No. pcs	Order code
	W	D		
Open bottom IP65				
Open bottom 600+200mm	800	500	1/1	PTBO8251
Open bottom 600+200mm	800	700	1/1	PTBO8271
Open bottom 600+200mm	800	900	1/1	PTBO8291
Open bottom 800+200mm	1000	500	1/1	PTBO1251
Open bottom 800+200mm	1000	700	1/1	PTBO1271
Open bottom 800+200mm	1000	900	1/1	PTBO1291
Open bottom 600+400mm	1000	500	1/1	PTBO1451
Open bottom 600+400mm	1000	700	1/1	PTBO1471
Open bottom 600+400mm	1000	900	1/1	PTBO1491
Blind fixed flange IP65 for internal cable container				
Blind fixed flange	200	500	1/1	PFCF2051
Blind fixed flange	200	700	1/1	PFCF2071
Blind fixed flange	200	900	1/1	PFCF2091
Blind fixed flange	400	500	1/1	PFCF4051
Blind fixed flange	400	700	1/1	PFCF4071
Blind fixed flange	400	900	1/1	PFCF4091

Example:
Base IP65 W 800mm D 500mm with 200mm W internal cable container.

Order:
n°1 PTBO8251 open bottom W 800mm (600 + 200) D 500mm
n°1 PFCF2051 blind fixed flange for internal cable contaioner W 200mm D 500mm
n°1 PFCF6050 blind fixed flange for equipment compartment W 600mm D 500mm

Structure

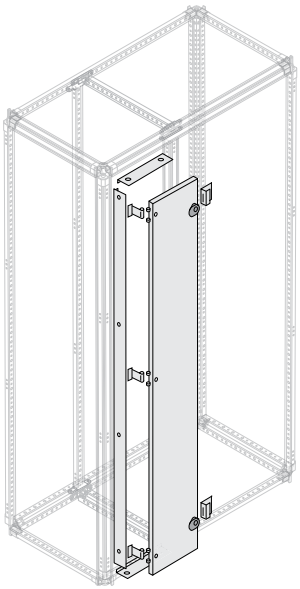
External covers



Horizontal/vertical front closing profiles IP30

Profiles for IP30/IP31 pickled sheet painted RAL 7035.

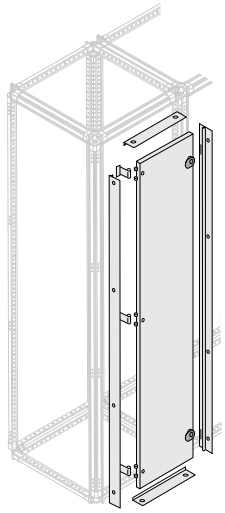
Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Finishing profiles vertical structure and external cable compartment				
No.2 vertical profiles IP30	2000		1/2	PPFV2000
Finishing profile vertical internal cable compartment				
No.1 profile vertical IP30	2000		1/1	PPCV2000
Finishing profiles horizontal structure and external cable compartment				
No.2 horizontal profiles IP30		300	1/2	PPFH0300
No.2 horizontal profiles IP30		400	1/2	PPFH0400
No.2 horizontal profiles IP30		600	1/2	PPFH0600
No.2 horizontal profiles IP30		800	1/2	PPFH0800
No.2 horizontal profiles IP30		1000	1/2	PPFH1000



Internal door for internal cable compartment

Internal door in pickled steel sheet for cable compartment IP30.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Blind door for internal cable compartment	2000	200	1/1	PDCB2020
Blind door for internal cable compartment	2000	400	1/1	PDCB2040



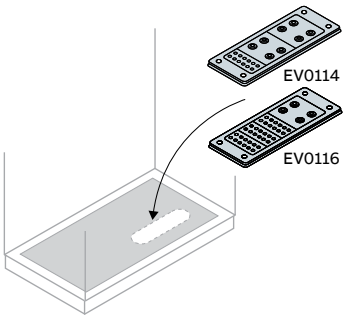
Internal door for external cable compartment

Internal door in pickled steel sheet for cable compartment IP30.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Blind door for external cable compartment	2000	300	1/1	PDCB2030
Blind door for external cable compartment	2000	400	1/1	PDCB2044

Structure

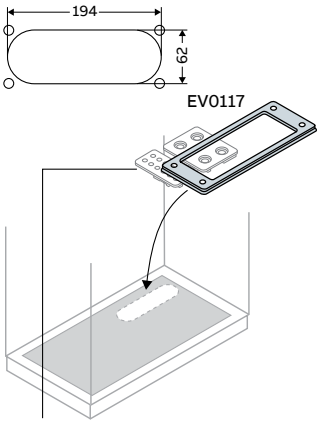
Structure finishing components

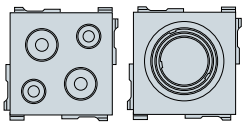


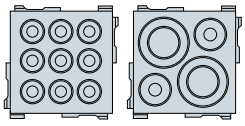
Pre-configured plastic cable gland flanges IP65

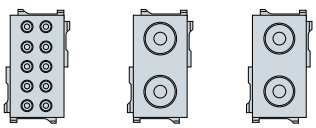
Allow numerous cables to be installed and guarantee that the components inside the switchboards are protected. The inserts have a membrane through which the cable can be easily pushed without the need for tools. IP65 protection class is guaranteed over the entire flange regardless of the number of cables installed. Cable clamp, and cable gland with cable clamp can also be installed.
RAL 7035 grey colour; operating temperature from -20 °C to +125 °C, IP65 protection class in accordance with EN 60529 specifications.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	W	D		
Pre-configured modular flange IP65				
No.1 pre-configured incoming cable flange for 18 cables (Ø min/max 8/14mm) and 10 cables (Ø min/max 4/10mm)	214	90	1/1	EV0114
No.1 pre-configured incoming cable flange for 30 cables (Ø min/max 4/10mm), 2 cables (M20 Ø min/max 7/13mm) and 2 cables (M25 Ø min/max 8/17mm)	214	90	1/1	EV0116




EV0119 EV0121


EV0123 EV0124


EV0125 EV0126 EV0127

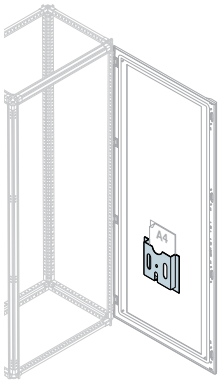
Flanges with adaptable plastic cable gland inserts IP65

Thanks to the frame and inserts available, the flange can be adapted to suit the size, quantity and position of the cables installed. The inserts have a membrane through which the cable can be easily pushed without the need for tools.
IP65 protection class is guaranteed over the entire flange regardless of the number of cables installed. Cable clamp, and cable gland with cable clamp can also be installed.
RAL 7035 grey colour; operating temperature from -20 °C to +125 °C, IP65 protection class in accordance with EN 60529 specifications.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	W	D		
Adaptable modular flanges				
No.1 flange frame for incoming cables to create with individual inserts	214	90	1/1	EV0117
Inserts for adaptable flanges				
No.10 (ten) 68x68mm inserts for 4 incoming cables, 2 cables (M25 Ø min/max 8/17mm), 2 cables (M16 Ø min/max 5/10mm)	68	68	1/1	EV0119
No.10 (ten) 68x68mm inserts for 1 incoming cable type M32 / M40 / M50	68	68	1/1	EV0121
No.10 (ten) 68x68mm inserts for 9 incoming cables (Ø min/max 8/14mm)	68	68	1/1	EV0123
No.10 (ten) 68x68mm inserts for 4 incoming cables, 2 (Ø min/max 10/20) and 2 (Ø min/max 20/30mm)	68	68	1/1	EV0124
No.10 (ten) 34x68mm inserts for 2 incoming cables (Ø min/max 8/17mm)	34	68	1/1	EV0125
No.10 (ten) 34x68mm inserts for 2 incoming cables (Ø min/max 7/13mm)	34	68	1/1	EV0126
No.10 (ten) 34x68mm inserts for 10 incoming cables (Ø min/max 4/10mm)	34	68	1/1	EV0127

Structure

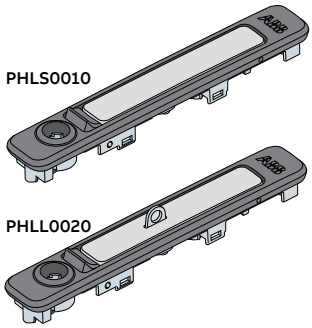
Accessories and spare parts



Plastic pocket for documents

Complete with adhesive parts for fixing to the door.

Description	Package/ No. pcs	Order code
Plastic pocket for A4 documents	1/1	EV1075K

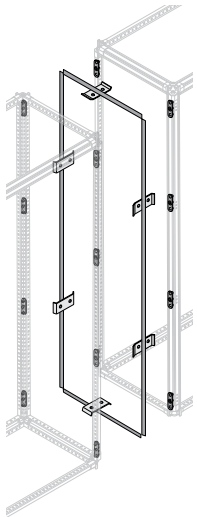




Closing systems

Can replace the standard closing systems of the external doors. The inserts are interchangeable and can be easily replaced by loosening just one nut.

Description	Package/ No. pcs	Order code
Handle		
Standard lever handle (spare)	1/1	PHLS0010
Padlockable lever handle (spare)	1/1	PHLL0020
Inserts		
Yale insert+key for external door, single door version	1/1	AA6200
One-code Yale insert for inner door	1/1	EV1036



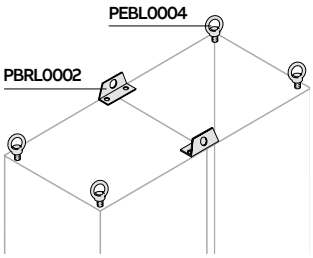
Kit for joining structures

The kit for joining structures is composed of different brackets and a gasket for the maintenance of the IP protection degree and allows both a side-by-side and a back-to-back joining of structures.

Description	Package/ No. pcs	Order code
Kit for joining structures side by side / back to back	1/1	PSBS0065

Structure

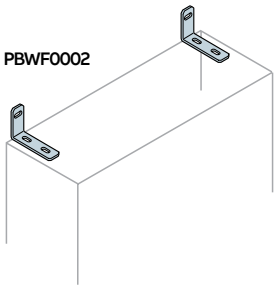
Accessories and spare parts



Eyebolts for lifting

Allow wired switchboards to be lifted. Made of steel treated with a white passivated galvanizing process.

Description	Package/ No. pcs	Order code
No.4 steel M12 eyebolts	1/4	PEBL0004



Lifting reinforcements

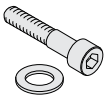
Used for handling several adjacent switchboards.

Description	Package/ No. pcs	Order code
No.2 lifting reinforcements for adjacent switchboards	1/2	PBRL0002

Wall-mounting brackets

Allow the switchboards to be fixed to a wall

Description	Package/ No. pcs	Order code
No.2 wall-mounting brackets	1/2	PBWF0002



Screws

Description	Package/ No. pcs	Order code
No.24 screws for side/rear panels	1/24	PSCP0024
No.24 screws 1/4 turn with washers	1/24	PCSS0024

Spray paints

Description	Package/ No. pcs	Order code
RAL7035 colour spray paint for structures	1/1	VB7035
RAL7012 colour spray paint for plinths	1/1	VB7012

Axial screws for uprights

Axial screws for 3 way joint uprights.

Description	Package/ No. pcs	Order code
No.16 axial screws for uprights	1/16	PSAF0016

Hinges for standard doors

Description	Package/ No. pcs	Order code
No.4 hinges for standard door	1/4	PHDR0004
No.4 180° opening hinges	1/4	PHFR4180

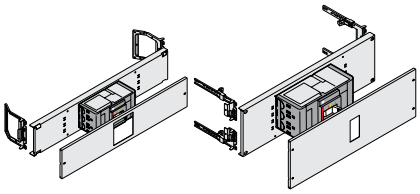
STOCK | INDENT

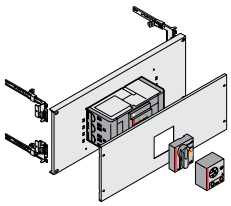
Internal kits

Kits for moulded case circuit breakers

Tmax XT horizontal installation

To assemble these kits, order the dedicated intermediate depth uprights PUKI2000 for H=2000mm. Intermediate uprights are not required for assembling fixed Tmax XT1, XT2, XT3, XT4, T4, T5, T6 and XT1, XT3 with Direct Rotary Handle only in non-segregated structures. Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.





Non-accessorised circuit-breakers

Front or rear CB connections	No. poles	Dimensions (mm) H	W	No. CB per compartment	Fixed	Withdrawable
XT1	3P 4P	200	400	1	PHBX1101	
	3P 4P	200	600	1	PHCX1101	
XT2	3P 4P	200	400	1	PHBX2401	PHBX2310 (1)
	3P 4P	200	600	1	PHCX2401	PHCX2310 (1)
	3P 4P	200	800	1	PHDX2401	
XT3	3P	150	400	1	PHBX3301 (3) (4)	
	3P	150	600	1	PHCX3301 (4)	
	3P 4P	200	400	1	PHBX3401 (3)	
	3P 4P	200	600	1	PHCX3401	
XT4	3P 4P	200	400	1	PHBX4401 (3)	
	3P 4P	200	600	1	PHCX4401	
	3P 4P	200	800	1	PHDX4401	
	3P 4P	250	400	1		PHBX4410
	3P 4P	250	600	1		PHCX4410

1) Only 3 poles
2) Only 4 poles
3) Not compatible with high terminal covers
4) No rear terminal segregation

Accessorised circuit-breakers

Front or rear CB connections	No. poles	Dimensions (mm) H	W	No. CB per compartment
XT1	3P	200	400	1
	3P	200	600	1
	3P 4P	200	400	1
	3P 4P	200	600	1
	3P 4P	500	400	2
	3P 4P	500	600	2
	4P	200	800	1
XT2	3P 4P	200	400	1
	3P 4P	200	600	1
	3P 4P	200	800	1
	3P 4P	500	400	2
	3P 4P	500	600	2
	4P	250	800	1
XT3	3P 4P	200	400	1
	3P 4P	200	600	1
	3P 4P	500	400	2
	3P 4P	500	600	2
	4P	200	800	1
XT4	3P 4P	200	400	1
	3P 4P	200	600	1
	3P 4P	200	800	1
	3P 4P	250	400	1
	3P 4P	250	600	1
	3P 4P	500	400	2
	3P 4P	500	600	2
	4P	250	800	1

For fixed and withdrawable 3P breakers Tmax XT, non accessorized and mounted on 3/4P kit, it is necessary to order the dedicated cover flanges: AD3305 flange for XT1 3P mounted on plate, AD3306 flange for XT2 3P mounted on plate, AD3307 flange for XT3 3P mounted on plate, AD3308 flange for XT4 3P mounted on plate. With interlocked or interlocked motor-operated kits, it is necessary to order the quantity of flanges equal to the quantity of breakers.

Fixed					Withdrawable				
Residual current device	**Direct Rotary Handle**	**Motor operator**	**Interlocked**	**Interlocked motor-operated**	**Residual current device[3]**	**Direct Rotary Handle**	**Motor operator**	**Interlocked**	**Interlocked motor-operated**
PHBX1323									
PHCX1323									
PHBX1423[2]	PHBX1105	PHBX1404							
PHCX1423[2]	PHCX1105	PHCX1404							
			PHBX1422	PHBX1424					
			PHCX1422	PHCX1424					
PHDX1423									
PHBX2423[2]	PHBX2405	PHBX2404				PHBX2300[1]	PHBX2312[1]		
PHCX2423[2]	PHCX2405	PHCX2404				PHCX2300[1]	PHCX2312[1]		
PHDX2423[2]		PHDX2404							
			PHBX2402	PHBX2424				PHBX2425	PHBX2425
			PHCX2402	PHCX2424				PHCX2425	PHCX2425
	PHBX3405	PHBX3404							
	PHCX3405	PHCX3404							
			PHBX3422	PHBX3424					
			PHCX3422	PHCX3424					
PHDX3423									
PHBX4423[2] [4]	PHBX4405	PHBX4404							
PHCX4423[2]	PHCX4405	PHCX4404							
PHDX4423[2]		PHDX4404							
						PHBX4400	PHBX4412		
					PHCX4417[2]	PHCX4400	PHCX4412		
			PHBX4402	PHBX4424				PHBX4425	PHBX4425
			PHCX4402	PHCX4424				PHCX4425	PHCX4425

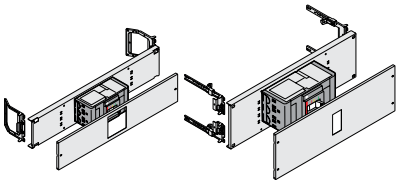
1) Only 3 poles
2) Only 4 poles
3) Compatible residual current devices: RC Inst. XT1-XT3, RC Sel. XT1-XT3 and RC Sel.. XT2-XT4 Type A. For XT1-XT3 fixed with residual current device high terminal covers are not available.
4) Not compatible with high terminal covers.

Internal kits

Kits for moulded case circuit breakers

Tmax T horizontal installation

To assemble these kits, order the dedicated intermediate depth uprights PUKI2000 for H=2000mm. Intermediate uprights are not required for assembling fixed Tmax XT1, XT2, XT3, XT4, T4, T5, T6 and XT1, XT3 with Direct Rotary Handle only in non-segregated structures. Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.

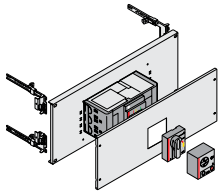


Non-accessorised circuit-breakers

Front or rear circuit-breaker connec.		No. poles	Dimensions (mm) H	W	No. CB per compart.	Fixed	Withdrawable
T4		3P	150	400	1	PHBT4301 (3) (4)	
		3P	150	600	1	PHCT4301 (4)	
		3P 4P	200	400	1	PHBT4406 (3)	
		3P 4P	200	600	1	PHCT4406	
T5	400A	3P	200	400	1		
		3P	200	600	1		
		3P	200	800	1		
		3P	300	400	1		PHBT5314
		3P	300	600	1		PHCT5314
		3P	300	800	1		PHDT5314
	400A/630A	3P	200	400	1	PHBT5306 (3)	
		3P	200	600	1	PHCT5306	
		3P	200	800	1	PHDT5306	
	400A	3P 4P	250	400	1		
		3P 4P	250	600	1		
		3P 4P	250	800	1		
		3P 4P	350	400	1		PHBT5414
		3P 4P	350	600	1		PHCT5414
		3P 4P	350	800	1		PHDT5414
	400A/630A	3P 4P	250	400	1	PHBT5406 (3)	
		3P 4P	250	600	1	PHCT5406	
		3P 4P	250	800	1	PHDT5406	
	630A	3P	200	600			
		3P	300	600			PHCT5310 ■
T6		3P	300	600	1	PHCT6301	
		3P	300	800	1	PHDT6301	
		3P 4P	350	600	1	PHCT6401	PHCT6314 (1) ■
		3P 4P	350	800	1	PHDT6401	PHDT6314 (1) ■
		3P 4P	500	600	1		PHCT6410 ■
		3P 4P	500	800	1		PHDT6414 ■
T7		3P	300	600	1	PHCT7329	
		3P	300	800	1	PHDT7329	
		3P	400	600	1		
		3P	400	800	1		
		3P 4P	350	600	1	PHCT7420	
		3P 4P	350	800	1	PHDT7420	
		3P 4P	500	600	1		PHCT7430 *
		3P 4P	500	800	1		PHDT7430 *

1) Only 3 poles
2) Only 4 poles
3) Not compatible with high terminal covers
4) No rear terminal segregation

■ Front terminals, only Form 1
* Only rear terminals



Accessorised circuit-breakers

Front or rear circuit- breaker connections		No. poles	Dimensions (mm) H	W	No. CB per compart.
T4		3P 4P	200	400	1
		3P 4P	200	600	1
		3P 4P	600	400	2
		3P 4P	600	600	2
		3P 4P	600	800	2
T5	400A	3P	200	400	1
		3P	200	600	1
		3P	200	800	1
		3P	300	400	1
		3P	300	600	1
		3P	300	800	1
	400A/630A	3P	200	400	1
		3P	200	600	1
		3P	200	800	1
	400A	3P 4P	250	400	1
		3P 4P	250	600	1
		3P 4P	250	800	1
		3P 4P	350	400	1
		3P 4P	350	600	1
		3P 4P	350	800	1
		3P 4P	600	400	2
		3P 4P	600	600	2
		3P 4P	600	800	2
	400A/630A	3P 4P	250	400	1
		3P 4P	250	600	1
		3P 4P	250	800	1
		3P 4P	600	600	2
	400A	4P	250	600	1
		4P	250	800	1
T6		3P	300	600	1
		3P	300	800	1
		3P 4P	350	600	1
		3P 4P	350	800	1
		3P 4P	500	600	1
		3P 4P	500	800	1
		3P 4P	700	600	2
T7		3P	300	600	1
		3P	300	800	1
		3P 4P	350	600	1
		3P 4P	350	800	1
		3P 4P	400	600	1
		3P 4P	400	8 00	1
		3P 4P	500	600	1
		3P 4P	500	800	1

1) Only 3 poles
2) Only 4 poles
3) Not compatible with high terminal covers.
4) Compatible residual current devices: RC222 for T4 and T5.

STOCK | INDENT

Fixed					Withdrawable			
Residual current device [4]	**Direct Rotary Handle**	**Motor operator**	**Interlocked**	**Interlocked motor-operated**	**Direct Rotary Handle**	**Motor operator**	**Interlocked**	**Interlocked motor-operated**
	PHBT4406[3]	PHBT4404						
PHCT4423[2]	PHCT4406	PHCT4404						
			PHBT4402					
			PHCT4402	PHCT4403				
			PHDT4402	PHDT4403				
					PHBT5314	PHBT5312		
					PHCT5314	PHCT5312		
					PHDT5314	PHDT5312		
	PHBT5306[3]	PHBT5304						
	PHCT5306	PHCT5304						
	PHDT5306	PHDT5304						
					PHBT5414	PHBT5412		
					PHCT5414	PHCT5412		
					PHDT5414	PHDT5412		
							PHCT5425	PHCT5411
							PHDT5425	PHDT5411
	PHBT5406[3]	PHBT5404						
	PHCT5406	PHCT5404						
	PHDT5406	PHDT5404						
			PHCT5402	PHCT5403				
PHCT5423								
PHDT5423								
	PHCT6305	PHCT6304						
	PHDT6305	PHDT6304						
	PHCT6405	PHCT6404			PHCT6314[1] ■	PHCT6312[1] ■		
	PHDT6405	PHDT6404			PHDT6314[1] ■	PHDT6312[1] ■		
					PHCT6400 ■	PHCT6412 ■		
					PHDT6414 ■	PHDT6412 ■		
			PHCT6402	PHCT6403			PHCT6425 ■	PHCT6411 ■
	PHCT7329	PHCT7329	PHCT7329	PHCT7329				
	PHDT7329	PHDT7329	PHDT7329	PHDT7329				
	PHCT7420	PHCT7420						
	PHDT7420	PHDT7420						
			PHCT7418	PHCT7418				
			PHDT7418	PHDT7418				
					PHCT7430 *	PHCT7430 *	PHCT7430 *	PHCT7430 *
					PHDT7430 *	PHDT7430 *	PHDT7430 *	PHDT7430 *

■ Front terminals, only Form 1
* Only rear terminals

STOCK | **INDENT**

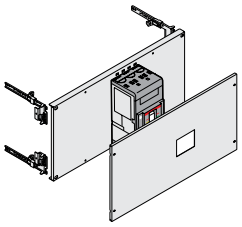
Internal kits

Kits for moulded case circuit breakers

Tmax T vertical installation

To assemble these kits, order the dedicated intermediate depth uprights PUKI2000 for H=2000mm. Intermediate uprights are not required for assembling fixed Tmax XT1, XT2, XT3, XT4, T4, T5, T6 and XT1, XT3 with Direct Rotary Handle only in non-segregated structures.

Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.



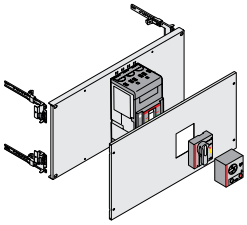
Non-accessorised circuit-breakers

Front or rear circuit-breaker connections	No. poli	Dimensions (mm) H	W	No. adjacent CB	Fixed	Withdrawable
T6	3P	450	400	1		PVBT6314
	3P 4P	400	400	1	PVBT6401	
	3P 4P	400	600	1	PVCT6401	
	3P 4P	400	800	1	PVDT6401	
	3P 4P	450	600	1		PVCT6414 ■
	3P 4P	450	800	1		PVDT6414 ■
	3P 4P	450	1000	2		PVFT6610 ■
T7	3P 4P	450	600	1	PVCT7419	
	3P 4P	450	800	1	PVDT7419	
	3P 4P	500	600	1		PVCT7413 *
	3P 4P	500	800	1		PVDT7413 *
	3P 4P	500	1000	2		PVFT7633 *

1) Only front terminals not segregated

■ Front terminals, only Form 1

* Only rear terminals



Accessorised circuit-breakers

Rear circuit-breaker connections	No. poles	Dimensions (mm) H	W	No. adjacent CB	Fixed Residual current device (1)
T6	3P	450	400	1	
	3P 4P	400	400	1	
	3P 4P	400	600	1	
	3P 4P	400	800	1	
	3P 4P	450	600	1	
	3P 4P	450	800	1	
	3P 4P	450	1000	2	
T7	3P 4P	450	600	1	
	3P 4P	450	800	1	
	3P 4P	500	600	1	
	3P 4P	500	800	1	
	3P 4P	500	1000	2	

1) Compatible residual current devices: RC222 for T4 and T5.

■ Front terminals, only Form 1

* Only rear terminals

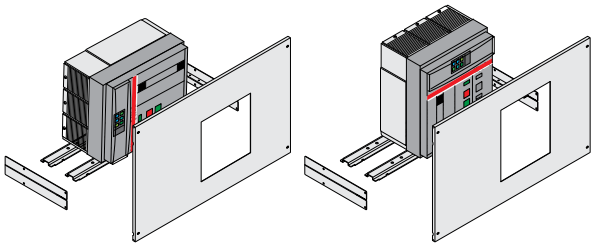
				Withdrawable			
Direct rotary handle	**Motor operator**	**Interlocked**	**Interlocked motor-operated**	**Direct rotary handle**	**Motor operator**	**Interlocked**	**Interlocked motor-operated**
				PVBT6314	PVBT6312		
PVBT6405	PVBT6404						
PVCT6405	PVCT6404						
PVDT6405	PVDT6404						
				PVCT6414 ■	PVCT6412 ■		
				PVDT6414 ■	PVDT6412 ■		
					PVFT6612 ■		
	PVCT7419	PVCT7419	PVCT7419				
	PVDT7419	PVDT7419	PVDT7419				
					PVCT7413 *	PVCT7413 *	PVCT7413 *
					PVDT7413 *	PVDT7413 *	PVDT7413 *
					PVFT7633 *		

Internal kits

Kits for air circuit-breakers

Emax 2 horizontal / vertical installation

To assemble these kits, order the dedicated intermediate depth upright PUKI2000 for H=2000mm.
Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.



Non-accessorized circuit-breakers

		Dimensions (mm)			
	No. poles	H	W	Fixed	Withdrawable
Front or rear connections, horizontal installation					
E1.2	3P 4P	400	600	PHCE1241	
	3P 4P	400	800	PHDE1241	
	3P 4P	500	600		PHCE1240 *
	3P 4P	500	800		PHDE1240 *
Front or rear connections, vertical installation					
E1.2	3P 4P	450	400	PVBE1241	
	3P 4P	450	600	PVCE1241	
	3P 4P	450	800	PVDE1241	
	3P 4P	450	800	PVDE1262(1)	
	3P 4P	500	600		PVCE1240 *
	3P 4P	500	800		PVDE1240 *
	3P 4P	500	1000		PVFE1263(1) *
Rear connections, vertical installation					
E2.2	3P 4P	600	600	PVCE2441	PVCE2450
	3P 4P	600	800	PVDE2441	PVDE2440
E4.2	3P 4P	600	600	PVCE2442	PVCE4350(2)
	3P 4P	600	800	PVDE2441	PVDE2440
E6.2	3P	700	1000		PVFE6230
E6.2 Neutral 50%	3P/4P	700	1000	PVFE6231	
E6.2 Neutral 50/100%	4P	700	1250		PVGE6230
E6.2 Neutral 50/100%	4P	700	1250	PVGE6231	

For 3200A busbar systems use structures with D=700mm, for 4000A busbar systems use structures with D=900mm.

1) Kit for 2 adjacent circuit-breakers.
2) Only 3 poles.

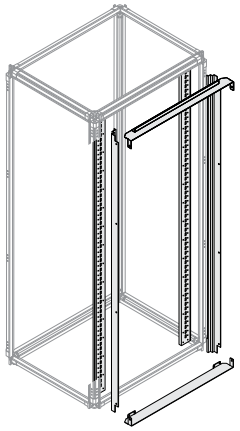
* Only rear terminals.

Accessorized circuit-breakers

		Dimensions (mm)		Fixed	Withdrawable
Rear circuit-breaker connections	No. poles	H	W	Interlocked	Interlocked
Front or rear connections, horizontal installation					
E1.2	3P 4P	400	600	PHCE1241	
	3P 4P	400	800	PHDE1241	
	3P 4P	500	600		PHCE1240
	3P 4P	500	800		PHDE1240
Front or rear connections, vertical installation					
E1.2	3P 4P	450	400	PVBE1241	
	3P 4P	450	600	PVCE1241	
	3P 4P	450	800	PVDE1241	
	3P 4P	500	600		PVCE1240 *
	3P 4P	500	800		PVDE1240 *
Rear connections, vertical installation					
E2.2	3P 4P	600	600	PVCE2441	PVCE2450
	3P 4P	600	800	PVDE2441	PVDE2440
E4.2	3P	600	600		PVCE4350
	3P 4P	600	800	PVDE2441	PVDE2440
E6.2	3P	700	1000	PVFE6231	PVFE6230
E6.2 50/100% Neutral	4P	700	1250	PVGE6231	PVGE6230

STOCK | INDENT

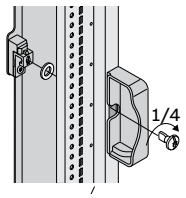
Internal kits



Special fixed frame for panels

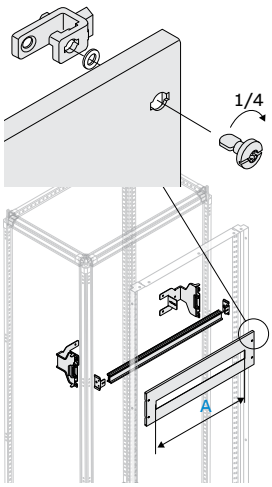
Fixed frame for internal panels; the useful height of the switchboard can be used to full advantage. With fixed frame for panels, maximum wiring ducts dimension is 80 x 60 mm. The main advantage of the special fixed frame is to permit the addition of MCCBS kit or DIN rail kits without having to remove the entire frame with the front panels already installed.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Special fixed frame for panels	2000	400	1/1	PFFA2040
Special fixed frame for panels	2000	600	1/1	PFFA2060
Special fixed frame for panels	2000	800	1/1	PFFA2080
Special fixed frame for panels	2000	1000	1/1	PFFA2010
Special fixed frame for panels	2000	1250	1/1	PFFA2025



Kits for DIN rail

Description	Dimensions W (mm)	Package/ No. pcs	Order code
Standard DIN rail	400	1/1	PDRS0400
Standard DIN rail	600	1/1	PDRS0600
Standard DIN rail	800	1/1	PDRS0800



Panels for System Pro-M modular circuit-breakers and Tmax XT1 and Tmax XT3 moulded-case circuit-breakers [1]

Panels with 1/4 turn screws, hinged on the right or the left with the dedicated PHFP0020 kit.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Panel with 12 DIN modules	150	400	1/1	PPMF1540
Panel with 24 DIN modules	150	600	1/1	PPMF1560
Panel with 36 DIN modules	150	800	1/1	PPMF1580
Panel with 12 DIN modules	200	400	1/1	PPMF2040
Panel with 24 DIN modules	200	600	1/1	PPMF2060
Panel with 36 DIN modules	200	800	1/1	PPMF2080
Panel with 12x2 DIN modules	300	400	1/1	PPMF3040
Panel with 24x2 DIN modules	300	600	1/1	PPMF3060
Panel with 36x2 DIN modules	300	800	1/1	PPMF3080

1) The bracket and glossy plate kit can be ordered from the circuit-breaker catalogue. The sole glossy plate is available among the accessories in this catalogue.

To assemble these kits, order the dedicated intermediate depth uprights PUKI2000 for H=2000mm. Intermediate uprights are not required for assembling fixed Tmax XT1, XT2, XT3, XT4, T4, T5, T6 and XT1, XT3 with Direct Rotary Handle only in non-segregated structures. Order the dedicated fixed frame PFPF...for assembling internal panels.
For fixed and withdrawable 3P breakers Tmax XT, non accessorized and mounted on 3/4P kit, it is necessary to order the dedicated cover flanges: AD3305 flange for XT1 3P mounted on plate, AD3306 flange for XT2 3P mounted on plate, AD3307 flange for XT3 3P mounted on plate, AD3308 flange for XT4 3P mounted on plate. With interlocked or interlocked motor-operated kits, it is necessary to order the quantity of flanges equal to the quantity of breakers.

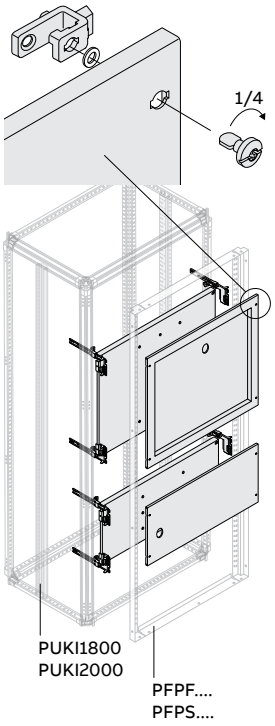
N° circuit breakers for each DIN rail

	A (mm)		
	12 mod.	24 mod.	36 mod.
Tmax	**210**	**420**	**630**
XT1 3P	2	5	8
XT1 4P	2	4	6
XT3 3P	2	4	6
XT3 4P	1	3	4

Compatible residual current devices:
Tmax XT
RC Inst. XT1-XT3, RC Sel. XT1-XT3 and RC Sel.. XT2-XT4 Type A. For XT1-XT3 fixed with residual current device high terminal covers are not available.
Tmax T
RC222 for T4 and T5.

STOCK | INDENT

Internal kits



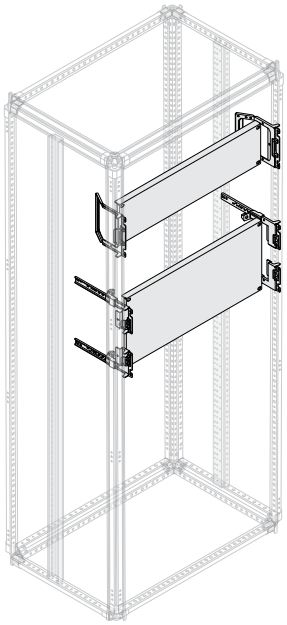
Kits for OT

Kit for OT switch-disconnectors available up to 1600A both in horizontal and vertical version. The kit includes the dedicated fixing brackets, the mounting plate and panels with 1/4 turn screws, hinged on the right or the left with the dedicated PHFP0020 kit. For structure with intermediate upright.

Description	Dimensions (mm)		Length			Package/ No. pcs	Order code
	H	L	Max lever (mm)	Min. shaft (mm)	Lever position		
Vertical installation 3/4 poles							
Kits for OT 160, 200, 250	350	600	80 (Ø6)	130 (Ø6)	E03-E04	1/1	PKOV1660
Kits for OT 160, 200, 250	350	800	80 (Ø6)	130 (Ø6)	E03-E04	1/1	PKOV1680
Kits for OT 315, 400	450	600	175 (Ø12)	95 (Ø12)	E03-E04	1/1	PKOV3160
Kits for OT 315, 400	450	800	175 (Ø12)	95 (Ø12)	E03-E04	1/1	PKOV3180
Kits for OT 630, 800	500	600	175 (Ø12)	70 (Ø12)	E03-E04	1/1	PKOV6360
Kits for OT 630, 800	500	800	175 (Ø12)	70 (Ø12)	E03-E04	1/1	PKOV6380
Kits for OT 1000, 1250, 1600	600	600	175 (Ø12)	170 (Ø12)	E12-E22	1/1	PKOV1060
Kits for OT 1000, 1250, 1600	600	800	175 (Ø12)	170 (Ø12)	E12-E22	1/1	PKOV1080
Horizontal installation 3/4 poles							
Kits for OT 160, 200, 250	250	600	80 (Ø6)	130 (Ø6)	E03-E04	1/1	PKOH1660
Kits for OT 160, 200, 250	250	800	80 (Ø6)	130 (Ø6)	E03-E04	1/1	PKOH1680
Kits for OT 315, 400	300	600	175 (Ø12)	95 (Ø12)	E03-E04	1/1	PKOH3160
Kits for OT 315, 400	300	800	175 (Ø12)	95 (Ø12)	E03-E04	1/1	PKOH3180
Kits for OT 630, 800	500	600	175 (Ø12)	70 (Ø12)	E03-E04	1/1	PKOH6360
Kits for OT 630, 800	500	800	175 (Ø12)	70 (Ø12)	E03-E04	1/1	PKOH6380
Kits for OT 1000, 1250, 1600	600	600	175 (Ø12)	170 (Ø12)	E12-E22 (1)	1/1	PKOH1060
Kits for OT 1000, 1250, 1600	600	800	175 (Ø12)	170 (Ø12)	E12-E22	1/1	PKOH1080

1) Only low terminal covers.
Order the dedicated fixed frame PFPF.... for assembling internal panels.

Internal kits

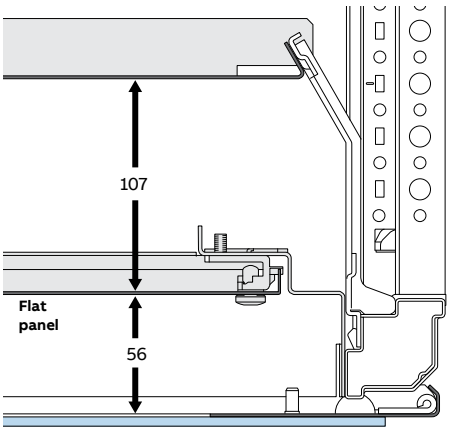


Blind mounting plates

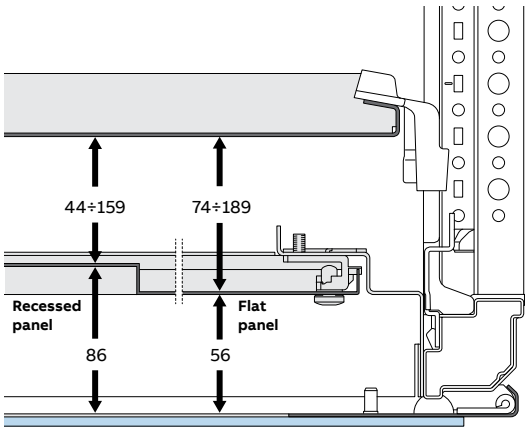
The kit includes the dedicated fixing brackets and the mounting plate.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Blind assembly plate	150	400	1/1	PPMB1540
Blind assembly plate	200	400	1/1	PPMB2040
Blind assembly plate	250	400	1/1	PPMB2540
Blind assembly plate	300	400	1/1	PPMB3040
Blind assembly plate	400	400	1/1	PPMB4040
Blind assembly plate	500	400	1/1	PPMB5004
Blind assembly plate	600	400	1/1	PPMB6040
Blind assembly plate	150	600	1/1	PPMB1560
Blind assembly plate	200	600	1/1	PPMB2060
Blind assembly plate	250	600	1/1	PPMB2560
Blind assembly plate	300	600	1/1	PPMB3060
Blind assembly plate	400	600	1/1	PPMB4060
Blind assembly plate	500	600	1/1	PPMB5006
Blind assembly plate	600	600	1/1	PPMB6060
Blind assembly plate	150	800	1/1	PPMB1580
Blind assembly plate	200	800	1/1	PPMB2080
Blind assembly plate	250	800	1/1	PPMB2580
Blind assembly plate	300	800	1/1	PPMB3080
Blind assembly plate	400	800	1/1	PPMB4080
Blind assembly plate	500	800	1/1	PPMB5008
Blind assembly plate	600	800	1/1	PPMB6080
Blind assembly plate	200	1000	1/1	PPMB2010
Blind assembly plate	300	1000	1/1	PPMB3010
Blind assembly plate	400	1000	1/1	PPMB4010
Blind assembly plate	500	1000	1/1	PPMB5001
Blind assembly plate	600	1000	1/1	PPMB6010

PPMB1540
PPMB1580

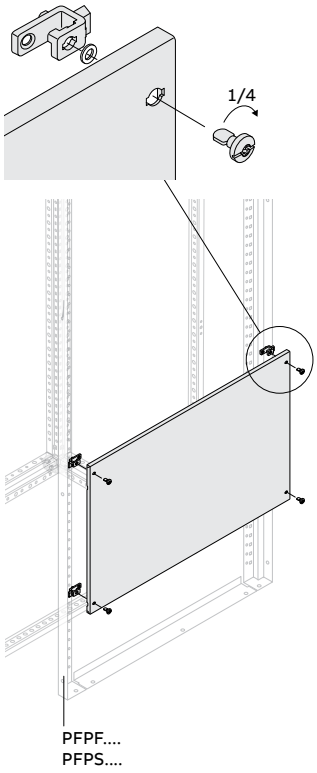


PPMB2040....PPMB6010



STOCK | INDENT

Internal kits



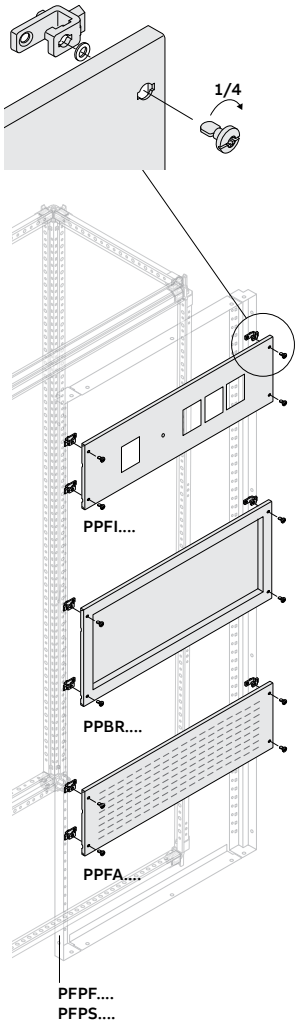
Flat blind panels

Panels with 1/4 turn screws, hinged on the right or left with the dedicated PHFP0020 kit.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Flat blind panel	50	400	1/1	PPFB5040
Flat blind panel	100	400	1/1	PPFB1040
Flat blind panel	150	400	1/1	PPFB1540
Flat blind panel	200	400	1/1	PPFB2040
Flat blind panel	250	400	1/1	PPFB2540
Flat blind panel	300	400	1/1	PPFB3040
Flat blind panel	400	400	1/1	PPFB4040
Flat blind panel	500	400	1/1	PPFB5004
Flat blind panel	600	400	1/1	PPFB6040
Flat blind panel	800	400	1/1	PPFB8040
Flat blind panel	1800	400	1/1	PPFB1840*
Flat blind panel	2000	400	1/1	PPFB2004*
Flat blind panel	50	600	1/1	PPFB5060
Flat blind panel	100	600	1/1	PPFB1060
Flat blind panel	150	600	1/1	PPFB1560
Flat blind panel	200	600	1/1	PPFB2060
Flat blind panel	250	600	1/1	PPFB2560
Flat blind panel	300	600	1/1	PPFB3060
Flat blind panel	400	600	1/1	PPFB4060
Flat blind panel	500	600	1/1	PPFB5006
Flat blind panel	600	600	1/1	PPFB6060
Flat blind panel	800	600	1/1	PPFB8060
Flat blind panel	1800	600	1/1	PPFB1860*
Flat blind panel	2000	600	1/1	PPFB2006*
Flat blind panel	50	800	1/1	PPFB5080
Flat blind panel	100	800	1/1	PPFB1080
Flat blind panel	150	800	1/1	PPFB1580
Flat blind panel	200	800	1/1	PPFB2080
Flat blind panel	250	800	1/1	PPFB2580
Flat blind panel	300	800	1/1	PPFB3080
Flat blind panel	400	800	1/1	PPFB4080
Flat blind panel	500	800	1/1	PPFB5008
Flat blind panel	600	800	1/1	PPFB6080
Flat blind panel	800	800	1/1	PPFB8080
Flat blind panel	1800	800	1/1	PPFB1880*
Flat blind panel	2000	800	1/1	PPFB2008*
Flat blind panel	100	1000	1/1	PPFB1010
Flat blind panel	200	1000	1/1	PPFB2010
Flat blind panel	300	1000	1/1	PPFB3010
Flat blind panel	400	1000	1/1	PPFB4010
Flat blind panel	500	1000	1/1	PPFB5001
Flat blind panel	600	1000	1/1	PPFB6010
Flat blind panel	800	1000	1/1	PPFB8010
Flat blind panel	200	1250	1/1	PPFB2012
Flat blind panel	250	1250	1/1	PPFB2512
Flat blind panel	300	1250	1/1	PPFB3012
Flat blind panel	350	1250	1/1	PPFB3512

Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.
* Only for swing frame PFPS.... Not compatible with the hinges accessory PHFP0020.

Internal kits



Panels for square measuring instruments

Panels with 1/4 turn screws, hinged on the right or left with the dedicated PHFP0020 kit.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Panel 2 instruments 96x96	200	600	1/1	PPFI2966
Panel 2 instruments 96x96	200	800	1/1	PPFI2968
Panel 4 instruments 96x96	200	800	1/1	PPFI4968

Recessed blind panels

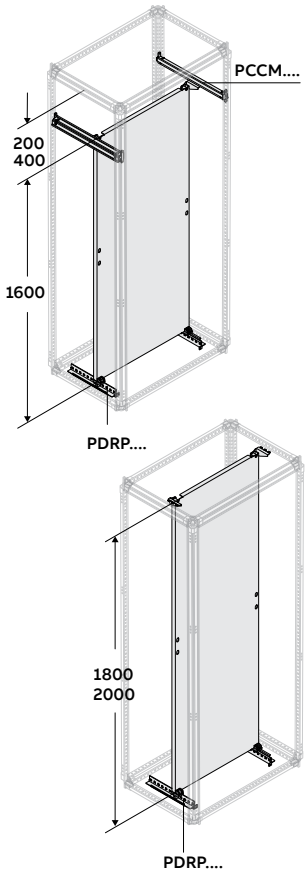
Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Recessed blind panel	200	400	1/1	PPBR2040
Recessed blind panel	400	400	1/1	PPBR4040
Recessed blind panel	600	400	1/1	PPBR6040
Recessed blind panel	200	600	1/1	PPBR2060
Recessed blind panel	400	600	1/1	PPBR4060
Recessed blind panel	600	600	1/1	PPBR6060
Recessed blind panel	200	800	1/1	PPBR2080
Recessed blind panel	400	800	1/1	PPBR4080
Recessed blind panel	600	800	1/1	PPBR6080

Ventilated panels

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Ventilated panel	100	400	1/1	PPFA1040
Ventilated panel	200	400	1/1	PPFA2040
Ventilated panel	100	600	1/1	PPFA1060
Ventilated panel	200	600	1/1	PPFA2060
Ventilated panel	100	800	1/1	PPFA1080
Ventilated panel	200	800	1/1	PPFA2080
Ventilated panel	100	1000	1/1	PPFA1010
Ventilated panel	200	1000	1/1	PPFA2010

Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.

Internal kits



Blind mounting plates total height

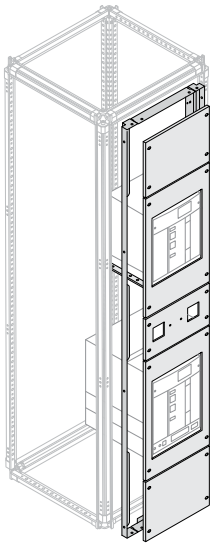
Description	Dimensions (mm)			Package/ No. pcs	Order code
	H	W	D		
Blind assembly plate	1800	400		1/1	PWRP1840
Blind assembly plate	1800	600		1/1	PWRP1860
Blind assembly plate	1800	800		1/1	PWRP1880
Blind assembly plate	2000	400		1/1	PWRP2040
Blind assembly plate	2000	600		1/1	PWRP2060
Blind assembly plate	2000	800		1/1	PWRP2080
Tracks for front insertion					
Pair of tracks for total height mounting plate			500	1/1	PDRP0500
Pair of tracks for total height mounting plate			700	1/1	PDRP0700
Pair of tracks for total height mounting plate			900	1/1	PDRP0900

Crosspieces for mounting blind total height plate

Description	Dimensions D (mm)	Package/ No. pcs	Order code
No.2 crosspieces	500	1/2	PCCM0500
No.2 crosspieces	700	1/2	PCCM0700
No.2 crosspieces	900	1/2	PCCM0900

If the enclosure is higher than total height mounting plate, order no. 1 PCCM.... to mount the total height blind plate.

Internal kits



Key:

F fixed
W withdrawable

'Space-saving' column W=400mm

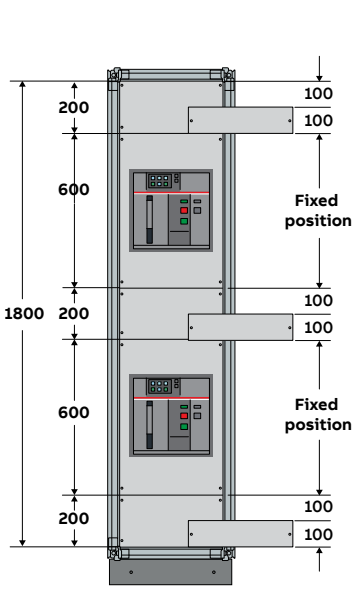
The 'space-saving' column is an extra opportunity in addition to the offer presented until now. The 'space-saving' column is composed of one reduced fixed frame (H=1800mm or H=2000mm) for W=400mm columns with two fixed positions for the kit exclusively dedicated to:

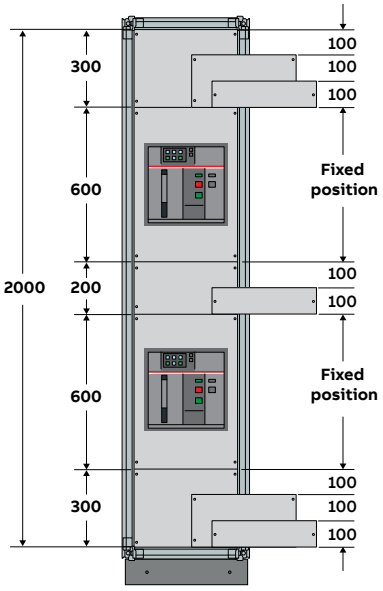
E1.2 3/4P W;
E2.2 3P F;
E2.2 3P W.

In order to complete this solution:
blind panel H=100, 200, 300 and 600mm;
modular or instrument panels H=200mm.

In this column type, it is not possible to mount kits for air-circuit breakers, moulded-case circuit breakers or modular breakers. The only possible configurations are the following ones.

Description	Dimensions (mm)		Package No. pcs	Order code
	H	W		
Frame				
Reduced fixed frame	2000	400	1/1	PFRF2040
Kit for reduced frame				
E1.2 3/4 P W vertical	600	400	1/1	PRBE1243
E2.2 3 P F vertical	600	400	1/1	PRBE2232
E2.2 3 P W vertical	600	400	1/1	PRBE2233
Panel for reduced frame				
Blind panel	100	400	1/1	PBRP1040
Blind panel	200	400	1/1	PBRP2040
Blind panel	300	400	1/1	PBRP3040
Blind panel	600	400	1/1	PBRP6040
Modular panel	200	400	1/1	PMRP2040
Standard DIN Rail		400	1/1	PDRS0400
Panel 2 instruments 72x72	200	400	1/1	PIRP2040

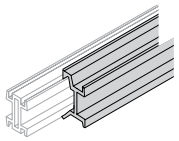




STOCK | INDENT

Internal kits

Accessories and spare parts

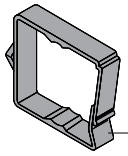


AP6000

DIN rail accessories

With fixed frame for panels, maximum wiring ducts dimension is 60 x 60mm.

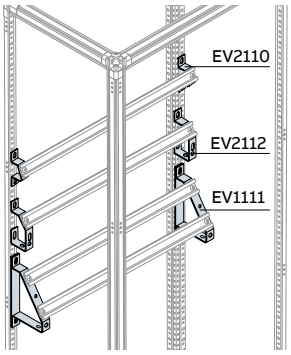
Description	Package/ No. pcs	Order code
Depth adapter		
Depth adapter for Tmax T1-T2-T3-XT1-XT3 W=600mm	1/1	AP6000



EV0036
EV0037

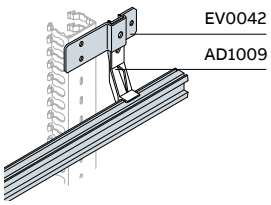
Universal cable holder brackets

Description	Package/ No. pcs	Order code
No.5 cable holder D=28,5mm	1/5	EV0036
No.5 cable holder D=55mm	1/5	EV0037



Angled supports for terminal boxes and earthing busbars

Description	Package/ No. pcs	Order code
No.10 angled supports 1 row of terminals	1/10	EV2110
No.10 angled supports double row of terminals	1/10	EV1111
No.10 angled supports 1 row of terminals + earth	1/10	EV2112



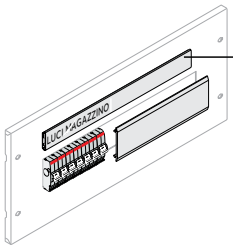
DIN rail and support for cable duct

With fixed frame for panels, maximum wiring ducts dimension is 60x60mm.

Description	Package/ No. pcs	Order code
No.4 horizontal/vertical support for cable duct	1/4	EV0042
No. 4 plastic supports for horizontal DIN rail	1/4	AD1009

Internal kits

Accessories and spare parts

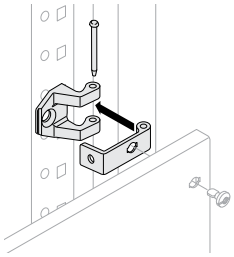


Panel Accessories

Description	Package/ No. pcs	Order code
No. 20 label holders 24 DIN mod	1/20	AD1600
No. 20 label holders 36 DIN mod	1/20	AD1800

Closing plug for instrument holder panels

Description	Package/ No. pcs	Order code
No.5 closing plug for instrument holder panels 96x96mm	1/5	EV1136

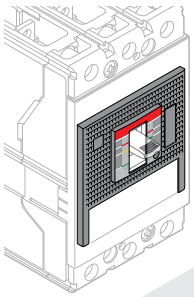


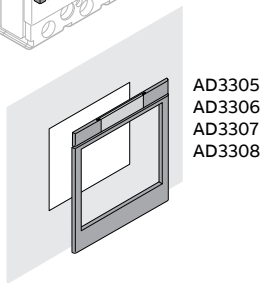
Hinges for panels

Hinges kit for panels (blind, instruments, recessed and vented panels). Not suitable for blind panels H=1800/2000mm.

Description	Package/ No. pcs	Order code
No. 20 hinges for frontal panels	1/20	PHFP0020

For the mounting of the internal panels order the fixed PFPF.... or swing PFPS.... dedicated frame





Spare parts Tmax XT cover plate for DIN rail

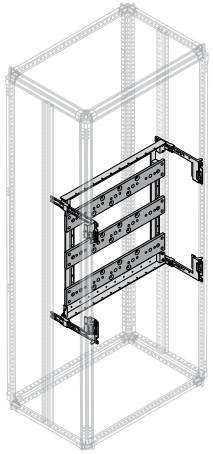
Description	Package/ No. pcs	Order code
Cover plate for Tmax XT1 3P mounted on DIN rail	1/1	AD3301
Cover plate for Tmax XT1 4P mounted on DIN rail	1/1	AD3302
Cover plate for Tmax XT3 3P mounted on DIN rail	1/1	AD3303
Cover plate for Tmax XT3 4P mounted on DIN rail	1/1	AD3304
Cover for panel XT1 3P mounted on plate	1/1	AD3305
Cover for panel XT2 3P mounted on plate	1/1	AD3306
Cover for panel XT3 3P mounted on plate	1/1	AD3307
Cover for panel XT4 3P mounted on plate	1/1	AD3308

Screws

Description	Package/ No. pcs	Order code
No. 24 1/4 turn screws with washers	1/24	PCSS0024

Internal kits

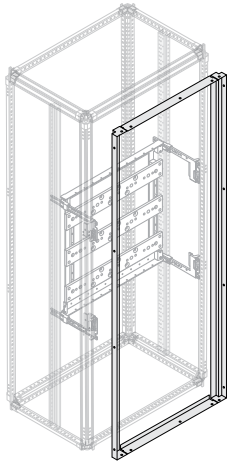
InLine II



InLine II mounting kit

Kit for the fixing of InLine II fuseholders

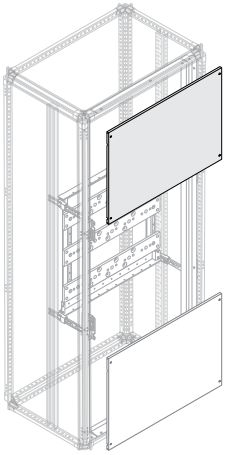
Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
InLine mounting kit + front panel	1200	600	1/1	PKNL1260
InLine mounting kit + front panel	1200	800	1/1	PKNL1280
InLine mounting kit + front panel	1200	1000	1/1	PKNL1210



Fixed frame for InLine II panels

Fixed frame for InLine II internal panels. InLine II fixed frame allows to fit only InLine II panels listed below.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Fixed frame for panels in the InLine column	2000	600	1/1	PFNL2060
Fixed frame for panels in the InLine column	2000	800	1/1	PFNL2080
Fixed frame for panels in the InLine column	2000	1000	1/1	PFNL2010

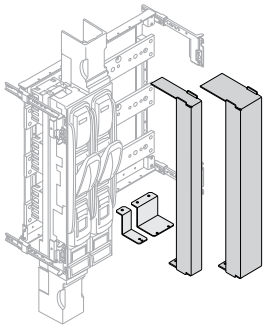


Flat blind panels for InLine II fixed frame

Panels with 1/4 turn screws, hinged on the right or left with the dedicated PHFP0020 kit. These panels are dedicated to InLine II fixed frame only.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	W		
Blind flat panel for InLine column	300	600	1/1	PPNL3060
Blind flat panel for InLine column	300	800	1/1	PPNL3080
Blind flat panel for InLine column	300	1000	1/1	PPNL3010
Blind flat panel for InLine column	400	600	1/1	PPNL4060
Blind flat panel for InLine column	400	800	1/1	PPNL4080
Blind flat panel for InLine column	400	1000	1/1	PPNL4010

Order *2* pieces for a complete structure.



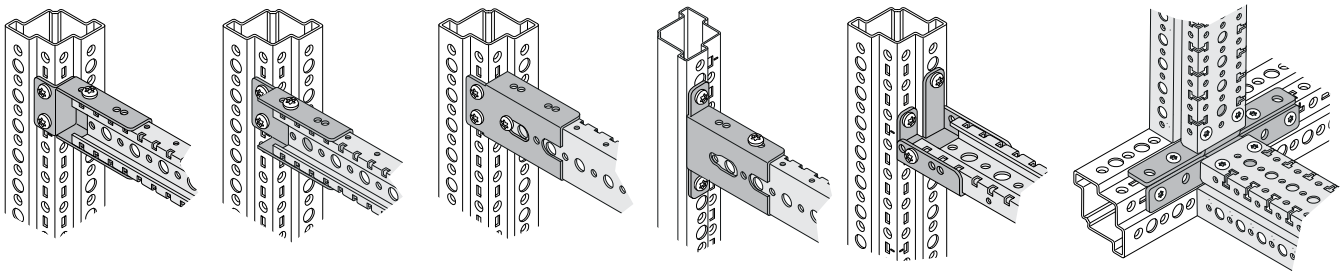
InLine II dummy modules

Dummy InLine II to cover free space in the enclosure and guarantee touch protection.

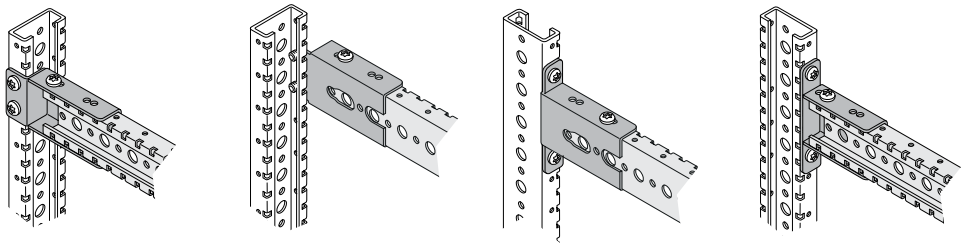
Description	Dimensions (mm)	Package/ No. pcs	Order code
	W		
InLine vertical compensator	50	1/1	PCNL0050
InLine vertical compensator	100	1/1	PCNL0100

Busbar systems
Selection guides

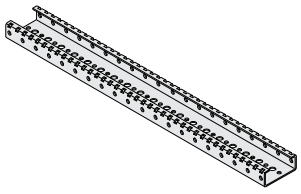
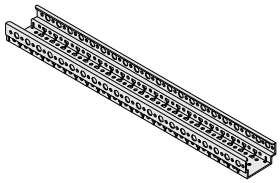
Fixing between uprights and crosspieces



Fixing between crosspieces

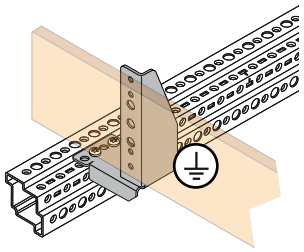


Crosspieces selections

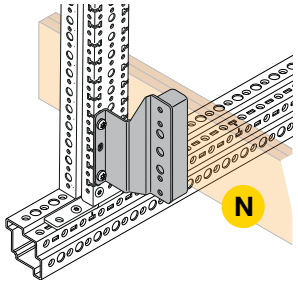
Description	Enclosure	Length (mm)	To be fitted in the following functional dimensions	Order code
Crosspieces with “C” profile 	Structure without intermediate upright	188	No. 2 at 200	PCRM0188
		288	No. 2 at 300	PCRM0288
		388	No. 2 at 400	PCRM0388
		488	No. 2 at 500	PCRM0488
		588	No. 2 at 600	PCRM0588
		688	No. 2 at 700	PCRM0688
		788	No. 2 at 800	PCRM0788
		888	No. 2 at 900	PCRM0888
		988	No. 2 at 1000	PCRM0988
		1238	No. 2 at 1250	PCRM1238
	Structure with vertical intermediate upright	238	No. 2 at 500 with intermediate upright	PCRM0238
		338	No. 2 at 600 with intermediate upright	PCRM0338
		438	No. 2 at 700 with intermediate upright	PCRM0438
		538	No. 2 at 800 with intermediate upright	PCRM0538
		638	No. 2 at 900 with intermediate upright	PCRM0638
		738	No. 2 at 1000 with intermediate upright	PCRM0738
	Any type	2013	To be cut according to the need	PCRM2013
Crosspieces with intermediate upright profile 	Any type	300	No. 2 at 300	PCKI0300
		400	No. 2 at 400	PCKI0400
		600	No. 2 at 600	PCKI0600
		800	No. 2 at 800	PCKI0800
		1000	No. 2 at 1000	PCKI1000
		1250	No. 2 at 1250	PCKI1250
		1800	No. 2 at 1800	PUKI1800
		2000	No. 2 at 2000	PUKI2000

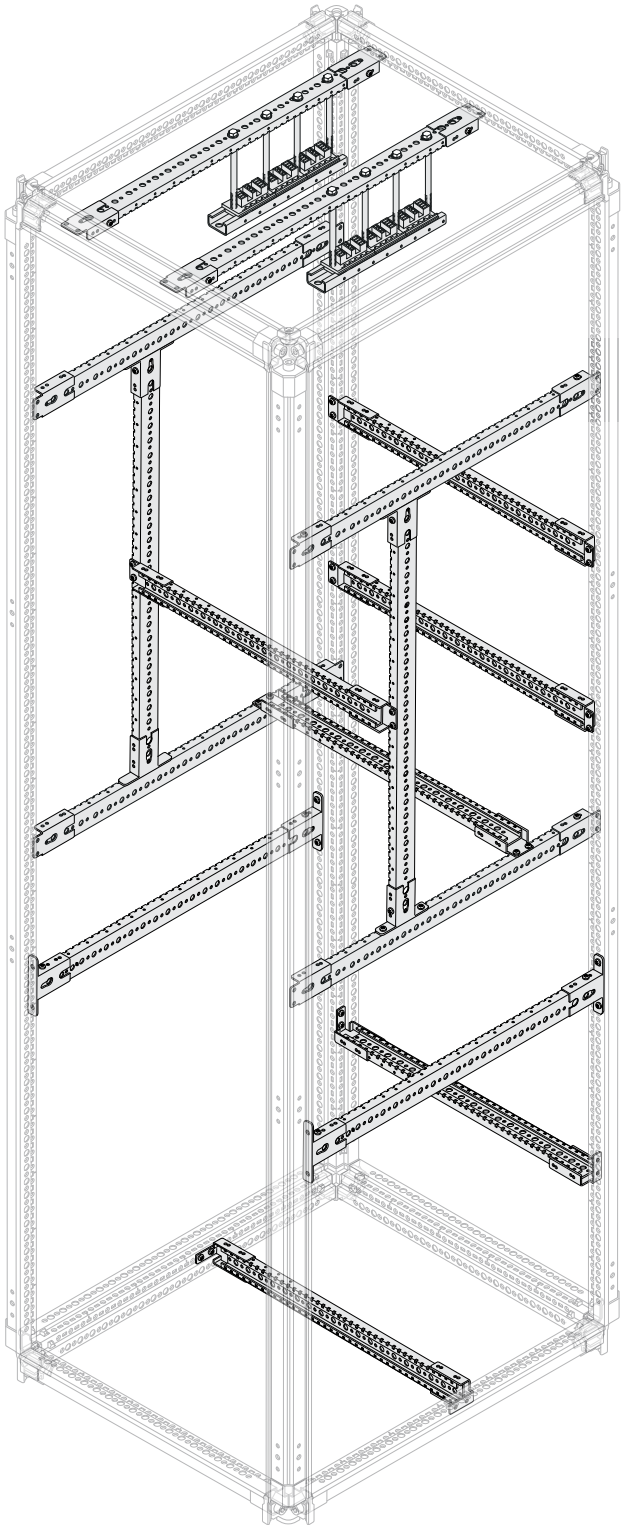
Busbar systems
Selection guides

Earth fixing

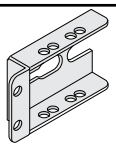
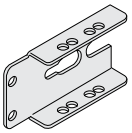
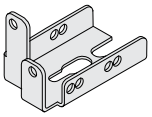
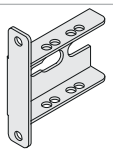
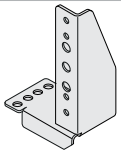
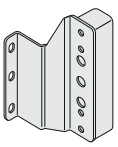


Neutral fixing





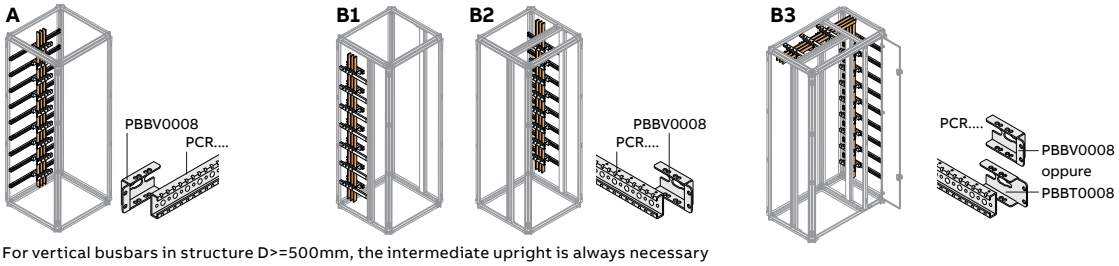
Brackets selections

Description	Order code
No. 8 recessed bracket for crosspiece 	PBBV0008
No. 8 flat bracket for crosspiece 	PBBT0008
No. 4 stepped bracket for crosspiece 	PBBH0004
No. 2 T-bracket for crosspiece 	PBMC0002
No. 2 bracket for PE busbar 	PBRP0002
No. 2 bracket for neutral busbar 	PBRN0002

STOCK | INDENT

Busbar systems
Selection guides

Linear System – Flat Busbars and Shaped Busbars
Fixing busbar holders to the structure.



For vertical busbars in structure D>=500mm, the intermediate upright is always necessary

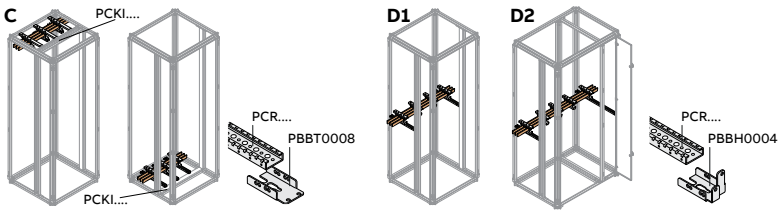
Supports for fixing crosspieces to the structure (2 pieces per crosspiece)

A - Vertical busbars at the rear of the structure PBBV0008 (1)	**B1 - vertical busbars on the side of the structure** **B2 - vertical busbars with orizontal busbars in the structure -** PBBV0008 **B3 - vertical busbars in the cable compartment with orizontal busbars in the structure PBBV0008 (1) -** PBBT0008 (2) (table 1)	**C - Horizontal busbars under the top or on the bottom of the structure (3)** PBBT0008 (4)	**D1 - Horizontal busbars at any height of the structure** **D2 - Horizontal busbars at any height of the structure and internal cable compartment** PBBH0004

Crosspieces for busbar holders (1 piece per busbar holder)

Structure W (mm)	Crosspiece in galvanized sheet metal	Structure D (mm)	Crosspiece in galvanized sheet metal	Crosspiece in galvanized sheet metal + intermediate upright	Crosspiece in galvanized sheet metal + intermediate crosspiece PCKI....	Crosspiece in galvanized sheet metal (5)	Crosspiece in galvanized sheet metal + intermediate upright
		200	PCRM0188			PCRM0188	
300	PCRM0288	300	PCRM0288			PCRM0288	
400	PCRM0388						
		500	PCRM0488	PCRM0238	PCRM0238	PCRM0488	PCRM0238
600	PCRM0588						
		700	PCRM0688	PCRM0438	PCRM0438	PCRM0688	PCRM0438
800	PCRM0788						
		900	PCRM0888	PCRM0638	PCRM0638	PCRM0888	PCRM0638
1000	PCRM0988						

1) Use busbars with 100x10mm maximum section for structures with internal cable compartment L=200mm.
2) Use busbars with 80x10mm maximum section for structures with internal cable compartment L=200mm.
3) Order crosspieces PCKI.... to assemble busbars under the top or on the bottom, order PCCM.... cable compartment depth crosspieces as well.
4) Supports for vertical busbars, if present, will always have code PBBV0008.
5) In structures without intermediate upright, swing frame PFPS.... cannot be installed with horizontal busbars at all height.



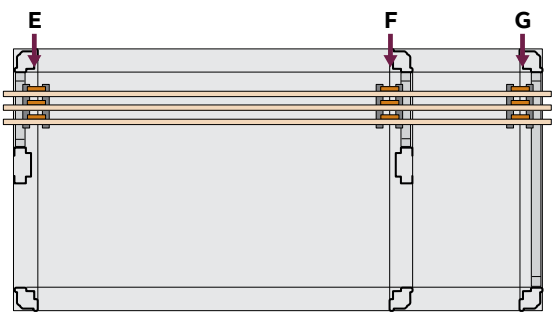
For horizontal busbars at each height in structure D>=500mm, the intermediate upright is always necessary

Table 1

Examples of the choice of supports for vertical busbars at the side

Position of the busbar holders		Supports for fixing vertical busbars
Horizontal busbars	**Vertical busbars**	
E+F	E o F	PBBT0008
E+F	G	PBBV0008
E+G	E o G	PBBT0008
E+G	F	PBBV0008

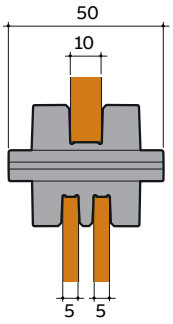
In case of separation Form 2b, 3b and 4b, use bracket PBBT0008.



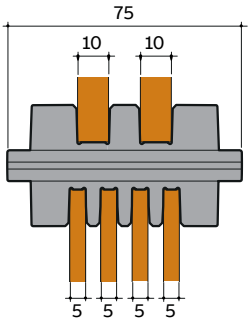
Busbar systems
Selection guides

Linear System – Copper Flat Busbars
Choice of busbar holders and closing crosspieces in relation to the rated current In (A) and IP protection class.

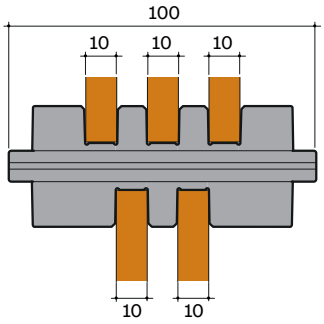
PBHB1125

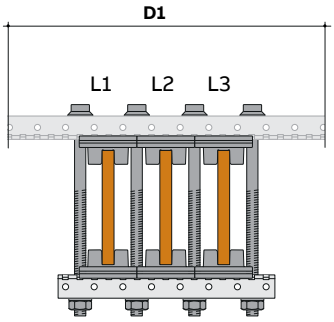


PBHB2145



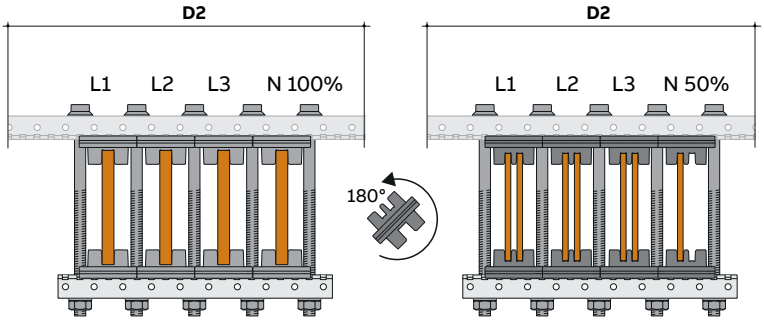
PBHB3121





Description			Recommended D (busbar/ circuit-breaker/connection interaction) 3/4 pole			3 poles	Overall dimensions crosspieces supports 3-pole D1 (mm)		
Capacity In (A)	Number of busbars per phase	Section (mm)	D≥300	D≥700	D=900	Closing crosspiece 3-pole busbar holders 1 piece [3]	D1=all	D1≥300 [1]	D1≥400 [1]
IP40 / IP41 / IP65									
250	1	20x5	■			PCRM0188	■		
400	1	32x5	■			PCRM0188	■		
630	1	50x5	■			PCRM0188	■		
800	1	63x5	■			PCRM0188	■		
1000	2	40x5	■			PCRM0188	■		
1250	1	100x5	■			PCRM0188	■		
1600	1	100x10	■			PCRM0188	■		
2000	1	120x10		■		PCRM0188	■		
2000	2	60x10		■		PCRM0288		■	
2500	2	100x10		■		PCRM0288		■	
3200	3	100x10		■		PCRM0338			■
4000	3	120x10			■	PCRS0338			■
IP30 / IP31 / IP40 / IP41									
5000	3	160x10			■	PCRS0338			■
7000	3	200x10			■	PCRS0338			■

1) Excluding D=500mm with intermediate upright.
2) Use sheet metal crosspiece and nylon tie rods.
3) When busbars with increased center distance are installed, the length of the closing crosspiece must also be increased.
4) The pack contains 24 pieces.
5) The pack contains 10 pieces.

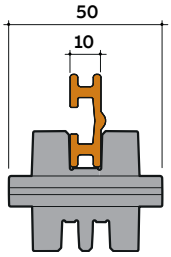


4 poles				Overall dimensions crosspieces supports 4-pole D2 (mm)			Insulators [4]	Tie rods [5]
100% Neutral	50% Neutral							
Number busbars per phase	Number busbars per phase	Section (mm)	Closing crosspiece 4-pole busbar holders 1 piece [3]	D2≥300	D2≥400[1]	D2≥500[1]	3 poles 6 pieces 4 poles 8 pieces	3 poles 4 pieces 4 poles 5 pieces
1	–	20x5	PCRM0238	■			PBHB1125	PTRN1951
1	–	32x5	PCRM0238	■			PBHB1125	PTRN1951
1	–	50x5	PCRM0238	■			PBHB1125	PTRN1951
1	–	63x5	PCRM0238	■			PBHB1125	PTRN1951
2	1	40x5	PCRM0238	■			PBHB1125	PTRN1951
1	–	100x5	PCRM0238	■			PBHB1125	PTRN1951
1	–	100x10	PCRM0238	■			PBHB1125	PTRN1951
1	–	120x10	PCRM0238	■			PBHB1125	PTRN1951
2	1	60x10	PCRM0338		■		PBHB2145	PTRN1951
2	1	100x10	PCRM0338		■		PBHB2145	PTRN1951
3	2	100x10	PCRM0438			■	PBHB3121	PTRN1951
3	2	120x10	PCRS0438			■	PBHB3121	PTRS1201
3	2	160x10	PCRS0438			■	PBHB3121	PTRS1601
3	2	200x10	PCRS0438			■	PBHB3121	PTRS2001

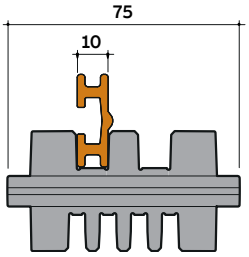
Busbar systems
Selection guides

Linear System – Shaped Busbars
Choice of busbar holders and closing crosspieces in relation to rated current In (A) and IP protection class.

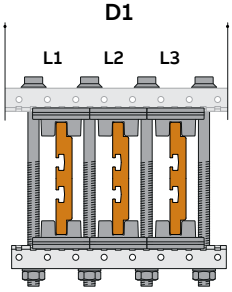
PBHB1125



PBHB2145

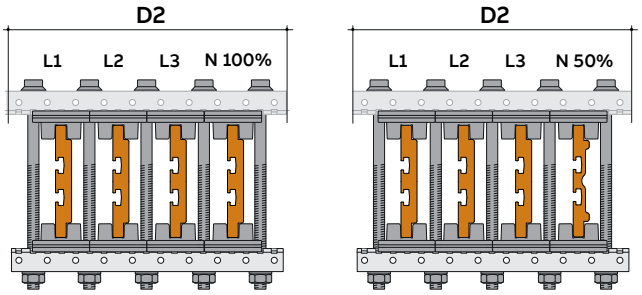


D1



Capacity In (A)			Number of busbars per phase	WxW (mm)	Section (mm²)	Busbars	Recommended D (busbar/ circuit-breaker/ connection interaction) 3 poles D≥300	D≥700	L1 L2 L3	Closing crosspiece 3-pole busbar holder 1 piece	Overall dimensions crosspieces supports 3-pole D1 (mm) D1=all	D1≥300 [1]
IP30/31	**IP40/41**	**IP65**										
475	**440**	**400**	1	30x10	165	PBSC0400	■		3xPBSC0400	PCRM0188	■	
655	**643**	**630**	1	35x10	204	PBSC0630	■		3xPBSC0630	PCRM0188	■	
958	**840**	**800**	1	45x10	324	PBSC0800	■		3xPBSC0800	PCRM0188	■	
1342	**1220**	**1000**	1	67x10	454	PBSC1000	■		3xPBSC1000	PCRM0188	■	
1418	**1338**	**1250**	1	70x10	516	PBSC1250	■		3xPBSC1250	PCRM0188	■	
1857	**1744**	**1600**	1	95x10	758	PBSC1600	■		3xPBSC1600	PCRM0188	■	
2354	**2200**	**2000**	1	105x15	995	PBSC2000		■	3xPBSC2000	PCRM0288		■
2860	**2750**	**2500**	1	105x15	1255	PBSC2500		■	3xPBSC2500	PCRM0288		■

1) Excluding D=500mm with intermediate upright.



4 poles			Overall dimensions crosspieces supports 4-pole D2 (mm)		Insulators [3]	Tie rods [4]
100% Neutral	50% Neutral	Closing crosspiece 4-pole busbar holder 1 piece [2]	D2≥300	D2≥400[1]	3 poles 6 pieces 4 poles 8 pieces	3 poles 4 pieces 4 poles 5 pieces
4xPBSC0400	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC0630	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC0800	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC1000	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC1250	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC1600	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC2000	–	PCRM0338		■	PBHB2145	PTRN1951
4xPBSC2500	3xPBSC2500 + 1xPBSC2000	PCRM0338		■	PBHB2145	PTRN1951

2) When busbars with increased center distance are installed, the length of the closing crosspiece must also be increased.
3) The pack contains 24 pieces.
4) The pack contains 10 pieces.

Busbar systems
Selection guides

Compensators and connections for flat and shaped busbar

		Shaped busnbars							
	In	400A	630A	800A	1000A	1250A	1600A	2000A	2500A
Shaped busbars	In								
	400A	PFCB4080							PFCB4080
	630A	PFCB4080							PFCB4080
	800A	PFCB4080							PFCB4080
	1000A				PFCB1016				PFCB1016
	1250A				PFCB1016				PFCB1016
	1600A						PFCB1016	PFCB2025	PFCB2025
	2000A							2x PFCB2025	2x PFCB2025
	2500A								2x PFCB2025

PFCB4080 – Connections between shaped busbar/shaped busbar or shaped busbar/flat busbar for 400A, 630A, 800A
PFCB1016 – Connections between shaped busbar/shaped busbar or shaped busbar/flat busbar for 1000A, 1250A, 1600A
PFCB2025 – Connections between shaped busbar/shaped busbar or shaped busbar/flat busbar for 2000A, 2500A
PFCC0023 – Compensator for configurations compose of no. of busbar per phase>1
The connections can be used also for joining flat busbar/ shaped busbar (as per the chart above) if the following conditions are fulfilled:

- use of insulating support of the same size both in H and in V
- use of flat busbar with 10mm thickness

In case of joining a main flat busbar system composed of more than one busbar per phase and shaped busbar distribution system, it is recommended to align the shaped busbar to the flat busbar in the most rearward position.
The number of code for connection shall be multiplied by the number of phases included into the busbars system.

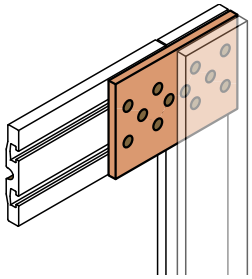
Example
Connection between shaped busbars 2500A and flat busbars 2500A

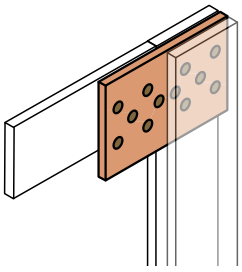
3P busbars system	6 x PFCB2025 + 3 x PFCC0029
4P busbars system	8 x PFCB2025 + 4 x PFCC0029

Flat busbars											
800A	**1000A**	**1250A**	**1600A**	**2000A**	**2000A**	**2500A**	**3200A**	**3200A**	**4000A**	**5000A**	**6300A**
1 Busbar for phase					**2 Busbars for phase**			**3 Busbars for phase**			
PFCB4080								PFCB4080 + PFCC0023			
PFCB4080								PFCB4080 + PFCC0023			
PFCB4080								PFCB4080 + PFCC0023			
	PFCB1016							PFCB1016 + PFCC0023			
		PFCB1016						PFCB1016 + PFCC0023			
			PFCB2025					PFCB2025 + PFCC0023			
					2x PFCB2025 + PFCC0023						
						2x PFCB2025 + PFCC0023					

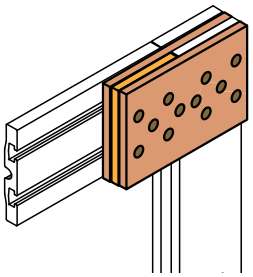
Examples of use

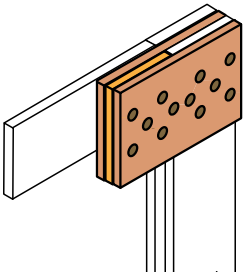
Flat busbars 2 for phase
Shaped busbar ≤ 2000A
PFCB4080 or PFCB1016 or PFCB2025



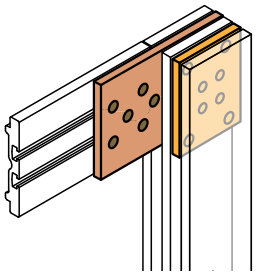


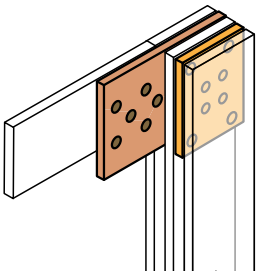
Flat busbars 2 for phase
Shaped busbar ≥ 2000A
2 x PFCB2025 + PFCC0023



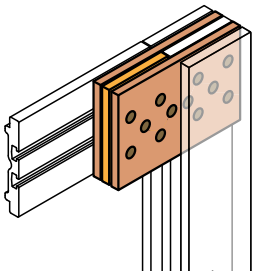


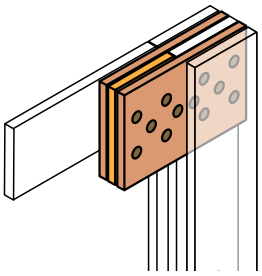
Flat busbars 3 for phase
Shaped busbar ≤ 1600A
PFCB4080 or PFCB1016 or PFCB2025 + PFCC0023



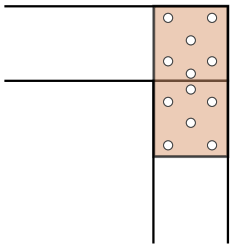


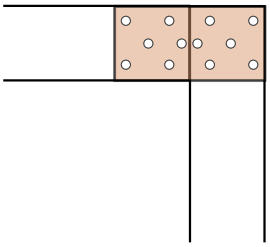
Flat busbars 3 for phase
Shaped busbar ≥ 2000A
2 x PFCB2025 + PFCC0023

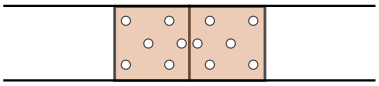




Examples of busbars junction



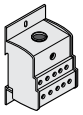
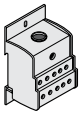
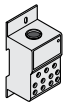
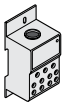
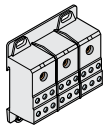
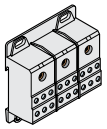




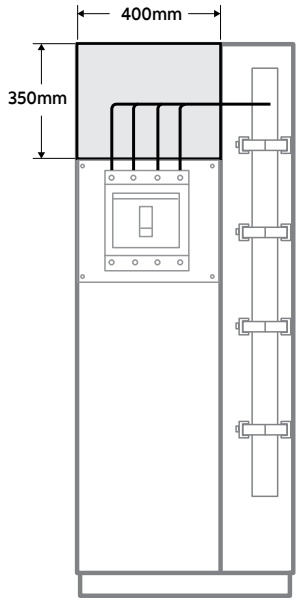
Busbar systems

Modular dividers and distribution systems

Modular dividers

		Single-pole						Three-poles	
									
Code		**AD1076**	**AD1080**[1]	**AD1007**	**AD1081**[2]	**AD1030**	**AD1031**	**AD1075**	**AD1006**
In	IEC (A)	125	125	160	160	250	400	125	160
	UL (A)	115	115	175	160	230	310	115	175
Icw	(kA)	4.4	4.2	11	1.1	21	21	4.4	11
Version	pole	1	1	1	1	1	1	3	3
Installation		DIN35/plate	DIN35/plate	DIN35/plate	DIN35/plate	DIN35/plate	DIN35/plate	DIN35/plate	DIN35/plate
power supply Ø cable (mm^2)	min.	10	6	16	10	35	95	10	16
	max	35	35	70	70	120	185	35	70
No. outgoing feeder Ø cable (mm^2)	1,5÷10					4	4		
	2,5÷16	10	6	10	6	5	5	6	6
	2,5÷25					2	2		
Dimensions HxWxD	(mm)	71x45x42,5	74x27x47	71x45x42,5	92x35x49	95.5x45x49	95.5x45x49	71.5x80x42,5	71.5x80x42,5
No. DIN modules		2,5	1,5	2,5	2	3	3	4.5	4.5
Rated service voltage Ue	(V)	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC
Degree of protection	IP	20	20	20	20	20	20	20	20
Mark		c UL us	c UL us	c UL us	UL	UL	UL	c UL us	c UL us

1) Possibility of putting in parallel with AD1083 connections.
2) Possibility of putting in parallel with comb type connection (not supplied).



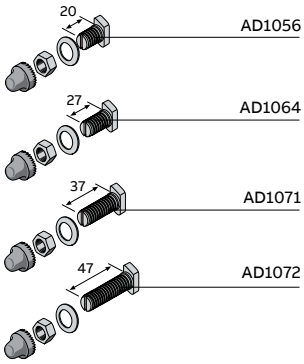
Distribution systems
Insulator for connections

Description	Package/ No.pcs	Order code
Horizontal insulator for XT1-XT2-XT3-XT4-T4	1/1	PITH1234
Horizontal insulator for T5	1/1	PITH5000
Horizontal insulator for T6	1/1	PITH6000
Vertical insulator for T6	1/1	PITV6000
Horizontal/Vertical insulator for T7-E1.2	1/1	PITE7120

STOCK | INDENT

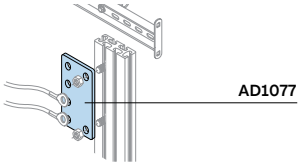
Busbar systems

Distribution systems and accessories



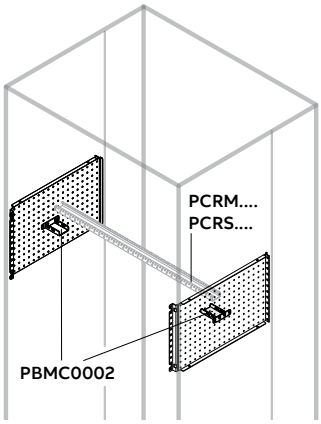
Distribution systems (conti.)
Hammer-head screws for shaped profile busbars

Description	Package/ No.pcs	Order code
No.12 screws M8 - L=20mm for cable terminals	1/12	AD1056
No.12screws M8 - L=27mm for plates up to 10mm, complete with screw cap	1/12	AD1064
No.12 screws M8 - L=37mm for plates up to 20mm, complete with screw cap	1/12	AD1071
No.12 screws M8 - L=47mm for plates up to 30mm, complete with screw cap	1/12	AD1072



Couplings for shaped profile busbars

Description	Package/ No.pcs	Order code
No.4 400A branch connectors in copper	1/4	AD1077



Accessories

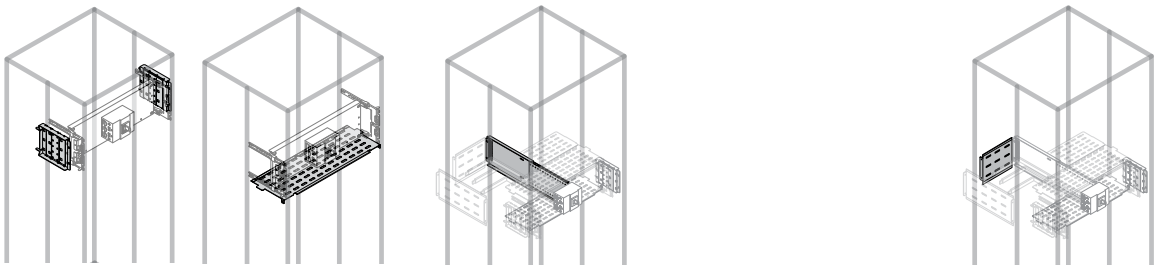
Lateral connection module for terminal ditching

Lateral drilled module 25mm pitch for fixing the crosspieces with insulating supports in width from the intermediate upright up to the rear structural upright. In order to complete the terminals ditching it is necessary to fix sideways the two connection modules included in the code. The crosspieces PCRM .... or PCRS .... is fixed using the special fixing brackets for module connection PBMC0002. The crosspiece is to be chosen and ordered separately according to the width of the structure.

Description	Dimensions (mm)		Package/ No. pcs	Order code
	H	D		
No.2 lateral connection modules	200	500	1/2	PMCS2050
No.2 lateral connection modules	225	500	1/2	PMCS2255
No.2 lateral connection modules	250	500	1/2	PMCS2550
No.2 lateral connection modules	300	500	1/2	PMCS3050
No.2 lateral connection modules	175	700	1/2	PMCS1757
No.2 lateral connection modules	200	700	1/2	PMCS2070
No.2 lateral connection modules	225	700	1/2	PMCS2257
No.2 lateral connection modules	250	700	1/2	PMCS2570
No.2 lateral connection modules	300	700	1/2	PMCS3070
No.2 lateral connection modules	175	900	1/2	PMCS1759
No.2 lateral connection modules	200	900	1/2	PMCS2090
No.2 lateral connection modules	225	900	1/2	PMCS2259
No.2 lateral connection modules	250	900	1/2	PMCS2590
No.2 lateral connection modules	300	900	1/2	PMCS3090
No.2 fixing brackets connection module			1/2	PBMC0002

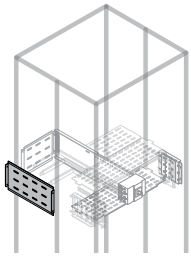
Form of segregation

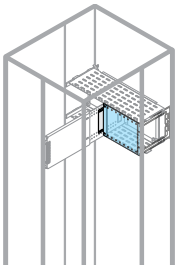
Tmax T and Tmax XT moulded-case circuit-breakers
Horizontal installation

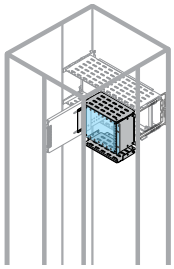


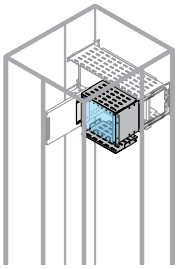
Height of kits (mm)	Form 2a	Form 3a [2]		Form 3b					
	Universal compartment side closing element	Universal horizontal shelf		Vertical segregation of terminals				Rear vertical bottom segregation on busbar side	
		Width of structure (mm)	For all depths	Width of structure (mm)	Depth of structure (mm) 500	700	900	Width of structure (mm)	For all depths
200	PPVS2200	400	PSHS1904	400	PSVS2050	PSVS2070	PSVS2090	400	PRVS2041
		600	PSHS1906	600	PSVS2050	PSVS2070	PSVS2090	600	PRVS2061
		800	PSHS1908	800	PSVS2050	PSVS2070	PSVS2090	800	PRVS2081
250	PPVS2250	400	PSHS1904	400	PSVS2550	PSVS2570	PSVS2590	400	PRVS2541
		600	PSHS1906	600	PSVS2550	PSVS2570	PSVS2590	600	PRVS2561
		800	PSHS1908	800	PSVS2550	PSVS2570	PSVS2590	800	PRVS2581
300	PPVS2300	400	PSHS1904	400	PSVS3050	PSVS3070	PSVS3090	400	PRVS3041
		600	PSHS1906	600	PSVS3050	PSVS3070	PSVS3090	600	PRVS3061
		800	PSHS1908	800	PSVS3050	PSVS3070	PSVS3090	800	PRVS3081
		1000	PSHS1901	1000	PSVS3050	PSVS3070	PSVS3090	1000	
350	PPVS2350	400	PSHS1904	400	PSVS3550	PSVS3570	PSVS3590	400	PRVS3541
		600	PSHS1906	600	PSVS3550	PSVS3570	PSVS3590	600	PRVS3561
		800	PSHS1908	800	PSVS3550	PSVS3570	PSVS3590	800	PRVS3581
400	PPVS2400	400	PSHS1904	400	PSVS4050	PSVS4070	PSVS4090	400	PRVS4041
		600 [1]	PSHS1906	600	PSVS4050	PSVS4070	PSVS4090	600	PRVS4061
		800 [1]	PSHS1908	800	PSVS4050	PSVS4070	PSVS4090	800	PRVS4081
500	PPVS2500	400	PSHS1904	400	PSVS5050	PSVS5070	PSVS5090	400	PRVS5041
		600 [3]	PSHS1906	600	PSVS5050	PSVS5070	PSVS5090	600	PRVS5061
		800 [3]	PSHS1908	800	PSVS5050	PSVS5070	PSVS5090	800	PRVS5081
		1000	PSHS1901	1000	PSVS5050	PSVS5070	PSVS5090	1000	
600	PPVS2600	400	PSHS1904	400	PSVS6050	PSVS6070	PSVS6090	400	PRVS6041
		600	PSHS1906	600	PSVS6050	PSVS6070	PSVS6090	600	PRVS6061
		800	PSHS1908	800	PSVS6050	PSVS6070	PSVS6090	800	PRVS6081
700	PPVS2700	600	PSHS1906						

1) Also for fixed/interlocked horizontal Emax 2 E1.2 for W=600mm and W=800mm.
2) To install only between kits with different depths (D≥38mm) and above and below the kit compositions (top and bottom).
3) For T7 withdrawable and withdrawable interlocked use the segregations for horizontal E1.2 withdrawable for W=600mm and W=800mm.
4) Only required when columns are installed side by side, to separate the cable area and busbar area.







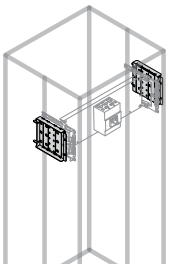
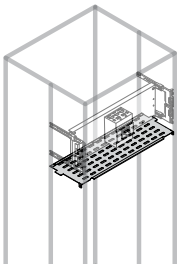
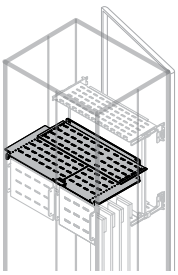
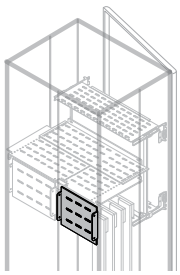


P0 **P1** **P2**

				Form 4b		
Side vertical segregation [4]				**Cubicles to suit depth of circuit-breaker**		
Width of structure (mm)	**Depth of structure (mm)**			**Assembly position**		
	500	**700**	**900**	**P0**	**P1**	**P2**
400	PLVS2052	PLVS2072	PLVS2092	PCVS0204	PCVS1204	PCVS2204
600	PLVS2052	PLVS2072	PLVS2092	PCVS0206	PCVS1206	PCVS2206
800	PLVS2052	PLVS2072	PLVS2092	PCVS0208	PCVS1208	PCVS2208
400	PLVS2552	PLVS2572	PLVS2592	PCVS0254	PCVS1254	PCVS2254
600	PLVS2552	PLVS2572	PLVS2592	PCVS0256	PCVS1256	PCVS2256
800	PLVS2552	PLVS2572	PLVS2592	PCVS0258	PCVS1258	PCVS2258
400	PLVS3052	PLVS3072	PLVS3092	PCVS0304	PCVS1304	PCVS2304
600	PLVS3052	PLVS3072	PLVS3092	PCVS0306	PCVS1306	PCVS2306
800	PLVS3052	PLVS3072	PLVS3092	PCVS0308	PCVS1308	PCVS2308
1000						
400	PLVS3552	PLVS3572	PLVS3592	PCVS0354	PCVS1354	PCVS2354
600	PLVS3552	PLVS3572	PLVS3592	PCVS0356	PCVS1356	PCVS2356
800	PLVS3552	PLVS3572	PLVS3592	PCVS0358	PCVS1358	PCVS2358
400	PLVS4052	PLVS4072	PLVS4092	PCVS0404	PCVS1404	PCVS2404
600	PLVS4052	PLVS4072	PLVS4092	PCVS0406	PCVS1406	PCVS2406
800	PLVS4052	PLVS4072	PLVS4092	PCVS0408	PCVS1408	PCVS2408
400	PLVS5052	PLVS5072	PLVS5092	PCVS0504	PCVS1504	PCVS2504
600	PLVS5052	PLVS5072	PLVS5092	PCVS0506	PCVS1506	PCVS2506
800	PLVS5052	PLVS5072	PLVS5092	PCVS0508	PCVS1508	PCVS2508
1000						
400	PLVS6052	PLVS6072	PLVS6092	PCVS0604	PCVS1604	PCVS2604
600	PLVS6052	PLVS6072	PLVS6092	PCVS0606	PCVS1606	PCVS2606
800	PLVS6052	PLVS6072	PLVS6092	PCVS0608	PCVS1608	PCVS2608

Form of segregation

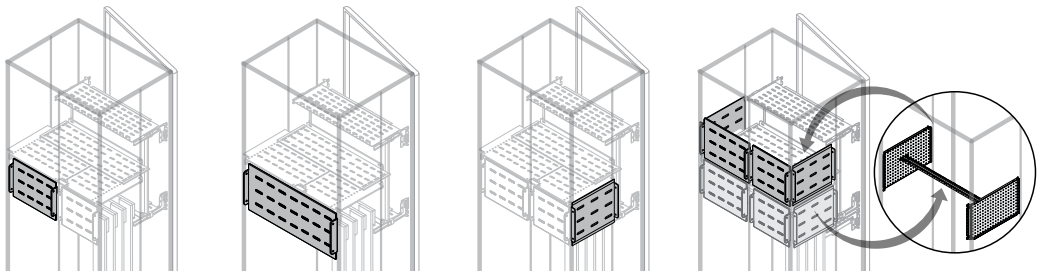
Tmax T and Tmax XT moulded-case circuit-breakers
Vertical installation

	Form 2a	Form 3a [2]		Form 3b				
		Universal horizontal shelf		Horizontal segregation of terminals			Rear vertical bottom segregation on busbar side	
Height of kits (mm)	Universal compartment side closing element	Width of structure (mm)	For all depths	Depth of structure (mm) 500	700	900	Width of structure (mm)	For all depths
200	PPVS2200	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	
		600	PSHS1906	PSHS6050	PSHS6070	PSHS6090	600	
		800	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	
		1000	PSHS1901				1000	
300	PPVS2300	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	
		600	PSHS1906	PSHS6050	PSHS6070	PSHS6090	600	
		800	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	
		1000	PSHS1901				1000	
350	PPVS2350	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	PRVS1741
		600	PSHS1906	PSHS6050	PSHS6070	PSHS6090	600	PRVS1761
		800	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	PRVS1781
		1000	PSHS1901				1000	
400	PPVS2400	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	PRVS2041
		800	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	PRVS2081
		1000	PSHS1901				1000	
450	PPVS2450	400 [1]	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	PRVS2241
		800 [1]	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	PRVS2251
		1000	PSHS1901				1000	
500	PPVS2500	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	PRVS2541
		600 [3]	PSHS1906	PSHS6050	PSHS6070	PSHS6090	600	PRVS2561
		800 [3]	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	PRVS2581
		1000	PSHS1901				1000	
600	PPVS2600	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	PRVS3041
		600	PSHS1906	PSHS6050	PSHS6070	PSHS6090	600	PRVS3061
		800	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	PRVS3081
		1000	PSHS1901				1000	
		1250					1250	

1) Also for fixed/interlocked vertical Emax 2 E1.2 for L=400mm, L=600mm and L=800mm.
2) To install only between kits with different depths (D≥38mm) and above and below the kit compositions (top and bottom).
3) For T7 withdrawable and withdrawable interlocked use the segregations for vertical E1.2 withdrawable for W=600mm and W=800mm.

Form 4b
Form 4b is obtained by duplicating the codes of vertical bottom segregations PRVS... and vertical side segregations PLVS..., closing the circuit-breaker compartments over the entire height of the switchboard and installing an additional vertical side segregation on the output side.

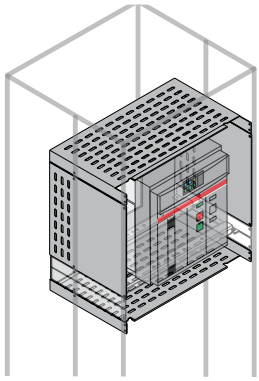


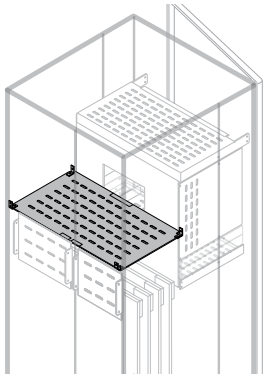
As an alternative to the PLVS... vertical side segregations, in the case of main circuit-breakers (Tmax T5, T6, T7), use the PMCS... side connection module for fixing terminal extensions and the relative fixing brackets PBMC0002 (page 419).

Vertical bottom segregation on busbar side		Full width vertical bottom segregation		Vertical side segregation		
				Depth of structure (mm)		
Width of structure (mm)	For all depths	Width of structure (mm)	For all depths	500	700	900
400		400				
600		600				
800		800				
1000		1000				
400		400				
600		600				
800		800				
1000		1000				
400		400	PRVS1740	PLVS1752	PLVS1772	PLVS1792
600	PRVS1762	600	PRVS1760	PLVS1752	PLVS1772	PLVS1792
800	PRVS1782	800	PRVS1780	PLVS1752	PLVS1772	PLVS1792
1000		1000	PRVS1710	PLVS1752	PLVS1772	PLVS1792
400		400	PRVS2040	PLVS2052	PLVS2072	PLVS2092
800	PRVS2082	800	PRVS2080	PLVS2052	PLVS2072	PLVS2092
1000		1000	PRVS2010	PLVS2052	PLVS2072	PLVS2092
400		400	PRVS2240	PLVS2252	PLVS2272	PLVS2292
800	PRVS2282	800	PRVS2280	PLVS2252	PLVS2272	PLVS2292
1000		1000	PRVS2210	PLVS2252	PLVS2272	PLVS2292
400		400		PLVS2552	PLVS2572	PLVS2592
600	PRVS2562	600	PRVS2560	PLVS2552	PLVS2572	PLVS2592
800	PRVS2582	800	PRVS2580	PLVS2552	PLVS2572	PLVS2592
1000		1000	PRVS2510	PLVS2552	PLVS2572	PLVS2592
400		400	PRVS3040	PLVS3052	PLVS3072	PLVS3092
600	PRVS3062	600	PRVS3060	PLVS3052	PLVS3072	PLVS3092
800	PRVS3082	800	PRVS3080	PLVS3052	PLVS3072	PLVS3092
1000		1000	PRVS3010	PLVS3052	PLVS3072	PLVS3092
1250		1250	PRVS3125			

Form of segregation

Emax 2 air circuit-breakers





Vertical fixed Emax 2

Form 2a-3a				Form 3b					
	Segregation kit				Horizontal terminal separator				
	E2.2	E4.2	E6.2		E2.2	E2.2	E4.2	E4.2	E6.2
Width of Kit/ column (mm)	Height of kits (mm)			Width of Kit/ column (mm)	Depth (mm)				
	600	600	700		700	900	700	900	900
600	PSVF6062	PSVF6064		600	PSHF6072	PSHF6092	PSHF6072	PSHF6092	
800	PSVF6082	PSVF6084		800	PSHF8072	PSHF8092	PSHF8072	PSHF8092	
1000			PSVF7016	1000					PSHF1096
1250			PSVF7126	1250					PSHF1296

Vertical withdrawable Emax 2

Form 2a-3a					Form 3b							
	Segregation kit				Horizontal terminal separator							
	E1.2	E2.2	E4.2	E6.2		E1.2	E1.2	E1.2	E2.2	E2.2	E4.2	E4.2	E6.2
Width of Kit/ column (mm)	Height of kits (mm)				Width of Kit/ column (mm)	Depth (mm)							
	500	600	600	700		500	700	900	700	900	700	900	900
600	PSVW5061[1]	PSVW6062	PSVW6064		600	PSHW6051[1]	PSHW6071[1]	PSHW6091	PSHW6072	PSHW6092	PSHW6074	PSHW6094	
800	PSVW5081[1]	PSVW6082	PSVW6084		800	PSHW8051[1]	PSHW8071[1]	PSHW8091	PSHW8072	PSHW8092	PSHW8074	PSHW8094	
1000				PSVW7016	1000								PSHW1096
1250				PSVW7126	1250								PSHW1296

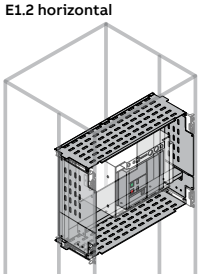
Horizontal withdrawable Emax 2

	Form 2a-3a		Form 3b		Form 4b	
	Segregation kit		Vertical terminal separator		Rear cubicle	
	E1.2		E1.2		E1.2	
Height of kits (mm)	Width of kits (mm)		Depth (mm)		Width of column (mm)	
	600	800	700	900	600	800
500	PSHW5061[2]	PSHW5081[2]	PSVS0055[2]	PSVS0057[2]	PCVS5060[2]	PCVS5080[2]

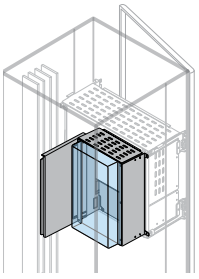
1) Also suitable for vertical T7 withdrawable and withdrawable interlocked.
2) Also suitable for horizontal T7 withdrawable and withdrawable interlocked.

Form 2a-3a

E1.2 horizontal



Form 3b-4b



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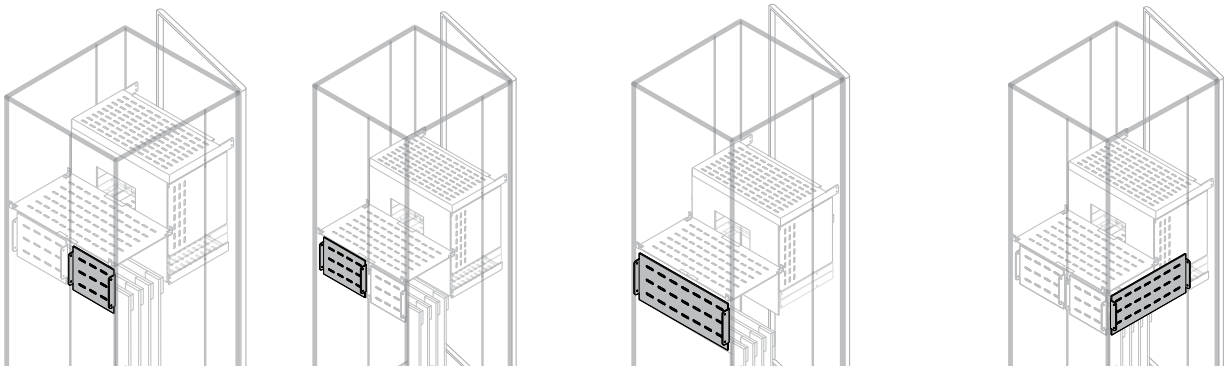
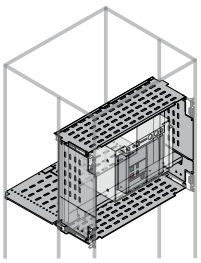


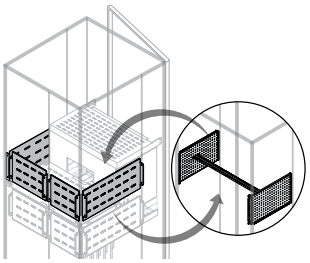
Bottom segregations					Side segregations		
	Structures with rear intermediate upright on busbar side	Structures with rear intermediate upright on output side	Structures without intermediate rear upright full-width segregation		Assembly between intermediate upright and rear structural upright		
Width of Kit/ column (mm)	E2.2/E4.2	E2.2/E4.2	E2.2/E4.2	E6.2		E2.2/E4.2	E6.2
	Height of kits (mm)					Height of kits (mm)	
	600	600	600	700	Depth (mm)	600	700
600	PRVS3061	PRVS3062	PRVS3060		700	PLVS3072	PLVS3572
800	PRVS3081	PRVS3082	PRVS3080		900	PLVS3092	PLVS3592
1000			PRVS3010	PRVS3510			
1250			PRVS3125	PRVS3501			

Bottom segregations								Side segregations			
	Structures with rear intermediate upright on busbar side		Structures with rear intermediate upright on output side		Structures without intermediate rear upright full-width segregation			Assembly between intermediate upright and rear structural upright			
Width of Kit/ column (mm)	Height of kits (mm)							Height of kits (mm)	Depth (mm)		
	500	600	500	600	500	600	700		500	700	900
600	PRVS2561	PRVS3061	PRVS2562	PRVS3062	PRVS2560	PRVS3060		500	PLVS2552	PLVS2572	PLVS2592
800	PRVS2581	PRVS3081	PRVS2582	PRVS3082	PRVS2580	PRVS3080		600	PLVS3052	PLVS3072	PLVS3092
1000					PRVS2510	PRVS3010	PRVS3510	700	PLVS3552	PLVS3572	PLVS3592
1250					PRVS2512	PRVS3125	PRVS3501				

Form 2b
Breakers with rear terminals. use dedicated kit 2a-3a and shelf PTHS... page 426.



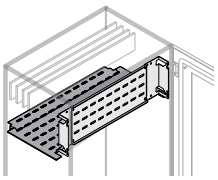
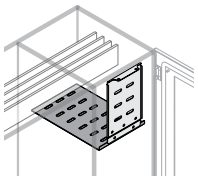
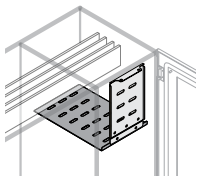
Vertical circuit-breakers Form 4b



Form 4b is obtained by duplicating the codes of vertical bottom segregations PRVS... and vertical side segregations PLVS..., closing the circuit-breaker compartments over the entire height of the switchboard and installing an additional vertical side segregation on the output side.

As an alternative to the PLVS... vertical side segregations, in the case of main circuit-breakers, use the PMCS... side connection module for fixing terminal extensions and the relative fixing brackets PBMC0002 (page 419).

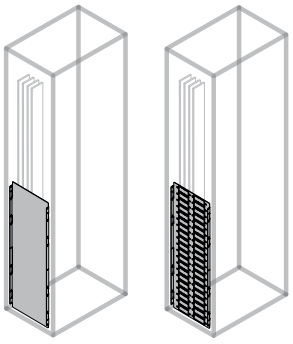
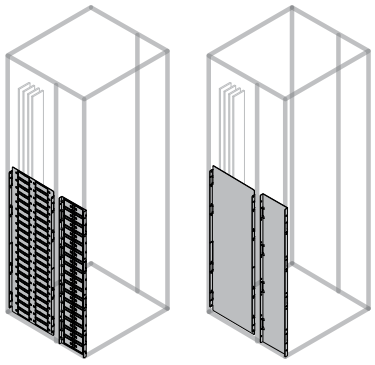
Form of segregation

Horizontal busbars

	Segregation for horizontal busbars: at top, at the bottom and at each height [1]											
	Structure				**External cable compartment**				**Internal cable compartment**			
	Form 2b				**Form 2b, 3b, 4b**				**Form 2b, 3b, 4b**			
	Without intermediate upright				**Without intermediate upright**				**Without intermediate upright side structure**			
	Horizontal shelves			**Front segregations**	**Horizontal shelves**			**Front segregations**	**Horizontal shelves**			**Front segregations**
Width (mm)	**Depth (mm)** 300	500	700	**Height (mm)** 200	**Depth (mm)** 500	700	900	**Height (mm)** 200	**Depth (mm)** 500	700	900	**Height (mm)** 200
200									PTHS2050	PTHS2070	PTHS2090	PFVS2220
300					PTHS3050	PTHS3070	PTHS3090	PFVS2130				
400	PTHS4030	PTHS4050	PTHS4070	PFVS2040	PTHS4050	PTHS4070	PTHS4190	PFVS2140	PTHS4250	PTHS4270	PTHS4290	PFVS2240
600	PTHS6030	PTHS6050	PTHS6070	PFVS2060								
800	PTHS8030	PTHS8050	PTHS8070	PFVS2080								
1000												
1250												

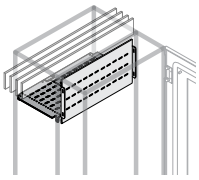
1) Busbars at each height are foreseen only for segregation form different from Form 2b.
For the closing at the back off the structure use Form 3b segregations PRVS.... busbars/outgoing side at whole height.

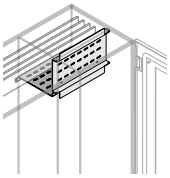



Vertical busbars

		Side segregation for vertical busbars					
		Structure					
		Form 2b		**Form 2b [2]**	**Form 2b, 3b, 4b**		
				With intermediate upright			
		Without intermediate upright		**Front**	**Rear**		
Height (mm)	**Type**	**Depth(mm)** 500	700	**Depth (mm)** 179	500	700	900
700	blind				PLVS7052	PLVS7072	PLVS7092
800	blind	PTBS8050	PTBS8070	PTBS8001	PTBS8052	PTBS8072	PTBS8091
1000	blind	PTBS1050	PTBS1070	PTBS1001	PTBS1052	PTBS1072	PTVB1091
800	pre-cut	PTVS8050	PTVS8070	PTVS8001	PTVS8052	PTVS8072	PTVS8091
1000	pre-cut	PTVS1050	PTVS1070	PTVS1001	PTVS1052	PTVS1072	PTVS1091

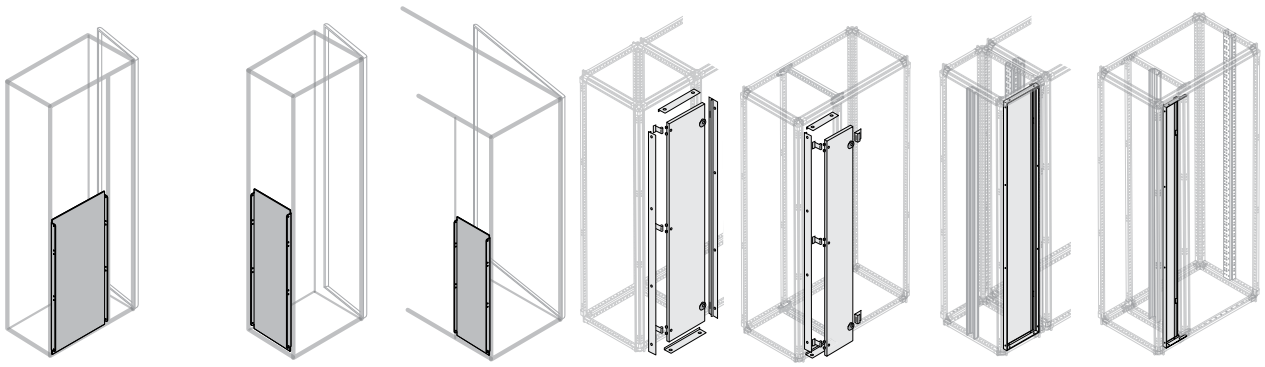
2) Segregation Form 3b, 4b from the intermediate upright up to the front structural upright can be obtained only by means of lateral segregation closing Form 2a-3a.
For the closing at the back off the structure use Form 3b segregations PRVS.... busbars/outgoing side at whole height.





Segregation for horizontal busbars: at top, at the bottom and at each height [1]																		
Structure					**External cable compartment**					**Internal cable compartment**								
Form 2b, 3b, 4b					**Form 2b, 3b, 4b**					**Form 2b, 3b, 4b**					**Form 3b, 4b**			
With intermediate upright					**With intermediate upright**					**With intermediate upright side structure**								
Horizontal shelves			**Front segregations**		**Horizontal shelves**			**Front segregations**		**Horizontal shelves**			**Front segregations**		**Front segregations at each heights**			
Depth (mm)			**Height (mm)**		**Depth (mm)**			**Height (mm)**		**Depth (mm)**			**Height (mm)**		**Height (mm)**			
500	**700**	**900**	**200 [2]**	**300 [3]**	**500**	**700**	**900**	**200 [2]**	**300 [3]**	**500**	**700**	**900**	**200**	**300**	**200 [2]**	**300 [3]**		
										PTHS2052	PTHS2072	PTHS2092	PFVS2222	PFVS3222	PFVS2223	PFSV3223		
					PTHS3052	PTHS3072	PTHS3092	PFVS2132	PFVS3132									
PTHS4052	PTHS4072	PTHS4092	PFVS2042	PFVS3042	PTHS4152	PTHS4172	PTHS4192	PFVS2042	PFVS3042	PTHS4252	PTHS4272	PTHS4292	PFVS2242	PFVS3242	PFVS2243	PFVS3243		
PTHS6052	PTHS6072	PTHS6092	PFVS2062	PFVS3062														
PTHS8052	PTHS8072	PTHS8092	PFVS2082	PFVS3082														
PTHS1052	PTHS1072	PTHS1092	PFVS2012	PFVS3012														
		PTHS1292	PFVS2122	PFVS3122														

1) Busbars at each height are foreseen only for segregation form different from Form 2b.
2) For busbars at each height ≤100mm; for busbars at the top/bottom < 120mm.
3) For busbars at each height >100mm; for busbars at the top/bottom >120mm.



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Cable compartment

	Blind side segregation for external cable compartment with intermediate upright			**Rear segregation for external cable compartment**		**Rear segregation for internal cable compartment with rear intermediate upright**		**Internal door for external cable compartment**		**Internal door for internal cable compartment**		**Front vertical segregation for external cable compartment**		**Front vertical segregation for internal cable compartment**	
Height	**Depth (mm)**			**Width (mm)**		**Width (mm)**		**Width (mm)**		**Width (mm)**		**Width (mm)**		**Width (mm)**	
(mm)	**500**	**700**	**900**	**300**	**400**	**200**	**400**	**300**	**400**	**200**	**400**	**300**	**400**	**200**	**400**
700	PLVS7052	PLVS7072	PLVS7092												
800	PTBS8052	PTBS8072	PTBS8091	PRVS8062	PRVS8082	PRBS8220	PRBS8240								
1000	PTBS1052	PTBS1072	PTVB1091	PRVS1062	PRVS1082	PRBS1220	PRBS1240								
1800								PDCB1830	PDCB1844	PDCB1820	PDCB1840	PFVS8030	PFVS8040	PFBS8020	PFBS8040
2000								PDCB2030	PDCB2044	PDCB2020	PDCB2040	PFVS1030	PFVS1040	PFBS1020	PFBS1040

05
Motor control and protection

431 **Motor starting solutions**

449 **Manual motor starters**

467 **Contactors and relays**

515 **Thermal and electronic overload relays**

531 **Electromechanical motor starter coordination tables**


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Motor starting solutions

432	Overview
433	Direct-on-line starters with AF contactors – Open type version in kit form
435	Reversing starters with AF contactors
436	Star-delta starters with AF contactors
437	Softstarters
438	Universal motor controller – UMC100.3
446	Low voltage AC drives



For more information on Motor starting solutions, please contact your local ABB representative.

Overview

One product family

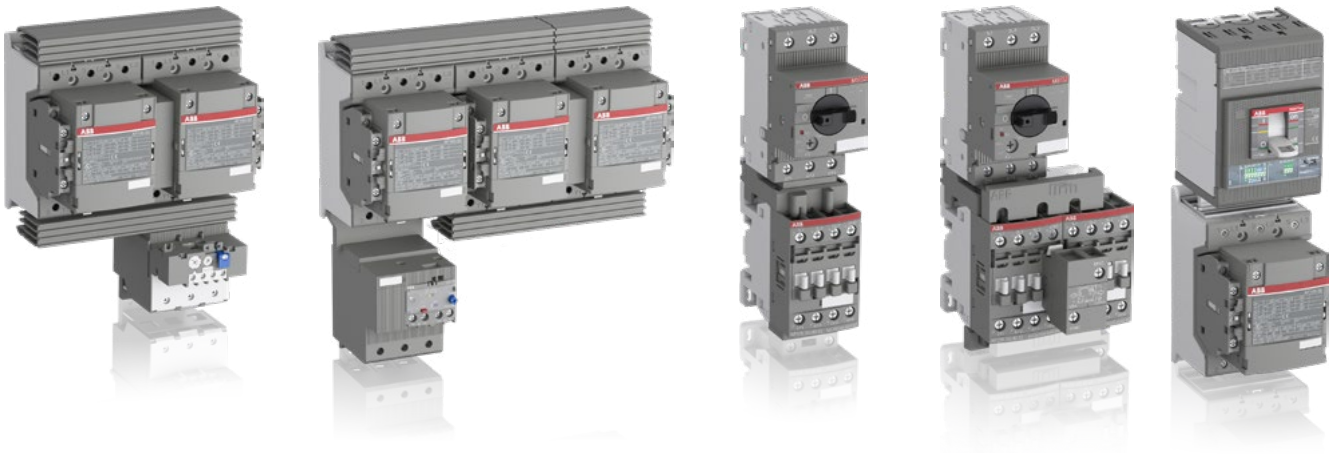
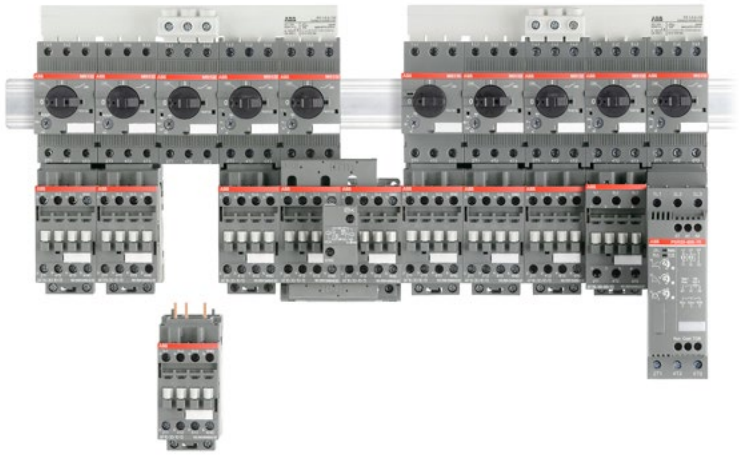


ABB presents a new generation of first-class specialised components: manual motor starters, contactors, overload relays and softstarters for motor starting solutions.

- Harmonised design and colour
- Compact and modular
- Low energy consumption
- Small number of parts
- Minimum need for accessories
- Optimised wiring and configuration
- High ratings and service capability
- Increased application possibilities
- Reliability proven over many years of experience



Large choice of starting solutions in kit form

Short-circuit and overload protection
- Type 1 or type 2 coordination guaranteed with manual motor starters
- Choice of thermal or electronic overload relays

Simple construction
- All starters in 45 mm width module

Time/cost saving
- Same frame size for AC or DC control supply
- Easy, fast and secure assembly, fitting and wiring of components

Coordination Types

The contactor and protection devices protect motors against overload and short-circuits according to coordination types 1 and 2 (IEC 60947-4-1 / EN 60947-4-1) defining the anticipated level of service continuity as follow:

Type 1: In short-circuit conditions, the contactor or starter does not endanger persons or installations and will be able to then not operate without being repaired or having parts replaced.

Type 2: In short-circuit conditions, the contactor or starter does not endanger persons or installations and will be able to operate afterwards. The risk of contacts light welding is acceptable.

Direct-on-line starters with AF contactors – Open type version in kit form

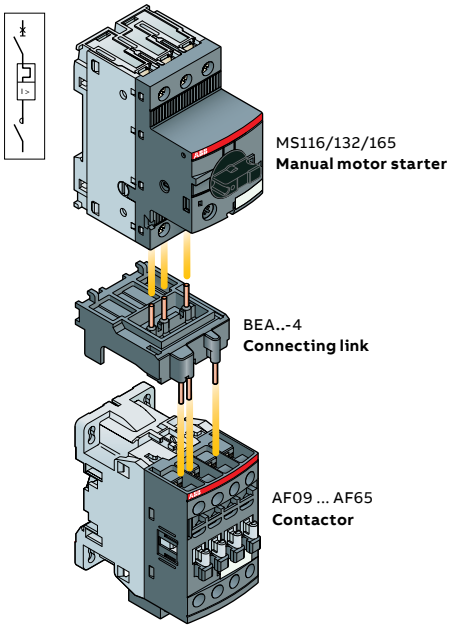


Application
Full voltage direct-on-line starting for controlling three-phase asynchronous motors is a simple and economic solution characterised by a high starting torque (1.9 to 2.1 times full-speed torque) and a starting current 5.5 to 7 times nominal current. Protection can be provide by a manual motor starter or by fuses with overload relays.

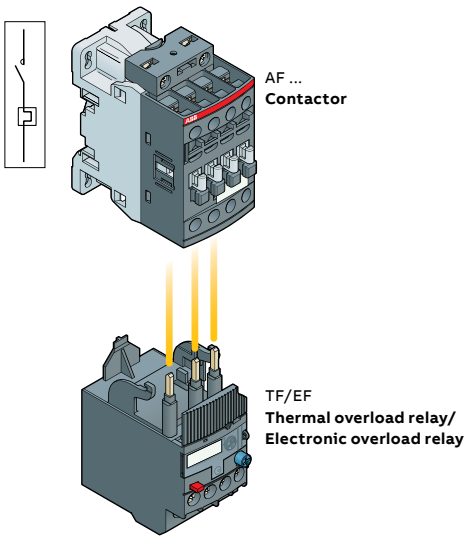
Protection with manual motor starter
You can easily assemble a direct-on-line starter by using the BEA..-4 insulated 3-pole connecting link. It is used to electrically and mechanically connect MS... manual motor starter and AF... contactor, AC or DC operated.

Protection with overload relay
You can easily assemble a direct-on-line starter by connecting a AF contactor and thermal overload relay or electronic overload relay.

Product selection can be done via chapter 5 of the main catalogue and by the online coordination tool: http://applications.it.abb.com/SOC/Page/Selection.aspx



Direct-on-line starter with manual motor starter protection



Direct-on-line starter with overload relay protection

Direct-on-line starters with AF Contactors – Enclosed version

DRAF09 … DRAF16

Up to 7.5 kW, protected by overload relays, AC/DC operated



Description

Enclosed direct-on-line (DOL) starters are used for controlling 3-phase asynchronous motors up to 690 V AC.

Each starter is delivered assembled and wired. It contains:

- IP66 and type 4X plastic enclosure with double insulation, equiped with:
- 1 green flush 'I' ON button and 1 red protruding 'O' OFF/RESET button
- 4 cable inlets and outlets via knockouts.
- 1 AF 3-pole contactor with holding contact
- 1 CB510 start contact block
- 1 PE and 1 neutral terminal.

3 versions of control supply wiring are available: phase-to-phase, separate supply or phase-to-neutral.

TF42 thermal overload relay to be ordered separately and selected according to motor's nominal current (see selection on page 519 in the **Thermal and electronic overload relays** chapter).
EF19 electronic overload relays can also be selected (not suitable for single-phase loads)

DRAF enclosed DOL starters

IEC - AC-3 Rated operational power					Control supply wiring	Rated control circuit voltage Uc min ... Uc max [1]	Factory code	Order code
220 V 230 V 240 V	380 V 400 V	500 V	690 V	max.current θ ≤ 40 °C Ue=400 V				
kW	kW	kW	kW	A		V AC/DC		
IEC starters type								
2.2	4	5.5	5.5	9	Separate supply	24…60 / 20…60	1SBK134237R1100	DRAF09-11S
					Phase-to-neutral	100...250	1SBK134137R1300	DRAF09-13N
					Phase-to-phase	250...500	1SBK134037R1400	DRAF09-14P
3	5.5	7.5	7.5	12	Separate supply	24…60 / 20…60	1SBK154237R1100	DRAF12-11S
					Phase-to-neutral	100...250	1SBK154137R1300	DRAF12-13N
					Phase-to-phase	250...500	1SBK154037R1400	DRAF12-14P
4	7.5	9	9	18	Separate supply	24…60 / 20…60	1SBK174237R1100	DRAF16-11S
					Phase-to-neutral	100...250	1SBK174137R1300	DRAF16-13N
					Phase-to-phase	250...500	1SBK174037R1400	DRAF16-14P

1) Select DRAF..S with separate supply for 24...60 V DC control circuit voltage (change A2 - Us wire to blue color acc. to IEC 60947-4-1).

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Reversing starters with AF contactors

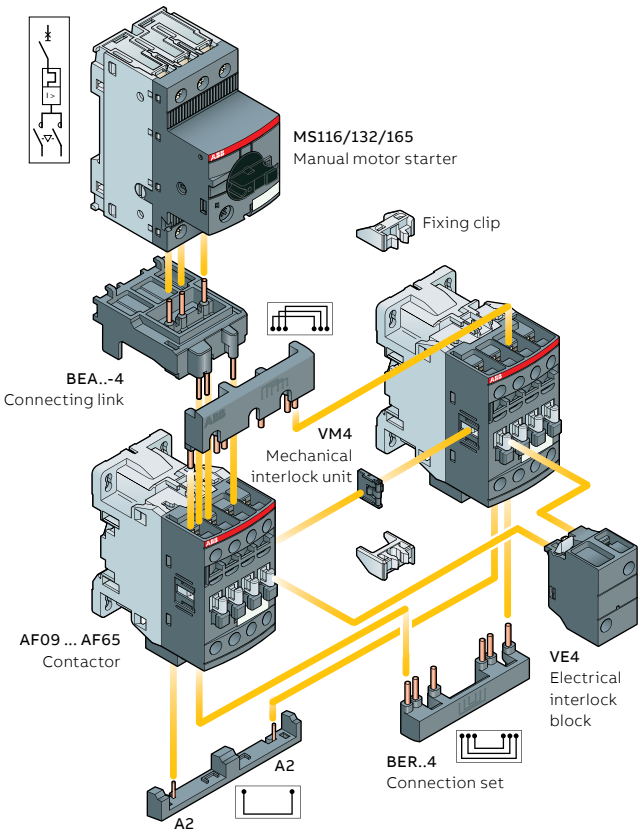


Application
Full voltage reversing starting for controlling three-phase asynchronous motors is a simple and economic solution characterised by a high starting torque (1.9 to 2.1 times full speed torque) and a starting current 5.5 to 7 times nominal current.

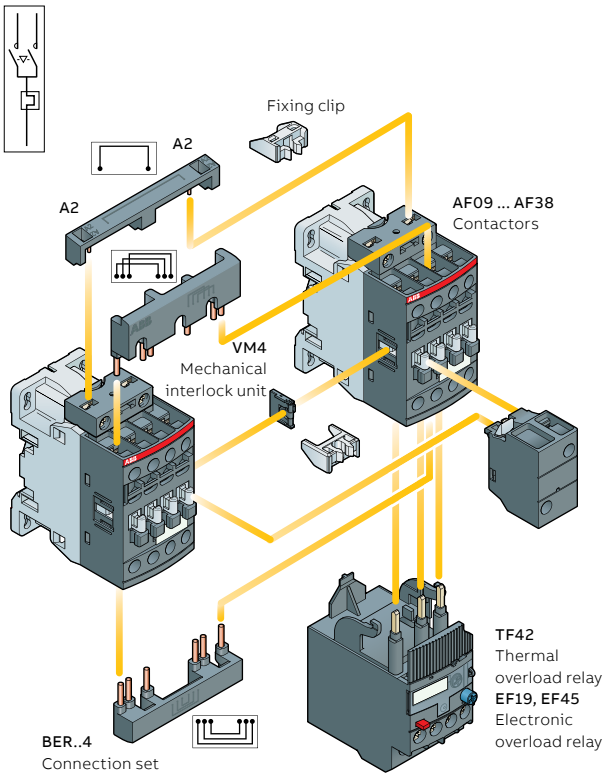
Protection with manual motor starter
You can easily assemble a reversing starter thanks to our complete range of accessories:
- BEA..-4 insulated 3-pole connecting link: it is used to electrically and mechanically connect MS116, MS132 or MS165 manual motor starter and AF09 ... AF65 contactor, AC or DC operated.
- For AF09 ... AF38, use VEM4 mechanical and electrical interlock set for reversing starter in 90 mm width.
  It includes:
  - VM4 mechanical interlock unit including 2 fixing clips
  - VE4 electrical interlock block with A2 - A2 connection.
- For AF40 ... AF96, use VM96-4 mechanical interlock unit and additional auxiliary contact blocks for electrical interlocking
- BER..-4 connection set: it assures a safe and simple reversing connection between both contactor main terminals.

Protection with overload relay
You can easily assemble a reversing starter thanks to our complete range of accessories:
- For AF09 ... AF38, use VEM4 mechanical and electrical interlock set for reversing starter in 90 mm width.
  It includes:
  - VM4 mechanical interlock unit including 2 fixing clips
  - VE4 electrical interlock block with A2 - A2 connection.
- For AF40 ... AF370, use VM mechanical interlock unit and additional auxiliary contact blocks for electrical interlocking.
- BER..-4 connection set: it assures a safe and simple reversing connection between both contactor main terminals.

Product selection can be done via chapter 5 of the main catalogue and by the online coordination tool:
http://applications.it.abb.com/SOC/Page/Selection.aspx



Reversing starter with manual motor starter protection



Reversing starter with overload relay protection

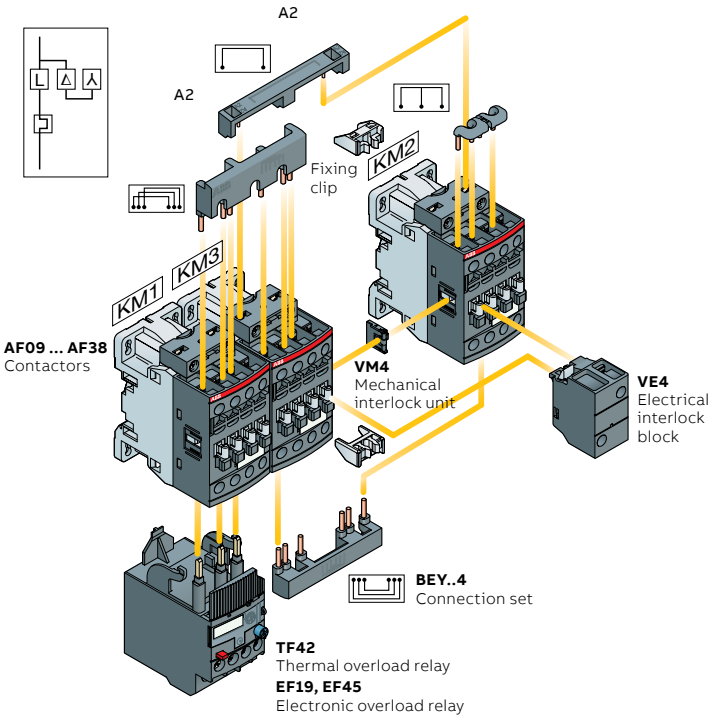
Star-delta starters with AF contactors



Application
Star-delta starting is the most common method to reduce the starting current of a motor. This system can be used on all the squirrel cage motors, which are normally used in delta connection. In this type of starting, it is recommended to choose motors having high starting torque i.e. much higher than the resistive torque in order to reach sufficient high speed when the motor is connected in star.

Description
You can easily assemble a star-delta starter thanks to our complete range of accessories:
- VEM4 mechanical and electrical interlock set without increasing starter width.

It includes:
- VM4 mechanical interlock unit and fixing clips
- VE4 electrical interlock block with A2 - A2 connection.
- BEY..4 connection set: it assures a safe and simple connection between contactors main terminals.



Star-delta starter

Product selection can be done via chapter 5 of the main catalogue and by the online coordination tool:
http://applications.it.abb.com/SOC/Page/Selection.aspx

Softstarters

Easy and reliable for energy savings

A very efficient way to save energy and reduce the environmental footprint in industry is to extend the life of machinery and equipment.

By reducing the unnecessary wear and tear produced by high starting torque from motors, process equipment life can be extended. ABB offers softstarters to reduce this unwanted high torque and remove the current peaks that electrical motors produce at startup.

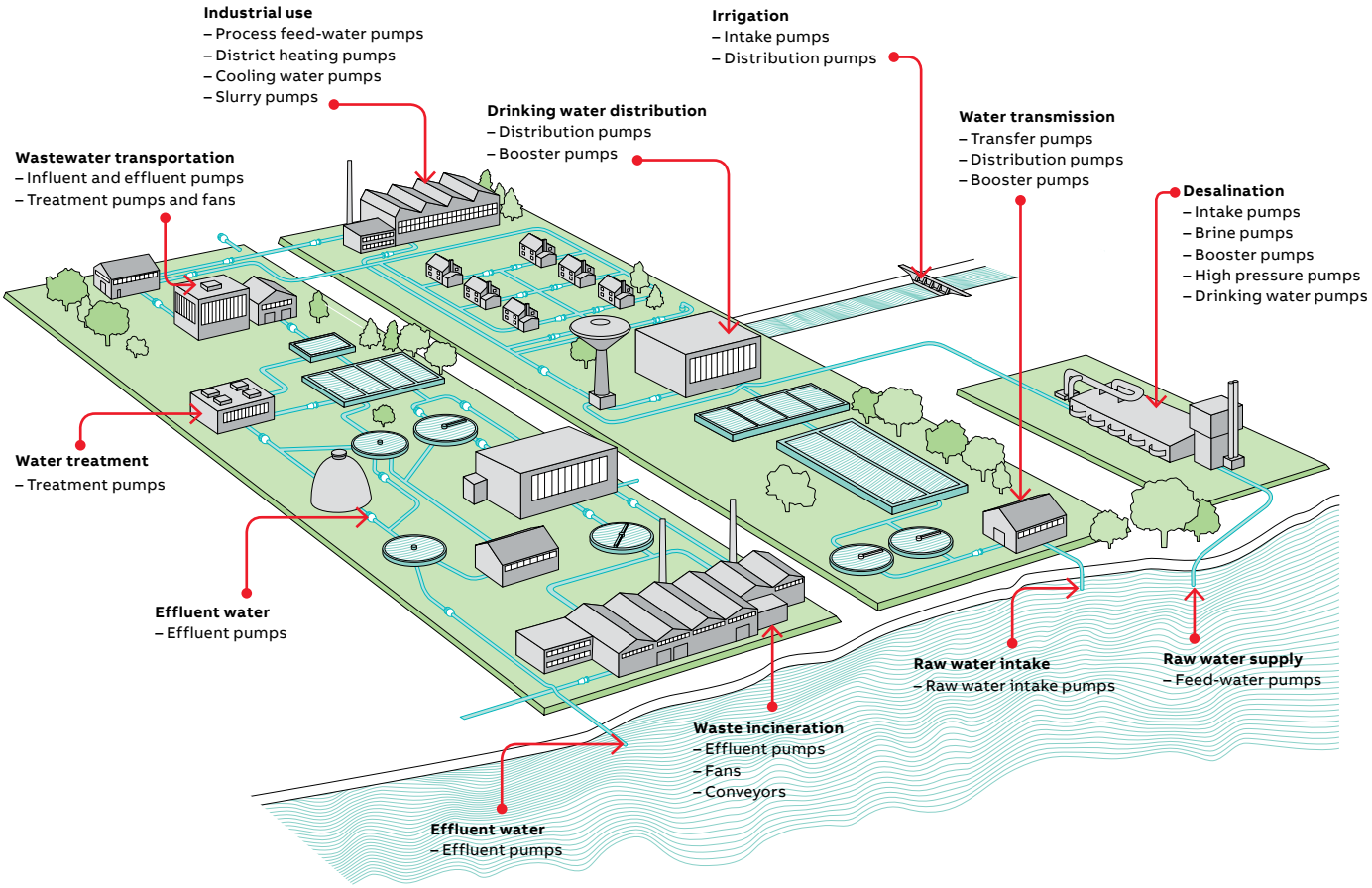
Softstarters will prolong the life of the equipment and reduce the need for process maintenance. Softstarters are used in a wide range of applications and you can find them everywhere in an industrial environment.

Some typical applications for the softstarters in motordriven processes include:

- Pumps for water and waste water management
- Ventilation fans
- Compressors and heat pumps
- Conveyor belts

These are a few examples of where softstarters help saving energy. In industrial and commercial facilities, a lot of applications benefit from soft starting and soft stopping.

Water and wastewater treatment plant softstarter applications:



Note:
For more details contact ABB

Universal motor controller – UMC100.3

Keeping the motors running with UMC

Any unplanned or sudden motor stops can lead to faults in the process sequence, which can be very costly. ABB´s Motor Controllers stand for motor protection, motor control, fieldbus and Ethernet communication and fault diagnosis. The UMC is used in many segments with several thousand motor controllers installed worldwide.

UMC100.3 is a flexible, modular and expandable motor management system for constant-speed, low-voltage range motors. Its most important tasks include motor protection, preventing plant standstills and reducing down time. Early information relating to potential motor problems and swift diagnosis ensure continuous operation of any application such as:

- The oil and gas industry
- The cement plants
- The steel industry
- Mining
- The chemicals industry
- Water supply and distribution
- Power plant engineering
- The food and beverage industry
- Pulp and paper plants

Due to the benefits it provides, the UMC100.3 is used worldwide in many segments and in projects with several thousand motor controllers.

High plant availability
The UMC100.3 continuously transmits comprehensive operational, service and diagnostic data from the motor to the control system. This means that faults can be detected early on and can be avoided by suitable measures, or their effects can be limited. This increases the plant's availability.

Open communication
The UMC100.3 is equipped with an interface for mounting a communication adapter. Selecting the relevant adapter enables the motor controller to communicate using the widespread fieldbuses Profibus DP, DeviceNet or Modbus RTU. Even communication via Ethernet networks is possible using the Modbus TCP or Profinet protocol. UMC100.3 can also be used without communication as a stand-alone motor controller, e.g. in simple pumpstations.

Made in Germany, approved worldwide
The Universal Motor Controller is developed and produced in the federal republic of Germany. Approvals and certificates ensure the worldwide use of the product which has been proven in a lot of applications and in huge projects with thousands of motor controllers all around the world. With our long time experience of project management ABB gives you the best possible support.

ABB's new UMC100.3 offers you the optimal solution for your motor control center (MCC) applications.



Universal motor controller – UMC100.3

Ordering details



UMC100.3DC



UMC100.3UC

Universal Motor Controller – UMC100.3
Intelligent motor management system for single and three-phase motors with rated current between 0.24 and 63 amps without the need of an external current transformer or additional modules. Compact housing with integrated current transformer for cable cross section up to 25 mm² (max. Ø with Insulation 11 mm). Higher currents with additional external current transformer. Thermal overload protection according to EN/IEC 60947-4-1, selectable trip classes 5E, 10E, 20E, 30E, 40E. Some functions require an additional expansion module.

Motor protection functions:
- Over-/underload, over-/undercurrent, over-/undervoltage, rotor blocking, phase failure/ imbalance/sequence.
- Earth fault detection integrated or with external sensor CEM11.
- Hot motor protection with thermistor or temperature measurement.

Motor control functions:
- Easily configurable motor control functions: direct, reverse, star-delta starter, pole-changing, overload relay, actuator mode, softstarter mode. Additionally, configuration software is available allowing for commissioning and additional application specific logic with programmable function blocks.

Service and diagnostic data:
- Operating hours, number of motor starts and overload trips, energy, standstill and operation hours supervision, motor status, faults and warnings, fault history (16 events)
- Motor current, phase voltages, thermal load, power factor (cos), active power, apparent power, energy, total harmonic distortion (THD).

Integrated I/Os:
- 6 digital inputs, 1 PTC input, 4 digital outputs.

Expansion modules (maximum allowed):
- 14 digital inputs, 1 PTC input, 9 digital outputs, 6 analogue inputs, 1 analogue output.

Communication interfaces:
- Fieldbuses and ethernet networks, interface for operator panel UMC100.3-PAN, bus interface for connection of expansion modules.

Versions for supply voltage:
- 24 V AC or 24 V DC or 110 – 240 V AC/DC with/without ATEX approval.

Ordering details

Description	Supply voltage*	Factory code	Order code
Universal Motor Controller	24 V AC	1SAJ530000R2100	UMC100.3AC24L
Universal Motor Controller	24 V DC	1SAJ530000R0100	UMC100.3DC
Universal Motor Controller	110 – 240 V AC/DC	1SAJ530000R1100	UMC100.3UC
Universal Motor Controller, ATEX	24 V DC	1SAJ530000R0200	UMC100.3DCEX
Universal Motor Controller, ATEX	110 – 240 V AC/DC	1SAJ530000R1200	UMC100.3UCEX

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Universal motor controller – UMC100.3

Operating panel and expansion modules



UMC100.3-PAN

Operating panel

Operator panel for Universal Motor Controller UMC100.3 with backlit graphical and multilingual fulltext display, LEDs for status. Assembly directly on UMC100.3 or on the control cabinet door via extension cable and door mounting set.

Functions:

- Monitoring: Shows motor status and diagnostics.
- Operate: Start, stop, fault reset.
- Parametrize: Setting and changing of motor and fieldbus parameters (password protection possible).
- Copy settings.
- USB port for up/download of parameters and logic.

Supports 8 languages: English, French, German, Italian, Spanish, Polish, Portuguese, Russian
Replaces all former UMC100 operator panels.

Ordering details

Description	Factory code	Order code
Operating panel	1SAJ590000R0103	UMC100.3-PAN
0.7 m ext. cable with door mounting set	1SAJ510003R0002	UMCPAN-CAB.070
1.5 m ext. cable with door mounting set	1SAJ510004R0002	UMCPAN-CAB.150
3 m ext. cable with door mounting set	1SAJ510002R0002	UMCPAN-CAB.300



DX111

Expansion modules

Up to 4 expansion-modules can be connected to one UMC100.3:

- 1 digital expansion module DX111 or DX122.
- 1 voltage expansion module VI150 or VI155.
- 2 analog/temperature expansion modules AI111.

Ordering details

Description	Factory code	Order code
I/O module for UMC100, 24 V DC digital input	1SAJ611000R0101	DX111
I/O module for UMC100, 110 – 230 V AC digital input	1SAJ622000R0101	DX122
3 phase voltage module for grounded networks	1SAJ650000R0100	VI150
3 phase voltage module for all networks	1SAJ655000R0100	VI155
Analog/temperature module 3 analogue inputs	1SAJ613000R0101	AI111
Connection cable UMC100 - I/O module, length 0.30 m	1SAJ691000R0001	UMCIO-CAB.030
Connection cable IO-module - IO-module, length 0,30 m	1SAJ692000R0001	IOIO-CAB.030

Universal motor controller – UMC100.3

Open communication interfaces and accessories



PDP32.0

Open communication interfaces

Open communication interfaces enable the UMC100.3 to communicate via open communication protocols.

The interfaces can be used in 2 ways:

- Mounted directly on a UMC100.3: in this case the interface is supplied from the UMC100.3, no further accessory is required.
- Mounted separately on a SMK3.0 adapter in the cable chamber of an MCC: in this case the interface plugged on SMK3.0 needs to be supplied with 24 V DC.
  - Ready made cables for the application in withdrawable systems are available as well as terminal blocks for making own cables.
  - CDP18: Cable for use inside the drawer
  - CDP24: Cable from SMK3.0 to drawer outside

Ordering details

Description	Factory code	Order code
Profibus DP communication interface	1SAJ242000R0001	PDP32.0
Modbus RTU communication interface; terminal block for fieldbus connection included	1SAJ251000R0001	MRP31.0
DeviceNet communication interface; terminal block for fieldbus connection included	1SAJ231000R0001	DNP31.0
Profibus DP active bus termination	1SAJ243000R0001	PDR31.0
Communication ethernet 1P interface		EIV32.0



SMK3.0

Fieldbus communication interfaces – Accessories

Adapter and ready-made cables

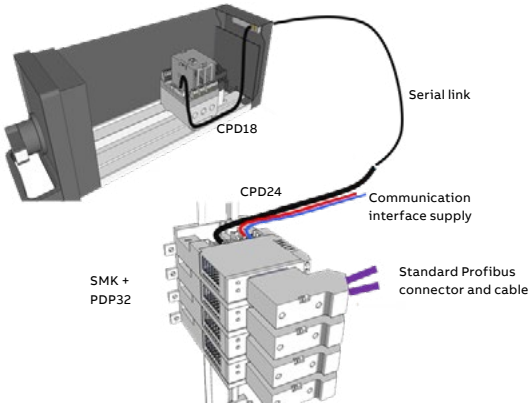
Adapter SMK3.0 for external mounting of a fieldbus communication interface outside a drawer. SMK3.0 can be mounted on a DIN-rail or fixed by screws. 24 V DC supply required.

Ready-made cables for inside and outside the drawer, including terminal block on one side and open end on the other.

Terminal blocks are also separate available for making own cables.

Ordering details

Description	Factory code	Order code
Adapter for separate mounting of a communication interface; terminal block for 24 V DC supply included	1SAJ929600R0001	SMK3.0
Cable for drawer inside, length 1.5 m	1SAJ929180R0015	CDP18.150
Cable from SMK3.0 to drawer outside, length 1. 5 m	1SAJ929240R0015	CDP24.150
Terminal block 2-pol for SMK3.0 supply / 10 pcs per pck. (spare parts)	1SAJ929610R0001	SMK3-X2.10
Terminal block 5-pol for SMK3.0 comm. / 10 pcs per pck. (spare parts)	1SAJ929620R0001	SMK3-X1.10



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Universal motor controller – UMC100.3

Ethernet communication interfaces



MTQ22.0



PNQ22.0

Ethernet communication interfaces

Ethernet communication interfaces enable the UMC100.3 to communicate via an ethernet network:

- Up to 4 motor controllers UMC100.3 can be connected to one interface.
- Supports all network topologies.
- Ring topology with redundancy (MRP protocol).
- No special ethernet connectors required in MCCs.
- Easy to use in widthdrawable applications.
- Integrated ethernet switch.
- 24 V DC supply voltage.
- DIN rail mounting.

MTQ22

- Ethernet communication interface with protocol Modbus TCP.
- Supports multimaster mode.
- Master supervision with timeout control.
- Micro USB port for configuration via PC.

PNQ22

- Ethernet communication interface with protocol Profinet IO.
- Integrated into AC800xA.
- Time stamped events (with AC800).
- GSDML download from UMC100.3 webpage.

Ordering details

Description	Factory code	Order code
Ethernet Modbus TCP interface	1SAJ260000R0100	MTQ22.0
Ethernet Profinet IO interface	1SAJ261000R0100	PNQ22.0

Universal motor controller – UMC100.3

Ethernet communication interfaces – accessories

Ethernet communication interfaces – accessories

Ready-made cables

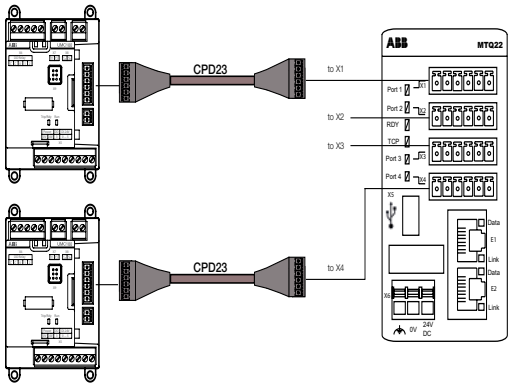
Ready made cables are available for the application in withdrawable systems as well as for fixed installations. Cables are including terminal blocks. Terminal blocks for making own cables are also available:

- CDP18 cable for use inside and outside a drawer
- CDP23 cable from ethernet interface to UMC100.3

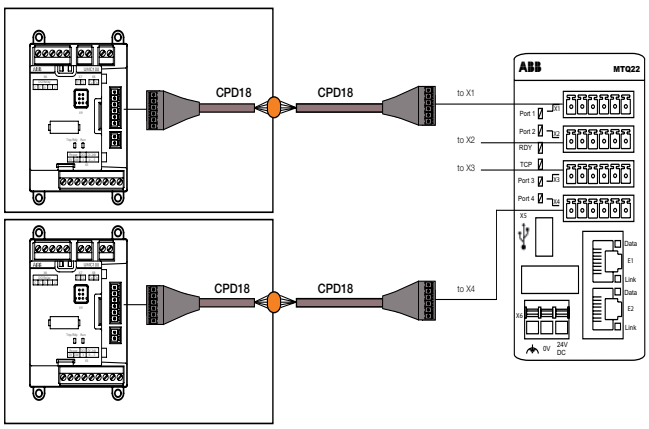
Ordering details

Description	Factory code	Order code
Cable for drawer in- and outside, length 1.5 m	1SAJ929180R0015	CDP18.150
Cable ethernet interface - UMC100.3, length 1.5 m	1SAJ929230R0015	CDP23.150
Cable ethernet interface – UMC100.3, length 3 m	1SAJ929230R0030	CDP23.300
Terminal bloc for MTQ22/PNQ22 X1...X4, 4 pcs	1SAJ929200R0001	ETHTB-FBP.4

UMC100.3, fix mounted application with solution MTQ22.0 / PNQ22.0



UMC100.3, withdrawable application with MTQ22.0 / PNQ22.0



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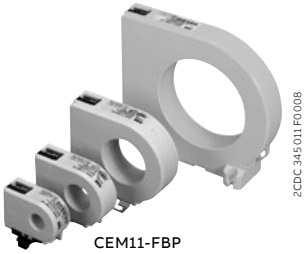
Universal motor controller – UMC100.3

Devices for extension of protection functions



2CDC 345 011 F0008

CEM11-FBP

Earth fault monitors CEM11-FBP for use with Universal Motor Controller UMC100.3-FBP

Description	Through-hole diameter	Factory code	Order code
80[1)], 300, 550, 750, 1000, 1200, 1500, 1700	20 mm	1SAJ929200R0020	CEM11-FBP.20
100[1)], 500, 1000, 1400, 2000, 2400, 3000, 3400	35 mm	1SAJ929200R0035	CEM11-FBP.35
120[1)], 1000, 2000, 2800, 4000, 4800, 6000, 6800	60 mm	1SAJ929200R0060	CEM11-FBP.60
300[1)], 2000, 4000, 5600, 8000, 9600, 12000, 13600	120 mm	1SAJ929200R0120	CEM11-FBP.120

1) lower values have higher inaccuracy



2CDC 341 001 F0012

CT4L185R/4, CT4L310R/4



2CDC 341 002 F0012

CT5L500R/4, CT5L850R/4

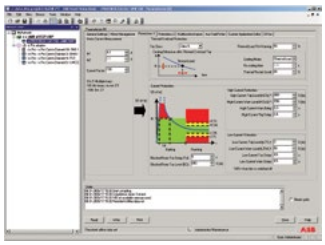
Current transformers for use with Universal Motor Controller UMC100.3-FBP

Linear type transformers, 3-phase, with terminal block, for conductors Cu 2.5 mm^2.
For use with UMC100.3 and nominal motor currents > 63 A

Description	Recommended current range	Factory code	Order code
Current transformer	60…185 A AC	1SAJ929500R0185	CT4L185R/4
Current transformer	180…310 A AC	1SAJ929500R0310	CT4L310R/4
Current transformer	300…500 A AC	1SAJ929501R0500	CT5L500R/4
Current transformer	500…850 A AC	1SAJ929501R0850	CT5L850R/4

Universal motor controller – UMC100.3

Configuration software



PBDTM-FBP

Configuration software for the UMC100.3-FBP motor management system
Asset Vision Basic is an FDT frame application with a modern and simple graphical user interface. It provides effective basic functionality for configuration, diagnosis and maintenance of intelligent low voltage switching devices from ABB. Furthermore, due to the open FDT interface, other ABB and 3rd party DTMs can also be used.
Asset Vision Basic is the optimal tool for configuring FBP devices during commissioning, in the workshop or as second master in a PROFIBUS network of a process control system.
System requirements: Windows XP / Windows 7



UTP22-FBP

Overview of features:

- Online/offline configuration and parameterization of devices
- Reading parameterization and configuration information from the device
- Online display of measuring and status data
- Online operation and error acknowledgment
- Creation of customer-specific logics
- Archiving
- Connection to the device can either be via PROFIBUS or as point to point connection directly to the device.

Required programmng cable:

Connection to a Profibus interface
Connection to an UMC100.3
Connection to an UMC100-FBP

DP network UTP22-FBP
With micro-USB cable via operator panel
With interface UTF21-FBP



UTF21-FBP

Ordering details

Description	Factory code	Order code
Software		
Asset Vision Basic: Device Type Manager (DTM) incl. FDT/DTM frame application	1SAJ924012R0006	PBDTM-FBP
Programming cable		
USB interface for PROFIBUS networks	1SAJ924013R0001	UTP22-FBP
USB to FBP-interface cable	1SAJ929400R0002	UTF21-FBP

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Low voltage AC drives

The portfolio covers the complete spectrum of drives. From micro and machinery drives for machine building to industrial drives for controlling processing lines, all the way up to industry specific drives with purpose-designed features and functionality.

ABB drives are available directly from stock or can be built to order to meet more complex requirements. Our life cycle services ensure your processes run exactly as you expect, year after year.

To boost the productivity of your processes, improve energy efficiency and cut maintenance costs, you can rely on our broad portfolio of low voltage AC drives to deliver just that.

Products



General purpose
All the essential features built-in, simplifying drive selection, installation and use.



Micro
Precise speed control and simple integration.



Machinery
Premium motor control with hardware flexibility, programmability and scalability for an optimal solution



Industrial
Our benchmark of performance, expertise and quality, serving you locally on a global scale.



Industry specific
Dedicated drive solutions for industries such as HVAC and water and wastewater.



Classic, limited and obsolete products
Lifecycle management model aimed to provide proactive service offerings for maximising availability and performance.

For more information please contact your local ABB sales representative or visit the link below:
http://new.abb.com/drives/low-voltage-ac

Notes


ABB

Manual motor starters

450	Overview
452	MS116 manual motor starters
453	MS132 manual motor starters
454	MS165 manual motor starters
455	Main accessories
461	IP65 enclosures and door mounting kits
462	MS495, MS497 manual motor starters
464	IP64 door handles and accessories

For more detailed product information, please refer to the Technical Catalogue:

- Motor protection and control: Manual motor starters, contactors and overload relays – 1SBC100192C0206

Manual motor starters

Overview






Type	MS116	MS132	MS165	MS5100
Thermal and electromagnetic protection	Yes	Yes	Yes	Yes
Electromagnetic protection	-	-	-	-
Phase loss sensitivity	Yes	Yes	Yes	Yes
Switch position	ON/OFF	ON/OFF/TRIP	ON/OFF/TRIP	ON/OFF/TRIP
Magnetic trip indication	-	Yes	Yes	Yes
Lockable handle without accessories	-	Yes	Yes	Yes
Disconnecting feature	Yes	Yes	Yes	Yes
Width	45 mm	45 mm	55 mm	90 mm
Rated operational current I_e	0.16 ... 32 A	0.16 ... 32 A	16 ... 65 A	100 A
Setting range	0.1 ... 32 A	0.1 ... 32 A	10 ... 65 A	40 ... 100 A [2]
Ambient air temperature	-25 ... +55 °C [1]	-25 ... +60 °C [1]	-20 ... +60 °C [1]	-25 ... +70 °C

1) Compensated

Accessories

Auxiliary contact		HKF1, HK1	
Signalling contact	for tripped alarm	SK1	
	for short-circuit alarm	-	CK1
Shunt trip		AA1	
Undervoltage release		UA1	

Table for short-circuit ratings for 400/415 V

		Standard range			Performance range		
		MS116			MS132, MS165, MS5100		
Selection parameters							
Rated operational power	**Setting range for thermal release**	**Type**	**Short-circuit breaking capacity**		**Type**	**Short-circuit breaking capacity**	
			I_{cu}	I_{cs}		I_{cu}	I_{cs}
0.03 kW[1]	0.1 ... 0.16 A	MS116-0.16	50 kA	50 kA	MS132-0.16	100 kA	100 kA
0.06 kW	0.16 ... 0.25 A	MS116-0.25	50 kA	50 kA	MS132-0.25	100 kA	100 kA
0.09 kW	0.25 ... 0.4 A	MS116-0.4	50 kA	50 kA	MS132-0.4	100 kA	100 kA
0.18 kW	0.4 ... 0.63 A	MS116-0.63	50 kA	50 kA	MS132-0.63	100 kA	100 kA
0.25 kW	0.63 ... 1.0 A	MS116-1.0	50 kA	50 kA	MS132-1.0	100 kA	100 kA
0.55 kW	1.0...1.6 A	MS116-1.6	50 kA	50 kA	MS132-1.6	100 kA	100 kA
0.75 kW	1.6...2.5 A	MS116-2.5	50 kA	50 kA	MS132-2.5	100 kA	100 kA
1.5 kW	2.5...4.0 A	MS116-4.0	50 kA	50 kA	MS132-4.0	100 kA	100 kA
2.2 kW	4.0...6.3 A	MS116-6.3	50 kA	50 kA	MS132-6.3	100 kA	100 kA
4.0 kW	6.3...10 A	MS116-10	50 kA	50 kA	MS132-10	100 kA	100 kA
5.5 kW	8...12 A	MS116-12	25 kA	25 kA	MS132-12	100 kA	100 kA
7.5 kW	10...16 A	MS116-16	16 kA	16 kA	MS132-16 / MS165-16	100 kA	100 kA
7.5 kW	14 ... 20 A				MS165-20	100 kA	100 kA
7.5 kW	16...20 A	MS116-20	15 kA	10 kA	MS132-20	100 kA	100 kA
11 kW	18 ... 25 A				MS165-25	100 kA	100 kA
11 kW	20...25 A	MS116-25	15 kA	10 kA	MS132-25	50 kA	50 kA
15 kW	25...32 A	MS116-32	10 kA	10 kA	MS132-32	50 kA	25 kA
15 kW	23 ... 32 A				MS165-32	100 kA	75 kA
22 kW	30 ... 42 A				MS165-42	50 kA	25 kA
22 kW	40 ... 54 A				MS165-54	50 kA	25 kA
30 kW	52 ... 65 A				MS165-65	50 kA	25 kA

1) 690 V
2) Ordering and technical details can be found in 1SBC100192C0206.






MO132 [2]	**MO165** [2]	**MO5100**	**MS132-T** [2]
-	-	-	Yes
Yes	Yes	Yes	-
-	-	-	Yes
ON/OFF/TRIP	ON/OFF/TRIP	ON/OFF/TRIP	ON/OFF/TRIP
-	-	-	Yes
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
45 mm	55 mm	76.2	45 mm
0.16 ... 32 A	16 ... 65 A	7 0 ... 100 A	0.16 ... 32 A
-	-	-	0.1 ... 25 A
-25 ... +60 °C	-25 ... +60 °C	- 25 ... +70 °C	-25 ... +60 °C [1]

HKF1, HK1			HKF1
SK1			SK1
-			CK1
AA1			AA1
UA1			UA1

Standard range			**Performance range**			**Transformer protection**	
MO132 [2]			**MO132, MO165** [2]**, MO5100**			**MS132-T** [2]	
Type	**Short-circuit breaking capacity**		**Type**	**Short-circuit breaking capacity**		**Type**	**Short-circuit breaking capacity**
	I_{cu}	I_{cs}		I_{cu}	I_{cs}		I_{cu} / I_{cs}
MO132-0.16	100 kA	100 kA	MO132-0.16	100 kA	100 kA	MS132-0.16T	100 kA
MO132-0.25	100 kA	100 kA	MO132-0.25	100 kA	100 kA	MS132-0.25T	100 kA
MO132-0.4	100 kA	100 kA	MO132-0.4	100 kA	100 kA	MS132-0.4T	100 kA
MO132-0.63	100 kA	100 kA	MO132-0.63	100 kA	100 kA	MS132-0.63T	100 kA
MO132-1.0	100 kA	100 kA	MO132-1.0	100 kA	100 kA	MS132-1.0T	100 kA
MO132-1.6	100 kA	100 kA	MO132-1.6	100 kA	100 kA	MS132-1.6T	100 kA
MO132-2.5	100 kA	100 kA	MO132-2.5	100 kA	100 kA	MS132-2.5T	100 kA
MO132-4.0	100 kA	100 kA	MO132-4.0	100 kA	100 kA	MS132-4.0T	100 kA
MO132-6.3	100 kA	100 kA	MO132-6.3	100 kA	100 kA	MS132-6.3T	100 kA
MO132-10	100 kA	100 kA	MO132-10	100 kA	100 kA	MS132-10T	100 kA
MO132-12	100 kA	100 kA	MO132-12	100 kA	100 kA	MS132-12T	100 kA
MO132-16	100 kA	100 kA	MO132-16 / MO165-16	100 kA	100 kA	MS132-16T	100 kA
			MO165-20	100 kA	100 kA		
MO132-20	100 kA	100 kA	MO132-20	100 kA	100 kA	MS132-20T	100 kA
MO132-25	50 kA	50 kA	MO132-25 / MO165-25	50 kA / 100 kA	50 kA / 100 kA	MS132-25T	50 kA
MO132-32	50 kA	25 kA	MO132-32	50 kA	25 kA	Transformer protection: The instantaneous short-circuit current setting is 20 times the rated operational current.	
			MO165-32	100 kA	50 kA		
			MO165-42	50 kA	25 kA		
			MO165-54	50 kA	25 kA		
			MO165-65	50 kA	25 kA		

MS116 manual motor starters

0.10 to 32 A – with thermal and electromagnetic protection



MS116-16



MS116-25

Manual motor starters (MMS) are protection devices for the main circuit. They combine motor control and protection in a single device. MMS are used mainly to switch motors manually ON/OFF and protect them and the installation fuse-less against short-circuit, overload and phase failures. Fuse-less protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds.

Description

MS116 is a compact and economic range for motor protection up to 15.5 kW (400 V) / 32 A in width of 45 mm. Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, three-phase bus bars, power in-feed blocks and locking devices for protection against unauthorised changes are available as accessory.

Ordering details

Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
0.03	0.10 ... 0.16	50	1.56	1SAM250000R1001	MS116-0.16
0.06	0.16 ... 0.25	50	2.44	1SAM250000R1002	MS116-0.25
0.09	0.25 ... 0.40	50	3.90	1SAM250000R1003	MS116-0.4
0.12	0.40 ... 0.63	50	6.14	1SAM250000R1004	MS116-0.63
0.25	0.63 ... 1.00	50	11.50	1SAM250000R1005	MS116-1.0
0.55	1.00 ... 1.60	50	18.40	1SAM250000R1006	MS116-1.6
0.75	1.60 ... 2.50	50	28.75	1SAM250000R1007	MS116-2.5
1.5	2.50 ... 4.00	50	50.00	1SAM250000R1008	MS116-4.0
2.2	4.00 ... 6.30	50	78.75	1SAM250000R1009	MS116-6.3
4.0	6.30 ... 10.0	50	150	1SAM250000R1010	MS116-10
5.5	8.00 ... 12.0	25	180	1SAM250000R1012	MS116-12
7.5	10.0 ... 16.0	16	240	1SAM250000R1011	MS116-16
9.0	16.0 ... 20.0	10	300	1SAM250000R1013	MS116-20
12.5	20.0 ... 25.0	10	375	1SAM250000R1014	MS116-25
15.5	25.0 ... 32.0	10	480	1SAM250000R1015	MS116-32

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.
Manual motor starters should always be selected so that the actual motor current is within the setting range.

MS132 manual motor starters

0.10 to 32 A – with thermal and electromagnetic protection



MS132-10



MS132-32

Description

MS132 is a compact and powerful range for motor protection up 15.5 kW (400 V) / 32 A in width of 45 mm. This type has also a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorised changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, three-phase bus bars, power in-feed blocks.

Ordering details

Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
0.03	0.10 ... 0.16	100	1.56	1SAM350000R1001	MS132-0.16
0.06	0.16 ... 0.25	100	2.44	1SAM350000R1002	MS132-0.25
0.09	0.25 ... 0.40	100	3.90	1SAM350000R1003	MS132-0.4
0.12	0.40 ... 0.63	100	6.14	1SAM350000R1004	MS132-0.63
0.25	0.63 ... 1.00	100	11.50	1SAM350000R1005	MS132-1.0
0.55	1.00 ... 1.60	100	18.40	1SAM350000R1006	MS132-1.6
0.75	1.60 ... 2.50	100	28.75	1SAM350000R1007	MS132-2.5
1.5	2.50 ... 4.00	100	50.00	1SAM350000R1008	MS132-4.0
2.2	4.00 ... 6.30	100	78.75	1SAM350000R1009	MS132-6.3
4.0	6.30 ... 10.0	100	150	1SAM350000R1010	MS132-10
5.5	8.00 ... 12.0	100	180	1SAM350000R1012	MS132-12
7.5	10.0 ... 16.0	100	240	1SAM350000R1011	MS132-16
9.0	16.0 ... 20.0	100	300	1SAM350000R1013	MS132-20
12.5	20.0 ... 25.0	50	375	1SAM350000R1014	MS132-25
15.5	25.0 ... 32.0	25	480	1SAM350000R1015	MS132-32

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.
Manual motor starters should always be selected so that the actual motor current is within the setting range.

MS165 manual motor starters

10 to 65 A – with thermal and electromagnetic protection



2CDC241004V0015

MS165-65

Description

MS165 is a compact and powerful range for motor protection up to 30 kW (400 V) / 65 A in width of 55 mm. This type has also a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorised changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, power in-feed blocks are available as accessory. These are suitable throughout the MS116/MS132/MS165-range.

Ordering details

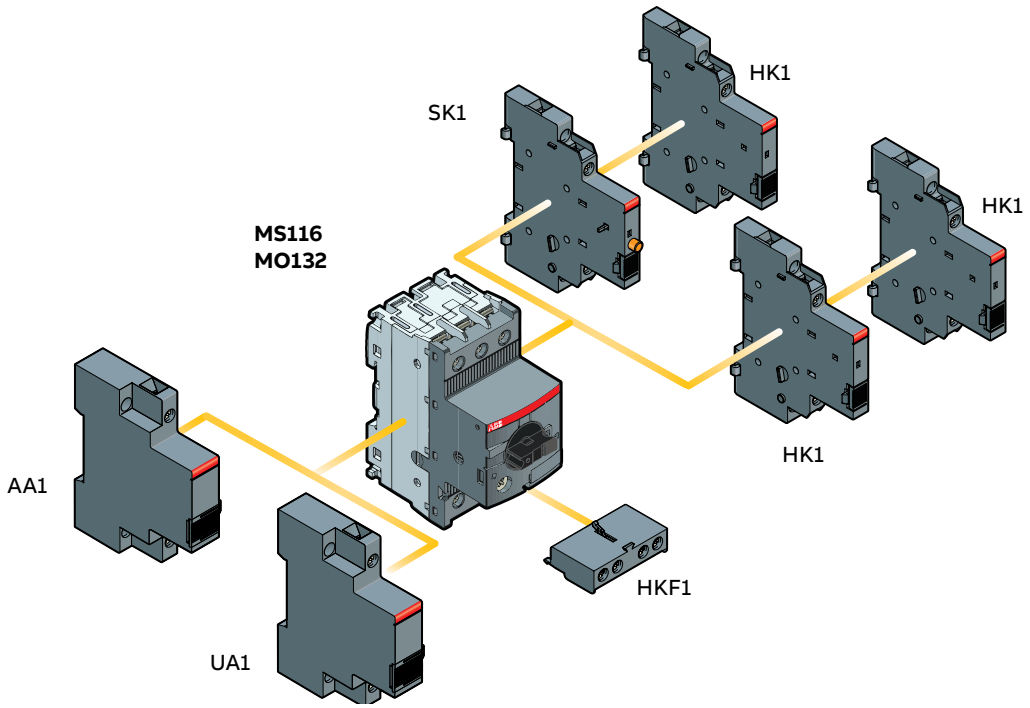
Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
7.5	10 ... 16	100	240	1SAM451000R1011	MS165-16
7.5	14 ... 20	100	300	1SAM451000R1012	MS165-20
11	18 ... 25	100	375	1SAM451000R1013	MS165-25
15	23 ... 32	75	480	1SAM451000R1014	MS165-32
22	30 ... 42	25	630	1SAM451000R1015	MS165-42
22	40 ... 54	25	810	1SAM451000R1016	MS165-54
30	52 ... 65	25	975	1SAM451000R1017	MS165-65

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.
Manual motor starters should always be selected so that the actual motor current is within the setting range.

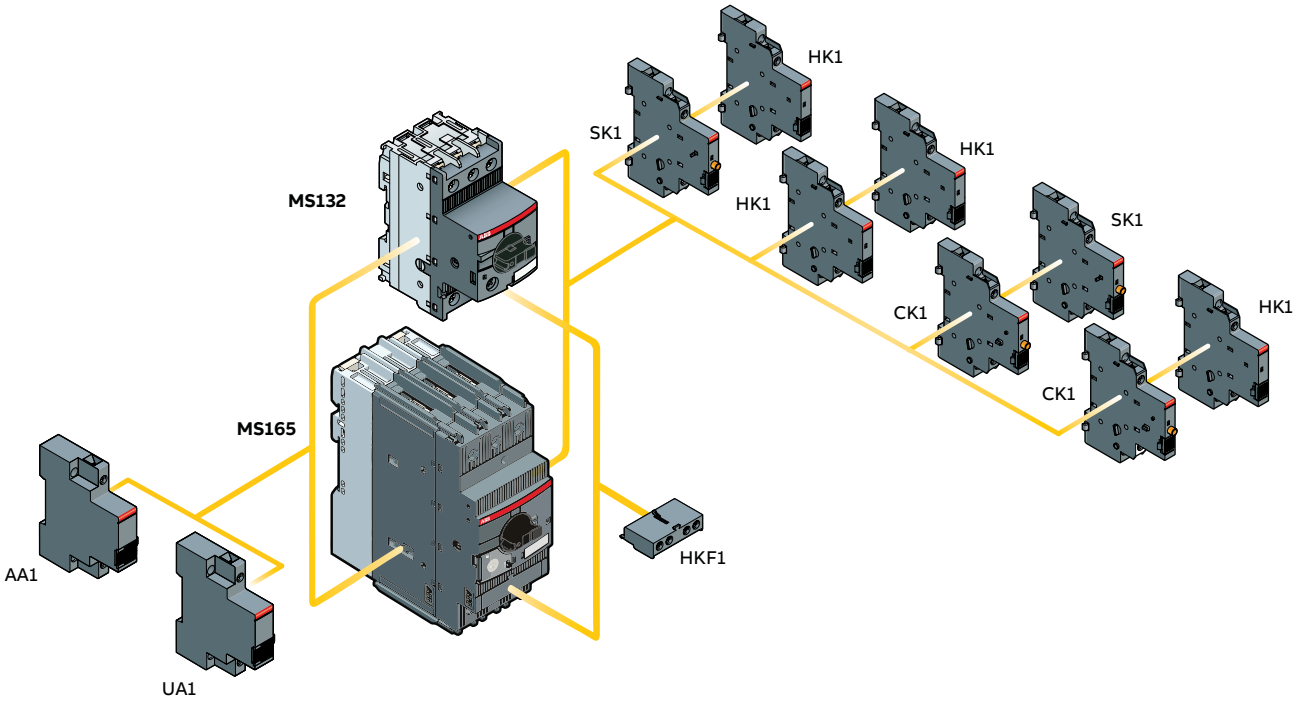
Main accessories

MS116, MS132, MS165

Manual motor starter with accessories (MS116)



Manual motor starter with accessories (MS132, MS165)



Main accessories

Auxiliary and signalling contacts



HKF1-11


HK1-11


SK1-11


CK1-11

Description

MMS and MS132-T can be equipped with auxiliary contacts for lateral/front mounting, signaling contact for lateral mounting, undervoltage release and shunt trips. Two different signaling contacts are available. The accessories can be fitted wiring free and without tools. A variety of combinations is possible as required for the application. The auxiliary contacts change position with the main contacts. The signaling contact SK signals tripping regardless if it was caused by short-circuit or overload. The signaling contact CK signals tripping in case it was caused by short-circuit. Undervoltage release are used for remote tripping of the manual motor starter especially for emergency stop circuits. Shunt trips release the MMS used for remote tripping.

Ordering details

Suitable for	Auxiliary contacts fitted		Description	Factory code	Order code
					
Auxiliary contacts – mountable on the front					
MS116, MS132, MS165	1	1		1SAM201901R1001	HKF1-11
	2	0		1SAM201901R1002	HKF1-20
Auxiliary contacts – mountable on the right					
MS116, MS132, MS165	1	1	max. 2 pieces	1SAM201902R1001	HK1-11
	2	0	max. 2 pieces	1SAM201902R1002	HK1-20
	0	2	max. 2 pieces	1SAM201902R1003	HK1-02
	2	0	with lead contacts	1SAM201902R1004	HK1-20L
Signaling contacts – mountable on the right					
MS116, MS132, MS165	1	1	for tripped alarm, max. 2 pieces	1SAM201903R1001	SK1-11
	2	0	for tripped alarm, max. 2 pieces	1SAM201903R1002	SK1-20
	0	2	for tripped alarm, max. 2 pieces	1SAM201903R1003	SK1-02
MS132, MS165	1	1	for short-circuit alarm, max. 2 pieces	1SAM301901R1001	CK1-11
	2	0	for short-circuit alarm, max. 2 pieces	1SAM301901R1002	CK1-20
	0	2	for short-circuit alarm, max. 2 pieces	1SAM301901R1003	CK1-02

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.

Main accessories

Shunt trips and undervoltage releases



AA1-24



UA1-24

Ordering details

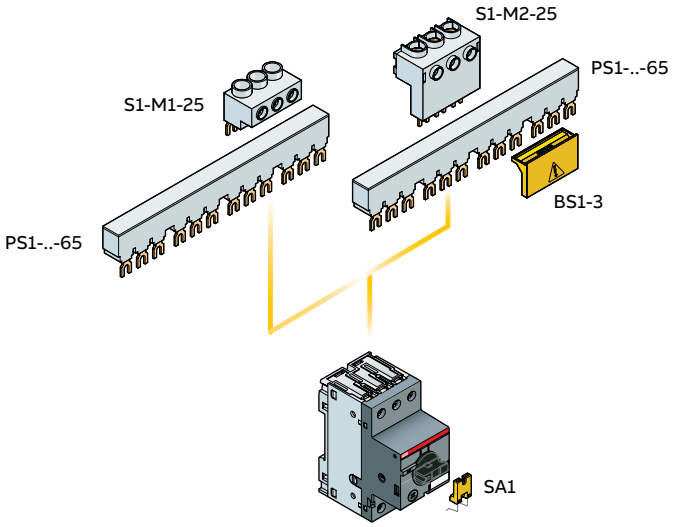
Suitable for	Rated control supply voltage		Factory code	Order code
	50 Hz V AC	60 Hz V AC		
Shunt trips – mountable on the left				
MS116, MS132, MS165	20 ... 24	20 ... 24	1SAM201910R1001	AA1-24
	110	110	1SAM201910R1002	AA1-110
	200 ... 240	200 ... 240	1SAM201910R1003	AA1-230
	350 ... 415	350 ... 415	1SAM201910R1004	AA1-400
Undervoltage releases – mountable on the left				
MS116, MS132, MS165	20	24	1SAM201904R1010	UA1-20
	24	–	1SAM201904R1001	UA1-24
	48	–	1SAM201904R1002	UA1-48
	60	–	1SAM201904R1003	UA1-60
	110	120	1SAM201904R1004	UA1-110
	–	208	1SAM201904R1008	UA1-208
	230	240	1SAM201904R1005	UA1-230
	400	–	1SAM201904R1006	UA1-400
	415	480	1SAM201904R1007	UA1-415
	–	575	1SAM201904R1009	UA1-575

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.

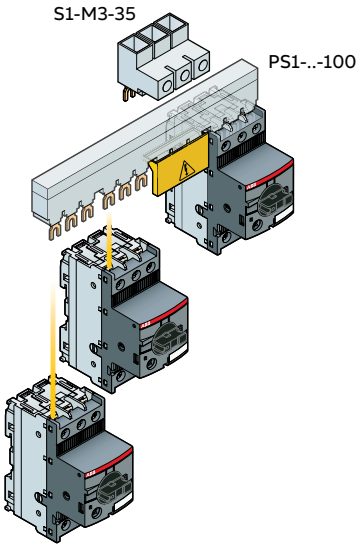
Main accessories

Three-phase busbar systems

Manual motor starter with three-phase busbar systems (MS116, MS132)

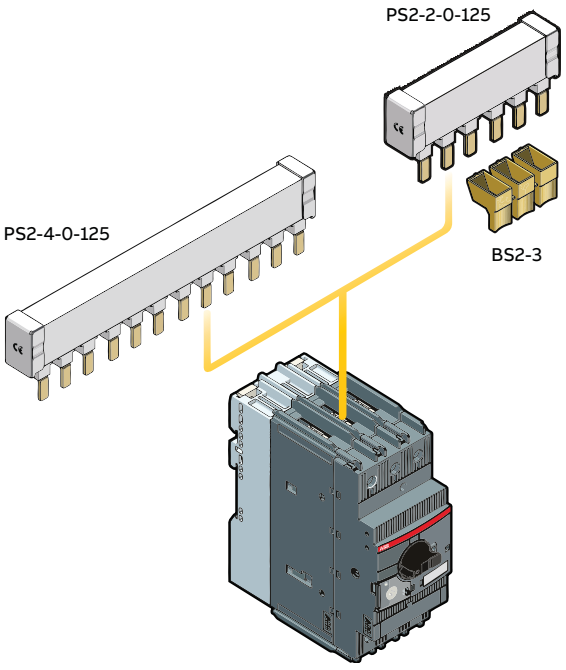


Three-phase busbar up to 65 A

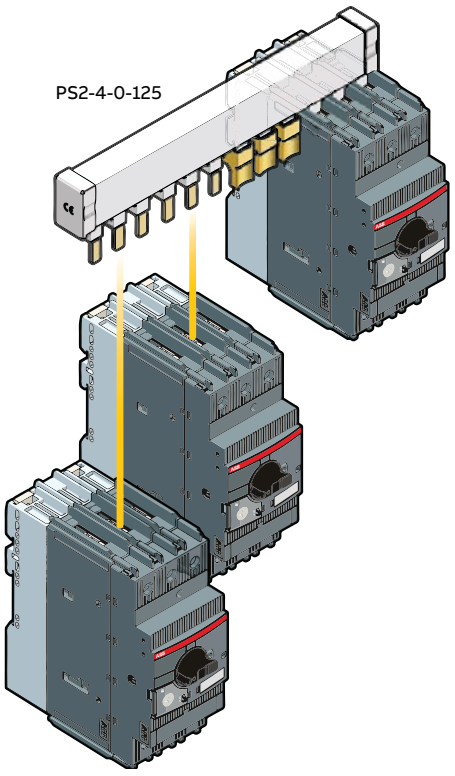


Three-phase busbar up to 100 A

Manual motor starter with three-phase busbar systems (MS165)



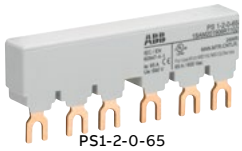
Three-phase busbar up to 125 A

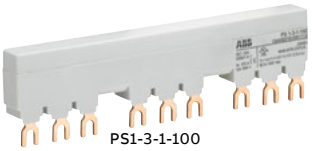


Three-phase busbar up to 125 A

Main accessories

Three-phase busbar systems


PS1-2-0-65


PS1-3-1-100


S1-M1-25


S1-M2-25


SA2


SA1


PB1-1-32


S1-PB1-25

Description

Three-phase busbars ensure a quick and safe connection and are therefore a cost effective solution. A variety of different three-phase busbars up to 100 A are in the assortment. Between 2 and 5 manual motor starters with none, one or two lateral auxiliary contacts can be connected. Different three-phase feeder terminals are available according to the application. Phase connecting links and phase power infeed blocks are also available for single-phase applications.

Ordering details

Suitable for	Rated operational current	Number of MMS	Number of lateral aux.	Factory code	Order code
	A				
Three-phase busbars					
MS116, MS132	65	2	0	1SAM201906R1102	PS1-2-0-65
	65	3	0	1SAM201906R1103	PS1-3-0-65
	65	4	0	1SAM201906R1104	PS1-4-0-65
	65	5	0	1SAM201906R1105	PS1-5-0-65
	65	2	1	1SAM201906R1112	PS1-2-1-65
	65	3	1	1SAM201906R1113	PS1-3-1-65
	65	4	1	1SAM201906R1114	PS1-4-1-65
	65	5	1	1SAM201906R1115	PS1-5-1-65
	65	2	2	1SAM201906R1122	PS1-2-2-65
	65	3	2	1SAM201906R1123	PS1-3-2-65
	65	4	2	1SAM201906R1124	PS1-4-2-65
	65	5	2	1SAM201906R1125	PS1-5-2-65
MS116, MS132	100	3	0	1SAM201916R1103	PS1-3-0-100
	100	4	0	1SAM201916R1104	PS1-4-0-100
	100	5	0	1SAM201916R1105	PS1-5-0-100
	100	3	1	1SAM201916R1113	PS1-3-1-100
	100	4	1	1SAM201916R1114	PS1-4-1-100
	100	5	1	1SAM201916R1115	PS1-5-1-100
	100	3	2	1SAM201916R1123	PS1-3-2-100

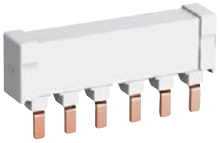
Suitable for	Rated operational current	Rated cross section	Mounting form	Factory code	Order code
	A	mm²			
Three-phase feeder terminals					
MS116, MS132	65	25	Flat	1SAM201907R1101	S1-M1-25
	65	25	High	1SAM201907R1102	S1-M2-25
	65	25	UL type E and IEC	1SAM201907R1103	S1-M3-25
	100	35	UL type E and IEC	1SAM201913R1103	S1-M3-35

Suitable for	Description	Factory code	Order code
MS116, MS132	Protection cover for busbars	1SAM201908R1001	BS1-3
MS116, MS132	Screw fixing kit	1SAM201909R1001	FS116
	Padlock + two keys	GJF1101903R0002	SA2
MS116	Lock handle	GJF1101903R0001	SA1
	Lock handle box SA1/SA2	GJF1101903R0003	SA3
Accessories for single-phase connection			
MS116, MS132	Phase connecting link	1SAM201914R1001	PB1-1-32
	Phase power infeed block	1SAM201914R1002	S1-PB1-25

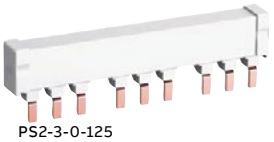
STOCK | INDENT

Main accessories

Three-phase busbar systems



PS2-2-0-125



PS2-3-0-125





KA165



BS2-3





SA2

Description

Three-phase busbars ensure a quick and safe connection and are therefore a cost effective solution. A variety of different three-phase busbars up to 125 A are in the assortment. Between 2 and 5 manual motor starters with none, one or two lateral auxiliary contacts can be connected.

Ordering details

Suitable for	Rated operational current A	Number of MMS	Number of lateral aux.	Factory code	Order code
Three-phase busbars					
MS165	125	2	0	1SAM401920R1002	PS2-2-0-125
	125	3	0	1SAM401920R1003	PS2-3-0-125
	125	4	0	1SAM401920R1004	PS2-4-0-125
	125	2	2	1SAM401920R1022	PS2-2-2-125
	125	3	2	1SAM401920R1023	PS2-3-2-125
	125	4	2	1SAM401920R1024	PS2-4-2-125

Other busbar types on request.

Suitable for	Description	Factory code	Order code
MS165	Terminal shroud	1SAM401922R1001	KA165
	Protection cover for busbars	1SAM401921R1001	BS2-3
	Padlock + two keys	GJF1101903R0002	SA2

Main accessories

IP65 enclosures and door mounting kits



IB132-Y



IB132-G



DMS132-Y



DMS132-G

Description

IB132 are IP65 enclosures for single MMS installation. Additional mounting of auxiliary and signaling contacts, shunt trips and undervoltage release is possible. The handle is lockable in OFF position. For detailed specification see installation instruction. DMS132 are IP65 door mounting kits for MMS installation in any enclosure. Additional mounting of auxiliary, signaling, shunt trips and undervoltage release is possible. The handle is lockable in OFF position. For detailed specification see installation instruction.

Ordering details

Suitable for	Description	Colour	Factory code	Order code
IP65 enclosures (UL: Type 12)				
MS116, MS132	Padlockable max. 3 padlocks with bail diameter 4 ... 6.5 mm	Yellow/red	1SAM201911R1011	IB132-Y
		Grey/black	1SAM201911R1010	IB132-G
IP65 door mounting kits (UL: Type 12)				
MS116, MS132	Padlockable max. 3 padlocks with bail diameter 4 ... 6.5 mm	Yellow/red	1SAM201912R1011	DMS132-Y
		Grey/black	1SAM201912R1010	DMS132-G

Note:
Indication I-O-T and ON-OFF-T
Please check for further equipment chapter General accessories.
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.

STOCK | INDENT

MS495, MS497 manual motor starters

40 to 100 A – with thermal and electromagnetic protection



MS5100-100



MS497-100

Description

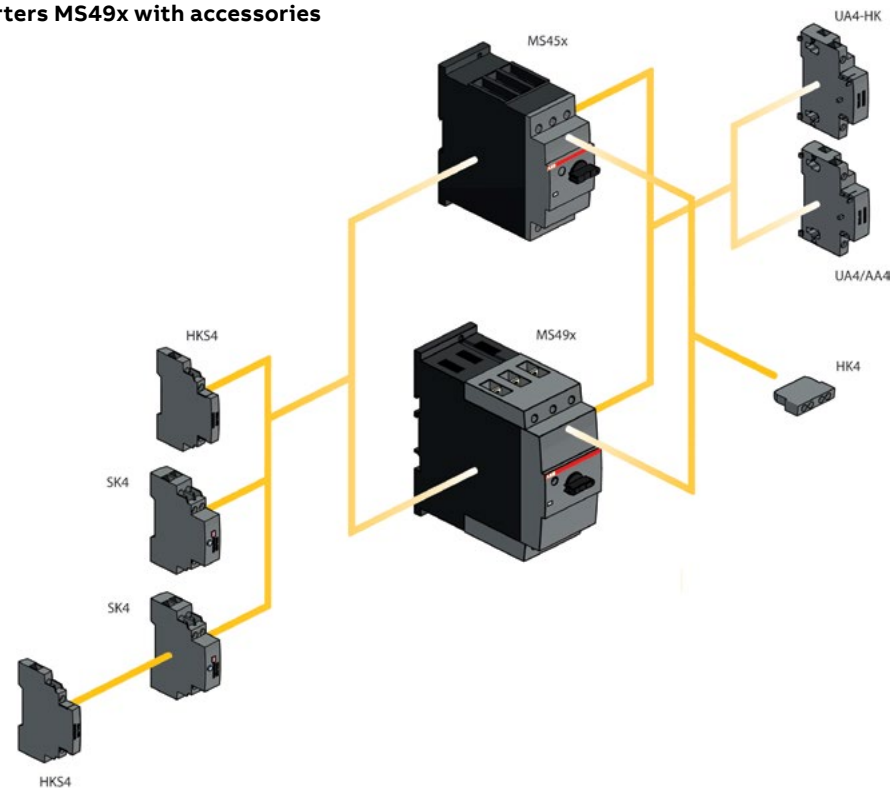
Manual motor starters (MMS) are protection devices for the main circuit. They combine motor control and protection in a single device. MMS are used mainly to switch motors manually ON/OFF and protect them and the installation fuse-less against short-circuit, overload and phase failures 1). Fuse-less protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds.

Ordering details

Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
MS495 manual motor starters					
37	57.0 ... 75.0	25	975.00	1SAM550000R1008	MS495-75
45	70.0 ... 90.0	25	1170.00	1SAM550000R1009	MS495-90
55	80.0 ... 100.0	25	1235.00	1SAM550000R1010	MS495-100
MS497 manual motor starters					
37	57.0 ... 75.0	50	975.00	1SAM580000R1008	MS497-75
45	70.0 ... 90.0	50	1170.00	1SAM580000R1009	MS497-90
55	80.0 ... 100.0	50	1235.00	1SAM580000R1010	MS497-100

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.

Manual motor starters MS49x with accessories



STOCK | INDENT

MS495, MS497 manual motor starters

Auxiliary and signalling contacts/shunt trips and undervoltage releases


HK4-11


HKS4-20


SK4-11

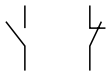

AA4-24


UA4-110

Description

Manual motor starters can be equipped with auxiliary contacts for lateral/front mounting, signalling contact for lateral mounting, undervoltage release and shunt trips. The accessories can be fitted wiring free and without tools. A variety of combinations is possible as required for the application. The auxiliary contacts change position with the main contacts. Undervoltage release are used for remote tripping of the manual motor starter especially for emergency stop circuits. Shunt trips release the MMS used for remote tripping.

Ordering details

Suitable for	Auxiliary contacts fitted		Description	Factory code	Order code
					
Auxiliary contacts – mountable on the front					
MS49x	1	1		1SAM401901R1001	HK4-11
			Changeover	1SAM401901R1002	HK4-W
Auxiliary contacts – mountable on the left					
MS49x	1	1	Max. 1 piece	1SAM401902R1001	HKS4-11
	2	0	Max. 1 piece	1SAM401902R1002	HKS4-20
	0	2	Max. 1 piece	1SAM401902R1003	HKS4-02
Signalling contacts – mountable on the left					
MS49x	2	2	Separate signalling acc. UL508E 1 N.O. + 1 N.C. for short circuit alarm and 1 N.O. + 1 N.C. for tripped alarm, max. 1x SK4-11 + 1 x HKS4-xx	1SAM401904R1001	SK4-11

Suitable for	Rated control supply voltage	Frequency	Factory code	Order code
	V	Hz		
Shunt trip units – mountable on the right				
MS49x	20 ... 24	50/60	1SAM401907R1001	AA4-24
	90 ... 110	50/60	1SAM401907R1002	AA4-110
	200 ... 240	50/60	1SAM401907R1003	AA4-230
	350 ... 415	50/60	1SAM401907R1004	AA4-400
Undervoltage releases – mountable on the right				
MS49x	4.4 mm	50/60	1SAM401905R1004	UA4-24
	110/120	50/60	1SAM401905R1001	UA4-110
	230/240	50/60	1SAM401905R1002	UA4-230
	400/440	50/60	1SAM401905R1003	UA4-400
	230/240	50/60	1SAM401906R1001	UA4-HK-230
	400/440	50/60	1SAM401906R1002	UA4-HK-400

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.

IP64 door handles and accessories

Main accessories



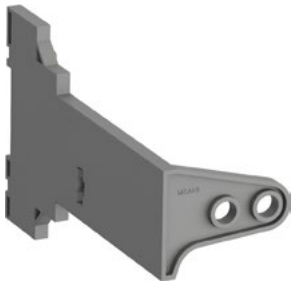
MSHD-LB



MSHD-LY


MSMN


MSH-AR


MSAH1

Description

With this solution of door coupling rotary mechanism it is possible to operate a Manual Motor Starter in the back of a switch cabinet from outside. The door coupling mechanism prevents opening of the door of a switch cabinet with the Manual Motor Starter in ON position.

The complete mechanism includes handle, shaft, driver, shaft alignment ring and shaft supporter.

All accessories fit for 6 mm shafts with a maximum length of 180 mm. The degree of protection for handles MSHD is IP64.

Ordering details

Suitable for	Description	Shaft length mm	Colour	Factory code	Order code
Shafts					
MS116, MS132, MS165, MS4xx	For MSHD handles. Shaft diameter 6 mm. Shaft extension for door coupling driver.	85		1SCA101647R1001	OXS6X85
		105		1SCA108043R1001	OXS6X105
		130		1SCA101655R1001	OXS6X130
		180		1SCA101659R1001	OXS6X180
IP64 handles (UL: Type 1, 3R, 12)					
MS116, MS132, MS165, MS4xx	Padlockable max. 3 padlocks with bail diameter 5 ... 8 mm, door interlock in ON position defeatable, for use with 6 mm OXS6...types up to 180 mm or driver shafts MSOX.		Black	1SAM201920R1001	MSHD-LB [1]
			Yellow	1SAM201920R1002	MSHD-LY [1]
			Black	1SAM201920R1011	MSHD-LTB [2]
			Yellow	1SAM201920R1012	MSHD-LTY [2]
Driver					
MS116, MS132, MS165, MS4xx	Coupling driver for use with 6 mm OXS6... types up to 180 mm.			1SAM101923R0002	MSMN [3]
				1SAM101923R0012	MSMNO [4]
Shaft alignment ring					
MS116, MS132, MS165, MS4xx	The MSH-AR supports the long shafts for alignment to the handle inlet. It makes closing panel doors more easy. Use for OXS6X > 105 mm.			1SAM201920R1000	MSH-AR
Shaft supporter					
MS116, MS132	With the MSAH it is possible to support the shaft in the extension of handle (MSHD). It is mandatory for the usage of shafts >130 mm.			1SAM201909R1021	MSAH1

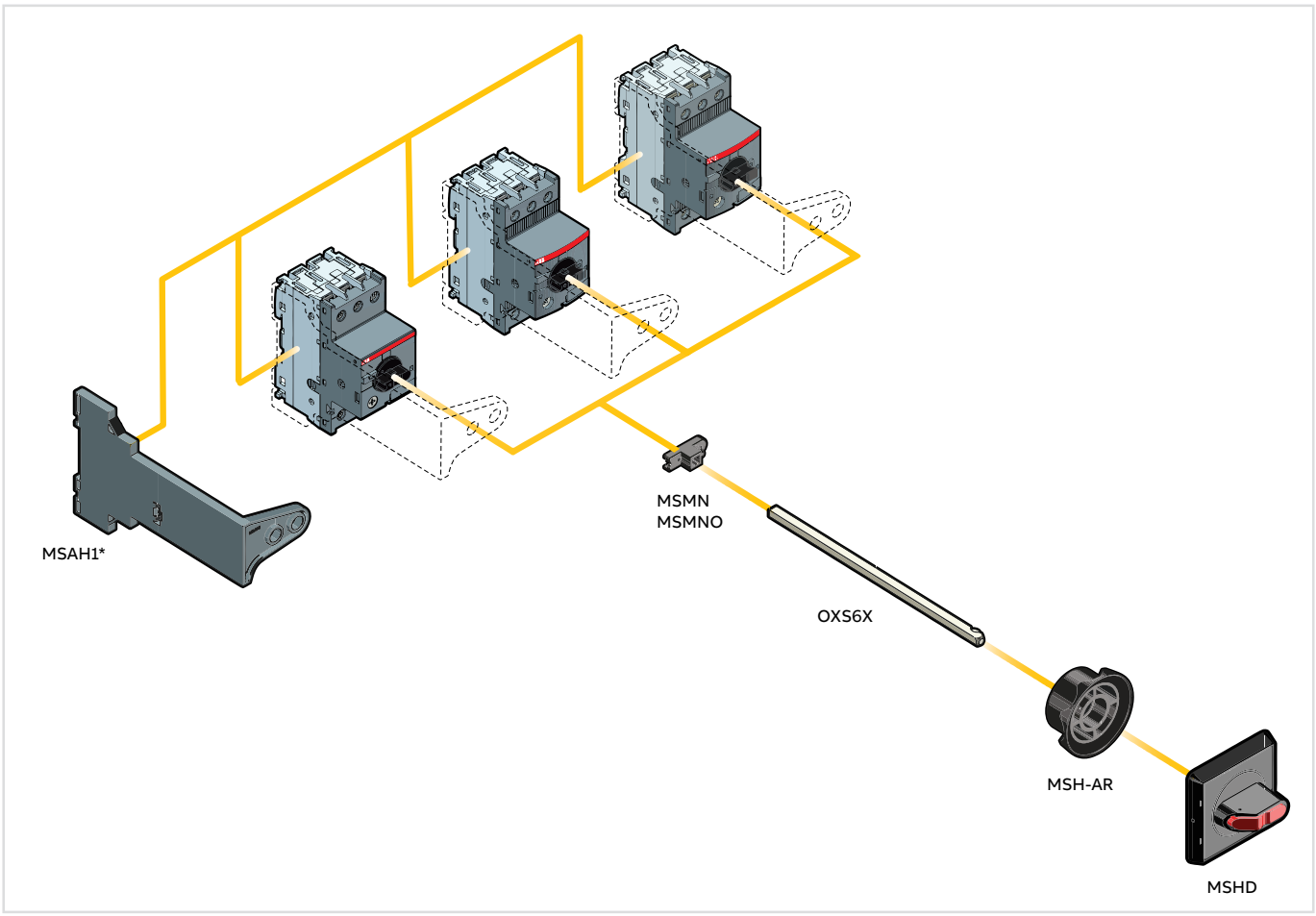
Note:

1) Indication I-O and ON-OFF (recommended for MS116, MS4xx)
2) Indication I-O and ON-OFF + Trip indication
3) Coded - Positioning of ON indication dependent from mounting orientation of the MMS
4) Uncoded - Positioning of ON indication independent from mounting orientation of the MMS

For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0206.

IP64 door handles and accessories

Main accessories



* MSAH1 fits to MS116 and MS132

STOCK | INDENT


ABB

Contactors and relays

468	Mini contactors and contactor relays
474	ESB installation contactors
477	New ESB / EN installation contactors
480	AF 3-pole contactors
492	AF 4-pole contactors
502	NF 4-pole and 8-pole contactor relays
505	Contactors for capacitor switching
506	Coil voltage code table
509	New safety contactors
511	Bar contactors

For more detailed product information, please refer to the Technical Catalogue:

- Motor Protection and Control: main catalogue – 1SBC100192C0206
- ESB Installation Contactors: main catalogue – 2CDC103023C0201

Mini contactors and contactor relays

Overview

Mini contactors




				Screw terminals			
AC Control supply							
3–pole contactors		Coil consumption 3.5 W	Type	B6	B7	–	–
3–pole reversing contactors		Coil consumption 3.5 W	Type	–	–	VB6 VB6A[2]	VB7 VB7A[2]
4–pole contactors		Coil consumption 3.5 W	Type	B6	B7	–	–
DC Control supply							
3–pole contactors		Coil consumption 3.5 W	Type	BC6	BC7 B7D[1]	–	–
3–pole interface contactors		Coil consumption 1.4 ... 2.4 W	Type	BC6	BC7	–	–
3–pole reversing contactors		Coil consumption 3.5 W	Type	–	–	VBC6 VBC6A[2]	VBC7 VBC7A[2]
4–pole contactors		Coil consumption 3.5 W	Type	BC6	B7D		
Wide range types		Extended coil voltage and temperature	Type	–	TBC7		
PLC types		Coil consumption 1.7 W	Type	B6S[1]	B7S[1]		
IEC	Rated operational power AC–3	220–230–240 V	kW	2.2	3	2.2	3
		380–400 V	kW	4	5.5	4	5.5
	Rated operational current AC–1	400 V, θ ≤ 40 °C	A	20	20	20	20

1) With integrated surge suppressor
2) With safety blocking function

Main accessories			
Auxiliary contact blocks	Front mounting		CAF6
	Side mounting		CA6
Connection sets	For reversing contactors		BSM630
Surge suppressors	Varistor (AC/DC)		RV-BC6
Overload relays			
Thermal overload relays Thermal and phase failure protection, with single setup possible		Class 10	T16
Electronic overload relays With single setup possible	Class 10E, 20E, 30E		E16DU
Manual motor starters			
Thermal / magnetic protection		Class 10	MS116, MS132
Magnetic only types			MO132
Connecting link to manual motor starters			BEA7/132

Contactors relays



				Screw terminals
AC Control supply				
4-pole contactor relays		Coil consumption 3.5 W	Type	K6
DC Control supply				
4-pole contactor relays		Coil consumption 3.5 W	Type	KC6
4-pole interface contactor relays		Coil consumption 1.4 ... 2.4 W	Type	KC6
Wide range types		Extended coil voltage and temperature	Type	TKC6
IEC	Rated operational current AC-15	220-230-240 V	A	4
		380-400 V	A	3
	Rated operational current DC-13	24 V	A	2.5

Main accessories			
Auxiliary contact blocks	Front mounting		CAF6
	Side mounting		CA611K






Soldering pins*				**Flat pins***			
B6...P	B7...P	–	–	B6...F	B7...F	–	–
–	–	VB6...P VB6A...P[2)]	VB7...P VB7A...P[2)]	–	–	VB6...F VB6A...F[2)]	VB7...F VB7A...F[2)]
–	–	–	–	–	–		
BC6...P	BC7...P B7D...P1)	–	–	BC6...F	BC7...F B7D...F[1)]	–	–
BC6...P	BC7...P	–	–	BC6...F	BC7...F	–	–
–	–	VBC6...P VBC6A...P[2)]	VBC7...P VBC7A...P[2)]	–	–	VBC6...F VBC6A...F[2)]	VBC7...F VBC7A...F[2)]
–	–			–	–		
2.2	3	2.2	3	2.2	3	2.2	3
4	5.5	4	5.5	4	5.5	4	5.5
12	12	12	12	20	20	20	20
–				–			
CA611KP				CA611KF			
–				–			
–				–			
–				–			
–				–			
MS116, MS132				MS116, MS132			
MO132				MO132			
–				–			




Soldering pins*	**Flat pins***
K6...P	K6...F
KC6...P	KC6...F
KC6...P	KC6...F
4	4
3	3
2.5	2.5
–	–
CA611KP	CA611KF

*** For more information:** see Motor protection and control – main catalogue

B6, B7, BC6, BC7 3-pole mini contactors

AC or DC operated with screw terminals – 4 to 5.5 kW



B6-30-10



B7-30-01



BC6-30-10



BC7-30-01

Description

Mini contactors are space optimized control products for switching resistive or motor loads. Compact motor starting modules up to 5.5 kW can be realized with small space as a premium.

- possible to add 1 auxiliary-contact block at top or on side
- surge suppressors and accessories for wiring and connecting link available
- see Ordering details on page 518 in the **Thermal and electronic overload relays** chapter for suitable overloads

3-pole mini contactors with screw terminals

IEC Rated		Rated control voltage UC		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current θ ≤ 40 °C AC-1	50 Hz					
kW	A	V AC	V DC				
4	16	24		1	0	GJL1211001R0101	B6301001
		24		0	1	GJL1211001R0011	B6300101
		220 ... 240		1	0	GJL1211001R8100	B6301080
		220 ... 240		0	1	GJL1211001R8010	B6300180
5.5	20	24		1	0	GJL1311001R0101	B7301001
		24		0	1	GJL1311001R0011	B7300101
		220 ... 240		1	0	GJL1311001R8100	B7301080
		220 ... 240		0	1	GJL1311001R8010	B7300180
4	16		24	1	0	GJL1213001R0101	BC6301001
			24	0	1	GJL1213001R0011	BC6300101
5.5	20		24	1	0	GJL1313001R0101	BC7301001
			24	0	1	GJL1313001R0011	BC7300101

Other coil voltages and auxiliary contact arrangements are available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

VB6, VB7, VBC6, VBC7 3-pole mini reversing contactors

AC or DC operated with screw terminals – 4 to 5.5 kW



VB6-30-01



VB7-30-10



VBC6-30-10



VBC7-30-10

3-pole mini reversing contactors with screw terminals

IEC Rated		Rated control voltage UC		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current θ ≤ 40 °C AC-1	50 Hz					
kW	A	V AC	V DC				
4	16	24		1	0	GJL1211901R0101	VB6301001
		24		0	1	GJL1211901R0011	VB6300101
		220 ... 240		1	0	GJL1211901R8100	VB6301080
		220 ... 240		0	1	GJL1211901R8010	VB6300180
5.5	20	24		1	0	GJL1311901R0101	VB7301001
		24		0	1	GJL1311901R0011	VB7300101
		220 ... 240		1	0	GJL1311901R8100	VB7301080
		220 ... 240		0	1	GJL1311901R8010	VB7300180
4	16		24	1	0	GJL1213901R0101	VBC6301001
			24	0	1	GJL1213901R0011	VBC6300101
5.5	20		24	1	0	GJL1313901R0101	VBC7301001
			24	0	1	GJL1313901R0011	VBC7300101

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

STOCK | INDENT

B6, B7, BC6, BC7 4-pole mini contactors and K6, KC6 4-pole mini contactor relays

Operated with screw terminals – 4 to 5.5 kW



B6-22-00



BC6-22-00



K6-22Z



KC6-40E

4-pole mini contactors

IEC Rated		Rated control voltage UC		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current θ ≤ 40 °C AC-1	50 Hz					
kW	A	V AC	V DC				
4-pole mini contactors with screw terminals							
4	16	24		4	0	GJL1211201R0001	B6400001
5.5	20	24		4	0	GJL1311201R0001	B7400001
4	16		24	4	0	GJL1213201R0001	BC6400001
5.5	20		24	4	0	GJL1313201R0001	BC7400001
4	16	24		2	2	GJL1211501R0001	B6220001
5.5	20	24		2	2	GJL1311501R0001	B7220001
4	16		24	2	2	GJL1213501R0001	BC6220001
5.5	20		24	2	2	GJL1313501R0001	BC7220001
4-pole mini contactor relays with screw terminals							
–	4	220 ... 240		2	2	GJH1211001R8220	K622Z80
		220 ... 240		3	1	GJH1211001R8310	K631Z80
		220 ... 240		4	0	GJH1211001R8400	K640E80
			24	2	2	GJH1213001R0221	KC622Z01
			110 ... 125	2	2	GJH1213001R0224	KC622Z04
			24	3	1	GJH1213001R0311	KC631Z01
			110 ... 125	3	1	GJH1213001R0314	KC631Z04
			24	4	0	GJH1213001R0401	KC640E01
			110 ... 125	4	0	GJH1213001R0404	KC640E04

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

STOCK | INDENT

B mini contactor and K mini contactor relays
Accessories



CA611E

Side mounted instantaneous auxiliary contact block[1]

Suitable for	Auxiliary contacts		Factory code	Order code
K6 and KC6	1	1	GJL1201317R0001	CA611K
B6(7)-40-00 and BC6(7)-40-00	1	1	GJL1201317R0002	CA611E
B6(7)-30-10 and BC6(7)-30-10	1	1	GJL1201317R0003	CA611M
B6(7)-30-01 and BC6(7)-30-01	1	1	GJL1201317R0004	CA611N

1) Auxiliary Switches CA 6 and CAF 6 may not be fitted simultaneously



CAF611N

Front mounted instantaneous auxiliary contact block[1]

Suitable for	Auxiliary contacts		Factory code	Order code
K6 and KC6	1	1	GJL1201330R0001	CAF611K
K6 and KC6	2	0	GJL1201330R0005	CAF620K
K6 and KC6	0	2	GJL1201330R0009	CAF602K
B(C)6-, B(C)7-40-00, VB(C)...(A)	1	1	GJL1201330R0002	CAF611E
B(C)6-, B(C)7-40-00, VB(C)...(A)	2	0	GJL1201330R0006	CAF620E
B(C)6-, B(C)7-40-00, VB(C)...(A)	0	2	GJL1201330R0010	CAF602E
B(C)6-, B(C)7-30-10, VB(C)...(A)	1	1	GJL1201330R0003	CAF611M
B(C)6-, B(C)7-30-10, VB(C)...(A)	2	0	GJL1201330R0007	CAF620M
B(C)6-, B(C)7-30-10, VB(C)...(A)	0	2	GJL1201330R0011	CAF602M
B(C)6-, B(C)7-30-01, VB(C)...(A)	1	1	GJL1201330R0004	CAF611N
B(C)6-, B(C)7-30-01, VB(C)...(A)	2	0	GJL1201330R0008	CAF620N
B(C)6-, B(C)7-30-01, VB(C)...(A)	0	2	GJL1201330R0012	CAF602N

1) Auxiliary Switches CA 6 and CAF 6 may not be fitted simultaneously


BSM630

Reversing connecting link

Description	Factory code	Order code
VB, VBC with Screw Connection	GJL1201908R0001	BSM630


LP6

Parallel connecting link

Description	Factory code	Order code
B, BC, with Screw Connection	GJL1201907R0001	LP6

STOCK | INDENT

ESB installation contactors

AC / AC-DC operated – with screw terminals


ESB20


ESB24


ESB40


ESB63

Description

ESB20 contactors are used for the control of single phase loads up to 20 A.
They operate with an AC coil. ESB24/ESB40/ESB63 contactors are used for the control of single and three-phases loads up to 63 A. Due to their DC solenoid actuator, they can be connected to AC or DC voltages. This provides the following benefits:

- Hum-free operating system, low power consumption, integrated high overvoltage protection
- One add-on auxiliary contact block for side mounting can be used with ESB24, ESB40 & ESB63

IEC Rated curent θ ≤ 40°C AC-1/AC-7a	IEC Rated motor load AC-3/AC-7b	Rated control voltage U_c		Main poles		Factory code	Order code
A	kW	V 50Hz	DC				
2 main poles, 3 or 4 main poles							
20	1,1	24 V		2	0	GHE3211102R0001	ESB202024
		230 V		2	0	GHE3211102R0006	ESB2020230
		240 V		2	0	GHE3211102R0005	ESB2020240
		24 V		0	2	GHE3211202R0001	ESB200224
		230 V		0	2	GHE3211202R0006	ESB2002230
		240 V		0	2	GHE3211202R0005	ESB2002240
		24 V		1	1	GHE3211302R0001	ESB201124
		230 V		1	1	GHE3211302R0006	ESB2011230
		240 V		1	1	GHE3211302R0005	ESB2011240
24	4	24 V	24 V	2	0	GHE3291402R0001	ESB242024
		230 V	230 V	2	0	GHE3291402R0006	ESB2420230
40	22	24 V	24 V	2	0	GHE3491402R0001	ESB402024
		230 V	230 V	2	0	GHE3491402R0006	ESB4020230
24	4	24 V	24 V	4	0	GHE3291102R0001	ESB244024
		230 V	230 V	4	0	GHE3291102R0006	ESB2440230
		24 V	24 V	0	4	GHE3291202R0001	ESB240424
		230 V	230 V	0	4	GHE3291202R0006	ESB2404230
		24 V	24 V	2	2	GHE3291302R0001	ESB242224
		230 V	230 V	2	2	GHE3291302R0006	ESB2422230
		24 V	24 V	3	1	GHE3291602R0001	ESB243124
		230 V	230 V	3	1	GHE3291602R0006	ESB2431230
40	22	24 V	24 V	4	0	GHE3491102R0001	ESB404024
		230 V	230 V	4	0	GHE3491102R0006	ESB4040230
		240 V	240 V	4	0	GHE3491102R0005	ESB4040240
		24 V	24 V	2	2	GHE3491302R0001	ESB402224
		230 V	230 V	2	2	GHE3491302R0006	ESB4022230
		24 V	24 V	3	1	GHE3491602R0001	ESB403124
		230 V	230 V	3	1	GHE3491602R0006	ESB4031230
		24 V	24 V	3	0	GHE3491502R0001	ESB403024
		230 V	230 V	3	0	GHE3491502R0006	ESB4030230
63	30	24 V	24 V	4	0	GHE3691102R0001	ESB634024
		230 V	230 V	4	0	GHE3691102R0006	ESB6340230
		240 V	240 V	4	0	GHE3691102R0005	ESB6340240
		230 V	230 V	3	1	GHE3691602R0006	ESB6331230

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 2CDC103023C0201

Ordering details accessories



EH04 ...



ESBPLK24



ESBDIS

Description		Factory code	Order code
Aux. switches	2 N.O.	1SAE901901R1020	EH0420N
	1 N.O. + 1 N.C.	1SAE901901M1011	EH0411N
Distance piece	ESB25..N, ESB40..N, ESB63..N,	GHE3201902R0001	ESBDIS[1]
	EN25..N, EN40..N, ESB100..N,	GHE3201903R0001	ESBPLK24
Sealing covers	ESB25..N, EN25..N	GHE3401903R0001	ESB-PLK40/63
	ESB40..N, ESB63..N	GHE3201903R0002	ESBSPK24
Protection Cover	ESB25..N	GHE3401903R0002	ESBSPK40/63
	ESB40..N, ESB63..N		

1) If several contactors are mounted adjacently and the ON time is longer than one hour, every second contactor needs a distance piece,Type ESB-DIS (1/2 module). This is not necessary at an ambient temperature ≤ 40 °C or on Type ESB16..N and ESB/EN20..N.

STOCK | INDENT

Lamp load table

Please note: Switching lamps is a capacitor load application where high inrush current peaks could occur. These are influenced by the length and cross section of the wire as well as the type of power supply unit and specifications of the lamp brand. For example long cables can increase the possible number of lamps per pole. The table shows the allowed max. current for 1 pole and considers already the startup current peaks.

The following selection table show the current values and the maximum switchable capacitor load for compensated lamps. These two limits have to be considered in the selection of contactors

		ESB20	ESB24	ESB40	ESB63
Permitted compensating capacity per phase	Cmax [µF]	75	100	350	500
Lamp types		Maximum load of the current paths during switching of electric lamps Ie [A]			
Incandescent and halogen lamps (230 V)	Ie [A]	6	7	20	30
Mixing lamps without ballast	Ie [A]	6	7	20	30
Fluorescent lamps with conventional ballast					
single lamp uncompensated	Ie [A]	9	22	36	56
single lamp parallel compensated	Ie [A]	3	3.5	10	15
series compensation, duo circuit	Ie [A]	9	22	36	56
Fluorescent lamps with electronic ballast or CFL	Ie [A]	3	7	20	30
LED lamps	Ie [A]	31)	7	20	30
High pressure mercury-vapor lamps					
single lamp without compensation	Ie [A]	9	11	18	28
single lamp with parallel compensation	Ie [A]	3	3.5	10	15
Halogen metal-vapor lamps					
single lamp without compensation	Ie [A]	9	11	18	28
single lamp with parallel compensation	Ie [A]	3	3.5	10	15
High pressure sodium-vapor lamps					
single lamp without compensation	Ie [A]	9	11	18	28
single lamp with parallel compensation	Ie [A]	3	3.5	10	15
Low pressure sodium-vapor lamps					
single lamp without compensation	Ie [A]	9	11	18	28
single lamp with parallel compensation	Ie [A]	3	3.5	10	15
Electronic ballast devices	Ie [A]	3	7	20	30



Example of lamp load calculation:
Due to many varieties of lamps and ballasts we advise to take the current load as base for reference. The lamp table considers already the inrush peaks and other lamp parameters.
The formula I=P/U can be used for calculation if only the voltage and power is known.

Please see the following examples for a reliable project lamp calculation:

- Fluorescent lamp with conventional ballast, uncompensated,
  the lamp operating current I = 1.5 A, voltage U = 230 V
  1 pole of ESB24 can be loaded with max. 22 A, see lamp table => 22A/1.5A = 14.66 => 14 lamps
  1 pole of ESB20 can be loaded with max. 9 A, see lamp table => 9A/1.5A = 6 => 6 lamps
- Fluorescent lamp with conventional ballast, uncompensated,
  the lamp power P = 140 W, U = 230 V, I = P/U = 140/230 = 0.6 A
  1 pole of ESB24 can be loaded with max. 22 A, see lamp table => 22A/0.6A = 36.66 => 36 lamps
  1 pole of ESB20 can be loaded with max. 9 A, see lamp table => 9A/0.6A = 15 => 15 lamps



Powerful light switching made easy

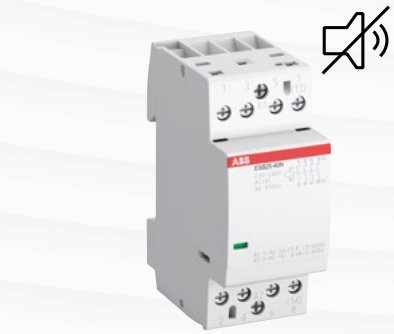
ESB and EN installation contactors

ABB's hum-free installation contactor designs offer a wide range of ratings from 16 A to 100 A. With an innovative AC/DC coil design that eliminates hum, a broad selection of common accessories as well as manual and automatic versions, ESB..N contactors cover all your needs in both domestic and residential applications. Find out more at **abb.com/lowvoltage**

New ESB / EN installation contactors

Features and benefits

Available from July 2018



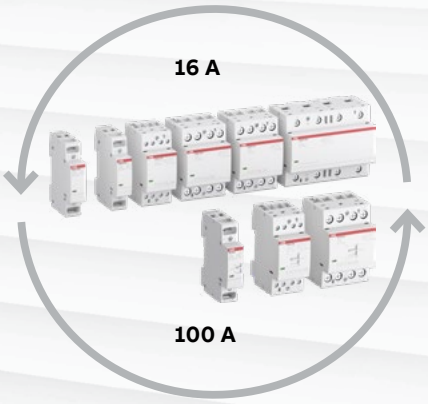
Noise-free operation

With an innovative AC/DC design that eliminates hum, therange meets the needs of applications demanding silent operation, for example hotel rooms and residential buildings.



Built-in protective circuit

Protect the contactor without additional space-demanding components against remote lightning strikes and overvoltages.



Comprehensive solution

ABB's ESB and EN installation contactors range offers a complete solution from 16A to 100A, offering an answer to all customer needs from a single supplier. With 16 A, 25 A and 100 A versions, tender specifications can be met with competitive pricing.

New ESB / EN installation contactors

Available from July 2018

Description

ESB16 contactors are used for the control of single phase loads up to 20 A. They operate with an AC/DC coil. ESB25/ESB40/ESB63/ESB100 contactors are used for the control of single and three-phases loads up to 63 A. Due to their DC solenoid actuator, they can be connected to AC or DC voltages.

This provides the following benefits:

- Hum-free operating system, low power consumption, integrated high overvoltage protection
- One add-on auxiliary contact block for side mounting can be used with ESB25, ESB40, ESB63 and ESB100.

IEC Rated curent θ ≤ 40°C AC-1/AC-7a	Rated Control Voltage Uc	Main poles		Factory code	Order code
A	AC/DC				
2 main poles, 3 or 4 main poles					
16	24	2	0	1SBE111111R0120	ESB1620N01
	24	1	1	1SBE111111R0111	ESB1611N01
	230	2	0	1SBE111111R0620	ESB1620N06
	230	1	1	1SBE111111R0611	ESB1611N06
20	24	2	0	1SBE121111R0120	ESB2020N01
	230	0	2	1SBE121111R0602	ESB2002N06
	230	1	1	1SBE121111R0611	ESB2011N06
	230	2	0	1SBE121111R0620	ESB2020N06
25	24	4	0	1SAE231111R0140	ESB2540N01
	230...240	2	0	1SAE231111R0620	ESB2520N06
	230...240	3	0	1SAE231111R0630	ESB2530N06
	230...240	4	0	1SAE231111R0640	ESB2540N06
	230...240	0	4	1SAE231111R0604	ESB2504N06
	230...240	3	1	1SAE231111R0631	ESB2531N06
	230...240	2	2	1SAE231111R0622	ESB2522N06
40	24	2	0	1SAE341111R0122	ESB4022N01
	24	3	0	1SAE341111R0130	ESB4030N01
	24	4	0	1SAE341111R0140	ESB4040N01
	24	2	2	1SAE341111R0122	ESB4022N01
	230	2	0	1SAE341111R0620	ESB4020N06
	230	3	0	1SAE341111R0630	ESB4030N06
	230	4	0	1SAE341111R0640	ESB4040N06
	230	2	2	1SAE341111R0622	ESB4022N06
63	24	4	0	1SAE351111R0140	ESB6340N01
	230	2	0	1SAE351111R0620	ESB6320N06
	230	3	0	1SAE351111R0630	ESB6330N06
	230	3	1	1SAE351111R0631	ESB6331N06
	230	4	0	1SAE351111R0640	ESB6340N06
	230	2	2	1SAE351111R0622	ESB6322N06
	230	1	1	1SAE351111R0611	ESB6311N06
100	24	2	0	1SAE361111R0120	ESB10020N01
	24	4	0	1SAE661111R0140	ESB10040N01
	230	2	0	1SAE361111R0620	ESB10020N06
	230	4	0	1SAE361111R0640	ESB10040N06

Other control voltages: see voltage code table and contact ABB for availability of products
For more detailed product information, please refer to the Technical Catalogue: 2CDC103034C0201

Ordering details accessories

Description		Factory code	Order code
Aux. switches	2 N.O.	1SAE901901R1020	EH0420N
	1 N.O. + 1 N.C.	1SAE901901M1011	EH0411
Distance piece	ESB25..N, ESB40..N, ESB63..N	GHE3201902R0001	ESBDIS[1)]
	EN25..N, EN40..N, ESB100..N		
Sealing covers	ESB25..N, EN25..N	GHE3201903R0001	ESBPLK24
	ESB40..N, ESB63..N	GHE3401903R0001	ESB-PLK40/63
Protection Covers	ESB25..N		ESBSPK24
	ESB40..N, ESB63..N		ESBSPK40/63

1) If several contactors are mounted adjacently and the ON time is longer than one hour, every second contactor needs a distance piece, Type ESB-DIS (1/2 module). This is not necessary at an ambient temperature ≤ 40 °C or on Type ESB16..N and ESB/EN20..N."

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Lamp load table for new ESBs

Available from July 2018

Please note: Switching lamps is a capacitor load application where high inrush current peaks could occur. These are influenced by the length and cross section of the wire as well as the type of power supply unit and specifications of the lamp brand. For example long cables can increase the possible number of lamps per pole. The table shows the allowed max. current for 1 pole and considers already the startup current peaks.

The following selection table show the current values and the maximum switchable capacitor load for compensated lamps. These two limits have to be considered in the selection of contactors

Contactor type		ESB25..N/ EN25	ESB40..N /	EN40 ESB63..N
Permitted compensating capacity per phase Cmax		100 µF	350 µF	500 µF
Lamp types				
Incandescent and halogen lamps (230 V)		7	20	30
Mixing lamps without ballast		7	20	30
Fluorescent lamps with conventional ballast	single lamp uncompensated	22	36	56
	single lamp parallel compensated	3.5	10	15
	series compensation, duo circuit	22	36	56
Fluorescent lamps with electronic ballast or CFL		7	20	30
LED lamps		7	20	30
High pressure mercury-vapor lamps	single lamp without compensation	11	18	28
	single lamp with parallel compensation	3.5	10	15
Halogen metal-vapor lamps	single lamp without compensation	11	18	28
	single lamp with parallel compensation	3.5	10	15
High pressure sodium-vapor lamps	single lamp without compensation	11	18	28
	single lamp with parallel compensation	3.5	10	15
Low pressure sodium-vapor lamps	single lamp without compensation	11	18	28
	single lamp with parallel compensation	3.5	10	15
Electronic ballast devices		7	20	30



Example for lamp load calculation

Due to many varieties of lamps and ballasts we advice to take the current load as base for reference. The lamp table considers already the inrush peaks and other lamp parameters.

Please see the following examples for a reliable project lamp calculation:

- Fluorescent lamp with conventional ballast, uncompensated the lamp operating current I = 1.5 A, voltage U = 230 V
  1 pole of ESB24 can be loaded with max. 22 A, see lamp table => 22 A / 1.5 A = 14.66 => 14 lamps
  1 pole of ESB20 can be loaded with max. 9 A, see lamp table => 9 A / 1.5 A = 6 lamps

Please use the referring value in the table stated above and divide it with the current stated on the lamp. This will lead to the number of lamps which can be switched.
Example: ESB25..N used for LED lamps: 7 A (= 7000 mA) / 85 mA = 82.23 => 82 lamps

3-pole contactors, for motor control and power switching

AF09...AF2650






AC / DC Control supply				Type	AF09	AF12	AF16	AF26	AF30	AF38	AF40	AF52	AF65	AF80	AF96
IEC	AC-3	Rated operational power	220 - 230 - 240 V	kW	2.2	3	4	6.5	9	11	11	15	18.5	22	25
		θ ≤ 60 °C for AF09 ... AF370	380 - 400 V	kW	4	5.5	7.5	11	15	18.5	18.5	22	30	37	45
			415 V	**kW**	**4**	**5.5**	**9**	**11**	**15**	**18.5**	**22**	**30**	**37**	**45**	**55**
		θ ≤ 55 °C for AF400 ... AF2650	440 V	kW	4	5.5	9	15	18.5	22	22	30	37	45	55
			500 V	kW	5.5	7.5	9	15	18.5	22	22	30	37	45	55
			690 V	kW	5.5	7.5	9	15	18.5	22	22	30	37	45	55
			1000 V	kW	—	—	—	—	—	—	—	—	—	35	40
		Rw	**415 V**	**A**	**9**	**12**	**18**	**26**	**32**	**38**	**40**	**53**	**65**	**80**	**96**
			1000 V	**A**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**25**	**30**
	AC-1	Rated operational current	**θ ≤ 40 °C, 690 V**	**A**	**25**	**28**	**30**	**45**	**50**	**50**	**70**	**100**	**105**	**125**	**130**
UL / CSA	1-phase motor rating		120 V	hp	0.75	1	1.5	2	2	2	3	3	5	7.5	7.5
			240 V	hp	1.5	2	3	3	5	5	7.5	10	15	15	20
	3-phase motor rating		200 - 208 V	hp	2	3	5	7.5	10	10	10	15	20	25	30
			220 - 240 V	hp	2	3	5	7.5	10	10	15	20	25	30	30
			440 - 480 V	**hp**	**5**	**7.5**	**10**	**15**	**20**	**20**	**30**	**40**	**50**	**60**	**60**
			550 - 600 V	hp	7.5	10	15	20	25	25	40	50	60	75	75
	General use rating		**600 V**	**A**	**25**	**28**	**30**	**45**	**50**	**50**	**60**	**80**	**90**	**105**	**115**
NEMA	NEMA Size				**00**	**0**	**—**	**1**	**—**	**—**	**2**	**—**	**—**	**3**	**—**

Main accessories

Auxiliary contact blocks	Front mounting	**CA410** (1 x N.O.) **CA401** (1 x N.C.)						
	Side mounting	**CAL411** (1 x N.O. + 1 x N.C.)						
Timers	Electronic	**TEF4ON** **TEF4OFF**						
Interlocking units	Mechanical	**VM4**				**VM96-4**		
	Mechanical / Electrical	**VEM4**						
Connection sets	For reversing contactors	**BER164**	**BER384**			**BER654**		**BER964**
Surge suppressors		Built-in surge protection						

Overload relays



Thermal relays	Class 10 (Class 10A for TF140, TA200DU)	**TF42** (0.10…38 A)				**TF65** (22...67 A)		**TF96** (40...96 A)
Electronic relays	Class 10E, 20E, 30E	**EF19** (0.10…18.9 A)	**EF19** (0.10…18.9 A) **EF45** (9…45 A)			**EF65** (25...70 A)		**EF96** (20...100 A)

Manual motor starters



	Thermal / magnetic protection Class 10	**MS116** (0.10...32 A) Ics up to 50 kA for class 10 A		**MS165** (10...65 A) Ics up to 100 kA				**MS5100** (40...100 A) Ics up to 50 kA
		MS132 (0.10...32 A) Ics up to 100 kA				**MS495** (45...100 A) Ics up to 50 kA		
				MS497 (22...100 A) Ics up to 100 kA				
	Magnetic only types	**MO132** (0.16...32 A) Ics up to 100 kA		**MO165** (16...65 A) Ics up to 100 kA (1)				**MO5100** (70...100 A) Ics up to 36 kA
						MO450 (40...50 A) Ics up to 50 kA		**MO495** (63...100 A) Ics up to 50 kA
Accessories	For contactor mounting	**BEA164**	**BEA384**	**BEA65-A** (2)				








AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050	AF2650
30	37	45	55	55	75	90	110	110	132	160	220	—	257	315	—	—
55	75	75	90	110	132	160	200	200	250	315	400	—	475	560	—	—
55	**75**	**75**	**90**	**110**	**132**	**160**	**200**	**220**	**250**	**355**	**425**	**—**	**500**	**600**	**630**	**—**
75	90	90	110	132	160	160	200	220	250	355	450	—	560	670	710	—
75	90	90	110	132	160	200	250	250	315	400	520	—	560	700	—	—
55	75	90	132	160	200	250	315	315	355	500	600	—	750	900	1000	—
—	—	75	110	132	132	132	132	220	280	355	400	—	—	—	630	—
116	**140**	**146**	**190**	**205**	**265**	**305**	**370**	**400**	**460**	**580**	**750**	**—**	**860**	**1060**	**1060**	**—**
—	**—**	**60**	**85**	**100**	**100**	**100**	**100**	**155**	**200**	**250**	**300**	**—**	**375**	**400**	**425**	**—**
160	**200**	**225**	**275**	**350**	**400**	**500**	**600**	**600**	**700**	**800**	**1050**	**1260**	**1350**	**1650**	**2050**	**2650**

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30	40	40	50	60	75	100	125	125	150	200	250	—	—	—	—	—
40	50	50	60	75	100	125	150	150	200	250	300	—	400	450	—	—
75	**100**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**500**	**600**	**—**	**800**	**900**	**—**	**—**
100	125	125	150	200	250	300	350	400	500	600	700	—	1000	1150	—	—
160	**200**	**200**	**250**	**300**	**350**	**400**	**520**	**550**	**650**	**750**	**900**	**1210**	**1350**	**1650**	**2100**	**2700**
—	**4**	**—**	**—**	**—**	**5**	**—**	**—**	**—**	**6**	**—**	**7**	**—**	**—**	**8**	**—**	**—**

CAL1911 (1 x N.O. + 1 x N.C.)

CAL1811 (1 x N.O. + 1 x N.C.)

VM19 (for same size contactors)

VM750H
VM750V

VM1650H

BER1404 **BER2054** **BER3704**

BEM46030 **BEM75030**

TF140DU
(66...142 A)
θ ≤ 55 °C

TA200DU
(66...200 A)
θ ≤ 55 °C

EF146
(54...150 A)

EF205
(63...210 A)

EF370
(115...380 A)

EF460 - 500
(150...500 A)

EF750 - 800
(250...800 A)

Short-circuit protection devices

Tmax Circuit breaker and accessories






AF09 ... AF38 3-pole contactors

4 to 18.5 kW, AC / DC operated



AF09-30-10



AF26-30-00

Description

AF09 ... AF38 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC Rated		Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current θ ≤ 40 °C AC-1	50/60 Hz					
kW	A	V AC	V DC				
4	25	24...60	20...60	1	0	1SBL137001R1110	AF09301011
		24...60	20...60	0	1	1SBL137001R1101	AF09300111
		48...130	48...130	1	0	1SBL137001R1210	AF09301012
		48...130	48...130	0	1	1SBL137001R1201	AF09300112
		100...250	100...250	1	0	1SBL137001R1310	AF09301013
		100...250	100...250	0	1	1SBL137001R1301	AF09300113
		250...500	250...500	1	0	1SBL137001R1410	AF09301014
		250...500	250...500	0	1	1SBL137001R1401	AF09300114
5.5	28	24...60	20...60	1	0	1SBL157001R1110	AF12301011
		24...60	20...60	0	1	1SBL157001R1101	AF12300111
		48...130	48...130	1	0	1SBL157001R1210	AF12301012
		48...130	48...130	0	1	1SBL157001R1201	AF12300112
		100...250	100...250	1	0	1SBL157001R1310	AF12301013
		100...250	100...250	0	1	1SBL157001R1301	AF12300113
		250...500	250...500	1	0	1SBL157001R1410	AF12301014
		250...500	250...500	0	1	1SBL157001R1401	AF12300114
7.5	30	24...60	20...60	1	0	1SBL177001R1110	AF16301011
		24...60	20...60	0	1	1SBL177001R1101	AF16300111
		48...130	48...130	1	0	1SBL177001R1210	AF16301012
		48...130	48...130	0	1	1SBL177001R1201	AF16300112
		100...250	100...250	1	0	1SBL177001R1310	AF16301013
		100...250	100...250	0	1	1SBL177001R1301	AF16300113
		250...500	250...500	1	0	1SBL177001R1410	AF16301014
		250...500	250...500	0	1	1SBL177001R1401	AF16300114
11	45	24...60	20...60	0	0	1SBL237001R1100	AF26300011
		48...130	48...130	0	0	1SBL237001R1200	AF26300012
		100...250	100...250	0	0	1SBL237001R1300	AF26300013
		250...500	250...500	0	0	1SBL237001R1400	AF26300014
15	50	24...60	20...60	0	0	1SBL277001R1100	AF30300011
		48...130	48...130	0	0	1SBL277001R1200	AF30300012
		100...250	100...250	0	0	1SBL277001R1300	AF30300013
		250...500	250...500	0	0	1SBL277001R1400	AF30300014
18.5	50	24...60	20...60	0	0	1SBL297001R1100	AF38300011
		48...130	48...130	0	0	1SBL297001R1200	AF38300012
		100...250	100...250	0	0	1SBL297001R1300	AF38300013
		250...500	250...500	0	0	1SBL297001R1400	AF38300014

Other coil voltages and auxiliary contact arrangements available.

For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

1) For 24...60 V 50/60 Hz - 20...60 V DC, use AF..-30-..-11 (see voltage code table). AF..-30-..-11 not suitable for direct control by PLC-output.

2) For direct PLC control, please contact ABB.

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AF40 ... AF96 3-pole contactors

18.5 to 45 kW, AC / DC operated



AF40-30-00



AF80-30-00

Description

AF40 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. AF80 and AF96 also suitable up to 1000 V AC applications.
These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC Rated		Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current θ ≤ 40 °C AC-1	50 Hz	60 Hz				
kW	A	V AC	V DC				
18.5	70	24...60	20...60	0	0	1SBL347001R1100	AF40300011
		48...130	48...130	0	0	1SBL347001R1200	AF40300012
		100...250	100...250	0	0	1SBL347001R1300	AF40300013
		250...500	250...500	0	0	1SBL347001R1400	AF40300014
22	100	24...60	20...60	0	0	1SBL367001R1100	AF52300011
		48...130	48...130	0	0	1SBL367001R1200	AF52300012
		100...250	100...250	0	0	1SBL367001R1300	AF52300013
		250...500	250...500	0	0	1SBL367001R1400	AF52300014
30	105	24...60	20...60	0	0	1SBL387001R1100	AF65300011
		48...130	48...130	0	0	1SBL387001R1200	AF65300012
		100...250	100...250	0	0	1SBL387001R1300	AF65300013
		250...500	250...500	0	0	1SBL387001R1400	AF65300014
37	125	24...60	20...60	0	0	1SBL397001R1100	AF80300011
		48...130	48...130	0	0	1SBL397001R1200	AF80300012
		100...250	100...250	0	0	1SBL397001R1300	AF80300013
		250...500	250...500	0	0	1SBL397001R1400	AF80300014
45	130	24...60	20...60	0	0	1SBL407001R1100	AF96300011
		48...130	48...130	0	0	1SBL407001R1200	AF96300012
		100...250	100...250	0	0	1SBL407001R1300	AF96300013
		250...500	250...500	0	0	1SBL407001R1400	AF96300014

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

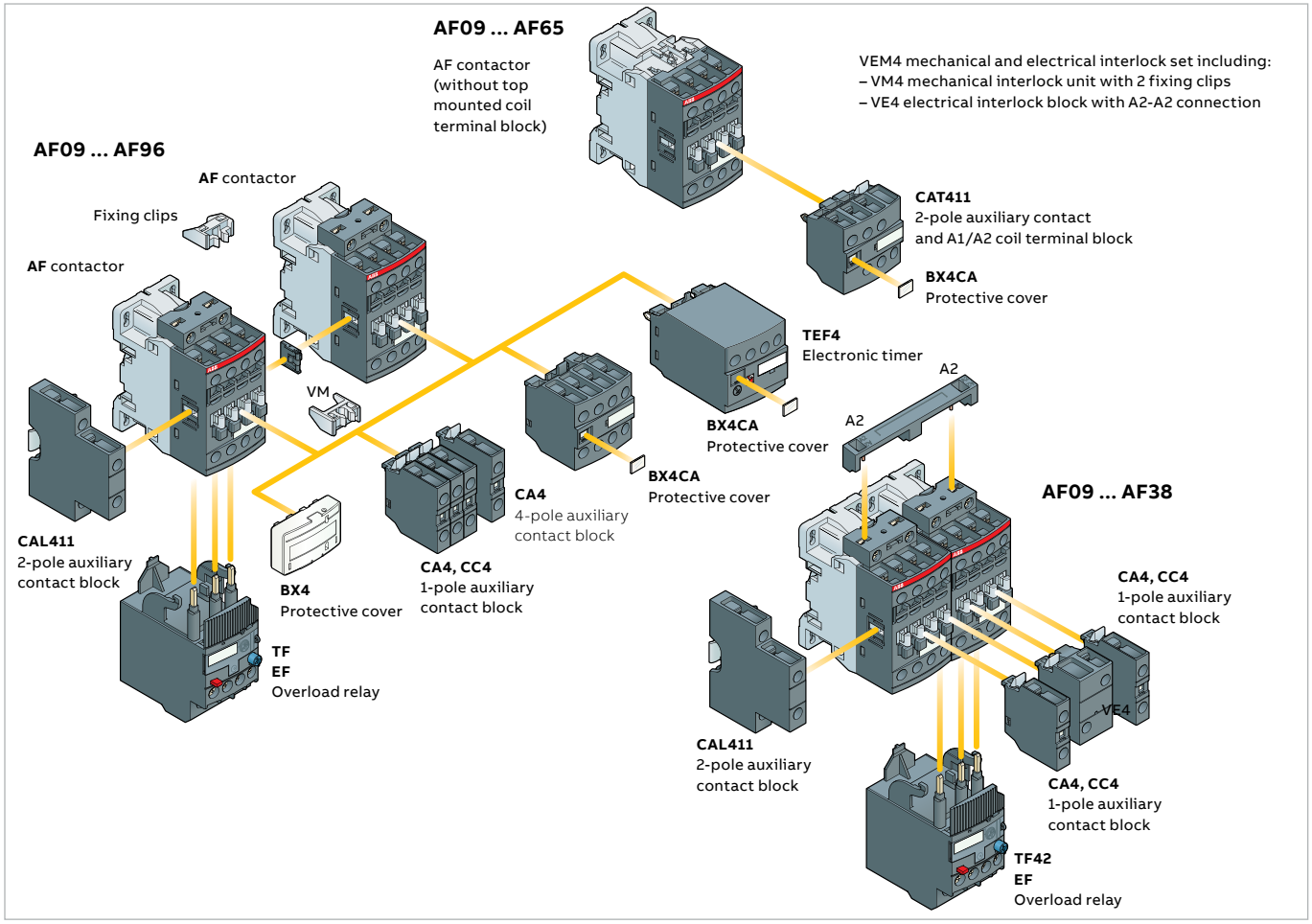
1) AF..-30-..-11 not suitable for direct control by PLC-output.
2) For direct PLC control, please contact ABB.

STOCK | INDENT

AF09 ... AF96 3-pole contactors

Main accessories

Contactor and main accessories (other accessories available)



Main accessory fitting details

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles		Built-in auxiliary contacts		Front-mounted accessories										Side-mounted accessories			
					Auxiliary contact blocks						Electronic timer		Electrical and mechanical interlock set (between 2 contactors)		Auxiliary contact blocks			
					1-pole CA4 1-pole CC4		2-pole CAL411		4-pole CA4		TEF4		VEM4		Left side 2-pole CAL411			Right side
					Max. N.C. built-in and add-on N.C. auxiliary contacts: 4 N.C. max. on positions 1, 2, 3, 4 and 3 N.C. max. on positions 1 ±30°, 5													
AF09 ... AF16	3	0			4 max.	or	1	or	1	or	1		–	+	1		–
AF09 ... AF16	3	0			2 max.	or	1		–	or	1		–	+	1	+	1
AF26 ... AF38	3	0			3 max.		–		–		–	+	1	+	1	or	1
AF40 ... AF65	0	0	0	0	4 max.	or	1	or	1	or	1		–	+	1		1
AF80, AF96	02	0	0	0	4 max.	or	–	or	1	or	1		–	+	1	+	1

Overload relays fitting details [1]

Contactor types	Thermal overload relays	Electronic overload relays
AF09 ... AF38	TF42 (0.10...38 A)	EF19 (0.10...19 A)
AF26 ... AF38	TF42 (0.10...38 A)	EF45 (9...45 A)
AF40 ... AF65	TF65 (22...67 A)	EF65 (25...70 A)
AF80, AF96	TF96 (40...96 A)	EF96 (20...100 A)

The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.

1) Direct mounting – No kit required.

For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

AF09 ... AF96 3-pole contactors

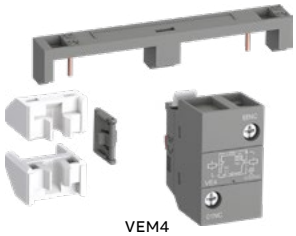
Main accessories

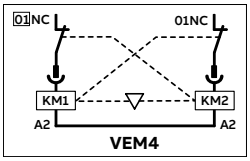

CA410


CAL411


CA422E


CAT411E

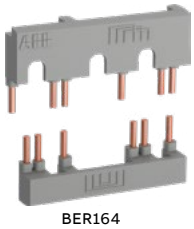

VEM4



VEM4


TEF4-ON


BEA164


BER164

Ordering details [1]

For contactors	Auxiliary contacts				Factory code	Order code
Front-mounted instantaneous auxiliary contact blocks						
AF09 ... AF96	1	0	–	–	1SBN010110R1010	CA410
	0	1	–	–	1SBN010110R1001	CA401
AF09 ... AF16..-30-10	2	2	–	–	1SBN010140R1122	CA422M
AF26 ... AF96..-30-00	2	2	–	–	1SBN010140R1022	CA422E
AF09 ... AF16..-30-01	2	2	–	–	1SBN010140R1322	CA422U
Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact						
AF09 ... AF96	–	–	1	0	1SBN010111R1010	CC410
	–	–	0	1	1SBN010111R1001	CC401
Side-mounted instantaneous auxiliary contact blocks						
AF09 ... AF96	1	1	–	–	1SBN010120R1011	CAL411
Front-mounted instantaneous auxiliary contact and A1/A2 coil terminal blocks						
AF09 ... AF16..-30-10	1	1	–	–	1SBN010151R1111	CAT411M
AF26 ... AF65..-30-00	1	1	–	–	1SBN010151R1011	CAT411E
AF09 ... AF16..-30-01	1	1	–	–	1SBN010151R1311	CAT411U
Note: CAT4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.						
Mechanical interlock unit						
AF09 ... AF38					1SBN030105T1000	VM4
AF40 ... AF96					1SBN033405T1000	VM96-4
Mechanical and electrical interlock set						
AF09 ... AF16	0	2	–	–	1SBN030111R1000	VEM4
AF26 ... AF38						
Terminal Shrouds						
AF40 ... AF65					1SBN123401R1000	LT6530
AF80 ... AF96					1SBN123901R1000	LT9630

Note:
– VEM4 includes a VM4 mechanical interlock unit with 2 fixing clips (BB4), a VE4 electrical interlock block. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.
– VEM4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

For contactors	Time delay range selected by switch	Delay type	Auxiliary contacts		Factory code	Order code
Electronic timers						
AF09 ... AF96	0.1...1 s 1...10 s 10...100 s	ON-delay	1	1	1SBN020112R1000	TEF4-ON
		OFF-delay	1	1	1SBN020114R1000	TEF4-OFF
Note: Rated control circuit voltage Uc 24...240 V 50/60 Hz or DC.						
Connecting links with manual motor starters						
AF09 ... AF16	with	MS116-0.16 ... MS116-25, MS132-0.16 ... MS132-25			1SBN081306T1000	BEA164
AF26 ... AF38	with	MS116-0.16 ... MS116-16, MS132-0.16 ... MS132-10			1SBN082306T1000	BEA264
	with	MS116-20 ... MS116-32, MS132-12 ... MS132-32			1SBN082306T2000	BEA384
Connection sets for reversing contactors						
AF09 ... AF16					1SBN081311R1000	BER164
AF26 ... AF38					1SBN082311R1000	BER384
AF40 ... AF65					1SBN083411R1000	BER654
AF80 ... AF96					1SBN083911R1000	BER964
Connection sets for star-delta starting						
AF09 ... AF16		With or without VM4			1SBN081313R2000	BEY164
AF26 ... AF38		With or without VM4			1SBN082713R2000	BEY384
AF40 ... AF65		With or without VM96-4			1SBN083413R2000	BEY654
AF80 ... AF96		With or without VM96-4			1SBN083913R2000	BEY964

1) For more information, refer to main catalog 'Accessories' section.

STOCK | INDENT

AF116 ... AF370 3-pole contactors

55 to 200 kW, AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF146-30-11



AF146-30-11B*

* For B version (bar connections) order standard version and remove terminals

Description

AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 ...AF370 up to 1000 V AC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 3 coils to cover control voltages between 24...250 V 50/60 Hz and 20...250 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated		Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current θ ≤ 40 °C AC-1	50/60 Hz					
kW	A	V AC	V DC				
55	160	24...60	20...60	1	1	1SFL427001R1111	AF116301111
		48...130	48...130	1	1	1SFL427001R1211	AF116301112
		100...250	100...250	1	1	1SFL427001R1311	AF116301113
		250...500	250...500	1	1	1SFL427001R1411	AF116301114
75	200	24...60	20...60	1	1	1SFL447001R1111	AF140301111
		48...130	48...130	1	1	1SFL447001R1211	AF140301112
		100...250	100...250	1	1	1SFL447001R1311	AF140301113
		250...500	250...500	1	1	1SFL447001R1411	AF140301114
75	225	24...60	20...60	1	1	1SFL467001R1111	AF146301111
		48...130	48...130	1	1	1SFL467001R1211	AF146301112
		100...250	100...250	1	1	1SFL467001R1311	AF146301113
		250...500	250...500	1	1	1SFL467001R1411	AF146301114
90	275	24...60	20...60	1	1	1SFL487002R1111	AF190301111
		48...130	48...130	1	1	1SFL487002R1211	AF190301112
		100...250	100...250	1	1	1SFL487002R1311	AF190301113
		250...500	250...500	1	1	1SFL487002R1411	AF190301114
110	350	24...60	20...60	1	1	1SFL527002R1111	AF205301111
		48...130	48...130	1	1	1SFL527002R1211	AF205301112
		100...250	100...250	1	1	1SFL527002R1311	AF205301113
		250...500	250...500	1	1	1SFL527002R1411	AF205301114
140	400	24...60	20...60	1	1	1SFL547002R1111	AF265301111
		48...130	48...130	1	1	1SFL547002R1211	AF265301112
		100...250	100...250	1	1	1SFL547002R1311	AF265301113
		250...500	250...500	1	1	1SFL547002R1411	AF265301114
160	500	24...60	20...60	1	1	1SFL587002R1111	AF305301111
		48...130	48...130	1	1	1SFL587002R1211	AF305301112
		100...250	100...250	1	1	1SFL587002R1311	AF305301113
		250...500	250...500	1	1	1SFL587002R1411	AF305301114
200	600	24...60	20...60	1	1	1SFL607002R1111	AF370301111
		48...130	48...130	1	1	1SFL607002R1211	AF370301112
		100...250	100...250	1	1	1SFL607002R1311	AF370301113
		250...500	250...500	1	1	1SFL607002R1411	AF370301114

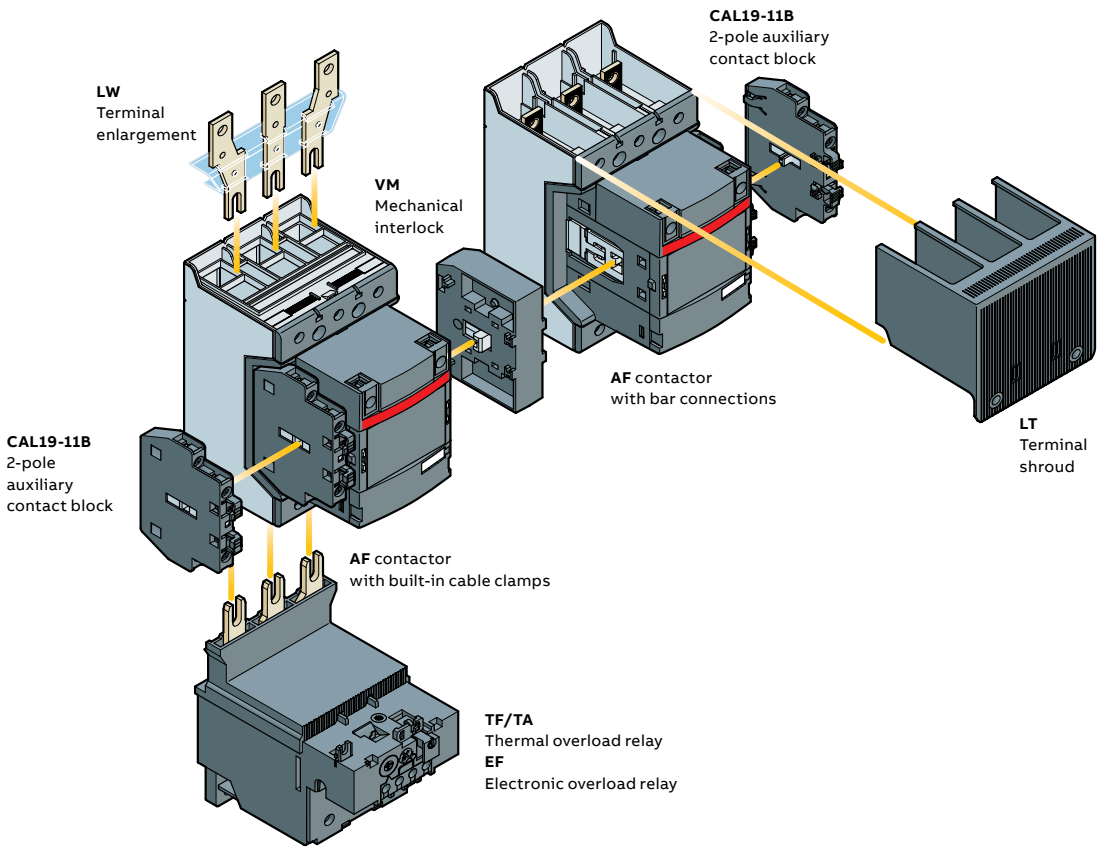
Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

STOCK | INDENT

AF116 ... AF370 3-pole contactors

with 1 N.O. + 1 N.C. auxiliary contacts

Main accessories (other accessories available)



Main accessory fitting details

Contactor types	Main poles		Available auxiliary contacts		Side-mounted accessories				
					Auxiliary mounted contact blocks				
					CAL19-11		CAL19-11B		Mechanical interlock units (between two contactors)
AF116 ... AF370	3	0	1	1	1 x CAL19-11	+	2 x CAL19-11B		–
AF116 ... AF370	3	0	1	1	–	+	2 x CAL19-11B [1]	+	VM... [2]

1) Total number of auxiliary contact blocks for the two contactors.
2) Interlock type, according to the contactor ratings (see 'Accessories').

Overload relays fitting details [1]

Contactor types	Thermal overload relays	Electronic overload relays
AF116 ... AF140	TF140DU (66...142 A)	EF146 (54...150 A)
AF146	–	EF146 (54...150 A)
AF190, AF205	TA200DU (66...200 A)	EF205 (63...210 A)
AF265 ... AF370	–	EF370 (115...380 A)

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in 'Main accessory fitting details' table.

1) Direct mounting – No kit required.

AF116 ... AF370 3-pole contactors

with 1 N.O. + 1 N.C. auxiliary contacts

Main accessories (other accessories available)



CAL19-11



VM19



LT37030C

Ordering details [1]

For contactors	Auxiliary contacts		Factory code	Order code
				
Side-mounted instantaneous auxiliary contact blocks				
AF116 ...AF370	1	1	1SFN010820R1011	CAL19-11
	1	1	1SFN010820R3311	CAL19-11B
Mechanical interlock unit				
AF116 ... AF370			1SFN030300R1000	VM19
AF116 ... AF146 and AF190, AF205			1SFN034403R1000	VM140/190
AF190, AF205 and AF265 ... AF370			1SFN035203R1000	VM205/265
Terminal shrouds				
AF80, AF96			1SBN123901R1000	LT9630
AF116 ... AF146, with compression lugs			1SFN124203R1000	LT14030L
AF190, AF205, with cable clamps			1SFN124801R1000	LT20530C
AF190, AF205, with compression lugs			1SFN124803R1000	LT20530L
AF190, AF205, with shorting bar or between contactor and TOL/EOL in DOL-starters			1SFN124804R1000	LT20530Y
AF265 ... AF370, with cable clamps			1SFN125401R1000	LT37030C
AF265 ... AF370, with compression lugs			1SFN125403R1000	LT37030L
AF265 ... AF370, with shorting bar or between contactor and TOL/EOL in DOL-starters			1SFN125404R1000	LT37030Y
AF265 ... AF370, for use with extending cable clamps, ATK300/2 and OZXB4			1SFN125406R1000	LT37030D



For contactors	Dimensions		Factory code	Order code
	hole Ø mm	bar mm		
Terminal enlargements				
AF116...AF146	6.5	13 x 3	1SFN074207R1000	LW140
AF190...AF205	10.5	17.5 x 5	1SFN074807R1000	LW205
AF265...AF370	10.5	20 x 5	1SFN075407R1000	LW370
Terminal extension				
AF116...AF146	6.5	13 x 3	1SFN074210R1000	LW140
AF190...AF250	8.5	17.5 x 5	1SFN074810R1000	LW205
AF265...AF370	10.5	20 x 5	1SFN075410R1000	LW370

1) For more information, refer to main catalog 'Accessories' section.

For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

AF400 ... AF2650 3-pole contactors

200 to 560 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF460-30-11



AF750-30-11



AF1250-30-11



AF2650-30-11

Description

AF400 ... AF2650 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC or 600 V DC [1]. These contactors are of the block type design with 3 main poles.

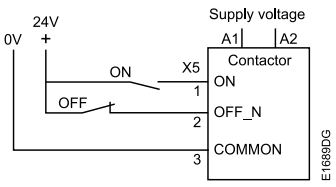
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
  - only 4 coils for AF1250 to cover control voltages between 48 ... 500 V 50/60 Hz and 24 ... 500 V DC
  - only 1 coil for AF1350 ... AF2650 to cover control voltages between 100 ... 250 V 50/60 Hz and 100 ... 250 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltages sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated		Rated control voltage U_c [2]		Auxiliary contacts fitted		Factory code	Order code
Power 415 V AC-3	Current θ ≤ 40 °C AC-1	50/60 Hz					
kW	A	V AC	V DC				
220	600	100...250	100...250	1	1	1SFL577001R7011	AF400301170
250	700	100...250	100...250	1	1	1SFL597001R7011	AF460301170
355	800	100...250	100...250	1	1	1SFL617001R7011	AF580301170
425	1050	100...250	100...250	1	1	1SFL637001R7011	AF750301170
–	1250	100...250	100...250	1	1	1SFL647001R7011	AF1250301170
500	1350	100...250	100...250	1	1	1SFL657001R7011	AF1350301170
630	1650	100...250	100...250	1	1	1SFL677001R7011	AF1650301170
630	2050	100...250	100...250	1	1	1SFL707001R7011	AF2050301170
–	2650	100...250	100...250	1	1	1SFL667001R7011	AF2650301170

1) Up to 850 V DC for AF580 ... AF2050
2) Other rated control voltages can be found in the Technical Catalogue

AF400 ... AF2650 are equipped with low voltage inputs for control, for example by a PLC. For example, a 240 V AC supply can be permanently on A1 and A2 which allows the contactor to be switched with a 24 V DC signal from a PLC.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

Control inputs



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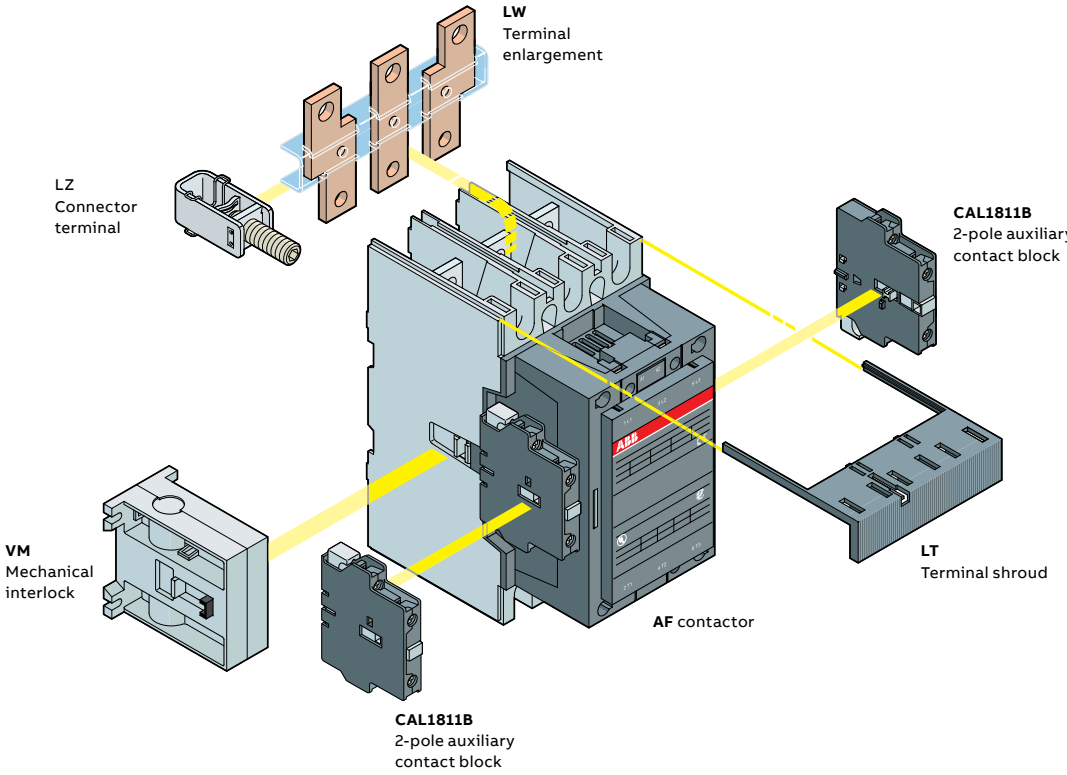
AF400 ... AF2650 3-pole contactors

with 1 N.O. + 1 N.C. auxiliary contacts

Main accessories (other accessories available)



Main accessory fitting details

Contactor types	Main poles		Available auxiliary contacts		Side-mounted accessories				
					Auxiliary mounted contact blocks				Mechanical interlock units (between two contactors)
					CAL1811		CAL1811B [3]		
Contactors + auxiliary contact blocks									
AF400 ... AF2650	3	0	1	1	1 x CAL1811	+	2 x CAL1811B		–
Contactors with mechanical interlocking + auxiliary contact blocks									
AF400 ... AF2650	3	0	1	1	2 x CAL1811 [1]	+	4 x CAL1811B [1]	+	VM...H [2]

1) Total number of auxiliary contact blocks for the two contactors.
2) Interlock type, according to the contactor ratings (see 'Accessories').
3) The CEL18-.. auxiliary contact blocks can replace the CAL1811 and CAL1811B. Though, no auxiliary contact block can be mounted outside the CEL18-.

Overload relays fitting details

Contactor types	Thermal overload relays	Electronic overload relays
AF400, AF460	–	EF460 – 500 (150...500 A) [4]
AF580, AF750	–	EF750 – 800 (250...800 A) [4]
AF1350, AF1650	–	E1250DU – 1250 (375...1250 A) [4]

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in 'Main accessory fitting details' table.

4) Mounting kit required (see 'Motor protection').

AF400 ... AF2650 3-pole contactors

with 1 N.O. + 1 N.C. auxiliary contacts

Main accessories



CAL1811



VM750H



LT460AC

Ordering details [1]

For contactors	Auxiliary contacts		Factory code	Order code
				
Side-mounted instantaneous auxiliary contact blocks				
AF400 ... AF2650	1	1	1SFN010720R1011	CAL1811
	1	1	1SFN010720R3311	CAL1811B
Mechanical interlock unit				
AF400 ... AF1250			1SFN035700R1000	VM750H
AF1350 ... AF2650			1SFN036503R1000	VM1650H
Terminal shrouds				
AF400, AF460 with connectors			1SFN125701R1000	LT460AC
AF400, AF460 with lugs			1SFN125703R1000	LT460AL
AF580 ... AF750 with connectors			1SFN126101R1000	LT750AC
AF580 ... AF750 with lugs			1SFN126103R1000	LT750AL

For contactors	Dimensions		Factory code	Order code
	hole Ø mm	bar mm		
Terminal enlargements				
AF400, AF460	10.5	25 x 5	1SFN075707R1000	LW460
AF580, AF750	13	40 x 6	1SFN076107R1000	LW750
AF1250	13	50 x 10	1SFN076407R1000	LW1250
Terminal extension				
AF400, AF460	10.5	25 x 5	1SFN075710R1000	LX460
AF580, AF750	13	40 x 6	1SFN076110R1000	LX750

1) For more information, refer to main catalog 'Accessories' section.

STOCK | INDENT

4-pole contactors






IEC	**AC-1 Rated operational current**	**θ ≤ 40 °C, 690 V**	**A**	**25**	**30**	**45**	**55**	**70**	**100**	**125**
UL/CSA	**General use rating**	**600 V**	**A**	**25**	**30**	**45**	**55**	**—**	**—**	**—**
AC / DC Control supply			Type	AF09	AF16	AF26	AF38	AF40	AF52	AF80
AC Control supply			Type	AF09	AF16	AF26	AF38	AF40	AF52	AF80
DC Control supply			Type	AF09	AF16	AF26	AF38	AF40	AF52	AF80
IEC	**AC-1 Rated operational current**	**θ ≤ 40 °C**	**A**	**25**	**30**	**45**	**55**	**70**	**100**	**125**
		θ ≤ 60 °C (1)	**A**	**25**	**30**	**40**	**45**	**60**	**80**	**105**
		θ ≤ 70 °C	**A**	**22**	**26**	**32**	**37**	**50**	**70**	**90**
	With conductor cross sectional area		**mm²**	**4**	**6**	**10**	**16**	**35**	**35**	**50**
	Rated operational voltage Ue max.		**V**	**690**	**690**	**690**	**690**	**690**	**690**	**690**
UL/CSA	**General use rating**	600 V	**A**	**25**	**30**	**45**	**55**	**—**	**—**	**—**

θ ≤ 55 °C for EK550, EK1000 contactors

Main accessories

Auxiliary contact blocks	Front mounting	**CA410** (1 x N.O.), CA401 (1 x N.C.)
	Side mounting	**CAL411** (1 x N.O. + 1 x N.C.)
Timers	Electronic	**TEF4-ON** **TEF4-OFF**
Interlocking units	Mechanical	**VM4** VM96-4
	Mechanical / Electrical	**VEM4**
Surge suppressors	Varistor + RC (AC / DC)	Built-in surge protection






160	**200**	**275**	**350**	**400**	**500**	**525**	**800**	**1000**
—	**—**	**—**	**—**	**—**	**—**	**—**	**540**	**—**
AF116	AF140	AF190	AF205	AF265	AF305	AF370	—	—
AF116	AF140	AF190	AF205	AF265	AF305	AF370	EK550	EK1000
AF116	AF140	AF190	AF205	AF265	AF305	AF370	EK550	EK1000
160	**200**	**250**	**275**	**350**	**375**	**400**	**800**	**1000**
145	**175**	**225**	**250**	**300**	**325**	**350**	**650**	**800**
130	**160**	**185**	**200**	**240**	**260**	**290**	**575**	**720**
70	**95**	**150**	**240**	**240**	**300**	**2 x 185**	**2 x 240**	**2 x 300**
690	**690**	**1000**	**1000**	**1000**	**1000**	**1000**	**1000**	**1000**
—	**—**	**—**	**—**	**—**	**—**	**—**	**540**	**—**

CAL19-11 (1 x N.O. + 1 x N.C.)	**CAL1611** (1 x N.O. + 1 x N.C.)
VM19 (for same size contactors)	**VH800**
	RCEH800

AF09 ... AF80 4-pole contactors

25 to 125 A AC-1

AC / DC operated



AF09-40-00



AF26-40-00

Description

AF09 ... AF80 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC and 440 V DC. These contactors are of the block type design with 4 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC Rated	Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Current θ ≤ 40 °C AC-1	50/60 Hz					
A	V AC	V DC				
4 N.O. main poles						
25	24...60	20...60	0	0	1SBL137201R1100	AF09400011
	48...130	48...130	0	0	1SBL137201R1200	AF09400012
	100...250	100...250	0	0	1SBL137201R1300	AF09400013
	250...500	250...500	0	0	1SBL137201R1400	AF09400014
30	24...60	20...60	0	0	1SBL177201R1100	AF16400011
	48...130	48...130	0	0	1SBL177201R1200	AF16400012
	100...250	100...250	0	0	1SBL177201R1300	AF16400013
	250...500	250...500	0	0	1SBL177201R1400	AF16400014
45	24...60	20...60	0	0	1SBL237201R1100	AF26400011
	48...130	48...130	0	0	1SBL237201R1200	AF26400012
	100...250	100...250	0	0	1SBL237201R1300	AF26400013
	250...500	250...500	0	0	1SBL237201R1400	AF26400014
55	24...60	20...60	0	0	1SBL297201R1100	AF38400011
	48...130	48...130	0	0	1SBL297201R1200	AF38400012
	100...250	100...250	0	0	1SBL297201R1300	AF38400013
	250...500	250...500	0	0	1SBL297201R1400	AF38400014
2 N.O. + 2 N.C. main poles						
25	24...60	20...60	0	0	1SBL137501R1100	AF09220011
	48...130	48...130	0	0	1SBL137501R1200	AF09220012
	100...250	100...250	0	0	1SBL137501R1300	AF09220013
	250...500	250...500	0	0	1SBL137501R1400	AF09220014
30	24...60	20...60	0	0	1SBL177501R1100	AF16220011
	48...130	48...130	0	0	1SBL177501R1200	AF16220012
	100...250	100...250	0	0	1SBL177501R1300	AF16220013
	250...500	250...500	0	0	1SBL177501R1400	AF16220014
45	24...60	20...60	0	0	1SBL237501R1100	AF26220011
	48...130	48...130	0	0	1SBL237501R1200	AF26220012
	100...250	100...250	0	0	1SBL237501R1300	AF26220013
	250...500	250...500	0	0	1SBL237501R1400	AF26220014
55	24...60	20...60	0	0	1SBL297501R1100	AF38220011
	48...130	48...130	0	0	1SBL297501R1200	AF38220012
	100...250	100...250	0	0	1SBL297501R1300	AF38220013
	250...500	250...500	0	0	1SBL197501R1400	AF38220014

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

STOCK | INDENT

AF09 ... AF80 4-pole contactors

25 to 125 A AC-1

AC / DC operated



AF40-40-00



AF80-40-00

IEC Rated Current θ ≤ 40 °C AC-1	Rated control voltage U_c 50/60 Hz		Auxiliary contacts fitted		Factory code	Order code
A	V AC	V DC				
4 N.O. main poles						
70	24...60	20...60[1]	0	0	1SBL347201R1100	AF40400011
	48...130	48...130	0	0	1SBL347201R1200	AF40400012
	100...250	100...250	0	0	1SBL347201R1300	AF40400013
	250...500	250...500	0	0	1SBL347201R1400	AF40400014
100	24...60	20...60[1]	0	0	1SBL367201R1100	AF52400011
	48...130	48...130	0	0	1SBL367201R1200	AF52400012
	100...250	100...250	0	0	1SBL367201R1300	AF52400013
	250...500	250...500	0	0	1SBL367201R1400	AF52400014
125	24...60	20...60	0	0	1SBL397201R1100	AF80400011
	48...130	48...130	0	0	1SBL397201R1200	AF80400012
	100...250	100...250	0	0	1SBL397201R1300	AF80400013
	250...500	250...500	0	0	1SBL397201R1400	AF80400014
2 N.O. + 2 N.C. main poles						
70	24...60	20...60[1]	0	0	1SBL347501R1100	AF40220011
	48...130	48...130	0	0	1SBL347501R1200	AF40220012
	100...250	100...250	0	0	1SBL347501R1300	AF40220013
	250...500	250...500	0	0	1SBL347501R1400	AF40220014
125	24...60	20...60[1]	0	0	1SBL397501R1100	AF80220011
	48...130	48...130	0	0	1SBL397501R1200	AF80220012
	100...250	100...250	0	0	1SBL397501R1300	AF80220013
	250...500	250...500	0	0	1SBL397501R1400	AF80220014

1) AF..-..-..-11 not suitable for direct control by PLC-output.

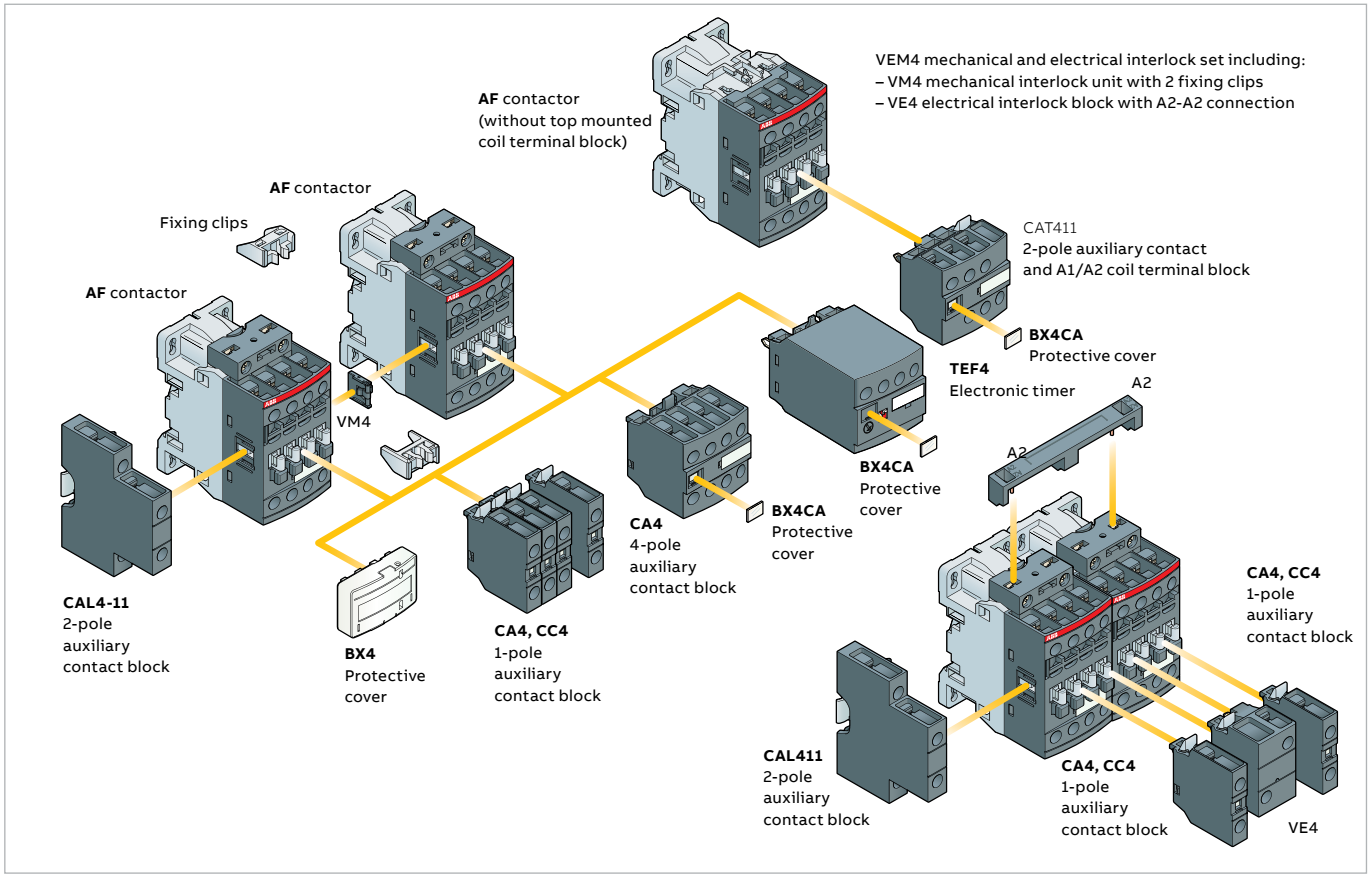
Other coil voltages and auxiliary contact arrangements available.

For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

STOCK | INDENT

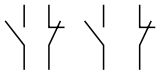
AF09 ... AF80 4-pole contactors
Main accessories

Contactor and main accessories (other accessories available)



Main accessory fitting details

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles		Built-in auxiliary contacts		Front-mounted accessories												Side-mounted accessories			
					Auxiliary contact blocks						Electronic timer		Electrical and mechanical interlock set (between 2 contactors)		Auxiliary contact blocks					
					1-pole CA4 1-pole CC4		2-pole CAL411		4-pole CA4		TEF4		VEM4		Left side 2-pole CAL411		Right side			
	Max. add-on N.C. auxiliary contacts: 4 N.C. max. on positions 1, 2, 3, 4 and 3 N.C. max. on positions 1 ±30°, 5																			
AF09 ... AF16	4	0	0	0	4 max.	**or**	1	**or**	1	**or**	1		–	**+**	1		–
					2 max.	**or**	1		–	**or**	1		–	**+**	1	**+**	1
					3 max.		–		–		–	**+**	1	**+**	1	**or**	1
	Max. add-on N.C. auxiliary contacts: 6 N.C. max. on positions 1, 1 ±30°, 2, 3, 4, 5																			
AF26 ... AF38	4	0	0	0	4 max.	**or**	1	**or**	1	**or**	1		–	**+**	1		–
					2 max.	**or**	1		–	**or**	1		–	**+**	1	**+**	1
					3 max.		–		–		–	**+**	1	**+**	1	**or**	1
AF4 ... AF52	4	0	0	0	4 max.	**or**	1	**or**	1	**or**	1		–	**+**	1		–
AF80	4	0	0	0	2 max.	**or**	1		–	**or**	1		–	**+**	1	**+**	1
	Max. add-on N.C. auxiliary contacts: 3 N.C. max. on positions 1, 2, 3, 4 and 2 N.C. max. on positions 1 ±30°, 5																			
AF09 ... AF16	2	2	0	0	4 max.	**or**	1	**or**	1	**or**	1		–	**+**	1	**+**	–
AF26 ... AF38	2	2	0	0	2 max.	**or**	1		–	**or**	1		–	**+**	1	**+**	1
	Max. add-on N.C. auxiliary contacts: 2 N.C. max. on positions 1, 1 ±30°, 2, 3, 4, 5																			
AF40	2	2	0	0	4 max.	**or**	1	**or**	1	**or**	1		–	**+**	1		–
	2	2	0	0	4 max.		–	**or**	1	**or**	1		–	**+**	1	**+**	1
AF80	2	2	0	0	4 max.		–	**or**	1	**or**	1		–	**+**	1	**+**	1

AF09 ... AF80 4-pole contactors

Main accessories

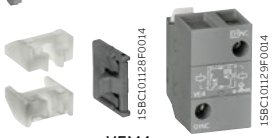

CA410


CAL411

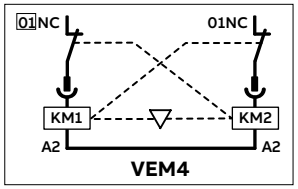

CA422E


CAT411E





VEM4



Ordering details [1]

For contactors	Auxiliary contacts				Factory code	Order code
Front-mounted instantaneous auxiliary contact blocks						
AF09 ... AF80-40-00	1	0	–	–	1SBN010110R1010	CA410
AF09 ... AF80-22-00	0	1	–	–	1SBN010110R1001	CA401
	2	2	–	–	1SBN010140R1022	CA422E
	3	1	–	–	1SBN010140R1031	CA431E
	4	0	–	–	1SBN010140R1040	CA440E
AF09 ... AF16..-40-00	0	4	–	–	1SBN010140R1004	CA404E
AF40 ... AF80-40-00						
Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact						
AF09 ... AF80-40-00	–	–	1	0	1SBN010111R1010	CC410
AF09 ... AF80-22-00						
Side-mounted instantaneous auxiliary contact blocks						
AF09 ... AF80-40-00	1	1	–	–	1SBN010120R1011	CAL411
AF09 ... AF80-22-00						
Front-mounted instantaneous auxiliary contact and A1/A2 coil terminal blocks						
AF09 ... AF52..-40-00	1	1	–	–	1SBN010151R1011	CAT411E
AF09 ... AF40..-22-00						

Note: CAT4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

Mechanical interlock unit					
AF09 ... AF38..-40-00				1SBN030105T1000	VM4
AF40 ... AF80..-40-00				1SBN033405T1000	VM96-4
Mechanical and electrical interlock set					
AF09, AF16..-40-00	0	2	– –	1SBN030111R1000	VEM4
AF26, AF38..-40-00					

Note:
– VEM4 includes a VM4 mechanical interlock unit with 2 fixing clips (BB4), a VE4 electrical interlock block. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.
– VEM4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.


TEF4-ON

For contactors	Time delay range selected by switch	Delay type	Auxiliary contacts		Factory code	Order code
Electronic timers						
AF09 ... AF80	0.1...1 s	ON-delay	1	1	1SBN020112R1000	TEF4-ON
	1...10 s 10...100 s	OFF-delay	1	1	1SBN020114R1000	TEF4-OFF

Note: Rated control circuit voltage Uc 24...240 V 50/60 Hz or DC.

1) For more information, refer to main catalog 'Accessories' section.

STOCK | INDENT

AF116 ... AF370 4-pole contactors

160 to 525 A AC-1, AC / DC operated



AF140-40-00



AF140-40-00B*

* For B version (bar connections) order standard version and remove terminals



AF205-40-00



AF370-40-00

Description

AF116 ... AF140 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC. AF190...AF370 up to 1000 V AC. These contactors are of the block type design with 4 main poles.

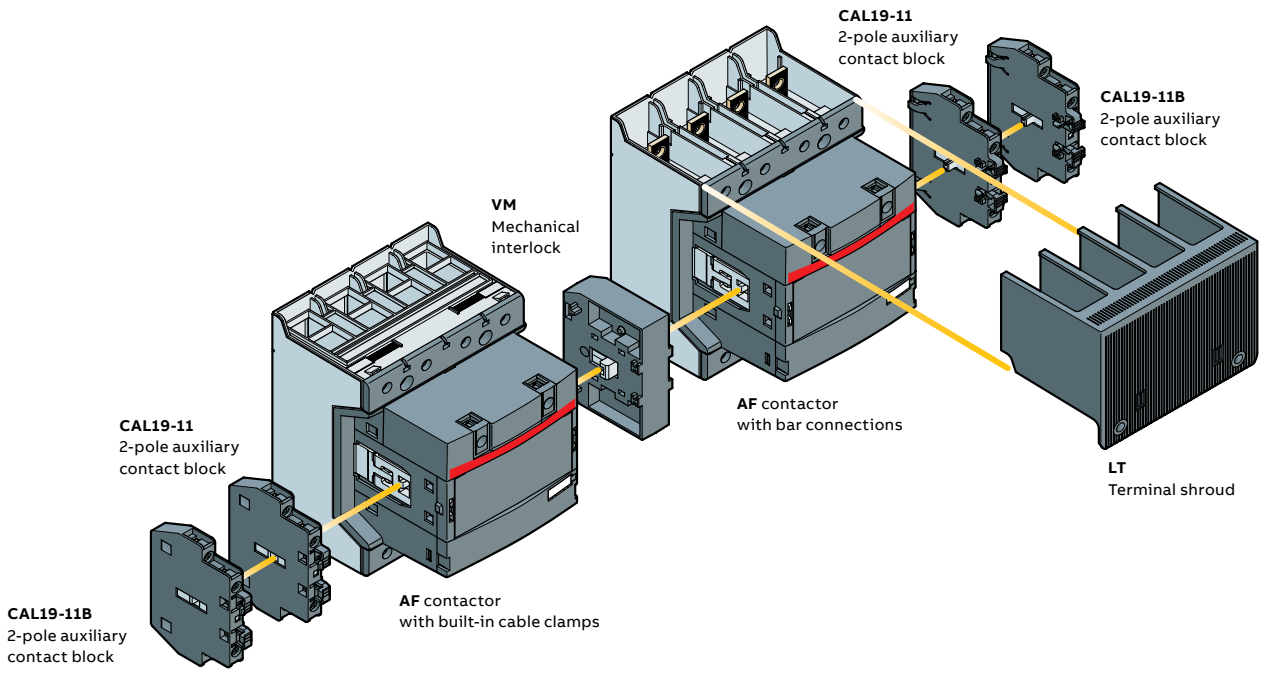
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated	Rated control voltage UC		Auxiliary contacts fitted		Factory code	Order code
Current θ ≤ 40 °C AC-1	**50/60 Hz**					
A	**V AC**	**V DC**				
4 N.O. main poles. For connection with built-in cable clamps						
160	24...60	20...60	0	0	1SFL427101R1100	AF116400011
	48...130	48...130	0	0	1SFL427101R1200	AF116400012
	100...250	100...250	0	0	1SFL427101R1300	AF116400013
	250...500	250...500	0	0	1SFL427101R1400	AF116400014
200	24...60	20...60	0	0	1SFL447101R1100	AF140400011
	48...130	48...130	0	0	1SFL447101R1200	AF140400012
	100...250	100...250	0	0	1SFL447101R1300	AF140400013
	250...500	250...500	0	0	1SFL447101R1400	AF140400014
275	24...60	20...60	0	0	1SFL487102R1100	AF190400011
	48...130	48...130	0	0	1SFL487102R1200	AF190400012
	100...250	100...250	0	0	1SFL487102R1300	AF190400013
	250...500	250...500	0	0	1SFL487102R1400	AF190400014
350	24...60	20...60	0	0	1SFL527102R1100	AF205400011
	48...130	48...130	0	0	1SFL527102R1200	AF205400012
	100...250	100...250	0	0	1SFL527102R1300	AF205400013
	250...500	250...500	0	0	1SFL527102R1400	AF205400014
400	24...60	20...60	0	0	1SFL547102R1100	AF265400011
	48...130	48...130	0	0	1SFL547102R1200	AF265400012
	100...250	100...250	0	0	1SFL547102R1300	AF265400013
	250...500	250...500	0	0	1SFL547102R1400	AF265400014
500	24...60	20...60	0	0	1SFL587102R1100	AF305400011
	48...130	48...130	0	0	1SFL587102R1200	AF305400012
	100...250	100...250	0	0	1SFL587102R1300	AF305400013
	250...500	250...500	0	0	1SFL587102R1400	AF305400014
525	24...60	20...60	0	0	1SFL607102R1100	AF370400011
	48...130	48...130	0	0	1SFL607102R1200	AF370400012
	100...250	100...250	0	0	1SFL607102R1300	AF370400013
	250...500	250...500	0	0	1SFL607102R1400	AF370400014

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

AF116 ... AF370 4-pole contactors

Main accessories (other accessories available)



Main accessory fitting details

Contactor types	Main poles		Available auxiliary contacts		Side-mounted accessories					
					Auxiliary mounted contact blocks					Mechanical interlock units (between two contactors)
					CAL19-11		CAL19-11B			
AF116 ... AF370	4	0	0	0	2 x CAL19-11	+	2 x CAL19-11B			–
AF116 ... AF370	4	0	0	0	2 x CAL19-11B (1)	+	2 x CAL19-11B (1)	+		VM...(2)

1) Total number of auxiliary contact blocks for the two contactors.
2) Interlock type, according to the contactor ratings (see 'Accessories').

AF116 ... AF370 4-pole contactors

Main accessories



CAL19-11



VM19

Ordering details [1]

For contactors	Auxiliary ontacts		Factory code	Order code
				
Side-mounted instantaneous auxiliary contact blocks				
AF116 ... AF370	1	1	1SFN010820R1011	CAL19-11
	1	1	1SFN010820R3311	CAL19-11B
Mechanical interlock unit				
AF116 ... AF370			1SFN030300R1000	VM19
AF116 ... AF146 and AF190, AF205			1SFN034403R1000	VM140/190
AF190, AF205 and AF265 ... AF370			1SFN035203R1000	VM205/265
Terminal shrouds				
AF116 ... AF140, with compression lugs			1SFN124203R2000	LT14040L
AF190 ... AF205, with cable clamps			1SFN124801R2000	LT20540C
AF190 ... AF205, with compression lugs			1SFN124803R2000	LT20540L
AF265 ... AF370, with cable clamps			1SFN125401R2000	LT37040C
AF265 ... AF370, with compression lugs			1SFN125403R2000	LT37040L

For contactors	Dimensions		Factory code	Order code
	hole Ø mm	bar mm		
Terminal enlargements				
AF190 ... AF205	10.5	20 x 5	1SFN074807R2000	LW205
AF265 ... AF370	10.5	25 x 5	1SFN075407R2000	LW370

1) For more information, refer to main catalog 'Accessories' section.

EK550, EK1000 4-pole contactors

800 to 1000 A AC-1



EK1000-40-11

AC or DC operated

EK550 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 1000 V AC and 600 V DC, EK1000 up to 1000 V AC.

These contactors are of the block type design with:

- 4 main poles
- control circuit: AC operated
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

Ordering details

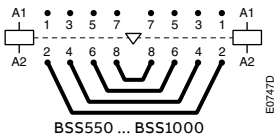
IEC	UL/CSA	Rated control voltage UC		Auxiliary contacts fitted		Type	Factory code	Order code
Rated operational current	General use rating							
θ ≤ 40 °C AC-1	600 V AC	50/60 Hz						
A	A	V AC	V DC					
800	540	230...240		1	1	EK500-40-11	SK827041-AM	SK827041-AM
1000	–	230...240		1	1	EK1000-40-11	SK827044-AM	SK827044-AM
800	540		24	2	1	EK550-40-21	SK827041-DB	SK827041-DB
1000	–		24	2	1	EK1000-40-21	SK827044-DB	SK827044-DB

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

Main accessories

Ordering details (1)

For contactors	Auxiliary contacts		Factory code	Order code
Side-mounted auxiliary contact blocks				
EK550, EK1000	1	1	SK829002-B	CAL1611B
	1	1	SK829002-C	CAL1611C
	1	1	SK829002-D	CAL1611D
	1	1	SK829002-E	CCL1611E (2)
Mechanical interlock unit for two horizontal mounted contactors				
EK550, EK1000			SK829070-F	SK829070-F
Connecting sets				
EK550			SK829090-E	SK829090-E
EK1000			SK829090-H	SK829090-H



BSS550 ... BSS1000

1) See 'Main accessory fitting details' table.
2) Mounting of CCL1611E blocks does not allow an additional second block to be added on top of it. All DC operated EK contactors are equipped with one CCL1611E on the right side.



RC-EH

Surge suppressors

For contactors	Rated control voltage Uc			Factory code	Order code
	V	AC	DC		
EK550, EK1000	48...110	●	—	SK829007-C	SK829007-C
EK550, EK1000	24...125	—	●	SK829007-C	SK829007-C
EK550, EK1000	220...600	●	—	SK829007-D	SK829007-D

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

STOCK | INDENT

NF 4-pole contactor relays

AC / DC operated



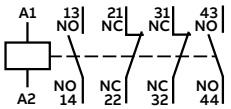
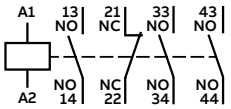
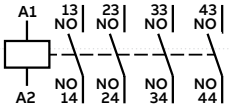
NF22E

Description

NF contactor relays are used for switching auxiliary and control circuits.
These contactor relays are of the block type design with:

- 4 poles. Contactor relays have mechanically linked auxiliary contact elements (side-marked symbol)
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
  - can manage large control voltage variations
  - only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - reduced panel energy consumption
  - very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

Ordering details

Number of contactors	Rated control voltage Uc		Factory code	Order code
	50/60 Hz			
	V AC	V DC		
	24...60	20...60	1SBH137001R4122	NF22E11
	100...250	100...250	1SBH137001R1322	NF22E13
	24...60	20...60	1SBH137001R4131	NF31E11
	100...250	100...250	1SBH137001R1331	NF31E13
	24...60	20...60	1SBH137001R4140	NF40E11
	100...250	100...250	1SBH137001R1340	NF40E13

NF..E11 not suitable for direct control by PLC-output. Please use NF(Z) Contactor Relays.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

NF 8-pole contactor relays

AC / DC operated



NF44E



NF33/11



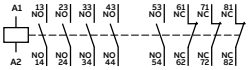
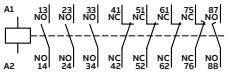
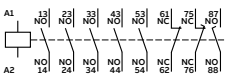
NF51/11

Description

NF contactor relays are used for switching auxiliary and control circuits.
These contactor relays are of the block type design with:

- 8 poles with a permanently fixed 4pole auxiliary contact block. Contactor relays have mechanically linked auxiliary contact elements (sidemarked symbol) except for NF33/11 and NF51/11 variants
- overlapping of lagging / leading contacts for NF33/11 and NF51/11 variants
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
  - can manage large control voltage variations
  - only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - reduced panel energy consumption
  - very distinct closing and opening
- builtin surge suppression
- addon auxiliary contact blocks for side mounting and a wide range of accessories.

Ordering details

Number of contactors		Rated control voltage		Factory code	Order code
		50/60 Hz			
1st stack	2nd stack	V AC	V DC		
8 pole contactor relays					
		24...60	20...60 (1)	1SBH137001R1144	NF44E11
		100...250	100...250	1SBH137001R1344	NF44E13
		24...60	20...60 (1)	1SBH137001R1153	NF53E11
		100...250	100...250	1SBH137001R1353	NF53E13
		24...60	20...60 (1)	1SBH137001R1162	NF62E11
		100...250	100...250	1SBH137001R1362	NF62E13
		24...60	20...60 (1)	1SBH137001R1171	NF71E11
		100...250	100...250	1SBH137001R1371	NF71E13
		24...60	20...60 (1)	1SBH137001R1180	NF80E11
		100...250	100...250	1SBH137001R1380	NF80E13
8 pole contactor relays with overlapping of lagging / leading contacts					
		24...60	20...60 (1)	1SBH137001R1139	NF33/1111
		48...130	48...130	1SBH137001R1239	NF33/1112
		100...250	100...250	1SBH137001R1339	NF33/1113
		250...500	250...500	1SBH137001R1439	NF33/1114
		24...60	20...60 (1)	1SBH137001R1159	NF51/1111
		48...130	48...130	1SBH137001R1259	NF51/1112
		100...250	100...250	1SBH137001R1359	NF51/1113
		250...500	250...500	1SBH137001R1459	NF51/1114

1) NF..11 not suitable for direct control by PLC output.
Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

STOCK | INDENT

NF 4-pole and 8-pole contactor relays

Main accessories



CA410



CA422N



CAL411



TEF4-ON



LDC4



BX4

BX4CA

Ordering details [1]

For contactors	Auxiliary contacts				Factory code	Order code
Front-mounted instantaneous auxiliary contact blocks						
4-pole NF	1	0	–	–	1SBN010110R1010	CA410
	0	1	–	–	1SBN010110R1001	CA401
	4	0	–	–	1SBN010140R1240	CA440N
	3	1	–	–	1SBN010140R1231	CA431N
	2	2	–	–	1SBN010140R1222	CA422N
	1	3	–	–	1SBN010140R1213	CA413N
NF...40E	0	4	–	–	1SBN010140R1204	CA404N
Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact						
4-pole NF	–	–	1	0	1SBN010111R1010	CC410
	–	–	0	1	1SBN010111R1001	CC401
Side-mounted instantaneous auxiliary contact blocks						
NF	1	1	–	–	1SBN010120R1011	CAL411
	1	1	–	–	1SBN010120T1011	CAL411T

For contactors	Time delay range selected by switch	Delay type	Auxiliary contacts		Factory code	Order code
Electronic timers						
NF	0.1...1 s 1...10 s 10...100 s	ON-delay	1	1	1SBN020112R1000	TEF4-ON
		OFF-delay	1	1	1SBN020114R1000	TEF4-OFF

Note:
Rated control circuit voltage Uc 24...240 V 50/60 Hz or DC.

Additional coil terminal block

NF	1SBN070156T1000	LDC4

Protective covers

All 1-stack contactor relays	1SBN110108T1000	BX4
4-pole CA4 auxiliary contact blocks and TEF4 electronic timer	1SBN110109W1000	BX4CA

1) For more information, refer to main Technical Catalogue: 1SBC100192C0206 'Accessories' section.

Contactors for capacitor switching
The ABB solutions

ABB offers 3 contactor versions according to the value of the inrush current peak and the power of the capacitor bank.

UA..RA contactors for capacitor switching (UA16..RA to UA110..RA) with insertion of damping resistors
The insertion of damping resistors protects the contactor and the capacitor from the highest inrush currents.
(Unlimited peak current **Î**)









UA contactors for capacitor switching (UA16 to UA110)
Maximum permissible peak current **Î** ≤ 100 times the nominal rms current of the switched capacitor.









AF contactors for capacitor switching (AF12...AF750)
Maximum permissable peak current ≤30 times the normal rms current of the switched capacitor.



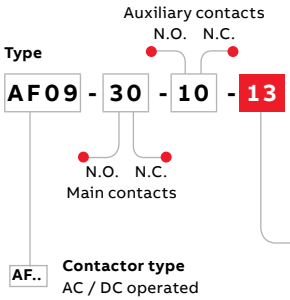



For selection tables, please see chapter 5 of the Motor protection and control – main catalogue (1SBC100192C0206)

Coil voltage code table

The below tables indicate the available coil voltages and corresponding digits for order codes. When placing an order, please give the order code. Select a standard contactor from ordering detail pages. Change the **coil voltage code** in the order code according to the table below. Example: for contactor AF400-30-11 and coil 100...250 V 50/60 Hz, the order code is 1SFL577001R**70**11.

AF09 ... AF370 3-pole contactors
AF09 ... AF370 4-pole contactors





	AC coil code 50/60 Hz	DC coil code
41	24...60 V	–
11	24...60 V	20...60 V
12	48...130 V	48...130 V
13	**100...250 V**	**100...250 V**
14	250...500 V	250...500 V

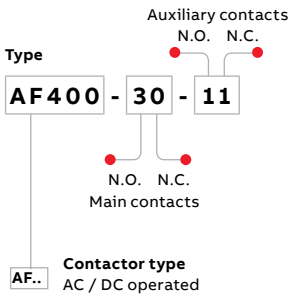
Coil 41: not available for AF116 ... AF370

Note: Please use coil code 13 for 110 V applications.

AF116 ... AF370 3-pole contactors with built-in PLC interface

	AC coil code 50/60 Hz	DC coil code
33	100...250 V	100...250 V
34	250...500 V	250...500 V

AF400 ... AF2650 3-pole contactors

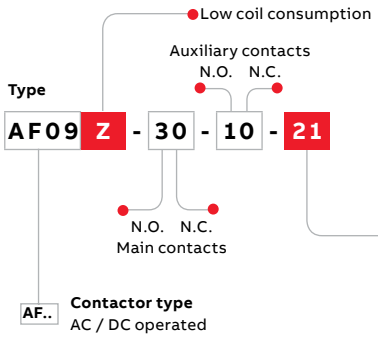




	AC coil code 50/60 Hz	DC coil code
68	–	24...60 V
69	**48...130 V**	**48...130 V**
70	100...250 V	100...250 V
71	250...500 V	250...500 V

Coil 68, 69, 71: not available for AF1350 ... AF2650

AF09 ... AF38 3- and 4-pole contactors – low consumption

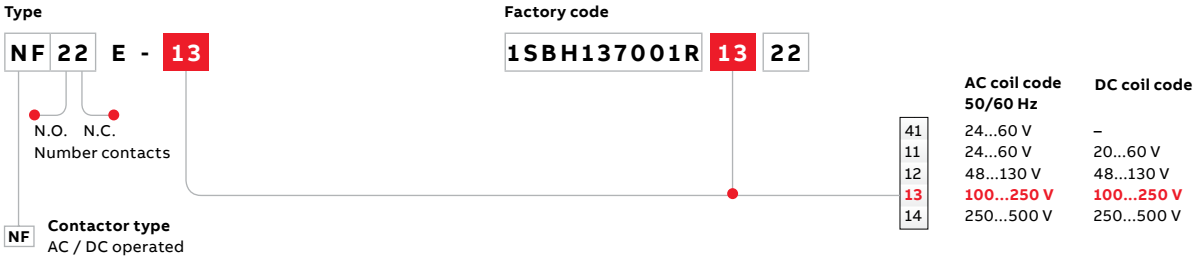




	AC coil code 50/60 Hz	DC coil code
20	–	12...20 V
21	**24...60 V**	**20...60 V**
22	48...130 V	48...130 V
23	100...250 V	100...250 V

Coil voltage code table

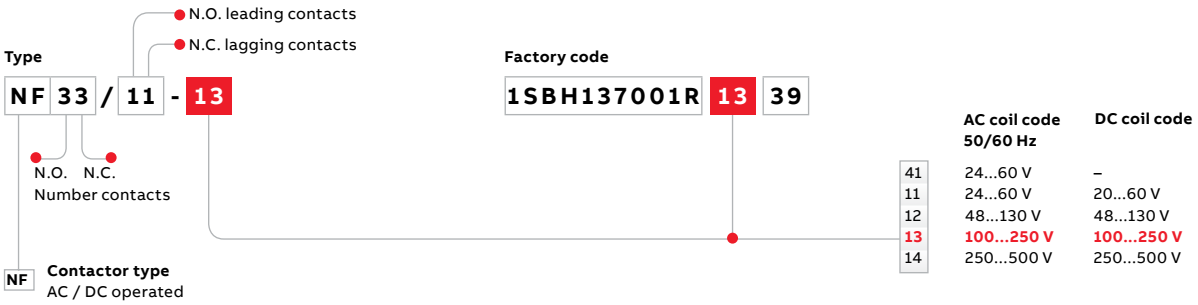
NF contactor relays



	AC coil code 50/60 Hz	DC coil code
41	24...60 V	–
11	24...60 V	20...60 V
12	48...130 V	48...130 V
13	**100...250 V**	**100...250 V**
14	250...500 V	250...500 V

Note: Please use coil code 13 for 110 V applications.

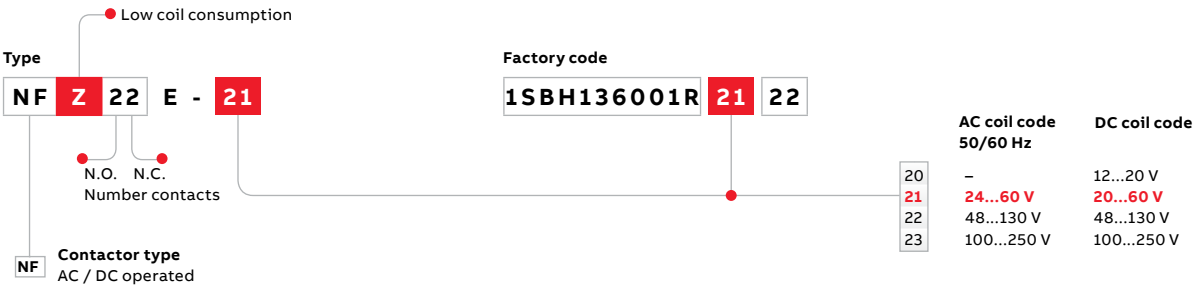
NF contactor relays with overlapping of lagging / leading contacts



	AC coil code 50/60 Hz	DC coil code
41	24...60 V	–
11	24...60 V	20...60 V
12	48...130 V	48...130 V
13	**100...250 V**	**100...250 V**
14	250...500 V	250...500 V

Note: Please use coil code 13 for 110 V applications.

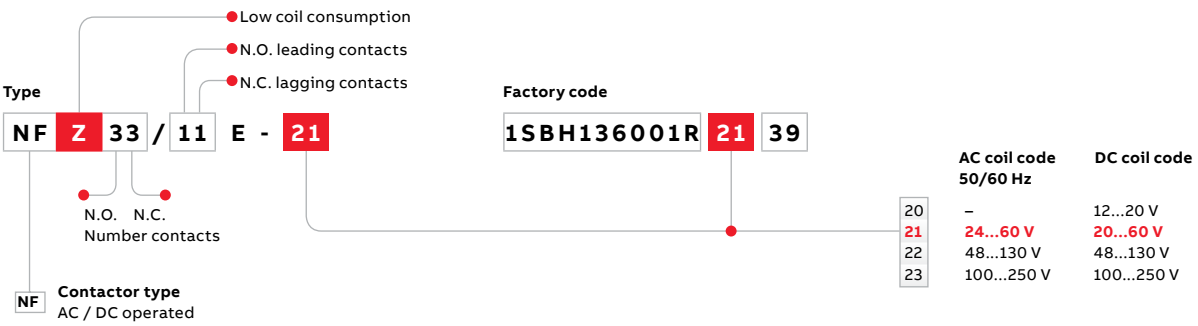
NF contactor relays – low consumption



	AC coil code 50/60 Hz	DC coil code
20	–	12...20 V
21	**24...60 V**	**20...60 V**
22	48...130 V	48...130 V
23	100...250 V	100...250 V

Note: Please use coil code 23 for 110 V applications.

NF contactor relays with overlapping of lagging / leading contacts – low consumption

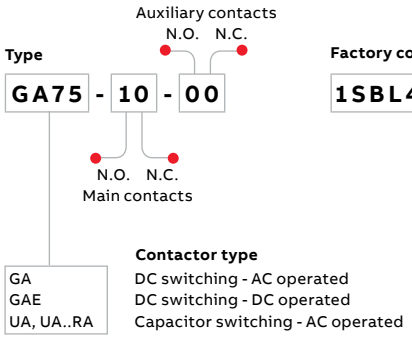


	AC coil code 50/60 Hz	DC coil code
20	–	12...20 V
21	**24...60 V**	**20...60 V**
22	48...130 V	48...130 V
23	100...250 V	100...250 V

Note: Please use coil code 23 for 110 V applications.

Coil voltage code table

UA, UA..RA contactors
GA contactors



Contactors: UA, UA..RA, GA

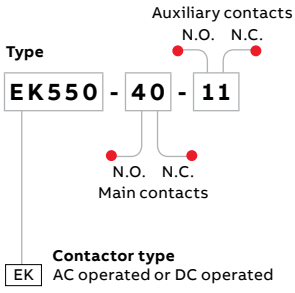
	AC coil code 50 Hz	60 Hz
81	**24 V**	**24 V**
16	26 V	28 V
17	28 V	32 V
82	**42 V**	42 V
20	42 V	48 V
83	**48 V**	48 V
73	**60 V**	60 V
74	**100 V**	100...110 V
26	105 V	110...127 V
84	**110 V**	110...120 V
89	110...**115 V**	115...127 V
29	120 V	140 V
30	125...127 V	150 V
34	175 V	208 V
36	190 V	220 V
40	210 V	240 V
80	220...**230 V**	**230**...240 V
88	230...**240 V**	**240**...260 V
42	230...240 V	277 V
85	380...**400 V**	**400**...415 V
86	400...**415 V**	**415**...440 V
50	400 V	440 V
51	400...415 V	480 V
87	**415...440 V**	**440...460 V**
53	440 V	500 V
55	500 V	600 V
56	550 V	–
58	660...690 V	–
59	–	690 V

Codes in bold for dual frequency coils.

Contactors: GAE

	DC coil code
80	12 V
81	24 V
82	42 V
83	48 V
21	50 V
84	60 V
85	75 V
86	110 V
87	125 V
88	220 V
89	240 V
38	250 V

EK550, EK1000 contactors



	AC coil code 50 Hz	60 Hz
AD	**48 V**	**–**
AE	–	110 V
AF	110 V	120 V
AG	127 V	–
AZ	–	208 V
AH	190 V	220 V
AK	–	240 V
AL	220...230 V	240 V
AM	230...240 V	–
AN	–	380 V
AP	380...400 V	440 V
AR	400...415 V	–
AS	–	480 V
AT	440 V	–
AU	500 V	–
AV	–	600 V

	Dual frequency coil code 50 Hz	60 Hz
EF	110 V	110...120 V
EG	110...115 V	115...127 V
EL	220 V	220...240 V
EM	220...230 V	230...255 V
EP	380 V	380...415 V
ER	380...400 V	400...440 V

2 auxiliary contact blocks maximum per contactor, ambient temperature ≤ 55 °C and mounting positions 2 and 6 excluded.

	DC coil code
DB	24 V
DC	36 V
DD	48 V
DT	60 V
DG	75 V
DE	110 V
DU	125 V
DF	220 V

New safety contactors

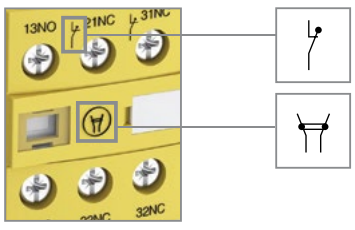
Contactors for safety applications with AF technology



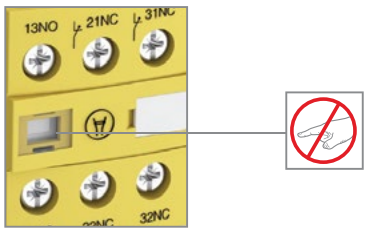
ABB'S new Contractors for safety with AF technology, complying with main safety standard EN ISO 13849 and EN 62061 completes ABB's range of safety joining and makes protection systems easier to build.

- 3 main poles
- permanently fixed auxiliary contact block. The built-in auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC / DC electronic coil
- can manage large control voltage variations
- built-in surge suppression
- suitable for use in Category 4 applications

IEC		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted		Order Code
Rated operational power 400 V AC-3	Current θ ≤ 40 °C AC-1					
kW	A	V 50/60 Hz	V DC			
4	25	24...60	24...60 (1)	2	2	AFS09302211
		100...250	100...250	2	2	AFS09302213
5.5	28	24...60	24...60 (1)	2	2	AFS12302211
		100...250	100...250	2	2	AFS12302213
7.5	30	24...60	24...60 (1)	2	2	AFS16302211
		100...250	100...250	2	2	AFS16302213
11	45	24...60	24...60 (1)	2	2	AFS26302211
		100...250	100...250	2	2	AFS26302213
15	50	24...60	24...60 (1)	2	2	AFS30302211
		100...250	100...250	2	2	AFS30302213
18.5	50	24...60	24...60 (1)	2	2	AFS38302211
		100...250	100...250	2	2	AFS38302213
22	100	24...60	24...60 (1)	2	2	AFS52302211
		100...250	100...250	2	2	AFS52302213
30	105	24...60	24...60 (1)	2	2	AFS65302211
		100...250	100...250	2	2	AFS65302213
37	125	24...60	24...60 (1)	2	2	AFS80302211
		100...250	100...250	2	2	AFS80302213
49	130	24...60	24...60 (1)	2	2	AFS96302211
		100...250	100...250	2	2	AFS96302213



Contactors status guaranteed with mechanically linked and mirror contacts.



Prevent unexpected operations with safety cap.

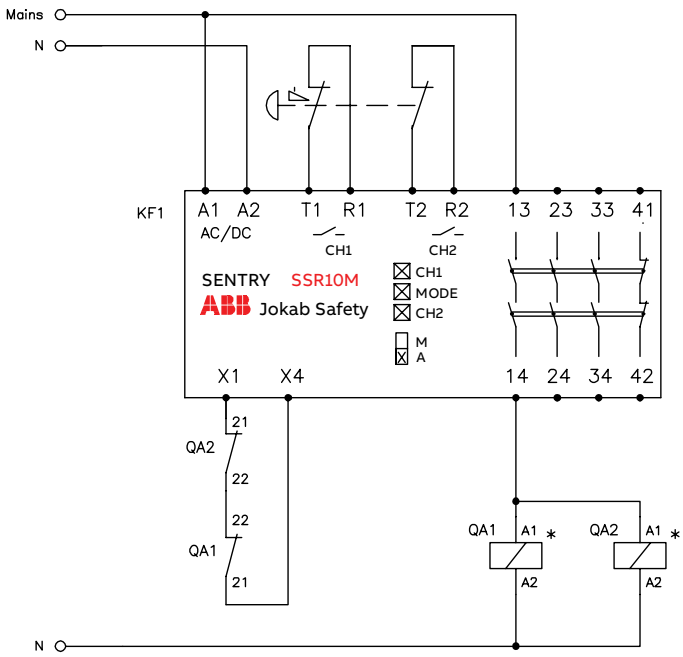
STOCK | INDENT

Safety Contactors

Contactors for safety applications with AF technology

AF09 ... AF96-30-22





*** Note:** Always use the transient suppressors, eg VOR's.
However, not required with AF Contactors which already have built-in suppression.

Bar contactors

85 to 5000 A

R contactors with variable number of poles and their variants (contactors with N.C. + N.O. poles, couplers...) are used for controlling power circuits up to 1000 V AC or 1500 V DC.

They are designed with common standard components. With the combination of these elements and the adaptation possibilities, special versions can be provided. Designed for long-lasting operation and demanding applications, the ABB R contactors are used for many applications all over the world.

Flexibility of design
- Variable number of poleAdjustable number of auxiliary contacts
- Optional combination of N.O. and N.C. poles
- Mechanical or magnetic latching available.

Easy maintenance
- Direct access to all the components of the contactor
- Complete and didactic instruction manual
- Spare parts available
- Dedicated service for bar contactors.

Exceptional durability
- Mechanical durability up to 10 millions operating cycles
- Mechanical switching frequency up to 1200 cycles per hour
- Electrical durability up to 350 000 operating cycles.

Ideal for heavy duty applications
- High making and breaking capacity
- Fully compatible with the requirements of utilization categories AC-3, DC-3 and DC-5 (control of AC / DC motors for mining, iron and steel industries...).

Custom-made solutions
- More than 60 years' experience in dealing with customers projects
- Development of solutions from specifications
- Pre-sales support to identify and define customer requirements
- Specialists available to help you, select your product or optimise your configuration.







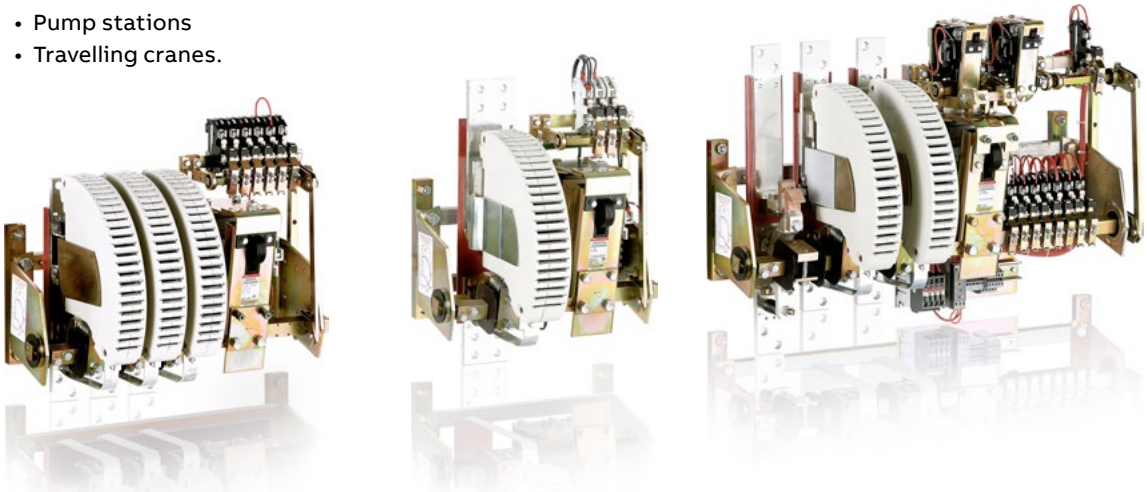

Bar contactors

For heavy duty applications



R contactors meet the particular requirements of each AC / DC control application up to 5000 A, where the demands are increasing:

- Power distribution
- Photovoltaic, hydroelectric power stations
- Batteries
- Mining
- Railway networks and rolling stock
- Induction furnaces
- Pump stations
- Travelling cranes.



Control your AC applications up to 5000 A

- AC-1 Rated operational current up to 5000 A
- AC-3 Rated power up to 1500 kW (1520 A – 440 V)

Control your DC applications up to 5000 A

- DC-1 Rated operational current up to 5000 A
- DC-3 / DC-5 Rated operational current up to 2000 A
- 1500 V with poles in series

Special applications

- AC / DC coupling: LOR.. contactors
- Slip ring motor control: FOR.. contactors
- AC / DC switching (N.C. / N.O. main poles): NOR & JOR.. contactors
- Latching contactors for energy saving and safety requirements: AMA or AME contactors
- Field discharge: AM(F)-CC-JORE.. contactors

ABB .....
Contact person .....
Tel. .....

Questionnaire

Specification for Bar contactors

Customer ..... Contact person ..... Date .....
Tel. ..... E-mail .....
Quantity ..... Requested delivery date .....
Project / Application .....

Power circuit

AC switching

Application type

- ☐ AC-1 (resistive load)
- ☐ AC-3 (direct starting, switching off running motors)
- ☐ No load breaking
- ☐ Other .....

Number of poles: N.O. ..... N.C. .....
Rated operational current Ie: ..... A
Max. making current: ..... A
Max. breaking current: ..... A
Rated operational voltage Ue: ..... V ..... Hz

OR

DC switching

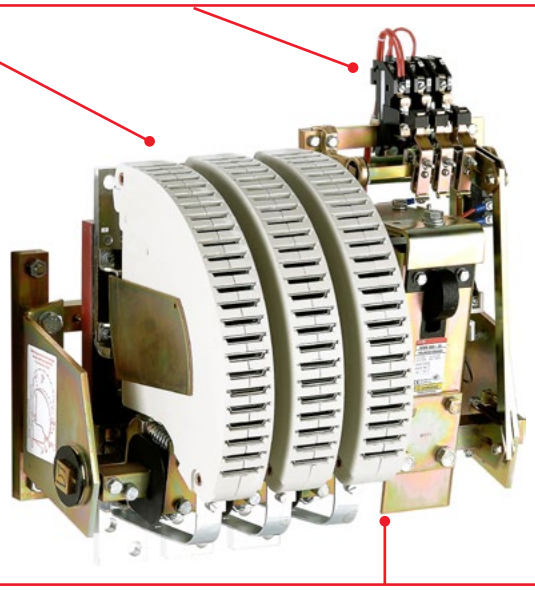
Application type

- ☐ DC-1 (resistive load)
- ☐ DC-3 (shunt motors)
- ☐ DC-5 (series motors)
- ☐ No load breaking
- ☐ Other ..... L/R ..... ms

Number of poles: N.O. ..... N.C. .....
Rated operational current Ie: ..... A
Making current: ..... A
Breaking current: min. ..... A max. ..... A
Rated operational voltage Ue: ..... V DC

Auxiliary contacts

Number of N.O. auxiliary contacts .....
Number of N.C. auxiliary contacts .....



Control circuit (coil)

- ☐ AC Voltage ..... V ..... Hz
- ☐ DC Voltage ..... V DC

Options

- ☐ Magnetical latching
- ☐ Mechanical latching

Operating conditions

Switching frequency ..... cycles/h
Mech. durability required (millions of operating cycles) .....
Remarks .....
.....

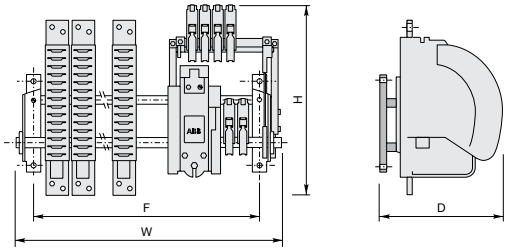
Accessories

.....
.....

(Please add any other useful documents for further information.
e.g. technical specification, drawing, wiring diagram etc.)

Replacement of an existing contactor

Brand: .....
Type: .....
Fixing dimension: F = ... mm
Overall dimensions: W = ... mm
H = ... mm
D = ... mm



Please photocopy and email to: AU-EP-Sales@abb.com

Questionnaire also available on the ABB website: **www.abb.com/lowvoltage**, under the following directory:
Our Offering / Automation, control and protection / Motor protection and control / R bar contactors for advanced ... / Questionnaire


ABB

Thermal and electronic overload relays

516	**Overview**
518	**Thermal overload relays**
524	**Electronic overload relays**



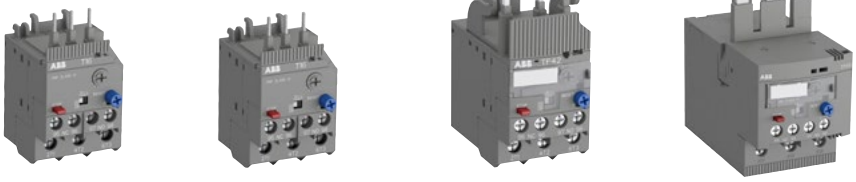
For more detailed product information, please refer to the Technical Catalogue:

- Motor protection and control: Manual motor starters, contactors and overload relays – 1SBC100192C0206

Thermal and electronic overload relays

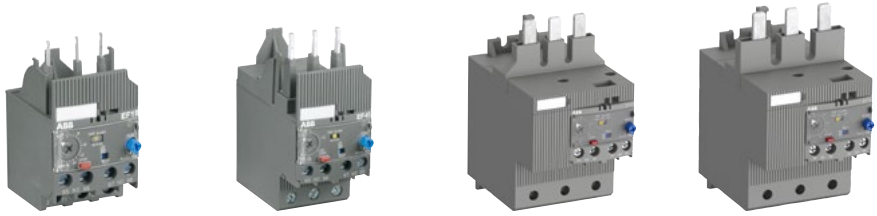
Overview

Thermal overload relays



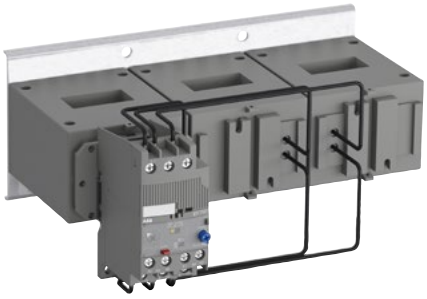
IEC: rated operational power AC-3	400 V	0.06 ... 7.5 kW	0.06 ... 7.5 kW	0.06 ... 18.5 kW	11 ... 37 kW
UL/CSA: 3-phase hp-ratings	480 V	1/2 ... 10 hp	1/2 ... 10 hp	1/2 ... 25 hp	15 ... 50hp
Fitting to contactors		B6, B7	AS09 ... AS16	AF09 ... AF38	AF40, AF52, AF65
Type		**T16**	**T16**	**TF42**	**TF65**
Current range		0.10 ... 16 A	0.10 ... 16 A	0.10 ... 38 A	22 ... 67 A
Trip class		10	10	10	10
Single mounting kit		DB16	DB16	DB42	DB65

Electronic overload relays
with integrated CT



IEC: rated operational power AC-3	400 V	0.06 ... 7.5 kW	0.06 ... 7.5 kW	4 ... 22 kW	7.5 ... 37 kW
UL/CSA: 3-phase hp-ratings	480 V	1/2 ... 10 hp	1/2 ... 10 hp	5 ... 30 hp	15 ... 50 hp
Fitting to contactors		B6, B7, BC6, BC7, VB6, VB7, VBC6, VBC7	AF09 ... AF16	AF26 ... AF38	AF40, AF52, AF65
Type		**E16DU**	**EF19**	**EF45**	**EF65**
Current range		0.10 ... 18.9 A	0.10 ... 18.9 A	9 ... 45 A	20 ... 70 A
Trip class		10E, 20E, 30 selectable			
Single mounting kit		DB16E	DB19EF	DB45EF	–

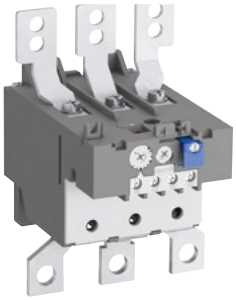
Electronic overload relays
with external separate CT



IEC: rated operational power AC-3	400 V	75 ... 250 kW	132 ... 400 kW
UL/CSA: 3-phase hp-ratings	480 V	100 ... 400 hp	200 ... 500 hp
Fitting to contactors		AF400, AF460	AF580, AF750
Type		**EF460**	**EF750**
Current range		150 ... 800 A	250 ... 800 A
Trip class		10E, 20E, 30E selectable	







18.5 ... 45 kW	37 ... 75 kW	37 ... 110 kW
30 ... 75 hp	50 ... 100 hp	50 ... 150 hp
AF80, AF96	AF116, AF140	AF190, AF205
TF96	**TF140DU**	**TA200DU**
40 ... 96A	66 ... 142 A	66 ... 200 A
10	10A	10A
DB96	-	DB200









22 ... 55 kW	30 ... 75 kW	37 ... 110 kW	75 ... 200 kW
30 ... 75 hp	50 ... 100 hp	50 ... 150 hp	100 ... 300 hp
AF80, AF96	AF116, AF140, AF146	AF190, AF206	AF265, AF305, AF370
EF96	**EF146**	**EF205**	**EF370**
20 ... 100 A	54 ... 150 A	63 ... 210A	115 ... 380 A
10E, 20E, 30E selectable			
DB96	–	–	

T16 thermal overload relays

0.10 to 16.0 A



T16



T16 + DB16



KPR3-101L



DB16

Description

The T16 / TF42 / TF65 / TF96 / TF140DU / TA200DU thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10.
The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bend as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications

T16 overload relay

Suitable for Contactors
B6, BC6, VB6, VBC6
B7, BC7, VB7, VBC7
AS09 ...AS16
ASL09 ...ASL16

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
0.10 ... 0.13	0.5 A, fuse type T	10	1SAZ711201R1005	T16-0.13
0.13 ... 0.17	1.0 A, fuse type T	10	1SAZ711201R1008	T16-0.17
0.17 ... 0.23	1.0 A, fuse type T	10	1SAZ711201R1009	T16-0.23
0.23 ... 0.31	1.0 A, fuse type T	10	1SAZ711201R1013	T16-0.31
0.31 ... 0.41	2.0 A, fuse type gG	10	1SAZ711201R1014	T16-0.41
0.41 ... 0.55	2.0 A, fuse type gG	10	1SAZ711201R1017	T16-0.55
0.55 ... 0.74	4.0 A, fuse type gG	10	1SAZ711201R1021	T16-0.74
0.74 ... 1.00	6.0 A, fuse type gG	10	1SAZ711201R1023	T16-1.0
1.00 ... 1.30	6.0 A, fuse type gG	10	1SAZ711201R1025	T16-1.3
1.30 ... 1.70	10.0 A, fuse type gG	10	1SAZ711201R1028	T16-1.7
1.70 ... 2.30	10.0 A, fuse type gG	10	1SAZ711201R1031	T16-2.3
2.30 ... 3.10	10.0 A, fuse type gG	10	1SAZ711201R1033	T16-3.1
3.10 ... 4.20	20.0 A, fuse type gG	10	1SAZ711201R1035	T16-4.2
4.20 ... 5.70	20.0 A, fuse type gG	10	1SAZ711201R1038	T16-5.7
5.70 ... 7.60	35.0 A, fuse type gG	10	1SAZ711201R1040	T16-7.6
7.60 ... 10.0	35.0 A, fuse type gG	10	1SAZ711201R1043	T16-10
10.0 ... 13.0	40.0 A, fuse type gG	10	1SAZ711201R1045	T16-13
13.0 ... 16.0	40.0 A, fuse type gG	10	1SAZ711201R1047	T16-16

Ordering details accessories

Suitable for	Description	Factory code	Order code
T16	Single mounting kit	1SAZ701901R0001	DB16
T16	Reset push button	1SFA616162R1014	KPR3-101L

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

STOCK | INDENT

TF42 thermal overload relays

0.10 to 38.0 A



TF42



DB42



TF42 + DB42



KPR3-101L

TF42 overload relay

Suitable for Contactors
AF09 ...AF38

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
0.10 ... 0.13	0.5 A, fuse type T	10	1SAZ721201R1005	TF42-0.13
0.13 ... 0.17	1.0 A, fuse type T	10	1SAZ721201R1008	TF42-0.17
0.17 ... 0.23	1.0 A, fuse type T	10	1SAZ721201R1009	TF42-0.23
0.23 ... 0.31	1.0 A, fuse type T	10	1SAZ721201R1013	TF42-0.31
0.31 ... 0.41	2.0 A, fuse type gG	10	1SAZ721201R1014	TF42-0.41
0.41 ... 0.55	2.0 A, fuse type gG	10	1SAZ721201R1017	TF42-0.55
0.55 ... 0.74	4.0 A, fuse type gG	10	1SAZ721201R1021	TF42-0.74
0.74 ... 1.00	6.0 A, fuse type gG	10	1SAZ721201R1023	TF42-1.0
1.00 ... 1.30	6.0 A, fuse type gG	10	1SAZ721201R1025	TF42-1.3
1.30 ... 1.70	10.0 A, fuse type gG	10	1SAZ721201R1028	TF42-1.7
1.70 ... 2.30	10.0 A, fuse type gG	10	1SAZ721201R1031	TF42-2.3
2.30 ... 3.10	10.0 A, fuse type gG	10	1SAZ721201R1033	TF42-3.1
3.10 ... 4.20	20.0 A, fuse type gG	10	1SAZ721201R1035	TF42-4.2
4.20 ... 5.70	20.0 A, fuse type gG	10	1SAZ721201R1038	TF42-5.7
5.70 ... 7.60	35.0 A, fuse type gG	10	1SAZ721201R1040	TF42-7.6
7.60 ... 10.0	35.0 A, fuse type gG	10	1SAZ721201R1043	TF42-10
10.0 ... 13.0	40.0 A, fuse type gG	10	1SAZ721201R1045	TF42-13
13.0 ... 16.0	40.0 A, fuse type gG	10	1SAZ721201R1047	TF42-16
16.0 ... 20.0	63.0 A, fuse type gG	10	1SAZ721201R1049	TF42-20
20.0 ... 24.0	63.0 A, fuse type gG	10	1SAZ721201R1051	TF42-24
24.0 ... 29.0	63.0 A, fuse type gG	10	1SAZ721201R1052	TF42-29
29.0 ... 35.0	80.0 A, fuse type gG	10	1SAZ721201R1053	TF42-35
35.0 ... 38.0/40.0	80.0 A, fuse type gG	10	1SAZ721201R1055	TF42-38

Ordering details accessories

Suitable for	Description	Factory code	Order code
TF42	Single mounting kit	1SAZ701902R0001	DB42
TF42	Reset push button	1SFA616162R1014	KPR3-101L
TF42	Remote reset coil 24-30 V AC/DC	1SAX101911R1001	DRS-F-01
TF42	Remote reset coil 48-60 V AC/DC	1SAX101911R1002	DRS-F-02
TF42	Remote reset coil 110-127 V AC/DC	1SAX101911R1003	DRS-F-03
TF42	Remote reset coil 220-240 V AC/DC	1SAX101911R1004	DRS-F-04

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

TF65 thermal overload relays

22.0 to 67.0 A



TF65

TF65 overload relay

Suitable for Contactors
AF40 ...AF65



DB65 DB65 mounted on TF65

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
22.0 ... 28.0	80 A, gG Type Fuses	10	1SAZ811201R1001	TF65-28
25.0 ... 33.0	80 A, gG Type Fuses	10	1SAZ811201R1002	TF65-33
30.0 ... 40.0	100 A, gG Type Fuses	10	1SAZ811201R1003	TF65-40
36.0 ... 47.0	125 A, gG Type Fuses	10	1SAZ811201R1004	TF65-47
44.0 ... 53.0	125 A, gG Type Fuses	10	1SAZ811201R1005	TF65-53
50.0 ... 60.0	125 A, gG Type Fuses	10	1SAZ811201R1006	TF65-60
57.0 ... 67.0	160 A, gG Type Fuses	10	1SAZ811201R1007	TF65-67



KPR3-101L

Ordering details accessories

Suitable for	Description	Factory code	Order code
TF65	Single mounting kit	1SAZ801901R1001	DB65
	Reset push button	1SFA616162R1014	KPR3-101L
TF65	Remote reset coil 24-30 V AC/DC	1SAX101911R1001	DRS-F-01
TF65	Remote reset coil 48-60 V AC/DC	1SAX101911R1002	DRS-F-02
TF65	Remote reset coil 110-127 V AC/DC	1SAX101911R1003	DRS-F-03
TF65	Remote reset coil 220-240 V AC/DC	1SAX101911R1004	DRS-F-04

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

TF96 thermal overload relays

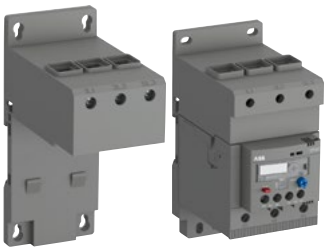
40.0 to 96.0 A



TF96

TF96 overload relay

Suitable for Contactors
AF80 ...AF96



DB96 DB96 mounted on TF96

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
40.0 ... 51.0	125 A, gG Type Fuses	10	1SAZ911201R1001	TF96-51
48.0 ... 60.0	160 A, gG Type Fuses	10	1SAZ911201R1002	TF96-60
57.0 ... 68.0	160 A, gG Type Fuses	10	1SAZ911201R1003	TF96-68
65.0 ... 78.0	200 A, gG Type Fuses	10	1SAZ911201R1004	TF96-78
75.0 ... 87.0	200 A, gG Type Fuses	10	1SAZ911201R1005	TF96-87
84.0 ... 96.0	250 A, gG Type Fuses	10	1SAZ911201R1006	TF96-96



KPR3-101L

Ordering details accessories

Suitable for	Description	Factory code	Order code
TF96	Single mounting kit	1SAZ901901R1001	DB96
	Reset push button	1SFA616162R1014	KPR3-101L
TF96	Remote reset coil 24-30 V AC/DC	1SAX101911R1001	DRS-F-01
TF96	Remote reset coil 48-60 V AC/DC	1SAX101911R1002	DRS-F-02
TF96	Remote reset coil 110-127 V AC/DC	1SAX101911R1003	DRS-F-03
TF96	Remote reset coil 220-240 V AC/DC	1SAX101911R1004	DRS-F-04

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

TF140DU thermal overload relays

66 to 142 A



TF140DU

TF140DU overload relay

Suitable for Contactors
AF116, AF140

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
66 ... 90	200 A, fuse type gG	10A	1SAZ431201R1001	TF140DU-90
80 ... 110	224 A, fuse type gG	10A	1SAZ431201R1002	TF140DU-110
100 ... 135	224 A, fuse type gG	10A	1SAZ431201R1003	TF140DU-135
110 ... 142	250 A, fuse type gG	10A	1SAZ431201R1004	TF140DU-142



KPR3-101L

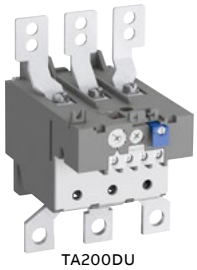
Ordering details accessories

Suitable for	Description	Factory code	Order code
TF65	Reset push button	1SFA616162R1014	KPR3-101L

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

TA200DU thermal overload relays

66 to 200 A



TA200DU



KPR3-101L

TA200DU overload relay

Suitable for Contactors
AF190, AF208

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
66 ... 90	200 A, fuse type gG / 125 A aM	10A	1SAZ421201R1001	TA200DU-90
80 ... 110	224 A, fuse type gG / 160 A aM	10A	1SAZ421201R1002	TA200DU-110
100 ... 135	224 A, fuse type gG / 200 A aM	10A	1SAZ421201R1003	TA200DU-135
110 ... 150	250 A, fuse type gG / 200 A aM	10A	1SAZ421201R1004	TA200DU-150
130 ... 175	315 A, fuse type gG / 250 A aM	10A	1SAZ421201R1005	TA200DU-175
150 ... 200	315 A, fuse type gG / 250 A aM	10A	1SAZ421201R1006	TA200DU-200

Ordering details accessories

Suitable for	Description	Factory code	Order code
TA200DU	Terminal shroud	1SAZ401901R1001	LT200/A
TA200DU	Single mounting kit	1SAZ401110R0001	DB200
TA200DU	Reset push button	1SFA616162R1014	KPR3-101L

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

STOCK | INDENT

E16DU electronic overload relays

0.10 to 18.9 A



E16DU



KPR3-101L

Description

The E16DU / EF19 / EF45 / EF65 / EF96 / EF146/ EF205 / EF370 are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic overload relay is convincing, above all, due to its wide setting range, high accuracy, high operational temperature range and the possibility to select a trip class (10E, 20E, 30E). Further features are the temperature compensation, trip contact (N.C.), signal contact (N.O.), automatic or manual reset selectable, trip-free mechanism, STOP and TEST function and a trip indication. The overload relays are connected directly to the contactors.

Note:
Electronic overload relays are only available for three-phase applications.

E16DU overload relay

Suitable for Contactors
B6, BC6, VBC6
B7, BC7, VB7, VBC7
AS09 ...AS16, AS209 ...AS296

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
E16DU electronic overload relays				
0.10 ... 0.32	1 A, fuse type gG	10E, 20E, 30E	1SAX111001R1101	E16DU-0.32
0.30 ... 1.00	4 A, fuse type gG	10E, 20E, 30E	1SAX111001R1102	E16DU-1.0
0.80 ... 2.70	10 A, fuse type gG	10E, 20E, 30E	1SAX111001R1103	E16DU-2.7
1.90 ... 6.30	20 A, fuse type gG	10E, 20E, 30E	1SAX111001R1104	E16DU-6.3
5.70 ... 18.9	50 A, fuse type gG	10E, 20E, 30E	1SAX111001R1105	E16DU-18.9

Ordering details accessories

Suitable for	Description	Factory code	Order code
E16DU	Single mounting kit	1SAX101110R0001	DB16E
E16DU, E45DU, E80DU. E140DU	Reset push button*	1SFA616162R1014	KPR3-101L

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

EF19, EF45 electronic overload relays

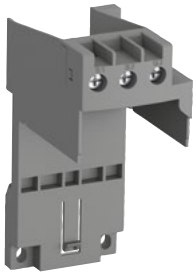
0.10 to 45.0 A



EF19



EF45



DB19EF



KPR3-101L

EF19 and EF45 overload relays

Overload relay	Suitable for Contactors
EF19	AF09 ...AF16
EF45	AF26 ...AF38

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
EF19 electronic overload relays				
0.10 ... 0.32	1 A, fuse type gG	10E, 20E, 30E	1SAX121001R1101	EF19-0.32
0.30 ... 1.00	4 A, fuse type gG	10E, 20E, 30E	1SAX121001R1102	EF19-1.0
0.80 ... 2.70	10 A, fuse type gG	10E, 20E, 30E	1SAX121001R1103	EF19-2.7
1.90 ... 6.30	20 A, fuse type gG	10E, 20E, 30E	1SAX121001R1104	EF19-6.3
5.70 ... 18.9	50 A, fuse type gG	10E, 20E, 30E	1SAX121001R1105	EF19-18.9
EF45 electronic overload relays				
9.00 ... 30.0	160 A, fuse type gG	10E, 20E, 30E	1SAX221001R1101	EF45-30
15.0 ... 45.0	160 A, fuse type gG	10E, 20E, 30E	1SAX221001R1102	EF45-45

Ordering details accessories

Suitable for	Description	Factory code	Order code
EF19	Single mounting kit	1SAX101910R1001	DB19EF
EF19, EF45	Reset push button	1SFA616162R1014	KPR3-101L
EF45	Single mounting kit	1SAX201910R0001	DB45EF

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

EF65, EF96, EF146 electronic overload relays

20 to 150 A



EF65



EF96



DB96 EF96 mounted on DB96



EF146-150



KPR3-101L

EF65, EF96 and EF146 overload relays

Overload relay	Suitable for Contactors
EF65	AF40 ...AF65
EF96	AF80, AF96
EF146	AF116 ...AF146

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
20 ... 56	160 A, fuse type gG	10E, 20E, 30E	1SAX331001R1102	EF65-56
25 ... 70	160 A, fuse type gG	10E, 20E, 30E	1SAX331001R1101	EF65-70
20 ... 56	160 A, fuse type gG	10E, 20E, 30E	1SAX341001R1102	EF96-56
36 ... 100	200 A, fuse type gG	10E, 20E, 30E	1SAX341001R1101	EF96-100
54 ... 150	315 A, fuse type gG	10E, 20E, 30E	1SAX351001R1101	EF146-150

Ordering details accessories

Suitable for	Description	Factory code	Order code
EF96	Single mounting kit	1SAZ901901R1001	DB96
EF65, EF96, EF146	Reset push button	1SFA616162R1014	KPR3-101L

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

EF205, EF370 electronic overload relays

63 to 380 A



EF205



EF370



KPR3-101L

EF205 and EF370 overload relays

Overload relay	Suitable for Contactors
EF205	AF190, AF205
EF370	AF265, AF305, AF370

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
63 ... 210	1250 A, fuse type gG	10E, 20E, 30E	1SAX531001R1101	EF205
115 ... 380	1600 A, fuse type gG	10E, 20E, 30E	1SAX611001R1101	EF370

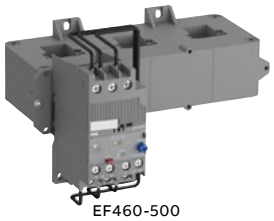
Ordering details accessories

Suitable for	Description	Factory code	Order code
EF205, EF370	Reset push button	1SFA616162R1014	KPR3-101L

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

EF460-500, EF750-800 electronic overload relays

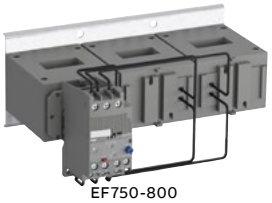
150 to 800 A



EF460-500

Description

The EF460-500 and EF750-800 are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic overload relay is convincing, above all, due to its wide setting range, high accuracy, high operational temperature range and the possibility to select a trip class (10E, 20E, 30E). Further features are the temperature compensation, trip contact (N.C.), signal contact (N.O.), automatic or manual reset selectable, trip-free mechanism, STOP and TEST function and a trip indication. Busbar kits are available as accessory for contactor mounting.



EF750-800

EF460-500 and EF750-800 overload relays

Overload relay	Suitable for Contactors
EF460-500	AF400, AF460
EF750-800	AF580, AF750



KPR3-101L

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
EF460-500 electronic overload relay				
150 ... 500	690 V: 630 A, Type gG 1000 V: 1600 A, Type gG	10E, 20E, 30E	1SAX721001R1101	EF460-500
EF750-800 electronic overload relay				
250 ... 800	690 V: 800 A, Type gG 1000 V: 1600 A, Type gG	10E, 20E, 30E	1SAX821001R1101	EF750-800

Ordering details accessories

Suitable for	Description	Factory code	Order code
EF460-500, EF750-800	Reset push button	1SFA616162R1014	KPR3-101L

Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

Notes


ABB

Electromechanical motor starter coordination tables

532 **Online tool – Selected optimised coordination**

533 **Direct-on-line (normal start) protected by thermal overload relay**

534 **Direct-on-line (normal start) protected by manual motor starter**

535 **Direct-on-line (normal start) protected by moulded case circuit breaker**

For more detailed product information, please refer to the Technical Catalogue:

- http://applications.it.abb.com/SOC/Page/Selection.aspx

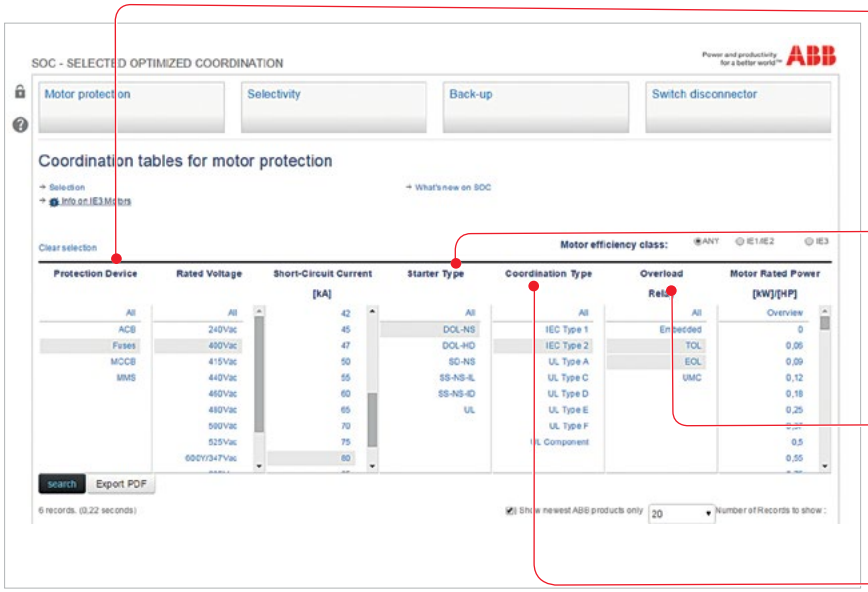
Coordination tables for motor protection

Online tool – Selected optimised coordination

A complete data base of coordination tables, according to **IEC 60947-4-1 (EN 60947-4-1)** or **UL 508 / UL 60947-4-1**, is available on the ABB Website: see below.

Selection

Simple or multiple selections all from the same screen.



Short-circuit protection devices
- Air circuit breakers
- Fuses ‘gG’ or ‘aM’
- Miniature circuit breaker
- Moulded case circuit breaker
- Manual motor starter

Starter type
- Direct-on-line normal start
- Direct-on-line heavy duty
- Star-delta normal start
- Soft starter normal start

Overload relay
- TOL : thermal overload relay
- EOL : electronic overload relay
- UMC : Universal motor controller

Coordination
- IEC type 1 or type 2 coordination
- UL type A to Type F

Note:
For more information on coordination tables for motor protection, please see:
http://applications.it.abb.com/SOC/Page/Selection.aspx

Coordination tables for motor protection

Direct-on-line (normal start) protected by thermal overload relay

SCPD type:	Fuses	**Rated voltage:**	400 V AC
Short circuit current:	100 kA	**Starting type:**	Direct-On-Line (Normal Start)
Coordination type:	IEC Type 2	**Overload relay:**	Thermal Overload Relay
Disconnecting mean present:	No	**Backup / limitor present:**	No
Current transformer present:	No	**Frequency:**	50-60 Hz
Motor Efficiency Class:	IE1 + IE2 + IE3		

Motor			Fuses IEC		Contactor	Overload relay		Max. allowed load current
Rated power	**Rated current**	**Switch-fuse type**	**Rating gG/aM**	**Type and size**	**Type**	**Type**	**Current range**	
	A		**A**				**A**	**A**
0,12	0,44	OS32GD03P	2	OFAF000H2	AF09	TF42-0.55	0,42 - 0,55	0,55
0,18	0,60	OS32GD03P	4	OFAF000H4	AF09	TF42-0.74	0,55 - 0,74	0,74
0,25	0,85	OS32GD03P	4	OFAF000H4	AF09	TF42-1.0	0,74 - 1,00	1,00
0,37	1,10	OS32GD03P	6	OFAF000H6	AF09	TF42-1.3	1,00 - 1,30	1,30
0,55	1,50	OS32GD03P	6	OFAF000H6	AF09	TF42-1.7	1,30 - 1,70	1,70
0,75	1,90	OS32GD03P	6	OFAF000H6	AF09	TF42-2.3	1,70 - 2,30	2,00
1,10	2,70	OS32GD03P	10	OFAF000H10	AF09	TF42-3.1	2,30 - 3,10	3,10
1,50	3,60	OS32GD03P	16	OFAF000H16	AF09	TF42-4.2	3,10 - 4,20	4,20
2,20	4,90	OS32GD03P	16	OFAF000H16	AF09	TF42-5.7	4,20 - 5,70	5,20
2,20	4,90	OS32GD03P	20	OFAF000H20	AF09	TF42-5.7	4,20 - 5,70	5,70
3,00	6,50	OS32GD03P	20	OFAF000H20	AF09	TF42-7.6	5,70 - 7,60	6,80
3,00	6,50	OS32GD03P	25	OFAF000H25	AF09	TF42-7.6	5,70 - 7,60	7,60
4,00	8,50	OS32GD03P	25	OFAF000H25	AF09	TF42-10	7,60 - 10,00	8,50
4,00	8,50	OS32GD03P	32	OFAF000H32	AF09	TF42-10	7,60 - 10,00	9,00
5,50	11,50	OS32GD03P	32	OFAF000H32	AF12	TF42-13	10,00 - 13,00	11,50
5,50	11,50	OS32GD03P	35	OFAF000H35	AF16	TF42-13	10,00 - 13,00	12,00
5,50	11,50	OS32GD03P	40	OFAF000H40	AF26	TF42-13	10,00 - 13,00	13,00
7,50	15,50	OS32GD03P	40	OFAF000H40	AF26	TF42-16	13,00 - 16,00	15,50
7,50	15,50	OS32GD03P	50	OFAF000H50	AF26	TF42-20	16,00 - 20,00	19,00
11,00	22,00	OS32GD03P	63	OFAF000H63	AF26	TF42-24	20,00 - 24,00	24,00
15,00	29,00	OS125GD03P	80	OFAF000H80	AF38	TF42-35	29,00 - 35,00	35,00
18,50	35,00	OS125GD03P	100	OFAF000H100	AF40	TF65-40	30,00 - 40,00	40,00
22,00	41,00	OS125GD03P	125	OFAF00H125	AF52	TF65-47	36,00 - 47,00	45,00
30,00	55,00	OS160GD03P	160	OFAF00H160	AF80	TF96-60	48,00 - 60,00	60,00
37,00	66,00	OS250D03P	200	OFAF1H200	AF116	TF140DU-90	66,00 - 90,00	83,00
45,00	80,00	OS250D03P	200	OFAF1H200	AF116	TF140DU-90	66,00 - 90,00	83,00
55,00	97,00	OS250D03P	224	OFAF2H224	AF116	TF140DU-110	80,00 - 110,00	106,00
75,00	132,00	OS250D03P	315	OFAF2H315	AF190	TA200DU-175	130,00 - 175,00	164,00

Coordination tables for motor protection

Direct-on-line (normal start) protected by manual motor starter

SCPD type:	Manual motor starter	**Rated voltage:**	400 V AC
Short circuit current:	50 kA	**Starting type:**	Direct-On-Line (Normal Start)
Coordination type:	IEC Type 2	**Overload relay:**	Embedded
Disconnecting mean present:	No	**Backup / limitor present:**	No
Current transformer present:	No	**Frequency:**	50-60 Hz
Motor Efficiency Class:	IE1 + IE2 + IE3		

Motor		**Manual motor starter**			**Contactor**	**Max. allowed load current**
Rated power	**Rated current**	**Type**	**Inst. trip current**	**Current range**	**Type**	
	A		**A**	**A**		
0.06	0.20	MS132–0,25	3.13	0.16 – 0.25	AF09	0.25
0.09	0.30	MS132–0,40	5.00	0.25 – 0.40	AF09	0.40
0.12	0.44	MS132–0,63	7.8	0.40 – 0.63	AF09	0.63
0.18	0.60	MS132–0,63	7.88	0.40 – 0.63	AF09	0.63
0.25	0.85	MS132–1,0	12.50	0.63 – 1.00	AF09	1.00
0.37	1.10	MS132–1,6	20.00	1.00 – 1.60	AF09	1.60
0.55	1.50	MS132–1,6	20.00	1.00 – 1.60	AF09	1.60
0.75	1.90	MS132–2,5	31.25	1.60 – 2.50	AF09	2.50
1.10	2.70	MS132–4,0	50.00	2.50 – 4.00	AF26	4.00
1.50	3.60	MS132–4,0	50.00	2.50 – 4.00	AF26	4.00
2.20	4.90	MS132–6,3	78.75	4.00 – 6.30	AF26	6.30
3.00	6.50	MS132–10	150.00	6.30 – 10.00	AF26	10.00
4.00	8.50	MS132–10	150.00	6.30 – 10.00	AF26	10.00
5.50	11.50	MS132–16	240.00	10.00 – 16.00	AF26	12.00
7.50	15.50	MS132–20	300.00	16.00 – 20.00	AF30	20.00
11.00	22.40	MS132–25	375.00	20.00 – 25.00	AF30	25.00
15.00	29.00	MS132–32	480.00	25.00 – 32.00	AF30	32.00
15.00	29.00	MS165–32	480.00	23.00 – 32.00	AF40	2.00
18.50	35.00	MS165–42	630.00 3	0.00 – 42.00	AF40	40.00
22.00	41.00	MS165–54	810.00	40.00 – 54.00	AF52	53.00
25.00	46.60	MS165–54	810.00	40.00 – 54.00	AF52	53.00
30.00	55.00	MS165–65	975.00	52.00 – 65.00	AF65	65.00

Note:
Valid also for 415 V AC

Coordination tables for motor protection

Direct-on-line (normal start) protected by moulded case circuit breaker

SCPD type:	Moulded case circuit breaker	**Rated voltage:**	440 V AC
Short circuit current:	65 kA	**Starting type:**	Direct-On-Line (Normal Start)
Coordination type:	IEC Type 2	**Overload relay:**	Thermal Overload
Disconnecting mean present:	No	**Backup / limitor present:**	No
Current transformer present:	No	**Frequency:**	50-60 Hz
Motor Efficiency Class:	IE1 + IE2 + IE3		

Motor		Moulded case circuit breaker		Contactor	Overload relay		Max. allowed load current
Rated power	Rated current	Type	Inst. trip current	Type	Type	Current range	
	A		A			A	A
0.25	0.74	XT2H 160 MF 1	14.00	AF9	TF42-1	0.74 – 1.00	1.00
0.37	1.00	XT2H 160 MF 2	28.00	AF9	TF42-1.3	1.00 – 1.30	1.30
0.55	1.30	XT2H 160 MF 2	28.00	AF9	TF42-1.7	1.30 – 1.70	1.70
0.75	1.70	XT2H 160 MF 2	28.00	AF9	TF42-2.3	1.70 – 2.30	2.00
1.10	2.40	XT2H 160 MF 4	56.00	AF26	TF42-3.1	2.30 – 3.10	3.10
1.50	3.20	XT2H 160 MF 4	56.00	AF26	TF42-4.2	3.10 – 4.20	4.00
2.20	4.30	XT2H 160 MF 8.5	120.00	AF38	TF42-5.7	4.20 – 5.70	5.70
3.00	5.70	XT2H 160 MF 8.5	120.00	AF38	TF42-7.6	5.70 – 7.60	7.60
4.00	7.40	XT2H 160 MF 8.5	120.00	AF38	EF19-18.9 *	5.70 – 18.90	12.50
5.50	10.10	XT2H 160 MF 12.5	175.00	AF38	EF19-18.9 *	5.70 – 18.90	12.50
7.50	13.60	XT2H 160 MA 20	200.00	AF38	EF19-18.9 *	5.70 – 18.90	18.90
9.00	16.30	XT2H 160 MA 20	240.00	AF40	TA42DU-25 **	18.00 – 25.00	20.00
11.00	19.30	XT2H 160 MA 32	288.00	AF40	TF65-28	22.00 – 28.00	28.00
15.00	25.40	XT2H 160 MA 32	384.00	AF40	TF65-33	25.00 – 33.00	32.00
18.50	30.70	XT2H 160 MA 52	468.00	AF40	TF65-40	30.00 – 40.00	40.00
22.00	35.90	XT2H 160 MA 52	520.00	AF52	TF65-47	36.00 – 47.00	47.00
25.00	40.80	XT2H 160 MA 52	624.00	AF52	TF65-47	36.00 – 47.00	47.00
30.00	48.20	XT2H 160 MA 80	720.00	AF65	TF65-60	50.00 – 60.00	60.00
37.00	58.00	XT2H 160 MA 80	880.00	AF80	TF96-68	57.00 – 68.00	68.00
45.00	70.00	XT2H 160 MA 100	1100.00	AF96	TF96-87	75.00 – 87.00	87.00
55.00	85.00	XT2H 160 MA 160 **	1280.00	AF116	TF140DU-110	80.00 – 110.00	110.00
75.00	116.00	XT2H 160 MA 160 **	1750.00	AF140	TF140DU-142	110.00 – 142.00	140.00
90.00	140.00	XT4H 250 Ekip I In 250	2125.00	AF190	TA200DU-175	130.00 – 175.00	175.00
110.00	171.00	T4H 250 PR221-I In 250	2500.00	AF205	TA200DU-200	155.00 – 200.00	200.00
132.00	202.00	T5H 400 PR221-I In 320	3200.00	AF265	TA450DU-235	165.00 – 235.00	235.00
160.00	245.00	T5H 400 PR221-I In 400	3600.00	AF305	TA450DU-310	220.00 – 310.00	305.00
200.00	307.00	T5H 630 PR221-I In 630	4725.00	AF400	TA450DU-400	285.00 – 400.00	350.00

Note:
* Type1 with TF42
** XT4L 250 Ekip I In 250 can also be used.

06
Timers, monitoring relays and power supplies

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543 Single-phase monitoring relays

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For more detailed product information, please refer to the Technical Catalogue:

- Electronic relays and controls – 2CDC110004C0210

Timers, monitoring relays and power supplies

Electronic timers








		CT-D range		CT-E range		CT-S range	
Timing function		**multifunctional**	**single-functional**	**multifunctional**	**single-functional**	**multifunctional**	**single-functional**
A	ON-delay	CT-MFD	CT-ERD	CT-MFE, CT-MKE	CT-ERE, CT-EKE	CT-MVS, CT-MFS, CT-MBS, CT-WBS	CT-ERS
B	OFF-delay	CT-MFD	CT-AHD	CT-MFE	CT-AHE, CT-ARE, CT-AKE	CT-MVS, CT-MFS, CT-MBS	CT-APS, CT-AHS, CT-ARS
AB	ON- and OFF-delay					CT-MVS, CT-MXS, CT-MFS, CT-MBS	
CA	Impulse-ON	CT-MFD	CT-VWD	CT-MFE, CT-MKE	CT-VWE	CT-MVS, CT-MFS, CT-MBS, CT-WBS	
CB	Impulse-OFF	CT-MFD			CT-AWE	CT-MVS, CT-MFS, CT-MBS	
CE	Impulse-ON and OFF					CT-MXS	
DA	Flasher starting with ON	CT-MFD	CT-EBD	CT-MFE, CT-MKE		CT-MFS, CT-MBS, CT-WBS	
DB	Flasher staring with OFF	CT-MFD		CT-MFE, CT-MKE	CT-EBE	CT-MFS, CT-MBS, CT-WBS	
DE	Flasher starting with ON or OFF					CT-MVS	
ED	Pulse generator starting with ON or OFF		CT-TGD			CT-MXS	
H	Pulse former	CT-MFD		CT-MFE		CT-MVS, CT-MFS, CT-MBS	
F	Star-delta change-over		CT-SDD, CT-SAD				CT-SDS
FC	Star-delta change-over with impulse				CT-SDE	CT-MVS.2x, CT-MFS, CT-MBS	
FA	Star-delta change-over twice ON-delayed				CT-YDE		
A+ AC BC G	further functions (depending on device)					CT-MVS, CT-MXS, CT-MFS, CT-MBS, CT-WBS	
Technical data (extract)							
Time ranges		7 (0.05 s – 100 h) CT-SDD, CT-SAD: 4 (0.05 s – 10 min)		Multifunction devices: 8 (0.05 s – 100 h) Single-function devices: 5 single ranges (0.05 – 1 s, 0.1 – 10 s, 0.3 – 30 s, 3 – 300 s, 0.3 – 300 min)		10 (0.05 s – 300 h) CT-ARS, CT-SDS: 7 (0.05 s – 10 min)	
Control supply voltage		Wide and multi ranges		Wide ranges	Single and dual ranges	Wide, multi and single ranges	
Type and number of contacts		1 or 2 c/o contacts CT-SDD, CT-SAD: 2 n/o contacts		1 c/ o contact CT-SDE: 1 n/o contact and 1 n/c contact CT-MKE, CT-EKE, CT-AKE: 1 thyristor		1 or 2 c/o contacts CT-MVS.21, CT-MFS, CT-MBS: 2nd c/o contact selectable as inst. contact CT-SDS: 2 n/o contacts	
Control inputs		voltage-related triggering, polarized, capable of switching a parallel load		voltage-related triggering, polarized CT-MFE, CT-AHE, CT-AWE: with auxiliary voltage		voltage-related triggering, non-polarized, capable of switching a parallel load CT-MFS, CT-MBS, CT-AHS: volt-free triggering	

Timers, monitoring relays and power supplies

CT-D range



CT-MFD.12



CT-ERD.22

Description

The CT-D range in MDRC design with a width of only 17.5 mm fits into all domestic installation and distribution panels. The CT-D range represents a link between industry and the installation types. For maximum flexibility in operation, 10 single-function as well as 2 multifunction devices with 7 timing functions are available. The devices offer 4 or 7 time ranges from 0.05 seconds up to 100 hours. Their wide input range allows the use in applications worldwide.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Factory code	Order code
Multifunctional[1]	24 – 240 V AC	7 (0.05 s – 100 h)	■	1 c/o	1SVR500020R0000	CT-MFD.12
	24 – 48 V DC					
Multifunctional[1]	12 – 240 V AC/DC	7 (0.05 s – 100 h)	■	2 c/o	1SVR500020R1100	CT-MFD.21
ON-delay	24 – 240 V AC	7 (0.05 s – 100 h)	–	1 c/o	1SVR500100R0000	CT-ERD.12
	24 – 48 V DC		–	2 c/o	1SVR500100R0100	CT-ERD.22
OFF-delay			■	1 c/o	1SVR500110R0000	CT-AHD.12
			■	2 c/o	1SVR500110R0100	CT-AHD.22
Star-delta change-over[2]		4 (0.05 s – 10 min)	–	2 c/o	1SVR500211R0100	CT-SDD.22

■ Control input with voltage-related triggering – no triggering

1) Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Impulse-OFF with auxiliary voltage, Flasher starting with ON, Flasher starting with OFF, Pulse former
2) Transition time 50 ms fixed

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

Terminology

used expression	alternative expression(s)
1 c/o contact	SPDT
2 c/o contacts	DPDT
voltage-related	wet / non-floating
volt-free	dry / floating
■	Control input with voltage-related triggering – no triggering

Timers, monitoring relays and power supplies

CT-E range



CT-MFE

Description

The CT-E range with its excellent price/performance ratio offers an ideal solution for serial applications. 56 single-function devices with 5 different time ranges as well as 2 multifunction timers with 6 functions and 8 time ranges offer the highest possible flexibility for almost every application. For high operating cycles, contact-free CT-E timers with solid-state output are available.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control Input	Output	Factory code	Order code
Multifunctional [1]	24 – 240 V AC/DC	8 (0.05 s – 100 h)	■	1 c/o	1SVR550029R8100	CT-MFE
ON-delay	24 V AC/DC, 220 – 240 V AC	0.1 – 10 s	–	1 c/o	1SVR550107R1100	CT-ERE.10S
		3 – 300 s			1SVR550107R2100	CT-ERE.300S
		0.3 – 30 min			1SVR550107R5100	CT-ERE.30M
OFF-delay	110 – 130 V AC	0.1 – 10 s		1 c/o	1SVR550120R4100	CT-ARE.30S.110
Multifunctional [2] [3]	24 – 240V AC/DC	0.1 – 10 s, 3 – 300 s	–	solid-state	1SVR550019R0000	CT-MKE

1) Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Flasher starting with ON, Flasher starting with OFF, Pulse former
2) solid-state output, functions and time range selection via external jumpers
3) Functions: ON-delay (AC/DC), Impuls-ON (AC only), Flasher starting with OFF (AC only)

Note:
CT-...KE are solid-state timers with thyristor output for 2-wire applications. They are connected directly in series with the control coil of contactors or relays. Voltage should not be applied without a load connected, because there is no current limiting in the unit. For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

Terminology

used expression	alternative expression(s)
■	Control input with voltage-related triggering – no triggering

Timers, monitoring relays and power supplies

CT-S range



CT-MVS.21S



CT-ERS.22S



CT-SDS.23S

Description

The highly sophisticated CT-S range in ABB's new S-range housing offers two different types of connection terminals and is ideally suited for universal use. Two different connection technologies are available:

- Double-chamber cage connection terminals
- Easy Connect Technology

Accessories

The CT-S range offers the possibility of using accessories such as a remote potentiometer to adjust the time delay or a sealable, transparent cover to protect against unauthorised changes. of time and threshold values.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Factory code	Order code
Multifunctional [4]	24 – 240 V AC/DC	10 (0.05 s – 300 h)	■	2 c/o	1SVR730020R0200	CT-MVS.21S [1) 2) 3)]
	24 – 48 V DC, 24 – 240 V AC				1SVR730020R3300	CT-MVS.22S
	380 – 440 V AC				1SVR730021R2300	CT-MVS.23S
Multifunctional [5]	24 – 240 V AC/DC	10 (0.05 s – 300 h)	□ / □	2 c/o	1SVR730010R0200	CT-MFS.21S
ON-delay Accumulative	24 – 48 V DC, 24 – 240 V AC	10 (0.05 s – 300 h)	–	2 c/o	1SVR730100R3300	CT-ERS.22S
OFF-delay	24 – 48 V DC, 24 – 240 V AC	10 (0.05 s – 300 h)	■	2 c/o	1SVR730180R3300	CT-APS.22S
OFF-delay [6]	24 – 48 V DC, 24 – 240 V AC	7 (0.05 s – 10 min)	–	2 c/o	1SVR730120R3300	CT-ARS.21S
Star-delta change-over [7]	24 – 48 V DC, 24 – 240 V AC	7 (0.05 s – 10 min)	■	2 c/o	1SVR730210R3300	CT-SDS.22S
	380 – 440 V AC				1SVR730211R2300	CT-SDS.23S

1) Extended temperature range -40 °C
2) Remote potentiometer connection
3) 2nd c/o contact selectable as instantaneous contact
4) Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Impulse-OFF with auxiliary voltage, Symmetrical ON- and OFF-delay, Flasher starting with ON or OFF, Star-delta change-over with impulse, Pulse former, Accumulative ON-delay, ON/OFF-function
5) Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Impulse-OFF with auxiliary voltage, Symmetrical ON- and OFF-delay, Flasher starting with ON, Flasher starting with OFF, Star-delta change-over with impulse, Pulse former, ON/OFF-function
6) Without auxiliary voltage
7) 50 ms transition time

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

Terminology

used expression	alternative expression(s)
■	Control input with voltage-related triggering – no triggering
□ / □	two control input with volt-free triggering
S	screw connection
P	push-in / easy connect

STOCK | INDENT

Timers, monitoring relays and power supplies

Primary switch mode power supplies



CPD12/0.83, CPD24/0.42



CPD12/2.1, CPD24/1.3



CPD24/2.5

CP-D range

The CP-D range of modular power supply units in MDRC design (modular DIN rail components) is ideally suited for installation in distribution panels. This range offers devices with output voltages of 12 V DC and 24 V DC at output currents of 0.42 A to 4.2 A. Thanks to a high thermal efficiency corresponding to low power and heat dissipation, the devices can be operated without forced cooling. All devices feature the U/I output characteristic (fold forward behaviour). All power supply units in the CP-D range are approved according to all relevant international standards.

Input voltage range	Rated output voltage / current	Factory code	Order code
90 – 264 V AC/ 120 – 375 V DC	24 V DC / 0.42 A	1SVR427041R0000	CPD24/0.42
90 – 264 V AC/ 120 – 375 V DC	24 V DC / 1.3 A	1SVR427043R0100	CPD24/1.3
90 – 264 V AC/ 120 – 375 V DC	24 V DC / 2.5 A	1SVR427044R0200	CPD24/2.5
90 – 264 V AC/ 120 – 375 V DC	24 V DC / 4.2 A	1SVR427045R0400	CPD24/4.2



CPE24/0.75



CPE12/2.5

CP-E range

This range offers types with output voltages from 5 V DC to 48 V DC at output currents of 0.625 A to 20 A. The high thermal efficiency of up to 90%, corresponding to very low power and heat dissipation, allows operation without forced cooling. The functionality has been enhanced while the number of different types has been considerably reduced.
Of course all power supplies of the CP-E range are approved in accordance with all relevant international standards.



CPE48/5.0

Input voltage range	Rated output voltage / current	Factory code	Order code
CP – E < 100 W			
90 – 264 V AC / 120 – 375 V DC	5 V DC / 3 A	1SVR427033R3000	CPE5/3
85 – 264 V AC / 90 – 375 V DC	12 V DC / 2.5 A	1SVR427032R1000	CPE12/2.5
90 – 264 V AC / 120 – 375 V DC	24 V DC / 0.75 A	1SVR427030R0000	CPE24/0.75
85 – 264 V AC / 90 – 375 V DC	24 V DC / 1.25 A	1SVR427031R0000	CPE24/1.25
85 – 264 V AC / 90 – 375 V DC	24 V DC / 2.5 A	1SVR427032R0000	CPE24/2.5
CP – E ≥ 120 W			
90 – 132 V AC, 180 – 264 V AC / 210 – 375 V DC	24 V DC / 5 A	1SVR427034R0000	CPE24/5
90 – 132 V AC, 180 – 264 V AC / 210 – 375 V DC	24 V DC / 10 A	1SVR427035R0000	CPE24/10
90 – 264 V AC / 120 – 375 V DC	24 V DC / 20 A	1SVR427036R0000	CPE24/20
85 – 264 V AC / 90 – 375 V DC	48 V DC / 1.25 A	1SVR427031R2000	CPE48/1.25
90 – 264 V AC / 120 – 375 V DC	48 V DC / 10 A	1SVR427035R2000	CPE48/10



CPARU + CPACM



CPARU



CPRUD

Redundancy units

Description	Suitable for decoupling of two CP-24 V DC power supply units or suitable for decoupling of CP-E power supply units	Factory code	Order code
2 inputs each up to 20 A and 1 output up to 40 A	≤ 40 V and ≥ 5 A	1SVR427071R0000	CPARU
Control module for CP-A RU redundancy units	—	1SVR427075R0000	CPACM
2 inputs each up to 2.5 A and 1 output up to 5 A	≤ 35 V and < 5 A	1SVR423418R9000	CPRUD

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

STOCK | INDENT

Timers, monitoring relays and power supplies

Single-phase monitoring relays



CM-SRS.21S



CM-SRS.M2S

Current monitoring relays

The CM range current monitoring relays protect single-phase mains (DC or AC) from over- and undercurrent from 3 mA to 15 A. Two different terminal versions are available. You can choose between the proven screw connection technology (double-chamber cage connecting terminals) and the completely tool-free Easy Connect Technology (push-in terminals).

Rated control supply voltage	Function	Tripping delay T_v	Measuring range	Factory code	Order code
24 – 240 V AC/DC		adjustable 0 or 0.1-30 s	3 – 30 mA, 10 – 100 mA, 0.1 – 1 A	1SVR730840R0400	CM-SRS.21S
		adjustable 0 or 0.1-30 s	3 – 30 mA, 10 – 100 mA, 0.1 – 1 A	1SVR730840R0600	CM-SRS.M1S
			0.3 – 1.5 A, 1 – 5 A, 3 – 15 A	1SVR730840R0700	CM-SRS.M2S



CM-ESS.MS

Voltage monitoring relays

The CM range voltage monitoring relays provide reliable monitoring of voltages as well as detection of phase loss in single-phase mains. All devices are available with two different terminal versions. You can choose between the proven screw connection technology (double-chamber cage connecting terminals) and the completely tool-free Easy Connect Technology (push-in terminals).

Rated control supply voltage	Function	Tripping delay T_v	Measuring range	Factory code	Order code
24 – 240 V AC/DC		adjustable 0 or 0.1 – 30 s	3 – 30 V, 6 – 60 V, 30 – 300 V, 60 – 600 V	1SVR730830R0400	CM-ESS.2S
		adjustable 0 or 0.1 – 30 s	3 – 30 V, 6 – 60 V, 30 – 300 V, 60 – 600 V	1SVR730830R0500	CM-ESS.MS

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

Terminology

used expression	alternative expression(s)
	Overcurrent monitoring
	Undercurrent monitoring
	Without latching
1x2 c/o	1x2 c/o (SPDT) contacts
2x1 c/o	2x1 c/o (SPDT) contact
S	screw connection
P	push-in / easy connect

Timers, monitoring relays and power supplies

Three-phase monitoring relays



CM-PBE

Single-functional

Only reliable and continuous monitoring of a three-phase network guarantees the trouble-free and economic operation of machines and installations.

Rated control supply voltage = measuring voltage	Monitoring function	Neutral monitoring	Factory code	Order code
3 x 380 – 440 V AC, [1] 220 – 240 V C	Phase failure detection (Single- and three-phase)	■	1SVR550881R9400	CM-PBE.N
3 x 380 – 440 V AC			1SVR550882R9500	CM-PBE
3 x 208 – 440 V AC [2]	Phase sequence monitoring and phase failure detection (Three-phase)		1SVR550824R9100	CM-PFE
3 x 200 – 500 V AC	Phase sequence monitoring and phase failure detection (Three-phase)		1SVR730824R9300	CM-PFS.S
3 x 300 – 500 V AC	Over- and undervoltage with adjustable threshold values (Three-phase)		1SVR730794R3300	CM-PVS.41S

1) The version with neutral monitoring is also suitable for monitoring single-phase mains. For this, all three external conductors (L1,L2,L3) have to be jumpered and connected as one single conductor.
2) For applications where a reverse fed voltage >60% is expected, we recommend to use our three-phase monitoring relays for unbalance CM-PAS.xx



CM-MPS.21S

Multifunctional

Rated control supply voltage = measuring voltage	DIP switch	Monitoring function	Neutral monitoring	Factory code	Order code
180 – 280 V AC	⊠ ■ ○ ⌀	Multifunctional (Three-phase phase failure detection, Phase sequence monitoring, overvoltage, undervoltage, Phase unbalance)	■	1SVR730885R3300	CM-MPS.21S
3 x 300 – 500 V AC				1SVR730884R3300	CM-MPS.41S

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

Terminology

used expression	alternative expression(s)
■	Control input with voltage-related triggering
⊠	ON-delayed
■	OFF-delayed
○	Phase sequence monitoring activated
⌀	Phase sequence monitoring deactivated
S	screw connection
P	push-in / easy connec

Timers, monitoring relays and power supplies

Grid feeding monitoring relays

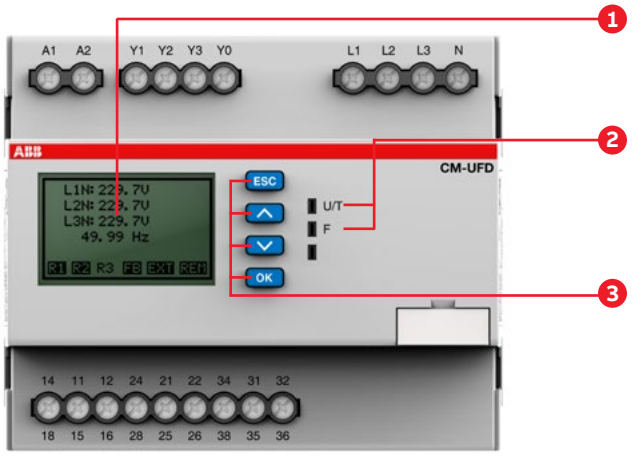
Voltage and frequency monitoring functions — benefits and advantages

Characteristics for all CM-UFD devices

- Monitoring of voltage and frequency in single- and three-phase mains 2-wire, 3-wire or 4-wire
- Over- and undervoltage, 10 minutes average value as well as over- and underfrequency monitoring
- Two-level threshold settings for over-/undervoltage and frequency
- Multiline, backlit LCD display
- All threshold values adjustable as absolute values
- True RMS measuring principle
- High measurement accuracy
- 3 control inputs for remote trip, feedback signal, and external signal
- Interrupted neutral detection
- Error memory for up to 99 entries (incl. cause of error, measured value, relative timestamp)
- Test function
- Password setting protection
- 3 c/o (SPDT) contacts
- LEDs for the indication of operational states
- Modbus RTU Communication interface*

*Non standard

CM-UFD.M33



Display

R1 R2 R3 - relay status; in this case R3 is de-energized
FB – status feedback loop Y0-Y1; in this case FB is closed
EXT – status input external signal; in this case input is closed
REM – status remote trip input; in this case input is closed

Indication of operational states

U/T: green LED – supply voltage applied / flashing = timing active
F: red LED - failure

Keypad

ESC: escape / return to previous menu
∧: up / value increase
∨: down / value decrease
OK: enter / confirm selection



CM-UFD.M33

Description

Only reliable and continuous monitoring of a three-phase network guarantees the trouble-free and economic operation of machines and installations.

Ordering details

Rated control supply voltage = measuring voltage	Factory code	Order code
24 – 240 V AC/DC	1SVR560730R3402	CM-UFD.M33
24-240V AC/DC with Modbus	1SVR560731R3702	CM-UFD.M33M

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Timers, monitoring relays and power supplies

Insulation monitoring relays for unearthed supply systems



CM-IWS.1S



CM-IWS.2S



CM-IWN.1S



CM-IVN.S

Description

The high reliability of an IT system is guaranteed thanks to continuous insulation monitoring. An insulation monitoring device recognizes insulation faults as they develop, and immediately reports that the value has fallen below the minimum. This prevents operational interruption caused by a second, more severe insulation fault.
ABB developed a totally new range of insulation monitors for AC, DC or mixed AC/DC IT Systems up to 690 V AC or 1000 V DC. With only 4 devices most standard applications can be served. Additionally a version for solar applications with increased earth leakage capacitance has been added.

Ordering details

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	System leakage capacitance, max.	Adjustment range of the specified response value R_{an} (threshold)	Factory code	Order code
24 – 240 V AC/DC	0 – 250 V AC / 0 – 300 V DC	10 µF	1 – 100 kΩ	1SVR730660R0100	CM-IWS.1**S**
24 – 240 V AC/DC	0 – 400 V AC	10 µF	1 – 100 kΩ	1SVR730670R0200	CM-IWS.2**S**
24 – 240 V AC/DC	0 – 400 V AC / 0 – 600 V DC	20 µF	1 – 100 kΩ 2 – 200 kΩ (activated / de-activated by DIP-switch)	1SVR750660R0200	CM-IWN.1**S**

Ordering details – coupling unit

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	Factory code	Order code
Passive device, no control supply voltage needed	0 – 690 V AC / 0 – 1000 V DC	1SVR750669R9400	CM-IVN.**S**

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

Terminology

used expression	alternative expression(s)
S	screw connection
P	push-in / easy connec

Timers, monitoring relays and power supplies

Thermistor motor protection relays



CM-MSS.51S

Description

The thermistor motor protection relays CM-MSx are used to control motors equipped with PTC temperature sensors. The PTC temperature sensors are incorporated in the motor windings to measure the motor heating. This enables direct control and evaluation of various operating conditions. Depending on the products also ATEX approvals for use in hazardous areas are availabe. ABB also offers PTC temperature sensors C011 (according to DIN 44081) which are suitable for embedding in motor windings.

Ordering details CM-MSx

Rated control supply voltage	Output	Function	Factory code	Order code
24 V AC/DC	2 c/o (SPDT)	Auto, manual or remote reset	1SVR730700R0200	CM-MSS.22S
110 – 130 V AC, 220 – 240 V AC	2 c/o (SPDT)	Auto, manual or remote reset	1SVR730700R2200	CM-MSS.23S
24 – 240 V AC/DC	1 n/c, 1 n/o	Auto, manual or remote reset, dynamic interrupted wire detection, non-volatile fault storage, short-circuit detection, ATEX approval	1SVR730712R1400	CM-MSS.31S
24 V AC/DC	2 c/o (SPDT)	Auto, manual or remote reset, dynamic interrupted wire detection, short-circuit detection, ATEX approval	1SVR730712R0200	CM-MSS.32S
110 – 130 V AC, 220 – 240 V AC	2 c/o (SPDT)		1SVR730712R2200	CM-MSS.33S
24 – 240 V AC/DC	2 c/o (SPDT)	Auto, manual or remote reset, dynamic interrupted wire detection, non-volatile fault storage, short-circuit detection, ATEX approval	1SVR730712R1200	CM-MSS.41S
	2 x 1 c/o or, 1 x 2 c/o	Auto, manual or remote reset, dynamic interrupted wire detection, non-volatile fault storage, short-circuit detection, accumulative evaluation, ATEX approval	1SVR730712R1300	CM-MSS.51S

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

Terminology

used expression	alternative expression(s)
S	screw connection
P	push-in / easy connec

Timers, monitoring relays and power supplies

Temperature monitoring relays

Selection

Factory Code	1SVR 730 740 R9100	1SVR 740 740 R9100	1SVR 730 740 R0100	1SVR 740 740 R0100	1SVR 730 740 R9200	1SVR 740 740 R9200	1SVR 730 740 R0200	1SVR 740 740 R0200	1SVR 730 740 R9300	1SVR 740 740 R9300	1SVR 730 740 R0300	1SVR 740 740 R0300	1SAR 700 100 R0005	1SAR 700 100 R0010	1SAR 700 110 R0010s		
Order Code	CM-TCS.21S	CM-TCS.21P	CM-TCS.11S	CM-TCS.11P	CM-TCS.22S	CM-TCS.22P	CM-TCS.12S	CM-TCS.12P	CM-TCS.23S	CM-TCS.23P	CM-TCS.13S	CM-TCS.13P	C512-24	C512-W	C513-W		
Rated control supply voltage U_s																	
24 V AC/DC						■	■			■	■			■	■		
24 – 240 V AC/DC								■	■			■	■	■		■	■
Technology																	
analogue						■	■	■	■	■	■	■	■	■	■	■	■
digital															■	■	■
Sensor circuits (2 or 3 wire)																	
number of temperature sensors						1	1	1	1	1	1	1	1	1	1	1	3
number of thresholds						2	2	2	2	2	2	2	2	2	2	2	3
Sensor type																	
PT100						■	■	■	■	■	■	■	■	■	■	■	■
PT100, KTY83, KTY84, NTC, PT1000															■	■	■
Measuring temperature range																	
-50...+50 °C						■	■	■	■								
0...+100 °C									■	■	■	■					
0...+200 °C												■	■	■	■		
-50...+500 °C															■	■	■
Monitoring function																	
overtemperature						■	■	■	■	■	■	■	■	■	■	■	■
undertemperature						■	■	■	■	■	■	■	■	■	■	■	■
window temperature						■	■	■	■	■	■	■	■	■	■	■	■
Operating principle																	
open or closed principle						■	■	■	■	■	■	■	■	■	■	■	■
Output contacts																	
n/o															1	1	1
c/o						2	2	2	2	2	2	2	2	2	2	2	2

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Timers, monitoring relays and power supplies

Temperature monitoring relays



CM-TCS

Description

Acquisition, messaging and regulation of temperatures of solid, liquid and gaseous media in processes and machines via PT100, PT1000, KTY83, KTY84 or NTC sensors.
ABB offers different temperature monitoring relays to meet the needs of your application.

Ordering details – temperature monitoring relays PT100 sensors, 2 or 3 wire connection, 2 thresholds adjustable

Rated control supply voltage	Measuring range	Factory code	Order code
24 – 240 V AC/DC	0...+200 °C	1SVR730740R0300	CM-TCS.13S



C512, C513

Ordering details – temperature monitoring relays C51x range with display and digital setup

Rated control supply voltage	Measuring range	Factory code	Order code [1]
24 – 240 V AC/DC	-50...+500 °C [1]	1SAR700100R0010	C512-W
24 – 240 V AC/DC		1SAR700110R0010	C513-W

1) The measuring range depends on the used sensor type:
PT100: -50...+500 °C
PT1000: -50...+500 °C
NTC: +80...+160 °C
(Type Siemens Matsushita B57272-A333-A1 - 100 °C: 1.8 kΩ, 25 °C: 32.762 kΩ)
KTY84: -40...+300 °C
KTY83: -50...+175 °C

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

Timers, monitoring relays and power supplies

Liquid level monitors and controls



CM-ENE.MIN.24



CM-ENS.11S

Description

ABB's liquid level monitoring relays for regulation and control of liquid levels and ratios of mixtures of conductive fluids.

The assortment includes single function and multifunction monitoring relays which can be used for overflow and dry-running protection, for filling and draining applications, for max and min alarm or any combination of such functions. Furthermore a wide range of accessories is available.

Ordering details

Rated control supply voltage	Factory code	Order code
24 V AC	1SVR550855R9500	CM-ENE.MIN.24
110 – 130 V AC	1SVR550850R9500	CM-ENE.MIN.110
220 – 240 V AC	1SVR550851R9500	CM-ENE.MIN.230
24 V AC	1SVR730850R0100	CM-ENS.11S
220 – 240 V AC	1SVR730850R2100	CM-ENS.13S
24 – 240 V AC/DC	1SVR730850R0300	CM-ENS.31S

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

Liquid level monitors are

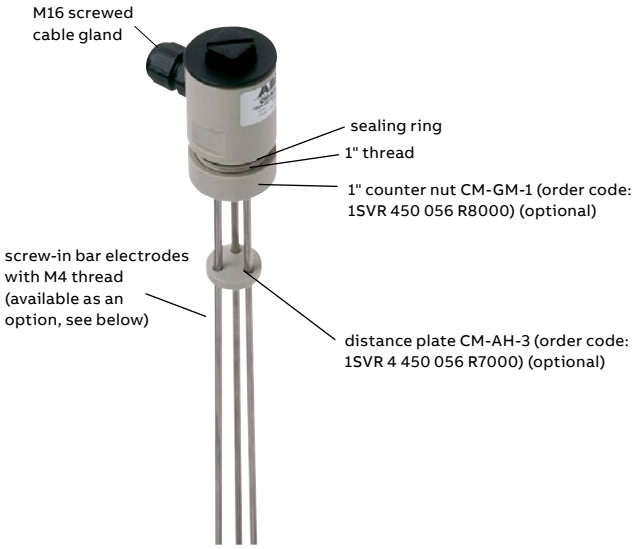
Suitable for	Not suitable for
spring water	chemically pure water
drinking water	fuel
sea water	oils
sewage	explosive areas (liquid gas)
acids, bases	ethylene glycol
liquid fertilizers	concentrated alcohol
milk, beer, coffee	paraffin
non-concentrated alcohol	lacquers

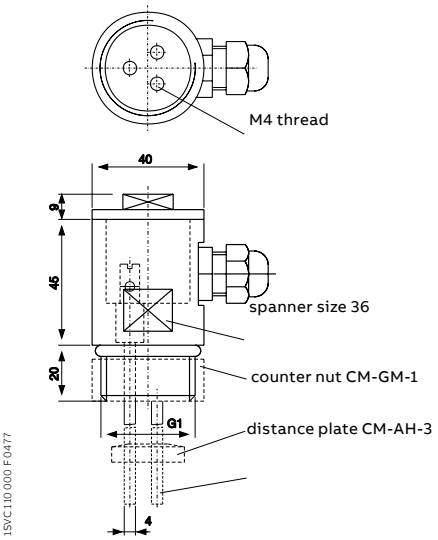
Timers, monitoring relays and power supplies

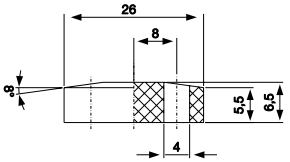
Liquid level monitors and controls – accessories

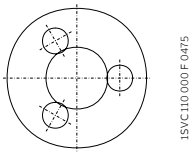
Compact support CM-KH-3 for 3 bar electrodes

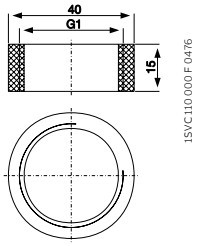
- Ideally suited for use with liquid level relays CM-ENS and CM-ENN
- Wire connection by screw terminals
- Pull relief by M16 screwed cable glands
- Temperature range up to 90°C
- Food safe material (PPH)
- Screw-in electrodes (M4 thread)
- Distance plate (CM-AH-3) and locking nut (CM-GM-1) optionally available as an accessory









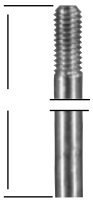


Technical data compact support

Type of mounting:	G 1" thread
Mounting position:	any
Enclosure material:	PPH
Sealing:	NBR 70
Temperature range:	90 °C max.
Pressure:	10 bar max. (60 °C)

Description	Factory code	Order code
Compact support for 3 bar electrodes	1SVR450056R6000	CM-KH-3
Distance plate for 3 bar electrodes	1SVR450056R7000	CM-AH-3
Counter nut for 1“ thread	1SVR450056R8000	CM-GM-1

Screw-in bar electrodes for compact support CM-KH-3



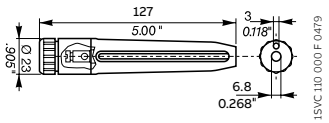
Thread M4

Material: stainless steel 304, high-grade steel 14301

Suspension electrode CM-HE



Steel electrode (X14CrMoS17) with sleeve (Hostalen GC 7260) suitable up to 60°C max.



During project engineering the compatibility of the electrode material with the medium to be supervised is to be examined!

Length	Factory code	Order code
300 mm	1SVR450056R0000	CM-SE-300
600 mm	1SVR450056R0100	CM-SE-600
1000 mm	1SVR450056R0200	CM-SE-1000
CM-HE	1SVR402902R0000	CM-HE

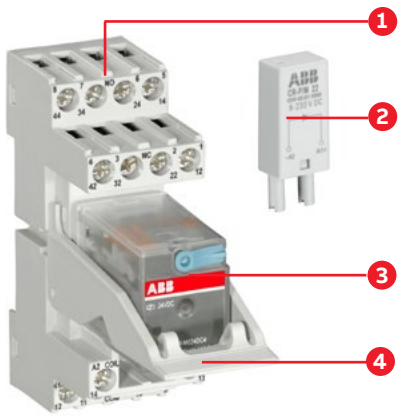
Timers, monitoring relays and power supplies

Pluggable interface relays

Benefits and advantages

Pluggable miniature relays CR-M

- 2 different coil voltages
  - DC versions: 12 V, 24 V, 48 V, 60 V, 110 V, 125 V, 220 V
  - AC versions: 24 V, 48 V, 110 V, 120 V, 230 V
- Output contacts
  - 2 c/o contacts (12 A) or
  - 3 c/o contacts (10 A) or
  - 4 c/o contacts (6 A)
    optionally equipped with gold contacts, LED and free wheeling diode
- Integrated test button for manual actuation and locking of the output contacts (blue = DC, orange = AC) that can be removed if necessary
- With or without integrated LED
- Logical or standard sockets
- Cadmium-free contact material
- Width on socket: 27 mm
- Pluggable function modules
  - Reverse polarity protection/Free wheeling diode
  - LED indication
  - RC elements
  - Overvoltage protection



1 **Socket**
2 **Pluggable function module**
3 **Interface relay**
4 **Holder**



1 **Socket**
2 **Pluggable function module**
3 **Interface relay**
4 **Holder**



CR-S

CR-S range

The pluggable interface relays of the CR-S Range are used for electrical isolation, amplification and signal matching between the electronic controlling, e.g. PLC, iPC or field bus systems and the sensor / actuator level. The CR-S Range combines the flexibility of a modular system and the ability of switching high currents on a small footprint thus can be used in applications where space saving is essential.

Ordering details – CR-S range complete interface relays (relay + socket)

Rated control supply voltage	Outputs	Contact ratings	Factory code	Order code
24 V AC/DC	1 c/o (SPDT) standard contacts	250 V, 6 A	1SVR405541R3110	CR-S024VADC1C**RS**
110 V AC/DC			1SVR405541R6110	CR-S110VADC1C**RS**
230 V AC/DC			1SVR405541R7110	CR-S230VADC1C**RS**

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

Terminology

used expression	alternative expression(s)
RS, SS	screw connection type
RZ, SZ	spring connection type

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Pluggable interface relays
Ordering details

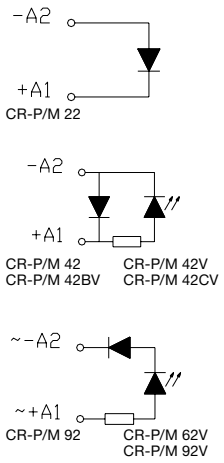

CR-M


CR-P/M...

Ordering details – CR-M range with LED

Rated control supply voltage	Outputs	Contact ratings	Factory code	Order code
12 V DC	2 c/o (SPDT)	250 V, 12 A	1SVR405611R4100	CRM012DC2L
24 V DC			1SVR405611R1100	CRM024DC2L
24 V AC			1SVR405611R0100	CRM024AC2L
110 V AC			1SVR405611R7100	CRM110AC2L
230 V AC			1SVR405611R3100	CRM230AC2L
24 V DC	3 c/o (SPDT)	250 V, 10 A	1SVR405612R1100	CRM024DC3L
24 V AC			1SVR405612R0100	CRM024AC3L
110 V AC			1SVR405612R7100	CRM110AC3L
230 V AC			1SVR405612R3100	CRM230AC3L
12 V DC	4 c/o (SPDT)	250 V, 6 A	1SVR405613R4100	CRM012DC4L
24 V DC			1SVR405613R1100	CRM024DC4L
48 V DC			1SVR405613R6100	CRM048DC4L
110 V DC			1SVR405613R8100	CRM110DC4L
125 V DC			1SVR405613R8300	CRM125DC4L
24 V AC			1SVR405613R0100	CRM024AC4L
110 V AC			1SVR405613R7100	CRM110AC4L
230 V AC			1SVR405613R3100	CRM230AC4L

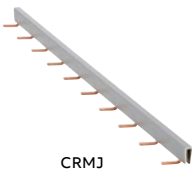
Connecting diagrams



Ordering details – CR-M functional modules

Rated control supply voltage	Description	Version	Factory code	Order code
6-220 V DC	Diode - Reverse polarity protection/free wheeling diode	A1+, A2-	1SVR405651R0000	CRPM22
6-24 V DC	Diode and LED - Reverse polarity protection/free wheeling diode	red, A1+, A2-	1SVR405652R0000	CRPM42
		green, A1+, A2-	1SVR405652R1000	CRPM42V
24-60 V DC		red, A1+, A2-	1SVR405652R4000	CRPM42B
		green, A1+, A2-	1SVR405652R4100	CRPM42BV
110 V DC		red, A1+, A2-	1SVR405652R9000	CRPM42C
		green, A1+, A2-	1SVR405652R9100	CRPM42CV
6-24 V AC/DC	Diode, LED and reverse polarity protection	green, for DC A1+, A2-	1SVR405654R1000	CRPM62V
110 V DC 110-230 V AC		red for DC A1+, A2-	1SVR405654R0100	CRPM92
		green, for DC A1+, A2-	1SVR405654R1100	CRPM92V


CR-M4SS


CRMJ

Ordering details – accessories

Version	Connection terminal	Factory code	Order code
Logical socket for 2 c/o	screw	1SVR405651R1100	CRM2LS
Logical socket for 3 c/o		1SVR405651R2100	CRM3LS
Logical socket for 2/4 c/o		1SVR405651R3100	CRM4LS
Logical socket for 2 c/o	spring	1SVR405651R1200	CRM2LC
Logical socket for 2/4 c/o		1SVR405651R3200	CRM4LC
Standard socket for 2 c/o	screw	1SVR405651R1000	CRM2SS
Standard socket for 3 c/o		1SVR405651R2000	CRM3SS
Standard socket for 2/4 c/o		1SVR405651R3000	CRM4SS
Plastic holder		1SVR405659R1000	CRMH
Metal holder		1SVR405659R1100	CRMH1
jumper bar for sockets with screw connection		1SVR405658R6000	CRMJ

For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C0210.

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Timers, monitoring relays and power supplies

Logic relays

System overview

Concept

CL range logic relays are suitable for small and medium-sized control tasks and are able to substitute logic wiring in a quick and simple manner.
They can be used for applications in control as well as for timing functions, e.g.

- in buildings, lighting systems, air-conditioning systems, general control functions,
- in small machines and systems or
- as stand-alone control module for small applications.

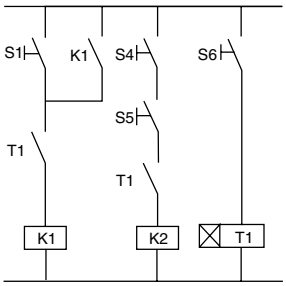
Steps to the application of CL range

- CL range can be used easily, rapidly and comfortably without any time-consuming planning and programming.
- The user can discover the advantages and the benefit of these logic relays in no time at all.
- CL range provides for the control statements according to a simple circuit diagram.
- Setup, storage, simulation and documentation are performed using the compact and user-friendly CL-SOFT software (CL-LAS.PS002).

Software characteristics (CL-SOFT)

- Display on a PC monitor according to IEC, ANSI
- Different languages to choose from
- Easy installation on all Microsoft Windows™ operating systems

Logic links instead of wiring



Documentation

Logic relay manual: 1SVC440795M0100
Remote display manual: 1SVC440795M2100
Display system manual: 1SVC440795M1100


CL-LSR.C12AC2

Ordering details - logic relays stand alone

Rated operational voltage	Display + Keypad	Timer	Input / Output	Factory code	Order code
24 V AC	■	■	8 inputs / 4 relay outputs	1SVR440712R0300	CL-LSR.C12AC1
100 – 240 V AC	■	■		1SVR440713R0300	CL-LSR.C12AC2
24 V DC	■	■		1SVR440711R0300	CL-LSR.C12DC2
		■		1SVR440711R0200	CL-LSR.CX12DC2


CL-LDD.K CL-LDC.S..

Ordering details - display modules

Rated operational voltage	Description	Factory code	Order code
–	Graphic display 132 x 64 pixel	1SVR440839R4500	CL-LDD.XK
–	Graphic display 132 x 64 pixel, with keypad	1SVR440839R4400	CL-LDD.K
24 V DC	Module to displace the display from the logic relay, incl. connecting cable CL-LAD.TK007, 5m, length adaptable	1SVR440841R0000	CL-LDC.SDC2
100 – 240 V AC		1SVR440843R0000	CL-LDC.SAC2


CL-LAS.PS002

Ordering details - accessories

Description	Factory code	Order code
Software for programming and control of CL range devices. Installation CD-ROM for Microsoft WindowsTM.	1SVR440799R8000	CL-LAS.PS002
Cable with USB interface to connect PC and logic relay. Length: 2 m	1SVR440799R6100	CL-LAS.TK002

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Notes

07
Control and signalling

559 **Pilot devices**

605 **Rotary cam switches**


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Pilot devices

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For more detailed product information, please refer to the Technical Catalogue:

- Pilot devices catalogue – 1SFC151005C0201

L-mark

Customer specific marking online



L-mark makes customer specific marking easy
A new system for custom marking our pilot devices is now available. In addition to engraving legend plates, ABB can now laser-engrave our entire pilot device offering as well.

The customer will receive a reference number for their specified marking from the L-mark web page, where it also will be saved, making reordering simple and ensuring that our customers receive their preferred marking every time they order.

Text only available in black.

It's now possible to create a customer specific marking online using our five step marking tool:

Visit: http://service.it.abb.com/pilot-devices/default.aspx

Step 1 Find your product by typing the type or order code
Step 2 Choose between text or symbol marking.
Step 3 Choose your preferred marking layout.
Step 4 Type marking or choose any of our 3000 symbols including the ISO 7000 library.
Step 5 Order the product by the order code + ref. code provided on the site. Example:
order code CP1-10B-11-L
(order code always with a '-L')
reference number: MUE979

Pricing – Standard price of pilot device or legend plate plus $1.50 (ex GST) per engraving.

Overview

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Compact range

The compact range is designed to be our most efficient solution when it comes to assembly and cost, suitable for the most demanding environments. It can also be combined with the modular range to cover the needs of additional flexibility.

General construction
- ‘All-in-one’ design
- Same front as modular range
- 42mm built in depth
- Up to 2 electrical contacts
- Metal or black plastic look

Product features
- Suitable in the toughest environments IP 66, 67 and 69K
- Wiping action gives high performance with low energies
- UL/NEMA Type 1,3R,4,4X,12,13

Operators
- Pushbuttons (illuminated and non-illuminated)
- Emergency stops (twist, pull and key release)
- Machine stops (twist, pull and key release)
- Selector switches (2 and 3 position)
- Mushrooms

Pilot lights
- Integrated LED (wide range of voltages)
- BA9s base for filament bulb or LED



Pushbuttons

Flush and extended

Colours	Red	Green	Yellow	Blue	White	Black	Grey
Replace ■ in Order code with	R	G	Y	L	W	B	U
Replace □ in Factory code with	1	2	3	4	5	6	7


CP1-10R-10


CP1-30W-10


CP1-10U-10


CP1-30L-10


CP3-10Y-10


CP3-30G-10


CP11-10W-10


Bezel

Flush pushbutton with black plastic bezel as standard

Description	Factory code	Order code
Momentary		
2 NO	1SFA619100R102□	CP1-10■-20
2 NC	1SFA619100R105□	CP1-10■-02
1 NO +1 NC	1SFA619100R107□	CP1-10■-11
Maintained		
2 NO	1SFA619101R102□	CP2-10■-20
2 NC	1SFA619101R105□	CP2-10■-02
1 NO +1 NC	1SFA619101R107□	CP2-10■-11

Extended pushbutton with black plastic bezel as standard

Momentary		
2 NO	1SFA619102R102□	CP3-10■-20
2 NC	1SFA619102R105□	CP3-10■-02
1 NO +1 NC	1SFA619102R107□	CP3-10■-11
Maintained		
2 NO	1SFA619103R102□	CP4-10■-20
2 NC	1SFA619103R105□	CP4-10■-02
1 NO +1 NC	1SFA619103R107□	CP4-10■-11

Flush pushbutton with black plastic bezel as standard

Momentary, white button marked with I (black)		
1 NO	1SFA619110R1015	CP11-10W-10
Momentary, white button with II (black)		
1 NO	1SFA619120R1015	CP12-10W-10

Extended pushbutton with black plastic bezel as standard

Momentary, black button with O (white)		
1 NC	1SFA619132R1046	CP33-10B-01

Bezel options

To order complete with a Chrome metal bezel – replace '1' with '3' in factory and order codes	1SFA61910XR30XX	CP(X)-30X-XX

Mushroom pushbuttons


CPM3-10R-11


CPM3-10L-11

Description		Factory code	Order code
Red	1 NO + 1 NC	1SFA619126R1071	CPM3-10R-11
Green	1 NO + 1 NC	1SFA619126R1072	CPM3-10G-11
Yellow	1 NO + 1 NC	1SFA619126R1073	CPM3-10Y-11
Blue	1 NO + 1 NC	1SFA619126R1074	CPM3-10L-11
Black	1 NO + 1 NC	1SFA619126R1076	CPM3-10B-11

Note:
All mushroom pushbuttons are momentary. For maintained functions see machine stops or emergency stops

STOCK | INDENT

Illuminated pushbuttons

Flush and extended

Colours	Red	Green	Yellow	Blue	Clear
Replace ■ in Order code with	R	G	Y	L	C
Replace □ in Factory code with	1	2	3	4	8


CP1-11L-10


CP1-31R-10


CP1-31Y-10


CP1-31C-10


CP3-11G-01


CP3-31Y-01


Bezel

Flush pushbutton with black plastic bezel as standard

Description	Factory code	Order code
Rated voltage 24 V AC/DC		
Momentary		
1 NC	1SFA619100R114□	CP1-11■-01
1 NO	1SFA619100R111□	CP1-11■-10
Maintained		
1 NC	1SFA619101R114□	CP2-11■-01
1 NO	1SFA619101R111□	CP2-11■-10
Rated voltage 110 – 130 V AC/DC		
Momentary		
1 NC	1SFA619100R124□	CP1-12■-01
1 NO	1SFA619100R121□	CP1-12■-10
Maintained		
1 NC	1SFA619101R124□	CP2-12■-01
1 NO	1SFA619101R121□	CP2-12■-10
Rated voltage 220 V AC/DC		
Momentary		
1 NC	1SFA619100R134□	CP1-13■-01
1 NO	1SFA619100R131□	CP1-13■-10
Maintained		
1 NC	1SFA619101R134□	CP2-13■-01
1 NO	1SFA619101R131□	CP2-13■-10

Extended pushbutton with black plastic bezel as standard

Rated voltage 24 V AC/DC		
Momentary		
1 NC	1SFA619102R114□	CP3-11■-01
1 NO	1SFA619102R111□	CP3-11■-10
Maintained		
1 NC	1SFA619103R114□	CP4-11■-01
1 NO	1SFA619103R111□	CP4-11■-10
Rated voltage 110 – 130 V AC/DC		
Momentary		
1 NC	1SFA619102R124□	CP3-12■-01
1 NO	1SFA619102R121□	CP3-12■-10
Maintained		
1 NC	1SFA619103R124□	CP4-12■-01
1 NO	1SFA619103R121□	CP4-12■-10
Rated voltage 220 V AC/DC		
Momentary		
1 NC	1SFA619102R134□	CP3-13■-01
1 NO	1SFA619102R131□	CP3-13■-10
Maintained		
1 NC	1SFA619103R134□	CP4-13■-01
1 NO	1SFA619103R131□	CP4-13■-10
Bezel options		
To order complete with a Chrome metal bezel – replace '1' with '3' in factory and order codes	1SFA61910XR30XX	CP(X)-30X-XX

STOCK | INDENT

Pilot lights with integrated LED

Colours	Red	Green	Yellow	Blue	Clear
Replace ■ in Order code with	R	G	Y	L	C
Replace □ in Factory code with	1	2	3	4	8



CL2-501R



CL2-501L

Pilot lights with integrated LED

Description	Factory code	Order code
Rated voltage 6.3 V DC [1]	1SFA619403R506□	CL2-506■
Rated voltage 12 V DC [1]	1SFA619403R501□	CL2-501■
Rated voltage 24 V AC/DC	1SFA619403R502□	CL2-502■
Rated voltage 48 – 60 V AC/DC	1SFA619403R507□	CL2-507■
Rated voltage 110 – 130 V AC	1SFA619403R513□	CL2-513■
Rated voltage 110 – 130 V DC [1]	1SFA619403R515□	CL2-515■
Rated voltage 220 V DC [1]	1SFA619403R520□	CL2-520■
Rated voltage 230 V AC	1SFA619402R523□	CL2-523■
Rated voltage 230 V AC with 60 V anti-inductive voltage	1SFA619403R623□	CL2-623■
Rated voltage 380 – 415 V AC	1SFA619403R542□	CL2-542■

Note:

1) Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product.

For information on rated current, wavelength and luminance – please refer to the technical catalogue – 1SFC151005C0201.

STOCK | INDENT

Selector switches

2- and 3-position, non-illuminated

Colours	● Red	● Black*	● Grey
Replace ■ in Order code with	R	B	U
Replace □ in Factory code with	1	6	7

***Note: Black is stocked in 2 NO configuration**


C2SS1-10R-20


C2SS1-10B-02


C2SS1-30U-11

2-position with black plastic bezel as standard

Description		Factory code	Order code
Maintained			
	2 NO	1SFA619200R102□	C2SS1-10■-20
	2 NC	1SFA619200R105□	C2SS1-10■-02
	1 NO +1 NC	1SFA619200R107□	C2SS1-10■-11
Maintained			
	2 NO	1SFA619201R102□	C2SS2-10■-20
	2 NC	1SFA619201R105□	C2SS2-10■-02
	1 NO +1 NC	1SFA619201R107□	C2SS2-10■-11
Momentary			
	2 NO	1SFA619202R102□	C2SS3-10■-20
	2 NC	1SFA619202R105□	C2SS3-10■-02
	1 NO +1 NC	1SFA619202R107□	C2SS3-10■-11


C3SS1-10R-20


C3SS1-10B-02


C3SS1-30U-11

3-position with black plastic bezel as standard

Description		Factory code	Order code
Maintained			
	2 NO	1SFA619210R102□	C3SS1-10■-20
	2 NC	1SFA619210R105□	C3SS1-10■-02
	1 NO +1 NC	1SFA619210R107□	C3SS1-10■-11
Momentary			
	2 NO	1SFA619211R102□	C3SS2-10■-20
	2 NC	1SFA619211R105□	C3SS2-10■-02
	1 NO +1 NC	1SFA619211R107□	C3SS2-10■-11
Momentary			
	2 NO	1SFA619212R102□	C3SS3-10■-20
	2 NC	1SFA619212R105□	C3SS3-10■-02
	1 NO +1 NC	1SFA619212R107□	C3SS3-10■-11
Momentary			
	2 NO	1SFA619216R102□	C3SS7-10■-20
	2 NC	1SFA619216R105□	C3SS7-10■-02
	1 NO +1 NC	1SFA619216R107□	C3SS7-10■-11


Bezel

Bezel options

Description	Factory code	Order code
To order complete with a Chrome metal bezel – replace '1' with '3' in factory and order codes	1SFA61910XR30XX	C(X)SS(X)-30X-XX

Emergency stops
Non-illuminated


CE3T-10R-01


CE3P-10R-02


CE4T-10R-01


CE4K1-10R-02

Ø 30 mm

Description	Factory code	Order code
Twist release		
2 NC	1SFA619500R1051	CE3T-10R-02
1 NO + 1 NC	1SFA619500R1071	CE3T-10R-11
Pull release		
2 NC	1SFA619501R1051	CE3P-10R-02
1 NO + 1NC	1SFA619501R1071	CE3P-10R-11
Key release, ronis 455, key code 71		
2 NC	1SFA619502R1051	CE3K1-10R-02
1 NO +1 NC	1SFA619502R1071	CE3K1-10R-11

Ø 40 mm

Description	Factory code	Order code
Twist release		
2 NC	1SFA619550R1051	CE4T-10R-02
1 NO + NC	1SFA619550R1071	CE4T-10R-11
Pull release		
2 NC	1SFA619551R1051	CE4P-10R-02
1 NO + 1 NC	1SFA619551R1071	CE4P-10R-11
Key release, ronis 455, key code 71		
2 NC	1SFA619552R1051	CE4K1-10R-02
1 NO +1 NC	1SFA619552R1071	CE4K1-10R-11

Machine stops
Non-illuminated


CE3T-10B-11


CE3P-10B-11

Ø 30 mm

Description	Factory code	Order code
Twist release		
1 NO +1 NC	1SFA619500R1076	CE3T-10B-11
Pull release		
1 NO +1 NC	1SFA619501R1076	CE3P-10B-11
Key release, ronis 455, key code 71		
1 NO +1 NC	1SFA619502R1076	CE3K1-10B-11


CE4P-10B-11


CE4K1-10B-11

Ø 40 mm

Description	Factory code	Order code
Twist release		
1 NO +1 NC	1SFA619550R1076	CE4T-10B-11
Pull release		
1 NO +1 NC	1SFA619551R1076	CE4P-10B-11
Key release, ronis 455, key code 71		
1 NO +1 NC	1SFA619552R1076	CE4K1-10B-11

Buzzers*


CB1-600G


CB1-610R


CB1-610Y

Illuminated

Description	Lights and sound output	Rated current mA	Luminance mcd	Factory code	Order code
Rated voltage 24 V AC/DC					
● Green	Continuous	48	126	1SFA619600R6002	CB1-600G
● Red	Pulsation	53	60	1SFA619600R6101	CB1-610R
● Yellow	Pulsation	53	60	1SFA619600R6103	CB1-610Y
Rated voltage 110–130 V AC					
● Green	Continuous	55	126	1SFA619600R6012	CB1-601G
● Red	Pulsation	70	60	1SFA619600R6111	CB1-611R
● Yellow	Pulsation	70	60	1SFA619600R6113	CB1-611Y
Rated voltage 110–130 V DC					
● Green	Continuous	15	126	1SFA619600R6022	CB1-602G
● Red	Pulsation	15	60	1SFA619600R6121	CB1-612R
● Yellow	Pulsation	15	60	1SFA619600R6123	CB1-612Y
Rated voltage 230 V AC					
● Green	Continuous	55	126	1SFA619600R6032	CB1-603G
● Red	Pulsation	70	60	1SFA619600R6131	CB1-613R
● Yellow	Pulsation	70	60	1SFA619600R6133	CB1-613Y


CB1-620B

Non-illuminated

Description	Lights and sound output	Rated current mA	Luminance mcd	Factory code	Order code
Rated voltage 24 V AC/DC					
● Black	Continuous	40	–	1SFA619600R6206	CB1-620B
● Black	Pulsation	48	–	1SFA619600R6306	CB1-630B
Rated voltage 110–130 V AC					
● Black	Continuous	40	–	1SFA619600R6216	CB1-621B
● Black	Pulsation	48	–	1SFA619600R6316	CB1-631B
Rated voltage 110–130 V DC					
● Black	Continuous	15	–	1SFA619600R6226	CB1-622B
● Black	Pulsation	15	–	1SFA619600R6326	CB1-632B
Rated voltage 230 V AC					
● Black	Continuous	40	–	1SFA619600R6236	CB1-623B
● Black	Pulsation	40	–	1SFA619600R6336	CB1-633B

* Sound level ≥ 90 db/10 cm

Heavy duty pushbuttons


CP6-10R


CP6-10G

Colours	● Red	● Green	● Black
Replace ■ in Order code with	R	G	B
Replace □ in Factory code with	1	2	6


CP6-10B

Heavy duty pushbutton

Description	Factory code	Order code
2NO	1SFA619105R102□	CP6-10■-20
2NC	1SFA619105R105□	CP6-10■-02
1NO+1NO	1SFA619105R107□	CP6-10■-11

STOCK | INDENT

Accessories for compact range


MA1-8015


MA1-8149

Light diffusing lens

Description	Factory code	Order code
Light diffusing lens	1SFA616920R8005	KA1-8005

Note:
To improve illumination. Cannot be used with Text cap. The lens is used instead of Text cap

Mounting tool

Description	Factory code	Order code
Used for tightening the Locking nut	1SFA611920R8015	MA1-8015
Mounting tool for power tool	1SFA611920R8149	MA1-8149


CA1-8080

DIN-rail adaptor

Description	Factory code	Order code
DIN-rail adaptor	1SFA619920R8080	CA1-8080
Dummy block	1SFA611630R1002	MDB-2

Note:
Two dummy blocks are included with the DIN-rail adaptor to make it possible to mount any compact device


KA1-80..

Adaptors 30 mm

Description	Factory code	Order code
Black plastic	1SFA616920R8029	KA1-8029
Metal	1SFA616920R8030	KA1-8030

Note:
For use when fitting the 22 mm pilot devices in 30 mm mounting holes (1.5 – 4 mm panels)
For use with pushbuttons, selector switches, emergency stop pushbutton and pilot lights

Adaptors

Description	Factory code	Order code
For flush mounted pushbutton	1SFA616920R8073	KA1-8073
For flush mounted selector switches	1SFA619920R8075	CA1-8075

Membrane

Description	Factory code	Order code
Flush button	1SFA611920R8052	MA1-8052
Extended button	1SFA616920R8002	MA1-8002

Note:
Made of transparent, heat and cold resistant silicon rubber. Does not harden at low temperature. Remove the gasket when using membrane.

Protective ring

Description	Factory code	Order code
Protective ring	–	SK615512-1

Note:
For flush and extended pushbutton to prevent inadvertent operation. Cannot be used together with Legend plate holder.

Accessories for compact range


KA1-8010

Protective cover

Description	Factory code	Order code
Protective cover	1SFA616920R8010	KA1-8010

Note:
For flush pushbutton. To prevent accidental operation. Cannot be used together with Legend plate holder.

Button

Description	Factory code	Order code
Grey flush	1SFA616920R8087	KA1-8087
Grey extended	1SFA616920R8097	KA1-8097


Bezel

Bezel

Description	Factory code	Order code
For pushbuttons		
Black plastic	1SFA616920R8022	KA1-8022
Chrome metal	1SFA616920R8021	KA1-8021
For selector switches		
Black plastic	1SFA619920R8077	CA1-8077
Chrome metal	1SFA619920R8078	CA1-8078


MA1-8124

Square bezel

Description	Factory code	Order code
Black plastic	–	SK616016-2
Grey plastic	1SFA611920R8124	MA1-8124


MA1-81...

Blanking plug

Description	Factory code	Order code
Light grey	1SFA611920R8136	MA1-8136
Grey	1SFA611920R8129	MA1-8129
Black	1SFA611920R8130	MA1-8130


MA1-8153


MA1-8152

Shroud for pushbuttons

Description	Factory code	Order code
Lockable shroud	1SFC611920R8153	MA1-8153
Touch guard	1SFC611920R8152	MA1-8152

Note:
Touch guard for modular and compact pushbutton. Lockable shroud for modular and compact pushbuttons and selector switches

Extra key

Description	Factory code	Order code
Key code 71 = ronis 455	–	SK616021-71

Modular range

Contact block combinations

Pushbuttons and mushrooms







Double pushbuttons







Emergency stops





Selector switches







Toggles





Pilot lights




Joysticks




Pushbuttons


MP1-10R


MP1-30Y


MP1-10G


MP1-30W


MP3-10L


MP3-30B

Colours	● Red	● Green	● Yellow	● Blue	○ White	● Black	● Grey	○ Clear
Replace ■ in Order code with	R	G	Y	L	W	B	U	C
Replace □ in Factory code with	1	2	3	4	5	6	7	8

How to order non-illuminated pushbutton with black plastic bezel as standard:
Option 1: operator (with locking nut) + holder + contact block(s)
Option 2: operator (with locking nut) + holder with contact block(s)

Description	Factory code	Order code
Flush pushbutton (Available in: red, green, yellow, blue, white, black, clear)		
Momentary	1SFA611100R100□	MP1-10■
Maintained	1SFA611101R100□	MP2-10■
Extended pushbutton (Available in: red, green, yellow, blue, white, black, clear)		
Momentary	1SFA611102R100□	MP3-10■
Maintained	1SFA611103R100□	MP4-10■


MP1-11R


MP1-31Y


MP3-11L


MP3-31G

How to order illuminated pushbuttonwith black plastic bezel as standard:
Operator (with locking nut) + holder + contact block(s) + LED block

Description	Factory code	Order code
Illuminated flush pushbutton (Available in: red, green, yellow, blue, white, clear)		
Momentary	1SFA611100R110□	MP1-11■
Maintained	1SFA611101R110□	MP2-11■

Note:
Light bulb max 2 W, not included

Illuminated extended pushbutton (Available in: red, green, yellow, blue, white, clear)

Momentary	1SFA611102R110□	MP3-11■
Maintained	1SFA611103R110□	MP4-11■

Note:
Light bulb max 2 W, not included


Bezel

Bezel options

Description	Factory code	Order code
To order complete with a Chrome metal bezel – replace '1' with '3' in factory and order codes	1SFA61110XR30XX	MPX-30X

Note:
For contact blocks and holder combinations, please see page 587.

Double pushbuttons



MPD2-11B


MPD12-11B



MPD3-11B


MPD16-11B

How to order:
Option 1: operator (with locking nut) + holder + contact blocks
Option 2: operator (with locking nut) + holder with contact blocks

Flush pushbutton

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611130R1106	MPD1-11B
I	O	1SFA611131R1106	MPD2-11B
ON	OFF	1SFA611132R1106	MPD3-11B
START	STOP	1SFA611133R1106	MPD4-11B
O White	● Black		
No text	No text	1SFA611134R1106	MPD5-11B
Customer specific marking		1SFA611134L1106	MPD5-11B-L

Extended lower Pushbutton

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611141R1106	MPD12-11B
I	O	1SFA611142R1106	MPD13-11B
ON	OFF	1SFA611143R1106	MPD14-11B
START	STOP	1SFA611144R1106	MPD15-11B
O White	● Black		
No text	No text	1SFA611145R1106	MPD16-11B
Customer specific marking		1SFA611145L1106	MPD16-11B-L

Accessories


MA1-8138

Description	Factory code	Order code
Legend plate holder		
2-position	1SFA611920R8138	MA1-8138

Note:
For contact blocks and holder combinations, please see page 587.

Double pushbuttons
Illuminated

How to order:
Operator (with locking nut) + holder + contact blocks + LED block



MPD2-11R

Red indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611130R1101	MPD1-11R
I	O	1SFA611131R1101	MPD2-11R
ON	OFF	1SFA611132R1101	MPD3-11R
START	STOP	1SFA611133R1101	MPD4-11R
O White	● Black		
No text	No text	1SFA611134R1101	MPD5-11R
Customer specific marking		1SFA611134L1101	MPD5-11R-L



MPD3-11G

Green indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611130R1102	MPD1-11G
I	O	1SFA611131R1102	MPD2-11G
ON	OFF	1SFA611132R1102	MPD3-11G
START	STOP	1SFA611133R1102	MPD4-11G
O White	● Black		
No text	No text	1SFA611134R1102	MPD5-11G
Customer specific marking		1SFA611134L1102	MPD5-11G-L


MPD1-11Y

Yellow indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611130R1103	MPD1-11Y
I	O	1SFA611131R1103	MPD2-11Y
ON	OFF	1SFA611132R1103	MPD3-11Y
START	STOP	1SFA611133R1103	MPD4-11Y
O White	● Black		
No text	No text	1SFA611134R1103	MPD5-11Y
Customer specific marking		1SFA611134L1103	MPD5-11Y-L


MPD5-11C

Clear indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611130R1108	MPD1-11C
I	O	1SFA611131R1108	MPD2-11C
ON	OFF	1SFA611132R1108	MPD3-11C
START	STOP	1SFA611133R1108	MPD4-11C
O White	● Black		
No text	No text	1SFA611134R1108	MPD5-11C
Customer specific marking		1SFA611134L1108	MPD5-11C-L


MA1-8138

Accessories

Description		Factory code	Order code
Legend plate holder			
2-position		1SFA611920R8138	MA1-8138

Note:
For contact blocks and holder combinations, please see page 587.

Double pushbuttons

Illuminated, extended lower button

How to order:
Operator (with locking nut) + holder + contact blocks + LED block



MPD13-11R

Red indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611141R1101	MPD12-11R
I	O	1SFA611142R1101	MPD13-11R
ON	OFF	1SFA611143R1101	MPD14-11R
START	STOP	1SFA611144R1101	MPD15-11R
O White	● Black		
No text	No text	1SFA611145R1101	MPD16-11R
Customer specific marking		1SFA611145L1101	MPD16-11R-L



MPD14-11G

Green indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611141R1102	MPD12-11G
I	O	1SFA611142R1102	MPD13-11G
ON	OFF	1SFA611143R1102	MPD14-11G
START	STOP	1SFA611144R1102	MPD15-11G
O White	● Black		
No text	No text	1SFA611145R1102	MPD16-11G
Customer specific marking		1SFA611145L1102	MPD16-11G-L


MPD12-11Y

Yellow indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611141R1103	MPD12-11Y
I	O	1SFA611142R1103	MPD13-11Y
ON	OFF	1SFA611143R1103	MPD14-11Y
START	STOP	1SFA611144R1103	MPD15-11Y
O White	● Black		
No text	No text	1SFA611145R1103	MPD16-11Y
Customer specific marking		1SFA611145L1103	MPD16-11Y-L



MPD15-11C

Clear indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611141R1108	MPD12-11C
I	O	1SFA611142R1108	MPD13-11C
ON	OFF	1SFA611143R1108	MPD14-11C
START	STOP	1SFA611144R1108	MPD15-11C
O White	● Black		
No text	No text	1SFA611145R1108	MPD16-11C
Customer specific marking		1SFA611145L1108	MPD16-11C-L


MA1-8138

Accessories

Description	Factory code	Order code
Legend plate holder		
2-position	1SFA611920R8138	MA1-8138

Note:
For contact blocks and holder combinations, please see page 587.

STOCK | INDENT

Mushroom pushbuttons

Illuminated*

Colours	Red	Green	Yellow
Replace ■ in Order code with	R	G	Y
Replace □ in Factory code with	1	2	3


MPM1-10B


MPM1-11G


MPM2-10Y


MPM2-11R

How to order illuminated:
Operator (with locking nut) + holder + contact block(s) + LED block

Illuminated

Description	Factory code	Order code
Ø 40 mm available in: red, green, yellow	1SFA611124R110□	MPM1-11■
Ø 60 mm available in: red, yellow	1SFA611125R110□	MPM2-11■

Note:
Light bulb max 2 W, not included

*Non-illuminated also available. Please see technical catalogue.

Pilot lights

Colours	Red	Green	Yellow	Blue	O White	O Clear
Replace ■ in Order code with	R	G	Y	L	W	C
Replace □ in Factory code with	1	2	3	4	5	8

How to order:

Option 1: Indicator (with locking nut) + holder + LED block
Option 2: Indicator (with locking nut) + holder + LED block + lens: used together with LED to improve light diffusion (Cannot be used together with text cap)


ML1-100R


ML1-100G


ML1-100Y


ML1-100L


ML1-100C

Pilot light

Description	Factory code	Order code
Pilot light	1SFA611400R100□	ML1-100■

Note:
Light source not included. Bulbs and lamp blocks or LED blocks – See Accessories.

Accessories

Description	Factory code	Order code
Lens		
Light diffusing lens	1SFA616920R8005	KA1-8005

Note:
Light diffusing lens is used to improve illumination of LED bulbs. Cannot be used together with text cap.

Note:
For contact blocks and holder combinations, please see page 587.

Emergency stop pushbuttons

Non-illuminated, illuminated

How to order non-illuminated:
Option 1: operator (with locking nut) + holder + contact block(s)
Option 2: operator (with locking nut) + holder with contact block(s)


MPET4-10R


MPEP4-10R


MPMT4-10R


MPMP4-10R

Non-illuminated

Description		Factory code	Order code
Ø 30 mm			
Red	Twist release	1SFA611520R1001	MPET3-10R
Red	Pull release	1SFA611521R1001	MPEP3-10R
Red	Key release code 71/ronis 455	1SFA611522R1101	MPEK3-11R
Red	Key release code 72/ronis 421	1SFA611522R1201	MPEK3-12R
Red	Key release code 73/ronis 3433-E	1SFA611522R1301	MPEK3-13R
Ø 40 mm			
Red	Twist release	1SFA611523R1001	MPET4-10R
Red	Pull release	1SFA611524R1001	MPEP4-10R
Red	Key release code 71/ronis 455	1SFA611525R1101	MPEK4-11R
Red	Key release code 72/ronis 421	1SFA611525R1201	MPEK4-12R
Red	Key release code 73/ronis 3433-E	1SFA611525R1301	MPEK4-13R
Ø 60 mm			
Red	Twist release	1SFA611513R1001	MPMT4-10R
Red	Pull release	1SFA611514R1001	MPMP4-10R

How to order illuminated:
Operator (with locking nut) + holder + contact block(s) + LED block


MPMP3-11R


MPMT3-11R

Illuminated

Description		Factory code	Order code
Ø 40 mm			
Red	Twist release	1SFA611510R1101	MPMT3-11R
Red	Pull release	1SFA611511R1101	MPMP3-11R
Ø 60 mm			
Red	Twist release	1SFA611513R1101	MPMT4-11R
Red	Pull release	1SFA611514R1101	MPMP4-11R

Note:
Light bulb max 2 W, not included

Note:
For contact blocks and holder combinations, please see page 587.

Selector switches
2-position

Colours	Red	Green	Yellow	Blue	Black	Grey	Clear
Replace ■ in Order code with	R	G	Y	L	B	U	C
Replace □ in Factory code with	1	2	3	4	6	7	8

How to order non-illuminated with black plastic bezel as standard:
Option 1: operator (with locking nut) + holder + contact block(s)
Option 2: operator (with locking nut) + holder with contact block(s)


M2SS1-10B


M2SS1-10R


M2SS4-30B


M2SS4-30U

Non-illuminated

Description		Factory code	Order code
Short handle available in: red, black, grey			
	Maintained	1SFA611200R100□	M2SS1-10■
	Maintained	1SFA611201R100□	M2SS2-10■
	Momentary, spring return from C to B	1SFA611202R100□	M2SS3-10■
Long handle available in: red, black, grey			
	Maintained	1SFA611203R100□	M2SS4-10■
	Maintained	1SFA611204R100□	M2SS5-10■
	Momentary, spring return from C to B	1SFA611205R100□	M2SS6-10■

How to order illuminated with black plastic bezel as standard:
Operator (with locking nut) + holder + contact block(s) + LED block


M2SS1-31L


M2SS1-11C


M2SS4-31R


M2SS4-11G

Illuminated

Description		Factory code	Order code
Short handle available in: red, green, yellow, blue, clear			
	Maintained	1SFA611200R110□	M2SS1-11■
	Maintained	1SFA611201R110□	M2SS2-11■
	Momentary, spring return from C to B	1SFA611202R110□	M2SS3-11■
Long handle available in: red, green, yellow, blue, clear			
	Maintained	1SFA611203R110□	M2SS4-11■
	Maintained	1SFA611204R110□	M2SS5-11■
	Momentary, spring return from C to B	1SFA611205R110□	M2SS6-11■

Note:
Light bulb max 2 W, not included

Bezel options


Bezel

Description	Factory code	Order code
To order complete with a Chrome metal bezel – replace '1' with '3' in factory and order codes	1SFA61120XR30XX	M2SS(X)-30X

Note:
For contact blocks and holder combinations, please see page 587.

Selector switches
3-position

Colours	Red	Green	Yellow	Blue	Black	Grey	O Clear
Replace ■ in Order code with	R	G	Y	L	B	U	C
Replace □ in Factory code with	1	2	3	4	6	7	8

How to order non-illuminated with black plastic bezel as standard:
Option 1: operator (with locking nut) + holder + contact block(s)
Option 2: operator (with locking nut) + holder with contact block(s)


M3SS1-10B


M3SS1-10R


M3SS4-30B


M3SS4-30U

Non-illuminated

Description	Factory code	Order code
Short handle available in: red, black, grey		
Maintained	1SFA611210R100□	M3SS1-10■
Momentary, spring return from A to B and from C to B	1SFA611211R100□	M3SS2-10■
Momentary, spring return from C to B	1SFA611212R100□	M3SS3-10■
Momentary, spring return from A to B	1SFA611216R100□	M3SS7-10■
Long handle available in: red, black, grey		
Maintained	1SFA611213R100□	M3SS4-10■
Momentary, spring return from A to B and from C to B	1SFA611214R100□	M3SS5-10■
Momentary, spring return from C to B	1SFA611215R100□	M3SS6-10■
Momentary, spring return from A to B	1SFA611217R100□	M3SS8-10■

How to order illuminated with black plastic bezel as standard:
Operator (with locking nut) + holder + contact block(s) + LED block


M3SS1-31L


M3SS1-11C


M3SS4-31R


M3SS4-11G

Illuminated

Description	Factory code	Order code
Short handle available in: red, green, yellow, blue, clear		
Maintained	1SFA611210R110□	M3SS1-11■
Momentary, spring return from A to B and from C to B	1SFA611211R110□	M3SS2-11■
Momentary, spring return from C to B	1SFA611212R110□	M3SS3-11■
Momentary, spring return from A to B	1SFA611216R110□	M3SS7-11■
Long handle available in: red, green, yellow, blue, clear		
Maintained	1SFA611213R110□	M3SS4-11■
Momentary, spring return from A to B and from C to B	1SFA611214R110□	M3SS5-11■
Momentary, spring return from C to B	1SFA611215R110□	M3SS6-11■
Momentary, spring return from A to B	1SFA611217R110□	M3SS8-11■

Note:
Light bulb max 2 W, not included


Bezel

Bezel options

Description	Factory code	Order code
To order complete with a Chrome metal bezel – replace '1' with '3' in factory and order codes	1SFA6112XXR30XX	M3SS(X)-30X

Note:
For contact blocks and holder combinations, please see page 587.

STOCK | INDENT

Selector switches
3 and 4-position


M3SS1-10B

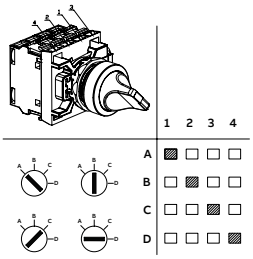

M3SSC4-30B

How to order 3-position with operation of centre position with black plastic bezel as standard:
Option 1: operator (with locking nut) + holder + contact block(s)
Option 2: operator (with locking nut) + holder with contact block(s)

Description		Factory code	Order code
Short handle			
	Maintained	1SFA611250R1006	M3SSC1-10B*
	Momentary, spring return from A to B and from C to B	1SFA611251R1006	M3SSC2-10B*
	Momentary, spring return from C to B	1SFA611252R1006	M3SSC3-10B*
	Momentary, spring return from A to B	1SFA611256R1006	M3SSC7-10B
Long handle			
	Maintained	1SFA611253R1006	M3SSC4-10B*
	Momentary, spring return from A to B and from C to B	1SFA611254R1006	M3SSC5-10B
	Momentary, spring return from C to B	1SFA611255R1006	M3SSC6-10B
	Momentary, spring return from A to B	1SFA611257R1006	M3SSC8-10B

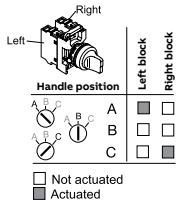
Note: * Version with black plastic bevel is stocked

Contacts actuated



Colours	● Red	● Black
Replace ■ in Order code with	R	B
Replace □ in Factory code with	1	6

Contacts actuated



How to order 4-position with black plastic bezel as standard:
Option 1: operator (with locking nut) + holder + contact block(s)
Option 2: operator (with locking nut) + holder with contact block(s)

Description		Factory code	Order code
Short handle			
	Maintained	1SFA611290R400□	M4SS1-10■*
Long handle			
	Maintained	1SFA611291R400□	M4SS2-10■*

Note:
* Black version is stocked

Bezel options


Bezel

Description	Factory code	Order code
To order complete with a Chrome metal bezel – replace '1' with '3' in factory and order codes	1SFA61125XR3006	M3SSC(X)-30B

Note:
For contact blocks and holder combinations, please see page 587.

Key-operated selector switches

2 and 3-positions



M2SSK1-101

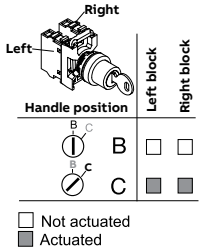
How to order 2-positions with black plastic bezel as standard:
Option 1: operator (with locking nut) + holder + contact block(s)
Option 2: operator (with locking nut) + holder with contact block(s)

2-positions

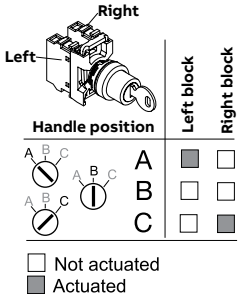
Description		Factory code	Order code
Maintained (The key can be removed in both positions)			
	Key release code 71/ronis 455	1SFA611280R1001	M2SSK1-101*
	Key release code 72/ronis 421	1SFA611280R1002	M2SSK1-102*
	Key release code 73/ronis 3433-E	1SFA611280R1003	M2SSK1-103*
	Random selection *	1SFA611280R1004	M2SSK1-104
Maintained (The key can be removed in position B only)			
	Key release code 71/ronis 455	1SFA611281R1001	M2SSK2-101*
	Key release code 72/ronis 421	1SFA611281R1002	M2SSK2-102
	Key release code 73/ronis 3433-E	1SFA611281R1003	M2SSK2-103
	Random selection *	1SFA611281R1004	M2SSK2-104
Momentary, spring return from C to B (The key can be removed in position B only)			
	Key release code 71/ronis 455	1SFA611282R1001	M2SSK3-101*
	Key release code 72/ronis 421	1SFA611282R1002	M2SSK3-102
	Key release code 73/ronis 3433-E	1SFA611282R1003	M2SSK3-103
	Random selection *	1SFA611282R1004	M2SSK3-104

Note: * Version with black plastic bevel is stocked

Contacts actuated



Contacts actuated



How to order 3-positions with black plastic bezel as standard:
Option 1: operator (with locking nut) + holder + contact block(s)
Option 2: operator (with locking nut) + holder with contact block(s)

3-positions

Description		Factory code	Order code
Maintained (The key can be removed in all positions)			
	Key release code 71/ronis 455	1SFA611283R1001	M3SSK1-101*
	Key release code 72/ronis 421	1SFA611283R1002	M3SSK1-102
	Key release code 73/ronis 3433-E	1SFA611283R1003	M3SSK1-103
	Random selection**	1SFA611283R1004	M3SSK1-104
Maintained (The key can be removed in position B only)			
	Key release code 71/ronis 455	1SFA611284R1001	M3SSK2-101*
	Key release code 72/ronis 421	1SFA611284R1002	M3SSK2-102
	Key release code 73/ronis 3433-E	1SFA611284R1003	M3SSK2-103
	Random selection**	1SFA611284R1004	M3SSK2-104
Momentary, spring return from A to B and from C to B (The key can be removed in position B only)			
	Key release code 71/ronis 455	1SFA611285R1001	M3SSK3-101*
	Key release code 72/ronis 421	1SFA611285R1002	M3SSK3-102
	Key release code 73/ronis 3433-E	1SFA611285R1003	M3SSK3-103
	Random selection**	1SFA611285R1004	M3SSK3-104

Note:
* Version with black plastic bevel is stocked
** 25 randomly picked unique key codes. (Key codes 71,72 and 73 not included)



Bezel

Bezel options

Description	Factory code	Order code
To order complete with a Chrome metal bezel – replace '1' with '3' in factory and order codes	1SFA61128XR300X	M3SSK(X)-30X

Note:
For contact blocks and holder combinations, please see page 587.

STOCK | INDENT

Potentiometers


MT-105B

Complete potentiometers

Description	Factory code	Order code
Black knob with integrated position indication and marking in white		
With resistor 5 kohm		
Black plastic bezel	1SFA611410R1056	MT-105B
Chrome metal bezel	1SFA611410R3056	MT-305B
With resistor 10 kohm		
Black plastic bezel	1SFA611410R1106	MT-110B
Chrome metal bezel	1SFA611410R3106	MT-310B
With resistor 50 kohm		
Black plastic bezel	1SFA611410R1506	MT-150B
Chrome metal bezel	1SFA611410R3506	MT-350B

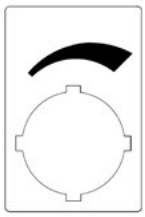
Knob without resistor

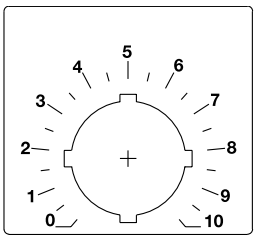
Black knob with integrated position indication and marking in white.
For shaft diameter 6 –6.35 mm.
Min. shaft length 20 mm.

Description	Factory code	Order code
Black plastic bezel	1SFA616410R1006	KT-100B
Chrome metal bezel	1SFA616410R3006	KT-300B

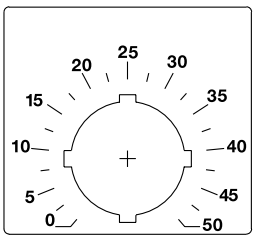
Legend plates aluminium

Description	Factory code	Order code
Symbol: see fig. (29.6 x 44.5 mm)	–	SK615562-87
Scale: 0–10 (48.5 x 44.5 mm)	–	SK615562-88
Scale: 0–50 (48.5 x 44.5 mm)	–	1SFA611930R1252


SK615562-87



SK615562-88



1SFA611930R1252

Reset pushbuttons



KPR1-103G



KPR1-101L



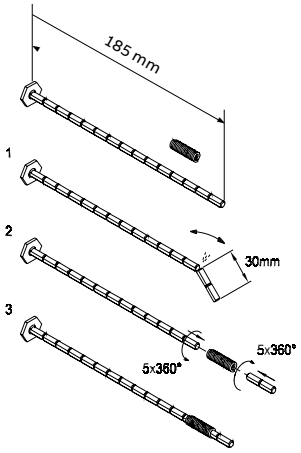
KPR1-304B


KPR3-100Y



KPR3-101L


KPR3-104B




Bezel

Reset pushbuttons with black plastic bezel as standard

Description	Text	Factory code	Order code
Flush button			
● Red	No text	1SFA616160R1001	KPR1-100R
● Green	No text	1SFA616160R1002	KPR1-100G
	II	1SFA616160R1032	KPR1-103G
● Yellow	No text	1SFA616160R1003	KPR1-100Y
● Blue	No text	1SFA616160R1004	KPR1-100L
	R	1SFA616160R1014	KPR1-101L
○ White	No text	1SFA616160R1005	KPR1-100W
	R	1SFA616160R1015	KPR1-101W
	I	1SFA616160R1025	KPR1-102W
	II	1SFA616160R1035	KPR1-103W
● Black	No text	1SFA616160R1006	KPR1-100B
	RESET	1SFA616160R1046	KPR1-104B
Extended button			
● Red	No text	1SFA616161R1001	KPR2-100R
	O	1SFA616161R1051	KPR2-105R
○ White	No text	1SFA616161R1005	KPR2-100W
● Black	No text	1SFA616161R1006	KPR2-100B
	O	1SFA616161R1056	KPR2-105B

Reset pushbutton with shaft and black plastic bezel as standard (flexible joint not included)

Description	Text	Factory code	Order code
Flush button			
● Red	No text	1SFA616162R1001	KPR3-100R
● Green	No text	1SFA616162R1002	KPR3-100G
	II	1SFA616162R1032	KPR3-103G
● Yellow	No text	1SFA616162R1003	KPR3-100Y
● Blue	No text	1SFA616162R1004	KPR3-100L
	R	1SFA616162R1014	KPR3-101L
○ White	No text	1SFA616162R1005	KPR3-100W
	R	1SFA616162R1015	KPR3-101W
	I	1SFA616162R1025	KPR3-102W
● Black	No text	1SFA616162R1006	KPR3-100B
	RESET	1SFA616162R1046	KPR3-104B
Extended button			
● Red	No text	1SFA616163R1001	KPR4-100R
	O	1SFA616163R1051	KPR4-105R
○ White	No text	1SFA616163R1005	KPR4-100W
● Black	No text	1SFA616163R1006	KPR4-100B
	O	1SFA616163R1056	KPR4-105B

Bezel options

To order complete with a Chrome metal bezel – replace '1' with '3' in factory and order codes	1SFA61616XR300X	KPRX-30XX

Accessories

Description	Factory code	Order code
Shaft		
Shaft	1SFA616920R8046	KA1-8046
Flexible joint	1SFA616920R8047	KA1-8047

Note: For contact blocks and holder combinations, please see page 587 and page 594.

STOCK | INDENT

Joysticks
IP67 and IP69K

How to order:
Operator (holder included) + contact blocks


MJS7-60B

Joystick

Description	Factory code	Order code
2-position maintained	1SFA611701R6006	MJS1-60B
2-position momentary	1SFA611702R6006	MJS2-60B
4-position maintained	1SFA611705R6006	MJS5-60B
4-position momentary	1SFA611706R6006	MJS6-60B

Joystick with latching function

Description	Factory code	Order code
2-position maintained	1SFA611707R6006	MJS7-60B
2-position momentary	1SFA611708R6006	MJS8-60B
4-position maintained	1SFA611711R6006	MJS11-60B
4-position momentary	1SFA611712R6006	MJS12-60B


MA1-3138


MA1-8137

Accessories

Description	Factory code	Order code
Legend plates		
2-position (1) (up - down)	1SFA611930R1240	MA6-1240
2-position (2) (right - left)	1SFA611930R1241	MA6-1241
4-position (3) (up - down - right - left)	1SFA611930R1242	MA6-1242
Legend plates holder		
4-position	1SFA611920R8137	MA1-8137
2-position	1SFA611920R3138	MA1-3138
Insert with symbol		
↑	1SFA611930R1065	MA6-1065

Note:
For contact blocks and holder combinations, please see page 587 and page 594.

Toggle switches
2 and 3-positions



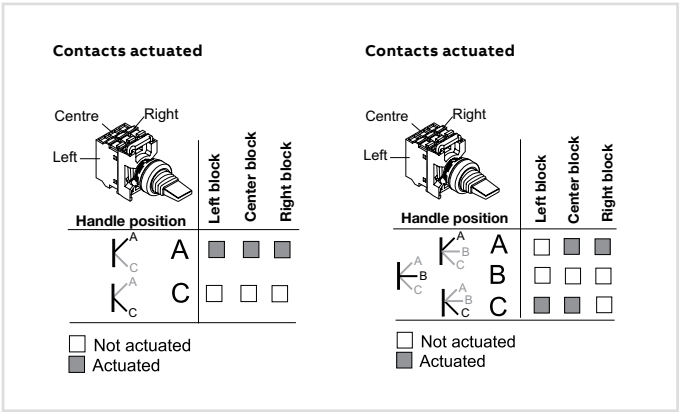
How to order:
Option 1: operator (with locking nut) + holder + contact block(s)
Option 2: operator (with locking nut) + holder with contact block(s)

2-positions

Description	Bezel	Factory code	Order code
Maintained			
	Black plastic	1SFA611300R1006	MTS1-10B
	Chrome metal	1SFA611300R3006	MTS1-30B

3-positions

Description	Bezel	Factory code	Order code
Momentary, spring return from A to B and from C to B			
	Black plastic	1SFA611301R1006	MTS2-10B
	Chrome metal	1SFA611301R3006	MTS2-30B
Maintained			
	Black plastic	1SFA611302R1006	MTS3-10B
	Chrome metal	1SFA611302R3006	MTS3-30B



Note:
For contact blocks and holder combinations, please see page 587 and page 594.

Accessories for modular range

LED blocks, front mounting



MLBL-00W

Colours	● Red	● Green	● Yellow	● Blue	O White
Replace ■ in Order code with	R	G	Y	L	W
Replace □ in Factory code with	1	2	3	4	5

Description	Factory code	Order code
Rated voltage 12 V DC	1SFA611621R100□	MLBL-00■
Rated voltage 24 V AC/DC	1SFA611621R101□	MLBL-01■
Rated voltage 48 V AC/DC	1SFA611621R102□	MLBL-02■
Rated voltage 60 V AC/DC	1SFA611621R103□	MLBL-03■
Rated voltage 110 – 130 V AC	1SFA611621R104□	MLBL-04■
Rated voltage 110 – 130 V DC	1SFA611621R105□	MLBL-05■
Rated voltage 220 V DC	1SFA611621R106□	MLBL-06■
Rated voltage 230 V AC	1SFA611621R107□	MLBL-07■
Rated voltage 380 V AC/DC	1SFA611621R108□	MLBL-08■
Rated voltage 415 V AC	1SFA611621R109□	MLBL-09■

Note:
Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product.
For information on rated current, wavelength, luminance and flashing LED bulbs – please refer to the technical catalogue 1SFC151005C0201.

Accessories for modular range

Contact blocks and holder


MCBH-00


MCBH5-00

Holder

Description	Factory code	Order code
3-positions	1SFA611605R1100	MCBH-00
5-positions*	1SFA611601R1100	MCBH5-00

*** Note:**
Double contact blocks are required on side positions


MCB-01


MCB-10

Single contact blocks for front mounting

Description	Factory code	Order code
1 NO	1SFA611610R1001	MCB-10
1 NC	1SFA611610R1010	MCB-01
1 NO with gold plated contacts	1SFA611610R1101	MCB-10G
1 NC with gold plated contacts	1SFA611610R1110	MCB-01G


MCBL-01


MCBL-10

Micro switch blocks

Description	Factory code	Order code
1 NO	1SFA611612R1010	MCBL-10
1 NC	1SFA611612R1001	MCBL-01


MCB-02


MCB-20

Double contact block for front mounting

Description	Factory code	Order code
2 NO	1SFA611610R1002	MCB-20
2 NC	1SFA611610R1020	MCB-02
1 NO + 1 NC	1SFA611610R1011	MCB-11

Note:
To be used together with MCBH5-00 when contact blocks in position 4- and 5- are needed. Also when using MCBH-00 together with selector switch and contact block in position 3 is needed

Contact blocks with holder for front mounting, for non-illuminated operators

Description	Factory code	Order code
1 NC	1SFA611605R1110	MCBH-01
1 NO	1SFA611605R1101	MCBH-10
2 NC	1SFA611605R1120	MCBH-02
2 NO	1SFA611605R1102	MCBH-20
1 NO + 1 NC	1SFA611605R1111	MCBH-11

Accessories for modular range


MA1-8131

DIN-rail adaptor

Description	Factory code	Order code
DIN-rail adaptor	1SFA611920R8131	MA1-8131
DIN-rail (adaptor) kit with one dummy block	1SFA611920R8001	MA1-8001

Note: DIN-rail adaptor should be used with back mounted contactblocks


MDB-2

Dummy block

Description	Factory code	Order code
Dummy block	1SFA611630R1002	MDB-2

Note: Dummy blocks are used when only one contact block or a compact device is used together with the DIN-rail adaptor


KA1

30 mm adaptors for 22 mm operator (1.5 – 4 mm panels)

Description	Factory code	Order code
For emergency stop pushbutton		
Black plastic	1SFA616920R8027	KA1-8027
Chrome metal	1SFA616920R8028	KA1-8028
For pushbuttons, selector switches, pilot lights, potentiometers and buzzers		
Black plastic	1SFA616920R8029	KA1-8029
Chrome metal	1SFA616920R8030	KA1-8030
Flush mounted adaptors (metal)		
For pushbuttons	1SFA616920R8073	KA1-8073
For selector switches	1SFA611920R8074	MA1-8074


KA1-8072

Lamp changing tool

Description	Factory code	Order code
For LED and filament bulbs	1SFA616920R8072	KA1-8072


MA1-8015


MA1-8149

Mounting tool for operator

Description	Factory code	Order code
Mounting tool for tightening the locking nut	1SFA611920R8015	MA1-8015
Mounting tool for power tool	1SFA611920R8149	MA1-8149


MA1-8019

Locking nut

Description	Factory code	Order code
Locking nut	1SFA611920R8019	MA1-8019

Note: The locking nut can also be used with compact devices

Extra key

Description	Factory code	Order code
Ronis 455 (key code 71)	–	SK616021-71
Ronis 421 (key code 72)	–	SK616021-72
Ronis 3433-E (key code 73)	–	SK616021-73

Accessories for modular range


MA1-8126

Protective membrane

Description	Factory code	Order code
For flush button	1SFA611920R8052	MA1-8052
For extended button	1SFA616920R8002	MA1-8002
For double pushbutton	1SFA611920R8126	MA1-8126


KA1-8010

Protective ring

Description	Factory code	Order code
Operator for protective ring	–	SK615512-1

Note: For flush and extended pushbuttons. To prevent accidental operation. Cannot be used together with Legend plate holder

Protective cover

Description	Factory code	Order code
Protective cover	1SFA616920R8010	KA1-8010

Note: For flush pushbutton. To prevent accidental operation. Cannot be used together with Legend plate holder


Bezel

Bezel

Description	Factory code	Order code
For pushbuttons		
Grey plastic	1SFA616920R8079	KA1-8079
Black plastic	1SFA616920R8022	KA1-8022
Chrome metal	1SFA616920R8021	KA1-8021
For selector switches		
Grey plastic	1SFA616920R8077	KA1-8077
Black plastic	1SFA616920R8080	KA1-8080
Chrome metal	1SFA616920R8024	KA1-8024


MA1-81..

Blanking plug

Description	Factory code	Order code
Grey	1SFA611920R8129	MA1-8129
Black	1SFA611920R8130	MA1-8130
Light grey	1SFA611920R8136	MA1-8136


MA1-8124

Square bezel

Description	Factory code	Order code
Black plastic	–	SK616016-2
Grey plastic	1SFA611920R8124	MA1-8124


MA1-8153


MA1-8152

Shroud for pushbuttons

Description	Factory code	Order code
Lockable shroud	1SFC611920R8153	MA1-8153
Touch guard	1SFC611920R8152	MA1-8152

Note: Touch guard for modular and compact pushbutton.
Lockable shroud for modular and compact pushbuttons and selector switches


MA1-8053


MA1-8128

Shroud for emergency stop and machine stop

Description	Factory code	Order code
Yellow	1SFA611920R8053	MA1-8053
Grey	1SFA611920R8128	MA1-8128

Note: For 40 mm emergency stop pushbuttons and machine stop pushbuttons. To prevent accidental operation.
With anti rotation tabs and slot for pad-lock and with water drainage.

Accessories for modular range


KA1-8083


KA1-8084


KA1-8091


KA1-8092


KA1-8102


KA1-8108


KA1-8111


KA1-8114

Colours	Red	Green	Yellow	Blue	White	Black	Grey	Clear
Replace ■ in Order code with	R	G	Y	L	W	B	U	C
Replace □ in Factory code with	1	2	3	4	5	6	7	8

Lenses

Description	Factory code	Order code
Lenses for pilot lights (Available in: red, green, yellow, blue, white, clear)		
Lenses for pilot lights	1SFA616920R803□	KA1-803■
Lenses for non-illuminated pushbuttons (Available in: red, green, yellow, blue, white, black, grey, clear)		
Flush	1SFA616920R808□	KA1-808■
Extended	1SFA616920R809□	KA1-809■
Lenses for illuminated pushbuttons (Available in: red, green, yellow, blue, white, clear)		
Flush	1SFA616920R810□	KA1-810■
Extended	1SFA616920R811□	KA1-811■

Enclosures and assembled stations



—

Large plastic enclosure (modular and compact)
This enclosure can fit both modular and compact operators with the unique possibility to mount up to 5 contact blocks assigned to one operator.
Degree of protection: IP66 UL/NEMA type 1, 3R, 4, 4X, 12, 13

—

Compact plastic enclosure
The compact enclosure is one of the smallest on the market intended for compact operators.
Degree of protection: IP66, 67, 69K UL/NEMA type 1, 3R, 4, 4X, 12, 13

—

Metallic enclosure
Our metallic line is made in addition to our plastic lines when plastic is not accepted. Featuring a high protection degree and large installation space.
Degree of protection: IP66, 67, 69K

—

Assembled stations
We can also offer some of the most common assembled stations as a standard in combination with both modular and compact range.

Plastic enclosures

For modular and compact range

When ordering

- Select operators
- Select contact blocks and lamp blocks for rear mounting
- For accessories, please note that one spacer per operator has to be ordered if legend plate is not used (for rear mounted pilot devices)
- Holes for cable glands 1-seat to 3-seat enclosures: M20 and Pg 13.5/Pg 16 and (M20) 4-seat and 6-seat enclosures: M25/Pg 16 and (M20)



MEPY1-0



MEP2-0



MEP3-0

Empty plastic enclosures with stainless steel screws

Description		Factory code	Order code
1-seat	Dark grey / light grey	1SFA611811R1000	MEP1-0
1-seat	Yellow / light grey	1SFA611821R1000	MEPY1-0
2-seat	Dark grey / light grey	1SFA611812R1000	MEP2-0
3-seat	Dark grey / light grey	1SFA611813R1000	MEP3-0
4-seat	Dark grey / light grey	1SFA611814R1000	MEP4-0
6-seat	Dark grey / light grey	1SFA611816R1000	MEP6-0



CEPY1-0



CA1-8053

Compact enclosure for emergency stop pushbutton

Description	Factory code	Order code
Yellow / light grey	1SFA619821R1000	CEPY1-0
Shroud		
Yellow	1SFA619920R8053	CA1-8053



CEP1-0



CA1-8054

Compact enclosure for machine stop pushbutton

Description	Factory code	Order code
Dark grey / light grey	1SFA619811R1000	CEP1-0
Shroud		
Grey	1SFA619920R8054	CA1-8054

LED blocks

For rear mounting


MLBL-00BW

Colours	● Red	● Green	● Yellow	● Blue	○ White
Replace ■ in Order code with	R	G	Y	L	W
Replace □ in Factory code with	1	2	3	4	5

Description	Factory code	Order code
Rated voltage 12 V DC[1]	1SFA611621R200□	MLBL-00B■
Rated voltage 24 V AC/DC[1]	1SFA611621R201□	MLBL-01B■
Rated voltage 48 V AC/DC[1]	1SFA611621R202□	MLBL-02B■
Rated voltage 60 V AC/DC	1SFA611621R203□	MLBL-03B■
Rated voltage 110 – 130 V AC	1SFA611621R204□	MLBL-04B■
Rated voltage 110 – 130 V DC[1]	1SFA611621R205□	MLBL-05B■
Rated voltage 220 V DC[1]	1SFA611621R206□	MLBL-06B■
Rated voltage 230 V AC	1SFA611621R207□	MLBL-07B■
Rated voltage 380 V AC	1SFA611621R208□	MLBL-08B■
Rated voltage 415 V AC	1SFA611621R209□	MLBL-09B■

Note:
Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product. For information on rated current, wavelength and luminance – please refer to the technical catalogue.

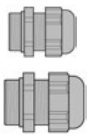
Accessories for plastic enclosures


MCB-01B


MCB-11B

Contact block for rear mounting

Description	Factory code	Order code
1NO	1SFA611610R2001	MCB-10B
1NC	1SFA611610R2010	MCB-01B
Double contact block		
2NO	1SFA611610R2002	MCB-20B
2NC	1SFA611610R2020	MCB-02B
1NO+1NC	1SFA611610R2011	MCB-11B
Contact block with gold plated contacts		
1NO	1SFA611610R2101	MCB-10BG
1NC	1SFA611610R2110	MCB-01BG


MA5-300

Cable gland

Description	Factory code	Order code
M25	1SFA611925R3001	MA5-3001
M20	1SFA611925R3002	MA5-3002
PG 13.5	1SFA611925R3006	MA5-3006
PG 16	1SFA611925R3007	MA5-3007

Note:
Grey plastic, threaded outer sleeve sealing ring included.


MA1...

Nut

Description	Factory code	Order code
Grey plastic, for cable gland above		
M25	1SFA611925R3003	MA5-3003
M20	1SFA611925R3004	MA5-3004
PG 13.5	1SFA611925R3008	MA5-3008
PG 16	1SFA611925R3009	MA5-3009

Earthing terminal

Description	Factory code	Order code
For plastic enclosure	1SFA611925R3005	MA5-3005


MA1-8150

Sealing ring

Description	Factory code	Order code
For plastic enclosure	1SFA611920H8150	MA1-8150

Spacer

Description	Factory code	Order code
Spacer	–	SK615516-1
Spacer for modular emergency stop	1SFA616920R8045	KA1-8045

Note:
1 mm thick. Needed when legend plates are not used in plastic enclosures.

Adaptor

Description	Factory code	Order code
PG 16/M20	1SFA611925R3010	MA5-3010

Metallic enclosures and accessories

Degree of protection IP66, IP67 and IP69K


KEM...

Empty metallic enclosures for front mounted pilot devices

Description	Factory code	Order code
1-seat Grey	SK616701-AA	KEM1-0
2-seat Grey	SK616702-AA	KEM2-0
3-seat Grey	SK616703-AA	KEM3-0
4-seat Grey	SK616704-AA	KEM4-0
6-seat Grey	SK616706-AA	KEM6-0

Note:
Blanking plates not included


Blanking plate

Blanking plates without holes, metal, black, for 4- and 6-seat enclosures

Description		Factory code	Order code
For flange opening	**Suitable flange gasket**		
FL 13	SK 170 4536	–	SK172105-AA

Blanking plates with holes, metal, black for 4- and 6-seat enclosures

Description		Factory code	Order code
For flange opening	**Suitable flange gasket**		
Two holes Hole centre distance 50 mm FL 13	Pr 22.5 (Pg 16) SK 170 4536	–	SK172105-AD
Three holes Hole centre distance 38 mm FL 13	Pr 22.5 (Pg 16) SK 170 4536	–	SK172105-AE
Four holes Hole centre distance 30 mm FL 13	Pr 22.5 (Pg 16) SK 170 4536	–	SK172105-AF

Note:
Gasket not included

Flange gasket

Description	Factory code	Order code
FL 13	–	SK1704536


MA1-81...

Blanking plug

Description	Factory code	Order code
Grey	1SFA611920R8129	MA1-8129
Black	1SFA611920R8130	MA1-8130
Light grey	1SFA611920R8136	MA1-8136

Note:
Applicable to cover a 22 mm hole in an enclosure instead of an operator. Gasket and nut included, also applicable for plastic enclosures.

Sealing plug, black plastic

Description	Factory code	Order code
Pr 22.5 Pg 16	–	SK175919-3

Assembled stations



CEPY1-2001

1-seat plastic enclosure – compact range

Description		Factory code	Order code
Yellow / light grey	Twist release, emergency stop 2 NC	1SFA619821R1001	CEPY1-1001
Yellow / light grey	Pull release, emergency stop 2 NC	1SFA619821R1002	CEPY1-1002
Yellow / light grey	Key release, emergency stop 1NC + 1NO	1SFA619821R1006	CEPY1-1006

1-seat plastic enclosure with shroud – compact range

Description		Factory code	Order code
Yellow / light grey	Twist release, emergency stop 2 NC	1SFA619821R2001	CEPY1-2001
Yellow / light grey	Pull release, emergency stop 2 NC	1SFA619821R2002	CEPY1-2002

1-seat plastic enclosure with black mushroom pushbutton – compact range

Description		Factory code	Order code
Dark grey / light grey	Twist release, machine stop 1 NO + 1 NC	1SFA619811R1001	CEP1-1001
Dark grey / light grey	Pull release, machine stop 1 NO + 1 NC	1SFA619811R1002	CEP1-1002



MEPY1-1026

1-seat plastic enclosure with black mushroom pushbutton and shroud – compact range

Description		Factory code	Order code
Dark grey / light grey	Twist release, machine stop 1 NO + 1 NC	1SFA619811R2001	CEP1-2001
Dark grey / light grey	Pull release, machine stop 1 NO + 1 NC	1SFA619811R2002	CEP1-2002



MEP2-1001

1-seat plastic enclosures – modular range

Description		Factory code	Order code
Emergency stop, 40 mm. Twist release. Legend plate: 'Emergency stop' Yellow top / light grey bottom			
● Red	2 NC	1SFA611821R1026	MEPY1-1026

2-seat plastic enclosure – modular range

Description		Factory code	Order code
Dark grey top / light grey bottom. Two flush pushbuttons, momentary.			
● Green	● Red	1SFA611812R1001	MEP2-1001
1 NO	1 NC		
I	O		

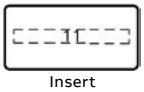
STOCK | INDENT

Legend plate holder

With inserts for plastic enclosures and pilot devices



Legend plate holder and inserts



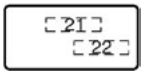
Insert

Legend plate holder for plastic enclosures

Description	Factory code	Order code
Grey	1SFA611930R1060	MA6-1060

Inserts: Packing

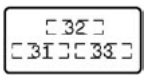
Description	Factory code	Order code
Without text or symbol	1SFA611930R1061	MA6-1061
Inserts with text/symbol engraved with L-mark		
O	1SFA611930R1062	MA6-1062
I	1SFA611930R1063	MA6-1063
II	1SFA611930R1064	MA6-1064
→	1SFA611930R1130	MA6-1130
→→	1SFA611930R1131	MA6-1131
Close	1SFA611930R1132	MA6-1132
Open	1SFA611930R1133	MA6-1133
On	1SFA611930R1134	MA6-1134
Off	1SFA611930R1135	MA6-1135
Fast	1SFA611930R1136	MA6-1136
Slow	1SFA611930R1137	MA6-1137
Down	1SFA611930R1138	MA6-1138
Up	1SFA611930R1139	MA6-1139
Start	1SFA611930R1140	MA6-1140
Stop	1SFA611930R1141	MA6-1141
Forward	1SFA611930R1152	MA6-1152
Reverse	1SFA611930R1153	MA6-1153



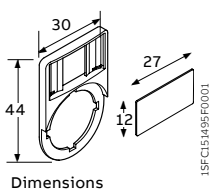
2-position insert

Inserts for 2-position selector switches

Description		Factory code	Order code
With text or symbol:			
Pos. 21	Pos. 22		
O	I	1SFA611930R1170	MA6-1170
I	II	1SFA611930R1171	MA6-1171
→	→→	1SFA611930R1172	MA6-1172
Off	On	1SFA611930R1173	MA6-1173
Stop	Start	1SFA611930R1174	MA6-1174
Low	High	1SFA611930R1175	MA6-1175
Slow	Fast	1SFA611930R1176	MA6-1176
Close	Open	1SFA611930R1177	MA6-1177
Jog	Run	1SFA611930R1178	MA6-1178
Hand	Auto	1SFA611930R1179	MA6-1179



3-position insert



Dimensions

Inserts for 3-position selector switches

Description			Factory code	Order code
With text or symbol:				
Pos. 31	Pos. 32	Pos. 33		
←	O	→	1SFA611930R1190	MA6-1190
→	O	→→	1SFA611930R1191	MA6-1191
I	O	II	1SFA611930R1192	MA6-1192
Hand	O	Auto	1SFA611930R1193	MA6-1193
Slow	Off	Fast	1SFA611930R1194	MA6-1194

Legend plates

For emergency stop pushbuttons

Emergency stop legend plates 70mm

Description	Factory code	Order code
Black text on a yellow plastic plate. Can be used as yellow background		
Emergency stop	1SFA616915R1005	KTC15-1005
Without text	1SFA616915R1038	KTC15-1038
With customer marking	1SFA616915L1038	KTC15-1038-L
Black text on a yellow aluminum plate		
Emergency stop	–	SK615546-2
Without text	–	SK615546-8



MA6-1024

Emergency stop legend plates for plastic enclosures

Description	Factory code	Order code
For horizontally mounted enclosures. Yellow plastic with black text		
Emergency stop	1SFA611930R1026	MA6-1026
For vertically mounted enclosures. Yellow plastic with black text		
Emergency stop	1SFA611930R1101	MA6-1101
Yellow plastic		
Without text	1SFA611930R1024	MA6-1024
With customer marking	1SFA611930L1024	MA6-1024-L



CA6-1026

Emergency stop legend plates for compact enclosure

Description	Factory code	Order code
Black text on yellow aluminum plate 59mm		
Emergency stop	1SFA619930R1026	CA6-1026

Signal towers and signal beacons



Signal towers and signal beacons offer customers a wide range of signal elements in all voltages and a solution for every signalling field

Signal towers
- Fast mounting of signal elements using bayonet fixing
- Easy changing of bulbs for each module without tools
- Flexibility of signal element combination
- Up to 5 elements possible/up to 10 elements with bracket for 2-sided mounting
- High protection rating optical and audible signal elements with IP54
- LED elements for long life

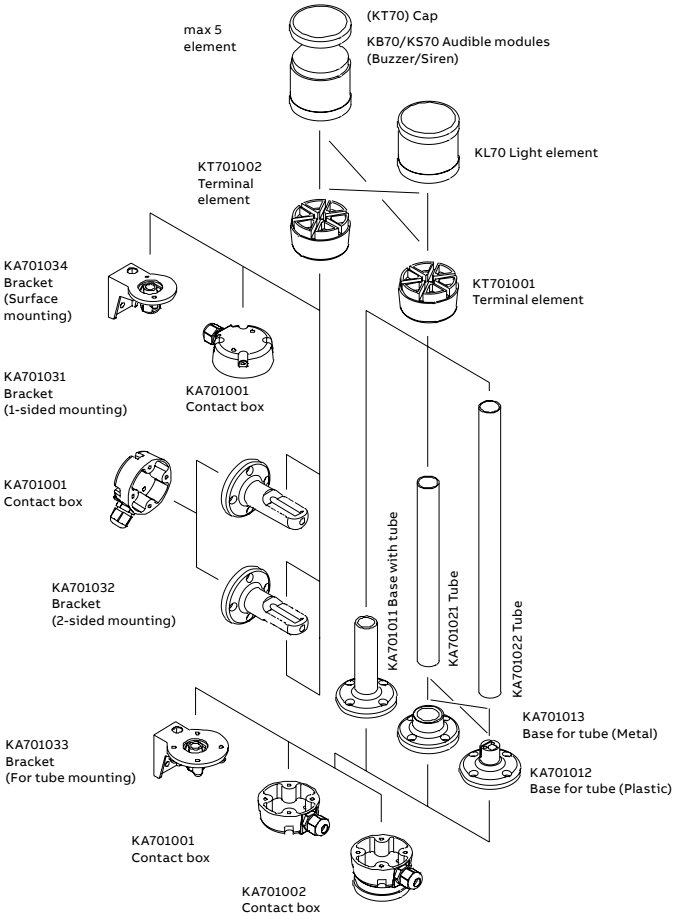
Signal beacons
- Design withstands every mechanical and natural challenge both indoors and outdoors.
- High protection rating IP65
- Cap consists of high impact polycarbonate (up to 20 J)
- Bulb change via inside of control box

Simple fitting with quick fix system

Each signal tower module is equipped with a bayonet fixing with integral contact system. The modules are fastened together by aligning the corresponding white marks then with a gentle twist they are locked into place (see the figures).

Signal towers and beacons
- Permanent light
- Blinking light
- Flashing light
- Audible
- LED permanent light
- LED blinking light
- LED rotating light

Combination possibilities



STOCK | INDENT

Signal towers

Colours	Red	Green	Yellow	Blue	Clear
Replace ■ in Order code with	R	G	Y	L	C
Replace □ in Factory code with	1	2	3	4	8


KL70401Y


KL70401B

Light element

Description	Factory code	Order code
Available in red, green, yellow, blue and clear		
Permanent light, 12 – 240 V AC/DC For bulb BA 15d. Bulb not included	1SFA616070R401□	KL70401■
Blinking light, 24 V AC/DC with integrated LED	1SFA616070R306□	KL70306■
Flashing light, 24 V AC/DC with integrated xenon tube	1SFA616070R203□	KL70203■
Blinking light, 115 V AC with integrated LED	1SFA616070R342□	KL70342■
Flashing light, 115 V AC with integrated xenon tube	1SFA616070R113□	KL70113■
Blinking light, 230 V AC with integrated LED	1SFA616070R352□	KL70352■
Flashing light, 230 V AC with integrated xenon tube	1SFA616070R123□	KL70123■
LED permanent light, 24 V AC/DC with integrated LED	1SFA616070R305□	KL70305■
LED rotating light, 24 V AC/DC with integrated LED	1SFA616070R307□	KL70307■


KA4-102...

Bulbs
Bulb Ba 15d, 42mm, max 7 W for permanent or blinking light

Description	Factory code	Order code
24 V, 5 W, AC/DC	1SFA616923R1028	KA4-1028
115 V, 5 W, AC/DC	1SFA616923R1118	KA4-1118
230 V, 5 W, AC/DC	1SFA616923R1148	KA4-1148

LED bulbs
Ba 15d, 40mA

Description	Factory code	Order code
Available in red, green, yellow, blue and white		
24 V AC/DC	1SFA616924R102□	KA4-102■

Audible modules buzzer element
85 dB, continuous or pulsating tone, adjustable

Description	Factory code	Order code
24 V AC/DC	1SFA616071R3001	KB703001
115 V AC	1SFA616071R3101	KB703101
230 V AC	1SFA616071R1201	KB701201



STOCK | INDENT

Signal towers



KT7010...

Siren element

Description	Factory code	Order code
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB, 115 V AC	1SFA616073R1104	KS701104
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB, 230 V AC	1SFA616073R1204	KS701204
Multi function, 7 diff. Tones adjustable, volume adjustable, 100 dB, 24 V DC	1SFA616073R2004	KS702004
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB, 24 V AC/DC	1SFA616073R3004	KS703004
Continuous tone alternating 108 dB, 24 V DC	1SFA616073R2002	KS702002



KA701001

Terminal elements

Description	Factory code	Order code
For tube mounting, including cap	1SFA616075R1001	KT701001
For bracket or base, including cap	1SFA616075R1002	KT701002



KA701031

Special parts

Description	Factory code	Order code
Contact box		
Cable exit at side	1SFA616077R1001	KA701001
Magnetic base	1SFA616077R1002	KA701002
Base with tube		
D=25 mm L=110 mm	1SFA616077R1011	KA701011
Base for tube		
D=25 mm, plastic	1SFA616077R1012	KA701012
D=25 mm, metal	1SFA616077R1013	KA701013
Tube, anodized aluminum		
D=25 mm L=250 mm	1SFA616077R1021	KA701021
D=25 mm L=400 mm	1SFA616077R1022	KA701022
D=25 mm L=800 mm	1SFA616077R1023	KA701023
Bracket		
1-sided mounting	1SFA616077R1031	KA701031
2-sided mounting	1SFA616077R1032	KA701032
For tube mounting	1SFA616077R1033	KA701033
For surface mounting	1SFA616077R1034	KA701034

Signal beacons

Colours	Red	Green	Yellow	Blue	Clear
Replace ■ in Order code with	R	G	Y	L	C
Replace □ in Factory code with	1	2	3	4	8


KSB-401G

Light element: Available in red, green, yellow, blue and clear

Description	Factory code	Order code
Permanent light, 12 – 240 V AC/DC. For Bulb BA 15d. (Bulb not included)	1SFA616080R401□	KSB-401■
Flashing light, 24 V DC. With integrated xenon tube	1SFA616080R203□	KSB-203■
Flashing light, 115 V AC. With integrated xenon tube	1SFA616080R113□	KSB-113■
Flashing light, 230 V AC. With integrated xenon tube	1SFA616080R123□	KSB-123■

Light element LED: Available in red, green and yellow

Description	Factory code	Order code
LED permanent light, 24 V AC/DC. With integrated LED	1SFA616080R305□	KSB-305■
LED blinking light, 24 V AC/DC. With integrated LED	1SFA616080R306□	KSB-306■
LED rotation light, 24 V AC/DC. With integrated LED	1SFA616080R307□	KSB-307■


KASB100

Special parts

Description	Factory code	Order code
Anti-twist device	1SFA616087R1000	KASB100

Bulbs for signal beacons max 10 W. For permanent light Bulb Ba 15d, 52mm

Description	Factory code	Order code
12 V, 7 W, AC/DC	1SFA616922R1018	KA3-1018
24 V, 7 W, AC/DC	1SFA616922R1028	KA3-1028
115 V, 7 W, AC/DC	1SFA616922R1118	KA3-1118
220-260 V, 7-10 W, AC/DC	1SFA616922R1148	KA3-1148

Notes



Rotary cam switches

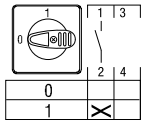
606	ON - OFF switches
607	Change-over switches
608	Bypass switches
609	Multistep switches
610	Motor control switches
612	Ammeter switches and Volt-ammeter switches

For more detailed product information, please refer to the Technical Catalogue:

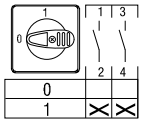
- Rotary cam switches – 1SCC302009C0201
- Switches, rotary cam switches and enclosed cam switches – 1SCC302003C0201

Rotary cam switches

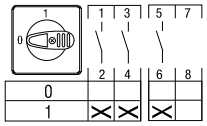
ON - OFF switches



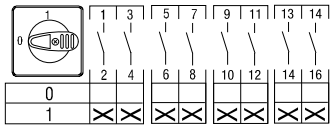
OC_A1



OC_A2



OC_A3



OC_A8

The handle and front plate with position indication are included according to the table below. Key operated cam switches: the key can be removed in both positions, includes two keys. The round front ring: to be used in situations when position indications are on the door of the enclosure. **Cam switches up to 315 Amps.**

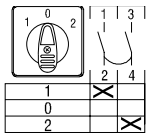
Function	Number of poles/ contacts	Rated thermal current I_{th} [A]	Order code
O-position: 9 o´clock, step angle 90°			
Door mounted, snap-on mounted black nose handle, black front frame and silver front plate			
0 - 1	1 / 1	25	OC25G01PNBN00NA1
0 - 1	2 / 2	25	OC25G02PNBN00NA2
0 - 1	3 / 3	25	OC25G03PNBN00NA3
0 - 1	8 / 8	25	OC25G08PNBN00NA8
0 OFF- 1 ON	1 / 1	25	OC25G01PNBN00NB1
0 OFF- 1 ON	2 / 2	25	OC25G02PNBN00NB2
0 OFF- 1 ON	3 / 3	25	OC25G03PNBN00NB3

For more options or information, please refer to the main Technical Catalogue/s:
- 10 - 25 A units 1SCC302009C0201
- 40 - 315 A units 1SCC302003C0201

Note:
Up to 8 poles NZ – (1 to 6)
10 A switches change OC25 to OC10
DIN rail available
Key operated switch available
Prefix 'B' denotes OFF/ON (e.g: OC25G03PNBN00N**B**3)
Number of poles denote NA – (1– 6)

Rotary cam switches

Change-over switches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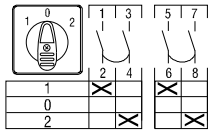
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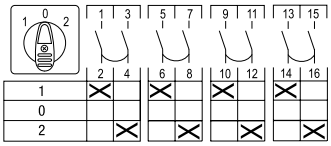
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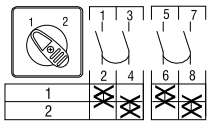
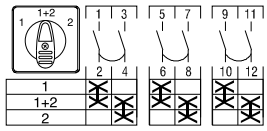
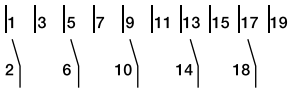

OC_WC2


OC_UC3


Connection diagram
(OC_WC_, OC_UC_)

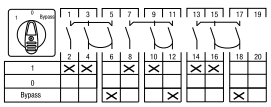
The handle and front plate with position indication are included according to the table below. Key operated cam switches: the key can be removed in all positions, includes two keys. The round front ring: to be used in situations when position indications are on the door of the enclosure. **Cam switches up to 315 Amps.**

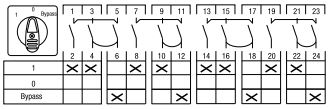
Function	Number of poles/ contacts	Rated thermal current I_{th} [A]	Order code
With 0-position, step angle 60°			
Door mounted, snap-on mounted black nose handle, black front frame and silver front plate			
1 - 0 - 2	1 / 2	25	OC25G02PNBN00NU1
1 - 0 - 2	2 / 4	25	OC25G04PNBN00NU2
1 - 0 - 2	3 / 6	25	OC25G06PNBN00NU3
1 - 0 - 2	4 / 8	25	OC25G08PNBN00NU4
DIN-rail base mounted, modular grey handle			
1 - 0 - 2	1 / 2	25	OC25G02MNGN00NU1
1 - 0 - 2	2 / 4	25	OC25G04MNGN00NU2
1 - 0 - 2	3 / 6	25	OC25G06MNGN00NU3
With 0-position, with two sided spring return, step angle 30°, door mounted			
Snap-on mounted black nose handle, black front frame and silver front plate			
1_R - 0 - 2_R	1 / 2	25	OC25G02PNBN00NURR1
1_R - 0 - 2_R	2 / 4	25	OC25G04PNBN00NURR2
1_R - 0 - 2_R	3 / 6	25	OC25G06PNBN00NURR3
With overlapping contacts, step angle 60°, door mounted			
Snap-on mounted black nose handle, black front frame and silver front plate			
1 - 2	1 / 2	25	OC25G02PNBN00NWC1
1 - 2	3 / 6	25	OC25G06PNBN00NWC3
With common center position and with overlapping contacts, step angle 60°, door mounted			
Snap-on mounted black nose handle, black front frame and silver front plate			OC25G06PNBN00NUC3

For more options or information, please refer to the main Technical Catalogue/s:
- 10 - 25 A units 1SCC302009C0201
- 40 - 315 A units 1SCC302003C0201

Rotary cam switches

Bypass switches


OC_WS36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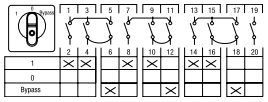
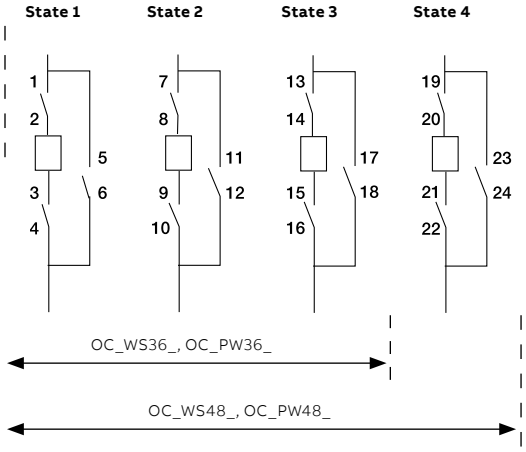

O_WS36_

The handle and front plate with position indication are included according to the table below.
Cam switches up to 315 Amps.

Function	Number of poles/ contacts	Rated thermal current I_{th} [A]	Order code
With 0-position, step angle 60°, without overlapping, 3 and 4- pole network, door mounted			
Snap-on mounted black nose handle, black front frame and silver front plate			
1 - 0 - Bypass	3;6 / 9	25	OC25G09PNBN00NWS36
1 - 0 - Bypass	4;8 / 12	25	OC25G12PNBN00NWS48

For more options or information, please refer to the main Technical Catalogue/s:
- 10 - 25 A units 1SCC302009C0201
- 40 - 315 A units 1SCC302003C0201

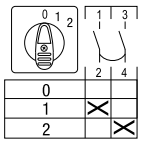
Wiring diagram, bypass switches



STOCK | INDENT

Rotary cam switches

Multistep switches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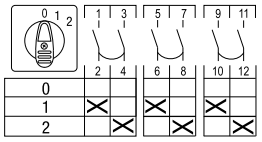
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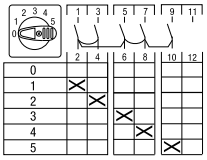
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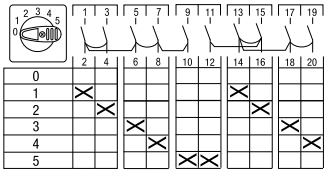
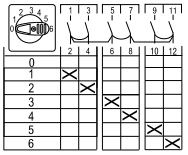

OC_SO52


OC_SO61

The handle and front plate with position indication are included according to the table below. The round front ring: to be used in situations when position indications are on the door of the enclosure. Step angle 30°. **Cam switches up to 315 Amps.**

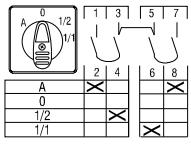
Function	Number of poles/ contacts	Rated thermal current I_{th} [A]	Order code
2- step, with 0-position, door mounted			
Snap-on mounted black nose handle, black front frame and silver front plate			
0 - 1 - 2	1 / 2	25	OC25G02PNBN00NSO21
0 - 1 - 2	3 / 6	25	OC25G06PNBN00NSO23
3- step, with 0-position, door mounted			
Snap-on mounted black nose handle, black front frame and silver front plate			
0 - 1 - 2 - 3	1 / 3	25	OC25G03PNBN00NSO31
0 - 1 - 2 - 3	3 / 9	25	OC25G09PNBN00NSO33
4- step, with 0-position, door mounted			
Snap-on mounted black nose handle, black front frame and silver fronåt plate			
0-1-2-3-4	1 / 4	25	OC25G04PNBN00NSO41
0-1-2-3-4	3 / 12	25	OC25G12PNBN00NSO43
5- step, with 0-position, door mounted			
Snap-on mounted black nose handle, black front frame and silver front plate			
0-1-2-3-4-5	1 / 5	25	OC25G05PNBN00NSO51
0-1-2-3-4-5	2 / 10	25	OC25G10PNBN00NSO52
6-step, with 0-position, door mounted			
Snap-on mounted black nose handle, black front frame and silver front plate			
0-1-2-3-4-5-6	1 / 6	25	OC25G06PNBN00NSO61
	3 / 18	25	OC25G18PNBN00NSO63

For more options or information, please refer to the main Technical Catalogue/s:
- 10 - 25 A units 1SCC302009C0201
- 40 - 315 A units 1SCC302003C0201

Note:
All switches have multistep units up to 12 steps in complete range.

Rotary cam switches

Motor control switches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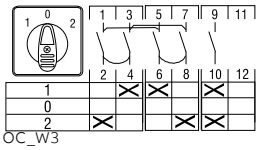
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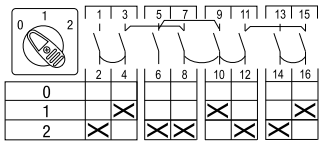
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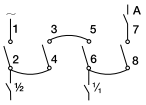
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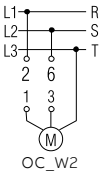
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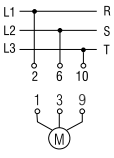
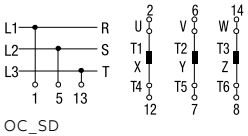
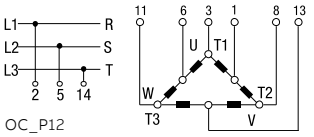

OC_W3


OC_SD


OC_P12

The handle and front plate with position indication are included according to the table below.

Cam switches up to 315 Amps.

Function	Number of poles/ contacts	Rated thermal current I_{th} [A]	Motor rating AC23/ 400V [kW]	Order code
Ventilation switches				
Door mounted, snap-on mounted black nose handle, black front frame and silver front plate				
A - 0 - 1/2 - 1/1	2 / 4	25	7.5	OC25G04PNBN00NST30
Reversing switches				
Door mounted, snap-on mounted black nose handle, black front frame and silver front plate				
1 - 0 - 2	2 / 4	25	7.5	OC25G04PNBN00NW2
1 - 0 - 2	3 / 5	25	7.5	OC25G05PNBN00NW3
Star-delta switches				
Door mounted, snap-on mounted black nose handle, black front frame and silver front plate				
0 - Y - Δ	3 / 8	25	7.5	OC25G08PNBN00NSD
Pole-change switches (Dahlander)				
Winding for 2 speeds, one direction, 0-A-AYY				
Door mounted, snap-on mounted black nose handle, black front frame and silver front plate				
0 - 1 - 2	3 / 8	25	7.5	OC25G08PNBN00NP12

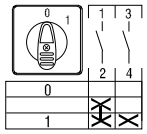
For more options or information, please refer to the main Technical Catalogue/s:
- 10 - 25 A units 1SCC302009C0201
- 40 - 315 A units 1SCC302003C0201

Note:
Modular DIN-rail base mounted, grey handle: OC25G04MNGN00NST30

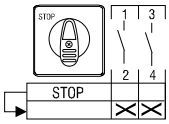
STOCK | **INDENT**

Rotary cam switches

Motor control switches



OC_SE15



OC_SA2

Available up to 315 Amps

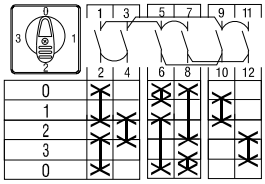
Function	Number of poles/ contacts	Rated thermal current I_{th} [A]	Order code
Pumpstart switches			
Door mounted, snap-on mounted black nose handle, black front frame and silver front plate. Step angle 60°.			
0-1	1 / 2	25	OC25G02PNBN00NSE15
Stop switches			
Door mounted, snap-on mounted black nose handle, black front frame and silver front plate			
Step angle 30°, with spring return, contacts N.C.			
0_R- Stop	2 / 2	25	OC25G02PNBN00NSA2
Start switches, with spring return			
Door mounted, snap-on mounted black nose handle, black front frame and silver front plate			
Step angle 30°			
Stop-Start	1 / 2	25	OC25G02PNBN00NSEA1

For more options or information, please refer to the main Technical Catalogue/s:
- 10 - 25 A units 1SCC302009C0201
- 40 - 315 A units 1SCC302003C0201

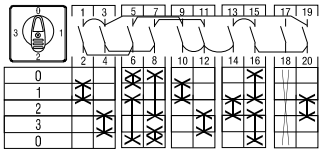
STOCK | INDENT

Rotary cam switches

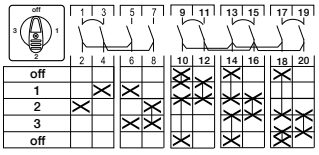
Ammeter switches and Volt-ammeter switches



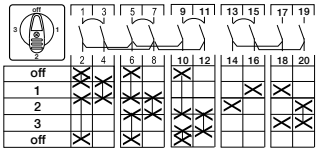
OC_AU31



OC_AU32



OC_VA21



OC_AV12

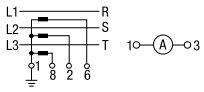
Ammeter switches

The handle and front plate with position indication are included according to the table below. The round front ring: to be used in situations when position indications are on the door of the enclosure. No stop at last position.

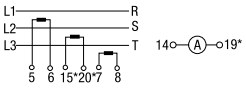
Cam switches up to 315 Amps.

Function	Number of contacts	Rated thermal current I_{th} [A]	Order code
For 3 current transformer circuits, with 0-position, step angle 90°			
Door mounted, snap-on mounted black nose handle, black front frame and silver front plate			
Single pole			
0-1-2-3	6	25	OC25G06PNBN00NAU31
2 pole or direct measurement in 3 phases			
0-1-2-3	10	25	OC25G10PNBN00NAU32

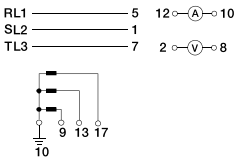
For more options or information, please refer to the main Technical Catalogue/s:
- 10 - 25 A units 1SCC302009C0201
- 40 - 315 A units 1SCC302003C0201



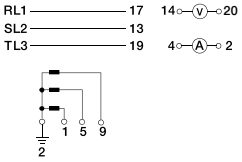
OC_AU31



O_AU32



OC_VA



OC_AV

Volt-ammeter switches

The handle and front plate with position indication are included according to the table below. The type and the order number are for one piece. No stop at last position.

Function	Number of contacts	Rated thermal current I_{th} [A]	Order code
Measuring between phases and 3 current transformers with common pole, step angle 90°			
OFF-1-2-3	10	25	OC25G10PNBN00NVA21
OFF-1-2-3	10	25	OC25G10PNBN00NAV12

For more options or information, please refer to the main Technical Catalogue/s:
- 10 - 25 A units 1SCC302009C0201
- 40 - 315 A units 1SCC302003C0201

Notes

08
Door entry systems, home and building automation

617 **Door entry systems: ABB-Welcome**

663 **Home automation: ABB-free@home®**

673 **Building automation: ABB i-bus® KNX**



Door entry systems: ABB-Welcome

618	Single-family kit
623	Outdoor station
637	Indoor station
641	System devices
646	System composition – audio solution
648	System composition – video solution
652	Composition networked
654	ABB-Welcome IP system

For more detailed product information, please refer to the Technical Catalogue:

- ABB-Welcome system manual – 9AKK106930A5974

ABB-Welcome

Single-family kit

The complete solution for all intents and purposes. Each set contains all necessary devices optimally matched in function and design – easy to order and easy to install.



Audio kit – common features

- Audio outdoor station, 1/2 push button, aluminum
- Flush mounted box, size 1/1
- Mini system controller
- Technical data: please refer to individual devices.
- The installation video can be linked by scanning the QR code printed on the package.
- Package dimension: 315 x 184 x 295 mm.





Audio single-family kit, with induction loop

The single-family kit consists of audio indoor station (M22003), audio outdoor station, 1/2 push button (M21021P1-A), mini system controller (M2301) and flush mounted box (41021F).

Description	Order code
Audio single-family kit, with induction loop	M20003

STOCK | INDENT

Let’s write the future
with technology that welcomes you home. ABB-Welcome.



ABB-Welcome – the door opener for direct access to your customers. Its XXL touch display offers outstanding prospects. It combines comfort, safety, and efficiency – and is easy to install. Find out more at **new.abb.com/low-voltage/products**

ABB-Welcome
Single-family kit

Video kit – common features

- Video outdoor station, 1/2 push button, aluminum
- Flush mounted box, size 1/2
- Mini system controller
- Technical data: please refer to individual devices.
- The installation video can be linked by scanning the QR code printed on the package.
- Package dimension: 315 x 184 x 295 mm.



Video handset kit, 4.3" color video indoor station

The single-family kit consists of video indoor station (M22301-W), video outdoor station, 1/2 push button (M21351P1-A), mini system controller (M2301) and flush mounted box (41022F).

Description	Order code
4.3" color video handset indoor station with induction loop, white	M20313
4.3" color video handset indoor station, white	M20311



Video single-family kit, 4.3" color video hands-free indoor station

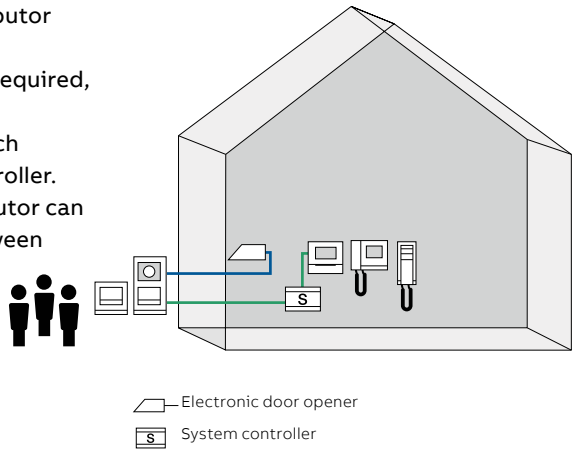
The single-family kit consists of video indoor station (M22313-W), video outdoor station, 1/2 push button (M21351P1-A), mini system controller (M2301) and flush mounted box (41022F).

Description	Order code
4.3" video hands-free indoor station, induction loop, white	M20323
4.3" video hands-free indoor station, white	M20321

Easy to expand

It is easy to expand the application based on the Welcome single-family kit.

- If more than one outdoor station is required, video outdoor distributor should be
  used plus the Welcome kit. When more than one indoor station is required, additional indoor station(s) can be easily added.
- If more than 2 outdoor stations and 2 indoor stations are used, each additional device should be powered locally by a mini system controller.
- Wiring can be looping through like the diagram, or a 4-way distributor can be used. If using cable with diameter of 0.8 mm, the distance between outdoor station and the farthest indoor station
  is up to 200 meters. For longer distance, either better cable (e.g. coaxial) or amplifier should be used.
- In case of customised solution like RFID reader or keypad solution for given project, please consult your local distributor or installer about the required article list.



STOCK | INDENT

ABB-Welcome

Single-family kit



Video single-family home kit - without induction loop

- Flush mounted box, size 1/3
- System controller
- IP-Gateway

Description	Order code
Video outdoor station, 1/2 pushbuttons, aluminum 7" video hands-free indoor station, white	M20702



Video single-family home kit - without induction loop

- Flush-mounted box, size 1/2
- Mini system controller

Description	Order code
Video outdoor station, 1/2 pushbuttons, aluminum 7" video hands-free indoor station, white	M20701



Video 1 family kit - without induction loop

- Flush-mounted box, size 1/2
- Rain hood, size 1/2
- Min-system controller

Description	Order code
Video outdoor station, 1/2 pushbuttons, aluminum 4.3" Video hands-free indoor station, white	M20322

STOCK | INDENT

ABB-Welcome

Single-family kit



Mini OS kit

- Mini video outdoor station, 1 pushbutton, aluminum.
- Mini system controller

Description	Order code
Basic 4.3" video hands-free indoor station	M20361
Basic 4.3" video hands-free indoor station, with induction loop	M20363



Video 1 family kit

- Mini video outdoor station, 1 pushbutton, with ID card reader, aluminum
- Mini system controller
- IP-Gateway
- Proximity key fob, ID card, white
- Proximity key fob, ID card, black
- ID sticker

Description	Order code
Basic 4.3" video hands-free indoor station, with induction loop, white	M20352



Video single-family home kit without indoor station

- Flush mounted box, size 1/2
- Mini system controller
- IP Gateway

Description	Order code
Video outdoor station, 1/2 push button, aluminum	M20351

Note:
Indoor station is not included in the kit, but all indoor stations range can be selected.

ABB-Welcome

Outdoor station

Assembled outdoor station



Audio outdoor station, 1-row pushbutton for 1/2 calls, aluminium

- The assembled product includes audio module with 1/2 pushbutton (M251022A-A) and 1-module cover frame (51021CF-A).
- Dustproof and waterproof as IP54, and vandal proof as IK07.
- Different mode setting is possible for pushbutton, such as 1 call or 2 calls in one row.
- Surface mounting (41021F and 51021RH needed) and flush mounting (41021F needed).
- The related tool is also provided in the package.
- Product dimension: 128 x 125 x 49 mm.

Description	Pack quantity	Order code
Audio outdoor station, 1/2 pushbutton, aluminum	1/19	M21021P1-A



Video outdoor station, 1-row pushbutton for 1/2 calls, aluminium

- The assembled product includes camera module (M251021C), audio module with 1/2 push button (M251022A-A) and 2-module cover frame (51022CF-A).
- Dustproof and waterproof as IP54, and vandal proof as IK07.
- Different mode setting is possible for pushbutton, such as 1 call or 2 calls in one row.
- Surface mounting (41022F and 51022RH needed) and flush mounting (41022F needed).
- The related tool is also provided in the package.
- Product dimension: 201 x 125 x 49 mm.

Description	Pack quantity	Order code
Video outdoor station, 1/2 pushbutton, aluminum	1/19	M21351P1-A



Video keypad outdoor station with speech synthesis, aluminium

- The assembled product includes camera module (M251021C), audio module with speech synthesis (M251024A-A), keypad module (M251021K-A) and display module (M251021CR/M251022CR).
- Dustproof and waterproof as IP54, and vandal proof as IK07.
- Built-in card reader in camera module, support ID card (M21351K-A) and IC card (M21352K-A).
- Surface mounting (41024F and 51024RH needed) and flush mounting (41024F needed).
- Product dimension: 347 x 125 x 49 mm.

Description	Pack quantity	Order code
Video outdoor station with keypad, with ID card reader	1/12	M21351K-A
Video outdoor station with keypad, with IC card reader	1/12	M21352K-A



Mini outdoor station, one button / two buttons, aluminium

- Compact size, surface mounted.
- 1 button and 2 button optional, built-in ID card reader.
- Clean design with integrated status display.
- Light switch or calling guard programmable for the 2nd button.
- Up to 2 locks connections.
- Product Dimensions
  - Mini video outdoor station (99mm width, SM): 168 x 99 x 26 mm.
  - Mini video outdoor station (105mm width, FM): 180 x 105 x 43 mm.
  - Pre-installation box: 174 x 98 x 45 mm.

Description	Pack quantity	Order code
Mini video outdoor station, 1 pushbutton, with ID card reader	1/16	M21312P1-A
Mini video outdoor station, 2 pushbuttons, with ID card reader	1/16	M21312P2-A
Mini video outdoor station, 1 pushbutton	1/16	M21311P1-A
Mini video outdoor station, 2 pushbuttons	1/16	M21311P2-A
Mini video outdoor station, 1 pushbutton, with ID card reader with flush-mounted box	1/19	M21362P1-A
Mini video outdoor station, 2 pushbuttons, with ID card reader with flush-mounted box	1/19	M21362P2-A
Pre-installation box	1/19	41361F

STOCK | INDENT

ABB-Welcome

Outdoor station – stainless steel



Audio outdoor station, stainless steel

- Clean design with brushed stainless steel.
- Surface mounting, flush mounting and cavity wall set.
- Different mode setting is possible for pushbutton, such as light switch and calling guard.
- Dustproof and waterproof as IP54, and vandal proof as IK07.
- Product dimensions: size 1/2: 200 x 125 x 39 mm. size 1/3: 274 x 125 x 39 mm.

Description	Pack quantity	Order code
Audio outdoor station, 1 pushbutton, stainless steel	1/19	M21011P1-S
Audio outdoor station, without pushbuttons, size 1/2, stainless steel	1/19	M21013N3-S
Audio outdoor station, without pushbuttons, size 1/3, stainless steel	1/19	M21013N6-S



Video outdoor station,1 button and 2 button optional

- Clean design with brushed stainless steel.
- Surface mounting, flush mounting and cavity wall set.
- Different mode setting is possible for pushbutton, such as light switch and calling guard.
- Dustproof and waterproof as IP54, and vandal proof as IK07.
- Product dimensions:
  - size 1/3: 274 x 125 x 41 mm
  - size 1/4: 347 x 125 x 41 mm

Description	Pack quantity	Order code
Video outdoor station, 1 pushbutton, stainless steel	1/12	M21321P1-S
Video outdoor station, 1 pushbutton, stainless steel, with NFC/IC function	1/12	M21322P1-S
Video outdoor station, without pushbuttons, size 1/3, stainless steel	1/12	M21323N3-S
Video outdoor station, without pushbuttons, size 1/4, stainless steel	1/12	M21323N6-S



Video keypad outdoor station with speech synthesis

- Clean design with brushed stainless steel.
- Built-in card reader in display module, support IC card and ID card.
- Surface mounting (41024F and 51024RH needed), flush mounting (41024F needed) and cavity wall set (51021CS needed).
- Dustproof and waterproof as IP54, and vandal proof as IK07.
- Product dimensions: 347 x 125 x 41 mm.

Description	Pack quantity	Order code
Video outdoor station with keypad, ID, stainless steel	1/12	M21321K-S
Video outdoor station with keypad, IC, stainless steel	1/12	M21322K-S

ABB-Welcome
Outdoor station

Modules



Camera module
- Video color camera with large detection angle (H 86°, V 67°, D 104°) and manually mechanical adjustment (H ± 15°, V ± 15°); In-built infrared lighting ensures clear picture and comfortable to eyes at night and "secret" surveillance from video indoor station.
- Anti-fog design with in-built heater can always ensure clear image even in very wet condition
- Optional to connect one additional analog camera for surveillance inside the video indoor station.
- Product dimension: 72 x 97 x 41 mm.

Description	Pack quantity	Order code
Camera module	1/12/12	M251021C



Audio module, no button
- Audio module is compulsory for any audio or video outdoor station composition.
- 3 LED indicators for operation status indications: call established / system busy, communication possible and door unlocked.
- One lock can be directly connected without independent power supply for the lock.
- Additional terminal for second lock is available.
- Lock release time and speaker volume are adjustable.
- No button.
- Integrated optic sensor for day / night mode.
- Product dimension: 72 x 97 x 38 mm.

Description	Pack quantity	Order code
Audio module, aluminum	1/12/12	M251021A-A
Audio module, coated white	1/12/12	M251021A-W



Audio module, 1-row pushbutton for 1/2 calls
- Audio module is compulsory for any audio or video outdoor station composition.
- 3 LED indicators for operation status indications: call established / system busy, communication possible and door unlocked.
- One lock can be directly connected without independent power supply for the lock. Additional terminal for second lock is available.
- Lock release time and speaker volume are adjustable.
- 1-row button.
- Different mode setting is possible such as 1 call or 2 calls in one row, call guard or switching light for the first or second button.
- Integrated optic sensor for day / night mode.
- Product dimension: 72 x 97 x 38 mm.

Description	Pack quantity	Order code
Audio module, 1 row pushbutton, aluminum	1/12/12	M251022A-A
Audio module, 1 row pushbutton, coated white	1/12/12	M251022A-W

STOCK | INDENT

ABB-Welcome
Outdoor station



Audio module, 2-row pushbutton for 2/4 calls
- Audio module is compulsory for any audio or video outdoor station composition.
- 3 LED indicators for operation status indications: call established / system busy, communication possible and door unlocked.
- One lock can be directly connected without independent power supply for the lock.
- Additional terminal for second lock is available.
- Lock release time and speaker volume are adjustable.
- 2-row button.
- Different mode setting is possible such as 1 call or 2 calls in one row, call guard or switching light for the first or second button.
- Integrated optic sensor for day / night mode.
- Product dimension: 72 x 97 x 38mm.

Description	Pack quantity	Order code
Audio module, 2 rows pushbuttons, aluminum	1/12/12	M251023A-A
Audio module, 2 rows pushbuttons, coated white	1/12/12	M251023A-W



Audio module, no button, with speech synthesis
- Audio module is compulsory for any audio or video outdoor station composition.
- 3 LED indicators for operation status indications: call established / system busy, communication possible, door unlocked.
- One lock can be directly connected without independent power supply for the lock.
- Additional terminal for second lock is available.
- Lock release time and speaker volume are adjustable.
- No button, with speech synthesis to play voice message according to the status.
- Integrated optic sensor for day / night mode.
- Product dimension: 72 x 97 x 38 mm.

Description	Pack quantity	Order code
Audio module with speech synthesis, aluminum	1/12/12	M251024A-A
Audio module with speech synthesis, coated white	1/12/12	M251024A-W



Pushbuttons module, 3-row for 3/6 calls
- Nameplate is extractable by tool, without the need to disassemble the panel
- Backlight ensures clear visibility at night
- 3-rows can be set for 3/6 calls
- Either 1 call or 2 calls for 1 row of button are set in the audio module.
- Product dimension: 72 x 97 x 25 mm.

Description	Pack quantity	Order code
3/6 pushbutton module	1/10/8	M251021P3
Accessory: 1/3 height cover for 3/6 pushbutton module		51021P3

ABB-Welcome
Outdoor station





Pushbuttons module, 4-row for 4/8 calls
- Nameplate is extractable by tool, without the need to disassemble the panel.
- Backlight ensures clear visibility at night.
- 4-rows can be set for 4/8 calls.
- Either 1 call or 2 calls for 1 row of button are set in the audio module.
- Product dimension: 72 x 97 x 25 mm.

Description	Pack quantity	Order code
4/8 pushbutton module	1/10/8	M251021P4
Accessory: 1/4 height cover for 4/8 pushbutton module and audio module with button		51021P4



Keypad module, letter A–Z
- Inputting device for keypad outdoor station.
- Letter from A–Z.
- Scroll up and down for residents' names or input letters of the calling name (display module must be accompanied, sorting is progressive upon inputting next letter of name).
- Names or call code can be downloaded from PC though USB cable or can be edited from the keyboard.
- Up to 3000 names can be saved in the memory.
- Both public password and up to 6000 customized passwords are allowed.
- If repeatedly inputting wrong password, the keypad will be locked.
- Password available with 6–8 digits and calling code with 1–6 digits.
- Call guard unit is also available.
- Backlight ensures clear visibility at night.
- Product dimension: 72 x 97 x 31 mm.

Description	Pack quantity	Order code
Keypad module, letter A-Z, aluminum	1/10/8	M251021K-A
Keypad module, letter A-Z, white	1/10/8	M251021K-W



Keypad module, letter A–L
- Inputting device for keypad outdoor station.
- Letter from A–L.
- Scroll up and down for residents' names or input letters of the calling name (display module must be accompanied, sorting is progressive upon inputting next letter of name).
- Calls can also be made by combining number and letter, e.g. 112A.
- Names or call code can be downloaded from PC though USB cable or can be edited from the keyboard.
- Up to 3000 names can be saved in the memory.
- Both public password and up to 6000 customised passwords are allowed.
- If repeatedly inputting wrong password, the keypad will be locked.
- Password available with 6–8 digits and calling code with 1–6 digits.
- Call guard unit is also available.
- Backlight ensures clear visibility at night.
- Product dimension: 72 x 97 x 31 mm.

Description	Pack quantity	Order code
Keypad module, letter A–L , aluminum	1/10/8	M251022K-A
Keypad module, letter A–L , white	1/10/8	M251022K-W

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ABB-Welcome
Outdoor station



Display module with card reader
- Large screen ensures customized message, code or names readable easily.
- Wiegand output is available to connect to the third party controller.
- ID card reader (accept the card with frequency of 125KHz) or IC card reader (accept the card with frequency of 13.56MHz) is integrated into the module.
- Up to 3000 different cards can be registered.
- Register and delete cards locally in setting menu.
- Different feedback sounds for accepting or rejecting the reading card.
- Support connection to audio module without the keypad module.
- Product dimension: 72 x 97 x 31 mm.

Description	Pack quantity	Order code
Display module with ID card reader	1/10/8	M251021CR
Display module with IC card reader	1/10/8	M251022CR



Nameplate module
- It can be used to hold the address of the building or the resident directory for keypad outdoor station, or simply to complete the module within the cover frame.
- Backlight ensures clear visibility at night.
- Product dimension: 72 x 97 x 24 mm.

Description	Pack quantity	Order code
Directory nameplate module	1/10/8	51021DN





Push button modules
- Even backlight ensures legible nameplate at night.
- NFC/IC reader button optional.
- Screwless mounting module compatible for stainless steel and aluminum outdoor station.
- Supporting software ensures high quality nameplate printing.

Description	Order code
One round button	
Pushbutton module, 1 pushbutton	51011P1
Pushbutton module with NFC/IC function, 1 pushbutton	51012P1
Two round pushbuttons	
Pushbutton module, 2 pushbuttons	51011P2
Pushbutton module with NFC/IC function, 2 pushbuttons	51012P2
Three round pushbuttons	
Pushbutton module, 3 pushbuttons	51011P3
Pushbutton module with NFC/IC function, 3 pushbuttons	51012P3

Label holder for round pushbutton module
- Label holder for the round pushbutton module, with stamped labelling.
- Contains one support frame and two extension support frames.

Description	Order code
Label holder for round pushbutton	83161-500

ABB-Welcome

Outdoor station – accessories

Cover frames

The invisible screw design with provision of double columns ensures good appearance. The tool to dismount the end strip is also included in the package.



Cover frame, size 1/1

Size 1/1, 128 x 125 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 1-module, size 1/1, aluminum	1/34	51021CF-A
Cover frame, 1-module, size 1/1, coated white	1/34	51021CF-W



Cover frame, size 1/2

Size 1/2, 201 x 125 x 19 mm

Description	Pack quantity	Order code
Cover frame, 2-module, size 1/2, aluminum	1/34	51022CF-A
Cover frame, 2-module, size 1/2, coated white	1/34	51022CF-W



Cover frame, size 1/3

Size 1/3, 274 x 125 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 3-module, size 1/3, aluminum	1/22	51023CF-A
Cover frame, 3-module, size 1/3, coated white	1/22	51023CF-W



Cover frame, size 1/4

Size 1/4, 347 x 125 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 4-module, size 1/4, aluminum	1/22	51024CF-A
Cover frame, 4-module, size 1/4, coated white	1/22	51024CF-W



Cover frame, size 1/5

Size 1/5, 420 x 125 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 5-module, size 1/5, aluminum	1/22	51028CF-A

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ABB-Welcome

Outdoor station – accessories



Cover frame, size 2/3

Size 2/3, 274 x 230 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 6-module, size 2/3, aluminum	1/11	51025CF-A
Cover frame, 6-module, size 2/3, coated white	1/11	51025CF-W



Cover frame, size 2/4

Size 2/3, 347 x 230 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 8-module, size 2/4, aluminum	1/11	51026CF-A
Cover frame, 8-module, size 2/4, coated white	1/11	51026CF-W



Cover frame, size 2/5

Size 2/5, 420 x 230 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 10-module, size 2/5, aluminum	1/11	51029CF-A



End strip

End strip for outdoor station cover frame.
2 types available, one for 125 mm wide outdoor station (size 1/X, 125 x 19 x 1 mm), the other for 230 mm wide outdoor station (size 2/X, 230 x 19 x 15 mm)

Description	Pack quantity	Order code
End strip, size 1/x, aluminum	1/36	51021EP-A
End strip, size 2/x, aluminum	1/20	51022EP-A
End strip, size 1/x, white	1/36	51021EP-W
End strip, size 2/x, white	1/20	51022EP-W

ABB-Welcome

Outdoor station – accessories

Flush mounted boxes

The anodized aluminum flush box is fitted with knock down holes for cabling from left, right, bottom or back. The product is packed with accessories to ensure quality installation.



Flush mounted box, size 1/1

Size 1/1, 126 x 124 x 46 mm.

Description	Pack quantity	Order code
Flush-mounted box, 1-module, size 1/1	1/19	41021F



Flush mounted box, size 1/2

Size 1/2, 199 x 124 x 46 mm.

Description	Pack quantity	Order code
Flush-mounted box, 2-module, size 1/2	1/19	41022F



Flush mounted box, size 1/3

Size 1/3, 272 x 124 x 46 mm.

Description	Pack quantity	Order code
Flush-mounted box, 3-module, size 1/3	1/12	41023F



Flush mounted box, size 1/4

Size 1/4, 345 x 124 x 46 mm.

Description	Pack quantity	Order code
Flush-mounted box, 4-module, size 1/4	1/12	41024F



Flush mounted box, size 1/5

Size 1/5, 418 x 124 x 416 mm.

Description	Pack quantity	Order code
Flush-mounted box, 5-module, size 1/5	1/6	41028F

STOCK | INDENT

ABB-Welcome

Outdoor station - accessories



Flush mounted box, size 2/3

Size 2/3, 272 x 228 x 47 mm.

Description	Pack quantity	Order code
Flush-mounted box, 6-module, size 2/3	1/6	41025F



Flush mounted box, size 2/4

Size 2/4, 345 x 228 x 47 mm.

Description	Pack quantity	Order code
Flush-mounted box, 8-module, size 2/4	1/6	41026F



Flush mounted box, size 2/5

Size 2/5, 418 x 228 x 47 mm.

Description	Pack quantity	Order code
Flush-mounted box, 10-module, size 2/5	1/6	41029F



Joining fixture

It is used when more than one flush mounted box (size 1/4, 41024F) needs to be connected together.

Description	Order code
Joining fixture for multi- flush mounted boxes connection	51021J

ABB-Welcome

Outdoor station - accessories

Rain hoods

The anodized aluminum rain hood is fit for both surface mounting (by screwing into the flush box) and flush mounting (supporting tool kit is provided in the package).



Rain hood, size 1/1

Size 1/1, 128 x 131 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 1-module, size 1/1	1/14	51021RH



Rain hood, size 1/2

Size 1/2, 201 x 131 x 70mm.

Description	Pack quantity	Order code
Rain hood, 2-module, size 1/2	1/14	51022RH



Rain hood, size 1/3

Size 1/3, 274 x 131 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 3-module, size 1/3	1/8	51023RH



Rain hood, size 1/4

Size 1/4, 347 x 131 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 4-module, size 1/4	1/8	51024RH



Rain hood, size 1/5

Size 1/5, 420 x 131 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 5-module, size 1/5	1/8	51028RH

ABB-Welcome

Outdoor station - accessories



Rain hood, size 2/3

Size 2/3, 274 x 237 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 6-module, size 2/3	1/4	51025RH



Rain hood, size 2/4

Size 2/4, 347 x 237 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 8-module, size 2/4	1/4	51026RH



Rain hood, size 3/4

Size 3/4, 347 x 378 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 12-module, size 3/4	1/2	51027RH



Rain hood, size 2/5

Size 2/5, 420 x 378 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 10-module, size 2/5	1/4	51029RH

Labelling sheet, A4

- Quality labelling sheet for nameplate.
- Easy to be printed and cut.
- Waterproof.
- Size 2/5, 210 x 297 mm.

Description	Order code
Labelling sheet for nameplate, A4	51021L
Labelling sheet for 1/3 height, A4	51022L
Labelling sheet for 1/4 height, A4	51023L

ABB-Welcome

Outdoor stations



ID Card

- 125 KHz.
- ISO18000-2.
- Size of fob: 40 x 31 x 5 mm; Size of badge: 86 x 54 x 1 mm.

Description	Pack quantity	Order code
Proximity key fob, ID card	5	51021F-L
Proximity badge, ID card	10	51021B



IC card

- 13.56 MHz.
- ISO14443A.
- Product dimensions: 40 x 31 x 5 mm.

Description	Pack quantity	Order code
Proximity key fob, IC card, yellow	5	51022F-Y
Proximity key fob, IC card, red	5	51022F-R
Proximity key fob, IC card, blue	5	51022F-L



Mounting Tool

- Spare part for the outdoor station.
- Product dimensions: 164 x 26 x 4 mm.

Description	Pack quantity	Order code
Mounting tool	1/10	51021MT

ABB-Welcome

Outdoor stations



Label holder for round pushbutton module

- Label holder for the round pushbutton module, with stamped labelling
- Contains one support frame and two extension support frames.
- Product dimensions: 92 x 52 x 5 mm.

Description	Pack quantity	Order code
Label holder for round pushbutton	1/18	83161-500-01



Proximity key fob

Product dimensions: 56 x 32 x 7 mm.

Description	Pack quantity	Order code
New Proximity key fob, ID card, white	5	51023F-W
New Proximity key fob, ID card, black	5	51023F-B
New Proximity key fob, IC card, white	5	51024F-W
New Proximity key fob, IC card, black	5	51024F-B

ID/IC sticker

Product dimensions: 25 x 25x 0.6 mm.

Description	Pack quantity	Order code
New ID sticker	5	51021S
New IC sticker	5	51022S



Proximity badge, IC card

Product dimensions: 86 x 54 x 1 mm.

Description	Pack quantity	Order code
Proximity badge, IC card	10	83173-500-01

ABB-Welcome
Indoor station





Assembled display module

7" video hands – free indoor station

- Large 17.8 cm (7") color display with intuitive touch control.
- During resident's absence, voice message of the resident will be played automatically in case of door calls, and 3 pictures of the visitor will be automatically stored.
- The number of pictures that can be stored is decided by the capacity of the SD card (not provided).
- Send SOS alarm to guard unit in emergency.
- Surface mounting and desktop mounting (desktop bracket 42311D is needed).
- Product dimension: 155 x 218 x 29 mm.

Description	Pack quantity	Order code
7" hands-free video indoor station, touch version, white	1/16	M22331-W
7" hands-free video indoor station, touch version, black	1/16	M22331-B
7" hands-free video indoor station, pushbutton, white	1/16	83220 AP-624-500-01
7" hands-free video indoor station, pushbutton, black	1/16	83220 AP-681-500-01
7" hands-free video indoor station, pushbutton, silver	1/16	83220 AP-683-500-01



4.3" video hands-free indoor station – with and without induction loop

- Electromagnetic signals will be emitted by a special inductive loop for audial indication of any incoming calls. Function for users with hearing-aids.
- 4.3" color display with OSD.
- 2 pictures of the visitor will be automatically stored in the picture memory for door calls during resident's absence.
- The number of the pictures is up to 60 pcs.
- Surface mounting, flush mounting (flush mounted box 42311F is needed) and desktop mounting (desktop bracket 42311D is needed).
- Product dimension: 137 x 155 x 24 mm.

Description	Pack quantity	Order code
4.3" hands-free video indoor station, induction loop, white	1/28	M22313-W
4.3" hands-free video indoor station, without induction loop, white		M22311-W

ABB-Welcome
Indoor station

Video indoor stations



Basic 4.3“ video hands-free indoor station
- 4.3'' color display with on screen display.
- 6 touch film buttons for communication unlocking, mute, programmable button (can be set as intercom, call guard unit, etc.), surveillance and setting.
- Holds up to 50 photos (M22343-W only)*
- Doctor function for automatic unlock.
- 5 ringtones for different call sources, i.e. from default outdoor station, secondary outdoor station, doorbell, intercom or guard unit. The ringtone can be fixed or cycled
- Surface mounting and desktop mounting (desktop bracket 42311D is needed).
- Product dimensions: 154 x 134 x 23 mm.

Description	Order code
Basic 4.3" video hands-free indoor station, white	M22341-W
Basic 4.3" video hands-free indoor station, with induction loop, white*	M22343-W

* Hold up to 50 photos – only applicable to M22343-W model



4.3" video handset indoor station, color display with induction loop
- Electromagnetic signals will be emitted by a special inductive loop for audial indication of any incoming calls. Function for users with hearing-aids.
- Slim indoor station with handset (depth of 45 mm).
- 4.3" color display with OSD.
- 2 pictures of the visitor will be automatically stored in the picture memory for door calls during resident's absence.
- The number of the pictures is up to 25 pcs.
- Surface mounting and desktop mounting (desktop bracket 42311D is needed).
- Product dimension: 144 x 198 x 45 mm.

Description	Pack quantity	Order code
4.3" handset color video indoor station with induction loop, white	1/15	M22302-W

ABB-Welcome
Indoor station

Audio indoor stations

- 1 easy pushbutton for unlock, and 2 additional buttons for self setting functions, e.g. intercom ,door status check, second lock release or even calling the security guard, etc.
- Max-mid-mute volume adjuster on the side.
- 2 LEDs to indicate different working status.
- 5 ringtones for different call sources, i.e. from default outdoor station, secondary outdoor station, door bell, intercom or guard unit.
- The activating or deactivating of automatic unlock can be made by simply pressing the unlock button or second lock release for 10 seconds, or even calling the security guard, etc.
- Product dimension: 198 x 81 x 43 mm.



Audio handset indoor station, 3 buttons with induction loop
Electromagnetic signals will be emitted by a special inductive loop to provide hearing assistance to hearing aid users.

Description	Pack quantity	Order code
Audio handset indoor station, 3 buttons with induction loop, white	1/25	M22003-W
Audio handset indoor station, 3 buttons, white	1/25	M22002-W



Audio handset indoor station, 6 buttons
The activating or deactivating of automatic unlock can be made by simply pressing the unlock button or second lock release for 10 seconds, or even calling the security guard, etc.

Description	Pack quantity	Order code
Audio handset indoor station, 6 buttons, white	1/25	M22001-W

ABB-Welcome

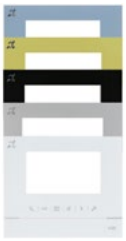
Indoor station - accessories



Changeable front cover for 4.3" video hands-free indoor station

5 face covers of different colors are available, which are easily changeable for 4.3" video hands-free indoor station to meet personal esthetic preference.

Description	Pack quantity	Order code
Front cover for 4.3" video hands-free, white	1/36	52311FC-W
Front cover for 4.3" video hands-free , silver	1/36	52311FC-S
Front cover for 4.3" video hands-free , black	1/36	52311FC-B
Front cover for 4.3" video hands-free , golden	1/36	52311FC-G
Front cover for 4.3" video hands-free , light blue	1/36	52311FC-L



Changeable front cover for 4.3" video hands-free indoor station with induction loop

5 face covers of different colors are available, which are easily changeable for 4.3" video hands-free indoor station with induction loop to meet personal esthetic preference.

Description	Pack quantity	Order code
Front cover for 4.3" video hands-free with induction loop, white	1/36	52313FC-W
Front cover for 4.3" video hands-free with induction loop, silver	1/36	52313FC-S
Front cover for 4.3" video hands-free with induction loop, black	1/36	52313FC-B
Front cover for 4.3" video hands-free with induction loop, golden	1/36	52313FC-G
Front cover for 4.3" video hands-free with induction loop, light blue	1/36	52313FC-L



Flush mounted box for 4.3" video hands-free indoor station

Metal box for flush mounted 4.3" video hands-free indoor stations.
Product dimension: 145x125x27 mm.

Description	Pack quantity	Order code
Metal flush mounted box	1/60	42311F



Desktop bracket

Full metal design with brush finish base, it is fit for 7" all touch, 4.3" hands-free video indoor station, 4.3" handset video indoor station and guard unit.
Product dimension: 125x107x134 mm.

Description	Pack quantity	Order code
Metal desktop bracket	1/12	42311D



Handset with induction loop

It is fit for audio handset indoor station with induction loop and 4.3" video handset indoor station with induction loop.

Description	Order code
Handset with induction loop (spare part)	52303HS-W



Jumper

Jumper set for audio / video handset indoor stations is used to set the address, master / slave indoor station and RC on / off of indoor stations.

Description	Order code
Jumper set for audio handset indoor station	52001J
Jumper set for 4.3" video handset indoor station	52301J

ABB-Welcome
System devices


System controller


Mini system controller

System controllers
- As the 'brain' of the individual system, it manages the communication between outdoor station and indoor station.
- Two working modes to switch between 'all on' and 'one on'.
- If in 'all on' mode, and the apartment contains more than 1 video indoor station, all the screens in this apartment will be on while only one is on if in 'one on' mode.
- It can also serve as auxiliary BUS power supply when connected to gateway in certain mode.
- 1LED for normal working condition indication.
- Overheat, short-circuit and lightening protection.

Description	Product dimension	Pack quantity	Order code
System controller, 1.2A output, MDRC 8U	90x144x65 mm	1/10	M2300
Mini system controller, 0.65A output, MDRC 4U	90x72x65 mm	1/10	M2301



Gateway
- 5 different modes which can be set by dipswitch: apartment gateway, floor gateway, building gateway, auxiliary BUS power supply interface and line amplifier.
- Product dimension: 90x72x65 mm.

Description	Pack quantity	Order code
Gateway, MDRC 4U	1/10	M2302



IP Gateway
- iOS and Android and tablet by installing the app as video indoor station.
- Supports both Wi-Fi and remote access under 3G/4G with the help of service provider.
- Enables the integration with ABB Comfort touch as indoor station.
- PC interface efficiently programs telephone gateway products.

Description	Order code
IP Gateway	83342-500-01



Telephone Gateway
- PSTN telephone integrated as audio indoor station.
- Unlock the door, switch the Light, communication can be done through telephone.
- Any mobile device can be set as extended indoor station.
- Efficient programming through PC by IP Gateway.

Description	Order code
Telephone Gateway	83350-500-01

STOCK | INDENT

ABB-Welcome
System devices



DIN rail adaptor
- One DIN rail adaptor fit for all the flush mounted devices: video distributor, switch actuator, and camera interface.
- Adjustable and consistent looking cover can be taken out if needed.

Description	Order code
DIN rail adaptor	53001DR



Lift control relay module



M adaptor

Lift control module
- Enhance security to allow authorized visitor/resident to ONLY go to the designated floor while unauthorized visitor can not activate any floor button in the lift.
- Efficient programming through PC by dedicated commissioning software.
- Each module supports up to 16 floors total. Up to 16 modules can be cascaded.

Description	Order code
Lift control relay module	M2307
M adaptor (PC adaptor and lift control module)	M2306



Guard unit
- 4.3" touch screen and 6 touch film buttons can ensure the communication with calls from outdoor station, indoor station or other guard unit (if any).
- It can be manually or automatically set into intercept mode to increase security level for all users or only VIPs.
- Surveillance can be done through the camera of outdoor stations or integrated analog camera.
- Missed calls and alarm messages stored in the memory can be reviewed.
- It can be surface mounted on the wall or desktop mounted (desktop bracket 42311D is needed).
- Product dimension: 144x198x45 mm.

Description	Pack quantity	Order code
Guard Unit	1/15	M2303

ABB-Welcome
System devices



Video distributor

- This compact device supports 4-way outputs connected to different apartments or different high-rise buildings.
- Flush-mounted into VDE/Italian box or surface mounted through the hole in the middle.
- Product dimension: 45 x 45 x 26 mm.

Description	Pack quantity	Order code
Video distributor, FM	1/18	M2304



Video outdoor distributor

- It is used for buildings with more than 1 outdoor station.
- 2-way inputs are connected to different outdoor stations.
- Product dimension: 90 x 36 x 65 mm.

Description	Pack quantity	Order code
Video outdoor distributor, MDRC 2U	1/20	83325/2-500-1



Camera interface

- Supports up to 4 analog 3rd party cameras for one device.
- Supports camera connection to the existing video/audio outdoor station.
- Supports transfer of image from guard unit to the indoor station.
- Supports the camera for viewing the area of the floor (for example with the connection from indoor station to this interface, where it connects to the analog camera.
- Supports input and output of video signal of outdoor station to 3rd party VDR during the call, which can be viewed from the video indoor station).
- Supports installation in DIN, surface mounted.

Description	Order code
4-way analog camera interface	83327-500 -01

STOCK | INDENT

ABB-Welcome
System devices



Switch actuator
- This compact device has 3 working modes: extend door bell, door opener and time relay.
- Local pushbutton can be connected as control input.
- The switching duration of unlock or switching on lightings is adjustable.
- Flush-mounted.
- Product dimension: 51x51x29 mm.

Description	Pack quantity	Order code
Switch actuator, FM	1/18	M2305



2-wire adaptor
- Supports to connect PC with management software into 2-wire DES system
- PC management software supports centralized management of user card no. /user names/logic addresses, registration/deletion/change.
- Supports the building system without floor system
- PC management software records system logs, e,g unlock log, SOS log.
- PC management software supports to configure lift control modules.
- 2-wire adaptor dimensions: 90 x 180 x 65 mm

Description	Pack quantity	Order code
2-wire adaptor, MDRC 10U	1/24	M2308-01





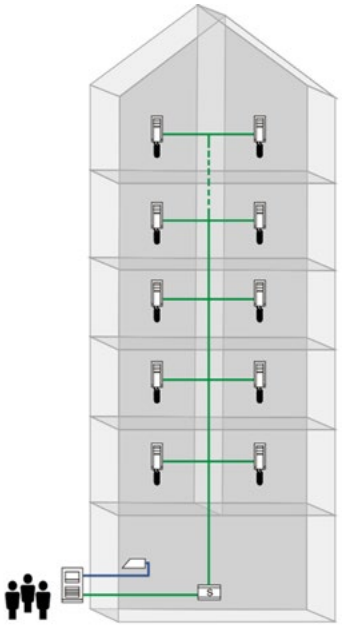


External camera
- Analogue camera solutions for the camera interface from the ABB-Welcome range
- Three types are optional for different application, normal camera/dome camera/mini dome camera
- Image Sensor: 1/3” 1.3MP SONY Exmor CMOS.
- Effective Pixels: 1305(H)×1049(V).
- Resolution: 700TVL
- -Horizontal detection angle: 30 °- 90° (manually adjustable for video camera & dome camera); 75°(fixed for mini dome camera)
- S/N Ratio: ≥50 dB
- Min. illumination (Day): 0.1 Lux @ F2.0
- Min. illumination (Night): 0 Lux @ F2.0
- Video signal: 1 x CVBS, 1Vpp, 75 Ohm (BNC)
- White Balance: AWB, 1800K – 10800K
- Lens: 2.8-12 mm (manually adjustable for video camera & dome camera); 3.6mm(fixed for mini dome camera)
- R Range: 50m(video camera), 40m(dome camera), 30m(mini dome camera)
- Input Voltage: DC 12 V +/- 10 %
- Dustproof and waterproof as IP66
- Product dimensions:
  - Video camera: 286 x 86 x 77 mm
  - Dome camera: 130 x 119 x 104 mm
  - Mini dome camera: 105 x 94 x 83 mm

Description	Pack quantity	Order code
Video camera	1/4	83550/1-500-01
Dome camera	1/12	83550/2-500-01
Mini dome camera	1/12	83550/3-500-01

ABB-Welcome

System devices – audio solution



Welcome is right for pure audio solution, regardless of new or renovation installation.

- In case of pushbutton solution, either 2 calls or 1 call for 1 button is possible. For user's convenience, it is not recommended to use pushbutton solution for buildings with more than 40 apartments.
- The recommended modules composition and products for different no. of apartment are listed on the given data sheet on pages 646 – 647.
- Keypad solution with display (in-built RFID reader) is also possible, and it is a good solution for high-rise building. The recommended modules and products for given no. of apartments are listed on the given data sheet (See table below).
- The wiring can be rising mains with branch connection like the given diagram, but it is only fit for pure audio installation when no video indoor station is installed. If only 1 video indoor station is needed, rising mains with branch is not allowed. A looping through or branch line topology can be used.
- If using cable with diameter of 0.8 mm, the distance between outdoor station and the farthest indoor station is up to 300 meters. For longer distance, either better cable (e.g. coaxial) or amplifier should be used.

Display with keypad solution

The chart below is a simple composition suggestion for display with keypad outdoor station for audio solution.

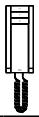
	Keypad Outdoor Station					**Indoor Stations with System Devices**			
								Mode set as auxiliary power supply 	
Users	**51023CF-.**	**41023F**	**M251021A-. or M251024A-.**	**M251021CR or M251022CR**	**M251021K-. or M251022K-.**	**M2300**	**M2301**	**M2302**	**M2200.-.**
See the number of the indoor station	1	1	1	1	1		1		12~24
	1	1	1	1	1	1			25~55
	System controller feeds indoor stations only, outdoor station is fed by local power supply								
	1	1	1	1	1	1	1	1	56~91
	System controller feeds outdoor station only, up to 2 outdoor stations can be used. Auxiliary power supply is used for all indoor stations: 1) 79 x audio indoor station by one standard auxiliary power supply. 2) 43 x audio indoor station by one mini auxiliary power supply. All the gateways are looped through to connect to the system controller.								
	2	2	2	2	2	2	1	2	97~122
	2	2	2	2	2	3		2	123~158
	2	2	2	2	2	3	1	3	159~201
	2	2	2	2	2	4		3	202~237
	2	2	2	2	2	4	1	4	238~250

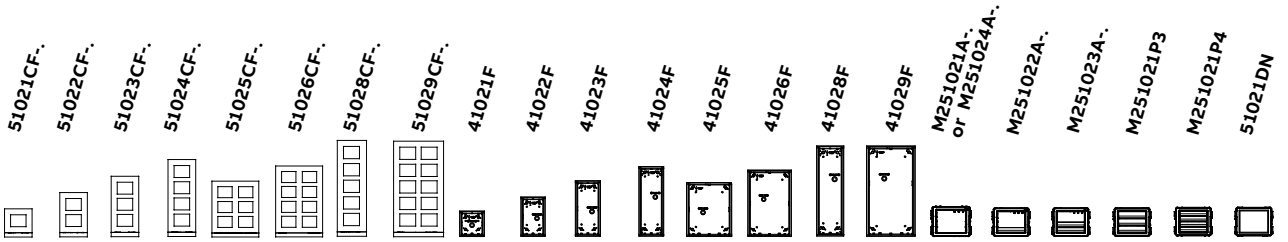
ABB-Welcome

System composition – audio solution

Pushbutton solution for audio outdoor station

The following charts are simple pushbutton outdoor station composition suggestion for audio solution.

Single Pushbutton



Users	51021CF-.	51022CF-.	51023CF-.	51024CF-.	51025CF-.	51026CF-.	51028CF-.	51029CF-.	41021F	41022F	41023F	41024F	41025F	41026F	41028F	41029F	M251021A-. or M251024A-.	M251022A-.	M251023A-.	M251021P3	M251021P4	51021DN
2	1								1										1			
3		1								1							1			1		
4		1								1							1				1	
5		1								1								1			1	
6		1								1									1		1	
7			1								1						1				2	
8			1								1						1				2	
9			1								1							1			2	
10			1								1								1		2	
11				1								1					1				3	
12				1								1					1				3	
13				1								1						1			3	
14				1								1							1		3	
15							1								1		1				4	
16							1								1		1				4	
17							1								1			1			4	
18							1								1				1		4	
19					1								1				1				5	
20					1								1				1				5	
21					1								1					1			5	
22					1								1						1		5	
23						1								1			1				6	1
24						1								1			1				6	1
25						1								1				1			6	1
26						1								1					1		6	1
27						1								1			1				7	
28						1								1			1				7	
29						1								1				1			7	
30						1								1					1		7	
31								1								1	1				8	1
32								1								1	1				8	1
33								1								1		1			8	1
34								1								1			1		8	1
35								1								1	1				9	
36								1								1	1				9	
37								1								1		1			9	
38								1								1			1		9	
39				3								3					1				10	1
40				3								3					1				10	1

Notes:

1) The composition of call buttons follows the rule that every call button should be of the same height for better appearance as an outdoor station, thus if 3-row button module is used, only pure audio module should be used and 4-row button module is not recommended.
2) Branch line topology is recommended for easier wiring and future retrofit, e.g. upgrade audio indoor station to video indoor station. However, if looping through is used, video distributor is unnecessary.
3) To fit correct frame, sometimes the number of call buttons might be more than that of users. For example, for 38 users, totally 10 x 4-row pushbutton modules are needed.
4) There can be other ways of compositions that are not listed on the data sheet, for example, for 19 users in single button solution, besides the solution of 5 x 4-row pushbutton modules plus pure audio module and 1 frame with 6-module holder, it can also be composed with 7 x 3-row pushbutton modules plus 1 pure audio module and 1 frame with 8-module holder.

ABB-Welcome

System composition – audio solution

Double Pushbutton

Users	51021CF-..	51022CF-..	51023CF-..	51024CF-..	51025CF-..	51028CF-..	41021F	41022F	41023F	41024F	41025F	41028F	M251021A-. or M251024A-..	M251022A-..	M251023A-..	M251021P3	M251021P4
2	1						1							1			
3	1						1								1		
4	1						1								1		
5		1						1					1			1	
6		1						1					1			1	
7		1						1						1		1	
8		1						1						1		1	
9		1						1						1			1
10		1						1						1			1
11		1						1								1	1
12		1						1								1	1
13			1						1					1		2	
14			1						1					1		2	
15			1						1				1				2
16			1						1				1				2
17			1						1					1			2
18			1						1					1			2
19			1						1						1		2
20			1						1						1		2
21				1						1			1				3
22				1						1			1				3
23				1						1			1				3
24				1						1			1				3
25				1						1				1			3
26				1						1				1			3
27				1						1					1		3
28				1						1					1		3
29						1						1	1				4
30						1						1	1				4
31						1						1	1				4
32						1						1	1				4
33						1						1		1			4
34						1						1		1			4
35						1						1			1		4
36						1						1			1		4
37					1						1		1				5
38					1						1		1				5
39					1						1		1				5
40					1						1		1				5

Audio Indoor Station with System Devices

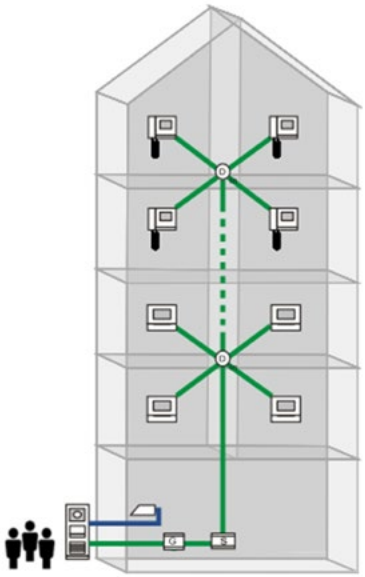
M2300	M2301	M2231-.. or M2230-..
	1	2
	1	3
	1	4
	1	5
	1	6
	1	7
	1	8
	1	9
	1	10
	1	11
	1	12
	1	13
	1	14
	1	15
	1	16
	1	17
	1	18
	1	19
	1	20
	1	21
	1	22
	1	23
	1	24
	1	25
	1	26
	1	27
	1	28
	1	29
	1	30
	1	31
	1	32
	1	33
	1	34
	1	35
	1	36
	1	37
1*		38
1*		39
1*		40

For single row, quantities bigger than 37 should use M2300. For double row, can use 2301.

STOCK | INDENT

ABB-Welcome

System composition – video solution



Welcome is right for video solution, regardless of new or renovation installation.

- In case of pushbutton solution, either 2 calls or 1 call for 1 button is possible. For user's convenience, it is not recommended to use pushbutton solution for buildings with more than 40 apartments.
- The recommended modules composition and products for different no. of apartment are listed on the given data sheet on pages 650–651.
- Keypad solution with display (in-built RFID reader) is also possible, and it is a good solution for high-rise buildings. The recommended modules and products for given no. of apartments are listed on the given data sheet on page 649.
- Despite looping through is possible for wiring, branch line with 4-way distributor is recommended for easier wiring and reducing the distance.
- If using cable with diameter of 0.8 mm, the distance between outdoor station and the farthest indoor station is up to 200 meters. For longer distance, either better cable (e.g. coaxial) or amplifier should be used.



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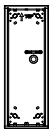
ABB-Welcome

System composition – video solution

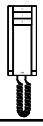
Display with keypad solution

The chart below is a simple composition suggestion of display with keypad outdoor station for video solution.

Keypad Outdoor Station

						
Users	**51024CF-.**	**41024F**	**M251021C**	**M251021A-. or M251024A-.**	**M251021CR or M251022CR**	**M251021K-. or M251022K-.**
See the number of the indoor station	1	1	1	1	1	1
	System controller feeds indoor stations only, outdoor station is fed by local power supply					
	1	1	1	1	1	1
	System controller feeds outdoor station only. Up to 2 outdoor stations can be used. Auxiliary power supply is used for all indoor stations: Up to 63 x 4.3" video indoor station or 63 x audio indoor station + 16 x video distributor can be powered by one standard auxiliary power supply. All the gateways are looped through to connect to the system controller.					
	2	2	2	2	2	2
	2	2	2	2	2	2
	2	2	2	2	2	2

Indoor Stations with System Devices

	Audio Handset				**4.3" Video Handset/Hands-free**				**7" Video Hands-free**			
		In auxiliary power supply mode				In auxiliary power supply mode				In auxiliary power supply mode		
												
Users	**M2300**	**M2302**	**M2304**	**M2231.-. M2230.-.**	**M2300**	**M2302**	**M2304**	**M2231.-. M2230.-.**	**M2300**	**M2302**	**M2304**	**M22311-.**
See the number of the indoor station	1		3~10	12~40	1		3~10	12~40	1			2
	System controller feeds indoor stations only, outdoor station is fed by local power supply											
	1	1	11~18	41~72	1	1	11~18	41~72	2	1	1~2	2~6
	System controller feeds outdoor station only. Up to 2 outdoor stations can be used. Auxiliary power supply is used for all indoor stations: Up to 63 x 4.3" video indoor station or 63 x audio indoor station + 16 x video distributor can be powered by one standard auxiliary power supply. All the gateways are looped through to connect to the system controller.											
	3	2	20~36	77~126	3	2	20~36	77~126	2	1	1~2	2~6
	4	3	36~47	127~189	4	3	36~47	127~189				
	5	4	36~64	190~250	5	4	36~64	190~250				

Notes:

1) For buildings with less than 12 residents, it is recommended to use the direct-call outdoor station.
2) The power consumption of the electrical lock is already considered. For magnetic lock, local power supply should be fed independently.
3) In case surface mounting is needed, article 51024RH should be used.
4) In case of audio indoor station, the video distributor is recommended to use for future retrofit into video indoor station.

ABB-Welcome

System composition – video solution

Pushbutton solution for video outdoor station

The following charts are simple pushbutton outdoor station composition suggestion for video solution.

Single Pushbutton

Users	51022CF-.	51023CF-.	51024CF-.	51025CF-.	51026CF-.	51028CF-.	51029CF-.	41022F	41023F	41024F	41025F	41026F	41028F	41029F	M251021C	M251021A-. or M251024A-.	M251022A-.	M251023A-.	M251021P3	M251021P4	51021DN
2	1							1							1			1			
3		1							1						1	1			1		
4		1							1						1	1				1	
5		1							1						1		1			1	
6		1							1						1			1		1	
7			1							1					1	1				2	
8			1							1					1	1				2	
9			1							1					1		1			2	
10			1							1					1			1		2	
11						1							1		1	1				3	
12						1							1		1	1				3	
13						1							1		1		1			3	
14						1							1		1			1		3	
15				1							1				1	1				4	
16				1							1				1	1				4	
17				1							1				1		1			4	
18				1							1				1			1		4	
19					1							1			1	1				5	1
20					1							1			1	1				5	1
21					1							1			1		1			5	1
22					1							1			1			1		5	1
23					1							1			1	1				6	
24					1							1			1	1				6	
25					1							1			1		1			6	
26					1							1			1			1		6	
27							1							1	1	1				7	1
28							1							1	1	1				7	1
29							1							1	1		1			7	1
30							1							1	1			1		7	1
31							1							1	1	1				8	
32							1							1	1	1				8	
33							1							1	1		1			8	
34							1							1	1			1		8	
35			3							3					1	1				9	1
36			3							3					1	1				9	1
37			3							3					1		1			9	1
38			3							3					1			1		9	1
39			3							3					1	1				10	
40			3							3					1	1				10	

Notes:

1) The composition of call buttons follows the rule that every call button should be of the same height for better appearance as an outdoor station, thus if 3-row button module is used, only pure audio module should be used and 4-row button module is not recommended.
2) Branch line topology is recommended for easier wiring and future retrofit, e.g. upgrade audio indoor station to video indoor station. However, if looping through is used, video distributor is unnecessary.
3) For audio indoor station fitted with video outdoor station, it is recommended to use the same amount of system controller as for video 4.3" indoor station for future retrofit, e.g. upgrade the system from audio into video.

ABB-Welcome

System composition – video solution

Double Pushbutton

System controller with video indoor station 4.3"

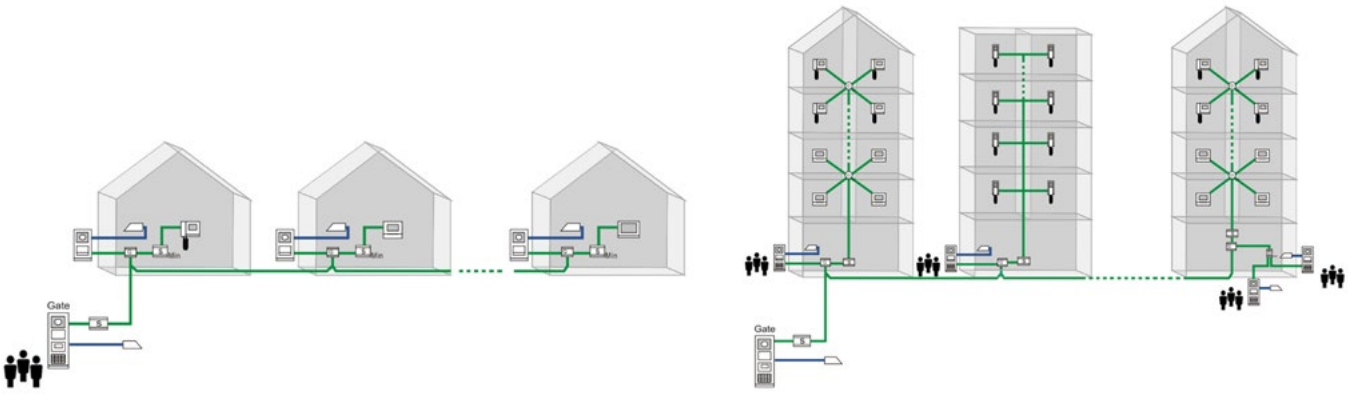
System controller with video indoor station 7"

Users	51022CF-.	51023CF-.	51024CF-.	51025CF-.	51026CF-.	51028CF-.	41022F	41023F	41024F	41025F	41026F	41028F	M251021C	M251021A-. or M251024A-.	M251022A-.	M251023A-.	M251021P3	M251021P4	51021DN	M2300	M2301	M2304	M2231-. or M2230-.	M2300	M2302	M2304	M2231-.
2	1						1						1		1						1	1	2	1		1	2
3	1						1						1			1					1	1	3	1		1	3
4	1						1						1			1					1	1	4	1		1	4
5		1						1					1	1			1				1	2	5	2	1	2	5
6		1						1					1	1			1			1		2	6	2	1	2	6
7		1						1					1	1				1		1		2	7	2	1	2	7
8		1						1					1	1				1		1		2	8	2	1	2	8
9		1						1					1		1			1		1		3	9	3	2	3	9
10		1						1					1		1			1		1		3	10	3	2	3	10
11		1						1					1			1		1		1		3	11	3	2	3	11
12			1						1				1	1			2			1		3	12	3	2	3	12
13			1						1				1	1				2		1		4	13	4	3	4	13
14			1						1				1	1				2		1		4	14	4	3	4	14
15			1						1				1	1				2		1		4	15	4	3	4	15
16			1						1				1	1				2		1		4	16	4	3	4	16
17			1						1				1		1			2		1		5	17	5	4	5	17
18			1						1				1		1			2		1		5	18	5	4	5	18
19			1						1				1			1		2		1		5	19	5	4	5	19
20			1						1				1			1		2		1		5	20	5	4	5	20
21						1						1	1	1				3		1		6	21	6	5	6	21
22						1						1	1	1				3		1		6	22	6	5	6	22
23						1						1	1	1				3		1		6	23	6	5	6	23
24						1						1	1	1				3		1		6	24	6	5	6	24
25						1						1	1		1			3		1		7	25	7	6	7	25
26						1						1	1		1			3		1		7	26	7	6	7	26
27						1						1	1			1		3		1		7	27	7	6	7	27
28						1						1	1			1		3		1		7	28	7	6	7	28
29				1						1			1	1				4		1		8	29	8	7	8	29
30				1						1			1	1				4		1		8	30	8	7	8	30
31				1						1			1	1				4		1		8	31	8	7	8	31
32				1						1			1	1				4		1		8	32	8	7	8	32
33				1						1			1		1			4		1		9	33	9	8	9	33
34				1						1			1		1			4		1		9	34	9	8	9	34
35				1						1			1			1		4		1		9	35	9	8	9	35
36					1						1		1				6		1	1		9	36	9	8	9	36
37					1						1		1	1				5	1	1		10	37	10	9	10	37
38					1						1		1	1				5	1	1		10	38	10	9	10	38
39					1						1		1	1				5	1	1		10	39	10	9	10	39
40					1						1		1	1				5	1	1		10	40	10	9	10	40

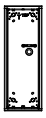
ABB-Welcome

Composition networked

Typical looping through application



- The maximum distance between gate station and the last gateway should be less than 200 meters. However, the distance varies according to different types of cables. For more details, please refer to the system manual.
- The given case assumes the wiring distance between two houses is ≤40 meters.
- An additional gateway (set into amplifier mode) can be used to increase another 200 meters. In total, 2 gateways in amplifier mode can be used.
- The number of guard units and gate stations is subject to project requirement. An additional mini system controller is needed for an additional device. For any additional gate station, one video outdoor distributor should be added.

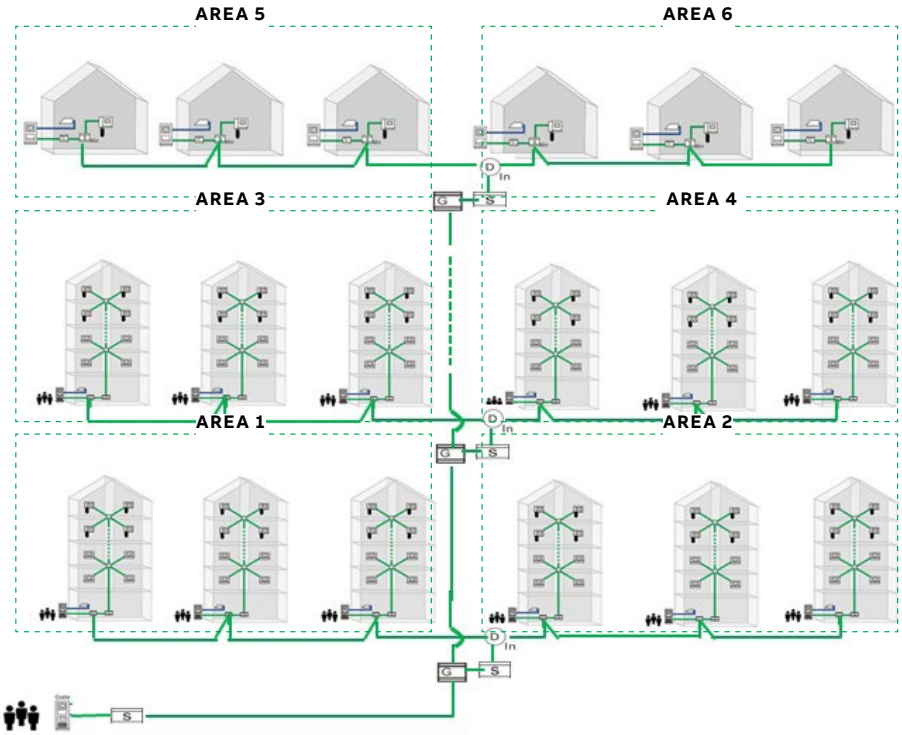
Common part										**Single or multi-family house or individual building part**	
									(In amplifiery mode) 		
Building number	**51024CF-.**	**41024F**	**M251021C**	**M251021A-. or M251024A-.**	**M251021CR or M251022CR**	**M251021K.-. or M251022K.-.**	**M2301**	**M2303**	**M2302**	**M2302**	Number of devices within this area* Unit: set
1~5	1	1	1	1	1	1	1	1		1~5	1~5
6~10	1	1	1	1	1	1	1	1	1	6~10	6~10
11~15	1	1	1	1	1	1	1	1	2	11~15	11~15

Notes:
* For detailed information, please refer to the devices of system composition of individual buildings.

ABB-Welcome

Composition networked

Typical branch-line application



- The maximum distance between gate station and the last gateway should be less than 200 meters. However, the distance varies according to different types of cable. For detailed information, please refer to the user manual.
- An additional gateway (set into amplifier mode) can be used to increase another 200 meters. In total, 2 gateways in amplifier mode can be used.
- To maximise the use of cable according to distance calculation rule, the symmetrical topology with trunk line in the middle is recommended.
- The number of guard units and gate stations is subject to project requirement. An additional mini system controller is needed for an additional device. For an additional gate station, one video outdoor distributor should be added.
- The maximum number of distributors in common part is recommended to be ≤10. For information about distance, please refer to the system manual.
- The maximum number of houses in the total area should be less than 60 in case of multi-family house, and less than 99 in case of single-family house.
- If there is only 1 or 2 areas and the total number of buildings or houses is as below, video distributor is enough to make the star-sharp connection to each building. Auxiliary power supply (gateway + system controller) is unnecessary.

Common part												Area part
							System controller		(In amplifiery mode)		Distributor	
Area number	51024CF-.	41024F	M251021C	M251021A-. or M251024A-.	M251021CR or M251022CR	M251021K.-. or M251022K.-.	M2300	M2303	M2302	M2301	M2304	Number of devices within this area* Unit: set
2~4	1	1	1	1	1	1	1	1	1	1	1	2~4
5~8	1	1	1	1	1	1	1	1	2	2	2	5~8
9~12	1	1	1	1	1	1	1	1	3	3	3	9~12
13~16	1	1	1	1	1	1	1	1	4	4	4	13~16
..	1	1	1	1	1	1	1	1	..	..	..	..

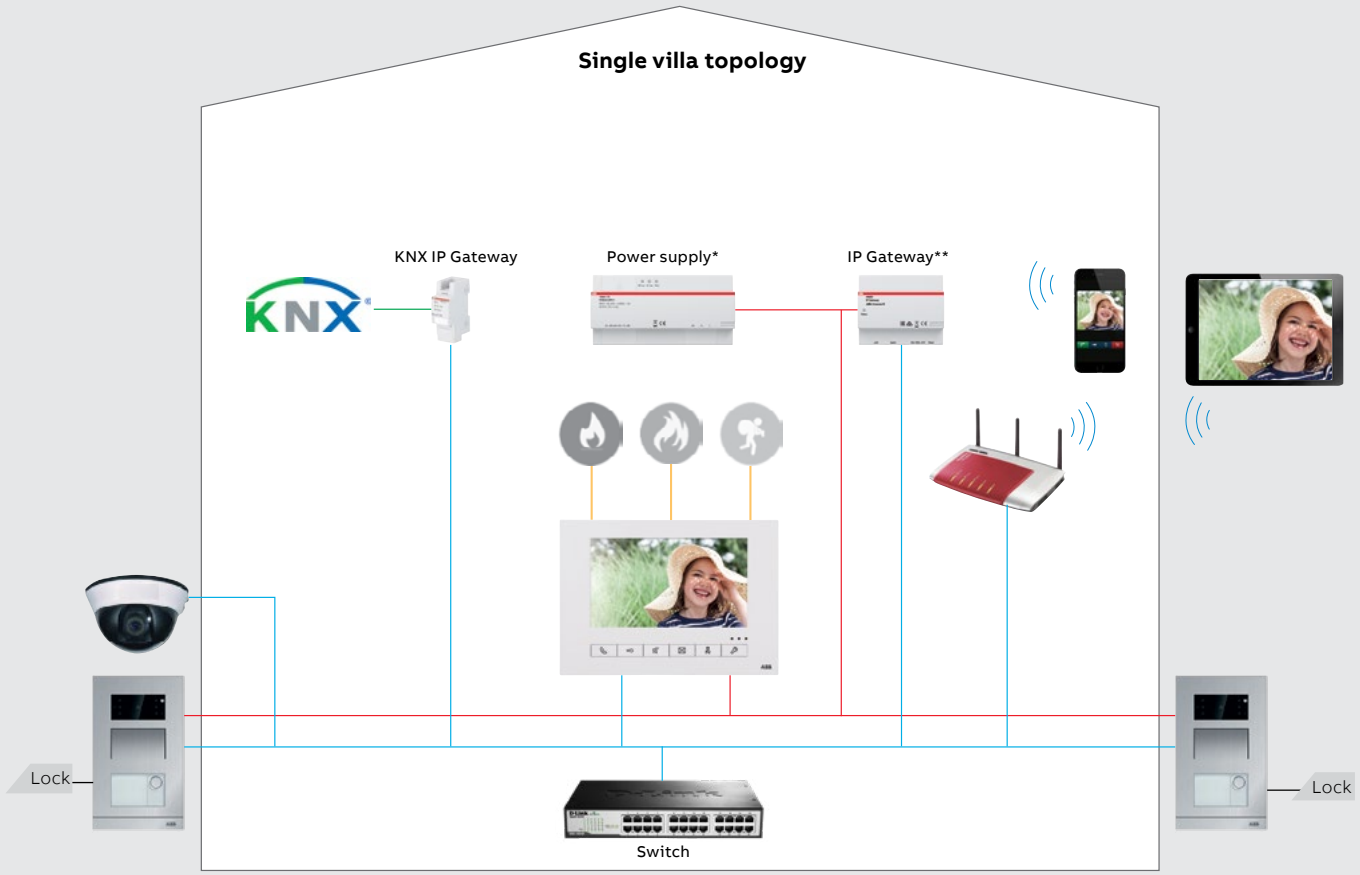
Notes:
* For detailed information, please refer to the devices of individual buildings.

STOCK | INDENT

ABB-Welcome IP system

An innovative door communication system suitable for all building types

The individual devices are integrated with a LAN cable. The PoE connection makes further wiring superfluous and simplifies the serial connection of door communication devices. The clear advantage of the IP-based networking lies in the endless expandability of the system and simple implementation of all components.

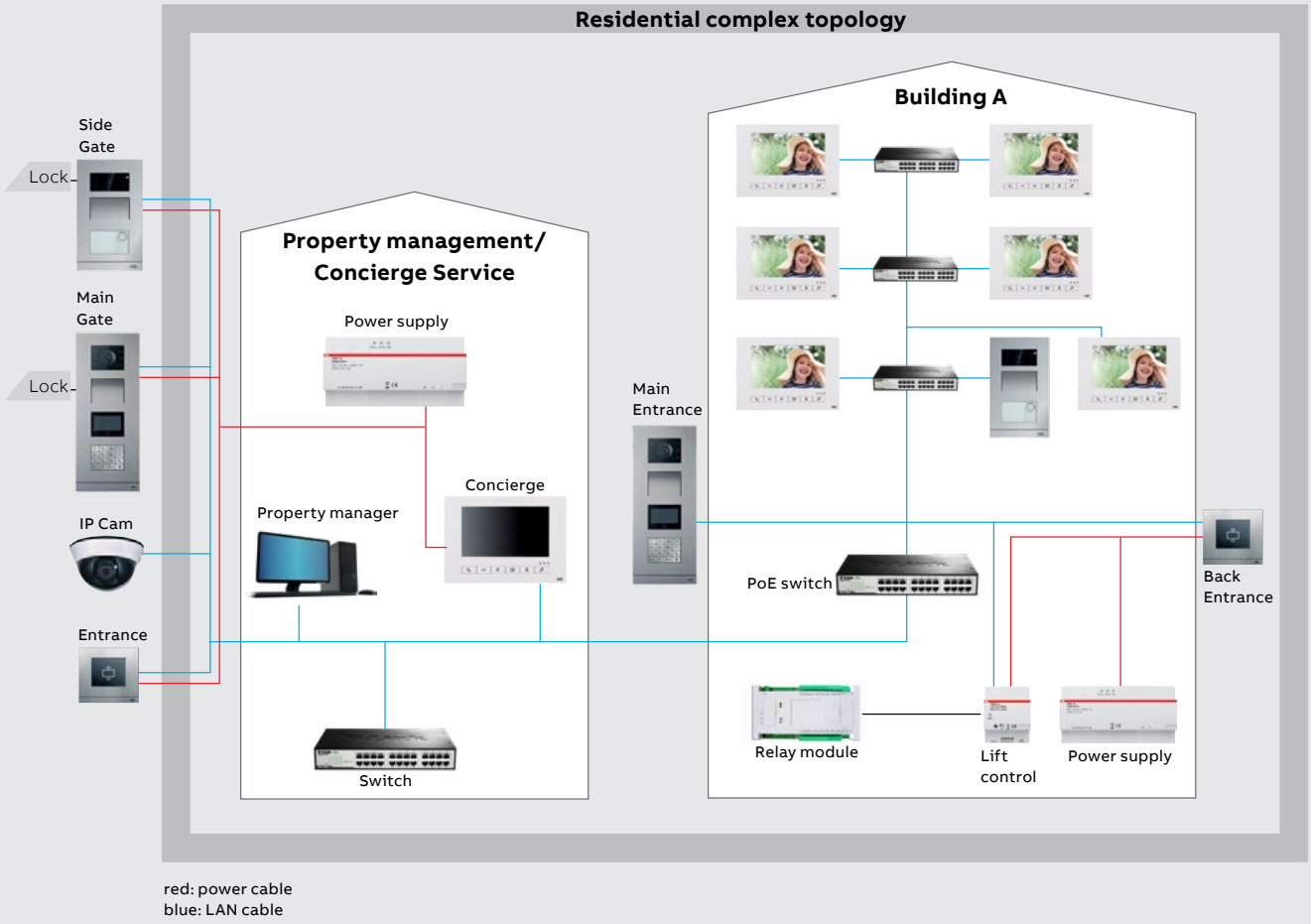


*In case of PoE power supply can be omitted for Outdoor and Indoor stations
**Only required for App solution

Distance without limits
With the ABB-Welcome IP technology, it is possible to overcome spatial distances and connect any number of houses through the door communication system. Property management can thus monitor all entrances, greet visitors and grant them controlled access from a centralised point.

Any number of devices
With ABB-Welcome IP, even large building complexes and high rises can be equipped perfectly with an easy-to-install door communication system that leaves nothing to be desired. Any number of devices can be implemented – from indoor and outdoor stations to smoke detectors or monitoring cameras.

STOCK | INDENT



Multi-channel technology
Thanks to the IP technology, the residents of the house are always accessible to visitors. Any number of apartments can be contacted by different outdoor stations at the same time. In addition, a apartments can also be called by more than one outdoor station. Residents thus never miss a visitor.

Maximum security
All devices are networked in a closed system with LAN cables. Indoor stations are protected from outside access. The optional IP gateway acts as an interface to the Internet, whereby the public door communication system is completely isolated from the private network of the resident. For maximum security to prevent data misuse.

ABB-Welcome IP

Product overview



01



02



03



04



05



06



07



08



09



10



11



12



13

ABB-Welcome IP

01	Video keypad outdoor station, stainless steel
02	Video outdoor station, stainless steel
03	Mini video outdoor station, aluminum
04	Secondary mini video outdoor station, aluminum
05	IC/ID-card reader, stainless steel
06	7" video hands-free indoor station
07	Guard unit

07	Flush-mounted box, size 1/4, aluminum
08	Flush-mounted box, size 1/3, aluminum
09	Pre-installation box, grey
10	Lift control module
11	Relay module
12	IP gateway
13	Power supply

STOCK	INDENT

ABB-Welcome IP

Outdoor station – stainless steel

Video outdoor station - features

Video outdoor station with display, transponder and keypad serves as communication device with the indoor station, guard unit or property management.

- 1M pixel high definition and with 130° wide angle view camera (anti-fog)
- After flush-mounted installation, the outdoor station sticks out 7mm above the wall
- Dustproof and waterproof as IP54, vandal proof as IK07
- Support 3rd party access control system



Video keypad outdoor station, stainless steel

- Supports to open the door by passwords (public/private), NFC cellphones, IC/NFC cards or ID cards
- Elevator calling after door is released
- Surveillance by residents, guard unit or property management
- Customized welcome message on outdoor display
- Call forward in security mode
- Flush mounting

Description	Dimensions (H x W x D)	Order code
Video keypad outdoor station, stainless steel with ID	347 x 135 x 49 mm	H81371K-S
Video keypad outdoor station, stainless steel With IC/NFC	347 x 135 x 49 mm	H81372K-S



Video outdoor station, stainless steel

- Available with 1 or 2 pushbuttons
- Supports to unlock by passwords or cards (IC/NFC), call to resident / guard unit
- Surveillance by residents or guard unit possible
- Flush mounting and surface mounting

Description	Dimensions (H x W x D)	Order code
Video outdoor station, stainless steel - 1 pushbutton	247 x 135 x 49 mm	H81371P1-S
Video outdoor station, stainless steel - 1 pushbutton, with NFC/IC card reader	247 x 135 x 49 mm	H81372P1-S
Video outdoor station, stainless steel - 2 pushbutton	247 x 135 x 49 mm	H81371P2-S
Video outdoor station, stainless steel - 2 pushbutton, with NFC/IC card reader	247 x 135 x 49 mm	H81372P2-S



IC/ID-card reader to stainless steel

- The stand-alone card reader allows to unlock doors and gives access only to authorised users
- Supports entering the home with ID/ IC cards
- 3 LED indicators
- Dustproof and waterproof: IP44

Description	Dimensions (H x W x D)	Order code
IC/ID-card reader to stainless steel	125 x 120 x 25 mm	YSM14-CR+

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Outdoor station – aluminum

Mini video outdoor station

- Supports 3rd party access control system
- After flush-mounted installation, the outdoor station sticks out 10 mm above the wall
- Dustproof and waterproof as IP54, vandal proof to IK07



Mini video outdoor station, aluminum

Mini outdoor station with transponder and pushbutton(s) serves as communication device with the indoor station, guard unit or property management.

- 0.3M pixel and 100° wide angle view camera (anti-fog with inside heater)
- 1 or 2 pushbuttons with up to 2 locks connections
- With ID card reader (64 cards)
- Surveillance by residents or guard unit
- Compact size, surface mounted by wiegand output and flush mounted

Description	Dimensions (H x W x D)	Order code
Mini video outdoor station, aluminum - 1 push button, ID, surface-mounted	168 x 99 x 26 mm	H81312P1-A
Mini video outdoor station, aluminum - 2 push button, ID, surface-mounted	168 x 99 x 26 mm	H81312P2-A
Mini video outdoor station, aluminum - 1 push button, ID, flush-mounted	180 x 105 x 43 mm	H81362P1-A
Mini video outdoor station, aluminum - 2 push button, ID, flush-mounted	180 x 105 x 43 mm	H81362P2-A



Secondary mini video outdoor station, aluminum

The secondary outdoor station is equipped with one pushbutton. It serves for calling the resident for a second confirmation directly at the front door.

- 0.3M pixel and 100° wide angle view camera (anti-fog)
- One push button only
- Surveillance only by residents

Description	Dimensions (H x W x D)	Order code
Secondary mini video outdoor station, aluminum - flush mounted installation	180 x 105 x 43 mm	H81361P1-A

ABB-Welcome IP

Outdoor station – accessories

Flush mounted box - common features

- Mounting of outdoor stations into the wall
- The anodized aluminum flush box is fitted with knock down holes for cabling from left, right, bottom or back
- The product is packed with accessories to ensure quality installation



Flush-mounted box, size 1/3, aluminum

Description	Dimensions (H x W x D)	Order code
Flush-mounted box, size 1/3, aluminum	263 x 110 x 42 mm	41023F+



Flush-mounted box, size 1/4, aluminum

Description	Dimensions (H x W x D)	Order code
Flush-mounted box, size 1/4, aluminum	336 x 110 x 42 mm	41024F+



Pre-installation box

Serves for the mounting of mini outdoor station into the wall for higher stability.

- The anodized pre-installation box is fitted with knock down holes for cabling from left, right, bottom or back
- The product is packed with accessories to ensure quality installation

Description	Dimensions (H x W x D)	Order code
Pre-installation box	174 x 98 x 45 mm	41361F

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Indoor station – accessories



7” video hands-free indoor station

Indoor video station displays what is happening at the front door.
It supports multiple functions to control surveillance and communication with other indoor stations, outdoor stations and guard units.

- Large 17.8 cm (7”) color display with a TFT touch control screen, resolution 1024 x 600 pixel
- 6 quick buttons for calls with visitors, guard unit or property management, unlock the door, mute signal or sound, text message to guard or property management, intercom home-to-home or apartment-to-apartment, absent audio messaging to residents and visitors
- Supports second call waiting with picture in picture mode and the showing of the third incoming call as missing call
- Integrated multimedia player for pictures and video
- 3 different colors: white, black, gold
- Surface-mounted installation
- Dustproof and waterproof: IP30

Description	Dimensions (H x W x D)	Order code
7” video hands-free indoor station - white color	216 x 153 x 25 mm	H82351-W
7” video hands-free indoor station - black color	216 x 153 x 25 mm	H82351-B
7” video hands-free indoor station - grey color	216 x 153 x 25 mm	H82351-G



Guard unit

The guard unit provides access to various services using the intuitive icons menu on the screen. Communication is possible with indoor stations, outdoor stations and other guard units.

- Stainless steel desktop frame with 7” white color display with intuitive control
- 6 mechanical shortcut buttons
- Both handset and hands-free communication possible
- Unlock the door, call forward, surveillance of outdoor station and community IP camera, door release, alarm messages,
- Additionally with installation file for property management office including Windows version, server installation and client installation
- Property management software supports the communication with outdoor and indoor station and guard unit, surveillance of outdoor station and community IP camera, receiving alarm information, bulletin and text messaging with indoor stations, welcome message for outdoor station, card management, history storage include intercom and unlock the doors
- Desktop mounted
- Dustproof and waterproof: IP30

Description	Dimensions (H x W x D)	Order code
Guard unit	332 x 239 x 127 mm	HSM36-GU

ABB-Welcome IP

System



Power supply

Power supply supplies the power for system devices

- Includes battery backup interface for mains failure
- Supports over-voltage, over-current, over-heat and short-circuit protection
- Lightning proof, dustproof and waterproof: IP30

Description	Dimensions (H x W x D)	Order code
Power supply	175 x 90 x 65 mm	YSM01-PS





Elevator control

Lift control module serves as the communication interface to the elevator system.
Relay module supplies the relays output to communicate with dry contact input of elevator.

- High security by allowing authorized visitors/residents to go ONLY to the designated floor
- Authorize elevator floor access for visitor after door has been released
- Authorize elevator floor access for neighbor during apartment to apartment intercom
- Calling the elevator via indoor station before going out
- Efficient programming through PC by dedicated commissioning software
- Up to 16 modules can be cascaded
- Surface mounted

Description	Dimensions (H x W x D)	Order code
Elevator control - lift control module	71 x 90 x 65 mm	YSM23-LC
Elevator control - relay module	210 x 110 x 45 mm	4825-Y



IP Gateway

The IP gateway serves as apartment entry gateway for your smart devices.

- Dual LAN port to isolate private devices from public device Supports ABB-Welcome IP app connection (Android and iOS)
- Supports multiple indoor station(s) in one apartment
- Lightning proof, dustproof and waterproof: IP30

Description	Dimensions (H x W x D)	Order code
IP Gateway	107 x 90 x 65 mm	H8301

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Home automation: ABB-free@home®

664	System access point and 7″ touch screen
665	Zenit – complete units
666	Zenit – modules
668	future® linear
671	DIN rail devices and binary inputs



For more detailed product information, please refer to the website:

- www.abb.com/freeathome

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System access point and 7″ touch screen





System Access Point

Description	Dimensions (H × W × D)	Order code
System Access Point, wireless	110 mm × 170 mm × 31 mm	SAP-S-2
External Antenna For SAP-S-2	110 mm × 170 mm × 31 mm	SAP-1-W2



ABB-free@homeTouch 7″

Description	Colour	Dimensions (H × W × D)	Order code
ABB-free@homeTouch 7″	Black	155 mm × 218 mm × 29 mm	DP7-S-625
	White	155 mm × 218 mm × 29 mm	DP7-S-611
ABB-free@homeTouch 4.3″	Black	104mm x 143mm x 53mm	DP4-1-611
	White	104mm x 143mm x 53mm	DP4-1-625
Flush Mounted Box for 4.3″		82mm x 123mm x 50mm	DP4-F

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Zenit – complete units

Complete units for centralised installation



SUCPFWB-2.0-W SUCPFWB-4.0-W

Switch unit, white, complete

Description	Dimensions (H × W)	Order code
Switch unit, 1/2gang	122 mm x 90 mm	SUCPFWB-2.0-W
Switch unit, 2/4gang	122 mm x 90 mm	SUCPFWB-4.0-W

Interchangeable icons are available (blind, light, dimmer, scene):





Movement detector unit, white, complete

Description	Dimensions (H × W)	Order code
Movement detector unit	122 mm x 90 mm	MDCPFWB-1.0-W



Room thermostat unit, white, complete

Description	Dimensions (H × W)	Order code
Room thermostat unit	122 mm x 90 mm	RTCPFWB-1.0-W

Complete units for decentralised installation



1/2gang

Input/output unit, white, complete

Description	Dimensions (H × W)	Order code
1/2gang		
Switch/Relay unit + 1 relay	122 mm x 90 mm	SRCPFWB-2.1-W
Switch/Dimmer unit + 1 dimmer	122 mm x 90 mm	SDCPFWB-2.1-W
Switch/Blind Relay unit + 1 blind relay	122 mm x 90 mm	SBCPFWB-2.1-W
2/4gang		
Switch/Relay unit + 1 relay	122 mm x 90 mm	SRCPFWB-4.1-W
Switch/Relay unit + 2 relay	122 mm x 90 mm	SRCPFWB-4.2-W
Switch/Dimmer unit + 1 dimmer	122 mm x 90 mm	SDCPFWB-4.1-W
Switch/Blind relay unit + 1 blind relay	122 mm x 90 mm	SBCPFWB-4.1-W



2/4gang

Interchangeable icons are available (blind, light, dimmer, scene):





Movement detector/relay unit, white, complete

Description	Dimensions (H × W)	Order code
Movement detector/relay unit	122 mm x 90 mm	MDCPFWB-1.1-W

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Zenit – modules



Cover plate for push buttons

Description	Colour	Dimensions (H × W)	Order code
Cover plate for 2 fold push buttons	White	44 mm x 44 mm	SR-2-N2BL
	Anthracite	44 mm x 44 mm	SR-2-N2AN
	Silver	44 mm x 44 mm	SR-2-N2PL
	Champagne	44 mm x 44 mm	SR-2-N2CV
Cover plate for 4 fold push buttons	White	44 mm x 44 mm	SR-4-N2BL
	Anthracite	44 mm x 44 mm	SR-4-N2AN
	Silver	44 mm x 44 mm	SR-4-N2PL
	Champagne	44 mm x 44 mm	SR-4-N2CV

Note:
Interchangeable icons are available (see 'Button Icons' section below).



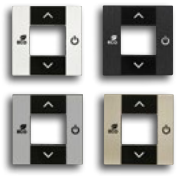
Buttons with icon

Description	Type	Order code
White	Button with blind icon	SBB-N2BL
	Button with dimmer icon	SBD-N2BL
	Button with light icon	SBL-N2BL
	Button with scene icon	SBS-N2BL
Grey	Button with blind icon	SBB-N2GR
	Button with dimmer icon	SBD-N2GR
	Button with light icon	SBL-N2GR
	Button with scene icon	SBS-N2GR



Cover plate for movement detector

Description	Colour	Dimensions (H × W)	Order code
Cover plate for movement detector	White	44 mm x 44 mm	CP-MD-N2BL
	Anthracite	44 mm x 44 mm	CP-MD-N2AN
	Silver	44 mm x 44 mm	CP-MD-N2PL
	Champagne	44 mm x 44 mm	CP-MD-N2CV



Cover plate for room thermostat

Description	Colour	Dimensions (H × W)	Order code
Cover plate for room thermostat	White	44 mm x 44 mm	CP-RTC-N2BL
	Anthracite	44 mm x 44 mm	CP-RTC-N2AN
	Silver	44 mm x 44 mm	CP-RTC-N2PL
	Champagne	44 mm x 44 mm	CP-RTC-N2CV



Rectangular frame

Description	Colour	Dimensions (H × W)	Order code
Rectangular frame	White	122 mm x 90 mm	N2372.1BL
	Anthracite	122 mm x 90 mm	N2372.1AN
	Silver	122 mm x 90 mm	N2372.1PL
	Champagne	122 mm x 90 mm	N2372.1CV
	Wengue wood	122 mm x 90 mm	N2372.1WG
	Stone slate	122 mm x 90 mm	N2372.1PZ
	White glass	122 mm x 90 mm	N2372.1CB
	Black glass	122 mm x 90 mm	N2372.1CN
	Stainless steel	122 mm x 90 mm	N2372.1OX

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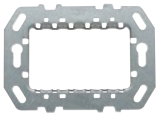
Zenit – modules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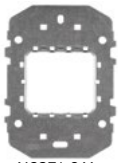
N2371.9 V

Wall bracket

Description	Dimensions (H × W)	Order code
Horizontal	74 mm x 102 mm	N2373.9
Vertical	102 mm x 74 mm	N2371.9V


SSA-F-1.1.PB.1


SSA-F-2.1.PB.1
SSA-F-2.2.PB.1

Switch/relay

Description	Dimensions (H × W × D)	Order code
Switch/relay 1/2gang, 1 relay + Wireless	44 mm x 44 mm x 40.9 mm	SSA-F-1.1.PB.1
Switch/relay 2/4gang, 1 relay + Wireless	44 mm x 44 mm x 40.9 mm	SSA-F-2.1.PB.1
Switch/relay 2/4gang, 2 relay + Wireless	44 mm x 44 mm x 40.9 mm	SSA-F-2.2.PB.1


SDA-F-1.1.PB.1


SDA-F-2.1.PB.1

Switch/dimmer

Description	Dimensions (H × W × D)	Order code
Switch/dimmer 1/2gang, dimmer + Wireless	44 mm x 44 mm x 40.9 mm	SDA-F-1.1.PB.1
Switch/dimmer 2/4gang, dimmer + Wireless	44 mm x 44 mm x 40.9 mm	SDA-F-2.1.PB.1


SBA-F-1.1.PB.1


SBA-F-2.1.PB.1

Switch/blind relay

Description	Dimensions (H × W × D)	Order code
Switch/blind relay 1/2gang, 1 blind relay + Wireless	44 mm x 44 mm x 40.9 mm	SBA-F-1.1.PB.1
Switch/blind relay 2/4gang, 1 blind relay + Wireless	44 mm x 44 mm x 40.9 mm	SBA-F-2.1.PB.1


RTC-F-1.PB

Room thermostat

Description	Dimensions (H × W × D)	Order code
Room thermostat + Wireless	44 mm x 44 mm x 29.4 mm	RTC-F-1.PB


SU-F-1.0.PB.1


SU-F-2.0.PB.1

Switch

Description	Dimensions (H × W)	Order code
Switch 1/2gang, wireless	44 mm x 44 mm x 23.5 mm	SU-F-1.0.PB.1
Switch 2/4gang, wireless	44 mm x 44 mm x 23.5 mm	SU-F-2.0.PB.1


MD-F-1.0.PB.1
MSA-F-1.1.PB.1

Movement detector

Description	Dimensions (H × W)	Order code
Movement detector	44 mm x 44 mm x 29.6 mm	MD-F-1.0.PB.1
Movement detector/relay	44 mm x 44 mm x 47 mm	MSA-F-1.1.PB.1

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Rocker

Description	Colour	Dimensions (H × W)	Order code
1gang	White	63 mm x 63 mm	SR-1-84
	Anthracite	63 mm x 63 mm	SR-1-81
	Silver	63 mm x 63 mm	SR-1-83
1gang, blind icon	White	63 mm x 63 mm	SRB-1-84
	Anthracite	63 mm x 63 mm	SRB-1-81
	Silver	63 mm x 63 mm	SRB-1-83
1gang, dimmer icon	White	63 mm x 63 mm	SRD-1-84
	Anthracite	63 mm x 63 mm	SRD-1-81
	Silver	63 mm x 63 mm	SRD-1-83
1gang, light icon	White	63 mm x 63 mm	SRL-1-84
	Anthracite	63 mm x 63 mm	SRL-1-81
	Silver	63 mm x 63 mm	SRL-1-83
1gang, scene icon	White	63 mm x 63 mm	SRS-1-84
	Anthracite	63 mm x 63 mm	SRS-1-81
	Silver	63 mm x 63 mm	SRS-1-83
2gang	White	63 mm x 31.5 mm	SR-2-84
	Anthracite	63 mm x 31.5 mm	SR-2-81
	Silver	63 mm x 31.5 mm	SR-2-83
2gang, blind icon	White	63 mm x 31.5 mm	SRB-2-84
	Anthracite	63 mm x 31.5 mm	SRB-2-81
	Silver	63 mm x 31.5 mm	SRB-2-83
2gang, left dimmer icon	White	63 mm x 31.5 mm	SRD-2-L-84
	Anthracite	63 mm x 31.5 mm	SRD-2-L-81
	Silver	63 mm x 31.5 mm	SRD-2-L-83
2gang, right dimmer icon	White	63 mm x 31.5 mm	SRD-2-R-84
	Anthracite	63 mm x 31.5 mm	SRD-2-R-81
	Silver	63 mm x 31.5 mm	SRD-2-R-83
2gang, left light icon	White	63 mm x 31.5 mm	SRL-2-L-84
	Anthracite	63 mm x 31.5 mm	SRL-2-L-81
	Silver	63 mm x 31.5 mm	SRL-2-L-83
2gang, right light icon	White	63 mm x 31.5 mm	SRL-2-R-84
	Anthracite	63 mm x 31.5 mm	SRL-2-R-81
	Silver	63 mm x 31.5 mm	SRL-2-R-83
2gang, left scene icon	White	63 mm x 31.5 mm	SRS-2-L-84
	Anthracite	63 mm x 31.5 mm	SRS-2-L-81
	Silver	63 mm x 31.5 mm	SRS-2-L-83
2gang, right scene icon	White	63 mm x 31.5 mm	SRS-2-R-84
	Anthracite	63 mm x 31.5 mm	SRS-2-R-81
	Silver	63 mm x 31.5 mm	SRS-2-R-83
Cover plate for room thermostat	White	63 mm x 63 mm	CP-RTC-84
	Anthracite	63 mm x 63 mm	CP-RTC-81
	Silver	63 mm x 63 mm	CP-RTC-83

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Frames

Description	Colour	Dimensions (H × W)	Order code
1gang	White	80 mm x 80 mm	1721-184K
	Anthracite	80 mm x 80 mm	1721-181K
	Silver	80 mm x 80 mm	1721-183K
2gang	White	151 mm x 80 mm	1722-184K
	Anthracite	151 mm x 80 mm	1722-181K
	Silver	151 mm x 80 mm	1722-183K
3gang	White	222 mm x 80 mm	1723-184K
	Anthracite	222 mm x 80 mm	1723-181K
	Silver	222 mm x 80 mm	1723-183K
4gang	White	293 mm x 80 mm	1724-184K
	Anthracite	293 mm x 80 mm	1724-181K
	Silver	293 mm x 80 mm	1724-183K
5gang	White	364 mm x 80 mm	1725-184K
	Anthracite	364 mm x 80 mm	1725-181K
	Silver	364 mm x 80 mm	1725-183K



Wallbox

Description	Diameter (mm)	Order code
Wallbox for cavity wall	74 mm	3050


SU-F-1.0.1


SU-F-2.0.1

Switch

Description	Dimensions (H × W × D)	Order code
Switch 1/2gang, wireless	71 mm × 71 mm × 45 mm	SU-F-1.0.1-WL
Switch 2/4gang, wireless	71 mm × 71 mm × 45 mm	SU-F-2.0.1-WL


SSA-F-1.1.1


SSA-F-2.1.1
SSA-F-2.2.1

Switch/relay

Description	Dimensions (H × W × D)	Order code
Switch/relay 1/2gang, 1 relay + Wireless	71 mm × 71 mm × 45 mm	SSA-F-1.1.1
Switch/relay 2/4gang, 1 relay + Wireless	71 mm × 71 mm × 45 mm	SSA-F-2.1.1
Switch/relay 2/4gang, 2 relay + Wireless	71 mm × 71 mm × 45 mm	SSA-F-2.2.1


SDA-F-1.1.1


SDA-F-2.1.1

Switch/dimmer

Description	Dimensions (H × W × D)	Order code
Switch/dimmer 1/2gang, 1 dimmer + Wireless	71 mm × 71 mm × 45 mm	SDA-F-1.1.1
Switch/dimmer 2/4gang, 1 dimmer + Wireless	71 mm × 71 mm × 45 mm	SDA-F-2.1.1


SBA-F-1.1.1


SBA-F-2.1.1

Switch/blind relay

Description	Dimensions (H × W × D)	Order code
Switch/blind relay 1/2gang, 1 blind relay + Wireless	71 mm × 71 mm × 45 mm	SBA-F-1.1.1
Switch/blind relay 2/4gang, 1 blind relay + Wireless	71 mm × 71 mm × 45 mm	SBA-F-2.1.1

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future® linear



Movement detector

Description	Colour	Dimensions (H × W × D)	Order code
Movement detector	white	71 mm x 71 mm x 53 mm	MD-F-1.0.1-84
	anthracite	71 mm x 71 mm x 53 mm	MD-F-1.0.1-81
	silver	71 mm x 71 mm x 53 mm	MD-F-1.0.1-83
Movement detector/relay	white	71 mm x 71 mm x 53 mm	MSA-F-1.1.1-84
	anthracite	71 mm x 71 mm x 53 mm	MSA-F-1.1.1-81
	silver	71 mm x 71 mm x 53 mm	MSA-F-1.1.1-83



Room thermostat

Description	Dimensions (H × W × D)	Order code
Room thermostat	71 mm × 71 mm × 45 mm	RTC-F-1
Room thermostat, wireless	71 mm × 71 mm × 45 mm	RTC-F-1-WL
Room temperature controller/heating actuator, wireless	71 mm × 71 mm × 45 mm	RTC-F-2.1-WL



WES/A 3.1

Weather Station

Description	Dimensions (H × W × D)	Order code
Weather station for ABB-free@home1	108 mm x 121 mm x 227 mm	WS-1

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DIN rail devices and binary inputs


BI-F-2.0.1


BI-F-4.0.1


BI-M-4.0.1

Binary input

Description	Dimensions (H × W × D)	Order code
2gang, flush-mounted	39 mm × 40 mm × 12 mm	BI-F-2.0.1
4gang, flush-mounted	39 mm × 40 mm × 12 mm	BI-F-4.0.1
4gang	90 mm × 36 mm × 64 mm	BI-M-4.0.1



Power supply

Description	Dimensions (H × W × D)	Order code
Power supply	90 mm × 72 mm × 64 mm	PS-M-64.1.1


4gang

Relays

Description	Dimensions (H × W × D)	Order code
Relay, 4gang, 16 A, MDRC	90 mm × 72 mm × 64 mm	SA-M-0.4.1
Relay, 8gang, 6 A / 8gang Binary Input, MDRC	90 mm × 144 mm × 64 mm	SA-M-8.8.1



Universal dimmer, 4gang

Description	Dimensions (H × W × D)	Order code
Universal dimmer, 4gang	90 mm × 144 mm × 64 mm	DA-M-0.4.1.2



Blind/shutter relay, 4gang

Description	Dimensions (H × W × D)	Order code
Blind/shutter relay, 4gang	90 mm × 72 mm × 64 mm	BA-M-0.4.1


HA-M-0.6.1


HA-M-0.12.1

Electronic relay for valves

Description	Dimensions (H × W × D)	Order code
6gang	90 mm × 72 mm × 64 mm	HA-M-0.6.1
12gang	90 mm × 72 mm × 64 mm	HA-M-0.12.1


FCA-M-2.3.1

Fan coil actuator

- For controlling blower convectors.
- Supports 2-pipe and 4-pipe system for heating and cooling.
- The fan speed levels can be switched using a changeover or step switch function.
- Three contacts for switching a three-stage fan.
- Two contacts for activating the heating and cooling valves.
- Supports 24V and 230V valves.
- With two binary inputs for connecting dewpoint and condensation contacts.

Description	Dimensions (H × W × D)	Order code
Fan coil actuator, MDRC	90 mm × 108 mm × 64.5 mm	FCA-M-2.3.1

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BETTERSPACE

Building automation: ABB i-bus® KNX

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688	Illumination and light sensors
691	Heating and cooling
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694	Visualisation, display and signalling
695	Operation
704	Energy measurement
705	Security and surveillance

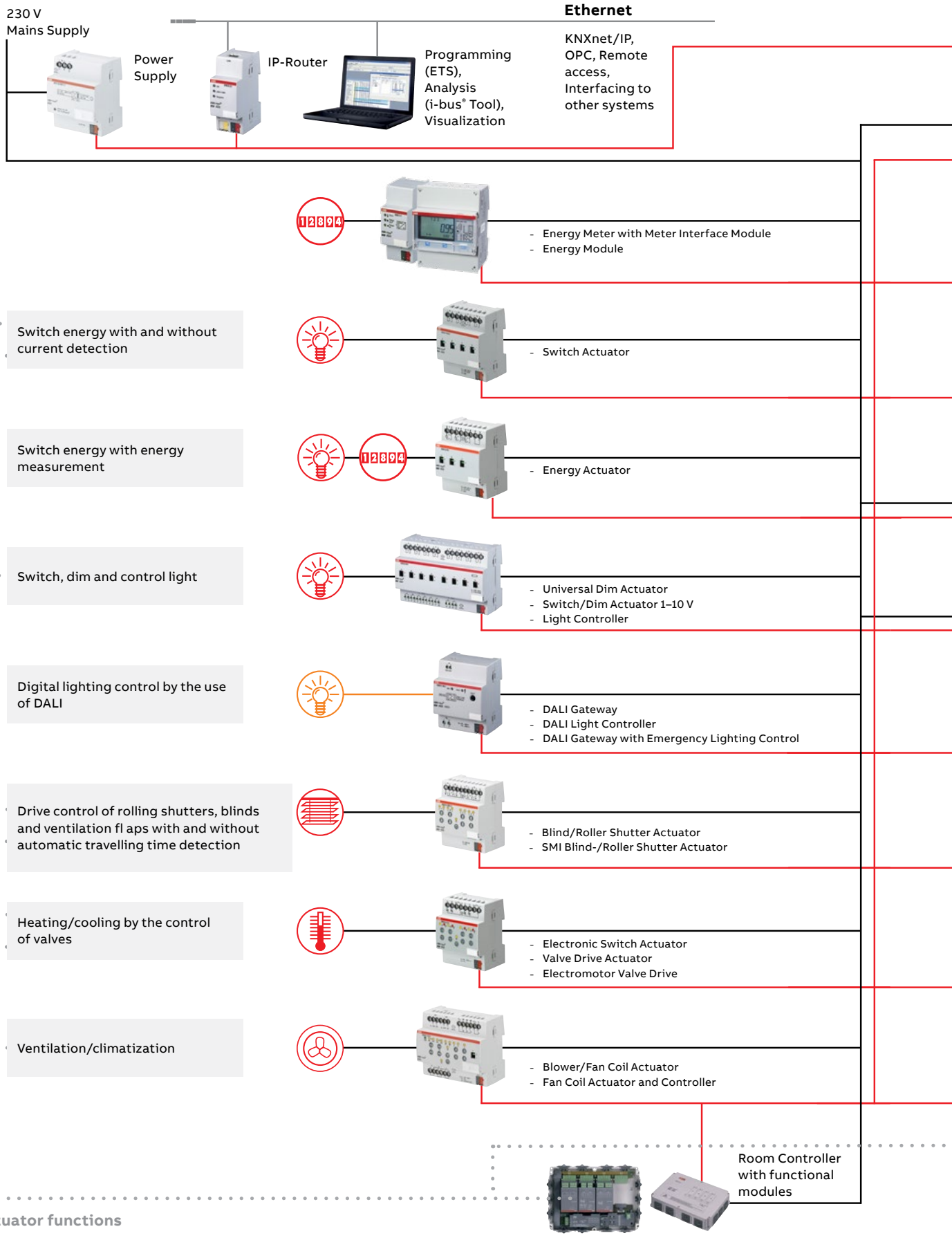


For more detailed product information, please refer to the Technical Catalogue:

- Product range overview – 2CDC500098C0202

ABB i-bus® KNX

Overview



KNX-Main Line/TP

Line 1 2 3 4 ... ... 13 14 15

- 64 devices/line
- 15 lines/area with superordinated main line
- max. 15 areas with superordinated area line

Power Supply



Line Coupler

- Binary Input



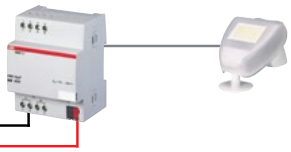
Detect and evaluate switching commands

- Analogue Input



Capture, evaluate and monitor physical values

- Weather Station and Weather Sensor



Evaluate and monitor meteorological data (wind, temperature, rain, etc.)



Display operating conditions and control functions

- Presence Detector
- Movement Sensor
- Light Sensor



Detect presence and movement

Measure brightness level

Lighting Control

- Logic Module
- Application Unit Logic
- Application Unit Time
- Time Switch



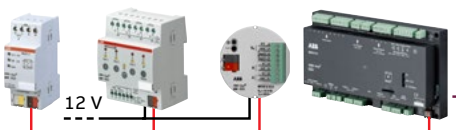
Perform logical operations and trigger timer-controlled functions

- Room Thermostat
- Air Quality Sensor



Capture, evaluate, monitor and control room conditions, temperature, air quality, etc.

- Security Terminal
- Security Module
- KNX Security Panel
- Fault Monitoring Unit
- Monitoring Unit
- Data Logging Unit



12 V

Monitor operating conditions, signal technical faults, recognize hazardsand trigger alarms

Security System

Room Master devices with different combinations of inputs and outputs and internal logical interconnection



Sensor functions

Solutions for rooms with sensor and actuator functions

ABB i-bus® KNX
Power supplies



SV/S 30.160.1.1

Power supply

Description	Module width	Order code
Power supply, 160 mA, MDRC	4	SV/S30.160.1.1
Power supply, 320 mA, MDRC	4	SV/S30.320.1.1
Power supply, 640 mA, MDRC	4	SV/S30.640.3.1



SV/S 30.320.2.1

Power supply with diagnostics

Description	Module width	Order code
Power Supply with diagnostics, 320 mA, MDRC	4	SV/S30.320.2.1
Power Supply with diagnostics, 640 mA, MDRC	4	SV/S30.640.5.1



SU/S 30.640.1

Uninterruptible power supply, 640 mA, MDRC

Description	Module width	Order code
Uninterruptible Power Supply, 640 mA, MDRC	8	SU/S30.640.1



AM/S 12.1

Battery module, 12 V DC, MDRC

Description	Module width	Order code
Battery Module, 12 V DC, MDRC	8	AM/S12.1



KS/K 4.1



KS/K 2.1

Cable sets

Description	Order code
Basic	KS/K4.1
Extension	KS/K2.1

ABB i-bus® KNX
Power supplies



SAK17, SAK12, SAK7

Sealed lead acid batteries, 12 V DC

Description	Order code
7 Ah	SAK7
12 Ah	SAK12
17 Ah	SAK17



DR/S 4.1

Choke, MDRC

Description	Module width	Order code
Choke, MDRC	2	DR/S4.1



NTI/Z 28.30.1

Commissioning power supply, 28 V DC, 30 mA

Description	Order code
Commissioning power supply, 28 V DC, 30 mA	NTI/Z28.30.1



NT/S 12.1600

Power supply units, MDRC

Description	Module width	Order code
12 V DC, 1,6 A	4	NT/S12.1600
24 V DC, 1,6 A	4	NT/S24.800



NTU/S 12.2000.1

Uninterruptible power supply, 640 mA, MDRC

Description	Module width	Order code
12 V DC, 2 A	8	NTU/S12.2000.1

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ABB i-bus® KNX

System components and interfaces



LK/S 4.2

Line coupler, MDRC

Description	Module width	Order code
Line coupler, MDRC	2	LK/S4.2



IPR/S 2.1

IP Router, MDRC

Description	Module width	Order code
IP Router, MDRC	2	IPR/S2.1
	2	IPR/S3.1.1

IP Interface, MDRC

Description	Module width	Order code
IP Interface, MDRC	2	IPS/S3.1.1



ISM/S 5.1

IP Switch, master, MDRC

Description	Module width	Order code
IP Switch, master, MDRC	6	ISM/S5.1



ISS/S 5.1

IP Switch, slave, MDRC

Description	Module width	Order code
IP Switch, slave, MDRC	6	ISS/S5.1

ABB i-bus® KNX

System components and interfaces



8186/03-500

Patch panel PoE 3gang, MDRC

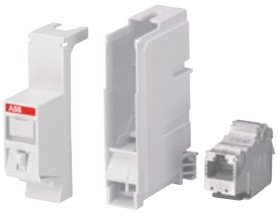
Description	Order code
Patch Panel PoE 3gang, MDRC	8186/03-500



8186/04-500

Power supply PoE 48 V, DRA

Description	Order code
Power supply PoE 48 V, DRA	8186/04-500



IPM/S 1.1

IP Patch module, MDRC

Description	Module width	Order code
IP Patch module, MDRC	1	IPM/S1.1



USB/S 1.1

USB Interface, MDRC

Description	Module width	Order code
USB Interface, MDRC	2	USB/S1.1



LL/S 1.1

Optical fibre interface, MDRC

Description	Module width	Order code
Optical fibre interface, MDRC	4	LL/S1.1

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ABB i-bus® KNX
Connection and wiring



DSM/S 1.1

Diagnosis and protection module, MDRC

Description	Module width	Order code
Diagnosis and protection module, MDRC	2	DSM/S1.1



VB/K ...

Wiring jumpers

Description	Module width	Order code
Horizontal, 100 mm	2	VB/K100.1
Horizontal, 200 mm	4	VB/K200.1
Vertical, 270 mm	–	VB/K270.1
Vertical, 360 mm	–	VB/K360.1



PS 1/4/6-KNX



PS-END 1-S

Busbars

Description	Order code
1 Phase, 4 contacts	PS1/4/6-KNX
1 Phase, 60 contacts	PS1/60/6-KNX
End cap	PS-END1-S



US/E 1

Connection terminals

Description	Order code
Black/red	BUSKLEMME
White/yellow	KLEMME
With surge protector	US/E1

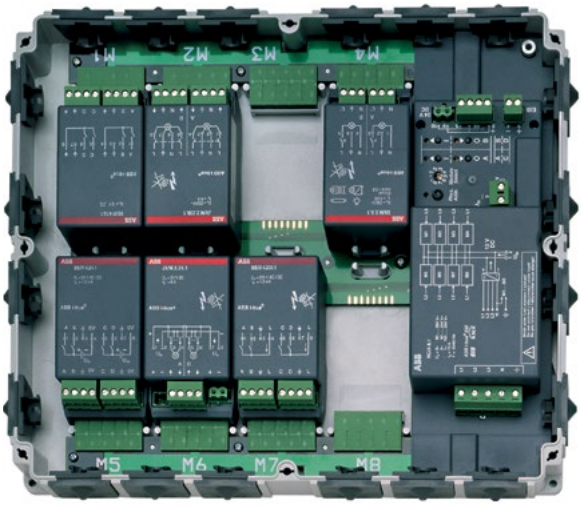


KNX cable

Description	Order code
KNX cable 100m Grn	KNX CABLE 100m GRN
KNX cable 500m Grn	KNX CABLE 500m GRN

ABB i-bus® KNX

Room automation – room controller basis devices



Configuration example
RC/A 8.2



RC/A 4.2



RC/A 8.2

Room Controller

The Room Controller controls all the functions in the room as a central device.
Due to its modular design, it can be adapted flexibly to the required functionality.
On-site installation enables short assembly and commissioning times. A structured cable entry creates clarity and flexibility for changes in function – both during planning and operation.

Special features

- Height 50 mm: optimised for underfloor installation or suspended ceilings
- Room Controller counts as just one bus device
- Robust housing, IP 54 degree of protection
- Manual operation for immediate testing – even without bus voltage
- Comprehensive software functionality

Room controller

Description	Order code
Basis device for 4 modules, SM	RC/A4.2
Basis device for 8 modules, SM	RC/A8.2

Please note:
With the new DALI Light Controller 4-fold, SM DLR/A 4.8.1.1 the DALI Lighting Control can be integrated in a decentralised KNX installation too! Further information about DLR/A 4.8.1.1 on page 688.

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ABB i-bus® KNX

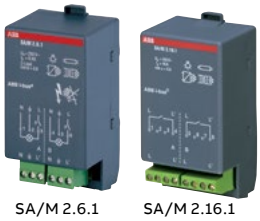
Room automation – room controller function modules



BE/M 4.230.1

Binary input modules, 4-fold

Description	Order code
230 V	BE/M4.230.1
12/24 V	BE/M4.24.1
Contact scanning	BE/M4.12.1



SA/M 2.6.1 SA/M 2.16.1

Switch actuator module

Description	Order code
Switch actuator module, 2-fold, 6 A	SA/M2.6.1
Switch actuator module, 2-fold, 16 A, floating contacts	SA/M2.16.1



JA/M 2.230.1

Shutter actuator modules, 2-fold

Description	Order code
230 V AC	JA/M2.230.1
24 V DC	JA/M2.24.1



SD/M 2.6.2

Switch/dim actuator module, 2-fold, 6 AX

Description	Order code
Switch/dim actuator module, 2-fold, 6 AX	SD/M2.6.2



LR/M 1.6.2

Light controller module, 1-fold, 6 AX

Description	Order code
Light controller module, 1-fold, 6 AX	LR/M1.6.2



UD/M 1.300.1

Universal dim actuator module, 1-fold, 300 VA

Description	Order code
Universal dim actuator module, 1-fold, 300 VA	UD/M1.300.1



ES/M 2.230.1

Electronic switch actuator module, 2-fold

Description	Order code
115/230 V	ES/M2.230.1
24 V	ES/M2.24.1

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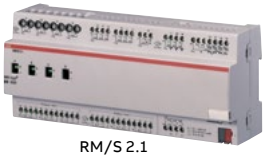
Room automation – room master



RM/S 1.1



RM/S 2.1



RM/S 3.1



RM/S 4.1

Overview of the inputs and outputs

	RM/S 1.1	RM/S 2.1	RM/S 3.1	RM/S 4.1	Application possibilities
Binary inputs via contact scanning	8	18	12	8	For connection of switches or push-buttons (light on/off, shutter uwp/down,etc.) or sensors (window contacts, door contacts, water sensors, condensation water sensors, hotel acrd readers, etc.)
Outputs 20 A (16 AX)	1	3	4	–	Bathroom fan, switching of electrical sockets
Outputs 16 A (10 AX)	2	1	–	–	Auxiliary electrical heating of fan-coil units (at RM/S 1.1 and 2.1), lighting
Outputs 6 A	3	12	–	8	3-speed fan control (at RM/S 1.1 and 2.1), lighting
Outputs 0.5 A electronic	4	4	–	–	Valve control (heating, cooling)
Outputs 6 A changeover contact	–	1	4 (configurable as switch outputs too)	–	Blind or roller blind control

- RM/S 1.1 and RM/S 2.1 are preprogrammed ex factory
- RM/S 3.1 and RM/S 4.1 are programmable with predefined and tested example projects (ETS 4) for different fields of application (office, schools, hotel rooms, ...)
- Commissioning of the preprogrammed devices on the construction site without notebook and ETS programming. With the electrical connection all room functions are available.
- Optional functional extensions via integration into KNX networks with ETS software.

Further information about Room Master on www.abb.com/knx

Room master RM/S x.1

Description	Module width	Order code
Inputs, outputs, fan coil	8	RM/S1.1
Inputs, outputs, blind control, fan coil	12	RM/S2.1
Inputs, outputs, blind control or outputs	12	RM/S3.1
Inputs, outputs	8	RM/S4.1

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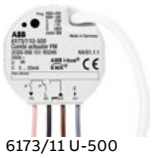
ABB i-bus® KNX

Room automation and inputs

Flush-mounted combined devices



6173/11 U-500



6151/11 U-500



6152/11 U-500



6164/11 U-500

Actuators

Description	Order code
Flush-mounted combined actuator	6173/11U-500
Switch actuator, 16 A	6151/11U-500
Blind actuator	6152/11U-500
Heating actuator	6164/11U-500

Inputs



BE/S 8.230.2.1

Binary inputs, 10 – 230 V AC/DC, MDRC

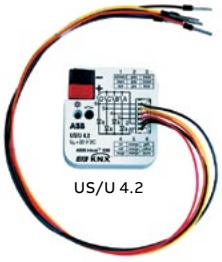
Description	Module width	Order code
4-fold	2	BE/S4.230.2.1
8-fold	4	BE/S8.230.2.1



BE/S 4.20.2.1

Binary inputs, contact scanning, MDRC

Description	Module width	Order code
4-fold	2	BE/S4.20.2.1
8-fold	4	BE/S8.20.2.1



US/U 4.2

Universal interface, FM

Description	Order code
US/U 2.2	US/U2.2
US/U 4.2	US/U4.2
US/U 12.2	US/U12.2

ABB i-bus® KNX
Inputs


AE/S 4.1.1.3

Analogue input, 4-fold, MDRC

Description	Module width	Order code
4-fold, MDRC	4	AE/S4.1.1.3



AE/A 2.1

Analogue input, 2-fold, SM

Description	Module width	Order code
2-fold, SM	4	AE/A2.1


WZ/S 1.3.1.2

Weather unit, MDRC and weather sensor, SM

Description	Module width	Order code
Weather unit	4	WZ/S1.3.1.2
Weather sensor	–	WES/A3.1


WES/A 3.1


WS/S 4.1.1.2

Weather station, 4-fold, MDRC

Description	Module width	Order code
Weather station, 4-fold, MDRC	4	WS/S4.1.1.2

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ABB i-bus® KNX
Outputs


SA/S 8.6.1.1


SA/S 8.6.2.1


SA/S 4.10.2.1



AA/A2.1.2


SA/S 8.16.6.1


IO/S 4.6.1.1


AA/S 4.1

Switch actuators

Description	Type	Module width	Order code
6 A, MDRC	4-fold	4	SA/S4.6.1.1
	8-fold	6	SA/S8.6.1.1
	12-fold	8	SA/S12.6.1.1
6 A, MDRC, manual operation	2-fold	2	SA/S2.6.2.1
	4-fold	4	SA/S4.6.2.1
	8-fold	8	SA/S8.6.2.1
	12-fold	12	SA/S12.6.2.1
10 AX, MDRC, manual operation	2-fold	2	SA/S2.10.2.1
	4-fold	4	SA/S4.10.2.1
	8-fold	8	SA/S8.10.2.1
	12-fold	12	SA/S12.10.2.1
16 AC1, MDRC, manual operation	2-fold	2	SA/S2.16.2.1
	4-fold	4	SA/S4.16.2.1
	8-fold	8	SA/S8.16.2.1
	12-fold	12	SA/S12.16.2.1
16/20 AX, C-Load, MDRC, manual operation	2-fold	2	SA/S2.16.5.1
	4-fold	4	SA/S4.16.5.1
	8-fold	8	SA/S8.16.5.1
	12-fold	12	SA/S12.16.5.1

Analogue actuators

Description	Order code
Analogue actuator, 2-fold, SM	AA/A2.1.2
Analogue actuator, 4-fold, MDRC	AA/S4.1
Analogue actuator, 4-fold, 4-FOLD, 0-10 V, 0-20 mA, MDRC	AA/S4.1.2
Analogue actuator Module, 4-fold, MDRC	AAM/S4.1

Switch actuator with current detection, 16/20 AX, C-Load

Description	Module width	Order code
2-fold	2	SA/S2.16.6.1
4-fold	4	SA/S4.16.6.1
8-fold	8	SA/S8.16.6.1
12-fold	12	SA/S12.16.6.1

I/O Actuator, 6 A, MDRC

Description	Module width	Order code
4-fold	4	IO/S4.6.1.1
8-fold	8	IO/S8.6.1.1

Analogue actuator, 4-fold and analogue actuator module, 4-fold, MDRC

Description	Module width	Order code
Analogue actuator, 4-fold	4	AA/S4.1
Analogue actuator Module, 4-fold, MDRC	4	AAM/S4.1

ABB i-bus® KNX

Shutters and sun protection



JRA/S 6.230.3.1

Blind/roller shutter actuator with 12 binary inputs

Description	Type	Module width	Order code
230V, MDRC	6-fold	12	JRA/S 6.230.3.1



JRA/S 8.230.5.1

Blind/roller shutter actuator with travel detection and manual operation

Description	Type	Module width	Order code
230 V AC, MDRC	2-fold	4	JRA/S2.230.5.1
	4-fold	4	JRA/S4.230.5.1
	8-fold	8	JRA/S8.230.5.1
4-fold, 24 V DC, MDRC		4	JRA/S4.24.5.1



JRA/S 4.24.5.1

Blind/roller shutter actuator with manual operation, 230 V AC, MDRC

Description	Module width	Order code
2-fold	4	JRA/S2.230.2.1
4-fold	4	JRA/S4.230.2.1
8-fold	8	JRA/S8.230.2.1



JRA/S 2.230.2.1

Blind/roller shutter actuator, 230 V AC, MDRC

Description	Module width	Order code
2-fold	4	JRA/S2.230.1.1
4-fold	4	JRA/S4.230.1.1
8-fold	8	JRA/S8.230.1.1



JRA/S 2.230.1.1

SMI Shutter actuators

Description	Module width	Order code
SMI Shutter actuator with manual operation, 4-fold, MDRC	4	JA/S4.SMI.1M
SMI Blind/roller shutter actuator, 4-fold, LoVo, MDRC	4	SJR/S4.24.2.1



SJR/S 4.24.2.1

Shutter control unit, MDRC

Description	Module width	Order code
Shutter control unit, MDRC	2	JSB/S1.1



JSB/S 1.1

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ABB i-bus® KNX

Illumination and light sensors – DALI



DG/S 8.1

DALI Gateway

Description	Module width	Order code
8-fold, MDRC	6	DG/S8.1
1-fold, MDRC	4	DG/S1.64.1.1
2-fold, MDRC	4	DG/S2.64.1.1



DLR/S 8.16.1M



DLR/A 4.8.1.1

DALI Light controller

Description	Module width	Order code
8-fold, MDRC	6	DLR/S8.16.1M
4-fold, SM	–	DLR/A4.8.1.1



DSA/S 2.16.1

DALI Switch actuator, 2-fold, 16 AX, C-load, MDRC

Description	Order code
DALI Switch actuator, 2-fold, 16 AX, C-load, MDRC	DSA/S2.16.1

ABB i-bus® KNX

Illumination and light sensors



LR/S 4.16.1

Light controller, 16 A, MDRC

Description	Module width	Order code
2-fold	4	LR/S2.16.1
4-fold	6	LR/S4.16.1



LF/U 2.1

Light sensor, FM

Description	Order code
Light sensor, FM	LF/U2.1



SD/S x.16.1

Switch/dim actuator, 16 A, MDRC

Description	Module width	Order code
2-fold	4	SD/S2.16.1
4-fold	6	SD/S4.16.1
8-fold	8	SD/S8.16.1



UD/S 2.300.2

Universal dim actuators

Description	Module width	Order code
2-fold, 300 W, MDRC	4	UD/S2.300.2
4-fold, 210 W, MDRC	8	6197/12-101-500
4-fold, 315 W, MDRC	8	6197/13-101-500
6-fold, 315 W, MDRC	12	6197/14-101-500
4-fold, 600 W, MDRC	12	6197/15-101-500
1-fold, 1.260 W, MDRC	12	6197/52-101-500
1-fold, 2.400 W, MDRC	12	6197/53-101-500



6197/13-101-500



HS/S 4.2.1

Interface for outside light sensor, MDRC

Description	Order code
Interface for outside light sensor, MDRC	HS/S4.2.1



LFO/A 1.1

Outside light sensor

Description	Order code
Outside light sensor	LFO/A1.1

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ABB i-bus® KNX

Illumination and light sensors



6131/20-24-500

Busch-Presence detectors

Description	Type	Order code
Mini KNX, 8 meter	Alpine white	6131/20-24-500
	Aluminium silver	6131/20-183-500
Mini premium KNX, 8 meter	Alpine white	6131/21-24-500
	Aluminium silver	6131/21-183-500
KNX, 12 meter	Alpine white	6131/30-24-500
	Aluminium silver	6131/30-183-500
Premium KNX, 12 meter	Alpine white	6131/31-24-500
	Aluminium silver	6131/31-183-500
Corridor KNX, 30 Meter	Alpine white	6131/50-24-500
	Aluminium silver	6131/50-183-500
Corridor Premium KNX, 30 Meter	Alpine white	6131/51-24-5000
	Aluminium silver	6131/51-183-500



6131/40-24-500

Busch-Watchdog Sky KNX

Description	Type	Order code
24 meter	Alpine white	6131/40-24-500



6131/29-24-500 6131/39-24-500

Surface-Mounting box

Description	Type	Order code
Dimensions: (L x W x D): 80 mm x 80 mm x 35 mm	Alpine white	6131/29-24-500
	Aluminium silver	6131/29-183-500
Dimensions: (L x W x D): 91 mm x 91 mm x 33 mm	Alpine white	6131/39-24-500
	Aluminium silver	6131/39-183-500



6179/01-204-500

Busch-Watchdog

Description	Type	Order code
220 MasterLINE KNX	White	6179/01-204-500
	Silver metallic	6179/01-208-500
220 MasterLINE KNX premium	White	6179/02-204-500
	Silver metallic	6179/02-208-500



6179-500

IR Remote control KNX

Description	Type	Order code
IR Remote Control KNX	Grey / anthracite	6179-500

ABB i-bus® KNX

Heating and cooling



ES/S 4.1.2.1

Electronic switch actuator, 4-fold, 1 A, MDRC

Description	Module width	Order code
4-fold	4	ES/S4.1.2.1
8-fold	8	ES/S8.1.2.1



VAA/S 6.230.2.1



VAA/A 6.24.1

Valve drive actuators

Description	Type	Module width	Order code
230 V, MDRC	6-fold	4	VAA/S6.230.2.1
	12-fold	8	VAA/S12.230.2.1
6-fold, 24 V, SM	–	–	VAA/A6.24.1



FCL/S 1.6.1.1

Blower actuator, 6 A, MDRC

Description	Module width	Order code
1-fold	4	FCL/S1.6.1.1
2-fold	6	FCL/S2.6.1.1





6138/11-84-500

Room thermostat fan coil with display, SM

Description	Order code
Alpine white	6138/11-84-500
Aluminium silver	6138/11-83-500



SUG/U1.1

Split unit gateway

Description	Order code
Interface between KNX and split unit air conditioner	SUG/U1.1

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ABB i-bus® KNX
Heating and cooling


FCA/S 1.1M

Fan coil actuator, MDRC

Description	Module width	Order code
For 0...10 V valve drives	6	FCA/S1.2.2.1
Fan coil actuator, PWM, MDRC, without manual operation	6	FCA/S 1.1.1.2
Fan coil actuator, PWM, MDRC, with manual operation	6	FCA/S 1.1.2.2
Fan coil actuator, 0-10V, MDRC, without manual operation	6	FCA/S 1.2.1.2
Fan coil actuator, 0-10V, MDRC, with manual operation	6	FCA/S 1.2.2.2


FC/S 1.1

Fan coil controller, MDRC

Description	Module width	Order code
Fan coil controller, MDRC	6	FC/S1.1
Temperature sensor for FC/S 1.1	–	TS/K1.1


LGS/A 1.2

Air quality sensor, SM

Description	Order code
Air quality sensor, SM	LGS/A1.2


ST/K 1.1

Electromotor valve Drive

Description	Order code
Electromotor valve drive	ST/K1.1


TSA/K 230.1

Electromotor valve drive

Description	Order code
230 V	TSA/K230.2
24 V	TSA/K24.2
Valve adapter for valves from Dumser, Chronatherm, Vescal, KaMo	VA/Z10.1
Valve adapter for valves from Honeywell, Reich, Cazzaniga, Landis & Gyr. MNG	VA/Z50.1
Valve adapter for valves from Danfoss RA	VA/Z78.1
Valve adapter for valves from Heimeier, Herb, Onda, Schlösser (ab 93), Oventrop	VA/Z80.1

ABB i-bus® KNX

Control, logic and time



LM/S 1.1

Logic module, MDRC

Description	Module width	Order code
Logic module, MDRC	2	LM/S1.1



ABA/S1.2.1

Logic controller

Provides extensive logic functions. The logic editor is integrated into the ETS.
Up to 3000 logic gates are possible.

Description	Module width	Order code
Logic controller	4	ABA/S1.2.1



ABL/S 2.1



ABZ/S 2.1

Application unit

Description	Module width	Order code
Logic, MDRC	2	ABL/S2.1
Time, MDRC	2	ABZ/S2.1



FW/S 8.2.1

Radio time switch , 8-channel, MDRC

Description	Module width	Order code
Radio time switch , 8-channel, MDRC	3	FW/S8.2.1



PS/E 2.1

Programming Set OBELISK top2 for radio time switch

Description	Order code
Programming Set OBELISK top2 for radio time switch	PS/E2.1



PK/E 2.1

Memory card OBELISK top2

Description	Order code
Memory card OBELISK top2	PK/E2.1



UK/S 32.2

Universal I/O Concentrator, 32-fold, MDRC

Description	Module width	Order code
Universal I/O Concentrator, 32-fold, MDRC	4	UK/S32.2

STOCK | INDENT

ABB i-bus® KNX

Visualisation, display and signalling



8136/09-811-500



8136/12-811-500

Busch-ComfortTouch®

Description	Type	Order code
9”	White glass	8136/09-811-500
	Black	8136/09-825-500
12.1”	White glass	8136/12-811-500
	Black	8136/12-825-500



6136/APP-500

Busch-ControlTouch

Freely programmable IP-/KNX gateway as multi-room app control for the KNX system. MDRC device with associated IOS and Android apps.

Description	Order code
Busch-ControlTouch	6136/APP-500



6186/01 UP-500

Power adapter module for Busch ComfortTouch

Description	Order code
Power adapter module ABB i-bus® KNX	6186/01UP-500



8136/01 UP-500

Flush-mounted installation box

Description	Order code
Flush-mounted installation box	8136/01UP-500



6136/07-811-500

SmartTouch

Description	Order code
Busch SmartTouch 7”, white Glass	6136/07-811-500
Busch SmartTouch 7”, black Glass	6136/07-825-500



6136/07-811-500

Mounting frame for SmartTouch

Description	Order code
White, surface	6136/27-811-500
Black, surface	6136/27-825-500
Flush mount	6136/07UP-500

ABB i-bus® KNX

Operation – Busch-priOn®



6120/12-101-500

Bus coupler, FM

Description	Order code
Bus coupler, FM	6120/12-101-500



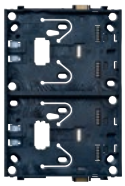
6120/13-500

Power bus coupler, FM, Busch-priOn®

Description	Order code
Power bus coupler, FM, Busch-priOn®	6120/13-500



6346/10-101-500



6346/11-101-500

Base frame, Busch-priOn®

Description	Order code
1-fold	6346/10-101-500
2-fold	6346/11-101-500
3-fold	6346/12-101-500



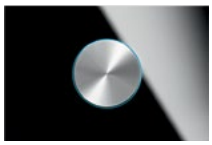
6340-825-101-500



6342-825-101-500

Control Element, Busch-priOn®

Description	Type	Order code
1-fold	Studio white, high gloss	6340-24G-101-500
	White glass	6340-811-101-500
	Glass black	6340-825-101-500
	Stainless steel	6340-866-101-500
3-fold	Studio white, high gloss	6342-24G-101-500
	White glass	6342-811-101-500
	Glass black	6342-825-101-500
	Stainless steel	6342-866-101-500



6341-825-101-500

Rotary Control Element, 1-fold, Busch-priOn®

Description		Order code
1-fold	Studio white, high gloss	6341-24G-101-500
	White glass	6341-811-101-500
	Glass black	6341-825-101-500
	Stainless steel	6341-866-101-500

STOCK | INDENT

ABB i-bus® KNX

Operation – Busch-priOn®



6344-825-101-500

8.89 cm (3.5”) TFT colour display with rotary control element, Busch-priOn®

Description	Order code
Studio white, high gloss	6344-24G-101-500
White glass	6344-811-101-500
Glass black	6344-825-101-500
Stainless steel	6344-866-101-500



6345-825-101-500

Busch watchdog® 180 fm sensor, Busch-prion®

Description	Order code
Studio white, high gloss	6345-24G-101-500
White glass	6345-811-101-500
Glass black	6345-825-101-500
Stainless steel	6345-866-101-500



6348-825-101-500

Top end strip, Busch-prion®

Description	Order code
Studio white, high gloss	6348-24G-101-500
White glass	6348-811-101-500
Glass black	6348-825-101-500
Stainless steel	6348-866-101-500



6350-825-101-500

Top end strip with IR receiver and proximity sensor, Busch-prion®

Description	Order code
Glass black	6350-825-101-500



6349-825-101-500

Bottom end strip without logo, Busch-prion®

Description	Order code
Studio white, high gloss	6349-24G-101-500
White glass	6349-811-101-500
Glass black	6349-825-101-500
Stainless steel	6349-860-101-500

ABB i-bus® KNX

Operation – Busch-priOn®



6352-825-101-500

Bottom end strip with temperature sensor, Busch-priOn®

Description	Order code
Studio white, high gloss	6352-24G-101-500
White glass	6352-811-101-500
Glass black	6352-825-101-500
Stainless steel	6352-860-101-500



6351-825-101-500

Top end strip with display, room thermostat, IR receiver and proximity sensor, Busch-prion®

Description	Order code
Glass black	6351-825-101-500



6353/20-860-500

Inscription symbols, Busch-prion®

Description	Order code
Lighting	6353/20-860-500
Blind	6353/30-860-500
Room temperature	6353/40-860-500
Scene	6353/50-860-500



6149/21-500

Commissioning interface / adapter

Description	Order code
Commissioning interface / adapter	6149/21-500



CP-D 24/2.5

Power supply, 24 V, 2.5 A, MDRC

Description	Order code
Power supply, 24 V, 2.5 A, MDRC	CP-D24/2.5

STOCK | INDENT

ABB i-bus® KNX

Operation – Busch-priOn®



6320/10-24G-500

Busch-triton® control element, 1/2-fold, FM

Description	Type	Order code
Alpha	Platinum	6320/10-20-500
	Studio white, high gloss	6320/10-24G-500
	Palladium	6320/10-260-500
Impuls	Champagne metallic	6320/10-79-500
future® linear	Aluminium silver	6320/10-83-500



6320/30-24G-500

Busch-triton® control element, 3/6-fold, FM

Description	Type	Order code
Alpha	Platinum	6320/30-20-500
	Studio white, high gloss	6320/30-24G-500
	Palladium	6320/30-260-500
Impuls	Champagne metallic	6320/30-79-500
future® linear	Aluminium silver	6320/30-83-500



6320/50-24G-500

Busch-triton® control element, 5/10-fold, FM

Description	Type	Order code
Alpha	Platinum	6320/50-20-500
	Studio white, high gloss	6320/50-24G-500
	Palladium	6320/50-260-500
Impuls	Champagne metallic	6320/50-79-500
future® linear	Aluminium silver	6320/50-83-500



6320/38-24G-500

Busch-triton® control element with room thermostat and 3/6-fold switch sensor, FM

Description	Type	Order code
Alpha	Platinum	6321/38-20-500
	Studio white, high gloss	6321/38-24G-500
	Palladium	6321/38-260-500
Impuls	Champagne metallic	6321/38-79-500
future® linear	Aluminium silver	6321/38-83-500



6320/58-24G-500

Busch-triton® control element with room thermostat and 5/10-fold switch sensor, FM

Description	Type	Order code
Alpha	Platinum	6321/58-20-500
	Studio white, high gloss	6321/58-24G-500
	Palladium	6321/58-260-500
Impuls	Champagne metallic	6321/58-79-500
future® linear	Aluminium silver	6321/58-83-500



6010-25-500

Infra-red hand held transmitter

Description	Order code
Infra-red hand held transmitter	6010-25-500

ABB i-bus® KNX

Operation – push button coupling unit

The push-button coupling unit with a centre position offers maximum flexibility. Installed in a flush-mounted wall box, it accepts switch rockers from conventional switch ranges* like a completely standard flush-mounted insert. Covers from all conventional ranges can now be used for KNX. This offers maximum freedom in the selection of the switch range and makes retrofitting easier.

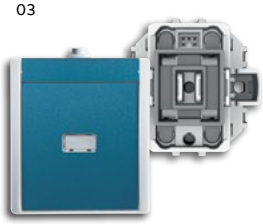
01



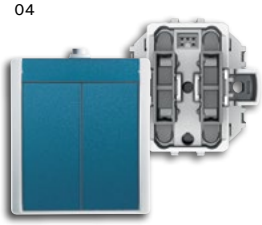
02



03



04



Features

- Easy mounting and commissioning
- All flush-mounted switch ranges* can be used for the ABB i-bus® KNX
- Affordable solution for renovations
- Status/orientation light (red/green/OFF) (only with 1gang push-button/switches)
- Integration in surface-mounted water protected units

01 Push-button coupler 1/2gang with integrated bus coupler
02 Push-button coupler 2/4gang with integrated bus coupler
03 Push-button coupler 1/2gang for ocean with integrated bus coupler
04 Push-button coupler 2/4gang for ocean with integrated bus coupler



Design without limits. The push-button coupling unit includes the complete range* of switches for KNX. Switch rockers from all switch ranges can now be converted to KNX push buttons, which not only switch on and off but also dim or show the status with an LED (6108/01 and 6108/04 only). 1gang and 2gang models for single and 2gang switch rockers are available.

KNX – water protected

The push-button coupling unit also allows special products to be used for KNX. Special models for water-protected installation allow covers from, for example, the ocean® surface-mounted range to be used. This means that KNX sensors can also be safely installed in a cellar, outside on a patio or in commercial applications. Temperature range: -25 °C to 45 °C

*except impuls, basic55® and All Weather 44 Busch Jaeger switch ranges only available for selected markets. For further information please contact your local ABB office.

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ABB i-bus® KNX

Operation – push button coupling unit and room temperature controller

Push button coupling units



6108/04-500

KNX switch connection units

Description	Type	Order code
KNX switch connection unit for design ocean® (IP44), FM	1/2-fold	6108/06-AP-500
	2/4-fold	6108/07-AP-500

***** All available switch rockers and additional information about Busch-Jaeger design ranges under www.busch-jaeger.com

Room Temperature Controllers



6108/03-500

Room temperature controller, commercial, FM

Description	Order code
Room temperature controller, commercial, FM	6108/08-500



6541-84

Cover plate for room temperature controller, commercial

Description	Type	Order code
future® linear	Anthracite	6541-81
	Savanna/ivory	6541-82
	Aluminium silver [1]	6541-83
	Davos/studio white	6541-84
	Studio white, matt [1]	6541-884
	Black matt [1]	6541-885
solo®	Savanna/ivory	6541-82
	Davos/studio white	6541-84
	Meteor/grey metallic [1]	6541-803
	Sahara/yellow	6541-815
Carat	Anthracite	6541-81
	Savanna/ivory	6541-82
	Davos/studio white	6541-84
Pure stainless steel [1]	Pure stainless steel	6541-866
Busch-axcent®	Davos/studio white	6541-84
	Chalet-white	6541-896
Alpha	Ivory	6541-22G
	Studio white, matt	6541-24
	Studio white, high gloss	6541-24G
	Platinum [2]	6541-20
	Bronze [2]	6541-21
	Palladium [2]	6541-260
	Titanium [2]	6541-266
Impuls	Alpine white	6541-74
	Champagne metallic	6541-79
	Ivory	6541-72
	Studio white matt [1]	6541-774
	Black matt [1]	6541-775
	Blackberry [1]	6541-777
	Aluminium silver [1]	6541-783
Busch-Duro 2000 SI	White (si-series)	2114-212
Reflex SI	Alpine white (si-series)	2114-214-500



6541-24



2114-212

1) Surface painted
2) Real metal surface

ABB i-bus® KNX

Operation – Millenium



6125/20-981-500



6126/20-981-500

Sensors

Description	Order code
2-fold sensor	6125/20-981-500
4-fold sensor	6126/20-981-500
6-fold sensor	6129/20-981-500
6-fold sensor with IR	6129/21-981-500



6122/20-981-500

Watchdog 180 flush mounted

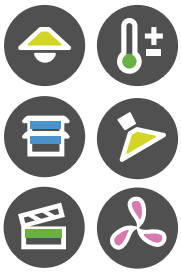
Description	Order code
Watchdog 180 flush mounted	6122/20-981-500



6124/20-981-500

Room thermostat heating/cooling fan coil

Description	Order code
Room thermostat heating/cooling fan coil	6124/08-981-500



Buttons with symbols

Description	Order code
Ceiling light symbol	6123/20-500
Blinds symbol	6123/21-500
Scene symbol	6123/22-500
Temperature symbol	6123/23-500
Light symbol	6123/24-500
Fan Coil symbol	6123/26-500



Sensor frames

Description	Type	Order code
1 gang	Stainless steel	AMD5153-ST
	Silk black	AMD5153-SB
	Matt gold	AMD5153-MG
	Antique gold	AMD5153-AG
2 gang	Stainless steel	AMD5253-ST
	Silk black	AMD5253-SB
	Matt gold	AMD5253-MG
	Antique gold	AMD5253-AG



AMD5053

Special metal mounting plate for KNX sensors

Description	Order code
Special metal mounting plate for KNX sensors 1 gang	AMD5053

STOCK | INDENT

ABB i-bus® KNX
Operation – Zenit


6125/98-509


6126/98-509


6129/96-509


6129/98-509

Fold sensor

Description	Order code
1/2-Fold sensor	6125/98-509
2/4 -Fold sensor	6126/98-509
3/6 -Fold sensor	6129/96-509
3/6 -Fold sensor with IR	6129/98-509


N2221.2


N2221.4


N2221.6


N2221.7

Cover Zenit

Description	Type	Order code
Cover Zenit 1/2 fold	White	N2221.2 BL
	Anthracite	N2221.2 AN
	Silver	N2221.2 PL
Cover Zenit 2/4 fold	White	N2221.4 BL
	Anthracite	N2221.4 AN
	Silver	N2221.4 PL
Cover Zenit 3/6 fold	White	N2221.6 BL
	Anthracite	N2221.6 AN
	Silver	N2221.6 PL
Cover Zenit 3/6 fold with IR	White	N2221.7 BL
	Anthracite	N2221.7 AN
	Silver	N2221.7 PL


6124/98-509

Room thermostat heating / cooling fan coil

Description	Order code
Room thermostat heating / cooling fan coil	6124/98-509


N2240.4

Cover Zenit room thermostat

Description	Type	Order code
Cover Zenit RTC	White	N2240.4 BL
	Anthracite	N2240.4 AN
	Silver	N2240.4 PL


6122/98-509

Watchdog 180 flush mounted

Description	Order code
Watchdog 180 flush mounted	6122/98-509

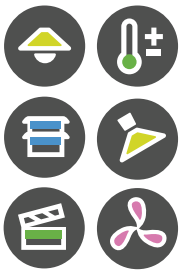

N2241.4

Cover Zenit watchdog

Description	Type	Order code
Cover Zenit watchdog	White	N2241.4 BL
	Anthracite	N2241.4 AN
	Silver	N2241.4 PL

ABB i-bus® KNX

Operation – Zenit



Buttons with symbols

Description	Order code
Ceiling light symbol	6123/20-500
Blinds symbol	6123/21-500
Scene symbol	6123/22-500
Temperature symbol	6123/23-500
Light symbol	6123/24-500
Fan Coil symbol	6123/26-500

N2271 XX

Frames, Zenit VDE

Description	Order code
1 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	N2271 XX
1 fold basic (without logo), Available in AN, BL, CV, PL*	N2271.1 XX
2 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	N2272 XX
2 fold basic (without logo), Available in AN, BL, CV, PL*	N2272.1 XX
3 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	N2273 XX
3 fold basic (without logo), Available in AN, BL, CV, PL*	N2273.1 XX
4 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	N2274 XX
4 fold basic (without logo), Available in AN, BL, CV, PL*	N2274.1 XX

* AN = Anthracite, BL = White, CB = White glass, CN = Black glass, CV = Cava, OX = Stainless Steel, PL = Silver, PZ = Slate, WG = Wengue wood



N2271.9

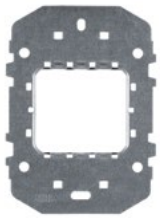
Metal mounting plate

Description	Order code
Metal mounting plate	N2271.9

N2372.1 XX

Frame, Zenit NEMA

Description	Order code
1 fold	N2372.1 XX



N2371.9V

Metal mounting plate

Description	Order code
Metal mounting plate	N2371.9V

STOCK | INDENT

ABB i-bus® KNX

Energy measurement



QA/S3.16.1

QA/S

Energy management solution for capturing and analyzing consumption data of up to 16 or 64 electricity, gas, water or heat meters via Meter-Bus (M-Bus). Web-based user interface with graphical analysis functions such as historical data, dashboard, and more.

Description	Module width	Order code
Interface up to 16 meter (M-BUS) devices, MDRC	4	QA/S3.16.1
Interface up to 64 meter (M-Bus) devices, MDRC	4	QA/S3.16.1



SE/S3.16.1

Energy actuator, 3-fold, 16/20 AX, MDRC

Description	Module width	Order code
Energy actuator, 3-fold, 16/20 AX, MDRC	4	SE/S3.16.1



EM/S3.16.1

Energy module, MDRC

Description	Module width	Order code
Energy module, MDRC	4	EM/S3.16.1



ZS/S1.1

Meter interface module, MDRC

Reads measured values from the ABB A and B series energy meters via an infra-red interface. This data can be used for cost centre accounting, energy optimisation, monitoring of installations and visualisation.
The following values are available (depending on the meter type):

Meter reading

Active energy	Tariff 1-4, total
Reactive energy	Tariff 1-4, total

Power values

Active power	L1, L2, L3, total
Reactive power	L1, L2, L3, total
Apparent power	L1, L2, L3, total
Phase angle power	L1, L2, L3, total
Power factor	L1, L2, L3, total

Instrument values

Voltages	L1-N, L2-N, L3-N, L1-L2, L2-L3, L1-L3
Currents	L1, L2, L3, N
Phase angle voltage	L1, L2, L3, total
Phase angle current	L1, L2, L3, total
Quadrant	L1, L2, L3, total
Mains frequency	

Other

Transformer ratio	Read CT and VT
Power failures	Send and delete
Tariffs	Read and changeover
Status information	Send and read
Communication	
Monitoring	
Intermediate meter	Read and reset

Meter interface module, MDRC

Description	Order code
Meter interface module, MDRC	ZS/S1.1

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ABB i-bus® KNX

Security and surveillance – fault monitoring and data logging



SMB/S 1.1

Fault monitoring unit, MDRC

Description	Module width	Order code
Fault monitoring unit, MDRC	2	SMB/S 1.1



EUB/S 1.1

Monitoring unit, MDRC

Description	Module width	Order code
Monitoring unit, MDRC	2	EUB/S 1.1



BDB/S 1.1

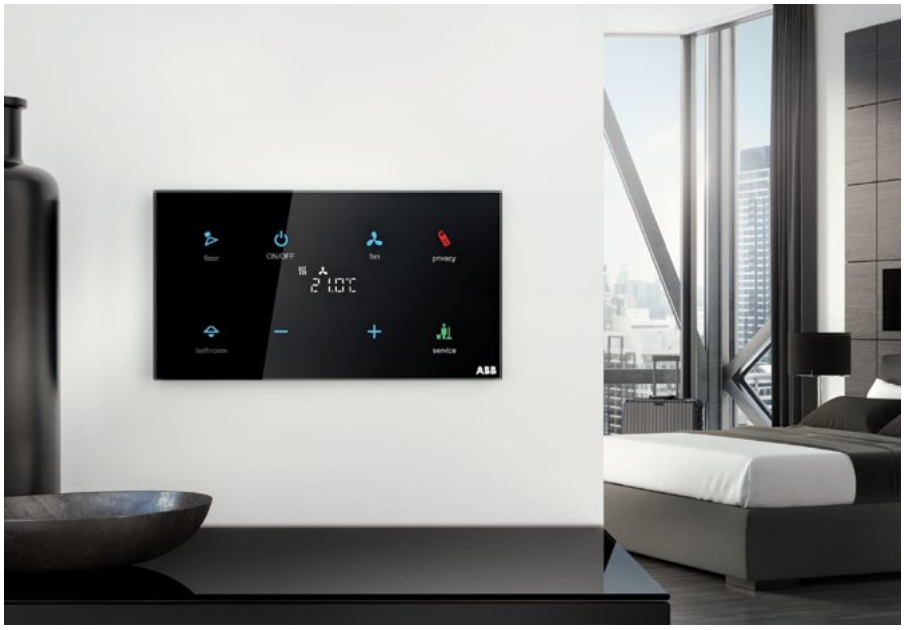
Data logging unit, MDRC

Description	Module width	Order code
Data logging unit, MDRC	2	BDB/S 1.1

ABB-tacteo KNX

The individual touch

Available from mid 2018



Unique in design and function, the intuitive and individually configurable ABB-tacteo KNX sensor is as extraordinary as you are. The impressive, high-quality black or white glass sensor with its capacitive user interface offers virtually unlimited possibilities for intelligent building networking. From heating and ventilation to blinds, lighting and hotel room access control, everything can be controlled to create comfortable everyday situations and put intelligent building management firmly in your hands. Discover more details at **www.abb.com/tacteo**

STOCK | INDENT

09
Exit and emergency lighting

709 **Nexus® system**

713 **Spitfire®**

725 **Exit signs**

753 **Battens**

761 **Circular LED**

765 **Flood lights**


Deloitte.
Digital

Nexus® system

710 **Nexus®**

—

For more detailed product information, please refer to the Stanilite website:

- www.stanilite.com.au

Nexus®

LX and RF components



Nexus RF area controller V2 product features

- 3 year warranty
- System head end controller. Nexus® RF database containing all system and unit information
- Co-ordinates up to 90 nodes
- Communicates to fittings via 918 - 925.8 MHz mesh network
- 7" colour graphical user interface LCD resistive touch screen - includes stylus
- Integrated web server for remote control
- Battery option allows the area controller to be used in mobile mode and features fast recharge capability
- Wall bracket

Nexus RF area controller V2

Order code	Description
NACR-1	Nexus RF Area Controller - Router
NAC-2	Nexus RF area controller with LCD display and battery
Spare parts	
14-00211	Battery 6 cell NiMH 7.2V 2.3Ah
02-ACBMV2	AC battery module V2
02-NRFEIMV1	Nexus RF interface module V1
32-WAMA014	Stylus - area controller
32-00206	Plug pack 12V 3A

Output
Mains plug pack 240VAC 50/60Hz, 12VDC 3A max output

Memory	Jack and lead
SD micro flash memory 8GB	50 ohm SMA antenna jack
1GB USB flash memory stick	2m blue Cat 5e UTP patch lead

Connectivity
Ethernet port for Lan/Wan connectivity
USB A and USB B ports for connection to peripherals such as keyboard, mouse, modem, printer and laptop/PC



Nexus LX user pack including server with LCD 19" monitor

Order code	Description
NXSLXSERVERLCD	LCD 19" Monitor, 2GB RAM, Windows 7, 32 Bit Professional Dual Core 2.4GHz
Spare parts	
NXSNCB2	ILON 600 Lonworks/IP Server TP/FT-10 (240V)
NXSNCB3	ILON 600 Lonworks/IP Server TP/FT-10 (24V DC)
NXS-1PS/A-100	NXS-1PS/A-100 Cable Data Twisted Pair Screen 100m Roll
NXS-1PS/A-500	Cable Data Twisted Pair Screen 500m Roll
32-00203	USB FT10 Lonworks I/F
HXSROUT	HXS ROUTER TP78/TP78
HXSROUT/2	HXS ROUTER TP78/FT10

Product features
PC with LCD 19" monitor
Server loaded with WIN 10 64 bit Pro
License includes 64 device credits
USB stick including Nexus LX software, Nexus user and technical guide

STOCK | INDENT




INSATIN

Spitfire®

714	e-Range
716	s-Range
720	p-Range
722	Accessories

For more detailed product information, please refer to the Stanilite website:

- www.stanilite.com.au

Spitfire® LED

e-Range

Spitfire e-Range product features

- 1 year warranty
- LED technology 75,000 hours lamp life
- Low power consumption
- High temperature NiCad batteries

Economy Spitfire LED recessed non-maintained



Order code	Description	Mounting
Standard products		Recessed
ESFLED	LED economy Spitfire recessed	
Spare parts		
03-01222	Battery 4 cell NiCad 4.8V 1.8Ah	
Additional features		
Spring fixing design allows for different ceiling thickness (1 mm – 20 mm)		
White adaptor included to convert standard 95 mm lamp head to 145 mm diameter		

STOCK | INDENT



DALI emergency lighting

Integration for safe monitoring in smart buildings

DALI emergency lighting from ABB can easily provide a safe and reliable solution to meet smart building emergency lighting requirements. Tests run automatically to ensure your building is safely lit, with downloadable reports to prove it. Low-cost installation with low-cost maintenance. ABB and DALI: the smart way to install emergency lighting. **new.abb.com/low-voltage**

Spitfire® LED

s-Range

Spitfire s-Range product features

- 3 year warranty
- Superior photometric classification
- LED technology 100,000 hours lamp life
- Single or dual LED option
- High temperature NiCad batteries

Signature Spitfire LED recessed non-maintained



Order code	Description	Mounting
Standard products		Recessed
SF1LED	LED Spitfire single recessed	
SF2LED	LED Spitfire dual recessed	
Spare parts		
03-01220	Battery 5 cell NiCad 6.0V 1.8Ah	
Additional features		
Spring fixing design allows for different ceiling thickness (1mm – 20mm)		
Metal trim covers available in black or stainless steel finish		

Note: For Accessories – refer to page 722

Signature Spitfire LED surface mount non-maintained



Catalogue no.	Description	Mounting
Standard products		Surface mount
SFB1LED	LED Spitfire single surface mount	
SFB2LED	LED Spitfire dual surface mount	
Spare parts		
03-01220	Battery 5 cell NiCad 6.0V 1.8Ah	
Additional features		
Low maintenance - ideal for factories and warehouses		

Spitfire® LED

s-Range | Nexus®

Spitfire s-Range Nexus product features

- 3 year warranty
- Superior photometric classification
- LED technology 100,000 hours lamp life
- Single or dual LED option
- High temperature NiCad batteries
- Nexus® monitored, either cabled or wireless

Signature Spitfire LED recessed Nexus non-maintained



Order code	Description	Mounting
Nexus products		Recessed
SFNXS1LED	LED Spitfire single Nexus LX recessed	
SFNXS2LED	LED Spitfire dual Nexus LX recessed	
SFNRF1LED	LED Spitfire single Nexus RF recessed	
SFNRF2LED	LED Spitfire dual Nexus RF recessed	
Spare parts		
03-01220	Battery 5 cell NiCad 6.0V 1.8Ah	
Additional features		
Spring fixing design allows for different ceiling thickness (1mm – 20mm)		
Metal trim covers available in black or stainless steel finish		

Note: For Accessories – refer to page 722

Signature Spitfire LED surface mount Nexus non-maintained



Order code	Description	Mounting
Nexus products		Surface mount
SFBNXS1LED	LED Spitfire single Nexus LX surface mount	
SFBNXS2LED	LED Spitfire dual Nexus LX surface mount	
SFBNRF1LED	LED Spitfire single Nexus RF surface mount	
SFBNRF2LED	LED Spitfire dual Nexus RF surface mount	
Spare parts		
03-01220	Battery 5 cell NiCad 6.0V 1.8Ah	
Additional features		
Low maintenance - ideal for factories and warehouses		

Spitfire® LED weatherproof

s-Range

Spitfire s-Range product features

- 3 year warranty
- Superior photometric classification
- LED technology 100,000 hours lamp life
- Single or dual LED option
- High temperature NiCad batteries

Signature Spitfire LED weatherproof non-maintained



Order code	Description	Mounting
Standard products		Surface mount
SFBWP1LED	LED Spitfire single weatherproof surface mount	
SFBWP2LED	LED Spitfire single weatherproof dual mount	**IP rating**
Spare parts		IP67
03-01220	Battery 5 cell NiCad 6.0V 1.8Ah	
Additional features		
Polycarbonate IP67 weatherproof enclosure		
Low maintenance - ideal for carparks		

Signature Spitfire LED weatherproof remote lamp head and power supply unit



Order code	Description	Mounting
Standard products		Surface mount
SFBWP1LEDLHREM	LED Spitfire single weatherproof surface mount remote lamp head	
SFBWP2LEDLHREM	LED Spitfire dual weatherproof surface mount remote lamp head	**IP rating**
SFBWPLEDPSU	LED Spitfire weatherproof surface mount power supply unit	IP67
Spare parts		
03-01220	Battery 5 cell NiCad 6.0V 1.8Ah	
Additional features		
Polycarbonate IP67 weatherproof enclosure		
Lamp head -30°C operation		
Lamp head used in combination with remote power supply lamp head mounted inside the freezer or coolroom and remote power supply mounted outside		

STOCK | INDENT

Spitfire® LED weatherproof

s-Range | Nexus®

Spitfire s-Range Nexus product features

- 3 year warranty
- Superior photometric classification
- LED technology 100,000 hours lamp life
- Single or dual LED option
- High temperature NiCad batteries
- Nexus® monitored, either cabled or wireless

Signature Spitfire LED weatherproof Nexus non-maintained



Order code	Description	Mounting
Nexus products		Surface mount
SFBWPNXS1LED	LED Spitfire single Nexus LX weatherproof surface mount	
SFBWPNXS2LED	LED Spitfire dual Nexus LX weatherproof surface mount	**IP rating**
SFBWPNRF1LED	LED Spitfire single Nexus RF weatherproof surface mount	IP67
SFBWPNRF2LED	LED Spitfire dual Nexus RF weatherproof surface mount	
Spare parts		
03-01220	Battery 5 cell NiCad 6.0V 1.8Ah	
Additional features		
Polycarbonate IP67 weatherproof enclosure		
Low maintenance - ideal for carpark		

Signature Spitfire LED weatherproof remote lamp head and power supply unit Nexus®



Order code	Description	Mounting
Standard products		Surface mount
SFBWP1LEDLHREM	LED Spitfire single weatherproof surface mount remote lamp head	
SFBWP2LEDLHREM	LED Spitfire dual weatherproof surface mount remote lamp head	**IP rating**
SFBWPNXSLEDPSU	LED Spitfire weatherproof surface mount Nexus LX power supply unit	IP67
SFBWPNRFLEDPSU	LED Spitfire weatherproof surface mount Nexus RF power supply unit	
Spare parts		
03-01220	Battery 5 cell NiCad 6.0V 1.8Ah	
Additional features		
Polycarbonate IP67 weatherproof enclosure		
Lamp head -30°C operation		
Lamp head used in combination with remote power supply lamp head mounted inside the freezer or coolroom and remote power supply mounted outside		

Spitfire® LED

p-Range

Spitfire p-Range product features

- 5 year warranty
- Superior photometric classification
- LED technology 100,000 hours plus lamp life
- Single or dual LED option
- Advance charging technology combined with Lithium iron phosphate battery for long life and low maintenance

Platinum Spitfire LED recessed non-maintained



Order code	Description	Mounting
Standard products		Recessed
SF1LEDP	LED platinum Spitfire single recessed	
SF2LEDP	LED platinum Spitfire dual recessed	
Spare parts		
03-01301P	Battery LiFePO4 3.2V 3.2Ah (suits single LED)	
03-01303P	Battery LiFePO4 3.2V 4.5Ah (suits dual LED)	
Additional features		
Spring fixing design allows for different ceiling thickness (1mm – 20mm)		
Metal trim covers available in black or stainless steel finish		

Note: For Accessories – refer to page 722

Platinum Spitfire LED surface mount non-maintained



Order code	Description	Mounting
Standard products		Surface mount
SFB1LEDP	LED platinum Spitfire single surface mount	
SFB2LEDP	LED platinum Spitfire dual surface mount	
Spare parts		
03-01301P	Battery LiFePO4 3.2V 3.2Ah (suits single LED)	
03-01303P	Battery LiFePO4 3.2V 4.5Ah (suits dual LED)	
Additional features		
Low maintenance - ideal for factories and warehouses		

Platinum Spitfire LED weatherproof non-maintained



Order code	Description	Mounting
Standard products		Surface mount
SFBWP1LEDP	LED platinum Spitfire single weatherproof surface mount	
SFBWP2LEDP	LED platinum Spitfire dual weatherproof surface mount	**IP rating**
Spare parts		IP67
03-01301P	Battery LiFePO4 3.2V 3.2Ah (suits single LED)	
03-01303P	Battery LiFePO4 3.2V 4.5Ah (suits dual LED)	
Additional features		
Polycarbonate IP67 weatherproof enclosure		
Low maintenance - ideal for carparks		

STOCK | INDENT

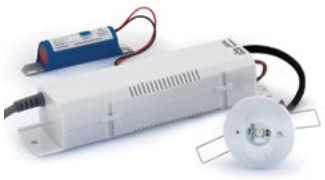
Spitfire® LED

p-Range | Nexus®

Spitfire p-Range Nexus product features

- 5 year warranty
- Superior photometric classification
- LED technology 100,000 hours plus lamp life
- Single or dual LED option
- Advance charging technology combined with Lithium iron phosphate battery for long life and low maintenance
- Nexus® monitored, either cabled or wireless

Platinum Spitfire LED recessed Nexus non-maintained



Order code	Description	Mounting
Nexus products		Recessed
SFNXS1LEDP	LED platinum Spitfire single Nexus LX recessed	
SFNXS2LEDP	LED platinum Spitfire dual Nexus LX recessed	
SFNRF1LEDP	LED platinum Spitfire single Nexus RF recessed	
SFNRF2LEDP	LED platinum Spitfire dual Nexus RF recessed	
Spare parts		
03-01301P	Battery LiFePO4 3.2V 3.2Ah (suits single LED)	
03-01303P	Battery LiFePO4 3.2V 4.5Ah (suits dual LED)	
Additional features		
Spring fixing design allows for different ceiling thickness (1mm – 20mm)		
Metal trim covers available in black or stainless steel finish		

Note: For Accessories – refer to page 722

Platinum Spitfire LED surface mount Nexus non-maintained



Order code	Description	Mounting
Nexus products		Surface mount
SFBNXS1LEDP	LED platinum Spitfire single Nexus LX surface mount	
SFBNXS2LEDP	LED platinum Spitfire dual Nexus LX surface mount	
SFBNRF1LEDP	LED platinum Spitfire single Nexus RF surface mount	
SFBNRF2LEDP	LED platinum Spitfire dual Nexus RF surface mount	
Spare parts		
03-01301P	Battery LiFePO4 3.2V 3.2Ah (suits single LED)	
03-01303P	Battery LiFePO4 3.2V 4.5Ah (suits dual LED)	
Additional features		
Low maintenance - ideal for factories and warehouses		

Platinum Spitfire LED weatherproof Nexus non-maintained



Order code	Description	Mounting
Nexus products		Surface mount
SFBWPNXS1LEDP	LED platinum Spitfire single Nexus LX weatherproof surface mount	
SFBWPNXS2LEDP	LED platinum Spitfire dual Nexus LX weatherproof surface mount	**IP rating**
SFBWPNRF1LEDP	LED platinum Spitfire single Nexus RF weatherproof surface mount	IP67
SFBWPNRF2LEDP	LED platinum Spitfire dual Nexus RF weatherproof surface mount	
Spare parts		
03-01301P	Battery LiFePO4 3.2V 3.2Ah (suits single LED)	
03-01303P	Battery LiFePO4 3.2V 4.5Ah (suits dual LED)	
Additional features		
Polycarbonate IP67 weatherproof enclosure		
Low maintenance - ideal for carparks		

Spitfire® LED
Accessories



Round trim stainless steel

Order code	Description
02-SF1LSSTRIM	Single LED round trim stainless steel
02-SF2LSSTRIM	Dual LED round trim stainless steel



Round trim black

Order code	Description
02-SF1LBLTRIM	Single LED round trim black
02-SF2LBLTRIM	Dual LED round trim black



Square trim stainless steel

Order code	Description
02-SF1LSQSSTRIM	Single LED with square adaptor trim stainless steel
02-SF2LSQSSTRIM	Dual LED with square adaptor trim stainless steel



Square trim black

Order code	Description
02-SF1LSQBLTRIM	Single LED with square adaptor trim black
02-SF2LSQBLTRIM	Dual LED with square adaptor trim black



White square adaptor

Order code	Description
02-SFLEDSQADAPT	White plastic square adaptor for LED Spitfire

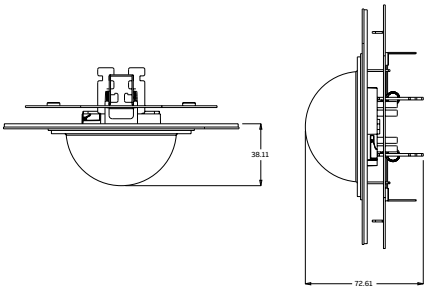


Black adaptor kit

Order code	Description
02-SFLEDLGBLKIT	Black adaptor kit

Vandal and weather resistant recessed Spitfire lamp head kit

Order code	Description
SFLEDVRWR-KIT	Vandal and weather resistant kit to suit the 60mm recessed lamp head



STOCK | INDENT

Notes



Exit signs

726	**e-Range**
728	**s-Range**
736	**p-Range**

For more detailed product information, please refer to the Stanilite website:

- www.stanilite.com.au

Exit LED

e-Range

Exit LED: e-Range product features

- 1 year warranty
- LED technology 75,000 hours lamp life
- High temperature NiCad batteries
- Large terminal block (16mm²) for easy wiring

Economy exit LED slide connect



Order code	Description	Mounting
Standard products		Wall/ceiling
EELED	LED economy pictograph exit	
Spare parts		
03-01219	Battery 3 cell NiCad 3.6V 1.6Ah	
Additional features		
Includes all pictograph diffuser options		
Unique slide connect bracket that provides strength and enables quick and easy maintenance		
Universal wall/ceiling mounting, can also be rod or wire suspended		

Economy exit LED one box – ceiling mount



Order code	Description	Mounting
Standard products		Ceiling
ECOLEDCM	Economy exit LED pictograph one box ceiling mount	
Spare parts		
03-01219	Battery 3 cell NiCad 3.6V 1.6Ah	
Accessories		
EEWGCM	Wire guard ceiling mount	
Additional features		
Designed for direct replacement of installed 10W economy exit EE110M and EE210S		
Retrofit capability; gear tray fits into existing 10W economy exit EE110M and EE210S base		
One box solution - includes diffuser and pictograph for single/double sided installation		

Economy exit LED one box – wall mount



Order code	Description	Mounting
Standard products		Wall
ECOLEDWM	Economy exit LED pictograph one box wall mount	
Spare parts		
03-01219	Battery 3 cell NiCad 3.6V 1.6Ah	
Accessories		
EEWGWM	Wire guard wall mount	
Additional features		
Designed for direct replacement of installed 10W economy exit EE110M and EE210S		
Retrofit capability: gear tray fits into existing 10W economy exit EE110M and EE210S base		
One box solution – includes diffuser and pictograph for single sided installation		

STOCK | INDENT



Exit LED Quickfit®

s-Range

Exit LED Quickfit®: s-Range product features

- 3 year warranty
- LED technology 100,000 hours lamp life
- High temperature NiCad batteries
- Quickfit® unique steel slide connect bracket for quick installation and easy maintenance
- 24m viewing distance

Signature exit LED Quickfit



Order code	Description	Mounting
Standard products		Wall/ceiling
PQFLEDS	Quickfit LED exit 100K pictograph	
Spare parts		
03-YPMA001	Battery 3 cell NiCad 3.6V 1.6Ah	
PQFLEDS-LB	Quickfit LED exit 100K pictograph less bracket	
PQFLEDS-FR	Quickfit LED exit 100K frame only	
Accessories		
MQFCL	Cantilever bracket	
QFWGCM	Wire guard - ceiling	
QFWGWM	Wire guard - wall	
Additional features		
Includes all pictograph diffuser options for single or double sided installation		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Signature exit LED Quickfit theatre mask



Order code	Description	Mounting
Standard products		Wall/ceiling
PQFBLED-1	LED Quickfit theatre mask single sided picto exit	
PQFBLED-2	LED Quickfit theatre mask single sided <picto exit	
PQFBLED-3	LED Quickfit theatre mask single sided picto> exit	
PQFBLED-5	LED Quickfit theatre mask double sided picto exit	
PQFBLED-6	LED Quickfit theatre mask double sided picto AOW exit	
Spare parts		
03-01218	Battery 4 cell NiCad 4.8V 1.8Ah	
PQFBLED-FR	LED Quickfit theatre mask exit frame only	
Additional features		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

STOCK | INDENT

Exit LED Quickfit®

s-Range | Nexus®

Exit LED Quickfit Nexus®: s-Range product features

- 3 year warranty
- LED technology 100,000 hours lamp life
- High temperature NiCad batteries
- Quickfit® unique steel slide connect bracket for quick installation and easy maintenance
- 24m viewing distance
- Nexus® monitored, either cabled or wireless

Signature exit LED Quickfit Nexus®



Order code	Description	Mounting
Nexus products		Wall/ceiling
PQFNXSLED	LED Quickfit Nexus LX pictograph exit	
PQFNRFLED	LED Quickfit Nexus RF pictograph exit	
Spare parts		
03-01218	Battery 4 cell NiCad 4.8V 1.8Ah	
PQFNXSLED-LB	LED Quickfit Nexus LX pictograph exit less bracket	
PQFNRFLED-LB	LED Quickfit Nexus RF pictograph exit less bracket	
PQFNXSLED-FR	LED Quickfit Nexus LX exit frame only	
PQFNRFLED-FR	LED Quickfit Nexus RF exit frame only	
Accessories		
MQFCL	Cantilever bracket	
QFWGCM	Wire guard - ceiling	
QFWGWM	Wire guard - wall	
Additional features		
Includes all pictograph diffuser options for single or double sided installation		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Signature exit LED Quickfit theatre mask Nexus®



Order code	Description	Mounting
Nexus products		Wall/ceiling
PQFBNXSLED-1	LED Quickfit Nexus LX theatre mask single sided picto exit	
PQFBNXSLED-2	LED Quickfit Nexus LX theatre mask single sided <picto exit	
PQFBNXSLED-3	LED Quickfit Nexus LX theatre mask single sided picto> exit	
PQFBNXSLED-5	LED Quickfit Nexus LX theatre mask double sided picto exit	
PQFBNXSLED-6	LED Quickfit Nexus LX theatre mask double sided picto AOW exit	
PQFBNRFLED-1	LED Quickfit Nexus RF theatre mask single sided picto exit	
PQFBNRFLED-2	LED Quickfit Nexus RF theatre mask single sided <picto exit	
PQFBNRFLED-3	LED Quickfit Nexus RF theatre mask single sided picto> exit	
PQFBNRFLED-5	LED Quickfit Nexus RF theatre mask double sided picto exit	
PQFBNRFLED-6	LED Quickfit Nexus RF theatre mask double sided picto AOW exit	
Spare parts		
03-01218	Battery 4 cell NiCad 4.8V 1.8Ah	
PQFBNXSLED-FR	LED Quickfit Nexus LX theatre mask exit frame only	
PQFBNRFLED-FR	LED Quickfit Nexus RF theatre mask exit frame only	
Additional features		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Exit LED Quickfit®

s-Range

Exit LED Quickfit®: s-Range product features

- 3 year warranty
- LED technology 100,000 hours lamp life
- High temperature NiCad batteries
- Quickfit® unique steel slide connect bracket for quick installation and easy maintenance
- 24m viewing distance

Signature exit LED Quickfit weatherproof



Order code	Description	Mounting
Standard products		Wall/ceiling
PWQFLEDP-1	LED Quickfit weatherproof SS polycarbonate picto exit	
PWQFLEDP-2	LED Quickfit weatherproof SS polycarbonate <picto exit	**IP rating**
PWQFLEDP-3	LED Quickfit weatherproof SS polycarbonate picto> exit	IP65
PWQFLEDP-5	LED Quickfit weatherproof DS polycarbonate picto exit	
PWQFLEDP-6	LED Quickfit weatherproof DS polycarbonate picto AOW exit	
PWQFLEDA-1	LED Quickfit weatherproof SS acrylic picto exit	
PWQFLEDA-2	LED Quickfit weatherproof SS acrylic <picto exit	
PWQFLEDA-3	LED Quickfit weatherproof SS acrylic picto> exit	
PWQFLEDA-5	LED Quickfit weatherproof DS acrylic picto exit	
PWQFLEDA-6	LED Quickfit weatherproof DS acrylic picto AOW exit	
Spare parts		
03-01218	Battery 4 cell NiCad 4.8V 1.8Ah	
PQFBLED-FR	LED Quickfit theatre mask exit frame only	
Accessories		
WQFCLH	Cantilever mounting bracket - heavy duty	
WQFCLL	Cantilever mounting bracket - light duty	
WQFWM	Wall mount bracket	
02-WQFEA	Weatherproof Quickfit acrylic diffuser	
02-WQFEP	Weatherproof Quickfit polycarbonate diffuser	
Additional features		
UV stabilised vandal resistant polycarbonate cover or high impact chemical resistant acrylic cover option		

Signature exit LED Quickfit® vandal resistant



Order code	Description	Mounting
Standard products		Wall/ceiling
VPQLED	LED Quickfit vandal resistant pictograph exit	
Spare parts		**Impact rating**
03-01218	Battery 4 cell NiCad 4.8V 1.8Ah	IK09
PQFLED-FR	LED Quickfit exit frame only	
Additional features		
Vermin resistance. Strong steel body and end cap. Anti-tamper cover screws.		
Includes all pictograph diffuser options for single or double sided installation.		

STOCK | INDENT

Exit LED Quickfit®

s-Range | Nexus®

Exit LED Quickfit Nexus®: s-Range product features

- 3 year warranty
- LED technology 100,000 hours lamp life
- High temperature NiCad batteries
- Quickfit® unique steel slide connect bracket for quick installation and easy maintenance
- 24m viewing distance
- Nexus® monitored, either cabled or wireless

Signature exit LED Quickfit weatherproof Nexus®



Order code	Description	Mounting
Nexus products		Wall/ceiling
PWQFNXSLEDP-1	LED Quickfit weatherproof Nexus LX SS polycarbonate picto exit	
PWQFNXSLEDP-2	LED Quickfit weatherproof Nexus LX SS polycarbonate <picto exit	**IP rating**
PWQFNXSLEDP-3	LED Quickfit weatherproof Nexus LX SS polycarbonate picto> exit	IP65
PWQFNXSLEDP-5	LED Quickfit weatherproof Nexus LX DS polycarbonate picto exit	
PWQFNXSLEDP-6	LED Quickfit weatherproof Nexus LX DS polycarbonate picto AOW exit	
PWQFNXSLEDA-1	LED Quickfit weatherproof Nexus LX SS acrylic picto exit	
PWQFNXSLEDA-2	LED Quickfit weatherproof Nexus LX SS acrylic <picto exit	
PWQFNXSLEDA-3	LED Quickfit weatherproof Nexus LX SS acrylic picto> exit	
PWQFNXSLEDA-5	LED Quickfit weatherproof Nexus LX DS acrylic picto exit	
PWQFNXSLEDA-6	LED Quickfit weatherproof Nexus LX DS acrylic picto AOW exit	
PWQFNRFLEDP-1	LED Quickfit weatherproof Nexus RF SS polycarbonate picto exit	
PWQFNRFLEDP-2	LED Quickfit weatherproof Nexus RF SS polycarbonate <picto exit	
PWQFNRFLEDP-3	LED Quickfit weatherproof Nexus RF SS polycarbonate picto> exit	
PWQFNRFLEDP-5	LED Quickfit weatherproof Nexus RF DS polycarbonate picto exit	
PWQFNRFLEDP-6	LED Quickfit weatherproof Nexus RF DS polycarbonate picto AOW exit	
PWQFNRFLEDA-1	LED Quickfit weatherproof Nexus RF SS acrylic picto exit	
PWQFNRFLEDA-2	LED Quickfit weatherproof Nexus RF SS acrylic <picto exit	
PWQFNRFLEDA-3	LED Quickfit weatherproof Nexus RF SS acrylic picto> exit	
PWQFNRFLEDA-5	LED Quickfit weatherproof Nexus RF DS acrylic picto exit	
PWQFNRFLEDA-6	LED Quickfit weatherproof Nexus RF DS acrylic picto AOW exit	
Spare parts		
03-01218	Battery 4 cell NiCad 4.8V 1.8Ah	
PQFBNXSLED-FR	LED Quickfit Nexus LX theatre mask exit frame only	
PQFBNRFLED-FR	LED Quickfit Nexus RF theatre mask exit frame only	
Accessories		
WQFCLH	Cantilever mounting bracket - heavy duty	
WQFCLL	Cantilever mounting bracket - light duty	
WQFWM	Wall mount bracket	
02-WQFEA	Weatherproof Quickfit acrylic diffuser	
02-WQFEP	Weatherproof Quickfit polycarbonate diffuser	
Additional features		
UV stabilised vandal resistant polycarbonate cover or high impact chemical resistant acrylic cover option		

Signature exit LED Quickfit® vandal resistant Nexus®



Order code	Description	Mounting
Nexus products		Wall/ceiling
VPQNXSLED	LED Quickfit vandal resistant Nexus LX pictograph exit	
VPQNRFLED	LED Quickfit vandal resistant Nexus RF pictograph exit	
Spare parts		**Impact rating**
03-01218	Battery 4 cell NiCad 4.8V 1.8Ah	IK09
PQFNXSLED-FR	LED Quickfit Nexus LX exit frame only	
PQFNRFLED-FR	LED Quickfit Nexus RF exit frame only	
Additional features		
Vermin resistance. Strong steel body and end cap. Anti-tamper cover screws.		
Includes all pictograph diffuser options for single or double sided installation.		

STOCK | INDENT

Exit LED edgelit

s-Range

Exit LED edgelit: s-Range product features

- 3 year warranty
- LED technology 100,000 hours lamp life
- High temperature NiMH batteries
- Includes all pictograph diffuser options
- 24m viewing distance

Signature exit LED edgelit Quickfit®



Order code	Description	Mounting
Standard products		Wall/ceiling
PLQLED	LED legend Quickfit pictograph exit	
Spare parts		
03-01213P	Battery 4 cell NiMH 4.8V 1.25Ah	
PLQLED-LB	LED Quickfit less bracket	
Additional features		
Quickfit® unique steel slide connect bracket for quick installation and easy maintenance		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Signature exit LED edgelit surface mount



Order code	Description	Mounting
Standard products		Surface
PLSLED	LED legend surface mount pictograph edgelight	
Spare parts		
03-01213P	Battery 4 cell NiMH 4.8V 1.25Ah	
Accessories		
PLSLEDCLKIT	Cantilever mounting kit	
PLSLEDWMKIT	Wall mounting kit	
Additional features		
One-box solution, overall light weight and snap n' clip mechanism allows for quick and easy installation		
Suitable for ceilings where a recessed fitting is not feasible		
Suspended, wall and cantilever mounting kit options available		

STOCK | INDENT

Exit LED edgelit

s-Range | Nexus®

Exit LED edgelit Nexus®: s-Range product features

- 3 year warranty
- LED technology 100,000 hours lamp life
- High temperature NiMH batteries
- Includes all pictograph diffuser options
- 24m viewing distance
- Nexus® monitored, either cabled or wireless

Signature exit LED edgelit Quickfit® Nexus®



Order code	Description	Mounting
Nexus products		Wall/ceiling
PLQNXSLED	LED legend Quickfit Nexus LX pictograph exit	
PLQNRFLED	LED legend Quickfit Nexus RF pictograph exit	
Spare parts		
03-01213P	Battery 4 cell NiMH 4.8V 1.25Ah	
PLQNXSLED-LB	LED Quickfit Nexus LX less bracket	
PLQNRFLED-LB	LED Quickfit Nexus RF less bracket	
Additional features		
Quickfit® unique steel slide connect bracket for quick installation and easy maintenance		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Signature exit LED edgelit surface mount Nexus®



Order code	Description	Mounting
Nexus products		Surface
PLSNXSLED	LED legend surface mount Nexus LX pictograph edgelight	
PLSNRFLED	LED legend surface mount Nexus RF pictograph edgelight	
Spare parts		
03-01213P	Battery 4 cell NiMH 4.8V 1.25Ah	
Accessories		
PLSLEDCLKIT	Cantilever mounting kit	
PLSLEDWMKIT	Wall mounting kit	
Additional features		
One-box solution, overall light weight and snap n' clip mechanism allows for quick and easy installation		
Suitable for ceilings where a recessed fitting is not feasible		
Suspended, wall and cantilever mounting kit options available		

Exit LED edgelit

s-Range

Exit LED edgelit: s-Range product features

- 3 year warranty
- LED technology 100,000 hours lamp life
- High temperature NiMH batteries
- 2m flex and plug included
- 24m viewing distance

Signature exit LED edgelit recessed



Order code	Description	Mounting
Standard products		Recessed ceiling
PLRLED	LED legend recessed pictograph edgelight	
Spare parts		
03-01213P	Battery 4 cell NiMH 4.8V 1.25Ah	
PLRLEDADAPTOR	LED legend recessed diffuser	
Additional features		
One-box solution, overall light weight and snap n' clip mechanism allows for quick and easy installation		
Suits ceiling thickness 1mm-19mm		
Includes all pictograph diffuser options		

Signature exit LED edgelit recessed, original style square diffuser



Order code	Description	Mounting
Standard products		Surface ceiling
PLROLED	LED legend recessed pictograph exit, original style square diffuser	
Spare parts		
03-01213P	Battery 4 cell NiMH 4.8V 1.25Ah	
Accessories		
31-PL1	Diffuser single sided picto	
31-PL2	Diffuser single sided <picto	
31-PL3	Diffuser single sided picto>	
31-PL5	Diffuser double sided picto	
31-PL6	Diffuser double sided picto AOW	
Additional features		
All pictograph diffuser options available (order separately)		

Please note that the diffuser needs to be ordered separately.

STOCK | INDENT

Exit LED edgelit

s-Range | Nexus®

Exit LED edgelit Nexus®: s-Range product features

- 3 year warranty
- LED technology 100,000 hours lamp life
- High temperature NiMH batteries
- 2m flex and plug included
- 24m viewing distance
- Nexus® monitored, either cabled or wireless

Signature exit LED edgelit recessed Nexus®



Order code	Description	Mounting
Nexus products		Recessed ceiling
PLRNXSLED	LED legend recessed Nexus LX pictograph edgelight	
PLRNRFLED	LED legend recessed Nexus RF pictograph edgelight	
Spare parts		
03-01213P	Battery 4 cell NiMH 4.8V 1.25Ah	
PLRLEDADAPTOR	LED legend recessed diffuser	
Additional features		
One-box solution, overall light weight and snap n' clip mechanism allows for quick and easy installation		
Suits ceiling thickness 1mm-19mm		
Includes all pictograph diffuser options		

Signature exit LED edgelit recessed Nexus®, original style square diffuser



Order code	Description	Mounting
Nexus products		Surface ceiling
PLRONXSLED	LED legend recessed Nexus LX pictograph exit, original style square diffuser	
PLRONRFLED	LED legend recessed Nexus RF pictograph exit, original style square diffuser	
Spare parts		
03-01213P	Battery 4 cell NiMH 4.8V 1.25Ah	
Accessories		
31-PL1	Diffuser single sided picto	
31-PL2	Diffuser single sided <picto	
31-PL3	Diffuser single sided picto>	
31-PL5	Diffuser double sided picto	
31-PL6	Diffuser double sided picto AOW	
Additional features		
All pictograph diffuser options available (order separately)		

Please note that the diffuser needs to be ordered separately.

STOCK | INDENT

Exit LED Quickfit®

p-Range

Exit LED Quickfit®: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- Quickfit® unique steel slide connect bracket for quick installation and easy maintenance
- 24m viewing distance

Platinum exit LED Quickfit



Order code	Description	Mounting
Standard products		Wall/ceiling
PQFLEDP	LED platinum Quickfit pictograph exit	
Spare parts		
03-01302P	Battery LiFePO4 3.2V 3.2Ah	
PQFLEDP-LB	LED platinum Quickfit pictograph exit less bracket	
PQFLEDP-FR	LED platinum Quickfit exit frame only	
Additional features		
Includes all pictograph diffuser options for single or double sided installation		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Platinum exit LED Quickfit theatre mask



Order code	Description	Mounting
Standard products		Wall/ceiling
PQFBLEDP-1	LED platinum Quickfit theatre mask single sided picto exit	
PQFBLEDP-2	LED platinum Quickfit theatre mask single sided <picto exit	
PQFBLEDP-3	LED platinum Quickfit theatre mask single sided picto> exit	
PQFBLEDP-5	LED platinum Quickfit theatre mask double sided picto exit	
PQFBLEDP-6	LED platinum Quickfit theatre mask double sided picto AOW exit	
PQFBLEDP-FR	LED platinum Quickfit theatre mask exit frame only	
Spare parts		
03-01302P	Battery LiFePO4 3.2V 3.2Ah	
Additional features		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Accessories

Order code	
MQFCL	Cantilever bracket
QFWGCM	Wire guard - ceiling
QFWGWM	Wire guard - wall

STOCK | INDENT

Exit LED Quickfit®

p-Range | Nexus®

Exit LED Quickfit Nexus®: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- Quickfit® unique steel slide connect bracket for quick installation and easy maintenance
- 24m viewing distance
- Nexus® monitored, either cabled or wireless

Platinum exit LED Quickfit Nexus®



Order code	Description	Mounting
Nexus products		Wall/ceiling
PQFNXSLEDP	LED platinum Quickfit Nexus LX pictograph exit	
PQFNRFLEDP	LED platinum Quickfit Nexus RF pictograph exit	
Spare parts		
03-01302P	Battery LiFePO4 3.2V 3.2Ah	
PQFNXSLEDP-LB	LED platinum Quickfit Nexus LX pictograph exit less bracket	
PQFNRFLEDP-LB	LED platinum Quickfit Nexus RF pictograph exit less bracket	
PQFNXSLEDP-FR	LED platinum Quickfit Nexus LX exit frame only	
PQFNRFLEDP-FR	LED platinum Quickfit Nexus RF exit frame only	
Additional features		
Includes all pictograph diffuser options for single or double sided installation		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Platinum exit LED Quickfit theatre mask Nexus®



Order code	Description	Mounting
Nexus products		Wall/ceiling
PQFBNXSLEDP-1	LED platinum Quickfit Nexus LX theatre mask single sided picto exit	
PQFBNXSLEDP-2	LED platinum Quickfit Nexus LX theatre mask single sided <picto exit	
PQFBNXSLEDP-3	LED platinum Quickfit Nexus LX theatre mask single sided picto> exit	
PQFBNXSLEDP-5	LED platinum Quickfit Nexus LX theatre mask double sided picto exit	
PQFBNXSLEDP-6	LED platinum Quickfit Nexus LX theatre mask double sided picto AOW exit	
PQFBNRFLEDP-1	LED platinum Quickfit Nexus RF theatre mask single sided picto exit	
PQFBNRFLEDP-2	LED platinum Quickfit Nexus RF theatre mask single sided <picto exit	
PQFBNRFLEDP-3	LED platinum Quickfit Nexus RF theatre mask single sided picto> exit	
PQFBNRFLEDP-5	LED platinum Quickfit Nexus RF theatre mask double sided picto exit	
PQFBNRFLEDP-6	LED platinum Quickfit Nexus RF theatre mask double sided picto AOW exit	
Spare parts		
03-01302P	Battery LiFePO4 3.2V 3.2Ah	
PQFBNXSLEDP-FR	LED platinum Quickfit Nexus LX theatre exit frame only	
PQFBNRFLEDP-FR	LED platinum Quickfit Nexus RF theatre exit frame only	
Additional features		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Accessories

Order code	
MQFCL	Cantilever bracket
QFWGCM	Wire guard - ceiling
QFWGWM	Wire guard - wall

STOCK | INDENT

Exit LED Quickfit®

p-Range

Exit LED Quickfit®: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- Unique internal steel slide connect bracket for quick installation and easy maintenance
- 24m viewing distance

Platinum exit LED Quickfit vandal resistant



Order code	Description	Mounting
Standard products	LED platinum Quickfit vandal resistant pictograph exit	Wall/ceiling
VPQLEDP		
Spare parts		**Impact rating**
03-01302P	Battery LiFePO4 3.2V 3.2Ah	IK09
PQFLEDP-FR	LED platinum Quickfit exit frame only	
Additional features		
Vermin resistance. Strong steel body and end cap. Anti-tamper cover screws.		
Includes all pictograph diffuser options for single or double sided installation.		

STOCK | INDENT

Exit LED Quickfit®

p-Range | Nexus®

Exit LED Quickfit Nexus®: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- Unique internal steel slide connect bracket for quick installation and easy maintenance
- 24m viewing distance
- Nexus® monitored, either cabled or wireless

Platinum exit LED Quickfit® vandal resistant Nexus®



Order code	Description	Mounting
Nexus products		Wall/ceiling
VPQNXSLEDP	LED platinum Quickfit vandal resistant Nexus LX pictograph exit	
VPQNRFLEDP	LED platinum Quickfit vandal resistant Nexus RF pictograph exit	
Spare parts		**Impact rating**
03-01302P	Battery LiFePO4 3.2V 3.2Ah	IK09
PQFNXSLEDP-FR	LED platinum Quickfit Nexus LX exit frame only	
PQFNRFLEDP-FR	LED platinum Quickfit Nexus RF exit frame only	
Additional features		
Vermin resistance. Strong steel body and end cap. Anti-tamper cover screws.		
Includes all pictograph diffuser options for single or double sided installation.		

STOCK | INDENT

Exit jumbo LED

p-Range

Exit jumbo LED: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Advance charging technology combined with Lithium iron phosphate battery for long life and low maintenance
- 40m viewing distance
- 36m viewing distance for weatherproof exit

Platinum exit jumbo LED



Order code	Description	Mounting
Standard products		Wall/ceiling
PEJLEMWM-1	Platinum exit jumbo LED emergency wall mount single sided picto	
PEJLEMWM-2	Platinum exit jumbo LED emergency wall mount single sided <picto	
PEJLEMWM-3	Platinum exit jumbo LED emergency wall mount single sided picto>	
PEJLEMCM-1	Platinum exit jumbo LED emergency ceiling mount single sided picto	
PEJLEMCM-2	Platinum exit jumbo LED emergency ceiling mount single sided <picto	
PEJLEMCM-3	Platinum exit jumbo LED emergency ceiling mount single sided picto>	
PEJLEMCM-5	Platinum exit jumbo LED emergency ceiling mount double sided picto	
PEJLEMCM-6	Platinum exit jumbo LED emergency ceiling mount double sided picto AOW	
Spare parts		
03-01307P	Battery LiFePO4 6.4V 3.2Ah	
Additional features		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Large terminal block (16mm^2) for easy wiring		
Available in all pictograph diffuser options		

Platinum exit jumbo LED weatherproof



Order code	Description	Mounting
Standard products		Surface
PEJLWEM-1	Platinum exit jumbo LED weatherproof emergency picto	
PEJLWEM-2	Platinum exit jumbo LED weatherproof emergency <picto	**IP rating**
PEJLWEM-3	Platinum exit jumbo LED weatherproof emergency picto>	IP65
Spare parts		
03-01307P	Battery LiFePO4 6.4V 3.2Ah	
Additional features		
UV stabilised vandal resistant (IK08) polycarbonate cover		
Removable gear tray for easy installation and maintenance		

STOCK | INDENT

Exit jumbo LED

p-Range | Nexus®

Exit jumbo LED Nexus®: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Advance charging technology combined with Lithium iron phosphate battery for long life and low maintenance
- 40m viewing distance
- 36m viewing distance for weatherproof exit
- Nexus® monitored, either cabled or wireless

Platinum exit jumbo LED Nexus®



Order code	Description	Mounting
Nexus products		Wall/ceiling
PEJLLXWM-1	Platinum exit jumbo LED Nexus LX wall mount single sided picto	
PEJLLXWM-2	Platinum exit jumbo LED Nexus LX wall mount single sided <picto	
PEJLLXWM-3	Platinum exit jumbo LED Nexus LX wall mount single sided picto>	
PEJLLXCM-1	Platinum exit jumbo LED Nexus LX ceiling mount single sided picto	
PEJLLXCM-2	Platinum exit jumbo LED Nexus LX ceiling mount single sided <picto	
PEJLLXCM-3	Platinum exit jumbo LED Nexus LX ceiling mount single sided picto>	
PEJLLXCM-5	Platinum exit jumbo LED Nexus LX ceiling mount double sided picto	
PEJLLXCM-6	Platinum exit jumbo LED Nexus LX ceiling mount double sided picto AOW	
PEJLRFWM-1	Platinum exit jumbo LED Nexus RF wall mount single sided picto	
PEJLRFWM-2	Platinum exit jumbo LED Nexus RF wall mount single sided <picto	
PEJLRFWM-3	Platinum exit jumbo LED Nexus RF wall mount single sided picto>	
PEJLRFCM-1	Platinum exit jumbo LED Nexus RF ceiling mount single sided picto	
PEJLRFCM-2	Platinum exit jumbo LED Nexus RF ceiling mount single sided <picto	
PEJLRFCM-3	Platinum exit jumbo LED Nexus RF ceiling mount single sided picto>	
PEJLRFCM-5	Platinum exit jumbo LED Nexus RF ceiling mount double sided picto	
PEJLRFCM-6	Platinum exit jumbo LED Nexus RF ceiling mount double sided picto AOW	
Spare parts		
03-01307P	Battery LiFePO4 6.4V 3.2Ah	
Additional features		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Large terminal block (16mm²) for easy wiring		
Available in all pictograph diffuser options		

Platinum exit jumbo LED weatherproof



Order code	Description	Mounting
Nexus products		Surface
PEJLWLX-1	Platinum exit jumbo LED weatherproof Nexus LX picto	
PEJLWLX-2	Platinum exit jumbo LED weatherproof Nexus LX <picto	**IP rating**
PEJLWLX-3	Platinum exit jumbo LED weatherproof Nexus LX picto>	IP65
PEJLWRF-1	Platinum exit jumbo LED weatherproof Nexus RF picto	
PEJLWRF-2	Platinum exit jumbo LED weatherproof Nexus RF <picto	
PEJLWRF-3	Platinum exit jumbo LED weatherproof Nexus RF picto>	
Spare parts		
03-01307P	Battery LiFePO4 6.4V 3.2Ah	
Additional features		
UV stabilised vandal resistant (IK08) polycarbonate cover		
Removable gear tray for easy installation and maintenance		

STOCK | INDENT

Exit LED weatherproof

p-Range

Exit LED weatherproof: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- IP65 weatherproof enclosure
- 24m viewing distance

Platinum exit LED weatherproof



Order code	Description	Mounting
Standard products		Surface
PWEXLEDP-1	LED platinum weatherproof picto exit	
PWEXLEDP-2	LED platinum weatherproof <picto exit	**IP rating**
PWEXLEDP-3	LED platinum weatherproof picto> exit	IP65
Spare parts		
03-01301P	Battery LiFePO4 3.2V 3.2Ah	
Additional features		
UV stabilised vandal resistant (IK08) polycarbonate cover		
Removable gear tray for easy installation and maintenance		

STOCK | INDENT

Exit LED weatherproof

p-Range | Nexus®

Exit LED weatherproof Nexus®: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- IP65 weatherproof enclosure
- 24m viewing distance
- Nexus® monitored, either cabled or wireless

Platinum exit LED weatherproof Nexus®



Order code	Description	Mounting
Nexus products		Surface
PWEXNXSLEDP-1	LED platinum weatherproof Nexus LX picto exit	
PWEXNXSLEDP-2	LED platinum weatherproof Nexus LX <picto exit	**IP rating**
PWEXNXSLEDP-3	LED platinum weatherproof Nexus LX picto> exit	IP65
PWEXNRFLEDP-1	LED platinum weatherproof Nexus RF picto exit	
PWEXNRFLEDP-2	LED platinum weatherproof Nexus RF <picto exit	
PWEXNRFLEDP-3	LED platinum weatherproof Nexus RF picto> exit	
Spare parts		
03-01301P	Battery LiFePO4 3.2V 3.2Ah	
Additional features		
UV stabilised vandal resistant (IK08) polycarbonate cover		
Removable gear tray for easy installation and maintenance		

Exit LED edgelit

p-Range

Exit LED edgelit: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- Includes all pictograph diffuser options
- 24m viewing distance

Platinum exit LED edgelit Quickfit®



Order code	Description	Mounting
Standard products		Wall/ceiling
PLQLEDP	LED platinum legend Quickfit pictograph exit	
Spare parts		
03-01305P	Battery LiFePO4 3.2V 1.5Ah	
Additional features		
Quickfit® unique steel slide connect bracket for quick installation and easy maintenance		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Platinum exit LED edgelit surface mount



Order code	Description	Mounting
Standard products		Surface
PLSLEDP	LED platinum legend surface mount pictograph edgelight	
Spare parts		
03-01304P	Battery LiFePO4 3.2V 1.5Ah	
Accessories		
PLSLEDCLKIT	Cantilever mounting kit	
PLSLEDWMKIT	Wall mounting kit	
Additional features		
One-box solution, overall light weight and snap n' clip mechanism allows for quick and easy installation		
Suitable for ceilings where a recessed fitting is not feasible		
Wall and cantilever mounting kit options available		

STOCK | INDENT

Exit LED edgelit

p-Range | Nexus®

Exit LED edgelit Nexus®: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- Includes all pictograph diffuser options
- 24m viewing distance
- Nexus® monitored, either cabled or wireless

Platinum exit LED edgelit Quickfit® Nexus®



Order code	Description	Mounting
Nexus products		Wall/ceiling
PLQNXSLEDP	LED platinum legend Quickfit Nexus LX pictograph exit	
PLQNRFLEDP	LED platinum legend Quickfit Nexus RF pictograph exit	
Spare parts		
03-01305P	Battery LiFePO4 3.2V 1.5Ah	
Additional features		
Quickfit® unique steel slide connect bracket for quick installation and easy maintenance		
Exit can also be suspended via jack chain, rod and lanyard (not supplied) if required		
Retrofit capability: fits into any existing Quickfit mounting bracket		

Platinum exit LED edgelit surface mount Nexus®



Order code	Description	Mounting
Nexus products		Surface
PLSNXSLEDP	LED platinum legend surface mount Nexus LX pictograph edgelight	
PLSNRFLEDP	LED platinum legend surface mount Nexus RF pictograph edgelight	
Spare parts		
03-01304P	Battery LiFePO4 3.2V 1.5Ah	
Accessories		
PLSLEDCLKIT	Cantilever mounting kit	
PLSLEDWMKIT	Wall mounting kit	
Additional features		
One-box solution, overall light weight and snap n' clip mechanism allows for quick and easy installation		
Suitable for ceilings where a recessed fitting is not feasible		
Wall and cantilever mounting kit options available		

Exit LED edgelit

p-Range

Exit LED edgelit: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- 2m flex and plug included
- 24m viewing distance

Platinum exit LED edgelit recessed



Order code	Description	Mounting
Standard products		Recessed ceiling
PLRLEDP	LED platinum legend recessed pictograph edgelight	
Spare parts		
03-01304P	Battery LiFePO4 3.2V 1.5Ah	
Accessories		
PLRLEDADAPTOR	Cover plate for retrofitting	
Additional features		
One-box solution, overall light weight and snap n' clip mechanism allows for quick and easy installation		
Suits ceiling thickness 1mm-19mm		
Includes all pictograph diffuser options		

Platinum exit LED edgelit recessed, original style square diffuser



Order code	Description	Mounting
Standard products		Surface ceiling
PLROLEDP	LED platinum legend recessed pictograph exit, original style square diffuser	
Spare parts		
03-01304P	Battery LiFePO4 3.2V 1.5Ah	
Accessories		
31-PL1	Diffuser single sided picto	
31-PL2	Diffuser single sided <picto	
31-PL3	Diffuser single sided picto>	
31-PL5	Diffuser double sided picto	
31-PL6	Diffuser double sided picto AOW	
Additional features		
All pictograph diffuser options available (order separately)		

Please note that the diffuser needs to be ordered separately.

STOCK | INDENT

Exit LED edgelit

p-Range | Nexus®

Exit LED edgelit Nexus®: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- 2m flex and plug included
- 24m viewing distance
- Nexus® monitored, either cabled or wireless

Platinum exit LED edgelit recessed Nexus®



Order code	Description	Mounting
Nexus products		Recessed ceiling
PLRNXSLEDP	LED platinum legend recessed Nexus LX pictograph edgelight	
PLRNRFLEDP	LED platinum legend recessed Nexus RF pictograph edgelight	
Spare parts		
03-01304P	Cover plate for retrofitting	
Accessories		
PLRLEDADAPTOR	Cover plate for retrofitting	
Additional features		
One-box solution, overall light weight and snap n' clip mechanism allows for quick and easy installation		
Suits ceiling thickness 1mm-19mm		
Includes all pictograph diffuser options		

Platinum exit LED edgelit recessed Nexus®, original style square diffuser



Order code	Description	Mounting
Nexus products		Surface ceiling
PLRONXSLEDP	LED platinum legend recessed Nexus LX pictograph exit, original style square diffuser	
PLRONRFLEDP	LED platinum legend recessed Nexus RF pictograph exit, original style square diffuser	
Spare parts		
03-01304P	Battery LiFePO4 3.2V 1.5Ah	
Accessories		
31-PL1	Diffuser single sided picto	
31-PL2	Diffuser single sided <picto	
31-PL3	Diffuser single sided picto>	
31-PL5	Diffuser double sided picto	
31-PL6	Diffuser double sided picto AOW	
Additional features		
All pictograph diffuser options available (order separately)		

Please note that the diffuser needs to be ordered separately.

Exit LED evago

p-Range

Exit LED evago: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- 24m viewing distance
- 0.5m and 1m rod suspension kit available as a standard option
- 1.5m and 3m wire suspension kit available as a standard option

Platinum exit LED evago ceiling mount



Order code	Description	Mounting
Standard products		Ceiling mount
PELEVEMSCM-1	Platinum exit LED evago ceiling mount single sided picto	
PELEVEMSCM-2	Platinum exit LED evago ceiling mount single sided <picto	
PELEVEMSCM-3	Platinum exit LED evago ceiling mount single sided picto>	
PELEVEMSCM-5	Platinum exit LED evago ceiling mount double sided picto	
PELEVEMSCM-6	Platinum exit LED evago ceiling mount double sided picto AOW	
Spare parts		
03-YPMA011	Battery LiFePO4 3.2V 1.14Ah	
Additional features		
Architecturally pleasing frameless slim line design		
First-fix plate for quick and easy installation and maintenance		

Platinum exit LED evago theatre mask ceiling mount



Order code	Description	Mounting
Standard products		Ceiling mount
PELEVBEMSCM-1	Platinum exit LED evago theatre mask ceiling mount single sided picto	
PELEVBEMSCM-2	Platinum exit LED evago theatre mask ceiling mount single sided <picto	
PELEVBEMSCM-3	Platinum exit LED evago theatre mask ceiling mount single sided picto>	
PELEVBEMSCM-5	Platinum exit LED evago theatre mask ceiling mount double sided picto	
PELEVBEMSCM-6	Platinum exit LED evago theatre mask ceiling mount double sided picto AOW	
Spare parts		
03-YPMA011	Battery LiFePO4 3.2V 1.14Ah	
Additional features		
Architecturally pleasing frameless slim line design		
First-fix plate for quick and easy installation and maintenance		

Accessories

Order code	
EVRSK50CM	Evago rod suspension kit 50cm
EVRSK100CM	Evago rod suspension kit 100cm
EVWSK150CM	Evago wire suspension kit 150cm
EVWSK300CM	Evago wire suspension kit 300cm



Evago rod/wire suspension kits available separately, see accessories

STOCK | INDENT

Exit LED evago

p-Range | Nexus®

Exit LED evago Nexus®: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- 24m viewing distance
- 0.5m and 1m rod suspension kit available as a standard option
- 1.5m and 3m wire suspension kit available as a standard option
- Nexus® monitored, either cabled or wireless

Platinum exit LED evago ceiling mount



Order code	Description	Mounting
Nexus products		Ceiling mount
PELEVRFSCM-1	Platinum exit LED evago Nexus RF ceiling mount single sided picto	
PELEVRFSCM-2	Platinum exit LED evago Nexus RF ceiling mount single sided <picto	
PELEVRFSCM-3	Platinum exit LED evago Nexus RF ceiling mount single sided picto>	
PELEVRFSCM-5	Platinum exit LED evago Nexus RF ceiling mount double sided picto	
PELEVRFSCM-6	Platinum exit LED evago Nexus RF ceiling mount double sided picto AOW	
Spare parts		
03-YPMA011	Battery LiFePO4 3.2V 1.14Ah	
Additional features		
Architecturally pleasing frameless slim line design		
First-fix plate for quick and easy installation and maintenance		

Platinum exit LED evago theatre mask ceiling mount



Order code	Description	Mounting
Nexus products		Ceiling mount
PELEVBRFSCM-1	Platinum exit LED evago theatre mask Nexus RF ceiling mount single sided picto	
PELEVBRFSCM-2	Platinum exit LED evago theatre mask Nexus RF ceiling mount single sided <picto	
PELEVBRFSCM-3	Platinum exit LED evago theatre mask Nexus RF ceiling mount single sided picto>	
PELEVBRFSCM-5	Platinum exit LED evago theatre maskNexus RF ceiling mount double sided picto	
PELEVBRFSCM-6	Platinum exit LED evago theatre mask Nexus RF ceiling mount double sided picto AOW	
Spare parts		
03-YPMA011	Battery LiFePO4 3.2V 1.14Ah	
Additional features		
Architecturally pleasing frameless slim line design		
First-fix plate for quick and easy installation and maintenance		

Accessories

Order code	
EVRSK50CM	Evago rod suspension kit 50cm
EVRSK100CM	Evago rod suspension kit 100cm
EVWSK150CM	Evago wire suspension kit 150cm
EVWSK300CM	Evago wire suspension kit 300cm



Evago rod/wire suspension kits available separately, see accessories

STOCK | INDENT

Exit LED evago

p-Range

Exit LED evago: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- 24m viewing distance

Platinum exit LED evago wall mount



Order code	Description	Mounting
Standard products		Wall mount
PELEVEMSWM-1	Platinum exit LED evago wall mount single sided picto	
PELEVEMSWM-2	Platinum exit LED evago wall mount single sided <picto	
PELEVEMSWM-3	Platinum exit LED evago wall mount single sided picto>	
Spare parts		
03-YPMA011	Battery LiFePO4 3.2V 1.14Ah	
Additional features		
Architecturally pleasing frameless slim line design		
First-fix plate for quick and easy installation and maintenance		

Platinum exit LED evago theatre mask wall mount



Order code	Description	Mounting
Standard products		Wall mount
PELEVBEMSWM-1	Platinum exit LED evago theatre mask wall mount single sided picto	
PELEVBEMSWM-2	Platinum exit LED evago theatre mask wall mount single sided <picto	
PELEVBEMSWM-3	Platinum exit LED evago theatre mask wall mount single sided picto>	
Spare parts		
03-YPMA011	Battery LiFePO4 3.2V 1.14Ah	
Additional features		
Architecturally pleasing frameless slim line design		
First-fix plate for quick and easy installation and maintenance		

STOCK | INDENT

Exit LED evago

p-Range | Nexus®

Exit LED evago Nexus®: p-Range product features

- 5 year warranty
- LED technology 100,000 hours plus lamp life
- Lithium iron phosphate battery
- 24m viewing distance
- Nexus® monitored, either cabled or wireless

Platinum exit LED evago wall mount



Order code	Description	Mounting
Nexus products		Wall mount
PELEVRFSWM-1	Platinum exit LED evago Nexus RF wall mount single sided picto	
PELEVRFSWM-2	Platinum exit LED evago Nexus RF wall mount single sided <picto	
PELEVRFSWM-3	Platinum exit LED evago Nexus RF wall mount single sided picto>	
Spare parts		
03-YPMA011	Battery LiFePO4 3.2V 1.14Ah	
Additional features		
Architecturally pleasing frameless slim line design		
First-fix plate for quick and easy installation and maintenance		

Platinum exit LED evago theatre mask wall mount



Order code	Description	Mounting
Nexus products		Wall mount
PELEVBRFSWM-1	Platinum exit LED evago theatre mask Nexus RF wall mount single sided picto	
PELEVBRFSWM-2	Platinum exit LED evago theatre mask Nexus RF wall mount single sided <picto	
PELEVBRFSWM-3	Platinum exit LED evago theatre mask Nexus RF wall mount single sided picto>	
Spare parts		
03-YPMA011	Battery LiFePO4 3.2V 1.14Ah	
Additional features		
Architecturally pleasing frameless slim line design		
First-fix plate for quick and easy installation and maintenance		



Battens

754	**e-Range**
756	**s-Range**
758	**p-Range**



For more detailed product information, please refer to the Stanilite website:

- www.stanilite.com.au

Battens

e-Range

Economy batten standard emergency

- 1 year warranty
- Electronic control gear
- HPF - high power factor
- High temperature NiCad batteries
- Optional acrylic prismatic diffuser or white galvanised steel wire guard
- Ambient operating temperature: +10°C to +40°C

Economy batten standard emergency



Order code	Description
Standard products	
ECBT118M	Economy batten 1x18W T8 maintained
ECBT118N	Economy batten 1x18W T8 non-maintained
ECBT218M	Economy batten 2x18W T8 maintained
ECBT218S	Economy batten 2x18W T8 sustained
ECBT136M	Economy batten 1x36W T8 maintained
ECBT136N	Economy batten 1x36W T8 non-maintained
ECBT236M	Economy batten 2x36W T8 maintained
ECBT236S	Economy batten 2x36W T8 sustained
Spare parts	
03-01215P	Battery 3 cell NiCad 3.6V 4.0Ah (suits 18W)
03-01216P	Battery 4 cell NiCad 4.8V 4.0Ah (suits 36W)
Accessories	
PR18	Diffuser kit to suit 18W battens
PR136	Diffuser kit to suit 1x36W battens
PR236	Diffuser kit to suit 2x36W battens
WG18	Wire guard kit to suit 18W battens
WG136	Wire guard kit to suit 1x36W battens
WG236	Wire guard kit to suit 2x36W battens

Note: Lamps not supplied

STOCK | INDENT



Battens

s-Range

Battens – s-Range product features

- 3 year warranty
- Weatherproof rating IP65
- Long LED life 75,000 hours
- High temperature NiCad battery for longer life
- High colour rendering index CRI>80
- High efficiency frosted polycarbonate diffuser
- Motion detect option available

Signature batten LED weatherproof – 4 foot



Order code	Description	Colour temp
Standard products		4,000K
SBLWAC45L	Batten LED weatherproof AC 4500 lumens	
SBLWAC45LMD	Batten LED weatherproof AC 4500 lumens with motion detect sensor	**Impact rating**
SBLWEM45LM	Batten LED weatherproof EM 4500 lumens maintained	IK08
SBLWEM45LMMD	Batten LED weatherproof EM 4500 lumens maintained with motion detect sensor	
Spare parts		
03-01016P	Battery 3 cell NiCad 3.6V 4.5Ah	
Additional features		
Typically 4,500 lumens on mains AC operation, 350 lumens in emergency operation		
Ambient operating temperature: AC -20°C to +40°C and EM +4°C to +40°C		

Signature batten LED weatherproof - 5 foot



Order code	Description	Colour temp
Standard products		4,000K
SBLWAC56L	Batten LED weatherproof AC 5600 lumens	
SBLWAC56LMD	Batten LED weatherproof AC 5600 lumens with motion detect sensor	**Impact rating**
SBLWEM56LM	Batten LED weatherproof EM 5600 lumens maintained	IK08
SBLWEM56LMMD	Batten LED weatherproof EM 5600 lumens maintained with motion detect sensor	
Spare parts		
03-01016P	Battery 3 cell NiCad 3.6V 4.5Ah	
Additional features		
Ambient operating temperature: AC -20°C to +40°C and EM +4°C to +40°C		

Accessories

Order code	
26-SSCSBLW	Stainless steel clips
26-SSSCSBLW	Stainless steel suspension clip
21-PCCSBLW	Polycarbonate clips
26-PBMD001	Wall mount bracket pair 45°

STOCK | INDENT

Battens

s-Range | Nexus®

Battens – s-Range product features

- 3 year warranty
- Weatherproof rating IP65
- Long LED life 75,000 hours
- High temperature NiCad battery for longer life
- High colour rendering index CRI>80
- High efficiency frosted polycarbonate diffuser
- Motion detect option available
- Nexus® monitored, either cabled or wireless

Signature batten LED weatherproof Nexus® – 4 foot



Order code	Description	Colour temp
Nexus products		4,000K
SBLWLX45LM	Batten LED weatherproof Nexus LX 4500 lumens maintained	
SBLWLX45LMMD	Batten LED weatherproof Nexus LX 4500 lumens maintained with motion detect sensor	**Impact rating**
SBLWRF45LM	Batten LED weatherproof Nexus RF 4500 lumens maintained	IK08
SBLWRF45LMMD	Batten LED weatherproof Nexus RF 4500 lumens maintained with motion detect sensor	
Spare parts		
03-CBMA035P	Battery 4 cell NiCad 4.8V 4.5Ah	
Additional features		
Typically 4,500 lumens on mains AC operation, 620 lumens in emergency operation		
Ambient operating temperature: +4°C to +40°C		

Signature batten LED weatherproof Nexus - 5 foot



Order code	Description	Colour temp
Nexus products		4,000K
SBLWLX56LM	Batten LED weatherproof Nexus LX 5600 lumens maintained	
SBLWLX56LMMD	Batten LED weatherproof Nexus LX 5600 lumens maintained with motion detect sensor	**Impact rating**
SBLWRF56LM	Batten LED weatherproof Nexus RF 5600 lumens maintained	IK08
SBLWRF56LMMD	Batten LED weatherproof Nexus RF 5600 lumens maintained	
Spare parts		
03-CBMA035P	Battery 4 cell NiCad 4.8V 4.5Ah	
Additional features		
Ambient operating temperature: AC -20°C to +40°C and EM +4°C to +40°C		

Accessories

Order code	
26-SSCSBLW	Stainless steel clips
26-SSSCSBLW	Stainless steel suspension clip
21-PCCSBLW	Polycarbonate clips
26-PBMD001	Wall mount bracket pair 45°

STOCK | INDENT

Battens

p-Range

Battens – p-Range product features

- 5 year warranty
- Weatherproof rating IP65
- Long LED life 75,000 hours
- Lithium iron phosphate battery
- High efficiency frosted polycarbonate diffuser
- Motion detect option available

Platinum batten LED weatherproof – 4 foot



Order code	Description	Colour temp
Standard products		4,000K
PBLWAC35L	Platinum batten LED weatherproof AC 3500 lumens	
PBLWAC35LMD	Platinum batten LED weatherproof AC 3500 lumens with motion detect sensor	**Impact rating**
PBLWEM35LM	Platinum batten LED weatherproof EM 3500 lumens maintained	IK08
PBLWEM35LMMD	Platinum batten LED weatherproof EM 3500 lumens maintained with motion detect sensor	
Spare parts		
03-01307P	Battery LiFePO4 6.4V 3.2Ah	
Additional features		
Typically 3,500 lumens on mains AC operation, 600 lumens in emergency operation		
Ambient operating temperature: AC -20°C to +40°C and EM +10°C to +40°C		

Platinum batten LED weatherproof – 5 foot



Order code	Description	Colour temp
Standard products		4,000K
PBLWAC46L	Platinum batten LED weatherproof AC 4600 lumens	
PBLWAC46LMD	Platinum batten LED weatherproof AC 4600 lumens with motion detect sensor	**Impact rating**
PBLWEM46LM	Platinum batten LED weatherproof EM 4600 lumens maintained	IK08
PBLWEM46LMMD	Platinum batten LED weatherproof EM 4600 lumens maintained with motion detect sensor	
Spare parts		
03-01307P	Battery LiFePO4 6.4V 3.2Ah	
Additional features		
Typically 3,500 lumens on mains AC operation, 600 lumens in emergency operation		
Ambient operating temperature: AC -20°C to +40°C and EM +10°C to +40°C		

Accessories

Order code	
26-SSCSBLW	Stainless steel clips
26-SSSCSBLW	Stainless steel suspension clip
21-PCCSBLW	Polycarbonate clips
26-PBMD001	Wall mount bracket pair 45°

STOCK | INDENT

Battens

p-Range | Nexus®

Battens – p-Range Nexus product features

- 5 year warranty
- Weatherproof rating IP65
- Long LED life 75,000 hours
- Lithium iron phosphate battery
- High efficiency frosted polycarbonate diffuser
- Motion detect option available
- Nexus® monitored, either cabled or wireless

Platinum batten LED weatherproof Nexus® – 4 foot



Order code	Description	Colour temp
Nexus products		4,000K
PBLWLX35LM	Platinum batten LED weatherproof Nexus LX 3500 lumens maintained	
PBLWLX35LMMD	Platinum batten LED weatherproof Nexus LX 3500 lumens maintained with motion detect sensor	**Impact rating**
PBLWRF35LM	Platinum batten LED weatherproof Nexus RF 3500 lumens maintained	IK08
PBLWRF35LMMD	Platinum batten LED weatherproof Nexus RF 3500 lumens maintained with motion detect sensor	
Spare parts		
03-01307P	Battery LiFePO4 6.4V 3.2Ah	
Additional features		
Typically 3,500 lumens on mains AC operation, 600 lumens in emergency operation		
Ambient operating temperature: AC -20°C to +40°C and EM +10°C to +40°C		

Platinum batten LED weatherproof Nexus® – 5 foot



Order code	Description	Colour temp
Nexus products		4,000K
PBLWLX46LM	Platinum batten LED weatherproof Nexus LX 4600 lumens maintained	
PBLWLX46LMMD	Platinum batten LED weatherproof Nexus LX 4600 lumens maintained with motion detect sensor	**Impact rating**
PBLWRF46LM	Platinum batten LED weatherproof Nexus RF 4600 lumens maintained	IK08
PBLWRF46LMMD	Platinum batten LED weatherproof Nexus RF 4600 lumens maintained with motion detect sensor	
Spare parts		
03-01307P	Battery LiFePO4 6.4V 3.2Ah	
Additional features		
Typically 3,500 lumens on mains AC operation, 600 lumens in emergency operation		
Ambient operating temperature: AC -20°C to +40°C and EM +10°C to +40°C		

Accessories

Order code	
26-SSCSBLW	Stainless steel clips
26-SSSCSBLW	Stainless steel suspension clip
21-PCCSBLW	Polycarbonate clips
26-PBMD001	Wall mount bracket pair 45°

STOCK | INDENT



Circular LED

762 **e-Range**

763 **s-Range**

For more detailed product information, please refer to the Stanilite website:

- www.stanilite.com.au

Circular LED

e-Range

e-Luna circular: e-Range product features

- 1 year warranty
- Ceiling or wall mount
- Long LED life 50,000 hours
- High colour rendering index CRI >80
- High temperature NiCad batteries
- Motion detect option available

Economy e-Luna circular LED

Order code	Description	Colour temp
Standard products		4,000K
ECLAC22L	e-Luna circular LED IP20 AC 2200 lumens	
ECLAC22LMD	e-Luna circular LED IP20 AC 2200 lumens with motion detect sensor	**IP rating**
ECLEM22LM	e-Luna circular LED IP20 AC 2200 lumens maintained	IP20
ECLEM22LMMD	e-Luna circular LED IP20 EM 2200 lumens maintained with motion detect sensor	
Spare parts		
03-01223	Battery 3 cell NiCad 3.6V 4.5Ah	
Additional features		
Indoor use only		
Low maintenance suitable for difficult to access areas		
Ambient operating temperature: +10°C to +40°C		

STOCK | INDENT

Circular LED

s-Range | Standard and Nexus®

Circular LED: s-Range product features

- 3 year warranty
- Ceiling or wall mount
- Weatherproof rating IP65
- Long LED life 50,000 hours
- High colour rendering index CRI >80
- High temperature NiCad batteries
- Motion detect option available

Signature circular LED weatherproof



Order code	Description	Colour temp
Standard products		4,000K
SCLWAC20L	Circular LED weatherproof AC 1045 lumens	
SCLWAC20LMD	Circular LED weatherproof AC 1045 lumens with motion detect sensor	**Impact rating**
SCLWEM20LS	Circular LED weatherproof EM 1045 lumens sustained	IK08
SCLWEM20LSMD	Circular LED weatherproof EM 1045 lumens sustained with motion detect sensor	
Spare parts		
03-01220	Battery 5 cell NiCad 6.0V 1.8Ah	
Additional features		
Low maintenance suitable for difficult to access areas		
Ambient operating temperature: AC +10°C to +40°C | EM 4°C to +40°C		

Signature circular LED weatherproof Nexus®



Order code	Description	Colour temp
Nexus products		4,000K
SCLWLX20LS	Circular LED weatherproof Nexus LX 1045 lumens sustained	
SCLWLX20LSMD	Circular LED weatherproof Nexus LX 1045 lumens sustained with motion detect sensor	**Impact rating**
SCLWRF20LS	Circular LED weatherproof Nexus RF 1045 lumens sustained	IK08
SCLWRF20LSMD	Circular LED weatherproof Nexus RF 1045 lumens sustained with motion detect sensor	
Spare parts		
03-01220	Battery 5 cell NiCad 6.0V 1.8Ah	
Additional features		
Nexus® monitored, either cabled or wireless		
Low maintenance suitable for difficult to access areas		
Ambient operating temperature: AC +10°C to +40°C | EM 4°C to +40°C		

Note: AC versions also available



Flood lights

766 **s-Range**

767 **s-Range | Nexus®**

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For more detailed product information, please refer to the Stanilite website:

- www.stanilite.com.au

Flood light LED

s-Range

Flood light LED: s-Range product features

- 3 year warranty
- LED technology 100,000 hours lamp life
- Light output typically 600 lumens per lamp head
- Beam angle 120° flood
- Lamp heads can be rotated and tilted to suit particular installation requirements
- Easy to maintain and low maintenance cost

Signature flood light LED



Order code	Description	Mounting
Standard products		Wall
FL210LED	LED flood light 2x10W 12V non-maintained	
Spare parts		
14-00061	Battery sealed lead acid 12V 7Ah	
15-10023	LED lamp 10W 12V	

Signature flood light LED weatherproof



Order code	Description	Mounting
Standard products		Wall
WPFL210LED	LED weatherproof flood light 2x10W 12V non-maintained	
Spare parts		
14-00061	Battery sealed lead acid 12V 7Ah	
15-10023	LED lamp 10W 12V	
Additional features		
Weatherproof rating IP65		
UV stabilised enclosure		

STOCK | INDENT

Flood light LED

s-Range | Nexus®

Flood light LED Nexus® : s-Range product features

- 3 year warranty
- LED technology 100,000 hours lamp life
- Light output typically 600 lumens per lamp head
- Beam angle 120° flood
- Lamp heads can be rotated and tilted to suit particular installation requirements
- Nexus® monitored, either cabled or wireless

Signature flood light LED Nexus®



Order code	Description	Mounting
Nexus products		Wall
FLNXS210LED	LED flood light Nexus LX 2x10W 12V non-maintained	
FLNRF210LED	LED flood light Nexus RF 2x10W 12V non-maintained	
Spare parts		
14-00061	Battery sealed lead acid 12V 7Ah	
15-10023	LED lamp 10W 12V	
Additional features		
Easy to maintain and low maintenance cost		

Signature flood light LED weatherproof Nexus®



Order code	Description	Mounting
Nexus products		Wall
WPFLNXS210LED	LED weatherproof flood light Nexus LX 2x10W 12V non-maintained	
WPFLNRF210LED	LED weatherproof flood light Nexus RF 2x10W 12V non-maintained	
Spare parts		
14-00061	Battery sealed lead acid 12V 7Ah	
15-10023	LED lamp 10W 12V	
Additional features		
Weatherproof rating IP65		
UV stabilised enclosure		
Easy to maintain and low maintenance cost		

10
Solar inverters and solutions

771 **Residential**

777 **Commercial**

785 **Utility**

795 **Solar solutions**


ABB
UNO

Residential

772 **Single phase**

773 **Three phase**

774 **REACT 2**

For more detailed product information, please refer to the website:

- **abb.com/solarinverters**

Single phase

UNO-DM-PLUS

The new addition to the ABB single-phase inverter family, the UNO-DM-PLUS series represents the optimal solution for residential installations. Design enables integration with current and future devices for smart building automation.





All power ratings, from 1.2 to 6.0 kW, share the same compact design and overall volume, allowing higher performance in a minimum space. It's future-proof and flexible.

Easy to install, fast to commission
Simple and fast installation without needing to open the inverter cover thanks to the presence of Plug & Play connectors. Easy commissioning routine removes the need for a long configuration process, resulting in lower installation time and costs.

Improved user experience
The build-in user interface enables access to advance features such as advanced inverter configuration settings, dynamic feed-in control and load manager.

Features
- Wireless communication with integrated web server
- Future-proof with embedded connectivity for Smart building and Smart grid integration
- Dynamic feed-in control (for instance 'zero injection')
- Load control capabilities
- Remote Over The Air (OTA) firmware upgrade for inverter and components
- Easy commissioning capability
- Modbus TCP/RTU Sunspec compliant
- Remote monitoring via Aurora Vision®cloud

Inverter models

Model	Number of maximum power point trackers	Rated AC Power (W)	Order code
UNO-DM-1.2-TL-PLUS-B	1	1200	3P379900000A
UNO-DM-2.0-TL-PLUS-B	1	2000	3P389900000A
UNO-DM-3.3-TL-PLUS-B	2	3300	3P219900000A
UNO-DM-4.0-TL-PLUS-B	2	4000	3P229900000A
UNO-DM-4.6-TL-PLUS-B	2	4600	3P469900000A
UNO-DM-5.0-TL-PLUS-B	2	5000	3P259900000A
UNO-DM-6.0-TL-PLUS-B-G	2	6000	3P319900000A

Accessories

Model	Description	Order code
UNO-DM-COM kit	Accessory communication board RS485 port communication (Modbus SunSpec RTU, dynamic feed-in control meter and Aurora protocol) Alarm/load manager relay Remote ON/OFF	3N950001000A
UNO-DM-PLUS Ethernet COM kit	Accessory communication board with Ethernet Ethernet port (RJ45 plug) with Modbus SunSpec TCP protocol available RS485 port communication (Modbus SunSpec RTU, dynamic feed-in control meter and Aurora protocol) Alarm/load manager relay Remote ON/OFF	3N950002000A
B21-312-100	Energy meter for point of connection. Single-phase up to 65 A	B21-312-100
B23-212-100	Energy meter for point of connection. Three-phase up to 65 A	B23-212-100
B24-212-100	Energy meter for point of connection. Three-phase with external CT	B24-212-100
Multicontact DC cable connector kit - 10 bag	(4 MC connectors DC+ per bag) - 10 bags (4 MC connectors DC- per bag) - 10 bags Compatible with: UNO-DM-PLUS, REACT, PVI-10.0/12.5-TL-OUTD, PVS-100/120	3P090010000A

STOCK | INDENT

Three phase

TRIO-7.5/8.5-TL-OUTD

The all-in-one residential three phase TRIO-5.8, 7.5 and 8.5 kW inverters deliver performance, ease of use and installation, monitoring and control. With their 98% peak efficiency and wide input voltage range, the residential TRIO inverter means flexible installations and powerful output.



Features

- Three-phase bridge topology for DC/AC output converter
- Transformerless topology
- Two independent MPPT channels for allow optimal energy harvesting from two subarrays oriented in different directions
- Flat efficiency curves ensure high efficiency at all output levels enabling consistent and stable performance across the entire input voltage and output power range
- Wide input voltage range
- Remote inverter upgrade
- Natural convection cooling for maximum reliability
- Sliding cover for the easiest installation and maintenance
- Data logger and smart grid functionalities integrated on expansion cards:
  - PMU expansion card option, with external sensor inputs for monitoring environmental conditions and additional RS-485 for Modbus protocol
  - Ethernet expansion card option with integrated web server and remote monitoring capability via web portal (Modbus/TCP supported)

Inverter models

Models	Rated AC Power (W)	Order code
TRIO-7.5-TL-OUTD-400	7500	3M989900005A
TRIO-8.5-TL-OUTD-400	8500	3M999900005A

Accessories

Model	Description	Order code
Ethernet expansion board	Add-on Ethernet port Remote transferring of data to Aurora Vision Integrated webserver Remote upgrading functionalities Modbus/TCP interface	3N280000000A
PMU expansion board	Power Management Unit (PMU) functionalities External sensor inputs - AN1 - AN2 PT100/PT1000 - Additional RS485 with MODBUS protocol	3N270000000A
VSN300 Wi-fi logger card	EEE 802.11 b/g/n (2.4 GHz) Wi-fi Certified™ Compatible with most ABB string inverters, see compatibility list Modbus/TCP server (Sunspec certified) for SCADA integration 30 days of local data storage lifetime standard level access to Aurora Vision monitoring portal	3N160020000A
Weidmuller DC cable connector kit - 1 bag	10 WM connectors DC - per bag 10 WM connectors DC - per bag Compatible with: TRIO-7.5/8.5-TL-OUTD TRIO-20.0/27.6 TRIO-50.0/60.0 families only	3M870020000A
Weidmuller DC cable connector kit - 20 bag	(10 WM connectors DC+ and 10 WM connectors DC- per bag) - 20 bags Compatible with: TRIO-5.8/7.5/8.5-TL-OUTD TRIO-20.0/27.6-TL-OUTD TRIO-50.0-TL-OUTD families only	3M8700CK000A

STOCK | INDENT

REACT 2

This new line, available in power ratings of 3.6 and 5.0 kW, has one of the industry's highest energy efficiency rates, providing up to 10% more energy than lower voltage battery systems.



For new and retrofit installations
Thanks to the possibility of both AC and DC side connection, REACT 2 is the ideal solution for new systems or the retrofitting of existing ones, allowing homeowners to improve their energy self-consumption and save on their energy bills.

Wide battery capacity
Providing a totally flexible solution, REACT 2 offers a wide storage capacity, which can be expanded from 4 kWh to 12 kWh, depending on the number of batteries used, and can achieve up to 90 percent energy self-reliance. The addition of further battery units can take place anytime during the lifetime of the system.

Design flexibility
The different set-up configurations available allow maximum installation flexibility and optimisation of available spaces. Quick and easy to install thanks to the simple plug and play connection, both on inverter and battery side.

Smart connectivity
Future proof technology enables a full smart home experience with advanced communication features and load management capabilities. The embedded data logger and direct transferring of data to a secure cloud platform allows customers to monitor and keep their system under control through the dedicated mobile app. The advanced communication interfaces (wireless and Ethernet) combined with a standard Modbus communication protocol, Sunspec compliant, allow the inverter to be easily integrated within any smart environment and with third party monitoring and control systems.

Features
- Li-Ion battery unit for energy storage (from min 4 kWh to 12 kWh)
- Industry leading energy efficiency
- Suitable for new and existing applications
- Battery units can be upgraded anytime during lifetime of system
- Flexible and modular design, optimises installation space
- Simple and safe installation with plug & play connection
- System monitoring through dedicated mobile app
- Modbus TCP/RTU Sunspec compliant
- Compatible with ABB free@home for a full ABB smart home experience

Inverter models

Models	Number of maximum power point trackers	Rated AC Power (W)	Order code
REACT2-3.6-TL	2	3600	3P129910000A
REACT2-5.0-TL	2	5000	3N089910000A

Battery models

Model	Nominal Energy (Wh)	Order code
REACT2-BATT	4000	3N850010000A

Accessories

Models	Description	Order code
B21-312-100	Energy meter for point of connection. Single-phase up to 65 A	B21-312-100
B23-212-100	Energy meter for point of connection. Three-phase up to 65 A	B23-212-100
B24-212-100	Energy meter for point of connection. Three-phase with external CT	B24-212-100
Multicontact DC cable connector kit - 10bag	(4 MC connectors DC+ per bag) - 10 bags (4 MC connectors DC- per bag) - 10bags Compatible with: UNO-DM-PLUS, REACT, PVI-10.0/12.5-TL-OUTD, PVS-100/120	3P090010000A

STOCK | INDENT



Count on us, because they count on you.

Jasper and his dad count on installers like you for reliable solar power supply. Count on us to help you achieve even more with your installations. Discover more at **abb.com/solarinverters**



Commercial

778	PVI-10.0/12.5-TL-OUTD
779	PVS-100
780	TRIO-20.0/27.6-TL-OUTD
782	TRIO-TM-50.0

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OPPOSITE:

Floating Solar Farm, Singapore: This installation measures one hectare and supplies up to 250 households with electricity using ABB's market leading TRIO-50 solar inverters. The natural water cooling helps the farm perform up to 11% more efficiently.

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For more detailed product information, please refer to the website:

- **abb.com/solarinverters**

PVI-10.0/12.5-TL-OUTD

Designed for commercial usage, this three-phase inverter is highly unique in its ability to control the performance of the PV panels, especially during periods of variable weather conditions.



This transformerless device has two independent MPPTs and efficiency ratings of up to 97.7%. The wide input voltage range makes the inverter suitable to low power installations with reduced string size

Features

- True three-phase bridge topology for DC/AC output converter
- Transformerless topology
- Each inverter is set on specific grid codes which can be selected in the field
- Wide input voltage range
- Dual input section with independent MPPT allows optimal energy harvesting from two sub-arrays oriented in different directions
- Outdoor enclosure for unrestricted use under any environmental conditions
- RS-485 communication interface (for connection to laptop or datalogger)

Inverter models

Model	Maximum AC Power (W)	Rated AC Power (W)	Order code
PVI-10.0-TL-OUTD	11000	10000	3N819900000A
PVI-12.5-TL-OUTD	13800	12500	3N829900000A

Accessories

Model	Description	Order code
VSN300 Wi-fi logger card	IEEE 802.11 b/g/n (2.4 GHz) Wi-fi Certified™ Compatible with most ABB string inverters, see compatibility list Modbus/TCP server (Sunspec certified) for SCADA integration 30 days of local data storage Lifetime standard level access to Aurora Vision monitoring portal	3N160020000A
Multicontact DC cable connector kit - 10 bag	(4 MC connectors DC+ per bag) - 10 bags (4 MC connectors DC- per bag) - 10 bags Compatible with: UNO-DM-PLUC REACT PVI-10.0/12.5-TL-OUTD PVS-100/120	3P090010000A

STOCK | INDENT

PVS-100

The PVS-100/120-TL is ABB's cloud connected three-phase string solution for cost efficient decentralized photovoltaic systems for both ground mounted and large commercial applications.



This completely new platform, for extreme high power string inverters maximizes the ROI for decentralised ground mounted and large rooftop applications. With six MPPT, energy harvesting is optimised even in shading situations.

The horizontal and vertical mounting possibility creates flexibility for both ground mounted and rooftop installations. Covers are equipped with hinges and locks that are fast to open and reduce the risk of damaging the chassis and interior components when commissioning and performing maintenance actions.

Cloud connected to ABB Ability™, it enables access to advanced monitoring and control features through laptop and mobile devices.

Features

- 6 independent MPPT
- Transformerless inverter
- Wi-fi as standard for configuration
- Two Ethernet ports for plant level communication
- String monitoring and monitored surge protection
- Double stage topology for a wide input range
- Both vertical and horizontal installation
- Separate wiring compartment for fast swap and replacement
- IP66 Environmental protection

Unipack

Description	Included parts	Order code
PVS-100-TL; SX2 Full	PVS-100-TL-Power module WB-SX2-PVS-100-TL/24 Inputs Accessory bracket;PVS-100/120	3P899901000A

Accessories

Model	Description	Order code
PVS Installation kit	PVS 100/120 installation and lifting kit	3P51000A000A
Multicontact DC cable connector kit - 10 bag	(4 MC connectors DC+ per bag) - 10 bags (4 MC connectors DC- per bag) - 10 bags Compatible with: UNO-DM-PLUC REACT PVI-10.0/12.5-TL-OUTD PVS-100/120	3P090010000A

STOCK | INDENT

TRIO-20.0/27.6-TL-OUTD

The three-phase commercial inverter offers more flexibility and control to installers who have large installations with varying aspects or orientations. The dual input section containing two independent Maximum Power Point Tracking (MPPT), allows optimal energy harvesting from two sub-arrays oriented in different directions.



The TRIO features a high speed and precise MPPT algorithm for real power tracking and improved energy harvesting.

Features

- True three-phase bridge topology for DC/AC output converter
- Transformerless topology
- Detachable wiring box to allow an easy installation
- Wide input voltage range
- Integrated string combiner with different options of configuration which may include DC and AC disconnect switch, string protection and surge protection
- Outdoor enclosure for unrestricted use under any environmental conditions
- Capability to connect external sensors for monitoring environmental conditions
- Availability of auxiliary DC output voltage (24 V, 300 mA)

Inverter models

Model	Description	Order code
TRIO-20.0-TL-OUTD-400	20000 Wac nominal 2 MPPT RS485 IP65 (NEMA4x)	3M44990F201A
TRIO-20.0-TL-OUTD-S2X-400	20000 Wac nominal 2 MPPT RS485 IP65 Integrated DC and AC disconnect switch DC and AC OV suppressor class II String fuses (4+4 on each MPPT) and single string current monitoring Integrated DC and AC disconnect switch DC and AC OV suppressor class II	3M44990F001A
TRIO-27.6-TL-OUTD-400	27600 Wac nominal 2 MPPT RS485 IP65 (NEMA4x)	3M22990F201A
TRIO-27.6-TL-OUTD-S2X-400	27600 Wac nominal 2 MPPT RS485 IP65 Integrated DC and AC disconnect switch DC and AC OV suppressor class II String fuses (5+5 on each MPPT) and single string current monitoring String fuses (5+5 on each MPPT) and single string current monitoring	3M22990F001A

STOCK | INDENT

TRIO-20.0/27.6-TL-OUTD

Accessories

Model	Description	Order code
VSN 300 Wi-fi logger card	IEEE 802.11 b/g/n (2.4 GHz) Wi-Fi Certified™ Compatible with most ABB string inverters, see compatibility list Modbus/TCP server (Sunspec certified) for SCADA integration 30 days of local data storage Lifetime standard level access to Aurora Vision monitoring portal	3N160020000A
Handling kit	20.0/27.6/50.0/60.0 models: - 4 handles - 2 eye bolts	3M8700HNDK0A
Fixing screw string combiner	20.0/27.6 families	3M870010000A
Weidmuller DC cable connector kit - 1 bag	10 WM connectors DC - per bag 10 WM connectors DC - per bag Compatible with TRIO-7.5/8.5-TL-OUTD TRIO-20.0/27.6 TRIO-50.0/60.0 families only	3M870020000A
Weidmuller DC cable connector kit - 20 bag	10 WM connectors DC+ and 10 WM connectors DC - per bag x 20 bags Compatible with: TRIO-5.8/7.5/8.5-TL-OUTD TRIO-20.0/27.6-TL-OUTD TRIO-50.0-TL-OUTD families only	3M8700CK000A

TRIO-TM-50.0

The TRIO-TM is the latest evolution in ABB's TRIO technology. Available in different versions, it features three maximum power point trackers (MPPTs) and a wide input range guaranteeing full design and installation flexibility within decentralized commercial and industrial systems.



Advanced communication
Smart communication and remote monitoring through any WLAN connected device thanks to the ACP (Advanced Communication Package) embedded user interface.

Modular design
The TRIO-TM comes with separate and configurable AC and DC compartments, which can remain separately wired from the inverter module inside the system.
It also benefits from the most complete wiring box configuration available, including up to 15 DC inputs, AC and DC switches and monitored type II AC and DC surge arresters.

Features
- 3 independent MPPT (with SX2 version)
- Transformerless inverter
- Double stage topology for a wide input range
- Separate AC and DC compartments are available in different configurations
- Both vertical and horizontal installation
- Wireless access to embedded user interfaces
- Ethernet daisy chain enabled
- Modbus TPC/RTU Sunspec compliant
- Remote monitoring and firmware update via Aurora Vision® (logger free)
- Available for order as separate parts or unipack code available

Separate part

Model	Description	Order code
Wall mounting bracket; TRIO-50.0/60.0	Vertical mounting bracket To be used for vertical mounting (wall, posts, etc) the TRIO 50.0/60.0 Power module, DC and AC wiring boxes	3N639901000A
Horizontal mounting bracket; TRIO-50.0/60.0	Horizontal mounting bracket To be used for horizontal mounting (flat on rooftop, etc) the TRIO 50.0/60.0 Power module, DC and AC wiring boxes	3N639902000A
TRIO-TM-50.0-400-Power module	50000 Wac 3 MPPT 400 Vac IP65 (IP54 fans) To be assembled with DC and DC wiring boxes and mounting bracket	3P549900000A
DCWB-TRIO-TM-50.0-400	TRIO-TM-50.0 DC wiring box: DC terminal block (Cu/Al) DC surge protection by varistors (no monitoring) RS-485, Ethernet, wi-fi SD card slot To be assembled with AC wiring box, power module and mounting bracket	3P55000DC01A
DCWB-S-TRIO-TM-50.0-400	TRIO-TM-50.0 DC wiring box: DC terminal block (Cu/Al) DC surge protection by varistors (no monitoring) DC Switch RS-485, Ethernet, wi-fi SD card slot To be assembled with ac wiring box, power module and mounting bracket	3P55000DC02A
DCWB-SX2-TRIO-TM-50.0-400;SPD	TRIO-TM-50.0 DC wiring box: 15 DC input by fast connectors fuse protection on both poles DC surge protection type II with monitoring DC Switch RS-485, Ethernet, wi-fi SD card slot To be assembled with AC wiring box, power module and mounting bracket	3P55000DC08A
ACWB-SX-TRIO-TM-50.0-400;SPD	TRIO-TM-50.0 AC wiring box: AC disconnect switch AC surge protection type II with monitoring To be assembled with DC wiring box, power module and mounting bracket	3P55000AC04A

STOCK | INDENT

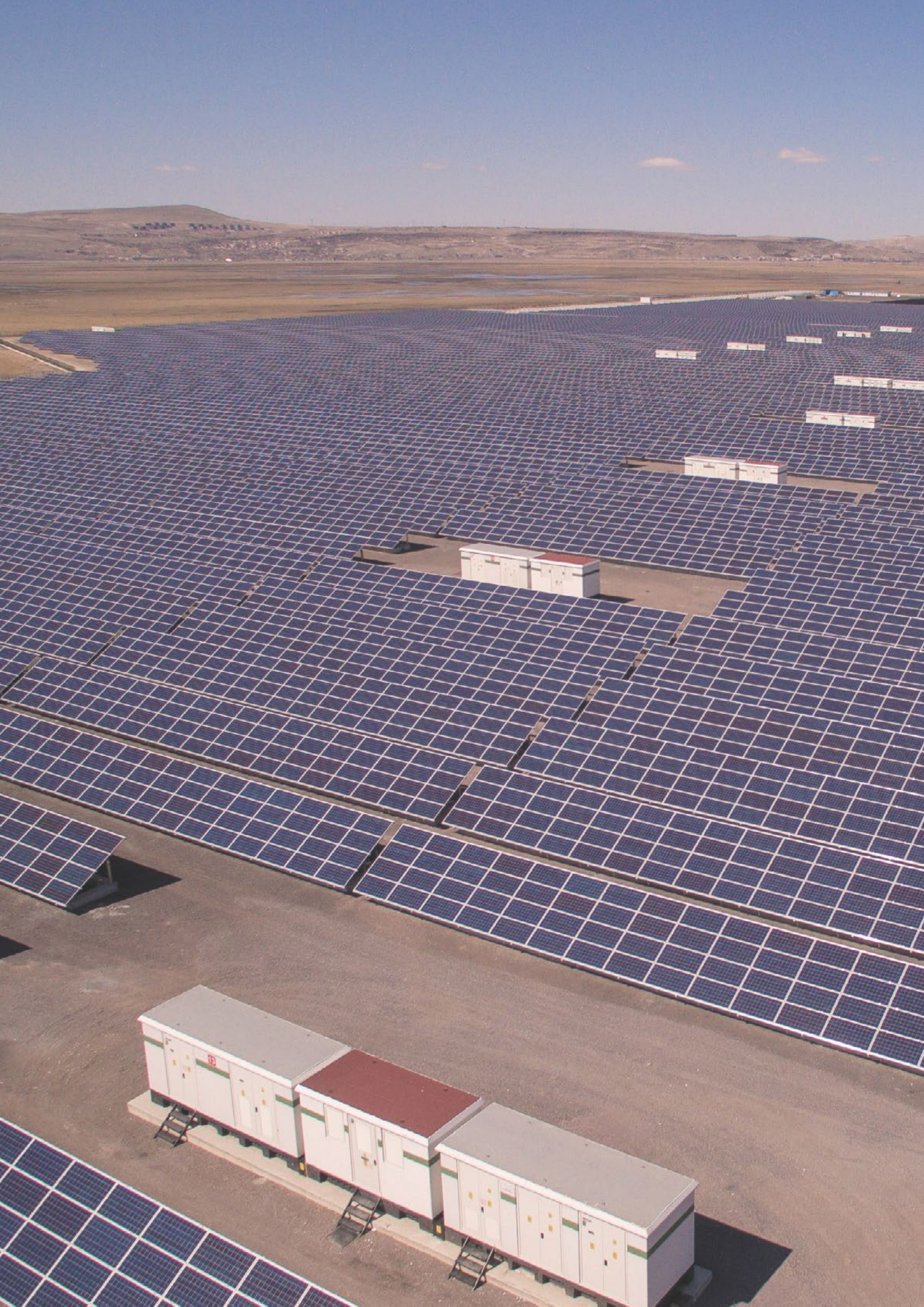
TRIO-TM-50.0

Unipack

Model	Included parts	Order code
TRIO-TM-50.0; SXE-SPD-SX-SPD	TRIO-TM-50.0-400-Power module DCWB-SX2-TRIO-TM-50.0-400;SPD ACWB-SX-TRIO-TM-50.0-400;SPD Wall mounting bracket;TRIO-50.0/60.0 Lower mounting bracket;TRIO-50/60	3P799900000A

Accessories

Model	Descriptions	Order code
Horizontal mounting bracket; TRIO-50.0/60.0	Horizontal mounting bracket To be used for horizontal mounting (flat on rooftop, etc) the TRIO 50.0/60.0 power module, DC and AC wiring boxes	3N639902000A
Lower mounting bracket;TRIO-50/60	Additional mounting bracket To be used to fix the lower part with vertical mounting. Ensures stability in peculiar conditions like heavy winds	3N639903000A
TRIO-50/60-AC Wiring kit	Improved AC connection capability of TRIO-50.0/60.0 Aluminum and copper cables up to 150mm^2	3P500001000A
Handling kit	Handling kit for TRIO-20.0/27.6/50.0/60.0 models: - 4 handles - 2 eye bolts	3M8700HNDK0A
Weidmuller DC cable connector kit x 1 bag	10 WM connectors DC- per bag 10 WM connectors DC- per bag Compatible with TRIO-7.5/8.5-TL-OUTD, TRIO-20.0/27.6, TRIO-50.0/60.0 families only	3M870020000A
Weidmuller DC cable connector kit - 20 bag	(10 WM connectors DC+ and 10 WM connectors DC- per bag) - 20 bags Compatible with: TRIO-5.8/7.5/8.5-TL-OUTD TRIO-20.0/27.6-TL-OUTD TRIO-50.0-TL-OUTD families only	3M8700CK000A



Utility

786 **PVS980 central inverters**

787 **PVS980-MWS**

788 **PVS980-MVP**

789 **PVS800-57B central inverters**

790 **TRIO-TM-60.0**

792 **PVS-120-TL**

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OPPOSITE

Utility Installation, Turkey:
With a 51 MWp capacity, Turkey's largest solar energy plant uses ABB's PVS800 central inverter solution, the most efficient way to convert the direct current (DC) generated by solar modules into high-quality, CO2-free alternating current (AC).

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For more detailed product information, please refer to the website:

- **abb.com/solarinverters**

PVS980 central inverters

ABB PVS980 central inverters are ideal for large PV power plants. The high DC input voltage, high efficiency, proven components, compact and modular design, suitability for outdoor use and a host of life cycle services ensure ABB PVS980 central inverters provide a rapid return on investment.



PVS980 inverters feature a proven self-contained cooling system used in other ABB industrial applications.

This innovative, truly low-maintenance cooling solution is designed for demanding applications and harsh environments, cutting maintenance costs and ensuring outstanding endurance. PVS980 central inverters are available from 1818 kVA up to 2300 kVA, and are optimised for cost-effective, multi-megawatt power plants.

Features

- High total performance
- Outstanding endurance for outdoor use
- Compact, modular product design
- High DC input voltage up to 1500 V_{DC}
- Extensive DC and AC side protection
- Self-contained cooling system with high efficiency
- Versatile design for large-scale PV plants to minimise system costs
- Complete range of industrial data communication options, including remote monitoring
- Life cycle service and support through ABB's extensive global service network

Type designation	**PVS980-58-1818kVA-I**	**PVS980-58-1909kVA-J**	**PVS980-58-2000kVA-K**	**PVS980-58-2091kVA-L**
Input (DC)				
Maximum recommended PV power (PPV, max) [1]	2910 kWp	3055 kWp	3200 kWp	3346 kWp
Maximum DC voltage ($U_{max\ (DC)}$)				1500 V
Number of MPPT trackers				1
Output (AC)				
Maximum power ($S_{max\ (AC)}$) [3]	2000 kVA	2100 kVA	2200 kVA	2300 kVA
Nominal power ($S_{N(AC)}$) [4]	1818 kVA	1909 kVA	2000 kVA	2091 kVA
Nominal output voltage ($U_{N(AC)}$) [5]	600 V	630 V	660 V	690 V
Output frequency [5]	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Efficiency				
Maximum [8]	98.8%	98.8%	98.8%	98.8%
Euro-eta [8]	98.6%	98.6%	98.6%	98.6%

1) DC/AC ratio over 1.6 might decrease maintenance intervals
2) As standard
3) At 35 °C
4) At 50 °C
5) ±10%
6) At nominal power
7) Inverter side must be IT type
8) Without auxiliary power consumption at min UDC
9) With auxiliary power included
10) Internal as option

PVS980-MWS

3.6 to 4.6 MW megawatt station

ABB megawatt station, PVS980-MWS, is a complete plug-and-play solution, designed for large-scale 1500 VDC solar power generation.



PVS980-MWS combines the revolutionary PVS980 central inverter, medium voltage optimised ABB dry type- or oil immersed transformer and switchgear equipment needed to connect to the medium voltage network of the photovoltaic plant. All the components within this solution come from ABB's product portfolio to meet the performance and quality standards required by solar applications.

Features

- Proven technology and reliable components
- Compact and robust design
- Outstanding endurance for outdoor use
- High DC input voltage up to 1500 VDC
- High total efficiency
- Extensive DC and AC side protection
- Self-contained cooling system for inverters
- Modular and serviceable system
- Embedded auxiliary power distribution system
- Extendable manufacturing footprint with fast deliveries
- Global life cycle services and support

Options

- MV AC output voltages (6 to 36 kV)
- Different MV switchgear configurations
- I/O extensions
- DC grounding, positive
- Floating DC
- Fieldbus and Ethernet connections
- Auxiliary power supply from main power
- Connections
- C5M enclosure corrosion protection

Type designation [1] **PVS980-MWS-**	**-3636kVA-I-**	**-3818kVA-J-**	**-4000kVA-K-**	**-4182kVA-L**
Maximum rating	4000 kVA	4200 kVA	4400 kVA	4600 kVA
Input (DC)				
Maximum recommended PV power ($P_{PV, max}$) [1]	2x2910 kWp	2x3055 kWp	2x3200 kWp	2x3346 kWp
DC voltage range, mpp ($U_{DC, mpp}$) at 35 °C	850 to 1500 V	893 to 1500 V	935 to 1500 V	978 to 1500 V
DC voltage range, mpp ($U_{DC, mpp}$) at 50 °C	850 to 1100 V	893 to 1100 V	935 to 1100 V	978 to 1100 V
Maximum DC voltage ($U_{max\ (DC)}$)	1500 V			
Number of MPPT trackers	2			
Number of protected DC inputs	8[2] to 24 (+/-)			
Output (AC)				
Inverter type (2x ABB central inverter)	PVS980-58-1818kVA-I	PVS980-58-1909kVA-J	PVS980-58-2000kVA-K	PVS980-58-2091kVA-L
Nominal AC output power ($S_{N(AC)}$) @ 50 °C (122°F)	3636 kVA	3818 kVA	4000 kVA	4182 kVA
Maximum AC output power ($S_{MAX(AC)}$) @ 35 °C (122°F)	4000 kVA	4200 kVA	4400 kVA	4600 kVA
Medium voltage range ($U_{N(AC)}$)	12 kV to 36 kV [2]			
Output frequency	50/60 Hz			
Harmonic distortion, current	< 3%			
Power factor compensation (cosφ)	Yes			
Transformer type	ABB Vacuum cast coil dry type (AF), or ABB Oil immersed type (ONAN)			
Medium voltage switchgear type [4]	ABB SafeRing, SF6-insulated, DeV, CV or CCV			
Enclosure	Painted steel outdoor enclosure, IP54, C4 corrosion protection			
Efficiency				
Maximum (inverter only)	98.8%			
Euro-eta (inverter only)	98.6%			

1) Where xx-medium voltage level, zzz-transformer type, oil or dry
2) Nominal voltage 12 kV to 36 kV, from 6 kV on as option
3) At nominal power
4) Other ABB switchgear types available as an option

PVS980-MVP

Medium voltage pad mounted solution

The ABB medium voltage pad mounted solution is a cost efficient and robust solution designed for large-scale solar power generation and to be compatible with the PVS980 outdoor inverters.



It combines the medium voltage transformer and the switchgear equipment needed to connect the inverters to the medium voltage network of the photovoltaic plant. All the components within the medium voltage pad come from ABB's product portfolio to meet the performance and quality standards required by solar applications.

Compact and robust design for harsh environments
This pad mounted solution is to be assembled on an onsite built concrete foundation. The design enables operation in harsh temperature and humidity environments and is designed for at least 25 years of operation.

Features

- Reliability - proven components from one supplier
- Transportability - compact and robust design
- Plug-and-play - integrated signaling interfaces
- Increased uptime - modular and serviceable system
- Bankable solution - global life cycle services and support

Options

- Output voltage from 6 kV up to 36 kV
- Different MV switchgear configurations (e.g. CCV or DeV)
- Additional transformer and switchgear signaling options
- LV cable set between inverters and transformer
- MV cable set between transformer and medium voltage switchgear

Type designation [1] **PVS980-MVP**	**-1818kVA-I-xx**	**-1909kVA-J-xx**	**-2000kVA-K-xx**	**-2091kVA-L-xx**	**-3636kVA-I-xx**	**-3818kVA-J-xx**	**-4000kVA-K-xx**	**-4182kVA-L-xx**
General								
Inverter compatibility	PVS980-58-xxxx				2 x PVS980-58-xxxxx			
Nominal AC output power ($S_{N(AC)}$) @ 50 °C (122°F)	1818 kVA	1909 kVA	2000 kVA	2091 kVA	3636 kVA	3818 kVA	4000 kVA	4182 kVA
Maximum AC output power ($S_{MAX(AC)}$) @ 35 °C (122°F)	2000 kVA	2100 kVA	2200 kVA	2300 kVA	4000 kVA	4200 kVA	4400 kVA	4600 kVA
Nominal output voltage ($U_{N(AC)}$)	12 kV to 36 kV [1]							
Ambient temperature range (nominal ratings) [3]	-25 °C to +50 °C							
Maximum altitude (above sea level) [4]	1000 m							
Switchgear								
Medium voltage switchgear type [5]	SF -insulated RMU, ABB SafeRing DeV or CCV, rated 540 A at 50 °C (nominal 630 A)							
Enclosure	Painted Aluzinc coated steel outdoor enclosure, IP54							
Protection relay [6]	REJ603 protection relay (self-powered)							
Options [7]	SF gas alarm, switch positions, plug-in type MV surge protection, automatic cut-off or reclose							
Transformer								
Transformer type	ABB Oil immersed ONAN, outdoor design							
Power rating	1818 kVA	1909 kVA	2000 kVA	2091 kVA	3636 kVA	3818 kVA	4000 kVA	4182 kVA
LV voltage level	600 V	630 V	660 V	690 V	2 x 600 V	2 x 630 V	2 x 660 V	2 x 690 V
MV voltage level	12 kV to 36 kV [1]							
LV terminals	3 flag type terminals [8]				2 × 3 flag type terminals [8]			
MV terminals	bolted C-type							
Standard protection	2 × temperature, gas, pressure							

1) Nominal voltage 12 kV to 36 kV, from 6 kV on as option
2) Where xx-medium voltage level
3) Extended range upon request
4) Higher altitude upon request
5) Other ABB switchgear types available as an option
6) Other relay types upon request
7) Other options upon request
8) LV terminal box available as an option

PVS800-57B central inverters

1645 to 1732 kW

ABB's PVS800 central inverters are aimed at system integrators and end users who require high performance solar inverters for utility-scale PV power plants and are looking for maximum return on investment over the lifetime of the plant.



The inverters are made of proven components with a long track record of performance excellence in demanding applications and harsh environments. Equipped with extensive electrical and mechanical protection, the inverters are engineered to provide a long and reliable service life of at least 20 years.

ABB central inverters provide high total performance based on high efficiency, low auxiliary power consumption, together with verified reliability and an experienced worldwide service organization. The inverters are available up to 2 MW, and are optimised for multimegawatt PV power plants.

Features

- Proven technology and reliable components
- High efficiency and long operating life
- Modular and compact product design
- Extensive DC and AC side protection
- Full grid support functionality
- Fast and easy installation and commissioning
- Superior serviceability and maintainability over the lifetime of the plant
- Complete range of industrial-type data communication options, including remote monitoring
- Life cycle service and support through ABB's extensive global service network

Type designation	**PVS800-57B-1645kW-C**	**PVS800-57B-1732kW-C**
Input (DC)		
Maximum input power ($P_{PV, max}$) [1]	2468 kWp	2598 kWp
DC voltage range, mpp ($UDC_{, mpp}$)	550 to 850 V	580 to 850 V
Maximum DC voltage ($Um_{ax (DC)}$)	1000 V	1000 V
Maximum DC current ($I_{max (DC)}$)	3700 A	3700 A
Number of protected DC inputs	16 to 24	16 to 24
Output (AC)		
Nominal power ($P_{N(AC)}$) [2]	1645 kW	1732 kW
Maximum output power [3]	1975 kW	2078 kW
Nominal output voltage ($U_{N(AC)}$) [4]	380 V	400 V
Output frequency	50/60 Hz	50/60 Hz
Distribution network type [6]	TN and IT	TN and IT
Efficiency		
Maximum [7]	98.5%	98.5%
Euro-eta [7]	98.3%	98.4%
Power consumption		
Own consumption in operation	1800 W	1800 W
Standby operation consumption	60 W	60 W
External auxiliary voltage	400 V	400 V
Dimensions and weight		
Width/Height/Depth, mm (W/H/D)	4030/2150/720	4030/2150/720
Weight appr. [8]	3000 kg	3000 kg

1) Recommended maximum input power
2) At 50 °C. See the user manual for details.
3) At 25 °C. See the user manual for details.
4) +/- 10%
5) At nominal power
6) Inverter side must be IT type
7) Without auxiliary power consumption at min UDC
8) For the smallest number of protected inputs. See the user manual for details.

TRIO-TM-60.0

The TRIO-TM is the latest evolution in ABB's TRIO technology. Available in different versions, it features three maximum power point trackers (MPPTs) and a wide input range guaranteeing full design and installation flexibility within decentralized commercial and industrial systems.



Advanced communication

Smart communication and remote monitoring through any WLAN connected device thanks to the ACP (Advanced Communication Package) embedded user interface.

Modular design

The TRIO-TM comes with separate and configurable AC and DC compartments, which can remain separately wired from the inverter module inside the system.

It also benefits from the most complete wiring box configuration available, including up to 15 DC inputs, AC and DC switches and monitored type II AC and DC surge arresters.

Features

- 3 Independent MPPT (with SX2 version)
- Transformerless inverter
- Double stage topology for a wide input range
- Separate AC and DC compartments are available in different configurations
- Both vertical and horizontal installation
- Wireless access to embedded user interfaces
- Ethernet daisy chain enabled
- Modbus TPC/RTU Sunspec compliant
- Remote monitoring and firmware update via Aurora Vision® (logger free)
- Available for oder as separate parts or unipack code available

Separate part

Model	Descriptions	Order code
TRIO-TM-60.0-480-Power module	60000 Wac 3 MPPT 480 Vac IP65 (IP54 fans) 5 year warranty To be assembled with DC and AC wiring boxes and mounting bracket	3P369900000A
DCWB-SX2-TRIO-TM-60.0-480;SPD	TRIO-TM-60.0 DC wiring box: 15 DC input by fast connectors fuse protection on both poles DC surge protection type II with monitoring DC Switch RS-485, Ethernet, wi-fi SD card slot 5 year warranty To be assembled with AC wiring box, power module and mounting bracket	3P40000DC08A
ACWB-SX-TRIO-TM-60.0-480;SPD	TRIO-TM-60.0 AC wiring box: AC disconnect switch AC surge protection type II with monitoring 5 year warranty To be assembled with AC wiring box, power module and mounting bracket	3P40000AC04A
Wall mounting bracket; TRIO-50.0/60.0	Vertical mounting bracket to be used for vertical mounting (wall, posts, etc) the TRIO 50.0/60.0 power module, DC and AC wiring boxes	3N639901000A
Lower mounting bracket;TRIO-50/60	Additional mounting bracket To be used to fix the lower part with vertical mounting. Ensures stability in peculiar conditions like heavy winds	3N639903000A
Horizontal mounting bracket;TRIO-50.0/60.0	Horizontal mounting bracket To be used for horizontal mounting (flat on rooftop, etc) the TRIO 50.0/60.0 power module, DC and AC wiring boxes	3N639902000A

STOCK | INDENT

TRIO-TM-60.0

Unipack order

Model	Descriptions	Order code
TRIO-TM-60.0;SXE-SPD-SX-SPD	TRIO-TM-60.0-480-POWER MODULE DCWB-SX2-TRIO-TM-60.0-480;SPD ACWB-SX-TRIO-TM-60.0-480;SPD Wall mounting bracket;TRIO-50.0/60.0 Lower mounting bracket;TRIO-50/60	3P829900000A

Accessories

Model	Descriptions	Order code
Horizontal mounting bracket;TRIO-50.0/60.0	Horizontal mounting bracket To be used for horizontal mounting (flat on rooftop, etc) the TRIO 50.0/60.0 Power module, DC and AC wiring boxes	3N639902000A
Lower mounting bracket;TRIO-50/60	Additional mounting bracket To be used to fix the lower part with vertical mounting Ensures stability in peculiar conditions like heavy winds	3N639903000A
TRIO-50/60-AC Wiring kit	Improved AC connection capability of TRIO-50.0/60.0 Aluminum and copper cables up to 150mm^2	3P500001000A
Handling kit	Handling kit for TRIO-20.0/27.6/50.0/60.0 models: 4 handles 2 eye bolts	3M8700HNDK0A
Weidmuller DC cable connector kit - 1 bag	10 WM connectors DC - per bag 10 WM connectors DC - per bag Compatible with: TRIO-7.5/8.5-TL-OUTD TRIO-20.0/27.6 TRIO-50.0/60.0 families only	3M870020000A
Weidmuller DC cable connector kit - 20 bag	(10 WM connectors DC+ and 10 WM connectors DC- per bag) - 20 bags Compatible with: TRIO-5.8/7.5/8.5-TL-OUTD TRIO-20.0/27.6-TL-OUTD TRIO-50.0-TL-OUTD families only	3M8700CK000A

PVS-120-TL

The PVS-100/120-TL is ABB's cloud connected three-phase string solution for cost efficient decentralized photovoltaic systems for both ground mounted and large commercial applications.



This completely new platform, for extreme high power string inverters maximizes the ROI for decentralized ground mounted and large rooftop applications. With six MPPT, energy harvesting is optimised even in shading situations. The horizontal and vertical mounting possibility creates flexibility for both ground mounted and rooftop installations.

Covers are equipped with hinges and locks that are fast to open and reduce the risk of damaging the chassis and interior components when commissioning and performing maintenance actions. Cloud connected to ABB Ability, it enables access to advanced monitoring and control features through laptop and mobile devices.

Features

- 6 independent MPPT
- Transformerless inverter
- Wi-fi as standard for configuration
- Two Ethernet ports for plant level communication
- String monitoring and monitored surge protection
- Double stage topology for a wide input range
- Both vertical and horizontal installation
- Separate wiring compartment for fast swap and replacement
- IP66 Environmental protection

Separate part

Model	Descriptions	Order code
PVS-120-TL-POWER MODULE	PVS-120 Power Module 120 000 Wac @480 vac 6 Mppt IP66 (fans IP54) 5 Year warranty To be assembled with wiring box and mounting bracket	3P51000A000A
WB-SX2-PVS-100/120-TL/24 Inputs	PVS-100/PVS-120 SX2/24 model wiring box: 24 + 24 DC input with 24 + 24 string fuses Individual current monitoring of the DC inputs (24 ch) Monitored&replaceable DC surge protection Type II DC disconnect switch AC disconnect switch AC busbar connection (Cu/Al) Monitored&replaceable AC surge protection Type II Dual port Ethernet (Modbus/SUNSPEC) RS-485 communication interface (Modbus/Sunspec) Wi-fi and SD card slot IP66 5 year warranty To be assembled with power module and mounting bracket and DC connector counter parts	3P090010000A
Accessory; bracket; PVS-100/120	Mounting kit to be used with the inverter Horizontal/vertical installation supported	3P519900000A

Unipack

Model	Descriptions	Order code
PVS-120-TL; SX2 FULL	PVS-120-TL-POWER MODULE WB-SX2-PVS-120-TL/24 INPUTS Accessory; Bracket; PVS-100/120	3P909901000A

Accessories

Model	Descriptions	Order code
PVS installation kit	PVS 100/120 Installation and lifting kit	3P51000A000A
Multicontact dc cable connector kit - 10 bag	(4 MC connectors DC+ per bag) - 10 bags (4 MC connectors DC- per bag) - 10 bags Compatible with: UNO-DM-PLUC, REACT, PVI-10.0/12.5-TL-OUTD, PVS-100/120	3P090010000A

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ABB



Solar solutions

796 String combiners for solar photovoltaic system

797 Switches for photovoltaic applications

802 Solar photovoltaic string protection MCB – 27mm pole width

803 Modular DIN rail components

804 Meters and measurement

808 Enclosures

810 1000 V DC switching contactors

811 Grid feeding monitoring relays

812 Timers, monitoring relays and power supplies

813 Primary switch mode power supplies

—
OPPOSITE

Sustainable City, Dubai: Dubai's first city to be powered completely by solar energy relies on ABB string inverters to harness the power of the sun for its residents.

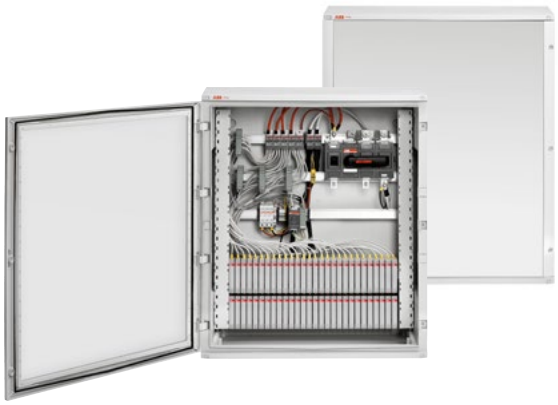
—
For more detailed product information, please refer to the Technical Catalogue:

- Switches for PV applications – 1SCC301021C0203
- Electrical installation solutions – 2CHC000002C0201
- Circuit measuring system – 2CCC481003C0201
- Gemini enclosures – 1STC804013D0204
- 1000 V DC switching contactors – 1SFC101004B0201
- Electronic relays and controls – 2CDC110004C0210

String combiners for solar photovoltaic system

A plug & play solution for photovoltaic solar installations

In a photovoltaic system the modules are arranged in strings and fields depending on the type of inverter used, the total power and the technical characteristics of the modules.



The connection of modules in series is made on the modules themselves, while the parallel connection of the strings is made inside string boxes that accommodate, along with the interconnection systems, also the overcurrent protection devices, disconnectors and surge protection devices. The string boxes form subsystems that can be standardized according to the number of strings, voltage and rated current. ABB offers different product ranges, each dedicated to specific installation conditions with typical configurations.

String boxes

The installation of a photovoltaic system often occurs in complex logistic situations, critical from the environmental and time perspective. The availability of tested and certified pre-assembled components allows the installer to avoid unnecessary on-site assembly, wiring and certification activities for the string boxes.

Further to reduce costs and reduce the space occupied, for multiple string inverters a single switchboard, the protective devices and disconnectors of multiple strings intended to be connected to a specific inverter input can be placed together in a Multi-output string boxes.

String combiner 1000/1500V DC

- Single or Dual fuse protection variants available
- With or without monitoring as well as Grounded/Ungrounded variants available
- 1000 and 1500V DC variants available.
- 16-32 string selections in case of 1500V DC with/without monitoring (1 fuse +) for grounded earthing systems
- 3-32 string selections in case of 1000V DC with/without monitoring (1 fuse +) for grounded earthing systems
- IP66 Glass Reinforced Protector Enclosure for strength and durability with UV Stabilisation
- Compact Design and multiple dimension model available
- Certified connection to AS/NZS 5033:2014



Switches for photovoltaic applications

Switch-disconnectors OTDC and OTDCP



OTDCP_S_M25

Enclosed solar switch up to 1000 V

Includes selector type red-yellow handle (I-0 and ON-OFF indication). M25 knock-outs compression glands have to be ordered separately.
One OTDC_ device can isolate the complete system by connecting 2 poles in series for positive voltage and 2 poles in series for negative voltage.
This range is not polarity sensitive.

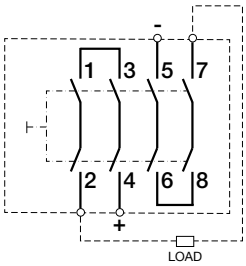
PV array max. voltage V DC-21B	In A	Shaft mm	Number of poles	Order code
2 x 66	25	6	4	OTDCP25SA22M25
2 x 1000	20	6	4	OTDCP32SA22M25

Note:
For more detailed product information such as **UL** switches, access, dimensions and drawings, please refer to the Technical Catalogue: 1SCC301021C0201



OTDC32F22

Standard supplied connection diagram



OTDC32F22 and OTDCP_

Note: Links supplied as standard



OTDC100...250E22



OTDC400...500E22

Solar Switch-disconnector up to 1000V

OTDC32_: Includes protected terminal clamps, IP20 and connection links. Direct knob handle provided as standard.
OTDC100...500_: Extension shaft and pistol handle available as an accessory. Terminal bolts included as standard.
All the suitable accessories for 6 and 12 mm shafts available in the Load break switches chapter.
One OTDC_ device can isolate the complete system by connecting 2 poles in series for positive voltage and 2 poles in series for negative voltage.
This range is not polarity sensitive.

PV array max. voltage V DC-21B	In A	Shaft mm	Number of poles	Order code
2 x 1000	160	6	4	OTDC160E22P
	16	0	4	OTDC16F4



XT1 circuit breaker

MCCBs for DC protection

All the standard Tmax with thermomagnetic trip unit (TM_) can perform at 660 V DC.
For voltages up to 1100 V DC please contact to ABB.

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Ordering information, IEC

OTDC100...200, 1500 VDC



OTDC100...250E02

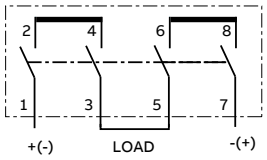
Single circuit, 1500 VDC, IEC - 100...200 A

The switches OTDC_EV22 can be used for single circuit 1500VDC applications. Shafts and handles are included. Phase barriers included.

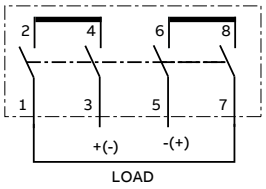
Number of poles	Circuit	Rated operat. current [A] DC 21 / 1000 V	Order code
OTDC100...200EV22 - Mechanism between the poles			
2x2	6a, 6b	100	OTDC100EV22P
2x2	6a, 6b	160	OTDC160EV22P
2x2	6a, 6b	200	OTDC200EV22P

Recommended shafts, handles and bolt kits

Suitable for switches	Shaft	Handle	Bolt kit
OTDC100...250	OXP6X210	OHB65J6	M8x25
OTDC100...250	Direct mount	OTDV250EK	M8x25



Single circuit
Connection 6a



Single circuit
Connection 6b

Ordering example

OTDC160EU22P	+	OTDCKIT250S11	+	OTDCS400GSB
Switch incl. shaft and handle	+	Connect Bars	+	Shroud

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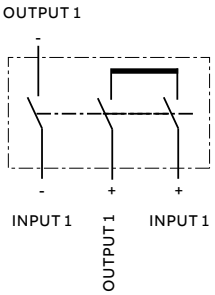
Ordering information, IEC

OTDC3165C...500, 1500 VDC



OTDC315...500EV12



Single PV circuit

Single circuit, 1500 VDC, IEC - 315...500 A

Shafts and handles are included. Switches with external handle (OTDC_P, e.g. OTDC400EV12P) or direct mount handle (OTDC_K, e.g. OTDC400EV12K) are available. Phase barriers included.

Number of poles	Circuit	Rated operat. current [A] DC 21 / 1500 V	Order code
Mechanism between the poles, single circuit. Pre-mounted connection bar			
3	5a	315	OTDC315EV12P
3	5a	400	OTDC400EV12P
3	5a	500	OTDC500EV12P

Recommended shafts, handles and bolt kits

Suitable for switches	Shaft	Handle	Bolt kit
OTDC315...400	Direct mount	OTDV400EK	M10x30
OTDC500	Direct mount	OTDV400EK	M12x40



OTDC315...500E33

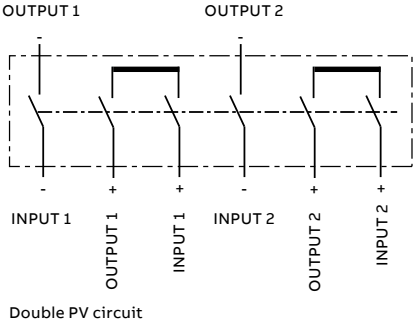
Double circuit, 1500 VDC, IEC - 315...500 A

Shaft, handles and connection kit are included. Switches with external handle (OTDC_P, e.g. OTDC400EV12P) or direct mount handle (OTDC_K, e.g. OTDC400EV12K) are available. Phase barriers included.

Number of poles	Circuit	Rated operat. current [A] DC 21 / 1500 V	Order code
Mechanism between the poles, single circuit. Pre-mounted connection bar			
2x3	7b, 7g	315	OTDC315E33P
2x3	7b, 7g	400	OTDC400E33P
2x3	7b, 7g	500	OTDC500E33P

Required connection kits and shrouds

Suitable for switches	Connection kit	Shroud
OTDC315...500	OTDCKIT400S11	OTDCS400G2B



Double PV circuit

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Ordering information for accessories

Connection bar kits


OEZXY91


OTDCKIT250S11


OTDCKIT400S101


OTDCKIT400S11


OTDCKIT400B11


OTDCKIT400B101


OTDCKIT400B111


OTDCKIT400B202

Short circuit and connection bar kits

Refer to pages for circuit diagrams showing the possible connections and needed amounts of kits.
The kits include the necessary mounting hardware.

Suitable for switches	Order Code
OTDC100...250E_	OEZXY91
OTDC100...250E_	OTDCKIT250S11
OTDC315...500E	OTDCKIT400S101
OTDC315...500E	OTDCKIT400S11
OTDC315...500E	OTDCKIT400B11
OTDC315...500E	OTDCKIT400B111
OTDC250...400US	OTDCKIT400B101


OTDCS400G2B


OEZXY97


OTDCS400T2L


OTDCS400T11L

Suitable forswitches	Suitable for jumper /connection bar	Shroud
Grey	Order Code	Order Code
OTDC315...500E,	OTDCKIT400S11	OTDCS400G2B
OTDC315...500E	OTDCKIT400S101	OEZXY97
OTDC315...800E	OTDCKIT400B11	OTDCS400T2L
OTDC315...500E	OTDCKIT400B101	OTDCS400T11L
OTDC315...500E	OTDCKIT400B111	OTDCS400T3L
OTDC1000...1600E_	OTDCKIT1250B11	OTDCS1250T2
OTDC1000...1600E_	OTDCKIT1250B101	OTDCS1250T3

Ordering information for accessories

Terminal shrouds


OTS250G1L


OTS250T1L


OTS1600G1L


OTS1600G1S

Terminal shrouds

The type and ordering numbers are for one piece.

Suitable for switches	Description	Order code
Grey		
OTDC100…250E	long	OTS250G1L
OTDC315…500E	short	OTDCS400G1S
OTDC315…500E	long	OTDCS400G1L
OTDC1000…1600E_	short	OTS1600G1S[1)]
OTDC1000…1600E_, 1000U_	long	OTS1600G1L[1)]
Transparent		
OTDC100…250E	long	OTS250T1L
OTDC315…500E	short	OTDCS400T1S
OTDC315…500E	long	OTDCS400T1L

[1)] The use of shrouds limits the rated current: OTDC1000U22 to 980 A and OTDC1000US22 to 920 A.

Solar photovoltaic string protection MCB – 27mm pole width

S800PVS



S802PVSP

Miniature circuit breaker (MCB) 5kA photovoltaic string protection range

The ABB S800PVS range of high performance miniature circuit breakers are designed to provide protection and control of photovoltaic strings against overloads, short circuits and reverse currents. The S800PVS can be an ideal replacement for fuses due to simple string failure identification and signalisation.

Miniature circuit breaker (MCB) 5kA photovoltaic string protection range

Standard	C-Curve Rating (A)	Description	Order code 2 Pole	Order code 4 Pole
AS/NZS60947,	6	MCB 6A for solar PV strings	S802PVSP6	S804PVSP6
IEC/EN60947	8	MCB 8A for solar PV strings	S802PVSP8	S804PVS8
Rated short circuit capacity I_{cu}	10	MCB 10A for solar PV strings	S802PVSP10	S804PVSP10
5kA	13	MCB 13A for solar PV strings	S802PVSP13	S804PVSP13
Voltage range	16	MCB 16A for solar PV strings	S802PVSP16	S804PVSP16
2P: 10A to 125A – 800 V DC	20	MCB 20A for solar PV strings	S802PVSP20	S804PVSP20
4P: 10A to 125A – 1500 V DC	25	MCB 25A for solar PV strings	S802PVSP25	S804PVSP25
	32	MCB 32A for solar PV strings	S802PVSP32	S804PVSP32
	40	MCB 40A for solar PV strings	S802PVSP40	S804PVSP40
	50	MCB 50A for solar PV strings	S802PVSP50	S804PVSP50
	63	MCB 63A for solar PV strings	S802PVSP63	S804PVSP63
	80	MCB 80A for solar PV strings	S802PVSP80	S804PVSP80
	100	MCB 100A for solar PV strings	S802PVSP100	S804PVSP100
	125	MCB 125A for solar PV strings	S802PVSP125	S804PVSP125

3 pole available on request



S802PVSP

DIN rail isolator 1.5 kA photovoltaic string isolator range

The ABB S800PVSD range of high performance isolators are designed to provide control of photovoltaic strings.

DIN rail isolator 1.5 kA photovoltaic string isolator range

Standard	Rating (A)	Description	Order code 2 Pole	Order code 4 Pole
IEC 60947-3 and Annex D	32	Isolator 32A for solar strings	S802PVSD32	S804PVSD32
Rated short circuit capacity I_{cu}	63	Isolator 63A for solar strings	S802PVSD63	S804PVSD63
1.5kA	125	Isolator 125A for solar strings	S802PVSD125	S804PVSD125
Voltage range				
2P: 800 V DC				
4P: 1500 V DC				

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Modular DIN rail components

Selection of surge protective devices and E90 fuse switch disconnectors

Photovoltaic application surge protection devices

- Specifically designed for photovoltaic DC installations
- Plug in replacement cartridges
- Models with ts suffix have signalling contact
- End of life service indicator on front of SPD



OVR PV T1 6.25-600 P TS

Type 1 PV

Protected poles	Impulse current I_{imp}	Max discharge current I_{max}	Type description	Order code
2	6.25	–	OVR PV T1 6.25-600 sPTS Type 1 PV 6.25kA 600V	2CTB803953R5700
2	6.25	–	OVR PV T1 6.25-1000 sPTS Type 1 PV 6.25kA 1000V	2CTB803953R6700



OVR PV 40-1000 P TS

Type 2 PV

Protected poles	Impulse current I_{imp}	Max discharge current I_{max}	Voltage protection level U_p	Max. cont operating voltage U_{cpv}	Backup fuse/MCB	Modules	Order code
2	–	40	1.4	670	–	3	OVRPV40-600PTS
2	–	40	3.8	1100	–	3	OVRPV40-1000PTS

Note: Surge protective devices technical data can be found on page 96 in the **Modular DIN rail components** section of this catalogue

E90PV fuse disconnector for 8.5 x 31.5mm fuses

- Rated 1000VDC for photovoltaic applications
- Padlockable in open position
- DC-20B
- Standard: IEC 60947-3



E 92

Poles	Rated current	Modules	Order code
1	32	1	E91/32PV
2	32	2	E92/32PV

STOCK | INDENT

Meters and measurement

EQ electricity meters



A41



A42

DIN rail mount A-Series

- Accuracy Class 1 (direct connect) Class 0.5S (CT connect)
- Accurate measurement of main electrical parameters
  - Voltage - phase-neutral and phase-phase
  - Current
  - Power factor
  - Frequency
  - Active, reactive and apparent energy (Active energy only A**_111)
  - Active, reactive and apparent power
  - Maximum calculated demand on active, reactive and apparent power
  - Pulse output
- •Automatic detection of CT's current flow direction
  - Displayed min/max values
  - Voltage – phase-neutral
  - Current
  - Active, reactive and apparent power
- Resettable active and reactive energy registers on some models

Single phase A-Series electricity meters (4 DIN modules)

Voltage range	Pulse output	Alarm output	I/O 2 in, 2 out	Modbus	Import/ export	Min/max demand	V, I, PF WHr	Var, VA VARh, VA	Resettable register	Order code
80A Direct connect										
57.7 ... 288 V AC	●	●					●			A41-111-100
57.7 ... 288 V AC	●	●	●	●	●	●	●	●	●	A41-412-100
5A CT/VT connect										
57.7 ... 288 V AC	●	●					●			A42-111-100
57.7 ... 288 V AC	●	●	●	●	●		●	●		A42-312-100
57.7 ... 288 V AC	●	●	●	●	●	●	●	●	●	A42-412-100



A43



A44

Three phase A-Series electricity meters (7 DIN modules)

Voltage range	Pulse output	Alarm output	I/O 2 in, 2 out	Modbus	Import/ export	Min/max demand	V, I, PF WHr	Var, VA VARh, VA	Resettable register	Order code
80A Direct connect										
57.7 ... 288 V AC	●	●					●			A43-111-100
57.7 ... 288 V AC	●	●		●	●		●	●		A43-212-100
57.7 ... 288 V AC	●	●	●	●	●	●	●	●	●	A43-512-100
5A CT/VT connect										
57.7 ... 288 V AC	●	●					●			A44-111-100
57.7 ... 288 V AC	●	●		●	●		●	●		A44-212-100
57.7 ... 288 V AC	●	●	●	●	●	●	●	●	●	A44-452-100

STOCK | INDENT

Meters and measurement

EQ electricity meters



B21



B23



B24

DIN rail mount B-Series

- Accuracy Class 1 (direct connect) Class 0.5S (CT connect)
- Accurate measurement of main electrical parameters
  - Voltage - phase-neutral and phase-phase
  - Current
  - Power factor
  - Frequency
  - Active, reactive and apparent energy (Active energy only on B**-111)
  - Active, reactive and apparent power
  - Pulse output
- Automatic detection of CT's current flow direction
- Resettable active and reactive energy registers on some models

Single phase B-Series electricity meters (2 DIN modules)

Voltage range	Pulse output	Alarm output	I/O 2 in, 2 out	Modbus	Import/ export	Min/max demand	V, I, PF WHr	Var, VA VARh, VA	Resettable register	Order code
65A Direct connect										
220 ... 240 VAC	●	●					●			B21-111-100
220 ... 240 VAC	●	●	●	●	●		●	●	●	B21-312-100

Three phase B-Series electricity meters (4 DIN modules)

Voltage range	Pulse output	Alarm output	I/O 2 in, 2 out	Modbus	Import/ export	Min/max demand	V, I, PF WHr	Var, VA VARh, VA	Resettable register	Order code
65A Direct connect										
220 ... 240 VAC	●	●					●			B23-111-100
220 ... 240 VAC	●	●		●	●		●	●		B23-212-100
220 ... 240 VAC	●	●	●	●	●		●	●	●	B23-312-100
5A CT connect										
220 ... 240 VAC	●	●					●			B24-111-100
220 ... 240 VAC	●	●		●	●		●	●		B24-212-100
220 ... 240 VAC	●	●	●	●	●		●	●	●	B24-352-100



C11



C13

DIN rail mount C-Series

- Accuracy Class 1
- Accurate measurement of main electrical parameters
  - Voltage
  - Current
  - Power factor
  - Active energy
  - Active power
  - Pulse output

40A Direct connect

Voltage range	Description	V, I, PF WHr	Var, VA VARh, VA	Order code
Single phase C-Series electricity meters (single DIN module)				
230 VAC	Configurable pulse/alarm output	●		C11-110-300
Three phase C-Series electricity meters (3 DIN modules)				
230 VAC	Configurable pulse/alarm output	●		C13-110-300

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Meters and measurement

CMS – Current Measurement System



CMS-600

CMS-600 Control unit, current sensor with Modbus

- Auxiliary supply voltage 24 VDC
- up to 64 current sensors
- Current measurement up to 125A, AC or DC
- Modbus RTU protocol
- RS-485 2-wire interface
- DIN rail mounting

Description	Sensors	Modules width	Order code
CMS-600 Control unit, Modbus RTU	64 (2 x32)	4	CMS600



CMS-700

CMS-700 Control unit, energy monitor

- Auxiliary supply voltage 80 – 277 VAC
- Three phase measurement device for power and energy
- Captures various electrical parameter for up to 96 circuits
  - voltage
  - current
  - frequency
  - power factor
  - active power
  - reactive power
  - apparent power
- Suitable for LAN or WLAN network
- DIN rail mounting

Description	Sensors	Modules width	Order code
CMS-700 Control unit, Energy monito	96 (3 x 32)	9	CMS700

Meters and measurement

CMS – current measurement system



MCB mount



DIN rail mount



Cable tie mount

CMS Current sensors – Open core and solid core

- Up to 160A
- Measures TRMS AC or DC
- LED status indication

Maximum current (A)	Description	Cable window size	Order code
Open core sensors 18mm wide to suit ABB devices with double terminals (S200, F200, DS201, DSE201)			
80	CMS-120PS Sensor 18mm 80A Open Core	10 mm	CMS120PS
40	CMS-121PS Sensor 18mm 40A Open Core	10 mm	CMS121PS
20	CMS-122PS Sensor 18mm 20A Open Core	10 mm	CMS122PS
Open core sensors 18mm wide to suit DIN rail mounting (universally usable)			
80	CMS-120DR Sensor 18mm 80A Open Core	10 mm	CMS120DR
40	CMS-121DR Sensor 18mm 40A Open Core	10 mm	CMS121DR
20	CMS-122DR Sensor 18mm 20A Open Core	10 mm	CMS122DR
Open core sensors 18mm wide to suit cable tie mounting (universally usable)			
80	CMS-120CA Sensor 18mm 80A Open Core	10 mm	CMS120CA
40	CMS-121CA Sensor 18mm 40A Open Core	10 mm	CMS121CA
20	CMS-122CA Sensor 18mm 20A Open Core	10 mm	CMS122CA
Solid core sensors 18mm wide to suit ABB devices with double terminals (S200, F200, DS201, DSE201)			
80	CMS-100PS Sensor 18mm 80A Solid Core	10 mm	CMS100PS
40	CMS-101PS Sensor 18mm 40A Solid Core	10 mm	CMS101PS
20	CMS-102PS Sensor 18mm 20A Solid Core	10 mm	CMS102PS
Solid core sensors 18mm wide to suit S800 MCB's			
80	CMS-100S8 Sensor 18mm 80A Solid Core	10 mm	CMS100S8
40	CMS-101S8 Sensor 18mm 40A Solid Core	10 mm	CMS101S8
20	CMS-102S8 Sensor 18mm 20A Solid Core	10 mm	CMS102S8
Solid core sensors 18mm wide to suit DIN rail mounting (universally usable)			
80	CMS-100DR Sensor 18mm 80A Solid Core	10 mm	CMS100DR
40	CMS-101DR Sensor 18mm 40A Solid Core	10 mm	CMS101DR
20	CMS-102DR Sensor 18mm 20A Solid Core	10 mm	CMS102DR
Solid core sensors 18mm wide to suit cable tie mounting (universally usable)			
80	CMS-100CA Sensor 18mm 80A Solid Core	10 mm	CMS100CA
40	CMS-101CA Sensor 18mm 40A Solid Core	10 mm	CMS101CA
20	CMS-102CA Sensor 18mm 20A Solid Core	10 mm	CMS102CA
Solid core sensors 25mm wide to suit S800 MCB's			
160	CMS-100S8 Sensor 25mm 80A Solid Core	10 mm	CMS200S8
80	CMS-101S8 Sensor 25mm 40A Solid Core	10 mm	CMS201S8
40	CMS-102S8 Sensor 25mm 20A Solid Core	10 mm	CMS202S8
Solid core sensors 25mm wide to suit DIN rail mounting (universally usable)			
160	CMS-100DR Sensor 25mm 80A Solid Core	10 mm	CMS200DR
80	CMS-101DR Sensor 25mm 40A Solid Core	10 mm	CMS201DR
40	CMS-102DR Sensor 25mm 20A Solid Core	10 mm	CMS202DR
Solid core sensors 25mm wide to suit cable tie mounting (universally usable)			
160	CMS-100CA Sensor 25mm 80A Solid Core	10 mm	CMS200CA
80	CMS-101CA Sensor 25mm 40A Solid Core	10 mm	CMS201CA
40	CMS-102CA Sensor 25mm 20A Solid Core	10 mm	CMS202CA

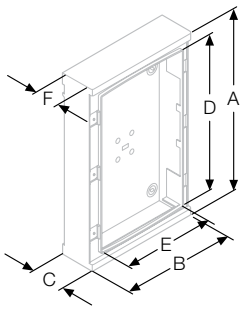
Accessories

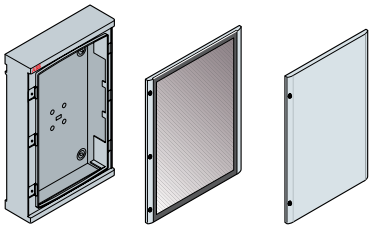
Description	Order code
Flat cable 2m	CMS800
Flat cable 3m	CMS801
Connector set (35pcs)	CMS820
WiFi Antenna	CMS870

STOCK | INDENT

Enclosures

IP66 Gemini weatherproof range

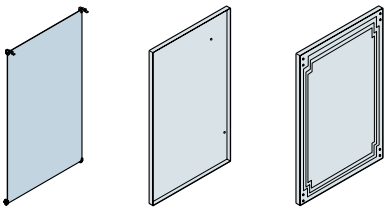


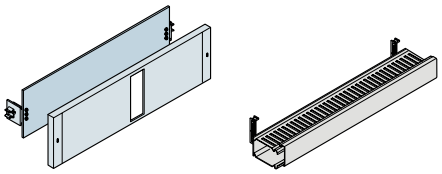


Basic configuration

Size	Number of installable DIN modules	Number of vertical modules	External dimensions			Internal dimensions			Box	Door	
	(mod. x row)	H=150 mm	A	B	C	D	E	F		Transparent	Opaque
1	24 (12x2)	2	400	335	210	300	250	180	1SL0221A00	1SL0241A00	1SL0231A00
2	54 (18x3)	3	550	460	260	450	375	230	1SL0222A00	1SL0242A00	1SL0232A00
3	72 (18x4)	4	700	460	260	600	375	230	1SL0223A00	1SL0243A00	1SL0233A00
4	96 (24x4)	4	700	590	260	600	500	230	1SL0224A00	1SL0244A00	1SL0234A00
5	120 (24x5)	5	855	590	360	750	500	330	1SL0225A00	1SL0245A00	1SL0235A00
6	216 (36x6)	6	1005	840	360	900	750	330	1SL0226A00	1SL0246A00	1SL0236A00

Note:
Upright are required to fit DIN rail panels and modular plate. Upright not required for base plates.





Components for automation

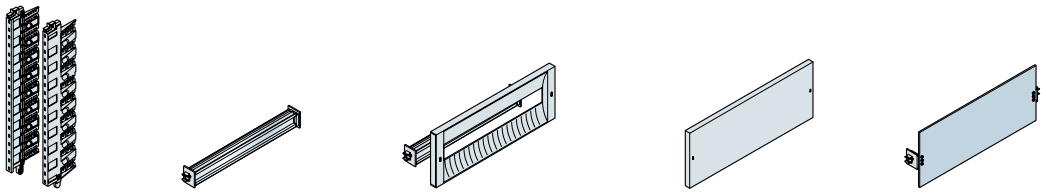
Size	Base plate	Inner door
	Blank	
1	1SL0259A00	1SL0251A00
2	1SL0260A00	1SL0252A00
3	1SL0261A00	1SL0253A00
4	1SL0262A00	1SL0254A00
5	1SL0263A00	1SL0255A00
6	1SL0264A00	1SL0256A00

Accessories for distribution

Accessories for distribution	Kit for Tmax XT		x-O-Rapid kit with wiring duct	
	H. 150 mm	H. 300 mm	25x60 mm	40x60 mm
1	–	–	1SL0353A00	1SL0360A00
2	1SL0373A00	1SL0376A00	1SL0354A00	1SL0361A00
3	1SL0373A00	1SL0376A00	1SL0354A00	1SL0361A00
4	1SL0374A00	1SL0377A00	1SL0355A00	1SL0362A00
5	1SL0374A00	1SL0377A00	1SL0355A00	1SL0362A00
6	1SL0375A00	1SL0378A00	1SL0356A00	1SL0363A00

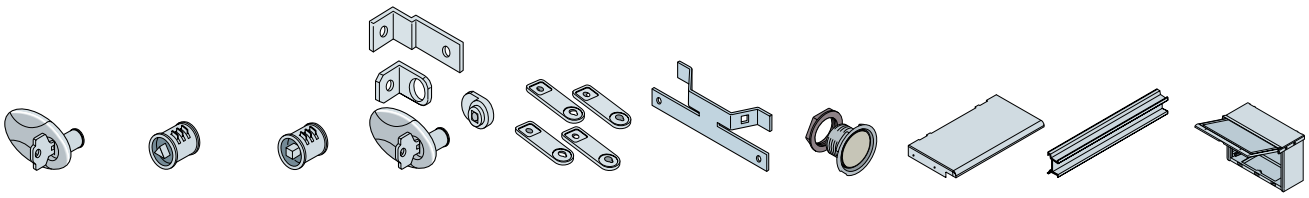
Enclosures

IP66 Gemini weatherproof range



Components for automation

Size	Uprights	DIN rail	DIN panel kit Panel + DIN rail		Blank panel			Modular plate	
			H=150 mm	H=225 mm	H=75 mm	H=150mm	H=300 mm	H=150 mm	H=300 mm
1	1SL0283A00	1SL0290A00	1SL0307A00	–	1SL0318A00	1SL0324A00	1SL0330A00	1SL0296A00	–
2	1SL0284A00	1SL0291A00	1SL0308A00	1SL0313A00	1SL0319A00	1SL0325A00	1SL0331A00	1SL0297A00	1SL0302A00
3	1SL0285A00	1SL0291A00	1SL0308A00	1SL0313A00	1SL0319A00	1SL0325A00	1SL0331A00	1SL0297A00	1SL0302A00
4	1SL0285A00	1SL0292A00	1SL0309A00	1SL0314A00	1SL0320A00	1SL0326A00	1SL0332A00	1SL0298A00	1SL0303A00
5	1SL0286A00	1SL0292A00	1SL0309A00	1SL0314A00	1SL0320A00	1SL0326A00	1SL0332A00	1SL0298A00	1SL0303A00
6	1SL0287A00	1SL0293A00	1SL0310A00	1SL0315A00	1SL0321A00	1SL0327A00	1SL0333A00	1SL0299A00	1SL0304A00



Accessories common to the whole range

Size	Lock with handle	Lock with triangular impression	Lock with square impression	Anti tampering locking kit	Bounting brackets	Pole installation kit	Anti condensation kit	Integral cover	Depth adapter	Horizontal kit
1	1SL0340A00	1SL0341A00	1SL0339A00	1SL0458A00	1SL0342A00	1SL0343A00	1SL0351A00	1SL0451A00	AP6000	–
2						1SL0344A00		1SL0452A00		1SL0470A00
3						1SL0344A00		1SL0452A00		1SL0471A00
4						1SL0345A00		1SL0454A00		
5						1SL0345A00		1SL0455A00		1SL0472A00
6						1SL0346A00		1SL0456A00		1SL0473A00

1000 V DC switching contactors

35 to 1750 A DC-1 with 1 N.O. + 1 N.C. auxiliary contact


GA75-10-11


GAE75-10-11

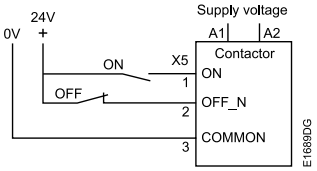

GAF185-10-11


GAF300-10-11


GAF750-10-11


GAF1650-10-11

Control inputs



Description

GA(E)75 ... GAF2050 contactors are designed for controlling resistive or slightly inductive loads up to 1000 V DC.

These contactors are of the block type design with 3 main poles for connection in series (GA(E)75) or by the user according to conductor cross-sectional area or by using LP connection bars to be ordered separately.

- main poles arc chutes fitted with permanent magnets specially designed for DC breaking. The connection polarities must be respected.
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 3 coils to cover control voltages between 48...250 V 50/60 Hz and 20...250 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated	Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Current θ ≤ 55 °C 1000 V DC-1	**50/60 Hz**					
A	**V AC**	**V DC**				
35	24		1	1	1SBL411025R8111	GA75101181
		24	1	1	1SBL419025R8111	GAE75101181
	110		1	1	1SBL411025R8411	GA75101184
		110...120	1	1	1SBL419025R8611	GAE75101186
	230...240		1	1	1SBL411025R8811	GA75101188
200	–	20...60	1	1	1SFL497025R7211	GAF185101172 (1)
	100...250	100...250	1	1	1SFL497025R7011	GAF185101170
400	–	20...60	1	1	1SFL557025R7211	GAF300101172 (1)
	100...250	100...250	1	1	1SFL557025R7011	GAF300101170
600	–	24...60	1	1	1SFL597025R6811	GAF460101168 (1)
	100...250	100...250	1	1	1SFL597025R7011	GAF460101170
	250...500	250...500	1	1	1SFL597025R7111	GAF460101171
875	–	24...60	1	1	1SFL637025R6811	GAF750101168 (1)
	100...250	100...250	1	1	1SFL637025R7011	GAF750101170
	250...500	250...500	1	1	1SFL637025R7111	GAF750101171
1040	–	24...60	1	1	1SFL647025R6811	GAF1250101168
	100...250	100...250	1	1	1SFL647025R7011	GAF1250101170
	250...500	250...500	1	1	1SFL647025R7111	GAF1250101171
1450	100...250	100...250	1	1	1SFL677025R7011	GAF1650101170
1750	100...250	100...250	1	1	1SFL707025R7011	GAF2050101170

1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.

GAF460 ... GAF750 are equipped with low voltage inputs for control, for example by a PLC.
GAF1250 ... GAF2050 are equipped with low voltage inputs for control, for example by a PLC.
For more detailed product information including accessories, please refer to the Technical Catalogue: 1SBC100192C0202

STOCK	INDENT

Grid feeding monitoring relays

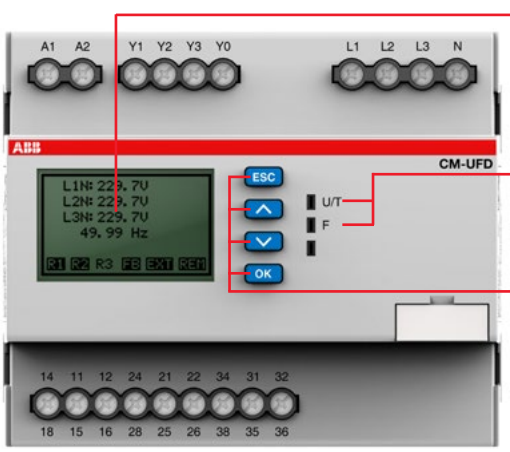
Voltage and frequency monitoring functions

Benefits and advantages

Characteristics for all CM-UFD devices

- Monitoring of voltage and frequency in single- and three-phase mains 2-wire, 3-wire or 4-wire
- Over- and undervoltage, 10 minutes average value as well as over- and underfrequency monitoring
- Two-level threshold settings for over-/undervoltage and frequency
- Multiline, backlit LCD display
- All threshold values adjustable as absolute values
- True RMS measuring principle
- High measurement accuracy
- 3 control inputs for remote trip, feedback signal, and external signal
- Interrupted neutral detection
- Error memory for up to 99 entries (incl. cause of error, measured value, relative timestamp)
- Test function
- Password setting protection
- 3 c/o (SPDT) contacts
- LEDs for the indication of operational states

CM-UFD.M33



1 **Display**
R1 R2 R3 - relay status; in this case R3 is de-energized
FB - status feedback loop Y0-Y1; in this case FB is closed
EXT – status input external signal; in this case input is closed
REM – status remote trip input; in this case input is closed

2 **Indication of operational states**
U/T: green LED – supply voltage applied / flashing = timing active
F: red LED - failure

3 **Keypad**
ESC: escape / return to previous menu
∧: up / value increase
∨: down / value decrease
OK: enter / confirm selection



CM-UFD.M33

Description

Only reliable and continuous monitoring of a three-phase network guarantees the trouble-free and economic operation of machines and installations.

Ordering details

Rated control supply voltage = measuring voltage	Factory code	Order code
24-240 V AC/DC	1SVR560730R3402	CM-UFD.M33

STOCK | INDENT

Timers, monitoring relays and power supplies

Insulation monitoring relays for unearthed supply systems



CM-IWS.1S



CM-IWS.2S



CM-IWN.1S



CM-IVN.S

Description

The high reliability of an IT system is guaranteed thanks to continuous insulation monitoring. An insulation monitoring device recognizes insulation faults as they develop, and immediately reports that the value has fallen below the minimum. This prevents operational interruption caused by a second, more severe insulation fault.
ABB developed a totally new range of insulation monitors for AC, DC or mixed AC/DC IT Systems up to 690 V AC or 1000 V DC. With only 4 devices most standard applications can be served. Additionally a version for solar applications with increased earth leakage capacitance has been added.

Ordering details

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	System leakage capacitance, max.	Adjustment range of the specified response value R_{an} (threshold)	Factory code	Order code
24 – 240 V AC/DC	0 – 250 V AC / 0 – 300 V DC	10 µF	1 – 100 kΩ	1SVR730660R0100	CM-IWS.1**S**
24 – 240 V AC/DC	0 – 400 V AC	10 µF	1 – 100 kΩ	1SVR730670R0200	CM-IWS.2**S**
24 – 240 V AC/DC	0 – 400 V AC / 0 – 600 V DC	20 µF	1 – 100 kΩ 2 – 200 kΩ (activated / de-activated by DIP-switch)	1SVR750660R0200	CM-IWN.1**S**

Ordering details – coupling unit

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	Factory code	Order code
Passive device, no control supply voltage needed	0 – 690 V AC / 0 – 1000 V DC	1SVR750669R9400	CM-IVN.**S**

For full selection and technical details, please refer to Electronic relays and controls catalogue – 2CDC110004C0210.

Terminology

used expression	alternative expression(s)
S	screw connection
P	push-in / easy connect

Primary switch mode power supplies


CPE24/0.75


CPE12/2.5


CPE48/5.0

CP-E range

This range offers types with output voltages from 5 V DC to 48 V DC at output currents of 0.625 A to 20 A. The high thermal efficiency of up to 90%, corresponding to very low power and heat dissipation, allows operation without forced cooling. The functionality has been enhanced while the number of different types has been considerably reduced.
Of course all power supplies of the CP-E range are approved in accordance with all relevant international standards.

Input voltage range	Rated output voltage / current	Factory code	Order code
CP – E < 100 W			
90 – 264 V AC / 120 – 375 V DC	5 V DC / 3 A	1SVR427033R3000	CPE5/3
85 – 264 V AC / 90 – 375 V DC	12 V DC / 2.5 A	1SVR427032R1000	CPE12/2.5
90 – 264 V AC / 120 – 375 V DC	24 V DC / 0.75 A	1SVR427030R0000	CPE24/0.75
85 – 264 V AC / 90 – 375 V DC	24 V DC / 1.25 A	1SVR427031R0000	CPE24/1.25
85 – 264 V AC / 90 – 375 V DC	24 V DC / 2.5 A	1SVR427032R0000	CPE24/2.5
CP – E ≥ 120 W			
90 – 132 V AC, 180 – 264 V AC / 210 – 375 V DC	24 V DC / 5 A	1SVR427034R0000	CPE24/5
90 – 132 V AC, 180 – 264 V AC / 210 – 375 V DC	24 V DC / 10 A	1SVR427035R0000	CPE24/10
90 – 264 V AC / 120 – 375 V DC	24 V DC / 20 A	1SVR427036R0000	CPE24/20
85 – 264 V AC / 90 – 375 V DC	48 V DC / 1.25 A	1SVR427031R2000	CPE48/1.25
90 – 264 V AC / 120 – 375 V DC	48 V DC / 10 A	1SVR427035R2000	CPE48/10


CPARU + CPACM


CPARU


CPRUD

Redundancy units

Description	Suitable for decoupling of two CP-24 V DC power supply units or suitable for decoupling of CP-E power supply units	Factory code	Order code
2 inputs each up to 20 A and 1 output up to 40 A	≤ 40 V and ≥ 5 A	1SVR427071R0000	CPARU
Control module for CP-A RU redundancy units	—	1SVR427075R0000	CPACM
2 inputs each up to 2.5 A and 1 output up to 5 A	≤ 35 V and < 5 A	1SVR423418R9000	CPRUD

For full selection and technical details, please refer to Electronic relays and controls catalogue – 2CDC110004C0210.

STOCK | INDENT

11
Electric vehicle charging

816 **Product portfolio**

817 **Car charging residential**

818 **Car charging infrastructure**

820 **ABB Ability™ Connected Services**

821 **Heavy vehicle charging infrastructure**

For more detailed product information, please refer to the website:

- www.abb.com/evcharging

Electric vehicle infrastructure

Product portfolio

ABB is leading the e-mobility revolution by offering a complete solution for charging infrastructure for any location combined with connected services. ABB EV chargers work seamlessly with service and payment applications, and support all EV charging standards. Since 2010, ABB is leading the e-mobility revolution with charging infrastructure for any location combined with connected services. Benefit from ABB's experience and expertise in installing and servicing 7000+ DC fast chargers worldwide.



Main features of all ABB chargers

ABB chargers are designed to be durable reliable and easy to service. Main advantages include:

- Modular and redundant construction to ensure continuous operation
- Industry-grade components to ensure long lifetime and robust operation
- Future-proof, easily upgradeable technology
- Remote maintenance and support for an effective, timely response to any irregularity
- Supports the open communication protocol OCPP
- Stainless steel powder coated cabinets for durability, even in cold or humid climates
- User centered design validated by user tests
- Remote charger's power management

EV Charging 'Whilst doing something else'		Public and commercial 'On the Road' EV Charging	
DC Wall Box	EVLunic AC Wall Box	TERRA 53 DC Fast	TERRA HP DC High Power
20-25 kW	3-22 kW	50 kW	150 to 350 kW+
1-3 hours	2-16 hours	20-90 min	10-20 min
			

Car charging residential

EVLunic



AC Wallbox

The ABB AC wallbox provides a high quality yet cost effective electric car charging point. Easy to fit and with a compact design, the wallbox can be installed at homes or offices, allowing drivers to simply plug their car in and get on with their day.

Main features

- 4.6kW and 11kW AC charging available
- 22 kW AC fast charging available
- Sealed electronics compartment
- Authentication
- Monitoring

Benefits

- Easy installation
- No need for an expensive upstream Type-B RCD
- Sim card models available for data communication
- High quality
- Compact design
  - DC leakage detection

Technical specifications	
AC output power	22kW depending on model
Network connection	Ethernet (Pro models, UMTS/3G optional)
Environment	Indoor / outdoor
Operating temperature	-25°C to +50°C no direct sunlight
Protection	IP54, indoor and outdoor
Dimensions (H x W x D)	495 x 249 x 163 (socket), 615 x 249 x 140 (level 2 cable)
Charge cable	Socket, socket with shutters, type 1 or type 2 cable
Mass	4.8 kg (socket), 6.6 kg (cable)
AC Input power connection	230 V - 230/400 V 3N (B models only 230V)
Protection against mechanical impact	IK08 (except for cylinder lock)
Compliance and safety	CE

Future release



DC Wallbox

A compact DC charger for car dealerships, offices, shopping areas and homes. With EV battery capacity increasing, DC charging will emerge in more and more locations. ABB introduces a DC wallbox supporting public and private use.

Main features

- 24 kW DC fast charging
- 60 A high output current
- Single or dual outlet: CCS and CHAdeMO
- 7” full color touchscreen display

Benefits

- Future-proof connectivity
- Robust, all-weather enclosure for indoor and outdoor use

Technical specifications	
AC output power	24 kW
Network connection	GSM/3G modem 10/100 Base-T Ethernet
Environment	Indoor/Outdoor
Operating temperature	-35°C to 55°C
Protection	IP54, indoor and outdoor
Dimensions (H x W x D)	720 x 550 x 305 mm
Mass	65 kg
Efficiency	94% at nominal output power

Car charging infrastructure

Terra 53 multi-standard DC charging station



Terra 53 CT

Terra 53 can deliver its full 50 kW DC continuously, thus supporting increasing EV battery capacities and charger utilisation levels. All chargers come with integrated Connected Services, allowing remote monitoring, diagnostics, software upgrades, and integration with back office applications.

Main features

- 50 kW DC fast charger supporting CCS and CHAdeMO, designed to deliver full output power continuously
- Simultaneous AC charging via optional 22/43 kW cable or 22 kW socket

Future proof connection

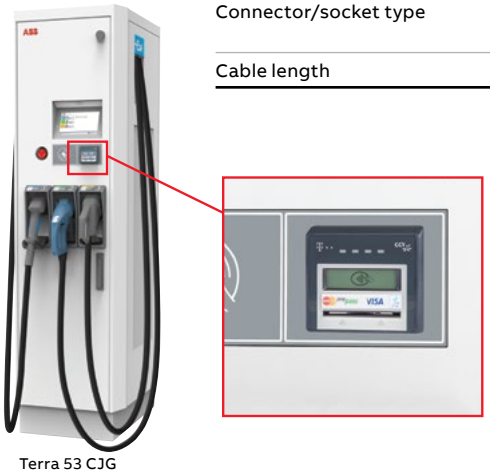
- Flexible interfacing
- Wider temperature range: -35 °C to +55 °C

Technical specifications	
Environment	Indoor/outdoor
Operating temperature	standard: -10 °C to +55 °C optional: -35 °C to +55 °C
Compliance and safety	CE, RMC, EAC, CHAdeMO 1.0
Max. rated input current & power	CJ: 80 A, 55 kVA CT, CJT: 112 A, 77 kVA CJG, CG: 143 A, 98 kVA
Power factor (full load)	> 0.96
Efficiency	94% at nominal output power
Network connection	GSM / 3G modem, 10/100 Base-T Ethernet
Protection	IP54
Dimensions (H x W x D)	780 mm x 565 mm x 1900 mm
Mass	360 kg



Terra 53 CJ

Outlet specifications	C (default)	J (option)	G (option)	T (option)
Charging standard	CCS	CHAdeMO	Type 2 cable	Type 2 socket
Maximum output power	50 kW	50 kW	43 kW	22 kw
Output voltage range	50 - 500 V_{DC}	50 - 500 V_{DC}	400 V +/-10%	400 V +/- 10%
Maximum output current	125 A_{DC}	125 A_{DC}	63 A	32 A
Connector/socket type	CCS 2	CHAdeMO / JEVS G105	IEC62196 Mode-3 Type-2	IEC62196 Mode-3 Type 2
Cable length	3.9 m	3.9 m	3.9 m	-



Terra 53 CJG

Payment and authentication

Global platform to support local payment and authentication solutions:

- RFID
- Smart phone
- PIN code
- Credit card payment module

Car charging infrastructure

Terra HP high power charging



175 kW
375 A
150-920 V_{DC}

ABB's Terra HP family has ultra-high current charging capability and can charge both 400 V and 800 V cars at full power. With 375 A output, a single power cabinet can charge a 400 V car at full 150 kW continuously.
Unique Dynamic DC power sharing technology ensures the most efficient way of charging multiple high-power EVs while optimising the available grid connection.

Main features

- Ultra-high current of 375 A per individual power cabinet
- Dynamic DC functionality: 500 A per charge post, to charge multiple EVs simultaneously
- Wide voltage range: 150 – 920 V
- Modular system: 175 – 500 kW
- Suited for current and next generation EVs
- Distance between power cabinet(s) and charge post(s) up to 150 m



Dynamic DC
2 x 350 kW
2x 500 A
150-920V_{DC}

Terra HP is ideally suited for highway rest stops and petrol stations. The system is expandable over time; it is possible to add additional power cabinets and charge posts after installation. This is a cost efficient way to build expandable charge points that can grow with market demand, as the EV base grows.

Technical specifications	
DC output power per power cabinet	175 kW peak 160 kW continuous (375 A)
DC output voltage range	150 – 920 V_{DC}
Maximum DC output current	375 or 500 A per charge post
Efficiency (full load)	95%
Environment	IP 54, stainless steel, outdoor use
Operating temperature	-35°C to +55°C
Network connections	GSM/2G/3G 10/100 base-T Ethernet
Power cabinet	
Dimensions (H x W x D)	2103 x 1170 x 770 mm
Weight	1340 kg
Charge post	
Dimensions (H x W x D)	2200 x 520 x 400 mm
Weight	350 kg

Payment and authentication

Global platform to support local payment and authentication solutions:

- RFID
- Smart phone
- PIN code
- Credit card payment module

ABB Ability™ Connected Services

ABB's Connected Services offering is based on a 24/7/365 monitored platform, which ensures the highest availability. A network operator can select from a modular offering supporting a smooth and seamless integration to back office processes via APIs, and giving access to value adding web tools for configuration, advanced monitoring and notification.



Advantages of connected charging

real-time status
notifications
access management
statistics
secure payment
configuration
remote diagnostics

Payment and authentication
Global platform to support local payment and authentication solutions:
- RFID
- Smart phone
- PIN code
- Credit card payment module

Heavy vehicle charging infrastructure



Overnight charging for electric buses and trucks



Main features and key benefits

- Charge electric buses and trucks with a connector
- 150 kW overnight charging system with three depot charge boxes
- Smart charging with up to three vehicles per charger
- Small infrastructure footprint
- Easy to upgrade power capacity on-site
- CCS protocol compliant
- Compatible with multiple vehicle brands and types
- OCPP compliant
- Remote management and support
- Safe and reliable connection



Opportunity charging for electric buses

Main features and key benefits

- 300 kW opportunity charging system
- Charge electric buses in 3 to 6 minutes at endpoints
- Easy integration into existing bus lines
- Automated 4-pole rooftop connection
- OCPP compliant for remote management
- Based on international IEC 61851-23 standard
- Compatible with multiple vehicle brands and types
- Safe and reliable connection
- Remote diagnosis and service



12
Cable accessories

825 **Cable ties**

843 **Conduit and fittings**

861 **Cable glands**

875 **Lugs and links**

891 **Terminals**

899 **Heatshrink**



Cable ties

826 Introduction

828 Ty-Rap® high performance cable ties

832 Ty-Fast™ all plastic cable ties

834 Ty-Rap® detectable cable ties

836 Ty-Fast® Ag+ bacteria-resistant cable ties

838 Ty-Met™ stainless steel cable ties

839 Mounting bases

841 Cable tie tooling

For more detailed product information, please refer to the Technical Catalogue:

- Cable ties & accessories: Easily bundle, secure and manage your cables

Cable ties
Introduction

When Thomas & Betts (today a Member of the ABB Group) invented the Ty-Rap cable tie to solve the problem of harnessing the hundreds of wires used in manufacturing aircraft it revolutionised the world of fastening. Today, these ties remain the benchmark for excellence and innovation in wire management.

Ty-Rap®



High performance

Ty-Fast®



All plastic

Ty-Met™



Stainless steel

ABB offer a broad range of ties to suit even the most demanding of applications. The following pages highlight our most common stocked items.

Please contact our customer service team for any additional product information.

Available materials

5 = Most suitable, 1 = Least suitable

Environment	Standard Nylon Ty-Series	Weather Resistant Nylon Ty-X Series	Fire Retardant Nylon Ty-FR Series	Weather Resistant Nylon 12 TYC-X Series	Polypropylene TYP-X Series	Heat Stabilised TYH Series	Heat Stabilised UV Resistant TY-X-A Series	Tefzel TYZ Series	Extra High Temperature TYHT Series	Stainless Steel LSYSeries
Ultraviolet resistance	1	4	1	4	4	1	4	5	1	5
Radiation	1	1	1	1	1	1	1	4	1	5
Low temperature	3	3	2	3	3	3	3	4	3	5
High temperature	3	3	3	2	2	4	4	4	5	5
Flammability	3	3	4	1	1	3	3	4	3	5

When you choose an ABB cable tie, you can count on quality, performance and innovation to make your work easier.

Ty-Rap®

High performance cable ties



The grip of steel
- 316 Stainless Steel, deeply imbedded in head
- Infinitely adjustable for perfect tension every time
- Handles heavy conditions: vibrations, external shocks

Smooth and notchless body
- Reduces stress concentration points
- Low-profile allows secure tying in tight spaces
- No serration, means infinite adjustment (tensioned right every time).

Wide range of variants
- Sizes and tensile strength options for varying bundles
- Colours to help with identification
- Special materials for use in demanding environments

Round heads
- Have no sharp edges
- Protect installer's hands
- Won't damage nearby cables
- Lower profile for fewer snags
- Are easier to pull through bulk heads

Ribs and Stipples
- Smooth even grip & gentle hold
- Prevents tie from slipping
- No pressure points

Handy tail
- No slip tail for better grip while tensioning
- Turned up tail, orients tail to head for easy assembly
- Easier to pick up on flat surface

Approvals and certifications

E49405

Ty-Rap® high performance cable ties

Polyamide 6.6 cable ties – Natural



Characteristics

- Standard version (Polyamide 6.6), to cover most indoor applications
- Several lengths and 6 typical widths with a tensile strength up to 780N, to cover the most demanding applications
- Packaging: OEM bulk quantities in recyclable polythene bags
- Also available in small bags with Euroslot and in workbench boxes

Approvals and certifications

E49405

Some approvals may not be applicable to all the Product References.

Colour
Natural

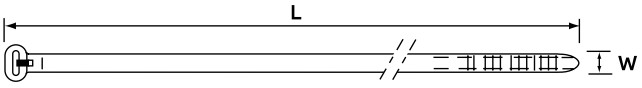
Material
Moulding Polyamide 6.6
Locking barb 316 grade stainless steel

Temperature range
-60°C to +85°C
Min. installation temp. -20°C

Other properties	Flammability rating
Halogen free, Silicone free	UL 94 V-2

Standard pack Order code	Bulk pack Order code	Body width mm	Length mm	Max. wire bundle diameter mm	Tensile strength N	Standard pack quantity	Bulk pack quantity
TY523M	TY23M	2.40	91.9	15.8	80	100	1000
TY52315M	TY2315M	2.40	178.0	38.1	80	100	1000
TY5232M	TY232M	2.40	203.2	50.8	80	100	1000
TY5234M	TY234M	2.40	355.6	101.6	80	100	1000
TY524M	TY24M	3.60	139.7	28.5	178	100	1000
TY5242M	TY242M	3.60	208.0	50.8	180	100	1000
TY526M	TY26M	3.60	281.9	76.2	130	100	1000
TY5244M	TY244M	3.60	368.3	101.6	134	100	1000
TY525M	TY25M	4.80	185.6	44.4	222	100	1000
TY5253M	TY253M	4.80	289.5	76.2	222	100	1000
TY528M	TY28M	4.80	360.6	101.6	222	100	1000
TY5272M	TY272M	7.60	203.2	50.8	534	50	500
TY527M	TY27M	7.60	340.3	88.9	540	50	500
TY5275M	TY275M	7.60	457.2	127.0	540	50	500
TY5277M	TY277M	7.60	617.2	177.8	540	50	500
TY529M	TY29M	7.60	762.0	228.6	540	50	500
TY53510M		8.13	889.0	254.0	780	25	–
TY54513M		8.13	1143.0	330.2	780	25	–

Cable ties made from natural nylon 6/6 are excellent performers in most applications. Nylon 6/6 is recommended for use in temperatures ranging from -40°C to 85°C.



STOCK | INDENT

Ty-Rap® high performance cable ties

Polyamide 6.6 cable ties – UV-resistant black



Characteristics

- UV-resistant version, especially recommended for outdoor applications
- Black version (2% carbon for military specifications)
- Also available in heat stabilised + UV-resistant version (contains 2% carbon according to military application), for outdoor applications that also require a resistance to high temperature (+105 °C).
- Several lengths and 6 typical widths with a tensile strength up to 780N, to cover the most demanding applications
- Packaging: OEM bulk quantities in recyclable polythene bags
- Also available in small bags with Euroslot and in workbench boxes

Approvals and certifications

E49405

Some approvals may not be applicable to all the Product References.

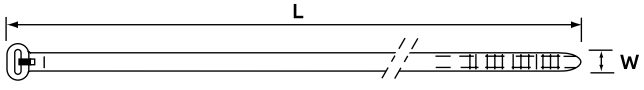
Colour
Black

Material
Moulding Polyamide 6.6
Locking barb 316 grade stainless steel

Temperature range
-60°C to +105°C
Min. installation temp. -30°C

Other properties	Flammability rating
UV-resistant, Halogen free, Silicone free	UL 94 V-2

Standard pack Order code	Bulk pack Order code	Body width mm	Length mm	Max. wire bundle diameter mm	Tensile strength N	Standard pack quantity	Bulk pack quantity
TY523MX	TY23MX	2.40	91.9	15.8	80	100	1000
TY52315MX	TY2315MX	2.40	178.0	38.1	80	100	1000
TY5232MX	TY232MX	2.40	203.2	50.8	80	100	1000
TY5234MX	TY234MX	2.40	355.6	101.6	80	100	1000
TY524MX	TY24MX	3.60	139.7	28.5	180	100	1000
TY5242MX	TY242MX	3.60	208.0	50.8	180	100	1000
TY526MX	TY26MX	3.60	281.9	76.2	130	100	1000
TY5244MX	TY244MX	3.60	368.3	101.6	130	100	1000
TY525MX	TY25MX	4.80	185.6	44.4	220	100	1000
TY5253MX	TY253MX	4.80	289.5	76.2	222	100	1000
TY528MX	TY28MX	4.80	360.6	101.6	222	100	1000
TY5272MX	TY272MX	7.60	203.2	50.8	540	50	500
TY527MX	TY27MX	7.60	340.3	88.9	540	50	500
TY5275MX	TY275MX	7.60	457.2	127.0	540	50	500
TY5277MX	TY277MX	7.60	617.2	177.8	540	50	500
TY529MX	TY29MX	7.60	762.0	228.6	540	50	500
TY53510MX		8.13	889.0	254.0	780	25	–
TY54513MX		8.13	1143.0	330.2	780	25	–



STOCK | INDENT

Ty-Rap® high performance cable ties

Polyamide 6.6 cable ties – Coloured



Approvals and certifications

E49405

Some approvals may not be applicable to all the Product References.

Material
Moulding Polyamide 6.6
Locking barb 316 grade stainless steel

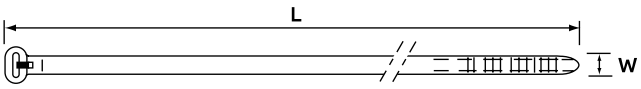
Temperature range
-60°C to +85°C
Min. installation temp. -20°C

Other properties	Flammability rating
Halogen free, Silicone free	UL 94 V-2

Order code	Length mm	Width mm	Thickness mm	Bundle Ø from...to mm	Min. tensile strength N	Pack quantity
TY23M-*	92	2.3	1	1.5 - 22	80	1000
TY232M-*	203	2.3	1	1.5 - 51	80	1000
TY234M-*	356	2.3	1	1.5 - 102	80	1000
TY24M -*	140	3.6	1.1	2 - 35	180	1000
TY242M-*	208	3.6	1.1	2 - 51	180	1000
TY26M-*	284	3.6	1.1	2 - 76	130	1000
TY244M-*	368	3.6	1.1	2 - 102	134	1000
TY25M-*	186	4.8	1.1	3 - 48	222	1000
TY253M-*	290	4.8	1.3	3 - 78	222	1000
TY28M-*	361	4.8	1.3	3 - 102	222	1000
TY271M-*	150	7	1.6	6 - 31	540	500
TY272M-*	223	6.9	1.6	6 - 51	540	500
TY27M-*	340	7	1.6	6 - 102	540	500
TY275M-*	457	7	1.6	6 - 127	540	500
TY277M-*	617	7	1.6	6 - 177	540	500
TY29M-*	771	6.9	1.5	6 - 229	540	500
TY53510M-*	889	8.2	1.7	to 254	780	50
TY54513M-*	1143	8.2	1.7	to 330	780	50

For cable ties in a specific colour, replace * in the Product Reference by the colour code:
0 = black, 1 = brown, 2 = red, 3 =orange, 4 = yellow, 5 = green, 6 = blue, 7 = purple, 8 = grey and 9 = white

For example: TY23M-1 defines a brown TY23M cable tie. Contact your Sales Office for product availability.



Stocked items

Order code
TY23M-9
TY26M-4
TY25M-2
TY25M-3
TY25M-4
TY25M-5
TY25M-6
TY27M-2
TY27M-4
TY27M-6

STOCK | INDENT

Ty-Rap® high performance cable ties

Polyamide 12 cable ties – UV-resistant



Characteristics

- Polyamide 12 UV-resistant version, remains flexible in cold and dry environments.
- Ages better and has a better chemical resistance than Polyamide 6.6
- Ideal for solar installations

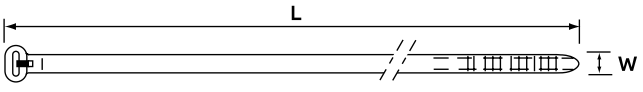
Colour
Black

Material
Moulding Polyamide 12
Locking barb 316 grade stainless steel

Temperature range
-40°C to +85°C

Other properties	Flammability rating
UV-resistant, Halogen free, Silicone free	UL 94 V-2

Order code	Length mm	Width mm	Thickness mm	Bundle Ø from...to mm	Min. tensile strength N	Quantity per pack	Tooling
TYC25MX	186	4.70	1.17	3.5 - 45	155	1000	
TYC525MX	186	4.70	1.17	3.5 - 45	155	100	ERG50
TYC28MX	360	4.70	1.20	3.5 - 102	155	1000	ERG120
TYC272MX	222	7.60	1.60	6 - 51	380	500	
TYC27MX	343	7.62	1.50	6 - 89	380	500	ERG120
TYC527MX	343	7.62	1.50	6 - 89	380	50	L-500-EU
TYC29MX	771	7.60	1.60	6 - 229	380	500	



STOCK | INDENT

Ty-Fast™ all plastic cable ties

One-piece Nylon 6.6 cable ties – Natural



Characteristics

State-of-the-art robotic and raw material handling equipment assures product and material integrity throughout the manufacturing process.

- The integrally formed Polyamide pawl combines low insertion and high locking strength
- A rounded, low-profile head makes for less snags
- Tails have improved two-sided finger grip design that helps the operator grasp and pull ties snug
- Sure Grip tab keeps the tail from popping out while being threaded, then holds it securely for final tightening by hand or tool
- Quick and easy pull through increases productivity, reduces operator fatigue

Approvals and certifications

E49405

Some approvals may not be applicable to all the Product References.

Colour

Natural as standard colour (*)

Material

Polyamide 6.6 (*)

Temperature range

40°C to +85°C (natural and colours, excl. UV-resistant black)
40°C to +105°C (black)

Min. installation temp. -20°C

Other properties

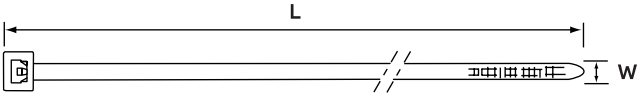
Halogen free, Silicone free

Flammability rating

UL 94 V-2

Bulk pack Order code	Standard pack Order code	Length mm	Width mm	Max. wire bundle Ø mm	Tensile strength kg	Bulk pack quantity	Standard pack size
TY075-18	TY075-18-100	104	2.40	19.05	8	1000	100
TY125-18	TY125-18-100	168	2.40	40.00	8	1000	100
TY125-40	TY125-40-100	150	3.60	31.75	18	1000	100
TY175-50	TY175-50-100	182	4.80	44.45	22	1000	100
TY200-18	TY200-18-100	204	2.40	50.80	8	1000	100
TY200-40	TY200-40-100	206	3.60	50.80	18	1000	100
TY200-120	TY200-120-100	280	7.60	76.00	54	500	100
TY300-40	TY300-40-100	304	3.60	76.20	18	1000	100
TY300-50	TY300-50-100	307	4.80	76.20	22	1000	100
TY400-50	TY400-50-100	370	4.80	101.60	22	1000	100
TY400-120	TY400-120-100	380	7.60	101.60	54	500	100
TY500-50	TY500-50-100	430	4.80	120.00	22	100	100

* Operation temperature: -30°C to +85°C



STOCK | INDENT

Ty-Fast™ all plastic cable ties

One-piece Nylon 6.6 cable ties – UV resistant black



Characteristics

Ty-Fast outdoor ties are made from Nylon 6/6 and perform well in most applications in temperatures ranging from -40°C to 80°C.

- The integrally formed pawl combines low insertion and high locking strength
- A rounded, low-profile head makes for less snags
- Tails have improved two-sided finger grip design that helps the operator grasp and pull ties snug
- Sure Grip tab keeps the tail from popping out while being threaded, then holds it securely for final tightening by hand or tool
- Quick and easy pull through increases productivity, reduces operator fatigue

Approvals and certifications

E49405

Some approvals may not be applicable to all the Product References.

Colour

Natural as standard colour (*)

Material

Polyamide 6.6 (*)

Temperature range

40°C to +85°C (natural and colours, excl. UV-resistant black)
40°C to +105°C (black)

Min. installation temp. -20°C

Other properties

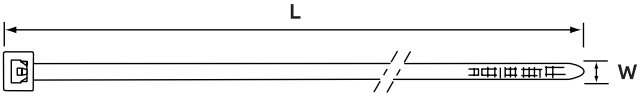
Halogen free, Silicone free

Flammability rating

UL 94 V-2

Bulk pack Order code	Standard pack Order code	Length mm	Width mm	Max. wire bundle Ø mm	Tensile strength kg	Bulk pack quantity	Standard pack size
TY075-18X	TY075-18X-100	104	2.40	19.05	8	1000	100
TY125-18X	TY125-18X-100	168	2.40	40.00	8	1000	100
TY125-40X	TY125-40X-100	150	3.60	31.75	18	1000	100
TY175-50X	TY175-50X-100	182	4.80	44.45	22	1000	100
TY200-18X	TY200-18X-100	204	2.40	50.80	8	1000	100
TY200-40X	TY200-40X-100	206	3.60	50.80	18	1000	100
TY200-120X	TY200-120X-100	280	7.60	76.00	54	500	100
TY300-40X	TY300-40X-100	304	3.60	76.20	18	1000	100
TY300-50X	TY300-50X-100	307	4.80	76.20	22	1000	100
TY400-50X	TY400-50X-100	370	4.80	101.60	22	1000	100
TY400-120X	TY400-120X-100	380	7.60	101.60	54	500	100
TY500-50X	TY500-50X-100	430	4.80	120.00	22	100	100

* Operation temperature: -30°C to +85°C



STOCK | INDENT

Ty-Rap® detectable cable ties
No more secret ingredients

The Ty-Rap® detectable cable ties and accessories from ABB incorporate a unique patented compound that can be detected by X-Ray equipment, metal detectors and visual inspection equipment.



Those products are particularly recommended for applications in food, pharmaceutical and other contamination-sensitive industries using detection systems, where cable tie installation residuals (cut tails) and/or accessories are not allowed in the finished product.

By specifying the Ty-Rap® detectable cable ties and accessories of ABB for your plant you help reducing the risk of product contamination. Another great aspect of the detectable products of ABB: they help your business achieve a great step towards meeting the HACCP* EU-directive. The HACCP directive is a systematic preventative approach to food safety that addresses physical, chemical and biological hazards as a means of prevention rather than finished product inspection.

The Ty-Rap® detectable cable ties and accessories made of detectable Nylon (NDT) and Polypropylene (PDT) are compliant to the FDA regulation, which means the products are intended for use in the proximity of food processing, handling and packaging operations.

* HACCP= Hazard Analysis Critical Control Points
HACCP is a system, which identifies specific hazards and preventative measures
for their control to minimize the risk of producing defective products and services.
** Tested by Thermo Electron Corporation, Minneapolis, MN, USA
*** Tested by Smiths Detection, Alcoa, TN, USA

Main applications for detectable products:
- Food and beverage processing
- Pharmaceutical production
- Chemical and compounds manufacturing
- Tire and airbag manufacturing
- Any other contamination-sensitive industry using detection equipment

Detection methods

Metal detection
Ty-Rap® detectable cable ties have been tested and are rated at 1.5 mm diameter ferrous sphere setting. Therefore sensitive enough to be picked up by nearly every metal detector in service.

X-Ray detection
X-Rays are the future of the detection industry. Depending on the density of the product being verified, Ty-Rap® Detectable cable ties reach an impressive differential of between 200 and 2000 on the X-Ray grey scale.

Visual detection
Visual detection systems detect surface irregularities and volume changes. This method is often used in beverage and chemical processing plants. The bright blue colour ensures an easy visual detection.

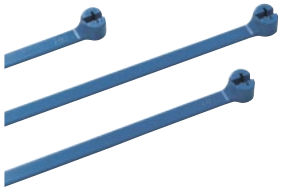
Features
- Detectable by metal detectors set at minimum 1.5 mm diameter ferrous sphere**
- Detectable by X-Ray equipment***
- Bright blue colour for an easy visual detection
- Help achieve the HACCP EU-Directive, compliant to the FDA regulation
- Halogen free
- Available in standard Polyamide 6.6 (all references ending with NDT) or in buoyant Polypropylene (all references ending with PDT) version for liquid-processing applications
- All the advantages of the standard Ty-Rap® cable ties as “The Grip of Steel” locking device which offers superior performance
- Available in 5 different sizes in convenient small bags with Euroslot

STOCK | INDENT

Ty-Rap® detectable cable ties

Detectable cable ties and accessories

Ty-Rap® - Detectable cable ties



Order code	Length	Width (mm)	Bundle diameter from ... to (mm)	Minimum tensile strength (N)	Quantity (pieces)	Tooling
TY523M-NDT	92	2,4	2 - 16	80	100	ERG50
TY524M-NDT	140	3,6	2 - 29	134	100	ERG50
TY525M-NDT	186	4,8	3,5 - 45	180	100	ERG50 / ERG120
TY528M-NDT	360	4,8	3,5 - 102	220	100	ERG50 / ERG120
TY527M-NDT	340	7,0	6 - 90	540	50	ERG120
TY523M-PDT	92	2,4	2 - 16	50	100	ERG50
TY525M-PDT	186	4,8	3,5 - 45	130	100	ERG50
TY528M-PDT	360	4,8	3,5 - 102	130	100	ERG50
TY527M-PDT	340	7,0	6 - 90	270	50	ERG120

2-way and 4-way entry mounting bases



Order code	Mounting method	Length	Width (mm)	For tie width up to (mm)	Mounting hole diameter (2x) (mm)	Quantity (pieces)
TC5344A-NDT	self-adhesive*/screw	19,1	19,1	3,6	3	100
TC5344A-PDT	self-adhesive*/screw	19,1	19,1	3,6	3	100
TC344A-NDT	self-adhesive*/screw	19,1	19,1	3,6	3	1000
TC5347A-NDT	self-adhesive*/screw	29	29	7,6	4,4	100
TC5347A-PDT	self-adhesive*/screw	29	29	7,6	4,4	100
TC347A-NDT	self-adhesive*/screw	29	29	7,6	4,4	1000

Saddle support



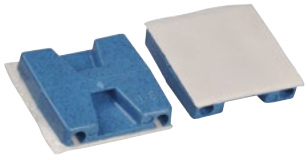
Order code	Mounting method	Length	Width (mm)	For tie width up to (mm)	Mounting hole diameter (mm)	Quantity (pieces)
TC5141-NDT	screw	11,1	17	4,8	3,8	100
TC5141-PDT	screw	11,1	17	4,8	3,8	100
TC141-NDT	screw	11,1	17	4,8	3,8	500
TC5142-NDT	screw	14,2	23,4	7,6	5,2	100
TC5142-PDT	screw	14,2	23,4	7,6	5,2	100
TC142-NDT	screw	14,2	23,4	7,6	5,2	500

Screw-mounted miniature bases



Order code	Mounting method	Length	Width (mm)	For tie width up to (mm)	Mounting hole (mm)		Quantity (pieces)
					Ø D1	Ø D2	
TC5102-NDT	screw	12,7	19,1	4,8	4,4	8,7	100
TC102-NDT	screw	12,7	19,1	4,8	4,4	8,7	1000
TC102-PDT	screw	12,7	19,1	4,8	4,4	8,7	1000

Low profile plates



Order code	Mounting method	Length	Width (mm)	For tie width up to (mm)	Quantity (pieces)
TC5342A-NDT	self-adhesive*	29	29	4,8	100
TC5342A-PDT	self-adhesive*	29	29	4,8	100
TC342A-NDT	self-adhesive*	29	29	4,8	1000

* Surface preparation: surface should be cleaned with alcohol-based cleaner before application.
Installation: Surface must be clean and dry prior to application of accessory.
Allow 15-minute setting time for maximum adhesion performance of synthetic rubber adhesive (SRA).

STOCK | INDENT

Ty-Fast® Ag+ bacteria-resistant cable ties

A breakthrough safety solution for fastening in bacteria-prone areas

A standard nylon cable tie is a harmless enough object—you install it to bundle and fasten cables, and then you forget about it. By its very design, full of notches and grooves, though, a cable tie makes an attractive home for micro-organisms to collect and reproduce.



In most applications, this isn't a concern. However, in hospitals and food processing facilities, where reducing the growth of unhealthy micro-organisms is critical, the presence of heat, moisture and organic material common in these environments can encourage the growth of bacteria, fungus and mold.

In response to the needs of customers in healthcare, food processing and preparation, pharmaceuticals, medical device manufacturing and other contamination-sensitive industries, ABB introduces the industry's first bacteria-resistant cable tie.

Ty-Fast Ag+ bacteria-resistant cable ties are molded from an FDA-compliant nylon resin blended with an antimicrobial silver ion additive to prevent the growth of bacteria, fungus and mold on their surface. A proven antimicrobial agent, ionized silver has been used in consumer products for years and is effective against a broad spectrum of micro-organisms, preventing their reproduction and spread.

In independent laboratory tests, Ty-Fast Ag+ cable ties eliminated more than 99.9% of common surface bacteria. Now customers for whom cleanliness is a top priority have one less worry.

Test results



Ty-Fast Ag+ after 24 hours of exposure to bacteria



Standard cable tie after 24 hours of exposure to bacteria

Features

- The industry's first cable tie that inhibits microbial growth
- Protects itself against bacteria, mold and fungus
- Helps to reduce infection rate and spread of bacteria by not hosting microbial growth
- Promotes a clean environment—99.9% effective for bacterial reduction
- Made from FDA-approved nylon resin
- Offers reliable Ty-Fast cable tie design for easy cable management
- UL® Listed, RoHS and FDA compliant
- Patent pending

Applications

- Hospitals and other healthcare facilities
- Pharmaceutical production
- Food and beverage processing (off-line production)
- Medical equipment manufacturing

Specifications

Material	FDA-compliant fungal-inert nylon 6.6 resin custom-blended with EPA-registered antimicrobial silver ion additive
Operating temperature	-40 °C to 85 °C (-40 °F to 185 °F)
Flammability rating	UL94-V2
Certifications/ compliances	UL/EN/CSA62275 Type 2/2S rated for AH-2 plenum
	Independent laboratory tested to ISO22196 (Measurement of Antibacterial Activity on Plastic Surfaces), equivalent to JISZ2802 (Japanese Test for Antimicrobial Activity and Efficacy)
	Fungal inert to MIL-T-152B standard
	RoHS compliant

Ty-Fast AG+ bacteria-resistant cable ties

	Length	Width	Maximum bundle diameter		Tensile strength			Standard packaging	
Order code	**in.**	**in.**	**in.**	**mm**	**lbs.**	**N**	**Color**	**quantity**	**GID number**
TY100-18-ANTI	4.1	0.95	0.86	22	18	80	Beige	50	7TAG054970R0000
TY175-50-ANTI	7.7	0.186	1.75	44	50	220	Beige	50	7TAG054970R0001
TY400-50-ANTI	14.3	0.186	4	102	50	220	Beige	50	7TAG054970R0002
TY400-120-ANTI	14.3	0.3	4	102	120	540	Beige	50	7TAG054970R0003

Note: Ty-Fast Ag+ bacteria-resistant cable ties provide no antimicrobial inhibitory activity beyond protection of the cable ties themselves. They do not provide protection against specific pathogenic organisms, nor do they prevent growth of bacteria on adjacent or nearby surfaces. The antimicrobial efficacy of the material lasts a minimum of two years from manufacture under normal use conditions.



Ty-Met™ stainless steel cable ties

Ball-lock type – Standard widths, coated and non-coated



Characteristics

Ball-Lock Type stainless steel ties are self-locking, requiring no time consuming crimping or folding operations.

- Strong self-locking mechanism (stainless steel ball), with low insertion force
- Fast, easy and reliable installation
- Standard widths (4.6 mm & 7.9 mm), suitable for most applications, indoor and outdoor
- Uncoated version, suitable for high temperature environments
- 316 grade (marine grade) for extra corrosion resistance
- Applications: installation of cables and pipes in extreme conditions and hazardous areas, such as: petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments

Approvals and certifications

E49405

Some approvals may not be applicable to all the Product References.

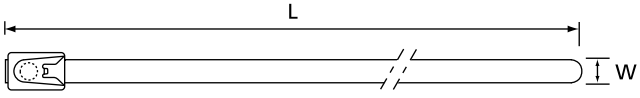
Colour
Metallic

Material
316 grade non-magnetic stainless steel

Temperature range
-40°C to +300°C

Other properties	Flammability rating
UV-resistant	Absolutely fireproof

Order code	Coated ties Order code	Length mm	Width mm	Max. wire bundle Ø mm	Tensile strength kg	Quantity per pack
LSY-4.6-100B	LSY-4.6-100BC	100	4.6	16	45	100
LSY-4.6-150B	LSY-4.6-150BC	150	4.6	32	45	100
LSY-4.6-200B	LSY-4.6-200BC	201	4.6	51	45	100
LSY-4.6-360B	LSY-4.6-360BC	360	4.6	102	45	100
LSY-4.6-520B	LSY-4.6-520BC	520	4.6	152	45	100
LSY-4.6-680B	LSY-4.6-680BC	679	4.6	203	45	100
LSY-4.6-840B	LSY-4.6-840BC	838	4.6	254	45	100
LSY-4.6-1000B	LSY-4.6-1000BC	1000	4.6	300	45	100
LSY-7.9-100B	LSY-7.9-100BC	100	7.9	16	113	100
LSY-7.9-150B	LSY-7.9-150BC	150	7.9	32	113	100
LSY-7.9-200B	LSY-7.9-200BC	201	7.9	51	113	100
LSY-7.9-360B	LSY-7.9-360BC	360	7.9	102	113	100
LSY-7.9-520B	LSY-7.9-520BC	520	7.9	152	113	100
LSY-7.9-680B	LSY-7.9-680BC	679	7.9	203	113	100
LSY-7.9-840B	LSY-7.9-840BC	838	7.9	254	113	100
LSY-7.9-1010B	LSY-7.9-1010BC	1010	7.9	318	113	100
LSY-7.9-1200B	LSY-7.9-1200BC	1200	7.9	370	113	100
LSY-7.9-1300B	LSY-7.9-1300BC	1300	7.9	400	113	100
LSY-7.9-1400B	LSY-7.9-1400BC	1400	7.9	435	113	100



STOCK | INDENT

Mounting bases

4-way entry – high performance



Approvals and certifications

E49405

Colour

Natural or UV-resistant black (see table)

Material

Moulding: Polyamide or UV-resistant Polyamide

Self-adhesive: Rubber based

Temperature range

-60°C to +85°C

Self-adhesive version: 0°C to +70°C

Other properties

UV-resistant black, Halogen free, Silicone free

Flammability rating

UL 94 V-2

Order code	Colour	Mounting method	Dimensions			For tie width up to	Mounting hole diameter	Quantity per pack
			Length	Width	Height			
			mm	mm	mm	mm	mm	
TC345A	natural	self-adhesive (rubber based) / screws	28.6	28.6	5.1	5.2	4.0	1000
TC5345A	natural	self-adhesive (rubber based) / screws	28.6	28.6	5.1	5.2	4.0	100
TC345AX	UV-resistant black	self-adhesive (rubber based) / screws	28.6	28.6	5.1	5.2	4.0	1000
TC5345AX	UV-resistant black	self-adhesive (rubber based) / screws	28.6	28.6	5.1	5.2	4.0	100
TC368A*	natural	self-adhesive / screw	50.8	50.8	6.6	19.1	19.1	500

* Not UL Listed

STOCK | INDENT

Mounting bases



Saddle support

Approvals and certifications
E49405
Colour
Natural or UV-resistant black (see table)
Material
Polyamide 6.6 or heat stabilised Polyamide 6.6

Temperature range
-40°C to +85°C
Self-adhesive version: 0°C to +70°C
Other properties / **Flammability rating**
UV-resistant black, Halogen free, Silicone free / UL 94 V-2

Order code	Colour	Mounting method	Dimensions Height mm	Width mm	Length mm	Depth mm	For tie width up to mm	Mounting hole diameter mm	Quantity per pack
TC142	natural	Screw	10.7	14.2	23.4	2.9	7.6	5.2	500
TC142X*	UV-resistant black / heat stabilised	Screw	10.7	14.2	23.4	2.9	7.6	5.2	500

*Not UL recognised



Masonry screws

Characteristics

- Tie mounting base for outdoor installation
- A strong, weatherproof and durable outdoor fastening solution for pipes, hoses, cables, etc.

Product Ref. TC5358 and TC5359

- Built-in plug for mounting into walls
- Easy to install: the plug is simply hammered into a hole
- The lamellar plug ensures high tensile strength and durability

Colour
Black
Material
UV-stabilised Polyamide 6.6

Temperature range
-40°C to +85°C
Self-adhesive version: 0°C to +70°C
Other properties / **Flammability rating**
UV-resistant black, Halogen free, Silicone free / UL 94 V-2

Order code	Dimensions H mm	W mm	L mm	E mm	F mm	f mm	For tie width up to mm	Mounting hole diameter mm	Weight g/100	Quantity per pack
TC5358	31.8	9.9	9.9	**7.1**	**5.6**	2.3	4.8	6.4 (in wall)	120	100
TC5359	38.4	19.1	19.1	**8.1**	**14.0**	3.1	12.7	9.5 (in wall)	320	50

STOCK | INDENT

Cable tie tooling

Tools for plastic and metallic cable ties



ERG50

Order code	Tool type
ERG50	Ergonomic hand tool

Colour
Black

For type of cable tie
Plastic ties

Features	
Adjustable tension setting, automatic cutting, retraction of the strap end after application of Ty-Rap® cable ties	
For tie width	**Weight**
2.4 mm - 4.8 mm	260g
Dimensions [L x W x H]	**Replacement blades**
178 x 127 x 38 mm	Product Ref. ERG50B



ERG120

Order code	Tool type
ERG120	Ergonomic hand tool

Colour
Orange

For type of cable tie
Plastic ties

Features	
Adjustable tension setting, automatic cutting, retraction of the strap end after application of Ty-Rap® cable ties	
For tie width	**Weight**
4.8 mm - 7.6 mm	278 g
Dimensions [L x W x H]	**Replacement blades**
178 x 127 x 38 mm	Product Ref. ERG120B



WT1-TB

Order code	Tool type
WT1-TB	Low-cost hand tool

Colour
Orange

For type of cable tie
Plastic ties

Characteristics	
Twist-and-cut tensioning tool in plastic, intended for maintenance and small batch use	
Features	**Weight**
Basic tensioning, twist cut	28.4 g
For tie width	**Dimensions [L x W x H]**
2.4 mm - 4.8 mm	134 x 55 x 27 mm



WT2-TB

Order code	Tool type
WT2-TB	Low-cost hand tool

Colour
Black

For type of cable tie
Plastic ties

Characteristics	
Twist-and-cut tensioning tool in plastic, intended for maintenance and small batch use	
Features	**Weight**
Basic tensioning, twist cut	28.4 g
For tie width	**Dimensions [L x W x H]**
4.8 mm - 7.6 mm	134 x 55 x 27 mm



DAS-250

Order code	Tool type
DAS-250	Ergonomic

Colour
Silver

For type of cable tie
For stainless steel ties

Characteristics	
Ergonomic semi-automatic tool heavy-duty tool	
Features	**Weight**
Adjustable tension setting, automatic cutting	260 g
For tie width	**Dimensions [L x W x H]**
Up to 7.9mm	165 x 135 x 29mm

STOCK | INDENT



Conduit and fittings

845 **Quick selection guide**

846 **Non-metallic conduit systems**

852 **Metallic conduit systems**

For more detailed product information, please refer to the Technical Catalogue:

- Flexible conduit systems for critical power & data cable protection – 7TCA000960R0915

Flexible conduit systems
For critical power and data cable protection

Adaptaflex® by ABB is the market leading flexible conduit system brand that can be found all over the world. With compliance to Australian and New Zealand Standard AS/NZS 2053, this range combines innovative design with uncompromising quality, offering customers the world's broadest range of cable protection products and solutions.

The solutions from Adaptaflex® need to perform in a wide variety of environments from high temperature to freezing subzero conditions. The products are designed and tested to withstand constant vibrations, water ingress, offer corrosion resistance, crushing impact and are available in halogen free, low smoke and low toxicity materials to name just a few.

Our experience will help specify the correct flexible conduit system for your industry:

- Power Utilities / Renewables
- Mining / Oil & Gas
- Manufacturing
- Food & Beverage
- Rail / Infrastructure / Marine
- Commercial Contracting



Flexible conduit systems

Quick selection guide









Type	Slit Plastic	Corrugated Plastic	Extra-Flexible Plastic	Smooth Plastic	Corrugated Metallic	Smooth Liquid-Tight Metallic	Anti-microbial Liquid Tight Metallic
Series	PA	PA	XF	RF	SP	SPL	SAM
Usage	Indoor retrofit or modular installations e.g. inside enclosures	Commercial building, light industrial or outdoor applications	General industrial, confined space and moving applications	General industrial indoor and outdoor applications	Heavy-duty industrial, confined space and moving applications	Heavy-duty industrial, marine, extreme condition and hazardous explosive area applications	Food , Beverage, Pharmaceutical, Hygienic and high temperature applications
Core material	Nylon PA6	Nylon PA6	PVC	PVC	Galvanised Steel	Galvanised Steel	Galvanised or Stainless Steel
Jacket material	None	None	PVC	PVC	PVC	PVC	Thermoplastic
IP rating	N/A	Up to IP69K	Up to IP65	Up to IP67	Up to IP65	Up to IP69	Up to IP69K
Temperature range	-40 to +120	-40 to +120	-5 to +60	-20 to +60	-25 to +70	-20 to +105	-30 to +150
Flexibility	High	High	Very High	Medium	High	Medium	Medium
Mechanical strength	Low	Medium	Medium	High	Very High	Very High	Very High
UV Resistance	Very High	Very High	High	High	Very High	Very High	High
Zero Halogen	Yes	Yes	No	No	No	No	Yes
Self Extinguishing	Yes	Yes	Yes	Yes	Yes	Yes	Yes

- This product book contains a basic selection of popular ABB Adaptaflex Conduit ranges
- Several more Conduit ranges available including Stainless Steel, Low fire hazard, Braided EMI screening, Food & Beverage specific, Hazardous Explosive Area, Accessories, etc.
- Please contact our office or visit http://new.abb.com/low-voltage/products/conduit-fittings/adaptaflex

Non-metallic conduit systems

PA Series – corrugated nylon

Lightweight slit conduit

Materials: Polyamide (nylon) 6 / Colour: Black (BL) Only



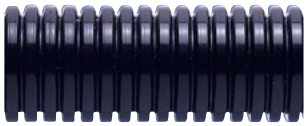
Order code	Nominal conduit size (mm)	NW conduit size	Outside diameter (mm)	Inside diameter (mm)	Minimum bend radius (mm)	Reel length (m)
PAFL13-S/BL/50M	13	10	13.0	10.0	25	50
PAFL16-S/BL/50M	16	13	15.8	11.9	35	50
PAFL21-S/BL/50M	21	17	21.2	16.8	45	50
PAFL28-S/BL/50M	28	23	28.5	22.2	50	50
PAFL34-S/BL/50M	34	29	34.5	27.9	60	50
PAFL42-S/BL/25M	42	36	42.5	35.2	65	25
PAFL54-S/BL/25M	54	48	54.5	46.9	75	25

IP rating	Appropriate fitting
For use with: Adaptalok / ATS / Adaptaring / Adaptasteel	
IP40	N/A
IP65	N/A
IP66	N/A
IP67	N/A
IP68	N/A
IP69	N/A

Temperature range	UV resistance
Static applications: -40°C to +120°C	Very high
Moving applications: -5°C to +120°C	
Flexibility & fatigue life	
High flexibility – High fatigue life	
Fire performance & EMI screen	
Self extinguishing	
Halogen free	

Standard weight conduit

Materials: Polyamide (nylon) 6 / Colour: Black (BL)



Order code	Nominal conduit size (mm)	NW conduit size	Outside diameter (mm)	Inside diameter (mm)	Minimum bend radius (mm)	Reel length (m) (BL)
PAFS10/BL/50M	10	7.5	10.0	6.5	15	50
PAFS13/BL/50M	13	10	13.0	9.6	25	50
PAFS16/BL/10M	16	13	15.8	11.8	35	10
PAFS16/BL/50M	16	13	15.8	11.8	35	50
PAFS21/BL/10M	21	17	21.2	16.5	45	10
PAFS21/BL/25M	21	17	21.2	16.5	45	25
PAFS21/BL/50M	21	17	21.2	16.5	45	50
PAFS28/BL/10M	28	23	28.5	22.6	50	10
PAFS28/BL/25M	28	23	28.5	22.6	50	25
PAFS28/BL/50M	28	23	28.5	22.6	50	50
PAFS34/BL/10M	34	29	34.5	28.8	60	10
PAFS34/BL/50M	34	29	34.5	28.8	60	50
PACS42/BL/10M	42	36	42.5	35.2	65	10
PACS42/BL/25M	42	36	42.5	35.2	65	25
PACS54/BL/10M	54	48	54.5	46.5	75	10
PACS54/BL/25M	54	48	54.5	46.5	75	25
PACS80/BL/25M	80	70	79.3	67.0	160	25
PACS80/BL/50M	80	70	79.3	67.0	160	50
PACS106/BL/25M	106	95	106.0	91.5	210	25
PACS106/BL/50M	106	95	106.0	91.5	210	50

IP rating	Appropriate fitting
For use with: Adaptalok / ATS / Adaptaring / Adaptaseal / Jumbo	
IP40	Yes
IP65	Yes
IP66	Yes
IP67	Yes
IP68	Yes
IP69	Yes

Temperature range	UV resistance
Static applications: -40°C to +120°C	Very high
Moving applications: -5°C to +120°C	
Flexibility & fatigue life	
High flexibility – High fatigue life	
Fire performance & EMI screen	
Self extinguishing	
Halogen free	

STOCK | INDENT

Non-metallic conduit systems

Fittings for PA series conduit

Straight Adaptalok fitting

Fixed external male thread / Materials: Polyamide (nylon) 66/TPE / Colour: Black (BL), Grey (GR) / Yellow (Y) Elastomer



Order code	Nominal conduit size (mm)	Metric thread
AT13/M16/A/BLY	13	M16
AT16/M16/A/BLY	16	M16
AT16/M20/A/BLY	16	M20
AT21/M20/A/BLY	21	M20
AT21/M25/A/BLY	21	M25
AT28/M25/A/BLY	28	M25
AT28/M32/A/BLY	28	M32
AT34/M32/A/BLY	34	M32
AT34/M40/A/BLY	34	M40
AT42/M40/A/BLY	42	M40
AT42/M50/A/BLY	42	M50
AT48/M50/A/BLY	48	M50
AT54/M50/A/BLY	54	M50
AT54/M63/A/BLY	54	M63

For insertion into knockouts using a locknut. Locknut supplied with METRIC thread

IP rating	Appropriate conduit	Temperature range
For use with: Type PA / PI / PR / PADL / PF		Static applications: -50°C to +120°C
IP40	Yes	Moving applications: -45°C to +120°C
IP65	Yes	
IP68	Yes (4 bar 30mins)	
IP69	Yes	

90 Degree Adaptalok fitting

Fixed external male thread / Materials: Polyamide (nylon) 66/TPE / Colour: Black (BL), Grey (GR) / Yellow (Y) Elastomer



Order code	Nominal conduit size (mm)	Metric thread
AT13/M16/C90	13mm	M16
AT16/M16/C90	16mm	M16
AT16/M20/C90	16mm	M20
AT21/M20/C90	21mm	M20
AT28/M25/C90	28mm	M25
AT34/M32/C90	34mm	M32
AT42/M40/C90	42mm	M40
AT48/M50/C90	48mm	M50
AT54/M50/C90	54mm	M50
AT54/M63/C90	54mm	M63

For insertion into knockouts using a locknut. Locknut supplied with METRIC thread

IP rating	Appropriate conduit	Temperature range
For use with: Type PA / PI / PR / PADL / PF		Static applications: -50°C to +120°C
IP40	Yes	Moving applications: -45°C to +120°C
IP65	Yes	
IP68	Yes (4 bar 30mins)	
IP69	Yes	

Non-metallic conduit systems

Fittings for PA series conduit

Straight Adaptalok fitting – metal thread

Materials: Polyamide (nylon) 66, Nickel plated brass thread TPE
Colour: Black (BL), Grey (GR) / Yellow (Y), Blue (B) Elastomer



Order code	Nominal conduit size (mm)	Metric thread
AT13/M16/SA/BLY	13	M16
AT16/M16/SA/BLY	16	M16
AT21/M20/SA/BLY	21	M20
AT28/M25/SA/BLY	28	M25
AT34/M32/SA/BLY	34	M32
AT42/M40/SA/BLY	42	M40
AT48/M50/SA/BLY	48	M50
AT54/M50/SA/BLY	54	M50
AT54/M63/SA/BLY	54	M63

For insertion into threaded entries & knockouts. Order locknuts separately

IP rating	Appropriate conduit	Temperature range
For use with: Type PA / PI / PR / PADL / PF		Static applications: -50°C to +120°C
IP40	Yes	Moving applications: -45°C to +120°C
IP65	Yes	
IP68	Yes (4 bar 30mins)	
IP69	Yes	

90 Degree Adaptalok fitting - metal thread

Materials: Polyamide (nylon) 66, nickel plated brass thread/TPE
Colour: Black (BL), Grey (GR) / Yellow (Y), Blue (B) Elastomer



Order code	Nominal conduit size (mm)	Metric thread
AT13/M16/CS90	13	M16
AT16/M16/CS90	16	M16
AT21/M20/CS90	21	M20
AT28/M25/CS90	28	M25
AT34/M32/CS90	34	M32
AT42/M40/CS90	42	M40
AT48/M50/CS90	48	M50
AT54/M50/CS90	54	M50
AT54/M63/CS90	54	M63

For insertion into threaded entries & knockouts. Order locknuts separately

IP rating	Appropriate conduit	Temperature range
For use with: Type PA / PI / PR / PADL / PF		Static applications: -50°C to +120°C
IP40	Yes	Moving applications: -45°C to +120°C
IP65	Yes	
IP68	Yes (4 bar 30mins)	
IP69	Yes	

Non-metallic conduit systems

XF Series – extra flexible PVC

XF conduit

Materials: PVCu spiral with plasticised PVC covering / Colour: Black (BL) Only



Order code	Nominal conduit size (mm)	Outside diameter (mm)	Inside diameter (mm)	Min. bend radius (mm)	Reel length (m)
XF12/30M	12	14.5	10	25	30
XF16/30M	16	16.5	12	30	30
XF20/30M	20	20.5	16	35	30
XF25/30M	25	27.5	22	50	30
XF32/30M	32	33.5	28	60	30
XF40/30M	40	44.0	38	80	30
XF50/30M	50	57.5	50	105	30

IP rating	Appropriate fitting
For use with: Type XF	
IP40	N/A
IP65	Yes
IP66	N/A
IP67	N/A
IP68	N/A
IP69	N/A

Temperature range	UV resistance
Static applications: -5°C to +60°C	High
Moving applications: -5°C to +60°C	
Flexibility & fatigue life	
Very high flexibility - Medium fatigue life	
Fire performance & EMI screen	
Self extinguishing	

XF fittings

Materials: Polyamide (nylon) 66 / Colour: Black (BL) Only



Order code	Nominal conduit size (mm)	Metric thread
XF12/M16/D	12	M16
XF16/M16/D	16	M16
XF16/M20/D	16	M20
XF20/M20/D	20	M20
XF25/M25/D	25	M25
XF32/M32/D	32	M32
XF40/M40/D	40	M40
XF50/M50/D	50	M50

For insertion into threaded entries & knockouts. Locknuts supplied with METRIC THREAD ONLY

IP rating	Appropriate conduit
For use with: Xtraflex Type XF	
IP40	N/A
IP65	Yes
IP66	N/A
IP67	N/A
IP68	N/A
IP69	N/A

Temperature range
Static applications: -5°C to +60°C
Moving applications: -5°C to +60°C

Non-metallic conduit systems

RF Series - smooth heavyweight PVC

RF conduit

Materials: PVCu spiral with plasticised PVC covering / Colour: Black (BL), Grey (GR)



Black Order code	Orange Order code	Nominal conduit size (mm)	Outside diameter (mm)	Inside diameter (mm)	Min. bend radius (mm)	Reel length (m)
RF12/BL/30M	RF12/OR/30M	12	14.5	10	25	30
RF16/BL/30M	RF16/OR/30M	16	16.5	12	30	30
RF20/BL/30M	RF20/OR/30M	20	20.5	16	35	30
RF25/BL/30M	RF25/OR/30M	25	27.5	22	50	30
RF32/BL/30M	RF32/OR/30M	32	33.5	28	60	30

IP rating	Appropriate fitting
For use with: Type RF	
IP40	N/A
IP65	N/A
IP66	N/A
IP67	Yes
IP68	N/A
IP69	N/A

Temperature range
Static applications: -20°C to +60°C
Moving applications: -5°C to +60°C
Flexibility & fatigue life
Medium flexibility - Medium fatigue life
Fire performance & EMI screen
Self extinguishing

UV resistance
High

RF fittings

Materials: Polyamide (nylon) 66 / Colour: Black (BL) Only



Order code	Nominal conduit size (mm)	Metric thread
RF12/M16/A/BL	12	M16
RF16/M16/A/BL	16	M16
RF16/M20/A/BL	16	M20
RF20/M20/A/BL	20	M20
RF25/M25/A/BL	25	M25
RF32/M32/A/BL	32	M32

For insertion into threaded entries & knockouts. Locknuts supplied with METRIC THREAD ONLY

IP rating	Appropriate conduit
For use with: Xtraflex Type XF	
IP40	N/A
IP65	Yes
IP66	N/A
IP67	N/A
IP68	N/A
IP69	N/A

Temperature range
Static applications: -5°C to +60°C
Moving applications: -5°C to +60°C

Non-metallic conduit systems

Accessories

End sleeves

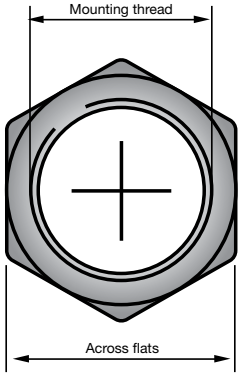
Materials: Polyamide (nylon) 66 / Colour: Black (BL) Only



Order code	Nominal conduit size (mm)
GZ9	13
GZ11	16
GZ13	21
GZ21	28
GZ29	34
GZ36	42

For sealing cables to non-metallic conduit

Locknuts



Cat. no.	Mounting thread	Across flats hexagon (mm)	Inner carton pack quantity
L12	1/2” x 26 TPI	16	100
LNB-16	M16 x 1.5	20.7	100
LNB-20	M20 x 1.5	27	100
LNB-25	M25 x 1.5	31.6	100
LNB-32	M32 x 1.5	40	100
LNB-40	M40 x 1.5	48.2	40
LNB-50	M50 x 1.5	57.3	25
LNB-63	M63 x 1.5	82	20

Removal tool for Adaptalok fittings

Materials: Polyamide (nylon) 6 / Colour: Black (BL) Only



Order code	Adaptalok fitting size (mm)
AL13RT	13
AL16RT	16
AL21RT	21
AL28RT	28
AL34RT	34
AL42RT	42
AL54RT	54

To provide easy removal of Adaptalok & ATS Fittings

Metallic conduit systems

SP Series – flexible liquid-resistant PVC-jacketed steel core

SP Conduit

Materials: PVC covered galvanised steel / Colour: Black (BL), Grey (GR), Orange (OR)



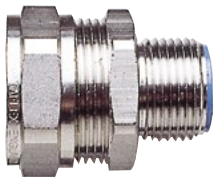
Order code	Nominal conduit size (mm)	Outside diameter (mm)	Inside diameter (mm)	Min. bend radius (mm)	Reel length (m)
SP10/BL/25M	10	10.0	6.8	25	25
SP12/BL/25M	12	14.0	10.3	30	25
SP16/BL/25M	16	17.0	13.0	35	25
SP20/BL/25M	20	21.5	16.9	45	25
SP25/BL/25M	25	26.0	21.4	55	25
SP32/BL/25M	32	34.0	28.1	60	25
SP40/BL/25M	40	44.5	37.7	80	25
SP50/BL/25M	50	55.0	48.4	90	25
SP63/BL/25M	63	64.5	57.5	115	25
SP75/BL/25M	75	79.0	70.0	150	25

IP rating	Appropriate fitting
For use with: Type SP	
IP54	Yes
IP65	Yes
IP66	N/A
IP67	N/A
IP68	N/A
IP69	N/A

Temperature range	UV resistance
Static applications: -25°C to +70°C	Very high
Moving applications: -5°C to +90°C	
Flexibility & fatigue life	
High flexibility - Medium fatigue life	
Fire Performance & EMI Screen	
Self extinguishing	

SP Fittings

Straight fitting - External male thread / Materials: Nickel plated brass



Order code	Nominal conduit size (mm)	Metric thread
SP12/M16/M	12	M16
SP16/M16/M	16	M16
SP16/M20/M	16	M20
SP20/M20/M	20	M20
SP25/M25/M	25	M25
SP32/M32/M	32	M32
SP40/M40/M	40	M40
SP50/M50/M	50	M50

IP rating	Appropriate conduit
For use with: Type SP / SN / LFH-SP	
IP54	N/A
IP65	Yes
IP66	N/A
IP67	N/A
IP68	N/A
IP69	N/A

Temperature range
Static applications: -50°C to +300°C
Moving applications: -45°C to +250°C

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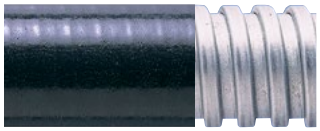
Metallic conduit systems

SPL Series – smooth liquid-tight oil resistant PVC-jacketed steel core

SPL Conduit

Materials: PVC covered galvanised steel / Colour: Black (BL), Grey (GR), Orange (OR)



Order code	Nominal conduit size (mm)	Outside diameter (mm)	US conduit size (in)	Inside diameter (mm)	Min. bend radius (mm)	Reel length (m)
SPL10/25M	10	11.8	¼"	7.0	40	25
SPL12/25M	12	14.2	5⁄16"	10.0	45	25
SPL16/10M	16	17.8	⅜"	12.5	50	10
SPL16/25M	16	17.8	⅜"	12.5	50	25
SPL20/10M	20	21.1	½"	15.9	80	10
SPL20/25M	20	21.1	½"	15.9	80	25
SPL20/50M	20	21.1	½"	15.9	80	50
SPL25/10M	25	26.4	¾"	21.0	110	10
SPL25/25M	25	26.4	¾"	21.0	110	25
SPL25/50M	25	26.4	¾"	21.0	110	50
SPL32/10M	32	33.1	1"	26.7	145	10
SPL32/25M	32	33.1	1"	26.7	145	25
SPL32/50M	32	33.1	1"	26.7	145	50
SPL40/10M	40	41.8	1 ¼"	35.4	180	10
SPL40/25M	40	41.8	1 ¼"	35.4	180	25
SPL40/50M	40	41.8	1 ¼"	35.4	180	50
SPL50/10M	50	47.9	1 ½"	40.4	240	10
SPL50/25M	50	47.9	1 ½"	40.4	240	25
SPL50/50M	50	47.9	1 ½"	40.4	240	50
SPL63/10M	63	59.7	2"	51.6	345	10
SPL63/25M	63	59.7	2"	51.6	345	25
SPL63/50M	63	59.7	2"	51.6	345	50

IP rating	Appropriate fitting
For use with: Type SPL	
IP40	N/A
IP65	N/A
IP66	Yes
IP67	Yes
IP68	Yes
IP69	Yes

Temperature range
Static applications: -20°C to +105°C
Moving applications: -5°C to +105°C
Flexibility & fatigue life
Medium flexibility – Medium fatigue life
Fire performance & EMI screen
Self extinguishing

UV resistance
Very high

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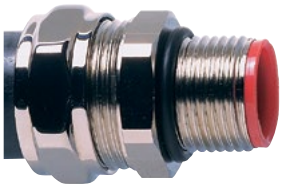
Metallic conduit systems

Fittings for SPL series conduit

Straight fitting

Materials: Nickel plated brass



Order code	Nominal conduit size (mm)	US conduit size (in)	Metric thread
SPL10/M16/M	10	¼”	M16
SPL12/M16/M	12	5/16”	M16
SPL16/M16/M	16	⅜”	M16
SPL16/M20/M	16	⅜”	M20
SPL20/M20/M	20	½”	M20
SPL25/M25/M	25	¾”	M25
SPL32/M32/M	32	1”	M32
SPL40/M40/M	40	1 ¼”	M40
SPL50/M50/M	50	1 ½”	M50
SPL63/M63/M	63	2”	M63

IP rating	Appropriate conduit
For use with: Type SPL / SPLHC / SPUL / SPL-EF / LFH-SPL	
IP54	N/A
IP65	N/A
IP66	Yes
IP67	Yes
IP68	Yes (10 bar 30 mins)
IP69	Yes

Temperature range
Static applications: -65°C to +150°C
Moving applications: -45°C to +150°C

Swivel fitting

Materials: Nickel plated brass



Order code	Nominal conduit size (mm)	US conduit size (in)	Metric thread
SPL16/M16/B	16	⅜”	M16
SPL16/M20/B	16	⅜”	M20
SPL20/M20/B	20	½”	M20
SPL25/M25/B	25	¾”	M25
SPL32/M32/B	32	1”	M32

For insertion into threaded entries & knockouts using a locknut (order locknut separately)

IP rating	Appropriate conduit
For use with: Type SPL / SPLHC / SPUL / SPL-EF / LFH-SPL	
IP40	N/A
IP65	N/A
IP66	N/A
IP67	Yes
IP68	N/A
IP69	N/A

Temperature range
Static applications: -65°C to +105°C
Moving applications: -45°C to +150°C

Metallic conduit systems

Hazardous explosive area fittings for SPL series conduit

HAM G1 conduit fitting

Materials: Nickel plated brass, Brass or Stainless steel 316



Order code	Metric Thread Size A (mm)	Conduit Size B (mm)	Cable Gland Dimensions (mm)						
			C	D	E	L	H	CH1	CH2
HAMM0304G1	M16	16.0	10.0	34.0	31.0	15.0	50.0	32.0	28.6
HAMM0404G1	M20	20.0	12.5	34.0	31.0	15.0	50.0	32.0	28.6
HAMM0505G1	M25	25.0	18.4	37.0	37.0	15.0	50.0	34.0 (34.9 in SS)	34.0
HAMM0606G1	M32	32.0	24.7	45.0	45.0	15.0	50.0	42.0 (42.5 in SS)	42.0
HAMM0707G1	M40	40.0	29.7	57.0	54.0	15.0	57.0	52.0	50.0
HAMM0808G1	M50	50.0	41.7	64.0	64.0	15.0	58.0	60.0	60.0
HAMM0909G1	M63	63.0	51.7	78.0	76.2	15.0	70.6	69.7	70.0

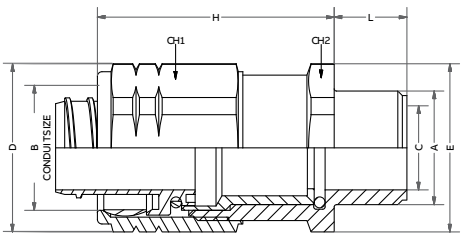
Features

Constructed from either brass or stainless steel with an epoxy resin barrier the Group I flameproof gland is a high specification product, ideal for all hazardous area applications

Certifications

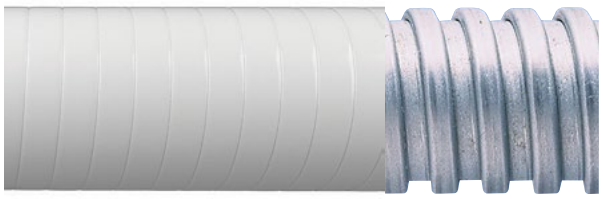
Standards

Approved to:
IEC EN 60079-0, 60079-1, 60079-7, 60079-31
EC Type examination certificate to:
ATEX: Sira 09 ATEX 1231X
IECEx: IECEx SIR09.0103X
CSA: CSA File No: 060582
Ex de I Mb
Ex de IIC Gb
Ex tb IIIC Db
Class I Div 2 ABCD
Class II Div 1 EFG
Safe operating temperature range:
-60ºC to +130ºC
IP test:
IP66



Raising standards of cleanliness in food and beverage

SAMHL series – smooth anti-microbial liquid-tight conduit



Anti-microbial liquid tight high temperature covered steel flexible conduit. Suitable for indoor splash zone areas or food processing equipment. The biocidal coating attacks bacteria that comes into contact with it, including MRSA, E.coli, etc eliminating 99% in 2 hours.

Features

- **Type SAMHL** - Galvanized steel core string packed with Anti-microbial protection incorporated into a FDA, EC and FSA compliant DuPont Hytrel® thermoplastic jacket
  Type SSAMHL - Stainless steel string with Anti-microbial protection incorporated into a FDA, EC and FSA compliant DuPont Hytrel® thermoplastic jacket
- IP40 – IP69 rated
- Temperature range up to -50°C to +130°C
- Approvals: CE, BS EN 61386-1,-23, NSF 14159-1-2014 & NSF 169-2009.

Type SAMHL and SSAMHL - Anti-microbial liquid tight conduit

Order code			Diameter dimensions (mm)			Coil lengths	
Galvanised Steel Core	Stainless Steel Core	Conduit size (mm)	Outside	Inside	Bend radius	Galvanised Steel Core	Stainless Steel Core
SAMHL16/25M	SSAMHL16/25M	16	17.8mm	12.5mm	50mm	25	25
SAMHL20/25M	SSAMHL20/25M	20	21.1mm	15.9mm	80mm	25	25
SAMHL25/25M	SSAMHL25/25M	25	26.4mm	21.0mm	110mm	25	25
SAMHL32/25M	SSAMHL32/25M	32	33.1mm	26.7mm	144mm	25	25
SAMHL40/25M	SSAMHL40/25M	40	41.8mm	35.4mm	180mm	25	25
SAMHL50/25M	SSAMHL50/25M	50	47.5mm	40.4mm	240mm	25	25
SAMHL63/25M	SSAMHL63/25M	63	59.7mm	51.6mm	345mm	25	25

Note: Conduit is fully cleanable and will maintain full ingress protection under normal wet cleaning conditions with associated fittings.

Degree of Mechanical Protection
High corrosion resistance
High chemical resistance

IP rating	Appropriate fitting
For use with: Type SAM fitting	
IP40	Yes
IP65	Yes
IP68	Yes (10 bar 30mins)
IP69	Yes

Temperature range
Static applications: -50°C to +130°C
Moving applications: -5°C to +150°C
Flexibility & fatigue life
High flexibility - High fatigue life
Fire performance & Test standard
Self extinguishing
IEC61386-1

Material
Galvanised steel core with string packing (string packed up to 32mm)
Stainless steel core with string packing (up to 32mm), larger sizes double interlocked
FDA, EC and FSA compliant DuPont Hytrel® thermoplastic jacket
Anti-microbial additive incorporated into Hytrel® jacket

Conformity Conforms to:	
Type SAMHL	**Type SSAMHL**
Low voltage directive	Low voltage directive
NSF14159-1-2014	NSF14159-1-2014
NSF169-2009	NSF169-2009
BSI Kitemark KM35161	BSI Kitemark KM35161

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Raising standards of cleanliness in food and beverage

Fittings for SAMHL series conduit



Single piece, liquid tight, high temperature Stainless Steel fitting suitable for indoor splash zone areas or food processing equipment

Features

- Unique single piece design
- 316 Stainless Steel
- Face seal materials adhere to FDA (Food and Drug Administration) and European Food Contact regulations
- IP67, IP68 & IP69 protection
- Approvals CE, BS EN 61386-1,-23, NSF14159-1-2014, NSF169-2009, UL514b
- Multiple thread type Metric/NPT

Fittings for SAMHL series conduit

METRIC Order code	Conduit size		Nominal Dimensions						
	METRIC (mm)	US (NPT)	B	C	D	E	F	G	Weight (g)
SPL16/M16/SAM	16	3/8”	7.0	32.8	30.0	31.9	14.0	10.5	9.98
SPL20/M20/SAM	20	1/2”	10.0	35.6	32.0	35.0	18.0	14.5	11.34
SPL25/M25/SAM	25	3/4”	14.0	43.0	38.0	41.0	23.0	18.3	16.78
SPL32/M32/SAM	32	1”	15.0	51.5	45.0	49.0	30.0	24.1	29.94
SPL40/M40/SAM	40	1 1/4”	16.0	53.3	57.0	61.5	38.0	32.7	39.92
SPL50/M50/SAM	50	1 1/2”	18.0	60.2	64.0	69.0	48.0	37.7	45.36
SPL63/M63/SAM	63	2”	20.0	71.4	80.0	87.0	61.0	49.0	52.16

Note: Parts are maintenance free, face seal can be replaced if damaged. Parts are fully cleanable and will maintain full ingress protection under normal wet cleaning conditions.

Degree of Mechanical Protection
Very high corrosion resistance
Very high chemical resistance

IP rating	Appropriate fitting
For use with: Type SAMHL & SSAMHL conduit	
IP40	Yes
IP65	Yes
IP68	Yes (10 bar 30mins)
IP69	Yes

Temperature range
Static applications: -50°C to +130°C
Moving applications: -5°C to +150°C
Flexibility & fatigue life
Very high fatigue life
Fire performance & Test standard
Self extinguishing
IEC61386-1

Material
316 Stainless steel
Face seal materials adhere to FDA (Food and Drug Administration) and European Food Contact regulations

Conformity Conforms to:
Low voltage directive
UL514b
NSF14159-1-2014
NSF169-2009
BSI Kitemark KM35161

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Metallic conduit systems

Accessories

Conduit Support Clamps

Materials:Plated Steel or Stainless Steel Construction with PVC Insert



Order code		Nominal conduit size (mm)
Plated steel plated brass	Stainless Steel	
PCLIP/10		10
PCLIP/12		12
PCLIP/16	SSPC16	16
PCLIP/20	SSPC20	20
PCLIP/25	SSPC25	25
PCLIP/32	SSPC32	32
PCLIP/40	SSPC40	40
PCLIP/50	SSPC50	50
PCLIP/63	SSPC63	63
PCLIP/75		75

Metallic Locknuts

Materials: Nickel plated brass, stainless steel



Metric thread	Order code	
	Nickel plated brass	Stainless steel
M12 x 1.5	LNB/M12	
M16	LNB/M16	LNSS16
M20	LNB/M20	LNSS20
M25	LNB/M25	LNSS25
M32	LNB/M32	LNSS32
M40	LNB/M40	LNSS40
M50	LNB/M50	LNSS50
M63	LNB/M63	LNSS63
M75	LNB/M75	

Enlargers, Reducers, Converters

Materials: Nickel Plated Brass



External thread	Internal thread						
	To M10	To M12	To M16	To M20	To M25	To M32	To M40
M16		B/M16-M12/R		B/M16-M20/E			
M20	B/M20-M10/R	B/M20-M12/R	B/M20-M16/R		B/M20-M25/E		
M25				B/M25-M20/R		B/M25-M32/E	
M32					B/M32-M25/R		
M40						B/M40-M32/R	
M50							B/M50-M40/R

Female Coupler

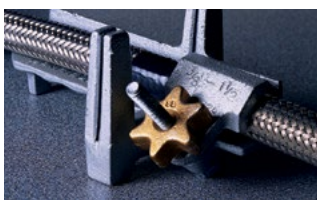
Brass internal female coupler / Materials: Nickel plated brass



Order code	Metric thread	Order code	Metric thread
B/M16/C	M16	B/M40/C	M40
B/M20/C	M20	B/M50/C	M50
B/M25/C	M25	B/M63/C	M63
B/M32/C	M32	B/M75/C	M75

Conduit cutting tool

Order code	Features	Instructions
CUT-VICE	Cut-vice offers the ability to produce a clean cut for conduit sizes 16mm to 40mm.	Place the conduit along the vice body and tighten the clamp. Holding the onduit and integral handle together, insert a hacksaw blade into the guide and cut. For braided conduit, wrap adhesive tape around the cutting point to secure braid. Remove tape after cutting.



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Notes


MDEA
ØYEVASK
EYE-BATH

Cable glands

862	Introduction
863	NG cable gland
864	UN cable gland
865	GN cable gland
866	WGN cable gland
867	FLWN cable gland
868	FLPWB cable gland
869	C2 cable gland
870	C6 cable gland
871	Cable gland accessories
872	NPG Quick Connect™ series



For more detailed product information, please refer to the website:

- Cable glands: For general industry and hazardous areas – 9AKK106930A3478

Cable Glands
Introduction

When safety matters, there is only one choice.
The Nicote and Kopex range of cable glands come to ABB through the acquisition of Thomas & Betts, a global leader in the design, manufacture of electrical installation products.

Today, these brands are known for high quality and reliability in the industry delivering a comprehensive range of products to ensure enclosure ingress protection and cable strain-relief even in harsh environments.

Take a look at just some of the features that make Nicote the first choice:

- Highly durable nickel plating
- Comprehensive range
- Full approvals
- Neoprene seals
- IP66/68 protection
- O'ring seals
- Easy to use



NG cable gland

General purpose nylon cable glands



Cat. no.	Mounting thread (mm) Size	Length	Cable acceptance details – overall diameter (mm) Minimum	Maximum	Cable gland (mm) Across corners	Pack quantity
NG-12	M12 x 1.5	15	4	7	15	50
NG-16	M16 x 1.5	15	6	10	22	50
NG-20	M20 x 1.5	15	8.5	14	27	25
NG-25	M25 x 1.5	15	12.5	18	33	25
NG-32	M32 x 1.5	15	18	25	41	10
NG-40	M40 x 1.5	15	24	32	50	10
NG-50	M50 x 1.5	20	30	41	62	2
NG-63	M63 x 1.5	20	40	51	75	2

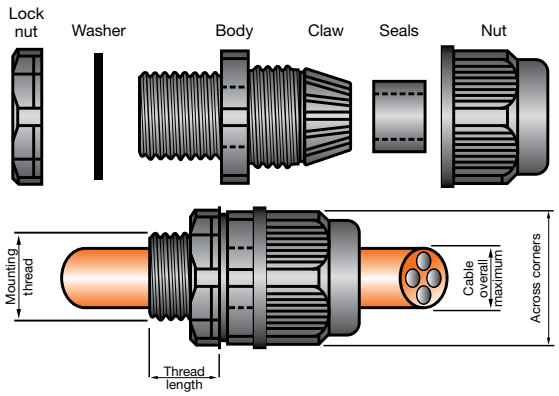
Note: Supplied with locknuts
Product specifications may change at any time without notice

Applications	Standards
Indoor and outdoor use	AS60529-2004

Protection class
IP68, resistant to salt water, weak alcohol, oil, grease and common solvents

Construction
Body - UL approved nylon 66 (black)
Seal - EPDM rubber

Function	Thread Type
Provides seal on cable sheath	Metric with locknut and IP68 washer



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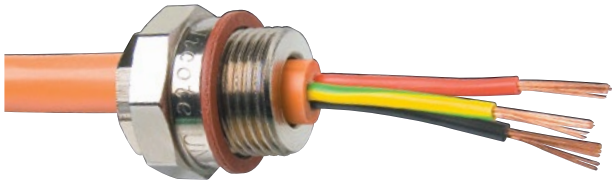
UN cable gland

General purpose cable gland for circular cable



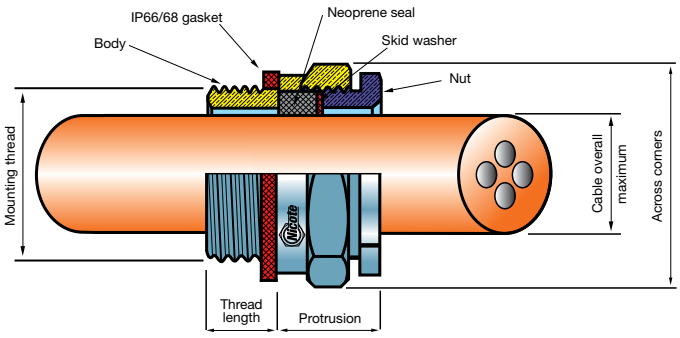
	Mounting thread (mm)		Cable acceptance details – overall diameter (mm)		Cable gland (mm)	
Cat. no.	**Size**	**Length**	**Minimum**	**Maximum**	**Across corners**	**Protrusion**
UN12A	1/2" x 26 TPI	10	1.0	6.0	18.3	13
UN16A	M16 x 1.5	10	1.0	6.0	20.6	13
UN20A	M20 x 1.5	10	6.0	10.6	27.5	14
UN20B	M20 x 1.5	10	10.6	15.0	30.9	16
UN25A	M25 x 1.5	10	15.0	17.2	33.0	17
UN25B	M25 x 1.5	10	17.0	20.0	33.0	17
UN32A	M32 x 1.5	10	20.0	25.0	40.7	18
UN40A	M40 x 1.5	16	25.0	30.0	51.1	21
UN40B	M40 x 1.5	16	30.0	35.0	55.0	23
UN50A	M50 x 1.5	16	35.0	40.0	60.9	23
UN50B	M50 x 1.5	16	40.0	45.0	67.0	24
UN63A	M63 x 1.5	19	45.0	50.0	78.0	25
UN63B	M63 x 1.5	19	50.0	55.0	88.0	32

Note: Locknuts not supplied – to be ordered seperately
Product specifications may change at any time without notice

Applications	**Standards**
Indoor and outdoor use	AS60529-2004

Protection class
Ingress of water
IP66/68 (30m)

Construction
Nickel plated brass components



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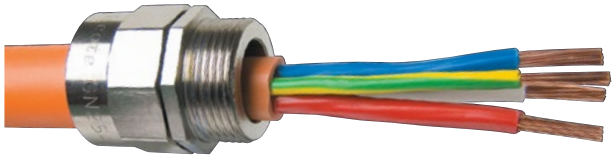
GN cable gland

General purpose cable gland for steel wired armoured cable

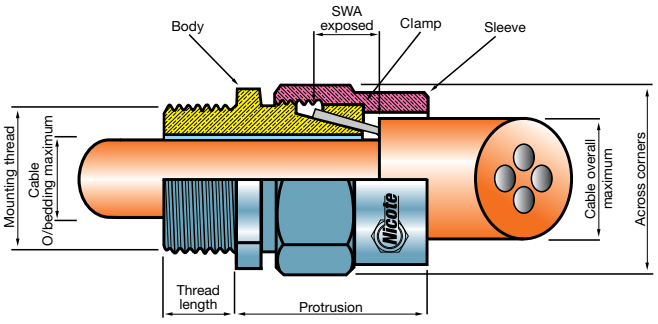


	Mounting thread (mm)		Cable acceptance details (mm)				Cable gland (mm)			
			O/bedding	Overall diameter						
Cat no.	Size	Length	Maximum	Minimum	Maximum	SWA diameter	Across corners	Protrusion	SWA exposed (mm)	Inner carton pack quantity
GN164	M16 x 1.5	10.00	7.20	7.40	10.80	0.90 - 1.25	20.5	21.5	8.0	30
GN204	M20 x 1.5	10.00	11.00	10.40	17.00	0.90 - 1.25	25.2	26.3	8.0	20
GN206	M20 x 1.5	10.00	13.75	16.60	20.00	0.90 - 1.25	27.5	26.3	8.0	20
GN254	M25 x 1.5	10.00	16.25	19.60	22.50	0.90 - 1.25	30.3	26.3	8.0	16
GN256	M25 x 1.5	10.00	18.75	22.10	26.00	1.25 - 1.60	33.6	35.7	10.5	8
GN324	M32 x 1.5	10.00	22.75	25.60	30.00	1.25 - 1.60	39.5	38.7	12.0	6
GN326	M32 x 1.5	10.00	26.50	29.60	34.00	1.60 - 2.00	44.5	38.7	12.0	4
GN405	M40 x 1.5	15.00	32.75	33.60	41.50	1.60 - 2.00	54.2	44.6	14.0	6
GN503	M50 x 1.5	15.00	38.50	41.10	49.00	2.00 - 2.50	60.3	51.3	15.5	4
GN505	M50 x 1.5	15.00	44.45	48.60	55.50	2.00 - 2.50	66.7	54.5	15.5	4
GN636	M63 x 1.5	19.00	56.25	55.10	68.25	2.50 - 3.15	82.6	56.0	17.5	2
GN753	2.5" BSP	19.00	60.35	67.85	73.00	2.50 - 3.15	95.3	60.0	21.5	1
GN755	2.5" BSP	19.00	66.70	72.60	79.40	2.50 - 3.15	101.6	60.0	21.5	1

Note: Locknuts not supplied – to be ordered seperately
Product specifications may change at any time without notice

Applications	Function
Indoor use	Provides armour clamp

Construction
Nickel plated brass components



STOCK | INDENT

WGN cable gland

General purpose cable gland for steel wired armoured cable



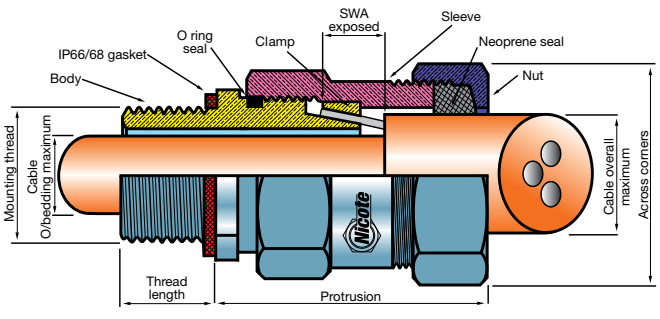
	Mounting thread (mm)		Cable acceptance details (mm)				Cable gland (mm)			
			O/bedding	Overall diameter						
Cat no.	Size	Length	Maximum	Minimum	Maximum	SWA diameter	Across corners	Protrusion	SWA exposed (mm)	Inner carton pack quantity
WGN162	M16 x 1.5	14	6.00	8.00	9.60	0.50 - 0.90	24.1	36	8	40
WGN164	M16 x 1.5	14	7.20	9.20	10.80	0.50 - 0.90	24.1	36	8	40
WGN202	M20 x 1.5	14	8.00	10.40	12.00	0.50 - 0.90	25.3	40	9	30
WGN203	M20 x 1.5	14	9.75	11.60	15.50	0.90 - 1.25	27.5	40	9	30
WGN204	M20 x 1.5	14	11.00	15.10	17.00	0.90 - 1.25	27.5	40	9	30
WGN206	M20 x 1.5	14	13.75	16.60	20.00	0.90 - 1.25	33.0	40	9	20
WGN254	M25 x 1.5	14	16.25	19.60	22.50	0.90 - 1.25	36.4	40	9	8
WGN256	M25 x 1.5	14	18.75	22.10	26.00	1.25 - 1.60	40.7	47	11	6
WGN324	M32 x 1.5	14	22.75	25.60	30.00	1.25 - 1.60	49.8	55	12	8
WGN326	M32 x 1.5	14	26.50	29.60	34.00	1.60 - 2.00	49.8	55	12	8
WGN403	M40 x 1.5	15	28.50	33.60	37.00	1.60 - 2.00	60.9	59	13	4
WGN404	M40 x 1.5	15	30.75	36.60	39.50	1.60 - 2.00	60.9	59	13	4
WGN405	M40 x 1.5	15	32.75	39.10	41.50	1.60 - 2.00	60.9	59	13	4
WGN502	M50 x 1.5	15	35.75	41.10	45.00	2.00 - 2.50	76.0	73	14	4
WGN503	M50 x 1.5	15	38.50	44.60	49.00	2.00 - 2.50	76.0	73	14	4
WGN504	M50 x 1.5	15	41.65	48.60	53.50	2.00 - 2.50	86.5	73	14	2
WGN505	M50 x 1.5	15	44.45	53.10	55.50	2.00 - 2.50	86.5	73	14	2
WGN634	M63 x 1.5	19	48.80	55.10	60.35	2.50 - 3.15	101.9	79	15	1
WGN635	M63 x 1.5	19	52.40	59.95	63.50	2.50 - 3.15	101.9	79	15	1
WGN636	M63 x 1.5	19	56.25	63.10	68.25	2.50 - 3.15	101.9	79	15	1
WGN753	2.5" BSP	19	60.35	67.85	73.00	2.50 - 3.15	115.6	93	22	1
WGN754	2.5" BSP	19	63.50	72.60	76.20	2.50 - 3.15	115.6	93	22	1
WGN755	2.5" BSP	19	66.70	75.80	79.40	2.50 - 3.15	115.6	93	22	1
WGN10A	3" BSP	19	70.00	79.00	84.00	3.15	124.0	90	22	1
WGN10B	3" BSP	19	76.00	83.60	88.50	3.15	124.0	90	22	1

Note: Locknuts not supplied – to be ordered seperately
WGN10A - B complete with earth fixing lug of 1/2" diameter

Applications	Function
Indoor and outdoor use	Provides armour clamp, and seal on outer sheath

Protection class
Ingress of water
IP66/68

Construction
Nickel plated brass components



STOCK | INDENT

FLWN cable gland

Flameproof cable gland for steel wired armoured cable



	Mounting thread (mm)		Cable acceptance details (mm)					Cable gland (mm)		
			Overbedding		Overall diameter					
Cat no.	Size	Length	Minimum	Maximum	Minimum	Maximum	SWA diameter	Across corners	Protrusion	SWA exposed (mm)
FLWN202	M20 x 1.5	15.80	6.00	8.00	11.00	13.00	0.50 - 0.90	25	54	12
FLWN203	M20 x 1.5	15.80	8.30	9.75	12.50	15.50	0.90 - 1.25	27	54	12
FLWN204	M20 x 1.5	15.80	9.35	11.00	15.10	17.00	0.90 - 1.25	27	54	12
FLWN205	M20 x 1.5	15.80	10.60	12.50	16.60	20.00	0.90 - 1.25	33	54	12
FLWN206	M20 x 1.5	15.80	12.00	13.75	17.00	20.00	0.90 - 1.25	33	54	12
FLWN253	M25 x 1.5	19.00	13.35	15.00	19.60	22.50	0.90 - 1.25	36	56	12
FLWN254	M25 x 1.5	19.00	14.60	16.25	19.60	22.50	0.90 - 1.25	36	56	12
FLWN255	M25 x 1.5	19.00	15.85	17.50	22.10	26.00	1.25 - 1.60	41	56	12
FLWN256	M25 x 1.5	19.00	17.10	18.75	23.00	26.00	1.25 - 1.60	41	56	12
FLWN323	M32 x 1.5	25.40	18.35	20.75	25.60	30.00	1.25 - 1.60	50	64	13
FLWN324	M32 x 1.5	25.40	20.35	22.75	25.60	30.00	1.25 - 1.60	50	64	13
FLWN325	M32 x 1.5	25.40	22.35	24.75	29.60	34.00	1.60 - 2.00	50	64	13
FLWN326	M32 x 1.5	25.40	24.35	26.50	30.00	34.00	1.60 - 2.00	50	64	13
FLWN403	M40 x 1.5	25.40	26.10	28.50	33.60	37.00	1.60 - 2.00	61	72	15
FLWN404	M40 x 1.5	25.40	28.10	30.75	36.60	39.50	1.60 - 2.00	61	72	15
FLWN405	M40 x 1.5	25.40	30.35	32.75	37.00	41.50	1.60 - 2.00	61	72	15

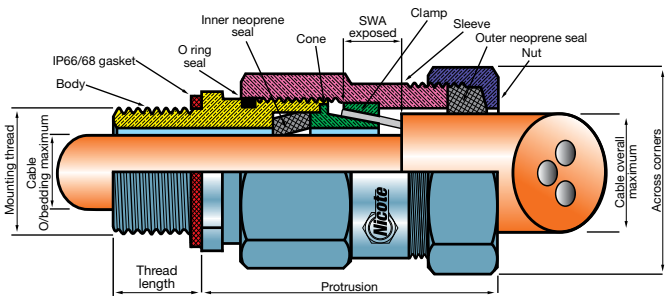
Note: Locknuts not supplied – to be ordered seperately
Product specifications may change at any time without notice

Applications	Standards
Indoor and outdoor use	IEC 60079 - 0:2004
in hazardous areas	IEC 60079 - 1:2007
	IEC 61241 - 0:2004
	IEC 61241 - 1:2004

	Protection class
ANZEx 11.2001x	Ingress of water
IECEx SIM 11.0002X	IP66/68 (30m)
Ex d I/IIC	

	Construction
	Nickel plated brass components

	Function
	Provides o/bedding flameproof seal, armour
	Clamp and seal on outer sheath



STOCK | INDENT

FLPWB cable gland

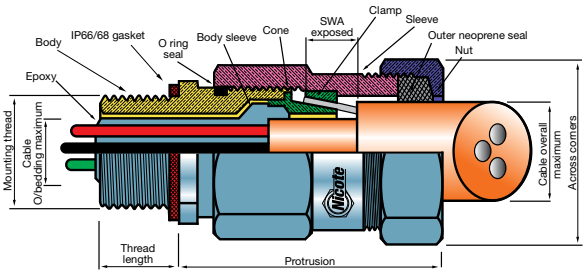
Barrier cable gland for steel wired armoured cable



	Mounting thread (mm)		Cable acceptance details (mm)				Cable gland (mm)			
			O/bedding	Overall diameter						
Cat no.	Size	Length	Maximum	Minimum	Maximum	SWA diameter	Across corners	Protrusion	SWA exposed (mm)	Inner carton pack quantity
FLPW203B	M20 x 1.5	15.80	9.75	12.50	15.50	0.90 - 1.25	27	54	11.5	14
FLPW206B	M20 x 1.5	15.80	13.75	15.00	20.00	0.90 - 1.25	33	54	11.5	14
FLPW256B	M25 x 1.5	19.00	18.75	19.50	26.00	1.25 - 1.60	41	56	11.5	10
FLPW326B	M32 x 1.5	25.40	26.50	25.50	34.00	1.60 - 2.00	5	64	13.5	6
FLPW405B	M40 x 1.5	25.40	32.75	33.50	41.50	1.60 - 2.00	61	72	15.5	2
FLPW503B	M50 x 1.5	28.60	38.50	41.00	49.00	2.00 - 2.50	76	88	17	2
FLPW505B	M50 x 1.5	28.60	44.45	48.50	55.50	2.00 - 2.50	87	88	17	2
FLPW635B	M63 x 1.5	28.60	52.40	55.00	63.50	2.50 - 3.15	102	96	19	1
FLPW636B	M63 x 1.5	28.60	56.25	63.00	68.00	2.50 - 3.15	102	96	19	1
FLPW754B	2.5" BSP	28.60	63.50	67.50	76.00	2.50 - 3.15	116	100	23	1
FLPW755B	2.5" BSP	28.60	66.70	75.50	79.40	2.50 - 3.15	116	100	23	1

Note: Locknuts not supplied – to be ordered seperately
Product specifications may change at any time without notice

Applications	Standards
Indoor and outdoor use	IEC 60079 - 0:2004
in hazardous areas	IEC 60079 - 1:2007
	IEC 61241 - 0:2004
	IEC 61241 - 1:2004



	Protection class
ANZEx 11.2001x	Ingress of water
IECEx SIM 11.0002X	IP66/68 (30m)
Ex d I/IIC	

Construction
Nickel plated brass components

Function
Provides barrier epoxy seal to cable cores, armour clamp, and seal on outer sheath

STOCK | INDENT

C2 cable gland

Flameproof cable gland for circular cable



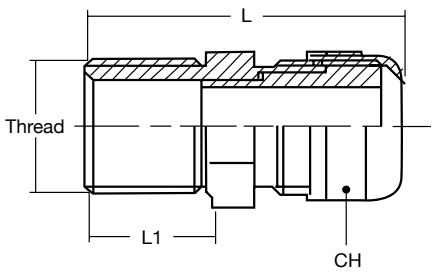
		Cable gland dimensions (mm)			Sealing ring dimensions (mm)				Torque (Nm)		
Cat. no.	Metric thread size	L	L1 min.	CH (body/ cap)	Min. – max.	S1+S2+S3	S1+S2	S1	S1+S2+S3	S1+S2	S1
Nickel plated brass											
EXN03MMC2	M16 x 1.5	40	16	22	4,0 - 12,0	4-6	6-9	9-12	20	18	15
EXN04MMC2	M20 x 1.5	40	16	22	4,0 - 12,0	4-6	6-9	9-12	20	18	15
EXN04MLC2	M20 x 1.5	45	16	28	10,0 - 16,0	10 - 12	12 - 14,5	14,5 - 16	24	22	18
EXN05MMC2	M25 x 1.5	40	16	28	10,0 - 18,0	10 - 12	12 - 14,5	14,5 - 18	25	22	18
EXN05MLC2	M25 x 1.5	50	16	35	14,0 - 20,0	14 - 17	17 - 20	–	26	22	–
EXN06MMC2	M32 x 1.5	43	16	35	14,0 - 24,0	14 - 17	17 - 20	20 - 24	28	23	20
EXN06MLC2	M32 x 1.5	53	16	45	22,0 - 28,0	22 - 24	24 - 27	27 - 28	45	40	35
EXN07MMC2	M40 x 1.5	45	18	45	22,0 - 32,0	22 - 24	24 - 27	27 - 32	56	50	45
EXN07MLC2	M40 x 1.5	55	18	50	26,0 - 3 4,0	26 - 28	28 - 31	31 - 34	57	55	52
EXN08MSC2	M50 x 1.5	46	18	55/50	26,0 - 35,0	26 - 28	28 - 31	31 - 35	57	55	52
EXN08MMC2	M50 x 1.5	63	18	64	35,0 - 4 4,0	35 - 38	38 - 41	41 - 4 4	190	155	140
EXN09MSC2	M63 x 1.5	53	18	68/64	35,0 - 45,0	35 - 38	38 - 41	41 - 45	190	155	140
EXN09MMC2	M63 x 1.5	62	18	75/80	46,0 - 56,0	46 - 48	48 - 52	52 - 56	160	145	135
EXN10MSC2	M75 x 1.5	64	20	80	46,0 - 62,0	46 - 51	51 - 57	57 - 62	185	175	150
EXN10MMC2	M75 x 1.5	75	20	95	60,0 - 70,0	60 - 6 3	63 - 69	69 - 70	123	118	107
EXN11MSC2	M90 x 1.5	75	20	95	60,0 - 70,0	60 - 63	63 - 69	69 - 70	123	118	107
EXN11MMC2	M90 x 1.5	77	20	105	75,0 - 85,0	75 - 79	79 - 82	82 - 85	135	130	125
EXN12MSC2	M100 x 1.5	77	20	105	75,0 - 85,0	75 - 7 9	79 - 82	82 - 85	135	130	125
EXN12MMC2	M110 x 1.5	77	20	115	85,0 - 95,0	85 - 89	89 - 92	92 - 95	180	175	170

Note: Locknuts not supplied – to be ordered seperately
Product specifications may change at any time without notice

Approved to
IEC EN 60079-0, 60079-1, 60079-7, 60079-31

EC type examination certificate to
CESI 13 ATEX 041X, IECEx CES 13.0014X
Ex d IIC Gb
Ex e IIC Gb
Ex tb IIIC Db

Safe operating temperature range	IP test
-40°C to +100°C	IP66-68 (5-bar 30mins)



STOCK | INDENT

C6 cable gland

EMC shielding cable glands for circular cable



Features

- Suitable for use with EMC/shielded cables
- Ex d and Ex e
- Available in brass, nickel plated brass and stainless steel 316
- Large cable range within one product with removeable seals

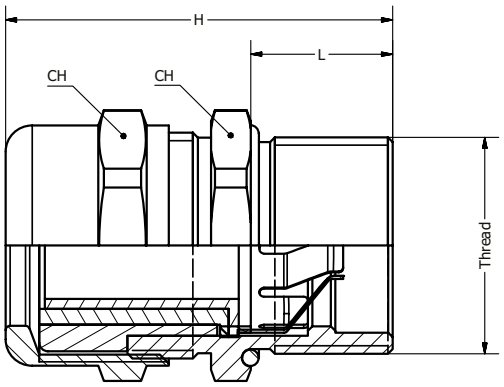
		Cable gland dimensions (mm)			Sealing ring dimensions (mm)				Torque (Nm)		
Cat. no.	Metric thread size	L	L1 min.	CH (body/ cap)	Min. – max.	S1+S2+S3	S1+S2	S1	S1+S2+S3	S1+S2	S1
Nickel plated brass											
EXN03MSC6	M16 x 1.5	44.5	16	20	4-8	–	4-6	6-8	–	25	18
EXN03MMC6	M16 x 1.5	44.5	16	22	4-8	–	4-6	6-8	20	18	15
EXN04MMC6	M20 x 1.5	44.5	18	22	4-12	4-6	6-9	9-12	20	18	15
EXN05MMC6	M25 x 1.5	46	16	28	10-18	10-12	12-14.5	14.5-18	25	22	18
EXN06MMC6	M32 x 1.5	52	19	35	14-24	14-17	17-20	20-24	25	20	18
EXN07MMC6	M40 x 1.5	61	20	45	22-32	22-24	24-27	27-32	56	50	45
EXN08MMC6	M50 x 1.5	63.5	20	55/50	26-35	26-28	28-31	31-35	57	55	52

Note: Locknuts not supplied – to be ordered seperately
Product specifications may change at any time without notice

Approved to
IEC EN60079-0, 60079-1, 60079-7, 60079-31

EC type examination certificate to
CESI 13 ATEX 041X, IECEx CES 13.0014X
Ex d IIC Gb
Ex e IIC Gb
Ex tb IIIC Db

Safe operating temperature range	IP test
-40°C to +100°C	IP66-68

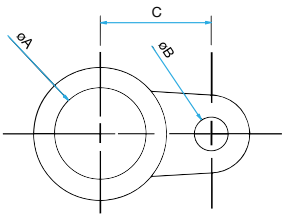


STOCK | INDENT

Cable gland accessories



Earth tag

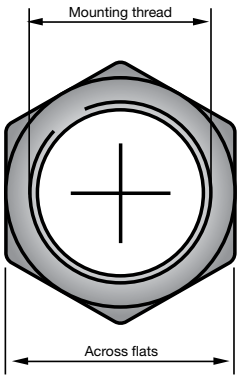


Dimensions

Earth tags

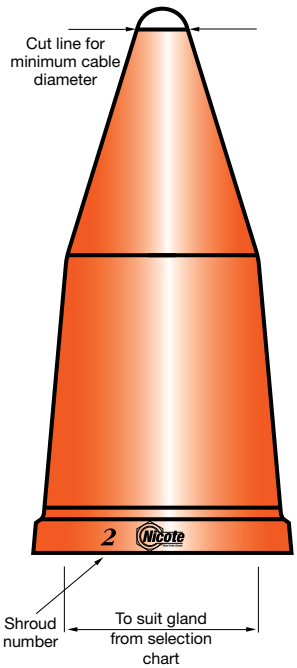
Earth tag - metric / materials: nickel plated brass

	Diameter (mm)		
Cat. no.	**A**	**B**	**C**
EXN /M16/TAG	16.2 / 16.5	6.5 / 7.0	28.0 / 28.5
EXN /M20/TAG	20.2 / 20.5	6.5 / 7.0	28.0 / 28.5
EXN /M25/TAG	25.2 / 25.7	6.1 / 6 .6	30.5 / 31.0
EXN /M32/TAG	32.2 / 32.8	12.2 / 12.7	40.0 / 40.5
EXN /M40/TAG	40.2 / 40.7	13.0 / 13.5	45.0 / 45.5
EXN /M50/TAG	51.0 / 51.5	13.0 / 13.5	58.0 / 58.5
EXN /M63/TAG	63.7 / 6 4.2	13.0 / 13.5	65.0 / 65.5
EXN /M75/TAG	76.4 / 76.9	13.0 / 13.5	75.5 / 76.0



Locknuts

Cat. no.	**Mounting thread**	**Across flats hexagon (mm)**	**Inner carton pack quantity**
L12	1/2" x 26 TPI	16	100
LNB-16	M16 x 1.5	20.7	100
LNB-20	M20 x 1.5	27	100
LNB-25	M25 x 1.5	31.6	100
LNB-32	M32 x 1.5	40	100
LNB-40	M40 x 1.5	48.2	40
LNB-50	M50 x 1.5	57.3	25
LNB-63	M63 x 1.5	82	20



Shrouds

Shroud size	**Cable gland**				
	UN	**GN**	**WGN**	**FLWN**	**FLPWB**
S0-ORG	UN20A UN20B	GN204 GN206 GN254	WGN162 WGN164 WGN202		
S1-ORG	UN25A	GN256	WGN203 WGN204	FLWN202 FLWN203 FLWN204	FLPW203B
S2-ORG	UN32A		WGN206 WGN254	FLWN205 FLWN206	FLPW206B
S3-ORG		GN324 GN326	WGN256	FLWN253 FLWN254	
S4-ORG	UN40A			FLWN255 FLWN256	FLPW256B
S5-ORG	UN40B UN50A	GN405	WGN324 WGN326	FLWN323 FLWN324 FLWN325 FLWN326	FLPW326B
S6-ORG	UN50B UN63A	GN503 GN505	WGN403 WGN404 WGN405	FLWN403 FLWN404 FLWN405	FLPW405B
S7-ORG	UN63B	GN636	WGN502 WGN503		FLPW503B

Note:
- Suffix: ORG for orange. Black version also available – BLK for black
- All glands come with gaskets but replacements available for purchase on request

STOCK | INDENT

NPG Quick Connect™ series



Features
- Single piece (No locknut required)
- Fast and simple to install
- Low internal profile
- Corrosion resistant

		Cable range		Hole size		Nominal dimensions				
Cat. no	Standard size (metric)	Min	Max	Min	Max	A	B	C	W1	W2
NPG-M161B	M16	5.0	10.0	16.2	16.4	9.0	42.5	26.5	22.0	22.0
NPG-M201B	M20	6.0	12.0	20.2	20.4	9.0	41.5	30.3	24.0	24.0
NPG-M202B	M20	7.0	13.0	20.2	20.4	9.0	41.5	30.3	25.0	25.0
NPG-M251B	M25	11.0	17.0	25.2	25.4	9.0	43.5	36.3	29.0	29.0
NPG-M321B	M32	15.0	21.0	32.2	32.4	9.0	49.5	43.2	36.0	36.0

Note: NPT thread versions and Grey colour version also available.

Certifications/standards

Material
Black, grey and light grey

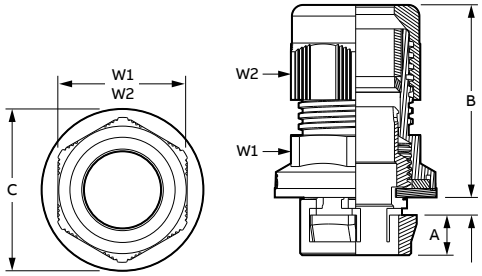
Material
Halogen free nylon (PA6) construction
Chloroprene seals

Ingress protection*
IP66
IP68 (5 bar 30 mins)

Working temperature:
Normal use: -20°C to +100°C (-4°F to 212°F)
Short term: -30 to +150°C (-22 to +302°F)

Conforms to
UL514B / CSA C22.2 No 18.3 (see table for details)
EN 62444
RoHS (Restriction of Hazardous Substances Directive Annex II
WEEE (Waste Electrical & Electronic Equipment Directive) 2002/96/EC
LVD (Low Voltage Directive) 2014/35/EU

Note:
***To ensure ingress protection, use suitable gasket and lock nut when required.
Chemical resistance guide – See publication TDS000081



WALL THICKNESS
0.5mm to 4.0 mm
(0.020" to 0.157")

STOCK | INDENT

Notes


1.2T
1.2T
ABB

Lugs and links

876 Introduction

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885 Copper long palm and long barrel lugs

886 Crimping tools

888 Crimping dies

889 Technical data



For more detailed product information, please refer to the Technical Catalogue:

- Cable termination solutions: Lugs and tools for reliable crimping – 9AKK106930A0127

Spec-Kon®
Lugs and links

Thomas & Betts (today a Member of the ABB Group) developed the first tool-applied solderless terminals and connectors more than 60 years ago in response to industry awareness of the need for better performance of electrical systems. Today, our Spec-Kon lugs and links are renowned for higher quality, delivering easy installation and reliable connections.

The quality of this humble component is often compromised on, and the resultant crimp can become the source of an electrical fault leading to potential hazards and costly downtime. A reliable crimp is the product of using the right combination of lug, die, tool and technique. This helps to avoid electrical failures associated with over-crimping (winging) or under-crimping (lack of distinct hex edges). A good crimp forms the lug and conductor into a solid, homogenous mass to provide an optimum electrical bond. One sign of a good crimp is the achievement of accurate A/F (across the flats) measurement after the crimp to match the recommendations in the product selection chart. This is usually done using Vernier callipers. Some lugs must be crimped more than once. In this case, always execute the first crimp starting from the palm end of the barrel as barrel lengthening (cold flow) will occur.





Easy to select

- Lugs and links available for various applications
- Can accommodate conductors 1.5mm² to 1000mm²
- Customisation service available

Easy to crimp

- Ergonomic and reliable crimping tools and dies available
- Lugs also compatible with dies and tools from other recognised Australian suppliers
- Annealed barrel for optimum compression

Easy to trust

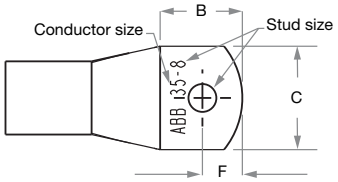
- Australian Standards AS/NZS4325-1 and AS/NZS 4437 conformant
- International Standards IEC61238 and IEC60352 conformant
- UL 486 Standard compliant
- Highly conductive 99.9% Pure IACS Copper
- Corrosion resistant Tin plating

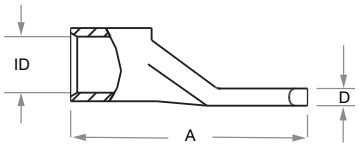
Spec-Kon

Copper standard lugs



Spec-Kon CZ lugs are made from over 99.95% pure, high conductivity Copper as per the International Annealed Copper Standard. They are also Tin plated for protection against corrosion. They are rated for voltage up to 30kV suitable for use with stranded (class 2) and flexible (class 5) power cables according to AS/NZS 1125 and IEC 60228. The barrel diameters and thicknesses are in accordance with the Australian Barrel Scheme. This allows the lugs to be crimped accurately with equivalent dies and tools offered by recognized Australian suppliers.





Order code	Wire size (mm²)	Stud size	ID	A	B	C	D	F	Quantity per box	Tooling		A/F
CZL1.5-4	1.5	M4	1.8	18	9	8	1	4	100	ERG9000		
CZL1.5-5		M5	1.8	18	9	8	1	4	100			
CZL1.5-6		M6	1.8	19	10	10	0.8	4	100			
CZL2.5-4	2.5	M4	2.4	19	9	8	1	4	100			
CZL2.5-5		M5	2.4	21	11	10	0.8	5	100			
CZL2.5-6		M6	2.4	21	11	10	0.8	5	100			
CZL2.5-8		M8	2.4	24	15	12	0.6	6	100			
CZL4-5	4	M5	3.1	22	11	10	1	5	100			
CZL4-6		M6	3.1	22	11	10	1	5	100			
CZL4-8		M8	3.1	27	15	12	0.88	6	100			
CZL4-10		M10	3.1	32	19	15	0.7	8	100			
CZL6-4	6	M4	3.1	23	11	10	1.24	5	100		TBM6120AU	4.4
CZL6-5		M5	3.8	23	11	10	1.24	5	100			4.4
CZL6-6		M6	3.8	27	15	12	1	6	100			4.4
CZL6-8		M8	3.8	27	15	12	1	6	100			4.4
CZL6-10		M10	3.8	32	19	15	1	8	100			4.4
CZL10-5	10	M5	4.7	27	13	12	1.8	6	100			5.7
CZL10-6		M6	4.7	27	13	12	1.8	6	100			5.7
CZL10-8		M8	4.7	29	15	14	1.6	7	100			5.7
CZL10-10		M10	4.7	32	18	15	1.5	8	100			5.7
CZL10-12		M12	4.7	38	23	18	1	10	100			5.7
CZL16-6	16	M6	5.5	39	16	11	2.4	7	50			6.3
CZL16-8		M8	5.5	39	16	14	1.7	7	50			6.3
CZL16-10		M10	5.5	41	18	16	1.5	8	50			6.3
CZL16-12		M12	5.5	46	23	18	1.4	10	50			6.3
CZL25-6	25	M6	7.1	41	16	13.5	2.4	7	50		TBM5BAU	7.7
CZL25-8		M8	7.1	41	16	13.5	2.4	7	50			7.7
CZL25-10		M10	7.1	44	19	16	1.96	9	50			7.7
CZL25-12		M12	7.1	48	23	18	1.74	10	50			7.7
CZL35-6	35	M6	8.4	45	19	16	3	9	50			9.2
CZL35-8		M8	8.4	45	19	16	3	9	50			9.2
CZL35-10		M10	8.4	45	19	18	2.6	9	50			9.2
CZL35-12		M12	8.4	51	24	20	2.42	11	50			9.2

STOCK | INDENT

Spec-Kon

Copper standard lugs

Order code	Wire size (mm²)	Stud size	ID	A	B	C	D	F	Quantity per box	Tooling	A/F
CZL50-6	50	M6	9.5	46	18	18	3.2	8	50	TBM6120AU, TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li, TBM23RAU	10.4
CZL50-8		M8	9.5	46	18	18	3.2	8	50		10.4
CZL50-10		M10	9.5	46	18	18	3.2	8	50		10.4
CZL50-12		M12	9.5	52	24	21	2.7	11	50		10.4
CZL70-6	70	M6	11.3	54	24	21	3.2	11	25		11.5
CZL70-8		M8	11.3	54	24	21	3.2	11	25		11.5
CZL70-10		M10	11.3	54	24	21	3.2	11	25		11.5
CZL70-12		M12	11.3	54	24	21	3.2	11	25		11.5
CZL70-14		M15	11.3	54	24	21	3.2	11	25		11.5
CZL70-16		M16	11.3	61	27	26	3	13	25		11.5
CZL95-8	95	M8	13.5	60	26	25	3.8	12	25		14.2
CZL95-10		M10	13.5	60	26	25	3.8	12	25		14.2
CZL95-12		M12	13.5	60	26	25	3.8	12	25		14.2
CZL95-14		M14	13.5	60	26	25	3.8	12	25		14.2
CZL95-16		M16	13.5	64	30	25	3.8	14	25		14.2
CZL120-8	120	M8	15.6	64	26	30	4.7	12	25		16.5
CZl120-10		M10	15.6	64	26	30	4.7	12	25		16.5
CZl120-12		M12	15.6	64	26	30	4.7	12	25		16.5
CZL120-14		M14	15.6	64	26	30	4.7	12	25		16.5
CZL120-16		M16	15.6	70	32	30	4.7	16	25		16.5
CZl150-10	150	M10	16.7	71	32	32	5.25	16	20		18.3
CZl150-12		M12	16.7	75	36	32	5.25	18	20		18.3
CZL150-14		M14	16.7	75	36	32	5.25	18	20		18.3
CZL150-16		M16	16.7	75	36	32	5.25	18	20		18.3
CZL185-10	185	M10	18.4	74	32	36	5.39	16	20		20.0
CZL185-12		M12	18.4	79	36	36	5.39	18	20		20.0
CZL185-16		M16	18.4	79	36	36	5.39	18	20		20.0
CZL240-10	240	M10	21.2	98	42	41	7	21	1		23.1
CZL240-12		M12	21.2	98	42	41	7	21	1		23.1
CZL240-16		M16	21.2	98	42	41	7	21	1		23.1
CZL300-12	300	M12	23.8	101	46	46	7.7	23	1		26.0
CZL300-14		M14	23.8	101	46	46	7.7	23	1		26.0
CZL300-16		M16	23.8	101	46	46	7.7	23	1		26.0
CZL400-BL	400	Blank	26.8	114	52	50	7.9	24	1		28.1
CZL500-BL	500	Blank	30.0	119	54	56	7.6	27	1		31.0
CZL630-BL	630	Blank	34.0	139	64	64.4	9.5	32	1		37.0
CZL800-BL	800	Blank	39.3	275	125	74	14	62.5	1		43.2
CZL1000-BL	1000	Blank	44.0	295	125	84.6	16	62.5	1		48.0



- For 90 degree palm to barrel angled variant please add suffix 'RA' after catalogue number. Example CZL35-10RA
- For 45 degree palm to barrel angled variant please add suffix 'HRA' after catalogue number. Example CZL70-10HRA
- Blank lugs CZL400-BL and above can also be punched as per your specification. Please contact our sales office

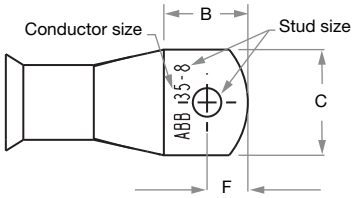
STOCK | INDENT

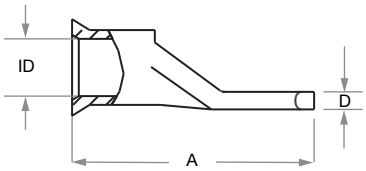
Spec-Kon

Copper bell-mouth lugs



These lugs are similar in design to standard lugs but come with a flared funnel- shaped barrel designed to ease cable insertion. This becomes extremely useful when crimping fine stranded flexible cable. This is because the fine conductor strands splay outward after stripping the insulation. Larger flexible cables (185mm2 upwards) will simply not fit into the nominal sized lug. In this scenario, the industry practice is to use the next size up lug, executing the crimp with a hybrid die (half cable size, half lug size).





Order code	Wire size (mm²)	Stud size	ID	A	B	C	D	F	Quantity per box	Tooling	A/F
CZL10-5BM	10	M5	4.7	27	13	12	1.8	6	100	TBM6120AU, TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li, TBM23RAU	5.7
CZL10-6BM		M6	4.7	27	13	12	1.8	6	100		5.7
CZL10-8BM		M8	4.7	29	15	14	1.6	7	100		5.7
CZL10-10BM		M10	4.7	32	18	15	1.5	8	100		5.7
CZL10-12BM		M12	4.7	38	23	18	1	10	100		5.7
CZL16-6BM	16	M6	5.5	39	16	11	2.4	7	50		6.3
CZL16-8BM		M8	5.5	39	16	14	1.8	7	50		6.3
CZL16-10BM		M10	5.5	41	18	16	1.5	8	50		6.3
CZL16-12BM		M12	5.5	46	23	18	1.4	10	50		6.3
CZL25-6BM	25	M6	7.1	41	16	13.5	2.4	7	50		7.7
CZL25-8BM		M8	7.1	41	16	13.5	2.4	7	50		7.7
CZL25-10BM		M10	7.1	44	19	16	1.96	9	50		7.7
CZL25-12BM		M12	7.1	48	23	18	1.74	10	50		7.7
CZL35-6BM	35	M6	8.4	45	19	16	3	9	50		9.2
CZL35-8BM		M8	8.4	45	19	16	3	9	50		9.2
CZL35-10BM		M10	8.4	45	19	18	2.6	9	50		9.2
CZL35-12BM		M12	8.4	51	24	20	2.42	11	50		9.2
CZL50-6BM	50	M6	9.5	46	18	18	3.2	8	50		10.4
CZL50-8BM		M8	9.5	46	18	18	3.2	8	50		10.4
CZL50-10BM		M10	9.5	46	18	18	3.2	8	50		10.4
CZL50-12BM		M12	9.5	52	24	21	2.7	11	50		10.4
CZL70-6BM	70	M6	11.3	54	24	21	3.2	11	25		11.5
CZL70-8BM		M8	11.3	54	24	21	3.2	11	25		11.5
CZL70-10BM		M10	11.3	54	24	21	3.2	11	25		11.5
CZL70-12BM		M12	11.3	54	24	21	3.2	11	25		11.5
CZL70-14BM		M15	11.3	54	24	21	3.2	11	25		11.5
CZL70-16BM		M16	11.3	61	27	26	3	13	25		11.5

STOCK | **INDENT**

Spec-Kon

Copper bell-mouth lugs

Order code	Wire size (mm^2)	Stud size	ID	A	B	C	D	F	Quantity per box	Tooling				A/F
CZL95-8BM	95	M8	13.5	60	26	25	3.8	12	25	TBM6120AU	TBM5BAU	TBM13MAU, TBM13RAU, TBM14CR-Li	TBM23RAU	14.2
CZL95-10BM		M10	13.5	60	26	25	3.8	12	25					14.2
CZL95-12BM		M12	13.5	60	26	25	3.8	12	25					14.2
CZL95-14BM		M14	13.5	60	26	25	3.8	12	25					14.2
CZL95-16BM		M16	13.5	64	30	25	3.8	14	25					14.2
CZL120-8BM	120	M8	15.6	64	26	30	4.7	12	25					16.5
CZL120-10BM		M10	15.6	64	26	30	4.7	12	25					16.5
CZL120-12BM		M12	15.6	64	26	30	47	12	25					16.5
CZL120-14BM		M14	15.6	64	26	30	4.7	12	25					16.5
CZL120-16BM		M16	15.6	70	32	30	4.7	16	25					16.5
CZL150-10BM	150	M10	16.7	71	32	32	5.25	16	20					18.3
CZL150-12BM		M12	16.7	75	36	32	5.25	18	20					18.3
CZL150-14BM		M14	16.7	75	36	32	5.25	18	20					18.3
CZL150-16BM		M16	16.7	75	36	32	5.25	18	20					18.3
CZL185-10BM	185	M10	18.4	74	32	36	5.39	16	20					20.0
CZL185-12BM		M12	18.4	79	36	36	5.39	18	20					20.0
CZL185-16BM		M16	18.4	79	36	36	5.39	18	20					20.0
CZL240-10BM	240	M10	21.2	92	42	41	7	21	1					23.1
CZL240-12BM		M12	21.2	92	42	41	7	21	1					23.1
CZL240-16BM		M16	21.2	92	42	41	7	21	1					23.1
CZL300-12BM	300	M12	23.8	101	46	46	7.7	23	1					26.0
CZL300-14BM		M14	23.8	101	46	46	7.7	23	1					26.0
CZL300-16BM		M16	23.8	101	46	46	7.7	23	1					26.0
CZL400-BM	400	Blank	26.8	114	52	50	7.9	24	1					28.1
CZL500-BM	500	Blank	30.0	119	54	56	7.6	27	1					31.0
CZL630-BM	630	Blank	34.0	139	64	64.4	9.5	32	1					37.0

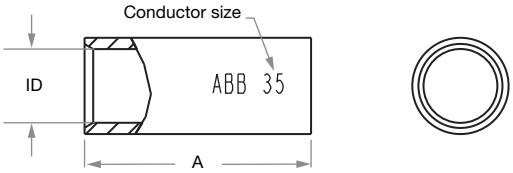
Blank Lugs CZL400-BM and above can also be punched as per your specification. Please contact our sales office.

Spec-Kon

Copper standard links



Spec-Kon CZ Links are made from over 99.95% pure Copper as per the International Annealed Copper Standard. They are also Tin plated for protection against corrosion. They are rated for voltage up to 30kV suitable for use with stranded (class 2) and flexible (class 5) power cables according to AS/NZS 1125 and IEC 60228. The barrel diameters and thicknesses are in accordance with the Australian Barrel Scheme. This allows the links to be crimped accurately with equivalent dies and tools offered by recognised Australian suppliers.



Order code	Wire size (mm²)	ID	A	Quantity per box	Tooling	A/F
CZS1.5	1.5	1.8	22	100	ERG9000	
CZS2.5	2.5	2.4	22	100	ERG9000	
CZS4	4	3.1	22	100	ERG9000	
CZS6	6	3.8	22	100	ERG9000, TBM6120AU	4.4
CZS10	10	4.7	22	100	ERG9000, TBM6120AU, TBM5BAU	5.7
CZS16	16	5.5	44	50	TBM6120AU, TBM5BAU	6.3
CZS25	25	7.1	47	50	TBM6120AU, TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li	7.7
CZS35	35	8.4	47	50	TBM6120AU, TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li	9.2
CZS50	50	9.5	47	50	TBM6120AU, TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li	10.4
CZS70	70	11.3	50	25	TBM6120AU, TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li	11.5
CZS95	95	13.5	54	25	TBM6120AU, TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li	14.2
CZS120	120	15.6	65	25	TBM6120AU, TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li	16.5
CZS150	150	16.7	65	20	TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li	18.3
CZS185	185	18.4	65	20	TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li	20.0
CZS240	240	21.2	90	1	TBM13MAU, TBM13RAU, TBM14CR-Li	23.1
CZS300	300	23.8	90	1	TBM13MAU, TBM13RAU, TBM14CR-Li	26.0
CZS400	400	26.8	90	1	TBM13MAU, TBM13RAU, TBM14CR-Li	28.1
CZS500	500	30.0	112	1	TBM23RAU	31.0
CZS630	630	34.0	112	1	TBM23RAU	37.0
CZS800	800	39.6	230	1	TBM23RAU	43.2
CZS1000	1000	44.0	230	1	TBM23RAU	48.0

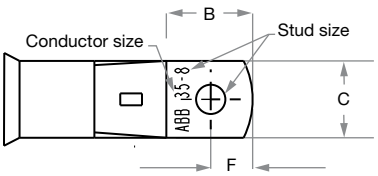
STOCK | **INDENT**

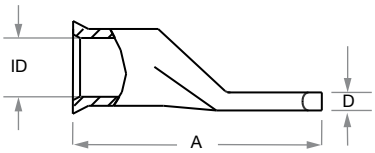
Spec-Kon

Copper circuit-breaker lugs



These lugs are designed with a narrow palm and are ideal for connecting to circuit breakers with limited terminal tunnel widths. The barrel of these lugs are designed as per the Australian Barrel Scheme hence the same crimping rules apply. The barrel entry has a bell-mouth design to ease cable insertion, specially when using fine stranded (flexible) cable.





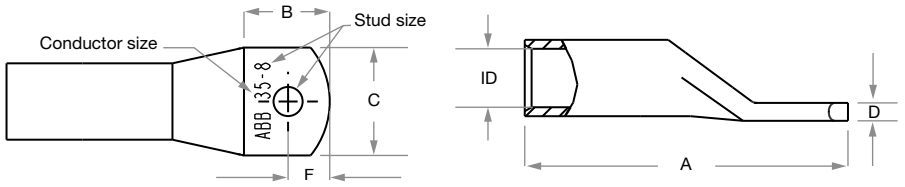
Order code	Wire size (mm²)	Stud size	ID	A	B	C	D	F	Quantity per box	Tooling				A/F
CZL35-6CB	35	M6	8.4	41	15	15	3	7	25	TBM6120AU	TBM5BAU	TBM13MAU, TBM13RAU, TBM14CR-Li	TBM23RAU	9.2
CZL50-6CB	50	M6	9.5	43	15	15	3.7	7	10					10.4
CZL50-10CB		M10	9.5	49	21	19	2.9	9	10					10.4
CZL70-6CB	70	M6	11.3	45	15	17	3.9	6.5	10					11.5
CZL70-10CB		M10	11.3	51	21	19	3.5	9	10					11.5
CZL95-8CB	95	M8	13.5	51	17	19	4.9	8	10					14.2
CZL95-10CB		M10	13.5	55	21	19	4.9	9	10					14.2
CZL120-8CB	120	M8	15.6	61	23	19	7.4	11	10					16.5
CZL120-10CB		M10	15.6	61	23	19	7.4	11	10					16.5
CZL150-8CB	150	M8	16.7	66	27	19	8.8	12	5					18.3
CZL150-10CB		M10	16.7	66	27	19	8.8	12	5					18.3
CZL185-10CB	185	M10	18.4	74	32	24.5	7.7	14.5	5					20.0
CZL240-10CB	240	M10	21.2	82	32	31	8.9	13.5	5					23.1
CZL240-12CB		M12	21.2	82	32	31	8.9	13.5	5					23.1
CZL300-10CB	300	M10	23.8	87	32	31	10.8	12	5					26.0
CZL300-12CB		M12	23.8	87	32	31	10.8	12	5					26.0

Spec-Kon

Copper long barrel lugs



Long barrel lugs are designed for installation into harsh, outdoor or industrial conditions. The long barrel creates a larger contact surface area which contributes to lower electrical resistance and also prevents cable pull-out due to vibration and mechanical strain. Additionally these lugs are also internally solder-sealed at the palm, and the viewing window is absent. This creates an air-tight crimp protecting the joint from water and dust ingress.



Order code	Wire size (mm²)	Stud size	ID	A	B	C	D	F	Quantity per box	Tooling	A/F
CZL10-6LB	10	M6	4.7	35	16	12	1.8	6	100	TBM6120AU, TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li, TBM23RAU	5.7
CZL16-6LB	16	M6	5.5	41	20	11	2.4	7	50		6.3
CZL16-8LB		M8	5.5	41	20	14	1.7	7	50		6.3
CZL25-8LB	25	M8	7.1	49	22	13.5	2.4	7	50		7.7
CZL25-10LB		M10	7.1	52	22	16	1.96	9	50		7.7
CZL25-12LB		M12	7.1	56	22	18	1.74	10	50		7.7
CZL35-8LB	35	M8	8.4	59	25	16	3	9	50		9.2
CZL35-10LB		M10	8.4	59	25	18	2.6	9	50		9.2
CZL35-12LB		M12	8.4	64	25	20	2.42	11	50		9.2
CZL50-10LB	50	M10	9.5	68	27	18	3.2	8	50		10.4
CZL50-12LB		M12	9.5	76	27	21	2.7	11	50		10.4
CZL70-10LB	70	M10	11.3	78	27	21	3.2	11	25		11.5
CZL70-12LB		M12	11.3	78	27	21	3.2	11	25		11.5
CZL95-10LB	95	M10	13.5	87	27	25	3.8	12	25		14.2
CZL95-12LB		M12	13.5	87	27	25	3.8	12	25		14.2
CZL120-10LB	120	M10	15.6	94	30	30	4.7	12	25		16.5
CZL120-12LB		M12	15.6	94	30	30	4.7	12	25		16.5
CZL150-12LB	150	M12	16.7	105	41	32	5.25	18	20		18.3
CZL150-16LB		M16	16.7	105	41	32	5.25	18	20		18.3
CZL185-12LB	185	M12	18.4	111	41	36	5.39	18	20		20.0
CZL240-12LB	240	M12	21.2	134	50	41	7	21	15		23.1
CZL300LB	300	M12	23.8	149	50	46	7.7	23	10		26.0
CZL400LB	400	BLANK	26.8	163	52	50	7.9	24	6		28.1
CZL500LB	500	BLANK	30.0	174	56	56	7.6	27	6		31.0
CZL630LB	630	BLANK	34.0	191	56	64.4	9.5	32	5		37.0

Blank Lugs CZL400LB and above can also be punched as per your specification. Please contact our sales office

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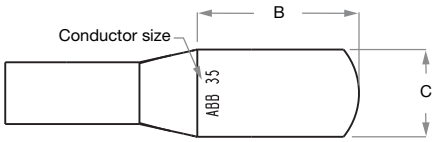
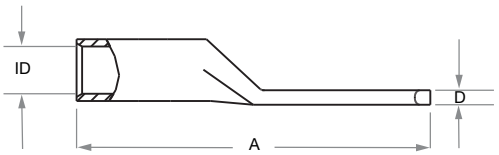
Spec-Kon

Copper long palm and long barrel lugs



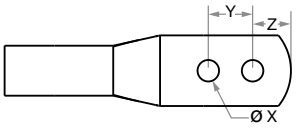
These lugs are available as usually punched with two bolt holes and are designed for installation into harsh, outdoor or industrial conditions. The long barrel creates a larger contact surface area which contributes to lower electrical resistance and also prevents cable pull-out due to vibration and mechanical strain. Additionally these lugs are also internally solder-sealed at the palm, and the viewing window is absent. This creates an air-tight crimp protecting the joint from water and dust ingress.





Order code	Wire size (mm²)	Stud size	ID	A	B	C	D	Quantity per box	Tooling	A/F
CZL16LPB	16	BLANK	5.5	86	61	11	2.4	50	TBM6120AU, TBM5BAU, TBM13MAU, TBM13RAU, TBM14CR-Li, TBM23RAU	6.3
CZL25LPB	25	BLANK	7.1	94	61	18	1.74	50		7.7
CZL35LPB	35	BLANK	8.4	112	72	16	3	50		9.2
CZL50LPB	50	BLANK	9.5	130	80	21	2.7	50		10.4
CZL70LPB	70	BLANK	11.3	154	100	21	3.2	25		11.5
CZL95LPB	95	BLANK	13.5	161	100	25	3.8	25		14.2
CZL120LPB	120	BLANK	15.6	168	100	30	4.7	25		16.5
CZL150LPB	150	BLANK	16.7	169	100	32	5.25	20		18.3
CZL185LPB	185	BLANK	18.4	174	100	36	5.39	20		20.0
CZL240LPB	240	BLANK	21.2	192	100	41	7	15		23.1
CZL300LPB	300	BLANK	23.8	208	105	46	7.7	10		26.0
CZL400LPB	400	BLANK	26.8	225	110	50	7.9	6		28.1
CZL500LPB	500	BLANK	30.0	230	110	56	7.6	6		31.0
CZL630LPB	630	BLANK	34.0	242	110	64.4	9.5	5		37.0

Customised order form



Please print and and email to **AU-EP-ORDERS@abb.com** or fax to **1800 60 20 20**

Name	Date
Company	
Email address	Telephone
Purchase order number	Delivery date required

Product requiring customisation

Number of holes required	Hole size required (X)	Hole centres spacing (Y)	First hole to palm-end (Z)	Quantity of lugs required
	mm	mm	mm	

Additional comments

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Spec-Kon
Crimping tools

	Tool type	For lug sizes (mm^2)	Order code
	Manual ergonomic crimp tool. Fully self contained die nests	1.5 to 10	ERG9000
	Manual ergonomic hex crimp tool. Fully self contained rotating die nests.	6 to 120	TBM6120AU
	Manual hydraulic hex crimp 13 ton. Rapid two-stroke system with 180 head rotation, fully insulated compact handles. Accepts dies and lugs from all recognised Australian suppliers. Comes in carry case.	10 to 400	TBM13MAU
	Battery powered 5 ton crimp tool pistol grip style. Accepts dies and lugs from all recognised Australian suppliers. Comes in case with 1 Li-ion battery, charger, shoulder strap.	10 to 240	TBM5BAU

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Spec-Kon
Crimping tools

	Tool type	For lug sizes (mm²)	Order code
	Battery powered 13 ton crimp tool pistol grip style. Accepts dies and lugs from all recognised Australian suppliers. Comes in case with 1 Li-ion battery, charger, shoulder strap.	10 to 400	TBM13BAU
	Remote hydraulic head with 23 ton capacity. Used in combination with pump delivering 700 bar (10,000 psi) pressure. Comes in carry case with 3 dies (400mm², 500mm², 630mm²) and hydraulic couplers.	400 to 630 as standard 10 to 630 with adaptor	TBM23RAU
	Battery powered hydraulic pump delivering 700 bar (10,000 psi) pressure. Comes complete with remote control, 2 meter hose, and hydraulic couplers.	10 to 1000	TBM700BAU
	Hand/foot operated hydraulic pump delivering 700 bar (10,000 psi) pressure. Rapid two-stroke system. Comes complete in carry case with lever/pedal, 2 meter hose, and hydraulic couplers.	10 to 1000	TBM700MAU

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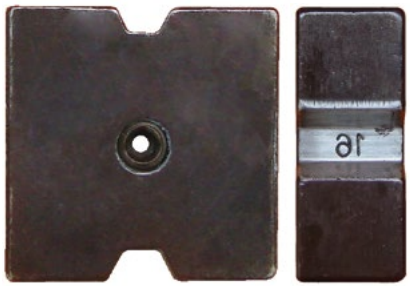
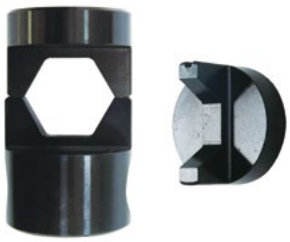
Spec-Kon
Crimping dies

	Compatible crimp tool	Wire size (mm²)	A/F hex die value	Order code
	TBM5BAU Battery powered 5 ton crimp tool. Many of these dies are double sided and will give you different crimping options depending on which way they are inserted into the tool.	10	5.7	5TON10-16CZ
		16	6.3	
		25	7.7	5TON25-35CZ
		35	9.2	
		50	10.4	5TON50-70CZ
		70	11.5	
		95	14.2	5TON95-120CZ
		120	16.5	
		150	18.3	5TON150CZ
		185	20.0	5TON185CZ
	TBM13MAU TBM13BAU TBM14CR-Li Hydraulic and Battery powered 13 to 14 ton crimp tools Also compatible with other recognised Australian supplier crimp tools and lugs.	10	5.7	155010CZ
		16	6.3	155016CZ
		25	7.7	155025CZ
		35	9.2	155035CZ
		50	10.4	155050CZ
		70	11.5	155070CZ
		95	14.2	155095CZ
		120	16.5	155120CZ
		150	18.3	155150CZ
		185	20.0	155185CZ
		240	23.1	155240CZ
		300	26.0	155300CZ
		400	28.1	155400CZ
	TBM23RAU Remote hydraulic 23 tonne crimp head Please note these 3 dies come standard with the purchase of TBM23RAU tool.	400	28.1	MCD400-23CZ
		500	31.0	MCD500-23CZ
		630	37.0	MCD630-23CZ
	TBM23RAU Adaptor to use smaller 13-14 ton dies (155 series) in 23 tonne remote head.	10 to 400	N/A	MCD-23ADP

Note: Tolerances of +/- 2% are acceptable with regards to A/F validation

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Spec-Kon
Lugs and links

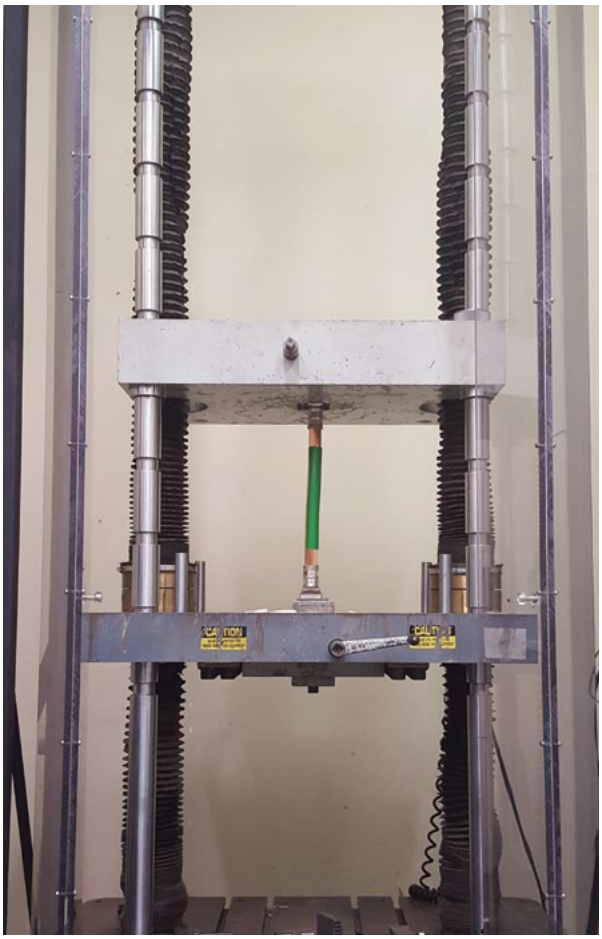
Technical data

Material		99.95% pure, high conductivity Copper
Treatment		Tin electro-plated and Annealed
For conductors		Stranded (Class 2) and Flexible (Class 5) Copper conductors as per AS/NZS 1125, IEC 60228
Voltage rating		30kV max
Pull-out force		20,000N max
Conformant standards		Australian & New Zealand AS/NZS 4325-1 and AS/NZS 4437*
		International IEC 61238 and IEC 60352*
		North American UL 486A,B,C
		Canadian CSA C22.2 No. 65-03
		International Annealed Copper Standard
Environmental		RoHS Conformant

* As of November 2016









Terminals

892 Introduction

893 Insulated bootlace ferrules

894 Insulated crimp terminals

896 Terminal crimping tools

For more detailed product information, please refer to the Technical Catalogue:

- Insulated crimp terminals: For reliable device connection – 9AKK107045A7456

Spec-Kon®
Wire crimp terminals

Thomas & Betts (today a Member of the ABB Group) developed the first tool-applied solderless terminals and connectors more than 60 years ago in response to industry awareness of the need for better performance of electrical systems.

Today, the Spec-Kon® range is part of the ABB Low Voltage offering, and is designed using our world-renowned excellence in electrical switchgear to achieve easy installation and reliable connection of any device including circuit breakers, terminal blocks, relays, contactors, push-buttons etc.



Easy to select

- Terminals for any wire-device connection
- Vinyl, nylon and uninsulated variants available
- Special heat-shrinkable variants also available

Easy to insert

- Easy-Entry® chamfered barrel design
- Viewing window ensures good positioning

Easy to crimp

- Ergonomic and reliable crimping tools
- Annealed barrel for optimum compression

Easy to trust

- AS/NZS 4437, 61210 and DIN 46237 standard compliant
- Highly conductive 99.9% Pure Copper
- Corrosion resistant tin plating
- Firm conductor grip due to deep internal serrations
- Double the tensile strength due to overlapped seams

Spec-Kon

Insulated bootlace ferrules

	Terminal type	Wire size (mm^2)	Length (mm)	Insulation colour	Pack quantity	Order code nylon insulated
	Single wire ferrules	0.25	6	Violet	100	FER02506F-H
		0.34	6	Pink	100	FER03406F-H
		0.5	8	White	100	FER05008F-H
		0.75	8	Blue	100	FER07508F-H
		1.0	8	Red	100	FER1008F-H
		1.5	8	Black	100	FER1508F-H
		1.5	18	Black	100	FER1518F-H
		2.5	8	Grey	100	FER2508F-H
		2.5	18	Grey	100	FER2518F-H
		4	10	Orange	100	FER4010F-H
		4	18	Orange	100	FER4018F-H
		6	10	Green	50	FER6010F-H
		6	18	Green	50	FER6018F-H
		10	12	Brown	25	FER10012F-H
		10	18	Brown	25	FER10018F-H
		16	12	Ivory	25	FER16012F-H
		16	18	Ivory	25	FER16018F-H
		25	16	Black	10	FER25016F-H
		35	16	Red	10	FER35016F-H
		50	16	Blue	10	FER50016F-H
	Twin wire ferrules	0.75	8	Grey	100	2FER7508D-H
		1.0	8	Red	100	2FER1008D-H
		1.5	8	Black	100	2FER1508D-H
		2.5	10	Blue	100	2FER2510D-H
		4	12	Grey	50	2FER4012D-H
		6	14	Yellow	25	2FER6014D-H

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Spec-Kon

Insulated crimp terminals

	Terminal type	Variant	Pack qty.	Terminals for 0.5 to 1.5mm² wires: Single crimp insulated	Terminals for 0.5 to 1.5mm² wires: Double crimp insulated
	Ring terminals	M3	100	R1.5-3VSC-H	R1.5-3VDC-H
		M4	100	R1.5-4VSC-H	R1.5-4VDC-H
		M5	100	R1.5-5VSC-H	R1.5-5VDC-H
		M6	50	R1.5-6VSC-H	R1.5-6VDC-H
		M8	50	R1.5-8VSC-H	R1.5-8VDC-H
		M10	25	R1.5-10VSC-H	R1.5-10VDC-H
		M12	25		R1.5-12VDC-H
	Fork spade terminals	M3	100	F1.5-3VSC-H	F1.5-3VDC-H
		M4	100	F1.5-4VSC-H	F1.5-4VDC-H
		M5	50	F1.5-5VSC-H	F1.5-5VDC-H
		M6	50	F1.5-6VSC-H	F1.5-6VDC-H
	Pin terminals		100	P1.5-23VSC-H	P1.5VDC-H
	Lip-blade terminals	3mm wide	50	LB1.5-3VSC-H	
		4.6mm wide	50	LB1.5-5VSC-H	
	Flat-blade terminals	3 x 11mm	100	B1.5-3VSC-H	B1.5VDC-H
	Bullet connectors	4mm male	100		MBD1.5-4NDC-H
		4mm female	25		FIRD1.5-39NDC-H
	In-line splice		50	BS1.5VSC-H	
	Quick connectors	Female	100		FD1.5-638NDC-H
		Female full insulated	50		FIFD1.5-638NDC-H
		Piggy back	100		PBD1.5-648NDC-H
		Male tab	100		MD1.5-638NDC-H
		Male tab full insulated	50		FIMD1.5-638NDC-H

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Spec-Kon

Insulated crimp terminals

Terminals for 1.5 to 2.5mm² wires			Terminals for 4.0 to 6.0mm² wires		
Pack qty.	Single crimp insulated	Double crimp insulated	Pack qty.	Single crimp insulated	Double crimp insulated
100	R2.5-3VSC-H	R2.5-3VDC-H	100		
100	R2.5-4VSC-H	R2.5-4VDC-H	100	R6-4VSC-H	R6-4VDC-H
100	R2.5-5VSC-H	R2.5-5VDC-H	100	R6-5VSC-H	R6-5VDC-H
50	R2.5-6VSC-H	R2.5-6VDC-H	50	R6-6VSC-H	R6-6VDC-H
50	R2.5-8VSC-H	R2.5-8VDC-H	50	R6-8VSC-H	R6-8VDC-H
25	R2.5-10VSC-H	R2.5-10VDC-H	25	R6-10VSC-H	R6-10VDC-H
25	R2.5-12VSC-H	R2.5-12VDC-H	25	R6-12VSC-H	R6-12VDC-H
100	F2.5-3VSC-H	F2.5-3VDC-H	100		
100	F2.5-4VSC-H	F2.5-4VDC-H	100	F6-4VSC-H	F6-4VDC-H
50	F2.5-5VSC-H	F2.5-5VDC-H	50	F6-5VSC-H	F6-5VDC-H
50	F2.5-6VSC-H	F2.5-6VDC-H	50	F6-6VSC-H	F6-6VDC-H
100	P2.5-23VSC-H	P2.5VDC-H	100	P6-27VSC-H	P6VDC-H
50	LB2.5-3VSC-H		50		
50	LB2.5-5VSC-H		50	LB6-5VSC-H	
100	B2.5-24VSC-H	B2.5VDC-H	100	B6-4VSC-H	B6-VDC-H
50		MBD2.5-4NDC-H			
25		FIRD2.5-39NDC-H			
50	BS2.5VSC-H		50	BS6VSC-H	
50		FD2.5-638NDC-H	50		FD6-638NDC-H
50		FIFD2.5-638NDC-H	25		FIFD6-638NDC-H
50		PBD2.5-648NDC-H			
100		MD2.5-638NDC-H	50		MD6-638NDC-H
50		FIMD2.5-638NDC-H	25		FIMD6-638NDC-H

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Spec-Kon

Terminal crimping tools

	For terminals	For wire sizes (mm²)	Order code
	Uninsulated terminals	0.5-6	ERG9001
	Insulated terminals and splices	0.5-6	ERG9002
	Insulated disconnects	0.5-6	ERG9003
	Insulated double crimp terminals	0.5-6	ERG9004
		0.14-10	FER9500
	Ferrules	6 to 16	MCT2000M
		25 to 35	MCT2000N
		50	MCT2000P

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Notes



Heatshrink

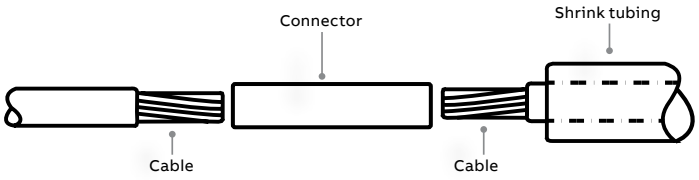
900	**Installation guidelines and cross reference**
901	**HSTW series – thin wall**
904	**HSTDW series – thin wall - adhesive lined**
905	**HSMDW series – medium wall - adhesive lined**
906	**HSHDW series – heavy wall - adhesive lined**
907	**HSC series**
908	**HSB series**
909	**HSZT series**
909	**Portable heatshrink torch**

Heatshrink

Installation guidelines and cross reference

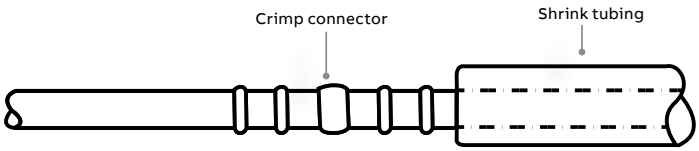
1

Connector and heat shrinkable tubing prior to installation



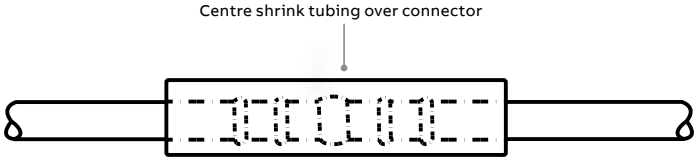
2

Crimp connector installed



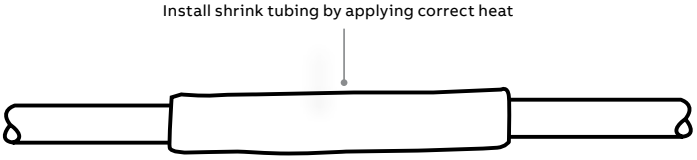
3

Heat shrinkable tube in position



4

Heat shrinkable tube after heat application



Cross reference

	ABB	Cabac	Repelec
Series	HSTW	XLP/XLPHF	RAYHS
	HSTDW	XDW	RAYATUM
	HSMDW	SMDW	RAYMWTM
	HSHDW	STDW	RAYWCSM
	HSC	SRE	RAY102
	HSB	KEV	RAY302/402/502

HSTW series – thin wall

Resists common fluids and solvents



ABB's halogen free+ heat shrinkable tube is an environmentally friendly, flame retardant tube using a specially designed formulation of advanced polymers. The product demonstrates excellent flexibility, quick shrinking and stable performance over time making it ideal for a wide variety of applications in electronics and communications including insulating, harnessing, mechanical protection, identification, corrosion and rust proofing.

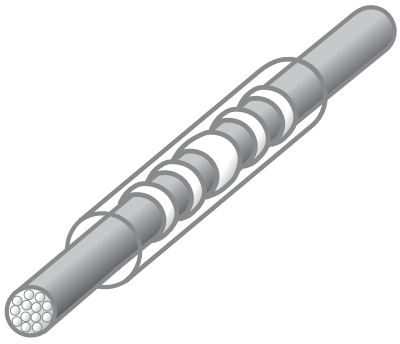
Characteristics:

- Halogen free+
- Operating temperature -55°C to 125°C
- Shrink ratio 2:1
- Shrink temperature starts at 70°C and shrinks totally at 120°C
- Flexible and flame retardant
- Meets RoHS standards
- Complies with UL224 VW-1, C-UL CSA C 22.2 OFT

HSTW series – thin wall flame retardant

Order code prefix	Size (mm)	As supplied (mm) ID	As supplied (mm) Average WT	After recovery (mm) Maximum ID	After recovery (mm) Average WT	Lengths (m) Application range	Lengths (m) Stick	Lengths (m) Spool
HSTW1.50 *	1.5	2.0 +/- 0.3	0.18+/- 0.05	0.85	0.32+/- 0.10	0.95 - 1.4	1.2	200
HSTW2.50 *	2.5	3.0 +/- 0.3	0.18+/- 0.05	1.30	0.32+/- 0.10	1.35 - 2.3	1.2	200
HSTW3 *	3.0	3.5 +/- 0.4	0.18+/- 0.05	1.50	0.40+/- 0.10	1.6 - 2.7	1.2	200
HSTW5 *	5.0	5.5 +/- 0.4	0.25+/- 0.05	2.50	0.55+/- 0.10	2.6 - 4.5	1.2	100
HSTW7 *	7.0	7.5 +/- 0.4	0.28+/- 0.05	3.50	0.55+/- 0.10	3.7 - 6.3	1.2	100
HSTW10 *	10.0	10.5 +/- 0.5	0.30+/- 0.08	5.00	0.60+/- 0.10	5.2 - 9.0	1.2	100
HSTW13 *	13.0	13.5 +/- 0.5	0.35+/- 0.10	6.50	0.65+/- 0.10	6.7 - 12.0	1.2	100
HSTW20 *	20.0	22.0 +/- 0.7	0.40+/- 0.15	10.00	0.80+/- 0.15	10.4 - 19.0	1.2	100
HSTW25 *	25.0	26.0 +/- 0.7	0.55+/- 0.15	12.50	0.90+/- 0.15	12.8 - 24.0	1.2	50
HSTW40 *	40.0	41.5 +/- 0.7	0.55+/- 0.15	20.00	1.00+/- 0.15	21.0 - 39.0	1.2	50
HSTW50 *	50.0	51.0 +/- 0.7	0.55+/- 0.15	25.00	1.00+/- 0.15	26.0 - 49.0	1.2	25
HSTW80 *	80.0	≥ 80	0.70+/- 0.15	41.00	1.46+/- 0.20	45.0 - 75.0	1.2	25
HSTW100 *	100.0	≥ 100	0.70+/- 0.20	51.00	1.46+/- 0.20	55.0 - 95.0	1.2	25
HSTW125 *	120.0	≥ 120	0.70+/- 0.20	61.00	1.56+/- 0.20	65.0 - 115.0	1.2	15

Note: For product ordering information – please refer to next page.
Due to ongoing product development, specification changes may result



Clear Shrink enables the user to inspect die and crimp details after installation

* ABB's HSTW heatshrink is available in a range of colours and both 1.2m lengths or spools.
For the complete catalogue number please use the system below.

Catalogue no. prefix + colour code + length
eg: HSTW5R1.2 = 5mm red thin wall heatshrink 1.2 length

Colour codes

- Black = BK
- Red = R
- Yellow+ = Y
- Green = G
- Blue = BL
- White+ = W
- Clear+ = C
- Yellow / Green+ = YG

+Yellow, white and yellow/green colours are not halogen free but are RoHS compliant.
Clear is halogen free but not flame retardant.

STOCK | INDENT

HSTW series – thin wall
Ordering information

HSTW series – thin wall flame retardant ordering information for individual sticks



Size	Spool length	Black = BK	Red = R	Yellow+ = Y	Green = G
1.50	1.2m	HSTW1.50BK1.2	HSTW1.50R1.2	HSTW1.50Y1.2	HSTW1.50G1.2
2.50	1.2m	HSTW2.50BK1.2	HSTW2.50R1.2	HSTW2.50Y1.2	HSTW2.50G1.2
3.00	1.2m	HSTW3BK1.2	HSTW3R1.2	HSTW3Y1.2	HSTW3G1.2
5.00	1.2m	HSTW5BK1.2	HSTW5R1.2	HSTW5Y1.2	HSTW5G1.2
7.00	1.2m	HSTW7BK1.2	HSTW7R1.2	HSTW7Y1.2	HSTW7G1.2
10.00	1.2m	HSTW10BK1.2	HSTW10R1.2	HSTW10Y1.2	HSTW10G1.2
13.00	1.2m	HSTW13BK1.2	HSTW13R1.2	HSTW13Y1.2	HSTW13G1.2
20.00	1.2m	HSTW20BK1.2	HSTW20R1.2	HSTW20Y1.2	HSTW20G1.2
25.00	1.2m	HSTW25BK1.2	HSTW25R1.2	HSTW25Y1.2	HSTW25G1.2
40.00	1.2m	HSTW40BK1.2	HSTW40R1.2	HSTW40Y1.2	HSTW40G1.2
50.00	1.2m	HSTW50BK1.2	HSTW50R1.2	HSTW50Y1.2	HSTW50G1.2
80.00	1.2m	HSTW80BK1.2	HSTW80R1.2	HSTW80Y1.2	HSTW80G1.2
100.00	1.2m	HSTW100BK1.2	HSTW100R1.2	HSTW100Y1.2	HSTW100G1.2
125.00	1.2m	HSTW125BK1.2	HSTW125R1.2	HSTW125Y1.2	HSTW125G1.2

HSTW series – thin wall flame retardant ordering information for continuous spools



Size	Spool length	Black = BK	Red = R	Yellow+ = Y	Green = G
1.50	200m	HSTW1.50BK200	HSTW1.50R200	—	HSTW1.50G200
2.50	200m	HSTW2.50BK200	HSTW2.50R200	HSTW2.50Y200	HSTW2.50G200
3.00	200m	HSTW3BK200	HSTW3R200	HSTW3Y200	HSTW3G200
5.00	100m	HSTW5BK100	HSTW5R100	HSTW5Y100	HSTW5G100
7.00	100m	HSTW7BK100	HSTW7R100	HSTW7Y100	HSTW7G100
10.00	100m	HSTW10BK100	HSTW10R100	HSTW10Y100	HSTW10G100
13.00	100m	HSTW13BK100	HSTW13R100	HSTW13Y100	HSTW13G100
20.00	100m	HSTW20BK100	HSTW20R100	HSTW20Y100	HSTW20G100
25.00	50m	HSTW25BK50	HSTW25R50	HSTW25Y50	HSTW25G50
40.00	50m	HSTW40BK50	HSTW40R50	HSTW40Y50	HSTW40G50
50.00	25m	HSTW50BK25	HSTW50R25	HSTW50Y25	HSTW50G25
80.00	25m	HSTW80BK25	HSTW80R25	HSTW80Y25	HSTW80G25
100.00	25m	HSTW100BK25	HSTW100R25	HSTW100Y25	HSTW100G25
125.00	15m	HSTW125BK15	HSTW125R15	HSTW125Y15	—

STOCK | INDENT

Blue = BL	White+ = W	Clear+ = C	Green & yellow
HSTW1.50BL1.2	HSTW1.50W1.2	HSTW1.50C1.2	HSTW1.50YG1.2
HSTW2.50BL1.2	HSTW2.50W1.2	HSTW2.50C1.2	HSTW2.50YG1.2
HSTW3BL1.2	HSTW3W1.2	HSTW3C1.2	HSTW3YG1.2
HSTW5BL1.2	HSTW5W1.2	HSTW5C1.2	HSTW5YG1.2
HSTW7BL1.2	HSTW7W1.2	HSTW7C1.2	HSTW7YG1.2
HSTW10BL1.2	HSTW10W1.2	HSTW10C1.2	HSTW10YG1.2
HSTW13BL1.2	HSTW13W1.2	HSTW13C1.2	HSTW13YG1.2
HSTW20BL1.2	HSTW20W1.2	HSTW20C1.2	HSTW20YG1.2
HSTW25BL1.2	HSTW25W1.2	HSTW25C1.2	HSTW25YG1.2
HSTW40BL1.2	HSTW40W1.2	HSTW40C1.2	HSTW40YG1.2
HSTW50BL1.2	HSTW50W1.2	HSTW50C1.2	HSTW50YG1.2
HSTW80BL1.2	HSTW80W1.2	—	HSTW80YG1.2
HSTW100BL1.2	HSTW100W1.2	—	HSTW100YG1.2
HSTW125BL1.2	HSTW125W1.2	—	HSTW125YG1.2

Blue = BL	White+ = W	Clear+ = C	Green & yellow
HSTW1.50BL200	HSTW1.50W200	HSTW1.50C200	HSTW1.50YG200
HSTW2.50BL200	HSTW2.50W200	HSTW2.50C200	HSTW2.50YG200
HSTW3BL200	HSTW3W200	HSTW3C200	HSTW3YG200
HSTW5BL100	HSTW5W100	HSTW5C100	HSTW5YG100
HSTW7BL100	HSTW7W100	HSTW7C100	HSTW7YG100
HSTW10BL100	HSTW10W100	HSTW10C100	HSTW10YG100
HSTW13BL100	HSTW13W100	HSTW13C100	HSTW13YG100
HSTW20BL100	HSTW20W100	HSTW20C100	HSTW20YG100
HSTW25BL50	HSTW25W50	HSTW25C50	HSTW25YG50
HSTW40BL50	HSTW40W50	HSTW40C50	HSTW40YG50
HSTW50BL25	HSTW50W25	HSTW50C25	HSTW50YG25
HSTW80BL25	HSTW80W25	—	HSTW80YG25
HSTW100BL25	HSTW100W25	—	HSTW100YG25
—	—	—	—

HSTDW series – thin wall - adhesive lined

For general purpose commercial + industrial applications



Characteristics:

- Operating temperature -45°C to 125°C
- Shrink ratio 3:1
- Shrink temperature starts at 70°C and shrinks totally at 120°C
- Inner layer glue melt temperature 70°C to 90°C
- Flexible and flame retardant
- Waterproof
- Meets RoHS standards
- Tested to UL224, IEC243, IEC93 and ASTM standards
- Available in black

HSTDW series – thin wall adhesive lined

		As supplied (mm)		After recovery (mm)		Lengths (m)		
Order code prefix	Size (mm)	ID	Average WT	Maximum ID	Average WT	Application range	Stick	Spool
HSTDW3BK1.2	3.2	≥ 3.2	0.30 +/- 0.08	≤ 1.0	0.95+/- 0.08	0.35+/- 0.08	1.2	—
HSTDW3BK200	3.2	≥ 3.2	0.30 +/- 0.08	≤ 1.0	0.95+/- 0.08	0.35+/- 0.08	—	200
HSTDW5BK1.2	4.8	≥ 4.8	0.46 +/- 0.08	≤ 1.6	1.10+/- 0.08	0.40+/- 0.08	1.2	—
HSTDW5BK100	4.8	≥ 4.8	0.46 +/- 0.08	≤ 1.6	1.10+/- 0.08	0.40+/- 0.08	—	100
HSTDW7BK1.2	6.4	≥ 6.4	0.50 +/- 0.08	≤ 2.2	1.20+/- 0.08	0.45+/- 0.08	1.2	—
HSTDW7BK100	6.4	≥ 6.4	0.50 +/- 0.08	≤ 2.2	1.20+/- 0.08	0.45+/- 0.08	—	100
HSTDW10BK1.2	9.5	≥ 9.5	0.55 +/- 0.08	≤ 3.2	1.45+/- 0.08	0.50+/- 0.08	1.2	—
HSTDW13BK1.2	12.7	≥ 12.7	0.68 +/- 0.08	≤ 4.2	1.70+/- 0.08	0.50+/- 0.08	1.2	—
HSTDW20BK1.2	19.1	≥ 19.1	0.76 +/- 0.10	≤ 6.3	2.00+/- 0.10	0.55+/- 0.10	1.2	—
HSTDW25BK1.2	25.4	≥ 25.4	0.78 +/- 0.10	≤ 8.5	2.10+/- 0.10	0.55+/- 0.10	1.2	—
HSTDW39BK1.2	39.0	≥ 39.0	0.85 +/- 0.10	≤ 13.5	2.40+/- 0.10	0.60+/- 0.10	1.2	—
HSTDW50BK1.2	50.0	≥ 50.0	0.95 +/- 0.10	≤ 17.0	2.70+/- 0.10	0.70+/- 0.10	1.2	—

Note: Due to ongoing product development, specification changes may result

STOCK | INDENT

HSMDW series – medium wall - adhesive lined

More flexible than heavy wall product



Characteristics:

- Seals and protects cable joints and terminations
- High resistance to impact and abrasion
- Thermoplastic adhesive lining guarantees complete environmental protection and insulation
- Operating temperature -45°C to 125°C
- Shrink ratio nominal 3:1
- Shrink temperature starts at 70°C and shrinks totally at 125°C
- Inner layer glue melt temperature 70°C to 90°C
- Meets RoHS standards
- Tested to UL224, IEC243, IEC93 and ASTM standards

HSMDW series – medium wall adhesive lined

		As supplied (mm)	After recovery (mm)			
Order code	Size (mm)	ID	Maximum ID	Average WT	Adhesive thickness	Length (m)
HSMDW10/3	10.2	≥ 10.2	≤ 3.0	1.75+/- 0.25	0.35+/- 0.1	1
HSMDW19/6	19.1	≥ 19.1	≤ 5.6	2.45+/- 0.25	0.45+/- 0.1	1
HSMDW35/10	35.0	≥ 35.0	≤ 10.2	2.70+/- 0.25	0.50+/- 0.1	1
HSMDW43/13	43.2	≥ 43.2	≤ 12.7	2.70+/- 0.25	0.50+/- 0.1	1
HSMDW52/16	52.1	≥ 52.1	≤ 16.0	2.80+/- 0.30	0.50+/- 0.15	1
HSMDW95/29	95.0	≥ 95.0	≤ 29.0	3.70+/- 0.35	0.60+/- 0.20	1
HSMDW115/34	115.0	≥ 115.0	≤ 34.0	3.70+/- 0.35	0.60+/- 0.20	1

Note:
ABB's HSMDW heatshrink is available in black only
Due to ongoing product development, specification changes may result

HSHDW series – heavy wall - adhesive lined

Maximum reliability for insulating + protecting cable joints + terminals



Characteristics:

- Seals and protects electrical and communication cable joints and terminations
- High impact, abrasion, corrosion and chemical resistance
- Thermoplastic adhesive lining guarantees complete environmental protection and insulation
- Operating temperature -45°C to 125°C
- Shrink ratio nominal 3:1
- Shrink temperature starts at 70°C and shrinks totally at 125°C
- Inner layer glue melt temperature 70°C to 90°C
- Meets RoHS standards
- Tested to UL224, IEC243, IEC93 and ASTM standards

HSHDW series – heavy wall adhesive lined

		As supplied (mm)	After recovery (mm)			
Order code	Size (mm)	ID	Maximum ID	Average WT	Adhesive thickness	Length (m)
HSHDW9/3	9.0	≥ 9.0	≤ 3.0	2.3+/- 0.25	0.35+/- 0.10	1
HSHDW20/6	20.0	≥ 20.0	≤ 6.0	2.9+/- 0.25	0.40+/- 0.10	1
HSHDW33/10	33.0	≥ 33.0	≤ 10.2	3.6+/- 0.25	0.40+/- 0.10	1
HSHDW43/12	43.2	≥ 43.2	≤ 12.0	5.0+/- 0.35	0.70+/- 0.20	1
HSHDW51/16	51.0	≥ 51.0	≤ 16.0	5.0+/- 0.35	0.70+/- 0.20	1
HSHDW70/21	70.0	≥ 70.0	≤ 21.0	5.0+/- 0.35	0.70+/- 0.20	1

Note:
ABB's HSHDW heatshrink is available in black only
Due to ongoing product development, specification changes may result

STOCK | INDENT

HSC series

Heat shrinkable end caps



Characteristics:

- Operating Temperature -55°C to 100°C
- Shrink ratio 2:1
- Shrink temperature starts at 100°C and shrinks totally at 130°C
- Waterproof
- Tested to UL224, IEC93, IEC243, ISO62, ISO846 and ASTM standards

HSC series – heat shrinkable end caps

	Main diameter (mm)			Wall thickness (mm)	
Order code	**As supplied**	**After recovery**	**Full length (mm)**	**As supplied**	**After recovery**
HSC11	≥ 11.0	≤ 5.5	≥ 22.0	—	≥ 1.1
HSC16	≥ 16.0	≤ 7.5	≥ 75.0	1.3 +/- 0.1	≥ 2.2
HSC25	≥ 25.0	≤ 10.5	≥ 80.0	1.5 +/- 0.1	≥ 2.3
HSC32	≥ 32.0	≤ 16.5	≥ 90.0	1.5 +/- 0.1	≥ 2.5
HSC50	≥ 50.0	≤ 26.0	≥ 115.0	2.0 +/- 0.1	≥ 3.4
HSC70	≥ 70.0	≤ 37.0	≥ 120.0	1.8 +/- 0.1	≥ 2.5
HSC100	≥ 100.0	≤ 46.0	≥ 140.0	1.8 +/- 0.1	≥ 3.5
HSC120	≥ 120.0	≤ 57.0	≥ 155.0	1.8 +/- 0.1	≥ 3.5

Note:
ABB's HSC end caps are available in black only
Due to ongoing product development, specification changes may result

HSB series

Heat shrinkable breakouts



Characteristics:

- Operating temperature -55°C to 100°C
- Voltage rating up to 35kV
- Shrink ratio 2:1
- Shrink temperature starts at 100°C and shrinks totally at 130°C
- Waterproof
- Tested to IEC, ISO and ASTM standards

HSC series – heat shrinkable breakouts

	Breakout main diameter (mm)		Finger diameter (mm)			
Order code	**As supplied**	**After recovery**	**As supplied**	**After recovery**	**Full length (mm)**	**Finger length (mm)**
2 core breakout						
HSB25-2	≥ 25.0	≤ 11.0	≥ 10.0	≤ 5.0	135.0 +/- 5.0	55.0 +/- 5.0
HSB30-2	≥ 30.0	≤ 13.0	≥ 16.0	≤ 7.0	145.0 +/- 5.0	60.0 +/- 5.0
HSB40-2	≥ 40.0	≤ 15.0	≥ 20.0	≤ 9.0	145.0 +/- 5.0	65.0 +/- 5.0
HSB50-2	≥ 50.0	≤ 17.0	≥ 25.0	≤ 11.0	140.0 +/- 5.0	60.0 +/- 5.0
3 core breakout						
HSB27-3	≥ 27.0	≤ 17.0	≥ 12.0	≤ 5.0	130.0 +/- 5.0	50.0 +/- 5.0
HSB50-3	≥ 50.0	≤ 22.0	≥ 19.0	≤ 7.0	165.0 +/- 5.0	60.0 +/- 5.0
HSB60-3	≥ 60.0	≤ 28.0	≥ 24.0	≤ 8.0	170.0 +/- 5.0	65.0 +/- 5.0
HSB70-3	≥ 70.0	≤ 36.0	≥ 29.0	≤ 13.0	215.0 +/- 5.0	80.0 +/- 5.0
HSB90-3	≥ 90.0	≤ 45.0	≥ 40.0	≤ 15.0	220.0 +/- 5.0	90.0 +/- 5.0
HSB105-3	≥ 105.0	≤ 53.0	≥ 44.0	≤ 18.0	225.0 +/- 5.0	90.0 +/- 5.0
HSB130-3	≥ 130.0	≤ 63.0	≥ 61.0	≤ 24.0	230.0 +/- 5.0	85.0 +/- 5.0
4 core breakout						
HSB40-4	≥ 40.0	≤ 18.0	≥ 10.0	≤ 5.0	130.0 +/- 5.0	55.0 +/- 5.0
HSB50-4	≥ 50.0	≤ 24.0	≥ 15.0	≤ 7.0	150.0 +/- 5.0	55.0 +/- 5.0
HSB70-4	≥ 70.0	≤ 32.0	≥ 24.0	≤ 9.0	175.0 +/- 5.0	75.0 +/- 5.0
HSB80-4	≥ 80.0	≤ 44.0	≥ 30.0	≤ 12.0	195.0 +/- 5.0	75.0 +/- 5.0
HSB95-4	≥ 95.0	≤ 44.0	≥ 35.0	≤ 12.0	200.0 +/- 5.0	80.0 +/- 5.0
5 core breakout						
HSB40-5	≥ 40.0	≤ 21.0	≥ 10.0	≤ 5.0	150.0 +/- 5.0	55.0 +/- 5.0
HSB55-5	≥ 55.0	≤ 29.0	≥ 15.0	≤ 7.0	170.0 +/- 5.0	65.0 +/- 5.0
HSB70-5	≥ 70.0	≤ 38.0	≥ 24.0	≤ 9.0	175.0 +/- 5.0	65.0 +/- 5.0
HSB90-5	≥ 90.0	≤ 49.0	≥ 30.0	≤ 12.0	190.0 +/- 5.0	80.0 +/- 5.0

Note:
ABB's HSB breakouts are available in black only
Due to ongoing product development, specification changes may result

HSZT series

Heat shrinkable repair sleeves



Characteristics:

- Seals and protects electrical and communications cable where the insulation has been damaged
- High impact, abrasion, corrosion and chemical resistance
- Hot melt adhesive and stainless steel clip ensure a complete environmental seal
- Operating temperature -45°C to 105°C
- Shrink ratio nominal 3:1
- Shrink temperature starts at 100°C and shrinks totally at 130°C
- UV resistant
- Meets RoHS standard
- Tested to IEC243, ISO62 and ASTM standards

HSZT series – heat shrinkable repair sleeves

	As supplied (mm)		After recovery (mm)		
Order code	**Minimum ID**	**Maximum ID**	**Average WT**		**Length (m)**
HSZT30/12	30	12	1.8		450
HSZT50/18	50	18	2.5		450
HSZT60/22	60	22	2.5		900
HSZT85/30	85	30	2.9		900
HSZT120/40	120	40	3.0		900
HSZT150/50	150	50	3.5		900

Note:
ABB's HSZT tube is available in black only
Due to ongoing product development, specification changes may result

Shrink-Kon

Portable heatshrink torch

Separate fuel and air flow controls enable precise adjustment of flame and temperature up to 1350°C.

The Shrink-Kon portable heatshrink torch offers a safe, simple, and effective solution to virtually any application requiring a controlled flame. The unit offers a maximum output of 1350°C – hot enough even for thick wall heatshrink tubing – yet operates on standard, widely available butane, yielding up to 220 minutes per fueling.

Specifications:

- Dimensions (without base): 9.9cm L x 3.6cm W x 13.7cm H
- Weight (when filled): 280g
- Fuel tank capacity: 0.06L
- Operating time (per full fuel tank): up to 220 minutes



Portable heatshrink torch

Order code	Description
WT-PTORCH	Shrink-Kon portable heatshrink torch*

* Please note that for safety reasons, the WT-PTORCH ships without fuel.
The unit operates on standard butane, purchased separately.

STOCK | INDENT

13
Earthing and lightning protection

912 **Air termination**

914 **Conductors**

916 **Conductor network**

919 **Earth electrodes**

923 **Earth bonds and clamps**

925 **Earth bars**

For more detailed product information, please refer to the Technical Catalogue:

- Earthing & lightning protection: Total solution catalogue

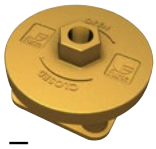
Air termination

Air terminals, bases, brackets and couplings

Air rod

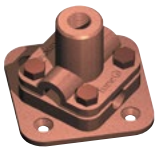


Order code	Rod length (mm)	Rod diameter (mm)	Thread size	Conductor material
RA215	500	Ø15	M16	Copper
RA225	1000	Ø15	M16	Copper
RA230	1500	Ø15	M16	Copper
RA240	2000	Ø15	M16	Copper
RA250-FU	3000	Ø15	M16	Copper
RA015	500	Ø15	M16	Aluminium
RA025	1000	Ø15	M16	Aluminium
RA030	1500	Ø15	M16	Aluminium
RA040	2000	Ø15	M16	Aluminium
RA050	3000	Ø15	M16	Aluminium
RA400-FU	500	Ø15	M10	Copper
RA402	1000	Ø15	M10	Copper
RA080	500	Ø15	M10	Aluminium
RA085	1000	Ø15	M10	Aluminium



Air rod base

Order code	Air rod diameter (mm)	Max. conductor width Ø (mm)	Conductor material
SD105-H	Ø15	25	Copper
SD003-H	Ø15	25	Aluminium
SD120	Ø15	50	Copper



Flat saddle

Order code	rod diameter (mm)	Conductor diameter (mm)	Conductor material
SD155	Ø15	50	Copper
SD160	Ø15	06	Copper
SD165	Ø15	95	Copper



Ridge saddle

Order code	rod diameter (mm)	Conductor diameter (mm)	Conductor material
SD115	Ø15	31	Copper
SD015	Ø15	31	Aluminium



Rod brackets

Order code	Rod diameter (mm)	Conductor material
BR105	Ø15	Copper
BR005	Ø15	Aluminium

Horizontal or vertical air rod base

Order code	Rod diameter (mm)	Thread size	Conductor material
Vertically mounted			
SD307	Ø8	M10	Copper
SD007	Ø8	M10	Aluminium
Horizontally mounted			
SD305	Ø8	M10	Copper
SD005	Ø8	M10	Aluminium



Rod to conductor coupling

Order code	Rod diameter (mm)	Conductor material
For use with flat tape conductor		
CG60	Ø15	Copper
CG50	Ø15	Aluminium
For use with stranded conductor		
CG705	Ø15	Copper
CG710	Ø15	Aluminium



Trapezoidal holdfast with air rod base

Order code	Conductor material
TZ405	25 x 3 mm / Ø8 mm bare copper
TZ407	25 x 3 mm / Ø8 mm bare aluminium

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Air termination

Free-standing air termination, multiple point and strike pad

Free-standing air termination



Order code	Pole height (m)	Pole diameter (mm)	Pole make-up
912000-FU	3	Ø10 – 42	2 piece
912001-FU	3.5	Ø10 – 42	2 piece
912002-FU	4	Ø10 – 42	2 piece
912003-FU	4.5	Ø10 – 42	2 piece
912004-FU	5	Ø10 – 42	2 piece
912005-FU	5.5	Ø10 – 42	2 piece
912006-FU	6	Ø10 – 60	3 piece
912007-FU	6.5	Ø10 – 60	3 piece
912008-FU	7	Ø10 – 60	3 piece
912009-FU	7.5	Ø10 – 60	3 piece
9120010-FU	8	Ø10 – 60	3 piece
9120011-FU	9	Ø10 – 60	3 piece
9120013-FU	10	Ø10 – 60	3 piece

Free-standing inception pole base





Order code	Description	Kg
499100-FU	Square concrete base 300 x 300 x 60 mm	12
499101-FU	Square concrete base 300 x 300 x 80 mm	16
103103-FU	Circular concrete base with M16 insert	12
103101-FU	Circular concrete base with M16 insert	16
103110-FU	Circular concrete base with M16 insert	20
103118-FU	Circular concrete base with M16 insert	25
Accessories		
103102-FU	Protective polyethylene tray for circular concrete blocks	
919828-FU	Stainless steel clamp for connecting 25 x 3 mm copper tape to 5 – 19 mm thickness steel	



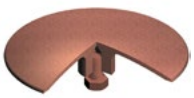
Multiple point

Order code	Rod diameter (mm)	Rod material
RA600	Ø15	Copper
RA500	Ø15	Aluminium



Strike pad

Order code	Conductor material
PL101	Copper
PL005	Aluminium
SM010	Copper stem for use with PL010
SM005	Stainless steel stem for use with PL005



Base frame

Order code	Frame type	Dimensions (mm)
499000-FU	Square base	650 x 650
499005-FU	Tripod base	1350 x 1350
499006-FU	Tripod base	1850 x 1850
499007-FU	H shaped base	1850 x 1850

Conductors

Bare conductors, bare stranded and tinned conductors



Bare copper tape

Order code	Conductor size (X x Y) (mm)
TC005	12.5 x 1.5
TC010	12.5 x 3
TC015	20 x 1.5
TC020	20 x 3
TC020/100	20 x 3
TC025	25 x 1.5
TC026	25 x 2
TC030	25 x 3
TC030/25-AU	25 x 3
TC030/50	25 x 3
TC030-UL	1” x 1/8”
TC035	25 x 4
TC040	25 x 6
TC040-UL	1” x 1/4”
TC039	30 x 2
TC042	30 x 3
TC044	30 x 4
TC043	30 x 5
TC045	31 x 3
TC048	31.5 x 4
TC050	31 x 6
TC055	38 x 3
TC060-FU	38 x 5
TC065	38 x 6
TC067	40 x 3
TC066	40 x 4
TC071	40 x 5
TC068	40 x 6
TC069	40 x 6.3
TC070	50 x 3
TC075	50 x 4
TC078	50 x 5
TC080	50 x 6
TC082	50 x 6.3
TC090	50 x 7



Bare stranded copper cable

Order code	Cross sectional area (mm)
Soft drawn stranded copper cable	
CB006	6
CB016	16
CB025	25
CB035	35
CB050-FU	50
CB070	70
CB095	95
CB120	120
CB150-FU	150
CB185	185
CB240	240
CB300-FU	300
CB400-FU	400
Tinned soft drawn stranded copper cable	
CB070-T	70
Hard drawn stranded copper cable	
CB071	70



Bare solid circular

Order code	Diameter (A) (mm)
Copper conductor	
CD035	Ø 8
Aluminium conductor	
CD080	Ø 8



Bare aluminium tape

Order code	Conductor size (X x Y) (mm
TA005	12.5 x 1.5
TA020	20 x 3
TA030	25 x 3
TA042	30 x 3
TA040	25 x 6
TA068	40 x 6
TA080	50 x 6



Tinned copper tape

Order code	Conductor size (X x Y) (mm)
TC225-FU	12.5 x 1.5
TC230	25 x 3
TC230-UL	1” x 1/8”
TC239	30 x 2
TC240	25 x 6
TC245	31 x 3
TC260	38 x 5
TC280	50 x 6

Conductors

Hand drawn bar, PVC and LSOH covered conductors



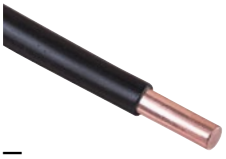
Hard drawn copper bar

Order code	Overall nominal size (X x Y) (mm)
Bare hard drawn bar	
BA205	25 x 3
BA210	25 x 6
BA225	38 x 6
BA230	50 x 6
BA235	50 x 10
BA240	75 x 6
BA250-FU	100 x 6



PVC covered copper tape

Order code	Conductor size (X x Y) (mm)	Colour range
TC100	12.5 x 1.5	Black
TC105/N	25 x 3	Black
TC110/N	25 x 3	Green
TC110/50	25 x 3	Green
TC115/N	25 x 3	Grey
TC120/N	25 x 3	Stone
TC125/N	25 x 3	White
TC130/N	25 x 3	Brown
TC140/N	25 x 6	Green
TC145/N	50 x 6	Green



PVC covered copper solid circular

Order code	Colour range
CD036	Black
CD038	Grey
CD039	Stone
CD040	White
CD041	Brown

Note: All conductor diameters 8 mm



PVC covered aluminium solid circular

Order code	Colour range
CD081	Black
CD083	Grey
CD084	Stone
CD085	White
CD086	Brown

Note: All conductor diameters 8 mm



Green and yellow PVC insulated copper tape

Order code	Conductor size (X x Y) (mm)
TC111/N	25 x 3



Green and yellow PVC insulated stranded copper cable

Order code	Cross-sectional area (mm^2)
CC016	16
CC025	25
CC035	35
CC050	50
CC070	70
CC095	95
CC120-FU	120
CC150-FU	150
CC185	185
CC240	240
CC300	300
CC400-FU	400



PVC covered aluminium tape

Order code	Conductor size (X x Y) (mm)	Colour range
TA100	12.5 x 1.5	Black
TA104	20 x 3	Black
TA105	25 x 3	Black
TA110	25 x 3	Green
TA115	25 x 3	Grey
TA120	25 x 3	Stone
TA125	25 x 3	White
TC130/N	25 x 3	Brown



LSOH covered copper tape

Order code	Conductor size (X x Y) (mm)	Colour range
TC910/N	25 x 3	Green
TC910/50	25 x 3	Green
TC940/N	25 x 6	Green
TC980/N	50 x 6	Green

Conductor network

Metallic conductor clips



Swing lid DC tape clip

Order code	Conductor size (mm)
For use with bare copper	
CP210-H	25 x 3
CP220-H	25 x 6
For use with bare aluminium	
CP110-H	25 x 3
CP120-H	25 x 6



Adjustable DC tape clip

Order code	Conductor size (mm)
For use with bare copper	
CP230-H	31 x 3 and 31 x 6
CP240-H	38 x 3, 38 x 6 and 40 x 6
CP260-H	50 x 3 and 50 x 6



DC tape clip

Order code	Conductor size (mm)
For use with bare copper	
CP205	20 x 3
CP216	25 x 4
CP227	30 x 5
CP245	38 x 5
CP241	40 x 4
CP256	50 x 4
For use with PVC covered copper	
CP215-H	25 x 3
CP225	25 x 6
CP265	50 x 6
CP256	50 x 4
For use with lead covered copper	
CP305	25 x 3
For use with bare aluminium	
CP105	20 x 3
CP125	50 x 6
For use with PVC covered aluminium	
CP115	25 x 3
CP130	50 x 6



Tape clip

Order code	Conductor size (mm)
For use with bare copper	
CP510	20 x 3
CP515	25 x 3
For use with bare aluminium	
CP405	20 x 3
CP410	25 x 3
CP415	25 x 6
For use with PVC covered tape	
CP517	25 x 3



One hole cable clip

Order code	Conductor size (mm)	Conductor material
For use with solid circular conductor		
CP905	Ø 8	Copper
CP925	Ø 8	Aluminium
CP915	Ø 10*	Copper
CP935	Ø 10*	Aluminium
For use with stranded conductor		
CP910	50 mm²	Copper
CP915	70 mm²	Copper
CP920	95 mm²	Copper

*PVC covered 8 mm conductor



Heavy duty cast cable saddle

Order code	Conductor size (mm)	Conductor material
For use with solid circular conductor		
CP805	Ø 8	Copper
CP806	Ø 8	Aluminium
CP815	Ø 10*	Copper
CP816	Ø 10*	Aluminium
For use with stranded conductor		
CP810	50 mm²	Copper
CP815	70 mm²	Copper
CP835	95 mm²	Copper
CP855	120 mm²	Copper

*PVC covered 8 mm conductor



Non-metallic DC tape clip

Order code	Conductor size (mm)	Colour
For use with bare tape		
CP005	20 x 3	Brown
CP010	20 x 3	Grey
CP015	25 x 3	Brown
CP020	25 x 3	Grey
CP060*	38 x 5	Brown
CP065*	50 x 6	Brown
For use with PVC covered tape		
CP025	25 x 3	Brown
CP030	25 x 3	Black
CP035	25 x 3	Green
CP040	25 x 3	Grey
CP045	25 x 3	Stone
CP050	25 x 3	White

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Conductor network

Standing seam roof fixings, holdfasts, puddle flange and conductor clamps



Standing seam roof fixing with square tape clamp

Order code	Conductor size (mm)	Material
SC105-H	25 x 3	Copper
SC005-H	25 x 3	Aluminium



Standing seam roof fixing with non-metallic DC tape clip

Order code	Conductor size (mm)	Colour	Material	Weight each (kg)
Non-metallic clip for use with bare tape				
SC015	25 x 3	Brown	Copper	0.076
SC020	25 x 3	Grey	Aluminium	0.076
Metallic clip for use with bare tape				
SC210-H	25 x 3	—	Copper	0.08
SC110-H	25 x 3	—	Aluminium	0.07
Metallic clip for use with PVC covered tape				
SC215-H	25 x 3	—	Copper	0.09



Slate holdfast with non-metallic DC tape clip

Order code	Conductor size (mm)	DC clip colour
For use with bare tape		
HF015	25 x 3	Brown
HF020	25 x 3	Grey
For use with PVC covered tape		
HF025	25 x 3	Brown
HF030	25 x 3	Black
HF040	25 x 3	Grey
HF045	25 x 3	Stone



Slate holdfast with non-metallic push-in clip

Order code	Conductor size (mm)	DC clip colour
HF176	Ø 8	Brown
HF191	Ø 8	Grey



Pyramid flange

Order code	Conductor material
PF105	Copper
PF005	Aluminium



Pyramid holdfast

Order code	Conductor size (mm)
HF975	Ø 8 mm solid circular



Glazing bar holdfast

Order code	Maximum glazing bar width (mm)	Conductor material
HF705	12	Copper
HF710	12	Aluminium



Back plate holdfast stem

Order code	Conductor material
HF320	Copper
HF325-FU	Aluminium



Square tape clamp

Order code	Conductor size (mm)	Conductor material
CT105-H	25 x 3	Copper
CT110-H	25 x 6	Copper
CT115-H	50 x 6	Copper
CT005-H	25 x 3	Aluminium
CT010-H	25 x 6	Aluminium



Crossover tape clamp

Order code	Conductor size (mm)	Conductor material
CX105-H	25 x 3	Copper
CX005-H	25 x 3	Aluminium



Cable to tape square clamp

Order code	Conductor size (mm)	Conductor material
CT125	25 x 3 mm to 50 mm²	Copper
CT130	25 x 3 mm to 70 mm²	Copper
CT135	25 x 3 mm to 95 mm²	Copper

Conductor network

Conductor clamps, bimetallic connectors, expansion braid bond and oxide inhibitor



Square stranded cable clamp

Order code	Conductor size (mm)	Conductor material
CR810	50	Copper
CR815	70	Copper
CR820	95	Copper



Mini square clamp

Order code	Conductor size (mm)	Conductor material
CS605	Ø 8	Copper
CS610	Ø 8	Aluminium



Tee clamp

Order code	Conductor size (mm)	Conductor material
CS505	Ø 8	Copper
CS510	Ø 8	Aluminium



Jointing clamp

Order code	Conductor size (mm)	Conductor material
CS405	Ø 8	Copper
CS410	Ø 8	Aluminium



Test / Junction clamp

Order code	Conductor size (mm)	Conductor material
CN105-H	26 x 8	Copper
CN005*	26 x 8	Aluminium



Plate type test clamp

Order code	Conductor size (mm)	Conductor material
CT405	26 x 12 max	Copper



Screwdown test clamp

Order code	Conductor size (mm)	Conductor material
CT305	26 x 8 max	Copper



Test clamp

Order code	Conductor size (mm)	Conductor material
CN305	Ø 8	Copper
CN310	Ø 8	Aluminium



Square test clamp

Order code	Conductor size (mm)	Conductor material
CR855	50	Copper
CR860	70	Copper
CR865	95	Copper



Bimetallic connector

Order code	Conductor size
CN910	25 x 3 mm aluminium tape to 25 x 3 mm copper tape
CN910-UL	11/2" x 1/8" aluminium tape to 1" x 1/8" copper tape
CN915	8 mm Ø aluminium conductor to 8 mm Ø copper conductor
CN920	8 mm Ø aluminium conductor to 25 x 3 mm copper tape
CN925	25 x 3 mm aluminium tape to 25 x 3 mm copper tape



Oxide inhibiting compound

Order code	Description
CM005	Plastic 8 oz bottle



Expansion braid bond

Order code	Description	Conductor material
BN101	Single length	Copper
BN001	Single length	Aluminium
BN102	Cross-over	Copper
BN002	Cross-over	Aluminium

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Earth electrodes

Earth rods

Threaded copperbond earth rod



Order code	Nominal diameter (")	Length (mm)
RB105	Ø 1/2	1200
RB110	Ø 1/2	1500
RB115	Ø 1/2	1800
RB125	Ø 1/2	2400
RB205-FU	Ø 5/8	1200
RB210	Ø 5/8	1500
RB215	Ø 5/8	1800
RB220-FU	Ø 5/8	2100
RB225	Ø 5/8	2400
RB235	Ø 5/8	3000
RB305	Ø 3/4	1200
RB310	Ø 3/4	1500
RB315	Ø 3/4	1800
RB320-FU	Ø 3/4	2100
RB325	Ø 3/4	2400
RB335	Ø 3/4	3000

Order code	Type (")
Fittings	
CG170	½ Coupling
CG270	⅝ Coupling
CG370	¾ Coupling
ST100	½ Driving stud
ST200	⅝ Driving stud
ST300	¾ Driving stud

Unthreaded copperbond earth rod



Order code	Diameter (mm)	Length (mm)
RB005	Ø 9.0	1200
RB103	Ø 12.7	1200
RB107	Ø 12.7	1500
RB116	Ø 12.7	1800
RB126	Ø 12.7	2400
RB203	Ø 14.2	1200
RB213	Ø 14.2	1500
RB216	Ø 14.2	1800
RB217	Ø 14.2	2000
RB223	Ø 14.2	2100
RB226	Ø 14.2	2400
RB236	Ø 14.2	3000
RB306	Ø 17.2	1200
RB313	Ø 17.2	1500
RB316	Ø 17.2	1800
RB317	Ø 17.2	2000
RB323	Ø 17.2	2100
RB326	Ø 17.2	2400
RB336	Ø 17.2	3000

Order code	Type
Fittings	
CG177	12.7 mm Coupling
CG277	14.2 mm Coupling
CG377	17.2 mm Coupling
ST107	12.7 mm Driving head
ST207	14.2 mm Driving head
ST307	17.2 mm Driving head

Earth electrodes

Earth rods

Solid copper and stainless steel earth rod



Order code	Diameter (mm)	Length (mm)
Solid copper rod		
RC010	Ø 15	1200
RC011	Ø 15	1500
RC012	Ø 15	3000
RC015	Ø 20	1200
RC016	Ø 20	1500
RC017	Ø 20	3000
Stainless steel rod		
RS005	Ø 16	1200
RS011	Ø 16	1500
RS012	Ø 16	3000
RS016	Ø 20	1500
RS017	Ø 20	3000

Order code	Type
Fittings	
ST010	15 mm hardened steel driving stud for copper/stainless steel rod
ST015	20 mm hardened steel driving stud for for copper/stainless steel rod
CG013	Coupling dowel for 15 mm and 20 mm copper rod
CG005	Coupling dowel for 16 mm and 20 mm stainless steel rod
SP010	15 mm hardened steel spike for copper/ stainless steel rod
SP015	20 mm hardened steel spike for copper/ stainless steel rod

Earth electrodes

Seal, hammer and rig

Earth rod seal



Order code	Type
Earth rod seal assembly	
ES300	Earth rod seal and membrane seal
Earth rod seal pack	
ES300-12	Seal pack for 1/2" (Ø 12.7 mm) Copperbond rod
ES300-58	Seal pack for 5/8 " (Ø 14.2 mm) Copperbond rod
ES300-34	Seal pack for 3/4" (Ø 17.2 mm) Copperbond rod
ES300-15	Seal pack for Ø 15 mm solid copper rod
ES300-16	Seal pack for Ø 16 mm solid copper rod
ES300-20	Seal pack for Ø 20 mm solid copper rod
Accessory spanner set	
ES320	Membrane seal torque spanner set
Earth rod seal tube	
ES310-03	Seal tube, 300 mm length
ES310-05	Seal tube, 500 mm length
ES310-10	Seal tube, 1000 mm length
ES310-15	Seal tube, 1500 mm length
ES310-20	Seal tube, 2000 mm length
ES310-30	Seal tube, 3000 mm length



Earth rod hammer

Order code	Description
HM005	Atlas Copco Cobra TT petrol driven hammer
HM010	Earth rod adapter (Suitable for 5/8" earth rods)



Hammer rig

Order code	Description
HM105	Hammer rig

Earth electrodes

Inspection pits, plate, lattice, backfill materials and resistance test equipment



Lightweight inspection pit

Order code	Description
PT205	Lightweight inspection pit with grey polymer lid
PT309-FU	Lightweight inspection pit with black unbranded) polymer lid
PT110*	Lightweight inspection pit with concrete lid
PT004	5 hole earth bar
Accessories for polymer lid	
AK005	6 mm Allen key
Accessories for concrete lid	
JH100	M8 x 100 mm long mild steel 'J' bolt lifting hook
AS100	M8 x 60 stainless steel Allen caphead screw (2 per lid)

UL Kits

Order code	Diameter	Length
Stainless steel rod		
RC010-KIT	Ø 15 mm	8 ft (2440 mm)
RC015-KIT	Ø 16 mm	8 ft (2440 mm)
Stainless steel rod		
RS005-KIT	Ø 16 mm	8 ft (2440 mm)



FurseCEM® conductive aggregate

Order code	Description
CM025	FurseCEM
CM030	FurseCEM® (supplied with cement)



Bentonite moisture retaining clay

Order code	Description
CM015	Bentonite powder 25kg
CM020	Bentonite granules 25kg



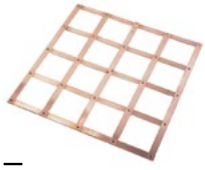
Concrete inspection pit

Order code	Description
Earth bars for concrete inspection pit	
PT005	Concrete inspection pit
Accessories	
PT006	5 hole earth bar
PT007	7 hole earth bar



Earth plate (Solid copper)

Order code	Size (mm)
PE005	600 x 600 x 1.5
PE015	900 x 900 x 1.5
PE010	600 x 600 x 3
PE020	900 x 900 x 3



Earth plate (Latice copper)

Order code	Size (mm)
PE110	600 x 600 x 3
PE120	900 x 900 x 3



Digital earth resistance tester

Order code	Size (mm)
DET14C	Clamp earth resistance tester
DET3TC	Digital earth resistance tester
DET4TD2	Digital earth resistance tester
DET2/2	Digital earth resistance tester

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Earth bonds and clamps

Mechanical clamps



Rod to tape clamp (type A)

Order code	Nominal rod Ø mm	Max. conductor (mm)
CR105	Ø 12.7	26 x 12
CR105	Ø 16	26 x 12
CR105	Ø 20	26 x 10
CR108	Ø 16	30 x 2
CR108	Ø 20	30 x 2
CR110	Ø 16	40 x 12
CR115	Ø 16	51 x 8
CR125	Ø 20	51 x 12
CR130	Ø 12.7	26 x 20
CR130	Ø 16	26 x 18
CR130	Ø 20	26 x 10
CR130	Ø 25	26 x 10



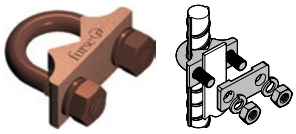
Rod to tape clamp (type B)

Order code	Nominal rod Ø mm	Rod type (mm)
CR205	Ø 9.5	Copperbond
CR215	Ø 16	Copperbond
CR220	Ø 15	Solid copper
CR225	Ø 20	Copperbond
CR230	Ø 20	Solid copper



Rod to tape clamp (type G)

Order code	Nominal rod Ø mm	Max. conductor (mm)
CR505Ø	Ø 9.5	6-35
CR510-FU*	Ø 12.7	16-50
G5	Ø 16	5.2-33.6
CR515*	Ø 16	16-70
G6	Ø 20	5.2-33.6
CR520*	Ø 20	35-95
CR525	Ø 25	70-150



'U' bolt rod clamp (type E)

Order code	Nominal rod/ rebar Ø mm	Hole centres (mm)
CR305	Ø 16	37
CR310	Ø 20	37
CR315	Ø 25	37
CR320*	Ø 16	37
CR325	Ø 38	54
CR330	Ø 50	64
CR326	Ø 38	54

*CR320 includes additional plate to allow tape to be clamped without drilling



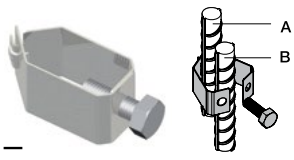
'U' bolt rod clamp (type GUV)

Order code	Nominal rod/ rebar Ø mm	Conductor range (mm)
CR700	Ø 16	16-95
CR700	Ø 20	16-70
CR705	Ø 16	70-185
CR705	Ø 20	70-150
CR730	Ø 16	150-300
CR730	Ø 20	150-300
CR710	Ø 25	16-70
CR740	Ø 25	70-150
CR750	Ø 25	150-300



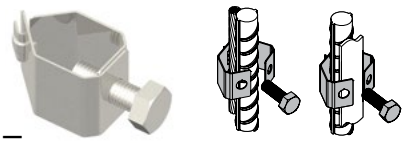
Rebar clamp

Order code	Conductor size (mm)	Rebar Ø mm	Conductor material
BN150	Ø 8	Ø 8-18	Copper
BN155	Ø 8	Ø 18-38	Copper



Rebar to rebar connecting clip

Order code	Max. rebar diameter (A) (mm)	Max. rebar diameter (B) (mm)
RR812	Ø 8	Ø 12
RR1616	Ø 16	Ø 16
RR2121	Ø 20	Ø 20
RR2626	Ø 25	Ø 25
RR3232	Ø 32	Ø 32
RR3838	Ø 40	Ø 40



Rebar to conductor connecting clip

Order code	Rebar diameter (mm)	Conductor size (mm)
Rebar to flat tape		
RC25-087095	Ø 25	25 x 3 mm
Rebar to stranded/solid circular conductor		
RC812-0850	Ø 12	50 mm² or Ø 8 mm
RC16-087095	Ø 16	
RC20-087095	Ø 20	Ø 8 mm dia.,
RC25-087095	Ø 25	50-70-95 mm²
RC32-087095	Ø 32	
RC40-087095	Ø 40	

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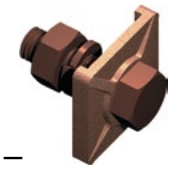
Earth bonds and clamps

Earth boss bonds, clamps and static earth connection points



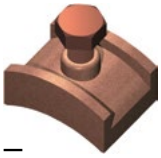
Earth boss

Order code	Length (mm)	Diameter (mm)	Thread size (mm)
EB0000	25	Ø 25	M8
EB1000	25	Ø 25	M8
EB0110	30	Ø 30	M8
EB1110	30	Ø 30	M8
EB0111	30	Ø 30	M10
EB1111	30	Ø 30	M10
EB0120	30	Ø 40	M8
EB1120	30	Ø 40	M8
EB0121	30	Ø 40	M10
EB1121	30	Ø 40	M10
EB0130	30	Ø 50	M8
EB1130	30	Ø 50	M8
EB0131	30	Ø 50	M10
EB1131	30	Ø 50	M10
EB0211	40	Ø 30	M10
EB1211	40	Ø 30	M10
EB0212	40	Ø 30	M12
EB1212	40	Ø 30	M12
EB0221	40	Ø 40	M10
EB1221	40	Ø 40	M10
EB0222	40	Ø 40	M12
EB1222	40	Ø 40	M12
EB0231	40	Ø 50	M10
EB1231	40	Ø 50	M10
EB0232	40	Ø 50	M12
EB1232	40	Ø 50	M12
EB0311	50	Ø 30	M10
EB1311	50	Ø 30	M10
EB0312	50	Ø 30	M12
EB1312	50	Ø 30	M12
EB0321	50	Ø 40	M10
EB1321	50	Ø 40	M10
EB0322	50	Ø 40	M12
EB1322	50	Ø 40	M12
EB001	50	Ø 50	M10
EB1331	50	Ø 50	M10
EB0332	50	Ø 50	M12
EB1332	50	Ø 50	M12



B bond

Order code	Maximum tape width (mm)	Conductor material
BN105	26	Copper
BN005	26	Aluminium
BN113	31	Copper
BN114	40	Copper
BN117	50	Copper



Watermain bond

Order code	Maximum tape width (mm)	Conductor material
BN120	26	Copper



Pipe clamp

Order code	Pipe diameter (mm)
3902	Ø 13-25
3903	Ø 32-50
3904	Ø 65-90
3905-TB	Ø 100-125
3906-TB	Ø 150
3907	Ø 200
3908	Ø 250
3909-TB	Ø 300



Static earth receptacle

Order code	Nominal copperbond rod diameter (")
RX005	Copper



RWP bond

Order code	Maximum tape width (mm)	Conductor material
BN115	26	Copper
BN010	26	Aluminium



Pipe bond

Order code	Conductor diameter (mm)	Palm hole diameter (mm)	Conductor material
BN175	Ø 8	Ø 50-200	Copper
BN176	Ø 8	Ø 50-200	Aluminium



Eyebolt

Order code	Nominal copperbond rod diameter (")
BT150	5/8
BT160	3/4

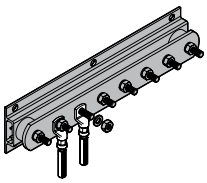


Tower earth clamp

Order code	Maximum tape width (mm)	Conductor material
BN125	16-70	Copper
BN130	70-120	Copper
BN300-FU	25-50	Copper
BN305	25-50	Aluminium
BN320	120-185	Copper
BN325	185-240	Copper

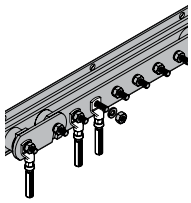
STOCK | INDENT

Earth bars



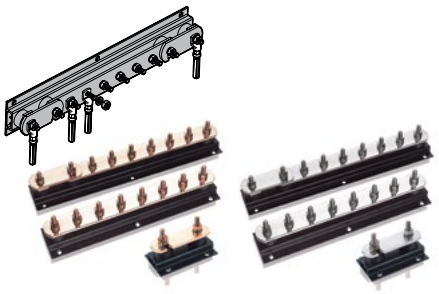
Earth bar

Order code	Description	Length (mm)
Copper earth bar		
LK245-6	6 way	400
LK245-8	8 way	500
LK245-10	10 way	650
LK245-12	12 way	750
LK245-14	14 way	850
LK245-16	16 way	950
LK245-18	18 way	1050
LK245-20	20 way	1200
LK245-22	22 way	1300
LK245-24	24 way	1400
LK245-26	26 way	1500
LK245-28	28 way	1650
LK245-30	30 way	1750
Tinned copper earth barcopper		
LK245-6-T	6 way	400
LK245-8-T	8 way	500
LK245-10-T	10 way	650
LK245-12-T	12 way	750
LK245-14-T	14 way	850
LK245-16-T	16 way	950
LK245-18-T	18 way	1050
LK245-20-T	20 way	1200
LK245-22-T	22 way	1300
LK245-24-T	24 way	1400
LK245-26-T	26 way	1500
LK245-28-T	28 way	1650
LK245-30-T	30 way	1750



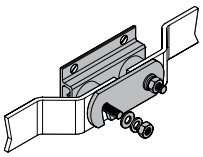
Earth bar with single disconnecting link

Order code	Description	Length (mm)
Copper earth bar		
LK243-6	6 way	475
LK243-8	8 way	575
LK243-10	10 way	725
LK243-12	12 way	825
LK243-14	14 way	925
LK243-16	16 way	1025
LK243-18	18 way	1125
LK243-20	20 way	1275
LK243-22	22 way	1375
LK243-24	24 way	1475
LK243-26	26 way	1575
LK243-28	28 way	1725
LK243-30	30 way	1825
Tinned copper earth barcopper		
LK243-6-T	6 way	475
LK243-8-T	8 way	575
LK243-10-T	10 way	725
LK243-12-T	12 way	825
LK243-14-T	14 way	925
LK243-16-T	16 way	1025
LK243-18-T	18 way	1125
LK243-20-T	20 way	1275
LK243-22-T	22 way	1375
LK243-24-T	24 way	1475
LK243-26-T	26 way	1575
LK243-28-T	28 way	1725
LK243-30-T	30 way	1825



Earth bar with twin disconnecting link

Order code	Description	Length (mm)
Copper earth bar		
LK207-6	6 way	550
LK207-8	8 way	650
LK207-10	10 way	800
LK207-12	12 way	900
LK207-14	14 way	1000
LK207-16	16 way	1100
LK207-18	18 way	1200
LK207-20	20 way	1350
LK207-22	22 way	1450
LK207-24	24 way	1550
LK207-26	26 way	1650
LK207-28	28 way	1800
LK207-30	30 way	1900
Tinned copper earth barcopper		
LK207-6-T	6 way	550
LK207-8-T	8 way	650
LK207-10-T	10 way	800
LK207-12-T	12 way	900
LK207-14-T	14 way	1000
LK207-16-T	16 way	1100
LK207-18-T	18 way	1200
LK207-20-T	20 way	1350
LK207-22-T	22 way	1450
LK207-24-T	24 way	1550
LK207-26-T	26 way	1650
LK207-28-T	28 way	1800
LK207-30-T	30 way	1900



Earth bar accessories

Order code	Description
Copper earth bar	
LK004	Swan-neck link
LK205	Disconnecting link
Tinned copper earth bar	
LK004-T	Swan-neck link
LK205-T	Disconnecting link



Insulator

Order code	Height (mm)	Insert size
Insulator		
IN020	20	M6
IN030	30	M6
IN040	40	M8
IN013	50	M10
IN060	60	M10
IN070	70	M12
Insulator with 2 studs and 3 nuts		
IN005	50	M10

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14
Power protection

928 **UPS product overview**

931 **Global product line power conditioning**

932 **Cyberex® SuperSwitch®4 technology**

933 **Cyberex® Power Distribution Unit (PDU)**

934 **Cyberex® Cyberwave DC charger**

For more detailed product information, please refer to the website

- http://new.abb.com/ups

UPS product overview

1 kVA to 5 MVA






General Data	PowerValue 11T G2	PowerValue 11 RT	PowerValue 11/31 T	PowerScale
UPS frame rated power	0.9 / 1'8/ 2'4 / 6 / 10 kVA	1 / 2 / 3 / 6 / 10 kVA	10 / 20 kVA	10 / 15 / 20 / 25 / 30 / 40 / 50 kVA
UPS module rated power	–	–	–	–
UPS output rated PF	0.9 - 1.0	up to 1.0	0.9	0.9
Max. no of parallel frames	Up to 3 units (model dependent)	Up to 3 units (model dependent)	Up to 4 units	Up to 20 units
Max no of parallel modules across frames	–	–	–	–
Max system power	30 kW	30 kW	80 kVA	1000 kVA
Wiring	1-ph + N + PE	1-ph + N + PE	1-ph or 3-ph + N + PE (selectable)	3ph + N + PE
UPS type	**Standalone tower**	**Rack or tower convertible**	**Standalone tower**	**Standalone tower**
Topology	Online double conversion	Online double conversion	Online double conversion	Online double conversion
Input				
Nominal input voltage	220/230/240 VAC (1 – 3 kVA) 208/220/230/240 VAC (6 – 10 kVA)	208, 220, 230, 240 VAC	220 / 380, 230 / 400, 240 / 415 VAC	220 / 380, 230 / 400, 240 / 415 VAC
Voltage range	100-300 VAC (1 – 3 kVA) 100-276 VAC (6 – 10 kVA)	110 – 276 VAC	1-ph 110 – 276 VAC 3-ph 190 – 486 VAC	161/280 – 264/460 VAC
Frequency range	45-55 Hz / 54-66 Hz 45-55Hz / 54-66Hz (extendable to 40~70HZ at load < 60%)	45 – 55 Hz for 50 Hz systems 54 – 66 Hz for 60 Hz systems	45 – 55 Hz for 50 Hz systems 54 – 66 Hz for 60 Hz systems	35 – 70 Hz
Current THD at 100% load	5% with full resistive load (1 – 3 kVA) <3% with full resistive load (6 – 10 kVA)	<3%	≤ 5%	≤ 3%
Power factor at 100% load	≥0.99 (1 – 3 kVA) ≥0.995 (6 – 10 kVA)	≥ 0.995	≥ 0.99	≥ 0.99
Output				
Rated output voltage (load dependent)	220/230/240 VAC (1 – 3 kVA) 208/220/230/240 VAC (6 – 10 kVA)	208, 220, 230, 240 VAC	220, 230, 240 VAC	220 / 380, 230 / 400, 240 / 415 VAC
Voltage THD (with linear load)	<2% linear load, <6% non linear load (1 – 3 kVA) <1% linear load, <5% non linear load (6 – 10 kVA)	≤ 1%	≤ 2%	< 2%
Rated frequency	50 or 60 Hz	50 or 60 Hz (selectable)	50 or 60 Hz (selectable)	50 or 60 Hz (selectable)
Efficiency				
Double conversion	Up to 95%	Up to 95%	Up to 94%	Up to 95.5%
Eco-mode	Up to 98%	95% (1-3 kVA); 98% (6-10 kVA)	97%	98%
Communications				
User Interface	LCD	LCD	LCD + LEDs	LCD + mimic diagram
Communication ports	SNMP; ModBus; AS400; Environmental monitoring sensor probe	USB, RS-232, SNMP slot, potential-free contacts	USB, RS-232, SNMP slot, potential-free contacts (optional)	USB (optional), RS-232, SNMP slot, potential-free contacts (optional)
Software	monitoring and shutdown software available as option			

UPS product overview

1 kVA to 5 MVA









DPA UPScale RI	DPA UPScale ST	Conceptpower DPA	Conceptpower DPA 500
10 / 20 / 40 / 80 kW	40 / 60 / 80 / 120 / 200 kW	150 / 250 kVA	500 kW
10 / 20 kW	10 / 20 kW	30 / 40 / 50 kVA	100 kW
1.0	1.0	0.8	1.0
1 subrack	Up to 4 frames	Up to 6 frames	Up to 6 frames
4 modules	20 modules	30 modules	30 modules
80 kW	400 kW	1500 kVA	3000 kW
3ph + N + PE	3ph + N + PE	3ph + N + PE	3ph + N + PE
Modular (DPA)	**Modular (DPA)**	**Modular (DPA)**	**Modular (DPA)**
Online double conversion	Online double conversion	Online double conversion	Online double conversion
220 / 380, 230 / 400, 240 / 415 VAC	220 / 380, 230 / 400, 240 / 415 VAC	220 / 380, 230 / 400, 240 / 415 VAC	220 / 380, 230 / 400, 240 / 415 VAC
150/260 – 264/460 VAC	150/260 – 264/460 VAC	150/260 – 264/460 VAC	161/280 – 264/460 VAC
35 – 70 Hz	35 – 70 Hz	30 – 70 Hz	35 – 70 Hz
< 3%	< 3%	< 3%	< 3.5%
≥ 0.99	≥ 0.99	≥ 0.99	≥ 0.99
220 / 380, 230 / 400, 240 / 415 VAC	220 / 380, 230 / 400, 240 / 415 VAC	220 / 380, 230 / 400, 240 / 415 VAC	220 / 380, 230 / 400, 240 / 415 VAC
< 1.5%	< 1.5%	< 2%	< 2%
50 or 60 Hz (selectable)	50 or 60 Hz (selectable)	50 or 60 Hz (selectable)	50 or 60 Hz (selectable)
Up to 96%	Up to 96%	Up to 95.5%	Up to 96%
98%	98%	99%	99%
Module level LCD + mimic diagram Remote system display optional	Module level LCD + mimic diagram System graphical display	Module level LCD + mimic diagram	Module level LCD + mimic diagram System graphical display
USB, RS-232, SNMP slot, potential-free contacts	USB, RS-232, SNMP slot, potential-free contacts	USB, RS-232, SNMP slot, potential-free contacts	USB, RS-232, SNMP slot, potential-free contacts
monitoring and shutdown software available as option			

UPS product overview

1 kVA to 5 MVA





General data	PowerWave 33	PowerLine DPA 33 IEC
UPS frame rated power	60 / 80 / 100 / 120 / 160 / 200 / 250 / 300 / 400 / 500 kW	20 - 120 kVA
UPS module rated power	–	20 / 40 / 80 / 120kW
UPS output rated PF	1.0	1.0
Max. no of parallel frames	Up to 10 units	2 (Redundancy)
Max no of parallel modules across frames	–	6
Max system power	5000 kW	120 kVA
Wiring	3ph + N + PE	3 ph + N + PE
UPS type	**Standalone tower**	**Modular (DPA)**
Topology	Online double conversion	Online double conversion
Input		
Nominal input voltage	220 / 380, 230 / 400, 240 / 415 VAC	400/230 AC, others on request
Voltage range	138/240 – 264/460 VAC	For loads <100% (–15%, +10%), <80% (–20%, +10%), <60% (–25%, +10%)
Frequency range	35 – 70 Hz	50 or 60 Hz (selectable)
Current THD at 100% load	≤ 4%	≤4%
Power factor at 100% load	≥ 0.99	0.99
Output		
Rated output voltage (load dependent)	220 / 380, 230 / 400, 240 / 415 VAC	400/230 AC, others on request
Voltage THD (with linear load)	< 2%	<2.5%
Rated frequency	50 or 60 Hz (selectable)	50 or 60 Hz
Efficiency		
Double conversion	Up to 96%	Up to 96%
Eco-mode	99%	98.5%
Communications		
User Interface	Graphical touch screen (optional on 60 – 200 kW) LCD + mimic diagram (on 60 – 200 kW only)	System graphical display (HMI) + LCD panel UPS Module
Communication ports	USB, RS-232, SNMP slot, potential-free contacts	SNMP; ModBus; potential free contacts
Software	monitoring and shutdown software available as option	

Global product line power conditioning

What do ABB manufacture

		Product Line	Major Market Segments	Typical Problems	Mechanical Construction	Standard Power Range	Standard Voltage Range
Power Protection	Active Voltage Conditioning	PCS100 AVC-40	• Semiconductor, flat panel LCD • 24/7 industry, food and beverage, pharmaceutical	• Voltage sags and swells (1 and 3 phase) • Phase imbalance • Voltage imbalance • Flicker		150 kVA - 4.8 MVA	208 V - 690 V
		PCS100 AVC-20	• Powering emerging economy infrastructure • Combating renewable energy voltage problems	• Poor voltage regulation • Voltage imbalance • Week grids		250 kVA - 3 MVA	380 V - 415 V
	Industrial UPS	PCS100 UPS-I	• Semiconductor, flat panel LCD • 24/7 industry, food and beverage, pharmaceutical	• Short term outages • Over/under voltage protection • Micro cuts		150 kVA - 3 MVA	208 V - 480 V
		PCS120 MV UPS	• Mega datacenters • Semiconductor, flat panel LCD • 24/7 industry, food and beverage, pharmaceutical	• Short term outages • Long term outages • Over/under voltage protection • Micro cuts		2 MVA - 40+ MVA	6.6 kV - 24 kV
Frequency Conversion	Static Frequency Conversion	PCS100 SFC	• Dockside shore-to-ship • Industry	• 50/60 Hz conversion • Frequency fluctuation • Sag/swell protection		125 kVA - 6+MVA	Any

Cyberex® SuperSwitch®4 technology

Technical specifications 200A-1200A



Components	
Power semiconductors	Hockey puck type, type II fuseless design
User interface	10.4" color TFT industrial use VGA LED touch screen GUI 70,000 hrs @ 25°C/60,000 hrs @ 80°C surface temperature from full to half luminance
Cooling	200A/250A – Convection cooled >=400A – Redundant fans with hall effect failure sensing
Power supplies	Redundant
Surge protection	SPD on each source
Control logic	No single point of failure
Output load switches	Redundant
Power wire and bus bar	Copper
Protection	Molded case switches
Communications and software	
Alarm relays	16 form "C" relays
Building alarm inputs	10 dry contact inputs
EPO	Local or remote
Modbus	RTU over RS485, TCP over Ethernet
Service port	Accessible without opening doors or panels
Event alarm log	5000 events
Power quality and metering	
Loss of source detection	2ms, PLL detection per phase
Voltage	Each source and output. True RMS, up to 13th harmonic
Current	Each source and output. True RMS, up to 13th harmonic
Peak current detection	Each source, resettable
Source reacquisition	3 cycles

Electrical characteristics	
Voltage	208V/480V
Frequency	60Hz
Current rating	200A/250A/400A/600A/800A/ 1000A/1200A
Short circuit withstand*	Up to 100kAIC
Overload capability	125% for 30 min, 150% for 1 min, 200% for 10 sec, 1000% for 3 cycles, 1500% for 1 cycle
Operational characteristics	
Full load efficiency	99.4% (480V), 98.7% (208V)
Bypass	System guided
Sense + transfer time (In phase)	< 4ms patented A9 transfer method
Sense + transfer time (out of phase)	< 15ms patented Real Time Flux Control™ method
Downstream transformer inrush**	< 1.2x nominal transformer rating
Operating temperature	0 to 40°C
Storage temperature	0 to 80°C
MTBDE	1.5 million hours
Standards	
Safety	ETL listed to UL 1008S cETL listed to CAN/CSA-22.2 No. 178
EMC	FCC compliant (part 15)
Enclosure	NEMA 1

* Model dependent
** Based on DIR transfer

Cyberex® Power Distribution Unit (PDU)

Technical specifications



Electrical	
kVA	50–500kVA
Input	3-phase, 3-wire + ground
Input voltage	Up to 600V – 60Hz*
Output	3-phase, 4-wire + ground
Output voltage	208/120 VAC*
Transformer ratings	K-4, K-13, K-20
Transformer	Standard and TP-1, copper, delta-wye, electrostatic shielding
Transformer temperature rise	115°C (std.) – 150°C available
Transformer inrush	Normal (11X) and low (5X)
Transformer compensation taps	(4) 2-1/2% FCBN, (2) 2-1/2% FCAN
Transformer insulation	220°C (class R)
Neutral rating	200%
Operating conditions	
Temperature (operating)	0 to 40°C
Temperature (storage)	-40 to 60°C
Audible noise	Maximum: 50 dBA (up to 150kVA) 55 dBA (151 to 300kVA) 60 dBA (301 to 500kVA
Dimensions	
PDU 50–225kVA and most 300kVA	Height: 77.4" Depth: 34" Width: 34"
PDU 300kVA dependent on transformer option	Height: 77.4” Depth: 34” Width: 46”
PDU 350–500kVA	Height: 78” Depth: 38” Width: 52”
Sidecars available in 3 widths	10” side-facing 24” front and/or rear facing 34” front and/or rear facing

Distribution options (50 – 300 kVA)
Side car is needed for more than 2 panelboards
I-line panel available
Standard or 400A panelboards available
Sub-feed breakers available: 100/150/225/400A
ABB or Square D
Distribution options (350 – 500 kVA)
Sub-feed breakers available: 100/150/225/400/600A
ABB or Square D
General
Natural convection cooled
Hinged dead-front panel
320 x 240 LCD display
Single point groun
Top and bottom entry/exit
Enhanced options
Branch and sub-feed circuit monitoring
Remote emergency power off (EPO)
Surge protective device (SPD) – primary and secondary sides
Floor stands
Input junction box
Isolated ground
Standards
NEMA
ETL listed to UL 60950 and UL 891; cETLus to UL1CSA 60950
FCC compliant (part 15)

*Other configurations available as non-standard

Cyberex® Cyberwave DC charger

Technical specifications



AC input					
Voltage		208, 240, 480 or 550–600VAC 60Hz 220, 380, or 416VAC 50/60Hz			
Input voltage tolerance		+10%, –12%			
Input frequency tolerance		± 5%			
Power factor		0.80 typical full load			
Efficiency		85–90% typical for 130VDC at 50–100% load			
DC output					
Voltage ratings		12, 24, 48, or 130VDC nominal			
Current ratings		25, 30, 40, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500, 600,800, 1000 (ADC)			
Continuous ratings		110% rated current at maximum equalized voltage at 50°C			
Voltage regulation		± 0.25% for line, load, frequency and temperature variations			
Electrical noise		32dBrnc			
Ripple	12/24/48VDC:	• Unfiltered on battery 1% Vrms • Filtered on battery 30mVrms • Filtered off battery 1% Vrms • Battery eliminator 30mVrms			
	130VDC:	• Unfiltered on battery 2% Vrms • Filtered on battery 100mVrms • Filtered off battery 2% Vrms • Battery eliminator 100mVrms			
Surge withstand capability		Meets IEEE-472, ANSI C37.90a			
Environmental					
Operating ambient		0°F to 122°F (-18°C to 50°C) temperature without derating			
Operating altitude		10,000 feet (3,000 meters) above sea level without derating			
Relative humidity		0% to 95% (without condensation			
Audible noise		Less than 65dBA at any point 5ft (1.5m) from any vertical surface of enclosure			
Enclosure dimensions					
Cabinet style		5018	5030	163	198
Overall dimensions/inch (mm)					
H		37.95 (964)	54.25 (1378)	62.00 (1575)	80.00 (2032)
W		20.91 (531)	30.00 (762)	42.00 (1067)	58.00 (1473)
D		16.77 (426)	19.14 (486)	24.00 (610)	30.00 (762)
Mounting dimensions/inch (mm)					
MW		18.50 (470)	27.90 (710)	40.00 (1016)	52.00 (1321)
MD		13.24 (337)	15.00 (381)	18.00 (457)	18.00 (457)


CONTEG

15
Safety products

940 **Production-friendly safety systems**

942 **Ordering information**

For more detailed product information, please refer to the Technical Catalogue:

- Safety Products: ABB Jokab Safety – 2TLC010001C0202


ABB
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ABB safety products

We make it simple to build safety systems. Developing innovative products and solutions for machine safety has been our business idea since the company Jokab Safety, now ABB, was founded in Sweden in 1988. Our vision is to become 'Your partner for machine safety – globally and locally'. We deliver everything from a safety solution to complete safety systems for single machines or entire production lines.

For more information or to speak to one of our Safety Solution Partners, please visit the link below:
http://new.abb.com/low-voltage/products/safety-products

Production-friendly safety systems from ABB Jokab Safety

Quick-Guard fencing system
prevents unauthorised access and offers noise reduction



Magne magnetic lock
to keep doors closed during a process



Smile emergency stop
to stop machinery when there is a hazard. Available for AS-i.



The Eden sensor
monitors that doors are closed. Available for AS-i.



3-position device
for troubleshooting. Available for AS-i.

Sentry relay PLC, Vital and safety relays
for monitoring protection



Safeball control device
for ergonomic and safe two-handed control



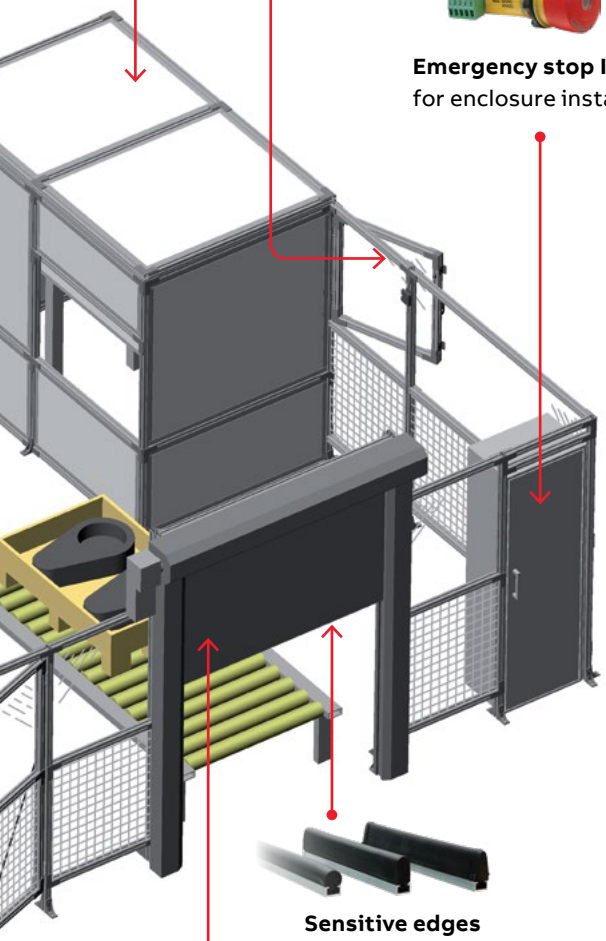
Orion light curtain
with finger detection
Orion light beam
to provide protection when entering an area



Dalton process lock
to keep doors closed during a process

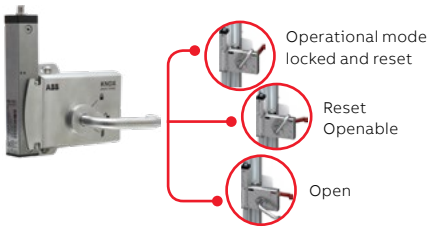


Emergency stop INCA
for enclosure installation



Sensitive edges
protect against trapping injuries

Roller doors
for short protection distances
and noise reduction

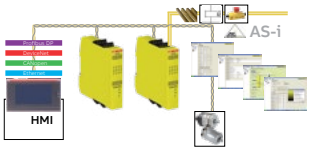


Knox safety lock
ensures that door are locked

Product family Jokab Safety



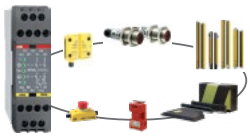
Training and advice
Practical application of standards and regulations, along with CE-labelling.



Sentry safety PLC
A unique All-Master safety PLC for dynamic and static safety circuits.



Pluto AS-i
Programmable safety system AS-i where all units are connected to the same bus cable and the function of the unit is determined in the PLC program.



Vital safety controller
Dynamic safety circuit for multiple protection according to the highest safety category.



Tina adapter units
Transformation of static signals to dynamic safety signals, etc.



Safety relays
The market's most flexible safety relays for different protection purposes and categories.



Light curtain/light beam/scanner
Complete range of light beams, light curtains and scanners.



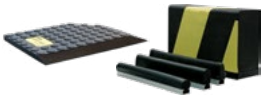
Sensors/switches/locks
Dynamic non-contact sensors, safety switches, magnetic switches and locks.



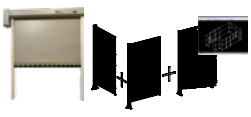
Control devices
Ergonomic three-position control units, two-hand control units and foot pedals.



Emergency stop devices
Emergency stops, safety stops and reset buttons for dynamic and static safety circuits.



Contact strips/bumpers/safety mats
Sensitive edges, bumpers and safety mats.



Fencing systems/SafeCAD/roller doors
A stable and flexible fencing system that is easy to install.

Ordering information

Sentry



Ordering details

Expansion	Safety devices						Test/ Reset		Safety relay				Time function			Feature	Power supply			
Expansion of safety controller outputs	1 channel	2 channels with equivalent contacts	2 channels with antivalent contacts	OSSD outputs / PNP outputs	Contact mats, bumpers and safety edges [3]	Two-hand devices	Manual reset (all models have auto reset)	Start/Test	3 NO + 1 NC	4 NO	2 NO + 2 delayed/delayable NO	4 NO + 1 NC	Off-delay 0.5 s	Off-delay 1.5 s	Advanced timer functions 0 – 999 s [4]	Configuralble with display	85-265 VAC / 120-375 VDC	+24 VDC	Type	Order code
1)	x	2)						x	x									x	BSR10	2TLA010040R0000
1)	x	2)						x		x								x	BSR11	2TLA010040R0200
1)												x						x	BSR23 [5]	2TLA010041R0600
x	x	x		x			x		x									x	SSR10	2TLA010050R0000
x		x					x		x								x		SSR10M	2TLA010050R0100
						x	x		x									x	SSR20	2TLA010051R0000
						x	x		x								x		SSR20M	2TLA010051R0100
	x	x		x			x				x		x					x	SSR32	2TLA010052R0400
	x	x		x			x				x			x				x	SSR42	2TLA010053R0400
x	x	x		x					x				x	x	x	x		x	TSR10	2TLA010060R0000
x	x	x		x					x				x	x				x	TSR20	2TLA010061R0000
x		x							x				x	x			x		TSR20M	2TLA010061R0100
	x	x	x	x	x	x	x		x				x	x	x	x		x	USR10	2TLA010070R0000
	x	x	x	x	x	x	x				x		x	x	x	x		x	USR22	2TLA010070R0400

1) These models can also be used for expansion of Pluto safe transistor outputs (-24 VDC)
2) No monitoring of two-channel fault, i.e. max Category 3 without fault exclusion.
3) The safety relay detects a short-circuit, not a change in resistance.
4) Off-delay, On-delay, Time bypass or Time reset.
5) BSR23 must be monitored by another device in order to reach higher than Category 1/PL c according to EN ISO 13849-1, for example a safety relay, a safety PLC or an Orion light guard (EDM function).

Accessories

Description	Type	Order code
Terminal block for Sentry safety relays. One piece.	S30A	2TLA010099R0000
Coding kit for terminal blocks. One kit for one Sentry relay.	S30B	2TLA010099R0100

STOCK | INDENT





Sentry

Safety relays that are powerful and easy to use.

The new range of safety relays from ABB Jokab Safety makes it easy to reach the highest level of safety. Installation and troubleshooting is simplified using configurable models with display and preset configurations. A unique multi-reset function enables reset of up to 10 Sentry safety relays using just one button, which simplifies connection and minimises cabling and unnecessary downtime.

abb.com/jokabsafety

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Distribution systems

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950 Primary switchgear

951 Secondary switchgear

952 Modular systems and packaging

Distribution systems

Portfolio overview



Distribution automation
- Relion® relay family
- Grid automation
- DA Solutions
- SPACOM portfolio
- Software tools and accessories
- Smart substation control and protection solutions



Apparatus
- Indoor apparatus
- Current limiters
- Ultrafast eart. switch
- Vacuum interruptors
- Sensors
- Inst. transformers
- Outdoor portfolio



Low voltage switchgear
- Harmonized global MNS portfolio
  - MNS 3.0
  - Compact
  - Rear access
- Extension of MNS digital



Primary switchgear
- Air insulated PSWG
- Gas insulated PSWG
- Railway portfolio
- Expansion of digital SWG platforms
- Eco-efficient PSWG



Modular systems and packaging
- Metal housing
- Concrete housing
- GRP housing
- eHouses
- Product packaging
- EcoFlex
- E-Mobility solutions



Secondary switchgear
- Air insulated SSWG
- Ring main units
- Expansion of digital SWG platform
- Eco-efficient SSWG



Service
- Asset management and condition monitoring
- Product life cycle services
- Life extension
- Replacement and retrofit
- Spare parts

Distribution systems

Distribution automation products and solutions

ABB delivers a full range of genuine IEC 61850 protection and control products also including network automation. ABB's IEC 61850 compliant solutions offer a unified user-experience for operating power distribution systems from the secondary substation level up to the NCC level.

The unified user-experience provides enhanced reliability, safety and the operational efficiency of network control and management. The protection and control devices also measure and collect data from the power system and intelligent network components to support the asset and business management of power system operators.

ABB distribution automation products are built to withstand the rigors of the most demanding environments including marine and offshore, industrial facilities such as mines and paper and petrochemical plants, as well as utilities in urban and rural locations.

Relion® from basic to advanced application - pre, standard or freely configured

	Relion®			'Legacy'		
Basic	 605 Series	 610 series	 611 series	 SPACOM	 Solid state	 Electro-mechanical
Mid range	 815 series			 REX521	 DPU2000R (ANSI)	
High end	 620 series	 630 series		 RE_500	 REF542plus	 REF550 (ANSI)

Other Relion® supporting products for building up solutions

	Relion® & 600 family			'Legacy'	
Grid automation	 REC/RER615	 RER620	 Control cabinets	 REC523	 PCD/ISD/ICD (ANSI)
Station products	 COM600	 RIO600	 Arctic family	 REA arc protection	 SACO alarm annunciator
SW tools and accessories	 PCM600	Cables & connectors	 Mounting accessories	 CAP & Fupla	 Communication converters
					 FT switches

Distribution systems

Apparatus

ABB offers a wide range of Primary and Secondary distribution equipment components and enclosures from 1 to 52 kV for indoor and outdoor application.

In addition to supplying complete high-technology equipment and systems, ABB also offers a wide variety of discrete apparatus. This apparatus is available for original equipment manufacturers (OEM) to incorporate in their own installations or for use in repair, retrofit and upgrade projects

Indoor products

- MV circuit breakers for primary and secondary distribution and for rolling stock applications
- Switches, contactors, cassettes, fuses
- Vacuum interrupter, embedded poles up to 40.5 kV

Outdoor products

- Single and three phase vacuum reclosers
- Circuit breakers, load break switches, sectionalizers, fuse cutouts and disconnectors

Instrument transformers and sensors

- Current and voltage instrument transformer (ITs)
- Sensors
- More than 400 types of products for indoor and outdoor applications in medium voltage systems for voltages up to 40.5 kV



Cassettes and frames



Circuit breakers



Contactors



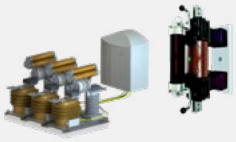
Switches, disconnectors and isolators



Reclosers



Arc fault protection



Fault current limiting



Instrument transformers and sensors



Fuses and cutouts



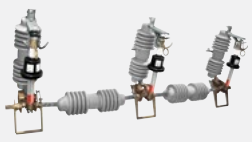
Vacuum interrupters and embedded poles



Passive voltage indicators



Surge arresters



Sectionalizers

Distribution systems

Low voltage switchgear

ABB’s electrification solutions business is a market leader in power distribution and motor control solutions, connecting power and automation through the MNS® switchgear platform for process industry, power and infrastructure customers.

As the world’s largest low voltage switchgear OEM with unmatched domain expertise and local support in more than 30 countries, ABB electrification solutions is truly your local partner.

IEC Power distribution and motor control center
- MNS 3.0 front access, withdrawable, plug-in solution
- MNS Rear, rear access, withdrawable, plug-in solution
- MNS UP, UPS integrated switchgear design
- MNS Compact, plug-in design
- MNS Digital, applied to above technologies

IEC Sub distribution
- MNS Fixed
- MNS Compact

Low and medium voltage busduct
- LV (< 1kV) IP55 Metal-enclosed sandwich type
- LV (< 1kV) IP68 Cast-resin type
- MV (3.6 – 17.5kV) IP68 Cast-resin type



MNS Platform



MNS R



MNS-Up



MNS Digital



Busduct

Distribution systems

Primary switchgear

ABB's offers a wide range of classic and intelligent air-insulated switchgear solutions and services for your every need up to 46 kV IEC.

Our UniGear family of IEC switchgear and motor control centers for primary distribution offer a unique opportunity by freely combining different types of panels (UniGear ZS1, UniGear 550, UniGear 500R and UniGear MCC) in to the same switchgear, giving the highest flexibility while optimizing footprint. The new intelligent UniGear Digital solution maximizes benefits by using sensors and IEC 61850 based technologies.

IEC Primary switchgear
- Air-insulated switchgear (AIS) - UniGear ZS1, 550, 500R, ZS2, ZS3.2; Rail applications (AC): R36 and R40
- Gas-insulated switchgear (GIS) - ZX0, ZX0.2, ZX1.2, ZX2; Rail application (AC): ZX1.5R
- Recent innovations: Digital switchgear, eco-efficient GIS

Power conversion for traction applications
- Traction controlled rectifiers and inverters (TCR / TCI)
- Diode rectifiers, fixed or withdrawable (TDR / WDR)
- Integrated transformer-rectifier groups DC switchgear and protective devices for traction applications (ITR)

DC Switchgear and protective devices for traction applications
- DC Switchgear for 750 VDC and 1500 VDC Traction power supply applications
- Voltage limiting devices

DC Switchgear and protective devices for traction applications
- Energy Storage Systems (ESS)
- Energy Recuperation Systems (ERS)
- Automatic Receptivity Units (ARU)
- Voltage Limiting Device (VLD)


UniGear ZS1


UniGear 550


UniGear 500R


UniGear ZS3.2


UniGear R


ZX0.2


ZX1.2


ZX2


ZX1.5R


ENVILINETM TCR/TCI


ENVILINETM TDR/WDR


ENVILINETM ITR


ENVILINETM ESS


ENVILINETM ERS


ENVILINETM ARU


ENVILINETM VLD

Distribution systems
Secondary switchgear

ABB's offers a wide medium voltage gas insulated switchgear (GIS) for secondary and primary distribution.

Secondary gas insulated switchgear have been subject to a significant development the past 20 years, resulting in increased functionality and smaller dimensions. ABB's Ring Main Units (RMU) and secondary switchgear are prepared for the use in future distribution grids and designed for use in various application such as compact secondary substations, small industries, renewables or infrastructure.

IEC Secondary Switchgear
- Air-insulated switchgear (AIS) – UniSec
- Gas-insulated switchgear (GIS) – SafeLink, SafeLink CB, SafeRing/SafePlus
- Recent innovations: Eco-efficient GIS



SafeLink RMU





Safe 12/24kV RMU



Safe 36kV RMU



UniSec



SafeLink CB

Distribution systems

Modular systems and packaging

ABB's modular systems are prefabricated, walk-in or nonwalk-in, outdoor enclosures or buildings designed to house MV switchgear, distribution transformers, LV switchboards, connections and ancillaries, such as battery banks. Specific application modules in stationary and mobile versions are also available.

eHouses, skid mounted modules, mobile substations, and railway modules

- Pre-fabricated switchrooms and pre-assembled modules containing electrification products built to customer and project specific requirements, delivered as fully tested and operational solutions for transportation, data centers, mining, O&G, utility, and industrial customers and providing risk mitigation, predictable delivery and cost schedule, and reduced client resources.

Product packaging

- Packaging of multiple products, including simple interface engineering, under single contracts presenting one ABB interface to customers in order to reduce coordination and product integration issues.

Compact secondary substation (CSS)

- Through the highest levels of safety for personnel and equipment, ABB CSS is a type-tested assembly comprising an enclosure containing MV switchgear, distribution transformers, LV switchboards, connections and auxiliary equipment.

Energy storage modules (ESM)

- An energy storage system is a packaged solution that stores energy for use at a later time. The system's two main components are the DC-charged batteries and bi-directional inverter.



Compact secondary substations



Electrical houses (eHouse)



Skid mounted unit sub-stations mining, oil and gas



Railway modules



Energy storage modules (ESM)



Mobile substations on wheels



Product packaging

Notes

17
Mining industrial solutions

956 **Air circuit breakers (ACB)**

957 **Moulded case circuit breakers (MCCB)**

960 **1000V miniature circuit breakers – 27mm pole width**

961 **Universal Motor Controller – UMC100.3**

968 **Insulation monitoring relays for unearthed supply systems**

969 **Three-phase monitoring relays**

970 **Arc Guard System™**

For more detailed product information, please refer to the Technical Catalogue:

- Tmax T – 1SDC210015D0208
- Emax 2 – 1SDC200023D0208
- S800HV 1000V MCB – 2CCC413010L0201
- UMC100.3 – 2CDC190022C0206
- Electronic relays and controls – 2CDC110004C0210
- Arc Guard System™, TVOC-2 – 1SFC170001C0201 Rev I

Air circuit breakers (ACB)

For applications up to 1150 V AC



Fixed version, 3 Poles

E2N/E can also perform 30kA up to 1150 V AC.

In 1000V AC A	Icu 1000V AC kA	Trip unit	Tmax type	Order code 3 poles
1250	30	PR121/P LSI	E2N/E	1SDA076322R1

Note:
Higher current ratings available on request

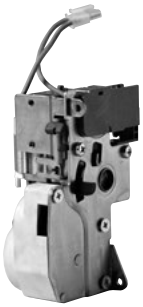
Withdrawable version, 3 Poles

Withdrawable ACB consists of Fixed Part and Moving Part, both part numbers need to be ordered. E2N/E can also perform 30kA up to 1150V AC.

In 1000V AC A	Icu 1000V AC kA	Trip unit	Tmax type	Order code 3 poles
1250	30	PR121/P LSI	E2N/E	1SDA076323R1
+				
E2N/E Fixed part for the Withdrawable version				1SDA059667R1

Note:
Higher current ratings available on request





Accessories for ACBs up to 1000 V AC

Suitable size	Type	Order code
Shunt Opening Release – YO		
E2N/E	24V DC	1SDA038286R1
	110...120V AC/DC	1SDA038290R1
Shunt Closing Release – YC		
E2N/E	24V DC	1SDA038296R1
	110...120V AC/DC	1SDA038300R1
Undervoltage Release – YU		
E2N/E	24V DC	1SDA038306R1
	110...120V AC/DC	1SDA038310R1
Motor – M The motor is always supplied with a limit switch contact S33 M/2 which signals the status of the springs.		
E2N/E	24V DC	1SDA038321R1
	110...120V AC/DC	1SDA038323R1

Note:
Other voltages are available on request

Moulded case circuit breakers (MCCB)

For applications up to 1150 V AC





Electronic Trip Units up to 1000V AC

3 Poles

Fixed versions supplied with Front terminals (F) as standard.
T4...T5: PR222DS/P LSI trip unit version.
S4...S6: PR212/P LSI trip unit version.
T4V-T5V can also perform 12kA up to 1150V AC.

In 1000V AC A	Icu 1000V AC kA	Tmax type	Order code 3 poles
100	20	T4V	1SDA064211R1
250	8	S4L	1SDA050461R1
	20	T4V	1SDA064213R1
	30	S4X	1SDA050464R1
400	8	S5L	1SDA050583R1
	12	T5L	1SDA064215R1
	20	T5V	1SDA064219R1
630	12	S6L	1SDA050470R1
	20	T5V	1SDA064221R1
	30	S6X	1SDA050473R1
800	12	S6L	1SDA050535R1





Thermomagnetic Trip Units up to 1000V AC

3 Poles

Fixed versions supplied with Front terminals (F) as standard.
T4V can also perform 12kA up to 1150V AC.
S3L can also perform 40kA up to 1000V DC.

In 1000V AC A	Icu 1000V AC kA	Tmax type	Order code 3 poles
32	6	S3L	1SDA050436R1
	20	T4V	1SDA064205R1
	30	S3X	1SDA050451R1
50	6	S3L	1SDA050437R1
	20	T4V	1SDA064206R1
	30	S3X	1SDA050452R1
80	6	S3L	1SDA050438R1
	20	T4V	1SDA064207R1
	30	S3X	1SDA050453R1
100	6	S3L	1SDA050439R1
	20	T4V	1SDA064208R1
	30	S3X	1SDA050454R1
125	6	S3L	1SDA050441R1
	20	T4V	1SDA064209R1
	30	S3X	1SDA050455R1
160	6	S3L	1SDA050442R1
	20	T4V	1SDA064210R1
	30	S3X	1SDA053215R1
200	20	T4V	1SDA066086R1
250	20	T4V	1SDA066087R1

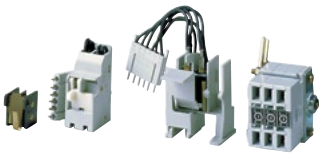
Moulded case circuit breakers (MCCB)

Accessories for MCCBs up to 1000V AC













Suitable size	Description	Order code
Shunt Open Release – SOR		
T4...T5	24...30V AC/DC	1SDA054863R1
	110...120V AC/DC	1SDA054865R1
	220...240V AC – 220...250V DC	1SDA054866R1
S3...S5	24V AC/DC	1SDA013781R1
	110...120V AC/DC	1SDA013783R1
	220...240V AC - 220...250V DC	1SDA013785R1
S6	24V AC/DC	1SDA014136R1
	110...120V AC/DC	1SDA014138R1
	220...240V AC - 220...250V DC	1SDA014140R1
Undervoltage Release UVR		
T4...T5	24...30V AC/DC	1SDA054880R1
	110...120V AC/DC	1SDA054883R1
	220...240V AC – 220...250V DC	1SDA054884R1
S3...S5	24V AC	1SDA013842R1
	24V DC	1SDA013833R1
	110...127V AC	1SDA013844R1
	220...250V AC	1SDA013846R1
S6	24V AC	1SDA014188R1
	24V DC	1SDA014179R1
	110...127V AC	1SDA014190R1
	220...250V AC	1SDA014192R1
Connectors for Service Releases (SOR and UVR)		
S3...S6	for Fixed versions, L=1m	1SDA013865R1
	for Fixed versions, L=2m	1SDA037523R1
	for Plug-in or Withdrawable versions, L=1m	1SDA013866R1

Auxiliary contacts - AUX

Q, open/closed: indication of the position of the circuit-breaker power contacts.
SY, trip: signalling CB opening due to current release tripping (owing to overload or short-circuit), residual current device, the opening or undervoltage releases, the emergency pushbutton of the motor, or owing to use of the test button. Uncabled versions.

T4...T5	1Q+1SY 250V AC/DC	1SDA051368R1
	3Q+1SY 250V AC/DC	1SDA051369R1
	3Q+1SY 24V DC	1SDA054914R1
S3...S5	2Q	1SDA013856R1
	1Q + 1 SY	1SDA013575R1
S6	2Q	1SDA023366R1
	1Q + 1 SY	1SDA023332R1
Connectors for auxiliary contacts (AUX)		
S3...S6	for Fixed versions, L=1m	1SDA013863R1
	for Fixed versions, L=2m	1SDA037522R1
Motor Operator		
T4...T5	24V DC	1SDA054894R1
	110...125V AC/DC	1SDA054896R1
	220...250V AC/DC	1SDA054897R1
S3...S5	220...240V AC – 220...250V DC	1SDA013876R1
S6	110V AC/DC	1SDA023349R1
	220...250V AC/DC	1SDA014032R1
Connectors for Motor Operating mechanism and auxiliary contacts		
S3...S6	for Fixed versions, L=1m	1SDA013857R1

Moulded case circuit breakers (MCCB)

Accessories for MCCBs up to 1000V AC



Handle Operating Mechanism with Transmission Rod



Direct rotary handle



IP54



Front terminals



Front terminals for Copper cables



Front terminals for Copper/ Aluminum cables

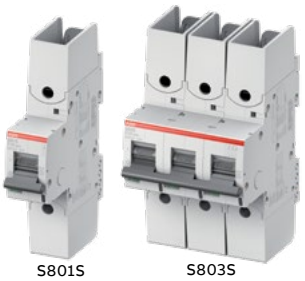


Rear terminals

Suitable size	Description	Order code
Rotary Handle Operating Mechanism with Transmission Rod		
T4...T5	Normal	1SDA054929R1
	Emergency	1SDA054930R1
S3...S5	Normal	1SDA013869R1
S6	Normal	1SDA014028R1
Rotary Direct Handle Operating Mechanism		
T4...T5	Normal	1SDA054926R1
IP54 Protection for transmitted rotary handle		
T4...T5		1SDA054938R1
S3...S6		1SDA013891R1
Front Flange for Fixed or Plug-in versions		
S3...S5		1SDA013889R1
S6		1SDA014035R1
Connection terminals 3-piece kit.		
Front terminals	T4	1SDA054976R1
	T5	1SDA055012R1
	S3	1SDA043341R1
	S4	1SDA043461R1
	S5 (max. 400A)	1SDA043464R1
	S5 (max. 630A)	1SDA052941R1
	S6	1SDA044748R1
Extended front terminals	T4	1SDA055000R1
	T5	1SDA055036R1
	S6 (max. 630)	1SDA023379R1
	S6 (max. 800)	1SDA023383R1
Spreaded extended front terminals	T4	1SDA055004R1
	T5	1SDA055040R1
	S6 upper kit	1SDA050692R1
	S6 lower kit	1SDA050704R1
Front terminals for Copper cables	T4	1SDA054980R1
	T5	1SDA055016R1
	S3-S4	1SDA023354R1
	S3-S4, four pieces	1SDA023360R1
Front terminals for Copper/Aluminum cables	S6 (2x240mm²)	1SDA023380R1
Rear terminals	S6	1SDA023382R1

1000V miniature circuit breakers – 27mm pole width

S800HV



S801S S803S

Miniature circuit breaker (MCB) for 1000 V applications
The ABB S800HVK range of high performance miniature circuit breakers are designed to provide protection and control of the circuit against overloads and short circuits in 1000 V AC applications. Ideally suited for industrial and mining applications.

Miniature circuit breaker (MCB) for 1000 V applications

Standard	I_{cu} (kA)	K-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole
AS/NZS60947,	4	6	MCB, 4kA, 6A for 1000 V AC	S801HVK6	S802HVK6	S803HVK6
IEC/EN60947	4	8	MCB, 4kA, 8A for 1000 V AC	S801HVK8	S802HVK8	S803HVK8
Rated short circuit capacity I_{cu}	4	10	MCB, 4kA, 10A for 1000 V AC	S801HVK10	S802HVK10	S803HVK10
4kA (6 – 63A)	4	13	MCB, 4kA, 13A for 1000 V AC	S801HVK13	S802HVK13	S803HVK13
3kA (80 – 100A)	4	16	MCB, 4kA, 16A for 1000 V AC	S801HVK16	S802HVK16	S803HVK16
Voltage range	4	20	MCB, 4kA, 20A for 1000 V AC	S801HVK20	S802HVK20	S803HVK20
580/1000 V	4	24	MCB, 4kA, 25A for 1000 V AC	S801HVK25	S802HVK25	S803HVK25
	4	32	MCB, 4kA, 32A for 1000 V AC	S801HVK32	S802HVK32	S803HVK32
	4	40	MCB, 4kA, 40A for 1000 V AC	S801HVK40	S802HVK40	S803HVK40
	4	50	MCB, 4kA, 50A for 1000 V AC	S801HVK50	S802HVK50	S803HVK50
	4	63	MCB, 4kA, 63A for 1000 V AC	S801HVK63	S802HVK63	S803HVK63
	3	80	MCB, 4kA, 80A for 1000 V AC	S801HVK80	S802HVK80	S803HVK80
	3	100	MCB, 4kA, 100A for 1000 V AC	S801HVK100	S802HVK100	S803HVK100
	3	125	MCB, 4kA, 125A for 1000 V AC	S801HVK125	S802HVK125	S803HVK125



Self resetting short circuit current limiter

- For higher short circuit capacity applications, a self resetting short circuit limiter S803HV-SCL-SR can be installed upstream to the S803HVK
- Ultimate short circuit breaking capacity (I_{cu}) can be increased to 15kA
- S803HV-SCL-SR can be used either for line or group protection

Poles	Current Rating (A)	Description	Order code
3	32	Short circuit current limiter 100kA 3P 32A	S803HV-SCL32-SR
3	63	Short circuit current limiter 100kA 3P 63A	S803HV-SCL63-SR
3	125	Short circuit current limiter 100kA 3P 100A	S803HV-SCL100-SR

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Universal Motor Controller – UMC100.3

Ordering details



UMC100.3DC



UMC100.3UC

Universal Motor Controller UMC100.3
Intelligent motor management system for single and three-phase motors with rated current between 0.24 and 63 amps without the need of a external current transformer or additional modules. Compact housing with integrated current transformer for cable cross section up to 25 mm² (max. Ø with Insulation 11 mm). Higher currents with additional external current transformer. Thermal overload protection according to EN/IEC 60947-4-1, selectable trip classes 5E, 10E, 20E, 30E, 40E. Some functions require an additional expansion module.

Motor protection functions:
- Over-/underload, over-/undercurrent, over-/undervoltage, rotor blocking, phase failure/ imbalance/sequence.
- Earth fault detection integrated or with external sensor CEM11.
- Hot motor protection with thermistor or temperature measurement.

Motor control functions:
- Easily configurable motor control functions: direct, reverse, star-delta starter, pole-changing, overload relay, actuator mode, softstarter mode. Additionally configuration software is available allowing for commissioning and additional application specific logic with programmable function blocks.

Service and diagnostic data:
- Operating hours, number of motor starts and overload trips, energy, standstill and operation hours supervision, motor status, faults and warnings, fault history (16 events)
- Motor current, phase voltages, thermal load, power factor (cos), active power, apparent power, energy, total harmonic distortion (THD).

Integrated I/Os:
- 6 digital inputs, 1 PTC input, 4 digital outputs.

Expansion modules (maximum allowed):
- 14 digital inputs, 1 PTC input, 9 digital outputs, 6 analogue inputs, 1 analogue output.

Communication interfaces:
- Fieldbuses and ethernet networks; Interface for operator panel UMC100.3-PAN, bus interface for connection of expansion modules.

Versions for supply voltage:
- 24 VAC or 24 V DC or 110 – 240 V AC/DC with/without ATEX approval.

Ordering details

Description	Supply voltage	Factory code	Order code
Universal Motor Controller	24 V DC	1SAJ530000R0100	UMC100.3DC
Universal Motor Controller	110 – 240 V AC/DC	1SAJ530000R1100	UMC100.3UC
Universal Motor Controller	24 VAC	1SAJ530000R2100	UMC100.3AC24L
Universal Motor Controller, ATEX	24 V DC	1SAJ530000R0200	UMC100.3DCEX
Universal Motor Controller, ATEX	110 – 240 V AC/DC	1SAJ530000R1200	UMC100.3UCEX

Note:
Please see **Motor starting solutions** chapter, on page 431 for full product selection, accessories and ordering details.

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Universal Motor Controller – UMC100.3

Operating panel and expansion modules



UMC100.3-PAN

Operating panel

Operator panel for Universal Motor Controller UMC100.3 with backlit graphical and multilingual fulltext display, LEDs for status. Assembly directly on UMC100.3 or on the control cabinet door via extension cable and door mounting set.

Functions:

- Monitoring: Shows motor status and diagnostics.
- Operate: Start, stop, fault reset.
- Parametrize: Setting and changing of motor and fieldbus parameters (password protection possible).
- Copy settings.
- USB port for up/download of parameters and logic.

Supports 8 languages: English, French, German, Italian, Spanish, Polish, Portuguese, Russian
Replaces all former UMC100 operator panels.

Ordering details

Description	Factory code	Order code
Operating panel	1SAJ590000R0103	UMC100.3-PAN
0.7 m ext. cable with door mounting set	1SAJ510003R0002	UMCPAN-CAB.070
1.5 m ext. cable with door mounting set	1SAJ510004R0002	UMCPAN-CAB.150
3 m ext. cable with door mounting set	1SAJ510002R0002	UMCPAN-CAB.300



DX111

Expansion modules

Up to 4 expansion-modules can be connected to one UMC100.3:

- 1 digital expansion module DX111 or DX122.
- 1 voltage expansion module VI150 or VI155.
- 2 analog/temperature expansion modules AI111.

Ordering details

Description	Factory code	Order code
I/O module for UMC100, 24 V DC digital input	1SAJ611000R0101	DX111
I/O module for UMC100, 110 – 230 V AC digital input	1SAJ622000R0101	DX122
3 phase voltage module for grounded networks	1SAJ650000R0100	VI150
3 phase voltage module for all networks	1SAJ655000R0100	VI155
Analog/temperature module 3 analogue inputs	1SAJ613000R0101	AI111
Connection cable UMC100 - I/O module, length 0.30 m	1SAJ691000R0001	UMCIO-CAB.030
Connection cable IO-module - IO-module, length 0,30 m	1SAJ692000R0001	IOIO-CAB.030

Universal Motor Controller – UMC100.3

Open communication interfaces and accessories



PDP32.0

Open communication interfaces

Open communication interfaces enable the UMC100.3 to communicate via open communication protocols.

The interfaces can be used in 2 ways:

- Mounted directly on a UMC100.3: in this case the interface is supplied from the UMC100.3, no further accessory is required.
- Mounted separately on a SMK3.0 adapter in the cable chamber of an MCC: in this case the interface plugged on SMK3.0 needs to be supplied with 24 V DC.
  - Ready made cables for the application in withdrawable systems are available as well as terminal blocks for making own cables.
  - CDP18: Cable for use inside the drawer
  - CDP24: Cable from SMK3.0 to drawer outside

Ordering details

Description	Factory code	Order code
Profibus DP communication interface	1SAJ242000R0001	PDP32.0
Modbus RTU communication interface; terminal block for fieldbus connection included	1SAJ251000R0001	MRP31.0
DeviceNet communication interface; terminal block for fieldbus connection included	1SAJ231000R0001	DNP31.0
Profibus DP active bus termination	1SAJ243000R0001	PDR31.0
Communication ethernet 1P interface		EIV32.0



SMK3.0

Fieldbus communication interfaces – Accessories

Adapter and ready-made cables

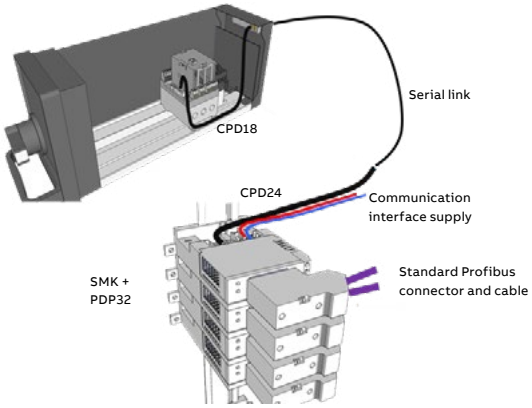
Adapter SMK3.0 for external mounting of a fieldbus communication interface outside a drawer. SMK3.0 can be mounted on a DIN-rail or fixed by screws. 24 V DC supply required.

Ready-made cables for inside and outside the drawer, including terminal block on one side and open end on the other.

Terminal blocks are also separate available for making own cables.

Ordering details

Description	Factory code	Order code
Adapter for separate mounting of a communication interface; terminal block for 24 V DC supply included	1SAJ929600R0001	SMK3.0
Cable for drawer inside, length 1.5 m	1SAJ929180R0015	CDP18.150
Cable from SMK3.0 to drawer outside, length 1. 5 m	1SAJ929240R0015	CDP24.150
Terminal block 2-pol for SMK3.0 supply / 10 pcs per pck. (spare parts)	1SAJ929610R0001	SMK3-X2.10
Terminal block 5-pol for SMK3.0 comm. / 10 pcs per pck. (spare parts)	1SAJ929620R0001	SMK3-X1.10



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Universal Motor Controller – UMC100.3

Ethernet communication interfaces



MTQ22.0



PNQ22.0

Ethernet communication interfaces

Ethernet communication interfaces enable the UMC100.3 to communicate via an ethernet network:

- Up to 4 motor controllers UMC100.3 can be connected to one interface.
- Supports all network topologies.
- Ring topology with redundancy (MRP protocol).
- No special ethernet connectors required in MCCs.
- Easy to use in widthdrawable applications.
- Integrated ethernet switch.
- 24 V DC supply voltage.
- DIN rail mounting.

MTQ22

- Ethernet communication interface with protocol Modbus TCP.
- Supports multimaster mode.
- Master supervision with timeout control.
- Micro USB port for configuration via PC.

PNQ22

- Ethernet communication interface with protocol Profinet IO.
- Integrated into AC800xA.
- Time stamped events (with AC800).
- GSDML download from UMC100.3 webpage.

Ordering details

Description	Factory code	Order code
Ethernet Modbus TCP interface	1SAJ260000R0100	MTQ22.0
Ethernet Profinet IO interface	1SAJ261000R0100	PNQ22.0

Universal Motor Controller – UMC100.3

Ethernet communication interfaces – accessories

Ethernet communication interfaces – accessories

Ready-made cables

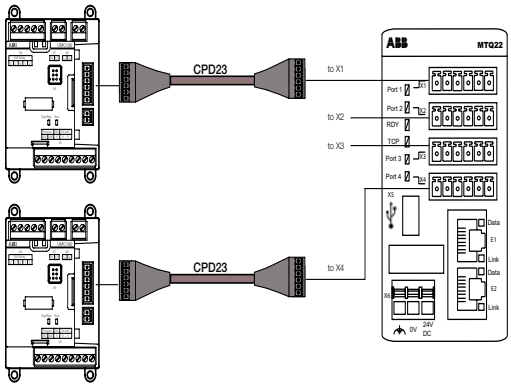
Ready made cables are available for the application in withdrawable systems as well as for fixed installations. Cables are including terminal blocks. Terminal blocks for making own cables are also available:

- CDP18 cable for use inside and outside a drawer
- CDP23 cable from ethernet interface to UMC100.3

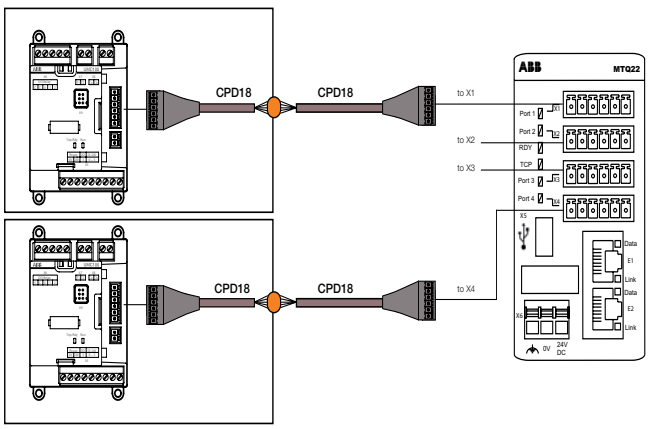
Ordering details

Description	Factory code	Order code
Cable for drawer in- and outside, length 1.5 m	1SAJ929180R0015	CDP18.150
Cable ethernet interface - UMC100.3, length 1.5 m	1SAJ929230R0015	CDP23.150
Cable ethernet interface – UMC100.3, length 3 m	1SAJ929230R0030	CDP23.300
Terminal bloc for MTQ22/PNQ22 X1...X4, 4 pcs	1SAJ929200R0001	ETHTB-FBP.4

UMC100.3, fix mounted application with solution MTQ22.0 / PNQ22.0



UMC100.3, withdrawable application with MTQ22.0 / PNQ22.0



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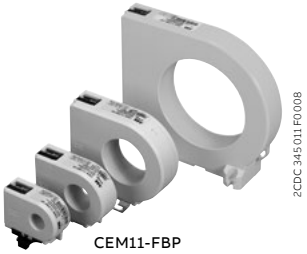
Universal Motor Controller – UMC100.3

Devices for extension of protection functions



2CDC 345 011 F0008

CEM11-FBP

Earth fault monitors CEM11-FBP for use with Universal Motor Controller UMC100.3-FBP

Description	Through-hole diameter	Factory code	Order code
80[1)], 300, 550, 750, 1000, 1200, 1500, 1700	20 mm	1SAJ929200R0020	CEM11-FBP.20
100[1)], 500, 1000, 1400, 2000, 2400, 3000, 3400	35 mm	1SAJ929200R0035	CEM11-FBP.35
120[1)], 1000, 2000, 2800, 4000, 4800, 6000, 6800	60 mm	1SAJ929200R0060	CEM11-FBP.60
300[1)], 2000, 4000, 5600, 8000, 9600, 12000, 13600	120 mm	1SAJ929200R0120	CEM11-FBP.120

1) lower values have higher inaccuracy



2CDC 341 001 F0012

CT4L185R/4, CT4L310R/4



2CDC 341 002 F0012

CT5L500R/4, CT5L850R/4

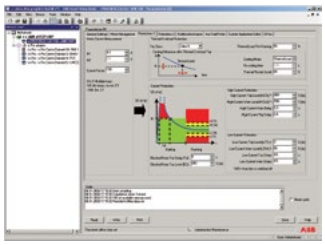
Current transformers for use with Universal Motor Controller UMC100.3-FBP

Linear type transformers, 3-phase, with terminal block, for conductors Cu 2.5 mm².
For use with UMC100.3 and nominal motor currents > 63 A

Description	Recommended current range	Factory code	Order code
Current transformer	60…185 A AC	1SAJ929500R0185	CT4L185R/4
Current transformer	180…310 A AC	1SAJ929500R0310	CT4L310R/4
Current transformer	300…500 A AC	1SAJ929501R0500	CT5L500R/4
Current transformer	500…850 A AC	1SAJ929501R0850	CT5L850R/4

Universal Motor Controller – UMC100.3

Configuration software



PBDTM-FBP

Configuration software for the UMC100.3-FBP motor management system
Asset Vision Basic is an FDT frame application with a modern and simple graphical user interface. It provides effective basic functionality for configuration, diagnosis and maintenance of intelligent low voltage switching devices from ABB. Furthermore, due to the open FDT interface, other ABB and 3rd party DTMs can also be used.
Asset Vision Basic is the optimal tool for configuring FBP devices during commissioning, in the workshop or as second master in a PROFIBUS network of a process control system.
System requirements: Windows XP / Windows 7

Overview of features:

- Online/offline configuration and parameterization of devices
- Reading parameterization and configuration information from the device
- Online display of measuring and status data
- Online operation and error acknowledgment
- Creation of customer-specific logics
- Archiving
- Connection to the device can either be via PROFIBUS or as point to point connection directly to the device.



UTP22-FBP

Required programmng cable:

Connection to a Profibus interface
Connection to an UMC100.3
Connection to an UMC100-FBP

DP network UTP22-FBP
With micro-USB cable via operator panel
With interface UTF21-FBP



UTF21-FBP

Ordering details

Description	Factory code	Order code
Software		
Asset Vision Basic: Device Type Manager (DTM) incl. FDT/DTM frame application	1SAJ924012R0006	PBDTM-FBP
Programming cable		
USB interface for PROFIBUS networks	1SAJ924013R0001	UTP22-FBP
USB to FBP-interface cable	1SAJ929400R0002	UTF21-FBP

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Insulation monitoring relays for unearthed supply systems

Ordering details



CM-IWS.2S



CM-IWS.1S



CM-IWN.1S



CM-IVN.S

Description

The high reliability of an IT system is guaranteed thanks to continuous insulation monitoring. An insulation monitoring device recognizes insulation faults as they develop, and immediately reports that the value has fallen below the minimum. This prevents operational interruption caused by a second, more severe insulation fault.
ABB developed a totally new range of insulation monitors for AC, DC or mixed AC/DC IT Systems up to 690 V AC or 1000 V DC. With only 4 devices most standard applications can be served. Additionally a version for solar applications with increased earth leakage capacitance has been added.

Ordering details

Rated control supply voltage = measuring voltage	Nominal voltage U_n of wthe distribution system to be monitored	System leakage capacitance, max.	Adjustment range of the specified response value R_{an} (threshold)	Factory code	Order code
24-240 V AC/DC	0-250 V AC / 0-300 V DC	10 µF	1-100 kΩ	1SVR730660R0100	CM-IWS.1**S**
24-240 V AC/DC	0-400 V AC	10 µF	1-100 kΩ	1SVR730670R0200	CM-IWS.2**S**
24-240 V AC/DC	0-400 V AC / 0-600 V DC	20 µF	1-100 kΩ 2-200 kΩ (activated / de-activated by DIP-switch)	1SVR750660R0200	CM-IWN.1**S**

Ordering details - Coupling unit

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	Factory code	Order code
Passive device, no control supply voltage needed	0-690 V AC / 0-1000 V DC	1SVR750669R9400	CM-IVN.**S**

Note:
For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C021.

Terminology

used expression	alternative expression(s)
S	screw connection
P	push-in / easy connect

Three-phase monitoring relays
Ordering details


CM-PBE

Single-functional
Only reliable and continuous monitoring of a three-phase network guarantees the trouble-free and economic operation of machines and installations.

Rated control supply voltage = measuring voltage	Monitoring function	Neutral monitoring	Factory code	Order code
3x380-440 V AC, [1] 220-240 V C	Phase failure detection (Single- and three-phase)	●	1SVR550881R9400	CM-PBE.N
3x380-440 V AC			1SVR550882R9500	CM-PBE
3x208-440 V AC [2]	Phase sequence monitoring and phase failure detection (Three-phase)		1SVR550824R9100	CM-PFE
3x200-500 V AC	Phase sequence monitoring and phase failure detection (Three-phase)		1SVR730824R9300	CM-PFS.S
3x300-500 V AC	Over- and undervoltage with adjustable threshold values (Three-phase)		1SVR730794R3300	CM-PVS.41S

1) The version with neutral monitoring is also suitable for monitoring single-phase mains. For this, all three external conductors (L1,L2,L3) have to be jumpered and connected as one single conductor.
2) For applications where a reverse fed voltage >60% is expected, we recommend to use our three-phase monitoring relays for unbalance CM-PAS.xx


CM-MPS.21S

Multifunctional

Rated control supply voltage = measuring voltage	DIP switch	Monitoring function	Neutral monitoring	Factory code	Order code
180-280 V AC	⊠ ■ ⟲ ⌀	Multifunctional (Three-phase phase failure detection, Phase sequence monitoring, overvoltage, undervoltage, Phase unbalance)	●	1SVR730885R3300	CM-MPS.21S
3x300-500 V AC				1SVR730884R3300	CM-MPS.41S

Note:
For full selection and technical details, please refer to the Electronic relays and controls catalogue – 2CDC110004C021.

Terminology

used expression	alternative expression(s)
●	Control input with voltage-related triggering
⊠	ON-delayed
■	OFF-delayed
⟲	Phase sequence monitoring activated
⌀	Phase sequence monitoring deactivated
S	screw connection
P	push-in / easy connec

Arc Guard System™

Overview

Arc Monitor
With its modular concept, the Arc Monitor is designed to fit all types and sizes of low- and medium-voltage switchgears. It is designed according to Functional Safety, and is SIL 2-certified according to IEC 61508 and IEC 62061 which puts full focus on reliability. This corresponds to performance level d according to EN ISO 13849-1. Safety functions are exclusively handled by hardware. In addition, the system, trip logs and user-interface are all microprocessor-monitored.

The system can be configured to trip selected breakers, depending on which sensor that detects the light. The DIP-switches that take care of this function also handle settings like auto-reset and Current Sensing Units.

Energy is stored in the unit for operation up to 0.2 s if the supply voltage fails. This is sufficient to close the tripping circuit even if voltage disappears at a short-circuit fault.

Note:
The circuit breaker still needs a back-up energy source for its tripping circuit.

Connections
All connections can be accessed from the front of the arc monitor. Pluggable terminal blocks allow electrical wiring before mounting TVOC-2 into the cabinet.
The solid state tripping contacts are type IGBT, which guarantees fast and reliable tripping.

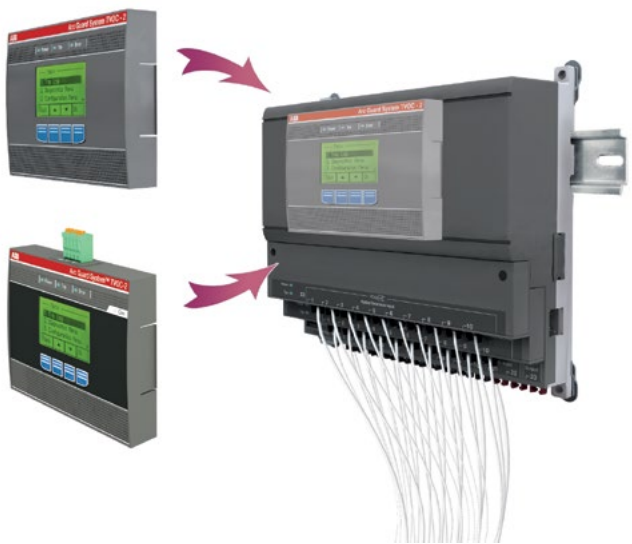
HMI (Human Machine Interface)
- Handles settings with key-pad and full text display
- Holds error log and trip information after power loss
- Error log and trip log include time/date stamp from a real-time clock
- TVOC-2 can handle two separate HMIs: (cabinet door and on product)
- Three-meter cable included
- COM Module available using Modbus RTU.

Sensor & Sensor modules
- Fiber-optic sensors not affected by electrical noise
- Pre-calibrated sensors remove need for manual configuration
- Up to 30 detectors can be connected

Current Sensing Unit (optional)
The Current Sensing Unit (CSU) is an accessory needed only in those few specific applications where strong light is expected on a regular basis.

CSUs are connected with an optical fiber using light as signal for normal current. If this was removed by accident, the system would treat it as an over-current and trip if an arc flash is seen of reliability reasons.

Adding a CSU will result in an additional operating time depending on the size of the over-current and the number of phases measured. Under normal conditions the time from over-current occurring to actuating optical output is in the region between 2 and 8 milliseconds.



Arc Monitor connections
• 3 IGBT solid state tripping contacts
• 2 change-over trip signal relays
• 1 change-over self supervision alarm relay (IRF)
• 2 current sensing unit inputs
• 1 current sensing unit output
Mounting alternatives
• DIN rail
• Wall mounting
Optical detector inputs
• 1-10 Main unit X1
• 1-10 Extension module X2
• 1-10 Extension module X3
HMI
• Can be mounted on door
• IP54
• Additional HMI possible
• User-friendly start up meny
• COM Module version available

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Arc Guard System™
Overview


Arc monitor with HMI


Arc monitor with COM Module


Extension unit


HMI


COM Module


Detector cable

Arc Monitor

Description	Rated supply voltage Uc		Factory code	Order code
	V 50/60 Hz	V DC		
including one HMI and door mounting accessories	–	24...48	1SFA664001R1002	TVOC-2-48
	100...240	100...250	1SFA664001R1001	TVOC-2-240
including one COM Module and door mounting accessories	–	24...48	1SFA664001R1004	TVOC-2-48-C
	100...240	100...250	1SFA664001R1003	TVOC-2-240-C

Accessories

Description	Factory code	Order code
Extension		
10 optical inputs	1SFA664002R1001	TVOC-2-E1
10 optical inputs for cable TVOC-2-DP60 only	1SFA664002R3001	TVOC-2-E3
HMI (Human machine interface)		
additional	1SFA664002R1005	TVOC-2-H1
COM Module		
with communication interface (Modbus RTU) and door mounting accessories	1SFA664002R4001	TVOC-2-COM

Detectors

Cable length	Factory code	Order code
1 m	1SFA664003R1010	TVOC-2-DP1
2 m	1SFA664003R1020	TVOC-2-DP2
4 m	1SFA664003R1040	TVOC-2-DP4
6 m	1SFA664003R1060	TVOC-2-DP6
8 m	1SFA664003R1080	TVOC-2-DP8
10 m	1SFA664003R1100	TVOC-2-DP10
15 m	1SFA664003R1150	TVOC-2-DP15
20 m	1SFA664003R1200	TVOC-2-DP20
25 m	1SFA664003R1250	TVOC-2-DP25
30 m	1SFA664003R1300	TVOC-2-DP30
60 m*	1SFA664003R3600	TVOC-2-DP60

* Only to be used with TVOC-2-E3

Arc Guard System™
Overview


CSU

Current sensing unit

Description	Factory code	Order code
Current sensing unit	**1SFA663002-A**	TVOC-CSU


Optical cable TVOC-2 – CSU

Optical cable between TVOC-2 Arc monitor and Current sensing unit

Cable length	Factory code	Order code
0.5 m	1SFA664004R2005	TVOC-1T02-OP05
1 m	1SFA664004R2010	TVOC-1T02-OP1
2 m	1SFA664004R2020	TVOC-1T02-OP2
4 m	1SFA664004R2040	TVOC-1T02-OP4
6 m	1SFA664004R2060	TVOC-1T02-OP6
8 m	1SFA664004R2080	TVOC-1T02-OP8
10 m	1SFA664004R2100	TVOC-1T02-OP10
15 m	1SFA664004R2150	TVOC-1T02-OP15
20 m	1SFA664004R2200	TVOC-1T02-OP20
25 m	1SFA664004R2250	TVOC-1T02-OP25
30 m	1SFA664004R2300	TVOC-1T02-OP30


Optical cable TVOC-2 – TVOC-2

Optical cable between two TVOC-2 – Arc monitors (transfering CSU signal)

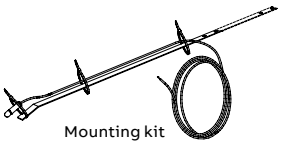
Cable length	Factory code	Order code
0.5 m	1SFA664004R1005	TVOC-2-OP05
1 m	1SFA664004R1010	TVOC-2-OP1
2 m	1SFA664004R1020	TVOC-2-OP2
4 m	1SFA664004R1040	TVOC-2-OP4
6 m	1SFA664004R1060	TVOC-2-OP6
8 m	1SFA664004R1080	TVOC-2-OP8
10 m	1SFA664004R1100	TVOC-2-OP10
15 m	1SFA664004R1150	TVOC-2-OP15
20 m	1SFA664004R1200	TVOC-2-OP20
25 m	1SFA664004R1250	TVOC-2-OP25
30 m	1SFA664004R1300	TVOC-2-OP30

Arc Guard System™
Overview


Cable strap

Cable straps

Description	Factory code	Order code
1 set incl. 50 pcs	1SFA664006R1001	TVOC-2-MK1


Mounting kit

Mounting kit

Description	Factory code	Order code
600 mm	1SFA663006R1001	TVOC-2-MTGK600
800/1000 mm	1SFA663006R1002	TVOC-2-MTGK1000



Label

Label

Description	Factory code	Order code
1 set incl.10 pcs	1SFA663005R1001	TVOC-2-LABEL


Mounting bracket

Mounting bracket

Description	Factory code	Order code
1 set incl. 5 bracket pcs and 10 cable strap pcs	1SFA663006R1010	TVOC-2-MTGB

18 Service

976 **ABB service portfolio to support entire asset lifecycle – Our offering**

978 **The freedom of choice**

979 **A lifetime of peak performance**

980 **Retrofit of ABB and third party air circuit breakers**

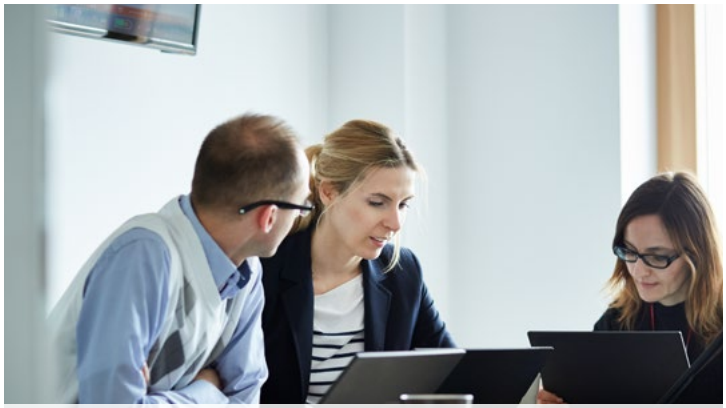
982 **Smart asset management**

For more detailed product information, please refer to the website

- www.new.abb.com/medium-voltage/service

ABB service portfolio to support entire asset lifecycle – Our offering

Structured standard elements of service scope across the asset lifecycle



Service agreements



Installation and commissioning



Training



Engineering and consulting



Advanced services



Extensions, upgrades and retrofits



Spares and consumables



Maintenance



Repairs



End of life services



Replacement



Service for medium voltage

The freedom of choice

ABB Power Care agreement

Your business efficiency depends on your choices. ABB Power Care agreements let you focus on what you do best, while your power distribution system runs smoothly. With your equipment performance optimised, your cost control improved, it's your way towards less unplanned downtime and easier maintenance budgeting.

Here are some examples of the service choice you can make:



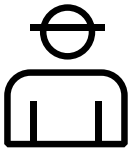
Delivered maintenance services
This is the essential maintenance to prolong the lifetime of your assets. We take precise maintenance actions, including providing genuine ABB parts in preventive maintenance kits.



Self maintenance services
We provide you with access to proprietary resources that allow you to manage your own maintenance. Resources include online troubleshooting tools, manuals and equipment histories.



Technical support
Expert help is only a phone call away. This solution is for all technical telephone assistance and rapid troubleshooting advice.



On-site response time
For those times when you need help, and you need it now. One phone call and an expert will be on-site within the time agreed.

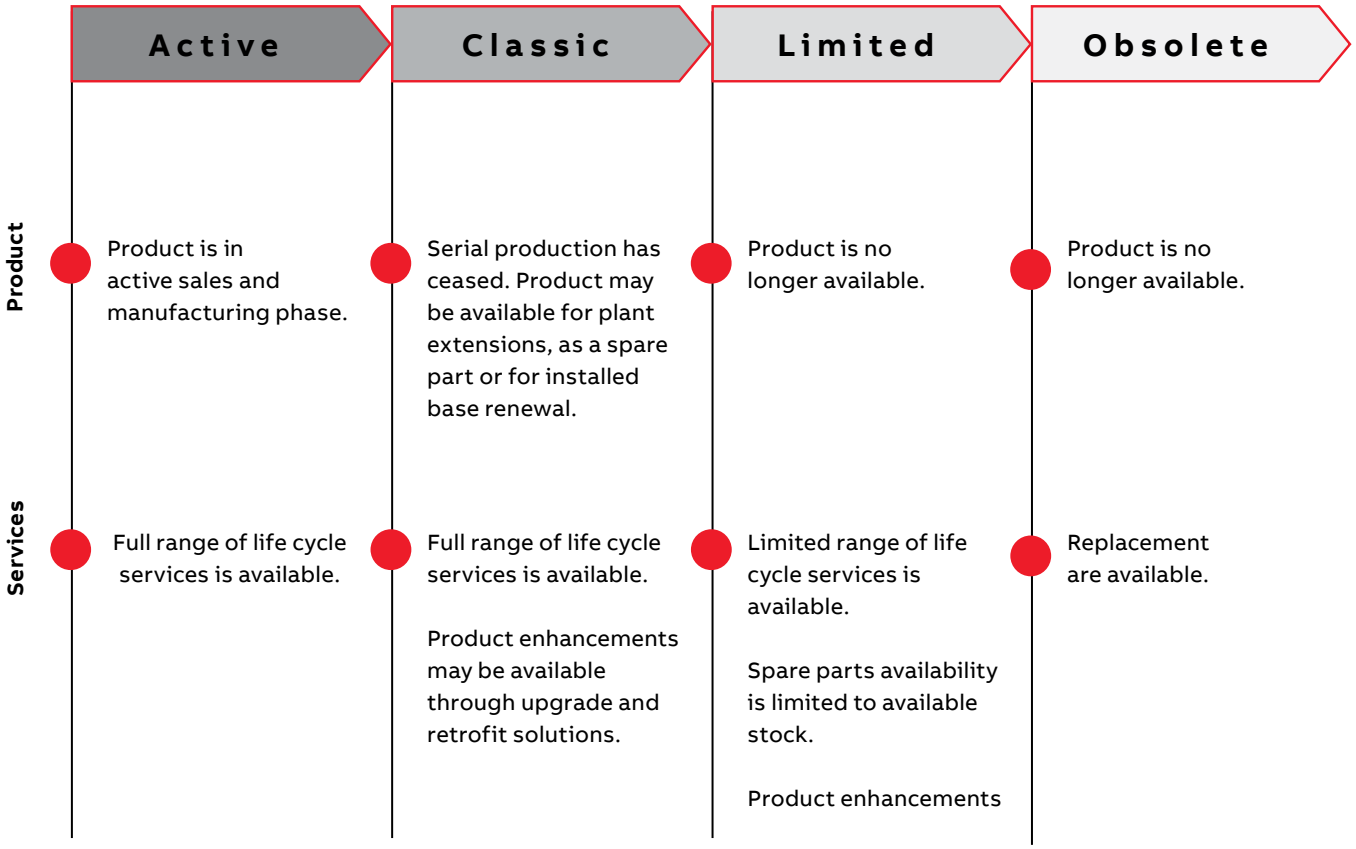


Skills development services
Your investments improve performances when effectively used on a day-to-day basis. We share our expertise to elevate your operators' skills to maximise your investment.

A lifetime of peak performance

You're in control of every life cycle phase of your equipment. At the heart of services is a four-phase product life cycle management model. This model defines the services recommended and available throughout the equipment's lifespan. Now it's easy for you to see the exact service and maintenance available for your equipment.

ABB product life cycle phases explained:



Keeping you informed
We notify you every step of the way using life cycle status statements and announcements. You benefit from clear information about your equipment' status and the precise services available. It helps you plan the preferred service actions ahead of time and makes sure that continuous support is always available.

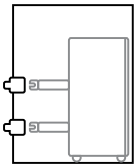
We inform you proactively, in two steps:
Step 1. Life Cycle Status Announcement
Provides early information about the upcoming life cycle phase change and how it affects the availability of services

Step 2. Life Cycle Status Statement
Provides information about the equipment's current life cycle status, availability of product and services, life cycle plan and recommended actions.

Retrofit of ABB and third party air circuit breakers

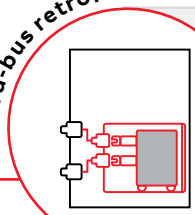
Circuit breaker retrofit is a cost-effective switchgear modernisation solution. The result is noticeable improvement on reliability, safety, maintenance and performance. ABB is a full system provider, from the proposal and design, through to the manufacturing and testing, up to installation and commissioning. Both ABB and non-ABB installed base can be addressed.

Retrofit



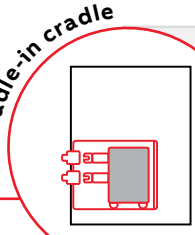
Retrofit breakers are normally used to replace phased out devices by current production versions. They are mechanically and electrically engineered to adapt to the existing solution on site. ABB Service experts conduct site audits on existing installations to asses the condition of the equipment, recommend the proper solution and support the right investment decision.

Hard-bus retrofill



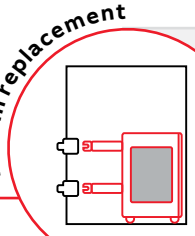
The obsolete circuit breaker is totally removed and replaced with the new circuit breaker. The kit contains special designed and preconfigured busbar and covers to adapt the new circuit breakers to the existing busbars. It is necessary to order both the fixed part and the moving part of the new circuit breaker.

Cradle-in cradle



Fixed part of the new circuit breaker is suitably adapted and tested in ABB. This solution allows the new fixed part to be fast fitted inside the existing fixed part.

Roll-in replacement



This is fastest solution for the customer: the moving part of the old circuit breaker is removed and the moving part of the new circuit breaker is suitably modified and tested in ABB to be fitted into the existing fixed part. This implies very short plant shutdown. The kit pre-mounted by ABB changes the fixed circuit breaker into a proper moving part to be fitted into the existing fixed part.

ABB

Upgrade existing SACE air circuit breakers (ACBs) with direct replacement air circuit breaker or retrofill solution.

- Isomax
- Tmax
- Novomax
- Otomax
- Megamax
- ITE
- ASEA
- BBC
- Softstarters
- Automatic transfer switch

Third party

Upgrade/retrofit with SACE new ACBs, retrofill or direct replacement solutions. Retrofit breakers based on the current technology air circuit breaker and customised for panel adaptations.

- Nilsen
- Schneider
- Terasaki
- Crompton Parkinson
- Hundt & Weber
- Mitsubishi
- General Electric
- Siemens
- Standard Waygood
- Westinghouse
- Other brands

Circuit breaker retrofit is a cost-effective switchgear modernisation solution. The result is a noticeable improvement on reliability, safety, maintenance and performances. ABB is a full system provider, from the proposal and design, through the manufacturing and testing, up to the installation and commissioning. Both ABB and non-ABB installed base can be addressed.

This solution balances the need for a retrofill solution with reasonably limited site works and linked outage. OneFit is the latest ABB hard-bus retrofill design concept, embedding an integrally safe plug-in technology to easily connect the new breaker to a wide range of existing panels.

The time and effort of emptying the compartment and arranging it to fit the new cassette is offset by providing a modern, reliable and interchangeable solution. The relevant longer downtimes must be considered when choosing this option.

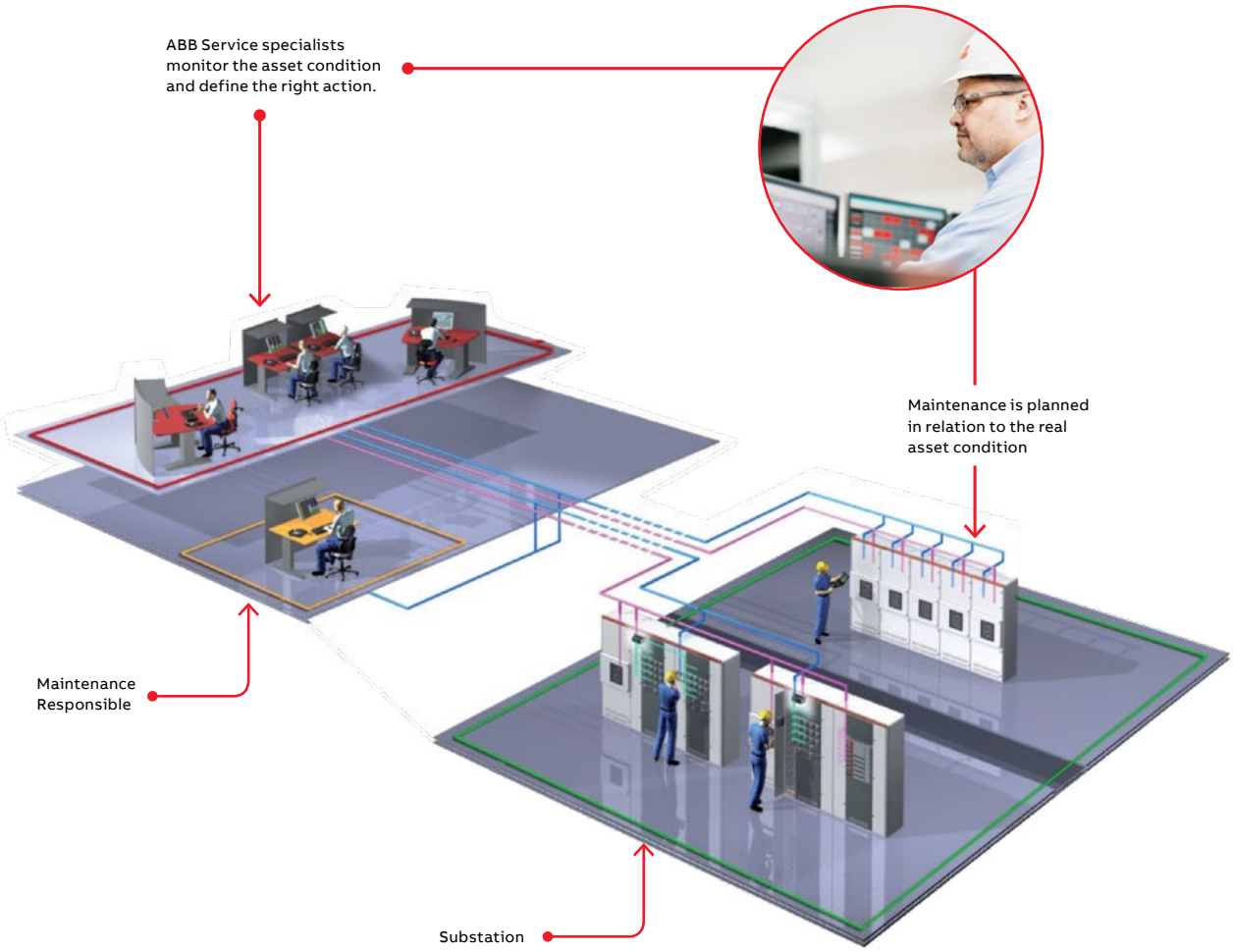
This product family includes a range of solutions supporting the switchgear upgrade when additional constraints are in place:

- other parts than the breaker (shutters, interlocks, etc.) need to be replaced;
- the original panel design does not allow to meet today required features and Standards.

Smart asset management

Condition monitoring for low- and medium-voltage switchgear

—
01 Thanks to MyRemoteCare is possible to implement a unique remote platform including also low, medium and high voltage equipment and transformers.



MySiteCondition is ABB life cycle assessment for electrical systems that helps to assess the condition of the electrical network equipment and the proper actions to mitigate asset risks, reducing the likelihood of failure, damage and injury.

MyRemoteCare is ABB asset health solution for electrical systems that supports the implementation of the condition-based maintenance, enabling prediction of faults and maintenance savings. MyRemoteCare collects diagnostic information from many sources like **MySiteCare**: a universal switchgear and circuit breaker diagnostic unit.

Notes

19
General terms and conditions of sale

ABB Australia Pty Limited

A.B.N. 68 003 337 611

GENERAL TERMS AND CONDITIONS OF SALE

Goods and Services are sold and supplied by ABB Australia Pty Limited on the following General Terms and Conditions of business ("**Contract**") unless otherwise expressly agreed in writing between ABB Australia Pty Limited and the Purchaser.

1. DEFINITIONS

1.1 "Vendor" means ABB Australia Pty Limited.

1.2 "Purchaser" means the person, company or other relevant legal entity to whom or to which this document is addressed.

1.3 "Australian Consumer Law" means the *Competition and Consumer Act 2010*, as amended from time to time.

1.4 "Goods" means the goods, equipment, material and/or chattels supplied by the Vendor to the Purchaser as indicated in an Order.

1.5 "Commencement Date" means the commencement date of the particular contract of which these terms and conditions form part.

1.6 "Contract Works" means, where the additional clauses E1 to E8 apply, the Goods and the erection of other works (if any) to be carried out by the Vendor at the Site.

1.7 "day" or "days" means calendar days unless stated otherwise.

1.8 "Intellectual Property Rights" means all rights in and to all technology, techniques (both patented and non-patented), know-how, confidential information, patents, copyright, designs, trade names, inventions, discoveries and all other rights as defined by Article 2 of the Convention of July 1967 establishing the World Intellectual Property Organisation, including all applications for any of such rights as may exist anywhere in the world.

1.9 "Order" means the Purchaser Order issued by the Purchaser and accepted by the Vendor in clause 3.

1.10 "PPS Act" means the *Personal Property Securities Act 2009* (Cth) as amended from time to time.

1.11 "Services" means the services specified in the Vendor's quotation or contract, including any part of the specified services.

1.12 "Site" means, if the additional clauses E1 to E8 apply, the location notified by the Purchaser where the Vendor is required to carry out the Contract Works.

2. GENERAL

2.1 These terms form part of any quotation or contract to which they are attached, and any Goods to be supplied, or supplied, by the Vendor will be or are supplied subject to these terms.

2.2 If there is any inconsistency or variance between the provisions of any quotation by the Vendor and these terms then the former shall prevail to the extent of the inconsistency or variance PROVIDED SUCH THAT notwithstanding any acceptance by the Vendor of any Order or offer to purchase from the Purchaser that may contain any provision inconsistent with or purporting to vary or reject any of these terms, any contract between the Vendor and the Purchaser arising from the Vendor's acceptance of such Order or offer to purchase shall be subject to these terms unless and to the extent only that the Vendor expressly agrees in writing to any variation thereof.

2.3 If one or more clauses of these terms or any provisions included in any quotation or contract arising between the Vendor and the Purchaser is declared legally invalid the remainder of these terms and any such provisions shall be in no way affected.

2.4 These terms shall apply to any separable portion of any quotation or contract arising between the Vendor and the

Purchaser and to the Goods supplied thereunder.

2.5 THE PURCHASER'S ATTENTION IS DRAWN TO STATUTORY PROVISIONS WHICH MAY APPLY TO THIS CONTRACT. Any rights, remedies, liabilities, conditions, warranties, standards or specifications which apply to or in respect of any contract arising between the Vendor and the Purchaser under or by virtue of the Australian Consumer Law or any other enactment of Australia or of any State or Territory thereof affecting such contract and which cannot be excluded from such contract are deemed to apply to such contract notwithstanding any inconsistency with these terms.

2.6 Subject to clause 2.5, to the fullest extent permitted at law, no warranties expressed or implied by law, trade custom or otherwise and no representations, descriptions, conditions or statements are binding on the Vendor unless set out in these terms or expressly incorporated into these terms by reference by the Vendor in writing.

3. QUOTATION AND OFFER TO PURCHASE

3.1 The Vendor's quotation is not to be construed as an obligation to sell Goods and/or supply the Services to the Purchaser but is rather an invitation to the Purchaser to make an offer to purchase Goods and/or Services subject to these terms. The Purchaser's Order shall constitute such an offer to purchase. The Vendor reserves the right to make alterations to its quotation at any time before its acceptance of an Order from the Purchaser.

3.2 Notwithstanding that a quotation has been made no contract exists between the Vendor and the Purchaser until the Vendor accepts the Purchaser's Order in writing.

3.3 The Vendor's quotation relates only to such Goods and/or Services as are specified therein and is given subject to such Goods and or Services being available at the time of receipt of the Purchaser's Order. Notwithstanding any stipulation or implication in such quotation, the Vendor reserves the right to obtain such Goods or any part thereof from any factory or works in the Vendor's organisation, including any subsidiary of affiliate thereof.

3.4 Prices included in the Vendor's quotation are based upon the quantities of Goods and description of the Services referred to in the quotation. Should the Purchaser offer to purchase a quantity of Goods or type of Services which is at variance with that referred to in the quotation, the Vendor reserves the right to amend the price quoted for such Goods and/or Services.

3.5 The quotation remains open for acceptance for a period of thirty (30) days from the date of the quotation unless an alternate period is specified in the quotation.

4. SPECIFICATIONS AND DRAWINGS

Not Part of Contract

4.1 All descriptive and shipping specifications, drawings, dimensions and weights submitted by the Vendor in relation to any quotation are approximate only and any descriptions, illustrations and data contained in any catalogues price lists and/or other advertising or promotional material are intended by the Vendor only to present a general view of Goods and/or Services described therein and none of such specifications, drawings, dimensions, weights, descriptions, illustrations or data shall form part of any contract arising between the Vendor and the Purchaser.

Drawings

4.2 After Acceptance of the Purchaser's Order, the Vendor shall at the Purchaser's request provide to the Purchaser such drawings relating to the Goods the subject of the contract arising between the Vendor and the Purchaser as are in the Vendor's opinion reasonable and necessary but all and any Intellectual Property Rights in the drawings shall remain vested in the Vendor.

Confidential Information

4.3 All information relating to patents, designs, other Intellectual Property, drawings, specifications, computer programs, information, samples and the like provided by the Vendor shall be regarded as confidential and shall not be copied or disclosed by the Purchaser to a third party except with the Vendor's prior written consent, and shall only be used pursuant to the contract for which they are provided.

Sufficient Information to be Provided

4.4 The Purchaser's Order shall be accompanied by sufficient information to enable the Vendor to commence work and proceed without interruption. The Purchaser shall be responsible for, and warrant, the accuracy of the information it provides.

Purchaser's Approval of Drawings, etc.

4.5 Any drawings or other information requiring the Purchaser's approval shall be approved, amended or rejected and returned by the Purchaser to the Vendor within 14 days of the date of receipt by the Purchaser of such drawings or other information or such other period as may be agreed in writing by the Vendor and the Purchaser. Any delay beyond such 14 day period or such other period agreed to shall constitute grounds for extension of the contract period in which the Vendor is to perform its obligations under **clause 6.4** of these terms. The Purchaser will act reasonably and without undue delay in any relevant undertaking or any discretion it exercises as part of the approval process.

Incorrect Information

4.6 The Purchaser shall be responsible for and bear the cost of any alteration to Goods and/or Services supplied by the Vendor arising from any discrepancy, error or omission in any drawing, specification or other information supplied by or approved by the Purchaser.

Suitability for Purpose

4.7 Unless the Vendor has specifically agreed otherwise in writing, it has no knowledge of the use to which the Purchaser proposes to put any Goods and/or Services supplied by the Vendor to the Purchaser and the Vendor makes no representation nor gives any warranty in respect of such particular use.

Responsibility for licenses, approvals etc

4.8 Unless otherwise agreed in writing it shall be the responsibility of the Purchaser to obtain and provide any licences, access, approvals or permits as necessary for performance of any contract arising between the Vendor and the Purchaser.

5. PERFORMANCE

Performance

5.1 Any performance figures provided by the Vendor are based on the Vendor's experience and are such as the Vendor could expect to obtain on testing. The Vendor shall be under no liability or damages should Goods and/or Services supplied by it fail to attain such performance figures unless the Vendor has specifically guaranteed in writing the attainment of such performance figures, subject always to recognised tolerances applicable to such performance figures.

5.2 Where the Vendor has guaranteed performance figures in respect of Goods and/or Services supplied by it and the performance figures attained in respect of such Goods on any test are outside applicable tolerances, the Vendor shall be given reasonable time to rectify the performance of such Goods and the Vendor's liability shall be subject to **clause 13** of these terms.

Inspection and Tests

5.3 Where inspections and tests are performed they will be undertaken in accordance with the Vendor's standard practice, including test documentation, and will be carried out at the place of manufacture or elsewhere at the Vendor's sole discretion. Such inspections and tests, together with any additional tests as may be specified in the Vendor's quotation, are the only inspections and tests included in the quoted price. Should any further inspection or tests be required by the Purchaser these will be subject to the Vendor's agreement and may result in an increase in the contract price agreed by the Vendor to the Purchaser and an extension to the time for delivery.

5.4 Where the carrying out of an inspection or witnessed test has been agreed to, the Vendor shall give the Purchaser seven days' notice that the Vendor is ready to carry out such inspection or witnessed test, and if the Purchaser is absent from a duly notified inspection or witnessed test then such inspection or witnessed test shall be deemed to have been undertaken in the Purchaser's presence such that the outcome of the inspection or test will be deemed to be accepted by the Purchaser.

6. TIME/DATE FOR SUPPLY

Base Date

6.1 All dates or times quoted for completion or delivery shall be calculated from date of acceptance by the Vendor of the Purchaser's Order, together with sufficient information as referred to in **clause 4.4** of these terms.

Quoted Time

6.2 The Vendor will use reasonable endeavors to meet any delivery or completion date or period quoted but such date or time is a bona fide estimate only and is not to be construed as a fixed date or time unless specifically agreed to by the Vendor in writing.

Liquidated Damages for Delay

6.3 Subject to **clauses 6.4 and 6.5** of these terms, if a fixed date or time has been specifically agreed by the Vendor in writing and quoted for delivery and the Vendor fails to deliver within that fixed date or time or within any extension thereof as provided by **clauses 6.4 and 6.5** of these terms, and if as a result the Purchaser suffers loss, the Vendor will pay to the Purchaser for each week or part week of delay liquidated damages at the rate of 0.25% per week up to a maximum of 5.0% of that portion of the contract price which is referable to such portion only of the Goods and/or Services the subject of the contract which cannot in consequence of such delay be effectively used by the Purchaser, which payment of liquidated damages shall be in full satisfaction of and the Vendor's total liability arising from such delay.

Extension of Time

6.4 Any contract period shall be extended in respect of any delay relating to either instructions given by, or a lack of instructions from, the Purchaser, or any other acts or omissions of the Purchaser or those for whom it is responsible, including any delay or withdrawal of access by the Purchaser to the premises required for the purpose of this Agreement.

6.5 The Vendor shall not be liable to the Purchaser for any failure to meet any obligation under any contract arising between the Vendor and the Purchaser to the extent that such failure is caused by or arises from:

(i) strikes, lockouts or other industrial unrest and disputes, shortages of labour or materials, delay in manufacturing by the Vendor, its associates or suppliers, riot, civil commotion, fire, flood, earthquake, drought, loss or delay at sea or otherwise, breakdowns, pandemic, epidemic or war; or

(ii) any other cause whether arising from natural causes, human agency or anything beyond the reasonable control of the Vendor.

7. PACKING

7.1 Unless stated otherwise in any quotation packing is not included in the contract price. Any packing required by the Purchaser and not specifically stated as being included in any quotation shall be to the Purchaser's account.

7.2 Unless otherwise stipulated in writing by the Vendor any packing which may be provided by the Vendor is not returnable and must be disposed of by the Purchaser.

Where such stipulation is made the packing remains the property of the Vendor and must be returned to the Vendor's source of supply carriage paid by the Purchaser.

8. POINT OF DELIVERY

Delivery ex-works

8.1 Unless stated otherwise in any quotation, Goods are supplied ex-works at the place of manufacture and delivery to a carrier's vehicle, including loading, shall constitute delivery by the Vendor to the Purchaser. The carrier's vehicle shall be of

a type allowing vertical or horizontal access for loading as required by the Vendor.

Delivery Beyond Place of Manufacture

8.2 Unless the Vendor has provided in any quotation for delivery beyond the place of manufacture, where the Purchaser requests delivery beyond such point the Vendor, at its sole discretion, may agree to act as agent for the Purchaser to effect such delivery and all costs of carriage and insurance in relation thereto will be to the Purchaser's account. In any event the Purchaser shall ensure provision of reasonable access to the point of delivery and for off-loading and/or handling without delay.

Damage or Loss in Transit

8.3 Where damage to the Goods in the course of delivery is the Vendor's responsibility, the Vendor shall at its sole discretion repair or replace free of charge Goods so damaged provided the Vendor is notified of such damage within three days of delivery.

Shortages in Delivery

8.4 Any claims for shortages in deliveries shall be notified in writing to the Vendor within ten days of receipt of such delivery.

Partial Deliveries

8.5 The Vendor reserves the right to make partial deliveries of any Goods the subject of any contracts between the Vendor and the Purchaser and to invoice such deliveries separately. Unless otherwise agreed in writing by the Vendor and the Purchaser, where such invoices relate to complete and usable Goods, payment thereof will fall due in accordance with **clause 11.1 (iv)** of these terms.

Storage

8.6 If after a period of 14 days from the date of notification by the Vendor to the Purchaser that Goods the subject of a contract between the Vendor and the Purchaser are ready for delivery and delivery of such Goods is delayed for any reason beyond the Vendor's reasonable control the Vendor shall be entitled, at its sole discretion, to arrange for suitable storage of such Goods at its premises or elsewhere and the Vendor shall take reasonable measures to protect the Purchaser's interest in such Goods. To the extent permitted by law, the Purchaser shall pay all reasonable costs of such storage together with all reasonable costs of insurance, demurrage, handling and other contingent charges applicable as set out in invoices for payment sent to the Purchaser by the Vendor in accordance with **clause 11.1 (iv)** of these terms.

Cost

8.7 Except where stipulated in the quotation, all freight and transport costs are at the Purchaser's cost. In the absence of instructions from the Purchaser on the choice of carrier, the Vendor will instruct on the Purchaser's behalf a carrier to complete delivery. For the avoidance of doubt, delivery shall not be by way of airfreight unless agreed to in writing by the Vendor and set out expressly in the Vendor's quotation.

9. INSURANCE, RISK AND PROPERTY

Insurance

9.1 Goods in respect of which the Vendor acts as the Purchaser's agent in accordance with **clauses 8.2, 8.6 and 8.7** of these terms will, unless otherwise required in writing by the Purchaser, be insured for their contract value plus 10%. The Vendor's liability in respect of such Goods shall be limited to the extent of such insurance.

9.2 The Vendor will maintain public and products liability insurance for an amount of $1 million per event and in the aggregate and which will note the interests of the Purchaser in respect of the liability of the Vendor arising out of the performance by the Vendor of the contract for the Purchaser, but limited always to the extent of cover and limitation of liability provided in the insurance maintained under this clause.

Insurance Cover for Goods under Repair

9.3 Risk in Goods the subject of any contract for repair, overhaul, modification or other work, between the Vendor and the Purchaser shall remain with the Purchaser. The Purchaser shall be responsible for effecting insurance which provides cover for the goods which are being repaired, including at the Vendor's premises, or at subcontractor's premises, or in transit to and from those premises.

Risk

9.4 Risk in Goods the subject of any contract between the Vendor and the Purchaser shall remain with the Vendor only until the first in time of any one of the following events:

(i) the passing of property in such Goods to the Purchaser; or

(ii) the delivery of such Goods by the Vendor to the Purchaser or to a carrier at the contractual point of delivery; or

(iii) upon such Goods leaving the Vendor's premises at the request of the Purchaser; or

(iv) the expiry of 14 days from the date of notification by the Vendor to the Purchaser that such Goods are ready for delivery;

and thereafter risk of damage, loss or deterioration of the Goods from any cause whatsoever shall pass to the Purchaser.

Preservation of Property Rights

9.5 Notwithstanding that risk in any Goods the subject of a contract between the Vendor and the Purchaser may in whole or in part be with the Purchaser title and property in such Goods shall remain with the Vendor until paid for in full by the Purchaser. Prior to the passing of property in such Goods they may not be resold, pledged or, subject to clauses 9.7 to 9.9 below, given in security by the Purchaser in any circumstances whatsoever.

9.6 Until such time as title and property in such Goods passes to the Purchaser the relationship between the Vendor and the Purchaser shall be fiduciary and the Purchaser shall hold the Goods as bailee for the Vendor, and:

(i) the Purchaser will store such Goods in his/its premises separately from his/its own Goods or those of any other person and in a manner which makes them readily identifiable as the Vendor's Goods;

(ii) The Purchaser is licensed by the Vendor to, in the ordinary course of his/its business, process in such fashion as he/it may wish and/or incorporate such Goods in or with any product or products, subject to the express condition that the new product or products or any other chattel whatsoever containing any part of such Goods shall be separately stored and marked so as to be identifiable as being made from or with Goods the property of the Vendor;

(iii) if Goods the property of the Vendor are mixed with goods and/or material the property of the Purchaser or are processed with or incorporated therein, the product thereof shall become and/or shall be deemed to be the sole and exclusive property of the Vendor;

(iv) if Goods the property of the Vendor are mixed with goods and/or material the property of a third party or are processed with or incorporated therein, the product thereof shall be deemed to be owned in common by the Vendor and that third party;

(v) the Purchaser shall be at liberty to agree to sell Goods the property of the Vendor or any product produced from or with such Goods on the express condition that such an agreement to sell is made on the basis that the Purchaser is the agent of and bailee of the Vendor in respect of such Goods and/or products and that the entire proceeds of sale and monies therefore shall be held in trust on behalf of the Vendor by the Purchaser and shall not be mingled with any other monies and shall at all times be identifiable as the Vendor's monies the Purchaser shall however not represent to any third parties that it is in any way acting for the Vendor and the Vendor will not be bound by any contracts with third parties to which the Purchaser is a party; and

(vi) if the Purchaser does not receive the proceeds of any such sale he/it will, if called upon so to do by the Vendor,

within seven days thereof assign and sell to the Vendor for nominal consideration all rights against the person or persons to whom such Goods and/or products were to be sold by the Purchaser.

Purchase Money Security Interest

9.7 By placing an Order for the Goods, the Purchaser acknowledges, accepts and agrees that this Contract creates a purchase money security interest (as that term is defined in the PPS Act) in the Goods as commercial property and, for avoidance of doubt, the proceeds of sale of the Goods. The Purchaser must, promptly upon request by the Vendor, sign any documents (including any new agreements), provide all necessary information and do anything else required by the Purchaser to ensure that the security interest is a perfected purchase money security interest (as that term is defined in the PPSA).

9.8 Until payment to the Vendor has been made in full for the Goods, the Purchaser acknowledges and agrees that in relation to Goods that are inventory, the Purchaser will not allow any security interest to arise in respect of the Goods unless the Vendor has perfected its purchase money security interest.

9.9 Until payment to the Vendor has been made in full for the Goods, the Purchaser acknowledges and agrees that in relation to Goods that are inventory, the Purchaser will not allow any non-purchase money security interest to arise in respect of the Goods unless the Vendor has perfected its purchase money security interest prior to the Purchaser's possession of the Goods.

9.10 The Purchaser waives its right under the PPS Act to receive a copy of any verification statement or financing change statement (as those terms are defined in the PPS Act).

10. PRICES AND CONTRACT PRICE ADJUSTMENT

Price Basis

10.1 Unless otherwise stated in writing, prices quoted by the Vendor are based on the costs of material, labour, freight, insurance, and duties and other costs and charges ruling at the date of any quotation or such other date specifically referred to therein in respect of such matters and such prices shall be subject to adjustment in respect of any variation in such costs, rates or charges or their method of assessment occurring after that date and until the completion of any contract between the Vendor and the Purchaser based on such quotation including, without limitation, changes in:

(i) Australian costs;

(ii) overseas costs;

(iii) foreign currency and exchange rates (refer to clause 10.15);

(iv) customs and excise duties, levies, charges, imposts and the like; and

(v) transport costs.

10.2 The Vendor will give the Purchaser reasonable notice of any increase in the prices quoted where the amount of such increase is, in the Vendor's opinion, substantial. Upon receipt of such notice, the Purchaser may terminate the contract with the Vendor without liability, provided that the Purchaser gives the Vendor 5 business days' notice in writing of such termination and provided that it has first made payment to the Vendor for any Goods and/or Services supplied by the Vendor to the Purchaser prior to such termination.

Tax and other excluded charges

10.3. Charges specifically excluded in any quotation shall be to the Purchaser's account at cost.

10.4 Unless otherwise stated in writing in any quotation sales tax or any other tax, levy or the like imposed on either the sale, manufacture, dealing with, distribution, import or use of goods or measured by the selling price of goods or otherwise howsoever levied against or added to the price of goods shall in all cases be an excluded cost that shall be added to the price for payment by the Purchaser.

10.5 Unless otherwise stated in writing in any quotation customs duties, levies, taxes, (carbon) costs and the like imposed in respect of the goods (but always excluding those taxes referred to in **clause 10.3** of these terms) applicable at the date of any quotation or such other date specifically referred to therein in respect of such matters will be added to the price and any variation thereto, for whatever reason, shall be to the Purchaser's account at cost in accordance with **clause 10.1** of these terms.

GST

10.6 GST means any tax, levy, charge or impost implemented under the A New Tax System (Goods and Services Tax) Act (the "GST Act") or any Act of the Parliament of the Commonwealth of Australia substantially in the form of, or which has a similar effect to, the GST Act.

10.7 The price shown in this Contract does not include GST.

10.8 If the Vendor becomes liable to pay GST in respect of the sale or supply of the subject matter of this Contract, the price payable under this Contract will be increased so that after payment of the GST by the Vendor, the nett amount retained by the Vendor is the same as before GST applied.

10.9 If the Vendor becomes liable to pay GST, the Vendor will notify the Purchaser of the amount of GST to be paid and will provide the Purchaser with the appropriate invoice including a reference to the applicable amount of GST.

10.10 The Purchaser shall pay that invoice pursuant to the terms and conditions of this Agreement

Cost of Delay or Variation

10.11 Where in respect of any contract between the Vendor and the Purchaser work is delayed or varied by the act or omission of the Purchaser or that of his/its agent, or any contractor for whom he/it is responsible, the Vendor shall notify the Purchaser of any additional costs which will be incurred as a result of such delay or variation, which additional costs shall be to the account of the Purchaser. The Purchaser shall not vary the Order by greater than 15% of the value of the Order.

10.12 The Purchaser is entitled to make variations to the Order including an increase or reduction of scope of supply, character, quality, nature or design as well as change of delivery time, provided that such variations are within what the parties could reasonably expect when entering into the Agreement and that the variation shall not be greater than 15% of the value of the original Order. The variation will be formalised by the Vendor's issuance of a written variation order.

Costs of Complying with Regulations

10.13 If the costs to the Vendor of performing its obligations under any contract between the Vendor and the Purchaser shall be varied by reason of the creation or amendment after the date of quotation of any law or of any order regulation or by-law having the force of law or any applicable standard, the amount of such increase or decrease shall, as applicable be added to or deducted from the contract price AND even where such price is quoted as firm it is subject to adjustment for cost variations caused by such creation or amendment.

Cost

10.14 For the purpose of Clause 10 of these terms the expression 'cost' is deemed to include overheads and interest paid by the Vendor.

Exchange Rate Variation

10.15 Exchange rate variation payable shall be calculated at the rate of exchange actually paid by the Vendor against the exchange rate in the quotation. If prices are expressed in different currencies and the Purchaser seeks or requires payment in any different currency, the Purchaser shall bear any foreign exchange risk arising from such payment.

11. PAYMENT

Payment Due

11.1 Unless otherwise agreed in writing by the Vendor and the Purchaser payment shall be due as follows:

(i) as to 10% of the contract price, on lodgment with the Vendor of the Purchaser's Order;

(ii) subject to **clause 11.1 (iv)** of these terms, within 14 days of receipt by Purchaser of the Vendor's written periodic invoices, which invoices shall number four and shall be sent by the Vendor to the Purchaser at times

which as near as may be practically possible divide the interval between the formation of a contract between the Vendor and the Purchaser and the scheduled completion of that contract into four equal periods, and which shall each amount to 20% of the contract price;

(iii) subject to **clauses 11.1 (iv) and 11.2** of these terms, as to the remaining 10% of the contract price, on delivery;

(iv) as to Goods delivered in accordance with **clause 8.2** of these terms all monies outstanding in respect of such Goods shall be due and payable within 14 days of receipt by the Purchaser of the Vendor's invoice; and

(v) as to any additional costs incurred by the Vendor for the Purchaser's account in accordance with these terms, within 30 days of the Purchaser's receipt of the Vendor's invoice in respect of such costs.

The Purchaser is not entitled to withhold payment or make any deduction from the contract price in respect of any set- off or counter claim.

11.2 Without limiting clause 8.6, if Goods the subject of any contract between the Vendor and the Purchaser are in whole or in part ready for delivery and if delivery of such Goods is delayed by reason of instructions given, or lack of instructions by the Purchaser, then full payment of that part of the contract price outstanding shall be due and payable 14 days after notification by the Vendor to the Purchaser that such Goods are ready for delivery as though delivery had been completed in accordance with **clause 8.1** of these terms.

Delay or Default in Payment

11.3 Should the Purchaser make default in respect of any payment due to the Vendor then the Vendor shall have the right, in addition to all other rights to which it is entitled at law, to:

(i) charge interest on the overdue amount at three percent (3%) above the rate charged to the Vendor by its major banker for overdraft accommodation and calculated from the due date of payment to the actual date of full and final payment. Any payment subsequently made by the Purchaser to the Vendor shall be credited first against any interest so accrued;

(ii) suspend all deliveries or works and any contract period shall be extended by the period of the suspension; or

(iii) terminate the contract.

An election to apply any one of the above remedies shall not preclude the Vendor from subsequently electing another of them.

11.4 If as a result of the Purchaser's default in payment, a solicitor or debt collector is instructed by the Vendor, the Purchaser agrees to pay the solicitor or debt collector[s fees and disbursements and charge to the Vendor in full. The Vendor shall be entitled at any time to assign to any other person all or any part of the debt owing to the Vendor and notwithstanding any rule of common law or equity to the contrary, or the appointment of a liquidator, receiver and/or manager over the Purchaser and the assets thereof, and the assignee thereof shall be entitled to claim full rights of set-off or counter-claim against the Purchaser as charge holders or successors in respect of the debt or part thereof so assigned.

Security

11.5 Any security agreed to by the Vendor will be given in the form of a bank guarantee issued by the Vendor's bankers and will contain an expiry date not exceeding two years. The Purchaser must return and release the security on expiry of the defects liability period specified in **clause 12.4 (ii)** of these terms.

12. WARRANTY

12.1 In relation to any of the Vendor's Goods or Services purchased by the Purchaser costing up to $40,000, and otherwise in relation to any of the Vendor's Goods or Services that are of a type normally used for personal, domestic or household purposes, such Goods and Services come with guarantees that cannot be excluded under the Australian Consumer Law. The Purchaser is entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. The Purchaser is also entitled to have such Goods repaired or replaced if the Goods fail to be of acceptable quality and the failure does not amount to a major failure.

12.2 The Vendor hereby warrants to the Purchaser that Goods manufactured by the Vendor, or its related companies and/or Services provided by the Vendor, shall be free from defects due to faulty design, materials and workmanship (except as regards defects specifically drawn to the Purchaser's attention, before any contract is formed between the Vendor and the Purchaser or, if the Purchaser examines the Goods the subject of such contract before such contract is formed then except as regards defects which that examination ought to reveal). If the contract between the Vendor and the Purchaser is a contract for the supply of consumer goods, this warranty is provided in addition to other rights and remedies the Purchaser is entitled to under the Australian Consumer Law and any other law relating to the provision of the Goods and Services.

12.3 If it is proven to the Vendor's reasonable satisfaction that Goods manufactured by the Vendor or its related companies and/or Services provided by the Vendor are not free from defects due to faulty design, materials and workmanship (except as revealed by examination as referred to in **clause 12.1** of these terms) then the Vendor shall, at no cost and at its option, either:

(i) repair such Goods;

(ii) replace such Goods with the same or equivalent Goods at the point of delivery applicable to the contract under which such Goods were supplied to the Purchaser by the Vendor;

(iii) re-perform the Services or payment of the cost of having the Services supplied again; or

(iv) refund to the Purchaser the contract price of such Goods and/or Services.

The warranty above does not extend to include the Vendor's labour costs. Any removal, reinstallation and other consequential costs will be for the Purchaser's account. The warranty cover for repaired/replaced items will expire on the same date as the warranty for the rest of the Goods and/or Services. When warranty repairs are required to be carried out at locations other than Vendor Service Centres, then the cost for labour, travel, travel time and accommodation costs incurred by the Vendor will be to the Purchaser's account.

12.4 This warranty does not apply in respect of defects due to or arising from:

(i) incorrect or negligent handling, disregard of operating and/or maintenance instructions, overloading, unsuitable operating conditions, defective civil or building work, lightning, accident, neglect, faulty erection (unless carried out by the Vendor), acts of God, causes beyond the Vendor's control or whilst unauthorised repairs or alterations have been carried out or non-compliance with Goods' power and grounding specifications;

(ii) the use of goods of consumable nature; or

(iii) fair wear and tear.

12.5 This warranty does not apply unless:

(i) the Goods have been properly handled, located, used, maintained and stored;

(ii) defects occur within 12 calendar months after the Goods have been delivered to the Purchaser or, if delivery was delayed for reasons beyond the Vendor's control then within 12 calendar months of deliveries or within 18 calendar months after the Vendor first notified the Purchaser that the Vendor was ready to deliver the Goods (whichever period expires earlier);

(iii) defects occur within 6 calendar months after the Services have been performed;

(iv) the Vendor is notified in writing within seven days of the

alleged defect first coming to the notice of the Purchaser;

(v) the Purchaser returns the defective Goods to the Vendor, or if necessary, at the sole discretion of the Vendor, to the works where such Goods were manufactured or assembled, free of charge; and

(vi) the Purchaser has fulfilled all of his/its contractual obligations.

12.6 The parties agree that the Purchaser shall not make a claim against the Vendor and the Vendor shall have no further liability for or in connection with the Goods and/or Services upon the expiry of two (2) years from the date of the end of the defects liability period in clause 12.5(ii) and (iii), and claims made after that period will be time barred absolutely.

12.7 The benefit of this Warranty is personal to the Purchaser and is non-assignable without the prior written consent of the Vendor.

12.8 The ABB Customer Support Centre can be contacted on: 1800 ABB Help (1800 222 435); or by emailing: abbhelp@au.abb.com

Exclusion of UN Convention

12.9 To the fullest extent permitted by law the parties agree that the United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement.

13. LIABILITY AND INDEMNITY

13.1 Notwithstanding anything else contained in this Contract to the contrary, and except to the extent that this Contract applies to a consumer as defined in the Australian Consumer Law, the Vendor shall not be liable (to the fullest extent permitted at law) whether by way of indemnity, guarantee, or by reason of any breach of contract, or of statutory duty or by reason of tort (including but not limited to negligence) or any other legal principle or doctrine for:

(i) any loss of profits, loss of use, loss of revenue or loss of anticipated savings or for any financial or economic loss (whether direct or indirect) or for any consequential or indirect loss or damage whatsoever; or

(ii) any other amount which in aggregate with any other liability (being any past, present or future liability) to which this clause applies, that exceeds the aggregate value of all payments of the contract price made under these terms (except in relation to a consumer contract, as defined in the Australian Consumer Law.

Otherwise, where it is permitted under Australian Consumer Law or otherwise at law to do so the remedies in clause 12.3 above will apply.

13.2 The Purchaser indemnifies the Vendor and the Vendor's representatives (each an "indemnified party") against all loss, damage, costs and expenses suffered or incurred by an indemnified party as a result of any breach by the Purchaser of this Agreement or the Order; or any act or omission by the Purchaser or the Purchaser's representatives which, if done or omitted to be done by the Purchaser, would constitute a material failure to comply with the Purchaser's obligations under this Agreement, with such debt arising from this indemnity to be immediately due and payable to the Vendor on demand.

13.3 The Purchaser acknowledges and agrees that such loss, damage, costs and expenses suffered or incurred by the Vendor as referred to in clause 13.2 may be an insufficient remedy for any actual or threatened breach of this Agreement / Order by the Purchaser or any of the Purchaser's representatives, and, without prejudice to any other rights and remedies otherwise available to the Vendor, the Purchaser agrees to the granting of equitable relief and remedies in favor of the Vendor without proof of actual liquidated damage or equitable loss.

14. PATENTS AND DESIGN RIGHTS

14.1 Except where such claims relate to Goods or parts thereof based on designs, drawings or instructions specified or provided by the Purchaser, if any sustainable claim is made in relation to infringement or any Letters Patent, Registered Design, Trademark or copyright or other intellectual property right, in respect of which publication occurs prior to the date of any quotation relating to Goods and/or Services the subject of such claim, and in respect of which quotation such Goods and/or Services were supplied by the Vendor to the Purchaser, the Vendor will at its expense either replace or modify the part the subject of such infringement with a non-infringing part or procure for the Purchaser the right to use such part provided that the Vendor is given the full opportunity to conduct all negotiations in relation to such a claim AND PROVIDED THAT the Vendor shall not incur any liability for losses arising from the Purchaser's use or non- use of any infringing part.

14.2 The Purchaser warrants that any designs, drawings or instructions furnished or given by him/it to the Vendor shall not be such as to cause the Vendor to infringe any Letters Patent, Registered Design, Trademark or copyright or other intellectual property right, and the Purchaser hereby indemnifies the Vendor and agrees to keep the Vendor indemnified against any costs which may directly arise against or be incurred by the vendor by reason of any such infringement.

14.3 Ownership of Intellectual Property Rights (other than third party intellectual property rights) associated with the Works and any documentation provided by the Vendor pursuant to these terms is vested and shall remain vested in the Vendor. The Vendor grants the Purchaser a royalty free, non-exclusive, non-transferable, perpetual (subject to compliance with the terms of the license) license to use all Intellectual Property Rights associated with the Works and any documentation provided pursuant to these terms for the installation, use, support, repair, or maintenance of the Works by or on behalf of the Purchaser."

15. BANKRUPTCY, LIQUIDATION AND DEFAULT

15.1 If the Purchaser makes any default under this Contract any contract between the Vendor and the Purchaser, or:

(i) being a person, dies or commits an act of bankruptcy;

(ii) being a company, take or shall have taken against it any action for the winding up of the company or the placing of the company under official management or receivership other than for purposes of reconstruction or has an execution levied against it;

then the Vendor at its sole discretion and without prejudice to any other rights it may have under such contract or at law may give notice in writing to the Purchaser and after 14 days from the date of such notice may, unless otherwise by law, suspend or cancel such contract (including, without deferring manufacture or delivery of Goods) or require payments in cash before or on delivery of the Goods notwithstanding the terms of payment specific or may cancel any undelivered or uncompleted Goods then outstanding under such contract or may take possession of the Goods or any part thereof and for the purpose thereof enter upon any premises where such Goods are stored or reasonably thought to be stored and dispose of them in its own interest without prejudice to any claim it may have for damages for any loss resulting from such disposal and may retain any security or monies held paid by the Purchaser in relation to such contract and apply such security or monies against assessed loss or damage incurred by it in relation to such default.

16. SERVICE OF NOTICES

For the purpose of service of any document or notice in connection with any quotation or contract it shall be sufficient for either party to forward such document or notice by first class surface mail if within Australia or first class air mail beyond Australia, with appropriate postage prepaid to the last known address of the other party and shall be deemed to have been received by the other party on the second business day following the date of posting. Everyday communications may be sent by electronic mail but those communications will not be construed to be notices for the purposes of this clause.

17. CODE OF CONDUCT/BUSINESS ETHICS

17.1 The Purchaser hereby warrants that he will not, directly or indirectly, and it has no knowledge that other persons connected with his business will, directly or indirectly, make any payment, gift or other commitment to any person including without limitation directors and employees of the Vendor or any other party in a manner contrary to applicable laws (including but not limited to the U.S. Foreign Corrupt Practices Act and, where applicable, legislation enacted by member States and signatories implementing the OECD Convention Combating Bribery of Foreign Officials), policies or standards of conduct, for the purposes of obtaining or facilitating the Purchaser's activities under this Contract.

17.2 Nothing in this Contract shall render the Vendor liable to reimburse the Purchaser for any such consideration given or promised.

17.3 The Purchaser herewith acknowledges and confirms that he has received a copy of the Vendor's Code of Conduct or has been provided information on how to access the Code of Conduct online. Purchaser hereby warrants to fully comply with such Code of Conduct.

17.4 The Purchaser shall, at all times, comply with all relevant laws, regulations, ordinances and rules having the force of law.

17.5 The Purchaser herewith takes note that the Vendor has established the following reporting channels where the Purchaser may report suspected violations of applicable laws, policies or standards of conduct:

Web portal: www.abb.com/ethics
Telephone: 1800-01-0342.
Mail: ABB Australia Pty Limited
Legal & Integrity Department
Bapaume Road
Moorebank NSW 2170

18. DISPUTE RESOLUTION

18.1 If there is a dispute between the parties arising out of, or in connection with, this Agreement, neither of the parties is to commence any proceedings relating to that dispute until the following procedure has been complied with:

(i) the party claiming a dispute has arisen must give written notice to the other party specifying the nature of the dispute (Dispute Notice) which:

(1) states that it is a Dispute Notice under this clause;

(2) identifies the dispute; and

(3) states the alleged relevant facts that are relied on;

(ii) Within 5 Business Days of a Dispute Notice being received by a party, a senior representative (such as the CEO) of each party must meet and will endeavor, in good faith, to:

(1) resolve the whole of the dispute or as much of the dispute as possible; and

(2) to the extent the dispute is not wholly resolved, decide what process will be used to resolve the dispute or the remaining matters that are not agreed.

18.2 Any agreement reached at a meeting pursuant to this clause 17 must be in writing and signed by both parties.

18.3 If a dispute has not been resolved within 30 Business Days after the relevant Notice of Dispute was given, then either party may (subject to any agreement to the contrary) issue proceedings to have the dispute determined, whether or not any negotiation process has commenced or concluded.

18.4 A party seeking urgent interlocutory relief may, by notice to the other party, elect not to comply with the provisions of this clause, but only to the extent of the relief sought, and only for the period required to dispose of the application for interlocutory relief.

18.5 Pending resolution of the dispute, this Contract will remain in full effect without prejudicing the parties' respective rights and remedies.

19. GENERAL

19.1 **Severance**

If any provision of this Contract or the conditions is declared by an judicial or other competent authority to be void, voidable, illegal or otherwise unenforceable, or indications to that effect are received by either of the parties from any competent authority, that provision will be severed from this Contract and the remaining provisions of this Contract will remain in full force and effect unless the Vendor decides that the effect of such severance is to defeat the original intention of the parties in which event the Vendor will, to the extent permitted by law, be entitled to terminate this Contract by thirty (30) days' notice to the Purchaser.

19.2 **Whole Agreement**

Without limiting clause 4.1 and to the extent permitted by law, each party acknowledges that this Contract contains the whole agreement between the parties in relation to the subject matter of their dealings and it has not relied upon any oral or written representation made to it by the other party, or its employees or Distributors, and has made its own independent investigations into all matters relevant to the subject matter of their dealings.

19.3 **Supersedes prior Agreement**

This Contract supersedes any prior agreement between the parties whether written or oral and any such prior agreements are cancelled as at the commencement date but without prejudice to any rights which have already accrued to either of the parties.

19.4 **Change of Address**

Each of the parties will give notice to the other of the change or acquisition of any postal or email address or telephone, fax or similar number at the earliest possible opportunity but in any event within forty-eight (48) hours of such change or acquisition.

19.5 **Interpretation**

(i) Headings contained in this Contract are for reference purposes only and will not be deemed to be any indication of the meaning of the clauses and sub clauses to which they relate.

(ii) In this Agreement, the singular includes the plural and vice versa, and each gender includes every other gender.

19.6 **Warranties by the Parties**

(i) Each of the parties warrants that it has the power to enter into this Contract and has obtained all necessary resolutions and approvals to do so.

(ii) The Purchaser warrants that:

(1) when entering into this Contract, it is not acting as the agent of any other person, company or other organization; and

(2) the Goods will not be used by the Purchaser for personal, domestic or household purposes.

19.7 **No Partnership**

The parties are not partners or joint ventures.

19.8 **The Vendor's Right to Assign**

This Contract and all rights under it may be assigned or transferred by the Vendor. The Purchaser may not assign or otherwise transfer its rights without the prior written consent of the Vendor.

19.9 **Proper Law and Jurisdiction**

These terms and conditions are governed by and construed with reference to the laws for the time being in force in the State of New South Wales. Each party irrevocably and unconditionally submits to the exclusive jurisdiction of the courts of the State of New South Wales, and of any courts that have jurisdiction to hear appeals from any of those courts, and waives any right to object to any proceedings being brought in those courts.

19.10 **Rights Cumulative**

All rights granted to the Vendor are cumulative and no exercise by either of the parties of any right under this Contract will restrict or prejudice the exercise of any other right granted by this Contract or otherwise available to the Vendor.

19.11 **Waiver**

The failure by the Vendor to enforce at any time or for any period any one or more of the terms or conditions of this Contract is not a waiver of them or of the right at any time subsequently to enforce all terms and conditions of this Agreement.

19.12 **Costs**

Each of the parties will pay the costs and expenses incurred by it in connection with this Agreement.

19.13 **Termination**

(i) The Vendor may terminate this Agreement or the Order at its convenience without any form of remedy (liquidated or equitable) being available to the Purchaser.

(ii) The Purchaser may not terminate this Agreement and/or cancel an Order related to this Agreement – doing so, for the avoidance of doubt, constitutes a breach of contract on the part of the Purchaser.

ADDITIONAL CLAUSES IF THE VENDOR IS RESPONSIBLE FOR ERECTION / INSTALLATION

E1 ACCESS TO AND POSSESSION OF THE SITE

The Purchaser will provide timely and suitable access to and possession of the Site for such periods as is reasonably required to perform the Contract Works, proper foundations to receive the Goods as and when delivered, adequate craneage, lifting tackle and scaffolding and suitable protection for the plant from time of delivery until the time of Taking Over.

E2 SITE FACILITIES

The Purchaser will be responsible for providing and maintaining proper fencing, lighting, guarding and watching of all the Contract Works comprised in the Contract Works until Taken Over and the proper provision during a like period of temporary roadways, footways, guards and fences as far as they may be necessary by reason of the Contract Works for the accommodation and protection of the owners and occupiers of adjacent property, public and others.

The Purchaser will provide without cost to the Vendor such supplies of electricity, water and gas as may be necessary for the purposes of the Contract Works on Site.

E3 INSURANCE OF PLANT DURING ERECTION

Unless the Vendor otherwise agrees, the Vendor will insure the Contract Works and keep each part thereof insured for its full value against damage or destruction by fire, explosion, lightning, earthquake, theft, storm, tempest, impact and aircraft damage from the date of dispatch in accordance with the Contract or the date on which it becomes the Purchaser's property, whichever is the earlier until it is Taken Over or deemed Taken Over by the Purchaser in accordance with Clause E5 and shall from time to time, when so required by the Purchaser, produce proof of insurance cover. All moneys received under any such policy shall be applied in or towards (in order of precedence):

(i) the replacement or repair of the Plant lost, damaged or destroyed;

(ii) reimbursement to the Vendor of its costs, liabilities, expenses and accounts in relation to such replacement or repair work; and

(iii) the remainder (if any) shall be paid to the Vendor,

but this provision shall not affect liabilities or obligations under this Contract.

E4 TESTS ON SITE

Where the Contract requires the Vendor to carry out tests on Site, the Purchaser will provide when requested, free of charge, such labour, materials, electricity, gas, fuel, water, stores, apparatus, instruments or other items as may be required from time to time and as may be reasonably demanded to carry out such tests of the plant or workmanship in accordance with this Agreement. Site tests shall be carried out within one (1) month after completion of erection. The Vendor will give the Purchaser twenty four (24) hours' notice of the date on which tests will be carried out. If the Purchaser fails to attend on that date, unless otherwise arranged, the Vendor will proceed with the tests which shall be deemed to have taken place in the Purchaser's presence such that the outcome of the test will be deemed to be accepted by the Purchaser.

Where the results of such tests do not fall within any guarantees specified, the Vendor reserves the right to repeat the tests within fourteen (14) days after the date when the plant is ready for retest.

E5 TIME OF TAKING OVER

The Contract Works shall be deemed to have been taken over by Purchaser when erection has been completed or on completion of tests on site under clause E4 when these are included or one calendar month after it shall have been put into commercial use (whichever may be the earlier). Provided that in any case the Contract Works shall be deemed to have been taken over at the expiration of two calendar months after Vendor gives the Purchaser written notice that erection is complete.

The time of taking over shall not be delayed on account of additions, minor omissions, or defects, which do not materially affect the commercial use of the Contract Works.

E6 EXTRA COSTS

Any agreement by the Vendor to undertake Contract Works is based on the assumption that all civil work or other preparatory work for which the Purchaser is responsible has been completed and that the installation can be carried out with continuity during normal working hours. Should the Vendor incur extra costs or other expenses including reasonable overheads because of interruptions, delays, overtime, unusual hours, mistakes, or work for which the Vendor is not responsible under this Agreement, such extra cost, expense or reasonable overhead will be added to the price to be paid to the Vendor by the Purchaser, it being agreed, however, that overtime or unusual hours shall not be worked except with the prior arrangement of Purchaser's representative. Cost will have the same meaning as set out in clause 10.12.

E7 TIME OF COMPLETION

For contracts including erection, the delivery date shall include the addition of the period of time set out in the contract for erection or any agreed extension thereof.

E8 APPROVALS BY AUTHORITIES

The Purchaser shall obtain all such permits, consents or approvals as required by law for on in connection with the execution of the Contract Works and pay all fees therefore.

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