Electrifying New Zealand – in a safe, smart and sustainable way

Product Catalogue – Edition 1



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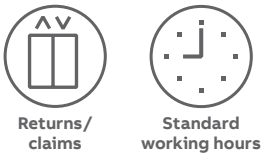


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Sales and Service icon legend

- 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:
8.30am – 5pm

Winter – Standard time:
8.30am – 5pm

Emergency

Outside standard working hours
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Residential and Light Commercial

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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 and Light Commercial

Miniature circuit breakers



Miniature circuit breakers – Residential and Light Commercial

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

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			

Residential and Light Commercial

Residual current devices (RCCB)



Residual current device (RCCB) – Residential and Light Commercial

- 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 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					

DSN201E

Ordering data



DSN201E: 1P+N eRCBO
Function: protection and control of the circuits against overloads and short-circuits; protection against the effects of sinusoidal alternating and direct pulsating earth fault currents; protection against indirect contact and additional protection against direct contact ($I_{\Delta n}$ = 30 mA). The neutral is switched.
Applications: residential, commercial, industrial
Standard: IEC/EN 61009-1; IEC 61009-2-2; AS/NZS 61009.1

N. poles	Breaking capacity	Type	Sensitivity $I_{\Delta n}$ mA	Tripping Char.	Rated Current I_n A	EAN	Order details Type code	Order details Order code	Weight 1 piece kg	Pack unit pc.
1+N	6 kA	A	10	C	6	4022903005049	DSN201E C6 A10	2CDB352501R0064	0.125	1
			10		10	4022903005056	DSN201E C10 A10	2CDB352501R0104	0.125	1
			10		13	4022903005063	DSN201E C13 A10	2CDB352501R0134	0.125	1
			10		16	4022903005070	DSN201E C16 A10	2CDB352501R0164	0.125	1
			10		20	4022903005087	DSN201E C20 A10	2CDB352501R0204	0.125	1
			10		25	4022903005094	DSN201E C25 A10	2CDB352501R0254	0.125	1
			10		32	4022903005100	DSN201E C32 A10	2CDB352501R0324	0.125	1
			30	C	6	4022903005186	DSN201E C6 A30	2CDB352501R1064	0.125	1
			30		10	4022903005193	DSN201E C10 A30	2CDB352501R1104	0.125	1
			30		13	4022903005209	DSN201E C13 A30	2CDB352501R1134	0.125	1
			30		16	4022903005216	DSN201E C16 A30	2CDB352501R1164	0.125	1
			30		20	4022903005223	DSN201E C20 A30	2CDB352501R1204	0.125	1
			30		25	4022903005230	DSN201E C25 A30	2CDB352501R1254	0.125	1
			30		32	4022903005247	DSN201E C32 A30	2CDB352501R1324	0.125	1

N. poles	Breaking capacity	Type	Sensitivity $I_{\Delta n}$ mA	Tripping Char.	Rated Current I_n A	EAN	Order details Type code	Order details Order code	Weight 1 piece kg	Pack unit pc.
1+N	10 kA	A	10	C	6	4022903023227	DSN201E M C6 A10	2CDB353501R0064	0.125	1
			10		10	4022903023296	DSN201E M C10 A10	2CDB353501R0104	0.125	1
			10		13	4022903023302	DSN201E M C13 A10	2CDB353501R0134	0.125	1
			10		16	4022903023319	DSN201E M C16 A10	2CDB353501R0164	0.125	1
			10		20	4022903023326	DSN201E M C20 A10	2CDB353501R0204	0.125	1
			30	C	6	4022903023388	DSN201E M C6 A30	2CDB353501R1064	0.125	1
			30		10	4022903023395	DSN201E M C10 A30	2CDB353501R1104	0.125	1
			30		13	4022903023401	DSN201E M C13 A30	2CDB353501R1134	0.125	1
			30		16	4022903023418	DSN201E M C16 A30	2CDB353501R1164	0.125	1
			30		20	4022903023425	DSN201E M C20 A30	2CDB353501R1204	0.125	1

Residential and Light Commercial

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, 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	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
230–240 V			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

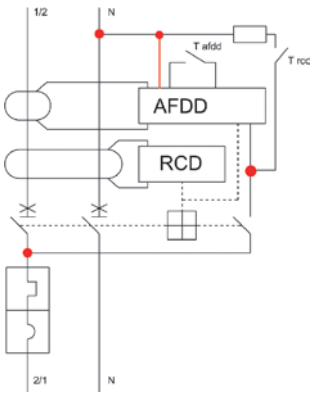


DS-ARC1 AFDD with integrated RCBO

DS-ARC1, 6kA

Number of poles	Rated residual currrent IΔm mA	Charac-teristics	Rated current I_n A	Bbn 8012542 EAN	Ordering details Type code	Order code	Weight 1 pcs kg	Pkg qty pce
1P+N	30	C	6	736110	DS-ARC1 C6 A30	2CSA255103R1064	0.240	1
			10	735212	DS-ARC1 C10 A30	2CSA255103R1104	0.240	1
			13	748311	DS-ARC1 C13 A30	2CSA255103R1134	0.240	1
			16	611110	DS-ARC1 C16 A30	2CSA255103R1164	0.240	1
			20	735113	DS-ARC1 C20 A30	2CSA255103R1204	0.240	1

DS-ARC1 M, 10 kA



Number of poles	Rated residual currrent IΔm mA	Charac-teristics	Rated current I_n A	Bbn 8012542 EAN	Ordering details Type code	Order code	Weight 1 pcs kg	Pkg qty pce
1P+N	30	C	6	734314	DS-ARC1 M C6 A30	2CSA275103R1064	0.240	1
			10	733416	DS-ARC1 M C10 A30	2CSA275103R1104	0.240	1
			13	748113	DS-ARC1 M C13 A30	2CSA275103R1134	0.240	1
			16	611011	DS-ARC1 M C16 A30	2CSA275103R1164	0.240	1
			20	748014	DS-ARC1 M C20 A30	2CSA275103R1204	0.240	1

Residential products

S-ARC1



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,						
EN 61643-11	20	1	0.9	50	OVRT2-T3 20-275P QS SPD 20kA	2CTB803871R2400
Nominal voltage	40	1	1.25	50	OVR T2 40-275PTS QS SPD 40kA	2CTB803871R1700
230/400 V	**Additional features**					
Max. cont. operating voltage	Surge Protection Device					
275 V	Protection against indirect lightning strikes and transient overvoltages					
	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 <?> in the Modular DIN rail components section of this catalogue.

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

Residential products

DBT Timer digital time switches



DY365



DW1



DWA1



DWTL1

DBT Timer digital time switches
The unique design, with white backlight LCD display, and extreme ease of use with only four buttons, make DBT Timer ideal to automate the installation functions. The possibility to configure all digital devices via DBT Timer APP and Bluetooth connection makes the configuration and installation time even shorter. DBT Timer digital time switches are equipped with large capacity internal battery to maintain operation without power supply in order to avoid the risk of program loss and to maintain the time settings in case of power failure, respective of its duration. DBT Timer digital time switches are equipped with various functions such as the impulse, cycle, random and holiday function.

Digital yearly time switch - DY365
DY365 is the digital yearly time switch with 2 channels from DBT Timer range. Thanks to the two extension channel units DY365 4CE and DY365 2CE, DY365 is able to control up to 8 channels. DY365 can be coupled with DY GPS antenna to allow synchronization received from the Global Positioning System or with DY DCF77 antenna that allows an automatic synchronization of the digital time switch with the Frankfurt DCF77 time signal.

Digital weekly time switch - DW
DW1 and DW2 are weekly digital time switches with 1 and 2 channels, respectively. They allow exclusion of the normal weekly program in every week with the same mode.

Digital weekly astronomical time switch - DWA
The astronomical switches DWA1 and DWA2, respectively, with 1 and 2 channels, automatically control lighting circuits depending on the time of sunrise and sunset, greatly increasing energy efficiency. The programming is in fact based on a mathematical algorithm able to calculate the time of the rising and setting of the sun in a certain location for each day of the year. Once powered the device, simply insert date, time, geographical coordinates and time zone so that it is ready to work. These settings can also be automatically defined using the DBT Timer APP. The installation of astronomical digital time switches is particularly useful when using a twilight switch with external sensor is not recommended because it may be subject to malfunctions caused by air pollution, excessive brightness or vandalism. DWA1 and DWA2 are also indicated for the control of public lighting, shop windows of shops, neon signs, monuments, facades, illuminated fountains, ...

Digital weekly twilight time switch - DWTL1
DWTL1 is digital time switch with astronomical function and external luminosity probe DWS indicated for the management of the lighting system, luminous signs. Digital weekly twilight switch with 1 channel allows the exclusion of the weekly programming. DWTL1 can be configured as astronomical with probe switch which initial configuration requires the activation of the load from sunset to sunrise and during the daytime hours in case of low light. Also,it can be used as programmable twilight switch in which activation of the load occurs when the probe detects a low light condition in case that daily or weekly programming requires it.

Version	Bbn 8012542	Order details		Price 1	Weight 1 piece	Pack unit
	EAN	Type code	Order code	piece	kg	pc.
Yearly time switch, 2 channels	212010	DY365	2CSM221201R1000		0.250	1
Weekly time switch, 1 channel	225317	DW1	2CSM222531R1000		0.129	1
Weekly time switch, 2 channels	225218	DW2	2CSM222521R1000		0.152	1
Weekly astronomical time switch, 1 channel	225119	DWA1	2CSM222511R1000		0.129	1
Weekly astronomical time switch, 2 channels	225010	DWA2	2CSM222501R1000		0.152	1
Weekly twilight time switch, 1 channel	224914	DWTL1	2CSM222491R1000		0.160	1

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 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), 3A inductive	2 : 15000	1 C/O	1080W	720W	200W	2	T1PLUS

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

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

Miniature circuit breakers (MCB)

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27	S200MUC
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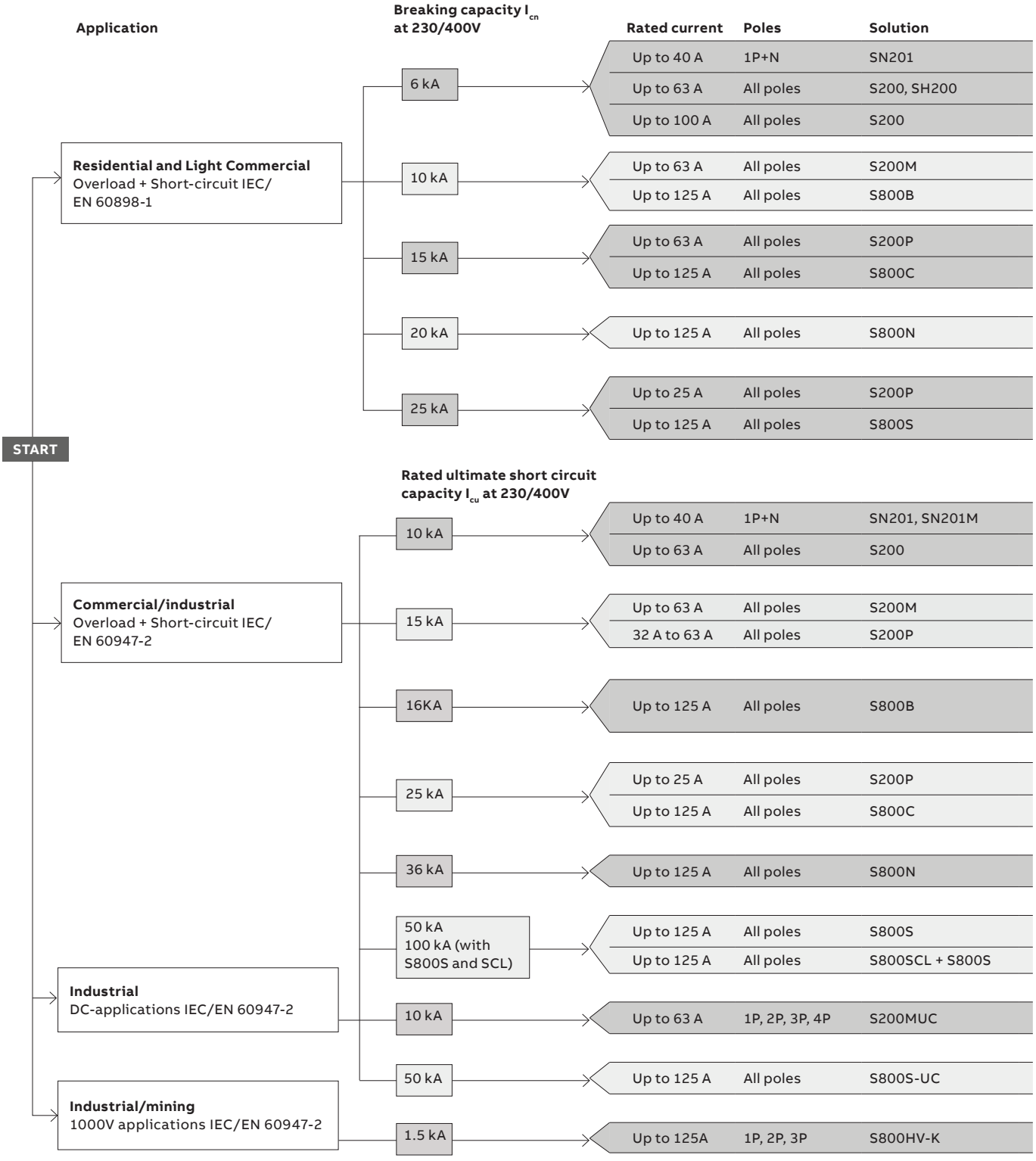
For more detailed product information, please refer to the Technical Catalogue:

- 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				SH 201	S 200	S 200 M	S 200MUC	S 200 P		SN 201	SN 201 M	S 200
Characteristics				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 ≤ 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	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										

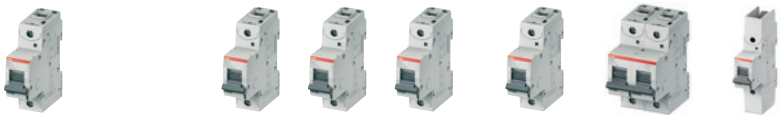
1) ≤ 40 A
2) > 40 A

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Miniature circuit breakers

Selection table

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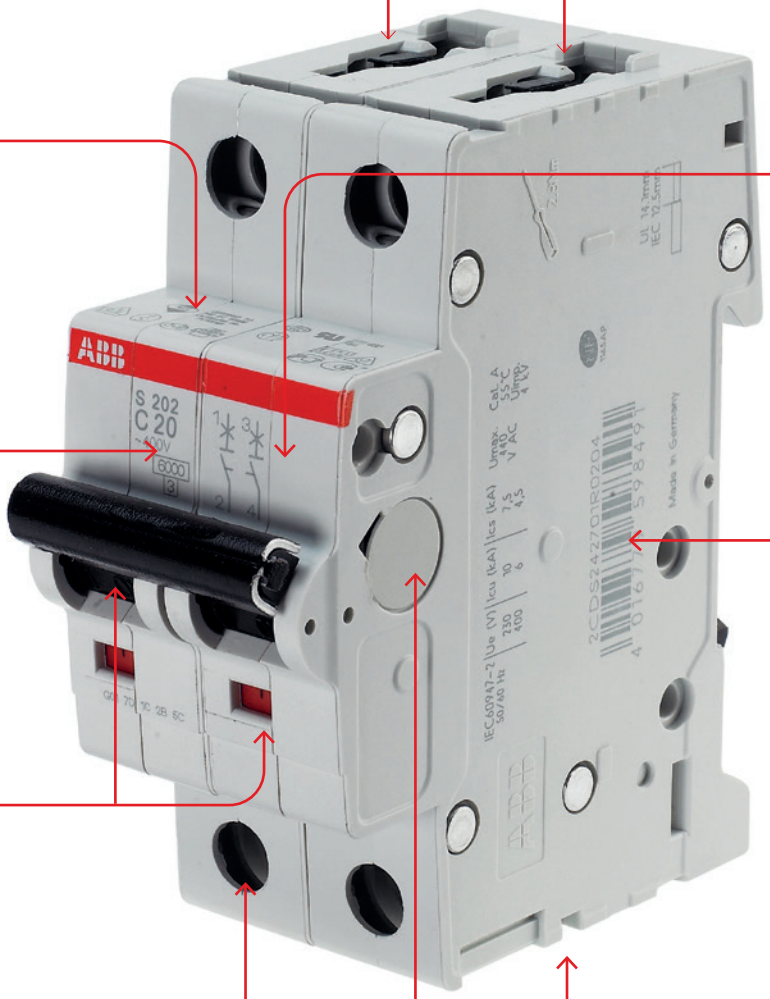


Series				S800S					S800N	S800C	S800B	S800U	S800PV-SP	S800HV	
Characteristics				B, C, D	K	KM	UCB	UCK	B, C, D	B, C, D, K	B, C, D, K	Z, K, UCZ, PVS	PV-S	K	
Rated current	**[A]**			6 ≤ In 63	6 ≤ In 63	20 ≤ In 63	10 ≤ In 63	10 ≤ In 63	6 ≤ In 63	10 ≤ In 63	10 ≤ In ≤ 63	5 ≤ In ≤ 100	10 ≤ In ≤ 125	6 ≤ In ≤ 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



				SH 200	S 200	S 200 M
General data	Standards			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, 2P, 3P, 4P	1P, 2P, 3P, 4P, 1P+N, 3P+N	
	Tripping characteristics			C	B, C, D, K, Z	
	Rated current In	A		6…63 A	0.5…63 A	
	Rated frequency f	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)	
	Overvoltage category				III	
	Pollution degree				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: 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; 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				
	Rated short-circuit capacity I_{cn}	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

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Miniature circuit breakers

S200 technical features



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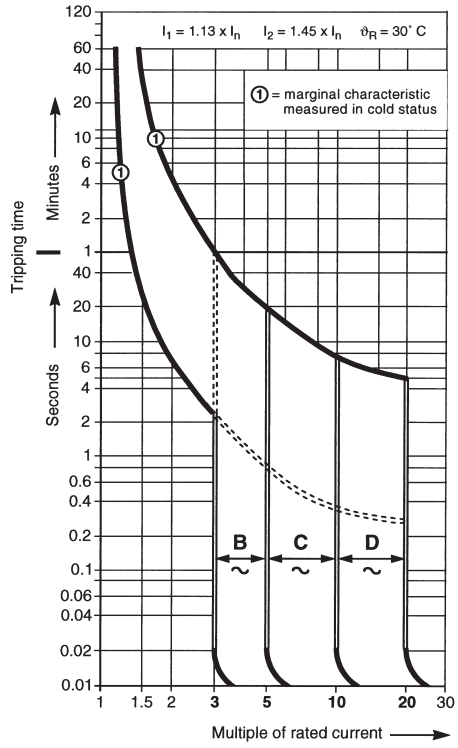
					SH 200	S 200	S 200 M
Mechanical data	Housing			Insulation group II, RAL 7035			
	Toggle			Insulation group II, black, sealable			
	Contact position indication			Marking on toggle (I ON / 0 OFF), Real CPI (red ON / green OFF)			
	Protection degree acc. to EN 60529			IP20**, IP40 in enclosure with cover			
	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	mm²	–	35 mm² / 35 mm²	35 mm² / 35 mm²	
		Flexible	mm²	–	25 mm² / 25 mm²	25 mm² / 25 mm²	14 - 4 AWG
	Cross-section of busbars (top / bottom)		mm²		10 mm²	10 mm² / 10 mm²	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

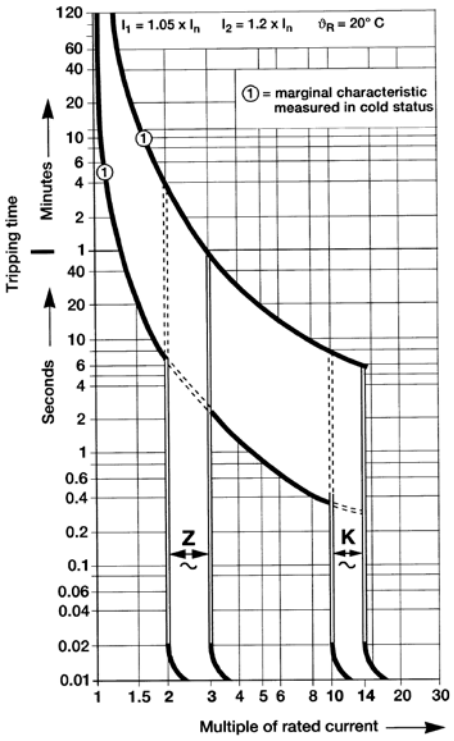
Miniature circuit breakers

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

Miniature circuit breakers

SH200



Miniature circuit breakers (MCB) 6kA – Residential and Light Commercial

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

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			

Miniature circuit breakers

SN200



SN 201

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

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

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

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

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

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	Order code 1 Pole	2 Pole	3 Pole	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

MCBs

S 300 series P-C characteristic



S 301 P



S 302 P

S 300 P-C characteristic NEW

Function: protection and control of the circuits against overloads and short-circuits; protection for people and large length of cables in TN and IT systems.

Applications: commercial and industrial.

Standard: IEC/EN 60898-1, IEC/EN 60947-2

Icu=25 kA; 100 kA (≤6 A)

Icn=25 kA (≤25 A); 20 kA (32-40 A); 15 kA (>40 A);

Number of poles	Rated current In A	Bbn 401677 EAN	Order details		Price 1 piece	Weight 1 piece kg	Pack unit pc.
			Type code	Order code			
1	0,5	9079891	S301P-C0,5	2CDS381001R0984		0.124	10
	1	9080675	S301P-C1	2CDS381001R0014		0.124	10
	1,6	9079914	S301P-C1,6	2CDS381001R0974		0.124	10
	2	9080651	S301P-C2	2CDS381001R0024		0.124	10
	3	9080637	S301P-C3	2CDS381001R0034		0.124	10
	4	9080613	S301P-C4	2CDS381001R0044		0.124	10
	6	9080590	S301P-C6	2CDS381001R0064		0.124	10
	8	9080569	S301P-C8	2CDS381001R0084		0.124	10
	10	9080538	S301P-C10	2CDS381001R0104		0.124	10
	13	9080491	S301P-C13	2CDS381001R0134		0.124	10
	16	9080446	S301P-C16	2CDS381001R0164		0.124	10
	20	9080408	S301P-C20	2CDS381001R0204		0.124	10
	25	9080354	S301P-C25	2CDS381001R0254		0.124	10
	32	9080262	S301P-C32	2CDS381001R0324		0.124	10
	40	9080194	S301P-C40	2CDS381001R0404		0.124	10
	50	9080071	S301P-C50	2CDS381001R0504		0.124	10
	63	9079945	S301P-C63	2CDS381001R0634		0.124	10
2	0,5	9078306	S302P-C0,5	2CDS382001R0984		0.248	5
	1	9079082	S302P-C1	2CDS382001R0014		0.248	5
	1,6	9078320	S302P-C1,6	2CDS382001R0974		0.248	5
	2	9079068	S302P-C2	2CDS382001R0024		0.248	5
	3	9079044	S302P-C3	2CDS382001R0034		0.248	5
	4	9079020	S302P-C4	2CDS382001R0044		0.248	5
	6	9079006	S302P-C6	2CDS382001R0064		0.248	5
	8	9078979	S302P-C8	2CDS382001R0084		0.248	5
	10	9078948	S302P-C10	2CDS382001R0104		0.248	5
	13	9078900	S302P-C13	2CDS382001R0134		0.248	5
	16	9078856	S302P-C16	2CDS382001R0164		0.248	5
	20	9078818	S302P-C20	2CDS382001R0204		0.248	5
	25	9078764	S302P-C25	2CDS382001R0254		0.248	5
	32	9078672	S302P-C32	2CDS382001R0324		0.248	5
	40	9078603	S302P-C40	2CDS382001R0404		0.248	5
	50	9078481	S302P-C50	2CDS382001R0504		0.248	5
	63	9078351	S302P-C63	2CDS382001R0634		0.248	5

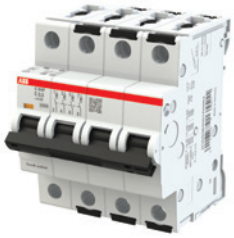
MCBs

S 300 series P-C characteristic

NEW



S 303 P



S 304 P

Number of poles	Rated current In A	Bbn 401677 EAN	Order details		Price 1 piece	Weight 1 piece kg	Pack unit pc.
			Type code	Order code			
3	0,5	9077507	S303P-C0,5	2CDS383001R0984		0.372	1
	1	9078283	S303P-C1	2CDS383001R0014		0.372	1
	1,6	9077521	S303P-C1,6	2CDS383001R0974		0.372	1
	2	9078269	S303P-C2	2CDS383001R0024		0.372	1
	3	9078245	S303P-C3	2CDS383001R0034		0.372	1
	4	9078221	S303P-C4	2CDS383001R0044		0.372	1
	6	9078207	S303P-C6	2CDS383001R0064		0.372	1
	8	9078177	S303P-C8	2CDS383001R0084		0.372	1
	10	9078146	S303P-C10	2CDS383001R0104		0.372	1
	13	9078108	S303P-C13	2CDS383001R0134		0.372	1
	16	9078054	S303P-C16	2CDS383001R0164		0.372	1
	20	9078016	S303P-C20	2CDS383001R0204		0.372	1
	25	9077965	S303P-C25	2CDS383001R0254		0.372	1
	32	9077873	S303P-C32	2CDS383001R0324		0.372	1
	40	9077804	S303P-C40	2CDS383001R0404		0.372	1
	50	9077682	S303P-C50	2CDS383001R0504		0.372	1
	63	9077552	S303P-C63	2CDS383001R0634		0.372	1
4	0,5	9135511	S304P-C0,5	2CDS384001R0984		0.496	1
	1	9076685	S304P-C1	2CDS384001R0014		0.496	1
	1,6	9075923	S304P-C1,6	2CDS384001R0974		0.496	1
	2	9076661	S304P-C2	2CDS384001R0024		0.496	1
	3	9076647	S304P-C3	2CDS384001R0034		0.496	1
	4	9076623	S304P-C4	2CDS384001R0044		0.496	1
	6	9135573	S304P-C6	2CDS384001R0064		0.496	1
	8	9076579	S304P-C8	2CDS384001R0084		0.496	1
	10	9076548	S304P-C10	2CDS384001R0104		0.496	1
	13	9135566	S304P-C13	2CDS384001R0134		0.496	1
	16	9076456	S304P-C16	2CDS384001R0164		0.496	1
	20	9076418	S304P-C20	2CDS384001R0204		0.496	1
	25	9076364	S304P-C25	2CDS384001R0254		0.496	1
	32	9076272	S304P-C32	2CDS384001R0324		0.496	1
	40	9135689	S304P-C40	2CDS384001R0404		0.496	1
	50	9076081	S304P-C50	2CDS384001R0504		0.496	1
	63	9075954	S304P-C63	2CDS384001R0634		0.496	1

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 … 63	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 … 63	10 … 63	32 … 63 (Char. B, C) 32 … 63 (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						
Voltage range						
1P: 230 V AC						
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
	Additional features					
	440V rated for industrial and mining applications.domestic applications					

B, D and K curves available on request

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

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

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

S800P
Technical data



S800P

		S800P
Performance	Tripping characteristics	B, C, D, K
	Standards	IEC/EN 60947-2
	Poles	1, 2, 3, 4
	Rated current In	80 … 125 A
	Rated frequency f	50/60 Hz
	Rated insulation voltage Ui acc. to IEC/EN 60664-1 (V)	AC 690 V
	Rated impulse withstand voltage Uimp. (1.2/50 µs)	6 kV
	Overvoltage category	III
	Pollution degree	3
	Suitability for isolation	Yes
Data acc. to IEC/EN 60947-2	Rated operational voltage U_e	AC 400/690 V DC 125 V (1-pole) DC 250 V (2-pole) DC 375 V (3-pole) DC 500 V (4-pole)
	Min. operating voltage	AC 12 V
	Rated ultimate short-circuit capacity I_{cu}	AC 240/415 V = 50 kA AC 254/440 V = 30 kA AC 289/500 V = 15 kA (80 A) AC 289/500 V = 10 kA (100...125 A) AC 400/690 V = 6 kA (80 A) AC 400/690 V = 4.5 kA (100...125 A) DC 125 V (1-pole) = 30 kA DC 250 V (2-pole) = 30 kA DC 375 V (3-pole) = 30 kA DC 500 V (4-pole) = 30 kA
	Rated service short-circuit capacity I_{cs}	AC 240/415 V = 40 kA
	Reference temperature for tripping characteristics	30°C (Char. B, C, D) 40°C (Char. K)
	Electrical and Mechanical Endurance	80...100 A: 6000 electrical ops / 10000 mechanical ops 125 A: 4000 electrical ops / 8000 mechanical ops
Data acc. to IEC/EN 60898-1	Rated short-circuit capacity I_{cn}	Char. B, C, D: AC 230/400 V = 25 kA (80 A) AC 230/400 V = 15 kA (100...125 A)

S800P
Technical data



S800P

		S800P
Mechanical Data	Housing	Material group I, RAL 7035
	Toggle	Black, lockable
	Classification acc. to EN45545-2 component requirement / hazard level	R26 / HL3
	Protection degree acc. to EN 60529	IP20; IP40 (under the cover frame)
	Shock resistance acc. to IEC/EN 60068-2-27	5g / 30ms, Test Ea
	Shock resistance acc. To IEC/EN 61373	Cat 1 / Class B
	Vibration resistance acc. to IEC/EN 60068-2-6	5g / 30ms, Cat 1, Class B; Test Fc; 2 - 13.2Hz /1 mm 13.2 - 100Hz / 0.7g with load 100% x Ie
	Environmental condition (dry heat)	Acc. to IEC/EN 60068-2-2: 16 hours 70°C
	Environmental condition (damp heat)	Acc. to IEC/EN 60068-2-30: 2 cycles: 12h 55°C @98% rh; 12h 25°C @93% rh
	Environmental condition (low temp)	Acc. to IEC/EN 60068-2-1: 16 hours -25°C
	Ambient temperature	–25 … +60°C
	Storage temperature	–40 … +70°C
Installation	Terminal	Failsafe cage or ringlug terminal
	Connections (top/bottom) – Cu only	25 … 50 flexible mm² 25 … 70 Solid (Rigid / Stranded) mm²
	Tightening torque	3.5 (Nm) 31 (in-lbs)
	Screwdriver	POZI 2
	Mounting	EN 60715
	Mounting position	Any
	Supply	Any
Dimensions and Weight	Pole dimensions (H x L x W)	Please refer to dimensions diagrams pages
	Pole weight	Ca. 240 g

	S800-AUX	S800-AUX/ALT	S800-RSU-H	S800S-SCL-SR	S800-SOR	S800-UVR	DDA 800
Combination with aux. Elements	Yes	Yes	Yes	Yes	Yes	Yes	Yes

S800P
C characteristic


S800P

S800P - C Characteristic
Function: protection and control of the circuits against overloads and short-circuits when a high breaking capacity is required; protection for resistive and inductive loads with low inrush current; very useful when selectivity is needed vs an MCCB or back-up vs other MCBs wired downstream.
Applications: commercial and industrial.
Standard: IEC/EN 60947-2
Icu=50kA

Number of poles	Rated current [A]	Bbn 7612271 EAN	Order details Type Code	Order code	Weight [kg]	Pack. unit
1	80	516956	S801P-C80	2CCG001226R0001	0.245	1
	100	516963	S801P-C100	2CCG001227R0001	0.245	1
	125	516970	S801P-C125	2CCG001228R0001	0.245	1
2	80	516987	S802P-C80	2CCG001229R0001	0.490	1
	100	516994	S802P-C100	2CCG001230R0001	0.490	1
	125	517007	S802P-C125	2CCG001231R0001	0.515	1
3	80	517014	S803P-C80	2CCG001232R0001	0.740	1
	100	517021	S803P-C100	2CCG001233R0001	0.740	1
	125	517038	S803P-C125	2CCG001234R0001	0.765	1
4	80	517045	S804P-C80	2CCG001235R0001	0.980	1
	100	517052	S804P-C100	2CCG001236R0001	0.980	1
	125	517069	S804P-C125	2CCG001237R0001	1.005	1

S800P
D characteristic


S800P

S800P - D Characteristic
Function: protection and control of the circuits against overloads and short-circuits when a high breaking capacity is required; protection for circuits which supply loads with high inrush current at the circuit closing (motors, LV / LV transformers, breakdown lamps); very useful when selectivity is needed vs an MCCB or back-up vs other MCBs wired downstream.
Applications: commercial and industrial.
Standard: IEC/EN 60947-2
Icu=50kA

Number of poles	Rated current [A]	Bbn 7612271 EAN	Order details Type Code	Order code	Weight [kg]	Pack. unit
1	80	517076	S801P-D80	2CCG001238R0001	0.245	1
	100	517083	S801P-D100	2CCG001239R0001	0.245	1
	125	517090	S801P-D125	2CCG001240R0001	0.245	1
2	80	517106	S802P-D80	2CCG001241R0001	0.490	1
	100	517113	S802P-D100	2CCG001242R0001	0.490	1
	125	517120	S802P-D125	2CCG001243R0001	0.515	1
3	80	517137	S803P-D80	2CCG001244R0001	0.740	1
	100	517144	S803P-D100	2CCG001245R0001	0.740	1
	125	517151	S803P-D125	2CCG001246R0001	0.765	1
4	80	517168	S804P-D80	2CCG001247R0001	0.980	1
	100	517175	S804P-D100	2CCG001248R0001	0.980	1
	125	517182	S804P-D125	2CCG001249R0001	1.005	1

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

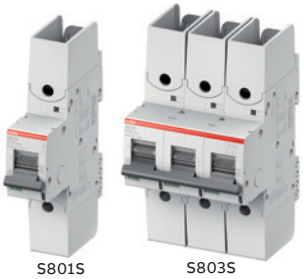
The ABB S800PVSD range of high performance isolators are designed to provide control of photovoltaic strings.

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				

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

Residual current devices RCD, RCCB, RCBO

42 Functions and classification criteria for RCDs

43 Quick selection of RCDs for household and industrial applications

47 Residual current circuit breaker (RCCB)

52 RCD Block DDA

63 Residual current relays

65 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.

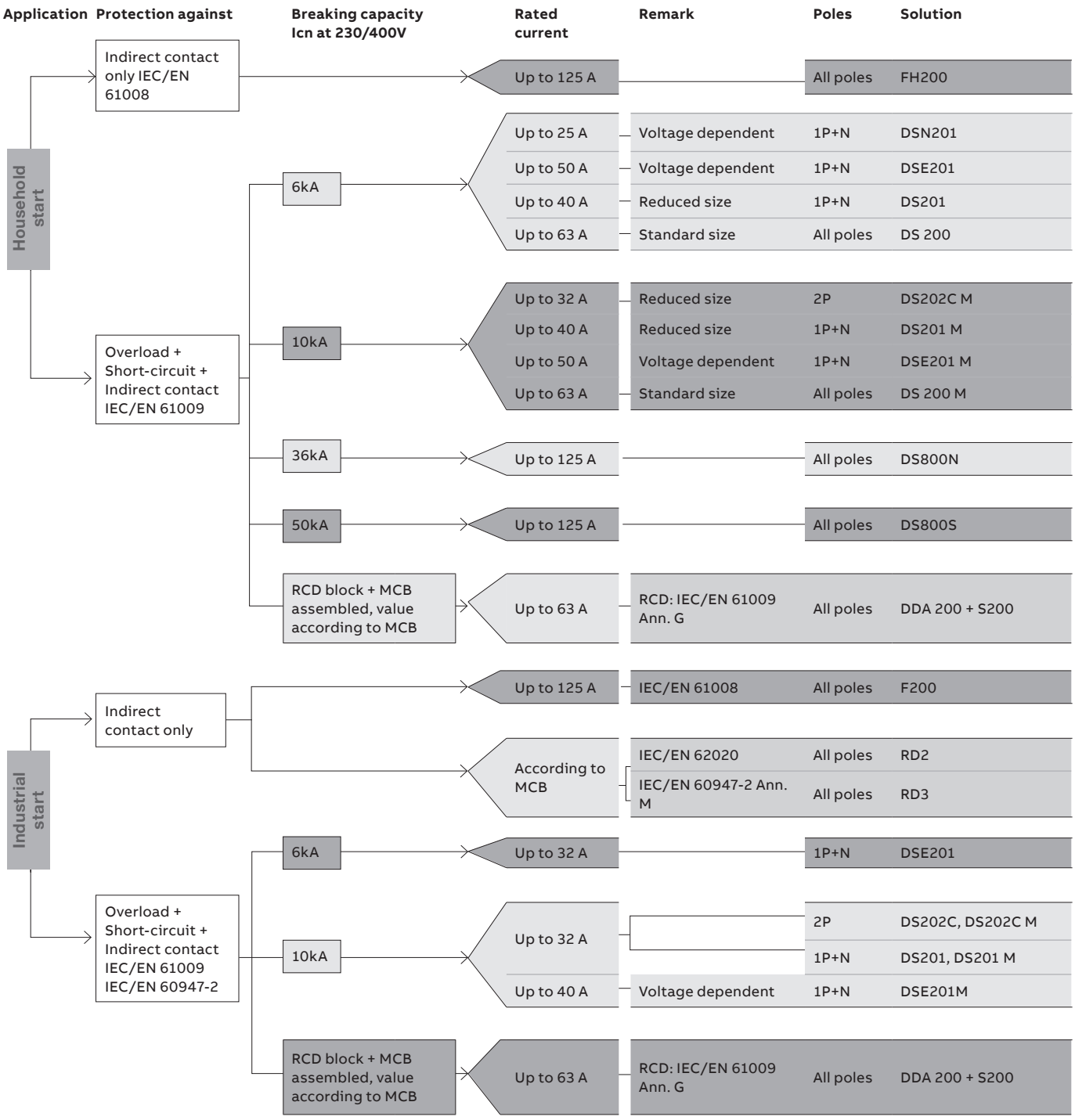
They are not sensitive to impulsive leakage currents up to a peak of 250 A (8/20 wave form) such as those which may occur due to overlapping voltage impulses on the mains (e.g.: insertion of fluorescent bulbs, X-ray equipment, data processing systems and SCR controls).

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

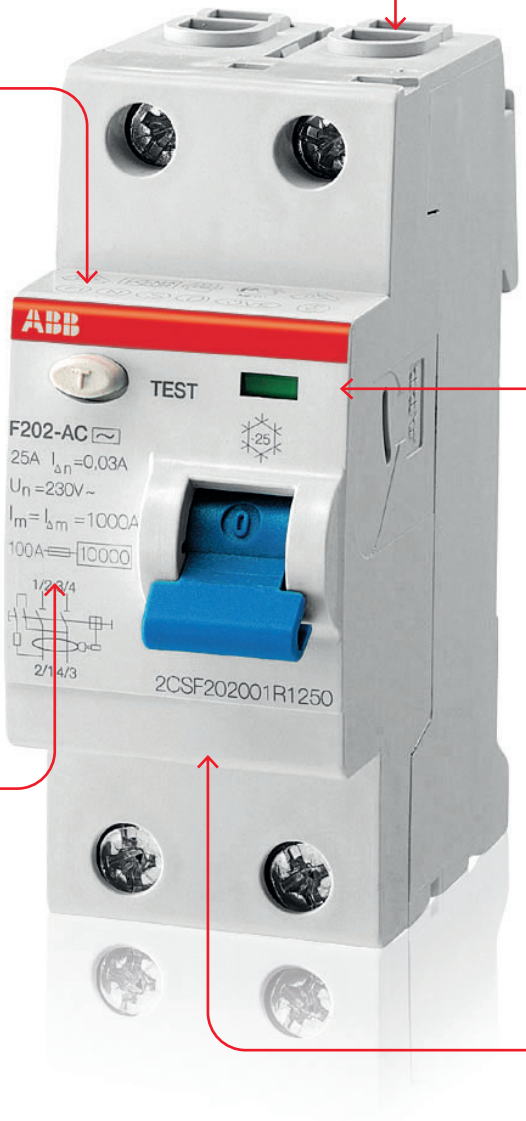
	DSN201	**DS201**	**DS201M**	**DS201M 110V**	**DS203NC**	**DSE201**	**DSE201 M**
	IEC/EN 61009	IEC/EN 61009			IEC/EN 61009	IEC/EN 61009	IEC/EN 61009
	AC, A	AC, A, AP-R			AC, A, AP-R	AC, A	A
	1P+N	1P+N			3P+N	1P+N	1P+N
	6 ≤ In ≤ 32	1 ≤ In ≤ 40			6 ≤ In ≤ 32	6 ≤ In ≤ 50	6 ≤ In ≤ 50
	230-240	230-240			400-415	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 acts (red: closed contacts; green: en contacts) independently of the toggle position.

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

narked order code on the front to make easier future orders.

Residual current devices

Residual current circuit breaker (RCCB)
FH200



Residual current device (RCCB) Type A Residential and Light Commercial

- 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 A	FH202A40	FH204A40
IEC/EN 61008		63	RCCB, 63 A, 30mA, Type A	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



RCCB F200 RCCB F200 A Type

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

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 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
		63	RCCB 63A 30mA Type AP-R	F202A63AP-R	F204A63AP-R
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				
Surge current resistance	Can be used with System pro M Compact accessories				
(8/20 wave) 3000A					

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

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

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.

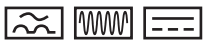
In order to meet these new demands, type B RCDs have been designed (which are able to detect the same earth fault currents detected by type AC and type A RCDs).
This type of RCD (type B) is not mentioned in the reference standards for RCDs (IEC 61008-1 and IEC 61009-1). An international standard has 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

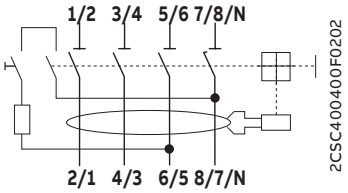
...independently of the polarity or whether the earth fault current appears suddenly or increases gradually.

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



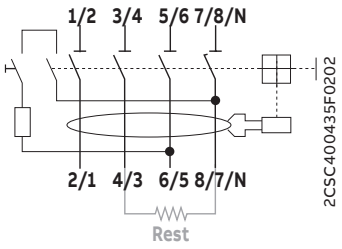
Use of a 4P RCCB in a 3-phase circuit without neutral

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

RCD-blocks

DDA 200 series A type



DDA 202



DDA 203

DDA 200 A type

Function: RCD-block for assembly on site with MCBs S 200 series. Protection against the effects of sinusoidal alternating and direct pulsating earth fault currents; protection against indirect contacts and additional protection against direct contacts (with IΔn=30 mA).

Application: residential, commercial, industrial.
Standard: IEC/EN 61009-1 Ann. G; IEC/EN 61009-2-1

Number of poles	Rated residual current IΔn mA	Rated current In A	Bbn 8012542 EAN	Order details Type code	Order code	Price 1 piece	Weight 1 piece kg	Pack unit pc.
2	10	25	795308	DDA202 A-25/0.01	2CSB202101R0250		0.180	1
	30	25	795407	DDA202 A-25/0.03	2CSB202101R1250		0.180	1
		40	795506	DDA202 A-40/0.03	2CSB202101R1400		0.180	1
		63 ②	795605	DDA202 A-63/0.03	2CSB202101R1630		0.180	1
	100	25	795704	DDA202 A-25/0.1	2CSB202101R2250		0.180	1
		40	795803	DDA202 A-40/0.1	2CSB202101R2400		0.180	1
		63 ②	795902	DDA202 A-63/0.1	2CSB202101R2630		0.180	1
	300	25	796008	DDA202 A-25/0.3	2CSB202101R3250		0.180	1
		40	796107	DDA202 A-40/0.3	2CSB202101R3400		0.180	1
		63 ②	796206	DDA202 A-63/0.3	2CSB202101R3630		0.180	1
	500	25	796305	DDA202 A-25/0.5	2CSB202101R4250		0.180	1
		40	796404	DDA202 A-40/0.5	2CSB202101R4400		0.180	1
		63 ②	796503	DDA202 A-63/0.5	2CSB202101R4630		0.180	1
	1000	25	808909	DDA202 A-25/1	2CSB202101R5250		0.180	1
		40	809005	DDA202 A-40/1	2CSB202101R5400		0.180	1
		63 ②	796602	DDA202 A-63/1	2CSB202101R5630		0.180	1

Number of poles	Rated residual current IΔn mA	Rated current In A	Bbn 8012542 EAN	Order details Type code	Order code	Price 1 piece	Weight 1 piece kg	Pack unit pc.
3	30	25	796701	DDA203 A-25/0.03	2CSB203101R1250		0.220	1
		40 ①	796800	DDA203 A-40/0.03	2CSB203101R1400		0.220	1
		63 ①②	796909	DDA203 A-63/0.03	2CSB203101R1630		0.260	1
	100	25	797005	DDA203 A-25/0.1	2CSB203101R2250		0.220	1
		40	797104	DDA203 A-40/0.1	2CSB203101R2400		0.220	1
		63 ②	797203	DDA203 A-63/0.1	2CSB203101R2630		0.260	1
	300	25	797302	DDA203 A-25/0.3	2CSB203101R3250		0.220	1
		40	797401	DDA203 A-40/0.3	2CSB203101R3400		0.220	1
		63 ②	797500	DDA203 A-63/0.3	2CSB203101R3630		0.260	1
	500	25	797609	DDA203 A-25/0.5	2CSB203101R4250		0.220	1
		40	797708	DDA203 A-40/0.5	2CSB203101R4400		0.220	1
		63 ②	797807	DDA203 A-63/0.5	2CSB203101R4630		0.260	1
	1000	25	809104	DDA203 A-25/1	2CSB203101R5250		0.220	1
		40	809203	DDA203 A-40/1	2CSB203101R5400		0.220	1
		63 ②	797906	DDA203 A-63/1	2CSB203101R5630		0.260	1

① version with test button working at 110VAC - 254VAC is available. For selection tables refer to special version paragraph.
② provided with additional terminals for remote tripping.

RCD-blocks

DDA 200 series A type



DDA 204

Number of poles	Rated residual current IΔn mA	Rated current In A	Bbn 8012542 EAN	Order details Type code	Order code	Price 1 piece	Weight 1 piece kg	Pack unit pc.
4	30	25	798002	DDA204 A-25/0.03	2CSB204101R1250		0.260	1
		40	798101	DDA204 A-40/0.03	2CSB204101R1400		0.260	1
		63 ①②	798200	DDA204 A-63/0.03	2CSB204101R1630		0.305	1
	100	25	798309	DDA204 A-25/0.1	2CSB204101R2250		0.260	1
		40	798408	DDA204 A-40/0.1	2CSB204101R2400		0.260	1
		63 ②	798507	DDA204 A-63/0.1	2CSB204101R2630		0.305	1
	300	25	798606	DDA204 A-25/0.3	2CSB204101R3250		0.260	1
		40	798705	DDA204 A-40/0.3	2CSB204101R3400		0.260	1
		63 ②	798804	DDA204 A-63/0.3	2CSB204101R3630		0.305	1
	500	25	798903	DDA204 A-25/0.5	2CSB204101R4250		0.260	1
		40	799009	DDA204 A-40/0.5	2CSB204101R4400		0.260	1
		63 ②	799108	DDA204 A-63/0.5	2CSB204101R4630		0.305	1
	1000	25	809302	DDA204 A-25/1	2CSB204101R5250		0.260	1
		40	809401	DDA204 A-40/1	2CSB204101R5400		0.260	1
		63 ②	799207	DDA204 A-63/1	2CSB204101R5630		0.305	1

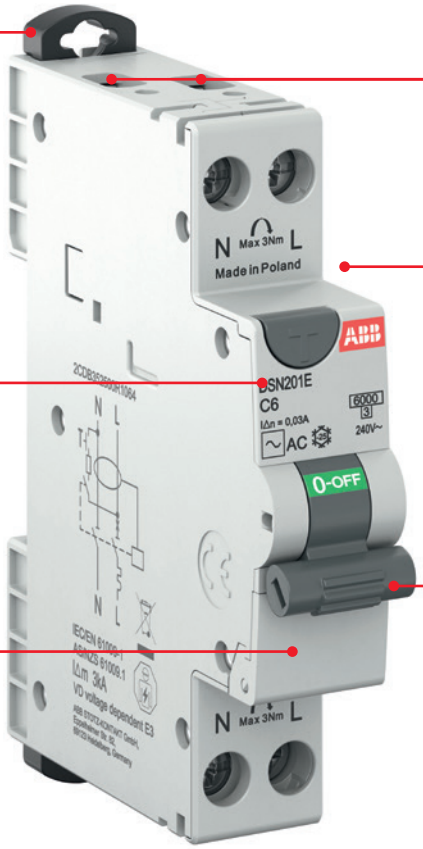
① version with test button working at 110VAC - 254VAC is available. For selection tables refer to special version paragraph.
② provided with additional terminals for remote tripping.

DSN201E
Product at a glance

High performance clips
To facilitate the mounting and dismounting operation, guaranteeing an easy removal from a battery of device supplied with busbars.

Technical information
Main technical information are printed on the front side, visible also when the device is installed.

Dedicated space for label
Dedicated space to insert labels in order to clearly identify the protected lines.



Easy supply
Supply possible from top and bottom side, either with cables or busbars. The neutral is switched

Combination with accessories
Possibility to mount signal and auxiliary contacts of G2C series on right side.

Guaranteed security
Indication of the contacts status with I-0N/0-FF indication in green/red on the toggle.

DSN201E

Ordering data



DSN201E: 1P+N eRCBO
Function: protection and control of the circuits against overloads and short-circuits; protection against the effects of sinusoidal alternating and direct pulsating earth fault currents; protection against indirect contact and additional protection against direct contact ($I_{\Delta n}$ = 30 mA). The neutral is switched.
Applications: residential, commercial, industrial
Standard: IEC/EN 61009-1; IEC 61009-2-2; AS/NZS 61009.1

N. poles	Breaking capacity	Type	Sensitivity $I_{\Delta n}$ mA	Tripping Char.	Rated Current I_n A	EAN	Order details Type code	Order details Order code	Weight 1 piece kg	Pack unit pc.
1+N	6 kA	A	10	C	6	4022903005049	DSN201E C6 A10	2CDB352501R0064	0.125	1
			10		10	4022903005056	DSN201E C10 A10	2CDB352501R0104	0.125	1
			10		13	4022903005063	DSN201E C13 A10	2CDB352501R0134	0.125	1
			10		16	4022903005070	DSN201E C16 A10	2CDB352501R0164	0.125	1
			10		20	4022903005087	DSN201E C20 A10	2CDB352501R0204	0.125	1
			10		25	4022903005094	DSN201E C25 A10	2CDB352501R0254	0.125	1
			10		32	4022903005100	DSN201E C32 A10	2CDB352501R0324	0.125	1
			30	C	6	4022903005186	DSN201E C6 A30	2CDB352501R1064	0.125	1
			30		10	4022903005193	DSN201E C10 A30	2CDB352501R1104	0.125	1
			30		13	4022903005209	DSN201E C13 A30	2CDB352501R1134	0.125	1
			30		16	4022903005216	DSN201E C16 A30	2CDB352501R1164	0.125	1
			30		20	4022903005223	DSN201E C20 A30	2CDB352501R1204	0.125	1
			30		25	4022903005230	DSN201E C25 A30	2CDB352501R1254	0.125	1
			30		32	4022903005247	DSN201E C32 A30	2CDB352501R1324	0.125	1

N. poles	Breaking capacity	Type	Sensitivity $I_{\Delta n}$ mA	Tripping Char.	Rated Current I_n A	EAN	Order details Type code	Order details Order code	Weight 1 piece kg	Pack unit pc.
1+N	10 kA	A	10	C	6	4022903023227	DSN201E M C6 A10	2CDB353501R0064	0.125	1
			10		10	4022903023296	DSN201E M C10 A10	2CDB353501R0104	0.125	1
			10		13	4022903023302	DSN201E M C13 A10	2CDB353501R0134	0.125	1
			10		16	4022903023319	DSN201E M C16 A10	2CDB353501R0164	0.125	1
			10		20	4022903023326	DSN201E M C20 A10	2CDB353501R0204	0.125	1
			30	C	6	4022903023388	DSN201E M C6 A30	2CDB353501R1064	0.125	1
			30		10	4022903023395	DSN201E M C10 A30	2CDB353501R1104	0.125	1
			30		13	4022903023401	DSN201E M C13 A30	2CDB353501R1134	0.125	1
			30		16	4022903023418	DSN201E M C16 A30	2CDB353501R1164	0.125	1
			30		20	4022903023425	DSN201E M C20 A30	2CDB353501R1204	0.125	1

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



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

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

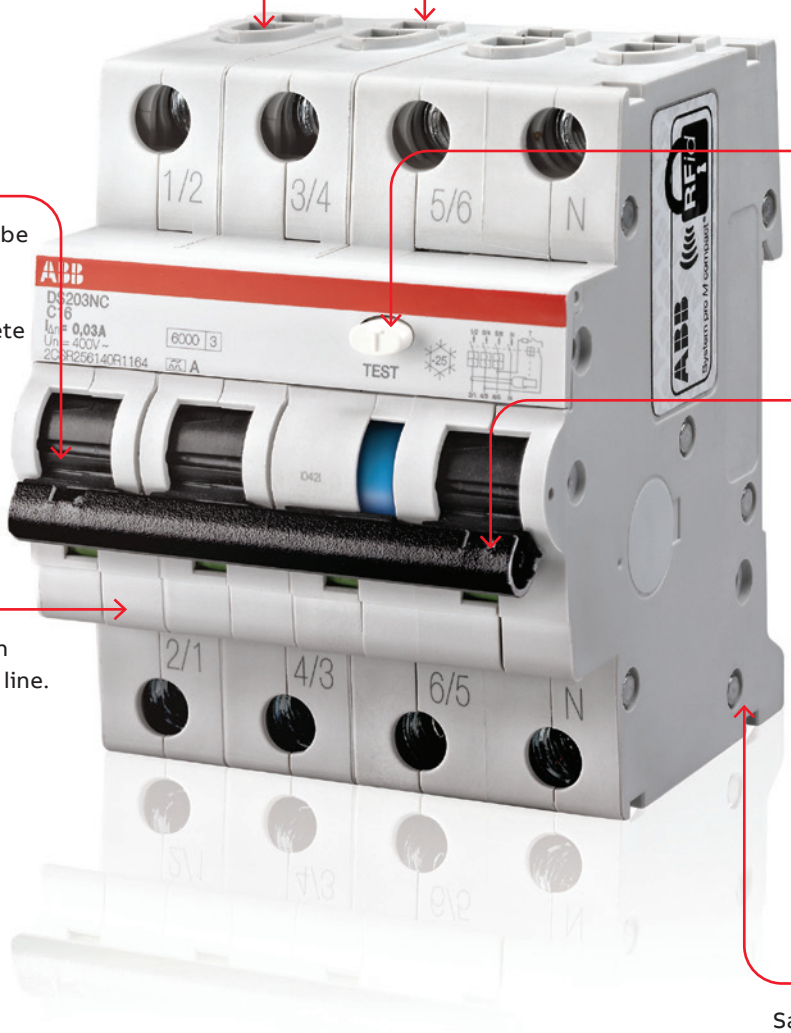
The effective choice

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
	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

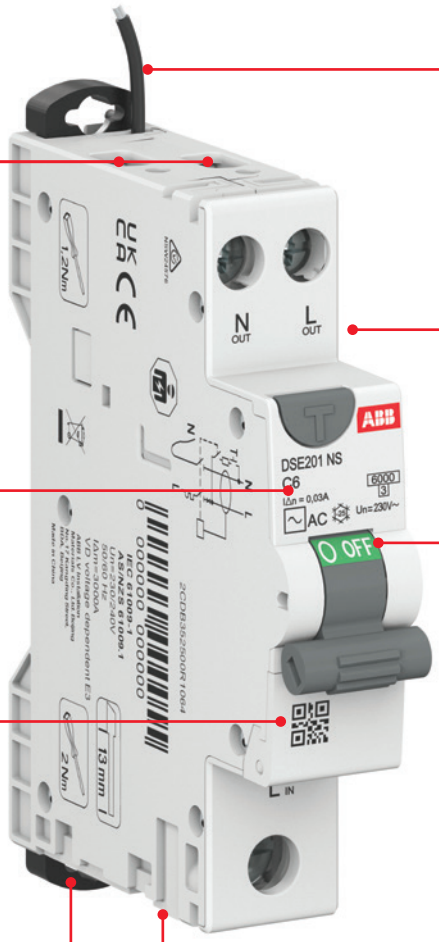
DSE201 NS
Product at a glance

Load side
Load side from the top.

Technical information
Main technical information are printed on the front side, visible also when the device is installed.

QR code on the front side
Redirecting to ABB product page for a quick access to all product information.

High performance clips
To facilitate the mounting and dismounting operation, guaranteeing an easy removal from a battery of device supplied with busbars.



Switched neutral
Neutral supply from the top with solid cable. The neutral is Switched, adding to the device additional protection.

Combination with accessories
Possibility to mount signal and auxiliary contacts of G2C series on right side.

Guaranteed security
Indication of the contacts status with I-0N/0-FF indication in green/red on the toggle.

Supply side
Phase supply from the bottom for easy installation in chassis distribution boards.

DSE201 NS

Ordering data



DSE201 NS: 1P+N eRCBO
Function: protection and control of the circuits against overloads and short-circuits; protection against the effects of sinusoidal alternating and direct pulsating earth fault currents; protection against indirect contact and additional protection against direct contact ($I_{\Delta n}$ = 30 mA). The neutral is switched. Voltage dependent RCBO.
Applications: Residential, commercial, industrial
Standard: IEC 61009-1; IEC 61009-2-2; AS/NZS 61009.1

N. poles	Breaking capacity	Type	Sensitivity $I_{\Delta n}$ mA	Tripping Char.	Rated Current I_n A	EAN	Order details		Weight 1 piece kg	Pack unit pc.
							Type code	Order code		
1P+N	6 kA	AC	30 mA	B	6	5411815227363	DSE201 B6 AC30 NS	2CDB342500R1065	0.187	1
					10	5411815227370	DSE201 B10 AC30 NS	2CDB342500R1105	0.187	1
					13	4022903017479	DSE201 B13 AC30 NS	2CDB342500R1135	0.187	1
					16	5411815227387	DSE201 B16 AC30 NS	2CDB342500R1165	0.187	1
					20	5411815227394	DSE201 B20 AC30 NS	2CDB342500R1205	0.187	1
					25	5411815227400	DSE201 B25 AC30 NS	2CDB342500R1255	0.187	1
					32	5411815227417	DSE201 B32 AC30 NS	2CDB342500R1325	0.187	1
				C	6	5411815227424	DSE201 C6 AC30 NS	2CDB342500R1064	0.187	1
					10	5411815227431	DSE201 C10 AC30 NS	2CDB342500R1104	0.187	1
					13	4022903017486	DSE201 C13 AC30 NS	2CDB342500R1134	0.187	1
					16	5411815227448	DSE201 C16 AC30 NS	2CDB342500R1164	0.187	1
					20	5411815227455	DSE201 C20 AC30 NS	2CDB342500R1204	0.187	1
					25	5411815227462	DSE201 C25 AC30 NS	2CDB342500R1254	0.187	1
					32	5411815227479	DSE201 C32 AC30 NS	2CDB342500R1324	0.187	1
		A	10 mA	B	6	4022903017493	DSE201 B6 A10 NS	2CDB342501R0065	0.187	1
					10	4022903017509	DSE201 B10 A10 NS	2CDB342501R0105	0.187	1
					13	4022903017516	DSE201 B13 A10 NS	2CDB342501R0135	0.187	1
					16	4022903017523	DSE201 B16 A10 NS	2CDB342501R0165	0.187	1
					20	4022903017530	DSE201 B20 A10 NS	2CDB342501R0205	0.187	1
					25	4022903017547	DSE201 B25 A10 NS	2CDB342501R0255	0.187	1
					32	4022903017554	DSE201 B32 A10 NS	2CDB342501R0325	0.187	1
				C	6	4022903017561	DSE201 C6 A10 NS	2CDB342501R0064	0.187	1
					10	5411815227554	DSE201 C10 A10 NS	2CDB342501R0104	0.187	1
					13	4022903017578	DSE201 C13 A10 NS	2CDB342501R0134	0.187	1
					16	5411815227578	DSE201 C16 A10 NS	2CDB342501R0164	0.187	1
					20	5411815227592	DSE201 C20 A10 NS	2CDB342501R0204	0.187	1
					25	4022903017585	DSE201 C25 A10 NS	2CDB342501R0254	0.187	1
					32	4022903017592	DSE201 C32 A10 NS	2CDB342501R0324	0.187	1
			30 mA	B	6	5411815227486	DSE201 B6 A30 NS	2CDB342501R1065	0.187	1
					10	5411815227493	DSE201 B10 A30 NS	2CDB342501R1105	0.187	1
					13	4022903017608	DSE201 B13 A30 NS	2CDB342501R1135	0.187	1
					16	5411815227509	DSE201 B16 A30 NS	2CDB342501R1165	0.187	1
					20	5411815227516	DSE201 B20 A30 NS	2CDB342501R1205	0.187	1
					25	5411815227523	DSE201 B25 A30 NS	2CDB342501R1255	0.187	1
					32	5411815227530	DSE201 B32 A30 NS	2CDB342501R1325	0.187	1
				C	6	5411815227547	DSE201 C6 A30 NS	2CDB342501R1064	0.187	1
					10	5411815227561	DSE201 C10 A30 NS	2CDB342501R1104	0.187	1
					13	4022903017615	DSE201 C13 A30 NS	2CDB342501R1134	0.187	1
					16	5411815227585	DSE201 C16 A30 NS	2CDB342501R1164	0.187	1
					20	5411815227608	DSE201 C20 A30 NS	2CDB342501R1204	0.187	1
					25	5411815227615	DSE201 C25 A30 NS	2CDB342501R1254	0.187	1
					32	5411815227622	DSE201 C32 A30 NS	2CDB342501R1324	0.187	1

DSE201 NS

Ordering data

N. poles	Breaking capacity	Type	Sensitivity $I_{\Delta n}$ mA	Tripping Char.	Rated Current I_n A	EAN	Order details		Weight 1 piece kg	Pack unit pc.
							Type code	Order code		
1P+N	10 kA	A	10 mA	B	6	4022903017721	DSE201 M B6 A10 NS	2CDB343501R0065	0.187	1
					10	4022903017738	DSE201 M B10 A10 NS	2CDB343501R0105	0.187	1
					13	4022903017745	DSE201 M B13 A10 NS	2CDB343501R0135	0.187	1
					16	4022903017752	DSE201 M B16 A10 NS	2CDB343501R0165	0.187	1
					20	4022903017769	DSE201 M B20 A10 NS	2CDB343501R0205	0.187	1
				C	6	4022903017776	DSE201 M C6 A10 NS	2CDB343501R0064	0.187	1
					10	4022903022497	DSE201 M C10 A10 NS	2CDB343501R0104	0.187	1
					13	4022903017790	DSE201 M C13 A10 NS	2CDB343501R0134	0.187	1
					16	4022903022503	DSE201 M C16 A10 NS	2CDB343501R0164	0.187	1
					20	4022903022510	DSE201 M C20 A10 NS	2CDB343501R0204	0.187	1
			30 mA	B	6	4022903022527	DSE201 M B6 A30 NS	2CDB343501R1065	0.187	1
					10	4022903022534	DSE201 M B10 A30 NS	2CDB343501R1105	0.187	1
					13	4022903017844	DSE201 M B13 A30 NS	2CDB343501R1135	0.187	1
					16	4022903022541	DSE201 M B16 A30 NS	2CDB343501R1165	0.187	1
					20	4022903022558	DSE201 M B20 A30 NS	2CDB343501R1205	0.187	1
				C	6	4022903022565	DSE201 M C6 A30 NS	2CDB343501R1064	0.187	1
					10	4022903022572	DSE201 M C10 A30 NS	2CDB343501R1104	0.187	1
					13	4022903017899	DSE201 M C13 A30 NS	2CDB343501R1134	0.187	1
					16	4022903022589	DSE201 M C16 A30 NS	2CDB343501R1164	0.187	1
					20	4022903022596	DSE201 M C20 A30 NS	2CDB343501R1204	0.187	1

Residual current devices

Residual current relays – DIN rail mounting



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

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

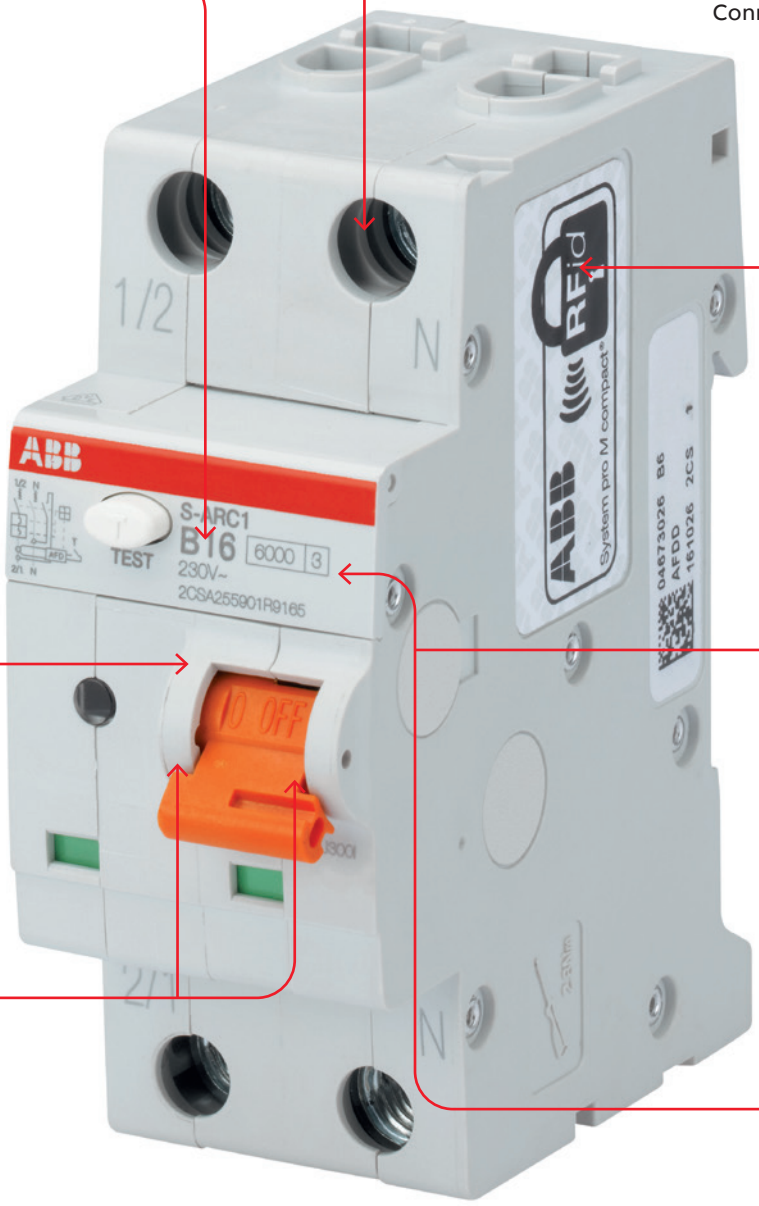
AFDD S-ARC1

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.

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				

AFDD

Arc fault detection device



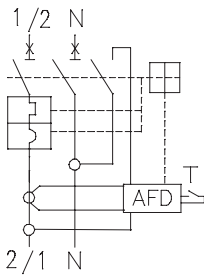
S-ARC1 C-curve 6kA

- 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

AFDD

DS-ARC1 arc fault detection device with integrated RCBO – technical data

				DS-ARC1	DS-ARC1 M
	Standards			IEC/EN 62606; IEC/EN 61009-1; IEC/EN 61009-2-1	
Electrical Functions	Type (wave form of the earth leakage sensed)			A	
	Number of poles			1P + N	
	Rated current I_n		A	6 ≤ In ≤ 20	
	Rated sensitivity IΔn		A	0.03	
	Rated voltage U_e		V	230 – 240	
	Insulation voltage U_i		V	500 V AC	
	Overvoltage category			III	
	Pollution degree			2	
	Operating voltage of RCD circuit test U_t		V	170 – 264	
	Threshold for protection against overvoltage		V	275	
	Rated frequency		Hz	50/60	
	Rated breaking capacity acc. to IEC/EN 61009-1	ultimate I_{cn}	A	6000	10000
	Rated breaking capacity acc. to IEC/EN 60947-2 (only referring to short circuit test)	ultimate I_{cu}	kA	7.5	10
		service I_{cs}	kA	6	7.5
	Rated residual breaking capacity $I_{\Delta m}$		A	6000	
	Rated impulse withstand voltage (1.2/50) U_{imp}		kV	4	
	Dielectric test voltage at ind. freq. for 1 min.		kV	2.5 (50/60 Hz, 1 min.)	
	Thermomagnetic release – characteristic	B: $3\ I_n \le I_m \le 5\ I_n$		■	
		C: $5\ I_n \le I_m \le 10\ I_n$		■	
	Energy limiting class			3	
Mechanical Main features	Housing			Insulation group I, RAL 7035	
	Toggle			Insulation group II, Orange RAL 2004, sealable in ON-OFF-positions	
	Contact position indication			Green/red window	
	Earth fault trip indication			Blue flag on toggle	
	Electrical life			10000 operations	
	Mechanical life			20000 operations	
	Protection degree acc. to EN 60529	housing		IP4X	
		terminals		IP2X	
	Shock resistance acc. to IEC/EN 60068-2-27			25 g – 2 shocks – 13 ms	
	Vibration resistance acc. to IEC/EN 60068-2-6			0.2 mm or 5 g – 20 cycles at 5 … 150 … 5 Hz	
	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 %	
	Reference temperature for setting of thermal element		°C	30	
	Ambient temperature (with daily average ≤ +35 °C)		°C	-25 … +55	
	Storage temperature		°C	-40 … +70	
Assembly	Terminal type	top/bottom		failsafe bi-directional cylinder-lift terminal (shock-protected)	
	Terminal size for cables	top/bottom	mm^2	25/25	
	Terminal size for busbars	top/bottom	mm^2	10/10	
	Tightening torque	top/bottom	Nm	2.8	
	Stripping length of the cable		mm	12	
	Mounting			on DIN rail EN 60715 (35 mm) by means of mounting clip	
	Mounting position			any	
	Supply from			Top/bottom terminals	
Dimensions and weight	Dimensions (H x D x W)		mm	85 × 69 × 52.5	
	Weight		g	240	

DS-ARC1 AFDD with integrated RCBO

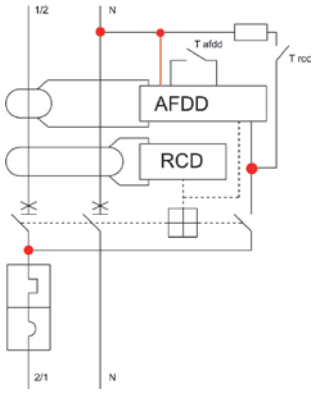
Ordering details, accessories, electrical diagrams and dimensions

DS-ARC1, 6 kA



Number of poles	Rated residual currrent IΔm mA	Charac-teristics	Rated current I_n A	Bbn 8012542 EAN	Ordering details Type code	Order data Order code	Weight 1 pcs kg	Pkg qty pce
1P+N	30	B	6	736516	DS-ARC1 B6 A30	2CSA255103R1065	0.240	1
			10	735618	DS-ARC1 B10 A30	2CSA255103R1105	0.240	1
			13	736417	DS-ARC1 B13 A30	2CSA255103R1135	0.240	1
			16	735519	DS-ARC1 B16 A30	2CSA255103R1165	0.240	1
			20	736318	DS-ARC1 B20 A30	2CSA255103R1205	0.240	1
1P+N	30	C	6	736110	DS-ARC1 C6 A30	2CSA255103R1064	0.240	1
			10	735212	DS-ARC1 C10 A30	2CSA255103R1104	0.240	1
			13	748311	DS-ARC1 C13 A30	2CSA255103R1134	0.240	1
			16	611110	DS-ARC1 C16 A30	2CSA255103R1164	0.240	1
			20	735113	DS-ARC1 C20 A30	2CSA255103R1204	0.240	1

DS-ARC1 M, 10 kA



Number of poles	Rated residual currrent IΔm mA	Charac-teristics	Rated current I_n A	Bbn 8012542 EAN	Ordering details Type code	Order code	Weight 1 pcs kg	Pkg qty pce
1P+N	30	B	6	734710	DS-ARC1 M B6 A30	2CSA275103R1065	0.240	1
			10	733812	DS-ARC1 M B10 A30	2CSA275103R1105	0.240	1
			13	734611	DS-ARC1 M B13 A30	2CSA275103R1135	0.240	1
			16	733713	DS-ARC1 M B16 A30	2CSA275103R1165	0.240	1
			20	734512	DS-ARC1 M B20 A30	2CSA275103R1205	0.240	1
1P+N	30	C	6	734314	DS-ARC1 M C6 A30	2CSA275103R1064	0.240	1
			10	733416	DS-ARC1 M C10 A30	2CSA275103R1104	0.240	1
			13	748113	DS-ARC1 M C13 A30	2CSA275103R1134	0.240	1
			16	611011	DS-ARC1 M C16 A30	2CSA275103R1164	0.240	1
			20	748014	DS-ARC1 M C20 A30	2CSA275103R1204	0.240	1



Auxiliary elements and accessories

72	Selection tables
75	Auxiliary elements for S200, SN200, F200, DS200, DS203NC, DSE201M, SD200
76	Shunt trip and undervoltage trip
77	Busbar systems
80	Short circuit limiter for S800 MCB

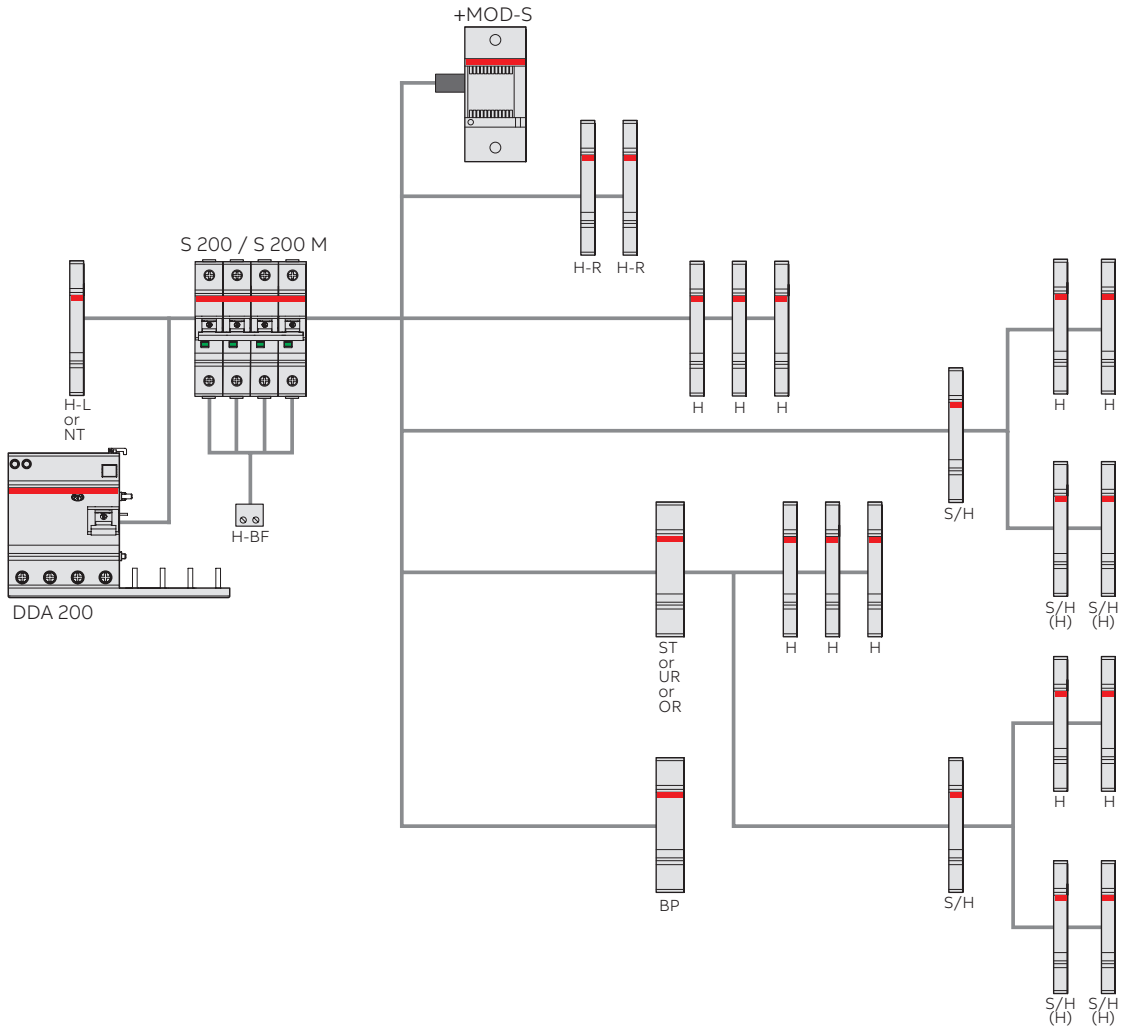
For more detailed product information, please refer to the Technical Catalogue:

- Electrical installation solutions – 2CHC000002C0203

Auxiliary elements and accessories

Selection tables

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



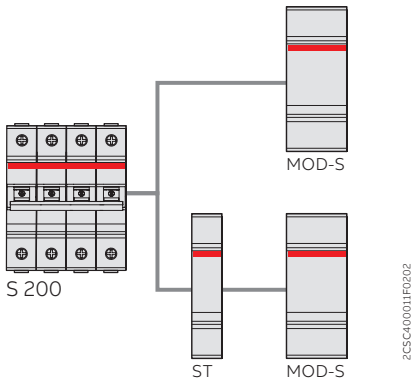
H	Auxiliary contact	S2C-H6R
H-R	Auxiliary contact	S2C-H6-...R
S/H	Signal/Auxiliary contact	S2C-S/H6R
S/H (H)	Signal/Auxiliary contact used as auxiliary contact	S2C-S/H6R
ST	Shunt trip for S 200 MCB	S2C-A...
UR	Undervoltage release	S2C-UA
OR	Overvoltage release	S2C-OVP
H-L	Auxiliary contact for S 200 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.

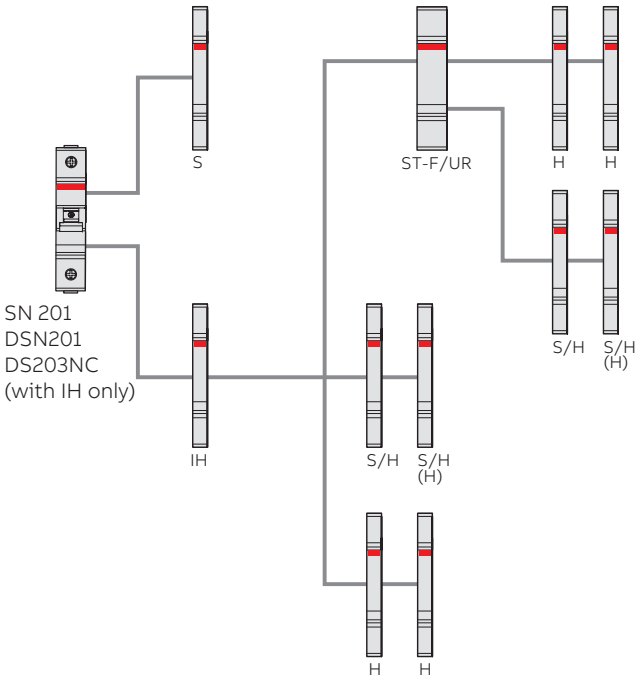
Auxiliary elements and accessories

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...

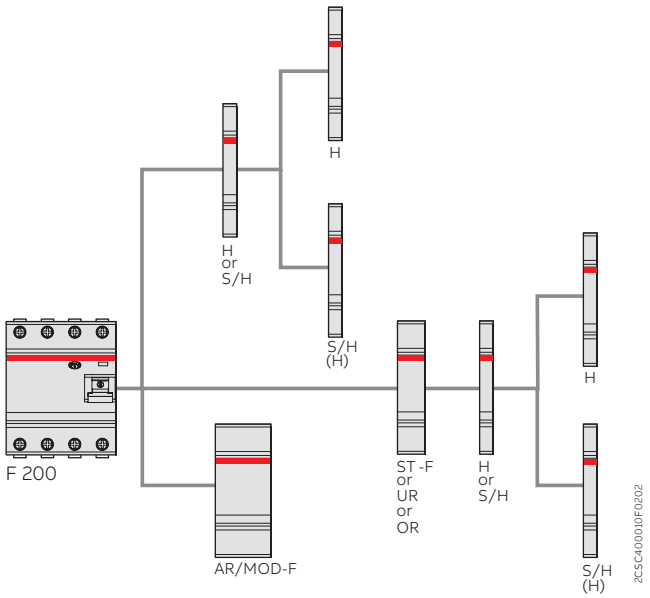
* In case of using S 200 coupled with DDA 200, MOD-S doesn't operate in case of earth-leakage fault.
* Motor operated not suitable for S200 80-100A.

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

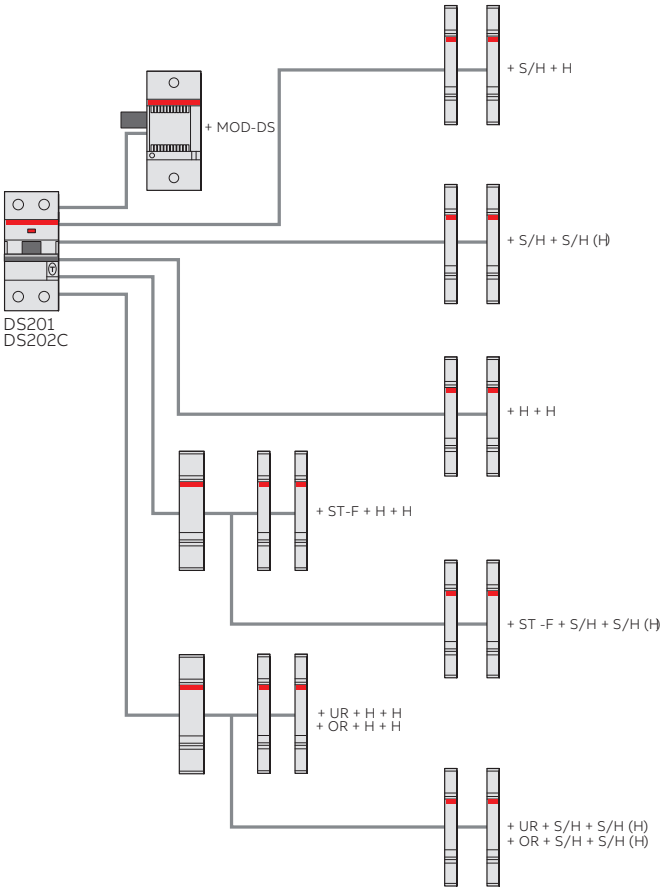
Auxiliary elements and accessories for MCBs and RCDs

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


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


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

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

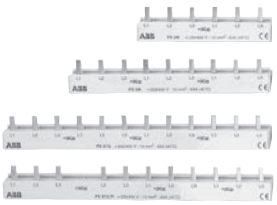
* Must be used with SN201-IH inteface module
* Accessories not suitable with DS201BS and SH200

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



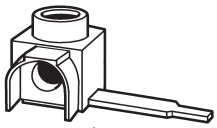
PS 3/6 - PS 3/12

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

Modular DIN rail components

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

83 DIN pushbuttons and indicators

84 E90 fuse switch disconnectors

85 New ESB / EN installation contactors

87 Lamp load table for new ESBs

88 DIN latching relays and time switches

90 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

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

Modular DIN rail components

E90 fuse switch disconnectors



E 92

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 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

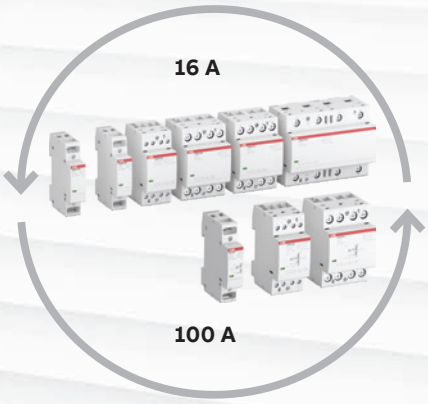
New ESB / EN installation contactors



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

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."

Modular DIN rail components

Lamp load table for new ESBs

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

Control and automation

DBT Timer digital time switches



DY365



DW1



DWA1



DWTL1

DBT Timer digital time switches
The unique design, with white backlight LCD display, and extreme ease of use with only four buttons, make DBT Timer ideal to automate the installation functions. The possibility to configure all digital devices via DBT Timer APP and Bluetooth connection makes the configuration and installation time even shorter. DBT Timer digital time switches are equipped with large capacity internal battery to maintain operation without power supply in order to avoid the risk of program loss and to maintain the time settings in case of power failure, respective of its duration. DBT Timer digital time switches are equipped with various functions such as the impulse, cycle, random and holiday function.

Digital yearly time switch - DY365
DY365 is the digital yearly time switch with 2 channels from DBT Timer range. Thanks to the two extension channel units DY365 4CE and DY365 2CE, DY365 is able to control up to 8 channels. DY365 can be coupled with DY GPS antenna to allow synchronization received from the Global Positioning System or with DY DCF77 antenna that allows an automatic synchronization of the digital time switch with the Frankfurt DCF77 time signal.

Digital weekly time switch - DW
DW1 and DW2 are weekly digital time switches with 1 and 2 channels, respectively. They allow exclusion of the normal weekly program in every week with the same mode.

Digital weekly astronomical time switch - DWA
The astronomical switches DWA1 and DWA2, respectively, with 1 and 2 channels, automatically control lighting circuits depending on the time of sunrise and sunset, greatly increasing energy efficiency. The programming is in fact based on a mathematical algorithm able to calculate the time of the rising and setting of the sun in a certain location for each day of the year. Once powered the device, simply insert date, time, geographical coordinates and time zone so that it is ready to work. These settings can also be automatically defined using the DBT Timer APP. The installation of astronomical digital time switches is particularly useful when using a twilight switch with external sensor is not recommended because it may be subject to malfunctions caused by air pollution, excessive brightness or vandalism. DWA1 and DWA2 are also indicated for the control of public lighting, shop windows of shops, neon signs, monuments, facades, illuminated fountains, ...

Digital weekly twilight time switch - DWTL1
DWTL1 is digital time switch with astronomical function and external luminosity probe DWS indicated for the management of the lighting system, luminous signs. Digital weekly twilight switch with 1 channel allows the exclusion of the weekly programming. DWTL1 can be configured as astronomical with probe switch which initial configuration requires the activation of the load from sunset to sunrise and during the daytime hours in case of low light. Also,it can be used as programmable twilight switch in which activation of the load occurs when the probe detects a low light condition in case that daily or weekly programming requires it.

Version	Bbn 8012542	Order details		Price 1	Weight 1 piece	Pack unit
	EAN	Type code	Order code	piece	kg	pc.
Yearly time switch, 2 channels	212010	DY365	2CSM221201R1000		0.250	1
Weekly time switch, 1 channel	225317	DW1	2CSM222531R1000		0.129	1
Weekly time switch, 2 channels	225218	DW2	2CSM222521R1000		0.152	1
Weekly astronomical time switch, 1 channel	225119	DWA1	2CSM222511R1000		0.129	1
Weekly astronomical time switch, 2 channels	225010	DWA2	2CSM222501R1000		0.152	1
Weekly twilight time switch, 1 channel	224914	DWTL1	2CSM222491R1000		0.160	1

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



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



E 233



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

Consumer units, load centres and distribution boards

92 **MISTRAL® – designer range consumer units**

99 **Encapsulated miniature circuit breaker chassis**

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

System pro E comfort MISTRAL® – 1SLC801013D0201

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 page 110)
- 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



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 page 110)
- 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



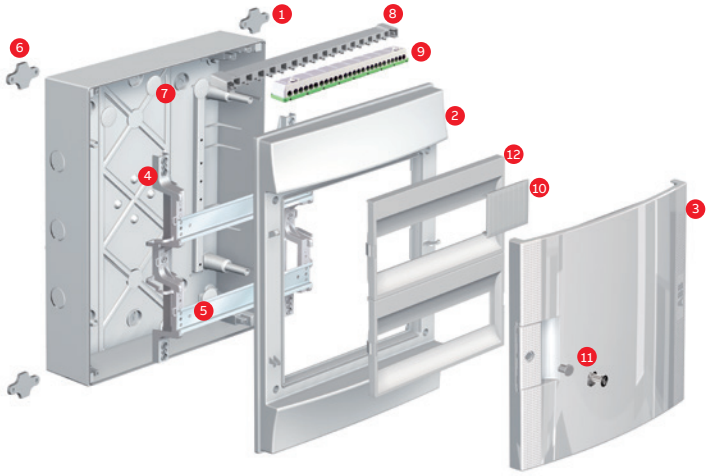


Flush mount – white body, opaque door

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

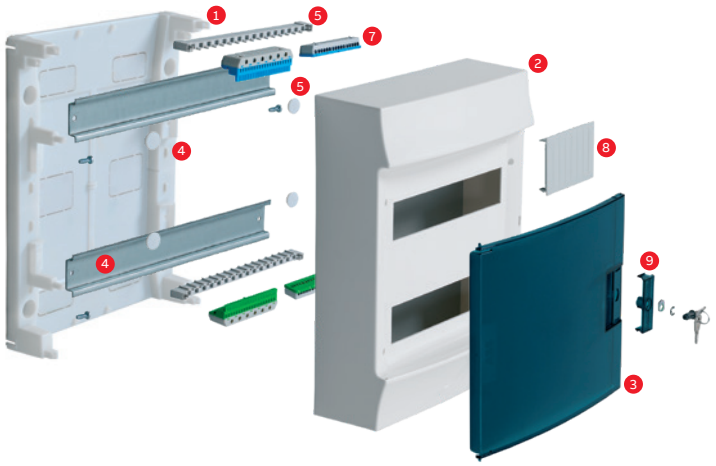
Description	Order code
Circuit identification card – Blue	GJF1707110P0011
Circuit identification card – Red	GJF1707110P0012

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

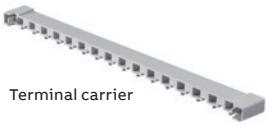
MISTRAL® – designer range consumer units

Earth and neutral bars for MISTRAL® range

- Easily customised to suit application requirements






Terminal carrier

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

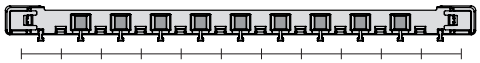
Configuration	Space in terminal carrier	Maximum current	Order code
3 x 16mm² + 3 x 6mm²	3 modules	100A	NKS06
5 x 16mm² + 6 x 6mm²	5 modules	100A	NKS11
7 x 16mm² + 9 x 6mm²	7 modules	100A	NKS16
9 x 16mm² + 12 x 6mm²	9 modules	100A	NKS21
11 x 16mm² + 15 x 6mm²	11 modules	100A	NKS26

Earth terminal blocks

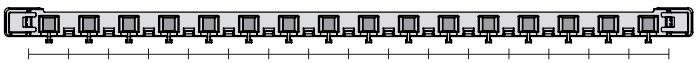
Configuration	Space in terminal carrier	Maximum current	Order code
3 x 16mm² + 3 x 6mm²	3 modules	100A	PEKS06
5 x 16mm² + 6 x 6mm²	5 modules	100A	PEKS11
7 x 16mm² + 9 x 6mm²	7 modules	100A	PEKS16
9 x 16mm² + 12 x 6mm²	9 modules	100A	PEKS21
11 x 16mm² + 15 x 6mm²	11 modules	100A	PEKS26

Terminal carrier

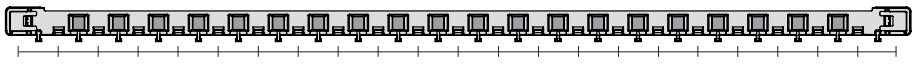
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1SPE007715F0752



1SPE007715F0753



Terminal block

1SPE007715F0741
1SPE007715F0731



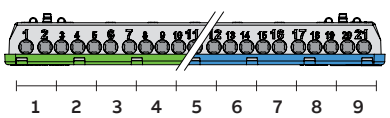
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1SPE007715F0732



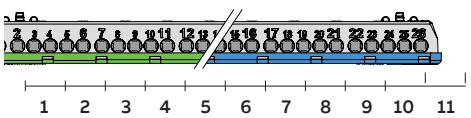
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1SPE007715F0744
1SPE007715F0734



1SPE007715F0745
1SPE007715F0735

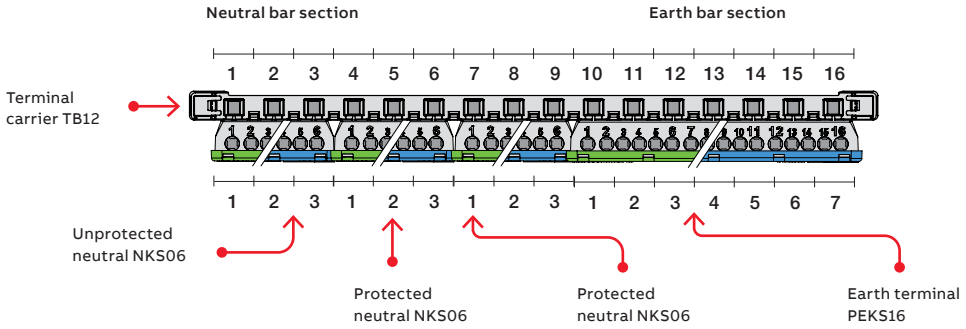


Consumer units, load centres and distribution boards

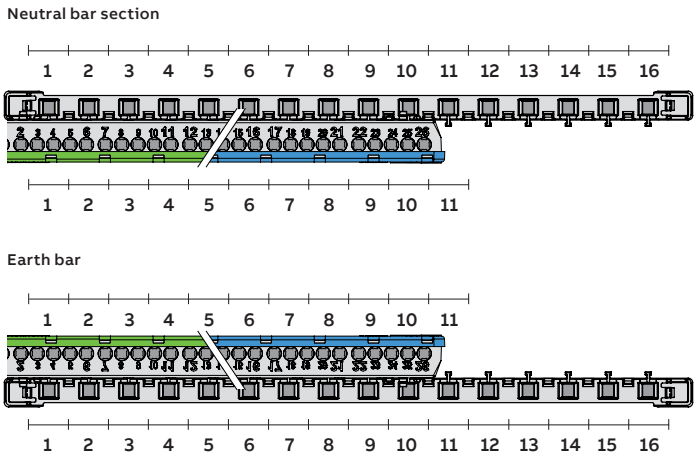
MISTRAL® – designer range consumer units

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



Wall fixing bracket

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

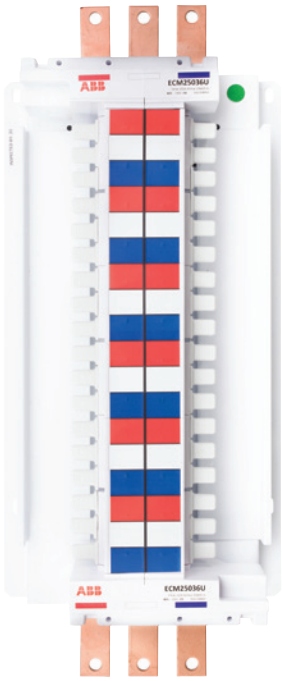
Description	Order code
Wall fixing brackets (4pcs) for MISTRAL65	1SL1927A00
Lock with key MISTRAL65	1SL1931A00
Pole fillers – 4 module strip – RAL 9016 (white)	LA12859
Pole fillers – 12 module strip – RAL 7035 (grey)	SZBP12
Circuit identification card – Blue	GJF1707110P0011
Circuit identification card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

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

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

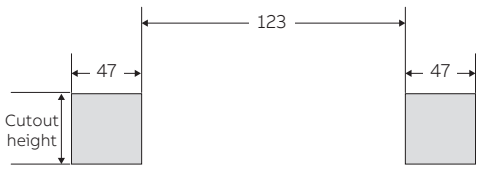
Poles capacity	Cutout height		Order code
27mm		Universal feed	Top / Bottom feed
12	164	ECMP25012U	ECMP25012
18	245	ECMP25018U	ECMP25018
24	326	ECMP25024U	ECMP25024

400A ECMP encapsulated S800 chassis

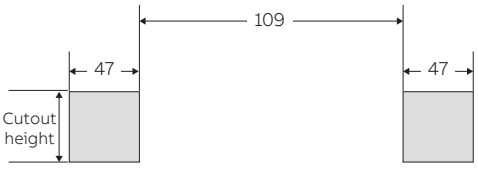
Poles capacity	Cutout height		Order code
27mm		Universal feed	Top / Bottom feed
12	164	ECMP40012U	ECMP40012
18	245	ECMP40018U	ECMP40018
24	326	ECMP40024U	ECMP40024

Escutcheon cutout details

S800 high performance MCB's



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



02
Power distribution

103 ABB Ability™

119 Air circuit breakers (ACB)

135 Moulded case circuit breakers (MCCB)

161 Load break switches

193 Compact automatic transfer switches

197 Automatic transfer switches

213 Enclosed switches

221 Switch fuses

231 Fuse switch disconnectors

251 Fusegear

259 Arc Guard System™


COLLECT
SEE
CONTROL
ANALYZE
OPTIMIZE
PREDICT
UPGRADE

ABB Ability™

104 ABB Ability™ Energy Manager

106 ABB Ability™ Asset Manager

Product Range

109 Edge Gateway - Local View

112 Edge Gateway - Cloud View

115 E-Kit

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™ Energy Manager
A smart interface

Every facility has different energy needs and targets, which is why the ABB Ability™ Energy Manager uses configurable widgets to meet the needs of your organization. And you can define, compare and access relevant results with maximized efficiency.

Energy functionality
Show a group's energy consumption across a select period and compare different groups' energy consumption across multiple sites

Energy Performance Index (EnPI)
Track specific performance trends by configuring the parameters, group, operation (Energy or Cost) and time period

Performance indicators
View your EnPi's aggregated value, based on the data inserted using Performance Parameter API

Power quality
Access real-time data on parameters associated with each asset

Group peak monitoring
Ensure your site does not exceed contracted power with a total active power aggregate

Power factor
Monitor the power factor of every available asset within a defined period

Reporting
Get scheduled reports with relevant site information. Fully customizable to your needs, receive reports by device group and time, with the ability to compare your data

Alerts
Automate your alerts and receive immediate feedback on the status of your site via email or SMS

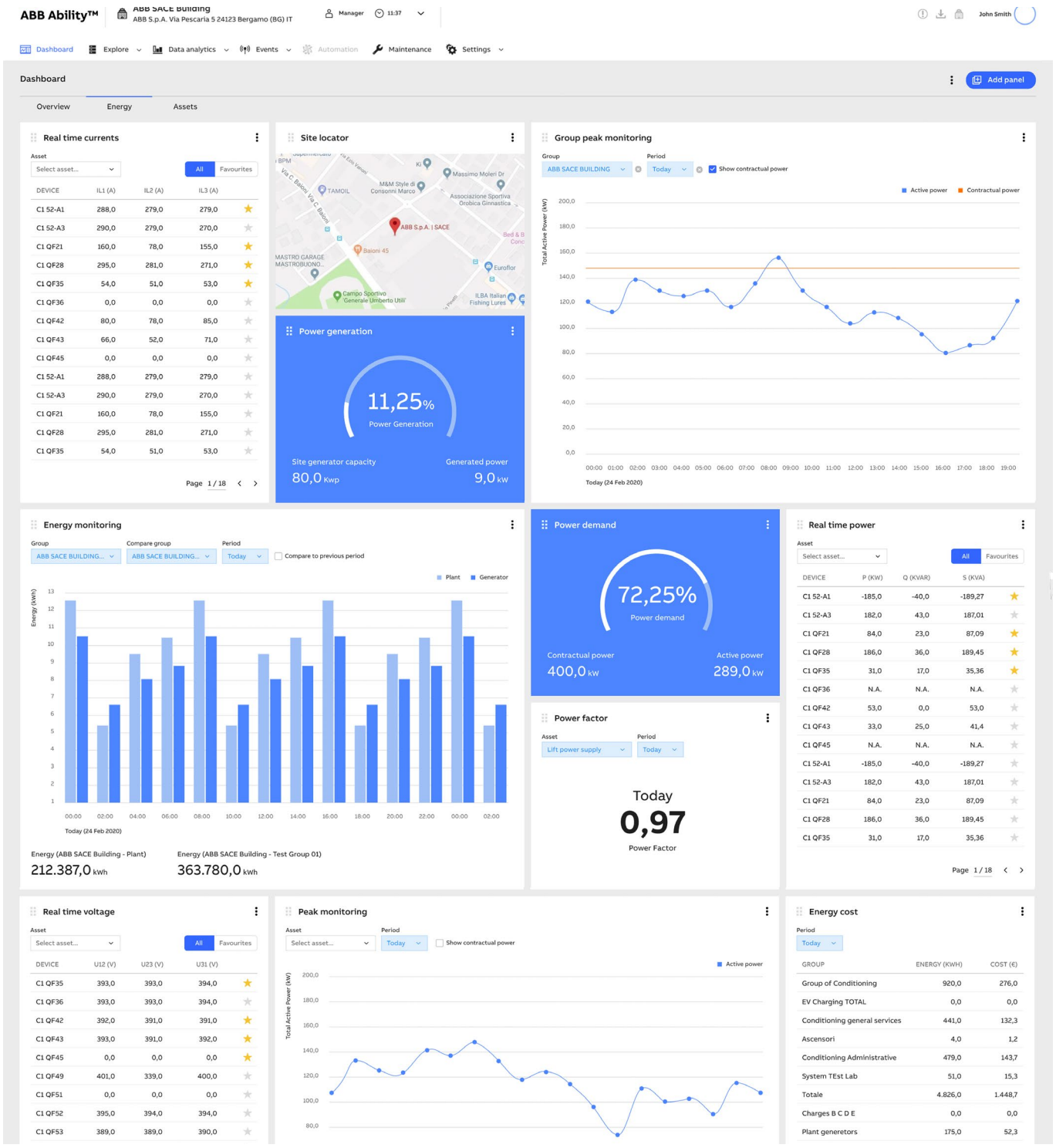


ABB Ability™ Energy Manager

ABB Ability™ Asset Manager
A smart interface

Every facility sets different asset performance targets, and that's why the ABB Ability™ Asset Manager widgets can be customized for the specific needs of your business. And you can define, compare and access the most relevant results with maximized efficiency.



Condition monitoring
Granular visibility of your asset behavior in real-time for both LV and MV environments



Maintenance planning
Root-cause analysis of asset condition enables predictive maintenance



Health analysis
Get the full picture of your connected assets' health with clear categorizations for appropriate action, from "Very poor" (mostly failed, urgent action required) to "Very good" (as new, no action)



Digital twin
Access asset data, documentation, historical data and more



Events and notification
Set up alerts and notify key personnel remotely when an action needs to be taken



Reporting
Get scheduled reports with relevant site information. Fully customizable to your needs, receive reports by device group and time, with the ability to compare your data



Power quality
Access real-time data on parameters associated with each asset

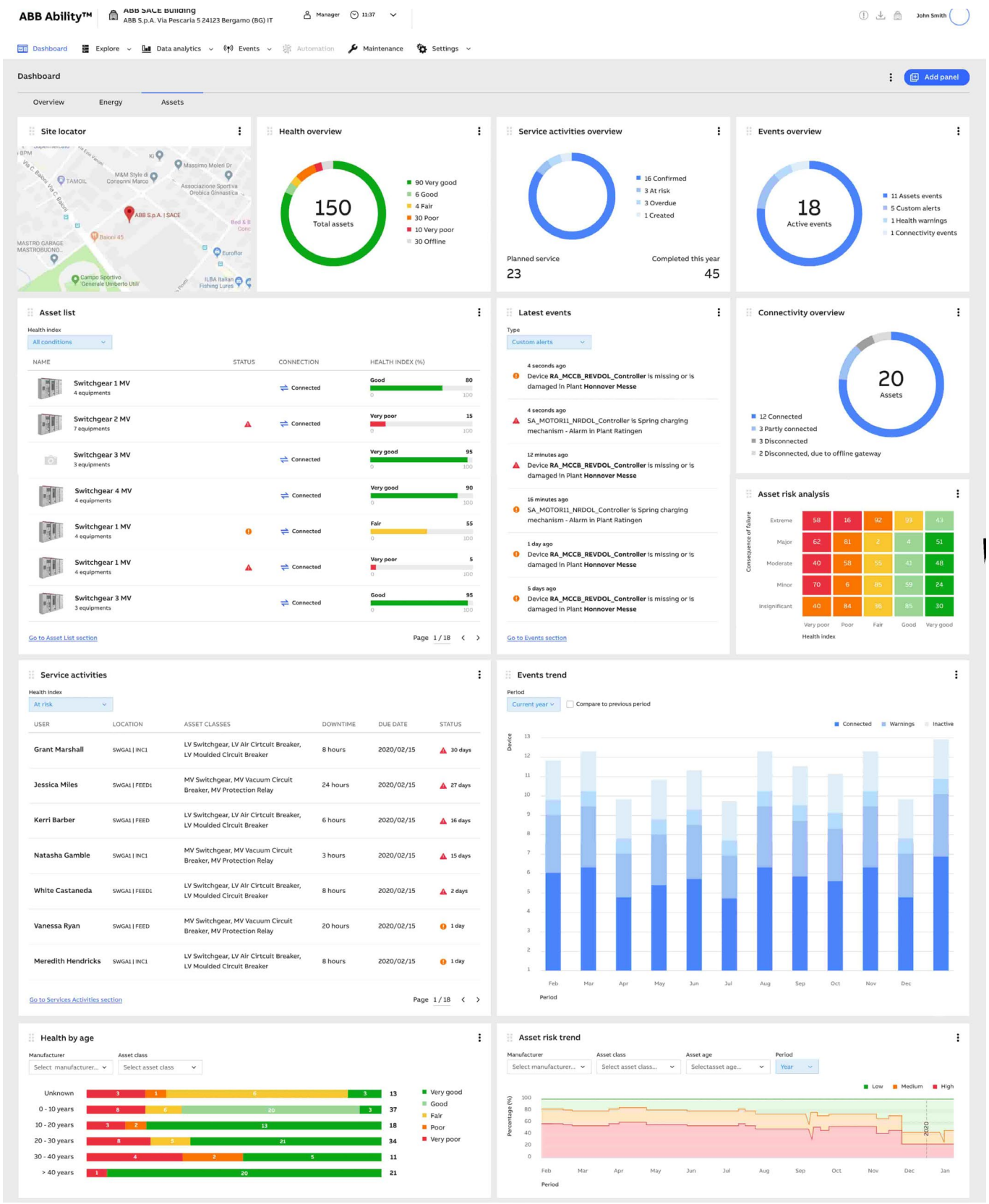


ABB Ability™ Asset Manager

ABB Ability™ Electrical Distribution Control System

Understanding power

ABB Ability™ Electrical Distribution Control System is the innovative cloud-computing platform designed to monitor, optimize, predict and control the electrical system.

ABB Ability™ Electrical Distribution Control System is built on a state-of- the-art cloud architecture for data collection, processing and storage. This cloud architecture has been developed together with Microsoft in order to enhance performance and guarantee the highest reliability and security.

Through a compelling web app interface, ABB Ability™ Electrical Distribution Control System assists anytime and anywhere via smartphone, tablet or personal computer so the user can:

Monitor
Discover plant performance, supervise the electrical system and allocate costs.

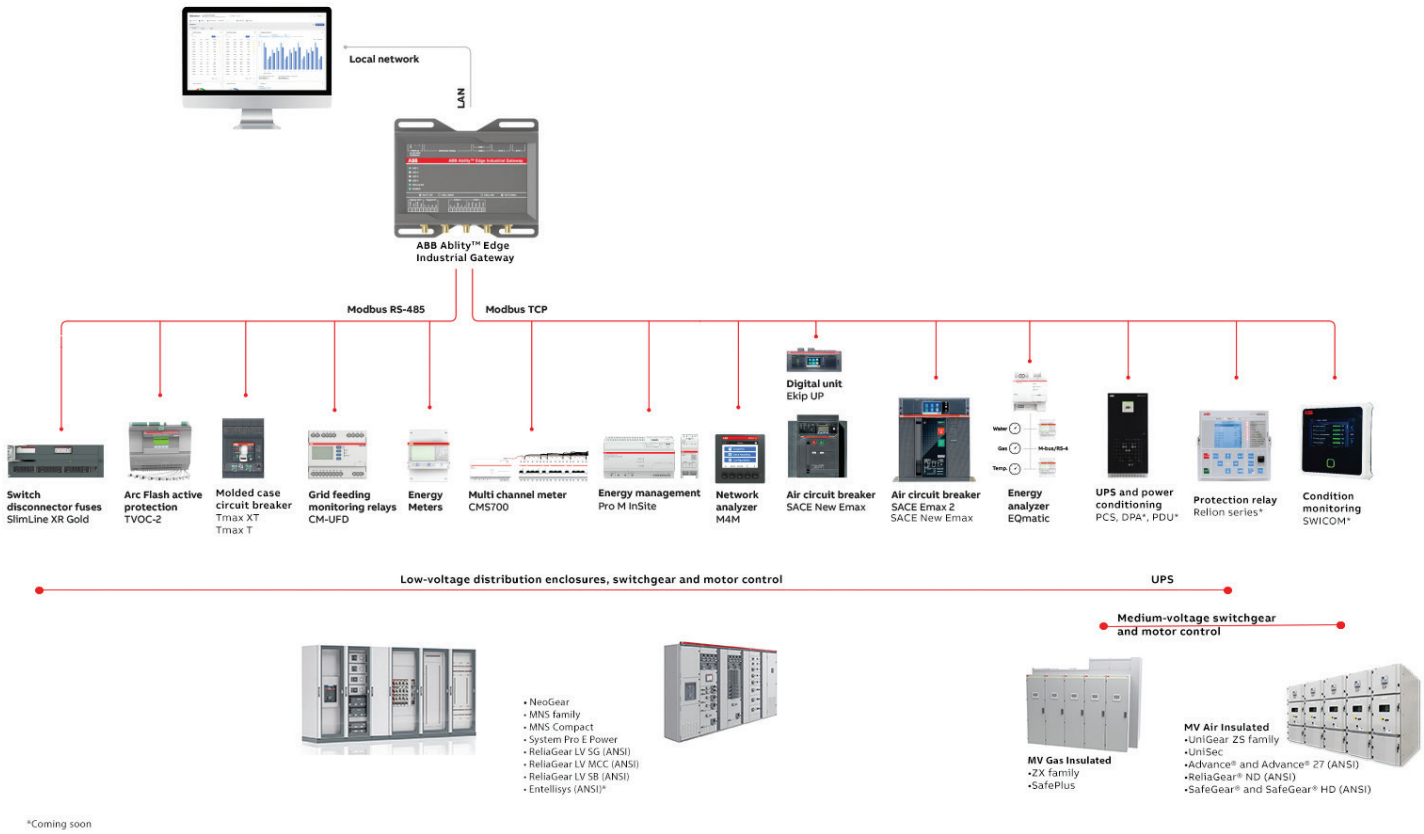
Optimize
Schedule and analyze automatic reports, improve the use of assets and take the right business decision.

Predict
Supervise the system health conditions and predict next maintenance actions.

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



ABB Ability™ Edge Industrial Gateway
Local View



*Coming soon

Local view
ABB Ability™ Edge Industrial Gateway runs ABB Ability™ Energy and Asset Manager solution on-premise with local data collection and viewing possibilities via local web server.
Local View version ensures:
- data security keeping the full database on the gateway server
- ease of use with pre-configured device integration and quick commissioning
- energy efficiency thanks to the immediate use of ABB Ability™ Energy and Asset Manager solution with Current, Voltage, Power and Energy widgets for the devices/device groups and connected asset list with connection status.

More information about ABB Ability™ Energy and Asset Manager solution are available here:
https://new.abb.com/about/our-businesses/electrification/abb-ability/energy-and-asset-manager

Architecture notes
By default local web view is accessible from the Ethernet port ETH1 which is connected to the same network where devices are present.
Following a dedicated cybersecurity procedure*, it can be enabled also for the second Ethernet port ETHO which can be connected to another local network.
Otherwise ETHO is ready for upgrading the connectivity to the cloud.
3G and Wi-Fi connectivity are not supported for Local View (ready for the upgrade to the cloud connectivity).
Commissioning is done by ABB Provisioning Tool and, during that phase, it requires internet connectivity.
Firmware update can be done by ABB ProvisioningTool cabled to ETHO and laptop.
ABB Provisioning Tool is available here:
https://search.abb.com/library/Download.aspx?DocumentID=9AKK107991A9195&LanguageCode=en&DocumentPartId=&Action=Launch
under preparation

Gateways



Edge GW Local View

ABB Provisioning Tool



Abb Ability™
Energy and Asset
Manager

Main details in a nutshell

Supported Devices	**45 by Modbus TCP + 15 by Modbus RTU** Emax 2 Series Breaker, Tmax XT Breaker, New Emax series, Tmax T series, Ekip UP, TruOne, Slimline XR Gold, TVOC2 (Arc Guard), CM-UFD, ITS2.1, Ekip Signalling TCP, CMS700, Insite Pro M, M4M, M2M, EQ Meter, EQ Matic, SWICOM, MDC4-M, REF542+
Available Widgets	Connectivity Overview, Device Current Trends, Device Power Data, Device Voltage Trends, Energy Cost, Energy Data, Energy Monitoring, Group Peak Monitoring, Group Real time currents, Group Real Time voltage, Group Real time Power, Power Demand, Power Factor, Power Generation, Power Quality, Real-time Voltage, Real-time Current, Real-time Power, Arc-guard widget, Analog Data Monitoring, Digital Data Monitoring, Asset Health overview (overall health condition of equipment), Environmental Data, Temperature Trend, Asset list (table) showing the connectivity status
Available Functions	**Explore** tab with list of assets (devices) with: • Available detailed status of the asset • Possibility to edit asset **Data** analytics tab: • Capability to create groups (also group of groups) • energy data reports for devices and groups **Settings** tab: • Available plant setting • Possibility to manage user • Settings of billing parameter* **Events** tab: • List of events occured - Capability to create new alert condition - The alerts available are: CB tripped, O/C, Any alarm, Any trips, Contact wear, Currents IL1-IL2-IL3-N, Voltages U1-U2-U3-U12-U23-U31, Power Factor, Total Active power, Total apparent power, Total reactive power and others only if present in the devices

*one tariff only

Shopping list

The relative commercial codes are the following:

Code	Description
1SDA115508R1	ABB Ability Hybrid* Industrial gateway
1SDA115509R1	ABB Ability Hybrid* Industrial gateway 3G EU
1SDA115510R1	ABB Ability Hybrid* Industrial gateway 3G US

*This is the factory name

Additional accessories are the same of legacy gateway E-Hub 2.0.

Code	Description
1SDA114038R1	I/O module
1SDA114039R1	Wi-fi/Bluetooth antenna
1SDA114040R1	Cellular antenna
1SDA114041R1	Wall Mounting brackets
1SDA114043R1	Supply

ABB switchgears can also be equipped with Edge Industrial Gateway. Please refer to your ABB contact person for further information.

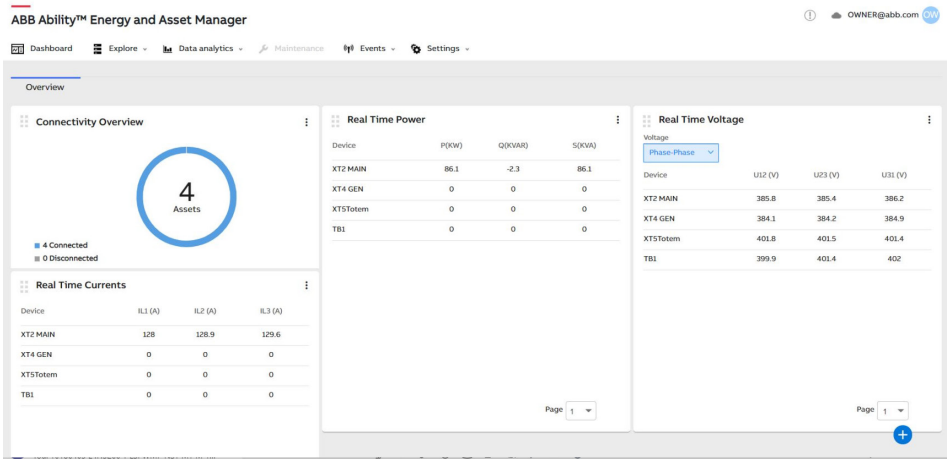


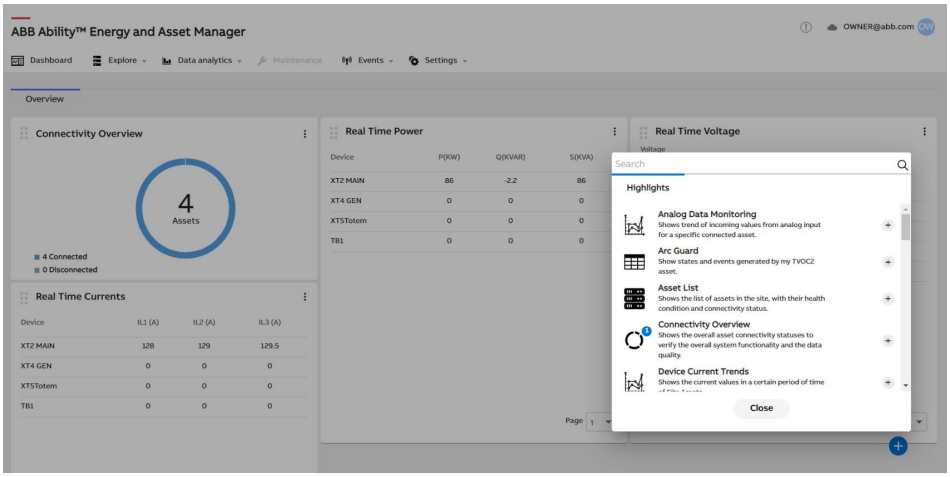
In order to unlock the web-server functions of ABB Ability Energy Manager , it is required to purchase yearly recurring or perpetual one shot voucher licenses in ABB Ability Marketplace™.

ABB Ability Marketplace™ US
https://us.marketplace.ability.abb/en-US/listing
ABB Ability Marketplace™ China
https://marketplace.ability.abb.com.cn/
ABB Ability Marketplace™ EU and Rest of the World
• Perpetual:
https://new.marketplace.ability.abb/s/products/electrification/energy-manager-perpetual-license-local?language=en_US
• 1 year:
https://new.marketplace.ability.abb/s/products/electrification/energy-manager-local-view-voucher?language=en_US
Future firmware upgrade will also enable the cloud connectivity option.

How ABB Ability™ Energy and Asset Manager looks like in Local View

Dashboard





Explore

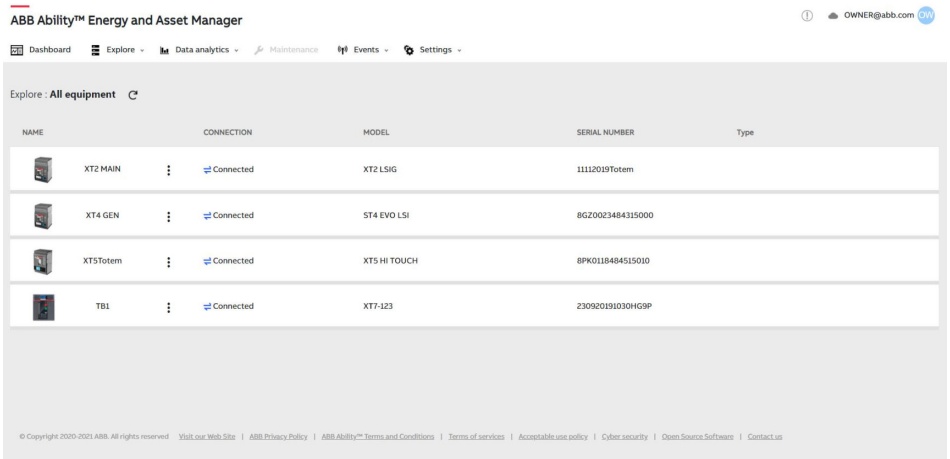
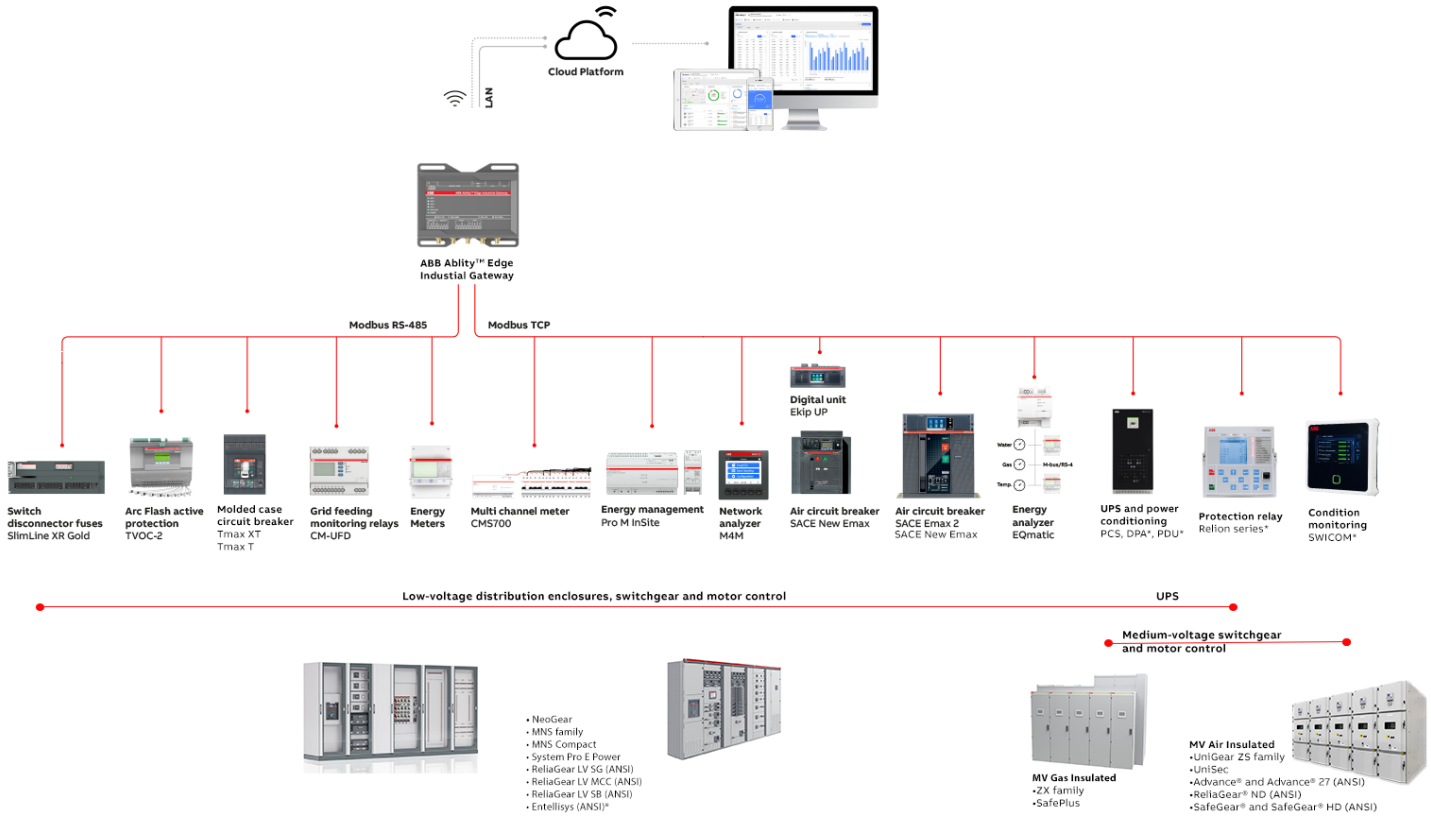


ABB Ability™ Edge Industrial Gateway
Cloud View



Cloud view

ABB Ability™ Edge Industrial Gateway runs ABB Ability™ Energy and Asset Manager solution by connecting to the cloud, unlocking data and insights on the site's energy consumption and assets health.

Cloud View version ensures:

- Access to the data from anywhere, anytime
- Benefit from highest security standards and comprehensive services
- Flexible and scalable user and subscription management

More information about ABB Ability™ Energy and Asset Manager solution are available here: https://new.abb.com/about/our-businesses/electrification/abb-ability/energy-and-asset-manager

Architecture notes

Commissioning is performed from Ethernet port ETH1 which is connected to the same network where devices are present. The other Ethernet port ETHO is used for the connectivity to the cloud.

As an alternative to Ethernet connection, 3G/4G cellular or Wi-Fi connectivity are supported for Cloud View. Commissioning is done by ABB Provisioning Tool and, during that phase, it requires internet connectivity.

Firmware Update can be done by ABB Provisioning Tool cabled to ETHO and laptop.

ABB Provisioning Tool is available here: https://search.abb.com/library/Download.aspx?DocumentID=9AKK107991A9195&LanguageCode=en&DocumentPartId=&Action=Launch

Gateways



Edge GW Cloud View

ABB Provisioning Tool



ABB Ability™
Energy and Asset
Manager

Main details in a nutshell

Supported Devices	**45 by Modbus TCP + 15 by Modbus RTU** Molded case circuit breakers Tmax T and XT series; Air circuit breakers New Emax and Emax 2 series; Ekip UP external trip unit; TruONE ATS and ITS2.1; Ekip Signalling MODBUS TCP; EQ Meters, M2M / M4M, CMS700, InSite Pro M and EQMatic; REF 542 PLUS; CM-UFD grid feed monitoring relays; TVOC-2 Arc Guard System; SWICOM, MDC4 and MDC4-M MV switchgears; SMIS MT585
Available Widgets	Analog Data Monitoring, Arc Guard, Arc Guard - CSU2, Asset Current Trend/Frequency Trend/List/ Power Trend/Power Factor Trend/Voltage Trend, ATS Diagnostics/Source Status/Transfer Time, Connectivity Overview, Digital Data Monitoring, Energy Audit Summary/Cost/Cost Comparison/Data/ Data Comparison/Mix Group/Monitoring, EnPI Monitoring, Environmental Data, Frequency, Group Peak Monitoring, Group Real Time Currents/Metering/Power/Voltage, Historic Data Metering, Input Data Calculation, Latest Events, Local Time, Metering data monitoring, Multi-Asset Peak Power Monitoring, Multi-Group Peak Monitoring, Multi-Site Locator, PCS Logs/Peak Monitoring/Real Time Currents/Real Time Power/Real Time Voltage, PDU Peak Monitoring/Real Time Currents/Real Time Voltage, Peak Monitoring, Performance Indicator, Power Demand/Factor/Forecast/Generation/Quality - THD/ Quality - Voltage, PUE Monitor/Trend, Real Time Currents/Metering/Power/Voltage, Site Locator, States and Counters, Total Historic Data, UPS Battery Status/Events/Peak Monitoring, UPS Real Time Currents/ Power/Voltage, Weather real time/Forecast 48 hours/Week forecast.
Available Functions	**Explore** tab: • Hierarchical view • 2D/3D view • Connectivity • All equipment **Analysis** tab: • Reports - Generate report - Scheduled task - History • Data Groups **Events** tab: • All events • Alert condition **Settings** tab: • Site • Documentation • Users • Utility • Service and environment • Notification • Subscriptions

Shopping list

The relative commercial codes are the following:

Code	Description
1SDA116751R1	ABB Ability Edge Industrial gateway
1SDA116752R1	ABB Ability Edge Industrial gateway 3G EU
1SDA116753R1	ABB Ability Edge Industrial gateway 3G US

Additional accessories are the same of legacy gateway E-Hub 2.0.

Code	Description
1SDA114038R1	I/O module
1SDA114039R1	Wi-fi/Bluetooth antenna
1SDA114040R1	Cellular antenna
1SDA114041R1	Wall Mounting brackets
1SDA114043R1	Supply

ABB switchgears can also be equipped with Edge Industrial Gateway. Please refer to your ABB contact person for further information.



Related documents

Cloud provisioning guideline - LINK

Manual - LINK

Supported devices - LINK

How ABB Ability™ Energy and Asset Manager looks like in Cloud View

Dashboard



ABB Ltd.
Affolternstrasse 41
CH-8050 Zurich
Switzerland

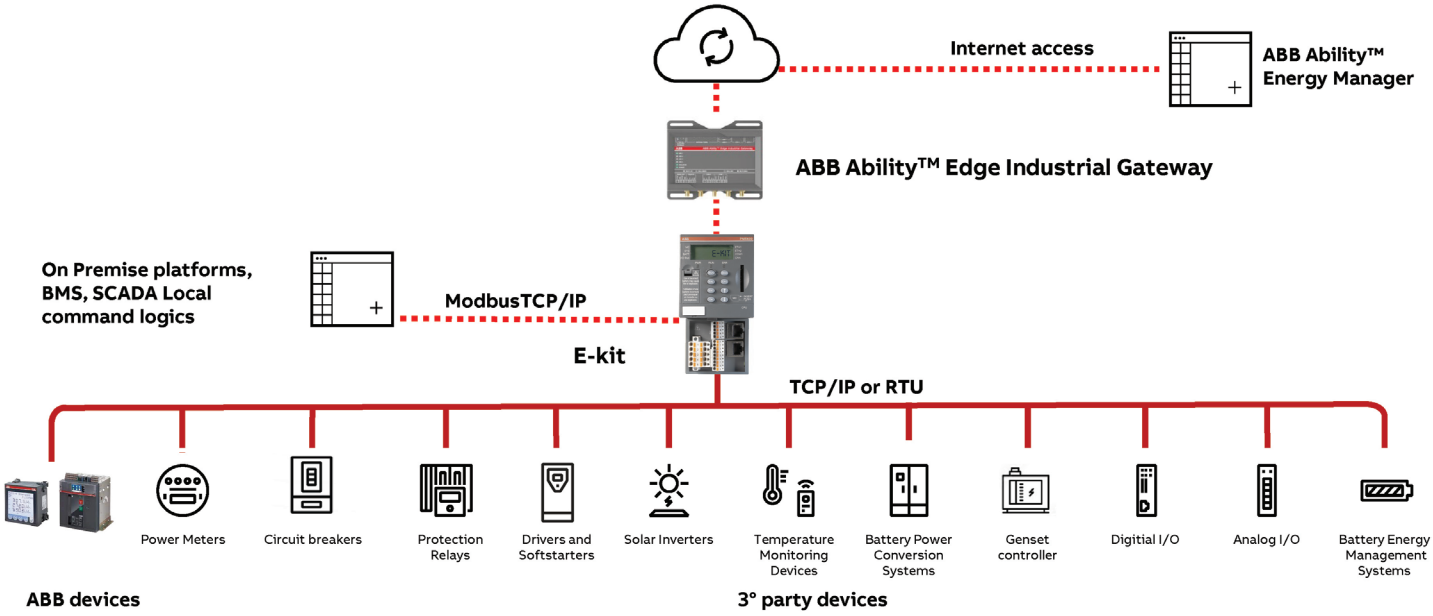
solutions.abb/abb-ability-electrification

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ABB E-kit

The new connectivity interpreter for the energy management



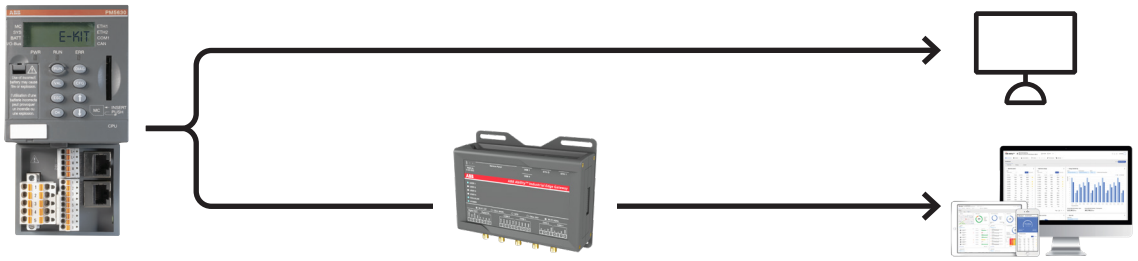
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The new connectivity interpreter for the energy management E-kit gives the highest flexibility to integrate different product families, ABB or third party, in on-premise or cloud energy supervision platforms.

In order to speed up the daily activities for data acquisition of System Integrators and Energy Service Companies (ESCos), E-kit has been designed and developed to simplify the acquisition and normalization of different measurements to support advanced energy monitoring, ensuring the maximum degree of flexibility. E-kit becomes the connectivity interpreter of the energy assets present in the site, collecting data from the devices by field-buses to unify them into standardized templates. Data are, indeed, acquired using specific templates that cover different categories of devices[1)], then they are normalized and exposed for use by on premise supervision systems such as SCADA or BMS, or by the the cloud-based energy management system ABB Ability™ Energy Manager.

All configuration phases of E-kit can be done leveraging the low voltage commissioning tool, Ekip Connect 3, or via web pages that can be accessed using the IP address of the device.
The devices can be connected to E-kit using either Modbus TCP/IP or Modbus RTU protocol, transforming them into a unique Modbus TCP/IP based data flow, so to provide additional capability in terms of connectivity architectures.
The integration of third-party devices requires the knowledge of the specific Modbus registers necessary for mapping the parameters required by the selected template.
A series of ABB devices are natively supported by E-kit and do not require any additional configuration.
To use the cloud-based Energy Management System ABB Ability™ Energy Manager, ABB Ability™ Edge Industrial Gateway - Coud View is necessary.
All the data collected and unified become available from E-kit to any on-premise supervision systems and some of them are visible in ABB Ability™ Energy Manager through dedicated widgets/pages. Up to 45 measuring devices can be connected by serial lines in Modbus RTU and Ethernet networks by Modbus TCP/IP, out of which maximum 15 by Modbus RTUs.

—
Ekip Connect



E-kit | ABB Ability™ Edge Industrial Gateway | ABB Ability™ Energy Manager

Main details in a nutshell

Value proposition	Possibility to integrate various types and brands of devices classified by leveraging an evolving set of device category templates fully in synergy with ABB Ability™ Energy Manager and an easy integration with local monitoring systems such as SCADA/BMS. System Integrators and ESCos reduce their time to execute energy management projects.
Connectivity architecture	E-kit is the new solution to give flexibility for up to 45 device integration in ABB Ability™ Energy Manager and 3rd parties local monitoring systems using the Modbus TCP/IP and Modbus RTU communication protocols. Up to 45 measuring devices can be connected by Modbus RTU/TCP, of which maximum 15 RTUs.
Target costumer	Global Market commercial buildings, industries, renewables, microgrids, infrastructures. The product simplifies the effort of System Integrators even in synergy with the ESCo System Program.
Device category Templates [1)]	Circuit breakers, power meters, protection relays, analog I/O, digital I/O, solar inverters, Battery Management Systems, Power Conversion Systems, Temperature control units, drives & softstarters, genset controllers.

(1)The list of ABB integrated devices is available here

—
ABB ESCo System Program

Shopping list

Code	Description
1SDA120717R1	ABB E-kit
Additional accessories	
1SDA116751R1	ABB Ability ™ Edge Industrial Gateway
1SDA116752R1	ABB Ability ™ Edge Industrial Gateway 3G EU
1SDA116753R1	ABB Ability ™ Edge Industrial Gateway 3G US

To use cloud solutions such as ABB Ability™ Energy Manager - Performing edition as a monitoring system, the use of the Gateway is required.

Please refer to your ABB contact person for further information. For more information, contact us.

—
ABB Ability™ Edge Industrial Gateway Cloud View



In order to unlock the cloud-based functions of ABB Ability™ Energy Manager , it is required to purchase a yearly subscription or voucher licenses in ABB Ability Marketplace™.

Single site subscription EU and RoW:
https://new.marketplace.ability.abb/s/products/electrification/energy-manager?language=en_US
Single site subscription China:
https://new.marketplace.ability.abb.com.cn/s/?language=zh_CN
Single site voucher EU and RoW:
https://new.marketplace.ability.abb/s/products/electrification/energy-manager-voucher?language=en_US

Leveraging on E-kit data, ABB Ability™ Energy Manager enables the creation of Energy Performance Indicatos (ENPi) in Performing dedicated edition.

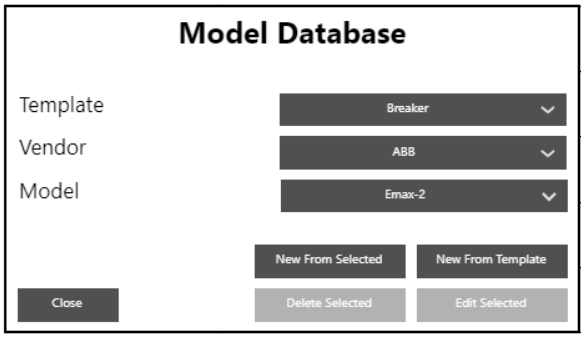
To discover more click here.

Technical in-depth analysis

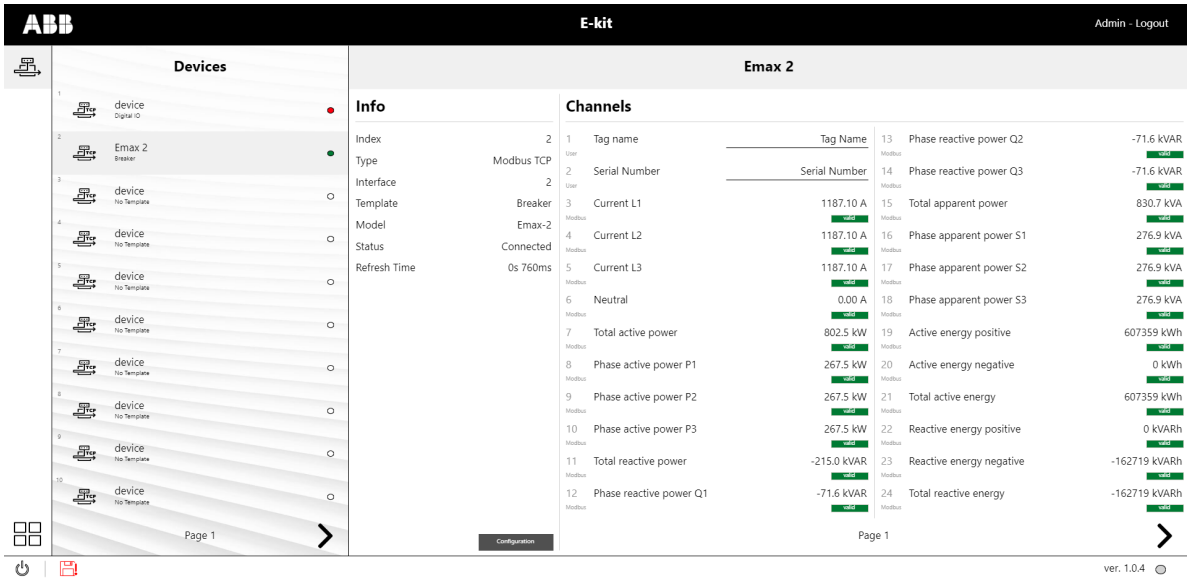
The acquisition of data from 3rd party devices is facilitated by the use of templates, which define a set of typical data points of interest for each device family. During configuration, these template data points need to be mapped to the specific Modbus registers of the device to be integrated.
The list of templates will be enriched in the future.
Below is the list of available templates:

1. Meter
2. Breaker
3. Digital Input – output
4. Analog input – output
5. protection relay
6. Battery rack – BMS
7. PV string inverter
8. ESS inverter
9. Temperature Monitoring Device
10. Motor drive and softstarter
11. Gen Set Controller

Within each template it is possible to configure the third-party devices belonging to that category or select the ABB devices already present in the form:



The configuration of the devices is performed within the tool like it is displayed in the following image.



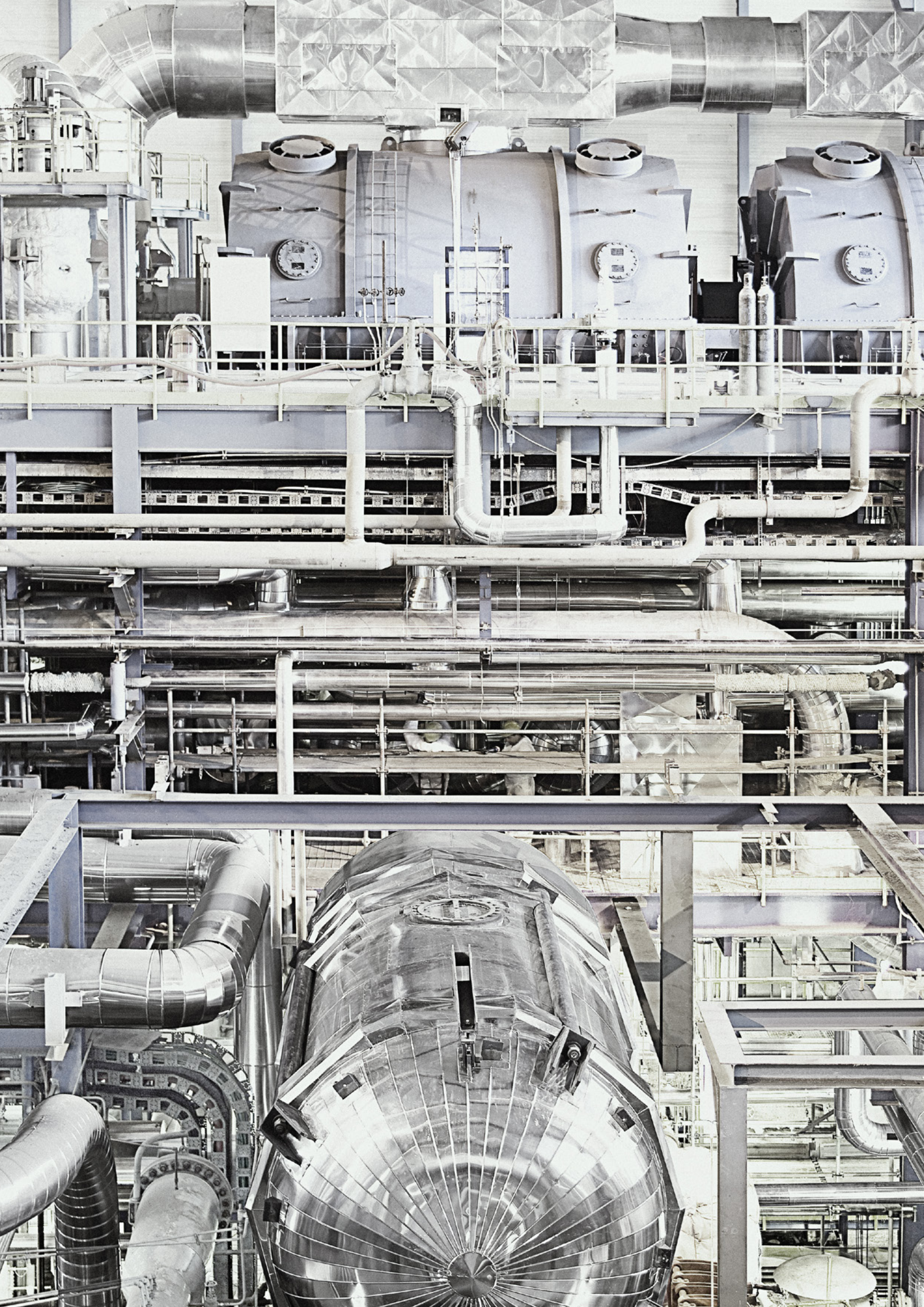
Individual devices can be configured from an admin account using the appropriate template dedicated to the device family. Each template consists of 3 parts: the device name, the Info section and the Channels section.
The channels can be of 3 types:

- **User:** information that can be modified by the user;
- **Modbus:** information acquired by the device;
- **Constant:** Information defined in the model.

You can also create new models starting from the templates present by acting on modifiable parameters such as the type of channel, the field of validity of the data, the type of access to the data (read or write), the type of data addressing, the address of the variable data, the type of data, the specifications to normalize the output data.

- The type of connectivity, Modbus TCP / RTU;
- The identification number of the interface that will allow to identify which devices will communicate in parallel and which in series;
- The device's selected template;
- The model of the device;
- The status of the device, so if it is connected.
- Refresh time that indicates how often the device is queried.

For more technical information, please refer to the manual.



Air circuit breakers (ACB)

120	Technical data
122	Automatic circuit breakers
123	Switch-disconnectors
124	Emax 2 – accessories, standard supply
125	Electrical accessories
127	Mechanical accessories
129	Ekip modules – accessories
131	Mechanical interlock
133	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



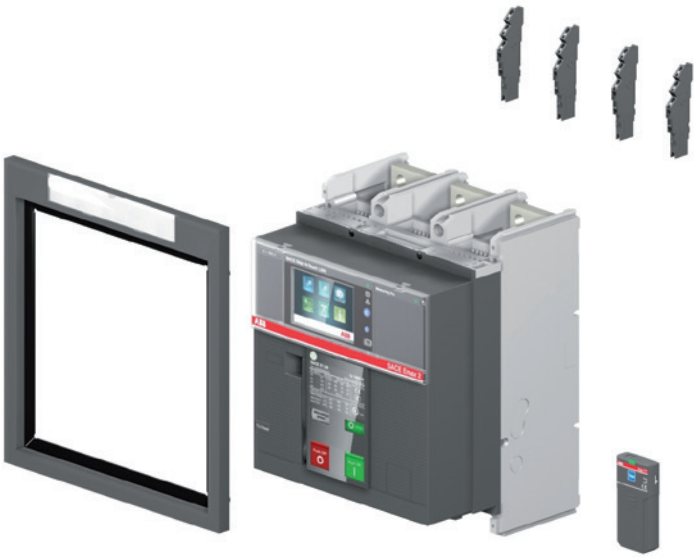
Withdrawable version
Fixed part

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



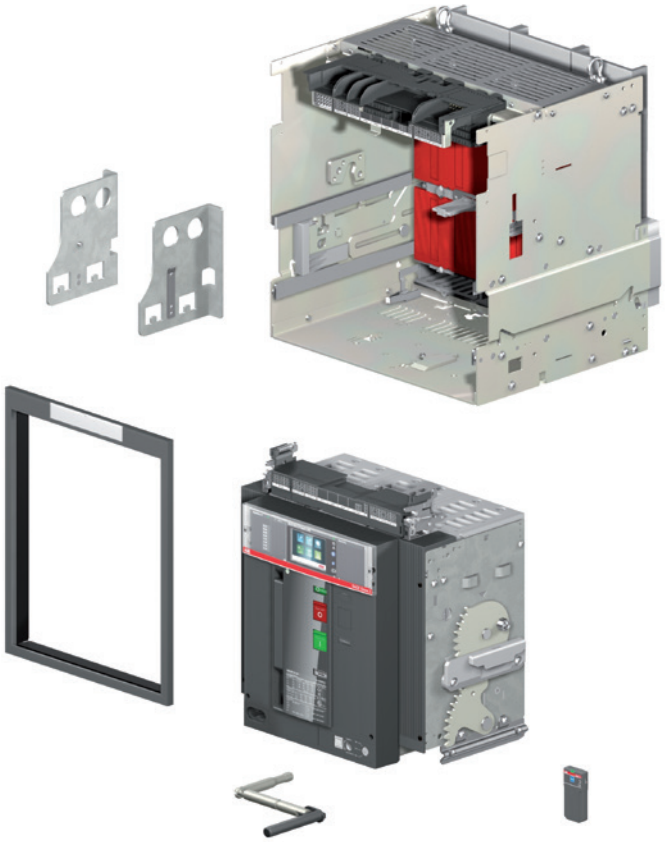
Fixed versions

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
- 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
- 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

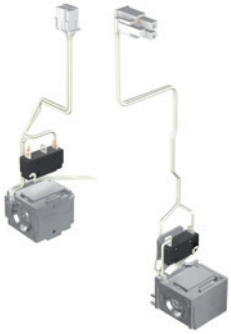


First and Second Opening Release – YO
Opening and Closing releases are interchangeable.

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

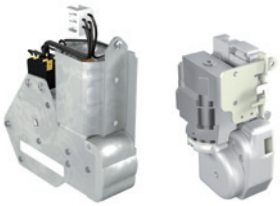


Undervoltage release – YU

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

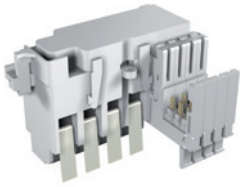
Electrical accessories – Emax 2



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



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



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



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



Mechanical operation counter – MOC

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





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.

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.



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



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



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



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.



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



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



Advanced functionalities
Software functions

Suitable size	Type	Order code
E1.2..E6.2 [a]	Adaptive Load Shedding	1SDA074184R1
E1.2..E6.2 [b]	ATS Main-Tie-Main Closed Transition	1SDA082886R1
E1.2..E6.2 [b]	ATS Main-Gen Open Transition	1SDA082889R1
E1.2..E6.2	Power Controller	1SDA074212R1

a) Available both factory fitted and via ABB Ability Marketplace™.
b) Available via ABB Ability Marketplace™ only.

Software packages

Suitable size	Type		Order code
	E1.2..E6.2	Measuring Package	1SDA107525R1
	E1.2..E6.2	Voltage Protection	1SDA105227R1
	E1.2..E6.2	Advanced Voltage Protection	1SDA105228R1
	E1.2..E6.2	Frequency Protection	1SDA105229R1
	E1.2..E6.2	Power Protection	1SDA105230R1
	E1.2..E6.2	ROCOF Protection	1SDA105231R1
	E1.2..E6.2	Adaptive Protection	1SDA105232R1
	E1.2..E6.2	Data Logger	1SDA105233R1
	E1.2..E6.2	Network Analyze	1SDA105234R1

Air circuit breakers

Ekip modules – accessories

Metering functions - Class 1 accuracy [a) b)]

Suitable size	Type		Order code
	E1.2	Class 1 Power&Energy Metering E1.2	1SDA107551R1
	E2.2	Class 1 Power&Energy Metering E2.2	1SDA107675R1
	E4.2	Class 1 Power&Energy Metering E4.2	1SDA107676R1
	E6.2	Class 1 Power&Energy Metering E6.2	1SDA107677R1

a) Factory fitted only. Extracodes available for Ekip Touch and Ekip G Touch trip units.
b) Class 1 accuracy not available for Emax 2/E9.

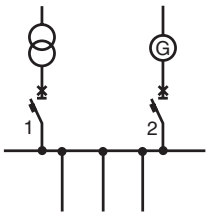


Rating Plugs for Ekip Units

Suitable size	Type		Order Code (loose supply)	Order Code (installed)
	E1.2..E6.2	Rating Plug 630A (Black)	1SDA112845R1	1SDA074262R1
	E1.2..E6.2	Rating Plug 800A (Black)	1SDA112846R1	1SDA074263R1
	E1.2..E6.2	Rating Plug 1000A (Black)	1SDA112847R1	1SDA074264R1
	E1.2..E6.2	Rating Plug 1250A (Black)	1SDA112849R1	1SDA074265R1
	E1.2..E6.2	Rating Plug 1600A (Black)	1SDA112850R1	1SDA074266R1
	E2.2..E6.2	Rating Plug 2000A (Black)	1SDA112851R1	1SDA074267R1
	E2.2..E6.2	Rating Plug 2500A (Black)	1SDA112852R1	1SDA074268R1
	E4.2..E6.2	Rating Plug 3200A (Black)	1SDA112854R1	1SDA074269R1
	E4.2..E6.2	Rating Plug 4000A (Black)	1SDA112856R1	1SDA074270R1
	E6.2	Rating Plug 5000A (Black)	1SDA112857R1	1SDA074271R1
	E6.2	Rating Plug 6300A (Black)	1SDA112859R1	-

Air circuit breakers
Mechanical interlock

Type A



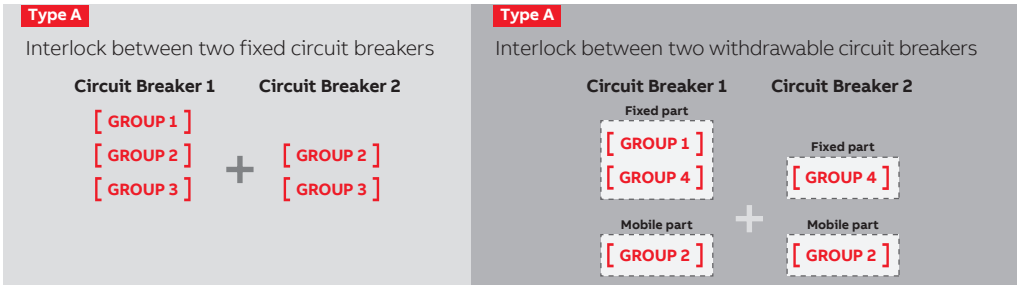
Main line power supply and emergency power supply.

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

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

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

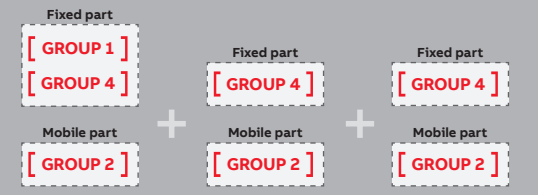
Type C

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



Type C

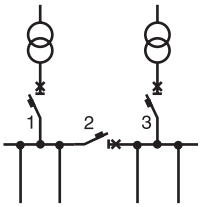
Type C with bus tie Interlock between three withdrawable circuit-breakers: **Available for E2.2 – E6.2 only**



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



Moulded case circuit breakers (MCCB)

136	Technical data
144	Moulded case circuit breakers
150	Conversion kits
153	Electrical accessories
155	Mechanical accessories

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

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

SACE Tmax XT automatic circuit-breakers for alternating current (AC) distribution



Size					**XT1**		
Rated uninterrupted current		[A]			160		
Poles		[No.]			3, 4		
Rated service voltage, **Ue**	(AC) 50-60Hz	[V]			690		
Rated insulation voltage, **Ui**		[V]			800		
Rated impulse withstand voltage, **Uimp**		[kV]			8		
Versions					Fixed, Plug-in(1)		
Max supply voltage on bottom side (F, P, W)		[V]			690		
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
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% (5)	50% (5)	50%
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	110	154
Icm @ 415V 50-60Hz (AC)		[kA]	36	52.5	75.6	110	154
Icm @ 440V 50-60Hz (AC)		[kA]	30	52.5	75.6	110	143
Icm @ 500V 50-60Hz (AC)		[kA]	13.6	36	63	75.6	110
Icm @ 525V 50-60Hz (AC)		[kA]	9	13.6	46.2	73.5	73.5
Icm @ 690V 50-60Hz (AC)		[kA]	4.26	5.88	9	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
Utilization Category (IEC 60947-2)					A		
Icw		[kA]			-		
Reference Standard					IEC 60947-2		
Insulation behaviour					□		
Mounted on DIN rail					DIN EN 50022		
Mechanical life		[No. Operations]			25,000		
		[No. Hourly operations]			240		
Electrical life @ 415 V (AC)		[No. Operations]			8,000		
		[No. Hourly operations]			120		

(1) XT1 plug-in In max=125A (2) In<32A Icu=25kA/Ics=20kA, with magnetic trip unit only and In≤52A/Icu=Ics=5kA
(3) Ics=100% Icu up to 250 A with EF, ES, Rear and external FC CuAl (2x...) terminal. When any other terminals are used and load >200A Icu=25%





	XT2					XT3			XT4				
	160					250			160 / 250				
	3, 4					3, 4			3, 4				
	690					690			690				
	1000					800			1000				
	8					8			8				
	Fixed, Withdrawable, Plug-in					Fixed, Plug-in			Fixed, Withdrawable, Plug-in				
	≤ 480					690			≤ 600				
	N	**S**	**H**	**L**	**V**	**N**	**S**	**N**	**S**	**H**	**L**	**V**	**X**
	65	85	100	150	200	50	85	65	85	100	150	200	200
	36	50	70	120	150	36	50	36	50	70	120	150	200
	36	50	70	120	150	36	50	36	50	70	120	150	200
	36	50	65	100	150	25	40	36	50	65	100	150	200
	30	36	50	60	70	20	30	30	36	50	60	85	100
	20	25	30	36	50	13	20	20	25	45	50	70	100
	10	12	15	18	20	5	6	10	12	15	20	50[2]	100
	100%	100%	100%	100%	100%	75%	50%	100%	100%	100%	100%	100%	100%
	100%	100%	100%	100%	100%	75%	50% (27)	100%	100%	100%	100%	100%	100%
	100%	100%	100%	100%	100%	75%	50% (27)	100%	100%	100%	100%	100%	100%
	100%	100%	100%	100%	100%	75%	50%	100%	100%	100%	100%	100%	100%
	100%	100%	100%	100%	100%	75%	50%	100%	100%	100%	100%	100%	100%
	100%	100%	100%	100%	100%	75%	50%	100%	100%	100%	100%	100%	100%
	100%	100%	100%	75% (15)	75%	50% (3)	50%	100%	100%	100%	100%	100%[3]	100%[3]
	143	187	220	330	440	110	187	143	187	220	330	440	440
	75.6	110	154	264	330	75.6	110	75.6	110	154	264	330	440
	75.6	110	154	264	330	75.6	110	75.6	110	154	264	330	440
	75.6	110	143	220	330	52.5	84	75.6	110	143	220	330	440
	63	75.6	110	132	154	40	63	63	75.6	110	132	187	220
	40	52.5	63	75.6	110	26	40	40	52.5	94.5	110	154	220
	17	24	30	36	40	7.5	9	17	24	30	40	110	220
	65	85	100	150	200	50	85	65	85	100	150	200	200
	30	36	65	100	150	25	35	30	36	65	100	150	100
			A				A			A			
			-				-			-			
			IEC 60947-2				IEC 60947-2			IEC 60947-2			
			□				□			□			
			DIN EN 50022				DIN EN 50022			DIN EN 50022			
			25,000				25,000			25,000			
			240				240			240			
			8,000				8,000		8,000			10,000	
			120				120			120			

SACE Tmax XT automatic circuit-breakers for alternating current (AC) distribution



Size			**XT1**
Dimensions			
Fixed	3 poles	[mm]	76.2 x 70 x 130
(Width x Depth x Height)	4 poles	[mm]	101.6 x 70 x 130
Trip units for power distribution			
TMD/TMA			
TMD/TMF			□
Ekip Dip			
Ekip Touch			
Trip units for motor protection			
MF/MA			
Ekip Dip			
Ekip Touch			
Trip units for generator protection			
TMG			
Ekip Dip			
Ekip Touch			
Interchangeable 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]	





XT2	XT3	XT4
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
▯		▯
	▯	
▯		▯
▯		▯
▯	▯	▯
▯		▯
▯		▯
▯	▯	
▯		▯
▯		▯
▯		▯
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

SACE Tmax XT automatic circuit-breakers for alternating current (AC) distribution



Size			**XT5**					
Rated uninterrupted current		[A]	400 / 630					
Poles		[No.]	3. 4					
Rated service voltage. **Ue**	(AC) 50-60Hz	[V]	690					
Rated insulation voltage. **Ui**		[V]	1000					
Rated impulse withstand voltage. **Uimp**		[kV]	8					
Versions			Fixed. Withdrawable. Plug-in (5)					
Max supply voltage on bottom side (F. P. W)		[V]	690					
Breaking capacities according to IEC 60947-2			**N**	**S**	**H**	**L**	**V**	**X**
Rated ultimate short-circuit breaking capacity. Icu								
Icu @ 220-230-240V 50-60Hz (AC)		[kA]	70	85	100	150	200	200
Icu @ 380V 50-60Hz (AC)		[kA]	36	50	70	120	200	200
Icu @ 415V 50-60Hz (AC)		[kA]	36	50	70	120	200	200
Icu @ 440V 50-60Hz (AC)		[kA]	36	50	65	100	180	200
Icu @ 500V 50-60Hz (AC)		[kA]	25	30	50	85	150	150
Icu @ 525V 50-60Hz (AC)		[kA]	25	30	50	85	100	120
Icu @ 690V 50-60Hz (AC)		[kA]	20	25	40	70	80	100
Rated service short-circuit breaking capacity. Ics								
Ics @ 220-230-240V 50-60Hz (AC)		[kA]	100%	100%	100%	100%	100%	100%
Ics @ 380V 50-60Hz (AC)		[kA]	100%	100%	100%	100%	100%	100%
Ics @ 415V 50-60Hz (AC)		[kA]	100%	100%	100%	100%	100%	100%
Ics @ 440V 50-60Hz (AC)		[kA]	100%	100%	100%	100%	100%	100%
Ics @ 500V 50-60Hz (AC)		[kA]	100%	100%	100%	100%	100%	100%
Ics @ 525V 50-60Hz (AC)		[kA]	100%	100%	100%	100%	100%	100%
Ics @ 690V 50-60Hz (AC)		[kA]	100%	100%	100% (2)	100% (3)	100% (3)	100% (3)
Rated short-circuit making capacity. Icm								
Icm @ 220-230-240V 50-60Hz (AC)		[kA]	154	187	220	330	440	440
Icm @ 380V 50-60Hz (AC)		[kA]	75.6	110	154	264	440	440
Icm @ 415V 50-60Hz (AC)		[kA]	75.6	110	154	264	440	440
Icm @ 440V 50-60Hz (AC)		[kA]	75.6	110	143	220	396	440
Icm @ 500V 50-60Hz (AC)		[kA]	52.5	63	110	187	330	330
Icm @ 525V 50-60Hz (AC)		[kA]	52.5	63	110	187	220	264
Icm @ 690V 50-60Hz (AC)		[kA]	40	52.5	84	154	176	220
Breaking capacities according to NEMA-AB1								
@ 240V 50-60Hz (AC)		[kA]						
@ 480V 50-60Hz (AC)		[kA]						
Utilization Category (IEC 60947-2)			A (up to 630A). B (up to 500A) (4)					
Icw (1 sec)		[kA]	6					
Reference Standard			IEC 60947-2					
Insulation behaviour			□					
Mounted on DIN rail			-					
Mechanical life		[No. operations]	20,000					
		[No. hourly operations]	120					
Electrical life @ 415 V (AC)		[No. operations]	7,000 (400A) - 5,000 (630A)					
		[No. hourly operations]	60					

(1) Not suitable for IT distribution systems > 440Vac (2) Ics = 75% In > 500A (3) Ics = 50% In > 500A (4) Category B: only when equipped with an electronic trip unit





XT6[1]			XT7			XT7 M		
800 / 1000 [6]			800 / 1000 / 1250 / 1600			800 / 1000 / 1250 / 1600		
3. 4			3. 4			3. 4		
690			690			690		
1000			1000			1000		
8			8			8		
Fixed. Withdrawable			Fixed. Withdrawable			Fixed. Withdrawable		
690			690			690		
N	**S**	**H**	**S**	**H**	**L**	**S**	**H**	**L**
70	85	100	85	100	200	85	100	200
36	50	70	50	70	120	50	70	120
36	50	70	50	70	120	50	70	120
30	45	50	50	65	100	50	65	100
25	35	50	45	50	85	45	50	85
25	35	50	45	50	65	45	50	65
20	22	25	30	42	50	30	42	50
100%	100%	100%	100%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	100%	100%	100%
154	187	220	187	220	440	187	220	440
75.6	110	154	110	154	264	110	154	264
75.6	110	154	110	154	264	110	154	264
63	94.5	110	110	143	220	110	143	220
52.5	73.5	110	94.5	110	187	94.5	110	187
52.5	73.5	110	94.5	110	143	94.5	110	143
40	46.2	52.5	63	88.2	110	63	88.2	110
A (up to 1000A) - B (800A) [4]			B			B		
10			20			20		
IEC 60947-2			IEC 60947-2			IEC 60947-2		
□			□			□		
-			-			-		
20,000			10,000			20,000		
120			60			60		
5,000			3,000			3,000		
60			60			60		

(5) Plug-in/Withdrawable: max In 40°C=600A (6) 1000A only for fixed execution with EF. ES. R and FCCuAl terminals. EF terminals are supplied as standard if no other terminals are ordered

SACE Tmax XT automatic circuit-breakers for alternating current (AC) distribution



Size			**XT5**
Dimensions			
Fixed	3 poles	[mm]	140 x 103 x 205
(Width x Depth x Height)	4 poles	[mm]	186 x 103 x 205
Trip units for power distribution			
TMD/TMA			▯
TMD/TMF			
Ekip Dip			▯
Ekip Touch			▯
Trip units for motor protection			
MF/MA			▯
Ekip Dip			▯
Ekip Touch			▯
Trip units for generator protection			
TMG			▯
Ekip Dip			▯
Ekip Touch			▯
Interchangeable trip units			▯
Weight			
Fixed	3/4 poles	[kg]	3.25 / 4.15
Plug in (EF terminals)	3/4 poles	[kg]	5.15 / 6.65
Withdrawable (EF terminals)	3/4 poles	[kg]	5.4 / 6.9

(1) Not suitable for IT distribution systems > 440Vac (2) Ics = 75% In > 500A (3) Ics = 50% In > 500A (4) Category B: only when equipped with an electronic trip unit

		
XT6[1]	**XT7**	**XT7 M**
210 x 103.5 x 268	210 x 166 x 268	210 x 178 x 268
280 x 103.5 x 268	280 x 166 x 268	280 x 178 x 268
▯		
▯	▯	▯
	▯	▯
▯	▯	▯
	▯	▯
▯	▯	▯
	▯	▯
▯	▯	▯
9.5 / 12	9.7 / 12.5	11 / 14
12.1 / 15.1	29.7 / 39.6	32 / 42.6

(5) Plug-in/Withdrawable: max In 40°C=600A (6) 1000A only for fixed execution with EF, ES, R and FCCuAl terminals. EF terminals are supplied as standard if no other terminals are ordered

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	XT5N	TMA	1SDA100344R1	1SDA100383R1
			Ekip LSI	1SDA100357R1	1SDA100399R1
	400	XT5N	TMA	1SDA100345R1	1SDA100385R1
			Ekip LSI	1SDA100358R1	1SDA100400R1
	500	XT5N	TMA	1SDA100346R1	1SDA100387R1
	630	XT6N	TMA	1SDA107561R1	1SD107569R1
		XT6N	Ekip LSI	1SDA107563R1	1SDA107571R1
	800	xT6N	Ekip LSI	1SDA100721R1	1SDA100734R1

▶ 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	XT5S	Ekip LSI	1SDA100427R1	1SDA100469R1
	400	XT5S	TMA	1SDA100415R1	1SDA100455R1
			Ekip LS/I	1SDA100424R1	1SDA100466R1
			Ekip LSI	1SDA100428R1	1SDA100470R1
	630	XT5S	Ekip LS/I	1SDA100417R1	1SDA100459R1
			Ekip LSI	1SDA100429R1	1SDA100471R1
		XT6S	TMA	1SDA107574R1	1SDA107582R1
		XT6S	Ekip LSI	1SDA107576R1	1SDA107584R1
	800	XT6S	TMA	1SDA100740R1	1SDA100753R1
			Ekip LS/I	1SDA100741R1	1SDA100754R1
			Ekip LSI	1SDA100743R1	1SDA100756R1
	1000	XT7S Manual	Ekip LS/I	1SDA100827R1	1SDA101115R1
		XT7S Manual	Ekip LSI	1SDA100831R1	1SDA101119R1
		XT7S M Motorizable	Ekip LS/I	1SDA101367R1	1SDA101655R1
		XT7S M Motorizable	Ekip LSI	1SDA101371R1	1SDA101659R1
	1250	XT7S Manual	Ekip LS/I	1SDA100828R1	1SDA101116R1
		XT7S Manual	Ekip LSI	1SDA100832R1	1SDA101120R1
		XT7S M Motorizable	Ekip LS/I	1SDA101368R1	1SDA101656R1
		XT7S M Motorizable	Ekip LSI	1SDA101372R1	1SDA101660R1
	1600	XT7S Manual	Ekip LS/I	1SDA100829R1	1SDA101117R1
		XT7S Manual	Ekip LSI	1SDA100833R1	1SDA101121R1
		XT7S M Motorizable	Ekip LS/I	1SDA101369R1	1SDA101657R1
		XT7S M Motorizable	Ekip LSI	1SDA101373R1	1SDA101661R1

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	XT4H	Ekip LS/I	1SDA100489R1	1SDA100527R1
			Ekip LSI	1SDA100493R1	1SDA100531R1
		XT5H	TMA	1SDA100484R1	1SDA100519R1
	400	XT5H	TMA	1SDA100485R1	1SDA100521R1
			Ekip LS/I	1SDA100490R1	1SDA100528R1
			Ekip LSI	1SDA100494R1	1SDA100532R1
	630	XT5H	Ekip LS/I	1SDA100491R1	1SDA100529R1
			Ekip LSI	1SDA100495R1	1SDA100533R1
		XT5H	TMA	1SDA100487R1	1SDA100525R1
	800	XT6H	TMA	1SDA100762R1	1SDA100775R1
			Ekip LS/I	1SDA100763R1	1SDA100776R1
			Ekip LSI	1SDA100765R1	1SDA100778R1
	1000	XT7S Manual	Ekip LS/I	1SDA100827R1	1SDA101115R1
		XT7S Manual	Ekip LSI	1SDA100831R1	1SDA101119R1
		XT7S M Motorizable	Ekip LS/I	1SDA101367R1	1SDA101655R1
		XT7S M Motorizable	Ekip LSI	1SDA101371R1	1SDA101659R1
	1250	XT7S Manual	Ekip LS/I	1SDA100828R1	1SDA101116R1
		XT7S Manual	Ekip LSI	1SDA100832R1	1SDA101120R1
		XT7S M Motorizable	Ekip LS/I	1SDA101368R1	1SDA101656R1
		XT7S M Motorizable	Ekip LSI	1SDA0101372R1	1SDA101660R1
	1600	XT7S Manual	Ekip LS/I	1SDA100829R1	1SDA101117R1
		XT7S Manual	Ekip LSI	1SDA100833R1	1SDA101121R1
		XT7S M Motorizable	Ekip LS/I	1SDA101369R1	1SDA101657R1
		XT7S M Motorizable	Ekip LSI	1SDA101373R1	1SDA101661R1

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

SA CE XT2, XT4 - Breaking part

Type			3 poles	4 poles
XT2	36kA	XT2N 160 Breaking part	1SDA068163R1	1SDA068168R1
	50kA	XT2S 160 Breaking part	1SDA068164R1	1SDA068169R1
	70kA	XT2H 160 Breaking part	1SDA068165R1	1SDA068170R1
XT4	36kA	XT4N 250 Breaking part	1SDA068173R1	1SDA068178R1
	50kA	XT4S 250 Breaking part	1SD068174R1	1SDA068179R1
	70kA	XT4H 250 Breaking part	1SD068175R1	1SDA068180R1

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

Trip units - Distribution protection

Type		3 poles Code	4 poles Code
XT2	Ekip Touch Measuring LSI In=40A	1SDA100108R1	1SDA067247R1
	Ekip Touch Measuring LSI In=63A	1SDA067227R1	1SDA067248R1
	Ekip Touch Measuring LSI In=100A	1SDA067228R1	1SDA067249R1
	Ekip Touch Measuring LSI In=160A	1SDA067229R1	1SDA067250R1
	Ekip Touch Measuring LSI In=40A	1SDA067230R1	1SDA067251R1
	Ekip Touch Measuring LSI In=40A	1SDA067231R1	1SDA067252R1
	Ekip Touch Measuring LSI In=40A	1SDA067232R1	1SDA067253R1
	Ekip Touch Measuring LSI In=40A	1SDA067233R1	1SDA067254R1

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



XT1 circuit breaker



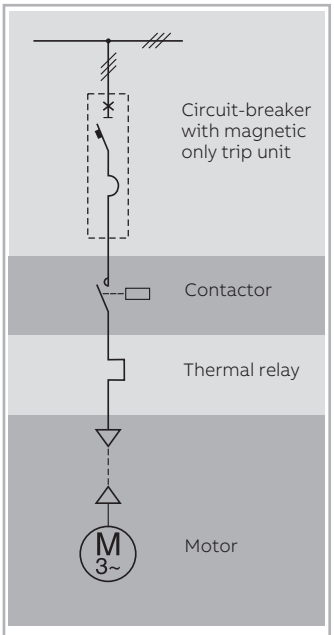
XT3 circuit breaker

Moulded case switch-disconnectors
3 and 4 Poles

In A	Tmax type		3 poles	Order code 4 poles
160	XT1D 160	1SDA068208R1	1SDA068209R1	1SDA068209R1
250	XT3D 250	1SDA068210R1	1SDA068211R1	1SDA068211R1
250	XT4D 250	1SDA068212R1	1SDA068213R1	1SDA054598R1
400	XT5D 400	1SDA100546R1	1SDA100548R1	1SDA054600R1
630	XT5D 630	1SDA100547R1	1SDA100549R1	1SDA054602R1
800	XT6D 800	1SDA100784R1	1SDA100786R1	1SDA060346R1
1000	X T7D Manual		1SDA101906R1	1SDA101909R1
	XT7D Motorizable		1SDA101912R1	1SDA101915R1
	XT7D Manual		1SDA101907R1	1SDA101910R1
1250	XT7D Motorizable		1SDA101913R1	1SDA101916R1
1600	XT7D Manual		1SDA101908R1	1SDA101911R1
	XT7D Motorizable		1SDA101913R1	1SDA101916R1

Moulded case circuit breakers

Circuit breakers

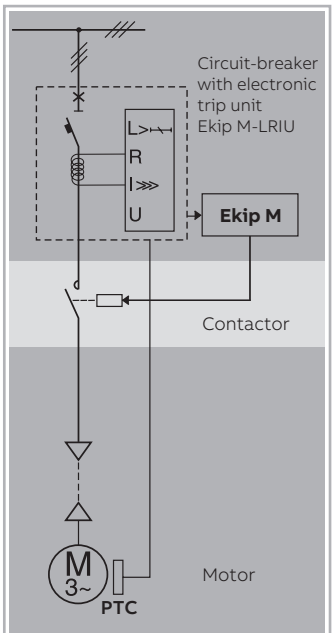


Conventional system

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	XT5H	Ekip M	1SDA054134R1
	400	XT5H	Ekip M	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	Order code 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.

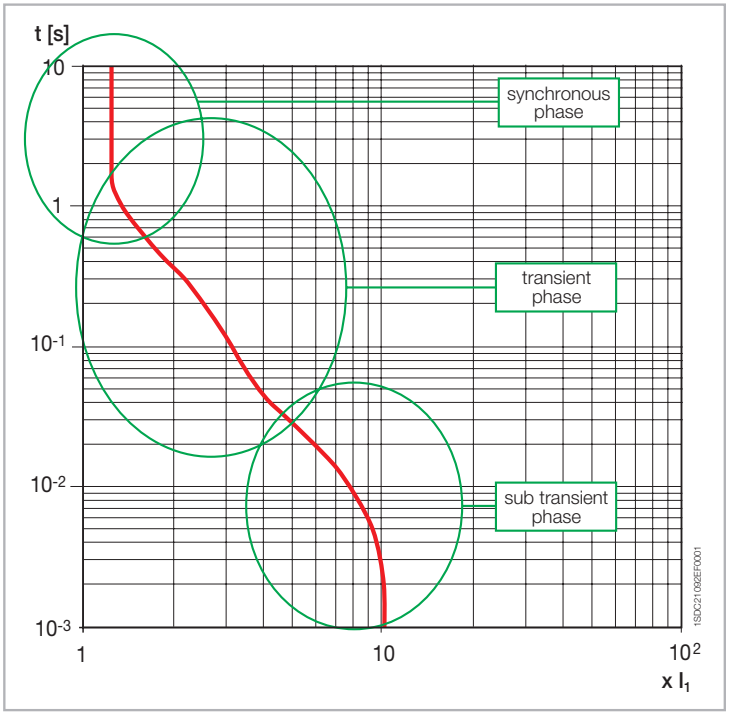

XT4 circuit breaker

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	Order code 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.



Moulded case circuit breakers
Conversion kits



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+



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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
XT5 (Max. 570A)	1SDA104676R1

+

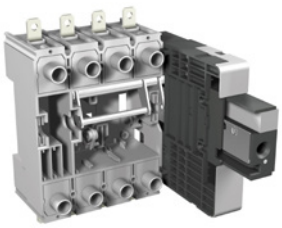
Tmax fixed circuit breaker

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Conversion kit

Suitable type	Order code 3 poles
XT1	1SDA066276R1
XT2	1SDA066278R1
XT3	1SDA066280R1
XT4	1SDA066282R1
XT5 (Max. 570A)	1SDA054847R1

Moulded case circuit breakers
Conversion kits



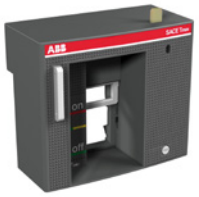
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Conversion kit from fixed to withdrawable
Tmax XT2, XT4, T5, T6

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
XT5 (Max. 400A)	1SDA104682R1	1SDA104686R1
XT6	1SDA104696R1	1SDA104699R1

+

Tmax fixed circuit breaker

+

Conversion kit

Suitable type	Order code 3 poles	Order code 4 poles
XT2	1SDA066284R1	1SDA066285R1
XT4	1SDA066286R1	1SDA066287R1
XT5 (Max. 400A)	1SDA104711R1	1SDA104711R1
XT6	1SDA104715R1	1SDA104716R1

+

FLD (Front for lever operating mechanism) or RH_ (Rotary handle) or MOE (Motor)

Moulded case circuit breakers
Conversion kits











Conversion kit from fixed to withdrawable
Tmax XT7-XT7M
The complete assembly is composed by:

Withdrawable fixed part
+ Tmax Fixed circuit breaker
+ Conversion kit

Withdrawable, fixed part

Suitable type	Description	Order code 3 poles	Order code 4 poles
XT7-XT7M	Fixed part with Rear terminals (HR VR)	1SDA104703R1	1SDA104705R1

+

Moulded case circuit breaker, fixed version

+

Conversion kit

Suitable type	Order code 3 poles	Order code 4 poles
XT7-XT7M	1SDA104717R1	1SDA104718R1

+

Sliding contacts

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
XT5	RC222/5		1SDA105131R1



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
XT5...XT6	24-60V AC/DC	1SDA104925R1
	110..240V AC - 110..250V DC	1SDA104926R1
	380...440V AC	1SDA104927R1
XT7-XT7M	24V AC/DC	1SDA073668R1
	110-120V AC/DC	1SDA073672R1
	220-240V AC/DC	1SDA073674R1



Shunt closing release – SCR
Uncabled versions.

Suitable type	Description	Order code
XT7-X7M	110-120V AC/DC	1SDA073672R1
	220-240V AC/DC	1SDA073674R1

Moulded case circuit breakers

Electrical accessories



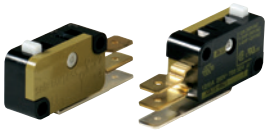


Undervoltage release – UVR

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
XT5...XT6	24-30V AC/DC	1SDA104941R1
	110-120V AC/DC	1SDA104943R1
	220-240V AC / 220-250V DC	1SDA104944R1
XT7-XT7M	24V AC/DC	1SDA073694R1
	110-120V AC/DC	1SDA073698R1
	220-240V AC/DC	1SDA073700R1





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
XT5...XT6	1Q+1SY 250V AC/DC	1SDA066431R1
	3Q+1SY 250V AC/DC	1SDA066434R1
	3Q+1SY 24V DC	1SDA066448R1
XT7	1Q+1SY 400V AC	1SDA104831R1
XT7-XT7M	2Q 400V AC	1SDA073750R1

XT7-XT7M available Auxiliary contacts combinations.

XT7	SY	Q1			1Q + 1SY	XT7M			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.

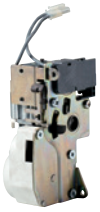
Suitable type	Order code
XT2 and XT4	1SDA066424R1
XT4...XT6	1SDA066977R1
XT7-XT7M	1SDA073776R1

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.

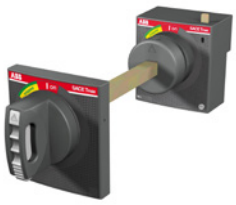
Suitable type	Description	Order code
XT1 and XT3	24V DC	1SDA066457R1
	110...125V AC/DC	1SDA066459R1
	220...250V AC/DC	1SDA066460R1
XT2 and XT4	24V DC	1SDA066463R1
	110...125V AC/DC	1SDA066465R1
	220...250V AC/DC	1SDA066466R1
XT5-XT6	24V DC	1SDA104879R1
	110...125V AC/DC	1SDA104883R1
	220...250V AC/DC	1SDA104885R1
XT7M	24...30V AC/DC	1SDA104919R1
	100...130V AC/DC	1SDA104921R1
	220...250V AC/DC	1SDA104922R1

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
XT5	Normal	1SDA104826R1
	Emergency	1SDA104830R1
XT6	Normal	1SDA104835R1
	Emergency	1SDA104836R1
XT7	Normal	1SDA104838R1
	Emergency	1SDA104840R1

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
XT5	Normal	1SDA104843R1
	Emergency	1SDA104849R1
XT6	Normal	1SDA104853R1
	Emergency	1SDA104859R1
XT7	Normal	1SDA104863R1
	Emergency	1SDA104866R1



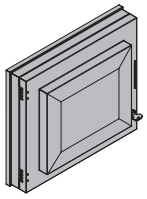
IP54 Protection for transmitted rotary handle (RHE)

Suitable type	Order code
XT1...XT4	1SDA066587R1



Transparent protection for buttons

Suitable type	Description	Order code
XT7M	Two independent covers for both buttons	1SDA073801R1



IP54 Door protection

Suitable type	Order code
X T7M	1SDA073866R1

Padlock lever lock – PLL
XT4...XT6 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
XT5		1SDA105098R1
XT6		1SDA105101R1
XT7		1SDA105104R1
XT7M		1SDA073802R1



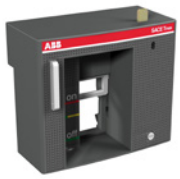
Moulded case circuit breakers

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
XT4-XT5	Different keys	1SDA054939R1
	Same key (no. 20005) for different groups of CBs	1SDA054940R1
XT6	Different keys	1SDA060658R1
	Same key (no. 20005) for different groups of CBs	1SDA060659R1
XT7	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
XT4-XT5	Withdrawable	1SDA054945R1
	Fixed or Plug-in	1SDA054944R1
XT6	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

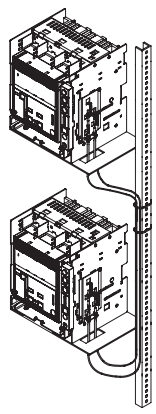




Rear mechanical interlock
XT1-XT2-XT3-XT4 chassis

Size	Type	Order code
XT1...XT4	MIR-H	1SDA066637R1
XT1...XT4	MIR-V	1SDA066638R1
XT1	Plate XT1 F	1SDA066639R1
XT1	Plate XT1 P	1SDA066640R1
XT2	Plate XT2 F	1SDA066641R1
XT2	Plate XT2 P/W	1SDA066642R1
XT3	Plate XT3 F	1SDA066643R1
XT3	Plate XT3 P	1SDA066644R1
XT4	Plate XT4 F	1SDA066645R1
XT4	Plate XT4 P/W	1SDA066646R1
XT5 chassis		
XT5	MIR-H	1SDA105117R1
XT5	MIR-V	1SDA105119R1
XT5	Plate XT5 F	1SDA105122R1
XT5	Plate XT5 P/W 400A	1SDA105123R1
XT5	Plate XT5 P/W 630A	1SDA105124R1
XT4	Plate for XT4 F with XT5 MIR	1SDA105121R1
XT4	Plate for XT4 P/W with XT5 MIR	1SDA105125R1
XT5 chassis		
XT6	MIR-H	1SDA105118R1
XT6	MIR-V	1SDA105120R1
XT6	Plate XT6 F	1SDA105126R1
XT6	Plate XT6 W	1SDA105127R1
XT5	Plate for XT5 F with XT6 MIR	1SDA101988R1
XT5	Plate for XT5 P/W 400A with XT6 MIR	1SDA101989R1
XT5	late for XT5 P/W 630A with XT6 MIR	1SDA101990R1

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



Cable interlock

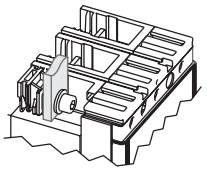
Size	Type	Order code
XT7-XT7 M	Type A horizontal	1SDA073881R1
XT7-XT7 M	Type A vertical	1SDA073885R1
XT7-XT7 M	Support for mechanical interlock FP Type A	1SDA073896R1
XT7-XT7 M	Support for mechanical interlock for fixed CB Type A - floor mounted	1SDA073893R1
XT7-XT7 M	Support for mechanical interlock for fixed CB Type A - wall mounted	1SDA073894R1

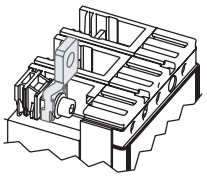
Moulded case circuit breakers

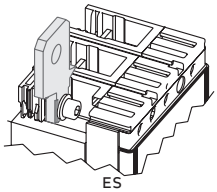
Mechanical accessories

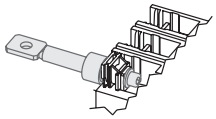
Terminals

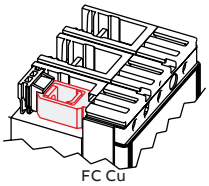
EF and ES versions include phase barrier separators as standard.
R versions includes LTC terminal shrouds as standard.
To add terminals to both sides of the MCCB, the same part number should be ordered twice.


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
	XT5	1SDA104730R1	1SDA104731R1
	XT6 (max. 800A)	1SDA104732R1	1SDA104733R1
	XT7-XT7M	1SDA073973R1	1SDA073974R1
EF - Front extended terminals	XT1	1SDA066865R1	1SDA066866R1
	XT2	1SDA066869R1	1SDA066870R1
	XT3	1SDA066873R1	1SDA066874R1
	XT4	1SDA066877R1	1SDA066878R1
	XT5	1SDA104734R1	1SDA104735R1
	XT6 (max. 630A)	1SDA104736R1	1SDA104737R1
	XT6 (max. 800A)	1SDA107473R1	1SDA107474R1
	XT7-XT7M	1SDA073967R1	1SDA073968R1
ES - Front extended spread terminals	XT1	1SDA066889R1	1SDA066890R1
	XT2	1SDA066893R1	1SDA066894R1
	XT3	1SDA066897R1	1SDA066898R1
	XT4	1SDA066901R1	1SDA066902R1
	XT5	1SDA104738R1	1SDA104739R1
	XT6 upper kit	1SDA104740R1	
	XT6 lower kit	1SDA113127R1	
	XT7-XT7M upper kit	1SDA073979R1	
	XT7-XT7M lower kit	1SDA076076R1	
R - Rear terminals	XT1	1SDA066937R1	1SDA066938R1
	XT2	1SDA066941R1	1SDA066942R1
	XT3	1SDA066945R1	1SDA066946R1
	XT4	1SDA066949R1	1SDA066950R1
	XT5	1SDA104760R1	1SDA104761R1
	XT6 (max. 800A)	1SDA104762R1	1SDA104763R1
	XT7-XT7M	1SDA073989R1	1SDA073989R1
FC Cu - Front terminals for copper cables	XT1	1SDA066905R1	1SDA066906R1
	XT2	1SDA066909R1	1SDA066910R1
	XT3	1SDA066913R1	1SDA066914R1
	XT4	1SDA066917R1	1SDA066918R1
	XT5	1SDA104742R1	
	XT6 (max. 630A)	1SDA104750R1	
HR - Rear flat horizontal terminals	XT7-XT7M	1SDA073989R1	

Moulded case circuit breakers

Mechanical accessories



Bracket for fixing onto DIN rail

Suitable type	Order code 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

Size	Type	Order code 3 poles	Order code 4 poles
XT1	LTC Low terminal covers	1SDA066655R1	1SDA066656R1
XT1	HTC High terminal covers	1SDA066664R1	1SDA066665R1
XT2	LTC Low terminal covers	1SDA066657R1	1SDA066659R1
XT2	HTC High terminal	1SDA066666R1	1SDA066667R1
XT3	LTC Low terminal	1SDA066660R1	1SDA066661R1
XT3	HTC High terminal	1SDA066668R1	1SDA066669R1
XT4	LTC Low terminal	1SDA066662R1	1SDA066663R1
XT4	HTC High terminal	1SDA066670R1	1SDA066671R1
XT5	LTC Low terminal	1SDA105018R1	1SDA105019R1
XT5	HTC High terminal	1SDA105025R1	1SDA105026R1
XT6	LTC Low terminal	1SDA105020R1	1SDA105021R1
XT6	HTC High terminal	1SDA105027R1	1SDA105028R1
XT7-XT7 M	LTC Low terminal	1SDA107475R1	1SDA107476R1
XT7-XT7 M	HTC High terminal	1SDA105029R1	1SDA105030R1

Note:
Insulating terminal covers must be considered as 2pcs each

Sealable screws for terminal covers

Size	Type	Order code
XT1...XT6	Kit with two sealable screws	1SDA066672R1



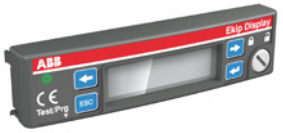
Phase barriers separators – PB

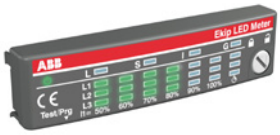
4 pieces suitable for 3 pole versions.
6 pieces suitable for 4 pole versions.

Phase separators for circuit-breaker

Size	Type	Order code 4 pieces	Order code 6 pieces
XT1-XT3	PB Height 100mm	1SDA066676R1	1SDA066681R1
XT2-XT4	PB Height 100mm	1SDA066675R1	1SDA066680R1
XT5	PB Height 100mm	1SDA105002R1	1SDA105003R1
XT6	PB Height 100mm	1SDA105010R1	1SDA105011R1
XT7-XT7 M	PB Height 100mm	1SDA073877R1	1SDA073878R1

Note:
When ordering terminal shrouds or phase barriers, please order sealable screw kit XT1 – XT6 1SDA066672R1





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

Ekip LSI, Ekip LSIG and Ekip M-LRIU trip units
Accessories for electronic Ekip Dip trip units (Ekip LSI, Ekip LSIG and Ekip M-LRIU)

Size	Type	Fixed/Plug-in	Withdrawable
XT2-XT4	Ekip Display	1SDA068659R1	1SDA068659R1
XT2-XT4	Ekip Com	1SDA068661R1	1SDA068662R1
XT2-XT4	HMI030 interface on front of panel	1SDA063143R1	1SDA063143R1
XT2-XT4	Kit of 24V DC auxiliary voltage for electronic trip units	1SDA066980R1	1SDA066981R1

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 XT2-XT4-XT5-XT7-XT7 M	Order code
All Tmax XT range	Ekip T&P (Test and Programing)	1SDA066989R1



Ekip Nultimiter Display

Display and supervision systems

Size	Type	Order code
XT2-XT4-XT5-XT7-XT7 M	Ekip Multimeter display on front of switchboard	1SDA074192R1



Lite Panel

Lite Panel

Size	Type	Order code
XT2-XT4-XT5-XT7-XT7 M	Lite Panel	1SDA114809R1



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

Load break switches

169 Switch-disconnectors

182 Change-over switches

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

- Switch disconnectors-OT – 1SCC301020C0201
- Transfer, changeover and bypass switches – 1SCC303003C0201

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


OHBS2AJ


OHYS2AJ

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

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

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_).


OHB45J6

Suitable switches	Handle description	Colour	Order code
OT16…125F_	45mm handle length	Black	OHB45J6

Load break switches

Accessories: Switch-disconnectors OT16…125



OHM65L6

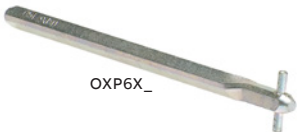
Stainless steel pistol handle

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.

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

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

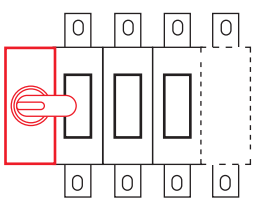
OT	400	E	03	W	P
1	2	3	4	5	6

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

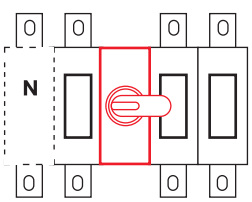
Pole configuration table

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.

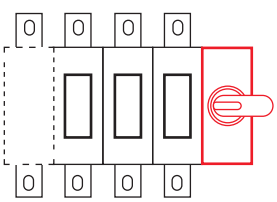
Front operated
Configuration 03, 04:



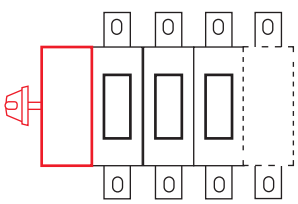
Front operated
Configuration 12, 22:



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

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

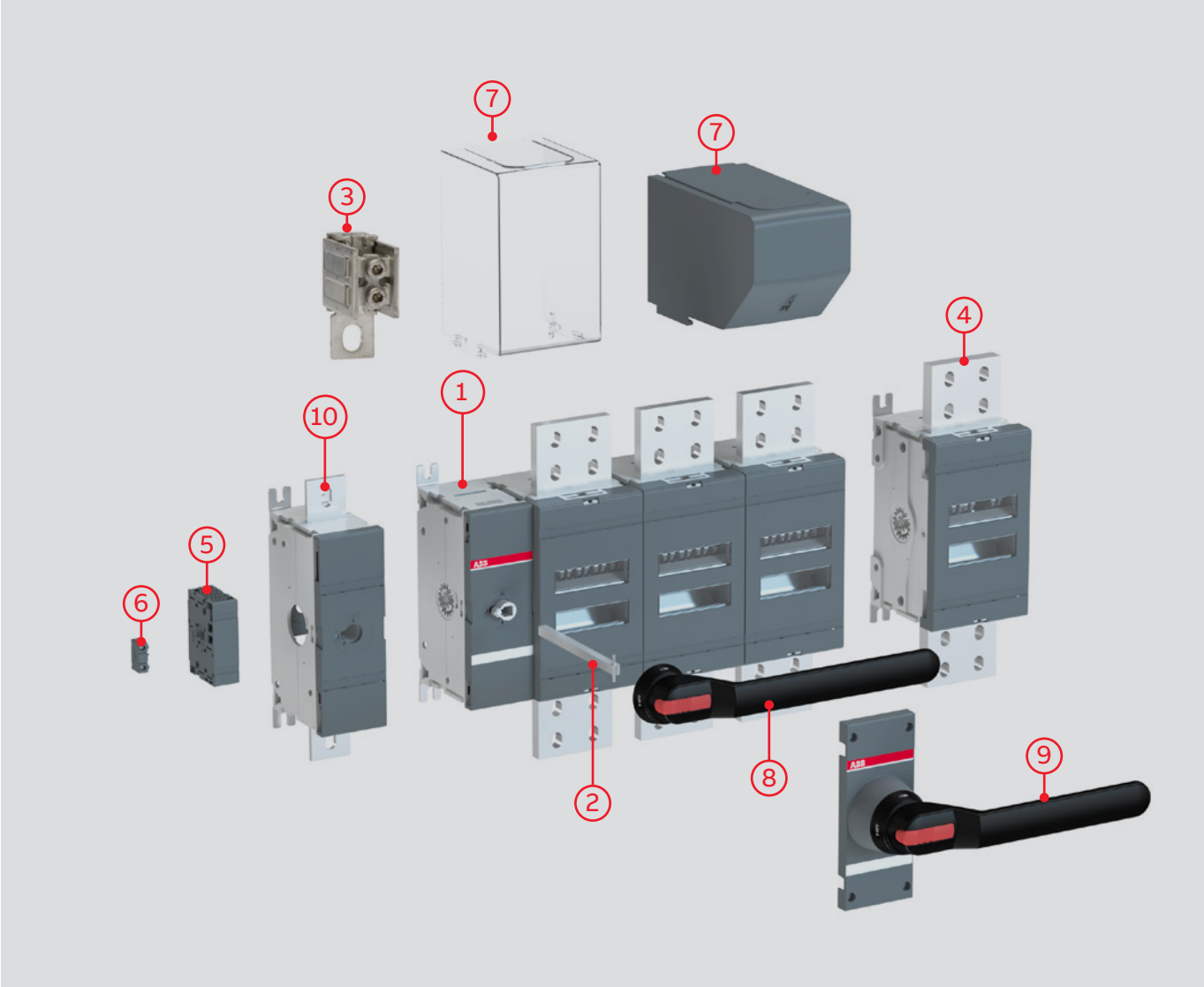
Note:
- Different pole configuration available e.g. OT400ES30P
- Left or right side switch configuration ES03P or ES30P

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

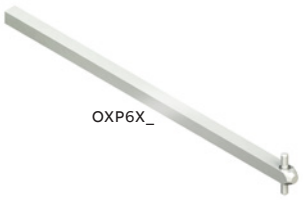
Direct mounted pistol handle

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



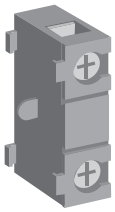
OXP6X_



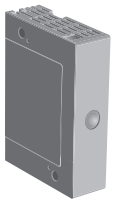
OXP12X_

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



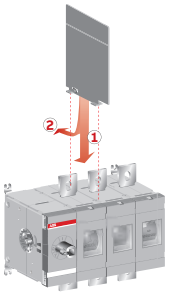
OTS1600G1S

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

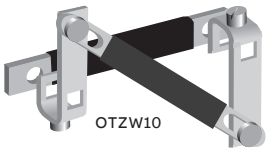
Conversion kits for front operated switch combinations

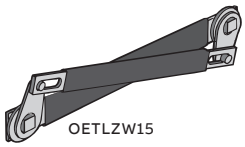


OESAZW2

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

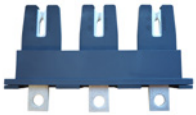

OTZT1A


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

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

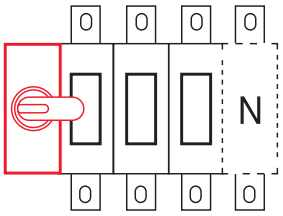
Pole configuration table

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.

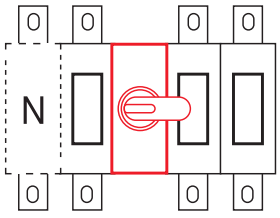
For example:

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

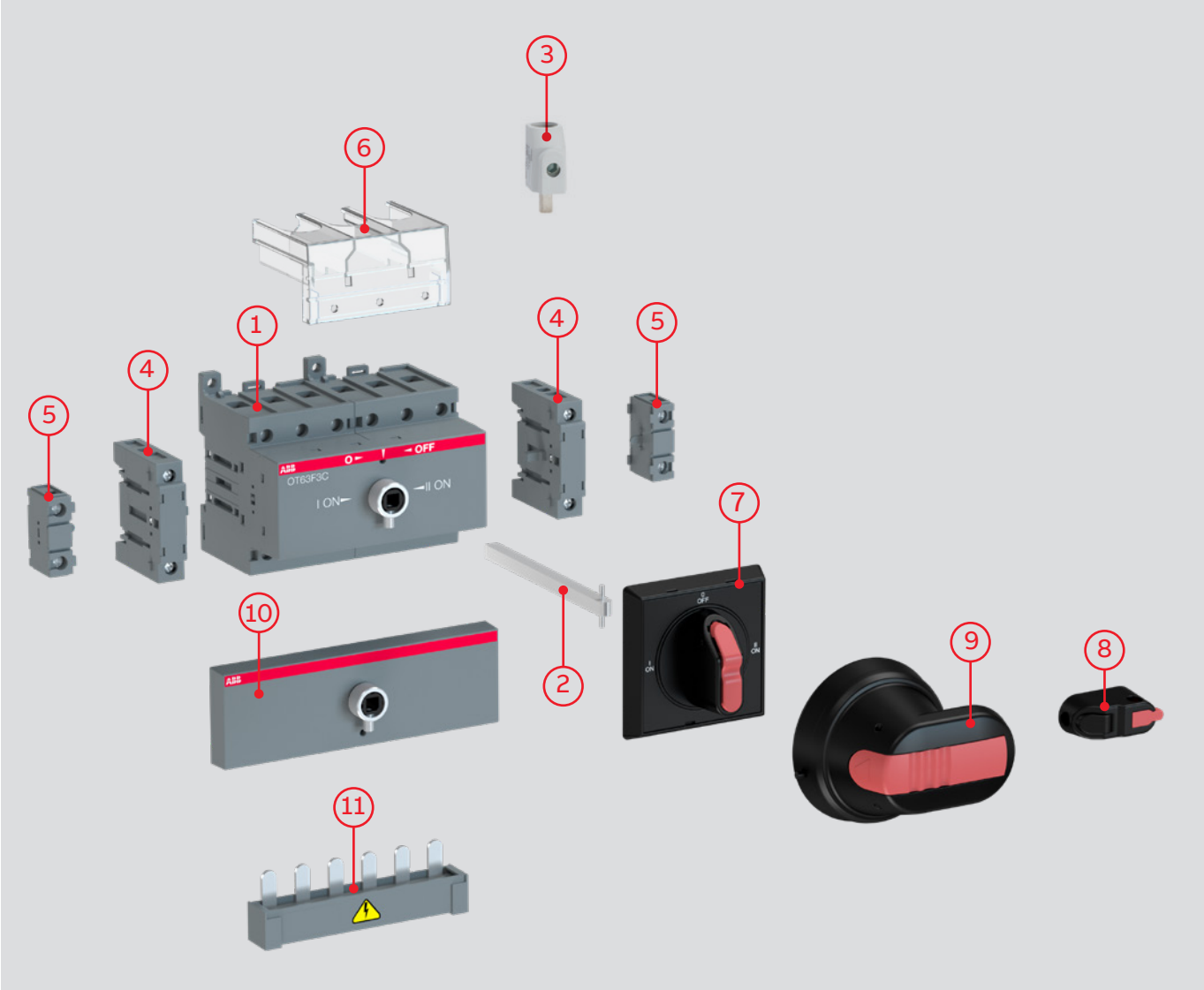
Ordering example

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

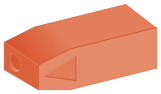
Please note that listed accessories are not automatically included in your order.
See next page for recommendations.

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



OXS6X_

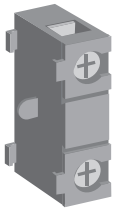


OXP6X_

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

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.

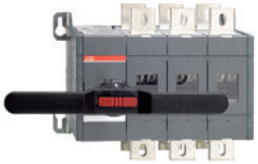
Suitable switches	Cable cross section (mm²)	Order Code
OT16…40F3C	6 (fine stranded), 10 (stranded)	OZXA33
OT16…40F4C	6 (fine stranded), 10 (stranded)	OZXA32
OT63…80F3C	25	OZXA38
OT63…80F4C	25	OZXA39
OT100…125F3C	50	OZXA40
OT100…125F4C	50	OZXA41

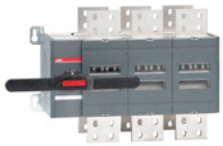
Change-over switches OT160...3200_C


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

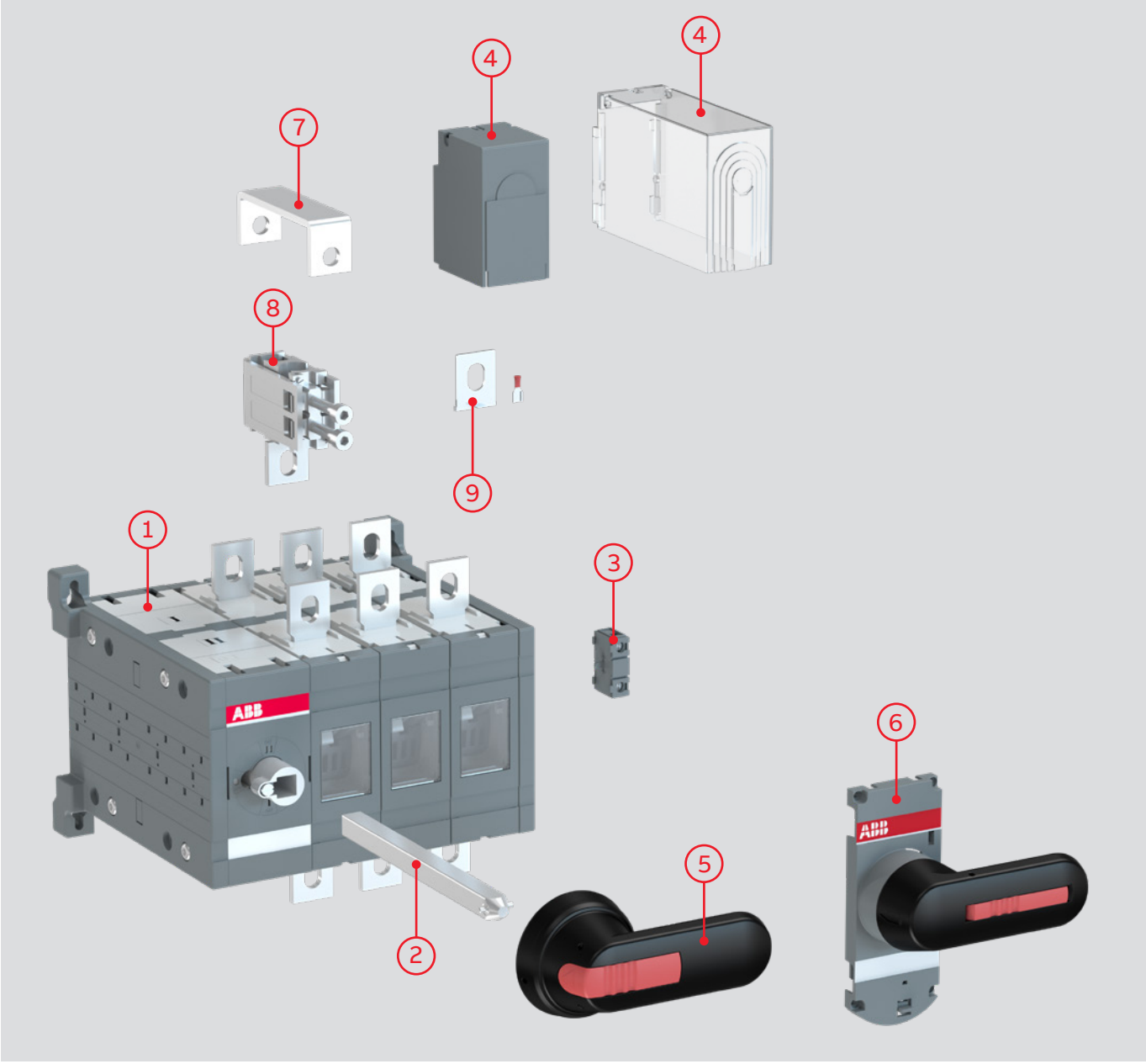
Selector handle				
OT200C03CP	+	OTZC13	+	OTS250G1T/3
Switch + shift/handle	+	Bridging Bars	+	Shrouds

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

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

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_

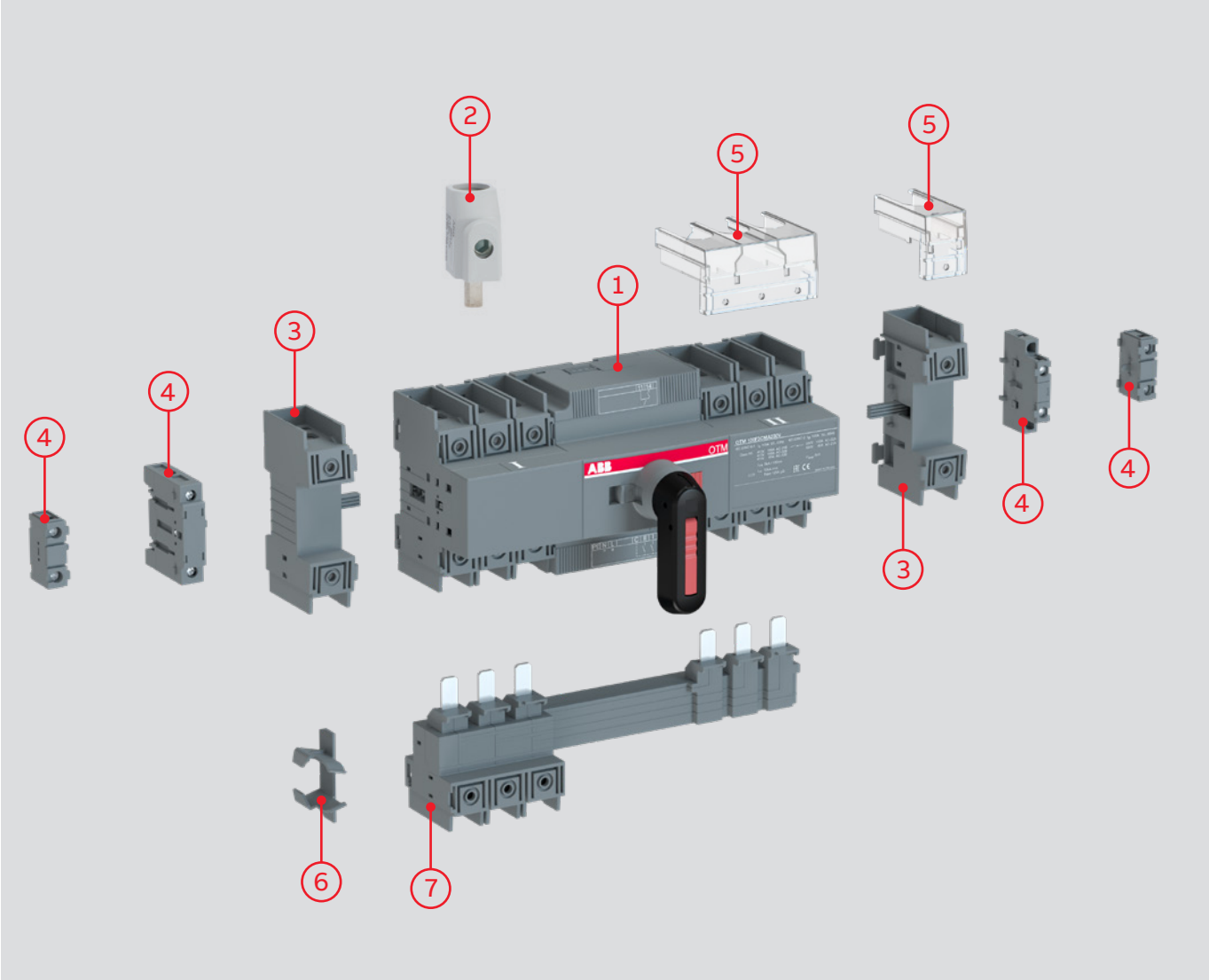
In 415V A	Rated Power 415V S [kVA]	Rated current AC31B/ AC33B, 415V I [A]	Number of poles	Order code
63	43	63/63	3	OTM63F3CMA230V
			4	OTM63F4CMA230V
100	70	100/80	3	OTM100F3CMA230V
			4	OTM100F4CMA230V
125	86	125/80	3	OTM125F3CMA230V
			4	OTM125F4CMA230V
160	110	160/160	3	OTM160E3CM230C
			4	OTM160E4CM230C
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

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



OTZC13…34

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



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

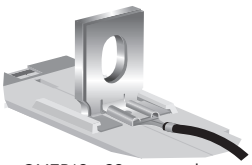
Note:

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

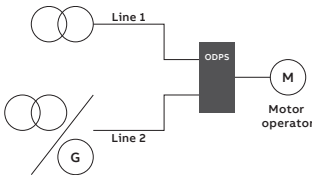


ODPSE230C

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_

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

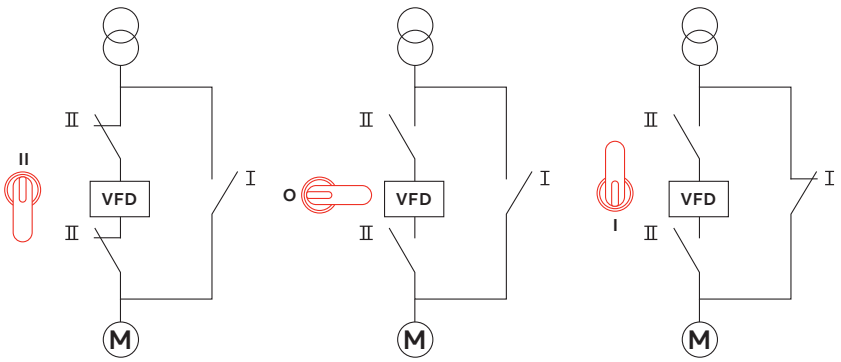
Explanation of the motorized bypass switces types OTM160...2500_C

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

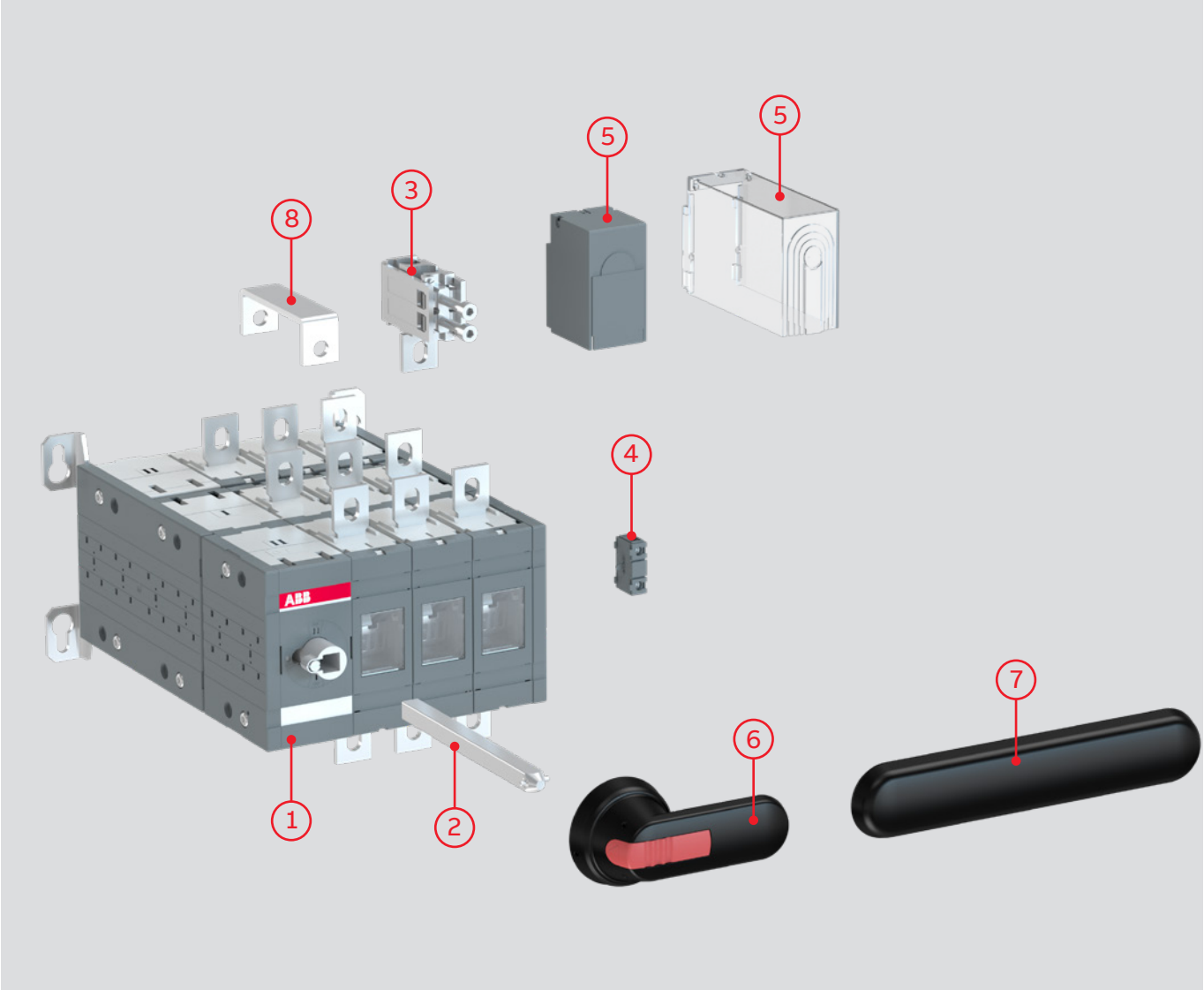
Functionality in brief

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

Compact automatic transfer switches

194 Technical data

195 Product overview

210 Accessories

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

- ABB Compact ATS – 1SCC308001B0201

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

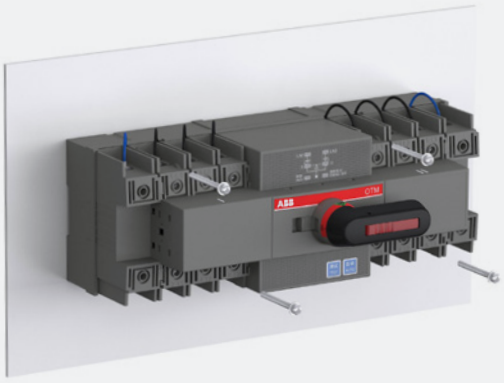
Compact ATS
Easy use and installation



01 Easy manual operation with the handle in case of emergency



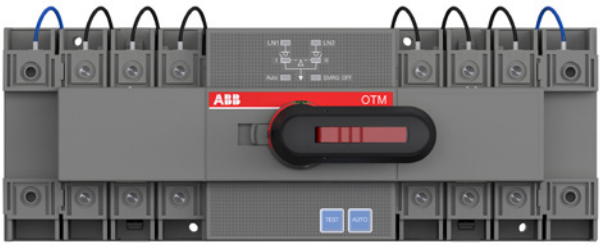
02 DIN- rail mounting



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

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

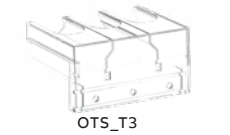
* Terminal shrouds can also be mounted on parallel connection kits.


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

Automatic transfer switches

198 TruONE® part number key

200 TruONE® feature comparison

202 IEC, Open style, Level 2 DIP controls

204 IEC, Open style, Level 3 LCD controls

206 IEC, Open style, Level 4 Touch controls

208 IEC, Enclosed style, Level 3 LCD controls - professional

210 Accessories

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

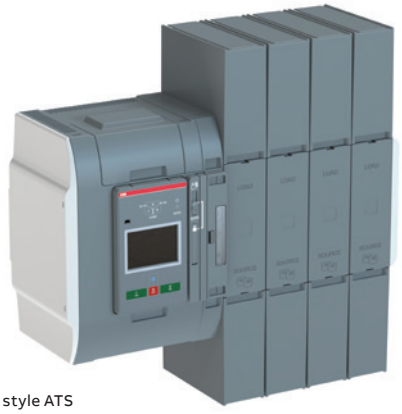
Targeted product performance



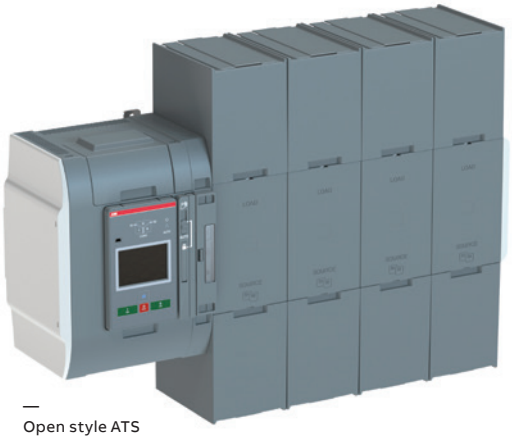
Open style ATS
UL 30-200 A
IEC 200-250 A



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

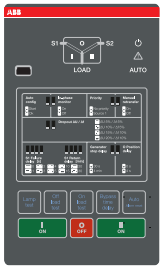


Enclosed style ATS
IEC 200-1600 A

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





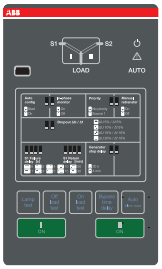


Feature comparison

	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

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

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



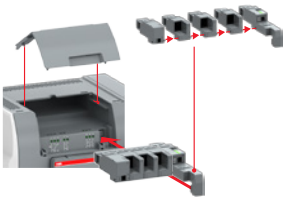
OXEA1

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

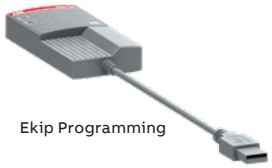
Signalling

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

Enclosed switches

214	Safety switches
217	Enclosed switch-disconnectors
218	Enclosed change-over switches
219	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

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

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



OT16...36_3TE

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.

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

3-pole front operated, IP65, black or red/yellow handle



OTP25B_, OTP32B_



OT45B_, OTP63B_



OTP100...125B3M

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'



OTL16...63 B_



OTL100...125B3B

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



OTR16...63B3M



OTR100...125B3B

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

Enclosed change-over switches

Steel sheet enclosed change-over switches

3-pole front operated change-over switches



OT125...800_3C



OT125...800_4C

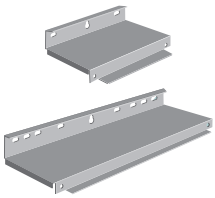
Steel sheet enclosed, IP54*

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

222	Type designation key
223	OS32...1250
225	Selection overview for OS100...1250
226	Accessories



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

- Switch fuses-OS – 1SCC311013C0201

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

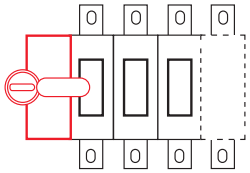
OS	125G	D	_	04	N2	_	P
1	2	3	4	5	6	7	8

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

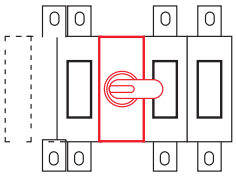
Pole configuration table

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.

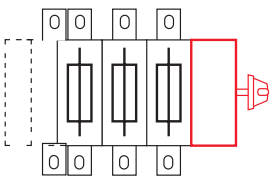
At the end of the switch fuse OS_03 or 04:



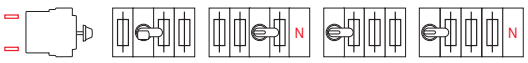
Between the poles OS_12 or 22:



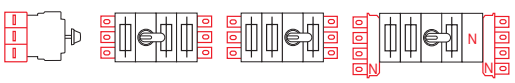
Side operated types OS_30 or 40 / OS_03 or 04:



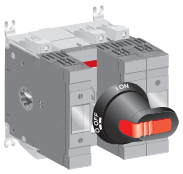
BB-types:

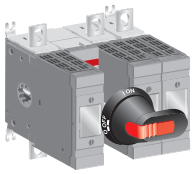


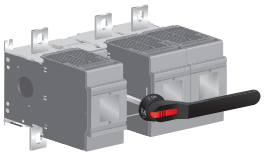
LR-types:

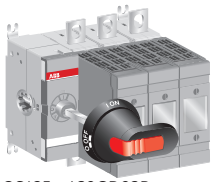


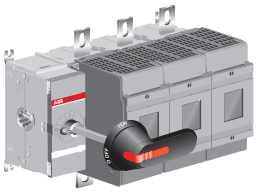
Switch fuses
OS32...1250


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

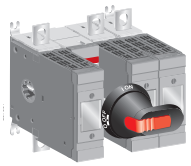
OS400DO3P	+	OXN400	+	OSS400G1L/3
Switch include shaft/handle	+	Neutral link	+	Shrouds

Shafts, handles and terminals included as standard

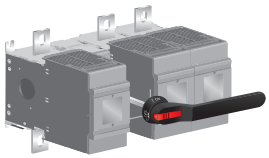
Suitable for switches	Included shaft	Included handle	Included terminals
OS32...63_	OXP6X161	OHB45J6	Tunnel terminals
OS125...160_	OXP6X161	OHB65J6	Tunnel terminals
OS200_	OXP6X210	OHB65J6	M8X25
OS250_	OXP6X210	OHB65J6	M10x30
OS400_	OXP12X250	OHB95J12	M10x30
OS630...800_	OXP12X280	OHB145J12	M12x40
OS1250_	OXP12X395	OHB274J12	M12x50

Switch fuses

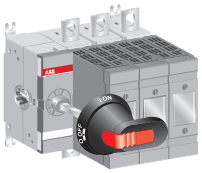
OS32...1250



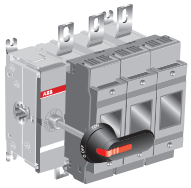
OS32...63GB12P



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

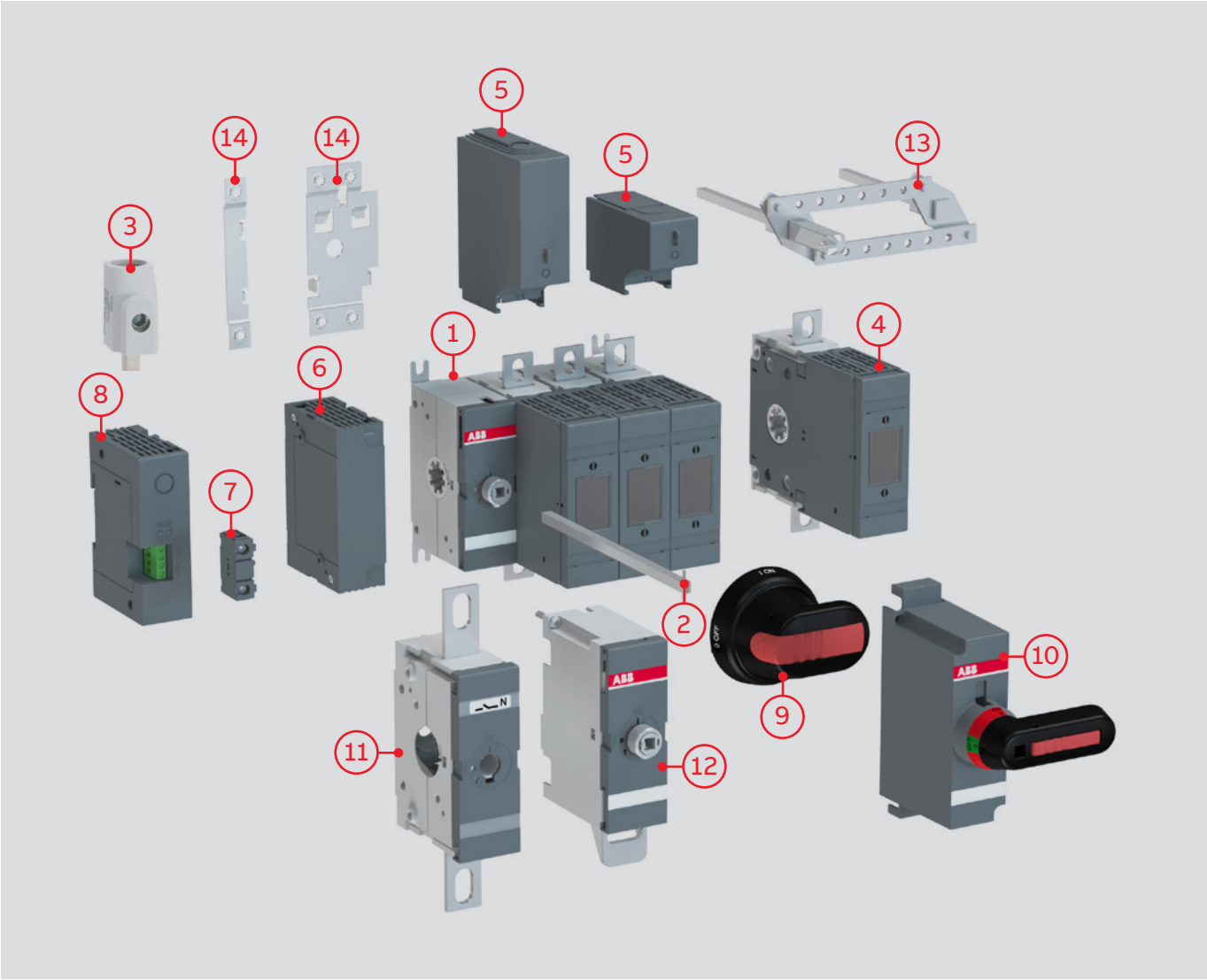
OS400GO3P	+	OXN400	+	OSS400G1L/3
Switch include shaft/handle	+	Neutral link	+	Shrouds

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

Manual operated switch fuses

Selection overview for OS100...1250

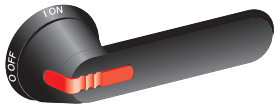


Accessory guide for OS100...1250

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

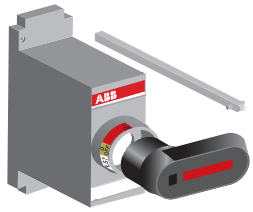

OHM65L6



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

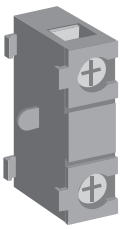
Switch fuses
Accessories


OXP6X_


OXP12X_

Shafts

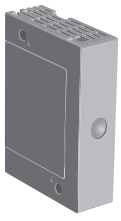
Suitable switches	Shaft length mm	Order code
OS32...250	150	OXP6X150
	210	OXP6X210
	265	OXP6X265
	290	OXP6X290
	360	OXP6X360
	430	OXP6X430
OS315...1250	166	OXP12X166
	185	OXP12X185
	250	OXP12X250
	280	OXP12X280
	325	OXP12X325
	395	OXP12X395
	465	OXP12X465
	535	OXP12X535


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

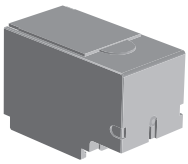
Switch fuses
Accessories


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

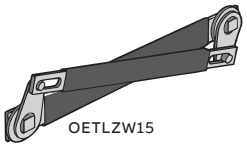
4 pole switches OSS...GG1214



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

Fuse switch disconnectors

232 InLine ll overview

235 ITS2 monitoring unit

236 InLine ll Cu+

241 XLP ordering details

243 Kabeldon Low Voltage Distribution System

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

- Slimline XR - switch disconnector – 1SEC311001D0201
- Easyline XLP- fuse switch disconnector – 1SEC312012D0201

InLine II overview

A wide portfolio to meet your installation's requirements



ZLBM 00-100 mm
160 A



ZLBM / ZHBM 00/123-185
160 - 630 A



ZLBM 800 / 1250 A
800 / 1250 A



BZL1250A / 2000 A
1250 / 2000 A

Switch disconnector
(Delivered with factory mounted solid links)

Fuse switch disconnector







ZHBM2-T/ZHBM3-T/
BZH2000A-T/ BZH1600-S-T-MB





ITS2.1

Cu+ range
for higher ambient temperatures

Digital enabled
products

Ordering information
ZLBM, 3-pole, depth 121 mm



ZLBM00-100

Single switch, 100 mm busbar distance, M8 cable connection

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
NH00	160	ZLBM00-100-3P-M8	3 x M8 Bolts, cable shroud included	1SEP620150R3000	1,04
NH00	160	ZLBM00-100-3P-M8 100 pcs on pallet	3 x M8 Bolts, 100 pcs. bulk on euro pallet	1SEP620150R8000	0,98*

*weight per individual fuse switch disconnector



ZLBM00

Basic versions, single switch, M8, M12 or V-Clamp cable connection

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
NH00	160	ZLBM00-3P-M8	3 x M8 Bolts	1SEP620010R3000	1,82
NH00	160	ZLBM00-3P-V	3 x V-Clamps, NHSN722079P0001*	1SEP620010R3020	1,97
NH1	250	ZLBM1-3P-M12	3 x M12 Universal Bolts	1SEP620011R3000	3,63
NH1	250	ZLBM1-3P-V	3 x V-Clamps, NHSN722066P0003*	1SEP620011R3020	3,64
NH1, NH2	400	ZLBM2-3P-M12	3 x M12 Universal Bolts	1SEP620012R3000	4,13
NH1, NH2	400	ZLBM2-3P-V	3 x V-Clamps, NHSN722066P0003*	1SEP620012R3020	4,12
NH2*, NH3	630	ZLBM3-3P-M12	3 x M12 Universal Bolts	1SEP620013R3000	4,73
NH2*, NH3	630	ZLBM3-3P-V	3 x V-Clamps, NHSN722066P0003*	1SEP620013R3020	4,72

* with dedicated adapter only, ZLBM3 NH2 fuse adapter – 1SEP621288R0001

**see section "Quick selection" for more information

Single switch, M8, M12 or V-Clamp cable connection, including hook clamps
Clamps for hooked mounting on flat busbar systems. Suitable for 5mm and 10 mm busbar thickness.

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight*** (Kg)
NH00	160	ZLBM00-HC-3P-M8	3 x M8 Universal Bolts, hook clamps pre-installed	1SEP622761R0001	2,03
NH00	160	ZLBM00-HC-3P-V	3 x V-Clamps, NHSN722079P0001, hook clamps pre-installed**	1SEP622762R0001	2,18
NH1	250	ZLBM1-HC-3P-V		1SEP622763R0001	3,92
NH1, NH2	400	ZLBM2-HC-3P-V		1SEP622764R0001	4,3
NH2*, NH3	630	ZLBM3-HC-3P-V	3 x V-Clamps, NHSN722066P0003, hook clamps pre-installed**	1SEP622765R0001	5
NH2*, NH3	630	ZLBM3-HC-3P-M12-42pcs	3 x M12 Universal Bolts, hook clamps pre-installed, 42 pcs. bulk on euro pallet	1SEP622760R0001	4,89 ***
NH2*, NH3	630	ZLBM3-HC-3P-M12	3 x M12 Universal Bolts, hook clamps pre-installed	1SEP622472R0001	5,01

*with dedicated adapter only, ZLBM3 NH2 fuse adapter – 1SEP621288R0001

**see section "Quick selection" for more information

***weight per individual fuse switch disconnector

Ordering information
ZLBM, 3-pole, depth 121 mm



ZLBM910A-3P-M12

800A version, double switch, M12 Bolt or V-Clamp cable connection

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
NH2	800	ZLBM800A-3P-M12	12 x M12 Universal Bolts	1SEP620014R3000	11,1
NH2	800	ZLBM800A-3P-V	12 x V-Clamps, NHSN722066P0003*	1SEP620014R3020	11,3

*see section "Quick selection" for more information



ZLBM910A-3P-M12-MB

910A version, double switch, for LV side of 630kV transformer, M12 Bolt cable connection

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
NH3	910	ZLBM910A-3P-M12	2 x 3 M12 Universal Bolts	1SEP620053R3000	9,5
NH3	910	ZLBM910A-3P-M12-MB	2 x 3 M12 Universal Bolts, terminal connection on rear side	1SEP620053R3050	7,3

1250A version, double switch, M12 Bolt or V-Clamp cable connection

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
NH3	1250	ZLBM1250A-3P-M12	12 x M12 Universal Bolts	1SEP620015R3000	12,25
NH3	1250	ZLBM1250A-3P-V	12 x V-Clamps, NHSN722066P0003*	1SEP620015R3020	12,5

*see section "Quick selection" for more information

ITS2 monitoring unit
Inside knowledge that puts you ahead

Real-time measuring and monitoring have never been easier, thanks to the ITS2. Its built-in intelligence means that whether it is supporting a data center, hospital or commercial building, operatives can access its monitoring data and provide an instant response in the event of any system faults.

The result of this fully digital solution? Smarter, data-driven decisions made in real time.

Integrated and future-ready

- Cloud-based connectivity with ABB Ability™ Energy and Asset Manager
- Easy configuration with Ekip Connect
- Configure ITS2 monitoring in just 1 min

Configure in less than
1 minute
with Ekip Connect

Full control in less then
10 minutes

Convenience and ease

- One unit to digitalize switches and fusegear also compatible with OT switch disconnectors and OS Switch fuses
- Space-saving factory mounted design
- 80% faster installation

Safe and reliable

- Ensures continuous operations
- Fuse monitoring functionality (EFM)
- System safety and protection protocols
- Increases the level of protection in the electrical system (Preventive Overload Protection)



InLine II with ITS2.1

Ordering information

InLine II Cu+ for high ambient temperatures, 1-pole



ZHBM2/3-T-1P



BZH1000A-T-1P

InLine II Cu+ 1-pole version, depth 154 mm, single switch, M12 Bolt cable connection
Switches for usage in high ambient temperatures up 55°C without derating

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
NH1, NH2	400	ZHBM2-T-1P-M12	3 x M12 Universal Bolts	1SEP620042R1000	3,9
NH1, NH2	400	ZHBM2-T-1P-M12-TK	3 x M12 Universal Bolts, incl. Terminal kit	1SEP622562R1000	5,4
NH2*, NH3	630	ZHBM3-T-1P-M12	3 x M12 Universal Bolts	1SEP620044R1000	6,4
NH2*, NH3	630	ZHBM3-T-1P-M12-TK	3 x M12 Universal Bolts, incl. Terminal kit	1SEP620043R1000	7,9
Equipped with solid links**	1000	BZH1000A-T-1P-M12	3 x M12 Universal Bolts	1SEP622203R1000	8
Equipped with solid links**	1000	BZH1000A-T-1P-M12-TK	3 x M12 Universal Bolts, incl. Terminal kit	1SEP622022R0001	14.8
NH2*, NH3	1250	ZHBM1250A-T-1P-M12-TK	6 x M12 Universal Bolts, incl. Terminal kit	1SEP622288R0001	16.4

InLine II Cu+ 1-pole version, depth 154 mm, double switch, M12 Bolt cable connection
Switches for usage in high ambient temperatures up 55°C without derating

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
Equipped with solid links**	1600	BZH1600A-T-1P-M12	12 x M12 Universal Bolts	1SEP622290R0001	16
Equipped with solid links**	1600	BZH1600A-T-1P-M12-TK	12 x M12 Universal Bolts, incl. Terminal kit	1SEP622024R0001	17.8
Equipped with solid links**	2000	BZH2000A-T-1P-M12	12 x M12 Universal Bolts	1SEP622294R0001	20
Equipped with solid links**	2000	BZH2000A-T-1P-M12-TK	12 x M12 Universal Bolts, incl. Terminal kit	1SEP622292R0001	22.5

* with dedicated adapter only, ZLBM3 NH2 fuse adapter – 1SEP621288R0001

** NHSN706023P9105, Solid link NH3 1000A

Ordering information

InLine II Cu+ for high ambient temperatures, 3-pole



ZHBM3-T-3P



BZH1600A-T-3P

InLine II Cu+ 3-pole versions, depth 154 mm, single switch, depth 154mm, M12 Bolt cable connection
Switches for usage in high ambient temperatures up 55°C without derating

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
NH1, NH2	400	ZHBM2-T-3P-M12	3 x M12 Universal Bolts	1SEP620042R3000	3.9
NH1, NH2	400	ZHBM2-T-3P-M12-TK	3 x M12 Universal Bolts, incl. Terminal kit	1SEP622562R3000	5.4
NH2*, NH3	630	ZHBM3-T-3P-M12	3 x M12 Universal Bolts	1SEP620044R3000	6.4
NH2*, NH3	630	ZHBM3-T-3P-M12-TK	3 x M12 Universal Bolts, incl. Terminal kit	1SEP620043R3000	7.9
Equipped with solid links**	1000	BZH1000A-T-3P-M12	3 x M12 Universal Bolts	1SEP622203R3000	8
Equipped with solid links**	1000	BZH1000A-T-3P-M12-TK	3 x M12 Universal Bolts, incl. Terminal kit	1SEP622023R0001	14.8
Equipped with solid links ***	1600	BZH1600A-S-T-3P-MB	2 x 3 M12 Universal Bolts, terminal connection on rear side	1SEP620133R3050	15

* with dedicated adapter only, ZLBM3 NH2 fuse adapter – 1SEP621288R0001

** NHSN706023P9105, Solid link NH3 1000A

*** BZH1600A-Solid-link

InLine II Cu+ 3-pole versions, depth 154 mm, double switch, M12 Bolt cable connection
Switches for usage in high ambient temperatures up 55°C without derating

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
NH2*, NH3	1250	ZHBM1250A-T-3P-M12-TK	6 x M12 Universal Bolts, incl. Terminal kit	1SEP622289R0001	16.4
Equipped with solid links**	1600	BZH1600A-T-3P-M12	6 x M12 Universal Bolts	1SEP622291R0001	16
Equipped with solid links**	1600	BZH1600A-T-3P-M12-TK	6 x M12 Universal Bolts, incl. Terminal kit	1SEP622025R0001	17.8
Equipped with solid links**	2000	BZH2000A-T-3P-M12	6 x M12 Universal Bolts	1SEP622295R0001	20
Equipped with solid links**	2000	BZH2000A-T-3P-M12-TK	6 x M12 Universal Bolts, incl. Terminal kit	1SEP622293R0001	22.5

Accessories for InLine II Cu+
Adapter to fit 185mm switches on 210 mm busbar systems. The InLine II Cu+ adapter can be combined with each switch of the Inline II portfolio. Double switches require two adapters.

1P/3P	AD-ZLBM123-210-185	Adapter from 185 mm to 210 mm busbar	1SEP622564R0001

Ordering information
BZL and BZH switch disconnectors



BZH1250A-1P



BZH1250A-3P



BZL/BZH2000A-3P

BZL switch disconnectors, depth 121 mm
Cable connection via M12 Bolts, solid links are included

Fuse size	Single or double switch	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
BZL 1-pole versions, M12 Bolt cable connection						
Equipped with solid links**	Single	1250	BZL1250A-1P-M12	2 x 3 M12 Universal Bolts, incl. Terminal kit 1SEP621588R0001***	1SEP620083R1000	11,2
BZL 3-pole versions, M12 Bolt cable connection						
Equipped with solid links**	Single	1250	BZL1250A-3P-M12	2 x 3 M12 Universal Bolts, incl. Terminal kit 1SEP621588R0001***	1SEP620083R3000	11,5
Equipped with solid links**	Double	2000	BZL2000A-3P-M12	4 x 3 M12 Universal Bolts, incl. Terminal kit 1SEP621593R0001***, incl. Double handle	1SEP620103R3000	22,8

BZH switch disconnectors, depth 154 mm
Cable connection via M12 Bolts

BZH 3-pole versions, M12 Bolt cable connection						
Equipped with solid links**	Single	1250	BZH1250A-3P-M12	2 x 3 M12 Universal Bolts incl. Terminal kit 1SEP621588R0001***	1SEP620123R3000	11,8
Equipped with solid links**	Double	2000	BZH2000A-3P-M12	4 x 3 M12 Universal Bolts incl. Terminal kit 1SEP621593R0001***, incl. Double handle	1SEP620143R3000	23,8
BZH 1-pole stainless steel versions, M12 Bolt cable connection						
Equipped with solid links**	Single	1000	BZH1000A-1P-STS-M12-CS	2 x 3 M12 Universal Bolts incl. Terminal kit 1SEP622267R0001***, cable shroud incl. 1SEP621565P0001, top plastic cover 1SEP622272P0001	1SEP622011R0001	3,75
Equipped with solid links**	Single	1600	BZH1600A-1P-STS-M12-CS	4 x 3 M12 Universal Bolts incl. Terminal kit 1SEP622254R0001***, cable shroud incl. 1SEP622266P0001, top plastic cover 1SEP622272P0001, incl. Double handle	1SEP622012R0001	7,1

** NHSN706023P9105, Solid link NH3 1000A

***see section "Quick selection" for more information.

Ordering information
Bus couplers



ZLBM2/3-BC



BZH2000-1P

Bus couplers
As interconnectors, combining two busbar systems into one.

Fuse size	Rated operational current I_e [A]	Type	Description	Order code	Weight (Kg)
ZLBM 3-pole bus coupler versions, depth 121 mm, single switch					
NH1, NH2	400	ZLBM2-3P-BC-Right	Connection right, from left side possible by turning the base	1SEP622028R0001	3,35
NH2*, NH3	630	ZLBM3-3P-BC-Right		1SEP622030R0001	3,65
ZLBM 3-pole stainless steel bus coupler versions, depth 121mm, single switch					
NH2*, NH3	630	ZLBM3-3P-BC-Right-STS	Connection right, from left side possible by turning the base	1SEP620180R0001	1,7
ZLBM 1-pole bus coupler versions, depth 121mm, single switch					
NH1, NH2	400	ZLBM2-1P-BC-Right	Connection right, from left side possible by turning the base	1SEP622028R0002	1,2
BZH 1-pole stainless steel bus coupler versions, depth 154mm, double switch					
Equipped with solid links**	2000	BZH2000-1P-BC-Right-STS	Corrosion free, connection right, from left side possible by turning the base	1SEP622034R0001	11,85

* with dedicated adapter only, ZLBM3 NH2 fuse adapter – 1SEP621288R0001

** NHSN706023P9105, Solid link NH3 1000A

Introduction

Product overview







	XLP 1-pole	XLP 2-pole	XLP000 Compact design for NH00C DIN-fuses (width = 21 mm)	XLP00, XLP1, XLP2 and XLP3	XLP 4-pole
Rated operational voltage	220VDC / 500 - 690VAC	220 - 440VDC / 500 - 690VAC	400 - 690VAC	400 - 800VAC	550VAC
Rated operational current	160 - 630A	160 - 630A	50 - 100A	125 - 630A	160 - 630A
Available accessories					
Micro auxillary switches	● (1 or 2 pcs per pole)	● (1 or 2 pcs per pole)	● (1 or 2 pcs)	● (1 or 2 pcs)	● (1 or 2 pcs)
Auxilliary switches, 1 NO or 1 NC acc. to IEC 60947-5-1				●	●
Cable shroud	● (Single cable shroud per phase)	● (Single cable shroud per phase)	● Integrated (IP20)	●	●
Cable clamps	●	●	● Integrated (for 1,5 - 35 mm² cables)	●	●
Front frames	●	●	● (for 1 – 3 devices)	●	●
Padlocking	●	●		●	●
Sealing facility	●	●	●	●	●
Snap-on for DIN rail mounting			●	●	
Electronic fuse monitoring (EFM)				●	
Busbar adapter for 40 mm				● (only XLP00)	
Busbar adapter for 60 mm				● (only XLP00 and XLP1)	

DIN-type HRC-fuse links, gG- and aM- types can be used with EasyLine XLP00,XLP1, XLP2 and XLP3.
For more information refer to the catalog Fusegear, code 1SCC317001C0201

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



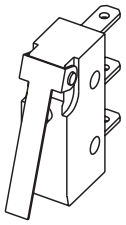
4-pole

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

Fuse switch disconnectors

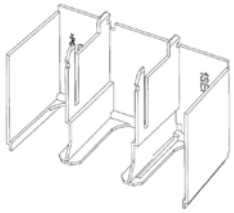
XLP ordering details



Micro auxiliary switch

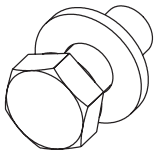
Not available for XLP000.

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

Kabeldon Low Voltage Distribution System

Safe and reliable electrical distribution

Kabeldon low voltage distribution systems by ABB are designed to deliver safety, ease and reliability for electrical distribution. Our customers typically include utilities, OEMs, panel builders and industrial companies.

Kabeldon solutions are designed to provide excellent protection in even the most demanding environmental conditions. Designed for outdoor environments, the products are produced to withstand sub-zero temperatures as well as being well-ventilated to disperse heat during the summer months and eliminate condensation.

As these systems are typically installed in public environments, both safety and the discreet appearance of the cabinet installations has been an important factor in product design. For instance, the resistance to external impact is tested according to standard IEC 61439-5. In fact, as they are designed to be a unified solution, the entire installations, including cabinets, busbars and fusegear are tested and verified in accordance as a system.

What is found inside the cabinet is just as important as the cabinet itself. The distribution system within is based on a smart, compact and modular design, ensuring both safety and the flexibility of the solution for a wide variety of end uses. Space inside the cabinet can be optimized with the flexible busbar design that allows for easy installation in any configuration desired.



The entire system, including busbars, connectors and switches are IP2X classified. Safety is a key factor for us not only during the system´s regular operations, but also during installation and maintenance. Our installations are designed to be intrinsically safe.

Ordering information

Fuse switch disconnectors SLD and SLE



SLD 63



SLD 000



SLD 00



SLE 1



SLE 2



SLD-FHD 000



SLD-FHD 00

Fuse switch disconnectors SLD and SLE

Fuse-switch disconnectors SLD and SLE fit in all available Kabeldon cable distribution cabinets.

Three-pole operated fuse switch disconnectors

Designation	ID number	NH Fuse size	Rated current				Width	Cable area	Weight
			400 V	690 V	800 V	1000 V	M= 12,5 mm	mm²	kg/pcs
SLD 63	6305.0110.0	Diazed 63 A	63 A	-	-	-	3	1.5 ... 25	1.5
SLD 000	6305.0106.1	000	100 A	80 A	-	-	3	2.5 ... 95	1.7
SLD 00	6305.0107.1	00	160 A	160 A	-	-	4	2.5 ... 95	1.8
SLE 1	2CGD000840A1000	1	250 A	250 A	200 A	-	10	50 ... 300	3.2
SLE 2	2CGD000850A1000	2	400 A	355 A	250 A	40 A	12	50 ... 300	3.7

Single-pole operated fuse switch disconnectors

Designation	ID number	NH Fuse size	Rated current			Width	Cable area	Weight
			230 V	400 V	690 V	M=12,5 mm	mm²	kg/pcs
SLD-FHD 000	6305.0116.1	000	100 A	-	-	3	2.5 ... 95	1.8
SLD-FHD 00	6305.0117.1	00	160 A	-	-	4	2.5 ... 95	1.9

Ordering information

Disconnector FD 3300

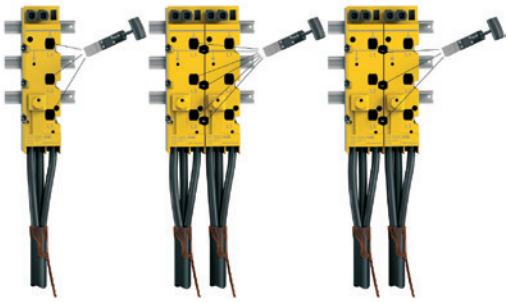


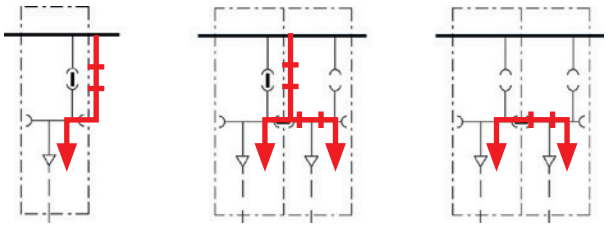
FD 3300

Disconnector

The disconnector FD 3300 is designed for parallel use enabling the busbar system to be disconnected without stopping the current from the incoming cable passing through.

Designation	ID number	NH Fuse size	Rated current			Width	Cable area	Weight
			400 V	690 V	1000 V	M=12,5 mm	mm²	kg/pcs
FD 3300	6303.0032.1	Linking knife	400 A	-	-	7	50 ... 300	2.6





Disconnectors are intended for single-pole breaking. By using the linking knives between adjacent disconnectors, the busbar system can be disconnected without stopping the current from the incoming cable passing through.

Ordering information

Fuse switch disconnectors SLDL



SLDL 2



SLDL 3



SLDL 3-1P



SLDL with cable connection from above.

Fuse switch disconnectors SLDL

SLDL is used in low voltage parts of substations or for busbar systems installed directly on walls and is available in both 3-pole and 1-pole operation. For wall and CSS installations, SLDL cannot be installed in Kabeldon cable distribution cabinets.

To enable cable connection from above, the rear section of the switch can be reversed 180°. The cable may be connected with terminal clamps or cable lugs, terminal clamps to be ordered separately.

Three-pole operated fuse switch disconnectors

Designation	ID number	NH Fuse size	Rated current			Width	Cable area	Weight
			400 V	690 V	1000 V	M=12,5 mm	mm²	kg/pcs
SLDL 2	6305.0242.0	2	400 A	400 A	100 A	8	35 ... 240	5.5
SLDL 3	6305.0240.0	2, 3	630 A	500 A	100 A	8	35 ... 240	6.4

Single pole operated fuse switch disconnectors

Designation	ID number	NH Fuse size	Rated current			Width	Cable area	Weight
			230 V	400 V	690 V	M=12,5 mm	mm²	kg/pcs
SLDL 2-1P	6305.0243.0	2	400 A	400 A	100 A	8	35 ... 240	5.3
SLDL 3-1P	6305.0241.0	2, 3	630 A	500 A	100 A	8	35 ... 240	6.2

Ordering information
Cable connectors AD


ADI 95


ADI 300


AD 400


AD 2150


ADI 3M


STM 400


ADP 300


ADC 25


ADU 95


ADO 240


ADU 300


AD 350

Cable connectors

Cable connectors ranging up to 400 mm² are avaliable for mounting in the Kabeldon IP system. A wide range of different types of connectors to enable the most optimal solution for every specific installation.

Insulated connectors with degree of protection IP 2X

Designation	ID number	Rated current	Width	Cable area	Weight
			M=12,5 mm	mm²	kg/pcs
Single cable connection					
ADI 95	2CGD000499A1000	250 A	2	1.5 ... 95	0.1
ADI 300	2CGD000503A1000	630 A	3	50 ... 300	0.2
AD 400	6303.0267.1	630 A	3	50 ... 400	0.5
Parallel cable connection					
AD 2150	2CGD000310A1000	400 A	3	35...2//150	0.2
Compact fitting of ADI 300. (3 pcs of ADI 300 needs to be ordered separately.)					
ADI 3M	2CGD000692A1000	630 A	3	50 ... 300	0.3
STM 400 includes conductor rail with connector for current transformer metering, dimensions of conductor rails are 25x13 mm. ADP 300 is intended for connection of parallel conductors.					
STM 400	6309.0026.0	400 A	3	50 ... 300	0.4
ADP 300	6309.0035.0	630 A	3	2 x 50 ... 300	0.8

Non-insulated connectors with degree of protection IP 00

Designation	ID number	Rated current	Width	Cable area	Weight
			M=12,5 mm	mm²	kg/pcs
To be used with non-insulated busbars. AD 350 for connecting three separate conductors.					
ADC 25	6303.0233.0	63 A	1	1.5 ... 25	0.1
ADU 95	2CGD000498A1000	250 A	2	1.5 ... 95	0.1
ADO 240	6303.0263.1	400 A	3	70 ... 240	0.3
ADU 300	2CGD000502A1000	630 A	3	50 ... 300	0.2
AD 350	6303.0262.0	400 A	4	3 x 6 ... 50	0.2

Ordering information

Busbars KSFS, KSNS



KSFS 400 A



KSFS 630 A



KSFS 1000 A



KSFS 1600 A

Busbar system KSFS, KSNS

Kabeldon busbar system, available as a fully IP 2X protected busbar system, available in different lengths. Busbars up to a rated current of 1600 A are avaliable for mounting in cable distribution cabinets and up to 2500 A for wall and compact secondary station installations.

Busbars with protection against accidental contact, 400-1600 A IP2X

Designation	ID number	Rated current	Width		Weight
			M = 12,5 mm	mm	kg/pcs
KSFS 420	2CGD000785P0284	400 A	20	284	0.2
KSFS 440	2CGD000785P0534	400 A	40	534	0.3
KSFS 443	2CGD000785P0569	400 A	43	569	0.3
KSFS 448	2CGD000785P0636	400 A	48	636	0.4
KSFS 460	2CGD000785P0784	400 A	60	784	0.5
KSFS 463	2CGD000785P0809	400 A	63	809	0.5
KSFS 473	2CGD000785P0950	400 A	73	950	0.6
KSFS 640	2CGD000787P0534	630 A	40	534	0.5
KSFS 643	2CGD000787P0569	630 A	43	569	0.5
KSFS 648	2CGD000787P0636	630 A	48	636	0.6
KSFS 660	2CGD000787P0784	630 A	60	784	0.7
KSFS 663	2CGD000787P0809	630 A	63	809	0.7
KSFS 673	2CGD000787P0950	630 A	73	950	0.9
KSFS 698	2CGD000787P1264	630 A	98	1264	1.1
KSFS 1098	2CGD000788P1264	1000 A	98	1264	2.0
KSFS 10126	2CGD000788P1600	1000 A	126	1600	2.6
KSFS 10181	2CGD000788P2300	1000 A	181	2300	3.7
KSFS 1698	2CGD000790P1264	1600 A	98	1264	3.8
KSFS 16126	2CGD000790P1600	1600 A	126	1600	4.8
KSFS 16149	2CGD000790P1890	1600 A	149	1890	5.7
KSFS 16181	2CGD000790P2300	1600 A	181	2300	6.9



KSNS 400 A



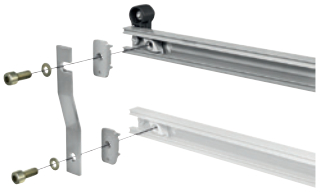
KSNS 1000 A

Busbars without protection against accidental contact, 400-1000 A IP 00

Designation	ID number	Rated current	Width		Weight
			M = 12,5 mm	mm	kg/pcs
KSNS 420	4332.0192.0	400 A	20	250	0.2
KSNS 440	4332.0193.0	400 A	40	585	0.4
KSNS 443	4332.0052.1	400 A	43	569	0.3
KSNS 460	4332.0194.0	400 A	60	784	0.5
KSNS 463	4332.0053.1	400 A	63	809	0.5
KSNS 473	4332.0196.0	400 A	73	900	0.5
KSNS 498	4332.0190.0	400 A	98	1214	0.7
KSNS 498 KSIK	4332.0195.0	400 A	98	1266	0.8
KSNS 640	2CGD000979P0583	630 A	40	583	0.5
KSNS 660	2CGD000979P0833	630 A	60	833	0.8
KSNS 1098	4332.0169.0	1000 A	98	1212	3.0
KSNS 1098 KSIK	4332.0343.0	1000 A	98	1264	3.7
KSNS 10126	4332.0163.0	1000 A	126	1600	1.7
KSNS 10149	4332.0164.0	1000 A	149	1890	1.9
KSNS 10181	4332.0165.0	1000 A	181	2300	2.0

Ordering information

Accessories for busbar system



5-WIRE SYSTEM - TN-S, TN-C-S

5-wire system

Kit for conversion to 5-wire system, TN-S or TN-C-S. The kit includes a 400 A non-protected busbar. For additional information regarding an upgrading kit for 1000 A or for use in enclosure type KSIK, contact your supplier.

Designation	Suitable for	ID number	Width		Weight
			M = 12,5 mm	mm	kg/pcs
C 20-TNS	CDC 20	5331.0613.0	20	333	0.6
C 40-TNS	CDC 40	5331.0614.0	40	583	0.7
C 60-TNS	CDC 60	5331.0615.0	60	833	0.9
SD 48-TNS	SDC 48	5332.0208.0	48	584	0.9
SD 73-TNS	SDC 73	5332.0219.0	73	898	1.7
SD 98-TNS	SDC 98	5332.0209.0	98	1212	1.2
KD 43-TNS	KSIK 43	5332.0210.0	43	570	0.6
KD 63-TNS	KSIK 63	5332.0211.0	63	810	0.7
KD 98-TNS	KSIK 98	5332.0212.0	98	1270	1.0



AB 800-53, AB 1200-53, AB 1200-70

Connection kit for rear busbar connection

For connection to the back of the busbar; fits KSFS 1000 A and KSFS 1600 A bars. The kit includes: plastic cover, thread insert, M12/M16 length 53 respectively 70 mm, connecting washer, flat washer, Ø 36 mm, compression washer, Ø 29 mm, nut, M12. Cable lug is not included in the kit.

Designation	ID-number	Rated data	Diameter	Length of thread insert	Weight
			mm	mm	kg/pcs
AB 800-53	5303.0500.0	500 V, 800 A	26	53	0.1
AB 1200-53	5303.0501.0	500 V, 1200 A	37	53	0.1
AB 1200-70	5303.0502.0	500 V, 1200 A	37	70	0.1



KSNSV 410

Vertical PEN bar

Vertical PEN-bar, used in enclosures where there is not enough space on the PEN bar.

Designation	ID number	Dimensions			Weight
		Height mm	Width mm	Depth mm	kg/pcs
KSNSV 410	6312.0002.0	160	36	72	0.3

Double PEN busbar kit

Complementary kit for 5 wire system. Includes isolators/busbar support to fix N-bar, bridge piece and components to connect PE-bar to N-bar to create double PEN. No busbars included.

Designation	ID-number	Suitable for busbar	Weight
			kg/pcs
AB 800-53	5303.0500.0	600 A	-
GSD-TNS-1000 SDC/KSIK	2CGX053320205	1000 A	0.3

Ordering information

Busbar supports KSST, MSB, KLKB



KSST 316, 316/23, 316/100



KSST-CDC



KSST 36-CDC



MSB 316



MSB316/23



MSB 316/100

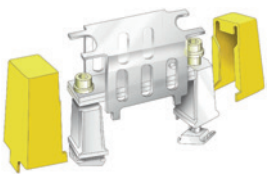
Busbar supports

Designation	Suitable for		ID number	Free space behind busbar	Weight
	Busbar	Enclosure		mm	kg/pcs
Busbar supports for CDC, SDC and wall mounted installations.					
KSST 316	400 A, 630 A, 1000 A, 1600 A	wall	5332.0104.0	9	0.5
KSST 316/23	400 A, 630 A, 1000 A, 1600 A	SDC / wall	5332.0106.0	23	0.8
KSST 316/100	400 A, 630 A, 1000 A, 1600 A	wall	5332.0105.0	100	1.1
KSST-CDC	400 A, 630 A	CDC	5332.0231.0	15	0.4
Used in split and shortened busbar systems in CDC enclosures					
KSST 36-CDC	400 A, 630 A	CDC	5332.0187.0	15	0.3

Middle support

In order to fulfill the requirements for short-circuit strength a middle support is mounted when the distance between two busbar supports exceeds 1.25 meters. Not required in Kabeldon standard enclosures unless they are built together with a throughgoing busbar system.

Designation	Suitable for Busbar support	ID number	Width	Free space behind busbar	Weight
			M = 12,5 mm	mm	kg/pcs
MSB 316	KSST 316	5332.0201.0	1	9	0.5
MSB 316/23	KSST 316/23	5332.0202.0	1	23	0.8
MSB 316/100	KSST 316/100	5332.0203.0	1	100	1.5



KLKB-S 630, 1200

Busbar bridge

Bar bridge to interconnect busbar systems between two enclosures.

Designation	Suitable for Enclosure	ID number	Rated current	Weight
			400 / 690 V	kg/pcs
KLKB-S 630	SDC	5309.0053.0	630 A	3.4
KLKB-S 1250	SDC	5309.0054.0	1250 A	6.6
Busbar bridge for PEN or PE+N busbar				
B-S 400	SDC	2CGX053090057	630 A	3.4
B-S 1000	SDC	2CGX053090058	1000 - 1600 A	6.6

Ordering information

Cable distribution cabinets CDC



CDCM 440

Cable distribution cabinets CDCM

Cabinets with an upper section that can be locked separately. CDCM 0X0 is delivered with steel mounting plate in the lower section.

Designation	ID number	Rated current	Busbar width	Dimensions			Lock	Weight
		400 / 690 V	M = 12,5 mm	Height mm	Width mm	Depth mm	Lower/upper	kg/pcs
CDCM 020	6330.0530.1	-	-	1800	350	220	CDC-LSE / CDC-LA	49
CDCM 040	6330.0608.0	-	-	1800	600	220	CDC-LSE / CDC-LA	68
CDCM 420	6330.0430.1	400 A	20	1800	350	220	CDC-LSE / CDC-LA	47
CDCM 440	6330.0609.0	400 A	40	1800	600	220	CDC-LSE / CDC-LA	65
CDCM 640	6330.0610.0	630 A	60	1800	600	220	CDC-LSE / CDC-LA	66



CDCP



CDCP from the back



Integral pole bracket

Cable distribution cabinets CDCP - pole mounted

Pole-mounted cabinets supplied with integral pole bracket, busbar system or mounting plate and a cable duct to the ground. On the back there is an opening for an earthing line and an opening for temporary connections. Breakouts for up to seven cable ducts. Screws for a wooden pole are included.

Designation	ID number	Rated current	Busbar width	Dimensions			Number of cable ducts	Lock	Weight
		400 / 690 V	M = 12,5 mm	Height mm	Width mm	Depth mm			kg/pcs
CDCP 020	6330.0621.0	-	-	1200	350	382	0 - 3	CDC-LSE	45
CDCP 040	6330.0622.0	-	-	1200	600	382	0 - 7	CDC-LSE	61
CDCP 420	6330.0428.0	400 A	20	1200	350	382	0 - 3	CDC-LT	43
CDCP 440	6330.0429.0	400 A	40	1200	600	382	0 - 7	CDC-LT	58

Fusegear

254	HRC fuse links
255	Fuse links, DIN-type, gG
257	Fuse links, DIN-type, aM
259	Fuse bases OFAZ and OFAX



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

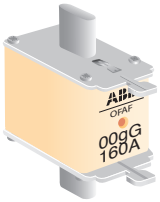
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- Baseline fuse bases – 1SCC3162001K0201

Fusegear

HRC fuse links



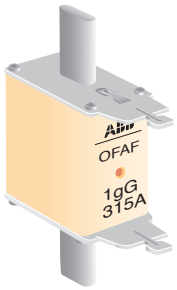
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OFAF00H_



OFAF0H_



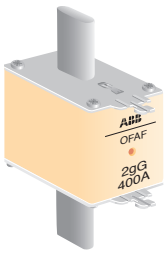
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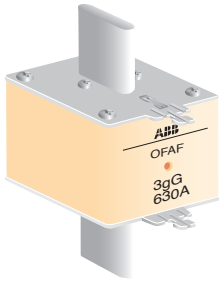
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		4	1.5	OFAF000H4
		6	1.6	OFAF000H6
		10	1.1	OFAF000H10
		16	1.8	OFAF000H16
		20	2.3	OFAF000H20
		25	2.4	OFAF000H25
		32	3.1	OFAF000H32
		35	3.0	OFAF000H35
		40	3.7	OFAF000H40
		50	4.1	OFAF000H50
		63	5.4	OFAF000H63
		80	6.5	OFAF000H80
		100	7.5	OFAF000H100
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

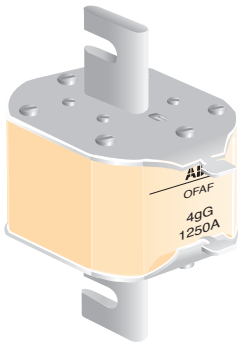
Fuse links, DIN-type, gG



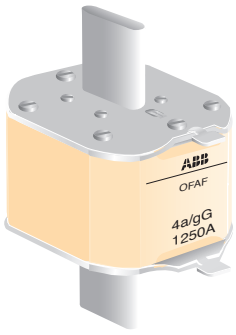
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OFAF3H_



OFAF4H_



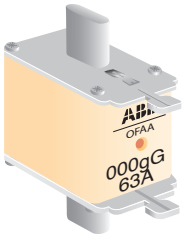
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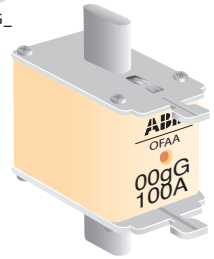
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2	500V / 250VC	25	2.4	OFAF2H25
		35	3.0	OFAF2H35
		40	3.7	OFAF2H40
		50	4.1	OFAF2H50
		63	6.3	OFAF2H63
		80	8.3	OFAF2H80
		100	10.7	OFAF2H100
		125	12.2	OFAF2H125
		160	15	OFAF2H160
		200	18.5	OFAF2H200
		224	19.2	OFAF2H224
		250	20.6	OFAF2H250
		300	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
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		1250	90.0	OFAF4AH1250

Fusegear

Fuse links, DIN-type, gG



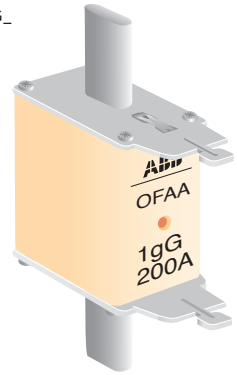
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OFAA00GG_



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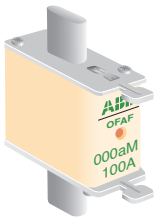
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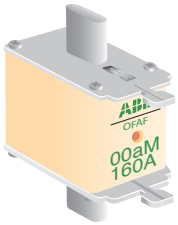
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		4	1.5	OFAA000GG4
		6	1.6	OFAA000GG6
		10	1.1	OFAA000GG10
		16	1.8	OFAA000GG16
		20	2.3	OFAA000GG20
		25	2.4	OFAA000GG25
		32	3.1	OFAA000GG32
		35	3.0	OFAA000GG35
		40	3.7	OFAA000GG40
		50	4.1	OFAA000GG50
		63	5.4	OFAA000GG63
00	690V / 250VC	80	6.8	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



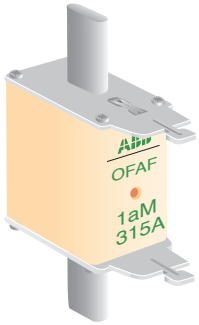
OFAF000AM_



OFAF00AM_



OFAF0AM_



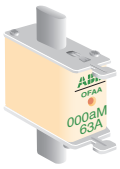
OFAF1AM_

HRC fuse links for motor protection, aM, OFAF_AM_, _500V

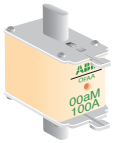
NH-size	Rated voltage AC	Rated current In A	Power loss Ph W	Order code
000	500VC	2	0.1	OFAF000AM2
		4	0.2	OFAF000AM4
		6	0.3	OFAF000AM6
		10	0.5	OFAF000AM10
		16	0.7	OFAF000AM16
		20	0.9	OFAF000AM20
		25	1.2	OFAF000AM25
		32	1.5	OFAF000AM32
		35	1.6	OFAF000AM35
		40	1.8	OFAF000AM40
		50	2.3	OFAF000AM50
		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

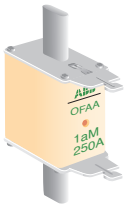
Fuse links, DIN-type, aM



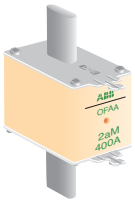
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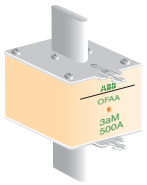
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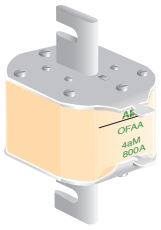
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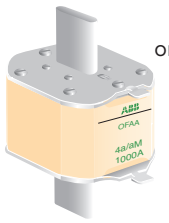
OFAA2AM_



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™

Ordering details



TVOC-2-240-C,
Arc monitor with HMI-COM



TVOC-2-240,
Arc monitor with HMI



TVOC-2-E1, Extension module



Extension module
for supervised detectors



HMI-COM



HMI



Detector



Supervised detector

Main unit

Description	Rated supply voltage Us		Type	Order code	Weight (1 pce)
	V 50/60 Hz	V DC			kg
Arc monitor					
including one HMI-COM	–	24...48	TVOC-2-48-C	1SFA664001R1004	0.95
	100...240	100...250	TVOC-2-240-C	1SFA664001R1003	
including one HMI and door mounting accessories	–	24...48	TVOC-2-48	1SFA664001R1002	0.95
	100...240	100...250	TVOC-2-240	1SFA664001R1001	

Accessories

Description		Type	Order code	Weight (1 pce) kg
Extension module				
10 optical inputs		TVOC-2-E1	1SFA664002R1001	0.114
10 optical inputs for detector TVOC-2-DP60 only		TVOC-2-E3	1SFA664002R3001	0.114
10 optical inputs for supervised detectors only (1)		TVOC-2-E6-S	1SFA664002R6001	0.14
HMI-COM				
with communication interface (Modbus RTU)		TVOC-2-COM	1SFA664002R4001	0.15
HMI				
additional including door mounting accessories		TVOC-2-H1	1SFA664002R1005	0.15
Detectors				
Cable length	1 m	TVOC-2-DP1	1SFA664003R1010	0.02
	2 m	TVOC-2-DP2	1SFA664003R1020	0.02
	4 m	TVOC-2-DP4	1SFA664003R1040	0.04
	6 m	TVOC-2-DP6	1SFA664003R1060	0.60
	8 m	TVOC-2-DP8	1SFA664003R1080	0.80
	10 m	TVOC-2-DP10	1SFA664003R1100	0.10
	15 m	TVOC-2-DP15	1SFA664003R1150	0.15
	20 m	TVOC-2-DP20	1SFA664003R1200	0.20
	25 m	TVOC-2-DP25	1SFA664003R1250	0.25
	30 m	TVOC-2-DP30	1SFA664003R1300	0.30
	60 m (2)	TVOC-2-DP60	1SFA664003R3600	0.60
Supervised detectors (3)				
Cable length	4 m	TVOC-2-DP4-S	1SFA664003R2040	0.50
	6 m	TVOC-2-DP6-S	1SFA664003R2060	0.70
	10 m	TVOC-2-DP10-S	1SFA664003R2100	0.110
	15 m	TVOC-2-DP15-S	1SFA664003R2150	0.150
	30 m	TVOC-2-DP30-S	1SFA664003R2300	0.290

(1) TVOC-2-E6-S extension module operates with TVOC-2 arc monitor from software version 3.0.0
(2) Only to be used with TVOC-2-E3
(3) Only to be used with TVOC-2-E6-S

Ordering details



CSU-2LV



RC120-05

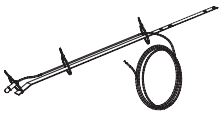


RC200-10



Optical cable TVOC-2 – TVOC-2

Cable strap



Mounting kit



Label



Mounting bracket



Mounting kit for HMI

Current sensing unit

Description	Type	Order code	Weight (1 pce) kg
Low voltage current sensing unit	CSU-2LV	1SFA664002R5001	0.420
Medium voltage current sensing unit	CSU-2MV	1SFA664002R8001	0.420

Diameter mm	Cable length	Type	Order code	Weight (1 pce) kg
Rogowski coil current sensors for low voltage applications				
120	5	RC120-05	1SFA664005R1205	0.180
	10	RC120-10	1SFA664005R1210	0.180
	15	RC120-15	1SFA664005R1215	0.570
	30	RC120-30	1SFA664005R1230	1.030
200	5	RC200-05	1SFA664005R2005	0.210
	10	RC200-10	1SFA664005R2010	0.210
	15	RC200-15	1SFA664005R2015	0.600
	30	RC200-30	1SFA664005R2030	1.050

Note: For medium voltage application, use KECA and KEVCD current sensors types.
Please consult https://new.abb.com/medium-voltage/apparatus/instrument-transformers-and-sensors-id/products/sensors-new

Optical cable between:
- TVOC-2 and TVOC-2 (transfering CSU signal)
- CSU-2 and TVOC-2
- CSU-2 and CSU-2

	0.5 m	TVOC-2_OP05	1SFA664004R1005	0.01
	1 m	TVOC-2-OP1	1SFA664004R1010	0.01
	2 m	TVOC-2-OP2	1SFA664004R1020	0.02
	4 m	TVOC-2-OP4	1SFA664004R1040	0.04
	6 m	TVOC-2-OP6	1SFA664004R1060	0.06
	8 m	TVOC-2-OP8	1SFA664004R1080	0.08
	10 m	TVOC-2-OP10	1SFA664004R1100	0.10
	15 m	TVOC-2-OP15	1SFA664004R1150	0.15
	20 m	TVOC-2-OP20	1SFA664004R1200	0.20
	25 m	TVOC-2-OP25	1SFA664004R1250	0.25
	30 m	TVOC-2-OP30	1SFA664004R1300	0.30

Other accessories

Description	Type	Order code	Weight (1 pce) kg
Cable straps			
1 set incl. 50 pcs	TVOC-2-MK1	1SFA664006R1001	0.10
Mounting kit			
600 mm	TVOC-2-MK600	1SFA663006R1001	0.35
800/1000 mm	TVOC-2-MK800/1000	1SFA663006R1002	0.60
Label			
1 set incl.10 pcs	TVOC-2-LABEL SET	1SFA663005R1001	0.02
Mounting bracket			
1 set incl. 5 bracket pcs and 10 cable strap pcs	TVOC-2 MB1	1SFA663006R1010	0.25
Mounting kit for HMI			
Including a nut, gasket, HMI cable and blank front label	TVOC-2-MK2	1SFA664006R1002	0,125

03
Meters and measurement

266	M1M 30
285	M4M meters
274	EQ meters
276	Gateway – Eqmatic
277	IP Switches
278	Measurement current transformers
283	CMS – Circuit Monitoring System



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

- Electrical installation solutions – 9AKK107046A0424
- Circuit measuring system – 2CCC481003C0201

Energy efficiency

Network analyzers M1M 30





		M1M 30	M4M 20	M4M 30
	Accuracy Class (active energy)	Class 1 Class 0,5S (M1M 30 I/O)	Class 0,5S	Class 0,5S
	IEC 61557-12 PMD	PMD/S/K55/1 PMD/S/K55/0,5 (M1M 30 I/O)	PMD/S/K70/0,5	PMD/S/K70/0,5
Measurement	Voltage measurement range	80-265VL-N	50-400VL-N	50-400VL-N
	Direct voltage measurement up to 690VL-L		■	■
	Current measurement via CT (…/1A and …/5A)	■	■	■
	Current measurement via Rogowski coils		■	■
	Samples per cycle	128	128	128
Real-time	TRMS current	■	■	■
	TRMS voltage	■	■	■
	Frequency	■	■	■
	Active, Reactive and Apparent power	■	■	■
	Power factor	■	■	■
	Timers	■	■	■
Energy	Active, Reactive and Apparent energy	■	■	■
	4 quadrants Energy (Import/Export)	■	■	■
	Tariffs			■
Power Quality	THD (I, VLN, VLL)	■	■	■
	Individual Harmonics	40th		40th
	Unbalances (I, VLN, VLL)	■		■
	Neutral current	Calculated	Calculated	Measured
	Phasors, Waveforms			■
Data recording and logs	Single alarms / Complex alarms with logics	15 / -	25 / -	25 / 4
	Warnings, alarms and errors	■	■	■
	Min/Max/Demand values	Basic	Basic	Advanced
	Flash memory	1MB		32MB
	Real Time Clock (RTC)	■		■
HMI		**LCD**	**Graphic color**	**Graphic color touchscreen**
	Graphs visualization		Basic	Advanced
	Homepage and favourite page		■	■
	Password protection	■	■	■
Connectivity	Modbus RTU	■	■	■
	Modbus TCP/IP	■	■	■ (2xRJ45 for daisy-chain)
	Profibus DP-V0		■	■
	BACnet/IP		■	■
	Automatic integration in System pro M compact® InSite	■	■	■
	Automatic integration in ABB Ability™ Energy and Asset Manager		■	■
	Bluetooth Low Energy		■	■
	Standard I/O	2 Digital Outputs	2 Digital Outputs	4 configurable I/O
	Additional I/O (I/O version)	2 Digital Inputs 2 Digital Outputs	2 Digital Outputs 2 Configurable I/O 2 Analogue Outputs	6 Configurable I/O 2 Analogue Outputs

M1M 30

M1M 30 is a power meter providing complete features in terms of power quality analysis such as measurement up to 40th harmonic and internal memory for datalogging, allowing to target e.g. demand management applications.





M1M 30

M1M 30

Communication Protocol	I/O	Bbn	Order details		Weight 1 piece	Pack unit
		EAN 6941593	Type code	Order code	kg	pc.
Modbus RTU	2 Digital Out.	407040	M1M 30 Modbus	2TAZ663012R2000	0,325	1
Modbus TCP/IP	2 Digital Out.	407057	M1M 30 Ethernet	2TAZ663014R2000	0,345	1
Modbus RTU	2 Digital Out. 2 Digital In.	407064	M1M 30 I/O	2TAZ663012R2001	0,330	1

Energy efficiency

Network analyzers M4M 20, 30 and 2X

Technical features				
Type		**M4M 20 - Class 0,5S**	**M4M 30 - Class 0,5S**	**M4M 2X**
				
Auxiliary power supply				
Voltage range	[V]	48 - 240 VAC/VDC ±15%		
Frequency	[Hz]	50-60		
Power Consumption	[VA]	10 VA max		
Installation category		CAT III 300V class per IEC 61010-1 edition 3		
Protection fuse		T1 A - 277 VAC		

Measurement accuracy*				
Measurement type		True RMS up to the 40th harmonic		
		128 samples per cycle, zero blind		
IEC 61557-12		IEC 61557-12 PMD/S/K70/0,5		
Active energy		Class 0,5 acc. to IEC 61557-12 [*]		
		Class 0,5S acc. to IEC 62053-22		
Reactive energy		Class 2 acc. to IEC 61557-12		
		Class 2S acc. to IEC 62053-23		
Active power		Class 0,5 acc. to IEC 61557-12		
Reactive power		Class 2 acc. to IEC 61557-12	Class 1 acc. to IEC 61557-12	Class 1 acc. to IEC 61557-12
Apparent power		Class 0,5 acc. to IEC 61557-12		
Voltage		Class 0,2 acc. to IEC 61557-12		
Current		Class 0,2 acc. to IEC 61557-12		
Neutral current		Calculated	Class 0,2 acc. to IEC 61557-12	Calculated (2X, 2X PQ1, 2X RTS) Class 0,2 acc. to IEC 61557-12 (2X PQ2)
Frequency		Class 0,1 acc. to IEC 61557-12		
Unbalances (Current, Voltage)		Class 0,2 acc. to IEC 61557-12		
Harmonics, THD (Current, voltage)		Class 1 acc. to IEC 61557-12		

* The total accuracy rate returned in the output is equal to the sum of the Analog Output accuracy rate and the device accuracy rate.

Voltage measurement inputs		
Measurement range	[V]	46-480 (L-N) 80 - 830 VAC (L-L)
Measurement category		400V~ (CAT III)
Rated frequency	[Hz]	50-60 Hz
Max. VT secondary (indirect connection)	[V]	400 VAC (L-N)
Max over voltage	[V]	800 VAC (L-L)
Protection fuse	[V]	T1 A - 277 VAC

* Accuracy referred to insertion with .../5A CT or Rogowski coils, according to product version. Derating for .../1A CT.

Insulation sharacteristics	
Test Voltage Impulse @230V to accessible parts	6,4 kV 1,2/50µS
Test Voltage Impulse @400V to accessible parts	9 kV 1,2/50µS
Test Voltage @230V to accessible parts	3 kV 60s @2000m
Test Voltage @400V to accessible parts	3,6 kV 60s @2000m

Energy efficiency

Network analyzers M4M 20, 30 and 2X

Technical features				
Type		**M4M 20 - Class 0,5S**	**M4M 30 - Class 0,5S**	**M4M 2X**
				
Current measurement inputs				
Number of current inputs		3 (L1, L2, L3)	4 (L1, L2, L3, N)	3 (2X, 2X PQ1, 2X RTS), 4 (2X PQ2)
Indirect insertion with CT				
CT rated secondary current			5 A (Class 0.5S)	
			1 A (Class 0.5S)	
Max primary CT			50 kA	
Measurement range without accuracy derating			50 mA - 6 A	
Starting current			1 mA	
Burden			0.024 VA at 6 A	
Indirect insertion with Rogowski coils		**M4M 20 Rogowski**	**M4M 30 Rogowski**	**-**
Rated current			10,000 A	-
Measurement range without accuracy derating			100 A - 12 kA	-
Length of coils connections cable to M4M		3 m	3 m	
Starting current	[A]		10 A	-
I/O				
Digital Output				
Voltage (min - max)			5 - 240 VAC/DC	
Current (min - max)			2 - 100 mA	
Max ON state drop voltage			1.5 V	
Max R value at Min voltage conditions (5 V)			1750 Ohm	
Min R value at Max voltage conditions (240 V)			2400 Ohm	
Pulse duration	[ms]		20 ms ON, 20 ms OFF	
Pulse frequency			25 Hz	
Alarm activation delay	[s]		1 - 900 s (programmable)	
Alarm return hysteresis			0 - 40% (programmable)	
Digital Input				
Maximum voltage			240 VAC/DC	
Max voltage for OFF state on input			20 VAC/DC	
Min voltage for ON state on input			45 VAC/DC	
Analogue Output				
Programmable electrical span			Span [0 - 20 mA or 4 - 20 mA]	
Load			Typical 250 Ohm, max 500 Ohm	
Technical data for MID version				
MID standards			EN 50470-1 - EN 50470-3 - EN 62052-31	
Voltage measurement (type of network and rated voltage)			3Ph/4W - 3Ph/3W - 2Ph/3W - 1Ph/2W - 3x230/400	
Current rating (I min- I ref(Imax)			0,01-1(6) A	
Rated frequencies			50 Hz and 60 Hz	
Tolerance on rated frequencies			+/- 2%	
Active Energy accuracy class			Class C	
Pulse value S0 (pulse constant)			200000 imp/kWh	
Electromagnetic ambient conditions			Class E2	
Mechanical ambient conditions			Class M1	
Utilization category - IEC 62052-31			2	
LED indicator pulse frequency			200000 imp/kWh	
LED indicator pulse length			1ms	

Energy efficiency
Network analyzers

Technical features				
Type		**M4M 20 - Class 0,5S**	**M4M 30 - Class 0,5S**	**M4M 2X**
				
Mechanical characteristics				
Overall dimensions		96 mm × 96 mm × 78 mm (Depth inside the switchboard: 57 mm)		96 mm x 96 mm x 78 mm (DIN-rail mounting)
IP degree of protection (acc. to IEC 60529)		Front: IP54		-
		Terminals: IP20		
Weight	[g]	400		
Terminal characteristics				
Voltage inputs		Nominal cross section: 2,5 mm² Solid/stranded wire: 0,2 - 2,5 mm2 (AWG 24 - 12) Pitch: 7,62 mm Poles: 4		
Current inputs		Nominal cross section: 2,5 mm² Solid/stranded wire: 0,2 - 2,5 mm² (AWG 24 - 12) Pitch: 5,08 mm Poles: 6 Screw flanges for fixing	Nominal cross section: 2,5 mm² Solid/stranded wire: 0,2 - 2,5 mm2 (AWG 24 - 12) Pitch: 5,08 mm Poles: 8 Screw flanges for fixing	
RS-485 Serial port		Nominal cross section: 2.5 mm² Solid/stranded wire: 0.2 - 2.5 mm² (AWG 24 - 12) Pitch: 5.08 mm Poles: 3		
I/O		Nominal cross section: 2.5 mm² Solid/stranded wire: 0.2 - 2.5 mm² (AWG 24 - 12) Pitch: 5.08 mm Poles: 3 (Programmable I/O, only on M4M 20 I/O) Poles: 3 (Digital outputs) Poles: 3 (Analogue outputs, only on M4M 20 I/O)	Nominal cross section: 2.5 mm² Solid/stranded wire: 0.2 - 2.5 mm² (AWG 24 - 12) Pitch: 5.08 mm Poles: 5 (Programmable I/O) Poles: 3 (Programmable I/O only on M4M 30 I/O) Poles: 3 (Analogue outputs, only on M4M 30 I/O)	Nominal cross section: 2,5 mm² Solid/stranded wire: 0,2 - 2,5 mm2 (AWG 24 - 12) Pitch: 5,08 mm Poles: 5 (Programmable I/O)
Rogowski current probes		Only with ABB Rogowski probes: - R4M-200 2CSG202150R1101 (200 mm diameter) - R4M-80 2CSG202160R1101 (80 mm diameter)		-

Climatic conditions	
Operating temperature	-25 to 70 °C (K70 acc. to IEC 61557-12)
Storage temperature	-40 to 85 °C (K70 acc. to IEC 61557-12)
Relative humidity	Max 93% (non-condensing) at 40°C
Pollution degree	2
Altitude	< 2,000 m

User Interface			
Access to device	5 pushbuttons	Touchscreen	-
Display type	Graphic color display		-
Display dimensions	70 × 52 mm (3.5")		-

Energy efficiency
Network analyzers

Technical features			
Type	**M4M 20 - Class 0,5S**	**M4M 30 - Class 0,5S**	**M4M 2X**
			
Communication protocol			
Modbus RTU	**M4M 20 Modbus, M4M 20 I/O, M4M 20 Rogowski**	**M4M 30 Modbus, M4M 30 I/O, M4M 30 Rogowski**	**M4M 2X Modbus**
Communication interface	RS485 with optical isolation		
Baud rate	9.6, 19.2, 38.4, 57.6, 115.2 kbps		
Parity number	Odd, Even, None		
Stop bit	1, 2		
Address	1-247		
Connector	3 pole terminal		
Profibus DP-V0	**M4M 20 Profibus**	**M4M 30 Profibus**	**-**
Protocol	Profibus with slave DP-V0 function in compliance with IEC 61158 regulations		-
Communication interface	RS485 with optical isolation		-
Baud rate	Automatic detection [9.6 kbps - 12 Mbps]		-
Address	0-126		-
Connector	DB 9 female connector (do not use connectors with 90° cable outlet)		-
LED indicators	Green for communication status		-
	Red for communication error		-
Modbus TCP/IP	**M4M 20 Ethernet**	**M4M 30 Ethernet**	**M4M 2X Ethernet**
Protocol	Modbus TCP/IP		
Communication interface	RJ45	RJ45 (2 ports for daisy-chain)*	
BACnet	**M4M 20 Bacnet**	**M4M 30 Bacnet**	
Protocol	BACnet/IP		-
Communication interface	RJ45		-

Bluetooth	
Type	BLE (Bluetooth Low Energy)

Real-time clock		
Clock drift	-	~ 0.4 seconds per day
Battery backup time	-	~ 3 days without aux supply

Standards	
Power metering and monitoring devices (PMD)	IEC 61557-12 (IEC 62053-22, IEC 62053-23)
Electrical safety	IEC 61010-1
EMC	IEC 61326-1 (IEC 61000-3-2, IEC 61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11)

*1x RJ45 port available on M4M 30-M

Energy efficiency
Network analyzers



M4M 20

M4M 20 is ABB's network analyzer range that provides complete and accurate electrical parameters monitoring and basic power quality analysis.
Equipped with graphic color display for advanced visualization of the measured parameters and Bluetooth module for smart commissioning.

Communication protocol	I/O	Bbn 8012542 EAN	Order details		Weight 1 piece kg	Pack unit pc.
			Type code	Order code		
BLE	2 Digital out.	511519	M4M 20	2CSG251151R4051	0,400	1
BLE, Modbus RTU	2 Digital out.	511410	M4M 20 Modbus	2CSG251141R4051	0,400	1
BLE, Modbus TCP/IP	2 Digital out.	044710	M4M 20 Ethernet	2CSG204471R4051	0,400	1
BLE, Profibus DP-V0	2 Digital out.	511311	M4M 20 Profibus	2CSG251131R4051	0,400	1
BLE, BACnet/IP	2 Digital out.	368311	M4M 20 Bacnet	2CSG236831R4051	0,400	1
BLE, Modbus RTU	2 Progr. I/O, 2 Digital out., 2 Analogue out.	511618	M4M 20 I/O	2CSG251161R4051	0,400	1
MID BLE, Modbus RTU	2 Digital Out.	390558	M4M 20-M MODBUS	2CSG239055R4051	0,400	1
MID BLE, Modbus TCP/IP	2 Digital Out.	390657	M4M 20-M ETHERNET	2CSG239065R4051	0,400	1

M4M 20 - Rogowski version



M4M 20 is also available as compatible with ABB's R4M Rogowski coils for current measurement, increasing the flexi-bility of network analyzers offer and allowing retrofit in any existing installations.
M4M 20 Rogowski together with R4M Rogowski coils ensures the integration of basic power quality metering in any existing system with 0 downtime.

Communication protocol	I/O	Bbn 8012542 EAN	Order details		Weight 1 piece kg	Pack unit pc.
			Type	Order code		
BLE, Modbus RTU	2 Digital out.	070818	M4M 20 Rogowski	2CSG207081R4051	0.400	1

M4M 30



M4M 30 is ABB's network analyzer range that allows complete power quality analysis and energy efficiency evaluations.
Equipped with touchscreen color display for simplified access to the device and with Bluetooth module for smart commissioning.

Communication protocol	I/O	Bbn 8012542 EAN	Order details		Weight 1 piece kg	Pack unit pc.
			Type code	Order code		
BLE, Modbus RTU	4 Progr. I/O	747611	M4M 30 Modbus	2CSG274761R4051	0,400	1
BLE, Modbus TCP/IP	4 Progr. I/O	746812	M4M 30 Ethernet	2CSG274681R4051	0,400	1
BLE, Profibus DP-V0	4 Progr. I/O	367918	M4M 30 Profibus	2CSG236791R4051	0,400	1
BLE, BACnet/IP	4 Progr. I/O	024514	M4M 30 Bacnet	2CSG202451R4051	0,400	1
BLE, Modbus RTU	6 Progr. I/O, 2 Analogue out.	024712	M4M 30 I/O	2CSG202471R4051	0,400	1
MID BLE, Modbus RTU	4 Progr. I/O	390350	M4M 30-M MODBUS	2CSG239035R4051	0,400	1
MID BLE, Modbus TCP/IP	4 Progr. I/O	390459	M4M 30-M ETHERNET	2CSG239045R4051	0,400	1

Energy efficiency
Network analyzers



M4M 30 - Rogowski version

M4M 30 is also available as compatible with ABB's R4M Rogowski coils for current measurement, increasing the flexi-bility of network analyzers and allowing retrofit in any existing installations. M4M 30 Rogowski together with R4M coils ensure integration of complete PQ analysis in any existing system with 0 downtime.

Communication protocol	I/O	Bbn 8012542	Order details		Weight 1 piece	Pack unit
		EAN	Type	Order code	kg	pc.
BLE, Modbus RTU	4 Progr. I/O	024613	M4M 30 Rogowski	2CSG202461R4051	0.400	1



R4M ROGOWSKI COILS

R4M Rogowski coils are flexible current transformer based on Rogowski technology, ideal to retrofit existing installa-tions up to 12kA. Available in two different sizes (80mm or 200mm diameters), R4M coils are directly equipped with pre-wired removable terminals that perfectly fit M4M 20 Rogowski (3 Rogowski coil inputs) and M4M 30 Rogowski (4 Rogowski coil inputs), with no need for external integrators.

Diameter (mm)	Bbn 8012542	Order details		Weight 1 piece	Pack unit
	EAN	Type	Order code	kg	pc.
80	021605	R4M-80	2CSG202160R1101	0.150	1
200	021506	R4M-200	2CSG202150R1101	0.250	1



M4M 2X

M4M 2X is ABB's network analyzer range that ensuring higher flexibility to project specifications compared to standard network analyzers. M4M 2X is available without display, only communicating via protocols and Bluetooth module for smart remote commissioning.

Communication protocol	I/O	Functio-nality package	Bbn 8012542 EAN	Order details		Weight 1 piece kg	Pack unit pc.
				Type code	Order code		
BLE, Modbus RTU	2 Digital out.	2X	601111	M4M 2X Modbus	2CSG260111R4051		
BLE, Modbus TCP/IP	2 Digital out.	2X	600619	M4M 2X Ethernet	2CSG260061R4051		
BLE, Modbus RTU	2 Digital out.	2X+PQ1	390756	M4M 2X Modbus PQ1	2CSG239075R4051		
BLE, Modbus TCP/IP	2 Digital out.	2X+PQ1	391258	M4M 2X Ethernet PQ1	2CSG239125R4051		
BLE, Modbus RTU	2 Digital out.	2X+PQ2	390855	M4M 2X Modbus PQ2	2CSG239085R4051		
BLE, Modbus TCP/IP	2 Digital out.	2X+PQ2	391357	M4M 2X Ethernet PQ2	2CSG239135R4051		
BLE, Modbus RTU	4 Progr. I/O	2X+RTS	390954	M4M 2X Modbus RTS	2CSG239095R4051		
BLE, Modbus TCP/IP	4 Progr. I/O	2X+RTS	391456	M4M 2X Ethernet RTS	2CSG239145R4051		
BLE, Modbus RTU	4 Progr. I/O	2X+PQ1 +RTS	391050	M4M 2X Modbus PQ1+RTS	2CSG239105R4051		
BLE, Modbus TCP/IP	4 Progr. I/O	2X+PQ1 +RTS	391555	M4M 2X Ethernet PQ1+RTS	2CSG239155R4051		
BLE, Modbus RTU	4 Progr. I/O	2X+PQ2 +RTS	391159	M4M 2X Modbus PQ2+RTS	2CSG239115R4051		
BLE, Modbus TCP/IP	4 Progr. I/O	2X+PQ2 +RTS	391654	M4M 2X Ethernet PQ2+RTS	2CSG239165R4051		

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

Energy efficiency
EQmatic



QA/S 3.xx.1

Energy Analyzer, M-Bus, MDRC

Compact and web-based stand-alone devices for energy management applications. For monitoring, logging, displaying and analyzing consumption data of up to 16 or 64 electricity, gas, water or heat meters via M-Bus. Automatic detection for ABB EQ meters (A/B-Series). Access to the device via web browser. The user interface provides graphical analysis functions, e.g. dashboard, historical data, instantaneous values, benchmark functions, cost allocation according to consumer groups and more.

Description	Bbn 4016779	Order details		Weight 1 piece	Pack unit
	EAN	Type code	Order code	kg	pc.
16 Devices	997751	QA/S 3.16.1	2CDG110226R0011	0.15	1
64 Devices	997768	QA/S 3.64.1	2CDG110227R0011	0.15	1



QA/S 4.xx.1

Energy Analyzer, Modbus RTU, MDRC

Compact and web-based stand-alone devices for energy management applications. For monitoring, logging, displaying and analyzing consumption data of up to 16 or 64 electricity, gas, water or heat meters via Modbus RTU. Automatic detection for ABB EQ meters (A/B-Series). Access to the device via web browser. The user interface provides graphical analysis functions, e.g. dashboard, historical data, instantaneous values, benchmark functions, cost allocation according to consumer groups and more.

Description	Bbn 4016779	Order details		Weight 1 piece	Pack unit
	EAN	Type code	Order code	kg	pc.
16 Devices	997775	QA/S 4.16.1	2CDG110228R0011	0.15	1
64 Devices	997782	QA/S 4.64.1	2CDG110229R0011	0.15	1



QA/S 1.16.1

Energy Analyzer, KNX, MDRC

Compact and web-based stand-alone device for energy management applications.
For monitoring, logging, displaying and analyzing consumption data of up to 16 electricity, gas, water or heat meters via KNX TP. In addition measured values such as temperature, humidity, etc. can be processed and displayed. The alarm function allows early warning via E-mail if any value exceeds defined limits. The user interface provides graphical analysis functions, e.g. dashboard, historical data, instantaneous values, benchmark functions,cost allocation according to consumer groups and more. In order to increase energy efficiency, defined loads can be selectively switched off with the load control function if they exceed a load limit. For further processing data can be exported via E-mail or upload to FTP server. Several data sharing options allow communication with other systems.

Description	Bbn 4016779	Order details		Weight 1 piece	Pack unit
	EAN	Type code	Order code	kg	pc.
16 Devices	997713	QA/S 1.16.1	2CDG110224R0011	0.15	1

Energy efficiency

IP Switches



IS/S 8.1.1

IP Switch, 8 Ports, Fast Ethernet, MDRC **NEW**

The IP Switch is an industrial-grade, 8 Ports, Fast Ethernet (100 Mbit/s), unmanaged switch with plug-and-play capabilities, designed for installation in electrical distribution boards and small housings for rapid mounting on 35mm DIN rails (to EN 60715).

Description	Mod. width	Order details		Weight 1 piece	Pack unit
		Type code	Order code	kg	pc.
	8	IS/S 8.1.1	2CDG120082R0011	0.25	1



ISP/S 8.1.1.1

IP Switch PoE, 8 Ports, Fast Ethernet, 55W, MDRC **NEW**

The IP Switch PoE is an industrial-grade, 8 Ports, Fast Ethernet (100 Mbit/s), PoE (55 W), unmanaged switch with plug-and-play capabilities, designed for installation in electrical distribution boards and small housings for rapid mounting on 35mm DIN rails (to EN 60715).

Description	Mod. width	Order details		Weight 1 piece	Pack unit
		Type code	Order code	kg	pc.
	12	ISP/S 8.1.1.1	2CDG120083R0011	0.41	1

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

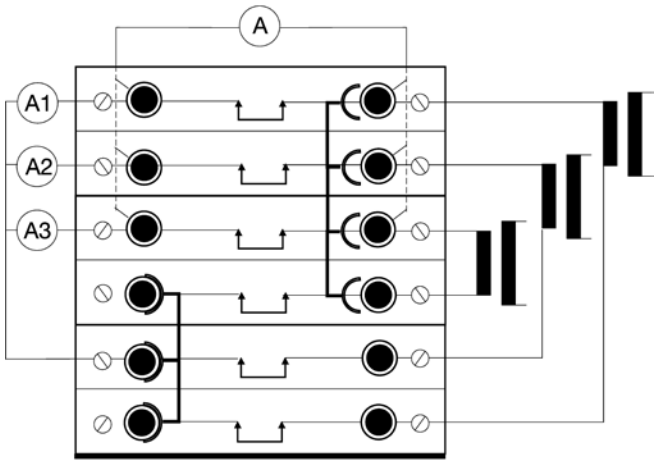
Primary rated current	Accuracy class	Rated power	CT Window size (mm)	Order code
800	0.5	3	80 x 120	CT120/800
1000	0.5	5	80 x 120	CT120/1000
1200	0.5	6	80 x 120	CT120/1200
1500	0.5	8	80 x 120	CT120/1500

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

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

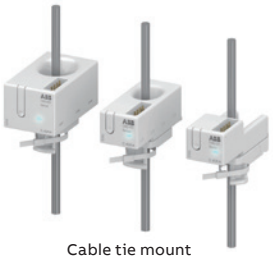
CMS – Circuit Monitoring System



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

04
Motor control and protection

287	Universal Motor Controller
297	Manual motor starters
315	ESB Installation contractors
365	AFS 3-pole contactors
377	AF and EK 4-pole contactors
395	Contactors for capacitor switching
401	NF 4-pole and 8-pole contactor relays
410	Accessories for AF09 ... AF2850 3-pole contactors, AF09 ... AF370 4-pole contactors and NF contactor relays
437	B, M mini contactors K, M mini contactor relays
455	Overload relays
473	Thermistor motor protection relays
477	DRAS and DRAF enclosed starters
481	Thermal and electronic overload relays
495	Softstarters
497	PSR
503	PSRC
519	PSE
525	PSTX


ABB
MS132
TRIP
1L1 3L2 5L3
2T1 4T2 6T3
ABB
TF42
AF16-30-10-13
ABB
PSR12-600-70
1L1 3L2 5L3 ST A1
2T1 4T2 6T3 Run A2

Universal Motor Controller

288 Ordering details

Universal Motor Controller UMC100.3

Ordering details



UMC100.3

Description

Intelligent motor management system for single and three-phase motors with I_e = 0.24 - 63 A in a single device. Compact housing with integrated current transformer for cable cross sections 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-FBP.0
  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 free programmable application specific logic with 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 φ), active power, apparent power, energy, total harmonic distortion (THD).
- Integrated I/Os: six digital inputs, one PTC input, four digital outputs. Maximum number of I/Os with expansion modules: 14 digital inputs, one PTC input, nine digital outputs, six analog inputs, one analog output
- Communication interfaces for fieldbuses and Ethernet networks, Interface for operator panel UMC100-PAN, bus interface for connection of expansion modules
- Versions for supply voltage 24 V DC and
  110 – 240 V AC/DC, with ATEX approval and with ATEX plus conformal coating for applications in aggressive atmosphere

Description	Supply voltage	Type	Order code		Pkg qty	Weight (1 pc.) kg
Universal Motor Controller	24 V DC	UMC100.3 DC	1SAJ530000R0100		1	0.275
Universal Motor Controller	110-240 V AC/DC	UMC100.3 UC	1SAJ530000R1100		1	0.315
Universal Motor Controller, ATEX	24 V DC	UMC100.3 DC EX	1SAJ530000R0200		1	0.275
Universal Motor Controller, ATEX	110-240 V AC/DC	UMC100.3 UC EX	1SAJ530000R1200		1	0.315
Universal Motor Controller, ATEX conformal coating	24 V DC	UMC100.3 DC EX Coated	1SAJ530000R0210		1	0.275
Universal Motor Controller, ATEX conformal coating	110-240 V AC/DC	UMC100.3 UC EX Coated	1SAJ530000R1210		1	0.315

Operating panel and cables

Ordering details



UMC100-PAN

Description

Operating panel for Universal Motor Controller UMC100.3. Backlit graphical and multilingual full-text display, LEDs for status display. Assembly directly on UMC100.3 or on the control cabinet door via door mounting set (includes connection cable).

Functions

- Monitor: Shows motor status, diagnostics and maintenance data
- Operate: Start, stop, fault reset
- Parametrize: Setting and changing of all motor and fieldbus parameters (password protection possible); all settings are performed in the selected language
- Memory: Copy settings from one UMC100.3 to another
- USB port for up/download of parameters and logic from PC with PBDTM software



UMC100-PAN CAP

Supports nine languages: English, Finnish, French, German, Italian, Polish, Portuguese, Russian, Spanish

The protection cap UMC100-PAN increases the degree of protection for the operator panel from IP52 to IP54. It is made of transparent and flexible silicone material, making it easy to read text messages, check the LED status and use the buttons. It is removable to access the micro-USB port for parameter up/download.

Description	Type	Order code		Pkg qty	Weight (1 pc.) kg
Operating panel	UMC100-PAN	1SAJ590000R0103		1	0.047
0.7 m ext. cable with door mounting set	UMCPAN-CAB.070	1SAJ510003R0002		1	0.070
1.5 m ext. cable with door mounting set	UMCPAN-CAB.150	1SAJ510004R0002		1	0.088
3 m ext. cable with door mounting set	UMCPAN-CAB.300	1SAJ510002R0002		1	0.176
Protection cap for operating panel	UMC100-PAN CAP	1SAJ510005R0001		10	0.013

Expansion modules

Ordering details



DX111-FBP.0



DX122-FBP.0



VI150-FBP.0



AI111.0

Description
Up to four expansion modules can be connected to one UMC100.3:

- One digital expansion module DX111-FBP.0 or DX122-FBP.0
- One voltage expansion module VI150-FBP.0 or VI155-FBP.0
- Two analog/temperature expansion modules AI111.0

The supply voltage is 24 V DC; the 110-240 V AC/DC version of the UMC100.3 provides the 24 V DC supply for expansion modules

DX111-FBP.0
I/O-expansion module with eight digital inputs 24 V DC, four relay outputs, one analog output 0/4-20 mA or 0…10 V

DX122-FBP.0
I/O-expansion module with eight digital inputs 110/230 V AC, four relay outputs, one analog output 0/4-0 mA or 0-10 V

VI15x-FBP.0
Voltage modules for the determination of phase voltages, power factor (cos φ), apparent power, energy, total harmonic distortion (THD). For use in grounded networks (VI150-FBP.0) or in all networks (VI155-FBP.0), 150-690 V AC

AI111.0
Analog/temperature expansion module, three inputs PT100, PT1000, KTY83, KTY84, NTC, 0–10 V, 0/4-20 mA one or two modules AI111.0 can be connected to an UMC100.3

Description	Type	Order code		Pkg qty	Weight (1 pc.) kg
I/O module for UMC100, 24 V DC digital input	DX111-FBP.0	1SAJ611000R0101		1	0.220
I/O module for UMC100, 110 - 230 V AC digital input	DX122-FBP.0	1SAJ622000R0101		1	0.220
3-phase voltage module for grounded networks	VI150-FBP.0	1SAJ650000R0100		1	0.110
3-phase voltage module for all networks	VI155-FBP.0	1SAJ655000R0100		1	0.110
Analog/temperature module 3 analog inputs	AI111.0	1SAJ613000R0101		1	0.116
Connection cable UMC100 - I/O module, length 0.3 m	UMCIO-CAB.030	1SAJ691000R0001		1	0.011
Connection cable IO-module - IO-module, length 0.3 m	IOIO-CAB.030	1SAJ692000R0001		1	0.011
Terminal set for UMC100.3 DC (spare parts)	UMCTB-FBP.0	1SAJ929160R0001		1	0.043
Terminal set for UMC100.3 UC (spare parts)	UMCTB.1	1SAJ929160R0002		1	0.045

Fieldbus interfaces
Ordering details


PDP32.0


MRP31.0


DNP31.0


PDR31.0

Description
Fieldbus communication interfaces enable the UMC100.3 to communicate via fieldbus.
The interfaces can be used in two ways:
- Mounted directly on the UMC100.3 – the interface is supplied from the UMC100.3 and no additional accessory is required
- Mounted separately on an SMK3.0 adapter in the cable chamber of an MCC, the interface plugged on SMK3.0 requires a 24 V DC supply. Ready-made cables for applications in withdrawable systems are available, as well as terminal blocks for other cables:
  CDP18.150: Cable for use inside the CDP24.150 drawer: Cable from SMK3.0 to drawer outside

PDP32.0
- Communication interface for PROFIBUS DP; supports the protocols PROFIBUS DP/V0 and V1
- PNO-certified PROFIBUS slave
- Data transfer rate up to 12 Mbit/s
- Diagnostic LEDs
- Fieldbus connection via nine-pole Sub-D connector or terminal blocks
- GSD download from UMC100.3 webpage

MRP31.0
- Communication interface for Modbus RTU
- Data transfer rate up to 57.6 kbit/s
- Diagnostic LEDs
- Fieldbus connection via terminal blocks

DNP31.0
- Communication interface for DeviceNet
- ODVA-certified DeviceNet slave
- Data transfer rate up to 500 kbit/s
- Diagnostic LEDs
- Fieldbus connection via terminal blocks
- EDS download from UMC100.3 webpage

PDR31.0
- External active fieldbus termination for Profibus DP; the PDR31.0 needs to be mounted on a SMK3.0 adapter and supplied by 24 V DC

Description	Type	Order code		Pkg qty	Weight (1 pc.) kg
Profibus DP communication interface	PDP32.0	1SAJ242000R0001		1	0.050
Modbus RTU communication interface; terminal block for fieldbus connection included	MRP31.0	1SAJ251000R0001		1	0.039
DeviceNet communication interface; terminal block for fieldbus connection included	DNP31.0	1SAJ231000R0001		1	0.039
Profibus DP active bus termination	PDR31.0	1SAJ243000R0001		1	0.030

Adapter and accessories

Ordering details



SMK3.0



CDP18.150



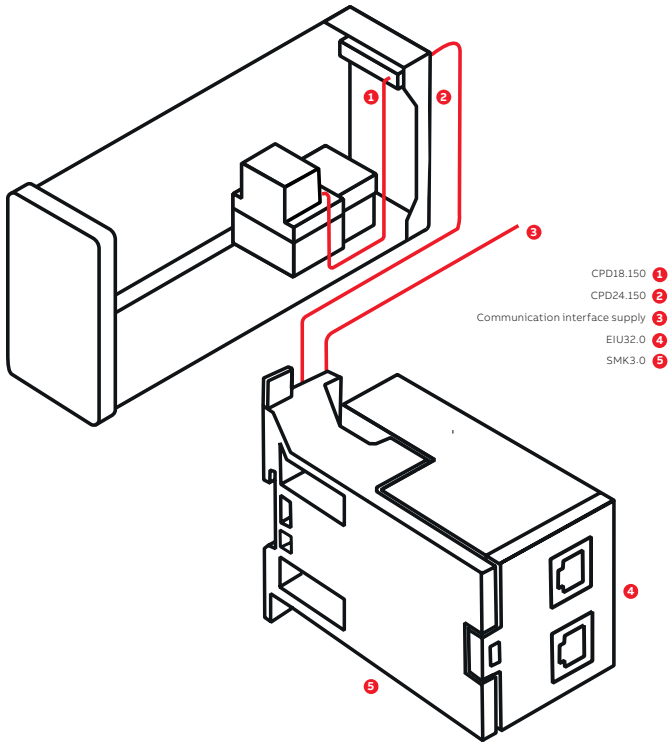
PDP32.0 on SMK3.0



EIU32.0 on SMK3.0

Adapter and ready-made cables

Adapter SMK3.0 for external mounting of a fieldbus or EtherNet/IP™ interface EIU32.0 outside a drawer. SMK3.0 can be mounted on a DIN-rail or fixed by screws. 24 V DC supply is required. Ready-made cables for inside and outside the drawer, including a terminal block on one side and open end on the other. Terminal blocks are also separately available for making own cables.



Separate wiring of the EtherNet/IP™ communication interface EIU32.0

Description	Type	Order code		Pkg qty	Weight (1 pc.) kg
Adapter for separate mounting of a communication interface; terminal block for 24 V DC supply included	SMK3.0	1SAJ929600R0001		1	0.038
Cable for use inside drawer, length 1.5 m	CDP18.150	1SAJ929180R0015		1	0.060
Cable from SMK3.0 to drawer's outside, length 1.5 m	CDP24.150	1SAJ929240R0015		1	0.060
Terminal block 2-pole for SMK3.0 supply (spare parts)	SMK3-X2.10	1SAJ929610R0001		10	0.017
Terminal block 5-pole for SMK3.0 comm. (spare parts)	SMK3-X1.10	1SAJ929620R0001		10	0.041

Ethernet interfaces
Ordering details



MTQ22-FBP.0



PNQ22-FBP.0



EIU32.0



PNU32.0

Description
Ethernet communication interfaces enable the UMC100.3 to communicate via an Ethernet network. There are two types of interfaces:

Interfaces for the connection of one to four Universal Motor Controllers UMC100.3:
- MTQ22-FBP.0 for Modbus TCP
- PNQ22-FBP.0 for Profinet IO

Interface for a single universal motor controller UMC100.3:
- EIU32.0 for EtherNet/IP™

MTQ22-FBP.0
- Protocol Modbus TCP
- For one to four UMC100.3
- Master supervision with timeout control for up to four masters
- Micro USB-port for configuration via PC (configuration software downloaded from UMC100.3 webpage)
- Integrated Ethernet switch
- Supports all network topologies
- Ring topology with redundancy (MRP protocol)
- Easy to use in withdrawable applications
- No special Ethernet connectors required in MCCs
- 24 V DC supply voltage
- DIN-rail mounting

PNQ22-FBP.0
- Protocol Profinet IO
- PNO-certified
- For one to four UMC100.3 devices
- Integrated Ethernet switch
- Supports all network topologies
- Ring topology with redundancy (MRP protocol)
- Easy to use in withdrawable applications
- No special Ethernet connectors required in MCCs
- Fully integrated into ABB 800xA
- Time-stamped events with ABB 800xA
- 24 V DC supply voltage
- DIN-rail mounting
- GSDML downloaded from UMC100.3 webpage

EIU32.0
- Protocol EtherNet/IP™
- ODVA-certified
- For one motor controller UMC100.3
- Mounting directly on an UMC100.3 (supplied by UMC100.3) or remotely on an SMK3.0 adapter (24 V DC supply required)
- Integrated Ethernet switch
- Supports all network topologies
- DLR (Device Level Ring) function for redundancy
- Easy to use in withdrawable applications
- No special Ethernet connectors required in MCCs
- EDS download from UMC100.3 webpage

PNU32.0
- Protocol Profinet
- PNO-certified
- For one motor controller UMC100.3
- Mounting directly on an UMC100.3 (supplied by UMC100.3) or remotely on an SMK3.0 adapter (24 V DC supply required)
- Integrated Ethernet switch
- Supports all network topologies
- MRP redundancy
- S2 master redundancy supported
- Easy to use in withdrawable applications
- No special Ethernet connectors required in MCCs
- GSDML download from UMC100.3 webpage

Description	Type	Order code		Pkg qty	Weight (1 pc.) kg
Ethernet Modbus TCP interface	MTQ22-FBP.0	1SAJ260000R0100		1	0.172
Ethernet Profinet IO interface	PNQ22-FBP.0	1SAJ261000R0100		1	0.172
EtherNet/IP™ interface	EIU32.0	1SAJ262000R0100		1	0.110
Ethernet Profinet S2 interface	PNU32.0	1SAJ263000R0100		1	0.110

Ready-made cables, terminal blocks
Ordering details



CDP18.150



Terminal blocks ETHTB-FBP.xx

Ready-made cables

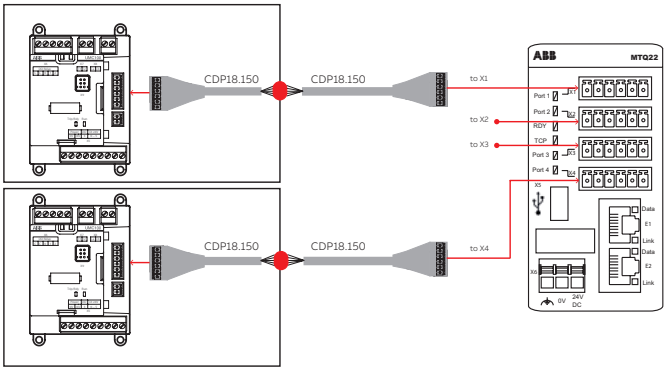
Ready-made cables are available for application in withdrawable systems as well as for fixed installations. Cables include ready-mounted terminal blocks. All connectors are also available as spare parts for creating individual cable connections.
Terminal blocks for making own cables are also available:

MTQ22-FBP.0, PNQ22-FBP.0

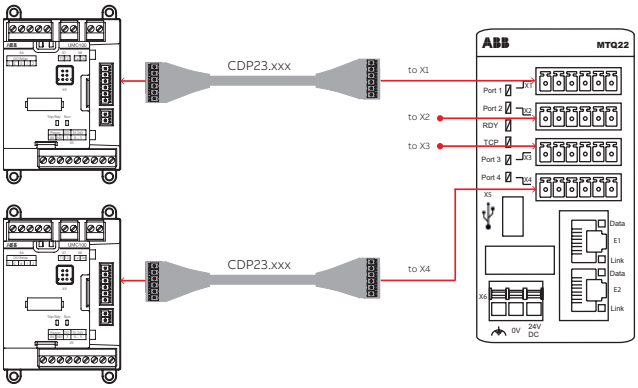
- CDP18.150 cable for use inside and outside a drawer
- CDP23.150, CDP23.300 cables from Ethernet interface to UMC100.3

EIU32.0

- CDP18.150 cable for use inside a drawer
- CDP24.150 cable for use outside a drawer and connection to a SMK3.0 adapter



UMC100.3, withdrawable application with MTQ22 -FBP.0/PNQ22-FBP.0



UMC100.3, fix mounted application with solution MTQ22-FBP.0/PNQ22-FBP.0

Description	Type	Order code		Pkg qty	Weight (1 pc.) kg
Cable for inside and outside drawer, length 1.5 m	CDP18.150	1SAJ929180R0015		1	0.060
Cable Ethernet interface - UMC100.3, length 1.5 m	CDP23.150	1SAJ929230R0015		1	0.100
Cable Ethernet interface - UMC100.3, length 3 m	CDP23.300	1SAJ929230R0030		1	0.160
Cable from SMK3.0 to drawer's outside, length 1.5 m	CDP24.150	1SAJ929240R0015		1	0.060
Terminal blocks for MTQ22/PNQ22 X1...X4	ETHTB-FBP.4	1SAJ929200R0001		4	0.015
Terminal blocks for MTQ22/PNQ22 X1...X4	ETHTB-FBP.50	1SAJ929200R0002		50	0.015

Configuration software

Ordering details



Configuration software example



UTP22-FBP.0

FIM UMC EDITION configuration software for the UMC100.3 motor management system
The FIM UMC Edition is based on the Field Device Integration (FDI) standard. This latest standard combines the benefits of both major former technologies, EDD and FDT/DTM. It is the perfect tool for configuration of the UMC100.3 universal motor controller in large applications in the process industry and also in smaller projects such as the water industry. The FIM UMC Edition is equipped with a high-performance graphical user interface which is quick to install. It scans, identifies and enables access to devices within three minutes. It provides effective basic functionality for configuration, diagnosis and maintenance, during commissioning, in the workshop or as second master in a Profibus network of a process control system.

Overview of features

- Online/offline configuration and parameterization of UMC100.3
- Maximum number of tags is 2500
- Reading parameterization and configuration information from the device
- Online display of measuring, status and diagnostics data
- Online operation and error acknowledgment
- Creation of custom application logics
- Archiving

Supported languages

FIM basic package	Chinese, English, German
UMC100.3 Device Package	Chinese, English, Spanish, German, Italian, Polish, Portuguese, Russian
UMC100.3 Custom Application Editor	English

System requirements

- Windows 7 (64 bit)/Windows 8.1, Windows 10, admin rights
- 10 GB storage space
- Minimum of 1 GB RAM

Connection to UMC100.3 can be done either via PROFIBUS DP or as a point-to-point connection
Connection to Profibus DP network: UTP22-FBP.0
Connection to UMC100.3: With micro-USB cable via control panel UMC100-PAN
Connection to Profinet ethernet network: With RJ-45 cable via ethernet socket

A trial version with limited functionality can be downloaded from https://new.abb.com/control-systems/fieldbus-solutions/fim

The single user license in the FIM UMC Edition package upgrades the trial version to a full version

Description	Type	Order code		Pkg qty	Weight (1 pc.) kg
USB interface for Profibus networks	UTP22-FBP.0	1SAJ924013R0001		1	0.261
FIM UMC Edition, Single user license	FIM UMC Editon	1SAJ925000R0001		1	n.a.

Earth fault monitors, current transformers

Ordering details



CEM11-FBP.xxx

Earth fault monitors CEM11-FBP.xxx for use with the UMC100.3 Universal Motor Controller
The CEM11-FBP.xxx device monitors if the sum of the currents flowing through it is zero (factorial addition). If the sum is zero, no residual current is present. If the residual current is above an adjusted threshold value, the output signal of the CEM11-FBP.xxx changes. It can be used in motor feeders to detect leakage currents, as well as ground faults caused by insulation breakdowns for example.

- CEM11-FBP.xxx is connected to a digital input of the UMC100.3
- Earth fault current threshold can be set in eight steps with a screwdriver
- Test position for easy control of wiring

CEM11-FBP.xxx is delivered with adapters for DIN-rail or wall mounting.
CEM-11.FBP.120 is for wall-mounting only.



CT4L185R/4, CT4L310R/4

Earth fault currents [mA]	Through-hole diameter	Type	Order code		Pkg qty	Weight (1 pc.) kg
80[1)], 300, 550, 750, 1000, 1200, 1500, 1700	20 mm	CEM11-FBP.20	1SAJ929200R0020		1	0.130
100[1)], 500, 1000, 1400, 2000, 2400, 3000, 3400	35 mm	CEM11-FBP.35	1SAJ929200R0035		1	0.200
120[1)], 1000, 2000, 2800, 4000, 4800, 6000, 6800	60 mm	CEM11-FBP.60	1SAJ929200R0060		1	0.330
300[1)], 2000, 4000, 5600, 8000, 9600, 12000, 13600	120 mm	CEM11-FBP.120	1SAJ929200R0120		1	0.940

[1)] Lower values have higher inaccuracy



CT5L500R/4, CT5L850R/4

Current transformers for use with the Universal Motor Controller UMC100.3
Linear type three-phase transformers, for use with the UMC100.3 and nominal motor currents >63 A. Terminal blocks for conductors Cu 2.5 mm^2 for wiring on the UMC100.3 side.

Description	Recommended current range	Type	Order code		Pkg qty	Weight (1 pc.) kg
Current transformer	60...185 A AC	CT4L185R/4	1SAJ929500R0185		1	1.600
Current transformer	150...310 A AC	CT4L310R/4	1SAJ929500R0310		1	1.500
Current transformer	200...500 A AC	CT5L500R/4	1SAJ929501R0500		1	1.700
Current transformer	400...850 A AC	CT5L850R/4	1SAJ929501R0850		1	1.900

UMC100-FBP.0 and FBP system accessories are being phased out. Please contact your local ABB contact for spare parts or retrofit solutions.

Manual motor starters & circuit breakers for transformer protection

298 Overview

300 MS116 manual motor starters
301 MS132 manual motor starters
302 MS165 manual motor starters

With electromagnetic protection
Ordering details - 0.16 to 80 A

303 MO132 manual motor starters magnetic only
304 MO165 manual motor starters magnetic only

305 Accessories

For more information please find our electronic data sheets online, for example:

www.abb.com/productdetails/**MS116-0.16**
www.abb.com/productdetails/**1SAM250000R1001**

Manual motor starters

Overview







Type	MS116	MS132	MS165
Thermal and electromagnetic protection	Yes	Yes	Yes
Electromagnetic protection	-	-	-
Phase loss sensitivity	Yes	Yes	Yes
Switch position	ON/OFF	ON/OFF/TRIP	ON/OFF/TRIP
Magnetic trip indication	-	Yes	Yes
Lockable handle without accessories	-	Yes	Yes
Disconnecting feature	Yes	Yes	Yes
Width	45 mm	45 mm	55 mm
Rated operational current Ie	0.10 ... 32 A	0.10 ... 32 A	10 ... 80 A
Setting range	0.10 ... 32 A	0.10 ... 32 A	10 ... 80 A
Ambient air temperature	-25 ... +55 °C (1)	-25 ... +60 °C (1)	-25 ... +60 °C (1)

(1) Compensated

Accessories

Auxiliary contact		HKF1, HK1	
Signaling 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 AC

	Standard range			Performance range		
	MS116			MS132, MS165		
Selection parameters						
Rated operational power	**Setting range for thermal release**	**Type**	**Short-circuit breaking capacity**		**Type**	**Short-circuit breaking capacity**	
			Icu	Ics		Icu	Ics
0.03 kW (1)	0.1 ... 0.16 A	MS116-0.16	100 kA	50 kA	MS132-0.16 (2)	100 kA	100 kA
0.06 kW	0.16 ... 0.25 A	MS116-0.25	100 kA	50 kA	MS132-0.25 (2)	100 kA	100 kA
0.09 kW	0.25 ... 0.4 A	MS116-0.4	100 kA	50 kA	MS132-0.4 (2)	100 kA	100 kA
0.18 kW	0.4 ... 0.63 A	MS116-0.63	100 kA	50 kA	MS132-0.63 (2)	100 kA	100 kA
0.25 kW	0.63 ... 1.0 A	MS116-1.0	100 kA	50 kA	MS132-1.0 (2)	100 kA	100 kA
0.55 kW	1.0...1.6 A	MS116-1.6	100 kA	50 kA	MS132-1.6 (2)	100 kA	100 kA
0.75 kW	1.6...2.5 A	MS116-2.5	75 kA	50 kA	MS132-2.5 (2)	100 kA	100 kA
1.5 kW	2.5...4.0 A	MS116-4.0	75 kA	50 kA	MS132-4.0 (2)	100 kA	100 kA
2.2 kW	4.0...6.3 A	MS116-6.3	50 kA	50 kA	MS132-6.3 (2)	100 kA	100 kA
4.0 kW	6.3...10 A	MS116-10	50 kA	50 kA	MS132-10 (2)	100 kA	100 kA
5.5 kW	8...12 A	MS116-12	50 kA	25 kA	MS132-12	100 kA	100 kA
7.5 kW	10...16 A	MS116-16	16 kA	16 kA	MS132-16 (2) / 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	16 kA	10 kA	MS132-20 (2)	100 kA	100 kA
11 kW	18 ... 25 A				MS165-25	100 kA	100 kA
11 kW	20...25 A	MS116-25	16 kA	10 kA	MS132-25 (2)	50 kA	50 kA
15 kW	25...32 A	MS116-32	16 kA	10 kA	MS132-32 (2)	50 kA	25 kA
15 kW	23 ... 32 A				MS165-32	100 kA	100 kA
22 kW	30 ... 42 A				MS165-42	50 kA	50 kA
22 kW	40 ... 54 A				MS165-54	50 kA	30 kA
25 kW	-						
30 kW	52 ... 65 A				MS165-65	50 kA	30 kA
37 kW	62 ... 73 A				MS165-73	30 kA	30 kA
45 kW	70 ... 80 A				MS165-80	30 kA	30 kA

(1) 690 V AC
(2) Available with Push-in Spring terminals.







	MO132	MO165	MS132-T
	-	-	Yes
	Yes	Yes	-
	-	-	Yes
	ON/OFF/TRIP	ON/OFF/TRIP	ON/OFF/TRIP
	-	-	Yes
	Yes	Yes	Yes
	Yes	Yes	Yes
	45 mm	55 mm	45 mm
	0.16 ... 32 A	16 ... 80 A	0.16 ... 25 A
	-	-	0.10 ... 25 A
	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C (1)

	HKF1, HK1	HKF1, HK1
	SK1	SK1
	-	CK1
	AA1	AA1
	UA1	UA1

Performance range
MO132, MO165

	Type	Short-circuit breaking capacity Icu	Ics
	MO132-0.16	100 kA	100 kA
	MO132-0.25	100 kA	100 kA
	MO132-0.4	100 kA	100 kA
	MO132-0.63	100 kA	100 kA
	MO132-1.0	100 kA	100 kA
	MO132-1.6	100 kA	100 kA
	MO132-2.5	100 kA	100 kA
	MO132-4.0	100 kA	100 kA
	MO132-6.3	100 kA	100 kA
	MO132-10	100 kA	100 kA
	MO132-12	100 kA	100 kA
	MO132-16 / MO165-16	100 kA	100 kA
	MO165-20	100 kA	100 kA
	MO132-20	100 kA	100 kA
	MO132-25 / MO165-25	50 kA / 100 kA	50 kA / 100 kA
	MO132-32	50 kA	25 kA
	MO165-32	100 kA	100 kA
	MO165-42	50 kA	50 kA
	MO165-54	50 kA	30 kA
	MO165-65	50 kA	30 kA
	MO165-73	30 kA	30 kA
	MO165-80	30 kA	30 kA

Transformer protection
MS132-T

Type	Short-circuit breaking capacity Icu / Ics
MS132-0.16T (2)	100 kA
MS132-0.25T (2)	100 kA
MS132-0.4T (2)	100 kA
MS132-0.63T (2)	100 kA
MS132-1.0T (2)	100 kA
MS132-1.6T (2)	100 kA
MS132-2.5T (2)	100 kA
MS132-4.0T (2)	100 kA
MS132-6.3T (2)	100 kA
MS132-10T (2)	100 kA
MS132-12T	100 kA
MS132-16T (2)	100 kA
MS132-20T (2)	100 kA
MS132-25T (2)	50 kA
Transformer protection: The instantaneous short-circuit current setting is 20 times the rated operational current.	

MS116 manual motor starters

0.10 to 32 A – with thermal and electromagnetic protection



MS116-16



MS116-25



MS116-0.16-HKF1-11

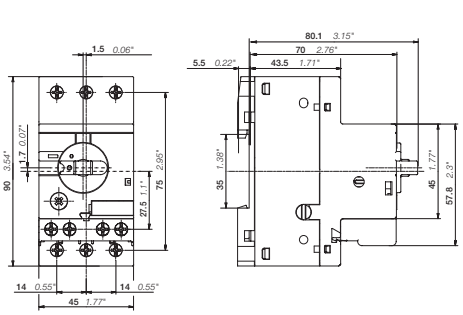


MS116-32-HKF1-11

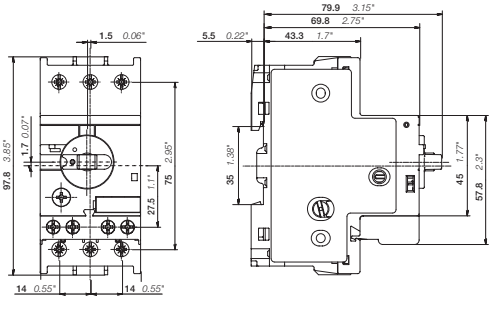
MS116 is a compact and economic range for motor protection up to 15 kW (400 V) / 32 A in width of 45 mm. Further features are the built-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, power in-feed blocks and locking devices for protection against unauthorized changes are available as accessory. These are suitable throughout the MS116/MS132/MS165-range.

Rated operational power 400 V AC-3, AC-3e kW	Setting range A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
0.03 (1)	0.10 ... 0.16	50	2.00	MS116-0.16	1SAM250000R1001	0.225
0.06	0.16 ... 0.25	50	3.10	MS116-0.25	1SAM250000R1002	0.225
0.09	0.25 ... 0.40	50	5.00	MS116-0.4	1SAM250000R1003	0.225
0.18	0.40 ... 0.63	50	7.90	MS116-0.63	1SAM250000R1004	0.225
0.25	0.63 ... 1.00	50	12.5	MS116-1.0	1SAM250000R1005	0.225
0.55	1.00 ... 1.60	50	20.0	MS116-1.6	1SAM250000R1006	0.265
0.75	1.60 ... 2.50	50	31.3	MS116-2.5	1SAM250000R1007	0.265
1.50	2.50 ... 4.00	50	50.0	MS116-4.0	1SAM250000R1008	0.265
2.20	4.00 ... 6.30	50	78.8	MS116-6.3	1SAM250000R1009	0.265
4.00	6.30 ... 10.0	50	150	MS116-10	1SAM250000R1010	0.265
5.50	8.00 ... 12.0	25	180	MS116-12	1SAM250000R1012	0.265
7.50	10.0 ... 16.0	16	240	MS116-16	1SAM250000R1011	0.265
7.50	16.0 ... 20.0	10	300	MS116-20	1SAM250000R1013	0.310
11.0	20.0 ... 25.0	10	375	MS116-25	1SAM250000R1014	0.310
15.0	25.0 ... 32.0	10	480	MS116-32	1SAM250000R1015	0.310
Mounted Auxiliary Contacts 1 N.O. + 1 N.C.						
0.03 (1)	0.10 ... 0.16	50	2.00	MS116-0.16-HKF1-11	1SAM250005R1001	0.240
0.06	0.16 ... 0.25	50	3.10	MS116-0.25-HKF1-11	1SAM250005R1002	0.240
0.09	0.25 ... 0.40	50	5.00	MS116-0.4-HKF1-11	1SAM250005R1003	0.240
0.18	0.40 ... 0.63	50	7.90	MS116-0.63-HKF1-11	1SAM250005R1004	0.240
0.25	0.63 ... 1.00	50	12.5	MS116-1.0-HKF1-11	1SAM250005R1005	0.240
0.55	1.00 ... 1.60	50	20.0	MS116-1.6-HKF1-11	1SAM250005R1006	0.280
0.75	1.60 ... 2.50	50	31.3	MS116-2.5-HKF1-11	1SAM250005R1007	0.280
1.50	2.50 ... 4.00	50	50.0	MS116-4.0-HKF1-11	1SAM250005R1008	0.280
2.20	4.00 ... 6.30	50	78.8	MS116-6.3-HKF1-11	1SAM250005R1009	0.280
4.00	6.30 ... 10.0	50	150	MS116-10.0-HKF1-11	1SAM250005R1010	0.280
5.50	8.00 ... 12.0	25	180	MS116-12.0-HKF1-11	1SAM250005R1012	0.280
7.50	10.0 ... 16.0	16	240	MS116-16.0-HKF1-11	1SAM250005R1011	0.280
7.50	16.0 ... 20.0	10	300	MS116-20-HKF1-11	1SAM250005R1013	0.326
11.0	20.0 ... 25.0	10	375	MS116-25-HKF1-11	1SAM250005R1014	0.326
15.0	25.0 ... 32.0	10	480	MS116-32-HKF1-11	1SAM250005R1015	0.326

Note: Manual motor starters should always be selected so that the actual motor current is within the setting range.
(1) 690 V



MS116 ≤ 16 A & MS116-HKF1-11 ≤ 16 A



MS116 ≥ 20 A & MS116-HKF1-11 ≥ 20 A

Main dimensions mm, inches

MS132 manual motor starters

0.10 to 32 A – with thermal and electromagnetic protection



MS132-10



MS132-32



MS132-0.16-HKF1-11

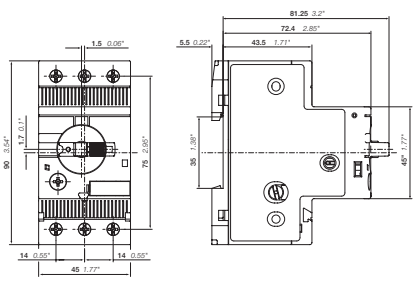


MS132-32-HKF1-11

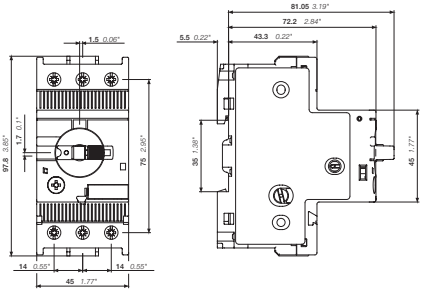
MS132 is a compact and powerful range for motor protection up to 15 kW (400 V) / 32 A in width of 45 mm. This type has also a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. Further features are the built-in disconnect function, temperature compensation, 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 unauthorized 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.

Rated operational power 400 V AC-3, AC-3e kW	Setting range A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
0.03 (1)	0.10 ... 0.16	100	2.00	MS132-0.16	1SAM350000R1001	0.215
0.06	0.16 ... 0.25	100	3.10	MS132-0.25	1SAM350000R1002	0.215
0.09	0.25 ... 0.40	100	5.00	MS132-0.4	1SAM350000R1003	0.215
0.18	0.40 ... 0.63	100	7.90	MS132-0.63	1SAM350000R1004	0.215
0.25	0.63 ... 1.00	100	12.5	MS132-1.0	1SAM350000R1005	0.215
0.55	1.00 ... 1.60	100	20.0	MS132-1.6	1SAM350000R1006	0.265
0.75	1.60 ... 2.50	100	31.3	MS132-2.5	1SAM350000R1007	0.265
1.50	2.50 ... 4.00	100	50.0	MS132-4.0	1SAM350000R1008	0.265
2.20	4.00 ... 6.30	100	78.8	MS132-6.3	1SAM350000R1009	0.265
4.00	6.30 ... 10.0	100	150	MS132-10	1SAM350000R1010	0.265
5.50	8.00 ... 12.0	100	180	MS132-12	1SAM350000R1012	0.310
7.50	10.0 ... 16.0	100	240	MS132-16	1SAM350000R1011	0.310
7.50	16.0 ... 20.0	100	300	MS132-20	1SAM350000R1013	0.310
11.0	20.0 ... 25.0	50	375	MS132-25	1SAM350000R1014	0.310
15.0	25.0 ... 32.0	25	480	MS132-32	1SAM350000R1015	0.310
Mounted Auxiliary Contacts 1 N.O. + 1 N.C.						
0.03 (1)	0.10 ... 0.16	100	2.00	MS132-0.16-HKF1-11	1SAM350005R1001	0.231
0.06	0.16 ... 0.25	100	3.10	MS132-0.25-HKF1-11	1SAM350005R1002	0.231
0.09	0.25 ... 0.40	100	5.0	MS132-0.4-HKF1-11	1SAM350005R1003	0.231
0.18	0.40 ... 0.63	100	7.90	MS132-0.63-HKF1-11	1SAM350005R1004	0.231
0.25	0.63 ... 1.00	100	12.5	MS132-1.0-HKF1-11	1SAM350005R1005	0.231
0.55	1.00 ... 1.60	100	20.0	MS132-1.6-HKF1-11	1SAM350005R1006	0.281
0.75	1.60 ... 2.50	100	31.3	MS132-2.5-HKF1-11	1SAM350005R1007	0.281
1.50	2.50 ... 4.00	100	50.0	MS132-4.0-HKF1-11	1SAM350005R1008	0.281
2.20	4.00 ... 6.30	100	78.8	MS132-6.3-HKF1-11	1SAM350005R1009	0.281
4.00	6.30 ... 10.0	100	150	MS132-10.0-HKF1-11	1SAM350005R1010	0.281
5.50	8.00 ... 12.0	100	180	MS132-12.0-HKF1-11	1SAM350005R1012	0.326
7.50	10.0 ... 16.0	100	240	MS132-16.0-HKF1-11	1SAM350005R1011	0.326
7.50	16.0 ... 20.0	100	300	MS132-20-HKF1-11	1SAM350005R1013	0.326
11.0	20.0 ... 25.0	50	375	MS132-25-HKF1-11	1SAM350005R1014	0.326
15.0	25.0 ... 32.0	25	480	MS132-32-HKF1-11	1SAM350005R1015	0.326
Mounted Auxiliary Contacts 2 N.O. + 0 N.C.						
7.50	10 ... 16	100	240	MS132-16-HKF1-20	1SAM350006R1011	0.326

Note: Manual motor starters should always be selected so that the actual motor current is within the setting range.
(1) 690 V



MS132 ≤ 10 A



MS132 ≥ 12 A

Main dimensions mm, inches

MS165 manual motor starters

10 to 80 A – with thermal and electromagnetic protection

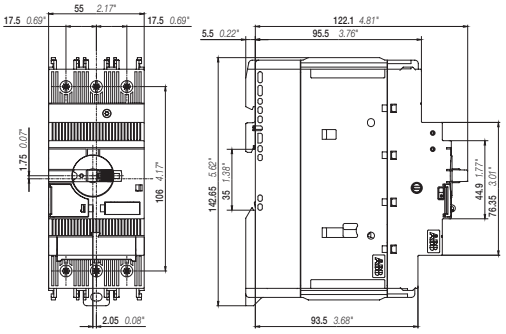


MS165-65

MS165 is a compact and powerful range for motor protection up to 45 kW (400 V) / 80 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 built-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 unauthorized 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.

Rated operational power 400 V AC-3, AC-3e kW	Setting range A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
7.5	10 ... 16	100	240	MS165-16	1SAM451000R1011	0.950
7.5	14 ... 20	100	300	MS165-20	1SAM451000R1012	0.950
11	18 ... 25	100	375	MS165-25	1SAM451000R1013	0.960
15	23 ... 32	100	480	MS165-32	1SAM451000R1014	0.970
22	30 ... 42	50	630	MS165-42	1SAM451000R1015	0.970
22	40 ... 54	30	810	MS165-54	1SAM451000R1016	0.970
30	52 ... 65	30	975	MS165-65	1SAM451000R1017	0.980
37	62 ... 73	30	1022	MS165-73	1SAM451000R1018	1.000
45	70 ... 80	30	1120	MS165-80	1SAM451000R1019	1.000

Note: Manual motor starters should always be selected so that the actual motor current is within the setting range.



MS165

Main dimensions mm, inches

MO132 manual motor starters magnetic only

0.16 to 32 A – with electromagnetic protection



MO132-6.3



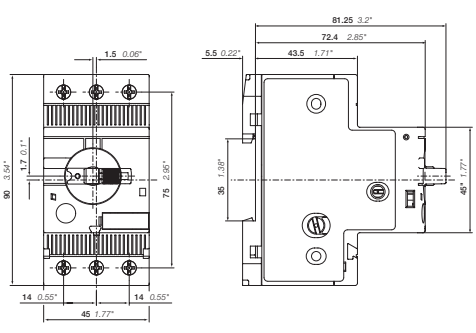
MO132-32

The MO132 manual motor starter magnetic only is a compact and powerful range for motor protection up to 15 kW (400 V AC) in width of 45 mm. The devices are used to manually switch on and off loads/motors and to protect them reliably and without the need for a fuse from short-circuits.

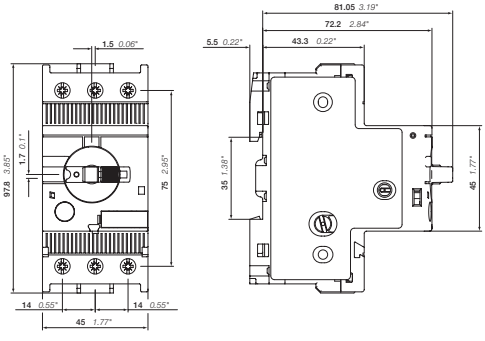
The manual motor starter offers a rated service short-circuit breaking capacity up to 100 kA at 400 V AC. A combination together with overload relays or motor controllers allows the protection of motors. Further features are the built-in disconnect function, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starters magnetic only are suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, 3-phase busbars and power in-feed blocks are available as accessory.

Rated operational power 400 V AC-3, AC-3e kW	Rated operational current A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
0.03 (1)	0.16	100	2.00	MO132-0.16	1SAM360000R1001	0.215
0.06	0.25	100	3.10	MO132-0.25	1SAM360000R1002	0.215
0.09	0.40	100	5.00	MO132-0.4	1SAM360000R1003	0.215
0.12	0.63	100	7.90	MO132-0.63	1SAM360000R1004	0.215
0.25	1.0	100	12.5	MO132-1.0	1SAM360000R1005	0.215
0.55	1.6	100	20.0	MO132-1.6	1SAM360000R1006	0.265
0.75	2.5	100	31.3	MO132-2.5	1SAM360000R1007	0.265
1.5	4.0	100	50.0	MO132-4.0	1SAM360000R1008	0.265
2.2	6.3	100	78.8	MO132-6.3	1SAM360000R1009	0.265
4.0	10	100	125	MO132-10	1SAM360000R1010	0.265
5.5	12	100	150	MO132-12	1SAM360000R1012	0.310
7.5	16	100	200	MO132-16	1SAM360000R1011	0.310
7.5	20	100	250	MO132-20	1SAM360000R1013	0.310
11	25	50	313	MO132-25	1SAM360000R1014	0.310
15	32	25	400	MO132-32	1SAM360000R1015	0.310

Note: For overload protection of motors, an appropriate thermal or electronic overload relay must be used.
(1) 690 V



MO132 ≤ 10 A



MO132 ≥ 12 A

Main dimensions mm, inches

MO165 manual motor starters magnetic only

16 to 80 A – with electromagnetic protection



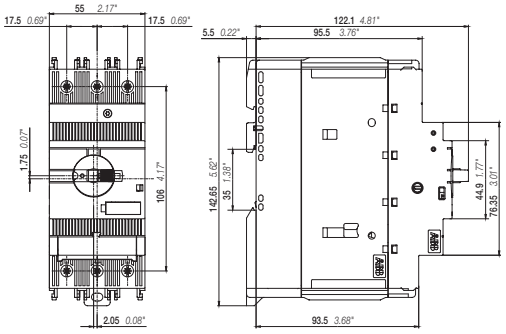
MO165-65

The MO165 manual motor starter magnetic only is a compact and powerful range for motor protection up to 45 kW (400 V AC) in width of 55 mm. The devices are used to manually switch on and off loads/motors and to protect them reliably and without the need for a fuse from short-circuits. The manual motor starter offers a rated service short-circuit breaking capacity up to 100 kA at 400 V AC. A combination together with overload relays or motor controllers allows the protection of motors. Further features are the built-in disconnect function, trip-free mechanism and a rotary handle with a clear switch position indication.

The manual motor starters magnetic only are suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, 3-phase bus bars and power in-feed blocks are available as accessory.

Rated operational power 400 V AC-3, AC-3e kW	Rated operational current A	Short-circuit breaking capacity Ics at 400 V AC kA	Rated instantaneous short-circuit current setting Ii A	Type	Order code	Weight (1 pce) kg
7.5	16	100	240	MO165-16	1SAM461000R1011	0.950
7.5	20	100	300	MO165-20	1SAM461000R1012	0.950
11	25	100	375	MO165-25	1SAM461000R1013	0.960
15	32	100	480	MO165-32	1SAM461000R1014	0.970
22	42	50	630	MO165-42	1SAM461000R1015	0.970
22	54	30	810	MO165-54	1SAM461000R1016	0.970
30	65	30	975	MO165-65	1SAM461000R1017	0.980
37	73	30	1022	MO165-73	1SAM461000R1018	1.000
45	80	30	1120	MO165-80	1SAM461000R1019	1.000

Note: For overload protection of motors, an appropriate thermal or electronic overload relay must be used.



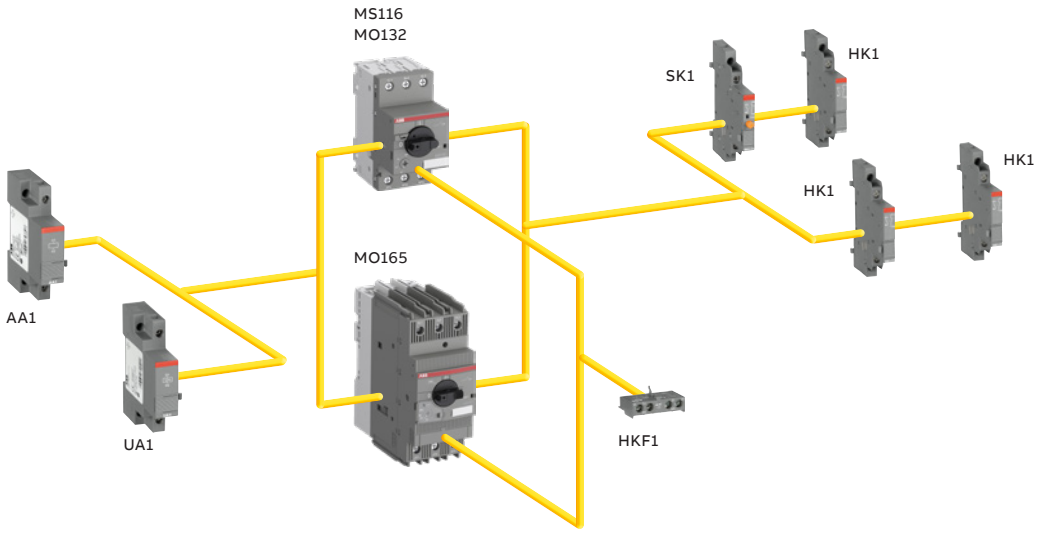
MO165

Main dimensions mm, inches

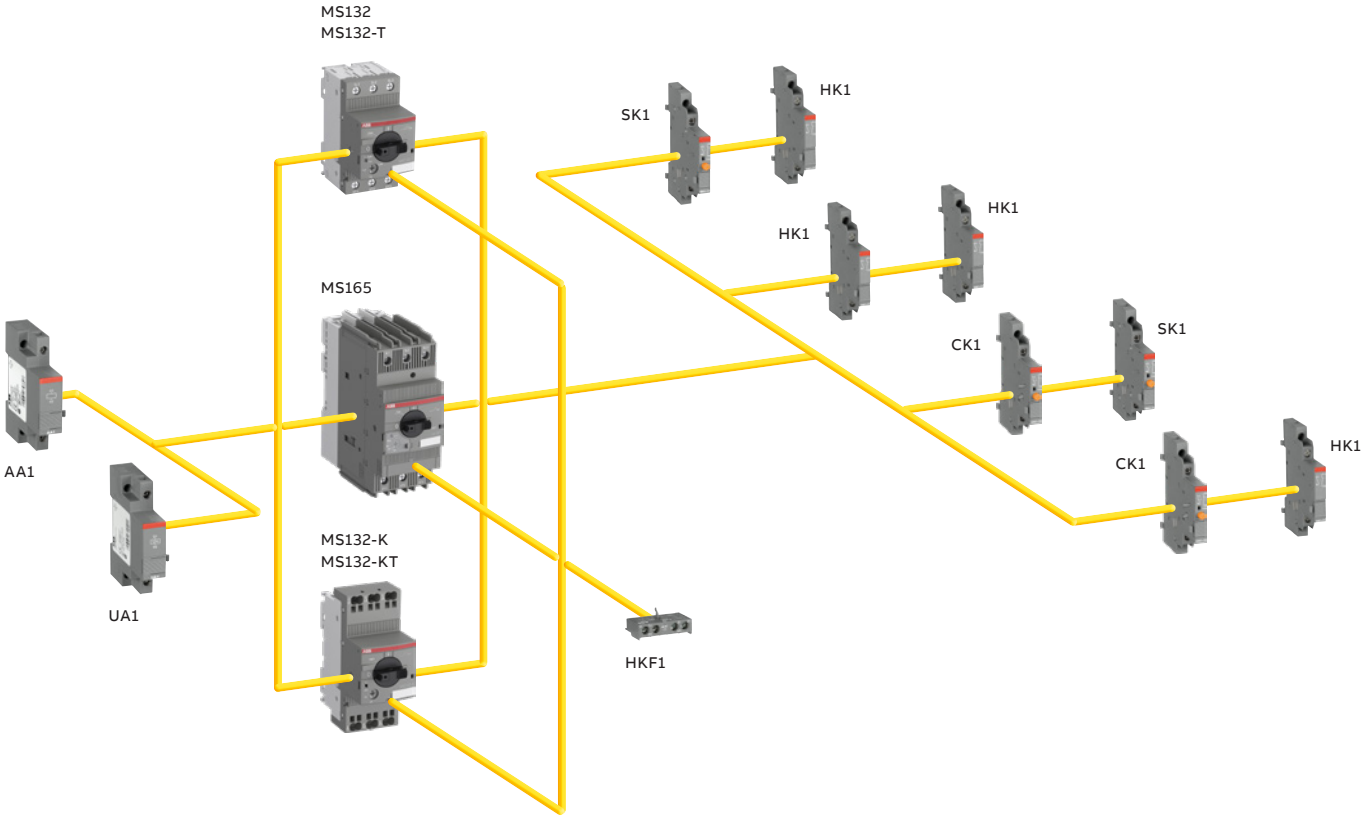
Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T

Manual motor starters with accessories (MS116, MO132, MO165)



Manual motor starters (MS132, MS165) and circuit breakers for transformer protection (MS132-T) with accessories



Note: The combination of MS132-K + UA1 + CK1 is not possible

Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT



HKF1-11



HK1-11



SK1-11

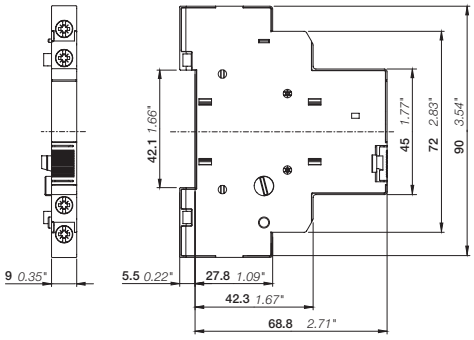


CK1-11

Manual motor starters and MS132-T can be equipped with auxiliary contacts for lateral/front mounting, signaling contacts for lateral mounting, undervoltage releases 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 SK1 signals tripping regardless if it was caused by short-circuit or overload. The signaling contact CK1 signals tripping in case it was caused by short-circuit. Undervoltage releases are used for remote tripping of the manual motor starters, specially for emergency stop circuits. Shunt trips release the manual motor starters used for remote tripping. These main accessories are suitable throughout the MS116/MS132/MS165-range.

Suitable for	Auxiliary contacts N.O.	Auxiliary contacts N.C.	Description	Type	Order code	Pkg qty	Weight (1 pce) kg
Auxiliary contacts – mountable on the front							
MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	1	1		HKF1-11	1SAM201901R1001	10	0.015
	1	0		HKF1-10	1SAM201901R1003	10	0.013
	0	1		HKF1-01	1SAM201901R1004	10	0.013
	2	0		HKF1-20	1SAM201901R1002	10	0.015
Auxiliary contacts – mountable on the right							
MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	1	1	max. 2 pieces	HK1-11	1SAM201902R1001	2	0.035
	2	0	max. 2 pieces	HK1-20	1SAM201902R1002	2	0.035
	0	2	max. 2 pieces	HK1-02	1SAM201902R1003	2	0.035
MS116, MS132, MO132, MS132-T, MS132-K, MS132-KT	2	0	max. 2 pieces with leading contacts	HK1-20L	1SAM201902R1004	2	0.035
Signaling contacts – mountable on the right							
MS116, MS132, MS165, MO132, MO165, MS132-T, MS132-K, MS132-KT	1	1	for tripped alarm	SK1-11	1SAM201903R1001	2	0.035
	2	0	for tripped alarm	SK1-20	1SAM201903R1002	2	0.035
	0	2	for tripped alarm	SK1-02	1SAM201903R1003	2	0.035
MS132, MS165, MS132-T, MS132-K, MS132-KT	1	1	for short-circuit alarm	CK1-11	1SAM301901R1001	2	0.035
	2	0	for short-circuit alarm	CK1-20	1SAM301901R1002	2	0.035
	0	2	for short-circuit alarm	CK1-02	1SAM301901R1003	2	0.035

Note : For BEA connecting links with AF, AS and B mini contactors please refer to chapter 3, 4 and 5.



HK1

Main dimensions mm, inches

Accessories

MS116, MS132, MS165, MO132, MO165, MS132-T



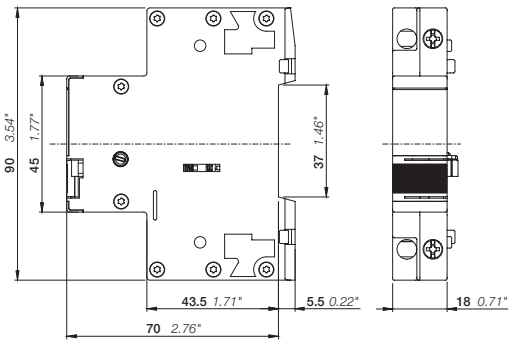
AA1-24



UA1-24

Suitable for	Rated control supply voltage 50 Hz V AC	Rated control supply voltage 60 Hz V AC	Type	Order code	Pkg qty	Weight (1 pce) kg
Shunt trips – mountable on the left						
MS116, MS132, MS165, MO132, MO165, MS132-T	20 ... 24	20 ... 24	AA1-24	1SAM201910R1001	1	0.100
	110	110	AA1-110	1SAM201910R1002	1	0.100
	200 ... 240	200 ... 240	AA1-230	1SAM201910R1003	1	0.100
	350 ... 415	350 ... 415	AA1-400	1SAM201910R1004	1	0.100
Undervoltage releases – mountable on the left						
MS116, MS132, MS165, MO132, MO165, MS132-T	20	24	UA1-20	1SAM201904R1010	1	0.100
	24	-	UA1-24	1SAM201904R1001	1	0.100
	48	-	UA1-48	1SAM201904R1002	1	0.100
	60	-	UA1-60	1SAM201904R1003	1	0.100
	110	120	UA1-110	1SAM201904R1004	1	0.100
	-	208	UA1-208	1SAM201904R1008	1	0.100
	230	240	UA1-230	1SAM201904R1005	1	0.100
	400	-	UA1-400	1SAM201904R1006	1	0.100
	415	480	UA1-415	1SAM201904R1007	1	0.100
	-	575	UA1-575	1SAM201904R1009	1	0.100

Note : For BEA..-4K Push-in Spring connecting links with AF09..K ... AF38..K please refer to chapter 3 - "Connection accessories for starting solutions with Push-in Spring terminals".



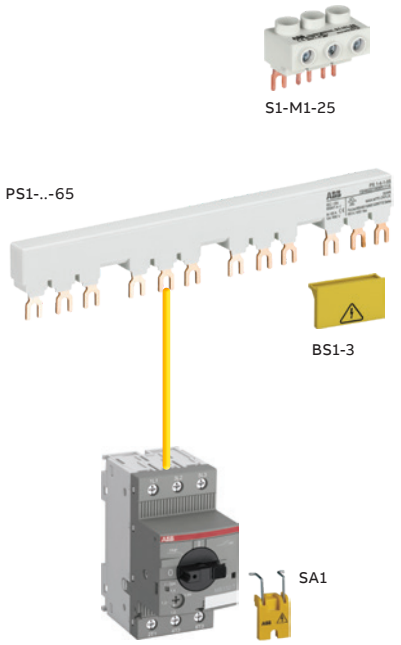
AA1, UA1

Main dimensions mm, inches

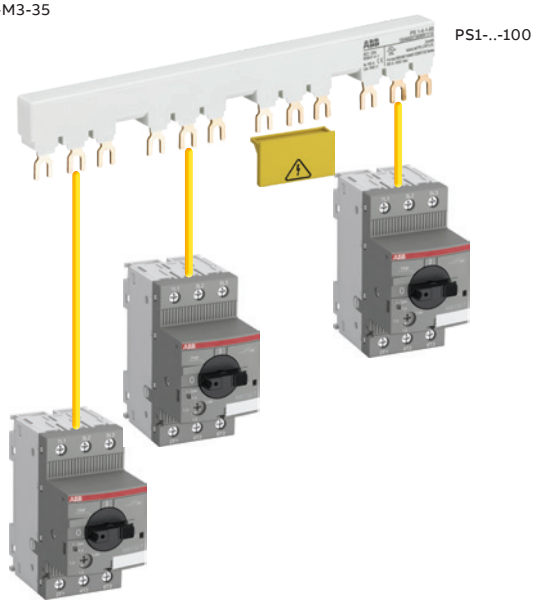
Accessories

MS116, MS132, MS165, MO132, MO165

Manual motor starters with three-phase busbar systems (MS116, MS132, MO132)



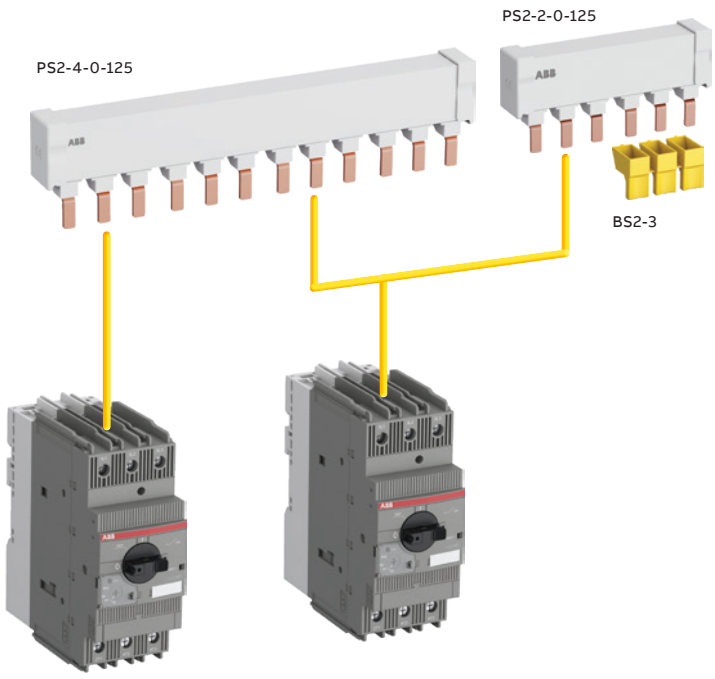
Three-phase busbar up to 65 A



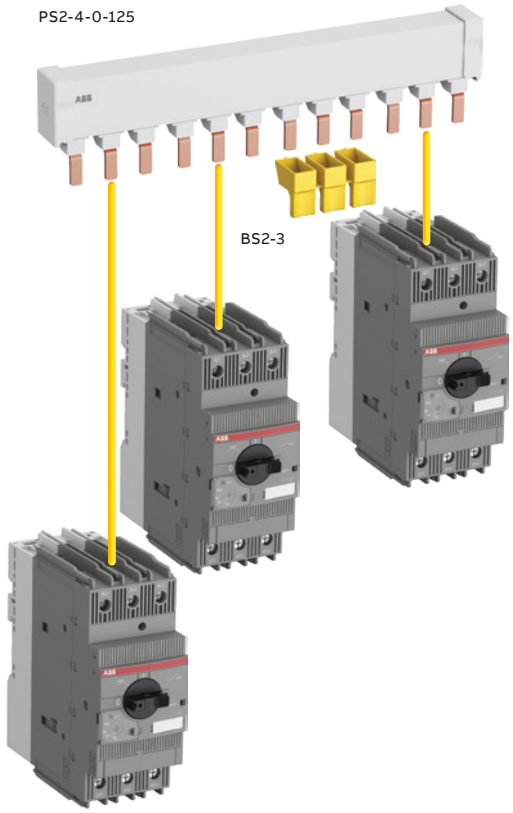
Three-phase busbar up to 100 A

Note: busbars and feeder blocks are only suitable for screw versions.

Manual motor starters with three-phase busbar systems (MS165, MO165)



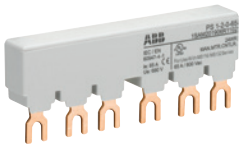
Three-phase busbar up to 125 A



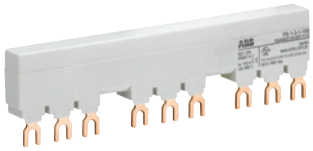
Three-phase busbar up to 125 A

Accessories

MS116, MS132, MO132, MS132-T



PS1-2-0-65



PS1-3-1-100



S1-M3-35



S1-M2-25



TS1-M30-S1



SA2



SA1



PB1-1-32



S1-PB1-25

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 4 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.

Suitable for	Rated operational current A	Number of manual motor starters	Number of lateral auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce) kg
Three-phase busbars							
MS116, MS132, MO132	65	2	0	PS1-2-0-65	1SAM201906R1102	10	0.034
	65	3	0	PS1-3-0-65	1SAM201906R1103	10	0.055
	65	4	0	PS1-4-0-65	1SAM201906R1104	10	0.077
	65	5	0	PS1-5-0-65	1SAM201906R1105	10	0.098
	65	2	1	PS1-2-1-65	1SAM201906R1112	10	0.036
	65	3	1	PS1-3-1-65	1SAM201906R1113	10	0.060
	65	4	1	PS1-4-1-65	1SAM201906R1114	10	0.087
	65	5	1	PS1-5-1-65	1SAM201906R1115	10	0.108
	65	2	2	PS1-2-2-65	1SAM201906R1122	10	0.040
	65	3	2	PS1-3-2-65	1SAM201906R1123	10	0.067
	65	4	2	PS1-4-2-65	1SAM201906R1124	10	0.095
	65	5	2	PS1-5-2-65	1SAM201906R1125	10	0.122
MS116, MS132, MO132	100	3	0	PS1-3-0-100	1SAM201916R1103	10	0.084
	100	4	0	PS1-4-0-100	1SAM201916R1104	10	0.117
	100	5	0	PS1-5-0-100	1SAM201916R1105	10	0.154
	100	3	1	PS1-3-1-100	1SAM201916R1113	10	0.094
	100	4	1	PS1-4-1-100	1SAM201916R1114	10	0.134
	100	5	1	PS1-5-1-100	1SAM201916R1115	10	0.172
	100	3	2	PS1-3-2-100	1SAM201916R1123	10	0.105

Note: busbars are only suitable for screw versions

Suitable for	Rated operational current A	Rated cross section mm²	Mounting form	Type	Order code	Pkg qty	Weight (1 pce) kg
Three-phase feeder terminals							
MS116, MS132, MO132	65	25	Flat	S1-M1-25	1SAM201907R1101	10	0.038
	65	25	High	S1-M2-25	1SAM201907R1102	10	0.051
	65	25	UL/CSA Type E/F and IEC	S1-M3-25	1SAM201907R1103	10	0.042
	100	35	UL/CSA Type E/F and IEC	S1-M3-35	1SAM201913R1103	10	0.060

Terminal spacers, Type E

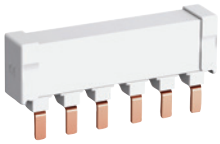
				Type	Order code	Pkg qty	Weight (1 pce) kg
MS132 ≤ 10 A	–	–	UL/CSA Type E and IEC	TS1-M3-S1	1SAM301911R1001	2	0.012
MS132 ≥ 12 A	–	–	UL/CSA Type E and IEC	TS1-M3-S2	1SAM301912R1001	2	0.012
MS132-K	–	–	UL/CSA Type E and IEC	TS1-M3-K	1SAM301913R1001	2	0.012

Note: For product availability, please consult your ABB local sales organization

Suitable for	Description	Type	Order code	Pkg qty	Weight (1 pce) kg
MS116, MS132, MO132	Protection cover for busbars	BS1-3	1SAM201908R1001	50	0.003
MS116, MS132, MO132, MS132-T	Screw fixing kit	FS116	1SAM201909R1001	1	0.020
	Padlock + two keys	SA2	GJF1101903R0002	10	0.020
MS116	Lock handle	SA1	GJF1101903R0001	10	0.003
	Lock handle box SA1/SA2	SA3	GJF1101903R0003	10	0.050
Accessories for single-phase connection (IEC only)					
MS116, MS132, MO132, MS132-T	Phase connecting link	PB1-1-32	1SAM201914R1001	1	0.009
	Phase power infeed block	S1-PB1-25	1SAM201914R1002	1	0.013

Accessories

MS165, MO165



PS2-2-0-125



PS2-3-0-125



S2-M3-50





KA165



BS2-3



SA2

Three-phase busbars

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 4 manual motor starters with none, one or two lateral auxiliary contacts can be connected.

Suitable for	Rated operational current A	Number of Manual motor starters	Number of lateral auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce) kg
MS165, MO165	125	2	0	PS2-2-0-125	1SAM401920R1002	10	0.100
	125	3	0	PS2-3-0-125	1SAM401920R1003	10	0.162
	125	4	0	PS2-4-0-125	1SAM401920R1004	10	0.226
	125	2	2	PS2-2-2-125	1SAM401920R1022	10	0.117
	125	3	2	PS2-3-2-125	1SAM401920R1023	10	0.197
	125	4	2	PS2-4-2-125	1SAM401920R1024	10	0.277

Other busbar types on request.

Feeder block

Suitable for	Rated operational current A	Rated cross section mm²	Mounting form	Type	Order code	Pkg qty	Weight (1 pce) kg
MS165, MO165	125	50	UL508A and IEC	S2-M3-50	1SAM401923R1003	1	0.172

Suitable for	Description	Type	Order code	Pkg qty	Weight (1 pce) kg
MS165, MO165	Terminal shroud	KA165	1SAM401922R1001	10	0.025
	Protection cover for busbars	BS2-3	1SAM401921R1001	10	0.005
	Padlock + two keys	SA2	GJF1101903R0002	10	0.020

Accessories

MS116, MS132, MS165, MO132, MO165

Electrical connection - Main circuit

Type			**S1-Mx-25**	**S1-Mx-35**
Connecting capacity				
	Rigid	1 x	6 ... 25 mm²	10 ... 35 mm²
	Flexible with ferrule	1 x	6 ... 16 mm²	10 ... 35 mm²
	Flexible with insulated ferrule	1 x	6 ... 16 mm²	10 ... 35 mm²
	Flexible	1 x	6 ... 16 mm²	10 ... 35 mm²
	Stranded acc. to UL/CSA	1 x	AWG 10-4	AWG 8-2
Stripping length			10 mm	12 mm
Tightening torque			2.5 Nm / 22 lb.in	4.5 Nm / 40 lb.in
Recommended screwdriver			Pozidriv 2	Hexagon SW4

Accessories

MS116, MS132, MO132



IB132-Y



IB132-G



DMS132-Y



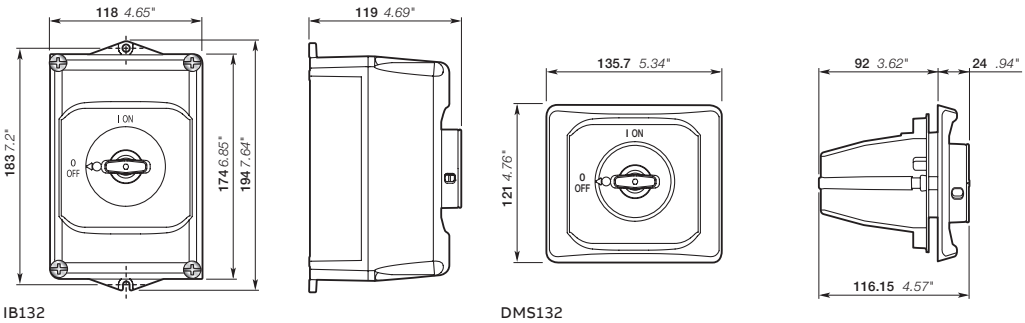
DMS132-G

IB132 are IP65 (NEMA Type 12) enclosures for single manual motor starter 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 (NEMA Type 12) door mounting kits for manual motor starter 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.

Suitable for	Description	Color	Type	Order code	Pkg qty	Weight (1 pce) kg
IP65 enclosures (NEMA Type 12)						
MS116, MS132, MO132	Padlockable max. 3 padlocks with bail diameter 4 ... 6.5 mm	Yellow/red	IB132-Y	1SAM201911R1011	1	0.370
		Grey/black	IB132-G	1SAM201911R1010	1	0.370
IP65 door mounting kits (NEMA Type 12)						
MS116, MS132, MO132	Padlockable max. 3 padlocks with bail diameter 4 ... 6.5 mm	Yellow/red	DMS132-Y	1SAM201912R1011	1	0.170
		Grey/black	DMS132-G	1SAM201912R1010	1	0.170

Indication I-O-T and ON-OFF-T.



IB132 DMS132

Main dimensions mm, inches

Accessories

MS116, MS132, MS165, MO132, MO165



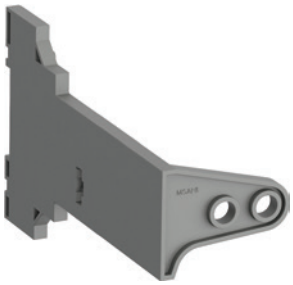
MSHD-LB



MSHD-LY


MSMN


MSH-AR


MSAH1

With this solution of door coupling rotary mechanisms it is possible to operate manual motor starters 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.

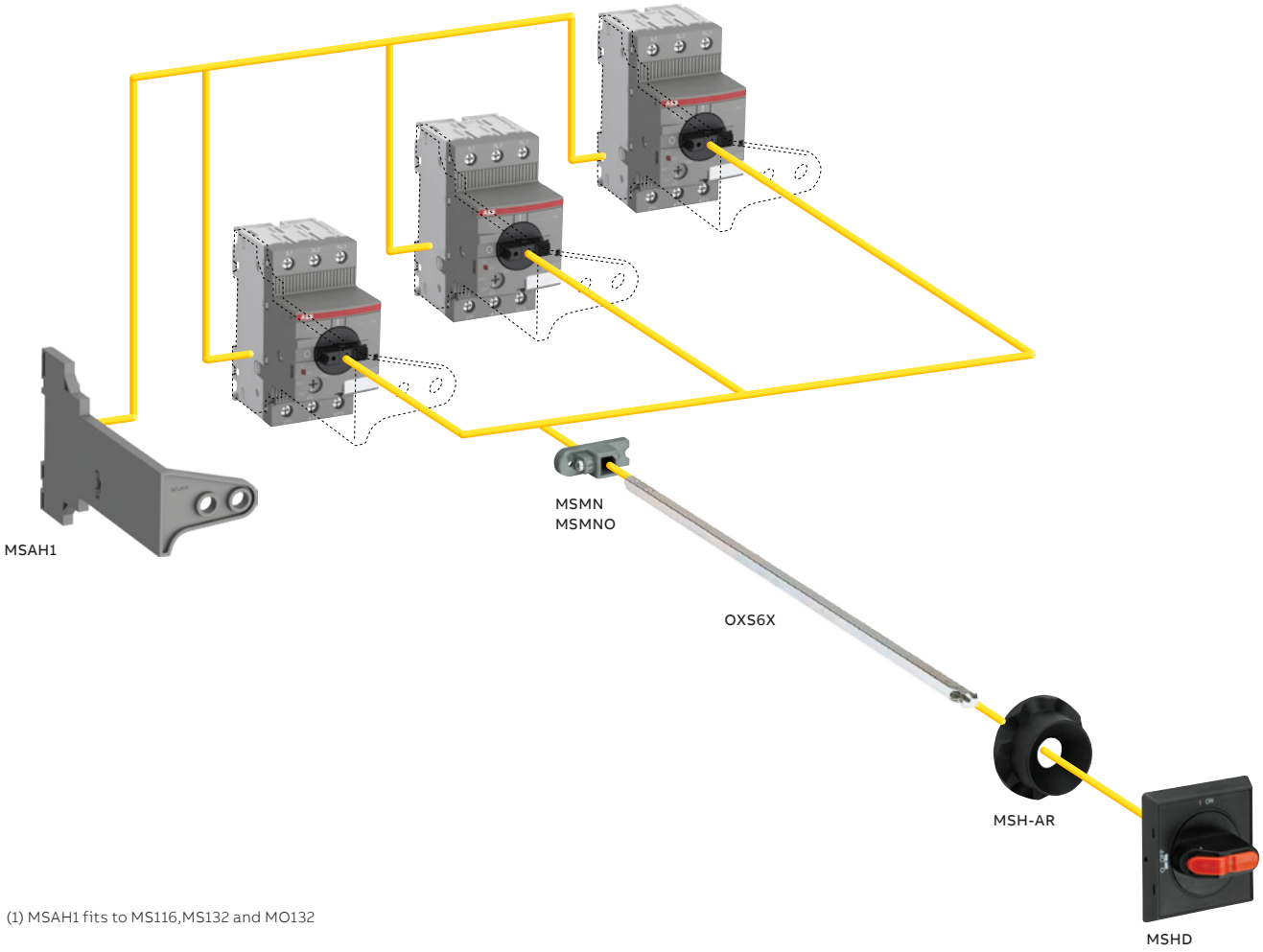
Most accessories fit for 6 mm shafts with a maximum length of 180 mm. The degree of protection for handles MSHD is IP64 (NEMA Type 1, 3R, 12).

Suitable for	Description	Shaft length mm	Color	Type	Order code	Pkg qty pce	Weight (1 pce) kg
Shafts							
MS116, MS132, MO132, MS165, MO165	For MSHD handles. Shaft diameter 6 mm. Shaft extension for door coupling driver.	85		OXS6X85	1SCA101647R1001	1	0.020
		105		OXS6X105	1SCA108043R1001	1	0.020
		130		OXS6X130	1SCA101655R1001	1	0.030
		180		OXS6X180	1SCA101659R1001	1	0.040
IP64 handles (NEMA Type 1, 3R, 12)							
MS116, MS132, MO132, MS165, MO165	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	MSHD-LB (1)	1SAM201920R1001	1	0.065
			Yellow	MSHD-LY (1)	1SAM201920R1002	1	0.065
			Black	MSHD-LTB (2)	1SAM201920R1011	1	0.065
			Yellow	MSHD-LTY (2)	1SAM201920R1012	1	0.065
Driver							
MS116, MS132, MO132, MS165, MO165	Coupling driver for use with 6 mm OXS6... types up to 180 mm.			MSMN (3)	1SAM101923R0002	1	0.002
				MSMNO (4)	1SAM101923R0012	1	0.002
Shaft alignment ring							
MS116, MS132, MO132, MS165, MO165	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.			MSH-AR	1SAM201920R1000	1	0.010
Shaft supporter							
MS116, MS132, MO132	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.			MSAH1	1SAM201909R1021	1	0.035

(1) Indication I-O and ON-OFF (recommended for MS116)
(2) Indication I-O and ON-OFF + Trip indication
(3) Coded - Positioning of ON indication dependent on mounting orientation of the MMS
(4) Uncoded - Positioning of ON indication independent of mounting orientation of the MMS.

Accessories

MS116, MS132, MS165, MO132, MO165



(1) MSAH1 fits to MS116,MS132 and MO132

ESB Installation contractors

316 **Overview contractors**

317 **Ordering details ESB..N contractors**

323 **Ordering details EN..N contractors**

326 **Ordering details accessories**

Installation contactors

Overview contactors








Type		ESB16..N	ESB20..N EN20..N	ESB25..N EN25..N	ESB40..N EN40..N	ESB63..N	ESB100..N
AC-1/AC-7a (A)		16	20	25	40	63	100
Modular Width		1	1	2	3	3	3/6
Accessories							
Auxiliary contact blocks	2 NO	EH04-20N	EH04-20N	EH04-20N	EH04-20N	EH04-20N	EH04-20N
	1 NO + 1 NC	EH04-11N	EH04-11N	EH04-11N	EH04-11N	EH04-11N	EH04-11N
Distance piece	up to 40 °C	-	-	-	-	-	-
	between 40 °C and 55 °C	-	-	ESB-DIS*	ESB-DIS*	ESB-DIS*	-
Covers		-	-	ESB-PLK24	ESB-PLK40/63	ESB-PLK40/63	-
							

*If several contactors are mounted adjacently and the duty 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 .

ESB16..N installation contactors

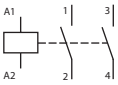
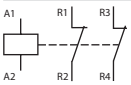
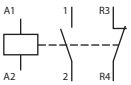
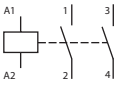
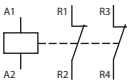
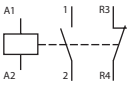
Ordering details 16 A, AC-1 /AC-7a, AC/DC operated



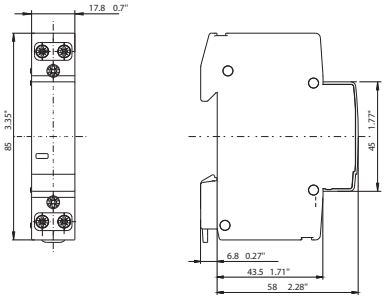
ESB16..N

The ESB16..N installation contactors are used to control single-phase loads up to 16 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.
ESB16..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage[1]	Type	Order code	Pkg qty	Weight (1 pc.)
		V AC/DC				kg
Single packaging						
	1	24	ESB16-20N-01	1SBE111111R0120	1	0.14
		230	ESB16-20N-06	1SBE111111R0620	1	0.14
	1	24	ESB16-02N-01	1SBE111111R0102	1	0.14
		230	ESB16-02N-06	1SBE111111R0602	1	0.14
	1	24	ESB16-11N-01	1SBE111111R0111	1	0.14
		230	ESB16-11N-06	1SBE111111R0611	1	0.14
Multiple packaging						
	1	24	ESB16-20N-01	1SBE111111M0120	12	0.14
		230	ESB16-20N-06	1SBE111111M0620	12	0.14
	1	24	ESB16-02N-01	1SBE111111M0102	12	0.14
		230	ESB16-02N-06	1SBE111111M0602	12	0.14
	1	24	ESB16-11N-01	1SBE111111M0111	12	0.14
		230	ESB16-11N-06	1SBE111111M0611	12	0.14

[1] Other control voltages: see voltage code table and contact ABB for availability of products.



ESB16..N

Dimensions mm, inches

ESB20..N installation contactors

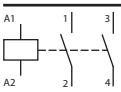
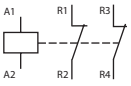
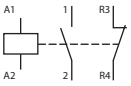
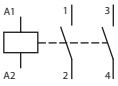
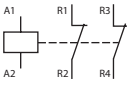
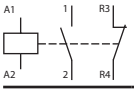
Ordering details 20 A, AC-1 /AC-7a, AC/DC operated



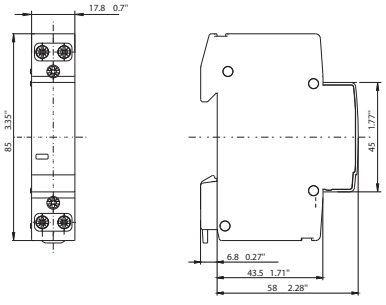
ESB20..N

The ESB20..N installation contactors are used to control single-phase loads up to 20 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.
ESB20..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage[1] V AC/DC	Type	Order code	Pkg qty	Weight (1 pc.) kg
Single packaging						
	1	24	ESB20-20N-01	1SBE121111R0120	1	0.14
		230	ESB20-20N-06	1SBE121111R0620	1	0.14
	1	24	ESB20-02N-01	1SBE121111R0102	1	0.14
		230	ESB20-02N-06	1SBE121111R0602	1	0.14
	1	24	ESB20-11N-01	1SBE121111R0111	1	0.14
		230	ESB20-11N-06	1SBE121111R0611	1	0.14
Multiple packaging						
	1	24	ESB20-20N-01	1SBE121111M0120	12	0.14
		230	ESB20-20N-06	1SBE121111M0620	12	0.14
	1	24	ESB20-02N-01	1SBE121111M0102	12	0.14
		230	ESB20-02N-06	1SBE121111M0602	12	0.14
	1	24	ESB20-11N-01	1SBE121111M0111	12	0.14
		230	ESB20-11N-06	1SBE121111M0611	12	0.14

[1] Other control voltages: see voltage code table and contact ABB for availability of products.



ESB20..N

Dimensions mm, inches

ESB25..N installation contactors

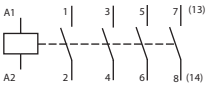
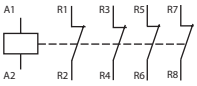
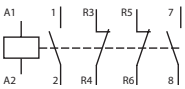
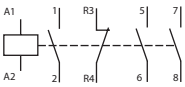
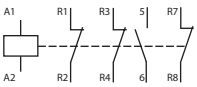
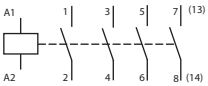
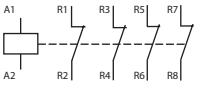
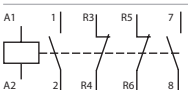
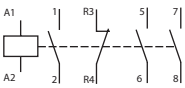
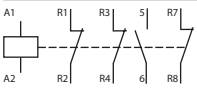
Ordering details 25 A, AC-1/AC-7a, AC/DC operated



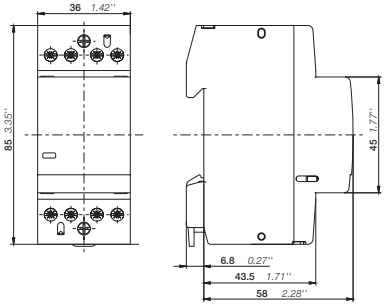
ESB25..N

The ESB25..N installation contactors are used to control single and three-phases loads up to 25 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.
ESB25..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage[1] V AC/DC	Type	Order code	Pkg qty	Weight (1 pc.) kg
Single packaging						
	2	24	ESB25-40N-01	1SAE231111R0140	1	0.245
		230 ... 240	ESB25-40N-06	1SAE231111R0640	1	0.235
	2	24	ESB25-04N-01	1SAE231111R0104	1	0.245
		230 ... 240	ESB25-04N-06	1SAE231111R0604	1	0.235
	2	24	ESB25-22N-01	1SAE231111R0122	1	0.245
		230 ... 240	ESB25-22N-06	1SAE231111R0622	1	0.235
	2	24	ESB25-31N-01	1SAE231111R0131	1	0.245
		230 ... 240	ESB25-31N-06	1SAE231111R0631	1	0.235
	2	24	ESB25-13N-01	1SAE231111R0113	1	0.245
		230 ... 240	ESB25-13N-06	1SAE231111R0613	1	0.235
Multiple packaging						
	2	24	ESB25-40N-01	1SAE231111M0140	6	0.245
		230 ... 240	ESB25-40N-06	1SAE231111M0640	6	0.235
	2	24	ESB25-04N-01	1SAE231111M0104	6	0.245
		230 ... 240	ESB25-04N-06	1SAE231111M0604	6	0.235
	2	24	ESB25-22N-01	1SAE231111M0122	6	0.245
		230 ... 240	ESB25-22N-06	1SAE231111M0622	6	0.235
	2	24	ESB25-31N-01	1SAE231111M0131	6	0.245
		230 ... 240	ESB25-31N-06	1SAE231111M0631	6	0.235
	2	24	ESB25-13N-01	1SAE231111M0113	6	0.245
		230 ... 240	ESB25-13N-06	1SAE231111M0613	6	0.235

[1] Other control voltages: see voltage code table and contact ABB for availability of products.



ESB25..N

Dimensions mm, inches

ESB40..N installation contactors

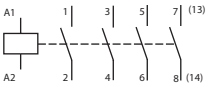
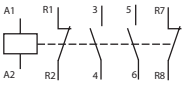
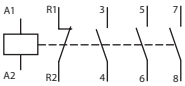
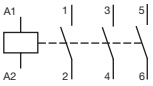
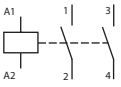
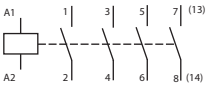
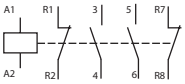
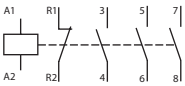
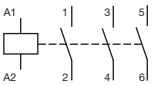
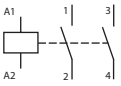
Ordering details 40 A, AC-1/AC-7a, AC/DC operated



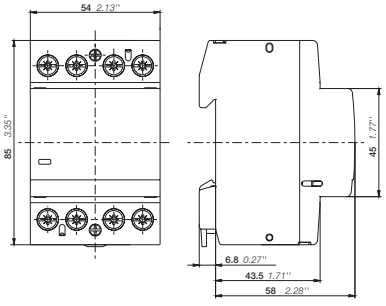
ESB40..N

The ESB40..N installation contactors are used to control single and three-phases loads up to 40 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.
ESB40..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage[1] V AC/DC	Type	Order code	Pkg qty	Weight (1 pc.) kg
Single packaging						
	3	24	ESB40-40N-01	1SAE341111R0140	1	0.405
		230	ESB40-40N-06	1SAE341111R0640	1	0.405
	3	24	ESB40-22N-01	1SAE341111R0122	1	0.405
		230	ESB40-22N-06	1SAE341111R0622	1	0.405
	3	24	ESB40-31N-01	1SAE341111R0131	1	0.405
		230	ESB40-31N-06	1SAE341111R0631	1	0.405
	3	24	ESB40-30N-01	1SAE341111R0130	1	0.385
		230	ESB40-30N-06	1SAE341111R0630	1	0.385
	3	24	ESB40-20N-01	1SAE341111R0120	1	0.370
		230	ESB40-20N-06	1SAE341111R0620	1	0.370
Multiple packaging						
	3	24	ESB40-40N-01	1SAE341111M0140	4	0.405
		230	ESB40-40N-06	1SAE341111M0640	4	0.405
	3	24	ESB40-22N-01	1SAE341111M0122	4	0.405
		230	ESB40-22N-06	1SAE341111M0622	4	0.405
	3	24	ESB40-31N-01	1SAE341111M0131	4	0.405
		230	ESB40-31N-06	1SAE341111M0631	4	0.405
	3	24	ESB40-30N-01	1SAE341111M0130	4	0.385
		230	ESB40-30N-06	1SAE341111M0630	4	0.385
	3	24	ESB40-20N-01	1SAE341111M0120	4	0.370
		230	ESB40-20N-06	1SAE341111M0620	4	0.370

[1] Other control voltages: see voltage code table and contact ABB for availability of products.



ESB40..N

Dimensions mm, inches

ESB63..N installation contactors

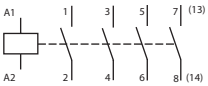
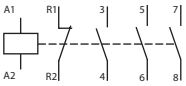
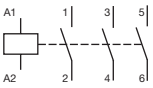
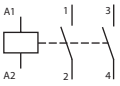
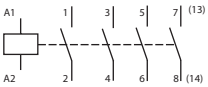
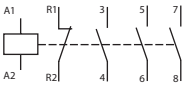
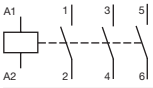
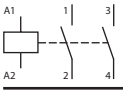
Ordering details 63 A, AC-1/AC-7a, AC/DC operated



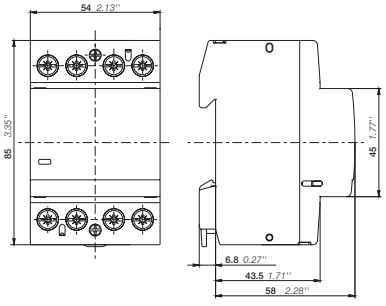
ESB63..N

The ESB63..N installation contactors are used to control single and three-phases loads up to 63 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.
ESB63..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage[1] V AC/DC	Type	Order code	Pkg qty	Weight (1 pc.) kg
Single packaging						
	3	24	ESB63-40N-01	1SAE351111R0140	1	0.405
		230	ESB63-40N-06	1SAE351111R0640	1	0.405
	3	230	ESB63-31N-06	1SAE351111R0631	1	0.405
	3	230	ESB63-30N-06	1SAE351111R0630	1	0.385
	3	24	ESB63-20N-01	1SAE351111R0120	1	0.37
		230	ESB63-20N-06	1SAE351111R0620	1	0.37
Multiple packaging						
	3	24	ESB63-40N-01	1SAE351111M0140	4	0.405
		230	ESB63-40N-06	1SAE351111M0640	4	0.405
	3	230	ESB63-31N-06	1SAE351111M0631	4	0.405
	3	230	ESB63-30N-06	1SAE351111M0630	4	0.385
	3	24	ESB63-20N-01	1SAE351111M0120	4	0.37
		230	ESB63-20N-06	1SAE351111M0620	4	0.37

[1] Other control voltages: see voltage code table and contact ABB for availability of products.



ESB63..N

Dimensions mm, inches

ESB100..N installation contactors

Ordering details 100 A, AC-1/AC-7a, AC/DC operated



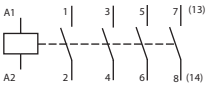
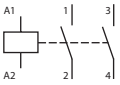
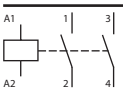
ESB100-20N

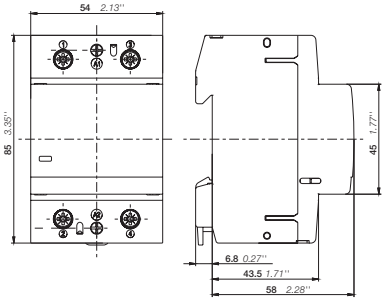


ESB100-40N

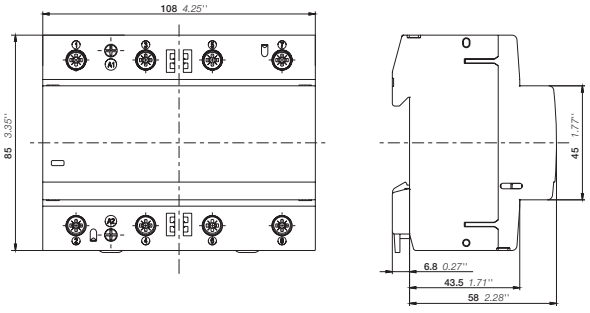
The ESB100..N installation contactors are used to control single and three-phases loads up to 100 A and can be operated by AC or DC voltages. These contactors are made for use in household applications as well as in industrial environment.
ESB100..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage V AC/DC	Type	Order code	Pkg qty	Weight (1 pc.) kg
Single packaging						
	6	24	ESB100-40N-01	1SAE661111R0140	1	0.810
		230	ESB100-40N-06	1SAE661111R0640	1	0.810
	3	24	ESB100-20N-01	1SAE361111R0120	1	0.405
		230	ESB100-20N-06	1SAE361111R0620	1	0.405
Multiple packaging						
	3	24	ESB100-20N-01	1SAE361111M0120	2	0.405
		230	ESB100-20N-06	1SAE361111M0620	2	0.405



ESB100-20N



ESB100-40N

Dimensions mm, inches

EN20..N installation contactors - manually/automatic operated

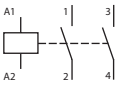
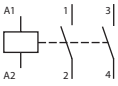
Ordering details 20 A, AC-1/AC-7a, AC/DC operated

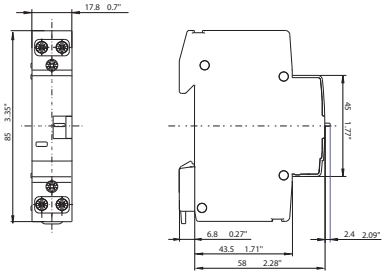


EN20..N

The EN20..N installation contactors are used to control single-phase loads up to 20 A and can be operated by AC or DC voltages. They have a built-in toggle switch to be operated manually or automatically. These contactors are made for use in household applications as well as in industrial environment.
EN20..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection and manual override.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage V AC/DC	Type	Order code	Pkg qty	Weight (1 pc.) kg
Single packaging						
	1	24	EN20-20N-01	1SBE122111R0120	1	0.14
		230	EN20-20N-06	1SBE122111R0620	1	0.14
Multiple packaging						
	1	24	EN20-20N-01	1SBE122111M0120	12	0.14
		230	EN20-20N-06	1SBE122111M0620	12	0.14



EN20..N

Dimensions mm, inches

EN25..N installation contactors - manually/automatic operated

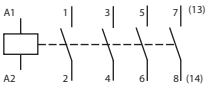
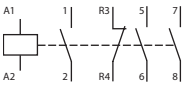
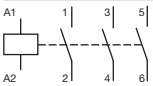
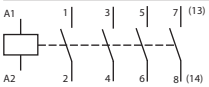
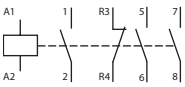
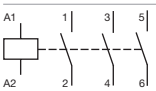
Ordering details 25 A, AC-1/AC-7a, AC/DC operated

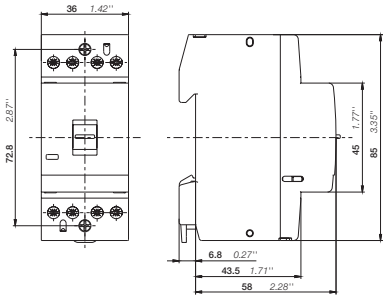


EN25..N

The EN25..N installation contactors are used to control single- and three-phase loads up to 25 A and can be operated by AC or DC voltages. They have a built-in toggle switch to be operated manually or automatically. These contactors are made for use in household applications as well as in industrial environment.
EN25..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection and manual override.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage V AC/DC	Type	Order code	Pkg qty	Weight (1 pc.) kg
Single packaging						
	2	24	EN25- 40N- 01	1SAE232111R0140	1	0.250
		230 ... 240	EN25-40N-06	1SAE232111R0640	1	0.240
	2	24	EN25-31N-01	1SAE232111R0131	1	0.250
		230 ... 240	EN25-31N-06	1SAE232111R0631	1	0.240
	2	230 ... 240	EN25-30N-06	1SAE232111R0630	1	0.235
Multiple packaging						
	2	24	EN25-40N-01	1SAE232111M0140	6	0.250
		230 ... 240	EN25-40N-06	1SAE232111M0640	6	0.240
	2	24	EN25-31N-01	1SAE232111M0131	6	0.250
		230 ... 240	EN25-31N-06	1SAE232111M0631	6	0.240
	2	230 ... 240	EN25-30N-06	1SAE232111M0630	6	0.235



EN25..N

Dimensions mm, inches

EN40..N installation contactors - manually/automatic operated

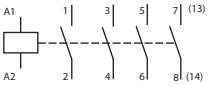
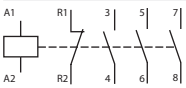
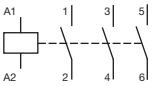
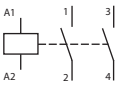
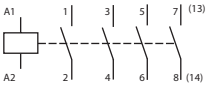
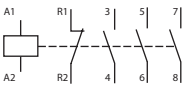
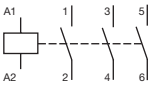
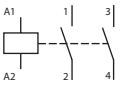
Ordering details 40 A, AC-1/AC-7a, AC/DC operated



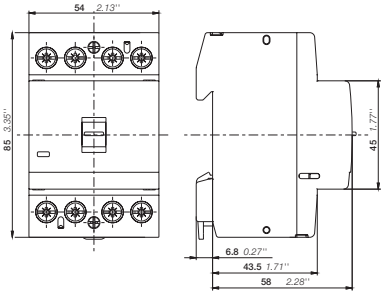
EN40..N

The EN40..N installation contactors are used to control single- and three-phase loads up to 40 A and can be operated by AC or DC voltages. They have a built-in toggle switch to be operated manually or automatically. These contactors are made for use in household applications as well as in industrial environment.
EN40..N series is providing the following benefits:

- Hum-free operation, low power consumption and integrated overvoltage protection and manual override.
- Various contact combinations and accessories are available.

Main contacts	Width in number of modular spacings	Rated control circuit voltage[1] V AC/DC	Type	Order code	Pkg qty	Weight (1 pc.) kg
Single packaging						
	3	24	EN40-40N-01	1SAE342111R0140	1	0.410
		230	EN40-40N-06	1SAE342111R0640	1	0.410
	3	24	EN40-31N-01	1SAE342111R0131	1	0.410
		230	EN40-31N-06	1SAE342111R0631	1	0.410
	3	230	EN40-30N-06	1SAE342111R0630	1	0.410
	3	230	EN40-20N-06	1SAE342111R0620	1	0.375
Multiple packaging						
	3	24	EN40-40N-01	1SAE342111M0140	4	0.410
		230	EN40-40N-06	1SAE342111M0640	4	0.410
	3	24	EN40-31N-01	1SAE342111M0131	4	0.410
		230	EN40-31N-06	1SAE342111M0631	4	0.410
	3	230	EN40-30N-06	1SAE342111M0630	4	0.410
	3	230	EN40-20N-06	1SAE342111M0620	4	0.375

[1] Other control voltages: see voltage code table and contact ABB for availability of products.



EN40..N

Dimensions mm, inches

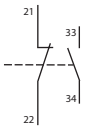
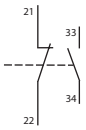
Installation contactors

Ordering details accessories



EH04-20N

Auxiliary contact blocks

Suitable for	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pc.) kg
Single packaging					
ESB16..N, ESB20..N, ESB25..N, ESB40..N, ESB63..N, ESB100..N, EN20..N, EN25..N, EN40..N		EH04-11N	1SAE901901R1011	1	0.040
		EH04-20N	1SAE901901R1020	1	0.040
Multiple packaging					
ESB16..N, ESB20..N, ESB25..N, ESB40..N, ESB63..N, ESB100..N, EN20..N, EN25..N, EN40..N		EH04-11N	1SAE901901M1011	6	0.040
		EH04-20N	1SAE901901M1020	6	0.040

Accessories



ESB-PLK24



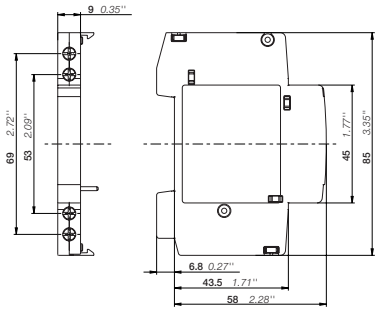
ESB-DIS



ESB-PLK40/63

Suitable for	Description	Type	Order code	Pkg qty	Weight (1 pc.) kg
Sealing covers					
ESB25..N, EN25..N	sealing cover	ESB-PLK24	GHE3201903R0001	10	0.002
ESB40..N, ESB63..N, EN40..N	sealing cover	ESB-PLK40/63	GHE3401903R0001	10	0.003
Distance piece					
ESB25..N, ESB40..N, ESB63..N, EN25..N, EN40..N		ESB-DIS [1]	GHE3201902R0001	10	0.002

[1] If several contactors are mounted adjacently and the duty 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, ESB/EN20..N and ESB100..N.

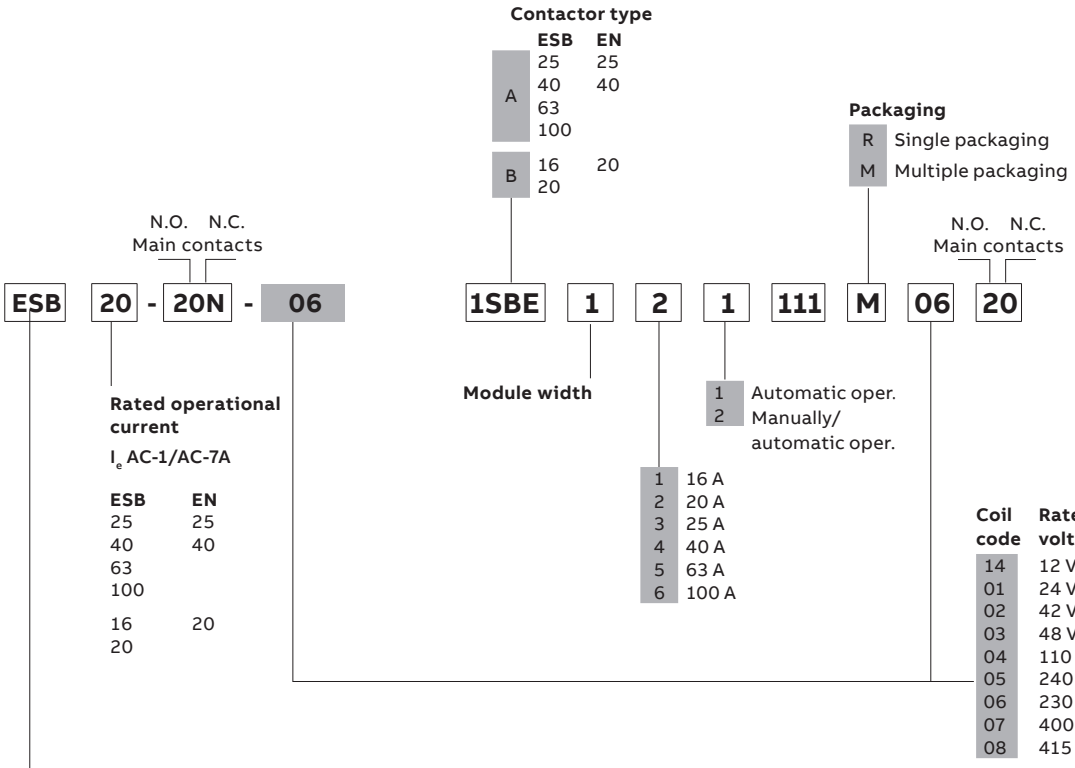


EH04..N

Dimensions mm, inches

Installation contactors

Voltage code table



(1) 110 V - 120 V for ESB25..N/EN25..N

(2) only coil 6 available with 230 V - 240 V for ESB25..N/EN25..N

(3) only coil 7 available with 400 V - 415 V for ESB25..N

(4) Coil 8 available for ESB40-40N and ESB63-40N only.

3-pole contactors, for motor control and power switching






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
		θ ≤ 55 °C for AF400 ... AF2650	415 V	kW	4	5.5	9	11	15	18.5	22	30	37	45	55
			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
		Rated operational current	380 - 400 V	A	9	12	18	26	32	38	40	53	65	80	96
	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	25	30	40	50	60	60
			550 - 600 V	hp	7.5	10	15	20	25	30	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	CA4-10 (1 x N.O.) CA4-01 (1 x N.C.)				
	Side mounting	CAL4-11 (1 x N.O. + 1 x N.C.)				
Timers	Electronic	TEF4-ON TEF4-OFF				
Interlocking units	Mechanical	VM4		VM96-4		
	Mechanical / Electrical	VEM4				
Connection sets	For reversing contactors	BER16-4	BER38-4	BER65-4	BER96-4	
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 (20...70 A)	EF96 (36...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...80 A) Ics up to 100 kA (1)
		MS132 (0.10...32 A) Ics up to 100 kA		
	Magnetic only types	MO132 (0.16...32 A) Ics up to 100 kA		MO165 (16...80 A) Ics up to 100 kA (1)
Accessories	For contactor mounting	BEA16-4	BEA38-4	BEA65-4 (2)

(1) MS165/MO165 are suitable for use with AF09 ... AF30 for North american applications.
(2) BEA65-4 suitable for MS165 and MO165 only.



	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050	AF2650	AF2850
	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	630	—	—	—
	75	90	90	110	132	160	160	200	220	250	355	450	—	560	710	—	—	—
	75	90	90	110	132	160	200	250	250	315	400	520	—	560	710	—	—	—
	55	75	90	132	160	200	250	315	315	355	500	600	—	800	1000	—	—	—
	—	—	75	110	132	160	185	200	220	280	355	400	—	—	—	—	—	—
	116	140	146	190	205	265	305	370	400	460	580	750	—	860	1060	—	—	—
	160	200	225	275	350	400	500	600	600	700	800	1050	1260	1350	1650	2050	2650	2850
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	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	2850
	—	4	—	—	—	5	—	—	—	6	—	7	—	—	8	—	—	—

	CAL19-11 (1 x N.O. + 1 x N.C.)			CAL18-11 (1 x N.O. + 1 x N.C.)			
	VM19 (for same size contactors)			VM750H VM750V		VM1650H	
	BER140-4	BER205-4	BER370-4	BEM460-30	BEM750-30		

	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 (150...500 A)	EF750 (250...800 A)	EF1250DU (350...1250 A)	

AF09 ... AF38 3-pole contactors

4 to 18.5 kW

AC / DC operated



AF09-30-10



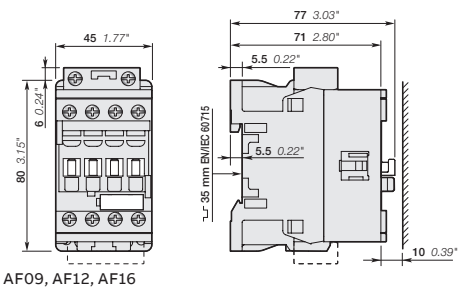
AF26-30-00

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.

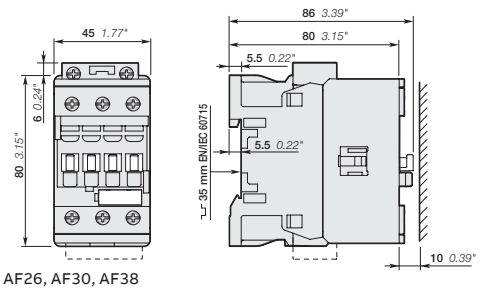
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - 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		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
4	25	5	25	24...60	20...60 (1)	1 0	AF09-30-10-11	1SBL137001R1110	0.270
						0 1	AF09-30-01-11	1SBL137001R1101	0.270
				48...130	48...130	1 0	AF09-30-10-12	1SBL137001R1210	0.270
						0 1	AF09-30-01-12	1SBL137001R1201	0.270
				100...250	100...250	1 0	AF09-30-10-13	1SBL137001R1310	0.270
						0 1	AF09-30-01-13	1SBL137001R1301	0.270
				250...500	250...500	1 0	AF09-30-10-14	1SBL137001R1410	0.310
						0 1	AF09-30-01-14	1SBL137001R1401	0.310
5.5	28	7.5	28	24...60	20...60 (1)	1 0	AF12-30-10-11	1SBL157001R1110	0.270
						0 1	AF12-30-01-11	1SBL157001R1101	0.270
				48...130	48...130	1 0	AF12-30-10-12	1SBL157001R1210	0.270
						0 1	AF12-30-01-12	1SBL157001R1201	0.270
				100...250	100...250	1 0	AF12-30-10-13	1SBL157001R1310	0.270
						0 1	AF12-30-01-13	1SBL157001R1301	0.270
				250...500	250...500	1 0	AF12-30-10-14	1SBL157001R1410	0.310
						0 1	AF12-30-01-14	1SBL157001R1401	0.310
7.5	30	10	30	24...60	20...60 (1)	1 0	AF16-30-10-11	1SBL177001R1110	0.270
						0 1	AF16-30-01-11	1SBL177001R1101	0.270
				48...130	48...130	1 0	AF16-30-10-12	1SBL177001R1210	0.270
						0 1	AF16-30-01-12	1SBL177001R1201	0.270
				100...250	100...250	1 0	AF16-30-10-13	1SBL177001R1310	0.270
						0 1	AF16-30-01-13	1SBL177001R1301	0.270
				250...500	250...500	1 0	AF16-30-10-14	1SBL177001R1410	0.310
						0 1	AF16-30-01-14	1SBL177001R1401	0.310
11	45	15	45	24...60	20...60 (1)	0 0	AF26-30-00-11	1SBL237001R1100	0.310
				48...130	48...130	0 0	AF26-30-00-12	1SBL237001R1200	0.310
				100...250	100...250	0 0	AF26-30-00-13	1SBL237001R1300	0.310
				250...500	250...500	0 0	AF26-30-00-14	1SBL237001R1400	0.350
15	50	20	50	24...60	20...60 (1)	0 0	AF30-30-00-11	1SBL277001R1100	0.310
				48...130	48...130	0 0	AF30-30-00-12	1SBL277001R1200	0.310
				100...250	100...250	0 0	AF30-30-00-13	1SBL277001R1300	0.310
				250...500	250...500	0 0	AF30-30-00-14	1SBL277001R1400	0.350
18.5	50	25	50	24...60	20...60 (1)	0 0	AF38-30-00-11	1SBL297001R1100	0.310
				48...130	48...130	0 0	AF38-30-00-12	1SBL297001R1200	0.310
				100...250	100...250	0 0	AF38-30-00-13	1SBL297001R1300	0.310
				250...500	250...500	0 0	AF38-30-00-14	1SBL297001R1400	0.350

(1) AF..-30-..-11 not suitable for direct control by PLC-output.



AF09, AF12, AF16



AF26, AF30, AF38

Main dimensions mm, inches

AF09Z ... AF38Z 3-pole contactors

4 to 18.5 kW

24 V DC operated designed for PLC



AF09Z-30-10



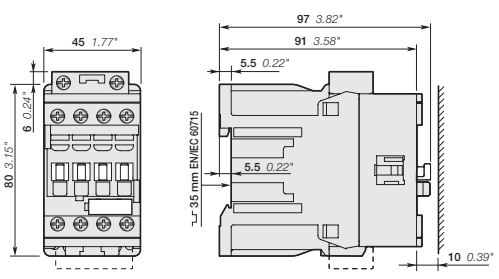
AF26Z-30-00

AF09Z ... AF38Z 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.

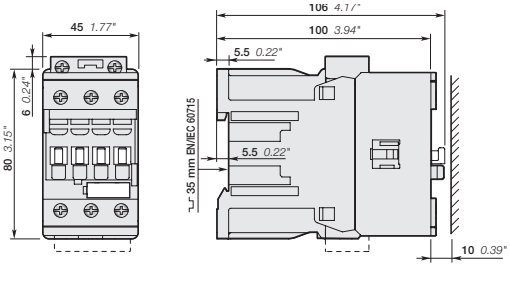
- control circuit: 24 V DC operated with electronic coil interface allowing low holding consumption up to 1.7 W and reduced panel energy consumption
  - allow direct control by PLC-output ≥ 250 mA 24 V DC
  - very distinct closing and opening
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc	Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC					Pkg (1 pce)
kW	A	hp	A	V DC				kg
4	25	5	25	24	1 0	AF09Z-30-10-30	1SBL136001R3010	0.430
					0 1	AF09Z-30-01-30	1SBL136001R3001	0.430
5.5	28	7.5	28	24	1 0	AF12Z-30-10-30	1SBL156001R3010	0.430
					0 1	AF12Z-30-01-30	1SBL156001R3001	0.430
7.5	30	10	30	24	1 0	AF16Z-30-10-30	1SBL176001R3010	0.430
					0 1	AF16Z-30-01-30	1SBL176001R3001	0.430
11	45	15	45	24	0 0	AF26Z-30-00-30	1SBL236001R3000	0.480
15	50	20	50	24	0 0	AF30Z-30-00-30	1SBL276001R3000	0.480
18.5	50	25	50	24	0 0	AF38Z-30-00-30	1SBL296001R3000	0.480

Note: AF..Z contactors with DC control voltage 24 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.



AF09Z, AF12Z, AF16Z



AF26Z, AF30Z, AF38Z

Main dimensions mm, inches

AF09Z ... AF38Z 3-pole contactors

4 to 18.5 kW

AC / DC operated for specific applications



AF09Z-30-10



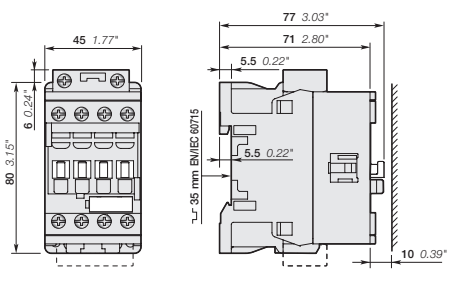
AF26Z-30-00

AF09Z ... AF38Z 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.

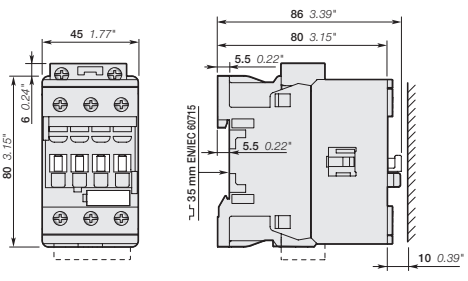
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
  - can manage large control voltage variations
  - allow direct control by PLC-output ≥ 24 V DC 500 mA
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
4	25	5	25	-	12...20	1 0	AF09Z-30-10-20	1SBL136001R2010	0.310
						0 1	AF09Z-30-01-20	1SBL136001R2001	0.310
				24...60	20...60	1 0	AF09Z-30-10-21	1SBL136001R2110	0.310
						0 1	AF09Z-30-01-21	1SBL136001R2101	0.310
				48...130	48...130	1 0	AF09Z-30-10-22	1SBL136001R2210	0.310
						0 1	AF09Z-30-01-22	1SBL136001R2201	0.310
				100...250	100...250	1 0	AF09Z-30-10-23	1SBL136001R2310	0.310
						0 1	AF09Z-30-01-23	1SBL136001R2301	0.310
5.5	28	7.5	28	-	12...20	1 0	AF12Z-30-10-20	1SBL156001R2010	0.310
						0 1	AF12Z-30-01-20	1SBL156001R2001	0.310
				24...60	20...60	1 0	AF12Z-30-10-21	1SBL156001R2110	0.310
						0 1	AF12Z-30-01-21	1SBL156001R2101	0.310
				48...130	48...130	1 0	AF12Z-30-10-22	1SBL156001R2210	0.310
						0 1	AF12Z-30-01-22	1SBL156001R2201	0.310
				100...250	100...250	1 0	AF12Z-30-10-23	1SBL156001R2310	0.310
						0 1	AF12Z-30-01-23	1SBL156001R2301	0.310
7.5	30	10	30	-	12...20	1 0	AF16Z-30-10-20	1SBL176001R2010	0.310
						0 1	AF16Z-30-01-20	1SBL176001R2001	0.310
				24...60	20...60	1 0	AF16Z-30-10-21	1SBL176001R2110	0.310
						0 1	AF16Z-30-01-21	1SBL176001R2101	0.310
				48...130	48...130	1 0	AF16Z-30-10-22	1SBL176001R2210	0.310
						0 1	AF16Z-30-01-22	1SBL176001R2201	0.310
				100...250	100...250	1 0	AF16Z-30-10-23	1SBL176001R2310	0.310
						0 1	AF16Z-30-01-23	1SBL176001R2301	0.310
11	45	15	45	-	12...20	0 0	AF26Z-30-00-20	1SBL236001R2000	0.350
				24...60	20...60	0 0	AF26Z-30-00-21	1SBL236001R2100	0.350
				48...130	48...130	0 0	AF26Z-30-00-22	1SBL236001R2200	0.350
				100...250	100...250	0 0	AF26Z-30-00-23	1SBL236001R2300	0.350
15	50	20	50	-	12...20	0 0	AF30Z-30-00-20	1SBL276001R2000	0.350
				24...60	20...60	0 0	AF30Z-30-00-21	1SBL276001R2100	0.350
				48...130	48...130	0 0	AF30Z-30-00-22	1SBL276001R2200	0.350
				100...250	100...250	0 0	AF30Z-30-00-23	1SBL276001R2300	0.350
18.5	50	25	50	-	12...20	0 0	AF38Z-30-00-20	1SBL296001R2000	0.350
				24...60	20...60	0 0	AF38Z-30-00-21	1SBL296001R2100	0.350
				48...130	48...130	0 0	AF38Z-30-00-22	1SBL296001R2200	0.350
				100...250	100...250	0 0	AF38Z-30-00-23	1SBL296001R2300	0.350

Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.



AF09Z, AF12Z, AF16Z



AF26Z, AF30Z, AF38Z

Main dimensions mm, inches

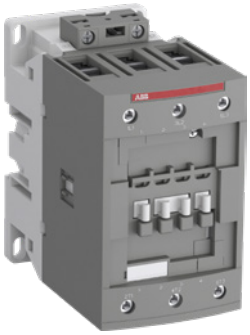
AF40 ... AF96 3-pole contactors

18.5 to 45 kW

AC / DC operated



AF40-30-00



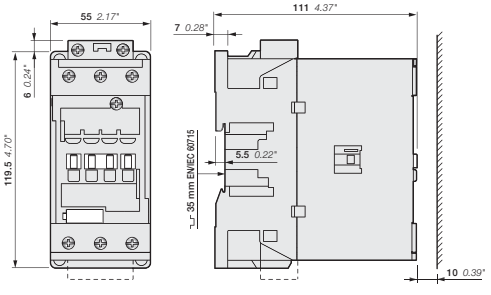
AF80-30-00

AF40 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

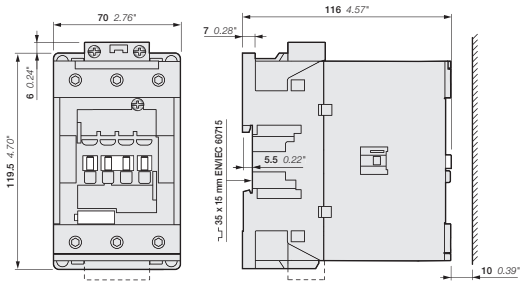
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
18.5	70	30	60	24...60	20...60 (1)	0 0	AF40-30-00-11	1SBL347001R1100	0.970
				48...130	48...130	0 0	AF40-30-00-12	1SBL347001R1200	0.970
				100...250	100...250	0 0	AF40-30-00-13	1SBL347001R1300	0.950
				250...500	250...500	0 0	AF40-30-00-14	1SBL347001R1400	0.950
22	100	40	80	24...60	20...60 (1)	0 0	AF52-30-00-11	1SBL367001R1100	0.970
				48...130	48...130	0 0	AF52-30-00-12	1SBL367001R1200	0.970
				100...250	100...250	0 0	AF52-30-00-13	1SBL367001R1300	0.950
				250...500	250...500	0 0	AF52-30-00-14	1SBL367001R1400	0.950
30	105	50	90	24...60	20...60 (1)	0 0	AF65-30-00-11	1SBL387001R1100	0.970
				48...130	48...130	0 0	AF65-30-00-12	1SBL387001R1200	0.970
				100...250	100...250	0 0	AF65-30-00-13	1SBL387001R1300	0.950
				250...500	250...500	0 0	AF65-30-00-14	1SBL387001R1400	0.950
37	125	60	105	24...60	20...60 (1)	0 0	AF80-30-00-11	1SBL397001R1100	1.220
				48...130	48...130	0 0	AF80-30-00-12	1SBL397001R1200	1.220
				100...250	100...250	0 0	AF80-30-00-13	1SBL397001R1300	1.170
				250...500	250...500	0 0	AF80-30-00-14	1SBL397001R1400	1.170
45	130	60	115	24...60	20...60 (1)	0 0	AF96-30-00-11	1SBL407001R1100	1.220
				48...130	48...130	0 0	AF96-30-00-12	1SBL407001R1200	1.220
				100...250	100...250	0 0	AF96-30-00-13	1SBL407001R1300	1.170
				250...500	250...500	0 0	AF96-30-00-14	1SBL407001R1400	1.170

(1) For control by PLC-output, use RA4 interface relay.



AF40, AF52, AF65

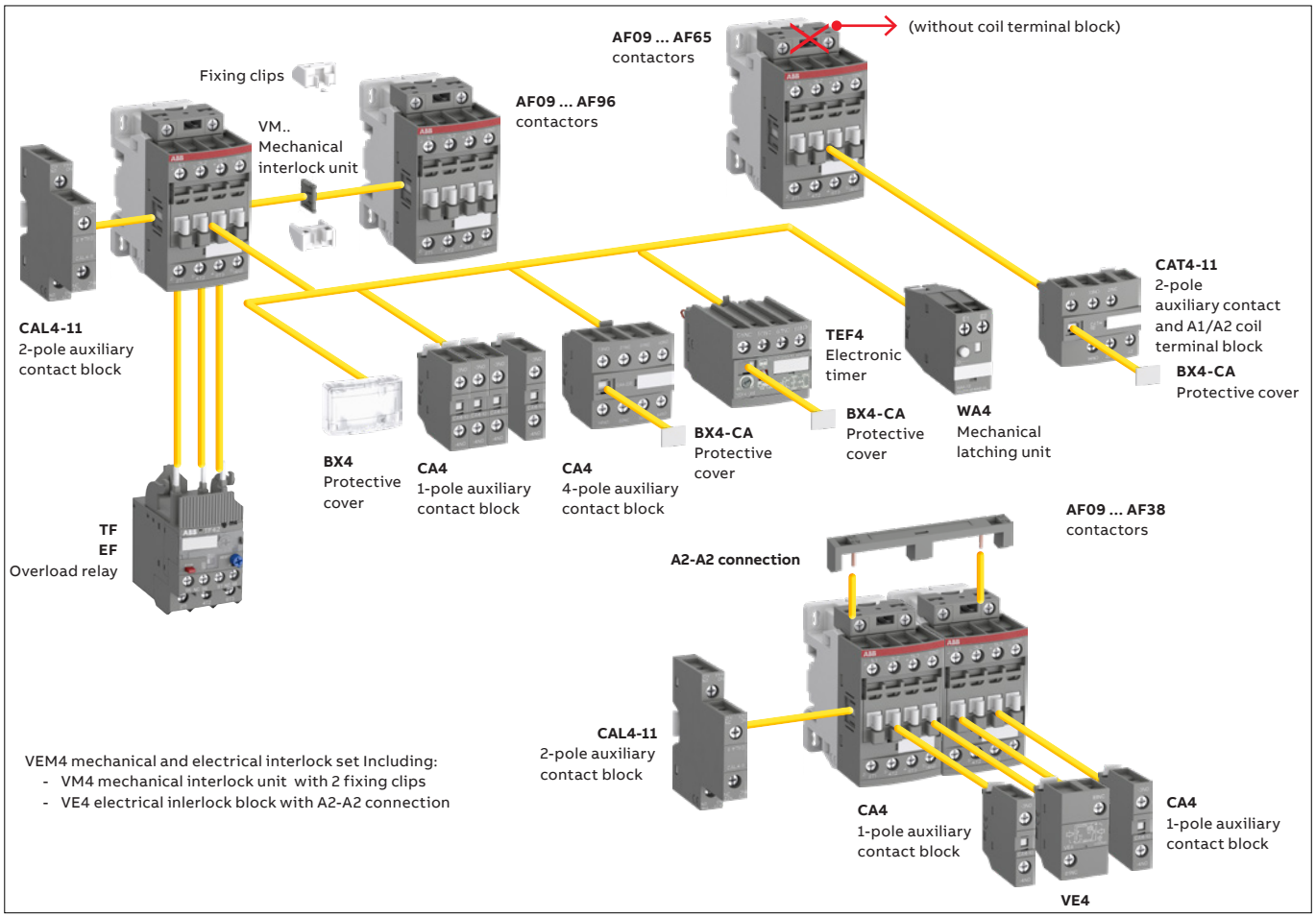


AF80, AF96

Main dimensions mm, inches

AF09 ... AF96 3-pole contactors

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

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 Auxiliary contact blocks			Electronic timer	Mechanical latching unit	Electrical and mechanical interlock set (between 2 contactors)	Side-mounted accessories Auxiliary contact blocks	
									2-pole CAL4-11	
			1-pole CA4	2-pole CAT4-11	4-pole CA4	TEF4	WA4 (2)	VEM4	Left side	Right side
AF09(Z) ... AF38(Z) (1)										
AF09 ... AF16	3 0	0 1	4 max.	or 1	or 1	or 1	or 1	–	+ 1	–
AF09 ... AF16	3 0	1 0	2 max.	or 1	–	or 1	or 1	–	+ 1	+ 1
AF26 ... AF38	3 0	0 0	3 max.	–	–	–	–	+ 1 (3)	+ 1	or 1
AF09Z ... AF38Z 24 V DC designed for PLC - coil 30 (1)										
AF09Z ... AF16Z	3 0	0 1	4 max.	–	or 1	or 1	–	– (3)	or 1	+ 1
AF09Z ... AF16Z	3 0	1 0	2 max.	–	–	or 1	–	– (3)	+ 1	or 1
AF26Z ... AF38Z	3 0	0 0	–	–	–	1	–	–	+ 1	+ 1
AF40 ... AF96										
AF40 ... AF65	3 0	0 0	4 max.	or 1	or 1	or 1	or 1	–	+ 1	+ 1
AF80, AF96	3 0	0 0	4 max.	–	or 1	or 1	or 1	–	+ 1	+ 1

(1) Including add-on and built-in contacts : 4 N.C. auxiliary contacts max on positions 1, 2, 3, 4 and 3 N.C. auxiliary contacts max. on positions 1 ±30°, 5.
(2) Use WA4 for AF09...AF65 and WA4-96 for AF80, AF96.
Accept 1-pole CA4 auxiliary contacts (1 block on each side of the mechanical latch) in respect to the total number of built-in or additional N.C. auxiliary contacts.
For WA4 accessory use with contactor coil 30, please consult your ABB local sales organization.
(3) VEM4 not suitable for AF..Z contactors with DC control voltages 12...20 V DC (coil 20) and 24 V DC (coil 30). Use VM4 side-mounted mechanical interlock unit.

Overload relays fitting details (4)

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 (20...70 A)
AF80, AF96	TF96 (40...96 A)	EF96 (36...100 A)

The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.
(4) Direct mounting - No kit required.

AF116 ... AF146 3-pole contactors

55 to 75 kW

AC / DC operated



AF146-30-00



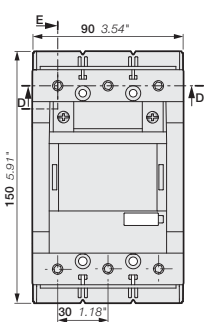
AF146-30-00B

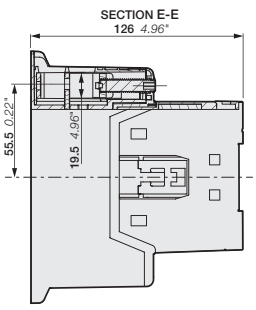
AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 V DC. These contactors are of the block type design with 3 main poles.

- 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 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.

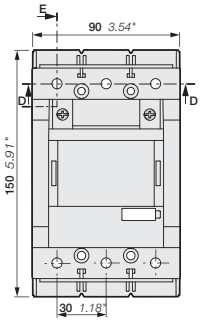
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	24...60	20...60	0 0	AF116-30-00-11	1SFL427001R1100	1.750
				48...130	48...130	0 0	AF116-30-00-12	1SFL427001R1200	1.750
				100...250	100...250	0 0	AF116-30-00-13	1SFL427001R1300	1.750
				250...500	250...500	0 0	AF116-30-00-14	1SFL427001R1400	1.750
75	200	100	200	24...60	20...60	0 0	AF140-30-00-11	1SFL447001R1100	1.750
				48...130	48...130	0 0	AF140-30-00-12	1SFL447001R1200	1.750
				100...250	100...250	0 0	AF140-30-00-13	1SFL447001R1300	1.750
				250...500	250...500	0 0	AF140-30-00-14	1SFL447001R1400	1.750
75	225	100	200	24...60	20...60	0 0	AF146-30-00-11	1SFL467001R1100	1.750
				48...130	48...130	0 0	AF146-30-00-12	1SFL467001R1200	1.750
				100...250	100...250	0 0	AF146-30-00-13	1SFL467001R1300	1.750
				250...500	250...500	0 0	AF146-30-00-14	1SFL467001R1400	1.750
With bar connections									
55	160	75	160	24...60	20...60	0 0	AF116-30-00B-11	1SFL427002R1100	1.500
				48...130	48...130	0 0	AF116-30-00B-12	1SFL427002R1200	1.500
				100...250	100...250	0 0	AF116-30-00B-13	1SFL427002R1300	1.500
				250...500	250...500	0 0	AF116-30-00B-14	1SFL427002R1400	1.500
75	200	100	200	24...60	20...60	0 0	AF140-30-00B-11	1SFL447002R1100	1.500
				48...130	48...130	0 0	AF140-30-00B-12	1SFL447002R1200	1.500
				100...250	100...250	0 0	AF140-30-00B-13	1SFL447002R1300	1.500
				250...500	250...500	0 0	AF140-30-00B-14	1SFL447002R1400	1.500
75	225	100	200	24...60	20...60	0 0	AF146-30-00B-11	1SFL467002R1100	1.500
				48...130	48...130	0 0	AF146-30-00B-12	1SFL467002R1200	1.500
				100...250	100...250	0 0	AF146-30-00B-13	1SFL467002R1300	1.500
				250...500	250...500	0 0	AF146-30-00B-14	1SFL467002R1400	1.500

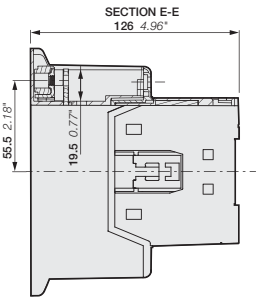
(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.





AF116, AF140, AF146-30-00





AF116, AF140, AF146-30-00B

Main dimensions mm, inches

AF116 ... AF146 3-pole contactors with built-in PLC interface

55 to 75 kW

AC / DC operated for faster opening utilization



AF146-30-00



AF146-30-00B

AF116 ... AF146 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 V DC. These contactors are of the block type design with 3 main poles.

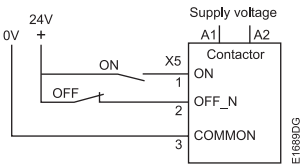
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...500 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...250 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

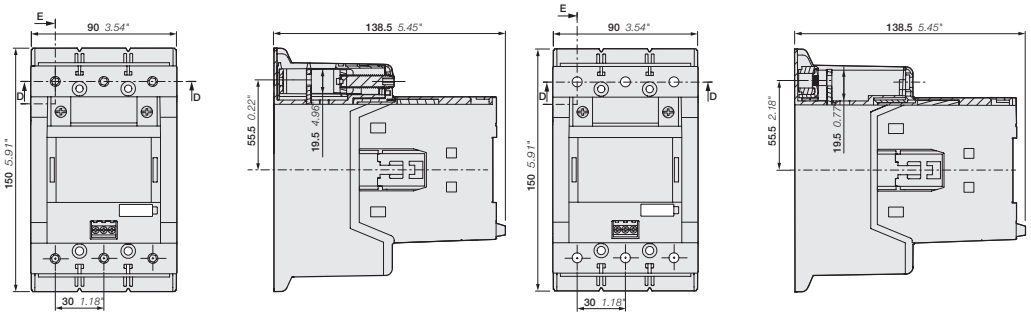
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power	current θ ≤ 40 °C	3-phase motor rating	General use rating						Pkg (1 pce)
400 V AC-3	AC-1	480 V	600 V AC						
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	100...250	100...250	0 0	AF116-30-00-33	1SFL427001R3300	1.750
				250...500	250...500	0 0	AF116-30-00-34	1SFL427001R3400	1.750
75	200	100	200	100...250	100...250	0 0	AF140-30-00-33	1SFL447001R3300	1.750
				250...500	250...500	0 0	AF140-30-00-34	1SFL447001R3400	1.750
75	225	100	200	100...250	100...250	0 0	AF146-30-00-33	1SFL467001R3300	1.750
				250...500	250...500	0 0	AF146-30-00-34	1SFL467001R3400	1.750
With bar connections									
55	160	75	160	100...250	100...250	0 0	AF116-30-00B-33	1SFL427002R3300	1.500
				250...500	250...500	0 0	AF116-30-00B-34	1SFL427002R3400	1.500
75	200	100	200	100...250	100...250	0 0	AF140-30-00B-33	1SFL447002R3300	1.500
				250...500	250...500	0 0	AF140-30-00B-34	1SFL447002R3400	1.500
75	225	100	200	100...250	100...250	0 0	AF146-30-00B-33	1SFL467002R3300	1.500
				250...500	250...500	0 0	AF146-30-00B-34	1SFL467002R3400	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AF116 ... AF146 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF116, AF140, AF146-30-00

AF116, AF140, AF146-30-00B

Main dimensions mm, inches

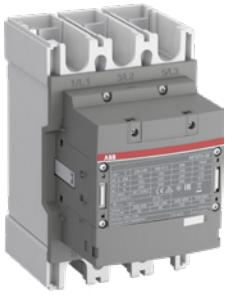
AF190 ... AF370 3-pole contactors

90 to 200 kW

AC / DC operated



AF205-30-00



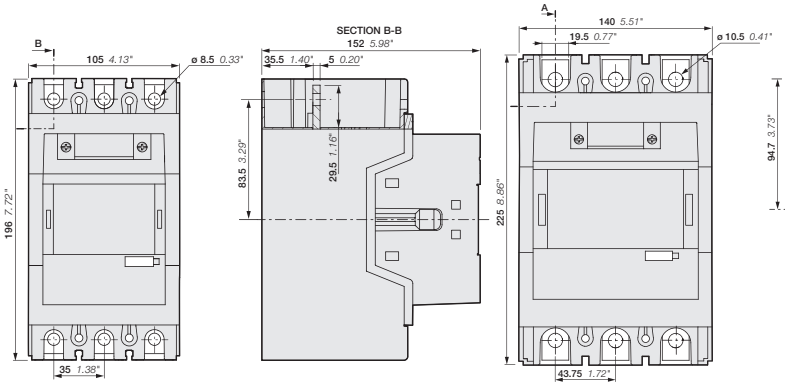
AF370-30-00

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and 340 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 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		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	24...60	20...60	0 0	AF190-30-00-11	1SFL487002R1100	3.000
				48...130	48...130	0 0	AF190-30-00-12	1SFL487002R1200	3.000
				100...250	100...250	0 0	AF190-30-00-13	1SFL487002R1300	3.000
				250...500	250...500	0 0	AF190-30-00-14	1SFL487002R1400	3.000
110	350	150	300	24...60	20...60	0 0	AF205-30-00-11	1SFL527002R1100	3.000
				48...130	48...130	0 0	AF205-30-00-12	1SFL527002R1200	3.000
				100...250	100...250	0 0	AF205-30-00-13	1SFL527002R1300	3.000
				250...500	250...500	0 0	AF205-30-00-14	1SFL527002R1400	3.000
132	400	200	350	24...60	20...60	0 0	AF265-30-00-11	1SFL547002R1100	4.605
				48...130	48...130	0 0	AF265-30-00-12	1SFL547002R1200	4.605
				100...250	100...250	0 0	AF265-30-00-13	1SFL547002R1300	4.605
				250...500	250...500	0 0	AF265-30-00-14	1SFL547002R1400	4.605
160	500	250	400	24...60	20...60	0 0	AF305-30-00-11	1SFL587002R1100	4.605
				48...130	48...130	0 0	AF305-30-00-12	1SFL587002R1200	4.605
				100...250	100...250	0 0	AF305-30-00-13	1SFL587002R1300	4.605
				250...500	250...500	0 0	AF305-30-00-14	1SFL587002R1400	4.605
200	600	300	520	24...60	20...60	0 0	AF370-30-00-11	1SFL607002R1100	4.605
				48...130	48...130	0 0	AF370-30-00-12	1SFL607002R1200	4.605
				100...250	100...250	0 0	AF370-30-00-13	1SFL607002R1300	4.605
				250...500	250...500	0 0	AF370-30-00-14	1SFL607002R1400	4.605

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF190, AF205

AF265, AF305, AF370

Main dimensions mm, inches

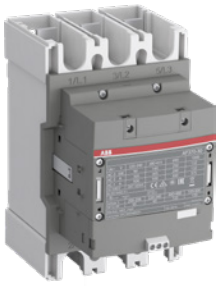
AF190 ... AF370 3-pole contactors with built-in PLC interface

90 to 200 kW

AC / DC operated for faster utilization



AF205-30-00



AF370-30-00

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and 340 V DC. These contactors are of the block type design with 3 main poles.

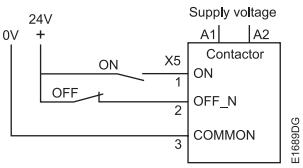
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

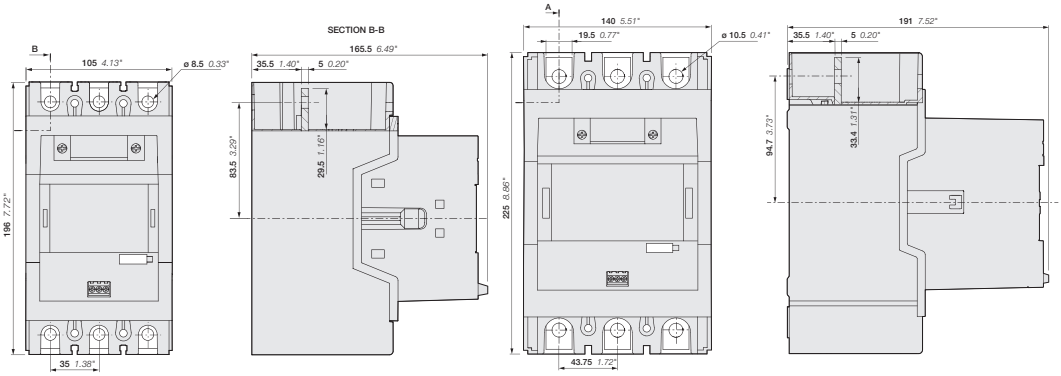
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	100...250	100...250	0 0	AF190-30-00-33	1SFL487002R3300	3.000
				250...500	250...500	0 0	AF190-30-00-34	1SFL487002R3400	3.000
110	350	150	300	100...250	100...250	0 0	AF205-30-00-33	1SFL527002R3300	3.000
				250...500	250...500	0 0	AF205-30-00-34	1SFL527002R3400	3.000
132	400	200	350	100...250	100...250	0 0	AF265-30-00-33	1SFL547002R3300	4.605
				250...500	250...500	0 0	AF265-30-00-34	1SFL547002R3400	4.605
160	500	250	400	100...250	100...250	0 0	AF305-30-00-33	1SFL587002R3300	4.605
				250...500	250...500	0 0	AF305-30-00-34	1SFL587002R3400	4.605
200	600	300	520	100...250	100...250	0 0	AF370-30-00-33	1SFL607002R3300	4.605
				250...500	250...500	0 0	AF370-30-00-34	1SFL607002R3400	4.605

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AF190 ... AF370 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





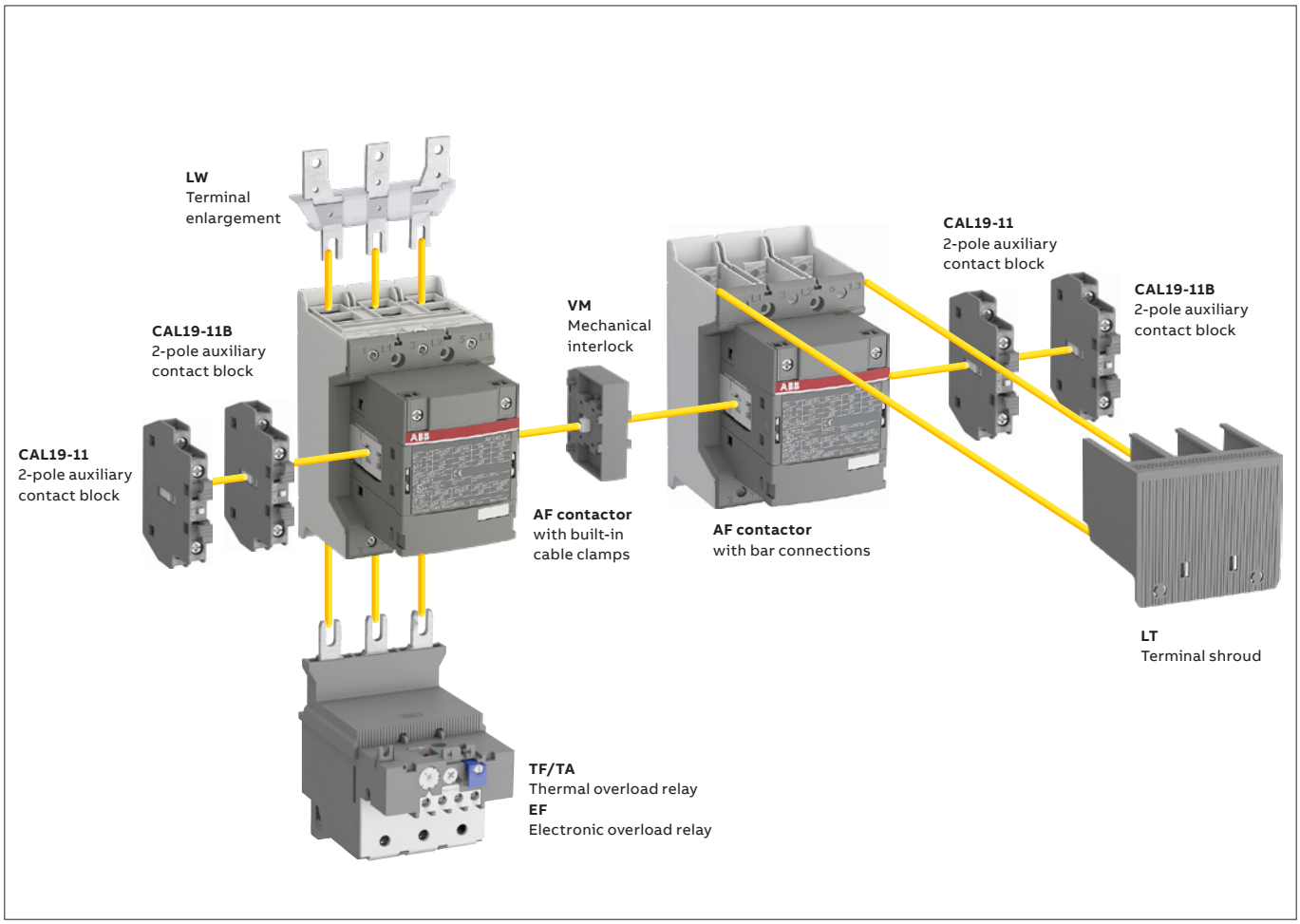
AF190, AF205

AF265, AF305, AF370

Main dimensions mm, inches

AF116 ... AF370 3-pole contactors

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks		Mechanical interlock units (between two contactors)
			CAL19-11 (3)	CAL19-11B	
AF116 ... AF370	3 0	0 0	2 x CAL19-11	+ 2 x CAL19-11B	–
AF116 ... AF370	3 0	0 0	2 x CAL19-11 (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").
(3) The CEL19 auxiliary contact blocks can replace the CAL19-11 and CAL19-11B. Though, no auxiliary contact block can be mounted outside the CEL19.

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.

AF26Z ... AF38Z 3-pole contactors

4 to 18.5 kW

AC / DC operated for specific applications with 1 N.O. + 1 N.C. contacts



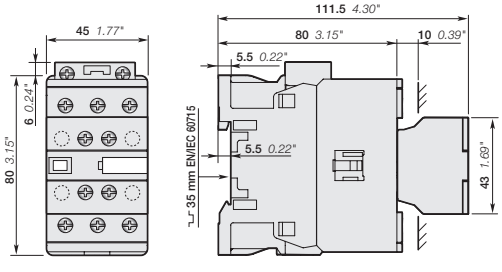
AF26Z-30-11

AF26Z ... AF38Z 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 (1st stack):

- 2nd stack with 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 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...250 V 50/60 Hz and 12...250 V DC
  - can manage large control voltage variations, allow direct control by PLC-output ≥ 24 V DC 500 mA, reduced panel energy consumption, very distinct closing and opening,
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
11	45	15	45	-	12...20	1 1	AF26Z-30-11-20	1SBL236001R2011	0.390
				24...60	20...60	1 1	AF26Z-30-11-21	1SBL236001R2111	0.390
				48...130	48...130	1 1	AF26Z-30-11-22	1SBL236001R2211	0.390
				100...250	100...250	1 1	AF26Z-30-11-23	1SBL236001R2311	0.390
15	50	20	50	-	12...20	1 1	AF30Z-30-11-20	1SBL276001R2011	0.390
				24...60	20...60	1 1	AF30Z-30-11-21	1SBL276001R2111	0.390
				48...130	48...130	1 1	AF30Z-30-11-22	1SBL276001R2211	0.390
				100...250	100...250	1 1	AF30Z-30-11-23	1SBL276001R2311	0.390
18.5	50	25	50	-	12...20	1 1	AF38Z-30-11-20	1SBL296001R2011	0.390
				24...60	20...60	1 1	AF38Z-30-11-21	1SBL296001R2111	0.390
				48...130	48...130	1 1	AF38Z-30-11-22	1SBL296001R2211	0.390
				100...250	100...250	1 1	AF38Z-30-11-23	1SBL296001R2311	0.390

Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole



AF26Z, AF30Z, AF38Z

Main dimensions mm, inches

AF26 ... AF38 3-pole contactors

4 to 18.5 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



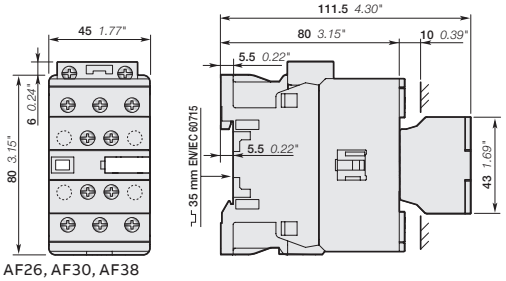
AF26-30-11

AF26 ... 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 (1st stack):

- 2nd stack with 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 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 side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
11	45	15	45	24...60	20...60 (1)	1 1	AF26-30-11-11	1SBL237001R1111	0.350
				48...130	48...130	1 1	AF26-30-11-12	1SBL237001R1211	0.350
				100...250	100...250	1 1	AF26-30-11-13	1SBL237001R1311	0.350
				250...500	250...500	1 1	AF26-30-11-14	1SBL237001R1411	0.390
15	50	20	50	24...60	20...60 (1)	1 1	AF30-30-11-11	1SBL277001R1111	0.350
				48...130	48...130	1 1	AF30-30-11-12	1SBL277001R1211	0.350
				100...250	100...250	1 1	AF30-30-11-13	1SBL277001R1311	0.350
				250...500	250...500	1 1	AF30-30-11-14	1SBL277001R1411	0.390
18.5	50	25	50	24...60	20...60 (1)	1 1	AF38-30-11-11	1SBL297001R1111	0.350
				48...130	48...130	1 1	AF38-30-11-12	1SBL297001R1211	0.350
				100...250	100...250	1 1	AF38-30-11-13	1SBL297001R1311	0.350
				250...500	250...500	1 1	AF38-30-11-14	1SBL297001R1411	0.390

(1) AF..-30-..-11 not suitable for direct control by PLC-output.

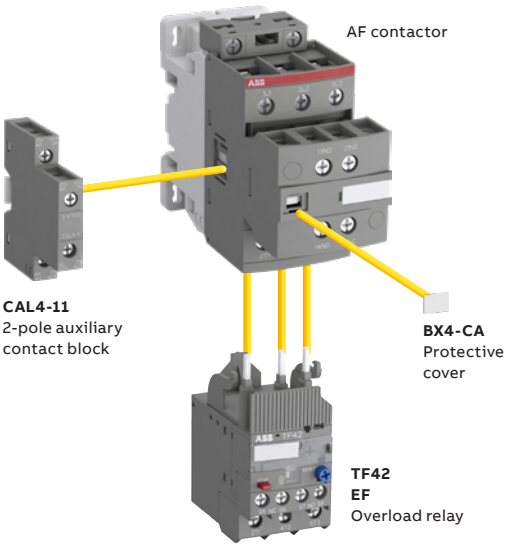


AF26, AF30, AF38

Main dimensions mm, inches

AF26 ... AF38 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Built-in auxiliary contacts	Side-mounted accessories Mechanical interlock unit (between 2 contactors) VM4	Auxiliary contact blocks 2-pole CAL4-11 Left side	Right side
AF26 ... AF38	3 0	1 1	1	+ 1	or 1
			–	+ 1	+ 1

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AF26 ... AF38	TF42 (0.10...38 A)	EF19 (0.10...19 A)
		EF45 (9...45 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.

AF40 ... AF96 3-pole contactors

18.5 to 30 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF40-30-11



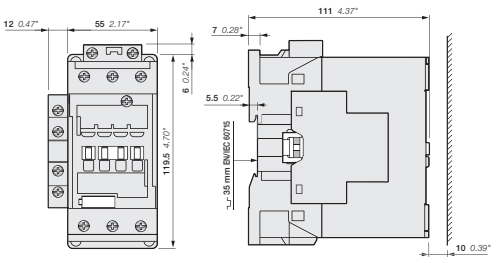
AF80-30-11

AF40 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and 220 V DC. These contactors are of the block type design with 3 main poles (1st stack):

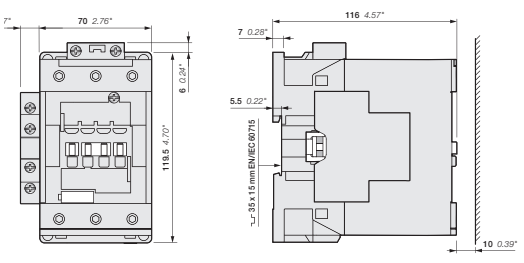
- with 1 N.O. + 1 N.C. side mounted auxiliary contact block
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
185	70	30	60	24...60	20...60 (1)	1 1	AF40-30-11-11	1SBL347001R1111	1.010
				48...130	48...130	1 1	AF40-30-11-12	1SBL347001R1211	1.010
				100...250	100...250	1 1	AF40-30-11-13	1SBL347001R1311	0.990
				250...500	250...500	1 1	AF40-30-11-14	1SBL347001R1411	0.990
22	100	40	80	24...60	20...60 (1)	1 1	AF52-30-11-11	1SBL367001R1111	1.010
				48...130	48...130	1 1	AF52-30-11-12	1SBL367001R1211	1.010
				100...250	100...250	1 1	AF52-30-11-13	1SBL367001R1311	0.990
				250...500	250...500	1 1	AF52-30-11-14	1SBL367001R1411	0.990
30	105	50	90	24...60	20...60 (1)	1 1	AF65-30-11-11	1SBL387001R1111	1.010
				48...130	48...130	1 1	AF65-30-11-12	1SBL387001R1211	1.010
				100...250	100...250	1 1	AF65-30-11-13	1SBL387001R1311	0.990
				250...500	250...500	1 1	AF65-30-11-14	1SBL387001R1411	0.990
37	125	60	105	24...60	20...60 (1)	1 1	AF80-30-11-11	1SBL397001R1111	1.260
				48...130	48...130	1 1	AF80-30-11-12	1SBL397001R1211	1.260
				100...250	100...250	1 1	AF80-30-11-13	1SBL397001R1311	1.210
				250...500	250...500	1 1	AF80-30-11-14	1SBL397001R1411	1.210
45	130	60	115	24...60	20...60 (1)	1 1	AF96-30-11-11	1SBL407001R1111	1.260
				48...130	48...130	1 1	AF96-30-11-12	1SBL407001R1211	1.260
				100...250	100...250	1 1	AF96-30-11-13	1SBL407001R1311	1.210
				250...500	250...500	1 1	AF96-30-11-14	1SBL407001R1411	1.210

(1) For control by PLC-output, use RA4 interface relay.



AF40, AF52, AF65-30-11-..

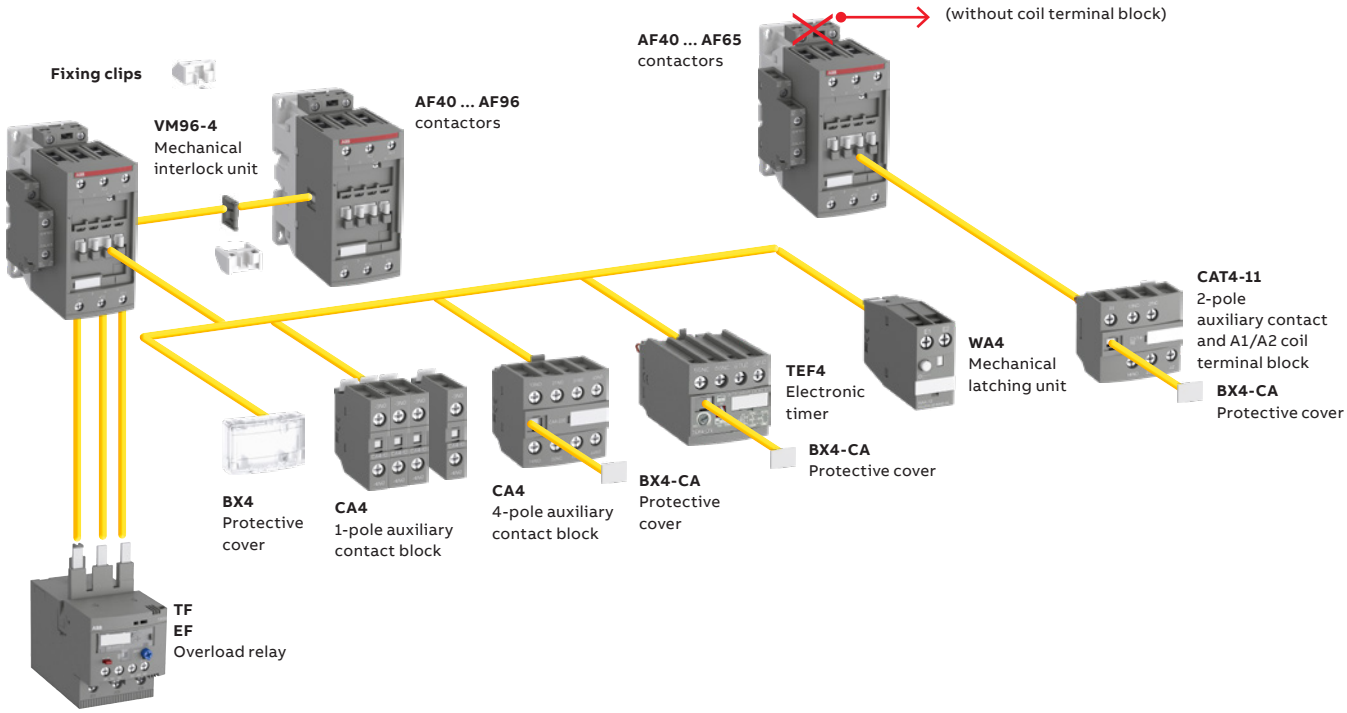


AF80, AF96-30-11-..

Main dimensions mm, inches

AF40 ... AF96 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

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 Auxiliary contact blocks			Electronic timer	Mechanical latching unit (1)	Side-mounted accessories Mechanical interlock set (between 2 contactors)		Auxiliary contact blocks	
			1-pole CA4	2-pole CAT4-11	4-pole CA4	TEF4	WA4	VM96-4		2-pole CAL4-11 Left side	Right side
AF40 ... AF65	3 0	1 1	4 max.	or 1	or 1	or 1	or 1	+ 1		–	–
			4 max.	or 1	or 1	or 1	or 1	–	+	–	1
AF80, AF96	3 0	1 1	4 max.	–	or 1	or 1	or 1	+ 1		–	–
			4 max.	–	or 1	or 1	or 1	–	+	–	1

(1) Use WA4 for AF09...AF65 and WA4-96 for AF80, AF96.
Accept 1-pole CA4 auxiliary contacts on each side of the mechanical latch.

Overload relays fitting details (2)

Contactor types	Thermal overload relays	Electronic overload relays
AF40 ... AF65	TF65 (22...67 A)	EF65 (20...70 A)
AF80, AF96	TF96 (40...96 A)	EF96 (36...100 A)

The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.
(2) Direct mounting - No kit required.

AF116 ... AF146 3-pole contactors

55 to 75 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF146-30-11



1SFC101008V0001

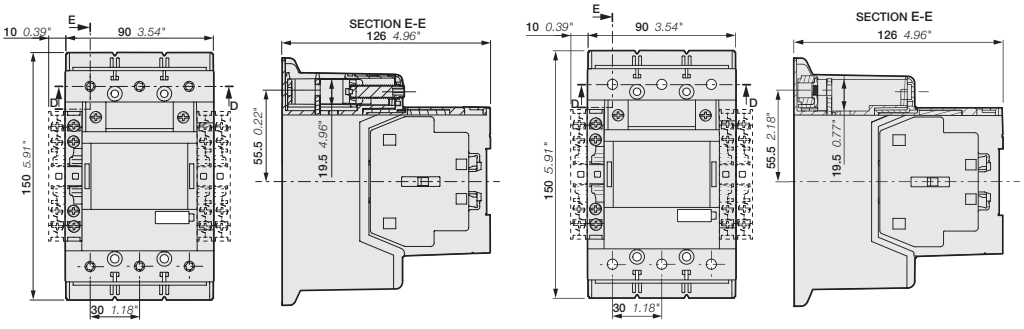
AF146-30-11B

AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 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 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		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power	current θ ≤ 40 °C	3-phase motor rating	General use rating						Pkg (1 pce)
400 V		480 V	600 V AC						
AC-3	AC-1								
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	24...60	20...60	1 1	AF116-30-11-11	1SFL427001R1111	1.750
				48...130	48...130	1 1	AF116-30-11-12	1SFL427001R1211	1.750
				100...250	100...250	1 1	AF116-30-11-13	1SFL427001R1311	1.750
				250...500	250...500	1 1	AF116-30-11-14	1SFL427001R1411	1.750
75	200	100	200	24...60	20...60	1 1	AF140-30-11-11	1SFL447001R1111	1.750
				48...130	48...130	1 1	AF140-30-11-12	1SFL447001R1211	1.750
				100...250	100...250	1 1	AF140-30-11-13	1SFL447001R1311	1.750
				250...500	250...500	1 1	AF140-30-11-14	1SFL447001R1411	1.750
75	225	100	200	24...60	20...60	1 1	AF146-30-11-11	1SFL467001R1111	1.750
				48...130	48...130	1 1	AF146-30-11-12	1SFL467001R1211	1.750
				100...250	100...250	1 1	AF146-30-11-13	1SFL467001R1311	1.750
				250...500	250...500	1 1	AF146-30-11-14	1SFL467001R1411	1.750
With bar connections									
55	160	75	160	24...60	20...60	1 1	AF116-30-11B-11	1SFL427002R1111	1.500
				48...130	48...130	1 1	AF116-30-11B-12	1SFL427002R1211	1.500
				100...250	100...250	1 1	AF116-30-11B-13	1SFL427002R1311	1.500
				250...500	250...500	1 1	AF116-30-11B-14	1SFL427002R1411	1.500
75	200	100	200	24...60	20...60	1 1	AF140-30-11B-11	1SFL447002R1111	1.500
				48...130	48...130	1 1	AF140-30-11B-12	1SFL447002R1211	1.500
				100...250	100...250	1 1	AF140-30-11B-13	1SFL447002R1311	1.500
				250...500	250...500	1 1	AF140-30-11B-14	1SFL447002R1411	1.500
75	225	100	200	24...60	20...60	1 1	AF146-30-11B-11	1SFL467002R1111	1.500
				48...130	48...130	1 1	AF146-30-11B-12	1SFL467002R1211	1.500
				100...250	100...250	1 1	AF146-30-11B-13	1SFL467002R1311	1.500
				250...500	250...500	1 1	AF146-30-11B-14	1SFL467002R1411	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF116, AF140, AF146-30-11

AF116, AF140, AF146-30-11B

Main dimensions mm, inches

AF116 ... AF146 3-pole contactors with built-in PLC interface

55 to 75 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts for faster opening utilization



AF146-30-11



AF146-30-11B

AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 V DC. These contactors are of the block type design with 3 main poles.

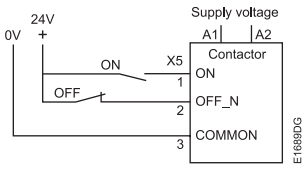
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

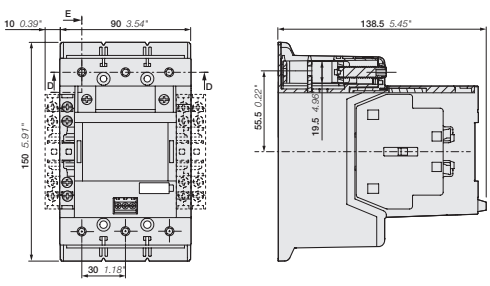
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power	current θ ≤ 40 °C	3-phase motor rating	General use rating						Pkg (1 pce)
400 V		480 V	600 V AC						
AC-3	AC-1								
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	100...250	100...250	1 1	AF116-30-11-33	1SFL427001R3311	1.750
				250...500	250...500	1 1	AF116-30-11-34	1SFL427001R3411	1.750
75	200	100	200	100...250	100...250	1 1	AF140-30-11-33	1SFL447001R3311	1.750
				250...500	250...500	1 1	AF140-30-11-34	1SFL447001R3411	1.750
75	225	100	200	100...250	100...250	1 1	AF146-30-11-33	1SFL467001R3311	1.750
				250...500	250...500	1 1	AF146-30-11-34	1SFL467001R3411	1.750
With bar connections									
55	160	75	160	100...250	100...250	1 1	AF116-30-11B-33	1SFL427002R3311	1.500
				250...500	250...500	1 1	AF116-30-11B-34	1SFL427002R3411	1.500
75	200	100	200	100...250	100...250	1 1	AF140-30-11B-33	1SFL447002R3311	1.500
				250...500	250...500	1 1	AF140-30-11B-34	1SFL447002R3411	1.500
75	225	100	200	100...250	100...250	1 1	AF146-30-11B-33	1SFL467002R3311	1.500
				250...500	250...500	1 1	AF146-30-11B-34	1SFL467002R3411	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

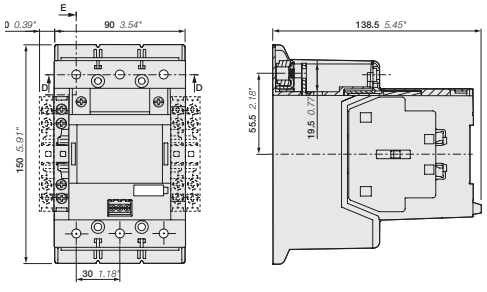
AF116 ... AF146 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF116, AF140, AF146-30-11



AF116, AF140, AF146-30-11B

Main dimensions mm, inches

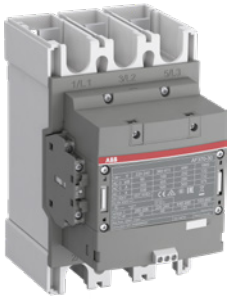
AF190 ... AF370 3-pole contactors

90 to 200 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF205-30-11



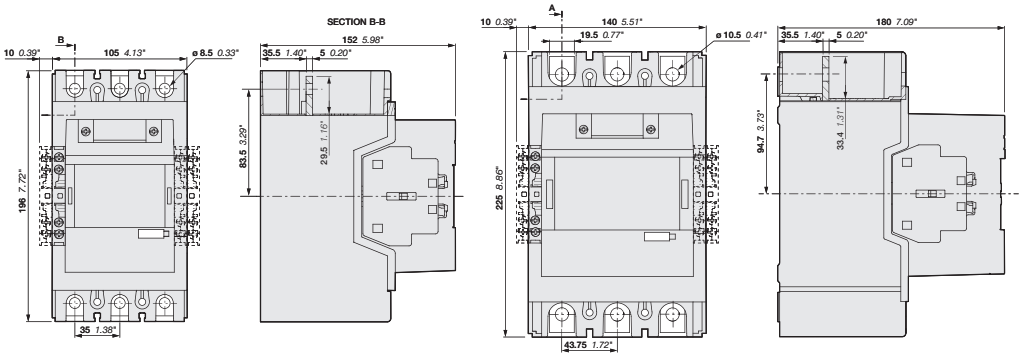
AF370-30-11

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and up to 340 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 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		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3 kW	current θ ≤ 40 °C AC-1 A	3-phase motor rating 480 V hp	General use rating 600 V AC A	V 50/60 Hz	V DC				Pkg (1 pce) kg
90	275	125	250	24...60	20...60	1 1	AF190-30-11-11	1SFL487002R1111	3.000
				48...130	48...130	1 1	AF190-30-11-12	1SFL487002R1211	3.000
				100...250	100...250	1 1	AF190-30-11-13	1SFL487002R1311	3.000
				250...500	250...500	1 1	AF190-30-11-14	1SFL487002R1411	3.000
110	350	150	300	24...60	20...60	1 1	AF205-30-11-11	1SFL527002R1111	3.000
				48...130	48...130	1 1	AF205-30-11-12	1SFL527002R1211	3.000
				100...250	100...250	1 1	AF205-30-11-13	1SFL527002R1311	3.000
				250...500	250...500	1 1	AF205-30-11-14	1SFL527002R1411	3.000
132	400	200	350	24...60	20...60	1 1	AF265-30-11-11	1SFL547002R1111	4.640
				48...130	48...130	1 1	AF265-30-11-12	1SFL547002R1211	4.640
				100...250	100...250	1 1	AF265-30-11-13	1SFL547002R1311	4.640
				250...500	250...500	1 1	AF265-30-11-14	1SFL547002R1411	4.640
160	500	250	400	24...60	20...60	1 1	AF305-30-11-11	1SFL587002R1111	4.640
				48...130	48...130	1 1	AF305-30-11-12	1SFL587002R1211	4.640
				100...250	100...250	1 1	AF305-30-11-13	1SFL587002R1311	4.640
				250...500	250...500	1 1	AF305-30-11-14	1SFL587002R1411	4.640
200	600	300	520	24...60	20...60	1 1	AF370-30-11-11	1SFL607002R1111	4.640
				48...130	48...130	1 1	AF370-30-11-12	1SFL607002R1211	4.640
				100...250	100...250	1 1	AF370-30-11-13	1SFL607002R1311	4.640
				250...500	250...500	1 1	AF370-30-11-14	1SFL607002R1411	4.640

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF190, AF205

AF265, AF305, AF370

Main dimensions mm, inches

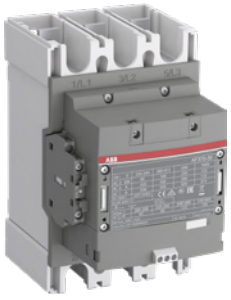
AF190 ... AF370 3-pole contactors with built-in PLC interface

90 to 200 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts for faster opening utilization



AF205-30-11



AF370-30-11

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and up to 340 V DC. These contactors are of the block type design with 3 main poles.

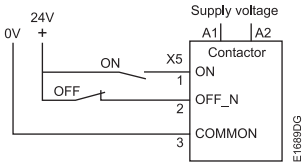
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

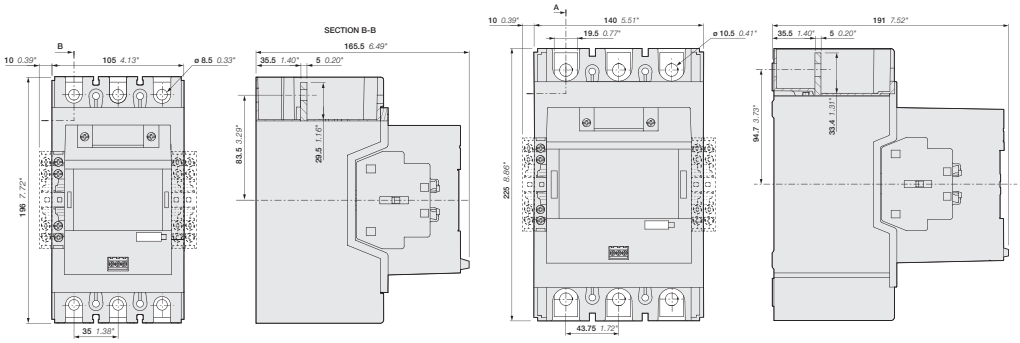
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	100...250	100...250	1 1	AF190-30-11-33	1SFL487002R3311	3.000
				250...500	250...500	1 1	AF190-30-11-34	1SFL487002R3411	3.000
110	350	150	300	100...250	100...250	1 1	AF205-30-11-33	1SFL527002R3311	3.000
				250...500	250...500	1 1	AF205-30-11-34	1SFL527002R3411	3.000
132	400	200	350	100...250	100...250	1 1	AF265-30-11-33	1SFL547002R3311	4.640
				250...500	250...500	1 1	AF265-30-11-34	1SFL547002R3411	4.640
160	500	250	400	100...250	100...250	1 1	AF305-30-11-33	1SFL587002R3311	4.640
				250...500	250...500	1 1	AF305-30-11-34	1SFL587002R3411	4.640
200	600	300	520	100...250	100...250	1 1	AF370-30-11-33	1SFL607002R3311	4.640
				250...500	250...500	1 1	AF370-30-11-34	1SFL607002R3411	4.640

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AF190 ... AF370 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





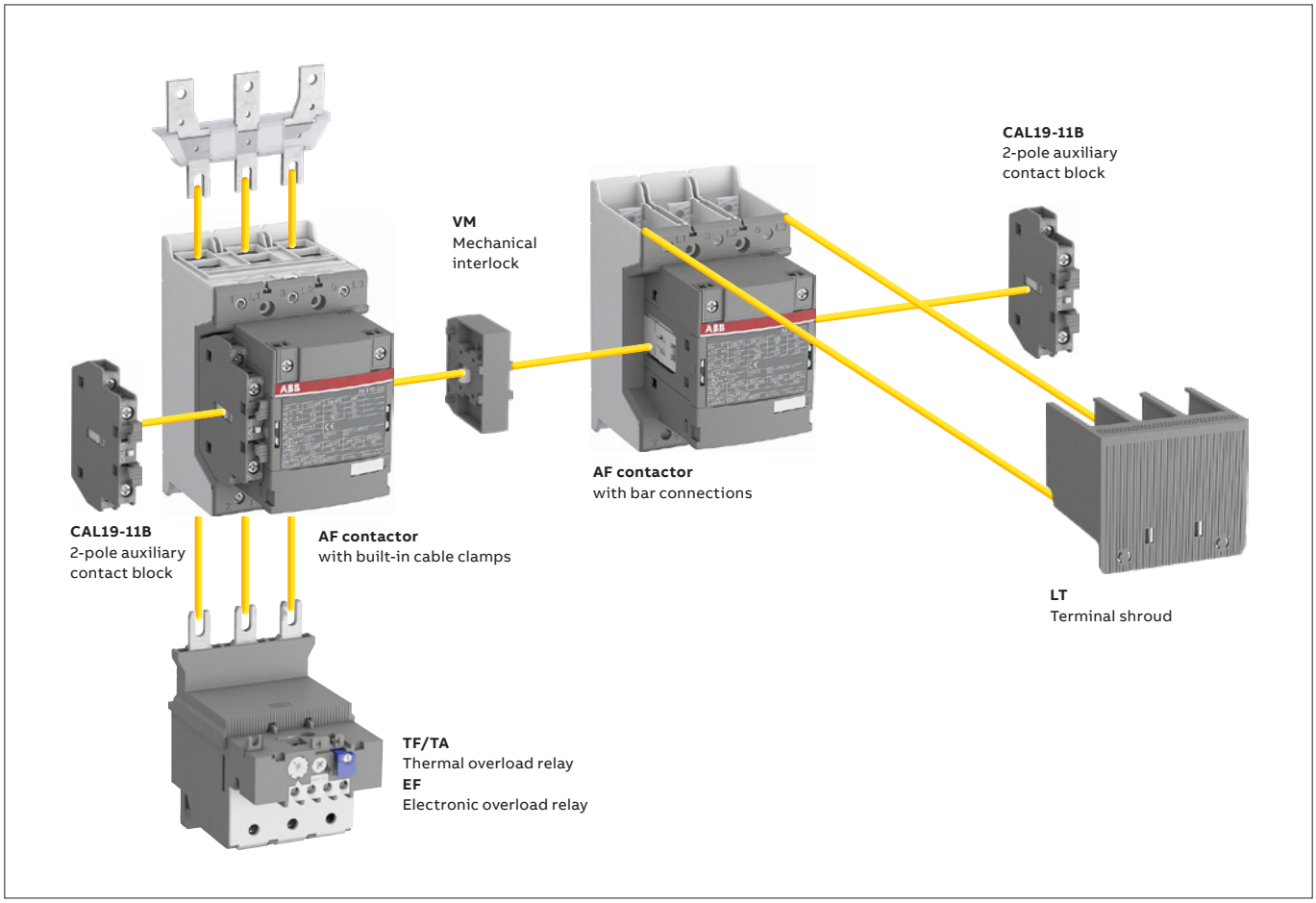
AF190, AF205

AF265, AF305, AF370

Main dimensions mm, inches

AF116 ... AF370 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks		Mechanical interlock units (between two contactors)
			CAL19-11 (3)	CAL19-11B (3)	
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").
(3) The CEL19 auxiliary contact blocks can replace the CAL19-11 and CAL19-11B. Though, no auxiliary contact block can be mounted outside the CEL19.

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.

AF400 ... AF750 3-pole contactors

200 to 400 kW

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF460-30-11



AF750-30-11

AF400 ... AF750 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC or 600 V DC (2). These contactors are of the block type design with 3 main poles.

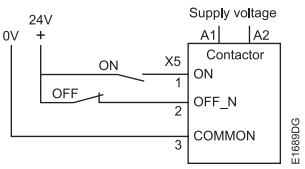
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - 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.

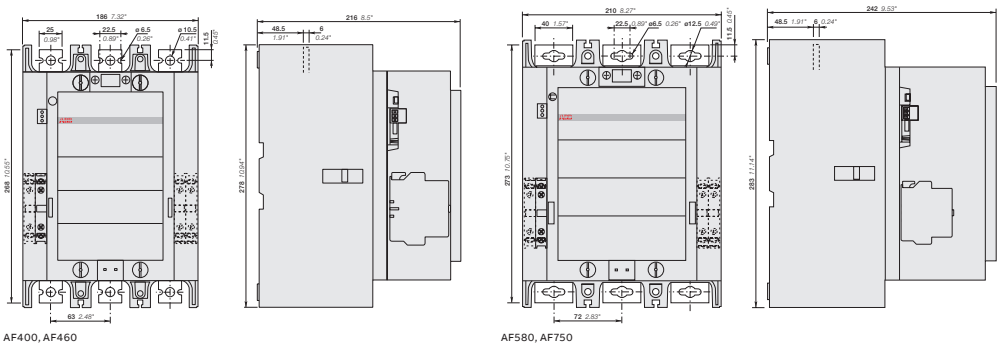
IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
200	600	350	550	-	24...60	1 1	AF400-30-11	1SFL577001R6811 (1)	12.000
				48...130	48...130	1 1	AF400-30-11	1SFL577001R6911	12.000
				100...250	100...250	1 1	AF400-30-11	1SFL577001R7011	12.000
				250...500	250...500	1 1	AF400-30-11	1SFL577001R7111	12.000
250	700	400	650	-	24...60	1 1	AF460-30-11	1SFL597001R6811 (1)	12.000
				48...130	48...130	1 1	AF460-30-11	1SFL597001R6911	12.000
				100...250	100...250	1 1	AF460-30-11	1SFL597001R7011	12.000
				250...500	250...500	1 1	AF460-30-11	1SFL597001R7111	12.000
315	800	500	750	-	24...60	1 1	AF580-30-11	1SFL617001R6811 (1)	15.000
				48...130	48...130	1 1	AF580-30-11	1SFL617001R6911	15.000
				100...250	100...250	1 1	AF580-30-11	1SFL617001R7011	15.000
				250...500	250...500	1 1	AF580-30-11	1SFL617001R7111	15.000
400	1050	600	900	-	24...60	1 1	AF750-30-11	1SFL637001R6811 (1)	15.000
				48...130	48...130	1 1	AF750-30-11	1SFL637001R6911	15.000
				100...250	100...250	1 1	AF750-30-11	1SFL637001R7011	15.000
				250...500	250...500	1 1	AF750-30-11	1SFL637001R7111	15.000

(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.
(2) Up to 850 V DC for AF580, AF750.

AF400 ... AF750 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF400, AF460

AF580, AF750

Main dimensions mm, inches

AF1250 ... AF2850 3-pole contactors

475 to 560 kW and 1260 to 2850 A AC-1

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF1250-30-11



AF2650-30-11

AF1250 ... AF2050 contactors are mainly used for controlling power circuits up to 1000 V AC or 850 V DC, AF2650 and AF2850 for controlling power 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 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 ... AF2850 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

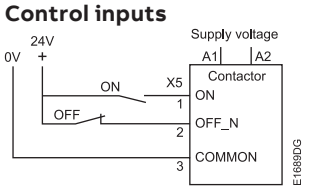
• add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc (1)		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC (2)						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
-	1260	-	1210	-	24...60	1 1	AF1250-30-11	1SFL647001R6811 (1)	16.000
				48...130	48...130	1 1	AF1250-30-11	1SFL647001R6911	16.000
				100...250	100...250	1 1	AF1250-30-11	1SFL647001R7011	16.000
				250...500	250...500	1 1	AF1250-30-11	1SFL647001R7111	16.000
475	1350	800	1350	100...250	100...250	1 1	AF1350-30-11	1SFL657001R7011	34.000
560	1650	900	1650	100...250	100...250	1 1	AF1650-30-11	1SFL677001R7011	35.000
-	2050	-	2100	100...250	100...250	1 1	AF2050-30-11	1SFL707001R7011	35.000
-	2650	-	2700	100...250	100...250	1 1	AF2650-30-11	1SFL667001R7011	45.000
-	2850	-	2850	100...250	100...250	1 1	AF2850-30-11	1SFL687001R7011	45.000

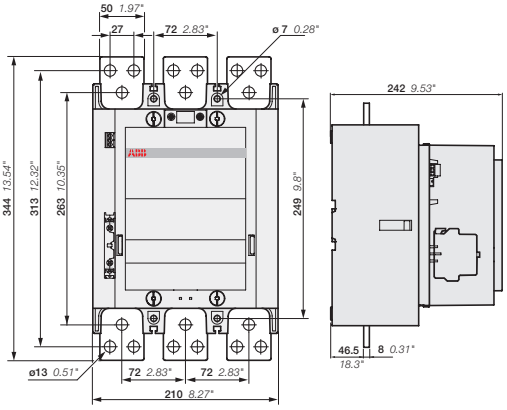
(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.(2) AF2650: Maximum operational voltage = 1000 V according to UL / CSA.

AF1250 ... AF2850 are equipped with low voltage inputs for control, for example by a PLC

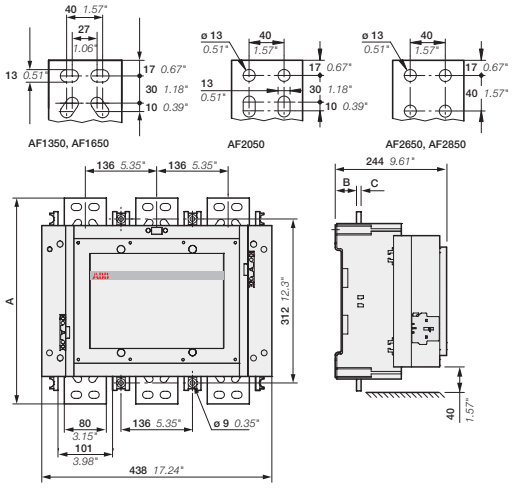
Control inputs



	AF1350, AF1650, AF2050	AF2650, AF2850
A	392 mm / 15.43"	422 mm / 16.61"
B	47 mm / 1.85"	53 mm / 2.09"
C	10 mm / 0.39"	25 mm / 0.98"



AF1250



AF1350, AF1650, AF2050, AF2650, AF2850

Main dimensions mm, inches

AF1350T ... AF2850T 3-pole contactors with built-in LVRT

475 to 560 kW and 1350 to 2850 A AC-1

AC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF2650-30T-11

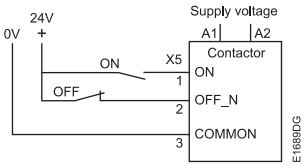
AF1350T .. AF2850T contactors are designed to meet the Low Voltage Ride Through requirements for grid connections withstand voltage drop-outs up to 1 sec without opening. These contactors are often used in grid connected applications where the demand of non interrupted power is required. When controlled through built-in PLC connection the contactor is operated directly without delay function.

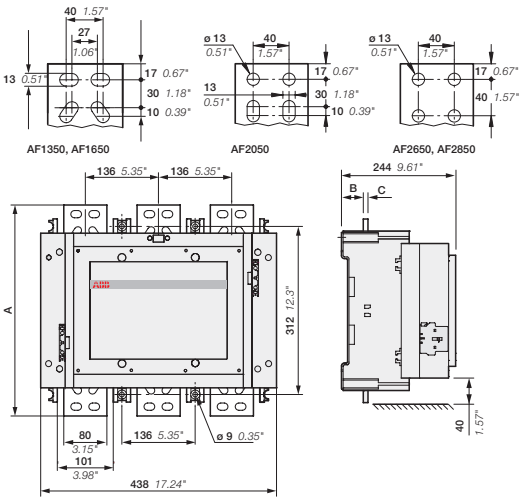
- Control circuit: AC or DC operated with electronic coil interface
  - can withstand voltage drop-outs according to Low Voltage Ride Through requirements
  - equipped with low voltage inputs for direct control by a PLC
  - distinct closing and opening
  - add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc	Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC					Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz				kg
475	1350	800	1350	220 ... 240	1 1	AF1350T-30-11 (1)	1SFL657001R9101	34.000
560	1650	900	1650	220 ... 240	1 1	AF1650T-30-11 (1)	1SFL677001R9101	35.000
-	2050	-	2100	220 ... 240	1 1	AF2050T-30-11 (1)	1SFL707001R9101	35.000
-	2650	-	2700	220 ... 240	1 1	AF2650T-30-11 (1)	1SFL667001R9101	45.000
-	2850	-	2850	220 ... 240	1 1	AF2850T-30-11 (1)	1SFL687001R9101	45.000

(1) Types -00 and -22 on request.

Control inputs





AF1350T-30-11, AF1650T-30-11, AF2050T-30-11, AF2650T-30-11, AF2850T-30-10-11

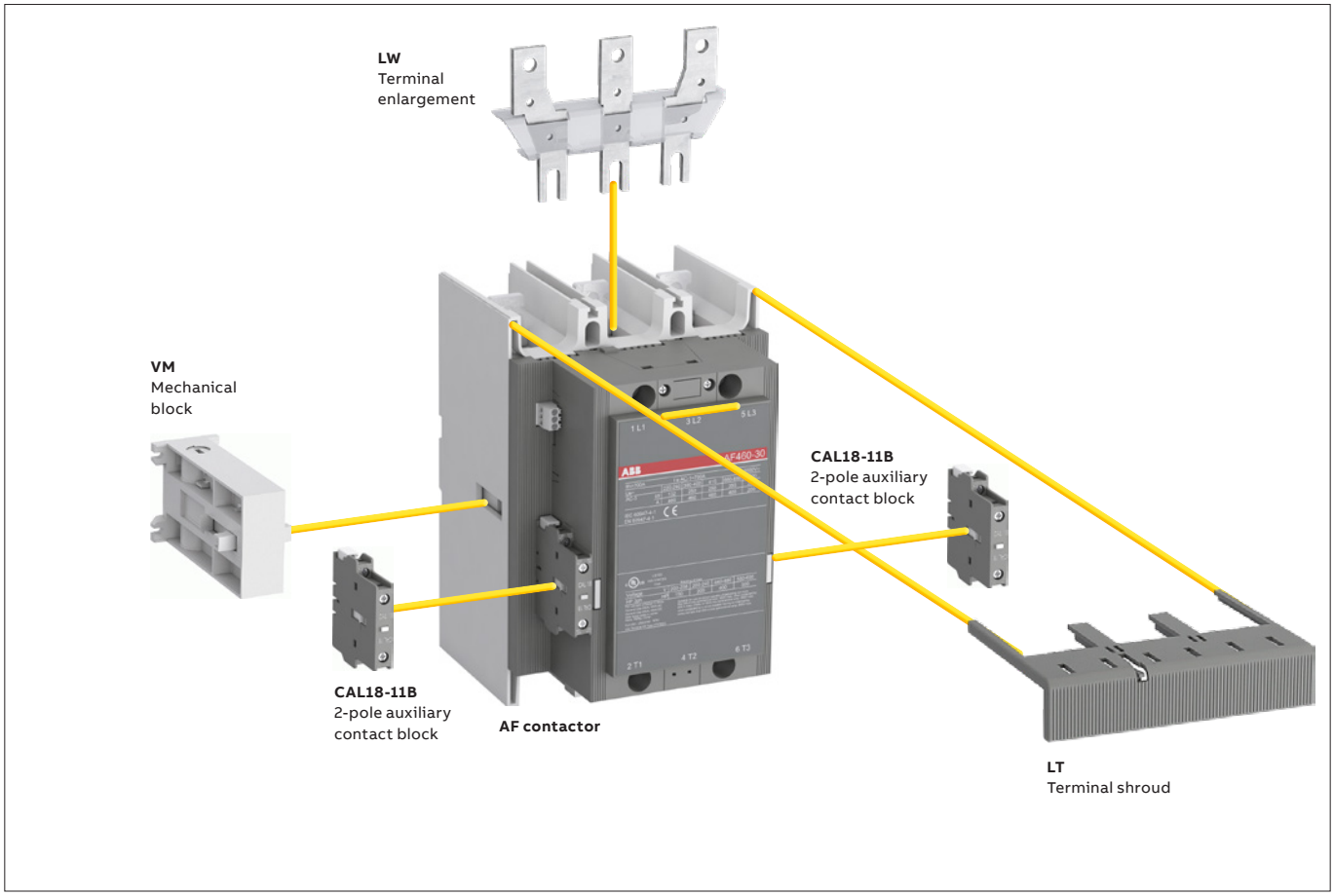
Main dimensions mm, inches

	AF1350, AF1650, AF2050	AF2650, AF2850
A	392 mm / 15.43"	422 mm / 16.61"
B	47 mm / 1.85"	53 mm / 2.09"
C	10 mm / 0.39"	25 mm / 0.98"

AF400 ... AF2850 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

Contactors and main accessories

Main accessories (other accessories available)



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks CAL18-11	 CAL18-11B (3)	Mechanical interlock units (between two contactors)
Contactors + auxiliary contact blocks					
AF400 ... AF2850	3 0	1 1	1 x CAL18-11	+ 2 x CAL18-11B	–
Contactors with mechanical interlocking + auxiliary contact blocks					
AF400 ... AF2850	3 0	1 1	2 x CAL18-11 (1)	+ 4 x CAL18-11B (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 CAL18-11 and CAL18-11B. 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 (150...500 A) (1)
AF580, AF750	–	EF750 (250...800 A) (1)
AF1350, AF1650	–	EF1250DU (375...1250 A) (1)

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) Mounting kit required (see "Motor protection").

AF09 ... AF38 3-pole contactors

4 to 18.5 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts



AF09-30-22



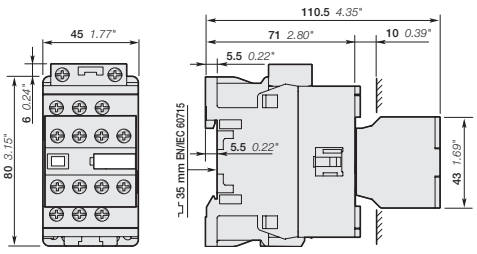
AF26-30-22

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 (1st stack):

- 2nd stack with 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 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 side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
4	25	5	25	24...60	20...60 (1)	2 2	AF09-30-22-11	1SBL137001R1122	0.320
				48...130	48...130	2 2	AF09-30-22-12	1SBL137001R1222	0.320
				100...250	100...250	2 2	AF09-30-22-13	1SBL137001R1322	0.320
				250...500	250...500	2 2	AF09-30-22-14	1SBL137001R1422	0.360
5.5	28	7.5	28	24...60	20...60 (1)	2 2	AF12-30-22-11	1SBL157001R1122	0.320
				48...130	48...130	2 2	AF12-30-22-12	1SBL157001R1222	0.320
				100...250	100...250	2 2	AF12-30-22-13	1SBL157001R1322	0.320
				250...500	250...500	2 2	AF12-30-22-14	1SBL157001R1422	0.360
7.5	30	10	30	24...60	20...60 (1)	2 2	AF16-30-22-11	1SBL177001R1122	0.320
				48...130	48...130	2 2	AF16-30-22-12	1SBL177001R1222	0.320
				100...250	100...250	2 2	AF16-30-22-13	1SBL177001R1322	0.320
				250...500	250...500	2 2	AF16-30-22-14	1SBL177001R1422	0.360
11	45	15	45	24...60	20...60 (1)	2 2	AF26-30-22-11	1SBL237001R1122	0.360
				48...130	48...130	2 2	AF26-30-22-12	1SBL237001R1222	0.360
				100...250	100...250	2 2	AF26-30-22-13	1SBL237001R1322	0.360
				250...500	250...500	2 2	AF26-30-22-14	1SBL237001R1422	0.400
15	50	20	50	24...60	20...60 (1)	2 2	AF30-30-22-11	1SBL277001R1122	0.360
				48...130	48...130	2 2	AF30-30-22-12	1SBL277001R1222	0.360
				100...250	100...250	2 2	AF30-30-22-13	1SBL277001R1322	0.360
				250...500	250...500	2 2	AF30-30-22-14	1SBL277001R1422	0.400
18.5	50	25	50	24...60	20...60 (1)	2 2	AF38-30-22-11	1SBL297001R1122	0.360
				48...130	48...130	2 2	AF38-30-22-12	1SBL297001R1222	0.360
				100...250	100...250	2 2	AF38-30-22-13	1SBL297001R1322	0.360
				250...500	250...500	2 2	AF38-30-22-14	1SBL297001R1422	0.400

(1) AF..-30-..-11 not suitable for direct control by PLC-output.



AF09, AF12, AF16

AF26, AF30, AF38

Main dimensions mm, inches

AF09Z ... AF38Z 3-pole contactors

4 to 18.5 kW

AC / DC operated for specific applications with 2 N.O. + 2 N.C. auxiliary contacts



AF09Z-30-22



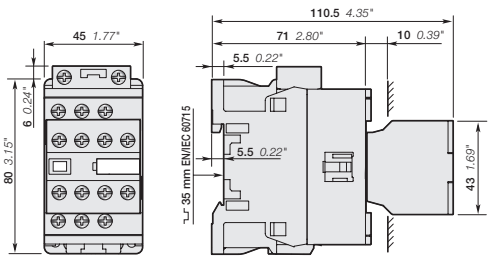
AF26Z-30-22

AF09Z ... AF38Z 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 (1st stack):

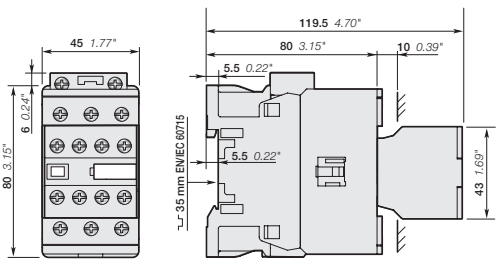
- 2nd stack with permanently fixed auxiliary contact block. The built-in auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
  - can manage large control voltage variations,
  - allow direct control by PLC-output ≥ 24 V DC 500 mA,
  - reduced panel energy consumption,
  - very distinct closing and opening,
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
4	25	5	25	-	12...20	2 2	AF09Z-30-22-20	1SBL136001R2022	0.360
				24...60	20...60	2 2	AF09Z-30-22-21	1SBL136001R2122	0.360
				48...130	48...130	2 2	AF09Z-30-22-22	1SBL136001R2222	0.360
				100...250	100...250	2 2	AF09Z-30-22-23	1SBL136001R2322	0.360
5.5	28	7.5	28	-	12...20	2 2	AF12Z-30-22-20	1SBL156001R2022	0.360
				24...60	20...60	2 2	AF12Z-30-22-21	1SBL156001R2122	0.360
				48...130	48...130	2 2	AF12Z-30-22-22	1SBL156001R2222	0.360
				100...250	100...250	2 2	AF12Z-30-22-23	1SBL156001R2322	0.360
7.5	30	10	30	-	12...20	2 2	AF16Z-30-22-20	1SBL176001R2022	0.360
				24...60	20...60	2 2	AF16Z-30-22-21	1SBL176001R2122	0.360
				48...130	48...130	2 2	AF16Z-30-22-22	1SBL176001R2222	0.360
				100...250	100...250	2 2	AF16Z-30-22-23	1SBL176001R2322	0.360
11	45	15	45	-	12...20	2 2	AF26Z-30-22-20	1SBL236001R2022	0.400
				24...60	20...60	2 2	AF26Z-30-22-21	1SBL236001R2122	0.400
				48...130	48...130	2 2	AF26Z-30-22-22	1SBL236001R2222	0.400
				100...250	100...250	2 2	AF26Z-30-22-23	1SBL236001R2322	0.400
15	50	20	50	-	12...20	2 2	AF30Z-30-22-20	1SBL276001R2022	0.400
				24...60	20...60	2 2	AF30Z-30-22-21	1SBL276001R2122	0.400
				48...130	48...130	2 2	AF30Z-30-22-22	1SBL276001R2222	0.400
				100...250	100...250	2 2	AF30Z-30-22-23	1SBL276001R2322	0.400
18.5	50	25	50	-	12...20	2 2	AF38Z-30-22-20	1SBL296001R2022	0.400
				24...60	20...60	2 2	AF38Z-30-22-21	1SBL296001R2122	0.400
				48...130	48...130	2 2	AF38Z-30-22-22	1SBL296001R2222	0.400
				100...250	100...250	2 2	AF38Z-30-22-23	1SBL296001R2322	0.400

Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole



AF09Z, AF12Z, AF16Z



AF26Z, AF30Z, AF38Z

Main dimensions mm, inches

AF40 ... AF96 3-pole contactors

18.5 to 30 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts



AF40-30-22



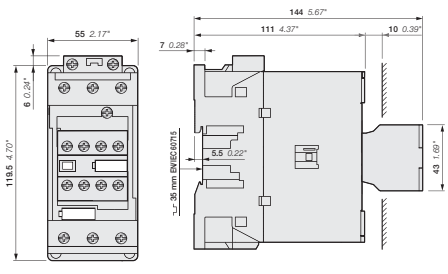
AF80-30-22

AF40 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and 220 V DC. These contactors are of the block type design with 3 main poles (1st stack):

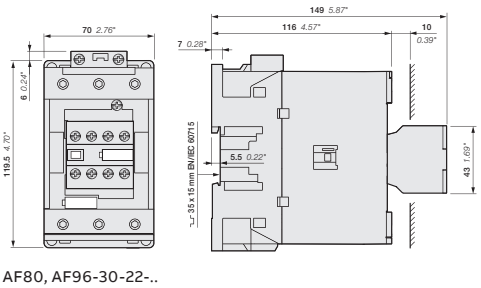
- 2nd stack with permanently fixed auxiliary contact block. The built-in auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (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
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
18.5	70	30	60	24...60	20...60 (1)	2 2	AF40-30-22-11	1SBL347001R1122	1.020
				48...130	48...130	2 2	AF40-30-22-12	1SBL347001R1222	1.020
				100...250	100...250	2 2	AF40-30-22-13	1SBL347001R1322	1.000
				250...500	250...500	2 2	AF40-30-22-14	1SBL347001R1422	1.000
22	100	40	80	24...60	20...60 (1)	2 2	AF52-30-22-11	1SBL367001R1122	1.020
				48...130	48...130	2 2	AF52-30-22-12	1SBL367001R1222	1.020
				100...250	100...250	2 2	AF52-30-22-13	1SBL367001R1322	1.000
				250...500	250...500	2 2	AF52-30-22-14	1SBL367001R1422	1.000
30	105	50	90	24...60	20...60 (1)	2 2	AF65-30-22-11	1SBL387001R1122	1.020
				48...130	48...130	2 2	AF65-30-22-12	1SBL387001R1222	1.020
				100...250	100...250	2 2	AF65-30-22-13	1SBL387001R1322	1.000
				250...500	250...500	2 2	AF65-30-22-14	1SBL387001R1422	1.000
37	125	60	105	24...60	20...60 (1)	2 2	AF80-30-22-11	1SBL397001R1122	1.270
				48...130	48...130	2 2	AF80-30-22-12	1SBL397001R1222	1.270
				100...250	100...250	2 2	AF80-30-22-13	1SBL397001R1322	1.220
				250...500	250...500	2 2	AF80-30-22-14	1SBL397001R1422	1.220
45	130	60	115	24...60	20...60 (1)	2 2	AF96-30-22-11	1SBL407001R1122	1.270
				48...130	48...130	2 2	AF96-30-22-12	1SBL407001R1222	1.270
				100...250	100...250	2 2	AF96-30-22-13	1SBL407001R1322	1.220
				250...500	250...500	2 2	AF96-30-22-14	1SBL407001R1422	1.220

(1) For control by PLC-output, use RA4 interface relay.



AF40, AF52, AF65-30-22-..

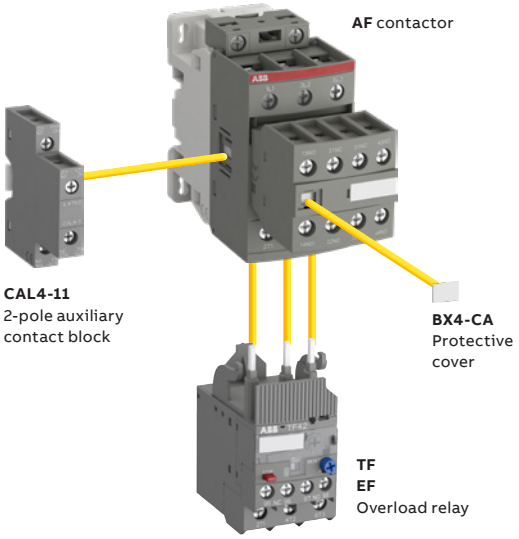


AF80, AF96-30-22-..

Main dimensions mm, inches

AF09 ... AF96 3-pole contactors with 2 N.O. + 2 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Built-in auxiliary contacts	Side-mounted accessories Mechanical interlock unit (between 2 contactors)	Auxiliary contact blocks	
			VM..	2-pole CAL4-11 Left side	Right side
AF09 ... AF38	3 0	2 2	1	+ 1	**or** 1
AF40 ... AF96	3 0	2 2	1	+ 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 (20...70 A)
AF80 , AF96	TF96 (40...96 A)	EF96 (36...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.

AF116 ... AF146 3-pole contactors

55 to 75 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts



AF146-30-22



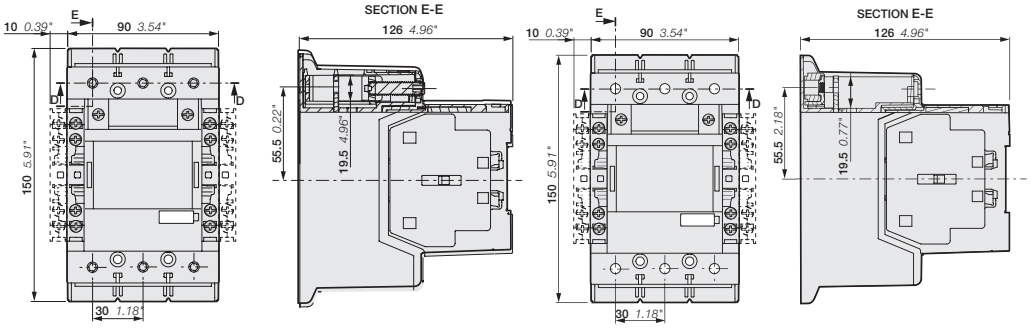
AF146-30-22B

AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 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 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		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3 kW	current θ ≤ 40 °C AC-1 A	3-phase motor rating 480 V hp	General use rating 600 V AC A	V 50/60 Hz	V DC				Pkg (1 pce) kg
For connection with built-in cable clamps									
55	160	75	160	24...60	20...60	2 2	AF116-30-22-11	1SFL427001R1122	1.750
				48...130	48...130	2 2	AF116-30-22-12	1SFL427001R1222	1.750
				100...250	100...250	2 2	AF116-30-22-13	1SFL427001R1322	1.750
				250...500	250...500	2 2	AF116-30-22-14	1SFL427001R1422	1.750
75	200	100	200	24...60	20...60	2 2	AF140-30-22-11	1SFL447001R1122	1.750
				48...130	48...130	2 2	AF140-30-22-12	1SFL447001R1222	1.750
				100...250	100...250	2 2	AF140-30-22-13	1SFL447001R1322	1.750
				250...500	250...500	2 2	AF140-30-22-13	1SFL447001R1422	1.750
75	225	100	200	24...60	20...60	2 2	AF146-30-22-11	1SFL467001R1122	1.750
				48...130	48...130	2 2	AF146-30-22-12	1SFL467001R1222	1.750
				100...250	100...250	2 2	AF146-30-22-13	1SFL467001R1322	1.750
				250...500	250...500	2 2	AF146-30-22-14	1SFL467001R1422	1.750
With bar connections									
55	160	75	160	24...60	20...60	2 2	AF116-30-22B-11	1SFL427002R1122	1.500
				48...130	48...130	2 2	AF116-30-22B-12	1SFL427002R1222	1.500
				100...250	100...250	2 2	AF116-30-22B-13	1SFL427002R1322	1.500
				250...500	250...500	2 2	AF116-30-22B-14	1SFL427002R1422	1.500
75	200	100	200	24...60	20...60	2 2	AF140-30-22B-11	1SFL447002R1122	1.500
				48...130	48...130	2 2	AF140-30-22B-12	1SFL447002R1222	1.500
				100...250	100...250	2 2	AF140-30-22B-13	1SFL447002R1322	1.500
				250...500	250...500	2 2	AF140-30-22B-14	1SFL447002R1422	1.500
75	225	100	200	24...60	20...60	2 2	AF146-30-22B-11	1SFL467002R1122	1.500
				48...130	48...130	2 2	AF146-30-22B-12	1SFL467002R1222	1.500
				100...250	100...250	2 2	AF146-30-22B-13	1SFL467002R1322	1.500
				250...500	250...500	2 2	AF146-30-22B-14	1SFL467002R1422	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF116, AF140, AF146-30-22

AF116, AF140, AF146-30-22B

Main dimensions mm, inches

AF116 ... AF146 3-pole contactors with built-in PLC interface

55 to 75 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts for faster opening utilization



AF146-30-22



AF146-30-22B

AF116 ... AF146 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 up to 1000 V AC and AF116 ... AF146 up to 260 V DC. These contactors are of the block type design with 3 main poles.

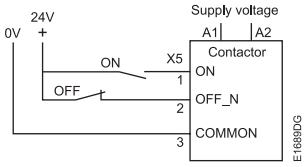
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

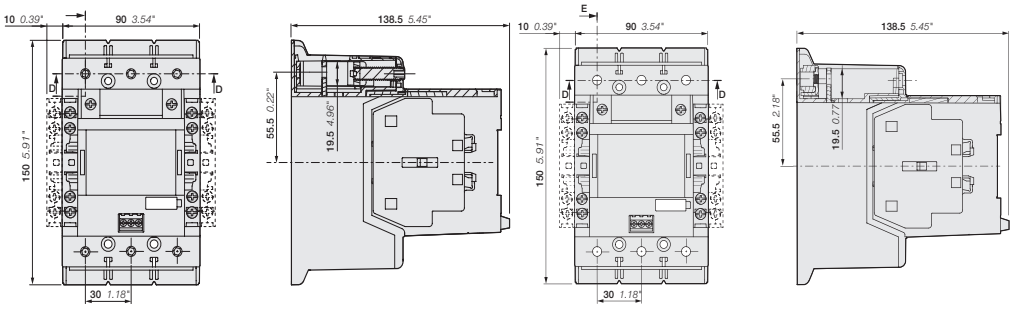
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	100...250	100...250	2 2	AF116-30-22-33	1SFL427001R3322	1.750
				250...500	250...500	2 2	AF116-30-22-34	1SFL427001R3422	1.750
75	200	100	200	100...250	100...250	2 2	AF140-30-22-33	1SFL447001R3322	1.750
				250...500	250...500	2 2	AF140-30-22-34	1SFL447001R3422	1.750
75	225	100	200	100...250	100...250	2 2	AF146-30-22-33	1SFL467001R3322	1.750
				250...500	250...500	2 2	AF146-30-22-34	1SFL467001R3422	1.750
With bar connections									
55	160	75	160	100...250	100...250	2 2	AF116-30-22B-33	1SFL427002R3322	1.500
				250...500	250...500	2 2	AF116-30-22B-34	1SFL427002R3422	1.500
75	200	100	200	100...250	100...250	2 2	AF140-30-22B-33	1SFL447002R3322	1.500
				250...500	250...500	2 2	AF140-30-22B-34	1SFL447002R3422	1.500
75	225	100	200	100...250	100...250	2 2	AF146-30-22B-33	1SFL467002R3322	1.500
				250...500	250...500	2 2	AF146-30-22B-34	1SFL467002R3422	1.500

For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AF116 ... AF146 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF116, AF140, AF146-30-22

AF116, AF140, AF146-30-22B

Main dimensions mm, inches

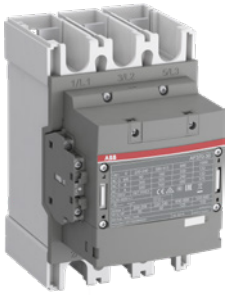
AF190 ... AF370 3-pole contactors

90 to 200 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts



AF205-30-22



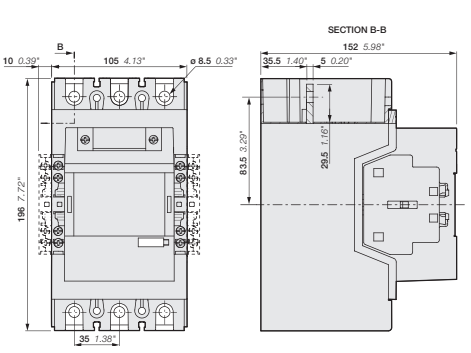
AF370-30-22

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and up to 340 V DC. These contactors are of the block type design with 3 main poles.

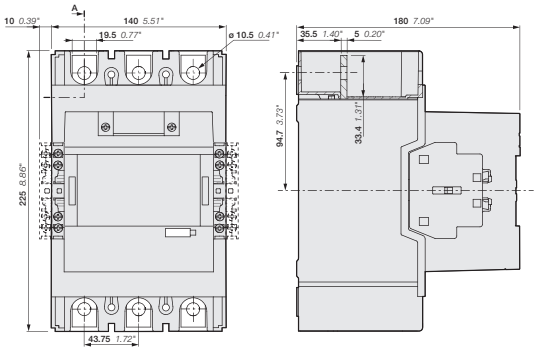
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - 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		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	24...60	20...60	2 2	AF190-30-22-11	1SFL487002R1122	3.000
				48...130	48...130	2 2	AF190-30-22-12	1SFL487002R1222	3.000
				100...250	100...250	2 2	AF190-30-22-13	1SFL487002R1322	3.000
				250...500	250...500	2 2	AF190-30-22-14	1SFL487002R1422	3.000
110	350	150	300	24...60	20...60	2 2	AF205-30-22-11	1SFL527002R1122	3.000
				48...130	48...130	2 2	AF205-30-22-12	1SFL527002R1222	3.000
				100...250	100...250	2 2	AF205-30-22-13	1SFL527002R1322	3.000
				250...500	250...500	2 2	AF205-30-22-14	1SFL527002R1422	3.000
132	400	200	350	24...60	20...60	2 2	AF265-30-22-11	1SFL547002R1122	4.675
				48...130	48...130	2 2	AF265-30-22-12	1SFL547002R1222	4.675
				100...250	100...250	2 2	AF265-30-22-13	1SFL547002R1322	4.675
				250...500	250...500	2 2	AF265-30-22-14	1SFL547002R1422	4.675
160	500	250	400	24...60	20...60	2 2	AF305-30-22-11	1SFL587002R1122	4.675
				48...130	48...130	2 2	AF305-30-22-12	1SFL587002R1222	4.675
				100...250	100...250	2 2	AF305-30-22-13	1SFL587002R1322	4.675
				250...500	250...500	2 2	AF305-30-22-14	1SFL587002R1422	4.675
200	600	300	520	24...60	20...60	2 2	AF370-30-22-11	1SFL607002R1122	4.675
				48...130	48...130	2 2	AF370-30-22-12	1SFL607002R1222	4.675
				100...250	100...250	2 2	AF370-30-22-13	1SFL607002R1322	4.675
				250...500	250...500	2 2	AF370-30-22-14	1SFL607002R1422	4.675

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AF190, AF205



AF265, AF305, AF370

Main dimensions mm, inches

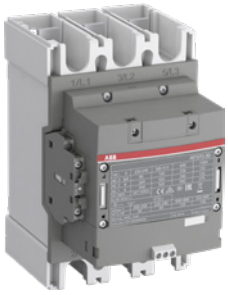
AF190 ... AF370 3-pole contactors with built-in PLC interface

90 to 200 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts for faster opening utilization



AF205-30-22



AF370-30-22

AF190 ... AF370 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC and up to 340 V DC. These contactors are of the block type design with 3 main poles.

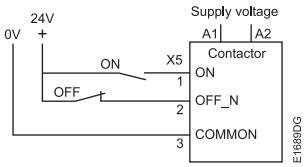
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request)
  - opening time below 20 ms.
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

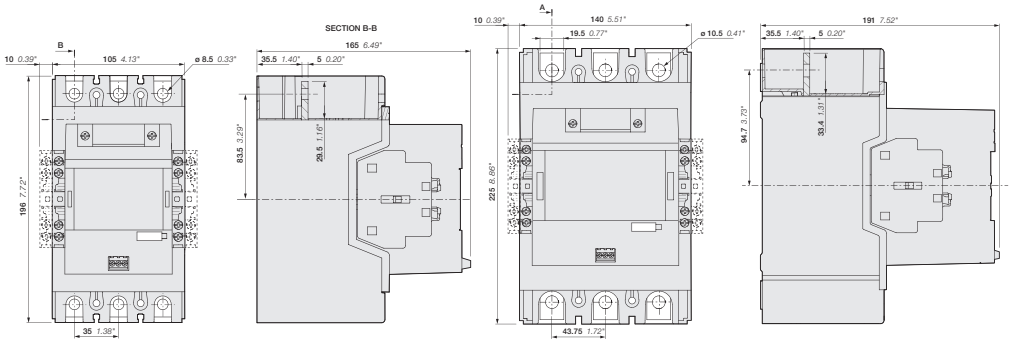
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	100...250	100...250	2 2	AF190-30-22-33	1SFL487002R3322	3.000
				250...500	250...500	2 2	AF190-30-22-34	1SFL487002R3422	3.000
110	350	150	300	100...250	100...250	2 2	AF205-30-22-33	1SFL527002R3322	3.000
				250...500	250...500	2 2	AF205-30-22-34	1SFL527002R3422	3.000
132	400	200	350	100...250	100...250	2 2	AF265-30-22-33	1SFL547002R3322	4.675
				250...500	250...500	2 2	AF265-30-22-34	1SFL547002R3422	4.675
160	500	250	400	100...250	100...250	2 2	AF305-30-22-33	1SFL587002R3322	4.675
				250...500	250...500	2 2	AF305-30-22-34	1SFL587002R3422	4.675
200	600	300	520	100...250	100...250	2 2	AF370-30-22-33	1SFL607002R3322	4.675
				250...500	250...500	2 2	AF370-30-22-34	1SFL607002R3422	4.675

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AF190 ... AF370 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF190, AF205

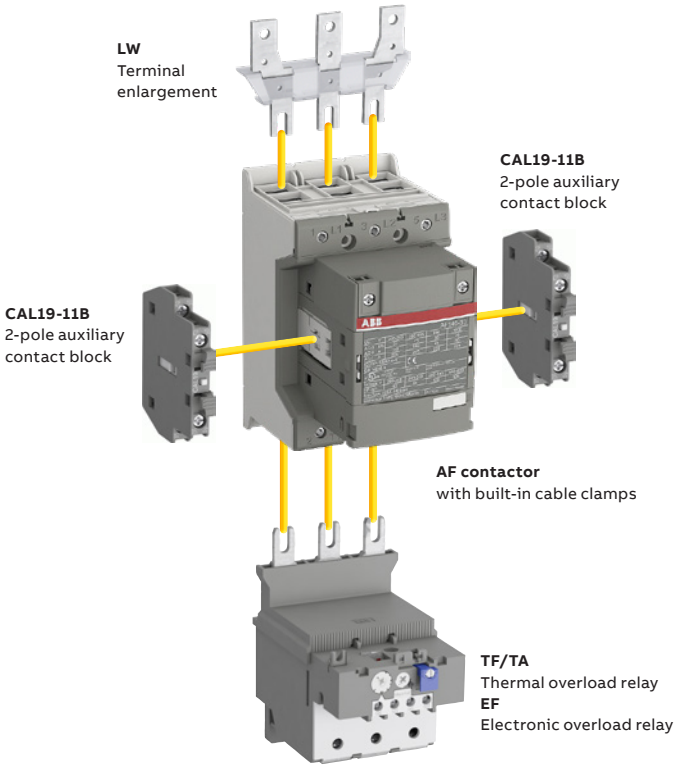
AF265, AF305, AF370

Main dimensions mm, inches

AF116 ... AF370 3-pole contactors with 2 N.O. + 2 N.C. auxiliary contacts

Contactors and main accessories

Main accessories (other accessories available)



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks		Mechanical interlock units (between two contactors)
			CAL19-11 (2)	CAL19-11B (2)	
AF116 ... AF370	3 0	2 2	2 x CAL19-11 included	+ 2 x CAL19-11B	–

(2) The CEL19 auxiliary contact blocks can replace the CAL19-11 and CAL19-11B. Though, no auxiliary contact block can be mounted outside the CEL19.

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.

AF400 ... AF750 3-pole contactors

200 to 400 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts



AF460-30-22



AF750-30-22

AF400 ... AF750 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC or 600 V DC (2). These contactors are of the block type design with 3 main poles.

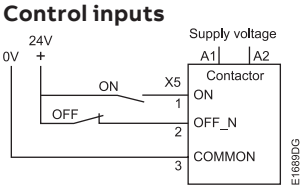
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - 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.

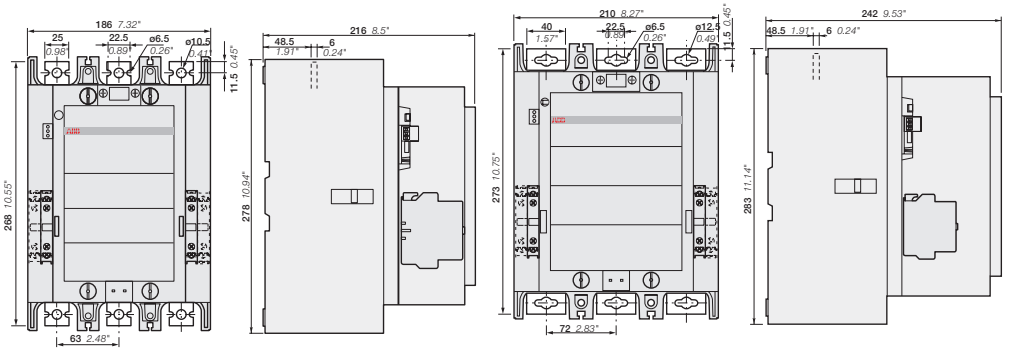
IEC		UL/CSA		Rated control circuit voltage Uc		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
200	600	350	550	-	24...60	2 2	AF400-30-22	1SFL577001R6822 (1)	12.000
				48...130	48...130	2 2	AF400-30-22	1SFL577001R6922	12.000
				100...250	100...250	2 2	AF400-30-22	1SFL577001R7022	12.000
				250...500	250...500	2 2	AF400-30-22	1SFL577001R7122	12.000
250	700	400	650	-	24...60	2 2	AF460-30-22	1SFL597001R6822 (1)	12.000
				48...130	48...130	2 2	AF460-30-22	1SFL597001R6922	12.000
				100...250	100...250	2 2	AF460-30-22	1SFL597001R7022	12.000
				250...500	250...500	2 2	AF460-30-22	1SFL597001R7122	12.000
315	800	500	750	-	24...60	2 2	AF580-30-22	1SFL617001R6822 (1)	15.000
				48...130	48...130	2 2	AF580-30-22	1SFL617001R6922	15.000
				100...250	100...250	2 2	AF580-30-22	1SFL617001R7022	15.000
				250...500	250...500	2 2	AF580-30-22	1SFL617001R7122	15.000
400	1050	600	900	-	24...60	2 2	AF750-30-22	1SFL637001R6822 (1)	15.000
				48...130	48...130	2 2	AF750-30-22	1SFL637001R6922	15.000
				100...250	100...250	2 2	AF750-30-22	1SFL637001R7022	15.000
				250...500	250...500	2 2	AF750-30-22	1SFL637001R7122	15.000

(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.
(2) Up to 850 V DC for AF580, AF750.

AF400...AF750 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AF400, AF460

AF580, AF750

Main dimensions mm, inches


32t

AFS 3-pole contactors dedicated for safety applications

	4 to 45 kW	
366	AFS09 ... AFS38	AC / DC operated with 2 N.O. + 2 N.C.
367	AFS40 ... AFS96	AC / DC operated with 2 N.O. + 2 N.C.
368	AFS09 ... AFS96	Main accessories
	55 to 200 kW	
369	AFS116 ... AFS146	AC / DC operated with 1 N.O. + 2 N.C.
370	AFS116 ... AFS146	AC / DC operated with 1 N.O. + 2 N.C. with built-in PLC interface
371	AFS190 ... AFS370	AC / DC operated with 1 N.O. + 2 N.C.
372	AFS190 ... AFS370	AC / DC operated with 1 N.O. + 2 N.C. with built-in PLC interface
	200 to 400 kW	
374	AFS400 ... AFS750	AC / DC operated with 1 N.O. + 2 N.C.
375	AFS400 ... AFS750	Main accessories

For direct product details information, use product type or order code, ex:

- www.abb.com/productdetails/**AF09-30-10-13**
- or www.abb.com/productdetails/**1SBL137001R1310**

AFS09 ... AFS38 3-pole contactors for safety applications

4 to 18.5 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts



AFS16-30-22



AFS38-30-22

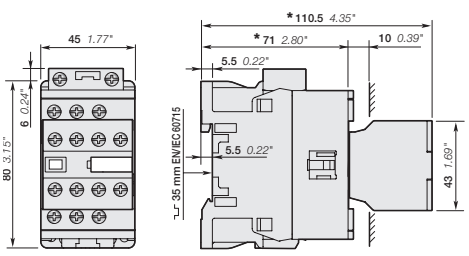
AFS09 ... AFS38 contactors are designed for machine safety applications. They are delivered with fixed front-mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits.

Mechanically linked and mirror contacts make your system safer.

- control circuit with electronic coil interface:
  - dedicated 24 V DC for direct control by PLC-output ≥ 250 mA, low holding consumption up to 1.7 W
  - 24...60 V AC, 20...60 V DC and 100...250 V AC / DC operated accepting a wide control voltage range
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- front-mounted auxiliary contact block:
  - permanently fixed
  - protective cover to prevent manual operation
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

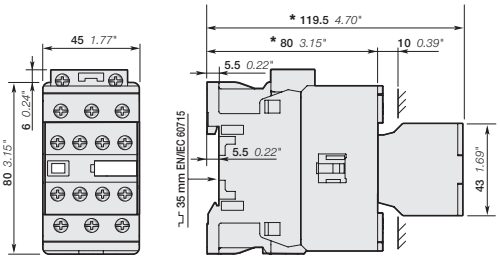
IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3, AC3-e	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
4	25	5	25	-	24	2 2	AFS09Z-30-22-30	1SBL136082R3022	0.490
				24 ... 60	20 ... 60 (1)	2 2	AFS09-30-22-11	1SBL137082R1122	0.320
				100 ... 250	100 ... 250	2 2	AFS09-30-22-13	1SBL137082R1322	0.320
5.5	28	7-1/2	28	-	24	2 2	AFS12Z-30-22-30	1SBL156082R3022	0.490
				24 ... 60	20 ... 60 (1)	2 2	AFS12-30-22-11	1SBL157082R1122	0.320
				100 ... 250	100 ... 250	2 2	AFS12-30-22-13	1SBL157082R1322	0.320
7.5	30	10	30	-	24	2 2	AFS16Z-30-22-30	1SBL176082R3022	0.490
				24 ... 60	20 ... 60 (1)	2 2	AFS16-30-22-11	1SBL177082R1122	0.320
				100 ... 250	100 ... 250	2 2	AFS16-30-22-13	1SBL177082R1322	0.320
11	45	15	45	-	24	2 2	AFS26Z-30-22-30	1SBL236082R3022	0.540
				24 ... 60	20 ... 60 (1)	2 2	AFS26-30-22-11	1SBL237082R1122	0.360
				100 ... 250	100 ... 250	2 2	AFS26-30-22-13	1SBL237082R1322	0.360
15	50	20	50	-	24	2 2	AFS30Z-30-22-30	1SBL276082R3022	0.540
				24 ... 60	20 ... 60	2 2	AFS30-30-22-11	1SBL277082R1122	0.360
				100 ... 250	100 ... 250 (1)	2 2	AFS30-30-22-13	1SBL277082R1322	0.360
18.5	50	25	50	-	24	2 2	AFS38Z-30-22-30	1SBL296082R3022	0.540
				24 ... 60	20 ... 60 (1)	2 2	AFS38-30-22-11	1SBL297082R1122	0.360
				100 ... 250	100 ... 250	2 2	AFS38-30-22-13	1SBL297082R1322	0.360

(1) AFS..-30-..-11 for control by transistor outputs of safety PLCs and safety relays use interface relay RA4 1SBN060100R1000.



AFS09, AFS12, AFS16

* For AFS09Z, AFS12Z, AFS16Z-30-22-30: depth + 20 mm (+ 0.79")



AFS26, AFS30, AFS38

* For AFS26Z, AFS30Z, AFS38Z-30-22-30: depth + 20 mm (+ 0.79")

Main dimensions mm, inches

AFS40 ... AFS96 3-pole contactors for safety applications

18.5 to 45 kW

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts



AFS65-30-22



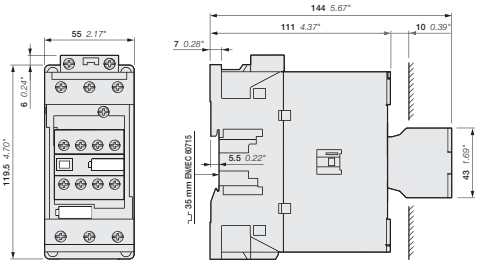
AFS96-30-22

AFS40 ... AFS96 contactors are designed for machine safety applications. They are delivered with fixed front-mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits. Mechanically linked and mirror contacts make your system safer.

- control circuit with electronic coil interface:
  - 24...60 V AC, 20...60 V DC and 100...250 V AC / DC operated accepting a wide control voltage range
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- front-mounted auxiliary contact block:
  - permanently fixed
  - protective cover to prevent manual operation
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

IEC		UL/CSA		Rated control circuit voltage Uc min. ... Uc max.			Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3, AC3-e	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC							Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC					kg
18.5	70	30	60	24 ... 60	20 ... 60	(1)	2 2	AFS40-30-22-11	1SBL347082R1122	1.020
				100 ... 250	100 ... 250		2 2	AFS40-30-22-13	1SBL347082R1322	1.000
22	100	40	80	24 ... 60	20 ... 60	(1)	2 2	AFS52-30-22-11	1SBL367082R1122	1.020
				100 ... 250	100 ... 250		2 2	AFS52-30-22-13	1SBL367082R1322	1.000
30	105	50	90	24 ... 60	20 ... 60	(1)	2 2	AFS65-30-22-11	1SBL387082R1122	1.020
				100 ... 250	100 ... 250		2 2	AFS65-30-22-13	1SBL387082R1322	1.000
37	125	60	105	24 ... 60	20 ... 60	(1)	2 2	AFS80-30-22-11	1SBL397082R1122	1.270
				100 ... 250	100 ... 250		2 2	AFS80-30-22-13	1SBL397082R1322	1.220
45	130	60	115	24 ... 60	20 ... 60	(1)	2 2	AFS96-30-22-11	1SBL407082R1122	1.270
				100 ... 250	100 ... 250		2 2	AFS96-30-22-13	1SBL407082R1322	1.220

(1) AFS..-30-..-11 for control by transistor outputs of safety PLCs and safety relays use interface relay RA4 1SBN060100R1000.

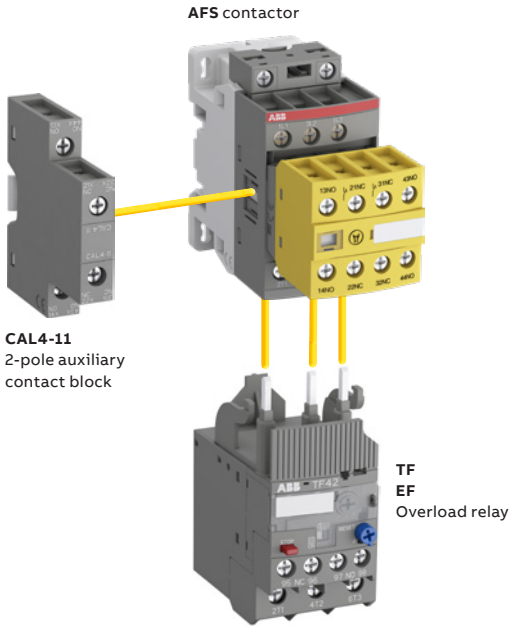


AFS40, AFS52, AFS65

AFS80, AFS96

Main dimensions mm, inches

AFS09 ... AFS96 3-pole contactors for safety applications
Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Built-in auxiliary contacts	Front-mounted accessories Auxiliary contact blocks 1-pole CA4	2-pole CAT4-11	4-pole CA4	Electronic timer TEF4	Mechanical interlock unit (between 2 contactors) VM..		Side-mounted accessories Auxiliary contact blocks 2-pole CAL4-11 Left side	Right side
AFS09 ... AFS38	3 0	2 2	–	–	–	–	1	+	1	**or** 1
AFS09Z ... AFS38Z	3 0	2 2	–	–	–	–	1		–	–
AFS40 ... AFS96	3 0	2 2	–	–	–	–	–	+	1	+ 1
			–	–	–	–	1	+	1	**or** 1

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AFS09 ... AFS38	TF42 (0.10...38 A)	EF19 (0.10...19 A)
AFS26 ... AFS38	TF42 (0.10...38 A)	EF45 (9...45 A)
AFS40 ... AFS65	TF65 (22...67 A)	EF65 (20...70 A)
AFS80, AFS96	TF96 (40...96 A)	EF96 (36...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.

AFS116 ... AFS146 3-pole contactors for safety applications
55 to 75 kW
AC / DC operated with 1 N.O. + 2 N.C. auxiliary contacts



AFS146-30-12



AFS146-30-12B

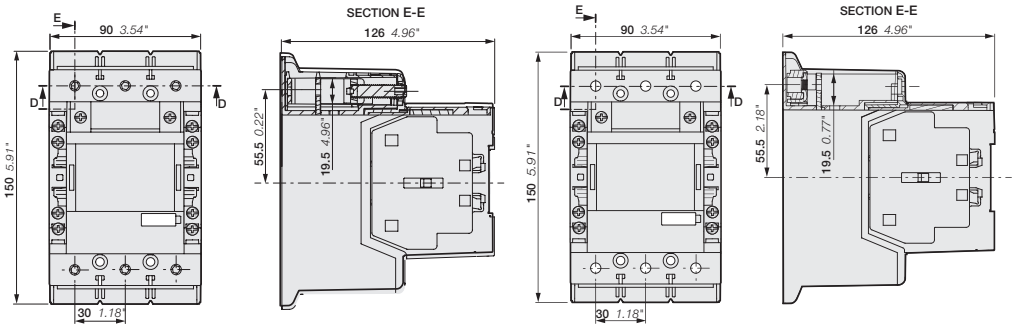
AFS116 ... AFS146 contactors are designed for machine safety applications. They are delivered with fixed 1 left (1 N.O + 1 N.C.) and 1 right (1 N.C.) side mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits.

Mechanically linked contacts make your system safer.

- 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
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- side-mounted auxiliary contact blocks:
  - permanently fixed
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	24...60	20...60	1 2	AFS116-30-12-11	1SFL427081R1112	1.750
				48...130	48...130	1 2	AFS116-30-12-12	1SFL427081R1212	1.750
				100...250	100...250	1 2	AFS116-30-12-13	1SFL427081R1312	1.750
				250...500	250...500	1 2	AFS116-30-12-14	1SFL427081R1412	1.750
75	225	100	200	24...60	20...60	1 2	AFS146-30-12-11	1SFL467081R1112	1.750
				48...130	48...130	1 2	AFS146-30-12-12	1SFL467081R1212	1.750
				100...250	100...250	1 2	AFS146-30-12-13	1SFL467081R1312	1.750
				250...500	250...500	1 2	AFS146-30-12-14	1SFL467081R1412	1.750
With bar connections									
55	160	75	160	24...60	20...60	1 2	AFS116-30-12B-11	1SFL427082R1112	1.500
				48...130	48...130	1 2	AFS116-30-12B-12	1SFL427082R1212	1.500
				100...250	100...250	1 2	AFS116-30-12B-13	1SFL427082R1312	1.500
				250...500	250...500	1 2	AFS116-30-12B-14	1SFL427082R1412	1.500
75	225	100	200	24...60	20...60	1 2	AFS146-30-12B-11	1SFL467082R1112	1.500
				48...130	48...130	1 2	AFS146-30-12B-12	1SFL467082R1212	1.500
				100...250	100...250	1 2	AFS146-30-12B-13	1SFL467082R1312	1.500
				250...500	250...500	1 2	AFS146-30-12B-14	1SFL467082R1412	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.



AFS116, AFS146-30-12

AFS116, AFS146-30-12B

Main dimensions mm, inches

AFS116 ... AFS146 3-pole contactors for safety applications with built-in PLC interface - 55 to 75 kW

AC / DC operated with 1 N.O. + 2 N.C. auxiliary contacts



AFS146-30-12



AFS146-30-12B

AFS116 ... AFS146 contactors are designed for machine safety applications. They are delivered with fixed 1 left (1 N.O + 1 N.C.) and 1 right (1 N.C.) side mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits.

Mechanically linked contacts make your system safer.

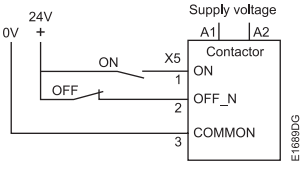
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- side-mounted auxiliary contact blocks:
  - permanently fixed
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

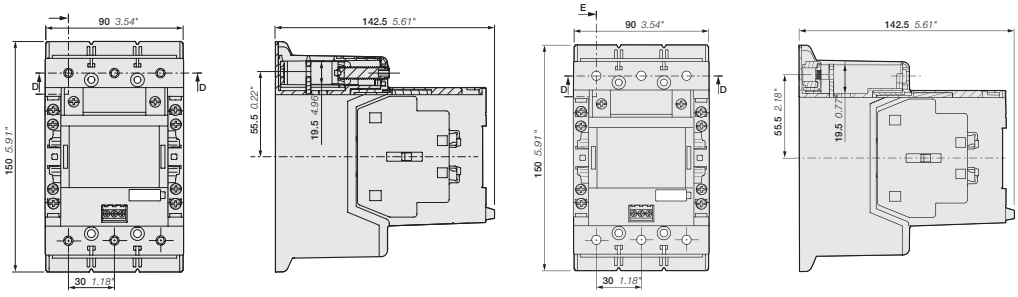
IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
For connection with built-in cable clamps									
55	160	75	160	100...250	100...250	1 2	AFS116-30-12-33	1SFL427081R3312	1.750
				250...500	250...500	1 2	AFS116-30-12-34	1SFL427081R3412	1.750
75	225	100	200	100...250	100...250	1 2	AFS146-30-12-33	1SFL467081R3312	1.750
				250...500	250...500	1 2	AFS146-30-12-34	1SFL467081R3412	1.750
With bar connections									
55	160	75	160	100...250	100...250	1 2	AFS116-30-12B-33	1SFL427082R3312	1.500
				250...500	250...500	1 2	AFS116-30-12B-34	1SFL427082R3412	1.500
75	225	100	200	100...250	100...250	1 2	AFS146-30-12B-33	1SFL467082R3312	1.500
				250...500	250...500	1 2	AFS146-30-12B-34	1SFL467082R3412	1.500

(1) For other auxiliary contacts arrangements, please contact your ABB local sales organization.

AFS116 ... AFS146 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AFS116, AFS146-30-12

AFS116, AFS146-30-12B

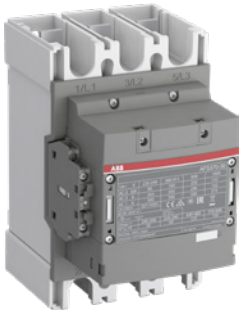
Main dimensions mm, inches

AFS190 ... AFS370 3-pole contactors for safety applications 90 to 200 kW

AC / DC operated with 1 N.O. + 2 N.C. auxiliary contacts



AFS205-30-12



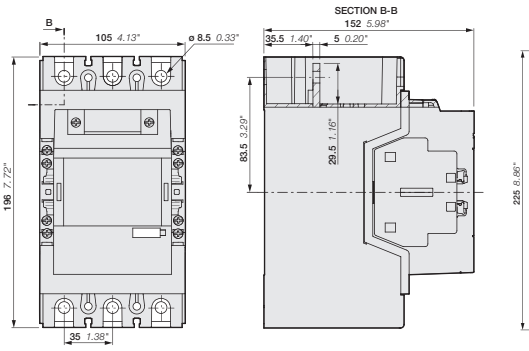
AFS370-30-12

AFS190 ... AFS370 contactors are designed for machine safety applications. They are delivered with fixed 1 left (1 N.O + 1 N.C.) and 1 right (1 N.C.) side mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits.

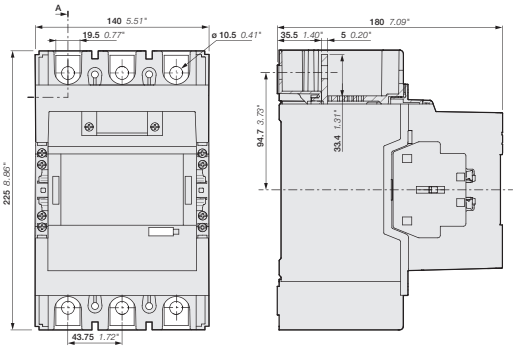
Mechanically linked contacts make your system safer.

- 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
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- side-mounted auxiliary contact blocks:
  - permanently fixed
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	24...60	20...60	1 2	AFS190-30-12-11	1SFL487082R1112	3.000
				48...130	48...130	1 2	AFS190-30-12-12	1SFL487082R1212	3.000
				100...250	100...250	1 2	AFS190-30-12-13	1SFL487082R1312	3.000
				250...500	250...500	1 2	AFS190-30-12-14	1SFL487082R1412	3.000
110	350	150	300	24...60	20...60	1 2	AFS205-30-12-11	1SFL527082R1112	3.000
				48...130	48...130	1 2	AFS205-30-12-12	1SFL527082R1212	3.000
				100...250	100...250	1 2	AFS205-30-12-13	1SFL527082R1312	3.000
				250...500	250...500	1 2	AFS205-30-12-14	1SFL527082R1412	3.000
132	400	200	350	24...60	20...60	1 2	AFS265-30-12-11	1SFL547082R1112	4.675
				48...130	48...130	1 2	AFS265-30-12-12	1SFL547082R1212	4.675
				100...250	100...250	1 2	AFS265-30-12-13	1SFL547082R1312	4.675
				250...500	250...500	1 2	AFS265-30-12-14	1SFL547082R1412	4.675
160	500	250	400	24...60	20...60	1 2	AFS305-30-12-11	1SFL587082R1112	4.675
				48...130	48...130	1 2	AFS305-30-12-12	1SFL587082R1212	4.675
				100...250	100...250	1 2	AFS305-30-12-13	1SFL587082R1312	4.675
				250...500	250...500	1 2	AFS305-30-12-14	1SFL587082R1412	4.675
200	600	300	520	24...60	20...60	1 2	AFS370-30-12-11	1SFL607082R1112	4.675
				48...130	48...130	1 2	AFS370-30-12-12	1SFL607082R1212	4.675
				100...250	100...250	1 2	AFS370-30-12-13	1SFL607082R1312	4.675
				250...500	250...500	1 2	AFS370-30-12-14	1SFL607082R1412	4.675



AFS190, AFS205



AFS265, AFS305, AFS370

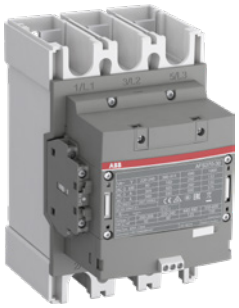
Main dimensions mm, inches

AFS190 ... AFS370 3-pole contactors for safety applications with built-in PLC interface - 90 to 200 kW

AC / DC operated with 1 N.O. + 2 N.C. auxiliary contacts



AFS205-30-12



AFS370-30-12

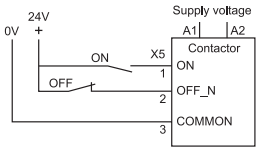
AFS190 ... AFS370 contactors are designed for machine safety applications. They are delivered with fixed 1 left (1 N.O + 1 N.C.) and 1 right (1 N.C.) side mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits. Mechanically linked contacts make your system safer.

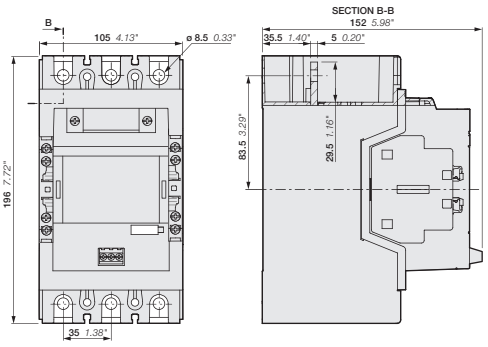
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 2 coils to cover control voltages between 100...500 V 50/60 Hz and 100...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- side-mounted auxiliary contact blocks:
  - permanently fixed
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating 600 V AC						Pkg (1 pce)
kW	A	hp	A	V 50/60 Hz	V DC				kg
90	275	125	250	100...250	100...250	1 2	AFS190-30-12-33	1SFL487082R3312	3.000
				250...500	250...500	1 2	AFS190-30-12-34	1SFL487082R3412	3.000
110	350	150	300	100...250	100...250	1 2	AFS205-30-12-33	1SFL527082R3312	3.000
				250...500	250...500	1 2	AFS205-30-12-34	1SFL527082R3412	3.000
132	400	200	350	100...250	100...250	1 2	AFS265-30-12-33	1SFL547082R3312	4.675
				250...500	250...500	1 2	AFS265-30-12-34	1SFL547082R3412	4.675
160	500	250	400	100...250	100...250	1 2	AFS305-30-12-33	1SFL587082R3312	4.675
				250...500	250...500	1 2	AFS305-30-12-34	1SFL587082R3412	4.675
200	600	300	520	100...250	100...250	1 2	AFS370-30-12-33	1SFL607082R3312	4.675
				250...500	250...500	1 2	AFS370-30-12-34	1SFL607082R3412	4.675

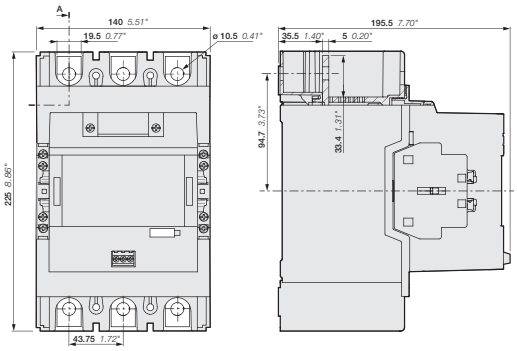
AFS190 ... AFS370 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AFS190, AFS205

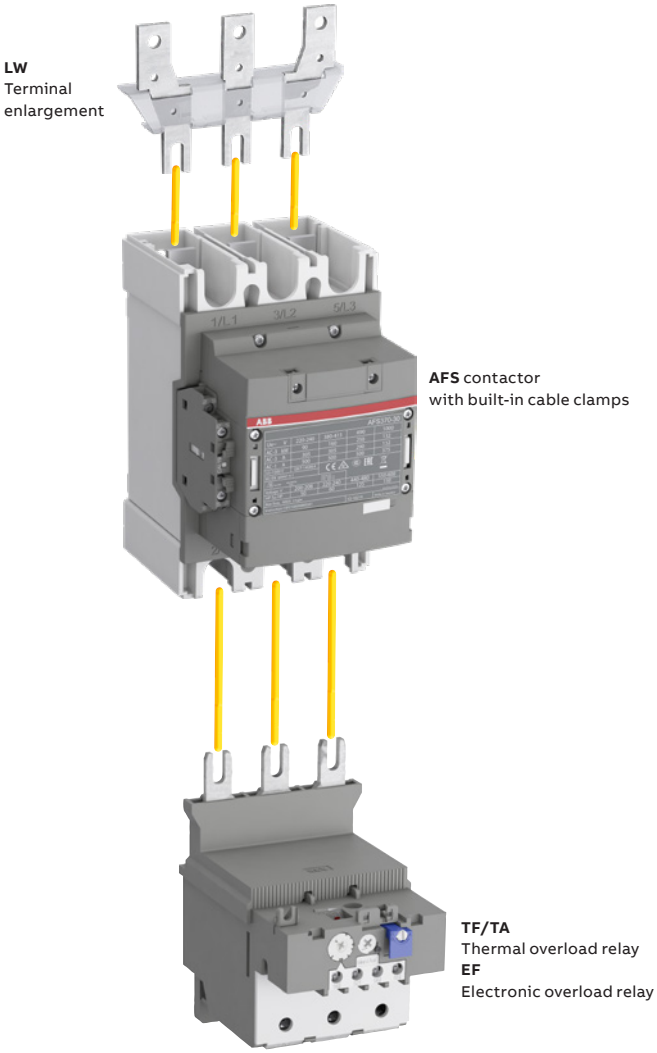


AFS265, AFS305, AFS370

Main dimensions mm, inches

AFS116 ... AFS370 3-pole contactors for safety applications with 1 N.O. + 2 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AFS116	TF140DU (66...142 A)	EF146 (54...150 A)
AFS146	–	EF146 (54...150 A)
AFS190, AFS205	TA200DU (66...200 A)	EF205 (63...210 A)
AFS265 ... AFS370	–	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.

AFS400 ... AFS750 3-pole contactors for safety applications 200 to 400 kW

AC / DC operated with 1 N.O. + 2 N.C. auxiliary contacts



AFS460-30-12



AFS750-30-12

AFS400 ... AFS750 contactors are designed for machine safety applications. They are delivered with fixed 1 left (1 N.O + 1 N.C.) and 1 right (1 N.C.) side mounted auxiliary contact blocks making them ideal for monitoring and controlling circuits.

Mechanically linked contacts make your system safer.

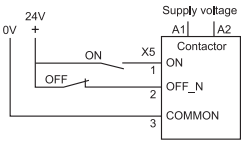
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
- mirror and mechanically linked contacts, with front marked symbol acc. to IEC60947-5-1, always guaranteeing the right contactor status
- side-mounted auxiliary contact blocks:
  - permanently fixed
  - yellow housing for easy identification
  - minimum switching capacity 12 V / 3 mA, with a failure rate 10^{-7} acc. to IEC 60947-5-4
- built-in surge suppression

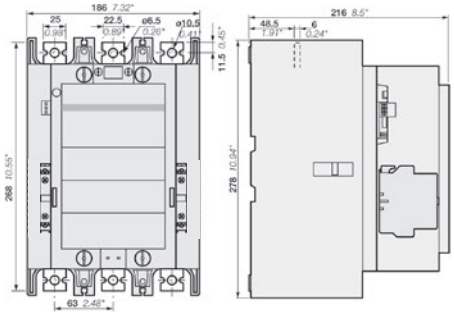
IEC		UL/CSA		Rated control circuit voltage Uc		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power 400 V AC-3	current θ ≤ 40 °C 690 V AC-1	3-phase motor rating 480 V	General use rating 600 V AC	V 50/60 Hz	V DC				Pkg (1 pce)
kW	A	hp	A						kg
200	600	350	550	-	24...60	1 2	AFS400-30-12-68	1SFL577081R6812 (1)	12.000
				48...130	48...130	1 2	AFS400-30-12-69	1SFL577081R6912	12.000
				100...250	100...250	1 2	AFS400-30-12-70	1SFL577081R7012	12.000
				250...500	250...500	1 2	AFS400-30-12-71	1SFL577081R7112	12.000
250	700	400	650	-	24...60	1 2	AFS460-30-12-68	1SFL597081R6812 (1)	12.000
				48...130	48...130	1 2	AFS460-30-12-69	1SFL597081R6912	12.000
				100...250	100...250	1 2	AFS460-30-12-70	1SFL597081R7012	12.000
				250...500	250...500	1 2	AFS460-30-12-71	1SFL597081R7112	12.000
315	800	500	750	-	24...60	1 2	AFS580-30-12-68	1SFL617081R6812 (1)	15.000
				48...130	48...130	1 2	AFS580-30-12-69	1SFL617081R6912	15.000
				100...250	100...250	1 2	AFS580-30-12-70	1SFL617081R7012	15.000
				250...500	250...500	1 2	AFS580-30-12-71	1SFL617081R7112	15.000
400	1050	600	900	-	24...60	1 2	AFS750-30-12-68	1SFL637081R6812 (1)	15.000
				48...130	48...130	1 2	AFS750-30-12-69	1SFL637081R6912	15.000
				100...250	100...250	1 2	AFS750-30-12-70	1SFL637081R7012	15.000
				250...500	250...500	1 2	AFS750-30-12-71	1SFL637081R7112	15.000

(1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.
(2) Up to 850 V DC for AFS580, AFS750.

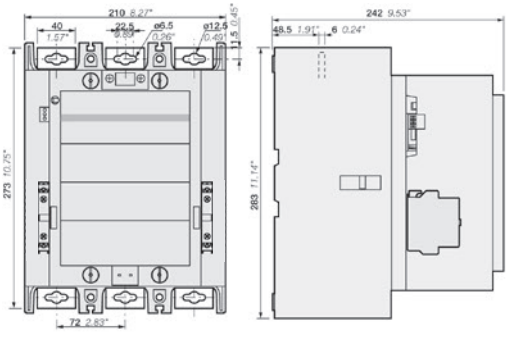
AFS400...AFS750 are equipped with low voltage inputs for control, for example by a PLC.

Control inputs





AFS400, AFS460

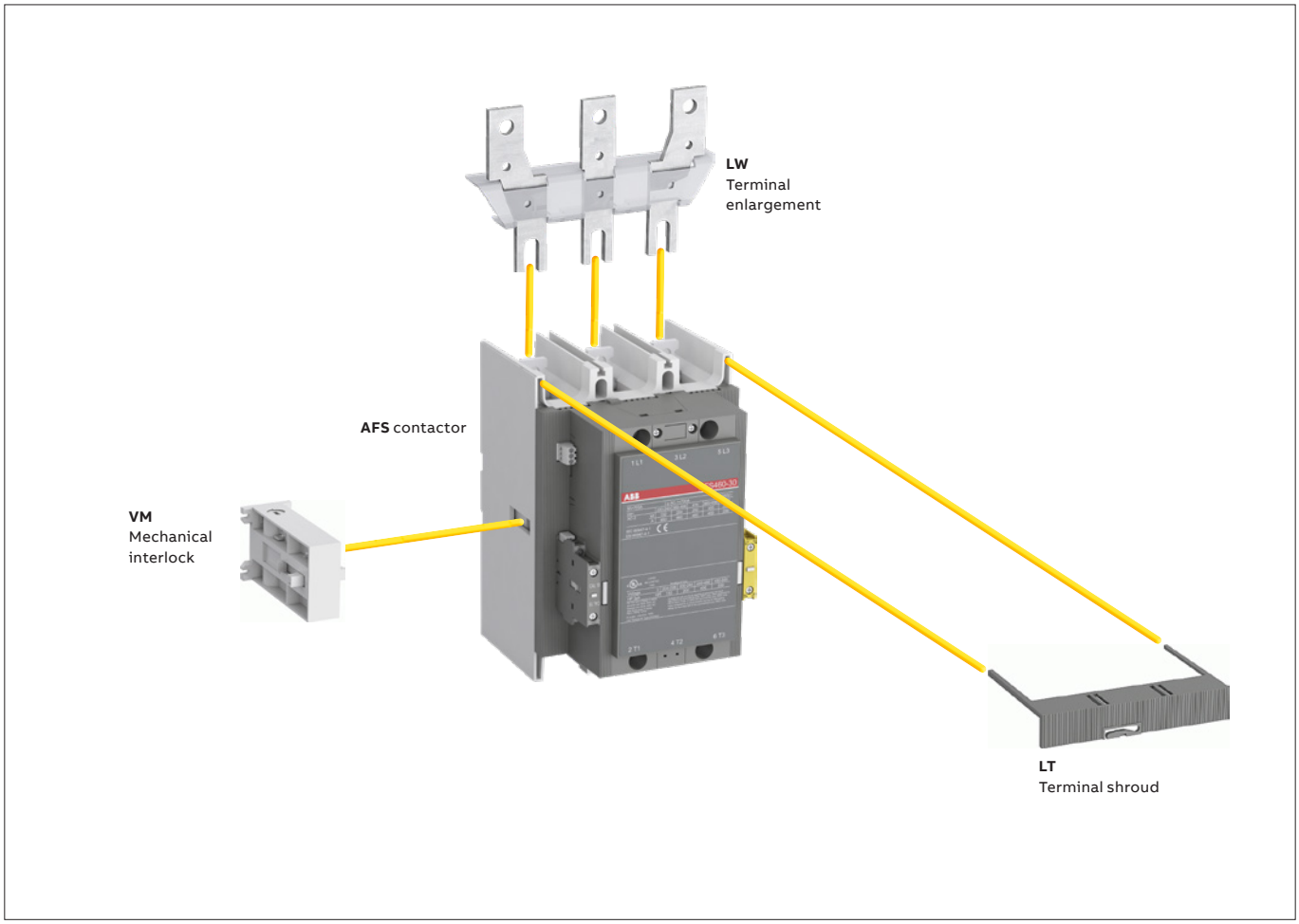


AFS580, AFS750

Main dimensions mm, inches

AFS400 ... AFS750 3-pole contactors for safety applications with 1 N.O. + 2 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Overload relays fitting details

Contactor types	Thermal overload relays	Electronic overload relays
AFS400, AFS460	–	EF460 (150...500 A) (3)
AFS580, AFS750	–	EF750 (250...800 A) (3)

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.
(3) Mounting kit required (see "Motor protection").


ON
OFF
TRIP

AF and EK 4-pole contactors

25 to 125 A AC-1

378	AF09 ... AF38	AC / DC operated.
379	AF40 ... AF80	AC / DC operated
380	Contractors and main accessories	

160 to 525 A AC-1

384	AF116 ... AF140	AC / DC operated
385	AF190 ... AF370	AC / DC operated
386	AFS190 ... AFS370	AC / DC operated with 1 N.O. + 1 N.C.
	Contractors and main accessories	

800 to 1000 A AC-1

390	EK550 ... EK1000	AC operated with 1 N.O. + 1 N.C.
391	EK550 ... EK1000	DC operated with 2 N.O. + 1 N.C.
392	EK550 ... EK1000	AC operated with 2 N.O. + 2 N.C.

For direct product details information, use product type or order code, ex:

- www.abb.com/productdetails/**AF09-30-10-13**
- or www.abb.com/productdetails/**1SBL137001R1310**

AF09Z ... AF38Z 4-pole contactors

25 to 55 A AC-1

AC / DC operated for specific applications



AF09Z-40-00



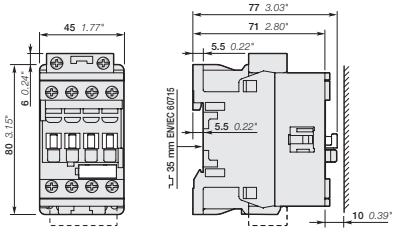
AF26Z-40-00

AF09Z ... AF38Z 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.

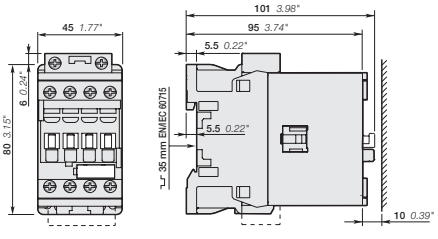
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
  - can manage large control voltage variations
  - allow direct control by PLC-output ≥ 24 V DC 500 mA
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC	UL/CSA	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational current θ ≤ 40 °C AC-1	General use rating 600 V AC						Pkg (1 pce)
A	A	V 50/60 Hz	V DC				kg
4 N.O. main poles							
25	25	-	12...20	0 0	AF09Z-40-00-20	1SBL136201R2000	0.310
		24...60	20...60	0 0	AF09Z-40-00-21	1SBL136201R2100	0.310
		48...130	48...130	0 0	AF09Z-40-00-22	1SBL136201R2200	0.310
		100...250	100...250	0 0	AF09Z-40-00-23	1SBL136201R2300	0.310
30	30	-	12...20	0 0	AF16Z-40-00-20	1SBL176201R2000	0.310
		24...60	20...60	0 0	AF16Z-40-00-21	1SBL176201R2100	0.310
		48...130	48...130	0 0	AF16Z-40-00-22	1SBL176201R2200	0.310
		100...250	100...250	0 0	AF16Z-40-00-23	1SBL176201R2300	0.310
45	45	-	12...20	0 0	AF26Z-40-00-20	1SBL236201R2000	0.400
		24...60	20...60	0 0	AF26Z-40-00-21	1SBL236201R2100	0.400
		48...130	48...130	0 0	AF26Z-40-00-22	1SBL236201R2200	0.400
		100...250	100...250	0 0	AF26Z-40-00-23	1SBL236201R2300	0.400
55	55	-	12...20	0 0	AF38Z-40-00-20	1SBL296201R2000	0.400
		24...60	20...60	0 0	AF38Z-40-00-21	1SBL296201R2100	0.400
		48...130	48...130	0 0	AF38Z-40-00-22	1SBL296201R2200	0.400
		100...250	100...250	0 0	AF38Z-40-00-23	1SBL296201R2300	0.400
2 N.O. + 2 N.C. main poles							
25	25	-	12...20	0 0	AF09Z-22-00-20	1SBL136501R2000	0.310
		24...60	20...60	0 0	AF09Z-22-00-21	1SBL136501R2100	0.310
		48...130	48...130	0 0	AF09Z-22-00-22	1SBL136501R2200	0.310
		100...250	100...250	0 0	AF09Z-22-00-23	1SBL136501R2300	0.310
30	30	-	12...20	0 0	AF16Z-22-00-20	1SBL176501R2000	0.310
		24...60	20...60	0 0	AF16Z-22-00-21	1SBL176501R2100	0.310
		48...130	48...130	0 0	AF16Z-22-00-22	1SBL176501R2200	0.310
		100...250	100...250	0 0	AF16Z-22-00-23	1SBL176501R2300	0.310
45	45	-	12...20	0 0	AF26Z-22-00-20	1SBL236501R2000	0.400
		24...60	20...60	0 0	AF26Z-22-00-21	1SBL236501R2100	0.400
		48...130	48...130	0 0	AF26Z-22-00-22	1SBL236501R2200	0.400
		100...250	100...250	0 0	AF26Z-22-00-23	1SBL236501R2300	0.400
55	55	-	12...20	0 0	AF38Z-22-00-20	1SBL296501R2000	0.400
		24...60	20...60	0 0	AF38Z-22-00-21	1SBL296501R2100	0.400
		48...130	48...130	0 0	AF38Z-22-00-22	1SBL296501R2200	0.400
		100...250	100...250	0 0	AF38Z-22-00-23	1SBL296501R2300	0.400

Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.



AF09Z, AF16Z



AF26Z, AF38Z

Main dimensions mm, inches

AF40 ... AF80 4-pole contactors

70 to 125 A AC-1

AC / DC operated



AF40-40-00



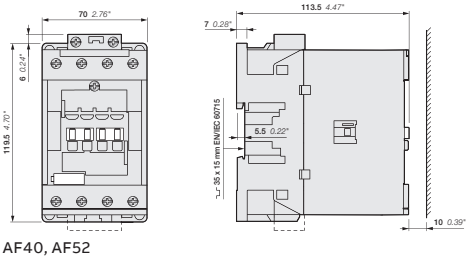
AF80-40-00

AF40 ... 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 1000 V AC and 440 V DC. These contactors are of the block type design with 4 main poles.

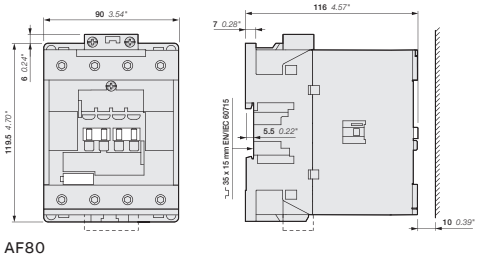
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltages ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC Rated operational current θ ≤ 40 °C AC-1 A	UL/CSA General use rating 600 V AC A	Rated control circuit voltage Uc min. ... Uc max. V 50/60 Hz	 V DC	Auxiliary contacts fitted	Type	Order code	Weight Pkg (1 pce) kg
4 N.O. main poles							
70	60	24...60	20...60	0 0	AF40-40-00-11	1SBL347201R1100	1.210
		48...130	48...130	0 0	AF40-40-00-12	1SBL347201R1200	1.210
		100...250	100...250	0 0	AF40-40-00-13	1SBL347201R1300	1.160
		250...500	250...500	0 0	AF40-40-00-14	1SBL347201R1400	1.160
100	80	24...60	20...60	0 0	AF52-40-00-11	1SBL367201R1100	1.210
		48...130	48...130	0 0	AF52-40-00-12	1SBL367201R1200	1.210
		100...250	100...250	0 0	AF52-40-00-13	1SBL367201R1300	1.160
		250...500	250...500	0 0	AF52-40-00-14	1SBL367201R1400	1.160
125	105	24...60	20...60	0 0	AF80-40-00-11	1SBL397201R1100	1.490
		48...130	48...130	0 0	AF80-40-00-12	1SBL397201R1200	1.490
		100...250	100...250	0 0	AF80-40-00-13	1SBL397201R1300	1.440
		250...500	250...500	0 0	AF80-40-00-14	1SBL397201R1400	1.440
2 N.O. + 2 N.C. main poles							
70	60	24...60	20...60	0 0	AF40-22-00-11	1SBL347501R1100	1.210
		48...130	48...130	0 0	AF40-22-00-12	1SBL347501R1200	1.210
		100...250	100...250	0 0	AF40-22-00-13	1SBL347501R1300	1.160
		250...500	250...500	0 0	AF40-22-00-14	1SBL347501R1400	1.160
125	105	24...60	20...60	0 0	AF80-22-00-11	1SBL397501R1100	1.490
		48...130	48...130	0 0	AF80-22-00-12	1SBL397501R1200	1.490
		100...250	100...250	0 0	AF80-22-00-13	1SBL397501R1300	1.440
		250...500	250...500	0 0	AF80-22-00-14	1SBL397501R1400	1.440

For control by PLC-output, use RA4 interface relay.



AF40, AF52

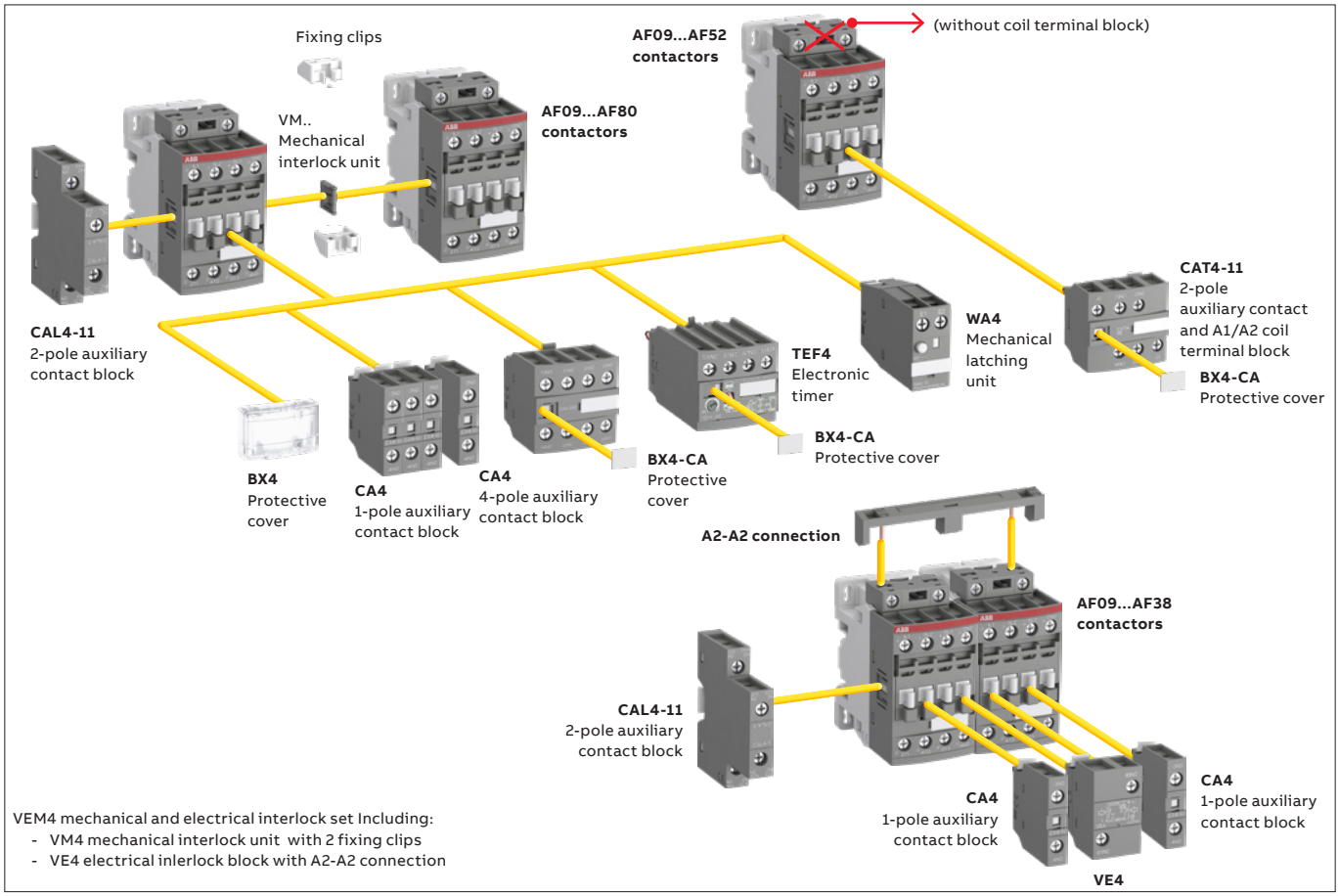


AF80

Main dimensions mm, inches

AF09 ... AF80 4-pole contactors

Contactors and main accessories



VEM4 mechanical and electrical interlock set Including:
- VM4 mechanical interlock unit with 2 fixing clips
- VE4 electrical inlerlock block with A2-A2 connection

Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

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 Auxiliary contact blocks			Electronic timer	Mechanical latching unit	Electrical and mechanical interlock set (between 2 contactors)	Side-mounted accessories Auxiliary contact blocks	
			1-pole CA4	2-pole CAT4-11	4-pole CA4	TEF4	WA4 (4)	VEM4	2-pole CAL4-11 Left side	2-pole CAL4-11 Right side
AF09(Z) ... AF38(Z)										
AF09 ... AF16	4 0	0 0 (1)	4 max.	or 1	or 1	or 1	or 1	–	+ 1	–
AF26 ... AF38	4 0	0 0 (2)	2 max.	or 1	–	or 1	or 1	–	+ 1	+ 1
			3 max.	–	–	–	–	+ 1 (5)	+ 1	or 1
AF09 ... AF38	2 2	0 0 (2)	4 max.	or 1	or 1	or 1	or 1	–	+ 1	–
			2 max.	or 1	–	or 1	or 1	–	+ 1	+ 1
AF09Z ... AF16Z 24 V DC designed for PLC - coil 30										
AF09Z ... AF16Z	4 0	0 0 (1)	4 max.	–	or 1	or 1	–	– (5)	or 1	+ 1
			2 max.	–	–	or 1	–	– (5)	+ 1	or 1
			–	–	–	1	–	–	+ 1	+ 1
AF09Z ... AF16Z	2 2	0 0 (2)	4 max.	–	or 1	or 1	–	–	or 1	+ 1
			2 max.	–	–	or 1	–	–	+ 1	or 1
			–	–	–	1	–	–	+ 1	+ 1
AF40 ... AF80										
AF40 ... AF52	4 0	0 0	4 max.	or 1	or 1	or 1	or 1	–	+ 1	+ 1
AF80	4 0	0 0	4 max.	–	or 1	or 1	or 1	–	+ 1	+ 1
AF40	2 2	0 0 (3)	4 max.	or 1	or 1	or 1	or 1	–	+ 1	–
			4 max.	–	or 1	or 1	or 1	–	+ 1	+ 1
AF80	2 2	0 0 (3)	4 max.	–	or 1	or 1	or 1	–	+ 1	+ 1

(1) Including add-on contacts: 4 N.C. auxiliary contacts max. on positions 1, 2, 3, 4 and 3 N.C. auxiliary contacts max. on positions 1 ±30°, 5.
(2) Including add-on contacts: 3 N.C. auxiliary contacts max. on positions 1, 2, 3, 4 and 2 N.C. auxiliary contacts max. on positions 1 ±30°, 5.
(3) Including add-on contacts: 2 N.C. auxiliary contacts max. on positions 1, 1 ±30°, 2, 3, 4, 5.
(4) Use WA4 for AF09...AF65 and WA4-96 for AF80.
Accept 1-pole CA4 auxiliary contacts (1 block on each side of the mechanical latch) in respect to the total number of built-in or additional N.C. auxiliary contacts.
For WA4 accessory use with contactors coil 30, please consult your ABB local sales organization.
(5) VEM4 not suitable for AF..Z contactors with DC control voltages 12...20 V DC (coil 20) and 24 V DC (coil 30). Use VM4 side-mounted mechanical interlock unit.

AF116 ... AF140 4-pole contactors

160 to 200 A AC-1

AC / DC operated



AF140-40-00



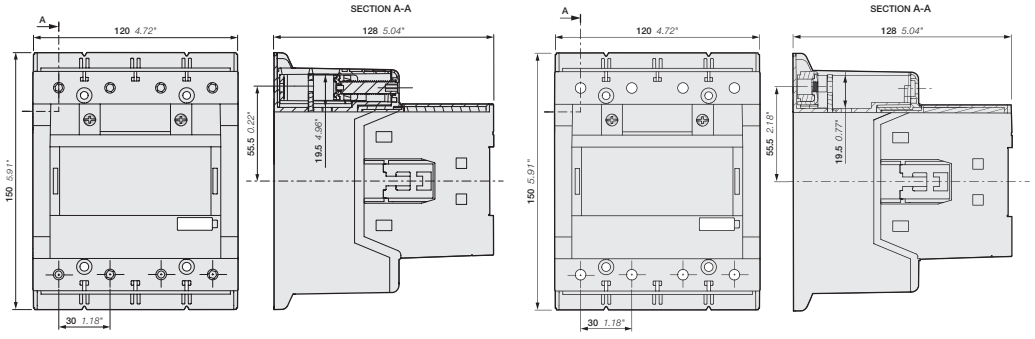
AF140-40-00B

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 and 350 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 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	UL / CSA	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational current θ ≤ 40 °C AC-1	General use rating 600 V AC						Pkg (1 pce)
A	A	V 50/60 Hz	V DC				kg
4 N.O. main poles							
For connection with built-in cable clamps							
160	160	24...60	20...60	0 0	AF116-40-00-11	1SFL427101R1100	2.250
		48...130	48...130	0 0	AF116-40-00-12	1SFL427101R1200	2.250
		100...250	100...250	0 0	AF116-40-00-13	1SFL427101R1300	2.250
		250...500	250...500	0 0	AF116-40-00-14	1SFL427101R1400	2.250
200	175	24...60	20...60	0 0	AF140-40-00-11	1SFL447101R1100	2.250
		48...130	48...130	0 0	AF140-40-00-12	1SFL447101R1200	2.250
		100...250	100...250	0 0	AF140-40-00-13	1SFL447101R1300	2.250
		250...500	250...500	0 0	AF140-40-00-14	1SFL447101R1400	2.250
With bar connections							
160	160	24...60	20...60	0 0	AF116-40-00B-11	1SFL427102R1100	2.150
		48...130	48...130	0 0	AF116-40-00B-12	1SFL427102R1200	2.150
		100...250	100...250	0 0	AF116-40-00B-13	1SFL427102R1300	2.150
		250...500	250...500	0 0	AF116-40-00B-14	1SFL427102R1400	2.150
200	175	24...60	20...60	0 0	AF140-40-00B-11	1SFL447102R1100	2.150
		48...130	48...130	0 0	AF140-40-00B-12	1SFL447102R1200	2.150
		100...250	100...250	0 0	AF140-40-00B-13	1SFL447102R1300	2.150
		250...500	250...500	0 0	AF140-40-00B-14	1SFL447102R1400	2.150

(1) For other auxiliary contacts arrangements, please contact your ABB local organization.



AF116, AF140-40-00

AF116, AF140-40-00B

Main dimensions mm, inches

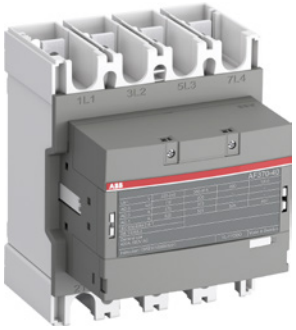
AF190 ... AF370 4-pole contactors

275 to 525 A AC-1

AC / DC operated



AF205-40-00



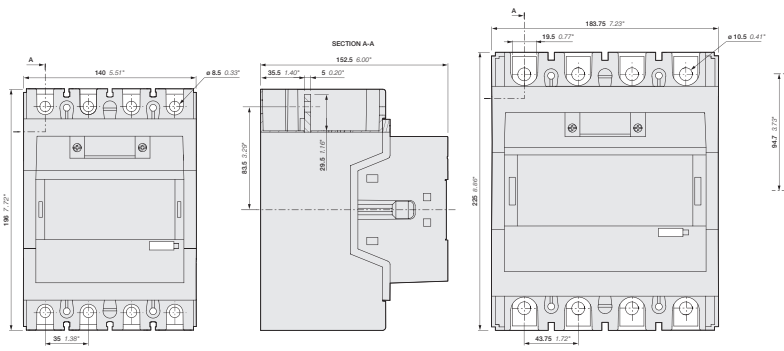
AF370-40-00

AF190 ... AF370 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 440 V DC. These contactors are of the block type design with 4 main poles.

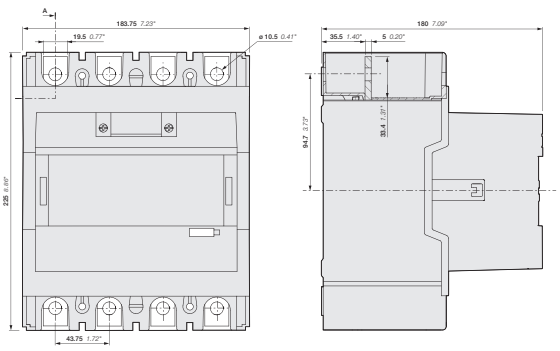
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - 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	UL / CSA	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational current θ ≤ 40 °C AC-1	General use rating 600 V AC						Pkg (1 pce)
A	A	V 50/60 Hz	V DC				kg
4 N.O. main poles							
275	230	24...60	20...60	0 0	AF190-40-00-11	1SFL487102R1100	3.900
		48...130	48...130	0 0	AF190-40-00-12	1SFL487102R1200	3.900
		100...250	100...250	0 0	AF190-40-00-13	1SFL487102R1300	3.900
		250...500	250...500	0 0	AF190-40-00-14	1SFL487102R1400	3.900
350	250	24...60	20...60	0 0	AF205-40-00-11	1SFL527102R1100	3.900
		48...130	48...130	0 0	AF205-40-00-12	1SFL527102R1200	3.900
		100...250	100...250	0 0	AF205-40-00-13	1SFL527102R1300	3.900
		250...500	250...500	0 0	AF205-40-00-14	1SFL527102R1400	3.900
400	300	24...60	20...60	0 0	AF265-40-00-11	1SFL547102R1100	6.360
		48...130	48...130	0 0	AF265-40-00-12	1SFL547102R1200	6.360
		100...250	100...250	0 0	AF265-40-00-13	1SFL547102R1300	6.360
		250...500	250...500	0 0	AF265-40-00-14	1SFL547102R1400	6.360
500	350	24...60	20...60	0 0	AF305-40-00-11	1SFL587102R1100	6.360
		48...130	48...130	0 0	AF305-40-00-12	1SFL587102R1200	6.360
		100...250	100...250	0 0	AF305-40-00-13	1SFL587102R1300	6.360
		250...500	250...500	0 0	AF305-40-00-14	1SFL587102R1400	6.360
525	420	24...60	20...60	0 0	AF370-40-00-11	1SFL607102R1100	6.360
		48...130	48...130	0 0	AF370-40-00-12	1SFL607102R1200	6.360
		100...250	100...250	0 0	AF370-40-00-13	1SFL607102R1300	6.360
		250...500	250...500	0 0	AF370-40-00-14	1SFL607102R1400	6.360

(1) For other auxiliary contacts arrangements, please contact your ABB local organization.



AF190, AF205

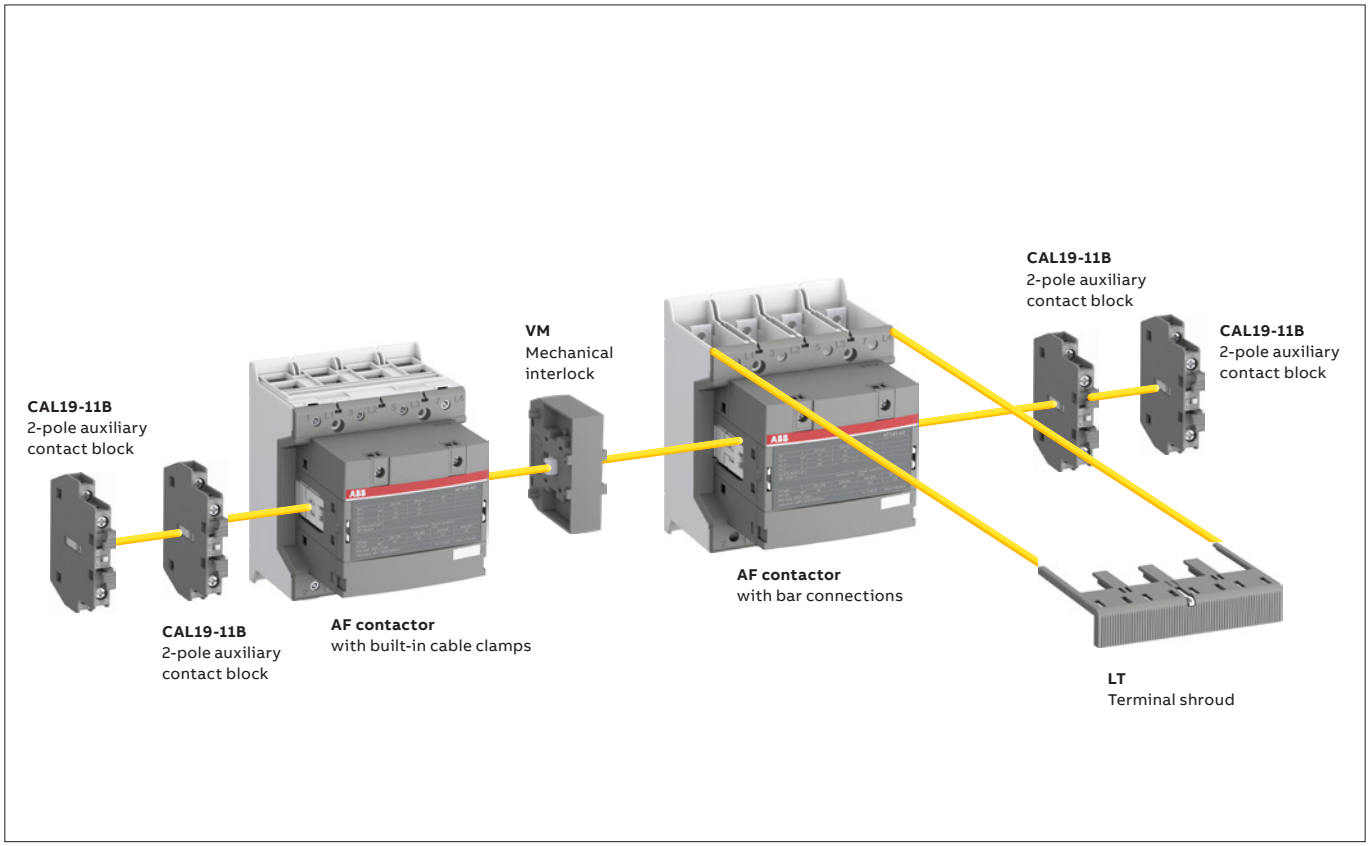


AF265, AF305, AF370

Main dimensions mm, inches

AF116 ... AF370 4-pole contactors

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks CAL19-11 (3)	CAL19-11B (3)	Mechanical interlock units (between two contactors)
AF116 ... AF370	4 0	0 0	2 x CAL19-11	+ 2 x CAL19-11B	–
AF116 ... AF370	4 0	0 0	2 x CAL19-11 (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").
(3) The CEL19 auxiliary contact blocks can replace the CAL19-11 and CAL19-11B. Though, no auxiliary contact block can be mounted outside the CEL19.

AF116 ... AF140 4-pole contactors

160 to 200 A AC-1

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF140-40-11



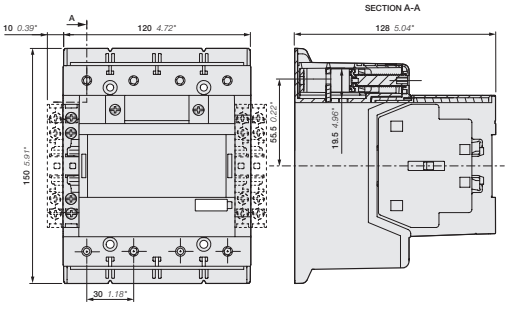
AF140-40-11B

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 and 350 V DC. These contactors are of the block type design with 4 main poles.

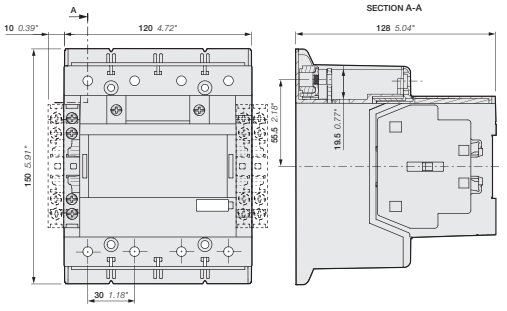
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - 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	UL / CSA	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational current θ ≤ 40 °C AC-1	General use rating 600 V AC						Pkg (1 pce)
A	A	V 50/60 Hz	V DC				kg
4 N.O. main poles							
For connection with built-in cable clamps							
160	160	24...60	20...60	1 1	AF116-40-11-11	1SFL427101R1111	2.270
		48...130	48...130	1 1	AF116-40-11-12	1SFL427101R1211	2.270
		100...250	100...250	1 1	AF116-40-11-13	1SFL427101R1311	2.270
		250...500	250...500	1 1	AF116-40-11-14	1SFL427101R1411	2.270
200	175	24...60	20...60	1 1	AF140-40-11-11	1SFL447101R1111	2.270
		48...130	48...130	1 1	AF140-40-11-12	1SFL447101R1211	2.270
		100...250	100...250	1 1	AF140-40-11-13	1SFL447101R1311	2.270
		250...500	250...500	1 1	AF140-40-11-14	1SFL447101R1411	2.270
With bar connections							
160	160	24...60	20...60	1 1	AF116-40-11B-11	1SFL427102R1111	2.170
		48...130	48...130	1 1	AF116-40-11B-12	1SFL427102R1211	2.170
		100...250	100...250	1 1	AF116-40-11B-13	1SFL427102R1311	2.170
		250...500	250...500	1 1	AF116-40-11B-14	1SFL427102R1411	2.170
200	175	24...60	20...60	1 1	AF140-40-11B-11	1SFL447102R1111	2.170
		48...130	48...130	1 1	AF140-40-11B-12	1SFL447102R1211	2.170
		100...250	100...250	1 1	AF140-40-11B-13	1SFL447102R1311	2.170
		250...500	250...500	1 1	AF140-40-11B-14	1SFL447102R1411	2.170

(1) For other auxiliary contacts arrangements, please contact your ABB local organization.



AF116, AF140-40-11



AF116, AF140-40-11B

Main dimensions mm, inches

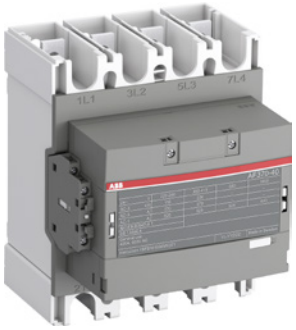
AF190 ... AF370 4-pole contactors

275 to 525 A AC-1

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF205-40-11



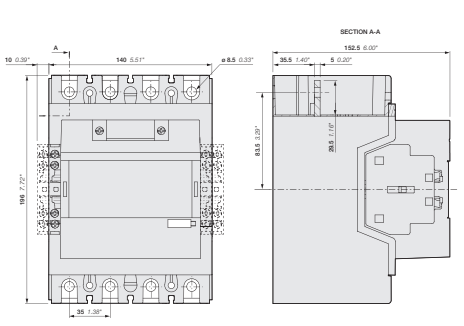
AF370-40-11

AF190 ... AF370 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 440 V DC. These contactors are of the block type design with 4 main poles.

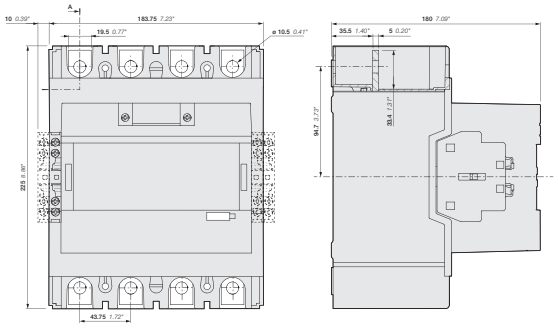
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - 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	UL / CSA	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational current θ ≤ 40 °C AC-1	General use rating 600 V AC						Pkg (1 pce)
A	A	V 50/60 Hz	V DC				kg
4 N.O. main poles							
275	230	24...60	20...60	1 1	AF190-40-11-11	1SFL487102R1111	3.920
		48...130	48...130	1 1	AF190-40-11-12	1SFL487102R1211	3.920
		100...250	100...250	1 1	AF190-40-11-13	1SFL487102R1311	3.920
		250...500	250...500	1 1	AF190-40-11-14	1SFL487102R1411	3.920
350	250	24...60	20...60	1 1	AF205-40-11-11	1SFL527102R1111	3.920
		48...130	48...130	1 1	AF205-40-11-12	1SFL527102R1211	3.920
		100...250	100...250	1 1	AF205-40-11-13	1SFL527102R1311	3.920
		250...500	250...500	1 1	AF205-40-11-14	1SFL527102R1411	3.920
400	300	24...60	20...60	1 1	AF265-40-11-11	1SFL547102R1111	6.380
		48...130	48...130	1 1	AF265-40-11-12	1SFL547102R1211	6.380
		100...250	100...250	1 1	AF265-40-11-13	1SFL547102R1311	6.380
		250...500	250...500	1 1	AF265-40-11-14	1SFL547102R1411	6.380
500	350	24...60	20...60	1 1	AF305-40-11-11	1SFL587102R1111	6.380
		48...130	48...130	1 1	AF305-40-11-12	1SFL587102R1211	6.380
		100...250	100...250	1 1	AF305-40-11-13	1SFL587102R1311	6.380
		250...500	250...500	1 1	AF305-40-11-14	1SFL587102R1411	6.380
525	420	24...60	20...60	1 1	AF370-40-11-11	1SFL607102R1111	6.380
		48...130	48...130	1 1	AF370-40-11-12	1SFL607102R1211	6.380
		100...250	100...250	1 1	AF370-40-11-13	1SFL607102R1311	6.380
		250...500	250...500	1 1	AF370-40-11-14	1SFL607102R1411	6.380

(1) For other auxiliary contacts arrangements, please contact your ABB local organization.



AF190, AF205

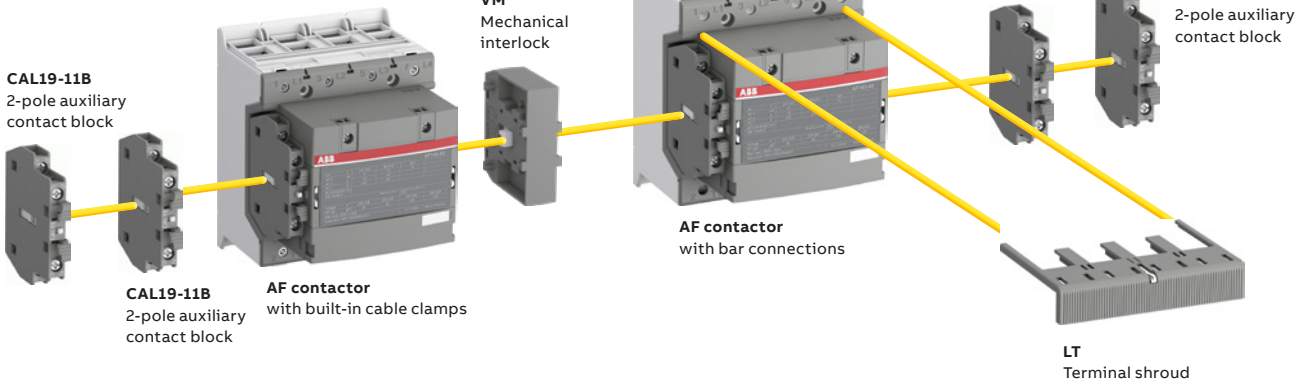


AF265, AF305, AF370

Main dimensions mm, inches

AF116 ... AF370 4-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks		
			CAL19-11	CAL19-11B	Mechanical interlock units (between two contactors)
AF116 ... AF370	4 0	1 1	1 x CAL19-11	+ 2 x CAL19-11B	–
AF116 ... AF370	4 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").

AF116 ... AF140 4-pole contactors

160 to 200 A AC-1

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts



AF140-40-22



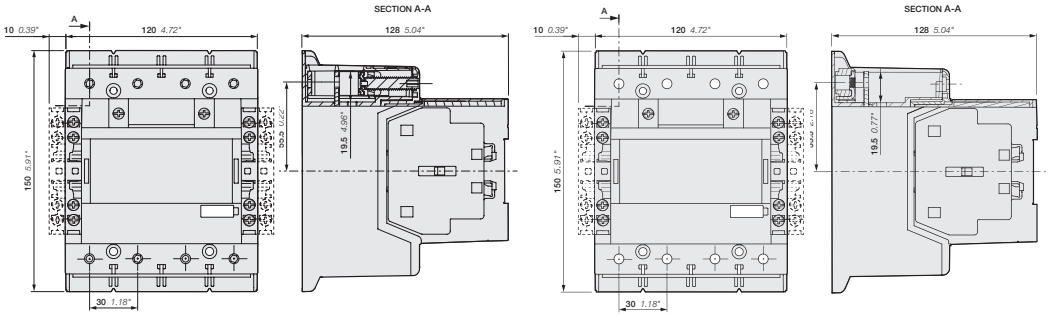
AF140-40-22B

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 and 350 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 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	UL / CSA	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational current θ ≤ 40 °C AC-1	General use rating 600 V AC						Pkg (1 pce)
A	A	V 50/60 Hz	V DC				kg
4 N.O. main poles							
For connection with built-in cable clamps							
160	160	24...60	20...60	2 2	AF116-40-22-11	1SFL427101R1122	2.290
		48...130	48...130	2 2	AF116-40-22-12	1SFL427101R1222	2.290
		100...250	100...250	2 2	AF116-40-22-13	1SFL427101R1322	2.290
		250...500	250...500	2 2	AF116-40-22-14	1SFL427101R1422	2.290
200	175	24...60	20...60	2 2	AF140-40-22-11	1SFL447101R1122	2.290
		48...130	48...130	2 2	AF140-40-22-12	1SFL447101R1222	2.290
		100...250	100...250	2 2	AF140-40-22-13	1SFL447101R1322	2.290
		250...500	250...500	2 2	AF140-40-22-14	1SFL447101R1422	2.290
With bar connections							
160	160	24...60	20...60	2 2	AF116-40-22B-11	1SFL427102R1122	2.190
		48...130	48...130	2 2	AF116-40-22B-12	1SFL427102R1222	2.190
		100...250	100...250	2 2	AF116-40-22B-13	1SFL427102R1322	2.190
		250...500	250...500	2 2	AF116-40-22B-14	1SFL427102R1422	2.190
200	175	24...60	20...60	2 2	AF140-40-22B-11	1SFL447102R1122	2.190
		48...130	48...130	2 2	AF140-40-22B-12	1SFL447102R1222	2.190
		100...250	100...250	2 2	AF140-40-22B-13	1SFL447102R1322	2.190
		250...500	250...500	2 2	AF140-40-22B-14	1SFL447102R1422	2.190

(1) For other auxiliary contacts arrangements, please contact your ABB local organization.



AF116, AF140-40-11

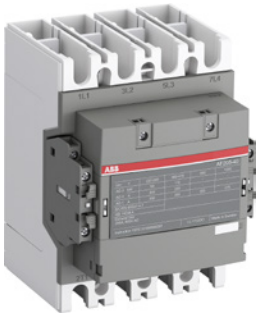
AF116, AF140-40-11B

Main dimensions mm, inches

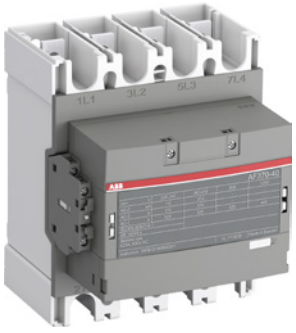
AF190 ... AF370 4-pole contactors

275 to 525 A AC-1

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts



AF205-40-22



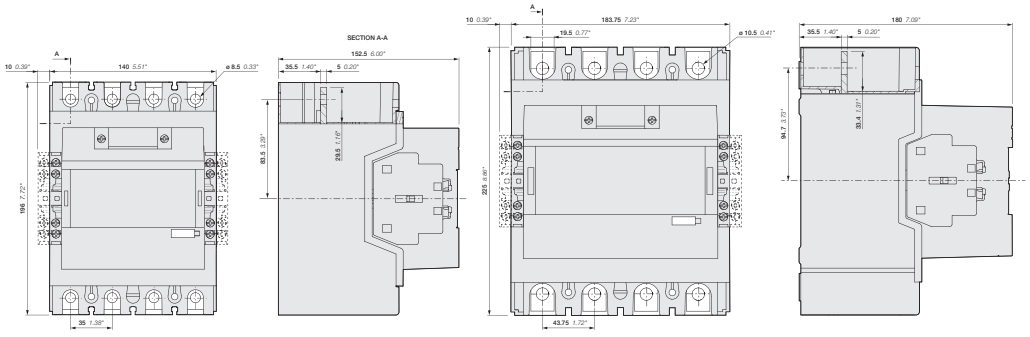
AF370-40-22

AF190 ... AF370 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 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 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	UL / CSA	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational current θ ≤ 40 °C AC-1	General use rating 600 V AC						Pkg (1 pce)
A	A	V 50/60 Hz	V DC				kg
4 N.O. main poles							
275	230	24...60	20...60	2 2	AF190-40-22-11	1SFL487102R1122	3.940
		48...130	48...130	2 2	AF190-40-22-12	1SFL487102R1222	3.940
		100...250	100...250	2 2	AF190-40-22-13	1SFL487102R1322	3.940
		250...500	250...500	2 2	AF190-40-22-14	1SFL487102R1422	3.940
350	250	24...60	20...60	2 2	AF205-40-22-11	1SFL527102R1122	3.940
		48...130	48...130	2 2	AF205-40-22-12	1SFL527102R1222	3.940
		100...250	100...250	2 2	AF205-40-22-13	1SFL527102R1322	3.940
		250...500	250...500	2 2	AF205-40-22-14	1SFL527102R1422	3.940
400	300	24...60	20...60	2 2	AF265-40-22-11	1SFL547102R1122	6.400
		48...130	48...130	2 2	AF265-40-22-12	1SFL547102R1222	6.400
		100...250	100...250	2 2	AF265-40-22-13	1SFL547102R1322	6.400
		250...500	250...500	2 2	AF265-40-22-14	1SFL547102R1422	6.400
500	350	24...60	20...60	2 2	AF305-40-22-11	1SFL587102R1122	6.400
		48...130	48...130	2 2	AF305-40-22-12	1SFL587102R1222	6.400
		100...250	100...250	2 2	AF305-40-22-13	1SFL587102R1322	6.400
		250...500	250...500	2 2	AF305-40-22-14	1SFL587102R1422	6.400
525	420	24...60	20...60	2 2	AF370-40-22-11	1SFL607102R1122	6.400
		48...130	48...130	2 2	AF370-40-22-12	1SFL607102R1222	6.400
		100...250	100...250	2 2	AF370-40-22-13	1SFL607102R1322	6.400
		250...500	250...500	2 2	AF370-40-22-14	1SFL607102R1422	6.400

(1) For other auxiliary contacts arrangements, please contact your ABB local organization.



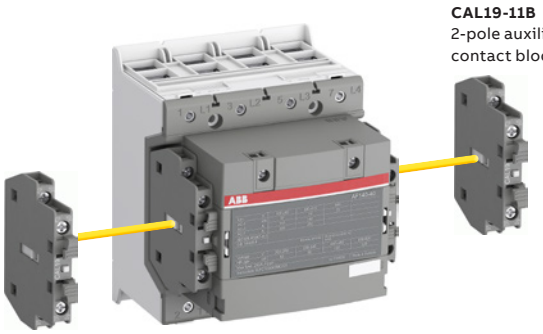
AF190, AF205

AF265, AF305, AF370

Main dimensions mm, inches

AF116 ... AF370 4-pole contactors with 2 N.O. + 2 N.C. auxiliary contacts

Contactors and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories Auxiliary contact blocks		
			CAL19-11 (1)	**CAL19-11B (1)**	Mechanical interlock units (between two contactors)
AF116 ... AF370	4 0	2 2	2 x CAL19-11 included	+ 2 x CAL19-11B	–

(1) The CEL19 auxiliary contact blocks can replace the CAL19-11 and CAL19-11B. Though, no auxiliary contact block can be mounted outside the CEL19.

EK550, EK1000 4-pole contactors

800 to 1000 A AC-1

AC operated with 1 N.O. + 1 N.C. auxiliary contacts



EK1000-40-11

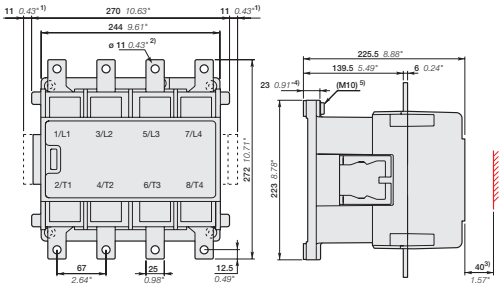
EK550 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 1000 V AC and 600 V DC, EK1000 up to 1000 V AC.

These contactors are of the block type design with:

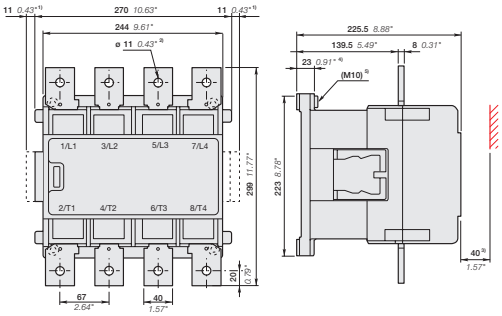
- 4 main poles
- control circuit: AC operated
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated operational current θ ≤ 40 °C AC-1 A	UL/CSA General use rating 600 V AC A	Rated control circuit voltage Uc (1) V 50 Hz	 V 60 Hz	Auxiliary contacts fitted 	Type	Order code	Weight Pkg (1 pce) kg
800	540	220	220...240	1 1	EK550-40-11	SK827041-EL	17.200
		220...230	230...255	1 1	EK550-40-11	SK827041-EM	17.200
		400...415	-	1 1	EK550-40-11	SK827041-AR	17.200
1000	-	220	220...240	1 1	EK1000-40-11	SK827044-EL	17.500
		220...230	230...255	1 1	EK1000-40-11	SK827044-EM	17.500
		400...415	-	1 1	EK1000-40-11	SK827044-AR	17.500

(1) Other control voltages see voltage code table.



EK550



EK1000

1) Dimension for extra auxiliary contact block.
2) Screw, nut and washer by-packed.
3) Min. distance to uninsulated wall.
4) Damping elements are included.
5) Earthing screw.

Main dimensions mm, inches

EK550, EK1000 4-pole contactors

800 to 1000 A AC-1

DC operated with 2 N.O. + 1 N.C. auxiliary contacts



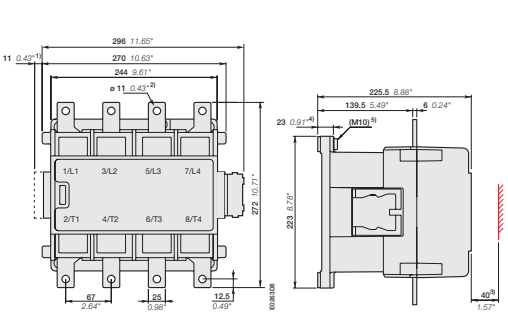
EK1000-40-21

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.

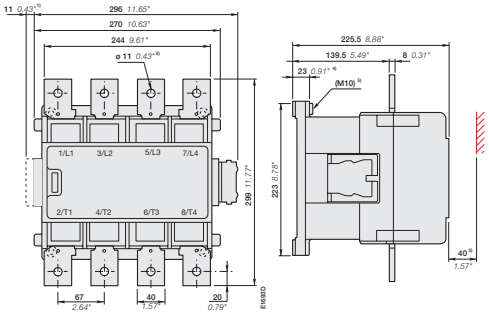
These contactors are of the block type design with:

- 4 main poles
- control circuit: DC operated
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated operational current θ ≤ 40 °C AC-1 A	UL / CSA General use rating 600 V AC A	Rated control circuit voltage Uc V DC	Auxiliary contacts fitted	Type	Order code	Weight Pkg (1 pce) kg
800	540	48	2 1	EK550-40-21	SK827041-DD	17.200
		110	2 1	EK550-40-21	SK827041-DE	17.200
		125	2 1	EK550-40-21	SK827041-DU	17.200
		220	2 1	EK550-40-21	SK827041-DF	17.200
1000	-	36	2 1	EK1000-40-21	SK827044-DC	17.500
		48	2 1	EK1000-40-21	SK827044-DD	17.500
		60	2 1	EK1000-40-21	SK827044-DT	17.500
		110	2 1	EK1000-40-21	SK827044-DE	17.500
		125	2 1	EK1000-40-21	SK827044-DU	17.500
		220	2 1	EK1000-40-21	SK827044-DF	17.500



EK550



EK1000

1) Dimension for extra auxiliary contact block.
2) Screw, nut and washer by-packed.
3) Min. distance to uninsulated wall.
4) Damping elements are included.
5) Earthing screw.

EK550, EK1000 4-pole Contactors

800 to 1000 A AC-1

AC operated with 2 N.O. + 2 N.C. auxiliary contacts



EK1000-40-22

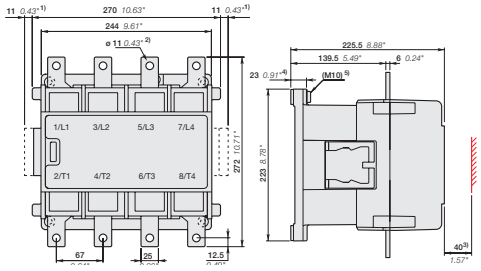
EK550 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and for controlling power circuits up to 1000 V AC and 600 V DC, EK1000 up to 1000 V AC.

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

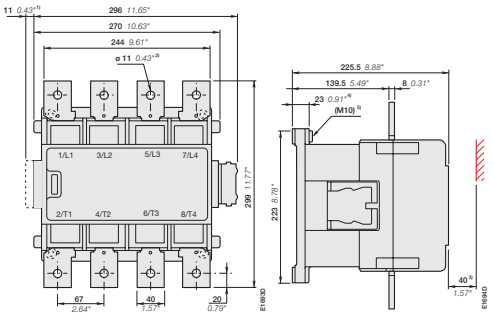
IEC **Rated operational current** **θ ≤ 40 °C** **AC-1** A	UL/CSA **General use rating** **600 V AC** A	Rated control circuit voltage **Uc** **(1)** V 50 Hz	 V 60 Hz	Auxiliary contacts fitted  2 2	Type	Order code	Weight **Pkg (1 pce)** kg
800	540	220	220...240	2 2	EK550-40-22	SK827043-EL	17.200
		220...230	230...255	2 2	EK550-40-22	SK827043-EM	17.200
		400...415	-	2 2	EK550-40-22	SK827043-AR	17.200
1000	-	220	220...240	2 2	EK1000-40-22	SK827045-EL	17.500
		220...230	230...255	2 2	EK1000-40-22	SK827045-EM	17.500
		380	380...415	2 2	EK1000-40-22	SK827045-EP	17.500
		380...400	400...440	2 2	EK1000-40-22	SK827045-ER	17.500
		400...415	-	2 2	EK1000-40-22	SK827045-AR	17.500

(1) Other control voltages see voltage code table.



EK550

1) Dimension for extra auxiliary contact block
2) Screw, nut and washer by-packed
3) Min. distance to uninsulated wall
4) Damping elements are included
5) Earthing screw



EK1000

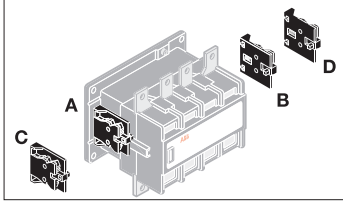
Main dimensions mm, inches

EK550, EK1000 4-pole contactors with 1 N.O. + 1 N.C.

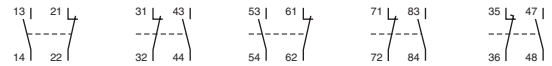
and 2 N.O. + 1 N.C. auxiliary contacts

Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Mounting positions of the auxiliary contact



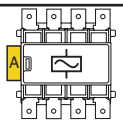
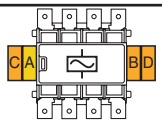
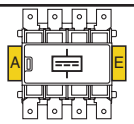
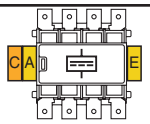
Auxiliary contact types and connecting diagrams



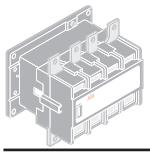
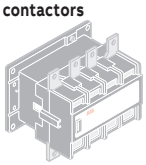
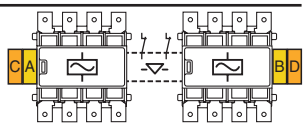
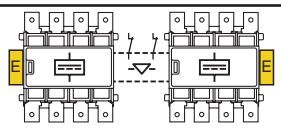
CAL16-11 A | CAL16-11 B | CAL16-11 C | CAL16-11 D | CCL16-11 E (1)

(1) Contact 35-36 used for some types of EK... contactors

EK 4-pole contactors

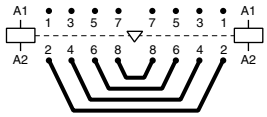
Contactor types	Main poles	Available auxiliary contacts		Add-on auxiliary contact blocks **2-pole CAL16-11 ...**	**Mounting and positioning** Factory mounted auxiliary contacts Add-on CAL16-11 auxiliary contacts
AC operated, 50 Hz, 60 Hz or 50/60 Hz					
EK550, EK1000	4 0	1 1		+ 1 x CAL16-11B + 1 x CAL16-11C + 1 x CAL16-11D	
DC operated					
EK550, EK1000	4 0	2 1		+ 1 x CAL16-11C	

EK 4-pole reversing contactors with VH800 mechanical and electrical interlock units

"Left hand" contactors	**Interlocking**	**"Right hand" contactors**		**Add-on auxiliary contact blocks** **2-pole CAL16-11 ...**	**Mounting and positioning** Factory mounted auxiliary contacts Add-on CAL16-11 auxiliary contacts
					
AC operated, 50 Hz, 60 Hz or 50/60 Hz					
EK550, EK1000	VH800	EK550, EK1000	+	1 x CAL16-11C 1 x CAL16-11D	
DC operated					
EK550, EK1000	VH800	EK550, EK1000		–	

EK550, EK1000 4-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts

and 2 N.O. + 1 N.C. auxiliary contacts



BSS550 ... BSS1000



RC-EH

For contactors	Auxiliary contacts		Type	Order code	Pkg qty	Weight (1 pce)
						kg
Side-mounted auxiliary contact blocks						
EK	1	1	CAL16-11B	SK829002-B	1	0.050
	1	1	CAL16-11C	SK829002-C	1	0.050
	1	1	CAL16-11D	SK829002-D	1	0.050
	1	1	CCL16-11E (2)	SK829002-E	1	0.050
Mechanical interlock unit for two horizontal mounted contactors						
EK550, EK1000			VH800	SK829070-F	1	6.000
Connecting sets						
EK550			BSS550	SK829090-E	1	3.300
EK1000			BSS1000	SK829090-H	1	5.500

Surge suppressors

For contactors	Rated control circuit voltage Uc			Type	Order code	Pkg qty	Weight (1 pce)
	V	AC	DC				kg
EK550, EK1000	48...110	●	–	RC-EH800/110	SK829007-C	1	0.015
EK550, EK1000	24...125	–	●	RC-EH800/110	SK829007-C	1	0.015
EK550, EK1000	220...600	●	–	RC-EH800/600	SK829007-D	1	0.015

See "Main accessory fitting details" table.
(2) Mounting of CCL16-11E blocks does not allow an additional second block to be added on top of it.
All DC operated EK contactors are equipped with one CCL16-11E on the right side.

Contactors for capacitor switching

396 **UA16..RA up to UA110..RA**

399 **UA..RA**

For direct product details information, use product type or order code, ex:

- www.abb.com/productdetails/**AF09-30-10-13**
- or www.abb.com/productdetails/**1SBL137001R1310**

UA16..RA ... UA30..RA 3-pole contactors for capacitor switching

12.5 to 30 kvar - Unlimited peak current Î

AC operated



UA16-30-10RA



UA30-30-10RA

UA..RA contactors for capacitor switching can be used for installations in which the peak current far exceeds 100 times nominal rms current. The contactors are delivered complete with their damping resistors and must be used without additional inductances.

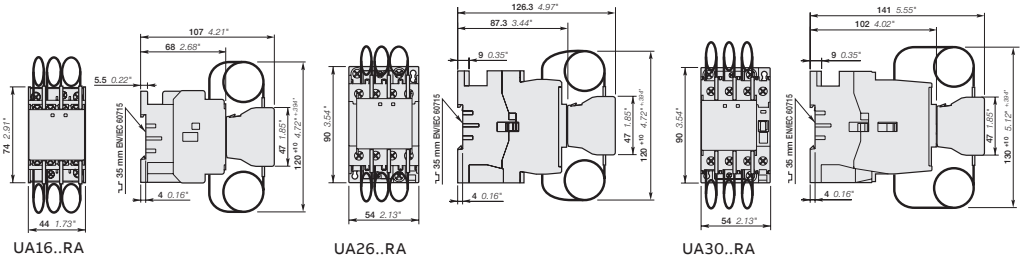
The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

These contactors are of the block type design with:

- 3 main poles and 1 built-in auxiliary contact
- the UA..RA contactors are fitted with a special front-mounted block, which ensures the serial insertion of 3 damping resistors into the circuit to limit the current peak on energization of the capacitor bank
  - their connection also ensures capacitor precharging in order to limit the second current peak occurring upon making of the main poles
  - the insertion of resistors allows to damp the highest current peak of the capacitor when switching on, whatever its level.
- control circuit: AC operated
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC	UL/CSA	Rated control circuit voltage Uc (1)		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power θ ≤ 40 °C 400 V AC-6b	Rated operational power θ ≤ 40 °C 480 V						Pkg (1 pce)
kvar	kvar	V 50 Hz	V 60 Hz				kg
12.5	16	24	24	1 0	UA16-30-10RA	1SBL181024R8110	0.460
		110	110...120	1 0	UA16-30-10RA	1SBL181024R8410	0.460
		220...230	230...240	1 0	UA16-30-10RA	1SBL181024R8010	0.460
		230...240	240...260	1 0	UA16-30-10RA	1SBL181024R8810	0.460
		380...400	400...415	1 0	UA16-30-10RA	1SBL181024R8510	0.460
		400...415	415...440	1 0	UA16-30-10RA	1SBL181024R8610	0.460
22	22	24	24	1 0	UA26-30-10RA	1SBL241024R8110	0.710
		110	110...120	1 0	UA26-30-10RA	1SBL241024R8410	0.710
		220...230	230...240	1 0	UA26-30-10RA	1SBL241024R8010	0.710
		230...240	240...260	1 0	UA26-30-10RA	1SBL241024R8810	0.710
		380...400	400...415	1 0	UA26-30-10RA	1SBL241024R8510	0.710
		400...415	415...440	1 0	UA26-30-10RA	1SBL241024R8610	0.710
30	28	24	24	1 0	UA30-30-10RA	1SBL281024R8110	0.810
		110	110...120	1 0	UA30-30-10RA	1SBL281024R8410	0.810
		220...230	230...240	1 0	UA30-30-10RA	1SBL281024R8010	0.810
		230...240	240...260	1 0	UA30-30-10RA	1SBL281024R8810	0.810
		380...400	400...415	1 0	UA30-30-10RA	1SBL281024R8510	0.810
		400...415	415...440	1 0	UA30-30-10RA	1SBL281024R8610	0.810

(1) Other control voltages see voltage code table.



Main dimensions mm, inches

UA50..RA ... UA75..RA 3-pole contactors for capacitor switching

40 to 60 kvar - Unlimited peak current Î

AC operated



UA75-30-00 RA

UA..RA contactors for capacitor switching can be used for installations in which the peak current far exceeds 100 times nominal rms current. The contactors are delivered complete with their damping resistors and must be used without additional inductances.

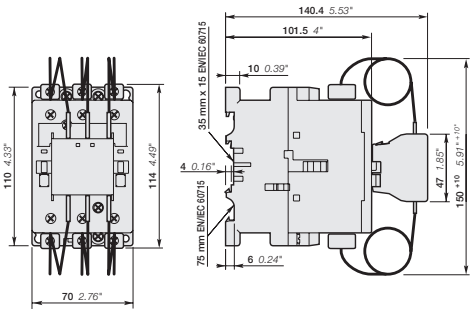
The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

These contactors are of the block type design with:

- 3 main poles
- the UA..RA contactors are fitted with a special front-mounted block, which ensures the serial insertion of 3 damping resistors into the circuit to limit the current peak on energization of the capacitor bank
  - their connection also ensures capacitor precharging in order to limit the second current peak occurring upon making of the main poles
  - the insertion of resistors allows to damp the highest current peak of the capacitor when switching on, whatever its level.
- control circuit: AC operated
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC	UL/CSA	Rated control circuit voltage Uc (1)		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power θ ≤ 40 °C 400 V AC-6b	Rated operational power θ ≤ 40 °C 480 V						Pkg (1 pce)
kvar	kvar	V 50 Hz	V 60 Hz				kg
40	50	24	24	0 0	UA50-30-00RA	1SBL351024R8100	1.350
		110	110...120	0 0	UA50-30-00RA	1SBL351024R8400	1.350
		220...230	230...240	0 0	UA50-30-00RA	1SBL351024R8000	1.350
		230...240	240...260	0 0	UA50-30-00RA	1SBL351024R8800	1.350
		380...400	400...415	0 0	UA50-30-00RA	1SBL351024R8500	1.350
		400...415	415...440	0 0	UA50-30-00RA	1SBL351024R8600	1.350
50	55	24	24	0 0	UA63-30-00RA	1SBL371024R8100	1.350
		110	110...120	0 0	UA63-30-00RA	1SBL371024R8400	1.350
		220...230	230...240	0 0	UA63-30-00RA	1SBL371024R8000	1.350
		230...240	240...260	0 0	UA63-30-00RA	1SBL371024R8800	1.350
		380...400	400...415	0 0	UA63-30-00RA	1SBL371024R8500	1.350
		400...415	415...440	0 0	UA63-30-00RA	1SBL371024R8600	1.350
60	64	24	24	0 0	UA75-30-00RA	1SBL411024R8100	1.350
		110	110...120	0 0	UA75-30-00RA	1SBL411024R8400	1.350
		220...230	230...240	0 0	UA75-30-00RA	1SBL411024R8000	1.350
		230...240	240...260	0 0	UA75-30-00RA	1SBL411024R8800	1.350
		380...400	400...415	0 0	UA75-30-00RA	1SBL411024R8500	1.350
		400...415	415...440	0 0	UA75-30-00RA	1SBL411024R8600	1.350

(1) Other control voltages see voltage code table.



UA50..RA, UA63..RA, UA75..RA

Main dimensions mm, inches

UA95..RA ... UA110..RA 3-pole contactors for capacitor switching

70 to 80 kvar - Unlimited peak current Î

AC operated



UA110-30-00 RA

UA..RA contactors for capacitor switching can be used for installations in which the peak current far exceeds 100 times nominal rms current. The contactors are delivered complete with their damping resistors and must be used without additional inductances.

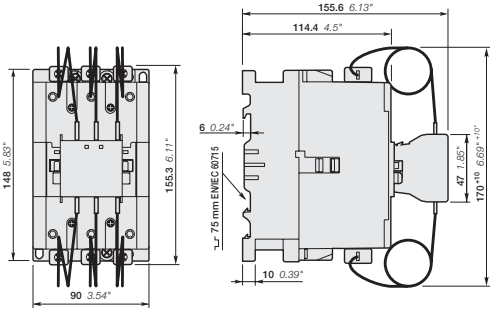
The capacitors must be discharged (maximum residual voltage at terminals ≤ 50 V) before being re-energized when the contactors are making.

These contactors are of the block type design with:

- 3 main poles
- the UA..RA contactors are fitted with a special front-mounted block, which ensures the serial insertion of 3 damping resistors into the circuit to limit the current peak on energization of the capacitor bank
  - their connection also ensures capacitor precharging in order to limit the second current peak occurring upon making of the main poles
  - the insertion of resistors allows to damp the highest current peak of the capacitor when switching on, whatever its level.
- control circuit: AC operated
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC	UL/CSA	Rated control circuit voltage Uc (1)		Auxiliary contacts fitted	Type	Order code	Weight
Rated operational power θ ≤ 40 °C 400 V AC-6b	Rated operational power θ ≤ 40 °C 480 V	V 50 Hz	V 60 Hz				Pkg (1 pce)
							kg
70	80	24	24	0 0	UA95-30-00RA	1SFL431024R8100	2.000
		110	110...120	0 0	UA95-30-00RA	1SFL431024R8400	2.000
		220...230	230...240	0 0	UA95-30-00RA	1SFL431024R8000	2.000
		230...240	240...260	0 0	UA95-30-00RA	1SFL431024R8800	2.000
		380...400	400...415	0 0	UA95-30-00RA	1SFL431024R8500	2.000
		400...415	415...440	0 0	UA95-30-00RA	1SFL431024R8600	2.000
80	95	24	24	0 0	UA110-30-00RA	1SFL451024R8100	2.000
		110	110...120	0 0	UA110-30-00RA	1SFL451024R8400	2.000
		220...230	230...240	0 0	UA110-30-00RA	1SFL451024R8000	2.000
		230...240	240...260	0 0	UA110-30-00RA	1SFL451024R8800	2.000
		380...400	400...415	0 0	UA110-30-00RA	1SFL451024R8500	2.000
		400...415	415...440	0 0	UA110-30-00RA	1SFL451024R8600	2.000

(1) Other control voltages see voltage code table.



UA95..RA, UA100..RA

Main dimensions mm, inches

UA..RA 3-pole contactors for capacitor switching

Unlimited peak current Î

Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories
Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles	Available auxiliary contacts	Front-mounted accessories Auxiliary contact blocks 1-pole CA5-..	Side-mounted accessories Auxiliary contact blocks 2-pole CAL...
				
UA16-30-10RA	3 0	1 0	–	1 x CAL5-11
UA26-30-10RA	3 0	1 0	–	1 to 2 x CAL5-11
UA30-30-10RA	3 0	1 0	1 x CA5-...	+ 1 to 2 x CAL5-11
UA50-30-00RA	3 0	0 0	1 to 2 x CA5-...	+ 1 to 2 x CAL5-11
UA63-30-00RA	3 0	0 0		
UA75-30-00RA	3 0	0 0		
UA95-30-00RA	3 0	0 0	1 to 2 x CA5-...	+ 1 to 2 x CAL18-11
UA110-30-00RA	3 0	0 0		

NF 4-pole and 8-pole contactor relays

Ordering details 4-pole contactor relays

402	NF	AC / DC operated
403	NFZ	24 V DC operated designed for PLC
404	NFZ	AC / DC operated for specific applications
405	Contactor relays and main accessories	

Ordering details 8-pole contactor relays

406	NF	AC / DC operated
407	NFZ	24 V DC operated designed for PLC
408	NFZ	AC / DC operated for specific applications
409	Contactor relays and main accessories	

For direct product details information, use product type or order code, ex:

- www.abb.com/productdetails/**AF09-30-10-13**
- or www.abb.com/productdetails/**1SBL137001R1310**

NF 4-pole contactor relays

AC / DC operated

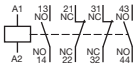
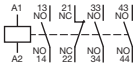


NF22E

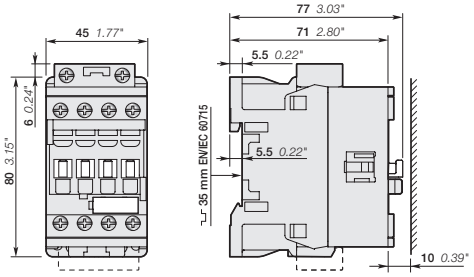
NF contactor relays are used for switching auxiliary and control circuits.

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.

Number of contacts	Rated control circuit voltage Uc min. ... Uc max.			Type	Order code	Weight Pkg (1 pce)
	V 50/60 Hz	V DC				kg
	24...60	20...60	(1)	NF22E-11	1SBH137001R1122	0.270
	48...130	48...130		NF22E-12	1SBH137001R1222	0.270
	100...250	100...250		NF22E-13	1SBH137001R1322	0.270
	250...500	250...500		NF22E-14	1SBH137001R1422	0.310
	24...60	20...60	(1)	NF31E-11	1SBH137001R1131	0.270
	48...130	48...130		NF31E-12	1SBH137001R1231	0.270
	100...250	100...250		NF31E-13	1SBH137001R1331	0.270
	250...500	250...500		NF31E-14	1SBH137001R1431	0.310
	24...60	20...60	(1)	NF40E-11	1SBH137001R1140	0.270
	48...130	48...130		NF40E-12	1SBH137001R1240	0.270
	100...250	100...250		NF40E-13	1SBH137001R1340	0.270
	250...500	250...500		NF40E-14	1SBH137001R1440	0.310

(1) NF..-11 not suitable for direct control by PLC-output.



NF22E, NF31E, NF40E

Main dimensions mm, inches

NFZ 4-pole contactor relays

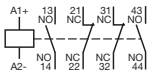
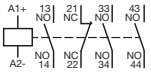
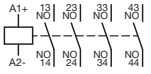
24 V DC operated designed for PLC



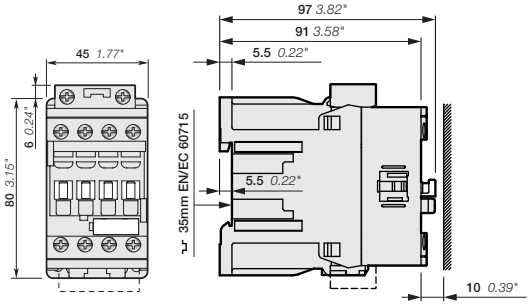
NFZ22E-30

NFZ 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: 24 V DC operated with electronic coil interface allowing low holding consumption up to 1.7 W and reduced panel energy consumption
  - allow direct control by PLC-output ≥ 250 mA 24 V DC
  - 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.

Number of contacts	Rated control circuit voltage Uc V DC	Type	Order code	Weight Pkg (1 pce) kg
4-pole contactor relays				
	24	NFZ22E-30	1SBH136001R3022	0.430
	24	NFZ31E-30	1SBH136001R3031	0.430
	24	NFZ40E-30	1SBH136001R3040	0.430

Note: NFZ contactor relays with DC control voltage 24 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.



NFZ22E, NFZ31E, NFZ40E

Main dimensions mm, inches

NFZ 4-pole contactor relays

AC / DC operated for specific applications

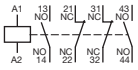
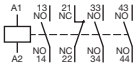
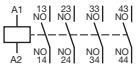


NFZ22E

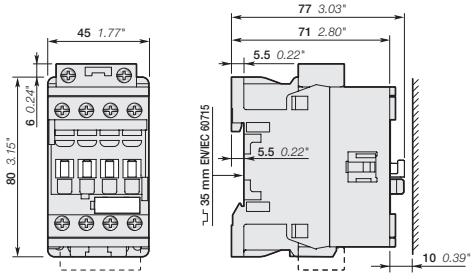
NFZ contactor relays are used for switching auxiliary and control circuits.

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...250 V 50/60 Hz and 12...250 V DC
  - allow direct control by PLC-output ≥ 24 V DC 500 mA
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

Number of contacts	Rated control circuit voltage Uc min. ... Uc max.		Type	Order code	Weight Pkg (1 pce)
	V 50/60 Hz	V DC			kg
	–	12...20	NFZ22E-20	1SBH136001R2022	0.310
	24...60	20...60	NFZ22E-21	1SBH136001R2122	0.310
	48...130	48...130	NFZ22E-22	1SBH136001R2222	0.310
	100...250	100...250	NFZ22E-23	1SBH136001R2322	0.310
	–	12...20	NFZ31E-20	1SBH136001R2031	0.310
	24...60	20...60	NFZ31E-21	1SBH136001R2131	0.310
	48...130	48...130	NFZ31E-22	1SBH136001R2231	0.310
	100...250	100...250	NFZ31E-23	1SBH136001R2331	0.310
	–	12...20	NFZ40E-20	1SBH136001R2040	0.310
	24...60	20...60	NFZ40E-21	1SBH136001R2140	0.310
	48...130	48...130	NFZ40E-22	1SBH136001R2240	0.310
	100...250	100...250	NFZ40E-23	1SBH136001R2340	0.310

Note: Only NFZ contactor relays with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.

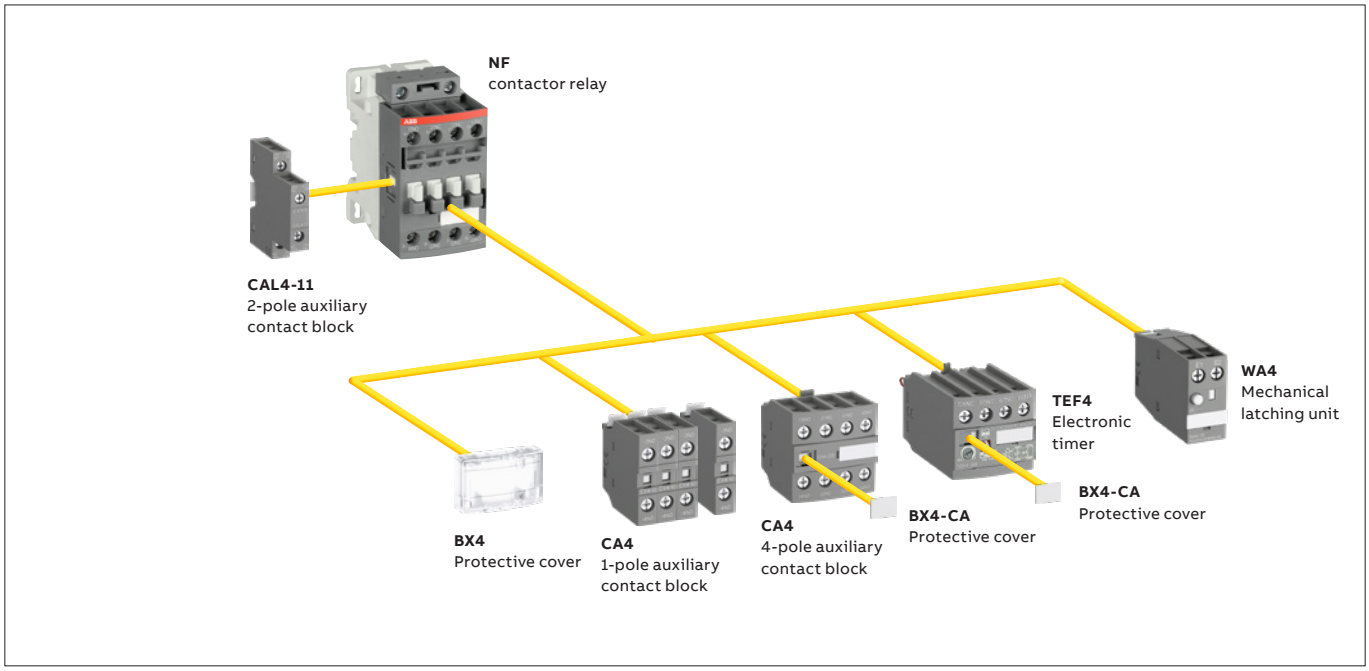


NFZ22E, NFZ31E, NFZ40E

Main dimensions mm, inches

NF 4-pole contactor relays

Contactor relays and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor relay types	Main poles		Front-mounted accessories					Side-mounted accessories	
			Auxiliary contact blocks		Electronic timer	Mechanical latching unit		Auxiliary contact blocks	
								2-pole CAL4-11	
			1-pole CA4	4-pole CA4	TEF4	WA4 (3)		Left side	Right side
NF(Z)									
NF	2 2	E (1)	4 max.	**or** 1	**or** 1	**or** 1	+	1	–
	3 1	E (1)	2 max.	–	**or** 1	**or** 1	+	1	+ 1
	4 0	E (2)							
NFZ 24 V DC designed for PLC - coil 30									
NFZ	2 2	E (1)	4 max.	**or** 1	**or** 1	–	**or**	1	+ 1
	3 1	E (1)	2 max.	–	**or** 1	–	+	1	–
	4 0	E (2)	–	–	1	–	+	1	+ 1

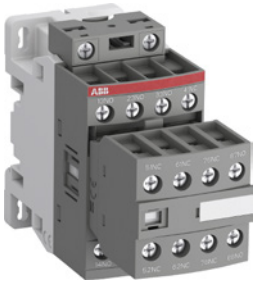
(1) Including add-on contacts: 3 N.C. auxiliary contacts max. on positions 1, 2, 3, 4 and 2 N.C. max. on positions 1 ±30°, 5.
(2) Including add-on contacts: 4 N.C. auxiliary contacts max. on positions 1, 2, 3, 4 and 3 N.C. max. on positions 1 ±30°, 5.
(3) Accept 1-pole CA4 auxiliary contacts (1 block on each side of the mechanical latch) in respect to the total number of additional N.C. auxiliary contacts.
For WA4, accessory use with contactor relays coil 30, please consult your ABB local sales organization.

NF 8-pole contactor relays

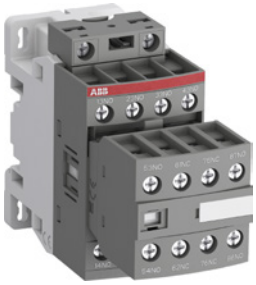
AC / DC operated



NF44E



NF33/11

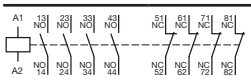
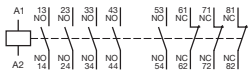
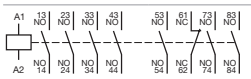
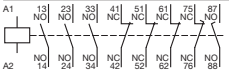


NF51/11

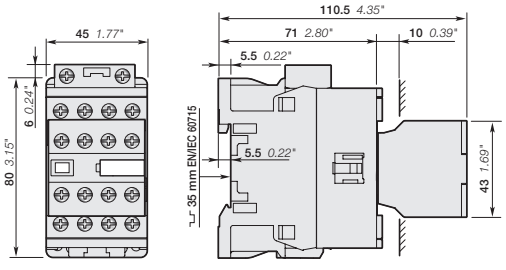
NF contactor relays are used for switching auxiliary and control circuits.

These contactor relays are of the block type design with:

- 8 poles with a permanently fixed 4-pole auxiliary contact block. Contactor relays have mechanically linked auxiliary contact elements (side-marked 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
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

Number of contacts 1st stack	2nd stack	Rated control circuit voltage Uc min. ... Uc max. V 50/60 Hz	V DC		Type	Order code	Weight Pkg (1 pce) kg
8-pole contactor relays							
		24...60	20...60	(1)	NF44E-11	1SBH137001R1144	0.320
		48...130	48...130		NF44E-12	1SBH137001R1244	0.320
		100...250	100...250		NF44E-13	1SBH137001R1344	0.320
		250...500	250...500		NF44E-14	1SBH137001R1444	0.360
		24...60	20...60	(1)	NF53E-11	1SBH137001R1153	0.320
		48...130	48...130		NF53E-12	1SBH137001R1253	0.320
		100...250	100...250		NF53E-13	1SBH137001R1353	0.320
		250...500	250...500		NF53E-14	1SBH137001R1453	0.360
		24...60	20...60	(1)	NF62E-11	1SBH137001R1162	0.320
		48...130	48...130		NF62E-12	1SBH137001R1262	0.320
		100...250	100...250		NF62E-13	1SBH137001R1362	0.320
		250...500	250...500		NF62E-14	1SBH137001R1462	0.360
		24...60	20...60	(1)	NF71E-11	1SBH137001R1171	0.320
		48...130	48...130		NF71E-12	1SBH137001R1271	0.320
		100...250	100...250		NF71E-13	1SBH137001R1371	0.320
		250...500	250...500		NF71E-14	1SBH137001R1471	0.360
		24...60	20...60	(1)	NF80E-11	1SBH137001R1180	0.320
		48...130	48...130		NF80E-12	1SBH137001R1280	0.320
		100...250	100...250		NF80E-13	1SBH137001R1380	0.320
		250...500	250...500		NF80E-14	1SBH137001R1480	0.360
8-pole contactor relays with overlapping of lagging / leading contacts							
		24...60	20...60	(1)	NF33/11-11	1SBH137001R1139	0.320
		48...130	48...130		NF33/11-12	1SBH137001R1239	0.320
		100...250	100...250		NF33/11-13	1SBH137001R1339	0.320
		250...500	250...500		NF33/11-14	1SBH137001R1439	0.320
		24...60	20...60	(1)	NF51/11-11	1SBH137001R1159	0.320
		48...130	48...130		NF51/11-12	1SBH137001R1259	0.320
		100...250	100...250		NF51/11-13	1SBH137001R1359	0.320
		250...500	250...500		NF51/11-14	1SBH137001R1459	0.320

(1) NF..-11 not suitable for direct control by PLC.



NF44E, NF53E, NF62E, NF71E, NF80E, NF33/11, NF51/11

Main dimensions mm, inches

NFZ 8-pole contactor relays

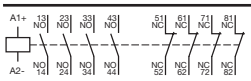
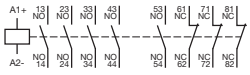
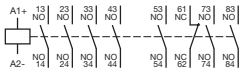
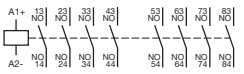
24 V DC operated designed for PLC



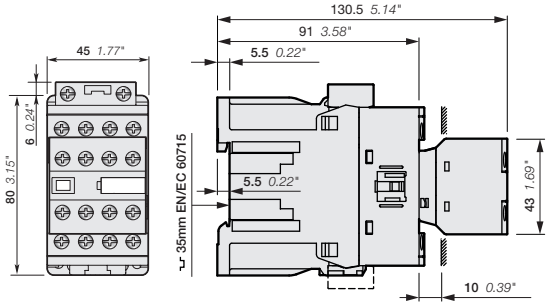
NFZ44E

NFZ 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 4-pole auxiliary contact block. Contactor relays have mechanically linked auxiliary contact elements (side-marked symbol)
- control circuit: 24 V DC operated with electronic coil interface allowing low holding consumption up to 1.7 W and reduced panel energy consumption
  - allow direct control by PLC-output ≥ 250 mA 24 V DC
  - very distinct closing and opening
- built-in surge suppression.

Number of contacts	Rated control circuit voltage Uc V DC	Type	Order code	Weight Pkg (1 pce) kg
8-pole contactor relays				
	24	NFZ44E-30	1SBH136001R3044	0.490
	24	NFZ53E-30	1SBH136001R3053	0.490
	24	NFZ62E-30	1SBH136001R3062	0.490
	24	NFZ71E-30	1SBH136001R3071	0.490
	24	NFZ80E-30	1SBH136001R3080	0.490

Note: NFZ contactor relays with DC control voltage 24 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.



NFZ44E, NFZ53E, NFZ62E, NFZ71E, NFZ80E

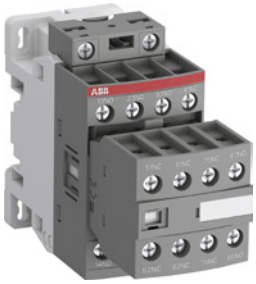
Main dimensions mm, inches

NFZ 8-pole contactor relays

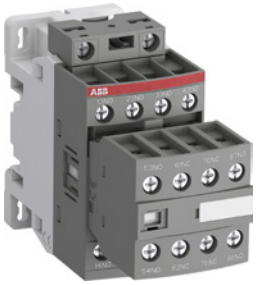
AC / DC operated for specific applications



NFZ44E



NFZ33/11

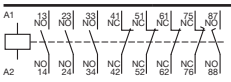
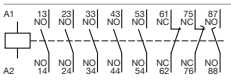


NFZ51/11

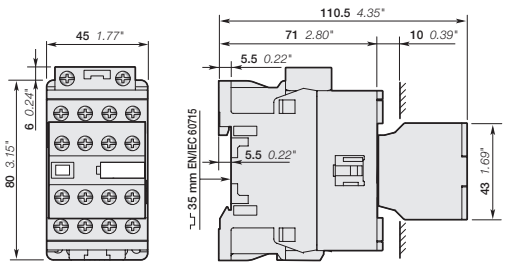
NFZ contactor relays are used for switching auxiliary and control circuits.

These contactor relays are of the block type design with:

- 8 poles with a permanently fixed 4-pole auxiliary contact block. Contactor relays have mechanically linked auxiliary contact elements (side-marked symbol) except for NFZ33/11 and NFZ51/11 variants
- overlapping of lagging / leading contacts for NFZ33/11 and NFZ51/11 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 ... 250 V 50/60 Hz and 12 ... 250 V DC
  - allow direct control by PLC-output ≥ 24 V DC 500 mA
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

Number of contacts 1st stack	2nd stack	Rated control circuit voltage Uc min. ... Uc max. V 50/60 Hz	V DC	Type	Order code	Weight Pkg (1 pce) kg
8-pole contactor relays						
		-	12...20	NFZ44E-20	1SBH136001R2044	0.360
		24...60	20...60	NFZ44E-21	1SBH136001R2144	0.360
		48...130	48...130	NFZ44E-22	1SBH136001R2244	0.360
		100...250	100...250	NFZ44E-23	1SBH136001R2344	0.360
		-	12...20	NFZ53E-20	1SBH136001R2053	0.360
		24...60	20...60	NFZ53E-21	1SBH136001R2153	0.360
		48...130	48...130	NFZ53E-22	1SBH136001R2253	0.360
		100...250	100...250	NFZ53E-23	1SBH136001R2353	0.360
		-	12...20	NFZ62E-20	1SBH136001R2062	0.360
		24...60	20...60	NFZ62E-21	1SBH136001R2162	0.360
		48...130	48...130	NFZ62E-22	1SBH136001R2262	0.360
		100...250	100...250	NFZ62E-23	1SBH136001R2362	0.360
		-	12...20	NFZ71E-20	1SBH136001R2071	0.360
		24...60	20...60	NFZ71E-21	1SBH136001R2171	0.360
		48...130	48...130	NFZ71E-22	1SBH136001R2271	0.360
		100...250	100...250	NFZ71E-23	1SBH136001R2371	0.360
		-	12...20	NFZ80E-20	1SBH136001R2080	0.360
		24...60	20...60	NFZ80E-21	1SBH136001R2180	0.360
		48...130	48...130	NFZ80E-22	1SBH136001R2280	0.360
		100...250	100...250	NFZ80E-23	1SBH136001R2380	0.360
8-pole contactor relays with overlapping of lagging / leading contacts						
		-	12...20	NFZ33/11-20	1SBH136001R2039	0.360
		24...60	20...60	NFZ33/11-21	1SBH136001R2139	0.360
		48...130	48...130	NFZ33/11-22	1SBH136001R2239	0.360
		100...250	100...250	NFZ33/11-23	1SBH136001R2339	0.360
		-	12...20	NFZ51/11-20	1SBH136001R2059	0.360
		24...60	20...60	NFZ51/11-21	1SBH136001R2159	0.360
		48...130	48...130	NFZ51/11-22	1SBH136001R2259	0.360
		100...250	100...250	NFZ51/11-23	1SBH136001R2359	0.360

Note: Only NFZ contactor relays with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole

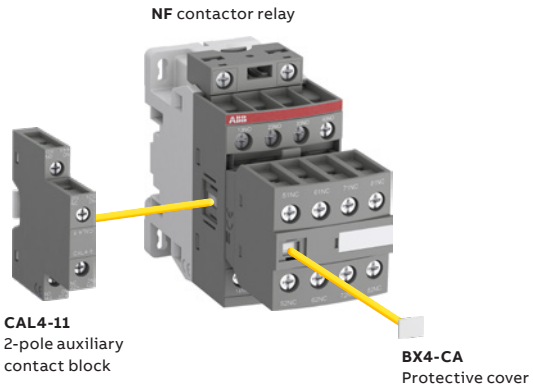


NFZ44E, NFZ53E, NFZ62E, NFZ71E, NFZ80E, NFZ33/11, NFZ51/11

Main dimensions mm, inches

NF 8-pole contactor relays

Contactor relays and main accessories



Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

Contactor relay types	Main poles	Side-mounted accessories Auxiliary contact blocks 2-pole CAL4-11 (1)	
		Left side	Right side
NF	4 4 E 5 3 E 6 2 E 7 1 E 8 0 E 3 3 / 1 1 5 1 / 1 1	1	–

(1) not allowed for 24 V DC operated contactor relay (coil 30).


G 3/8"
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Accessories for AF09 ... AF2850 3-pole contactors, AF09 ... AF370 4-pole contactors and NF contactor relays

412 Auxiliary contact blocks
416 Electronic timers
417 Interlocks
418 Impulse contact blocks
419 Interface relays
420 Mechanical latching units
421 Other accessories
423 Terminal shrouds
424 Additional terminal blocks
426 Connections
427 Terminal connecting strips and shorting bars
428 Connection accessories for starting solutions
429 Connection sets for star-delta starter
430 Connection bars
431 Adapter plates
432 Low Voltage Ride Through (LVRT) modules
433 Spare parts contactors

For direct product details information, use product type or order code, ex:

- www.abb.com/productdetails/**AF09-30-10-13**
- or www.abb.com/productdetails/**1SBL137001R1310**

Auxiliary contact blocks for AF09 ... AF96 contactors and NF contactor relays



CA4-10



CAL4-11



CA4-22E



CAT4-11E

The auxiliary contact blocks are used for the operation of auxiliary circuits and control circuits for standard industrial environments.

Types of auxiliary contact blocks for front mounting:

- CA4 1 or 4-pole block, with instantaneous N.O., N.C. contacts
- CC4 1-pole block, with N.O. leading contact or N.C. lagging contact
- CAT4 2-pole block, with instantaneous N.O. + N.C. contacts and A1 / A2 coil terminal connection on front face.

Select the 4-pole auxiliary contact blocks CA4-..E, CA4-..M, CA4-..U or CA4-..N type, according to the contactor or contactor relay type for compliance with the standard requirements (see "Terminal marking and positioning").

Types of auxiliary contact blocks for side mounting:

- CAL4 2-pole block, with instantaneous N.O. + N.C. contacts.

For clipping onto the right- and/or left-hand side of the contactors.

The auxiliary contact blocks are equipped with screw type connecting terminals delivered open, protected against accidental direct contact and bear the corresponding function marking.

For contactors	Auxiliary contacts		Type	Order code	Pkg qty	Weight (1 pce) kg
Front-mounted instantaneous auxiliary contact blocks						
AF09 ... AF96	1 0	– –	CA4-10	1SBN010110R1010	1	0.014
4-pole NF	1 0	– –	CA4-10-T	1SBN010110T1010	10	0.014
	0 1	– –	CA4-01	1SBN010110R1001	1	0.014
	0 1	– –	CA4-01-T	1SBN010110T1001	10	0.014
AF09 ... AF16..-30-10	2 2	– –	CA4-22M	1SBN010140R1122	1	0.055
	3 1	– –	CA4-31M	1SBN010140R1131	1	0.055
	1 3	– –	CA4-13M	1SBN010140R1113	1	0.055
	0 4	– –	CA4-04M	1SBN010140R1104	1	0.055
AF26 ... AF96..-30-00	2 2	– –	CA4-22E	1SBN010140R1022	1	0.055
AF09 ... AF80..-40-00	3 1	– –	CA4-31E	1SBN010140R1031	1	0.055
AF09 ... AF80..-22-00	4 0	– –	CA4-40E	1SBN010140R1040	1	0.055
AF26 ... AF96..-30-00 AF09 ... AF16..-40-00 AF40 ... AF80..-40-00	0 4	– –	CA4-04E	1SBN010140R1004	1	0.055
AF09 ... AF16..-30-01	2 2	– –	CA4-22U	1SBN010140R1322	1	0.055
	3 1	– –	CA4-31U	1SBN010140R1331	1	0.055
	4 0	– –	CA4-40U	1SBN010140R1340	1	0.055
4-pole NF	2 2	– –	CA4-22N	1SBN010140R1222	1	0.055
	3 1	– –	CA4-31N	1SBN010140R1231	1	0.055
	4 0	– –	CA4-40N	1SBN010140R1240	1	0.055
	1 3	– –	CA4-13N	1SBN010140R1213	1	0.055
NF..40E	0 4	– –	CA4-04N	1SBN010140R1204	1	0.055
Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact						
AF09 ... AF96	– –	1 0	CC4-10	1SBN010111R1010	1	0.014
4-pole NF	– –	0 1	CC4-01	1SBN010111R1001	1	0.014
Side-mounted instantaneous auxiliary contact blocks						
AF09 ... AF96	1 1	– –	CAL4-11	1SBN010120R1011	1	0.040
NF	1 1	– –	CAL4-11-T	1SBN010120T1011	10	0.040
Front-mounted instantaneous auxiliary contact and A1/A2 coil terminal blocks						
AF09 ... AF16..-30-10	1 1	– –	CAT4-11M	1SBN010151R1111	1	0.040
AF26 ... AF65..-30-00 AF09 ... AF52..-40-00 AF09 ... AF40..-22-00	1 1	– –	CAT4-11E	1SBN010151R1011	1	0.040
AF09 ... AF16..-30-01	1 1	– –	CAT4-11U	1SBN010151R1311	1	0.040

Note: 1 max CC4-10 and 1 max CC4-01.
CC4-01 use: on each "Accessory fitting details" table, the allowed number of N.C. add-on and built-in contacts including CC4-01, is decreased by one.

For each contactor or contactor relay type, refer to "Accessory fitting details" table.
Note: CAT4 not suitable for AF..Z contactors with DC control voltage 12…20 V DC (coil 20) and 24 V DC (coil 30).

Auxiliary contact blocks for severe industrial environments for AF09 ... AF96 contactors and NF contactor relays



CE5-10W

The auxiliary contact blocks are used for the operation of auxiliary circuits and control circuits for severe industrial environments.

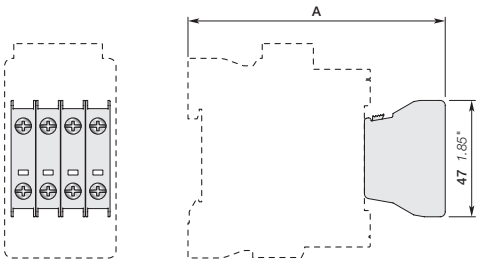
Types of auxiliary contact blocks for front mounting:

- CE5 1-pole block, instantaneous with N.O. contact or N.C. contact, available in 2 IP degrees
  - CE5 D with built-in microswitch IP40, degree of protection (IP20 on terminals)
  - CE5 W with built-in microswitch IP67, degree of protection (IP20 on terminals).

The auxiliary contact blocks are equipped with screw type connecting terminals delivered open, protected against accidental direct contact and bear the corresponding function marking.

For contactors	Auxiliary contacts		Type	Order code	Pkg qty	Weight (1 pce) kg
AF09 ... AF96	1 0	– –	CE5-10D0.1	1SBN010015R1010	1	0.020
NF	0 1	– –	CE5-01D0.1	1SBN010015R1001	1	0.020
	1 0	– –	CE5-10D2	1SBN010017R1010	1	0.020
	0 1	– –	CE5-01D2	1SBN010017R1001	1	0.020
	1 0	– –	CE5-10W0.1	1SBN010016R1010	1	0.020
	0 1	– –	CE5-01W0.1	1SBN010016R1001	1	0.020
	1 0	– –	CE5-10W2	1SBN010018R1010	1	0.020
	0 1	– –	CE5-01W2	1SBN010018R1001	1	0.020

(1) For each contactor type, refer to "Accessory fitting details" table.
Note: For use with 24 V DC operated AF..Z contactor and NFZ contactor relay (coil 30), please consult your ABB local sales organization.



Main dimensions mm, inches

1-pole CE5 on	A
AF09 ... AF16..-30-xx 1 stack AF09, AF16..-40/22-00 NF..E 1-stack	103.5 mm / 4.07"
AF26 ... AF38..-30-00	112.5 mm / 4.43"
AF26, AF38..-40/22-00	127.5 mm / 5.02"
AF40 ... AF65-30-00	137 mm / 5.39"
AF40 ... AF65-40/22-00	140 mm / 5.51"
AF80 ... AF96-30-00	142 mm / 5.59"
AF80-40/22-00	142 mm / 5.59"

Auxiliary contact blocks for AF116 ... AF2850 contactors



CAL19-11



CAL18-11

The auxiliary contact blocks are used for the operation of auxiliary circuits and control circuits for standard industrial environments.

Types of auxiliary contact blocks for side mounting:

- CAL 2-pole block, with instantaneous N.O. + N.C. contacts.

For clipping onto the right- and/or left-hand side of the contactors.

The CAL ...-11B is a second block for mounting in addition to a first CAL ...-11 block, right- and/or left-hand of the AF116 ... AF2850 contactors.

The auxiliary contact blocks are equipped with screw type connecting terminals delivered open, protected against accidental direct contact and bear the corresponding function marking.

For contactors	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce) kg
Side-mounted instantaneous auxiliary contact blocks					
AF116 ... AF370	1 1	CAL19-11	1SFN010820R1011	1	0.040
	1 1	CAL19-11B	1SFN010820R3311	1	0.040
AF400 ... AF2850	1 1	CAL18-11	1SFN010720R1011	2	0.050
	1 1	CAL18-11B	1SFN010720R3311	2	0.050

For each contactor type, refer to "Accessory fitting details" table.

Auxiliary contact blocks for AF116 ... AF2850 contactors for severe industrial environments



CEL19



CEL18

The auxiliary contact blocks are used for the operation of auxiliary and control circuits for severe industrial environments.

Types of auxiliary contact blocks for side mounting:

- CEL 1-pole block, with built-in microswitch IP67 degree of protection (IP20 on terminals). Instantaneous N.O. or N.C. contact.

For clipping onto the right- and/or left-hand side of the contactors.

The auxiliary contact blocks are equipped with screw type connecting terminals delivered open, protected against accidental direct contact and bear the corresponding function marking.

For contactors	Auxiliary contacts 	Type	Order code	Pkg qty	Weight (1 pce) kg
Side-mounting instantaneous auxiliary contact blocks					
AF116 ... AF370	1 0	CEL19-10	1SFN010832R1010	1	0.040
	0 1	CEL19-01	1SFN010832R1001	1	0.040
AF400 ... AF2850	1 0	CEL18-10	1SFN010716R1010	1	0.050
	0 1	CEL18-01	1SFN010716R1001	1	0.050

For each contactor type, refer to "Accessory fitting details" table.

Electronic timers



TEF4-ON



TEF4-OFF



TEF4S-ON



TEF4S-OFF

TEF4 frontal electronic timers are used for realizing timing function and are available in ON-delay and OFF-delay versions.

Compact solution in cabinet compared to separate timers

TEF4 electronic timers are front-mounted and locked on AF contactors or NF contactor relays. A mechanical indicator allows to show the state of the contactor.

Safe and cost-reduced wiring

TEF4 electronic timers are supplied by a direct plug-in parallel connection to the coil terminals A1 - A2 of the contactor or contactor relay. A varistor is integrated on the timer to offer a built-in protection against surges in the contactor coil.

Available for a wide control voltage range 24...240 V AC/DC

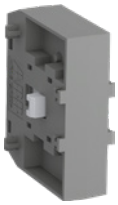
TEF4-ON or TEF4-OFF allow time-delayed functions up to 100 s in 3 distinct time ranges, independently of the control system. The time delay ranges are selected by a switch and the time delay can be adjusted by means of a rotary switch. The timing function is activated by closing or opening the device on which the timer is mounted. The OFF-delay version operates without additional control supply.

For contactors, contactor relays	Time delay range selected by switch	Delay type	Rated control circuit voltage Uc V 50/60 Hz or DC	Auxiliary contacts	Type	Order code		Weight Pkg (1 pce) kg
With screw terminals								
AF09 ... AF96 NF	0.1...1 s 1...10 s 10...100 s	ON-delay OFF-delay	24...240 24...240	1 1 1 1	TEF4-ON TEF4-OFF	1SBN020112R1000 1SBN020114R1000		0.065 0.065
With spring terminals								
AF09 ... AF96 NF	0.1...1 s 1...10 s 10...100 s	ON-delay OFF-delay	24...240 24...240	1 1 1 1	TEF4S-ON TEF4S-OFF	1SBN020113R1000 1SBN020115R1000		0.065 0.065

Interlocks



VM4

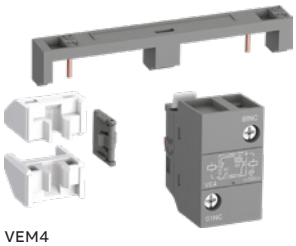


VM19

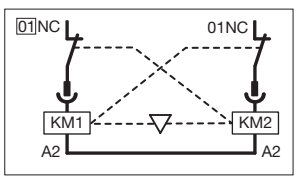
Mechanical interlock units

The VM mechanical interlock units are designed for the interlocking of two AF contactors.
When mounted between two contactors, the VM mechanical interlock unit prevents one of the contactors from closing as long as the other contactor is closed.
The mechanical interlock units VM4 and VM96-4 include 2 fixing clips (BB4).

For contactors	Mounting	Type	Order code	Pkg qty	Weight (1 pce) kg
Mechanical interlock units for two contactors mounted side by side					
AF09 ... AF38..-30-.. AF09 ... AF38..-40-00		VM4	1SBN030105T1000	10	0.005
AF40 ... AF96-30-.. AF40 ... AF80-40-00		VM96-4	1SBN033405T1000	10	0.006
For same size contactors: AF116 ... AF146 AF190, AF205 AF265 ... AF370		VM19	1SFN030300R1000	1	0.054
AF116 ... AF146 and AF190, AF205		VM140/190	1SFN034403R1000	1	0.088
AF190, AF205 and AF265 ... AF370		VM205/265	1SFN035203R1000	1	0.090
AF265 ... AF370 and AF400 ... AF460		VM370/400	1SFN035403R1000	1	0.100
AF400 ... AF1250	PN.. mounting plate to be ordered separately	VM750H	1SFN035700R1000	1	0.200
AF1350 ... AF2650	Plate included	VM1650H	1SFN036503R1001	1	6.000
Mechanical interlock units for two contactors mounted one above the other					
AF400 ... AF1250	Additional plate (not supplied)	VM750V	1SFN035701R1000	1	0.200



VEM4





BB4

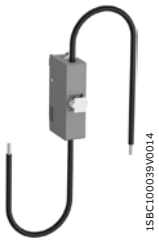
Mechanical and electrical interlock sets

VEM4 mechanical and electrical interlock set for the interlocking of two AF contactors.
VEM4 set includes a mechanical interlock unit VM4 with 2 fixing clips (BB4) and a VE4 electrical interlock block with A2-A2 connection.
Fixing the electrical interlock block to the contactor front face connects the 2 built-in N.C. interlocking contacts with the two coils. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.

For contactors	Auxiliary contacts 	Type	Order code	Pkg qty	Weight (1 pce) kg
Mechanical and electrical interlock set					
For same size contactors: AF09 ... AF16..-30-.. AF26 ... AF38..-30-00 AF09, AF16..-40-00 AF26, AF38..-40-00	0 2	VEM4	1SBN030111R1000	1	0.035
Fixing clips					
AF09 ... AF96		BB4	1SBN110120W1000	50	0.002

Note: VEM4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC (coil 20) and 24 V DC (coil 30).

Impulse contact blocks



CB5

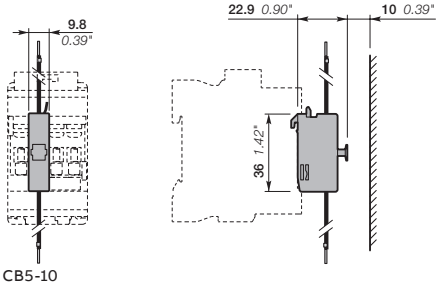
Impulse contact blocks are designed for use in enclosures, in association with an adjustable mechanical pushbutton. Two types are available:

- CB5-10: N.O. contact with a black actuator ("ON" function)
- CB5-01: N.C. contact with a light grey actuator ("OFF" function).

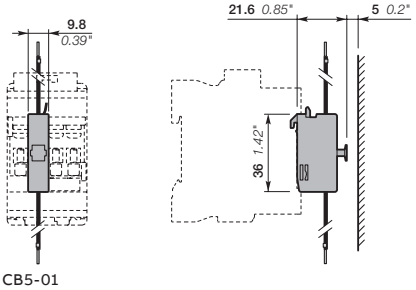
These blocks are equipped with 2 connecting leads 0.5 mm² with end, approximately 18 cm long.

Mounting: Clipped onto the front face of the contactors.

For contactors	Contacts		Type	Order code	Pkg qty	Weight (1 pce)
						kg
AF09 ... AF96	1	–	CB5-10	1SBN010013R1010	1	0.012
	–	1	CB5-01	1SBN010013R1001	1	0.012



CB5-10



CB5-01

Main dimensions mm, inches

RA4 interface relays



RA4

RA4 interface relay is designed to receive 24 V DC signals delivered by PLC's or other sources with a low output power and to restore them with sufficient power to operate the coils of the relevant AF09 ... AF96 contactors or the NF contactor relays. RA4 interface relay is made up of a miniature electromechanical relay equipped with a N.O. contact and with a low consumption 24 V DC coil.

The interface relay coil is controlled by the PLC while the N.O. contact ensures switching of the power contactor.

Coil switching gives rise to overvoltages which have adverse effects on the electronic devices, insulators and, more generally, on component lifetime. The RA4 is protected from surge thanks to the built-in surge protection of AF09 ... AF96. Furthermore, the RA4 is protected against relay pole reversal by a diode inserted between the E1 and E2 input terminals.

Connection

The "E1+" and "E2–" input terminals must be connected, according to their polarity, to the PLC-output.

The RA4 is equipped with two terminal pads for connection to the A1 and A2 terminals of the contactor coil.

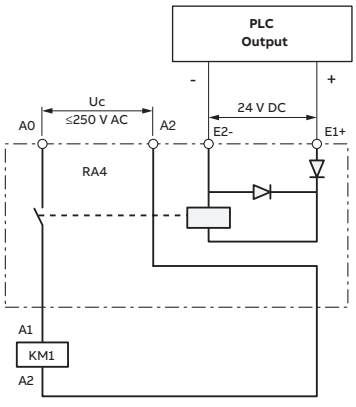
This coil is supplied between the A0 and A2 terminals of the RA4.

Mounting

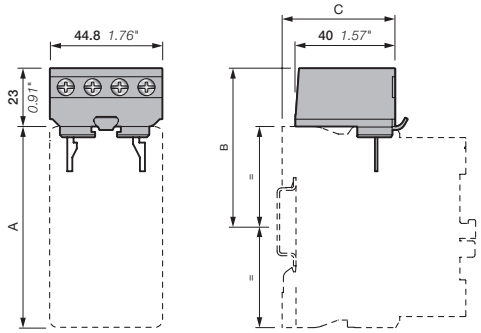
Remove the coil terminal block from the contactor and clip the interface relay without any screwing operation.

For contactors (1)	Coil voltages (2) V AC 50/60 Hz (4)	Rated control circuit voltage Uc V DC	Type	Order code	Pkg qty	Weight (1 pce) kg
AF09 ... AF96 NF	24 ... 250	24	RA4	1SBN060100R1000	1	0.040

(1) LDC4 additional terminal blocks and CAT4 auxiliary contact blocks not suitable with RA4.
(2) Main use with contactor coils 41, 11, 12, 13.



Wiring diagram



RA4 mounted on	AF09 ... AF38	AF40 ... AF96
A	80 mm / 3.15"	119.5 mm / 4.70"
B	63 mm / 2.48"	83 mm / 3.27"
C	45 mm / 1.77"	40 mm / 1.57"

Main dimensions mm, inches

Mechanical latching unit



WA4

The WA4 mechanical latching unit for AF09 ... AF96 contactors and NF contactor relays ensures that the contactor or contactor relay remains switched on even if there is a lack or a failure of voltage. Standard contactors can be easily converted into compact latched contactors.

The WA4 block contains a mechanical latching device with electromagnetic impulse unlatching (AC or DC) or manual unlatching.

Operation

After closing, the contactor continues to be held in the closed position by the latching mechanism should the supply voltage fail at the contactor coil terminals.

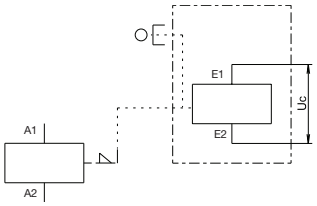
Contactor opening can be controlled:

- electrically by an impulse (AC or DC) on the WA4 block coil (the coil is not designed to be permanently energized)
- manually by pressing the pushbutton on the front face of the WA4 block.

Mounting

The WA4 block is clipped onto the front face of the 1-stack contactor where it takes up two slots in central position (see fig. below).
The two other slots may accept CA4 single pole auxiliary contacts (1 block on each side of the mechanical latch).

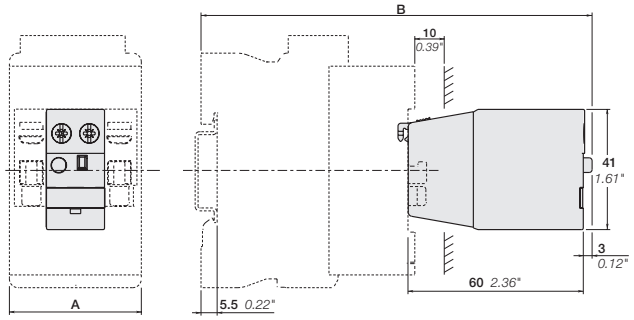
Additional CAL4 can be fitted on the side of the contactor in respect to the total number of built-in or additional N.O. and N.C. auxiliary contacts as described in the accessory fitting details part of each contactor type.



Wiring diagram

For contactors and contactor relays	Rated control circuit voltage Uc		Type	Order code	Pkg qty	Weight (1 pce)
	V AC 50/60 Hz	V DC				kg
AF09 ... AF65, 4-pole NF	24...60	24...60	WA4-11	1SBN040100R1011	1	0.080
	48...130	48...130	WA4-12	1SBN040100R1012	1	0.080
	100...250	100...250	WA4-13	1SBN040100R1013	1	0.080
	250...500	250...500	WA4-14	1SBN040100R1014	1	0.080
AF80, AF96	24...60	24...60	WA4-96-11	1SBN040200R1011	1	0.080
	48...130	48...130	WA4-96-12	1SBN040200R1012	1	0.080
	100...250	100...250	WA4-96-13	1SBN040200R1013	1	0.080
	250...500	250...500	WA4-96-14	1SBN040200R1014	1	0.080
Mechanical latching unit for 24 V DC - 500 mA PLC control						
AF09 ... AF38, 4-pole NF	–	24	WA4-10	1SBN040100R1010	1	0.080

Note: For WA4 accessory use with contactor or contactor relay coil 30, please consult your ABB local sales organization.



WA4 + AF09 ... AF96, NF 1-stack

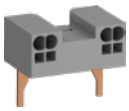
Main dimensions mm, inches

For contactors and contactor relays	A mm in.	B mm in.
AF09 ... 16(Z)-30-.. AF09 ... 16(Z)-40/22-00 NF(Z)	45 1.77"	133.5 5.25"
AF26 ... 38(Z)-30-00	45 1.77"	142.5 5.61"
AF26 ... 38(Z)-40/22-00	45 1.77"	157.5 1.77"
AF40 ... 65-30-00	55 2.16"	167 6.57"
AF40-40/22-00	70 2.75"	170 6.70"
AF52-40-00	70 2.75"	170 6.70"
AF80, 96-30-00	70 2.75"	172 6.77"
AF80-40/22-00	90 3.54"	172 6.77"

Other accessories



LDC4



LDC4K



BX4



BX4-CA



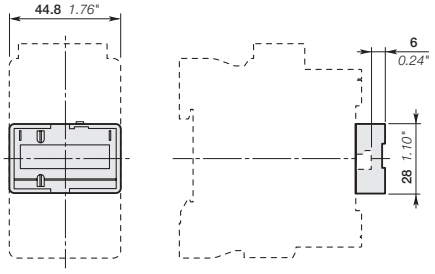
BA4



BA5-50

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
Additional coil terminal blocks				
Additional coil terminal blocks for a top and/or bottom access to the coil terminals of contactors or contactor relays.				
With screw terminal				
AF09 ... AF96, NF	LDC4	1SBN070156T1000	10	0.010
With Push-in Spring terminal				
AF09 ... AF96, NF	LDC4K	1SBN070159T1000	10	0.010
Protective covers				
Sealable and transparent protective covers BX4 and non-removable BX4-CA to protect the devices against accidental contact.				
AF09 ... AF96 1-stack contactors and NF contactor relays	BX4	1SBN110108T1000	10	0.006
4-pole CA4, 2-pole CAT4 auxiliary contact blocks and TEF4 electronic timer	BX4-CA	1SBN110109W1000	50	0.001
Function markers AF09 ... AF2850				
Function markers designed to be clipped onto the front face of the contactor, manual motor starter or overload relays to identify them. Details can be added to these markers using a ball point pen, indelible felt-tip pen or pentel white. Self-adhesive labels (not supplied) can also be added to them. - BA4 : box with 16 blank cards (16 markers by card). Marker dimensions: 7 x 20 mm (.276" x .787"). - BA5 : set of 50 pieces. Marker dimensions: 7 x 19 mm (.276" x .748").				
AF09 ... AF370 contactors, TF thermal overload relays, EF electronic overload relays and MS116, MS132 manual motor starters	BA4	1SNA235156R2700	16	0.011
AF400 ... AF2850 and accessories	BA5-50	1SBN110000R1000	1	0.017

Note: BX4 produced since 13045 (day 045 - year 2013) are suitable for AF40 ... AF96.



BX4

Main dimensions mm, inches

Other accessories



BP38-4

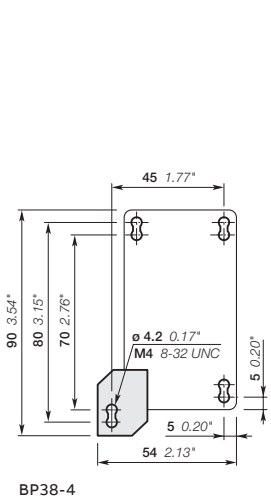


BDT4
For AF09 ... AF65, NF

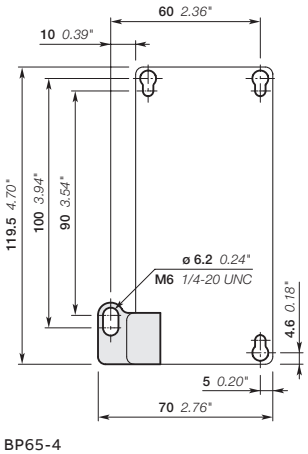


BDT4
For AF80 ... AF96

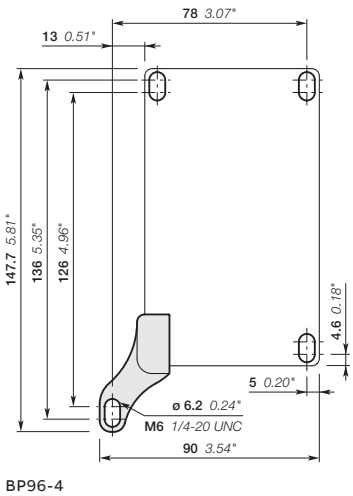
For contactors		Type	Order code	Pkg qty	Weight (1 pce) kg
Mounting piece for replacing installed contactors fixed by screws by AF contactors.					
From contactor	**To contactor**				
A26 ... A40, AL26 ... AL40	AF09 ... AF38	BP38-4	1SBN112303T1000	10	0.003
A50 ... A75, AE50 ... AE75, AF50 ... AF75	AF40 ... AF65	BP65-4	1SBN113403T1000	10	0.004
A95, A110, AE95, AE110, AF95, AF110	AF80 ... AF96	BP96-4	1SBN113903T1000	10	0.005
Test block					
BDT4 test block is suitable for switching on contactor off-load. Marking on the block indicates the contactor type to fit with.					
AF09...AF96, NF		BDT4	1SBN110122T1000	10	0.007



BP38-4



BP65-4



BP96-4

Main dimensions mm, inches

Terminal shrouds



LT65-30



LT140-30L



LT370-30C



LT460-AC



LT80-40



LT205-40

Main terminal protection for AF40 ... AF1250 contactors.

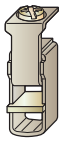
The auxiliary contact blocks and coils are designed to provide an IP 20 degree of protection.

The main terminals, equipped with compression lugs or cable clamps, can be protected against accidental direct contact after wiring (EN 50274) by the addition of terminal shrouds (see table below).

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
3-pole contactors				
AF40 ... AF65	LT65-30	1SBN123401R1000	1	0.015
AF80, AF96	LT96-30	1SBN123901R1000	1	0.020
AF116 ... AF146, with compression lugs	LT140-30L	1SFN124203R1000	2	0.070
AF190, AF205, with cable clamps	LT205-30C	1SFN124801R1000	2	0.050
AF190, AF205, with compression lugs	LT205-30L	1SFN124803R1000	2	0.220
AF190, AF205, with shorting bar or between contactor and TOL/EOL in DOL starters	LT205-30Y	1SFN124804R1000	1	0.050
AF265 ... AF370, with cable clamps	LT370-30C	1SFN125401R1000	2	0.035
AF265 ... AF370, with compression lugs	LT370-30L	1SFN125403R1000	2	0.280
AF265 ... AF370, with shorting bar or between contactor and TOL/EOL in DOL starters	LT370-30Y	1SFN125404R1000	1	0.075
AF265 ... AF370, for use with extending cable clamps, ATK300/2 and OZXB4	LT370-30D	1SFN125406R1000	1	0.15
AF400, AF460 with cable clamps	LT460-AC	1SFN125701R1000	2	0.100
AF400, AF460 with compression lugs	LT460-AL	1SFN125703R1000	2	0.800
AF580, AF750 with cable clamps	LT750-AC	1SFN126101R1000	2	0.120
AF580, AF1250 with compression lugs	LT750-AL	1SFN126103R1000	2	0.825
4-pole contactors				
AF40, AF52	LT52-40	1SBN123402R1000	1	0.020
AF80	LT80-40	1SBN123902R1000	1	0.025
AF116 ... AF140, with compression lugs	LT140-40L	1SFN124203R2000	2	0.090
AF190 ... AF205, with cable clamps	LT205-40C	1SFN124801R2000	2	0.035
AF190 ... AF205, with compression lugs	LT205-40L	1SFN124803R2000	2	0.140
AF265 ... AF370, with cable clamps	LT370-40C	1SFN125401R2000	2	0.040
AF265 ... AF370, with compression lugs	LT370-40L	1SFN125403R2000	2	0.165

Note: With LT65-30, LT96-30, LT52-40, LT80-40, use rigid cables or flexible cables with insulated ferrules including a stripping length ≥ 18 mm.

Connecting characteristics with LT ... terminal shrouds

Contactor types	AC / DC operated	AF40 ... 65 + LT65 ...	AF80 ... 96 + LT ...
			
		Screw terminals with double connector 2 x (9.3 width x 7.9/10.3 depth)	Screw terminals with double connector 2 x (12.4 width x 9.3/11.1 depth)
Connection capacity (min. ... max.) Main contactor (poles)			
Rigid solid	1 x	6...16 mm² or 25 ...35 mm²	6...16 mm² or 25 ...70 mm²
	2 x	6...16 mm² or 25 ...35 mm²	6...16 mm² or 35 ... 50 mm²
Flexible with insulated ferrule	1 x	4...16 mm² or 25 ...35 mm²	6...16 mm² or 25 ...50 mm²
	2 x	4...16 mm² or 25 ...35 mm²	6...16 mm² or 35 ...50 mm²
Bars or Lugs	L <	9.2 mm	12.2 mm
Connection capacity acc. to UL / CSA	1 x	AWG 10...6 or AWG 4..2	AWG 6 or AWG 4..1
	2 x	AWG 10...6 or AWG 4..2	AWG 6 or AWG 2..1
Stripping length		18 mm	18 mm
Tightening torque Recommended		4 Nm / 35 lb.in	6 Nm / 53 lb.in
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529 Main terminals equipped with LT		IP20	
Screw terminals Main terminals		M6	M8
	Screwdriver type	Flat Ø 6.5 / Pozidriv 2	hexagon socket (s = 4 mm)

Additional terminal blocks

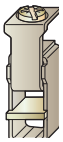


LD38-4

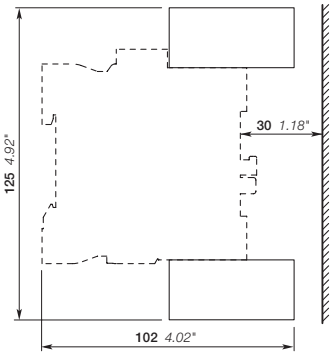
The LD terminal block is designed to increase the connecting capacity of 3-pole AF26 ... AF38 contactors on which it is fitted and for preparation of the wiring before final connection to the contactor. LD38-4 blocks are 3-pole terminal blocks with tunnel terminals.

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
AF26 ... AF38	LD38-4	1SBN072308R1000	2	0.070

Technical data

Types	LD38-4
Rated insulation voltage Ui	
acc. to IEC 60947-4-1	690 V
acc. to UL / CSA	600 V
Main terminals	
	Screw terminals with double connector 2 x (7 width x 5.8/9.2 depth)
Connection capacity (min. ... max.)	
Rigid Solid (≤ 4 mm²)	1x 2.5...25 mm²
Stranded (≥ 6 mm²)	1x 2.5...25 mm² + 1x 2.5...16mm²
Flexible with non insulated ferrule	1x 2.5...16 mm²
	1x 2.5...16mm² + 1x 2.5...10mm²
Flexible with insulated ferrule	1x 2.5...16mm²
	1x 2.5...16mm² + 1x 2.5...10mm²
Connection capacity acc. to UL / CSA	1x AWG 8-4
	2x AWG 8-6
Stripping length	14 mm
Tightening torque	2.5 Nm / 22 lb.in
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529	IP20
Screw terminals	Delivered in closed position, screws of unused terminals must be tightened
Main terminals	M5
Screwdriver type	Flat Ø 6.5 / Pozidriv 2

Note: The utilization of LD38-4 additional terminal blocks does not allow the use of BER and BEY connection sets.



Main dimensions mm, inches

Terminals for control lead connections



LK96-4F

Terminal designed to connect the control conductors to the main poles of the AF40 ... AF96 contactors and derivative versions.

Accessory clipped into the slots placed above each power terminal connector.

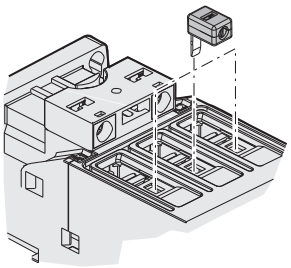
The LK96-4F is fitted with a pin designed to hold them in place until the connector has been fully clamped with its power cable.

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
AF40 ... AF96	LK96-4F	1SBN073452R2000	2	0.005

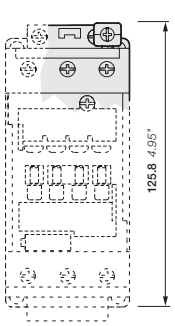
Note : LK96 not compatible with LT Terminal shrouds

Technical data

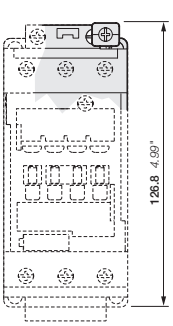
Types		LK96-4..
Connection capacity (min. ... max.)		
Rigid	1 x	1...2.5 mm²
	2 x	1...2.5 mm²
Flexible with non insulated ferrule	1 x	0.75...2.5 mm²
	2 x	0.75...2.5 mm²
Flexible with insulated ferrule	1 x	0.75...2.5 mm²
	2 x	0.75...1.5 mm²
Lugs	L ≤	8 mm
Connection capacity acc. to UL / CSA	1 or 2 x	AWG 18...14
Stripping length		10 mm
Tightening torque		1.2 N.m / 11 lb.in
Degree of protection acc. to IEC/EN 60947-1 and IEC/EN 60529		IP20
Screw terminals		Delivered in open position, screws of unused terminals should be tightened
All terminals		M3.5
Screwdriver type		Flat Ø 5.5 / Pozidriv 2



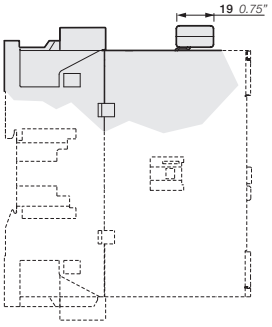
LK positioning



AF40, AF52, AF65 + LK96-4F



AF80, AF96 + LK96-4F



Main dimensions mm, inches

Connections



LW140



LW205-40



LX140



LL146-30



LD146-30

Terminal enlargements

Enlargement pieces designed to increase the width of the contactor terminal pads in order to allow larger connections to be mounted.

For contactors	Dimensions		Type	Order code	Pkg qty	Weight (1 pce)
	hole Ø mm	bar mm				kg
3-pole contactors						
AF116 ... AF146	6.5	13 x 3	LW140	1SFN074207R1000	1	0.115
AF190, AF205	10.5	17.5 x 5	LW205	1SFN074807R1000	1	0.260
AF265 ... AF370	10.5	25 x 5	LW370	1SFN075407R1000	1	0.340
AF400, AF460	10.5	25 x 5	LW460	1SFN075707R1000	1	0.730
AF580, AF750	13	40 x 6	LW750	1SFN076107R1000	1	1.230
AF1250	13	50 x 10	LW1250	1SFN076407R1000	1	2.000
4-pole contactors						
AF190 ... AF205	10.5	20 x 5	LW205-40	1SFN074807R2000	1	0.306
AF265 ... AF370	10.5	25 x 5	LW370-40	1SFN075407R2000	1	0.540

Terminal extension

Extension pieces designed to extend the main terminals of contactors for combined mounting of contactors and connection sets.

For 3-pole contactors	Dimensions		Type	Order code	Pkg qty	Weight (1 pce)
	hole Ø mm	bar mm				kg
AF116 ... AF146	6.5	13 x3	LX140	1SFN074210R1000	1	0.072
AF190, AF205	8.5	17.5 x 5	LX205	1SFN074810R1000	1	0.180
AF265 ... AF370	10.5	20 x 5	LX370	1SFN075410R1000	1	0.234
AF400, AF460	10.5	25 x 5	LX460	1SFN075710R1000	1	0.500
AF580, AF750	13	40 x 6	LX750	1SFN076110R1000	1	0.850

Connection sockets

Connection socket can be used to replace built-in cable clamps in AF116 ... AF146.

For contactor	Type	Order code	Pkg qty	Weight (1 pce)
				kg
3-pole contactors				
AF116 ... AF146	LL146-30	1SFN074211R1000	6	0.102
AF190 ... AF205	LL205-30	1SFN074811R1000	1	0.166
AF265 ... AF370	LL370-30	1SFN075411R1000	1	0.173
AF400 ... AF460	LE460	1SFN075716R1000	6	0.600
AF580 ... AF750	LE750	1SFN076116R1000	6	0.750
4-pole contactors				
AF116 ... AF140	LL146-40	1SFN074211R2000	8	0.132
AF190 ... AF205	LL205-40	1SFN074811R2000	2	0.216
AF265 ... AF370	LL370-40	1SFN075411R2000	2	0.224

Connection module

Connection module can be fixed on AF116 ... AF146 delivered with bar terminals.

For contactor	Type	Order code	Pkg qty	Weight (1 pce)
				kg
3-pole contactors				
AF116 ... AF146	LD146-30	1SFN074208R1000	2	0.165
4-pole contactors				
AF116 ... AF140	LD146-40	1SFN074208R2000	2	0.225

Terminal connecting strips and shorting bars



LY16-4

Parallel and series connection of 3-pole contactors:

- To obtain a star point (3 parallel-connected poles)
- To connect poles in parallel and thus increase the AC load passing through the flow path made up of the parallel-connected poles: LP, LY, LH, LF, LG.
  The relevant cable cross-sectional area may limit the maximum permissible current. Consult information in table below
- To connect poles in series and thus increase the DC voltage controlled by the poles: LP, LY (only LY16-4 and LY38-4 secable strips).



LY185

Types	for connection of "n" poles	with terminal	insulated
LP	n = 2	no	no (1)
LY	n = 2 (secable LY16-4, LY38-4 connecting strips)	no	yes
	n = 3	no	yes (1)
LH	n = 2	yes	no
LF	n = 3	yes	yes
LG	n = 4	yes	yes

(1) LP460 ... LP750, LY185 ... LY750 not insulated. Use terminal shrouds.



LH38-4

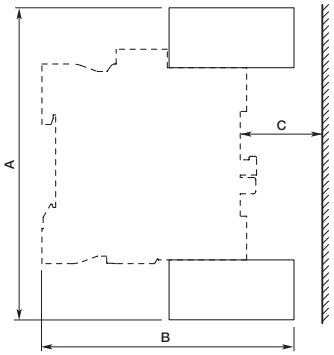


LF16-4



LG16-4

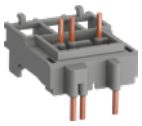
For contactors	max. nominal continuous current with "n" poles				Cable cross-sectional area	Type	Order code	Pkg qty	Weight (1 pce)
	in parallel			in series					
	2 poles	3 poles	4 poles	2 poles					
	A				mm^2				kg
AF09	30	33	–	25	6	LY16-4	1SBN071303T1000	10	0.006
AF12	32	36	–	27					
AF16	34	40	–	30					
AF26	50	60	–	45	10	LY38-4	1SBN072303T1000	10	0.012
AF116 ... AF146	–	240	–		–	LY140	1SFN074203R1000	1	0.055
AF190, AF205	–	400	–		–	LY185	1SFN074703R1000	1	0.200
AF265 ... AF370	–	670	–		–	LY300	1SFN075103R1000	1	0.300
AF400, AF460	–	1000	–		–	LY460	1SFN075703R1000	1	0.450
AF580, AF750	–	1650	–		–	LY750	1SFN076103R1000	1	0.800
AF190, AF205	300	–	–		–	LP185	1SFN074712R1000	2	0.300
AF265 ... AF370	475	–	–		–	LP300	1SFN075112R1000	2	0.400
AF400, AF460	725	–	–		–	LP460	1SFN075712R1000	2	0.550
AF580, AF750	1200	–	–		–	LP750	1SFN076112R1000	2	0.950
AF09	45		–	–	10	LH38-4	1SBN072304R1000	2	0.012
AF12	50		–	–	10				
AF16	54		–	–	16				
AF26	81		–	–	25				
AF30, AF38	90		–	–	25				
AF09		62	–		16	LF16-4	1SBN071305R1000	2	0.020
AF12		70	–		25				
AF16		75	–		25				
AF26		112	–		35	LF38-4	1SBN072305R1000	2	0.040
AF30, AF38		125	–		50				
AF09	–	–	70	–	25	LG16-4	1SBN071306R1000	2	0.025
AF12	–	–	78	–	25				
AF16	–	–	84	–	25				



Main dimensions

Type	For contactors	Dimensions					
		A		B		C	
		mm	inch	mm	inch	mm	inch
LH38-4	AF09 ... AF16	111.20	4.38"	83	3.27"	22	0.87"
	AF26 ... AF38	114	4.49"	86	3.39"	16	0.63"
LF16-4	AF09 ... AF16	121	4.76"	87	3.43"	23	0.91"
LF38-4	AF26 ... AF38	135.20	5.32"	103	4.06"	31	1.22"
LG16-4	AF09 ... AF16	124.20	4.89"	87	3.43"	23	0.91"

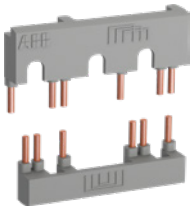
Connection accessories for starting solutions



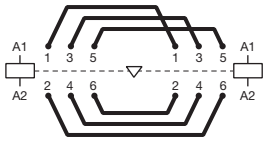
BEA16-4



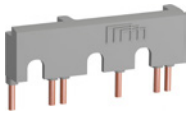
BPR65-4



BER16-4



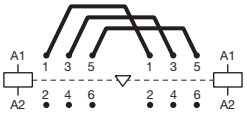
BER, BEM
Reversing connections



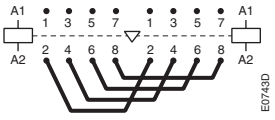
BEP16-30



BEP140-30



BEP, BES
3-pole phase to phase connections



BEP
4-pole changeover connections

Connecting links with manual motor starters

The BEA insulated 3-pole connecting links are used to connect AF09 ... AF65 contactors with the MS116 or MS132 or MS165 manual motor starters. The BEA insulated 3-pole connecting links ensure the electrical and mechanical connection between the contactor and the associated manual motor starter. BPR65-4 35 mm rail hooks used with BEA65-4 connecting link, allow direct mounting on 2 rails 35 mm of MS165 manual motor starters with AF40 ... AF65 contactors.

For 3-pole contactors	Manual motor starter	Type	Order code	Pkg qty	Weight (1 pce) kg
AF09 ... AF16	MS116-0.16 ... MS116-25, MS132-0.16... MS132-25	BEA16-4	1SBN081306T1000	10	0.025
AF26 ... AF38	MS116-0.16 ... MS116-16, MS132-0.16 ... MS132-10	BEA26-4	1SBN082306T1000	10	0.025
	MS116-20 ... MS116-32, MS132-12 ... MS132-32	BEA38-4	1SBN082306T2000	10	0.030
AF40 ... AF65	MS165-16 ... MS165-65	BEA65-4	1SBN083406R1000	1	0.090
	MS165-16 ... MS165-65 (1)	BPR65-4 (2)	1SBN113405R1000	1	0.014

Note : BEA not suitable for AF..Z contactors with DC control voltage 24 V DC (coil 30).
(1) Applicable for MS165 manufactured after week 31, 2016 (date code > 16214).
(2) Use one BPR65-4 for each contactor AF40 ... AF65.

Connection sets for reversing contactors

The BER and BEM connection sets are used to connect the main poles of two 3-pole contactors mounted side by side. The BER connection sets are made up of 1 upstream and 1 downstream connections. The BEM connection sets are made up of 3 upstream and 3 downstream connections. BER and BEM connection sets are insulated and made of solid copper bars.

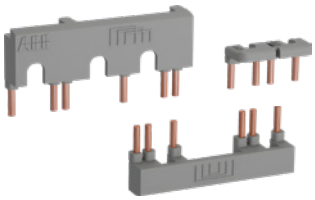
For 3-pole contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
AF09 ... AF16	BER16-4	1SBN081311R1000	1	0.045
AF26 ... AF38	BER38-4	1SBN082311R1000	1	0.100
AF40 ... AF65	BER65-4	1SBN083411R1000	1	0.175
AF80, AF96	BER96-4	1SBN083911R1000	1	0.250
AF116 ... AF146	BER140-4	1SFN084211R1000	1	0.615
AF190, AF205	BER205-4	1SFN084811R1000	1	1.237
AF265 ... AF370	BER370-4	1SFN085411R1000	1	2.140
AF400, AF460	BEM460-30	1SFN085701R1000	1	4.400
AF580, AF750	BEM750-30	1SFN086101R1000	1	7.300

Phase to phase connections

The BEP and BES connection sets are used to connect phase to phase between the main poles of two contactors mounted side by side. 4-pole contactors will then operate as source reversing contactors. The BEP connection sets contain 1 busbar used for upstream or downstream connection. The BES connection sets are made up of 3 busbars used for upstream or downstream connection. BEP and BES connection sets are insulated and made of solid copper bars.

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
3-pole contactors				
AF09 ... AF16	BEP16-30	1SBN081314R1000	1	0.025
AF26 ... AF38	BEP38-30	1SBN082314R1000	1	0.050
AF116 ... AF146	BEP140-30	1SFN084214R1000	1	0.320
AF190, AF205	BEP205-30	1SFN084814R1000	1	0.534
AF265 ... AF370	BEP370-30	1SFN085414R1000	1	0.926
AF400, AF460	BES460	1SFN085704R1000	1	2.200
AF580, AF750	BES750	1SFN086104R1000	1	3.700
4-pole contactors				
AF116 ... AF140	BEP140-40	1SFN084214R2000	1	0.420
AF190 ... AF205	BEP205-40	1SFN084814R2000	1	0.710
AF265 ... AF370	BEP370-40	1SFN085414R2000	1	1.230

Connection sets for star-delta starter

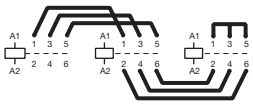


BEY16-4

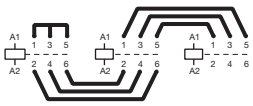
The BEY and BED connection sets are used to connect the main poles of the Line, Delta and Star contactors of a star-delta starter.

The connection sets are made up of:

- Line contactor / delta contactor:
  - BEY: upstream phase-to-phase connection
  - BED: upstream connection in parallel
- Delta contactor / star contactor: downstream connection in parallel
- Star contactor: star point upstream
- Insulated, solid copper bar.



AF09 ... AF370
Line-delta-star connection



AF400 ... AF750
Star-delta-line connection

For 3-pole line, delta & star contactors	Interlock unit between delta & star contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
AF09 ... AF16	With or without VM4 or VEM4	BEY16-4	1SBN081313R2000	1	0.050
AF26 ... AF38	With or without VM4 or VEM4	BEY38-4	1SBN082713R2000	1	0.110
AF40 ... AF65	With or without VM96-4	BEY65-4	1SBN083413R2000	1	0.200
AF80, AF96	With or without VM96-4	BEY96-4	1SBN083913R2000	1	0.250
AF116 ... AF146	With or without VM19	BEY140-4	1SFN084413R1000	1	1.040
AF190 ... AF205 (line and delta) AF116 ... AF146 (star)	With or without VM140/190	BEY190-4	1SFN084813R1000	1	1.154
AF190, AF205	With or without VM19	BEY205-4	1SFN085213R1000	1	1.205
AF265 ... AF370 (line and delta) AF190 ... AF205 (star)	With or without VM205/265	BEY265-4	1SFN085413R1000	1	2.020
AF265 ... AF370	With or without VM19	BEY370-4	1SFN085813R1000	1	2.110
AF400 ... AF460	With or without VM750H	BED460	1SFN085703R1000	1	4.700
AF580 ... AF750 (line and delta) AF400 ... AF460 (star)	With or without VM750H	BED580	1SFN085903R1000	1	6.300
AF580 ... AF750	With or without VM750H	BED750	1SFN086103R1000	1	7.700

Connection bars



BEA140/XT2



BEA205/T4



BEA370/T5

Connection between contactors/starters and moulded case circuit breakers.
These connection sets are solid copper bars.

For 3-pole contactors	MCCB	Type	Order code	Pkg qty	Weight (1 pce) kg
Vertical assembly					
AF116 ... AF146	XT2	BEA140/XT2	1SFN084206R1000	1	0.058
AF116 ... AF146	XT3	BEA140/XT3	1SFN084206R1002	1	0.070
AF116 ... AF146	XT4	BEA140/XT4	1SFN084206R1001	1	0.068
AF190, AF205	XT4	BEA205/XT4	1SFN084806R1000	1	0.200
AF190, AF205	T4	BEA205/T4	1SFN084806R1001	1	0.190
AF265 ... AF370	T5	BEA370/T5	1SFN085406R1000	1	0.350
AF400 ... AF750	T6	BEA750/T6	1SFN086106R1000	1	0.410
AF400 ... AF750	T5	BEA750/T5	1SFN086106R1001	1	0.410
Vertical assembly with control wire terminals (also suitable when using busbar kits for starter combinations)					
AF400 ... AF750	T5	BEA750D/T5	1SFN086106R1003	1	0.720
AF400 ... AF750	T6	BEA750D/T6	1SFN086106R1002	1	0.720
Horizontal assembly (also suitable when using busbar kits for starter combinations)					
AF400, AF460	T6/XT6	BEA460H/S6	1SFN085907R1000	1	2.450

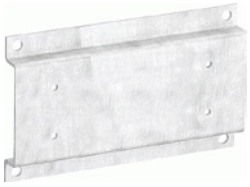
Connection bars between contactors and switch fuse

Connection between contactors/starters and moulded case circuit breakers.
These connection sets are solid copper bars.

For 3-pole contactors	Switch fuse	Type	Order code	Pkg qty	Weight (1 pce) kg
Vertical assembly					
AF400, AF460	OESA400	BEF460/OESA400	1SFN085708R1000	1	0.340
AF460 ... AF750	OESA630 to OESA800	BEF750/OESA800	1SFN086108R1000	1	0.740
Horizontal assembly					
AF400, AF460	OESA400...LR	OESA460H/OESA400	1SFN085709R1000	1	1.250

Note: The BEF connection bars provided for the A145 ... A300 contactors can be used for the AF145 ... AF300 contactors.

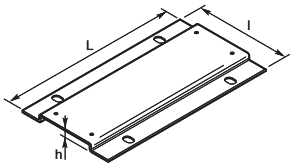
Adapter plates



PR146-1

Adapter plates with fixing holes for replacing installed contactors.

From contactors	To contactor	Type	Order code	Pkg qty	Weight (1 pce) kg
A95, AF95, A110, AF110	AF116, AF140, AF146	PR146-1	1SFN094200R1000	1	0.300
EH150, EH160, EH175, EH210, EG160	AF190, AF205	PR210-1	1SFN094900R1000	1	0.440
EH250, EH260, EH300	AF265, AF305, AF370	PR300-1	1SFN095300R1000	1	0.560
EH370, EH550, EG315	AF400, AF460, AF580	PR460-1	1SFN095700R1000	1	0.900
EH700, EH800	AF750	PR750-1	1SFN096100R1000	1	0.500
OKYM150, OKYM175	AF190	PR185-2	1SFN095100R1001	1	0.500
OKYM200, OKYM250	AF265, AF305, AF370	PR300-2	1SFN095300R1001	1	0.500
OKYM315	AF400, AF460	PR400-2	1SFN095700R1002	1	0.820
OKYM400	AF400, AF460	PR460-2	1SFN095700R1001	1	0.800
OKYM500	AF580	PR580-2	1SFN096100R1002	1	0.700
EH550, EG630, OKYM630	AF580, AF750	PR750-2	1SFN096100R1001	1	1.100



Dimensions (mm)

Type of the plate	Dimensions			Fixing holes
	L	l	h	mm
PR146-1	150	90	15	4 x ø 6.5
PR210-1	200	132	11.5	4 x ø 7
PR300-1	200	172	11.5	4 x ø 7
PR460-1	278	198	11.5	4 x ø 7
PR750-1	283	244	11.5	4 x ø 7
PR185-2	202	152	11.2	4 x ø 11
PR300-2	202	152	11.2	4 x ø 11
PR400-2	278	151	11.5	4 x ø 11
PR460-2	278	176	11.5	4 x ø 11
PR580-2	283	176	11.5	4 x ø 11
PR750-2	283	255	11.5	4 x ø 14

Fixing holes according to the plate types

Low Voltage Ride Through (LVRT) modules



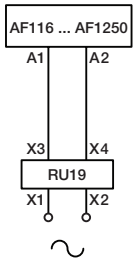
RU19/120

RU19 is designed to meet the Low Voltage Ride Through (LVRT) requirements for grid connections by staying operational during voltage dips preventing disturbances on the grid it self.

The RU19 is a separate module connected to the contactors coil connection A1-A2 creating a delay function of the opening of the contactor. When controlled by PLC, the contactor is operated directly whitout delay functionality. The RU19 can be screw or DIN rail mounted.

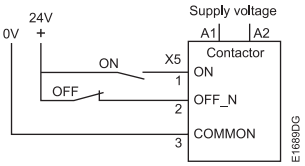
For contactor	Rated control circuit voltage Uc V 50/60 Hz	Type	Order code	Weight Pkg (1 pce) kg
AF116 ... AF370 use coil 33	110...120	RU19/120	1SFN170801R1001	0.400
AF400 ... AF1250 use coil 69				
AF116 ... AF370 use coil 33	230...240	RU19/240	1SFN170801R1002	0.400
AF400 ... AF1250 use coil 70				

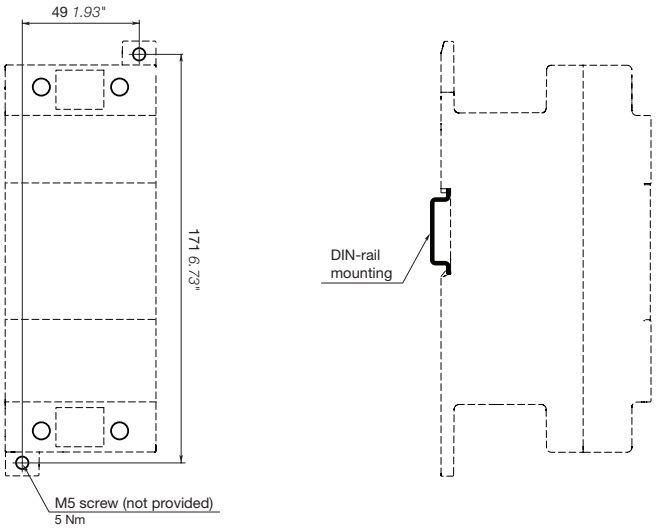
AF116 ... AF1250



For direct opening of AF400 ... AF1250 contactors, connect through built in PLC interface.

Control inputs





RU19/240

Main dimensions mm, inches

Spare parts contactors

Contactor coils, main contact sets and arc chutes



ZAF1650

Contactor coils

For contactors	Rated control circuit voltage Uc min. ... Uc max.		Type	Order code	Pkg qty	Weight (1 pce)
	V 50/60 Hz	V DC				kg
AF400, AF460	-	24...60	ZAF460	1SFN155770R6806	1	0.525
	48...130	48...130	ZAF460	1SFN155770R6906	1	0.525
	100...250	100...250	ZAF460	1SFN155770R7006	1	0.525
	250...500	250...500	ZAF460	1SFN155770R7106	1	0.525
AF580 ... AF1250	-	24...60	ZAF750	1SFN156170R6806	1	1.335
	48...130	48...130	ZAF750	1SFN156170R6906	1	1.335
	100...250	100...250	ZAF750	1SFN156170R7006	1	1.335
	250...500	250...500	ZAF750	1SFN156170R7106	1	1.335
AF1350 ... AF2050	100...250	100...250	ZAF1650 (1)	1SFN156570R7026	1 set	0.900
			ZP1650 (2)	1SFN166521R1070	1	0.300
AF2650	100...250	100...250	ZAF2650 (1)	1SFN156670R7026	1 set	0.900
			ZP2650 (2)	1SFN166621R1070	1	0.300

ZAF460, ZAF750 : printed circuit board included.
(1) One set of two coil.
(2) Printed circuit board.

Main contact sets

Replacement parts for the main contacts. Set for AF116 ... AF370 includes complete base, complete moving contact bridge and return springs.

Set for AF400 ... AF2650 consists of six fixed contacts, three moving contacts, springs and the required screws.



ZL1650

For contactors		Type	Order code	Pkg qty	Weight (1 pce)
					kg
3-pole contactors					
AF116		ZL116	1SFN164203R1000	1	0.410
AF140		ZL140	1SFN164403R1000	1	0.410
AF146		ZL146	1SFN164603R1000	1	0.410
AF190		ZL190	1SFN164803R1000	1	1.093
AF205		ZL205	1SFN165203R1000	1	1.093
AF265		ZL265	1SFN165403R1000	1	2.010
AF305		ZL305	1SFN165803R1000	1	2.010
AF370		ZL370	1SFN166003R1000	1	2.010
AF400		ZL400	1SFN165703R1000	1	1.320
AF460		ZL460	1SFN165903R1000	1	1.320
AF580		ZL580	1SFN166103R1000	1	1.840
AF750		ZL750	1SFN166303R1000	1	1.840
AF1250		ZL1250	1SFN166403R1000	1	1.840
AF1350	For contactors produced before 2014-01-13, with serial number before 1S16010051403xxxx	ZL1350	1SFN166503R1000	1	2 500
	For contactors produced since 2014-01-13, with serial number above 1S16010051403xxxx	ZL1350-1	1SFN166503R1001	1	4 500
AF1650	For contactors produced before 2014-01-13, with serial number before 1S16010051403xxxx	ZL1650	1SFN166703R1000	1	3 500
	For contactors produced since 2014-01-13, with serial number above 1S16010051403xxxx	ZL1650-1	1SFN166703R1001	1	4 500
AF2050	For contactors produced before 2014-01-13, with serial number before 1S16010051403xxxx	ZL2050	1SFN167003R1000	1	3 500
	For contactors produced since 2014-01-13, with serial number above 1S16010051403xxxx	ZL2050-1	1SFN167003R1001	1	4 500
AF2650 (3)		ZL2650	1SFN166603R1000	1	1.200
4-pole contactors					
AF116		ZLT116	1SFN164204R1000	1	0.435
AF140		ZLT140	1SFN164404R1000	1	0.435
AF190		ZLT190	1SFN164804R1000	1	2.038
AF205		ZLT205	1SFN165204R1000	1	2.038
AF265		ZLT265	1SFN165404R1000	1	2.222
AF305		ZLT305	1SFN165804R1000	1	2.222
AF370		ZLT370	1SFN166004R1000	1	2.222

(3) Does not include fixed contacts and screws.
Note: Only suitable for AF116...AF370 contactors "Made in Sweden" produced after 2018-09-01 (010918).

Spare parts contactors

Contactor coils, main contact sets and arc chutes

Contactor coil modules

Coil modules replacement kit for 3-pole contactors. Includes coil, electronic module, fasteners, damping and terminal cover.

	Rated contol circuit Voltage Uc		Type	Order code	Pkg qty	Weight (1 pce)
	V 50/60Hz	V DC				kg
3-pole contactors						
AF116	24...60	20...60	ZAF116-11	1SFN154270R1106	1	0.324
	48...130	48...130	ZAF116-12	1SFN154270R1206	1	0.313
	100...250	100...250	ZAF116-13	1SFN154270R1306	1	0.288
	250...500	250...500	ZAF116-14	1SFN154270R1406	1	0.040
AF140	24...60	20...60	ZAF140-11	1SFN154470R1106	1	0.324
	48...130	48...130	ZAF140-12	1SFN154470R1206	1	0.313
	100...250	100...250	ZAF140-13	1SFN154470R1306	1	0.288
	250...500	250...500	ZAF140-14	1SFN154470R1406	1	0.298
AF146	24...60	20...60	ZAF146-11	1SFN154670R1106	1	0.324
	48...130	48...130	ZAF146-12	1SFN154670R1206	1	0.313
	100...250	100...250	ZAF146-13	1SFN154670R1306	1	0.288
	250...500	250...500	ZAF146-14	1SFN154670R1406	1	0.298
AF19, AF205	24...60	20...60	ZAF205-11	1SFN154870R1106	1	0.856
	48...130	48...130	ZAF205-12	1SFN154870R1206	1	0.831
	100...250	100...250	ZAF205-13	1SFN154870R1306	1	0.823
	250...500	250...500	ZAF205-14	1SFN154870R1406	1	0.818
AF265, AF305, AF370	24...60	20...60	ZAF370-11	1SFN155470R1106	1	1.262
	48...130	48...130	ZAF370-12	1SFN155470R1206	1	1.316
	100...250	100...250	ZAF370-13	1SFN155470R1306	1	1.036
	250...500	250...500	ZAF370-14	1SFN155470R1406	1	1.006
AF400, AF460	-	24...60	ZAF460	1SFN155770R6806	1	0.525
	48...130	48...130	ZAF460	1SFN155770R6906	1	0.525
	100...250	100...250	ZAF460	1SFN155770R7006	1	0.525
	250...500	250...500	ZAF460	1SFN155770R7106	1	0.525
AF580 ... AF1250	-	24...60	ZAF750	1SFN156170R6806	1	1.335
	48...130	48...130	ZAF750	1SFN156170R6906	1	1.335
	100...250	100...250	ZAF750	1SFN156170R7006	1	1.335
	250...500	250...500	ZAF750	1SFN156170R7106	1	1.335
AF1350 ... AF2050	100...250	100...250	ZAF1650 (1)	1SFN156570R7026	1 set	0.900
			ZP1650 (2)	1SFN166521R1070	1	0.300
AF2650	100...250	100...250	ZAF2650 (1)	1SFN156670R7026	1 set	0.900
			ZP2650 (2)	1SFN166621R1070	1	0.300
3-pole contactors with built-in PLC interface						
AF116	100...250	100...250	ZAF116-33	1SFN154270R3306	1	0.310
	250...500	250...500	ZAF116-34	1SFN154270R3406	1	0.324
AF140	100...250	100...250	ZAF140-33	1SFN154470R3306	1	0.310
	250...500	250...500	ZAF140-34	1SFN154470R3406	1	0.324
AF146	100...250	100...250	ZAF146-33	1SFN154670R3306	1	0.310
	250...500	250...500	ZAF146-34	1SFN154670R3406	1	0.324
AF190	100...250	100...250	ZAF190-33	1SFN154870R3306	1	0.893
	250...500	250...500	ZAF190-34	1SFN154870R3406	1	0.878
AF205	100...250	100...250	ZAF205-33	1SFN155270R3306	1	0.893
	250...500	250...500	ZAF205-34	1SFN155270R3406	1	0.878
AF265	100...250	100...250	ZAF265-33	1SFN155470R3306	1	1.124
	250...500	250...500	ZAF265-34	1SFN155470R3406	1	1.094
AF305	100...250	100...250	ZAF305-33	1SFN155870R3306	1	1.124
	250...500	250...500	ZAF305-34	1SFN155870R3406	1	1.094
AF370	100...250	100...250	ZAF370-33	1SFN156070R3306	1	1.124
	250...500	250...500	ZAF370-34	1SFN156070R3406	1	1.094

Note: Only suitable for AF116...AF370 contactors "Made in Sweden" produced after 2018-09-01 (010918).

Spare parts contactors

Contactor coils, main contact sets and arc chutes

Contactor coil modules

Coil modules replacement kit for 3-pole contactors. Includes coil, electronic module, fasteners, damping and terminal cover.

	Rated contol circuit Voltage Uc		Type	Order code	Pkg qty	Weight (1 pce)
	V 50/60Hz	V DC				kg
4-pole contactors						
AF116	24...60	20...60	ZAF116-40-11	1SFN154270R1146	1	0.340
	48...130	48...130	ZAF116-40-12	1SFN154270R1246	1	0.331
	100...250	100...250	ZAF116-40-13	1SFN154270R1346	1	0.308
	250...500	250...500	ZAF116-40-14	1SFN154270R1446	1	0.320
AF140	24...60	20...60	ZAF140-40-11	1SFN154470R1146	1	0.340
	48...130	48...130	ZAF140-40-12	1SFN154470R1246	1	0.331
	100...250	100...250	ZAF140-40-13	1SFN154470R1346	1	0.308
	250...500	250...500	ZAF140-40-14	1SFN154470R1446	1	0.320
AF190, AF205	24...60	20...60	ZAF205-40-11	1SFN154870R1146	1	0.864
	48...130	48...130	ZAF205-40-12	1SFN154870R1246	1	0.841
	100...250	100...250	ZAF205-40-13	1SFN154870R1346	1	0.839
	250...500	250...500	ZAF205-40-14	1SFN154870R1446	1	0.834
AF265, AF305, AF370	24...60	20...60	ZAF370-40-11	1SFN155470R1146	1	1.272
	48...130	48...130	ZAF370-40-12	1SFN155470R1246	1	1.328
	100...250	100...250	ZAF370-40-13	1SFN155470R1346	1	1.052
	250...500	250...500	ZAF370-40-14	1SFN155470R1446	1	1.032

Note: Only suitable for AF116...AF370 contactors "Made in Sweden" produced after 2018-09-01 (010918).

Electronic Modules

Control circuit electronic module spare part.

	Rated contol circuit Voltage Uc		Type	Order code	Pkg qty	Weight (1 pce)
	V 50/60Hz	V DC				kg
3-pole contactors						
AF116	24...60	20...60	ZP116-11	1SFN164223R1011	1	0.133
	48...130	48...130	ZP116-12	1SFN164223R1012	1	0.131
	100...250	100...250	ZP116-13	1SFN164223R1013	1	0.133
	250...500	250...500	ZP116-14	1SFN164223R1014	1	0.143
AF140	24...60	20...60	ZP140-11	1SFN164423R1011	1	0.133
	48...130	48...130	ZP140-12	1SFN164423R1012	1	0.131
	100...250	100...250	ZP140-13	1SFN164423R1013	1	0.133
	250...500	250...500	ZP140-14	1SFN164423R1014	1	0.143
AF146	24...60	20...60	ZP146-11	1SFN164623R1011	1	0.133
	48...130	48...130	ZP146-12	1SFN164623R1012	1	0.131
	100...250	100...250	ZP146-13	1SFN164623R1013	1	0.133
	250...500	250...500	ZP146-14	1SFN164623R1014	1	0.143
AF190, AF205	24...60	20...60	ZP205-11	1SFN164823R1011	1	0.610
	48...130	48...130	ZP205-12	1SFN164823R1012	1	0.610
	100...250	100...250	ZP205-13	1SFN164823R1013	1	0.610
	250...500	250...500	ZP205-14	1SFN164823R1014	1	0.620
AF265, AF305, AF370	24...60	20...60	ZP370-11	1SFN165423R1011	1	0.696
	48...130	48...130	ZP370-12	1SFN165423R1012	1	0.704
	100...250	100...250	ZP370-13	1SFN165423R1013	1	0.694
	250...500	250...500	ZP370-14	1SFN165423R1014	1	0.694
3-pole contactors with built-in PLC interface						
AF116	100...250	100...250	ZP116-33	1SFN164223R1033	1	0.155
	250...500	250...500	ZP116-34	1SFN164223R1034	1	0.169
AF140	100...250	100...250	ZP140-33	1SFN164423R1033	1	0.155
	250...500	250...500	ZP140-34	1SFN164423R1034	1	0.169
AF146	100...250	100...250	ZP146-33	1SFN164623R1033	1	0.155
	250...500	250...500	ZP146-34	1SFN164623R1034	1	0.169
AF190	100...250	100...250	ZP190-33	1SFN164823R1033	1	0.680
	250...500	250...500	ZP190-34	1SFN164823R1034	1	0.680
AF205	100...250	100...250	ZP205-33	1SFN165223R1033	1	0.680
	250...500	250...500	ZP205-34	1SFN165223R1034	1	0.680
AF265	100...250	100...250	ZP265-33	1SFN165423R1033	1	0.782
	250...500	250...500	ZP265-34	1SFN165423R1034	1	0.782
AF305	100...250	100...250	ZP305-33	1SFN165823R1033	1	0.782
	250...500	250...500	ZP305-34	1SFN165823R1034	1	0.782
AF370	100...250	100...250	ZP370-33	1SFN166023R1033	1	0.782
	250...500	250...500	ZP370-34	1SFN166023R1034	1	0.782

Note: Only suitable for AF116...AF370 contactors "Made in Sweden" produced after 2018-09-01 (010918).

Spare parts contactors

Contactor coils, main contact sets and arc chutes

Electronic Modules

Control circuit electronic module spare part.

	Rated contol circuit Voltage Uc		Type		Pkg qty	Weight (1 pce)
	V 50/60Hz	V DC				kg
4-pole contactors						
AF116	24...60	20...60	ZPT116-11	1SFN164224R1011	1	0.149
	48...130	48...130	ZPT116-12	1SFN164224R1012	1	0.149
	100...250	100...250	ZPT116-13	1SFN164224R1013	1	0.153
	250...500	250...500	ZPT116-14	1SFN164224R1014	1	0.165
AF140	24...60	20...60	ZPT140-11	1SFN164424R1011	1	0.149
	48...130	48...130	ZPT140-12	1SFN164424R1012	1	0.149
	100...250	100...250	ZPT140-13	1SFN164424R1013	1	0.153
	250...500	250...500	ZPT140-14	1SFN164424R1014	1	0.165
AF190, AF205	24...60	20...60	ZPT205-11	1SFN165224R1011	1	0.618
	48...130	48...130	ZPT205-12	1SFN165224R1012	1	0.620
	100...250	100...250	ZPT205-13	1SFN165224R1013	1	0.626
	250...500	250...500	ZPT205-14	1SFN165224R1014	1	0.636
AF265, AF305, AF370	24...60	20...60	ZPT370-11	1SFN166024R1011	1	0.706
	48...130	48...130	ZPT370-12	1SFN166024R1012	1	0.716
	100...250	100...250	ZPT370-13	1SFN166024R1013	1	0.710
	250...500	250...500	ZPT370-14	1SFN166024R1014	1	0.720

Note: Only suitable for AF116...AF370 contactors "Made in Sweden" produced after 2018-09-01 (010918).

Arc chutes

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
AF400, AF460	ZW460	1SFN165710R1000	1	1.380
AF580, AF750, AF1250	ZW750	1SFN166110R1000	1	1.500
AF1350, AF1650, AF2050	ZW1650	1SFN166510R1001	1	4.560
AF2650	ZW2650	1SFN166610R1000	1	4.000

B, M mini contactors
K, M mini contactor relays

438 **B mini contactors**

K mini contactor relays

B mini contactors





				Screw terminals			
AC Control supply							
3-pole contactors		Coil consumption 3.5 VA	Type	**B6**	**B7**	**-**	**-**
3-pole reversing contactors		Coil consumption 3.5 VA	Type	**-**	**-**	**VB6** **VB6A (2)**	**VB7** **VB7A (2)**
4-pole contactors		Coil consumption 3.5 VA	Type	**B6**	**B7**	**(3)**	**(3)**
DC Control supply							
3-pole contactors		Coil consumption 3.5 W	Type	**BC6**	**BC7** **B7D (1)**	**-**	**-**
3-pole reversing contactors		Coil consumption 3.5 W	Type	**-**	**-**	**VBC6** **VBC6A (2)**	**VBC7** **VBC7A (2)**
3-pole interface contactors		Coil consumption 1.4 ... 2.8 W	Type	**BC6** **B6S (1)**	**BC7** **B7S (1)**	**(3)**	**(3)**
4-pole contactors		Coil consumption 3.5 W	Type	**BC6**	**B7D**	**(3)**	**(3)**
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
UL/CSA	3-phase motor rating	220-240 V AC	hp	2	3	2	3
		440-480 V AC	hp	3	5	3	5
	General use rating		A	12 (300 V)	16 (600 V)	12 (300 V)	16 (600 V)
Main accessories							
Auxiliary contact blocks		Front mounting		CAF6			
		Side mounting		CA6		**-**	
Connection sets		For reversing contactors		BSM6-30			
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			

K mini contactor relays



				Screw terminals
AC Control supply				
4-pole contactor relays		Coil consumption 3.5 VA	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 ... 2.8 W	Type	**KC6, K6S (1)**
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		CA6-11K

(1) With integrated surge suppressor
(2) With safety blocking function
(3) Please visit: https://new.abb.com/low-voltage/products/motor-protection/3-pole-contactors-and-overload-relays-for-motor-starting/mini-contactors






	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)**
	(3)	**(3)**	**(3)**	**(3)**	**(3)**	**(3)**		
	BC6...P	**BC7...P** **B7D...P (1)**	**-**	**-**	**BC6...F**	**BC7...F** **B7D...F (1)**	**-**	**-**
	-	**-**	**VBC6...P** **VBC6A...P (2)**	**VBC7...P** **VBC7A...P (2)**	**-**	**-**	**VBC6...F** **VBC6A...F (2)**	**VBC7...F** **VBC7A...F (2)**
	BC6...P	**BC7...P**	**(3)**	**(3)**	**BC6...F**	**BC7...F**	**-**	**-**
	(3)	**(3)**	**(3)**	**(3)**	**(3)**	**(3)**		
	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
	2	3	2	3	2	3	2	3
	3	5	3	5	3	5	3	5
	12 (300 V)	16 (600 V)	12 (300 V)	16 (600 V)	12 (300 V)	16 (600 V)	12 (300 V)	16 (600 V)
	-				-			
	CA6-11K-P		-		CA6-11K-F		-	
	-				-			
	-				-			
	-				-			
	-				-			
	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
	-	-
	CA6-11K-P	CA6-11K-F

B6, B7 3-pole mini contactors – with screw terminals

4 to 5.5 kW

AC operated



B6-30-10



B7-30-10

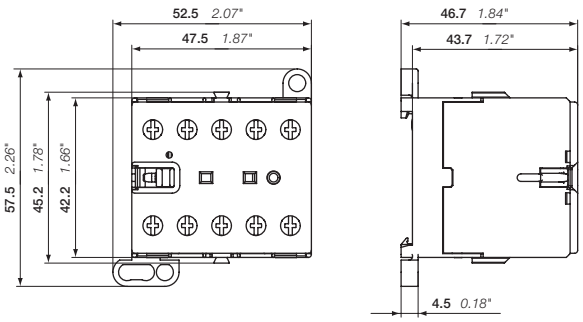
B6, B7 3-pole mini contactors are compact control products mainly used for switching resistive or motor loads up to 690 V AC.

These contactors are designed with 3 main poles and one built-in auxiliary contact:

- control circuit: AC operated, low consumption coil (3.5 VA at pull-in and at holding)
- hum-free coil
- contacts configuration 30-01 fulfills the requirements for Mirror contacts acc. to annex F of IEC/EN 60947-4-1
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories
- suitable for rail or wall mounting

IEC		UL/CSA		Rated control circuit voltage Uc		Auxiliary contacts fitted	Type	Order code	Pkg qty	Weight (1 pce)
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating	50 Hz	60 Hz					
kW	A	hp		V AC	V AC					kg
B6 mini contactors										
4	20	3	300 V / 12 A	24	24	1 0	B6-30-10-01	GJL1211001R0101	10	0.175
						0 1	B6-30-01-01	GJL1211001R0011	10	0.175
				42	42	1 0	B6-30-10-02	GJL1211001R0102	10	0.175
						0 1	B6-30-01-02	GJL1211001R0012	10	0.175
				48	48	1 0	B6-30-10-03	GJL1211001R0103	10	0.175
						0 1	B6-30-01-03	GJL1211001R0013	10	0.175
				110 ... 127	110 ... 127	1 0	B6-30-10-84	GJL1211001R8104	10	0.175
						0 1	B6-30-01-84	GJL1211001R8014	10	0.175
				220 ... 240	220 ... 240	1 0	B6-30-10-80	GJL1211001R8100	10	0.175
						0 1	B6-30-01-80	GJL1211001R8010	10	0.175
				380 ... 415	380 ... 415	1 0	B6-30-10-85	GJL1211001R8105	10	0.175
						0 1	B6-30-01-85	GJL1211001R8015	10	0.175
B7 mini contactors										
5.5	20	5	600 V / 16 A	24	24	1 0	B7-30-10-01	GJL1311001R0101	10	0.175
						0 1	B7-30-01-01	GJL1311001R0011	10	0.175
				42	42	1 0	B7-30-10-02	GJL1311001R0102	10	0.175
						0 1	B7-30-01-02	GJL1311001R0012	10	0.175
				48	48	1 0	B7-30-10-03	GJL1311001R0103	10	0.175
						0 1	B7-30-01-03	GJL1311001R0013	10	0.175
				110 ... 127	110 ... 127	1 0	B7-30-10-84	GJL1311001R8104	10	0.175
						0 1	B7-30-01-84	GJL1311001R8014	10	0.175
				220 ... 240	220 ... 240	1 0	B7-30-10-80	GJL1311001R8100	10	0.175
						0 1	B7-30-01-80	GJL1311001R8010	10	0.175
				380 ... 415	380 ... 415	1 0	B7-30-10-85	GJL1311001R8105	10	0.175
						0 1	B7-30-01-85	GJL1311001R8015	10	0.175

Other types on request



B6, B7

Main dimensions mm, inches

BC6, BC7, B7D 3-pole mini contactors – with screw terminals

4 to 5.5 kW

DC operated



BC6-30-10



BC7-30-10

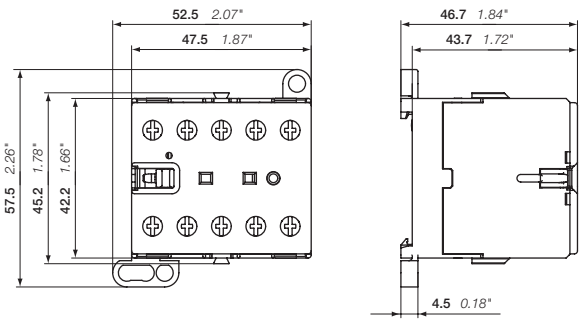
BC6, BC7, B7D 3-pole mini contactors are compact control products mainly used for switching resistive or motor loads up to 690 V AC.

These contactors are designed with 3 main poles and one built-in auxiliary contact:

- control circuit: DC operated, low consumption coil (3.5 W at pull-in and at holding)
- hum-free coil
- contacts configuration 30-01 fulfills the requirements for Mirror contacts acc. to annex F of IEC/EN 60947-4-1
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories
- suitable for rail or wall mounting

IEC		UL/CSA		Rated control circuit voltage Uc	Auxiliary contacts fitted	Type	Order code	Pkg qty	Weight (1 pce)
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating						
kW	A	hp		V DC					kg
BC6 mini contactors									
4	20	3	300 V / 12 A	12	1 0	BC6-30-10-07	GJL1213001R0107	10	0.175
					0 1	BC6-30-01-07	GJL1213001R0017	10	0.175
				24	1 0	BC6-30-10-01	GJL1213001R0101	10	0.175
					0 1	BC6-30-01-01	GJL1213001R0011	10	0.175
				48	1 0	BC6-30-10-16	GJL1213001R1106	10	0.175
					0 1	BC6-30-01-16	GJL1213001R1016	10	0.175
				60	1 0	BC6-30-10-03	GJL1213001R0103	10	0.175
					0 1	BC6-30-01-03	GJL1213001R0013	10	0.175
				110 ... 125	1 0	BC6-30-10-04	GJL1213001R0104	10	0.175
					0 1	BC6-30-01-04	GJL1213001R0014	10	0.175
				220 ... 240	1 0	BC6-30-10-05	GJL1213001R0105	10	0.175
					0 1	BC6-30-01-05	GJL1213001R0015	10	0.175
BC7 mini contactors									
5.5	20	5	600 V / 16 A	12	1 0	BC7-30-10-07	GJL1313001R0107	10	0.175
					0 1	BC7-30-01-07	GJL1313001R0017	10	0.175
				24	1 0	BC7-30-10-01	GJL1313001R0101	10	0.175
					0 1	BC7-30-01-01	GJL1313001R0011	10	0.175
				48	1 0	BC7-30-10-16	GJL1313001R1106	10	0.175
					0 1	BC7-30-01-16	GJL1313001R1016	10	0.175
				60	1 0	BC7-30-10-03	GJL1313001R1103	10	0.175
					0 1	BC7-30-01-03	GJL1313001R0013	10	0.175
				110 ... 125	1 0	BC7-30-10-04	GJL1313001R0104	10	0.175
					0 1	BC7-30-01-04	GJL1313001R0014	10	0.175
				220 ... 240	1 0	BC7-30-10-05	GJL1313001R0105	10	0.175
					0 1	BC7-30-01-05	GJL1313001R0015	10	0.175
B7D mini contactors with integrated suppressor diode									
5.5	20	5	600 V / 16 A	24	1 0	B7D-30-10-01	GJL1317001R0101	10	0.175
					0 1	B7D-30-01-01	GJL1317001R0011	10	0.175
				220	1 0	B7D-30-10-05	GJL1317001R0105	10	0.175
					0 1	B7D-30-01-05	GJL1317001R0015	10	0.175

Other types on request



BC6, BC7, B7D

Main dimensions mm, inches

VB6, VB7 3-pole mini reversing contactors – with screw terminals

4 to 5.5 kW

AC operated



VB7-30-10

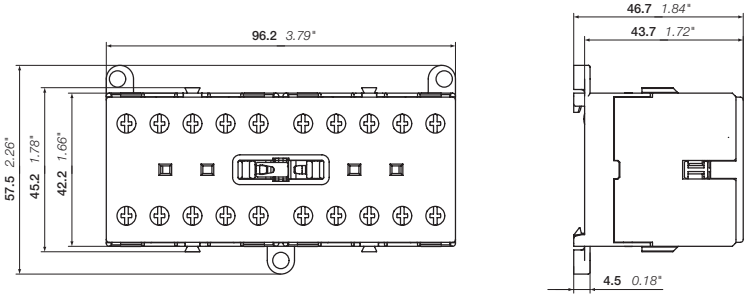
VB6, VB7 3-pole compact design reversing contactors are space optimized control products mainly used for switching resistive or motor loads up to 690 V AC.

These reversing contactors are designed with:

- built-in mechanical interlock. The coils must be mutually interlocked electrically and coils must be de-energised for 50 ms at least to prevent phase to phase short circuit on the arc
- control circuit: AC operated, low consumption coil (3.5 VA at pull-in and at holding)
- hum-free coil
- contacts configuration 30-01 fulfills the requirements for Mirror contacts acc. to annex F of IEC/EN 60947-4-1
- add-on auxiliary contact blocks for front mounting
- suitable for rail or wall mounting

IEC		UL/CSA		Rated control circuit voltage Uc		Auxiliary contacts fitted	Type	Order code	Pkg qty	Weight (1 pce)
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating	50 Hz	60 Hz					
kW	A	hp		V AC	V AC					kg
VB6 mini reversing contactors										
4	20	3	300 V / 12 A	24	24	1 0	VB6-30-10-01	GJL1211901R0101	5	0.355
						0 1	VB6-30-01-01	GJL1211901R0011	5	0.355
				42	42	1 0	VB6-30-10-02	GJL1211901R0102	5	0.355
						0 1	VB6-30-01-02	GJL1211901R0012	5	0.355
				48	48	1 0	VB6-30-10-03	GJL1211901R0103	5	0.355
						0 1	VB6-30-01-03	GJL1211901R0013	5	0.355
				110 ... 127	110 ... 127	1 0	VB6-30-10-84	GJL1211901R8104	5	0.355
						0 1	VB6-30-01-84	GJL1211901R8014	5	0.355
				220 ... 240	220 ... 240	1 0	VB6-30-10-80	GJL1211901R8100	5	0.355
						0 1	VB6-30-01-80	GJL1211901R8010	5	0.355
				380 ... 415	380 ... 415	1 0	VB6-30-10-85	GJL1211901R8105	5	0.355
						0 1	VB6-30-01-85	GJL1211901R8015	5	0.355
VB7 mini reversing contactors										
5.5	20	5	600 V / 16 A	24	24	1 0	VB7-30-10-01	GJL1311901R0101	5	0.355
						0 1	VB7-30-01-01	GJL1311901R0011	5	0.355
				42	42	1 0	VB7-30-10-02	GJL1311901R0102	5	0.355
						0 1	VB7-30-01-02	GJL1311901R0012	5	0.355
				48	48	1 0	VB7-30-10-03	GJL1311901R0103	5	0.355
						0 1	VB7-30-01-03	GJL1311901R0013	5	0.355
				110 ... 127	110 ... 127	1 0	VB7-30-10-84	GJL1311901R8104	5	0.355
						0 1	VB7-30-01-84	GJL1311901R8014	5	0.355
				220 ... 240	220 ... 240	1 0	VB7-30-10-80	GJL1311901R8100	5	0.355
						0 1	VB7-30-01-80	GJL1311901R8010	5	0.355
				380 ... 415	380 ... 415	1 0	VB7-30-10-85	GJL1311901R8105	5	0.355
						0 1	VB7-30-01-85	GJL1311901R8015	5	0.355

Other types on request



VB6, VB7

Main dimensions mm, inches

VBC6, VBC7 3-pole mini reversing contactors – with screw terminals

4 to 5.5 kW

DC operated



VBC6-30-10



VBC7-30-10

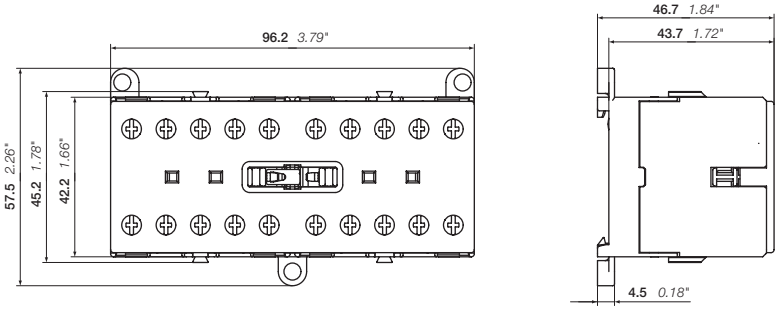
VBC6, VBC7 3-pole compact design reversing contactors are space optimized control products mainly used for switching resistive or motor loads up to 690 V AC.

These reversing contactors are designed with:

- built-in mechanical interlock. The coils must be mutually interlocked electrically and coils must be de-energised for 50 ms at least to prevent phase to phase short circuit on the arc
- control circuit: DC operated, low consumption coil (3.5 W at pull-in and at holding)
- hum-free coil
- contacts configuration 30-01 fulfills the requirements for Mirror contacts acc. to annex F of IEC/EN 60947-4-1
- add-on auxiliary contact blocks for front mounting
- suitable for rail or wall mounting

IEC		UL/CSA		Rated control circuit voltage Uc	Auxiliary contacts fitted	Type	Order code	Pkg qty	Weight (1 pce)
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating						
kW	A	hp		V DC					kg
VBC6 mini reversing contactors									
4	20	3	300 V / 12 A	12	1 0	VBC6-30-10-07	GJL1213901R0107	5	0.355
					0 1	VBC6-30-01-07	GJL1213901R0017	5	0.355
				24	1 0	VBC6-30-10-01	GJL1213901R0101	5	0.355
					0 1	VBC6-30-01-01	GJL1213901R0011	5	0.355
				48	1 0	VBC6-30-10-16	GJL1213901R1106	5	0.355
					0 1	VBC6-30-01-16	GJL1213901R1016	5	0.355
				60	1 0	VBC6-30-10-03	GJL1213901R0103	5	0.355
					0 1	VBC6-30-01-03	GJL1213901R0013	5	0.355
				110 ... 125	1 0	VBC6-30-10-04	GJL1213901R0104	5	0.355
					0 1	VBC6-30-01-04	GJL1213901R0014	5	0.355
				220 ... 240	1 0	VBC6-30-10-05	GJL1213901R0105	5	0.355
					0 1	VBC6-30-01-05	GJL1213901R0015	5	0.355
VBC7 mini reversing contactors									
5.5	20	5	600 V / 16 A	12	1 0	VBC7-30-10-07	GJL1313901R0107	5	0.355
					0 1	VBC7-30-01-07	GJL1313901R0017	5	0.355
				24	1 0	VBC7-30-10-01	GJL1313901R0101	5	0.355
					0 1	VBC7-30-01-01	GJL1313901R0011	5	0.355
				48	1 0	VBC7-30-10-16	GJL1313901R1106	5	0.355
					0 1	VBC7-30-01-16	GJL1313901R1016	5	0.355
				60	1 0	VBC7-30-10-03	GJL1313901R0103	5	0.355
					0 1	VBC7-30-01-03	GJL1313901R0013	5	0.355
				110 ... 125	1 0	VBC7-30-10-04	GJL1313901R0104	5	0.355
					0 1	VBC7-30-01-04	GJL1313901R0014	5	0.355
				220 ... 240	1 0	VBC7-30-10-05	GJL1313901R0105	5	0.355
					0 1	VBC7-30-01-05	GJL1313901R0015	5	0.355

Other types on request



VBC6, VBC7

Main dimensions mm, inches

VB6A, VB7A 3-pole mini reversing contactors – with screw terminals

4 to 5.5 kW

AC operated – with safety blocking function



VB6A-30-10



VB7A-30-10

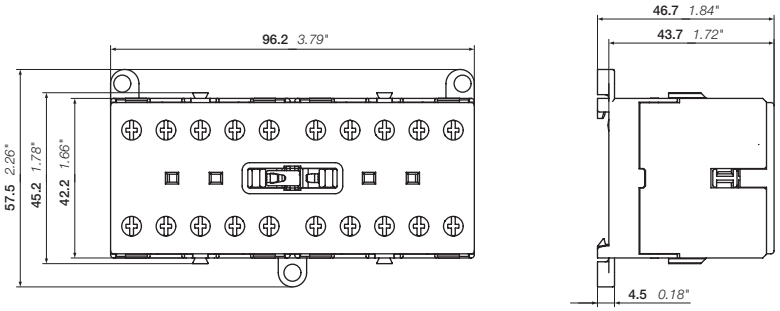
VB6A, VB7A 3-pole compact design reversing contactors are space optimized control products mainly used for switching resistive or motor loads up to 690 V AC.

These reversing contactors are designed with:

- built-in mechanical interlock and safety blocking function. The safety blocking function is triggered if the voltage is applied to the coil of the contactor to be switched on before the contactor to be switched off has dropped out. The contactor coils are designed for continuous operation when the contactor is de-energised i.e. the coil is not damaged if the mechanical interlock prevents switch-on of the contactor with the coil voltage applied
- control circuit: AC operated, low consumption coil (3.5 VA at pull-in and at holding)
- hum-free coil
- contacts configuration 30-01 fulfills the requirements for Mirror contacts acc. to annex F of IEC/EN 60947-4-1
- add-on auxiliary contact blocks for front mounting
- suitable for rail or wall mounting

IEC		UL/CSA		Rated control circuit voltage Uc		Auxiliary contacts fitted	Type	Order code	Pkg qty	Weight (1 pce)
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating	50 Hz	60 Hz					
kW	A	hp		V AC	V AC					kg
VB6A mini reversing contactors with safety blocking function										
4	20	3	300 V / 12 A	24	24	1 0	VB6A-30-10-01	GJL1211911R0101	5	0.355
						0 1	VB6A-30-01-01	GJL1211911R0011	5	0.355
				42	42	1 0	VB6A-30-10-02	GJL1211911R0102	5	0.355
						0 1	VB6A-30-01-02	GJL1211911R0012	5	0.355
				48	48	1 0	VB6A-30-10-03	GJL1211911R0103	5	0.355
						0 1	VB6A-30-01-03	GJL1211911R0013	5	0.355
				110 ... 127	110 ... 127	1 0	VB6A-30-10-84	GJL1211911R8104	5	0.355
						0 1	VB6A-30-01-84	GJL1211911R8014	5	0.355
				220 ... 240	220 ... 240	1 0	VB6A-30-10-80	GJL1211911R8100	5	0.355
						0 1	VB6A-30-01-80	GJL1211911R8010	5	0.355
				380 ... 415	380 ... 415	1 0	VB6A-30-10-85	GJL1211911R8105	5	0.355
						0 1	VB6A-30-01-85	GJL1211911R8015	5	0.355
VB7A mini reversing contactors with safety blocking function										
5.5	20	5	600 V / 16 A	24	24	1 0	VB7A-30-10-01	GJL1311911R0101	5	0.355
						0 1	VB7A-30-01-01	GJL1311911R0011	5	0.355
				42	42	1 0	VB7A-30-10-02	GJL1311911R0102	5	0.355
						0 1	VB7A-30-01-02	GJL1311911R0012	5	0.355
				48	48	1 0	VB7A-30-10-03	GJL1311911R0103	5	0.355
						0 1	VB7A-30-01-03	GJL1311911R0013	5	0.355
				110 ... 127	110 ... 127	1 0	VB7A-30-10-84	GJL1311911R8104	5	0.355
						0 1	VB7A-30-01-84	GJL1311911R8014	5	0.355
				220 ... 240	220 ... 240	1 0	VB7A-30-10-80	GJL1311911R8100	5	0.355
						0 1	VB7A-30-01-80	GJL1311911R8010	5	0.355
				380 ... 415	380 ... 415	1 0	VB7A-30-10-85	GJL1311911R8105	5	0.355
						0 1	VB7A-30-01-85	GJL1311911R8015	5	0.355

Other types on request



VB6A, VB7A

Main dimensions mm, inches

VBC6A, VBC7A 3-pole mini reversing contactors – with screw terminals

4 to 5.5 kW

DC operated – with safety blocking function



VBC6A-30-10



VBC7A-30-10

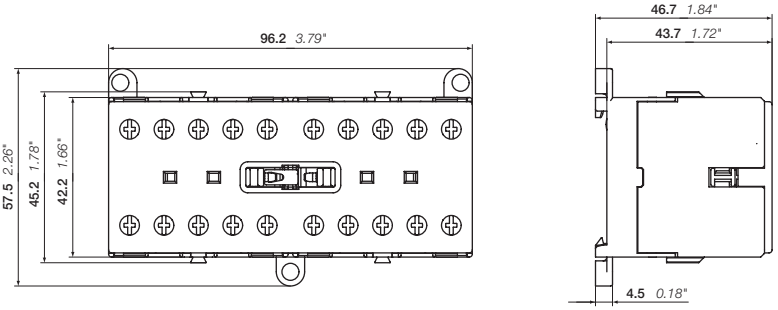
VBC6A, VBC7A 3-pole compact design reversing contactors are space optimized control products mainly used for switching resistive or motor loads up to 690 V AC.

These reversing contactors are designed with:

- built-in mechanical interlock and safety blocking function. The safety blocking function is triggered if the voltage is applied to the coil of the contactor to be switched on before the contactor to be switched off has dropped out. The contactor coils are designed for continuous operation when the contactor is de-energised i.e. the coil is not damaged if the mechanical interlock prevents switch-on of the contactor with the coil voltage applied
- control circuit: DC operated, low consumption coil (3.5 W at pull-in and at holding)
- hum-free coil
- contacts configuration 30-01 fulfills the requirements for Mirror contacts acc. to annex F of IEC/EN 60947-4-1
- add-on auxiliary contact blocks for front mounting
- suitable for rail or wall mounting

IEC		UL/CSA		Rated control circuit voltage Uc	Auxiliary contacts fitted	Type	Order code	Pkg qty	Weight (1 pce)
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating						
kW	A	hp		V DC					kg
VBC6A mini reversing contactors with safety blocking function									
4	20	3	300 V / 12 A	12	1 0	VBC6A-30-10-07	GJL1213911R0107	5	0.355
					0 1	VBC6A-30-01-07	GJL1213911R0017	5	0.355
				24	1 0	VBC6A-30-10-01	GJL1213911R0101	5	0.355
					0 1	VBC6A-30-01-01	GJL1213911R0011	5	0.355
				48	1 0	VBC6A-30-10-16	GJL1213911R1106	5	0.355
					0 1	VBC6A-30-01-16	GJL1213911R1016	5	0.355
				60	1 0	VBC6A-30-10-03	GJL1213911R0103	5	0.355
					0 1	VBC6A-30-01-03	GJL1213911R0013	5	0.355
				110 ... 125	1 0	VBC6A-30-10-04	GJL1213911R0104	5	0.355
					0 1	VBC6A-30-01-04	GJL1213911R0014	5	0.355
				220 ... 240	1 0	VBC6A-30-10-05	GJL1213911R0105	5	0.355
					0 1	VBC6A-30-01-05	GJL1213911R0015	5	0.355
VBC7A mini reversing contactors with safety blocking function									
5.5	20	5	600 V / 16 A	12	1 0	VBC7A-30-10-07	GJL1313911R0107	5	0.355
					0 1	VBC7A-30-01-07	GJL1313911R0017	5	0.355
				24	1 0	VBC7A-30-10-01	GJL1313911R0101	5	0.355
					0 1	VBC7A-30-01-01	GJL1313911R0011	5	0.355
				48	1 0	VBC7A-30-10-16	GJL1313911R1106	5	0.355
					0 1	VBC7A-30-01-16	GJL1313911R0016	5	0.355
				60	1 0	VBC7A-30-10-03	GJL1313911R0103	5	0.355
					0 1	VBC7A-30-01-03	GJL1313911R0013	5	0.355
				110 ... 125	1 0	VBC7A-30-10-04	GJL1313911R0104	5	0.355
					0 1	VBC7A-30-01-04	GJL1313911R0014	5	0.355
				220 ... 240	1 0	VBC7A-30-10-05	GJL1313911R0105	5	0.355
					0 1	VBC7A-30-01-05	GJL1313911R0015	5	0.355

Other types on request



VBC6A, VBC7A

Main dimensions mm, inches

BC6, BC7 3-pole mini contactors – with screw terminals

4 to 5.5 kW

DC operated - low consumption



BC6-30-10



BC7-30-10

BC6, BC7 3-pole mini contactors are compact control products mainly used for switching resistive or motor loads up to 690 V AC.

These contactors are designed with 3 main poles and one built-in auxiliary contact:

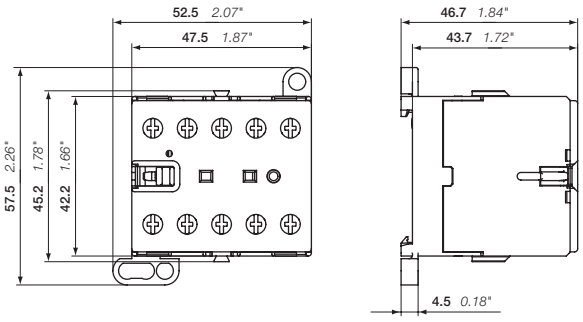
- control circuit: DC operated
- coil with very low energy consumption; suitable for direct control by PLC outputs
- hum-free coil
- contacts configuration 30-01 fulfills the requirements for Mirror contacts acc. to annex F of IEC/EN 60947-4-1
- no auxiliary contact block permitted for mounting
- suitable for rail or wall mounting

IEC		UL/CSA		Rated control circuit voltage Uc	Auxiliary contacts fitted	Type	Order code	Pkg qty	Weight (1 pce)
Rated operational power 400 V AC-3	current θ ≤ 40 °C AC-1	3-phase motor rating 480 V	General use rating						
kW	A	hp		V DC					kg
DC operation 24 V / 1.4 W									
4	20	3	300 V / 12 A	24	1 0	BC6-30-10-1.4-81	GJL1213001R8101	10	0.175
					0 1	BC6-30-01-1.4-81	GJL1213001R8011	10	0.175
5.5	20	5	600 V / 16 A	24	1 0	BC7-30-10-1.4-81	GJL1313001R8101	10	0.175
					0 1	BC7-30-01-1.4-81	GJL1313001R8011	10	0.175
DC operation 17 ... 32 V / 2.4 W									
4	20	3	300 V / 12 A	17 ... 32	1 0	BC6-30-10-2.4-51	GJL1213001R5101	10	0.175
					0 1	BC6-30-01-2.4-51	GJL1213001R5011	10	0.175
5.5	20	5	600 V / 16 A	17 ... 32	1 0	BC7-30-10-2.4-51	GJL1313001R5101	10	0.175
					0 1	BC7-30-01-2.4-51	GJL1313001R5011	10	0.175

Connection to PLCs with integrated protective circuit

DC operation 24 V / 1.7 W									
4	20	3	300 V / 12 A	24	1 0	B6S-30-10-1.7-71	GJL1213001R7101	10	0.175
					0 1	B6S-30-01-1.7-71	GJL1213001R7011	10	0.175
5.5	20	5	600 V / 16 A	24	1 0	B7S-30-10-1.7-71	GJL1313001R7101	10	0.175
					0 1	B7S-30-01-1.7-71	GJL1313001R7011	10	0.175
DC operation 17 ... 32 V / 2.8 W									
4	20	3	300 V / 12 A	17 ... 32	1 0	B6S-30-10-2.8-72	GJL1213001R7102	10	0.175
					0 1	B6S-30-01-2.8-72	GJL1213001R7012	10	0.175
5.5	20	5	600 V / 16 A	17 ... 32	1 0	B7S-30-10-2.8-72	GJL1313001R7102	10	0.175
					0 1	B7S-30-01-2.8-72	GJL1313001R7012	10	0.175

Other types on request



BC6, BC7

Main dimensions mm, inches

B6, B7 4-pole mini contactors – with screw terminals

4 to 5.5 kW

AC operated



B6-22-00

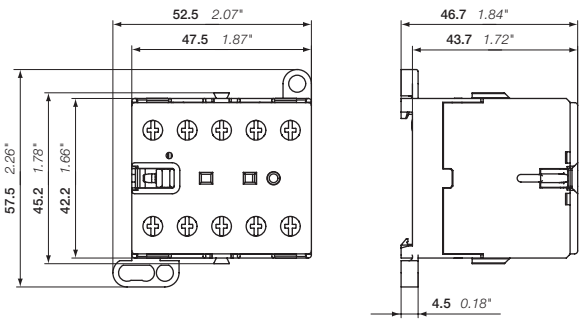
B6, B7 4-pole mini contactors are compact control products mainly used for switching resistive loads up to 690 V AC.

These contactors are designed with 4 main poles:

- control circuit: AC operated, low consumption coil (3.5 VA at pull-in and at holding)
- hum-free coil
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories
- suitable for rail or wall mounting

IEC	UL/CSA	Rated control circuit voltage Uc 50/60 Hz	Auxiliary contacts fitted	Type	Order code	Pkg qty	Weight (1 pce)
Rated operational current θ ≤ 40 °C AC-1 A	General use rating	V AC					kg
4 N.O. main poles							
20	300 V / 12 A	24	0 0	B6-40-00-01	GJL1211201R0001	10	0.175
		42	0 0	B6-40-00-02	GJL1211201R0002	10	0.175
		48	0 0	B6-40-00-03	GJL1211201R0003	10	0.175
		110 ... 127	0 0	B6-40-00-84	GJL1211201R8004	10	0.175
		220 ... 240	0 0	B6-40-00-80	GJL1211201R8000	10	0.175
20	600 V / 16 A	24	0 0	B7-40-00-01	GJL1311201R0001	10	0.175
		42	0 0	B7-40-00-02	GJL1311201R0002	10	0.175
		48	0 0	B7-40-00-03	GJL1311201R0003	10	0.175
		110 ... 127	0 0	B7-40-00-84	GJL1311201R8004	10	0.175
		220 ... 240	0 0	B7-40-00-80	GJL1311201R8000	10	0.175
2 N.O. + 2 N.C. main poles							
20	300 V / 12 A	24	0 0	B6-22-00-01	GJL1211501R0001	10	0.175
		42	0 0	B6-22-00-02	GJL1211501R0002	10	0.175
		48	0 0	B6-22-00-03	GJL1211501R0003	10	0.175
		110 ... 127	0 0	B6-22-00-84	GJL1211501R8004	10	0.175
		220 ... 240	0 0	B6-22-00-80	GJL1211501R8000	10	0.175
20	600 V / 16 A	24	0 0	B7-22-00-01	GJL1311501R0001	10	0.175
		42	0 0	B7-22-00-02	GJL1311501R0002	10	0.175
		48	0 0	B7-22-00-03	GJL1311501R0003	10	0.175
		110 ... 127	0 0	B7-22-00-84	GJL1311501R8004	10	0.175
		220 ... 240	0 0	B7-22-00-80	GJL1311501R8000	10	0.175

Other types on request



B6, B7

Main dimensions mm, inches

B6, B7, B7D 4-pole mini contactors – with screw terminals

4 to 5.5 kW

DC operated



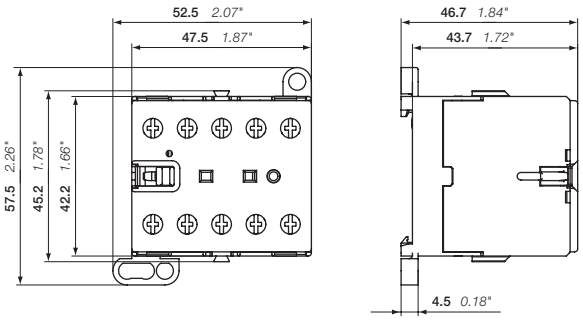
BC6-22-00

B6, B7, B7D 4-pole mini contactors are compact control products mainly used for switching resistive loads up to 690 V AC.

These contactors are designed with 4 main poles:

- control circuit: DC operated, low coil consumption (3.5 W at pull-in and at holding)
- hum-free coil
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories
- suitable for rail or wall mounting

IEC		UL/CSA		Rated control circuit voltage Uc	Auxiliary contacts fitted	Type	Order code	Pkg qty	Weight (1 pce)
Rated operational power 400 V AC-3	current θ ≤ 55 °C AC-1	3-phase motor rating 480 V	General use rating						
kW	A	hp		V DC					kg
4 N.O. main poles									
4	20	3	300 V / 12 A	12	0 0	BC6-40-00-07	GJL1213201R0007	10	0.175
				24	0 0	BC6-40-00-01	GJL1213201R0001	10	0.175
				48	0 0	BC6-40-00-16	GJL1213201R1006	10	0.175
				60	0 0	BC6-40-00-03	GJL1213201R0003	10	0.175
				110 ... 125	0 0	BC6-40-00-04	GJL1213201R0004	10	0.175
				220 ... 240	0 0	BC6-40-00-05	GJL1213201R0005	10	0.175
5.5	20	5	600 V / 16 A	12	0 0	BC7-40-00-07	GJL1313201R0007	10	0.175
				24	0 0	BC7-40-00-01	GJL1313201R0001	10	0.175
				48	0 0	BC7-40-00-16	GJL1313201R1006	10	0.175
				110 ... 125	0 0	BC7-40-00-04	GJL1313201R0004	10	0.175
				220 ... 240	0 0	BC7-40-00-05	GJL1313201R0005	10	0.175
2 N.O. + 2 N.C. main poles									
4	20	3	300 V / 12 A	12	0 0	BC6-22-00-07	GJL1213501R0007	10	0.175
				24	0 0	BC6-22-00-01	GJL1213501R0001	10	0.175
				48	0 0	BC6-22-00-16	GJL1213501R1006	10	0.175
				60	0 0	BC6-22-00-03	GJL1213501R0003	10	0.175
				110 ... 125	0 0	BC6-22-00-04	GJL1213501R0004	10	0.175
				220 ... 240	0 0	BC6-22-00-05	GJL1213501R0005	10	0.175
4 N.O. main poles with integrated suppressor diode									
4	20	5	600 V	24	0 0	B7D-40-00-05	GJL1317201R0005	10	0.175
				220 ... 240	0 0	B7D-40-00-01	GJL1317201R0001	10	0.175



BC6, B7D

Main dimensions mm, inches

Accessories for B mini contactors



CAF6-11N



CA6-11E



CA6-11E-P



CA6-11E-F



RV-BC6/250



BSM6-30



LT6-B

Suitable for	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce) kg
Front mounted instantaneous auxiliary contact blocks (not allowed for mounting on B6S, B7S, interface contactors) (1) (2)					
B6-, B7-40-00, BC6-, BC7-40-00 VB6, VB7, VBC6, VBC7, VB6A, VB7A VBC6A, VBC7A	1 1	CAF6-11E	GJL1201330R0002	10	0.020
	2 0	CAF6-20E	GJL1201330R0006	10	0.020
	0 2	CAF6-02E	GJL1201330R0010	10	0.020
B6-, B7-30-10, BC6-, BC7-30-10 VB6, VB7, VBC6, VBC7, VB6A, VB7A VBC6A, VBC7A	1 1	CAF6-11M	GJL1201330R0003	10	0.020
	2 0	CAF6-20M	GJL1201330R0007	10	0.020
	0 2	CAF6-02M	GJL1201330R0011	10	0.020
B6-, B7-30-01, BC6-, BC7-30-01 VB6, VB7, VBC6, VBC7, VB6A, VB7A VBC6A, VBC7A	1 1	CAF6-11N	GJL1201330R0004	10	0.020
	2 0	CAF6-20N	GJL1201330R0008	10	0.020
	0 2	CAF6-02N	GJL1201330R0012	10	0.020
Side mounted instantaneous auxiliary contact block (1) (2)					
B6-, B7-40-00, BC6-, BC7-40-00	1 1	CA6-11E	GJL1201317R0002	10	0.030
B6-, B7-30-10, BC6-, BC7-30-10	1 1	CA6-11M	GJL1201317R0003	10	0.030
B6-, B7-30-01, BC6-, BC7-30-01	1 1	CA6-11N	GJL1201317R0004	10	0.030
Side mounted instantaneous auxiliary contact block with soldering pins (1) (2)					
B6-, B7-40-00-P, BC6-,BC7-40-00-P	1 1	CA6-11E-P	GJL1201319R0002	10	0.025
B6-, B7-30-10-P, BC6-, BC7-30-10-P	1 1	CA6-11M-P	GJL1201319R0003	10	0.025
B6-, B7-30-01-P, BC6-, BC7-30-01-P	1 1	CA6-11N-P	GJL1201319R0004	10	0.025
Side mounted instantaneous auxiliary contact block with flat pin connection (1) (2)					
B6-, B7-40-00-F, BC6-,BC7-40-00-F	1 1	CA6-11E-F	GJL1201318R0002	10	0.025
B6-, B7-30-10-F, BC6-, BC7-30-10-F	1 1	CA6-11M-F	GJL1201318R0003	10	0.025
B6-, B7-30-01-F, BC6-, BC7-30-01-F	1 1	CA6-11N-F	GJL1201318R0004	10	0.025
Soldering socket (Ith = 10 A, AC-3: 500 V / 8 A, 690 V / 3.5 A, UL: 300 V / 8 A)					
B6, B7, BC6, BC7		LB6	GJL1201902R0001	10	0.020
2-pole aux.contact blocks CA		LB6-CA	GJL1201903R0001	10	0.010

(1) CA6 and CAF6 must not be fitted simultaneously.
(2) The auxiliary contacts in the front or side blocks are not Mirror contacts

Suitable for	Rated control circuit voltage UC V DC	Connection type	Type	Order code	Pkg qty	Weight (1 pce) kg
Surge suppressors for contactor coils						
BC6, BC7	24 ... 60	Cable lug	RV-BC6/60	GHV2501902R0002	10	0.005
	50 ... 250	Cable lug	RV-BC6/250	GHV2501903R0002	10	0.005

Note: Mini contactors for AC operation have an integrated protective circuit

Connecting links with manual motor starters				
To connect B..VB.. mini contactor to MS116, MS132	BEA7/132	1SBN080906R1002	10	0.013
To connect B..VB.. mini contactors to MS325	BEA7/325	1SBN080906R1001	10	0.021
Connection sets for reversing contactors				
VB6, VB7, VBC6, VBC7, VB6A, VB7A, VBC6A, VBC7A, cross-section 1.8 mm²	BSM6-30	GJL1201908R0001	10	0.010
Parallel connecting link				
B6, B7, BC6, BC7	LP6	GJL1201907R0001	100	0.009
Cover cap, transparent fitting to DIN rail design, sealable				
B6, B7, BC6, BC7	LT6-B	GJL1201906R0001	10	0.015
Plastic label for markings				
B6, B7, BC6, BC7	BA5-50	1SBN110000R1000	50	0.020

Accessories for K mini contactor relays



CAF6-11K



CA6-11K



CA6-11K-P



CA6-11K-F



LT6-B



RV-BC6/250

Suitable for	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce) kg
Front mounted instantaneous auxiliary contact blocks (1) (2)					
K6, KC6	1 1	CAF6-11K	GJL1201330R0001	10	0.020
	2 0	CAF6-20K	GJL1201330R0005	10	0.020
	0 2	CAF6-02K	GJL1201330R0009	10	0.020
Side mounted instantaneous auxiliary contact block (1) (2)					
K6, KC6	1 1	CA6-11K	GJL1201317R0001	10	0.030
Side mounted instantaneous auxiliary contact block with soldering pins (1) (2)					
K6..P, KC6..P	1 1	CA6-11K-P	GJL1201319R0001	10	0.025
Side mounted instantaneous auxiliary contact block with flat pin connection (1) (2)					
K6..F, KC6..F	1 1	CA6-11K-F	GJL1201318R0001	10	0.025
Soldering socket (Ie < 8 A)					
K6, KC6		LB6	GJL1201902R0001	10	0.020
2-pole auxiliary contact blocks CA		LB6-CA	GJL1201903R0001	10	0.010

(1) CA6 and CAF6 must not be fitted simultaneously.
(2) The auxiliary contacts in the front or side blocks are not Mechanically linked contacts

Suitable for	Rated control circuit voltage UC V DC	Connection type	Type	Order code	Pkg qty	Weight (1 pce) kg
Surge suppressors for contactor coils						
KC6	24 ... 60	Cable lug	RV-BC6/60	GHV2501902R0002	10	0.005
	50 ... 250	Cable lug	RV-BC6/250	GHV2501903R0002	10	0.005

Note: Mini contactors for AC operation have an integrated protective circuit

Cover cap, transparent fitting to DIN rail design, sealable						
K6, KC6			LT6-B	GJL1201906R0001	10	0.015

K6 4-pole mini contactor relays – with screw terminals

AC operated



K6-22Z



K6-31Z

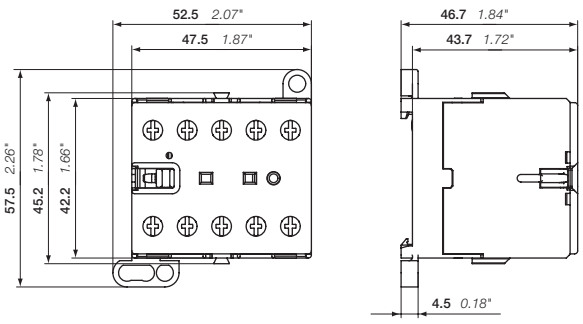
K6 4-pole mini-contactor relays are space optimized control products mainly used for control functions or for small loads up to AC-15 4 A / 240 V.

These contactors are designed with 4 poles with various contact combinations:

- control circuit: AC operated, low consumption coil (3.5 VA at pull-in and at holding)
- hum-free coil
- contacts configurations 22 and 31 fulfill the requirements for Mechanically linked contacts acc. to annex L of IEC/EN 60947-5-1
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories
- suitable for rail or wall mounting

Rated control circuit voltage Uc		Type	Order code	Pkg qty	Weight (1 pce)
50 Hz V AC	60 Hz V AC				kg
2 N.O. + 2 N.C. main pole					
24	24	K6-22Z-01	GJH1211001R0221	10	0.175
42	42	K6-22Z-02	GJH1211001R0222	10	0.175
48	48	K6-22Z-03	GJH1211001R0223	10	0.175
110 ...127	110 ...127	K6-22Z-84	GJH1211001R8224	10	0.175
220 ... 240	220 ... 240	K6-22Z-80	GJH1211001R8220	10	0.175
380 ... 415	380 ... 415	K6-22Z-85	GJH1211001R8225	10	0.175
3 N.O. + 1 N.C. main poles					
24	24	K6-31Z-01	GJH1211001R0311	10	0.175
42	42	K6-31Z-02	GJH1211001R0312	10	0.175
48	48	K6-31Z-03	GJH1211001R0313	10	0.175
110 ...127	110 ...127	K6-31Z-84	GJH1211001R8314	10	0.175
220 ... 240	220 ... 240	K6-31Z-80	GJH1211001R8310	10	0.175
380 ... 415	380 ... 415	K6-31Z-85	GJH1211001R8315	10	0.175
4 N.O. main poles					
24	24	K6-40E-01	GJH1211001R0401	10	0.175
42	42	K6-40E-02	GJH1211001R0402	10	0.175
48	48	K6-40E-03	GJH1211001R0403	10	0.175
110 ...127	110 ...127	K6-40E-84	GJH1211001R8404	10	0.175
220 ... 240	220 ... 240	K6-40E-80	GJH1211001R8400	10	0.175
380 ... 415	380 ... 415	K6-40E-85	GJH1211001R8405	10	0.175

Other types on request.



K6

Main dimensions mm, inches

KC6 4-pole mini contactor relays – with screw terminals

DC operated



KC6-22Z

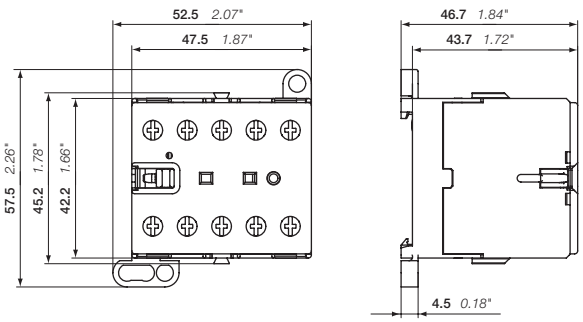
KC6 4-pole mini-contactor relays are space optimized control products mainly used for control functions or for small loads up to AC-15 4 A / 240 V.

These contactors are designed with 4 poles with various contact combinations:

- control circuit: DC operated, low consumption coil (3.5 W at pull-in and at holding)
- hum-free coil
- contacts configurations 22 and 31 fulfill the requirements for Mechanically linked contacts acc. to annex L of IEC/EN 60947-5-1
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories
- suitable for rail or wall mounting

Rated control circuit voltage Uc V DC	Type	Order code	Pkg qty	Weight (1 pce) kg
2 N.O. + 2 N.C. main poles				
12	KC6-22Z-07	GJH1213001R0227	10	0.175
24	KC6-22Z-01	GJH1213001R0221	10	0.175
48	KC6-22Z-16	GJH1213001R1226	10	0.175
60	KC6-22Z-03	GJH1213001R0223	10	0.175
110 ... 125	KC6-22Z-04	GJH1213001R0224	10	0.175
220 ... 240	KC6-22Z-05	GJH1213001R0225	10	0.175
3 N.O. + 1 N.C. main poles				
12	KC6-31Z-07	GJH1213001R0317	10	0.175
24	KC6-31Z-01	GJH1213001R0311	10	0.175
48	KC6-31Z-16	GJH1213001R1316	10	0.175
60	KC6-31Z-03	GJH1213001R0313	10	0.175
110 ... 125	KC6-31Z-04	GJH1213001R0314	10	0.175
220 ... 240	KC6-31Z-05	GJH1213001R0315	10	0.175
4 N.O. main poles				
12	KC6-40E-07	GJH1213001R0407	10	0.175
24	KC6-40E-01	GJH1213001R0401	10	0.175
48	KC6-40E-16	GJH1213001R1406	10	0.175
60	KC6-40E-03	GJH1213001R0403	10	0.175
110 ... 125	KC6-40E-04	GJH1213001R0404	10	0.175
220 ... 240	KC6-40E-05	GJH1213001R0405	10	0.175

Other types on request



KC6

Main dimensions mm, inches

KC6 4-pole mini contactor relays – with screw terminals

DC operated - low consumption



KC6-31Z

KC6 4-pole mini-contactor relays are space optimized control products mainly used for control functions or for small loads up to AC-15 4 A / 240 V.

These contactors are designed with 4 poles with various contact combinations:

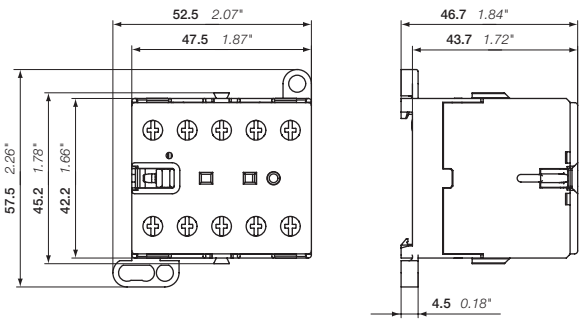
- control circuit: DC operated
- coil with very low energy consumption; suitable for direct control by PLC outputs
- hum-free coil
- contacts configurations 22 and 31 fulfill the requirements for Mechanically linked contacts acc. to annex L of IEC/EN 60947-5-1
- no auxiliary contact block permitted for mounting
- suitable for rail or wall mounting

Rated control circuit voltage Uc V DC	Type	Order code	Pkg qty	Weight (1 pce) kg
DC operation 24 V / 1.4 W				
24	KC6-31Z-1.4-81	GJH1213001R8311	10	0.175
24	KC6-40E-1.4-81	GJH1213001R8401	10	0.175
DC operation 17 ... 32 V / 2.4 W				
17 ... 32	KC6-31Z-2.4-51	GJH1213001R5311	10	0.175
17 ... 32	KC6-40E-2.4-51	GJH1213001R5401	10	0.175

Connection to PLCs with integrated protective circuit

DC operation 24 V / 1.7 W				
24	K6S-22Z-1.7-71	GJH1213001R7221	10	0.175
24	K6S-31Z-1.7-71	GJH1213001R7311	10	0.175
24	K6S-40E-1.7-71	GJH1213001R7401	10	0.175
DC operation 17 ... 32 V / 2.8 W				
17 ... 32	K6S-22Z-2.8-72	GJH1213001R7222	10	0.175
17 ... 32	K6S-31Z-2.8-72	GJH1213001R7312	10	0.175
17 ... 32	K6S-40E-2.8-72	GJH1213001R7402	10	0.175

Other types on request



KC6

Main dimensions mm, inches

Overload relays

456 **Thermal overload relays**
458 **T16 thermal overload relays – 0.10 to 16.0 A**
460 **TF42 thermal overload relays – 0.10 to 38.0 A**
461 **TF65 thermal overload relays – 22.0 to 67.0 A**
462 **TF96 thermal overload relays – 40.0 to 96.0 A**
463 **TF140DU thermal overload relays – 66 to 142 A**
464 **TA200DU thermal overload relays – 66 to 200 A**

Electronic overload relays
465 **E16DU, EF19, EF45 electronic overload relays – 0.10 to 45.0 A**
467 **EF65, EF96, EF146 electronic overload relays – 20 to 150 A**
469 **EF205, EF370 electronic overload relays – 63 to 380 A**
470 **EF460, EF750, EF1250DU electronic overload relays 150 to 1250 A**
472 **General accessories**

Thermal and electronic overload relays

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 ... 50 hp	
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	

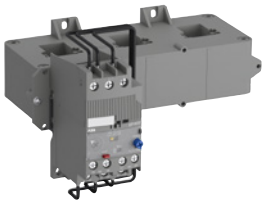
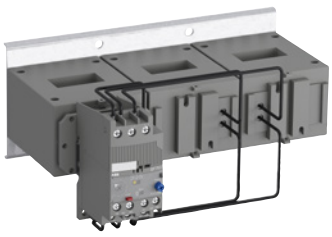
Electronic overload relays with integrated CT



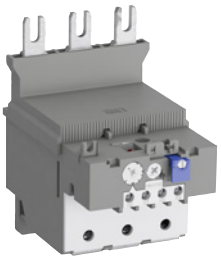
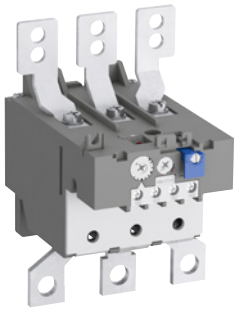



IEC: rated operational power AC-3	400 V	0.06 ... 7.5 kW	0.06 ... 7.5 kW	4 ... 22 kW	7.5 ... 37 kW	
UL/CSA: 3-phase hp-ratings	480 V	1/2 ... 10 hp	1/2 ... 10 hp	5 ... 30 hp	15 ... 50 hp	
Fitting to contactors		B6, B7, BC6, BC7, VB6, VB7, VBC6, VBC7	AF09 ... AF38	AF26 ... AF38	AF40, AF52, AF65	
Type		**E16DU**	**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, 30E selectable				
Single mounting kit		DB16E	DB19EF	DB45EF	-	

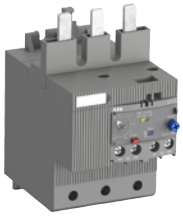
Electronic overload relays with external separate CT


IEC: rated operational power AC-3	400 V	75 ... 250 kW	132 ... 400 kW	250 ... 710 kW
UL/CSA: 3-phase hp-ratings	480 V	100 ... 400 hp	200 ... 500 hp	600 ... 900 hp
Fitting to contactors		AF400, AF460	AF580, AF750, AF1250	AF1350, AF1650, AF2050
Type		**EF460**	**EF750**	**EF1250DU**
Current range		150 ... 500 A	250 ... 800 A	375 ... 1250 A
Trip class		10E, 20E, 30E selectable		

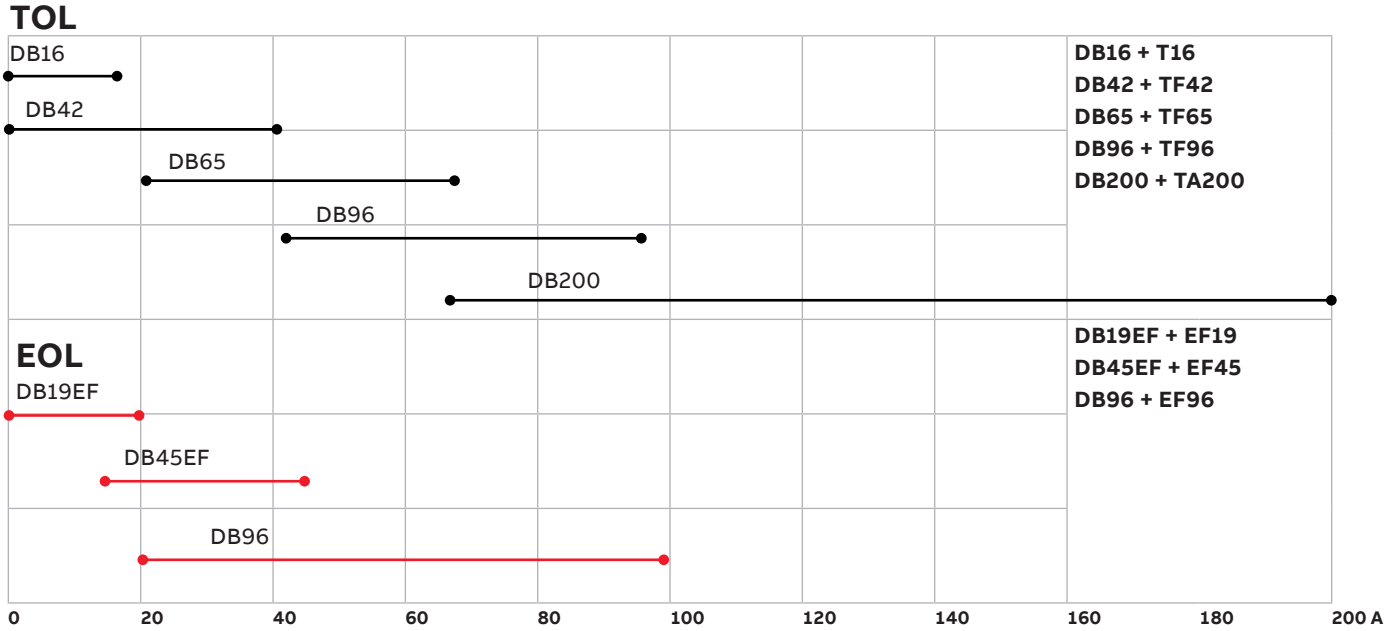
18.5 ... 45 kW	37 ... 75 kW	37 ... 110 kW	
30 ... 75 hp	50 ... 100 hp	50 ... 150 hp	
AF80, AF96	AF116, AF140, AF146	AF190, AF205	
TF96	**TF140DU**	**TA200DU**	
40 ... 96 A	66 ... 142 A	66 ... 200 A	
10	10A	10A	
DB96	-	DB200	






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, AF205	AF265, AF305, AF370
EF96	**EF146**	**EF205**	**EF370**
20 ... 100 A	54 ... 150 A	63 ... 210 A	115 ... 380 A
10E, 20E, 30E selectable			
DB96	-	-	-

Single mounting kit overview

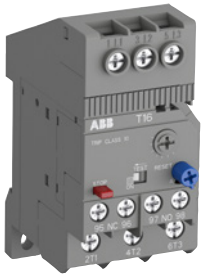


T16 thermal overload relays – 0.10 to 16.0 A

Ordering details



T16



T16 + DB16



KPR-101L



DB16

The T16 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.

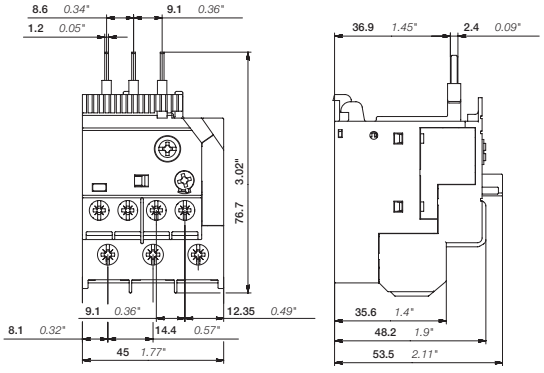
The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release 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

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
Suitable for AS09...AS16, B6 and B7 all variants					
0.10 ... 0.13	0.5 A, fuse type T	10	T16-0.13	1SAZ711201R1005	0.100
0.13 ... 0.17	1.0 A, fuse type T	10	T16-0.17	1SAZ711201R1008	0.100
0.17 ... 0.23	1.0 A, fuse type T	10	T16-0.23	1SAZ711201R1009	0.100
0.23 ... 0.31	1.0 A, fuse type T	10	T16-0.31	1SAZ711201R1013	0.100
0.31 ... 0.41	2.0 A, fuse type gG	10	T16-0.41	1SAZ711201R1014	0.100
0.41 ... 0.55	2.0 A, fuse type gG	10	T16-0.55	1SAZ711201R1017	0.100
0.55 ... 0.74	4.0 A, fuse type gG	10	T16-0.74	1SAZ711201R1021	0.100
0.74 ... 1.00	6.0 A, fuse type gG	10	T16-1.0	1SAZ711201R1023	0.100
1.00 ... 1.30	6.0 A, fuse type gG	10	T16-1.3	1SAZ711201R1025	0.100
1.30 ... 1.70	10.0 A, fuse type gG	10	T16-1.7	1SAZ711201R1028	0.100
1.70 ... 2.30	10.0 A, fuse type gG	10	T16-2.3	1SAZ711201R1031	0.100
2.30 ... 3.10	10.0 A, fuse type gG	10	T16-3.1	1SAZ711201R1033	0.100
3.10 ... 4.20	20.0 A, fuse type gG	10	T16-4.2	1SAZ711201R1035	0.100
4.20 ... 5.70	20.0 A, fuse type gG	10	T16-5.7	1SAZ711201R1038	0.100
5.70 ... 7.60	35.0 A, fuse type gG	10	T16-7.6	1SAZ711201R1040	0.100
7.60 ... 10.0	35.0 A, fuse type gG	10	T16-10	1SAZ711201R1043	0.104
10.0 ... 13.0	40.0 A, fuse type gG	10	T16-13	1SAZ711201R1045	0.104
13.0 ... 16.0	40.0 A, fuse type gG	10	T16-16	1SAZ711201R1047	0.104

Ordering details accessories

Description	Suitable for	Type	Order code	Weight (1 pce) kg
Single mounting kit	T16	DB16	1SAZ701901R0001	0.032
Reset push button	E16, EF, TF, T16, TA200	KPR-101L	1SFA616162R1014	0.027

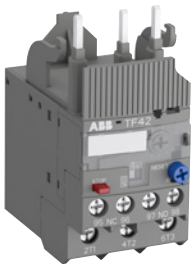


T16

Main dimensions mm, inches

TF42 thermal overload relays – 0.10 to 38.0 A

Ordering details



TF42



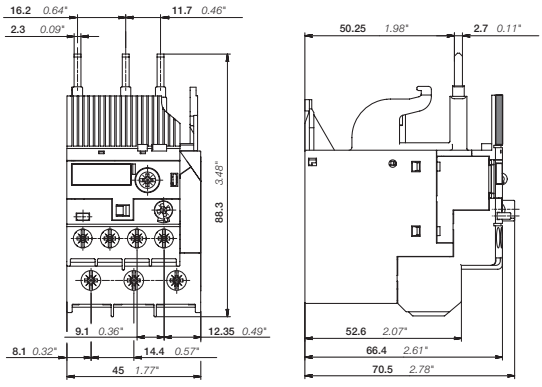
TF42 + DB42

The TF42 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 bent 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
- With ATEX certification

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
Suitable for AF09...AF38 contactors					
0.10 ... 0.13	0.5 A, fuse type T	10	TF42-0.13	1SAZ721201R1005	0.130
0.13 ... 0.17	1.0 A, fuse type T	10	TF42-0.17	1SAZ721201R1008	0.130
0.17 ... 0.23	1.0 A, fuse type T	10	TF42-0.23	1SAZ721201R1009	0.130
0.23 ... 0.31	1.0 A, fuse type T	10	TF42-0.31	1SAZ721201R1013	0.130
0.31 ... 0.41	2.0 A, fuse type gG	10	TF42-0.41	1SAZ721201R1014	0.130
0.41 ... 0.55	2.0 A, fuse type gG	10	TF42-0.55	1SAZ721201R1017	0.130
0.55 ... 0.74	4.0 A, fuse type gG	10	TF42-0.74	1SAZ721201R1021	0.130
0.74 ... 1.00	6.0 A, fuse type gG	10	TF42-1.0	1SAZ721201R1023	0.130
1.00 ... 1.30	6.0 A, fuse type gG	10	TF42-1.3	1SAZ721201R1025	0.130
1.30 ... 1.70	10.0 A, fuse type gG	10	TF42-1.7	1SAZ721201R1028	0.130
1.70 ... 2.30	10.0 A, fuse type gG	10	TF42-2.3	1SAZ721201R1031	0.130
2.30 ... 3.10	10.0 A, fuse type gG	10	TF42-3.1	1SAZ721201R1033	0.130
3.10 ... 4.20	20.0 A, fuse type gG	10	TF42-4.2	1SAZ721201R1035	0.130
4.20 ... 5.70	20.0 A, fuse type gG	10	TF42-5.7	1SAZ721201R1038	0.130
5.70 ... 7.60	35.0 A, fuse type gG	10	TF42-7.6	1SAZ721201R1040	0.130
7.60 ... 10.0	35.0 A, fuse type gG	10	TF42-10	1SAZ721201R1043	0.130
10.0 ... 13.0	40.0 A, fuse type gG	10	TF42-13	1SAZ721201R1045	0.130
13.0 ... 16.0	40.0 A, fuse type gG	10	TF42-16	1SAZ721201R1047	0.130
16.0 ... 20.0	63.0 A, fuse type gG	10	TF42-20	1SAZ721201R1049	0.145
20.0 ... 24.0	63.0 A, fuse type gG	10	TF42-24	1SAZ721201R1051	0.145
24.0 ... 29.0	63.0 A, fuse type gG	10	TF42-29	1SAZ721201R1052	0.145
29.0 ... 35.0	80.0 A, fuse type gG	10	TF42-35	1SAZ721201R1053	0.145
35.0 ... 38.0/40.0	80.0 A, fuse type gG	10	TF42-38	1SAZ721201R1055	0.145



TF42

Main dimensions mm, inches

TF42 thermal overload relays – 0.10 to 38.0 A

Ordering details



DB42



KPR-101L



DRS-F

Ordering details accessories

Description	Suitable for	Type	Order code	Weight (1 pce) kg
Single mounting kit	TF42	DB42	1SAZ701902R0001	0.087
Reset push button	EF, TF, T16, TA200	KPR-101L	1SFA616162R1014	0.019
Remote reset coil 24-30 V AC/DC	TF42, TF65, TF96	DRS-F-01	1SAX101911R1001	0.077
Remote reset coil 48-60 V AC/DC		DRS-F-02	1SAX101911R1002	0.077
Remote reset coil 110-127 V AC/DC		DRS-F-03	1SAX101911R1003	0.077
Remote reset coil 220-240 V AC/DC		DRS-F-04	1SAX101911R1004	0.077
Remote stop coil 24-30 V DC		DRS-F-TF-01	1SAZ701904R1001	0.077
Remote stop coil 48-60 V DC		DRS-F-TF-02	1SAZ701904R1002	0.077
Remote stop coil 110-127 V DC		DRS-F-TF-03	1SAZ701904R1003	0.077
Remote stop coil 220-240 V DC		DRS-F-TF-04	1SAZ701904R1004	0.077

TF65 thermal overload relays – 22.0 to 67.0 A

Ordering details



TF65



DB65



DB65 + TF65



KPR-101L



DRS-F

The TF65 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 bent 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).

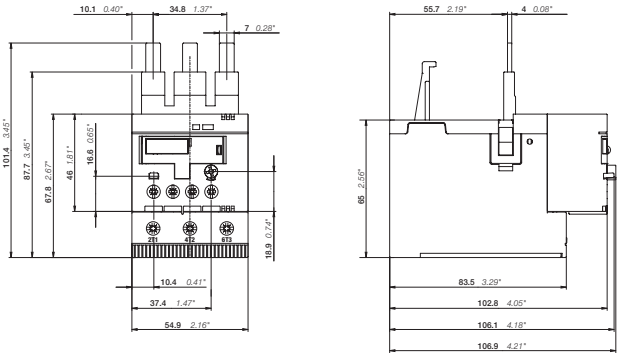
- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications
- With ATEX certification (1)

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
Suitable for AF40...AF65 contactors					
22.0 ... 28.0	80 A, gG Type Fuses	10	TF65-28	1SAZ811201R1001	0.456
25.0 ... 33.0	80 A, gG Type Fuses	10	TF65-33	1SAZ811201R1002	0.456
30.0 ... 40.0	100 A, gG Type Fuses	10	TF65-40	1SAZ811201R1003	0.456
36.0 ... 47.0	125 A, gG Type Fuses	10	TF65-47	1SAZ811201R1004	0.456
44.0 ... 53.0	125 A, gG Type Fuses	10	TF65-53	1SAZ811201R1005	0.456
50.0 ... 60.0	125 A, gG Type Fuses	10	TF65-60	1SAZ811201R1006	0.466
57.0 ... 67.0	160 A, gG Type Fuses	10	TF65-67	1SAZ811201R1007	0.466

Ordering details accessories

Description	Suitable for	Type	Order code	Weight (1 pce) kg
Single mounting kit	TF65	DB65	1SAZ801901R1001	0.132
Reset push button	E16, EF, TF, T16, TA200	KPR-101L	1SFA616162R1014	0.019
Remote reset coil 24-30 V AC / DC	TF42, TF65, TF96	DRS-F-01	1SAX101911R1001	0.077
Remote reset coil 48-60 V AC / DC		DRS-F-02	1SAX101911R1002	0.077
Remote reset coil 110-127 V AC / DC		DRS-F-03	1SAX101911R1003	0.077
Remote reset coil 220-240 V AC / DC		DRS-F-04	1SAX101911R1004	0.077
Remote stop coil 24-30 V DC		DRS-F-TF-01	1SAZ701904R1001	0.077
Remote stop coil 48-60 V DC		DRS-F-TF-02	1SAZ701904R1002	0.077
Remote stop coil 110-127 V DC		DRS-F-TF-03	1SAZ701904R1003	0.077
Remote stop coil 220-240 V DC		DRS-F-TF-04	1SAZ701904R1004	0.077

1) ATEX is valid for products, produced from week 26, 2015.



TF65

Main dimensions mm, inches

TF96 thermal overload relays – 40.0 to 96.0 A

Ordering details



TF96



DB96



DB96 + TF96



KPR-101L



DRS-F

The TF96 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 bent 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).

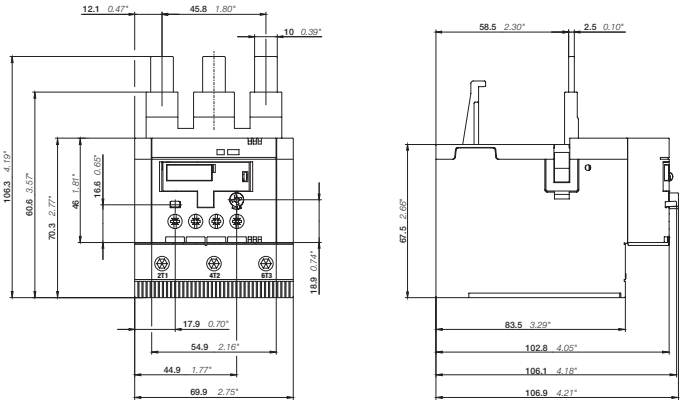
- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications
- With ATEX certification (1)

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
Suitable for AF80, AF96 contactors					
40.0 ... 51.0	125 A, gG Type Fuses	10	TF96-51	1SAZ911201R1001	0.620
48.0 ... 60.0	160 A, gG Type Fuses	10	TF96-60	1SAZ911201R1002	0.620
57.0 ... 68.0	160 A, gG Type Fuses	10	TF96-68	1SAZ911201R1003	0.620
65.0 ... 78.0	200 A, gG Type Fuses	10	TF96-78	1SAZ911201R1004	0.620
75.0 ... 87.0	200 A, gG Type Fuses	10	TF96-87	1SAZ911201R1005	0.620
84.0 ... 96.0	250 A, gG Type Fuses	10	TF96-96	1SAZ911201R1006	0.630

Ordering details accessories

Description	Suitable for	Type	Order code	Weight (1 pce) kg
Single mounting kit	TF96, EF96	DB96	1SAZ901901R1001	0.190
Reset push button	E16, EF, TF, T16, TA200	KPR-101L	1SFA616162R1014	0.019
Remote reset coil 24-30 V AC/DC	TF42, TF65, TF96	DRS-F-01	1SAX101911R1001	0.077
Remote reset coil 48-60 V AC/DC		DRS-F-02	1SAX101911R1002	0.077
Remote reset coil 110-127 V AC/DC		DRS-F-03	1SAX101911R1003	0.077
Remote reset coil 220-240 V AC/DC		DRS-F-04	1SAX101911R1004	0.077
Remote stop coil 24-30 V DC		DRS-F-TF-01	1SAZ701904R1001	0.077
Remote stop coil 48-60 V DC		DRS-F-TF-02	1SAZ701904R1002	0.077
Remote stop coil 110-127 V DC		DRS-F-TF-03	1SAZ701904R1003	0.077
Remote stop coil 220-240 V DC		DRS-F-TF-04	1SAZ701904R1004	0.077

(1) ATEX is valid for products, produced from week 26, 2015.

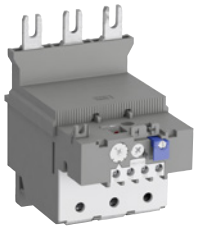


TF96

Main dimensions mm, inches

TF140DU thermal overload relays – 66 to 142 A

Ordering details



TF140DU



KPR-101L

The TF140DU 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 10A.

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 bent 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).

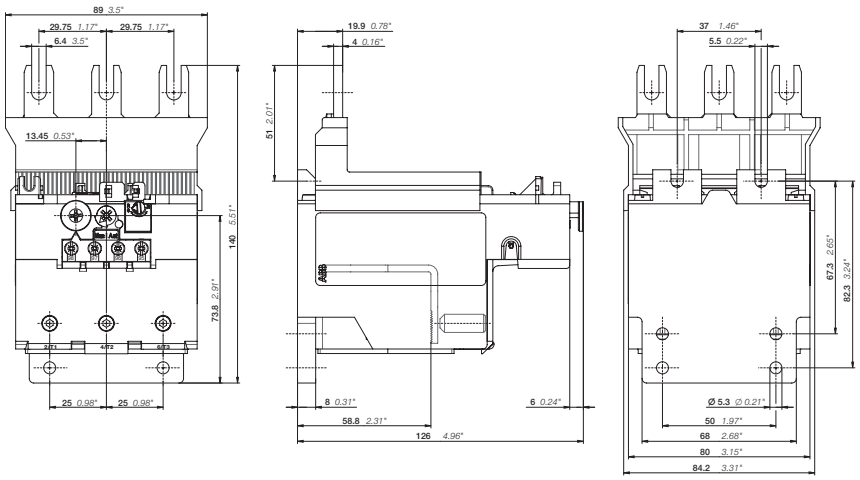
- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications
- ATEX variants available

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
Suitable for AF116...AF140 contactors					
66 ... 90	200 A, fuse type gG	10A	TF140DU-90	1SAZ431201R1001	0.820
80 ... 110	224 A, fuse type gG	10A	TF140DU-110	1SAZ431201R1002	0.820
100 ... 135	224 A, fuse type gG	10A	TF140DU-135	1SAZ431201R1003	0.820
110 ... 142	250 A, fuse type gG	10A	TF140DU-142	1SAZ431201R1004	0.820
66 ... 90	200 A, fuse type gG	10A	TF140DU-90-V1000*	1SAZ431301R1001	0.820
80 ... 110	224 A, fuse type gG	10A	TF140DU-110-V1000*	1SAZ431301R1002	0.820
100 ... 135	224 A, fuse type gG	10A	TF140DU-135-V1000*	1SAZ431301R1003	0.820
110 ... 142	250 A, fuse type gG	10A	TF140DU-142-V1000*	1SAZ431301R1004	0.820

*Note: ATEX variant

Ordering details accessories

Description	Suitable for	Type	Order code	Weight (1 pce) kg
Reset push button	E16, EF, TF, T16, TA200	KPR-101L	1SFA616162R1014	0.027

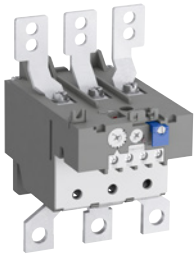


TF140DU

Main dimensions mm, inches

TA200DU thermal overload relays – 66 to 200 A

Ordering details



TA200DU



KPR-101L

The 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 10A.

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 bent 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).

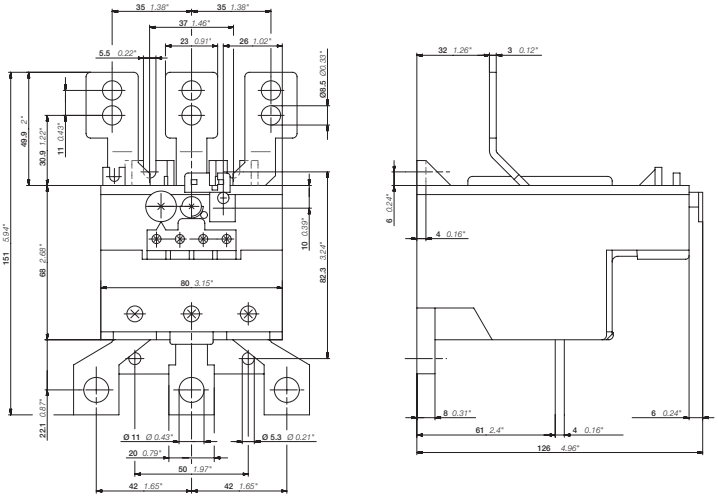
- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications
- ATEX variants available

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
Suitable for AF145...AF2050 contactors					
66 ... 90	200 A, fuse type gG / 125 A aM	10A	TA200DU-90	1SAZ421201R1001	0.755
80 ... 110	224 A, fuse type gG / 160 A aM	10A	TA200DU-110	1SAZ421201R1002	0.760
100 ... 135	224 A, fuse type gG / 200 A aM	10A	TA200DU-135	1SAZ421201R1003	0.760
110 ... 150	250 A, fuse type gG / 200 A aM	10A	TA200DU-150	1SAZ421201R1004	0.760
130 ... 175	315 A, fuse type gG / 250 A aM	10A	TA200DU-175	1SAZ421201R1005	0.770
150 ... 200	315 A, fuse type gG / 250 A aM	10A	TA200DU-200	1SAZ421201R1006	0.785
66 ... 90	200 A, fuse type gG / 125 A aM	10A	TA200DU-90-V1000 (1)	1SAZ421301R1001	0.755
80 ... 110	224 A, fuse type gG / 160 A aM	10A	TA200DU-110-V1000 (1)	1SAZ421301R1002	0.760
100 ... 135	224 A, fuse type gG / 200 A aM	10A	TA200DU-135-V1000 (1)	1SAZ421301R1003	0.760
110 ... 150	250 A, fuse type gG / 200 A aM	10A	TA200DU-150-V1000 (1)	1SAZ421301R1004	0.760
130 ... 175	315 A, fuse type gG / 250 A aM	10A	TA200DU-175-V1000 (1)	1SAZ421301R1005	0.770
150 ... 200	315 A, fuse type gG / 250 A aM	10A	TA200DU-200-V1000 (1)	1SAZ421301R1006	0.785

(1) ATEX variant

Ordering details accessories

Description	Suitable for	Type	Order code	Weight (1 pce) kg
Terminal shroud	TA200DU	LT200/A	1SAZ401901R1001	0.090
Single mounting kit	TA200DU	DB200	1SAZ401110R0001	0.225
Reset push button	E16, EF, TF, T16, TA200	KPR-101L	1SFA616162R1014	0.027



TA200DU

Main dimensions mm, inches

E16DU, EF19, EF45 electronic overload relays – 0.10 to 45.0 A

Ordering details



E16DU-1.0



EF19-18.9

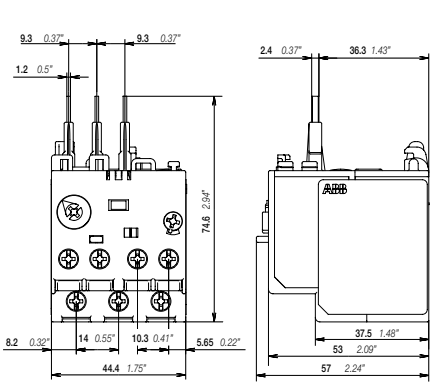


EF45-30

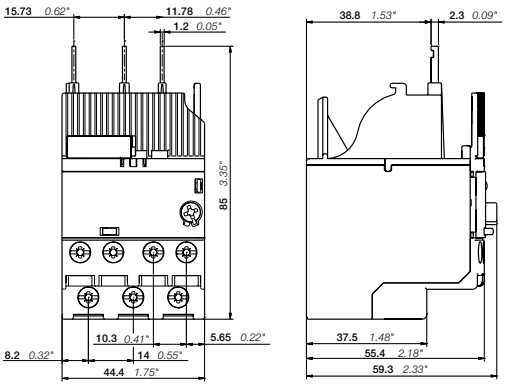
The E16DU, EF19 and EF45 are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic 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. The EF19 and EF45 have ATEX and IECEx certification (1).

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
E16DU electronic overload relays, suitable for B6 & B7					
0.10 ... 0.32	1 A, fuse type gG	10E, 20E, 30E	E16DU-0.32	1SAX111001R1101	0.150
0.30 ... 1.00	4 A, fuse type gG	10E, 20E, 30E	E16DU-1.0	1SAX111001R1102	0.150
0.80 ... 2.70	10 A, fuse type gG	10E, 20E, 30E	E16DU-2.7	1SAX111001R1103	0.150
2.00 ... 6.30	20 A, fuse type gG	10E, 20E, 30E	E16DU-6.3	1SAX111001R1104	0.150
5.70 ... 18.9	50 A, fuse type gG	10E, 20E, 30E	E16DU-18.9	1SAX111001R1105	0.150
EF19 electronic overload relays, suitable for AF09 ... AF26 (1)					
0.10 ... 0.32	1 A, fuse type gG	10E, 20E, 30E	EF19-0.32	1SAX121001R1101	0.158
0.30 ... 1.00	4 A, fuse type gG	10E, 20E, 30E	EF19-1.0	1SAX121001R1102	0.158
0.80 ... 2.70	10 A, fuse type gG	10E, 20E, 30E	EF19-2.7	1SAX121001R1103	0.158
1.90 ... 6.30	20 A, fuse type gG	10E, 20E, 30E	EF19-6.3	1SAX121001R1104	0.158
5.70 ... 18.9	50 A, fuse type gG	10E, 20E, 30E	EF19-18.9	1SAX121001R1105	0.158
EF45 electronic overload relays, suitable for AF26 ... AF38 (1)					
9.00 ... 30.0	160 A, fuse type gG	10E, 20E, 30E	EF45-30	1SAX221001R1101	0.362
15.0 ... 45.0	160 A, fuse type gG	10E, 20E, 30E	EF45-45	1SAX221001R1102	0.362

(1) ATEX is valid for products produced from week 42, 2014. IECEx is valid for products produced from week 15, 2017.



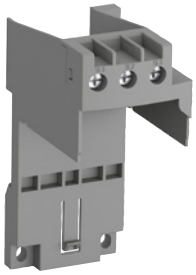
E16DU



EF19, EF45

Main dimensions mm, inches

E16DU, EF19, EF45 electronic overload relays – 0.10 to 45.0 A
Ordering details



DB19EF



DB45EF



KPR-101L



DRS-F

Ordering details accessories

Description	Suitable for	Type	Order code	Weight (1 pce) kg
Single mounting kit	E16DU	DB16E	1SAX101110R0001	0.035
Single mounting kit	EF19	DB19EF	1SAX101910R1001	0.046
Single mounting kit	EF45	DB45EF	1SAX201910R0001	0.100
Reset push button	E16, EF, TF, T16, TA200	KPR-101L	1SFA616162R1014	0.019
Remote reset coil 24-30 V DC	EF19, EF45, EF65, EF96, EF146, EF205, EF370, EF460, EF750	DRS-F-01	1SAX101911R1001	0.077
Remote reset coil 48-60 V DC		DRS-F-02	1SAX101911R1002	0.077
Remote reset coil 110-127 V DC		DRS-F-03	1SAX101911R1003	0.077
Remote reset coil 220-240 V DC		DRS-F-04	1SAX101911R1004	0.077
Remote stop coil 24-30 V AC/DC		DRS-F-EF-01	1SAX101911R1011	0.077
Remote stop coil 48-60 V AC/DC		DRS-F-EF-02	1SAX101911R1012	0.077
Remote stop coil 110-127 V AC/DC		DRS-F-EF-03	1SAX101911R1013	0.077
Remote stop coil 220-240 V AC/DC		DRS-F-EF-04	1SAX101911R1014	0.077

EF65, EF96, EF146 electronic overload relays – 20 to 150 A

Ordering details



EF65-70



EF96-100

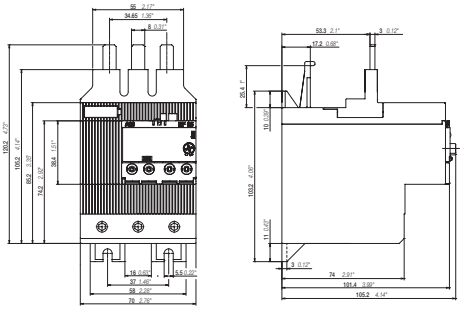


EF146-150

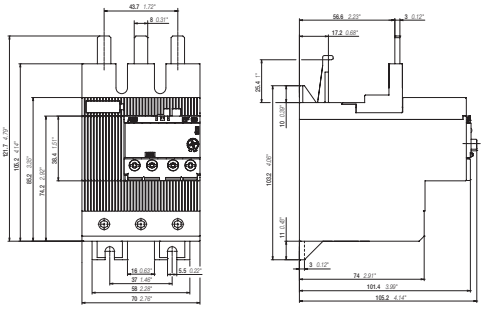
The EF65, EF96 and EF146 are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic 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. The EF65, EF96 and EF146 have ATEX and IECEx certification (1).

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
Suitable for AF40, AF52, AF65					
20 ... 56	160 A, fuse type gG	10E, 20E, 30E	EF65-56	1SAX331001R1102	0.821
25 ... 70	160 A, fuse type gG	10E, 20E, 30E	EF65-70	1SAX331001R1101	0.821
Suitable for AF80, AF96					
20 ... 56	160A, fuse type gG	10E, 20E, 30E	EF96-56	1SAX341001R1102	0.802
36 ... 100	200 A, fuse type gG	10E, 20E, 30E	EF96-100	1SAX341001R1101	0.802
Suitable for AF116, AF140, AF146					
54 ... 150	315 A, fuse type gG	10E, 20E, 30E	EF146-150	1SAX351001R1101	0.879

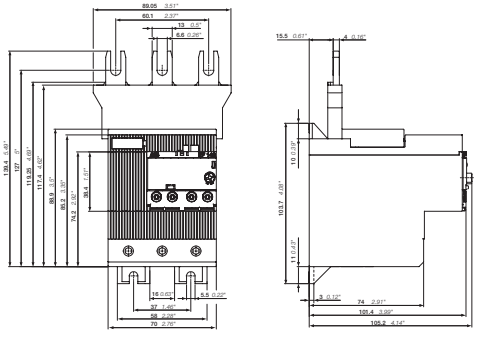
(1) ATEX is valid for products produced from week 42, 2014. ATEX certification is valid for EF65-56 produced from week 47, 2015.IECEx is valid for products produced from week 15, 2017.



EF65-56 / EF65-70



EF96-56 / EF96-100



EF146-150

Main dimensions mm, inches

EF65, EF96, EF146 electronic overload relays – 20 to 150 A

Ordering details



DB96



DB96 + EF96



KPR-101L



DRS-F

Ordering details accessories

Description	Suitable for	Type	Order code	Weight (1 pce) kg
Single mounting kit	EF96, TF96	DB96	1SAZ901901R1001	0.190
Reset push button	E16, EF, TF, T16, TA200	KPR-101L	1SFA616162R1014	0.019
Remote reset coil 24-30 V DC	EF19, EF45, EF65, EF96, EF146, EF205, EF370, EF460, EF750	DRS-F-01	1SAX101911R1001	0.077
Remote reset coil 48-60 V DC		DRS-F-02	1SAX101911R1002	0.077
Remote reset coil 110-127 V DC		DRS-F-03	1SAX101911R1003	0.077
Remote reset coil 220-240 V DC		DRS-F-04	1SAX101911R1004	0.077
Remote stop coil 24-30 V AC/DC		DRS-F-EF-01	1SAX101911R1011	0.077
Remote stop coil 48-60 V AC/DC		DRS-F-EF-02	1SAX101911R1012	0.077
Remote stop coil 110-127 V AC/DC		DRS-F-EF-03	1SAX101911R1013	0.077
Remote stop coil 220-240 V AC/DC		DRS-F-EF-04	1SAX101911R1014	0.077

EF205, EF370 electronic overload relays – 63 to 380 A

Ordering details



EF205-210



EF370-380



KPR-101L



DRS-F

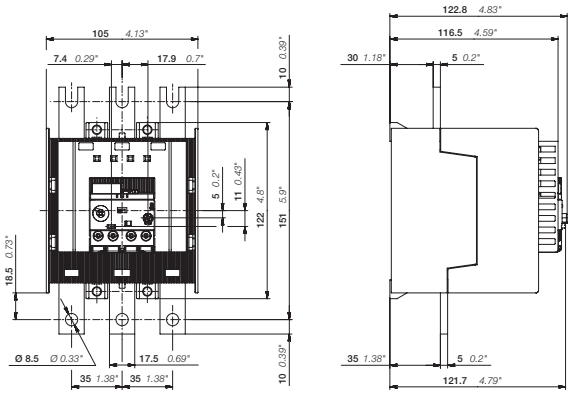
The EF205 and EF370 are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic 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. The EF205 and EF370 have ATEX and IECEx certification (1).

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
Suitable for AF145, AF185, AF190, AF205					
63 ... 210	1250 A, fuse type gG	10E, 20E, 30E	EF205-210	1SAX531001R1101	1.210
Suitable for AF210, AF260, AF265, AF300, AF305, AF370					
115 ... 380	1600 A, fuse type gG	10E, 20E, 30E	EF370-380	1SAX611001R1101	1.430

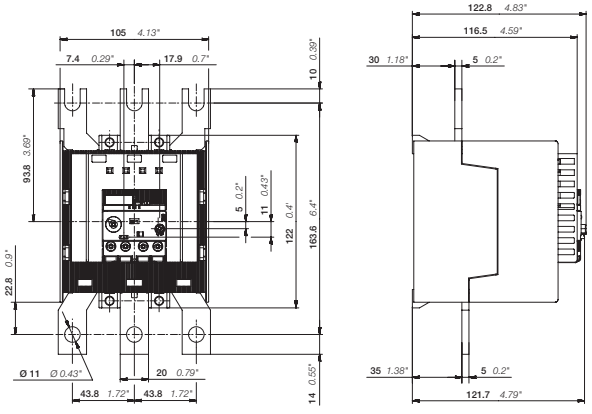
(1) ATEX is valid for products produced from week 42, 2015. IECEx is valid for products produced from week 15, 2017.

Ordering details accessories

Description	Suitable for	Type	Order code	Weight (1 pce) kg
Reset push button	E16, EF, TF, T16, TA200	KPR-101L	1SFA616162R1014	0.027
Terminal shroud	EF205	LT200E	1SAX501904R0001	0.085
Terminal shroud	EF370	LT320E	1SAX601904R0001	0.105
Remote reset coil 24-30 V DC	EF19, EF45, EF65, EF96, EF146, EF205, EF370, EF460, EF750	DRS-F-01	1SAX101911R1001	0.077
Remote reset coil 48-60 V DC		DRS-F-02	1SAX101911R1002	0.077
Remote reset coil 110-127 V DC		DRS-F-03	1SAX101911R1003	0.077
Remote reset coil 220-240 V DC		DRS-F-04	1SAX101911R1004	0.077
Remote stop coil 24-30 V AC/DC		DRS-F-EF-01	1SAX101911R1011	0.077
Remote stop coil 48-60 V AC/DC		DRS-F-EF-02	1SAX101911R1012	0.077
Remote stop coil 110-127 V AC/DC		DRS-F-EF-03	1SAX101911R1013	0.077
Remote stop coil 220-240 V AC/DC		DRS-F-EF-04	1SAX101911R1014	0.077



EF205-210

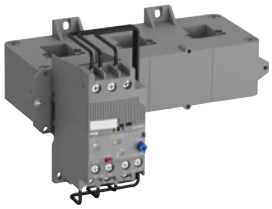


EF370-380

Main dimensions mm, inches

EF460, EF750, EF1250DU electronic overload relays – 150 to 1250 A

Ordering details



EF460-500



EF750-800

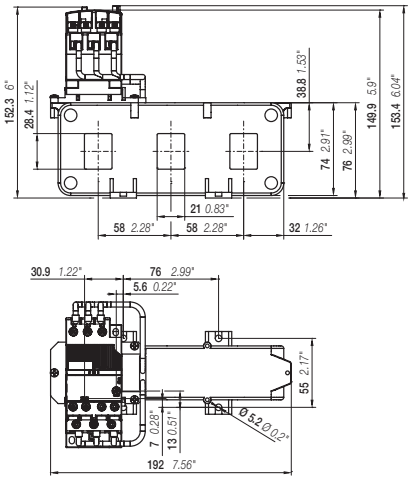


EF1250DU-1250

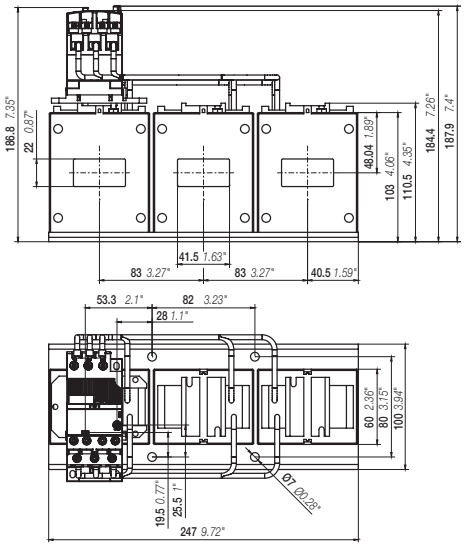
The EF460, EF750 and EF1250DU are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the 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. The EF460 and EF750 have ATEX and IECEx certification (1).

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
EF460 electronic overload relay, suitable for AF400, AF460 (1)					
150 ... 500	690 V: 630 A, Type gG 1000 V: 1600 A, Type gG	10E, 20E, 30E	EF460-500	1SAX721001R1101	1.170
EF750 electronic overload relay, suitable for AF580, AF750 (1)					
250 ... 800	690 V: 800 A, Type gG 1000 V: 1600 A, Type gG	10E, 20E, 30E	EF750-800	1SAX821001R1101	3.905
EF1250DU electronic overload relay, suitable for AF1350, AF1650, AF2050					
375 ... 1250	500 V: 1600 A, Type gG	10E, 20E, 30E	EF1250DU-1250	1SFA739001R1001	

(1) ATEX is valid for products produced from week 42, 2014. IECEx is valid for products produced from week 15, 2017.



EF460-500



EF750-800

Main dimensions mm, inches

EF460, EF750, EF1250DU electronic overload relays – 150 to 1250 A
Ordering details



KPR-101L



DRS-F

Ordering details accessories

Description	Suitable for	Type	Order code	Weight (1 pce) kg
Reset push button	E16, EF, TF, T16, TA200	KPR-101L	1SFA616162R1014	0.027
Terminal shroud	EF460	LT460EF	1SAX701904R0002	0.320
Terminal shroud	EF750	LT750EF	1SAX801904R0002	0.440
DT500/AF460-S Mounting Kit short for mounting of EF460DU on AF460	EF460	DT500/AF460-S	1SAX701902R1011	0.635
DT500/AF460-L Mounting Kit long for mounting of EF460DU on AF460	EF460	DT500/AF460-L	1SAX701902R1001	0.740
DT800/AF750-S Mounting Kit short for mounting of EF750DU on AF750	EF750	DT800/AF750-S	1SAX801902R1011	1.000
DT800/AF750-L Mounting Kit long for mounting of EF750DU on AF750	EF750	DT800/AF750-L	1SAX801902R1001	1.475
Remote reset coil 24-30 V DC	EF19, EF45, EF65, EF96, EF146, EF205, EF370, EF460, EF750	DRS-F-01	1SAX101911R1001	0.077
Remote reset coil 48-60 V DC		DRS-F-02	1SAX101911R1002	0.077
Remote reset coil 110-127 V DC		DRS-F-03	1SAX101911R1003	0.077
Remote reset coil 220-240 V DC		DRS-F-04	1SAX101911R1004	0.077
Remote stop coil 24-30 V AC/DC		DRS-F-EF-01	1SAX101911R1011	0.077
Remote stop coil 48-60 V AC/DC		DRS-F-EF-02	1SAX101911R1012	0.077
Remote stop coil 110-127 V AC/DC		DRS-F-EF-03	1SAX101911R1013	0.077
Remote stop coil 220-240 V AC/DC		DRS-F-EF-04	1SAX101911R1014	0.077

Thermal and electronic overload relays

General accessories



WRB-400



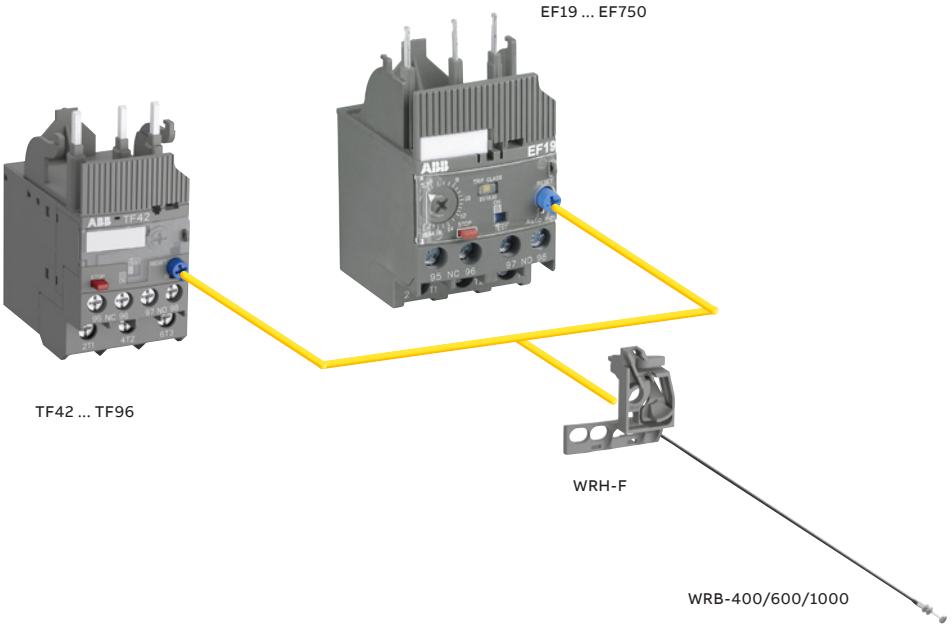
WRH-F

The wire reset is a general accessory for thermal and electronic overloads relays. In installations which are difficult to access, like a motor control centre or compact cubical, the accessory allows the user to remotely reset the overload relays.

The wire reset consists of two parts, the bowden wire with actuator and the holder. The actuator should be mounted into a door of a panel. The holder will be mounted on the overload relay. The actuator and holder are connected via the bowden wire.

Suitable for	Description	Length mm	Type	Order code	Weight (1 pce) kg
Holder					
TF42, TF65, TF96, EF19, EF45, EF65, EF96, EF146, EF205, EF370, EF460, EF750	Holder for tool less direct mounting		WRH-F	1SAZ701903R1001	0.006
Bowden wire with actuator					
WRH-F	Bowden wire with actuator, hole diameter: 7.3 mm, maximum panel thickness: 12 mm	400	WRB-400	1SAZ701903R1011	0.030
		600	WRB-600	1SAZ701903R1012	0.040
		1000	WRB-1000	1SAZ701903R1013	0.060
IP54 gasket					
WRB-400 WRB-600 WRB-1000	IP54 Panel seal gasket		WRBG	1SAZ701903R1030	0.037

Overload relays with accessory wire reset (WRH, WRB)



Thermistor motor protection relays

486 **Selection table CM-MSx range**

487 **Ordering details**

488 **Ordering details - PTC temperature sensors C011**

Thermistor motor protection relays

Selection table CM-MSx range

	Order code	1SVR550805R9300	1SVR550800R9300	1SVR550801R9300	1SVR740720R1400	1SVR730720R1400	1SVR740700R0100	1SVR730700R0100	1SVR740700R2100	1SVR730700R2100	1SVR740722R1400	1SVR730722R1400	1SVR740700R0200	1SVR730700R0200	1SVR740700R2200	1SVR730700R2200	1SVR740712R1400	1SVR730712R1400	1SVR740712R0200	1SVR730712R0200	1SVR740712R2200	1SVR730712R2200	1SVR740712R1200	1SVR730712R1200	1SVR740712R1300	1SVR730712R1300
	Type	CM-MSE	CM-MSE	CM-MSE	CM-MSS.11P	CM-MSS.11S	CM-MSS.12P	CM-MSS.12S	CM-MSS.13P	CM-MSS.13S	CM-MSS.21P	CM-MSS.21S	CM-MSS.22P	CM-MSS.22S	CM-MSS.23P	CM-MSS.23S	CM-MSS.31P	CM-MSS.31S	CM-MSS.32P	CM-MSS.32S	CM-MSS.33P	CM-MSS.33S	CM-MSS.41P	CM-MSS.41S	CM-MSS.51P	CM-MSS.51S
Characteristics																										
ATEX approval					■	■					■	■					■	■	■	■	■	■	■	■	■	■
Number of sensor circuits		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
Single or accumulative evaluation																									■	■
Number of LEDs					3	3	2	2	2	2	3	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3
Contacts																										
1 c/o (SPDT) contact							■	■	■	■																
2 c/o (SPDT) contacts													■	■	■	■			■	■	■	■	■	■		
1 n/o		■	■	■																						
1 n/c and 1 n/o					■	■					■	■					■	■								
2 x 1 c/o or 1 x 2 c/o contacts, configurable																									■	■
Reset																										
Manual													■	■	■	■	■	■	■	■	■	■	■	■	■	■
Remote													■	■	■	■	■	■	■	■	■	■	■	■	■	■
Auto		■	■	■	■	■	■	■	■	■	■	■	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (2)	■ (2)
Test button																	■	■	■	■	■	■	■	■	■	■
Functions																										
Short-circuit detection											■	■					■	■	■	■	■	■				
Short-circuit detection, configurable																							■	■	■	■
Dynamic interrupted wire detection					■	■					■	■					■	■	■	■	■	■	■	■	■	■
Non-volatile fault storage					■	■					■	■					■	■								
Non-volatile fault storage, configurable																							■	■	■	■
Rated control supply voltage Us																										
24 V AC		■																								
110-130 V AC			■																							
220-240 V AC				■																						
24-240 V AC/DC					■	■					■	■					■	■					■	■	■	■
24 V AC/DC							■	■					■	■					■	■						
110-130 V AC, 220-240 V AC									■	■					■	■					■	■				
Connection type																										
Push-in terminals					■		■		■		■		■		■		■		■		■		■		■	
Double-chamber cage connection terminals						■		■		■		■		■		■		■		■		■		■		■

(1) For automatic reset, connect terminals S1 to T2.
(2) For automatic reset, connect Terminals S1 to 1T2/2T2.

Thermistor motor protection relays
Ordering details


CM-MSS.12S


CM-MSS.41S


CM-MSS.51S

The thermistor motor protection relay CM-MSS monitors the winding temperature and thus protects the motor from overheating, overload and insufficient cooling in accordance to the product standard IEC 60947-8.

CM-MSx

Characteristics	Type	Order code	Price 1 pce	Weight (1 pce) kg (lb)
See "Selection table CM-MSx range" on page 474.	CM-MSE	1SVR550805R9300		0.11 (0.24)
	CM-MSE	1SVR550800R9300		0.11 (0.24)
	CM-MSE	1SVR550801R9300		0.11 (0.24)
	CM-MSS.11P	1SVR740720R1400		0.119 (0.263)
	CM-MSS.11S	1SVR730720R1400		0.127 (0.280)
	CM-MSS.12P	1SVR740700R0100		0.105 (0.231)
	CM-MSS.12S	1SVR730700R0100		0.113 (0.249)
	CM-MSS.13P	1SVR740700R2100		0.147 (0.324)
	CM-MSS.13S	1SVR730700R2100		0.155 (0.342)
	CM-MSS.21P	1SVR740722R1400		0.118 (0.260)
	CM-MSS.21S	1SVR730722R1400		0.126 (0.278)
	CM-MSS.22P	1SVR740700R0200		0.121 (0.267)
	CM-MSS.22S	1SVR730700R0200		0.132 (0.291)
	CM-MSS.23P	1SVR740700R2200		0.163 (0.359)
	CM-MSS.23S	1SVR730700R2200		0.174 (0.384)
	CM-MSS.31P	1SVR740712R1400		0.120 (0.265)
	CM-MSS.31S	1SVR730712R1400		0.128 (0.282)
	CM-MSS.32P	1SVR740712R0200		0.120 (0.265)
	CM-MSS.32S	1SVR730712R0200		0.130 (0.287)
	CM-MSS.33P	1SVR740712R2200		0.162 (0.357)
	CM-MSS.33S	1SVR730712R2200		0.172 (0.379)
	CM-MSS.41P	1SVR740712R1200		0.130 (0.287)
	CM-MSS.41S	1SVR730712R1200		0.141 (0.311)
	CM-MSS.51P	1SVR740712R1300		0.135 (0.298)
	CM-MSS.51S	1SVR730712R1300		0.145 (0.320)

S: screw connection
P: push-in connection

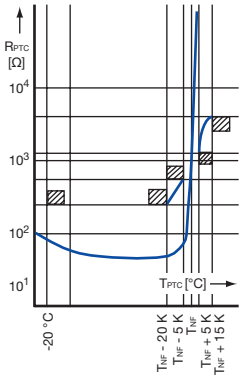
Further documentation thermistor motor protection monitoring relays on www.abb.com

Thermistor motor protection relays

Ordering details - PTC temperature sensors C011



Temperature sensor characteristics



The PTC temperature sensors (temperature-dependent with positive temperature coefficient) are selected by the manufacturer of the motor depending on:

- the motor insulation class according to IEC/EN 60034-11,
- the special characteristics of the motor, such as the conductor cross-section of the windings, the permissible overload factor etc.
- special conditions prescribed by the user, such as the permissible ambient temperature, risks resulting from locked rotor, extent of permitted overload etc.

One temperature sensor must be embedded in each phase winding. For instance, in case of three-phase squirrel cage motors, three sensors are embedded in the stator windings. For pole-changing motors with one winding (Dahlander connection), 3 sensors are also sufficient. Pole-changing motors with two windings, however, require 6 sensors. If an additional warning is required before the motor is switched off, separate sensors for a correspondingly lower temperature must be embedded in the winding. They have to be connected to a second control unit. A 14 V varistor can be connected in parallel to protect the sensors from overvoltage. Due to their characteristics, the thermistor motor protection relays can also be used with PTC temperature sensors of other manufacturers which comply with DIN 44 081 and DIN 44 082 6 sensors.

If an additional warning is required before the motor is switched off, separate sensors for a correspondingly lower temperature must be embedded in the winding. They have to be connected to a second control unit.

CM-MSS accessories

Rated response temperature TNF	Color coding	Type	Order code	Price 1 pce	Weight (1 pce) kg (lb)
70 °C	white-brown	C011-70 (1)	GHC0110003R0001		0.02 (0.044)
80 °C	white-white	C011-80 (1)	GHC0110003R0002		0.02 (0.044)
90 °C	green-green	C011-90 (1)	GHC0110003R0003		0.02 (0.044)
100 °C	red-red	C011-100 (1)	GHC0110003R0004		0.02 (0.044)
110 °C	brown-brown	C011-110 (1)	GHC0110003R0005		0.02 (0.044)
120 °C	gray-gray	C011-120 (1)	GHC0110003R0006		0.02 (0.044)
130 °C	blue-blue	C011-130 (1)	GHC0110003R0007		0.02 (0.044)
140 °C	white-blue	C011-140 (1)	GHC0110003R0011		0.02 (0.044)
150 °C	black-black	C011-150 (1)	GHC0110003R0008		0.02 (0.044)
160 °C	blue-red	C011-160 (1)	GHC0110003R0009		0.02 (0.044)
170 °C	white-green	C011-170 (1)	GHC0110003R0010		0.02 (0.044)
150 °C	black-black	C011-3-150 (2)	GHC0110033R0008		0.05 (0.11)

(1) Temperature sensor C011, standard version acc. to DIN 44081
(2) Triple temperature sensor C011-3

Technical data

Characteristic data	Sensor type C011
Cold-state resistance	50 -100 Ω at 25 °C
Warm-state resistance ± 5 up to 6 K of rated response temperature T_{NF}	10 000 Ω
Thermal time constant, sensor open (1)	< 5 s
Permitted ambient temperature	+180 °C

Rated response temperature ± tolerance $T_{NF} \pm \Delta T_{NF}$	PTC resistance R from -20 °C to T_{NF} - 20 K	PTC resistance R2) at PTC temperatures of:		
		$T_{NF} - \Delta T_{NF}$ (UPTC ≤ 2.5 V)	$T_{NF} + \Delta T_{NF}$ (UPTC ≤ 2.5 V)	T_{NF} + 15 K (UPTC ≤ 7.5 V)
70 ±5 °C	≤ 100 Ω	≤ 570 Ω	≥ 570 Ω	-
80 ±5 °C				
90 ±5 °C		≤ 550 Ω	≥ 1330 Ω	≥ 4000 Ω
100 ±5 °C				
110 ±5 °C				
120 ±5 °C				
130 ±5 °C				
140 ±5 °C				
150 ±5 °C				
160 ±5 °C				
170 ±7 °C		≤ 570 Ω	≥ 570 Ω	-

(1) Not embedded in windings.
(2) For triple temperature sensor take values x 3.

DRAS and DRAF enclosed starters

DRAS enclosed starter

478 Ordering details

DRAF enclosed starter

479 Ordering details

DRAS09 ... DRAS16 enclosed direct-on-line starters

4 to 7.5 kW, protected by thermal overload relays
AC or DC operated



DRAS
+ T16 to be ordered separately

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:

- IP65 compact plastic enclosure with double insulation, equipped with:
  - 1 green flush "I" ON button and 1 red protruding "O" OFF/RESET button
  - 2 quarter-turn, quick fastening screws and a base with 6 cable inlets and outlets via knockouts.
- 1 AS or ASL 3-pole contactor with holding contact
- 1 PE and 1 neutral terminal.

3 versions of control supply wiring are available: phase-to-phase, separate supply or phase-to-neutral.

T16 thermal overload relay has to be ordered separately and choses according to motor's nominal current (see table below).

DRAS, DRASL enclosed DOL starters

IEC - AC-3				Rated control circuit voltage Uc Other control voltages see AS voltage code table		Control supply wiring	Type	Order code	Weight
Rated operational power			max. current θ ≤ 40 °C Ue=400 V						
220 V 230 V 240 V	400 V	500 V							Pkg (1 pce)
kW	kW	kW	A	V 50/60 Hz	V DC				kg
AC operated with AS 3-pole contactors									
2.2	4	4	9	24	-	Separate supply	DRAS09-20S	1SBK104235R2000	0.650
				230	-	Phase-to-neutral	DRAS09-26N	1SBK104135R2600	0.650
				240	-	Phase-to-neutral	DRAS09-27N	1SBK104135R2700	0.650
				400	-	Phase-to-phase	DRAS09-28P	1SBK104035R2800	0.650
				415	-	Phase-to-phase	DRAS09-29P	1SBK104035R2900	0.650
3	5.5	5.5	12	24	-	Separate supply	DRAS12-20S	1SBK114235R2000	0.650
				230	-	Phase-to-neutral	DRAS12-26N	1SBK114135R2600	0.650
				240	-	Phase-to-neutral	DRAS12-27N	1SBK114135R2700	0.650
				400	-	Phase-to-phase	DRAS12-28P	1SBK114035R2800	0.650
				415	-	Phase-to-phase	DRAS12-29P	1SBK114035R2900	0.650
4	7.5	7.5	15.5	24	-	Separate supply	DRAS16-20S	1SBK124235R2000	0.650
				230	-	Phase-to-neutral	DRAS16-26N	1SBK124135R2600	0.650
				240	-	Phase-to-neutral	DRAS16-27N	1SBK124135R2700	0.650
				400	-	Phase-to-phase	DRAS16-28P	1SBK124035R2800	0.650
				415	-	Phase-to-phase	DRAS16-29P	1SBK124035R2900	0.650
DC operated with ASL 3-pole contactors									
2.2	4	4	9	-	24	Separate supply	DRASL09-81S	1SBK104335R8100	0.700
				-	48		DRASL09-83S	1SBK104335R8300	0.700
3	5.5	5.5	12	-	24	Separate supply	DRASL12-81S	1SBK114335R8100	0.700
				-	48		DRASL12-83S	1SBK114335R8300	0.700
4	7.5	7.5	15.5	-	24	Separate supply	DRASL16-81S	1SBK124335R8100	0.700
				-	48		DRASL16-83S	1SBK124335R8300	0.700



T16

T16 thermal overload relays to be ordered separately

Setting range	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce)
A					kg
0.10...0.13	0.5 A, Fuse type T	10	T16-0.13	1SAZ711201R1005	0.100
0.13...0.17	1.0 A, Fuse type T		T16-0.17	1SAZ711201R1008	0.100
0.17...0.23			T16-0.23	1SAZ711201R1009	0.100
0.23...0.31			T16-0.31	1SAZ711201R1013	0.100
0.31...0.41	2.0 A, Fuse type gG		T16-0.41	1SAZ711201R1014	0.100
0.41...0.55			T16-0.55	1SAZ711201R1017	0.100
0.55...0.74	4.0 A, Fuse type gG		T16-0.74	1SAZ711201R1021	0.100
0.74...1.00	6.0 A, Fuse type gG		T16-1.0	1SAZ711201R1023	0.100
1.00...1.30			T16-1.3	1SAZ711201R1025	0.100
1.30...1.70	10.0 A, Fuse type gG		T16-1.7	1SAZ711201R1028	0.100
1.70...2.30			T16-2.3	1SAZ711201R1031	0.100
2.30...3.10			T16-3.1	1SAZ711201R1033	0.100
3.10...4.20	20.0 A, Fuse type gG		T16-4.2	1SAZ711201R1035	0.100
4.20...5.70			T16-5.7	1SAZ711201R1038	0.100
5.70...7.60	35.0 A, Fuse type gG		T16-7.6	1SAZ711201R1040	0.100
7.60...10.0			T16-10	1SAZ711201R1043	0.104
10.0...13.0	40.0 A, Fuse type gG		T16-13	1SAZ711201R1045	0.104
13.0...16.0			T16-16	1SAZ711201R1047	0.104



Empty enclosure
with push-button

Empty enclosure with push-button

-	-	-	FR16AS-12VARS	1SBN101035R1000	0.394

To be completed with AS or ASL contactor, T16 thermal overload relay and MCB-10B (1SFA611610R2001) contact block.

DRAF09 ... DRAF16 enclosed direct-on-line starters

Up to 7.5 kW and 10 hp, protected by thermal overload relays
AC operated



DRAF
+ TF42 to be ordered separately

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 CB5-10 start contact block
- 1 PE and 1 neutral terminal.

Control supply wiring:
IEC starters type: phase-to-phase, separate supply or phase-to-neutral.
UL starters type: separate supply.

TF42 thermal overload relay to be ordered separately and choses according to motor's nominal current (see table in the next page).

DRAF enclosed DOL starters

IEC - AC-3					Control supply wiring	Rated control circuit voltage Uc min ... Uc max (1)	Type	Order code	Weight
Rated operational power				max. current θ ≤ 40 °C Ue=400 V					Pkg (1 pce)
220 V 230 V 240 V	380 V 400 V	500 V	690 V						
kW	kW	kW	kW	A		V 50/60 Hz			kg
IEC starters type									
2.2	4	5.5	5.5	9	Separate supply	24...60	DRAF09-11S	1SBK134237R1100	0.820
					Phase-to-neutral	100...250	DRAF09-13N	1SBK134137R1300	0.820
					Phase-to-phase	250...500	DRAF09-14P	1SBK134037R1400	0.820
3	5.5	7.5	7.5	12	Separate supply	24...60	DRAF12-11S	1SBK154237R1100	0.820
					Phase-to-neutral	100...250	DRAF12-13N	1SBK154137R1300	0.820
					Phase-to-phase	250...500	DRAF12-14P	1SBK154037R1400	0.820
4	7.5	9	9	18	Separate supply	24...60	DRAF16-11S	1SBK174237R1100	0.820
					Phase-to-neutral	100...250	DRAF16-13N	1SBK174137R1300	0.820
					Phase-to-phase	250...500	DRAF16-14P	1SBK174037R1400	0.820

(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).

UL starter type with separate control supply wiring

UL / CSA						Rated control circuit voltage Uc min ... Uc max	Type	Order code	Weight
Horse power ratings									Pkg (1 pce)
Single phase motor		Three phase motor							
120 V	240 V	200 V 208 V	220 V 240 V	440 V 480 V	550 V 600 V				
hp	hp	hp	hp	hp	hp	V 50/60 Hz			kg
UL starters type									
0.75	1.5	2	2	5	7.5	24...60	DRAF09-11U	1SBK134238R1100	0.820
						100...250	DRAF09-13U	1SBK134238R1300	0.820
						250...500	DRAF09-14U	1SBK134238R1400	0.820
1	2	3	3	7.5	10	24...60	DRAF12-11U	1SBK154238R1100	0.820
						100...250	DRAF12-13U	1SBK154238R1300	0.820
						250...500	DRAF12-14U	1SBK154238R1400	0.820
1.5	3	5	5	10	15	24...60	DRAF16-11U	1SBK174238R1100	0.820
						100...250	DRAF16-13U	1SBK174238R1300	0.820
						250...500	DRAF16-14U	1SBK174238R1400	0.820

DRAF09 ... DRAF16 enclosed direct-on-line starters

Up to 7.5 kW and 10 hp, protected by thermal overload relays
AC operated



TF42



Empty enclosure
with push-button

TF42 thermal overload relays to be ordered separately

Setting range A	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
0.10 ... 0.13	0.5 A, Fuse type T	10	TF42-0.13	1SAZ721201R1005	0.130
0.13 ... 0.17	1.0 A, Fuse type T	10	TF42-0.17	1SAZ721201R1008	0.130
0.17 ... 0.23	1.0 A, Fuse type T	10	TF42-0.23	1SAZ721201R1009	0.130
0.23 ... 0.31	1.0 A, Fuse type T	10	TF42-0.31	1SAZ721201R1013	0.130
0.31 ... 0.41	2.0 A, Fuse type gG	10	TF42-0.41	1SAZ721201R1014	0.130
0.41 ... 0.55	2.0 A, Fuse type gG	10	TF42-0.55	1SAZ721201R1017	0.130
0.55 ... 0.74	4.0 A, Fuse type gG	10	TF42-0.74	1SAZ721201R1021	0.130
0.74 ... 1.00	6.0 A, Fuse type gG	10	TF42-1.0	1SAZ721201R1023	0.130
1.00 ... 1.30	6.0 A, Fuse type gG	10	TF42-1.3	1SAZ721201R1025	0.130
1.30 ... 1.70	10.0 A, Fuse type gG	10	TF42-1.7	1SAZ721201R1028	0.130
1.70 ... 2.30	10.0 A, Fuse type gG	10	TF42-2.3	1SAZ721201R1031	0.130
2.30 ... 3.10	10.0 A, Fuse type gG	10	TF42-3.1	1SAZ721201R1033	0.130
3.10 ... 4.20	20.0 A, Fuse type gG	10	TF42-4.2	1SAZ721201R1035	0.130
4.20 ... 5.70	20.0 A, Fuse type gG	10	TF42-5.7	1SAZ721201R1038	0.130
5.70 ... 7.60	35.0 A, Fuse type gG	10	TF42-7.6	1SAZ721201R1040	0.130
7.60 ... 10.0	35.0 A, Fuse type gG	10	TF42-10	1SAZ721201R1043	0.130
10.0 ... 13.0	40.0 A, Fuse type gG	10	TF42-13	1SAZ721201R1045	0.130
13.0 ... 16.0	40.0 A, Fuse type gG	10	TF42-16	1SAZ721201R1047	0.130
16.0 ... 20.0	63.0 A, Fuse type gG	10	TF42-20	1SAZ721201R1049	0.145

Empty enclosure with push-button

mm cable inlet/outlet suitable for IEC starter types	–	FR16AF-12	1SBN101337R1000	0.53
Inch cable inlet/outlet suitable for UL starter types	–	FR16AF-12U	1SBN101338R1000	0.53

To be completed with AF contactor, TF42 thermal overload relay and CB5-10 (1SBN010013R1010) start contact block.

Thermal and electronic overload relays

482 Overview

484 Thermal overload relays

490 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

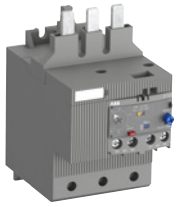
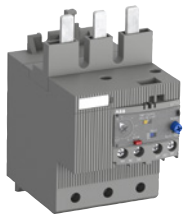





IEC: rated operational power AC-3	400 V	0.06 ... 7.5 kW	0.06 ... 7.5 kW	0.06 ... 18.5 kW	11 ... 37 kW
UL/CSA: 3-phase hp-ratings	480 V	1/2 ... 10 hp	1/2 ... 10 hp	1/2 ... 25 hp	15 ... 50hp
Fitting to contactors		B6, B7	AS09 ... AS16	AF09 ... AF38	AF40, AF52, AF65
Type		**T16**	**T16**	**TF42**	**TF65**
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

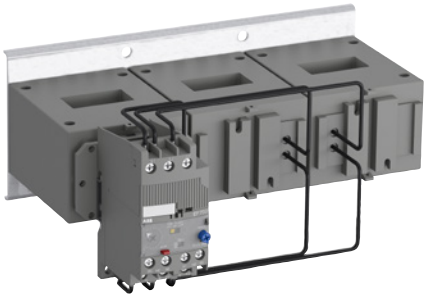
Electronic overload relays
with integrated CT



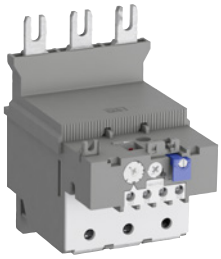
IEC: rated operational power AC-3	400 V	0.06 ... 7.5 kW	0.06 ... 7.5 kW	4 ... 22 kW	7.5 ... 37 kW
UL/CSA: 3-phase hp-ratings	480 V	1/2 ... 10 hp	1/2 ... 10 hp	5 ... 30 hp	15 ... 50 hp
Fitting to contactors		B6, B7, BC6, BC7, VB6, VB7, VBC6, VBC7	AF09 ... AF16	AF26 ... AF38	AF40, AF52, AF65
Type		**E16DU**	**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	–

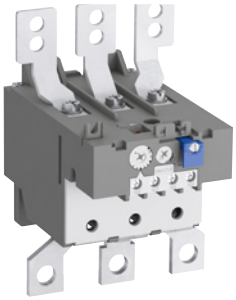
Electronic overload relays
with external separate CT



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

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



KPR3-101L



DB16

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

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

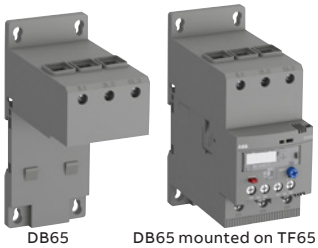
22.0 to 67.0 A



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

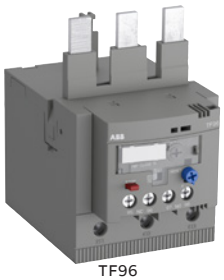
Ordering details accessories

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

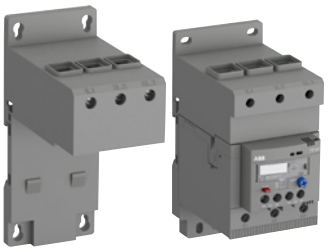
40.0 to 96.0 A



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

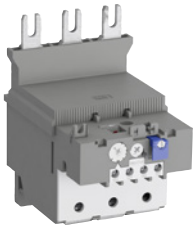
Ordering details accessories

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

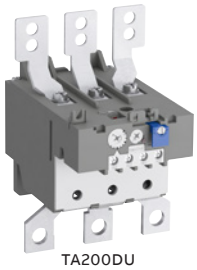
Ordering details accessories

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

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

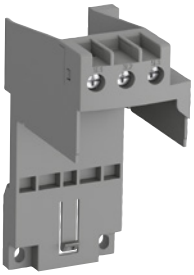
0.10 to 45.0 A



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

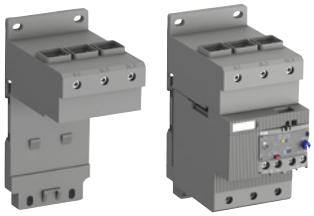
20 to 150 A



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

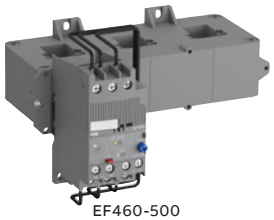
Ordering details accessories

Suitable for	Description	Factory code	Order code
EF205, EF370	Reset push button	1SFA616162R1014	KPR3-101L

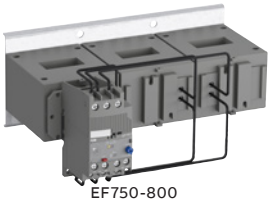
Note:
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0206

EF460-500, EF750-800 electronic overload relays

150 to 800 A



EF460-500



EF750-800



KPR3-101L

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.

EF460-500 and EF750-800 overload relays

Overload relay	Suitable for Contactors
EF460-500	AF400, AF460
EF750-800	AF580, AF750

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

Softstarters

496 **Softstarters selection**

Softstarters selection

ABB softstarters offering consists of four ranges, covering every need. The products help you secure motor reliability, improve installation efficiency and increase application productivity.






Product range overview	PSR	PSRC	PSE	PSTX
Technology	Basic	Basic	General	Advanced
Motor size	Small – up to 105 A	Small – up to 105 A	Medium – up to 370 A	Large – up to 1250 A
Installation efficiency	Basic	Basic	Medium	High
Motor protection	-	-	Medium	High
Application	All	Scroll compressor	All	All
Application enhancement	Basic	Basic	Medium	High
Fieldbus Communication	Yes	Yes	Yes	Yes
Anybus Communication	-	-	-	Yes
Torque control	-	-	Yes	Yes
Heavy duty starts	-	-	Yes	Yes
Frame sizes	A, B, C, D	A, B, C, D	A, B, C	A, B, C, D, E, F

Selection process

1 **Determine softstarter series**
First, determine the softstarter series that fulfill the needs of the application and motor. Use the guide on the left to explore the three series and the power range each one covers.

2 **Match the softstarter size with the motor current**
When the softstarter series is selected, the correct size should now be determined. The selection of a softstarter is based on the current. Find the softstarter that corresponds to the motor current.

3 **Fine tune and select the correct size**
The last step is to fine tune the selection, and there are three different factors to consider:

- Normal or a heavy load: If the load is characterized as a heavy load, select the next size softstarter in the series.
- High ambient temperature
- High altitude

Use the equations and the table on the right to find the correct de-rating equation.

Altitude formula
De-rate for altitudes between 1000-4000 m or 3280-13123 ft with the following equations for all softstarters:
In meters: % of Ie = 100 – (x-1000)/150
In feet: % of FLA = 100 – (y-3280)/480
Where x/y is the actual altitude in m/ft

Temperature equations	
PSTX and PSR In Celsius:	40...60 °C: Reduce Ie with 0.8%/°C
PSTX and PSR In Fahrenheit:	104...140 °F: Reduce FLA with 0.44%/°F
PSE In Celsius:	40...60 °C: Reduce Ie with 0.6%/°C
PSE In Fahrenheit:	104...140 °F: Reduce FLA with 0.33%/°F

Typical applications	
Normal duty start	**Heavy duty**
Bow thrusters	Centrifugal fan
Centrifugal pump	Conveyor belt (long)
Compressors	Crusher
Conveyor belt (short)	Stirrer
Elevator	Sawmill

PSR
The compact range

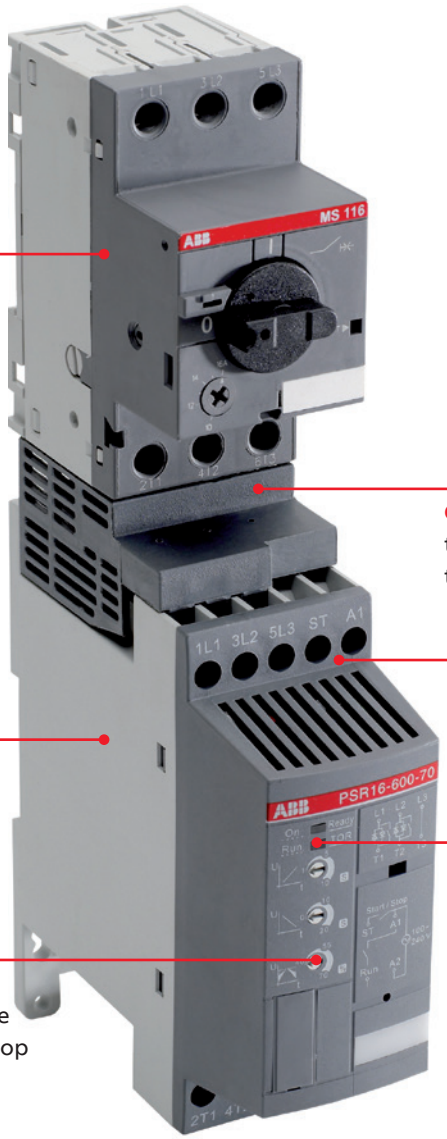
498 **Introduction**

499 **Coordination examples**

500 **Ordering details**

501 **Accessories**

Motor protection with manual motor starter PSR together with the MMS to get a complete motor starter with soft start and stop together with overload and short circuit protection.



Connection kit (optional) simplifies installation of the PSR by making the connection to the MMS screwless.

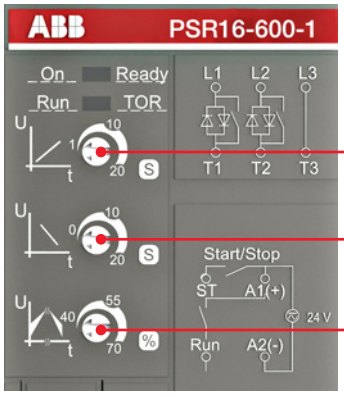
Output signal relays for Run and Top of ramp (PSR25 ... PSR105).

Screw or DIN-rail mounted PSR is fast and easy to install by using screw mounting or DIN-rail mounting (PSR3 ... PSR45).

LED indicators for On/Ready and Run/ Top of ramp.

Three potentiometers for settings
Set-up is made very easy with only three potentiometers, for start ramp time, stop ramp time and initial/end voltage level.

Settings

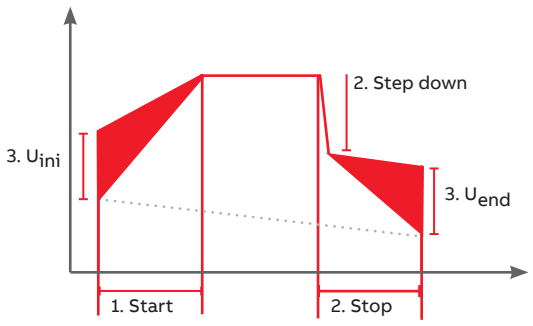


1. Start = 1...20 sec

2. Stop = 0...20 sec - including the step down voltage Step down = 2% reduction for each second increased stop ramp

3. U_{ini} = 40...70% results in end voltage = 30...60%

Start and stops



PSR - The compact range
Coordination examples


PSR3 ... PSR16


PSR25 ... PSR30


PSR37 ... PSR45


PSR60 ... PSR105

Normal start In-line connected

	Technical data				Using manual motor starters type 1 coordination will be achieved [1]	Using gG fuses type 1 coordination will be achieved [1]	Suitable switch fuse for the above gG fuses [1]	J-type fuses for UL coordination [1]	Overload protection is used to protect the motor from over heating [1]	The line contactor is not required for the softstarter itself but often used to open if OL trips [1]
Softstarter	IEC kW (400V)	IEC max A	UL HP (440-480 V)	UL max FLA	Manual motor starter (50 kA) 400 V, 40 ºC	Fuse protection (50 kA) gG Fuse	Switch fuse	Max. fuse, J-type	Thermal overload relay	Line contactor
PSR3	1.5	3.9	2	3.4	MS116	10A	OS32G	35A	TF42DU	AF9
PSR6	3	6.8	3	6.1	MS116	16A	OS32G	35A	TF42DU	AF9
PSR9	4	9	5	9	MS116	25A	OS32G	35A	TF42DU	AF9
PSR12	5.5	12	7.5	11	MS132	32A	OS32G	35A	TF42DU	AF12
PSR16	7.5	16	10	15.2	MS132	32A	OS32G	35A	TF42DU	AF16
PSR25	11	25	15	24.2	MS132	50A	OS32G	60A	TF42DU	AF26
PSR30	15	30	20	28	MS132	63A	OS32G	60A	TF42DU	AF30
PSR37	18.5	37	25	34	MS165	100A	OS125G	90A	TF42DU	AF38
PSR45	22	45	30	46.2	MS165	125A	OS125G	90A	TA75DU	AF52
PSR60	30	60	40	59.4	MS165	125A	OS125G	110A	TA75DU	AF65
PSR72	37	72	50	68	MS495	200A	OS250	125A	TA75DU	AF80
PSR85	45	85	60	80	MS495	200A	OS250	150A	TA110DU	AF96
PSR105	55	105	75	104	MS495	250A	OS250	200A	TA110DU	AF116

[1] These are an example of coordination. For more examples see: https://applications.it.abb.com/SOC/Page/Selection.aspx
[2] Can be used with MS495 up to 100 A



Coordination tables (SOC) >
For more examples of coordination visit the online tool for coordination with short circuit protection, overload protection and line contactor.

PSR - The compact range

Normal starts, class 10, in-line

Ordering details



PSR3 ... PSR16



PSR25 ... PSR30



PSR37 ... PSR45



PSR60 ... PSR105

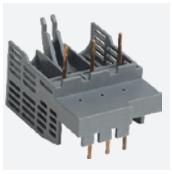
Rated operational voltage U_e, 208...600 V AC, Rated control supply voltage, U_s, 100...240 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power								
230V Pe kW	400V Pe kW	500V Pe kW	Ie A	200/208V Pe hp	220/240V Pe hp	440/480V Pe hp	550/600V Pe hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
0.75	1.5	2.2	3.9	0.5	0.75	2	2	3.4	PSR3-600-70	1SFA896103R7000	0.4	0.8
1.5	3	4	6.8	1	1.5	3	5	6.1	PSR6-600-70	1SFA896104R7000	0.4	0.8
2.2	4	4	9	2	2	5	7.5	9	PSR9-600-70	1SFA896105R7000	0.4	0.8
3	5.5	5.5	12	3	3	7.5	10	11	PSR12-600-70	1SFA896106R7000	0.4	0.8
4	7.5	7.5	16	3	5	10	10	15.2	PSR16-600-70	1SFA896107R7000	0.4	0.8
5.5	11	15	25	7.5	7.5	15	20	24.2	PSR25-600-70	1SFA896108R7000	0.6	1.3
7.5	15	18.5	30	7.5	10	20	25	28	PSR30-600-70	1SFA896109R7000	0.6	1.3
7.5	18.5	22	37	10	10	25	30	34	PSR37-600-70	1SFA896110R7000	1.0	2.2
11	22	30	45	15	15	30	40	46.2	PSR45-600-70	1SFA896111R7000	1.0	2.2
15	30	37	60	20	20	40	50	59.4	PSR60-600-70	1SFA896112R7000	2.1	4.6
22	37	45	72	20	25	50	60	68	PSR72-600-70	1SFA896113R7000	2.1	4.6
22	45	55	85	25	30	60	75	80	PSR85-600-70	1SFA896114R7000	2.1	4.6
30	55	55	105	30	40	75	100	104	PSR105-600-70	1SFA896115R7000	2.1	4.6

Rated operational voltage U_e, 208...600 V AC, Rated control supply voltage, U_s, 24 V AC/DC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power								
230V Pe kW	400V Pe kW	500V Pe kW	Ie A	200/208V Pe hp	220/240V Pe hp	440/480V Pe hp	550/600V Pe hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
0.75	1.5	2.2	3.9	0.5	0.75	2	2	3.4	PSR3-600-11	1SFA896103R1100	0.4	0.8
1.5	3	4	6.8	1	1.5	3	5	6.1	PSR6-600-11	1SFA896104R1100	0.4	0.8
2.2	4	4	9	2	2	5	7.5	9	PSR9-600-11	1SFA896105R1100	0.4	0.8
3	5.5	5.5	12	3	3	7.5	10	11	PSR12-600-11	1SFA896106R1100	0.4	0.8
4	7.5	7.5	16	3	5	10	10	15.2	PSR16-600-11	1SFA896107R1100	0.4	0.8
5.5	11	15	25	7.5	7.5	15	20	24.2	PSR25-600-11	1SFA896108R1100	0.6	1.3
7.5	15	18.5	30	7.5	10	20	25	28	PSR30-600-11	1SFA896109R1100	0.6	1.3
7.5	18.5	22	37	10	10	25	30	34	PSR37-600-11	1SFA896110R1100	1.0	2.2
11	22	30	45	15	15	30	40	46.2	PSR45-600-11	1SFA896111R1100	1.0	2.2
15	30	37	60	20	20	40	50	59.4	PSR60-600-11	1SFA896112R1100	2.1	4.6
22	37	45	72	20	25	50	60	68	PSR72-600-11	1SFA896113R1100	2.1	4.6
22	45	55	85	25	30	60	75	80	PSR85-600-11	1SFA896114R1100	2.1	4.6
30	55	55	105	30	40	75	100	104	PSR105-600-11	1SFA896115R1100	2.1	4.6

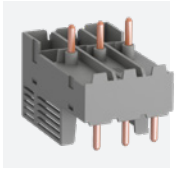
PSR - The compact range
Accessories



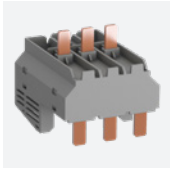
Connection kit for PSR3...16



Connection kit for PSR25...30



Connection kit for PSR37...45



Connection kit for PSR60...72

Connection kit

Article	breaker type	Type	Order code	Pkg qty	Net kg	lb
PSR3...16	MS116/132	PSR16-MS116	1SFA896211R1001	1	0.03	0.08
PSR25...30	MS132	PSR30-MS132	1SFA896212R1001	1	0.03	0.08
PSR37...45	MS165	PSR45-MS165	1SFA896216R1001	1	0.05	0.11
PSR60...72	MS165	PSR60-MS165	1SFA896215R1001	1	0.05	0.11
PSR60...105	MS495	PSR105-MS495	1SAM501903R1001	1	0.03	0.08



Fan

Fan

Article	Type	Order code	Pkg qty	Net kg	lb
PSR3...45	PSR-FAN3-45A	1SFA896311R1001	1	0.01	0.02
PSR60...105	PSR-FAN60-105A	1SFA896313R1001	1	0.01	0.03



Terminal enlargements

Terminal enlargements

Article	Type	Order code	Pkg qty	Net kg	lb
PSR60... PSR105	PSLW-72	1SFA899002R1072	1	0.16	0.35

Note: Wire range mm² 1 x 10...50 mm², 2 x 10...25 mm²



Fieldbus plug adapter

Fieldbus plug adapter with cable

Article	Type	Order code	Pkg qty	Net kg	lb
Fieldbus plug adapter	PS-FBPA	1SFA896312R1002	1	0.05	0.11

PSRC
For scroll compressors

504 **Ordering details**

505 **Accessories**

PSRC

Normal starts, class 10, in-line
Ordering details



PSRC3... PSRC16



PSRC25... PSRC30



PSRC37... PSRC45

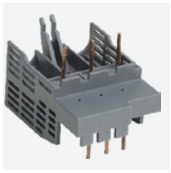


PSRC60... PSRC105

Rated operational voltage U_e, 208...600 V AC, Rated control supply voltage, U_s, 100...240 V AC.

Motor power IEC data		Motor power UL/CSA data							
kW at 400V	Ie rated current	hp at 208V	hp at 480V	hp at 600V	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
1.5	3.9	0.5	2	2	3.4	PSRC3-600-70	1SFA896203R7000	0.4	0.8
3	6.8	1	3	5	6.1	PSRC6-600-70	1SFA896204R7000	0.4	0.8
4	9	2	5	7.5	9	PSRC9-600-70	1SFA896205R7000	0.4	0.8
5.5	12	3	7.5	10	11	PSRC12-600-70	1SFA896206R7000	0.4	0.8
7.5	16	3	10	10	15	PSRC16-600-70	1SFA896207R7000	0.4	0.8
11	25	7.5	15	20	24	PSRC25-600-70	1SFA896208R7000	0.6	1.3
15	30	7.5	20	25	28	PSRC30-600-70	1SFA896209R7000	0.6	1.3
18.5	37	10	25	30	34	PSRC37-600-70	1SFA896210R7000	1.0	2.2
22	45	15	30	40	46.2	PSRC45-600-70	1SFA896211R7000	1.0	2.2
30	60	20	40	50	59.4	PSRC60-600-70	1SFA896212R7000	2.1	4.6
37	72	20	50	60	68	PSRC72-600-70	1SFA896213R7000	2.1	4.6
45	85	25	60	75	80	PSRC85-600-70	1SFA896214R7000	2.1	4.6
55	105	30	75	100	104	PSRC105-600-70	1SFA896215R7000	2.1	4.6

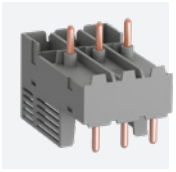
PSRC
Accessories



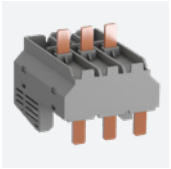
Connection kit
for PSRC3...16



Connection kit
for PSRC25...30



Connection kit
for PSRC37...45



Connection kit
for PSRC60...72

Connection kit

Article	breaker type	Type	Order code	Pkg qty	Net kg	lb
PSRC3...PSRC16	MS116/132	PSR16-MS116	1SFA896211R1001	1	0.03	0.08
PSRC25...PSRC30	MS132	PSR30-MS132	1SFA896212R1001	1	0.03	0.08
PSRC37...PSRC45	MS165	PSR45-MS165	1SFA896216R1001	1	0.05	0.11
PSRC60...PSRC72	MS165	PSR60-MS165	1SFA896215R1001	1	0.05	0.11
PSRC60...PSRC105	MS495	PSR105-MS495	1SAM501903R1001	1	0.03	0.08



Fan

Fan

Article	Type	Order code	Pkg qty	Net kg	lb
PSRC3...PSRC45	PSR-FAN3-45A	1SFA896311R1001	1	0.01	0.02
PSRC60...PSRC105	PSR-FAN60-105A	1SFA896313R1001	1	0.01	0.03



Terminal enlargements

Terminal enlargements

Article	Type	Order code	Pkg qty	Net kg	lb
PSRC60... PSRC105	PSLW-72	1SFA899002R1072	1	0.16	0.35

Note: Wire range mm^2 1 x 10...50 mm^2, 2 x 10...25 mm^2



Fieldbus plug adapter

Fieldbus plug adapter with cable

Article	Type	Order code	Pkg qty	Net kg	lb
Fieldbus plug adapter	PS-FBPA	1SFA896312R1002	1	0.05	0.11

PSE
The efficient range

508 **Coordination examples**

509 **Ordering details**

510 **Accessories**

PSE - The efficient range

Coordination examples



PSE18 ... PSE105



PSE142 ... PSE170



PSE210 ... PSE370

Normal start In-line connected

	Technical data				Using MCCB only, type 1 coordination will be achieved [1] MCCB (400 V, 40 ºC)		To achieve type 2 coordination, semi-conductor fuses must be used [1]	Suitable switch fuse for recommended semi-conductor fuses [1]	The line contactor is not required for the softstarter itself but often used to open if OL trips [1]
Softstarter	IEC kW (400V)	IEC max A	UL HP (440-480 V)	UL max FLA	MCCB (35 kA)	MCCB (50 kA)	Fuse protection (85 kA), Semiconductor fuses, Bussmann	Switch fuse	Line contactor
PSE18	7.5	18	10	18	XT2N160	XT2S160	170M1563	OS32GD	AF26
PSE25	11	25	15	25	XT2N160	XT2S160	170M1564	OS32GD	AF26
PSE30	15	30	20	28	XT2N160	XT2S160	170M1566	OS32GD	AF30
PSE37	18.5	37	25	34	XT2N160	XT2S160	170M1567	OS63GD	AF38
PSE45	22	45	30	42	XT2N160	XT2S160	170M1568	OS63GD	AF52
PSE60	30	60	40	60	XT2N160	XT2S160	170M1569	OS63GD	AF65
PSE72	37	72	50	68	XT2N160	XT2S160	170M1571	OS125GD	AF80
PSE85	45	85	60	80	XT2N160	XT2S160	170M1572	OS125GD	AF96
PSE105	55	106	75	104	XT3N250	XT3S250	170M3819	OS250D	AF116
PSE142	75	143	100	130	XT3N250	XT3S250	170M5809	OS400D	AF146
PSE170	90	171	125	169	XT3N250	XT3S250	170M5810	OS400D	AF190
PSE210	110	210	150	192	XT4N320	XT4S320	170M5812	OS400D	AF265
PSE250	132	250	200	248	XT5N400	XT5S400	170M5813	OS400D	AF265
PSE300	160	300	250	302	XT5N400	XT5S400	170M6812	OS630D	AF305
PSE370	200	370	300	361	XT5N630	XT5S630	170M6813	OS630D	AF370

[1] These are an example of coordination. For more examples see: https://applications.it.abb.com/SOC/Page/Selection.aspx



Coordination tables (SOC) >
For more examples of coordination visit the online tool for coordination with short circuit protection, overload protection and line contactor.

PSE - The efficient range

Ordering details

NOTE

PSE range updates (2018)
- Built in Modbus-RTU communication protocol added
- Increased firmware & hardware stability and reliability
- Improved package and inlay

PSE frame C updates (2018)
PSE210..PSE370 redesigned with more compact size and have new order codes replacing existing PSE Frame C that will be phased out. Terminal extension kit available as accessory for retro-fit.



PSE18 ... PSE105



PSE142 ... PSE170



PSE210 ... PSE370

Normal starts, class 10, in-line Rated operational voltage U_e, 208-600 V, Rated control supply voltage U_s, 100-250 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power								
230V Pe kW	400V Pe kW	500V Pe kW	Ie A	200/208V Pe hp	220/240V Pe hp	440/480V Pe hp	550/600V Pe hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
4	7.5	11	18	5	5	10	15	18	PSE18-600-70	1SFA897101R7000	2.5	5.5
5.5	11	15	25	7.5	7.5	15	20	25	PSE25-600-70	1SFA897102R7000	2.5	5.5
7.5	15	18.5	30	7.5	10	20	25	28	PSE30-600-70	1SFA897103R7000	2.5	5.5
9	18.5	22	37	10	10	25	30	34	PSE37-600-70	1SFA897104R7000	2.5	5.5
11	22	30	45	10	15	30	40	42	PSE45-600-70	1SFA897105R7000	2.5	5.5
15	30	37	60	20	20	40	50	60	PSE60-600-70	1SFA897106R7000	2.5	5.5
18.5	37	45	72	20	25	50	60	68	PSE72-600-70	1SFA897107R7000	2.5	5.5
22	45	55	85	25	30	60	75	80	PSE85-600-70	1SFA897108R7000	2.6	5.7
30	55	75	106	30	40	75	100	104	PSE105-600-70	1SFA897109R7000	2.9	6.3
40	75	90	143	40	50	100	125	130	PSE142-600-70	1SFA897110R7000	4.4	9.7
45	90	110	171	60	60	125	150	169	PSE170-600-70	1SFA897111R7000	4.4	9.7
59	110	132	210	60	75	150	200	192	PSE210-600-70-1	1SFA897112R7001	8.5	18.7
75	132	160	250	75	100	200	250	248	PSE250-600-70-1	1SFA897113R7001	10.6	23.3
90	160	200	300	100	100	250	300	302	PSE300-600-70-1	1SFA897114R7001	10.6	23.3
110	200	250	370	125	150	300	350	361	PSE370-600-70-1	1SFA897115R7001	10.6	23.3

Heavy-duty starts, class 30, in-line Rated operational voltage U_e, 208...600 V, Rated control supply voltage U_s, 100...250 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power								
230V Pe kW	400V Pe kW	500V Pe kW	Ie A	200/208V Pe hp	220/240V Pe hp	440/480V Pe hp	550/600V Pe hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
3	5.5	7.5	12	3	3	7.5	10	11	PSE18-600-70	1SFA897101R7000	2.5	5.5
4	7.5	11	18	5	5	10	15	18	PSE25-600-70	1SFA897102R7000	2.5	5.5
5.5	11	15	25	7.5	7.5	15	20	25	PSE30-600-70	1SFA897103R7000	2.5	5.5
7.5	15	18.5	30	7.5	10	20	25	28	PSE37-600-70	1SFA897104R7000	2.5	5.5
9	18.5	22	37	10	10	25	30	34	PSE45-600-70	1SFA897105R7000	2.5	5.5
11	22	30	45	10	15	30	40	42	PSE60-600-70	1SFA897106R7000	2.5	5.5
15	30	37	60	20	20	40	50	60	PSE72-600-70	1SFA897107R7000	2.5	5.5
18.5	37	45	72	20	25	50	60	68	PSE85-600-70	1SFA897108R7000	2.6	5.7
22	45	55	85	25	30	60	75	80	PSE105-600-70	1SFA897109R7000	2.9	6.3
30	55	75	106	30	40	75	100	104	PSE142-600-70	1SFA897110R7000	4.4	9.7
40	75	90	143	40	50	100	125	130	PSE170-600-70	1SFA897111R7000	4.4	9.7
45	90	110	171	60	60	125	150	169	PSE210-600-70-1	1SFA897112R7001	8.5	18.7
59	110	132	210	60	75	150	200	192	PSE250-600-70-1	1SFA897113R7001	10.6	23.3
75	132	160	250	75	100	200	250	248	PSE300-600-70-1	1SFA897114R7001	10.6	23.3
90	160	200	300	100	100	250	300	302	PSE370-600-70-1	1SFA897115R7001	10.6	23.3

PSE - The efficient range
Accessories



Cable connectors for CU cables

Cable connectors for Cu cables

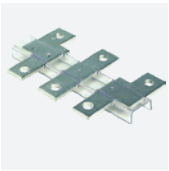
Article	Wire range mm²	Tightening torque max Nm	Type	Order code	Pkg qty	Net kg	lb
PSE142 ... PSE170	6...120	14	KIT FC Cu XT4 3pcs	1SDA066917R1	3	0.18	0.40
PSE142 ... PSE170	2 x (50...120)	16	LZ185-2C/120	1SFN074709R1000	3	0.10	0.22
PSE210 ... PSE370	16...300	25	T5 400 3pcs	1SDA055016R1	3	0.39	0.45



Cable connectors for CU & AL cables

Cable connectors for Al and Cu cables

Article	Wire range mm²	Tightening torque max Nm	Type	Order code	Pkg qty	Net kg	lb
PSE142 ... PSE170	95...185	31	KIT FC CuAl T4 3pcs	1SDA054988R1	3	0.14	0.31
PSE210 ... PSE370	185...240	43	KIT FC CuAl T5 400 3pcs	1SDA055020R1	3	0.24	0.54



Terminal enlargements

Terminal enlargements

Article	Dimensions hole ø mm²	bar mm²	Type	Order code	Pkg qty	Net kg	lb
PSE18 ... PSE105	6.5	15 x 3	LW110	1SFN074307R1000	1	0.07	0.14
PSE142 ... PSE170	10.5	17.5 x 5	LW185	1SFN074707R1000	1	0.29	0.64
PSE210 ... PSE370	10.5	20 x 5	LW300	1SFN075107R1000	1	0.49	1.08



Terminal kit

Terminal kit

Article	Type	Order code	Pkg qty	Net kg	lb
PSE142...PSE170	PSLE-185	1SFA899221R1002	1	0.34	0.75
PSE210...370	PSLE-300	1SFA899221R1003	1	0.30	0.66



Terminal extension

Terminal extension

Article	Type	Order code	Pkg qty	Net kg	lb
PSE142 ... PSE170 8.5 17.5 x 5	LX205	1SFN074810R1000	1	0.25	0.55
PSE210 ... PSE370 10.5 20 x 5	LX370	1SFN075410R1000	1	0.35	0.77

PSE - The efficient range
Accessories



Terminal shrouds

Terminal shrouds

Article	Type	Order code	Pkg qty	Net kg	lb
PSE18... PSE105, Screw terminals	LT140-30L	1SFN124203R1000	2	0.07	0.15
PSE142... PSE170, short for use with cable clamps	LT185-AC	1SFN124701R1000	2	0.05	0.11
PSE142... PSE170,long for use with compression lugs	LT185-AL	1SFN124703R1000	2	0.22	0.49
PSE210... PSE370, short for use with cable clamps	LT300-AC	1SFN125101R1000	2	0.09	0.19
PSE210... PSE370, long for use with compression lugs	LT300-AL	1SFN125103R1000	2	0.28	0.62



External keypad

External keypad including a 3m cable

Article	Type	Order code	Pkg qty	Net kg	lb
PSE18 ... PSE370	PSEEK	1SFA897100R1001	1	0.13	0.29



USB cable

USB cable for Service Engineer Tool

Article	Type	Order code	Pkg qty	Net kg	lb
PSE18 ... PSE370	PSECA	1SFA897201R1001	1	0.10	0.22



Fieldbus plug adaptor

Fieldbus plug connection, cable included

Article	Type	Order code	Pkg qty	Net kg	lb
Fieldbus plug adaptor	PS-FBPA	1SFA896312R1002	1	0.15	0.33



Terminal extensions retrofit kit

Terminal extensions retrofit kit

Article	Type	Order code	Pkg qty	Net kg	lb
Terminal extensions retrofit kit	LXR370	1SFA899222R1003	1	0.45	0.99



Modbus adapter

Modbus adapter

Article	Type	Order code	Pkg qty	Net kg	lb
Modbus adapter	PS-MBIA	1SFA899300R1020	1	0.01	0.02

PSTX
The advanced range

514 **Ordering details**

518 **Accessories**

PSTX - The advanced range

Normal starts, class 10, in-line

Ordering details



PSTX30... PSTX105



PSTX142... PSTX170



PSTX210... PSTX370



PSTX470... PSTX570



PSTX720... PSTX840



PSTX1050... PSTX1250

Rated operational voltage U_e, 208...600 V , rated control supply voltage U_s, 100...250 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power								
400V Pe kW	500V Pe kW	690V Pe kW	Ie A	200/208V Pe hp	220/240V Pe hp	440/480V Pe hp	550/600V Pe hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
15	18.5	-	30	7.5	10	20	25	28	PSTX30-600-70	1SFA898103R7000	4.6	10.1
18.5	22	-	37	10	10	25	30	34	PSTX37-600-70	1SFA898104R7000	4.6	10.1
22	25	-	45	10	15	30	40	42	PSTX45-600-70	1SFA898105R7000	4.6	10.1
30	37	-	60	20	20	40	50	60	PSTX60-600-70	1SFA898106R7000	4.6	10.1
37	45	-	72	20	25	50	60	68	PSTX72-600-70	1SFA898107R7000	4.7	10.4
45	55	-	85	25	30	60	75	80	PSTX85-600-70	1SFA898108R7000	4.7	10.4
55	75	-	106	30	40	75	100	104	PSTX105-600-70	1SFA898109R7000	4.7	10.4
75	90	-	143	40	50	100	125	130	PSTX142-600-70	1SFA898110R7000	7.0	15.4
90	110	-	171	50	60	125	150	169	PSTX170-600-70	1SFA898111R7000	8.9	19.6
110	132	-	210	60	75	150	200	192	PSTX210-600-70	1SFA898112R7000	13.3	29.3
132	160	-	250	75	100	200	250	248	PSTX250-600-70	1SFA898113R7000	15.5	34.2
160	200	-	300	100	100	250	300	302	PSTX300-600-70	1SFA898114R7000	15.5	34.2
200	257	-	370	125	150	300	350	361	PSTX370-600-70	1SFA898115R7000	15.5	34.2
250	315	-	470	150	200	400	500	480	PSTX470-600-70	1SFA898116R7000	25.0	55.1
315	400	-	570	200	200	500	600	590	PSTX570-600-70	1SFA898117R7000	27.0	59.5
400	500	-	720	250	300	600	700	720	PSTX720-600-70	1SFA898118R7000	46.5	102.5
450	600	-	840	300	350	700	800	840	PSTX840-600-70	1SFA898119R7000	46.5	102.5
560	730	-	1050	400	450	900	1000	1062	PSTX1050-600-70	1SFA898120R7000	62.3	137.3
710	880	-	1250	400	500	1000	1200	1250	PSTX1250-600-70	1SFA898121R7000	63.3	137.3

Rated operational voltage U_e, 208...690 V , rated control supply voltage U_s, 100...250 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power								
400V Pe kW	500V Pe kW	690V Pe kW	Ie A	200/208V Pe hp	220/240V Pe hp	440/480V Pe hp	550/600V Pe hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
15	18.5	25	30	7.5	10	20	25	28	PSTX30-690-70	1SFA898203R7000	4.6	10.1
18.5	22	30	37	10	10	25	30	34	PSTX37-690-70	1SFA898204R7000	4.6	10.1
22	25	37	45	10	15	30	40	42	PSTX45-690-70	1SFA898205R7000	4.6	10.1
30	37	55	60	20	20	40	50	60	PSTX60-690-70	1SFA898206R7000	4.6	10.1
37	45	59	72	20	25	50	60	68	PSTX72-690-70	1SFA898207R7000	4.7	10.4
45	55	75	85	25	30	60	75	80	PSTX85-690-70	1SFA898208R7000	4.7	10.4
55	75	90	106	30	40	75	100	104	PSTX105-690-70	1SFA898209R7000	4.7	10.4
75	90	132	143	40	50	100	125	130	PSTX142-690-70	1SFA898210R7000	7.0	15.4
90	110	160	171	50	60	125	150	169	PSTX170-690-70	1SFA898211R7000	8.9	19.6
110	132	184	210	60	75	150	200	192	PSTX210-690-70	1SFA898212R7000	13.3	29.3
132	160	220	250	75	100	200	250	248	PSTX250-690-70	1SFA898213R7000	15.5	34.2
160	200	257	300	100	100	250	300	302	PSTX300-690-70	1SFA898214R7000	15.5	34.2
200	257	355	370	125	150	300	350	361	PSTX370-690-70	1SFA898215R7000	15.5	34.2
250	315	450	470	150	200	400	500	480	PSTX470-690-70	1SFA898216R7000	25.0	55.1
315	400	560	570	200	200	500	600	590	PSTX570-690-70	1SFA898217R7000	27.0	59.5
400	500	710	720	250	300	600	700	720	PSTX720-690-70	1SFA898218R7000	46.5	102.5
450	600	800	840	300	350	700	800	840	PSTX840-690-70	1SFA898219R7000	46.5	102.5
560	730	1000	1050	400	450	900	1000	1062	PSTX1050-690-70	1SFA898220R7000	62.3	137.3
710	880	1200	1250	400	500	1000	1200	1250	PSTX1250-690-70	1SFA898221R7000	63.3	137.3

PSTX - The advanced range

Heavy-duty starts, class 30, in-line

Ordering details



PSTX30... PSTX105



PSTX142... PSTX170



PSTX210... PSTX370



PSTX470... PSTX570



PSTX720... PSTX840



PSTX1050... PSTX1250

Rated operational voltage U_e, 208...600 V, rated control supply voltage U_s, 100...250 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power							
400V P_e kW	500V P_e kW	690V P_e kW	I_e A	200/208V P_e hp	220/240V P_e hp	440/480V P_e hp	550/600V P_e hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
11	15	-	22	5	7.5	15	20	25	PSTX30-600-70	1SFA898103R7000	4.6	10.1
15	18.5	-	30	7.5	10	20	25	28	PSTX37-600-70	1SFA898104R7000	4.6	10.1
18.5	22	-	37	10	10	25	30	34	PSTX45-600-70	1SFA898105R7000	4.6	10.1
22	25	-	45	10	15	30	40	42	PSTX60-600-70	1SFA898106R7000	4.6	10.1
30	37	-	60	20	20	40	50	60	PSTX72-600-70	1SFA898107R7000	4.7	10.4
37	45	-	72	20	25	50	60	68	PSTX85-600-70	1SFA898108R7000	4.7	10.4
45	55	-	85	25	30	60	75	80	PSTX105-600-70	1SFA898109R7000	4.7	10.4
55	75	-	106	30	40	75	100	104	PSTX142-600-70	1SFA898110R7000	7.0	15.4
75	90	-	143	40	50	100	125	130	PSTX170-600-70	1SFA898111R7000	8.9	19.6
90	110	-	171	50	60	125	150	169	PSTX210-600-70	1SFA898112R7000	13.3	29.3
110	132	-	210	60	75	150	200	192	PSTX250-600-70	1SFA898113R7000	15.5	34.2
132	160	-	250	75	100	200	250	248	PSTX300-600-70	1SFA898114R7000	15.5	34.2
160	200	-	300	100	100	250	300	302	PSTX370-600-70	1SFA898115R7000	15.5	34.2
200	257	-	370	125	150	300	350	361	PSTX470-600-70	1SFA898116R7000	25.0	55.1
250	315	-	470	150	200	400	500	480	PSTX570-600-70	1SFA898117R7000	27.0	59.5
315	400	-	570	200	200	500	600	590	PSTX720-600-70	1SFA898118R7000	46.5	102.5
400	500	-	720	250	300	600	700	720	PSTX840-600-70	1SFA898119R7000	46.5	102.5
450	600	-	840	300	350	700	800	840	PSTX1050-600-70	1SFA898120R7000	62.3	137.3
560	730	-	1050	400	450	900	1000	1062	PSTX1250-600-70	1SFA898121R7000	63.3	137.3

Rated operational voltage Ue, 208...690 V, rated control supply voltage U_s, 100...250 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power							
400V P_e kW	500V P_e kW	690V P_e kW	I_e A	200/208V P_e hp	220/240V P_e hp	440/480V P_e hp	550/600V P_e hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
11	15	18.5	22	5	7.5	15	20	25	PSTX30-690-70	1SFA898203R7000	4.6	10.1
15	18.5	25	30	7.5	10	20	25	28	PSTX37-690-70	1SFA898204R7000	4.6	10.1
18.5	22	30	37	10	10	25	30	34	PSTX45-690-70	1SFA898205R7000	4.6	10.1
22	25	37	44	10	15	30	40	42	PSTX60-690-70	1SFA898206R7000	4.6	10.1
30	37	55	60	20	20	40	50	60	PSTX72-690-70	1SFA898207R7000	4.7	10.4
37	45	59	72	20	25	50	60	68	PSTX85-690-70	1SFA898208R7000	4.7	10.4
45	55	75	85	25	30	60	75	80	PSTX105-690-70	1SFA898209R7000	4.7	10.4
55	75	90	106	30	40	75	100	104	PSTX142-690-70	1SFA898210R7000	7.0	15.4
75	90	132	143	40	50	100	125	130	PSTX170-690-70	1SFA898211R7000	8.9	19.6
90	110	160	171	50	60	125	150	169	PSTX210-690-70	1SFA898212R7000	13.3	29.3
110	132	184	210	60	75	150	200	192	PSTX250-690-70	1SFA898213R7000	15.5	34.2
132	160	220	250	75	100	200	250	248	PSTX300-690-70	1SFA898214R7000	15.5	34.2
160	200	257	300	100	100	250	300	302	PSTX370-690-70	1SFA898215R7000	15.5	34.2
200	257	355	370	125	150	300	350	361	PSTX470-690-70	1SFA898216R7000	25.0	55.1
250	315	450	470	150	200	400	500	480	PSTX570-690-70	1SFA898217R7000	27.0	59.5
315	400	560	570	200	200	500	600	590	PSTX720-690-70	1SFA898218R7000	46.5	102.5
400	500	710	720	250	300	600	700	720	PSTX840-690-70	1SFA898219R7000	46.5	102.5
450	600	800	840	300	350	700	800	840	PSTX1050-690-70	1SFA898220R7000	62.3	137.3
560	730	1000	1050	400	450	900	1000	1062	PSTX1250-690-70	1SFA898221R7000	63.3	137.3

PSTX - The advanced range

Normal starts, class 10, inside delta

Ordering details



PSTX30... PSTX105



PSTX142... PSTX170



PSTX210... PSTX370



PSTX470... PSTX570



PSTX720... PSTX840



PSTX1050... PSTX1250

Rated operational voltage U_e, 208...600 V, rated control supply voltage U_s, 100...250 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power								
400V P_e kW	500V P_e kW	690V P_e kW	I_e A	200/208V P_e hp	220/240V P_e hp	440/480V P_e hp	550/600V P_e hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
25	30	-	52	10	15	30	40	48	PSTX30-600-70	1SFA898103R7000	4.6	10.1
30	37	-	64	15	20	40	50	58	PSTX37-600-70	1SFA898104R7000	4.6	10.1
37	45	-	76	20	25	50	60	72	PSTX45-600-70	1SFA898105R7000	4.6	10.1
55	75	-	105	30	40	75	100	103	PSTX60-600-70	1SFA898106R7000	4.6	10.1
59	80	-	124	30	40	75	100	117	PSTX72-600-70	1SFA898107R7000	4.7	10.4
75	90	-	147	40	50	100	125	138	PSTX85-600-70	1SFA898108R7000	4.7	10.4
90	110	-	181	60	60	150	150	180	PSTX105-600-70	1SFA898109R7000	4.7	10.4
132	160	-	245	75	75	150	200	225	PSTX142-600-70	1SFA898110R7000	7.0	15.4
160	200	-	300	75	100	200	250	292	PSTX170-600-70	1SFA898111R7000	8.9	19.6
184	250	-	360	100	125	250	300	332	PSTX210-600-70	1SFA898112R7000	13.3	29.3
220	295	-	430	150	150	350	450	429	PSTX250-600-70	1SFA898113R7000	15.5	34.2
257	355	-	515	150	200	450	500	523	PSTX300-600-70	1SFA898114R7000	15.5	34.2
355	450	-	640	200	250	500	600	625	PSTX370-600-70	1SFA898115R7000	15.5	34.2
450	600	-	814	250	300	600	700	830	PSTX470-600-70	1SFA898116R7000	25.0	55.1
540	700	-	987	300	350	700	800	1020	PSTX570-600-70	1SFA898117R7000	27.0	59.5
710	880	-	1247	400	500	1000	1200	1240	PSTX720-600-70	1SFA898118R7000	46.5	102.5
800	1000	-	1455	500	600	1200	1500	1450	PSTX840-600-70	1SFA898119R7000	46.5	102.5
1000	1250	-	1810	600	700	1500	1800	1830	PSTX1050-600-70	1SFA898120R7000	62.3	137.3
1200	1500	-	2160	800	900	1800	2000	2160	PSTX1250-600-70	1SFA898121R7000	63.3	137.3

Rated operational voltage U_e, 208...690 V, rated control supply voltage U_s, 100...250 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power								
400V P_e kW	500V P_e kW	690V P_e kW	I_e A	200/208V P_e hp	220/240V P_e hp	440/480V P_e hp	550/600V P_e hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
25	30	45	52	10	15	30	40	48	PSTX30-690-70	1SFA898203R7000	4.6	10.1
30	37	55	64	15	20	40	50	58	PSTX37-690-70	1SFA898204R7000	4.6	10.1
37	45	59	76	20	25	50	60	72	PSTX45-690-70	1SFA898205R7000	4.6	10.1
55	75	90	105	30	40	75	100	103	PSTX60-690-70	1SFA898206R7000	4.6	10.1
59	80	110	124	30	40	75	100	117	PSTX72-690-70	1SFA898207R7000	4.7	10.4
75	90	132	147	40	50	100	125	138	PSTX85-690-70	1SFA898208R7000	4.7	10.4
90	110	160	181	60	60	150	150	180	PSTX105-690-70	1SFA898209R7000	4.7	10.4
132	160	220	245	75	75	150	200	225	PSTX142-690-70	1SFA898210R7000	7.0	15.4
160	200	257	300	75	100	200	250	292	PSTX170-690-70	1SFA898211R7000	8.9	19.6
184	250	315	360	100	125	250	300	332	PSTX210-690-70	1SFA898212R7000	13.3	29.3
220	295	400	430	150	150	350	450	429	PSTX250-690-70	1SFA898213R7000	15.5	34.2
257	355	500	515	150	200	450	500	523	PSTX300-690-70	1SFA898214R7000	15.5	34.2
355	450	600	640	200	250	500	600	625	PSTX370-690-70	1SFA898215R7000	15.5	34.2
450	600	800	814	250	300	600	700	830	PSTX470-690-70	1SFA898216R7000	25.0	55.1
540	700	960	987	300	350	700	800	1020	PSTX570-690-70	1SFA898217R7000	27.0	59.5
710	880	1200	1247	400	500	1000	1200	1240	PSTX720-690-70	1SFA898218R7000	46.5	102.5
800	1000	1400	1455	500	600	1200	1500	1450	PSTX840-690-70	1SFA898219R7000	46.5	102.5
1000	1250	1700	1810	600	700	1500	1800	1830	PSTX1050-690-70	1SFA898220R7000	62.3	137.3
1200	1500	2000	2160	800	900	1800	2000	2160	PSTX1250-690-70	1SFA898221R7000	63.3	137.3

PSTX - The advanced range

Heavy-duty starts, class 30, inside delta

Ordering details



PSTX30... PSTX105



PSTX142... PSTX170



PSTX210... PSTX370



PSTX470... PSTX570



PSTX720... PSTX840



PSTX1050... PSTX1250

Rated operational voltage U_e, 208...600 V, rated control supply voltage U_s, 100...250 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power							
400V Pe kW	500V Pe kW	690V Pe kW	Ie A	200/208V Pe hp	220/240V Pe hp	440/480V Pe hp	550/600V Pe hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
18.5	25	-	42	7.5	10	25	30	34	PSTX30-600-70	1SFA898103R7000	4.6	10.1
25	30	-	52	10	15	30	40	48	PSTX37-600-70	1SFA898104R7000	4.6	10.1
30	37	-	64	15	20	40	50	58	PSTX45-600-70	1SFA898105R7000	4.6	10.1
37	45	-	76	20	25	50	60	72	PSTX60-600-70	1SFA898106R7000	4.6	10.1
55	75	-	105	30	40	75	100	103	PSTX72-600-70	1SFA898107R7000	4.7	10.4
59	80	-	124	30	40	75	100	117	PSTX85-600-70	1SFA898108R7000	4.7	10.4
75	90	-	147	40	50	100	125	138	PSTX105-600-70	1SFA898109R7000	4.7	10.4
90	110	-	181	60	60	150	150	180	PSTX142-600-70	1SFA898110R7000	7.0	15.4
132	160	-	245	75	75	150	200	225	PSTX170-600-70	1SFA898111R7000	8.9	19.6
160	200	-	300	75	100	200	250	292	PSTX210-600-70	1SFA898112R7000	13.3	29.3
184	250	-	360	100	125	250	300	332	PSTX250-600-70	1SFA898113R7000	15.5	34.2
220	295	-	430	150	150	350	450	429	PSTX300-600-70	1SFA898114R7000	15.5	34.2
257	355	-	515	150	200	450	500	523	PSTX370-600-70	1SFA898115R7000	15.5	34.2
355	450	-	640	200	250	500	600	625	PSTX470-600-70	1SFA898116R7000	25.0	55.1
450	600	-	814	250	300	600	700	830	PSTX570-600-70	1SFA898117R7000	27.0	59.5
540	700	-	987	300	350	700	800	1020	PSTX720-600-70	1SFA898118R7000	46.5	102.5
710	880	-	1247	400	500	1000	1200	1240	PSTX840-600-70	1SFA898119R7000	46.5	102.5
800	1000	-	1455	500	600	1200	1500	1450	PSTX1050-600-70	1SFA898120R7000	62.3	137.3
1000	1250	-	1810	600	700	1500	1800	1830	PSTX1250-600-70	1SFA898121R7000	63.3	137.3

Rated operational voltage U_e, 208...690 V, rated control supply voltage U_s, 100...250 V AC, 50/60 Hz

IEC rated operational power			current	UL/CSA rated operational power							
400V Pe kW	500V Pe kW	690V Pe kW	Ie A	200/208V Pe hp	220/240V Pe hp	440/480V Pe hp	550/600V Pe hp	FLA	Type	Order code	Net Weight (kg)	Net Weight (lb)
18.5	25	37	42	7.5	10	25	30	34	PSTX30-690-70	1SFA898203R7000	4.6	10.1
25	30	45	52	10	15	30	40	48	PSTX37-690-70	1SFA898204R7000	4.6	10.1
30	37	55	64	15	20	40	50	58	PSTX45-690-70	1SFA898205R7000	4.6	10.1
37	45	59	76	20	25	50	60	72	PSTX60-690-70	1SFA898206R7000	4.6	10.1
55	75	90	105	30	40	75	100	103	PSTX72-690-70	1SFA898207R7000	4.7	10.4
59	80	110	124	30	40	75	100	117	PSTX85-690-70	1SFA898208R7000	4.7	10.4
75	90	132	147	40	50	100	125	138	PSTX105-690-70	1SFA898209R7000	4.7	10.4
90	110	160	181	60	60	150	150	180	PSTX142-690-70	1SFA898210R7000	7.0	15.4
132	160	220	245	75	75	150	200	225	PSTX170-690-70	1SFA898211R7000	8.9	19.6
160	200	257	300	75	100	200	250	292	PSTX210-690-70	1SFA898212R7000	13.3	29.3
184	250	315	360	100	125	250	300	332	PSTX250-690-70	1SFA898213R7000	15.5	34.2
220	295	400	430	150	150	350	450	429	PSTX300-690-70	1SFA898214R7000	15.5	34.2
257	355	500	515	150	200	450	500	523	PSTX370-690-70	1SFA898215R7000	15.5	34.2
355	450	600	640	200	250	500	600	625	PSTX470-690-70	1SFA898216R7000	25.0	55.1
450	600	800	814	250	300	600	700	830	PSTX570-690-70	1SFA898217R7000	27.0	59.5
540	700	960	987	300	350	700	800	1020	PSTX720-690-70	1SFA898218R7000	46.5	102.5
710	880	1200	1247	400	500	1000	1200	1240	PSTX840-690-70	1SFA898219R7000	46.5	102.5
800	1000	1400	1455	500	600	1200	1500	1450	PSTX1050-690-70	1SFA898220R7000	62.3	137.3
1000	1250	1700	1810	600	700	1500	1800	1830	PSTX1250-690-70	1SFA898221R7000	63.3	137.3

PSTX - The advanced range

Accessories



Cable connectors for CU cables

Cable connectors for Cu cables

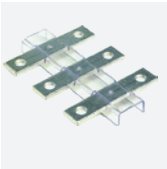
Article	Wire range mm²	Tightening torque max Nm	Type	Order code	Pkg qty	Net kg	lb
PSTX142 ... PSTX170	6-120	8	KIT FC Cu XT4 3pcs	1SDA066917R1	3	0.18	0.40
PSTX142 ... PSTX170	2 x (50-95)	16	LZ185-2C/120	1SFN074709R1000	3	0.30	0.66
PSTX210 ... PSTX370	16-240	25	T5 400 3pcs	1SDA055016R1	3	0.36	0.79
PSTX210 ... PSTX370	2 x (95-185)	22	OZXB4/1	1SCA022194R0890	1	0.19	0.42
PSTX470 ... PSTX570	2 x (120-240)	35	T6 630-S6 6pcs	1SDA013922R1	6	0.57	1.26
PSTX570 ... PSTX1050	3 x (70-185)	45	T6 800-S6 6pcs	1SDA013956R1	6	2.12	4.68



Cable connectors for AL cables

Cable connectors for Al cables

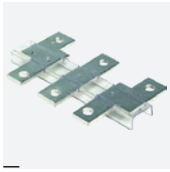
Article	Wire range mm²	Tightening torque max Nm	Type	Order code	Pkg qty	Net kg	lb
PSTX142 ... PSTX170	95-185	31	KIT FC CuAl T4 3pcs	1SDA054988R1	3	0.14	0.31
PSTX210 ... PSTX370	185-240	43	KIT FC CuAl T5 400 3pcs	1SDA055020R1	3	0.24	0.54
PSTX470 ... PSTX1050	2 x (120-240)	31	KIT FC CuAl T6 630-S6 3pcs	1SDA023380R1	3	0.11	0.24



Terminal extensions

Terminal extensions

Article	Dimensions hole ø mm2	bar mm	Type	Order code	Pkg qty	NET kg	lb
PSTX142 ... PSTX170	8.5	17.5 x 5	LX205	1SFN074810R1000	1	0.25	5.55
PSTX210 ... PSTX370	10.5	20 x 5	LX370	1SFN075410R1000	1	0.35	0.77
PSTX470 ... PSTX570	10.5	25 x 5	LX460	1SFN075710R1000	1	0.50	1.10
PSTX720 ... PSTX840	13	40 x 6	LX750	1SFN076110R1000	1	0.85	1.87



Terminal enlargements

Terminal enlargements

Article	Dimensions hole ø mm2	bar mm	Type	Order code	Pkg qty	Net kg	lb
PSTX30 ... PSTX105	6.5	15 x 3	LW110	1SFN074307R1000	1	0.07	0.15
PSTX142 ... PSTX170	10.5	17.5 x 5	LW205	1SFN074807R1000	1	0.25	5.55
PSTX210 ... PSTX370	10.5	20 x 5	LW370	1SFN075407R1000	1	0.45	0.99
PSTX470 ... PSTX570	10.5	25 x 5	LW460	1SFN075707R1000	1	0.73	1.61
PSTX720 ... PSTX840	13	40 x 6	LW750	1SFN076107R1000	1	1.23	2.71



Terminal shrouds

Terminal shrouds

Article	Description	Type	Order code	Pkg qty	Net kg	lb
PSTX142 ... PSTX170	short for use with cable clamps	LT205-30C	1SFN124801R1000	2	0.05	0.11
PSTX142 ... PSTX170	long for use with compression lugs	LT205-30L	1SFN124803R1000	2	0.22	0.49
PSTX210 ... PSTX370	short for use with cable clamps	LT370-30C	1SFN125401R1000	2	0.04	0.08
PSTX210 ... PSTX370	long for use with compression lugs	LT370-30L	1SFN125403R1000	2	0.28	0.62
PSTX210 ... PSTX370	long and deep for use with extending cable clamps, ATK300/2 and OZXB4	LT370-30D	1SFN125406R1000	2	0.15	0.33
PSTX470 ... PSTX570	short for use with cable clamps	LT460-AC	1SFN125701R1000	2	0.10	0.22
PSTX470 ... PSTX570	long for use with compression lugs	LT460-AL	1SFN125703R1000	2	0.80	1.76
PSTX720 ... PSTX1250	short for use with cable clamps	LT750-AC	1SFN126101R1000	2	0.12	0.27
PSTX720 ... PSTX1250	long for use with compression lugs	LT750-AL	1SFN126103R1000	2	0.83	1.82

PSTX - The advanced range
Accessories



USB cable

PSTX USB cable

Article	Type	Order code	Pkg qty	Net kg	lb
PSTX USB Cable	PSCA-1	1SFA899314R1001	1	0.05	0.12



Fieldbus plug adaptor

Fieldbus plug connection, cable included

Article	Type	Order code	Pkg qty	Net kg	lb
Fieldbus plug adaptor	PS-FBPA	1SFA896312R1002	1	0.05	0.11



I/O module

I/O module, 24 V DC digital input

Article	Type	Order code	Pkg qty	Net kg	lb
Extension module for I/O 24 VDC	DX111-FBP.0	1SAJ611000R0101	1	0.22	0.49
Extension module for I/O 110-230 VDC	DX122-FBP.0	1SAJ622000R0101	1	0.22	0.49



- Profibus DP-V1
- Modbus RTU



DeviceNet



BACnet MS/TP



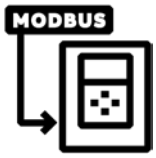
- BACnet IP
- EthetCAT
- EtherNet/IP
- Modbus TCP
- Profinet IO

Anybus connection accesssory for communication protocol suitable for PSTX30 ...PSTX1250

Article	Conection ports	Type	Order code	Pkg qty	kg	lb
Profibus	1	AB-PROFIBUS-1	1SFA899300R1001	1	0.03	0.07
DeviceNet	1	AB-DEVICENET-1	1SFA899300R1002	1	0.03	0.07
Modbus-RTU [1)]	1	AB-MODBUS-RTU-1	1SFA899300R1003	1	0.03	0.07
BACnet IP	2	AB- BACNET-IP-2	1SFA899300R1004	1	0.03	0.07
EtherNet/IP	2	AB-ETHERNET-IP-2	1SFA899300R1006	1	0.03	0.07
Modbus/TCP	2	AB-MODBUS-TCP-2	1SFA899300R1008	1	0.03	0.07
Profinet	2	AB-PROFINET-IO-2	1SFA899300R1010	1	0.03	0.07
BACnet MS/TP	1	AB-BACNET-MSTP-1	1SFA899300R1011	1	0.03	0.07
EtherCAT	2	AB-ETHERCAT-IP-2	1SFA899300R1012	1	0.03	0.07
New CANopen	1	AB-CANopen-IO-1	1SFA899300R1013	1	0.03	0.07

[1)] only needed when Com 3-port is used with Extension I/O

Fieldbus communication
For softstarters



Fieldbus communication interface offering
PSR, PSE and PSTX softstarters can be connected to a fieldbus network for monitoring and control. All major industrial fieldbus protocols are covered with different accessories making the installation very flexible.

Built-in Modbus-RTU for PSTX and PSE
- Built-in Modbus RTU communication interface
- Easy to install using the Modbus RTU adaptor which is included with the Softstarter
- Through this communication interface it is possible to get full control and status information of the Softstarter as well as reading- and writing parameters

Anybus connection for PSTX
- Anybus connection accessory for communication protocol suitable for PSTX30... PSTX1250


PROFIBUS


DeviceNet


Modbus RTU


BACnet IP


EtherNet IP


Modbus TCP


PROFINET


BACnet MS/TP


EtherCAT


CANopen

Anybus connection accesssory for communication protocol suitable for PSTX30 ...PSTX1250

Article	Conection ports	Type	Order code	Pkg qty	kg	lb
Profibus	1	AB-PROFIBUS-1	1SFA899300R1001	1	0.03	0.07
DeviceNet	1	AB-DEVICENET-1	1SFA899300R1002	1	0.03	0.07
Modbus-RTU [1)]	1	AB-MODBUS-RTU-1	1SFA899300R1003	1	0.03	0.07
BACnet IP	2	AB- BACNET-IP-2	1SFA899300R1004	1	0.03	0.07
EtherNet/IP	2	AB-ETHERNET-IP-2	1SFA899300R1006	1	0.03	0.07
Modbus/TCP	2	AB-MODBUS-TCP-2	1SFA899300R1008	1	0.03	0.07
Profinet	2	AB-PROFINET-IO-2	1SFA899300R1010	1	0.03	0.07
BACnet MS/TP	1	AB-BACNET-MSTP-1	1SFA899300R1011	1	0.03	0.07
EtherCAT	2	AB-ETHERCAT-IP-2	1SFA899300R1012	1	0.03	0.07
New CANopen	1	AB-CANopen-IO-1	1SFA899300R1013	1	0.03	0.07

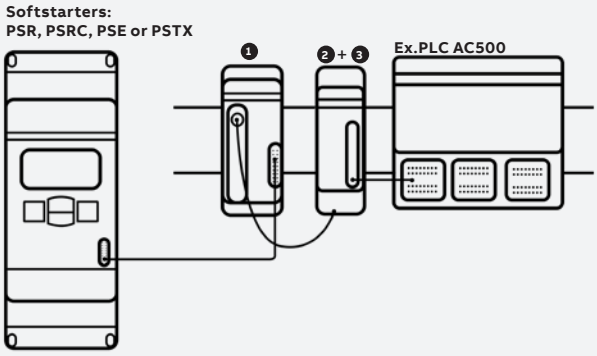
[1)] only needed when Com 3-port is used with Extension I/O

ABB Fieldbus interface
For softstarters

Fieldbus communication interface offering
Available communication protocols for softstarters

Communication	PSR	PSRC	PSE	PSTX
Modbus RTU	○	○	●	●
Profibus	○	○	○	○
DeviceNet	○	○	○	○
Modbus TCP	–	–	○	–
Anybus	–	–	–	○

● = Built-in
○ = Optional
– = not available





Fieldbus plug adapter

1 Fieldbus plug adapter with cable

Article	Type	Order code	Pkg qty	kg	lb
Fieldbus plug adapter	PS-FBPA	1SFA896312R1002	1	0.05	0.11



Fieldbus plug kit

2 Fieldbus plug kit for mounting fieldbus plug adapter together with fieldbus plugs
Includes: Holder, cable, cable holder and 2 terminal blocks

Article	Type	Order code	Pkg qty	kg	lb
Accessory kit	PS-FBPK	1SFA899320R1002	1	0.15	0.33



- Profibus
- DeviceNET

3 Fieldbus communication interface

Article	Type	Order code	Pkg qty	kg	lb
Profibus					
Profibus DP communication interface	PDP32.0	1SAJ242000R0001	1	0.05	0.11
Cable from PDP32.0 to drawer outside, length 1.5 m	CDP24.150	1SAJ929240R0015	1	0.06	0.13
DeviceNet					
DeviceNet communication interface; terminal block for fieldbus connection included	DNP31.0	1SAJ231000R0001	1	0.04	0.09
Cable from DNP31.0 to drawer outside, length 1.5 m	CDP24.150	1SAJ929240R0015	1	0.06	0.13
Modbus-TCP [1]					
Ethernet Modbus TCP interface	MTQ22-FBP	1SAJ260000R0100	1	0.17	0.38
Cable ETH-X1/X4-M12 female, length 1.5m	CDP17-FBP.150	1SAJ929170R0015	1	0.08	0.17
Modbus-RTU [1]					
Modbus RTU communication interface; terminal block for fieldbus connection included	MRP31.0	1SAJ251000R0001	1	0.04	0.09
Cable from MRP31.0 to drawer outside, length 1.5 m	CDP24.150	1SAJ929240R0015	1	0.06	0.13



Modbus-TCP

[1] only for PSE softstarter no fieldbus plug kit needed
[2] Only for PSR, Modbus RTU is built-in on PSE and PSTX.

05
Timers, monitoring relays and power supplies

525 **Time relays**

531 **Measuring and monitoring relays**

547 **Power supplies**

555 **Pluggable interface relays and optocouplers**


CT-ERC
CT-MFC
CT-AHS
CT-MVS
ABB
A1
15
25
18
16
A2
Y1/B1
28
26
Z2
Z1
Range
Time
Function
T Range
U/T
R
R1
R2

Time relays

526 **CT-C range**

527 **CT-S range**

530 **CT-D range**

CT-C range
Ordering details



CT-MFC.12



CT-ERC.22

■ Control input with voltage-related triggering

\- No triggering

Description

The CT-C range combines lower cost with higher value and performance in a slim 17.5 mm-wide housing. All relays have a wide time setting range from 0.05 seconds up to 100 hours. Combined with a wide voltage range they are the perfect choice for applications worldwide.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Type	Order code	Weight (1 pc) kg (lb)
Multi[1]	12-240 V AC/DC	7 (0.05 s - 100 h)	■	Solid state	CT-MKC.31	1SVR508010R1300	0.060 (0.132)
Multi[1]	24-240 V AC 24-48 V DC		■	1 c/o	CT-MFC.12	1SVR508020R0000	0.060 (0.132)
Multi[1]	12-240 V AC/DC		■	2 c/o	CT-MFC.21	1SVR508020R1100	0.065 (0.143)
Dual[2]	24-48 V DC 24-240 V AC	4 (0.05 s - 10 min)	-	1 c/o	CT-ARC.12	1SVR508120R0000	0.060 (0.132)
ON-delay	24-240 V AC 24-48 V DC	7 (0.05 s - 100 h)	-	1 c/o	CT-ERC.12	1SVR508100R0000	0.060 (0.132)
			-	2 c/o	CT-ERC.22	1SVR508100R0100	0.065 (0.143)
OFF-delay			■	1 c/o	CT-AHC.12	1SVR508110R0000	0.060 (0.132)
			■	2 c/o	CT-AHC.22	1SVR508110R0100	0.065 (0.143)
Impulse-ON			-	1 c/o	CT-VWC.12	1SVR508130R0000	0.060 (0.132)
Flasher[3]			-		CT-EBC.12	1SVR508150R0000	0.060 (0.132)
Pulse generator		2×7 (0.05 s - 100 h)	■		CT-TGC.12[4]	1SVR508160R0000	0.060 (0.132)
			■	2 c/o	CT-TGC.22[4]	1SVR508160R0100	0.065 (0.143)
Star-delta change-over		4 (0.05 s - 10 min)	-	2 n/o	CT-SDC.22[5]	1SVR508211R0100	0.065 (0.143)
			-		CT-SAC.22[6]	1SVR508210R0100	
Alternating without time delay	24-240 V AC 24-48 V DC	-	-	2 n/o	CT-PAC.22	1SVR508180R0100	0.059 (0.130)

[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] OFF-delay without aux. voltage (True OFF-delay), True Impulse-OFF
[3] Flasher starting with ON, Flasher starting with OFF
[4] ON and OFF times adjustable independently: 2 x 7 time ranges 0.05 s - 100 h
[5] Transition time 50 ms fixed
[6] Transition time adjustable

CT-S range

Ordering details - multifunctional devices



CT-MVS.21P



CT-MBS.22P

■ Control input with voltage-related triggering

☐ Control input with volt-free triggering

☐ / ☐ Two control inputs with volt-free triggering

\- No triggering

Description

The high-performance CT-S range is ideally suited for universal use and is available with two different connection technologies:

- Double-chamber cage connection terminals (Screw terminals)
- Easy Connect Technology (Push-in terminals)

Ordering details

Timing function [5]	Rated control supply voltage	Time ranges	Control input	Output	Type	Order code	Weight (1 pc) kg (lb)
Multi	24- 240 V AC/DC	10 (0.05 s - 300 h)	■	2 c/o	CT-MVS.21S [1) 2) 3)]	1SVR730020R0200	0.148 (0.326)
					CT-MVS.21P [1) 2) 3)]	1SVR740020R0200	0.136 (0.30)
	24-48 V DC, 24-240 V AC				CT-MVS.22S	1SVR730020R3300	0.142 (0.313)
					CT-MVS.22P	1SVR740020R3300	0.131 (0.289)
	380-440 V AC				CT-MVS.23S	1SVR730021R2300	0.144 (0.317)
					CT-MVS.23P	1SVR740021R2300	0.133 (0.293)
Multi	24-48 V DC, 24-240 V AC	10 (0.05 s - 300 h)	■	1 c/o	CT-MVS.12S	1SVR730020R3100	0.107 (0.236)
					CT-MVS.12P	1SVR740020R3100	0.102 (0.225)
Multi	24-48 V DC, 24-240 V AC	2×10 (0.05 s - 300 h)	■	2 c/o	CT- MXS.22S [4)]	1SVR730030R3300	0.142 (0.313)
					CT-MXS.22P [4)]	1SVR740030R3300	0.131 (0.289)
Multi	24- 240 V AC/DC	10 (0.05 s - 300 h)	☐ / ☐	2 c/o	CT-MFS.21S [1) 2) 3)]	1SVR730010R0200	0.145 (0.32)
					CT-MFS.21P [1) 2) 3)]	1SVR740010R0200	0.133 (0.293)
	24-48 V DC, 24-240 V AC	10 (0.05 s - 300 h)	☐	2 c/o	CT-MBS.22S [2) 3)]	1SVR730010R3200	0.14 (0.309)
					CT-MBS.22P [2) 3)]	1SVR740010R3200	0.129 (0.284)
Multi	24-48 V DC, 24-240 V AC	10 (0.05 s - 300 h)	-	2 c/o	CT-WBS.22S	1SVR730040R3300	0.123 (0.271)
					CT-WBS.22P	1SVR740040R3300	0.115 (0.254)

[1)] Extended temperature range -40 °C
[2)] Remote potentiometer connection
[3)] 2nd c/o contact selectable as instantaneous contact
[4)] 2 remote potentiometer connections
[5)] See selection table on previous page

S: Screw connection
P: Push-in / easy connect

CT-S range

Ordering details - singlefunctional devices



CT-ERS.21P



CT-AHS.22P



CT-SDS.23P

■ Control input with voltage-related triggering

☐ Control input with volt-free triggering

☐ / ☐ Two control inputs with volt-free triggering

\- No triggering

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Type	Order code	Weight (1 pc) kg (lb)
ON-delay	24-240 V AC/ DC	10 (0.05 s - 300 h)	-	2 c/o	CT-ERS.21S[1)]	1SVR730100R0300	0.13 (0.287)
					CT-ERS.21P[1)]	1SVR740100R0300	0.121 (0.267)
	24-48 V DC, 24-240 V AC				CT-ERS.22S	1SVR730100R3300	0.121 (0.267)
					CT-ERS.22P	1SVR740100R3300	0.113 (0.249)
	24-48 V DC, 24-240 V AC		-	1 c/o	CT-ERS.12S	1SVR730100R3100	0.106 (0.234)
					CT-ERS.12P	1SVR740100R3100	0.101 (0.222)
OFF-delay	24-240 V AC/ DC	10 (0.05 s - 300 h)	■	2 c/o	CT-APS.21S[1)]	1SVR730180R0300	0.146 (0.322)
					CT-APS.21P[1)]	1SVR740180R0300	0.125 (0.276)
	24-48 V DC, 24-240 V AC				CT-APS.22S	1SVR730180R3300	0.138 (0.304)
					CT-APS.22P	1SVR740180R3300	0.127 (0.28)
			■	1 c/o	CT-APS.12S	1SVR730180R3100	0.109 (0.24)
					CT-APS.12P	1SVR740180R3100	0.103 (0.227)
	24-48 V DC, 24-240 V AC	10 (0.05 s - 300 h)	☐	2 c/o	CT-AHS.22S	1SVR730110R3300	0.136 (0.30)
					CT-AHS.22P	1SVR740110R3300	0.125 (0.276)
OFF-delay[2)]	24-240 V AC/DC	7 (0.05 s - 10 min)	-	1 c/o	CT-ARS.11S	1SVR730120R3100	0.106 (0.234)
					CT-ARS.11P	1SVR740120R3100	0.10 (0.22)
			-	2 c/o	CT-ARS.21S	1SVR730120R3300	0.124 (0.273)
					CT-ARS.21P	1SVR740120R3300	0.115 (0.254)
Star-delta change-over[3)]	24-48 V DC, 24-240 V AC	7 (0.05 s - 10 min)	-	2 n/o	CT-SDS.22S	1SVR730210R3300	0.114 (0.251)
					CT-SDS.22P	1SVR740210R3300	0.108 (0.238)
	380-440 V AC				CT-SDS.23S	1SVR730211R2300	0.118 (0.26)
					CT-SDS.23P	1SVR740211R2300	0.112 (0.247)

[1)] Extended temperature range -40 °C
[2)] Without auxiliary voltage
[3)] 50 ms transition time

S: Screw connection
P: Push-in / easy connect

CT-S range

Ordering details - Accessories



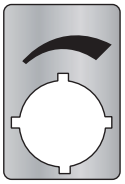
1SFC 151 139V0001

MT-x50B



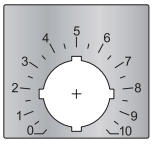
2CDC 252 042 F0009

30 mm adapters



2CDC 252 043 F0209

Marker label 29.6 x 44.5 mm



2CDC 252 044 F0209

Marker label with scale 0-10
48.5 x 44.5 mm



2CDC 255 006 S0011

Sealable transparent cover
for CT-S in new housing

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 unauthorized changes of time and threshold values.

Remote potentiometer

50 kΩ ±20 % - 0.2 Ω, degree of protection IP66

Material	Diameter in mm	Type	Order code	Pack.-unit pieces	Weight 1 piece g / oz
Plastic, black	22.5	MT-150B	1SFA611410R1506	1	0.040
Plastic, chrome	22.5	MT-250B	1SFA611410R2506	1	0.040
Metal, chrome	22.5	MT-350B	1SFA611410R3506	1	0.048

30 mm adapter for attaching the potentiometer 22 mm in 30 mm mounting hole

Material	Type	Order code	Pack.-unit pieces	Weight 1 piece g / oz
Plastic, black	KA1-8029	1SFA616920R8029	1	
Metal, chrome	KA1-8030	1SFA616920R8030	1	

Marker label

Caption	Type	Order code	Pack.-unit pieces	Weight 1 piece g / oz
Symbol (see illustration)	SK 615 562-87	GJD6155620R0087	1	0.002
Scale 0 - 10	SK 615 562-88	GJD6155620R0088	1	0.002
Scale 0 - 30	MA16-1060	1SFA611940R1060	1	0.002

Accessories for CT-S

Description	Type	Order code	Pack.-unit pieces	Weight 1 piece g / oz
Adapter for screw mounting	ADP.01	1SVR430029R0100	1	0.018 (0.040)
Sealable transparent cover	COV.11	1SVR730005R0100	1	0.004 (0.009)
Marker label for devices w/o DIP switches	MAR.01	1SVR366017R0100	10	0.001 (0.002)
Marker label for devices with DIP switches	MAR.12	1SVR730006R0000	10	0.001 (0.002)

CT-D range
Ordering details



CT-MFD.12



CT-ERD.22

■ Control input with voltage-related triggering

\- No triggering

Description

The CT-D range with its modular design is a perfect solution for installation panels. For maximum flexibility in operation, 10 single-function as well as two multifunction devices with seven timing functions are available. The devices offer four or seven time ranges from 0.05 seconds up to 100 hours. Their wide input range allows their use in applications worldwide.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Type	Order code	Weight (1 pc) kg (lb)
Multi[1]	24-240 V AC 24-48 V DC	7 (0.05 s - 100 h)	■	1 c/o	CT-MFD.12	1SVR500020R0000	0.060 (0.132)
Multi[1]	12-240 V AC/DC	7 (0.05 s - 100 h)	■	2 c/o	CT-MFD.21	1SVR500020R1100	0.065 (0.143)
ON-delay	24-240 V AC 24-48 V DC	7 (0.05 s - 100 h)	-	1 c/o	CT-ERD.12	1SVR500100R0000	0.060 (0.132)
			-	2 c/o	CT-ERD.22	1SVR500100R0100	0.065 (0.143)
OFF-delay			■	1 c/o	CT-AHD.12	1SVR500110R0000	0.060 (0.132)
			■	2 c/o	CT-AHD.22	1SVR500110R0100	0.065 (0.143)
Impulse-ON			-	1 c/o	CT-VWD.12	1SVR500130R0000	0.060 (0.132)
Flasher starting with ON					CT-EBD.12	1SVR500150R0000	
Pulse generator		2×7 (0.05 s - 100 h)	■		CT-TGD.12[2]	1SVR500160R0000	0.060 (0.132)
			■	2 c/o	CT-TGD.22[2]	1SVR500160R0100	0.065 (0.143)
Star-delta change-over		4 (0.05 s - 10 min)	-	2 n/o	CT-SDD.22[3]	1SVR500211R0100	0.065 (0.143)
			-		CT-SAD.22[4]	1SVR500210R0100	

[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] ON and OFF times adjustable independently: 2 x 7 time ranges 0.05 s - 100 h
[3] Transition time 50 ms fixed
[4] Transition time adjustable

Measuring and monitoring relays

532 **Single-phase monitoring relays**

535 **Three-phase monitoring relays**

539 **Grid feeding monitoring relays**

541 **Insulation monitoring relays for unearthed supply systems**

542 **Thermistor motor protection relays**

545 **Smart temperature monitoring relays**

546 **Liquid level monitoring relays**

Single-phase current monitoring relays

Selection table

	Order number	1SVR730840R0200	1SVR740840R0200	1SVR730841R0200	1SVR740841R0200	1SVR730841R1200	1SVR740841R1200	1SVR730840R0300	1SVR730841R0300	1SVR730841R1300	1SVR730840R0400	1SVR740840R0400	1SVR730841R0400	1SVR740841R0400	1SVR730841R1400	1SVR740841R1400	1SVR730840R0500	1SVR730841R0500	1SVR730841R1500	1SVR730840R0600	1SVR740840R0600	1SVR730840R0700	1SVR730760R0400	1SVR740760R0400	1SVR730760R0500
	Type	CM-SRS.11S	CM-SRS.11P	CM-SRS.11S	CM-SRS.11P	CM-SRS.11S	CM-SRS.11P	CM-SRS.12S	CM-SRS.12S	CM-SRS.12S	CM-SRS.21S	CM-SRS.21P	CM-SRS.21S	CM-SRS.21P	CM-SRS.21S	CM-SRS.21P	CM-SRS.22S	CM-SRS.22S	CM-SRS.22S	CM-SRS.M1S	CM-SRS.M1P	CM-SRS.M2S	CM-SFS.21S	CM-SFS.21P	CM-SFS.22S
Rated control supply voltage U_s																									
24 - 240 V AC/DC		■	■					■			■	■					■			■	■	■	■	■	■
110 - 130 V AC				■	■				■				■	■				■								
220 - 240 V AC						■	■			■					■	■			■							
Measuring ranges AC/DC																									
3 - 30 mA		■	■	■	■	■	■				■	■	■	■	■	■				■	■		■	■	
10 - 100 mA		■	■	■	■	■	■				■	■	■	■	■	■				■	■		■	■	
0.1 - 1 A		■	■	■	■	■	■				■	■	■	■	■	■				■	■		■	■	
0.3 - 1.5 A								■	■	■							■	■	■			■			■
1 - 5 A								■	■	■							■	■	■			■			■
3 - 15 A								■	■	■							■	■	■			■			■
Monitoring function																									
Over- or undercurrent		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■			
Window current monitoring																							■	■	■
Latching																				sel	sel	sel	sel	sel	sel
Open-circuit or closed-circuit principle																				sel	sel	sel	sel	sel	sel
Timing functions for tripping delay																									
ON-delay, 0.1 - 30 s											adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj			
ON- or OFF-delay, 0.1 - 30 s																							sel	sel	sel
Output																									
c/o contact		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Connection type																									
Push-in terminals			■		■		■					■		■		■					■			■	
Double-chamber cage connection terminals		■		■		■		■	■	■	■		■		■		■	■	■	■		■	■		■

adj: adjustable
sel: selectable

Single-phase voltage monitoring relays

Selection table

	Order number	1SVR730830R0300	1SVR740830R0300	1SVR730831R0300	1SVR740831R0300	1SVR730831R1300	1SVR740831R1300	1SVR730830R0400	1SVR740830R0400	1SVR730831R0400	1SVR740831R0400	1SVR730831R1400	1SVR740831R1400	1SVR730830R0500	1SVR740830R0500	1SVR730750R0400	1SVR740750R0400
	Type	CM-ESS.1S	CM-ESS.1P	CM-ESS.1S	CM-ESS.1P	CM-ESS.1S	CM-ESS.1P	CM-ESS.2S	CM-ESS.2P	CM-ESS.2S	CM-ESS.2P	CM-ESS.2S	CM-ESS.2P	CM-ESS.MS	CM-ESS.MP	CM-EFS.2S	CM-EFS.2P
Rated control supply voltage U_s																	
24 - 240 V AC/DC		■	■					■	■					■	■	■	■
110 - 130 V AC				■	■					■	■						
220 - 240 V AC						■	■					■	■				
Measuring ranges AC/DC																	
3 - 30 V		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
6 - 60 V		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
30 - 300 V		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
60 - 600 V		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Monitoring function																	
Over- or undervoltage		■	■	■	■	■	■	■	■	■	■	■	■	■	■		
Windows voltage monitoring																■	■
Latching														sel	sel	sel	sel
Open-circuit or closed-circuit principle														sel	sel	sel	sel
Timing functions for tripping delay																	
ON-delay, 0.1 - 30 s								adj	adj	adj	adj	adj	adj	adj	adj		
ON- or OFF-delay, 0.1 - 30 s																sel	sel
Output																	
c/o contact		1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
Connection type																	
Push-in terminals			■		■		■		■		■		■		■		■
Double-chamber cage connection terminals		■		■		■		■		■		■		■		■	

adj: adjustable
sel: selectable

Single-phase voltage monitoring relays
Ordering details



CM-ESS.MP



CM-EFS.2

Description

The CM range voltage monitoring relays provide reliable monitoring of voltages, as well as the detection of phase loss in single-phase mains.

Ordering details

Description	Type	Order code	Weight (1 pc) kg (lb)
See selection table	CM-ESS.1S	1SVR730830R0300	0.135 (0.298)
		1SVR730831R0300	0.164 (0.362)
		1SVR730831R1300	0.164 (0.362)
	CM-ESS.1P	1SVR740830R0300	0.126 (0.278)
		1SVR740831R0300	0.155 (0.342)
		1SVR740831R1300	0.155 (0.342)
	CM-ESS.2S	1SVR730830R0400	0.153 (0.337)
		1SVR730831R0400	0.181 (0.399)
		1SVR730831R1400	0.181 (0.399)
	CM-ESS.2P	1SVR740830R0400	0.142 (0.313)
		1SVR740831R0400	0.170 (0.375)
		1SVR740831R1400	0.170 (0.375)
	CM-ESS.MS	1SVR730830R0500	0.154 (0.340)
	CM-ESS.MP	1SVR740830R0500	0.143 (0.320)
	CM-EFS.2S	1SVR730750R0400	0.157 (0.346)
	CM-EFS.2P	1SVR740750R0400	0.146 (0.322)

S: screw connection
P: push-in connection

Three-phase monitoring relays

Selection table - singlefunctional

	Order number	1SVR550881R9400	1SVR550882R9500	1SVR550870R9400	1SVR550871R9500	1SVR550824R9100	1SVR550826R9100	1SVR730824R9300	1SVR740824R9300	1SVR730784R2300	1SVR740784R2300	1SVR730784R3300	1SVR740784R3300	1SVR730794R1300	1SVR740794R1300	1SVR730794R3300	1SVR740794R3300	1SVR730794R2300	1SVR740794R2300	1SVR730774R1300	1SVR740774R1300	1SVR730774R3300	1SVR740774R3300
	Type	CM-PBE	CM-PBE	CM-PVE	CM-PVE	CM-PFE	CM-PFE.2	CM-PFS.S	CM-PFS.P	CM-PSS.31S	CM-PSS.31P	CM-PSS.41S	CM-PSS.41P	CM-PVS.31S	CM-PVS.31P	CM-PVS.41S	CM-PVS.41P	CM-PVS.81S	CM-PVS.81P	CM-PAS.31S	CM-PAS.31P	CM-PAS.41S	CM-PAS.41P
Rated control supply voltage U_s																							
Phase to phase																							
160-300 V AC														■	■					■	■		
200-400 V AC																		■	■				
200-500 V AC						■	■	■															
208-440 V AC					■																		
300-500 V AC																■	■					■	■
320-460 V AC			■	■																			
380 V AC									■	■													
380-440 V AC	■	■																					
400 V AC											■	■											
Phase to neutral																							
185-265 V AC			■																				
220-240 V AC	■																						
Rated frequency																							
50/60 Hz	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Suitable for monitoring																							
Single-phase mains	■		■																				
Three-phase mains	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Monitoring function																							
Phase failure	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Phase sequence					■	■	■	■	sel	sel	sel	sel	sel	sel	sel	sel	sel	sel	■	■	■	■	■
Overvoltage			■	■					■	■	■	■	■	■	■	■	■	■					
Undervoltage			■	■					■	■	■	■	■	■	■	■	■	■					
Unbalance																			■	■	■	■	■
Neutral[1)]	■		■																				
Thresholds																							
adjustable (adj) or fixed (fix)	fix	fix	fix	fix	fix	fix	fix	fix	fix	fix	fix	fix	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj
Timing functions for tripping delay																							
ON delay							fix	fix											sel	sel	sel	sel	sel
On and OFF delay	fix	fix	fix	fix	fix	fix			adj	adj	adj	adj	adj	adj	adj	adj	adj	adj					
Connection type																							
Push-in terminals										■		■		■		■		■		■		■	
Double-chamber cage connection terminals									■		■		■		■		■		■		■		■

(1) The external conductor voltage towards the neutral conductor is measured.

adj: adjustable
sel: selectable
fix: fixed

Three-phase monitoring relays

Ordering details - singlefunctional



CM-PBE



CM-PSS.41P



CM-PAS.31P

Description

The three-phase monitoring relays are designed for use in three-phase mains for monitoring the phase parameters like phase sequence, phase failure, over- and undervoltage, as well as phase unbalance.

Ordering details

Characteristics	Type	Order code	Weight (1 pc) kg (lb)
See selection table	CM-PBE	1SVR550881R9400	0.08 (0.17)
	CM-PBE	1SVR550882R9500	0.08 (0.17)
	CM-PVE	1SVR550870R9400	0.08 (0.17)
	CM-PVE	1SVR550871R9500	0.08 (0.17)
	CM-PFE	1SVR550824R9100	0.08 (0.17)
	CM-PFE.2	1SVR550826R9100	0.067 (0.147)

Characteristics	Type	Order code	Weight (1 pc) kg (lb)
See selection table	CM-PFS.S	1SVR730824R9300	0.127 (0.280)
	CM-PFS.P	1SVR740824R9300	0.119 (0.262)
	CM-PSS.31S	1SVR730784R2300	0.132 (0.291)
	CM-PSS.31P	1SVR740784R2300	0.123 (0.271)
	CM-PSS.41S	1SVR730784R3300	0.132 (0.291)
	CM-PSS.41P	1SVR740784R3300	0.123 (0.271)
	CM-PVS.31S	1SVR730794R1300	0.141 (0.311)
	CM-PVS.31P	1SVR740794R1300	0.132 (0.291)
	CM-PVS.41S	1SVR730794R3300	0.139 (0.306)
	CM-PVS.41P	1SVR740794R3300	0.131 (0.289)
	CM-PVS.81S	1SVR730794R2300	0.136 (0.300)
	CM-PVS.81P	1SVR740794R2300	0.128 (0.282)
	CM-PAS.31S	1SVR730774R1300	0.133 (0.293)
	CM-PAS.31P	1SVR740774R1300	0.124 (0.273)
	CM-PAS.41S	1SVR730774R3300	0.132 (0.291)
	CM-PAS.41P	1SVR740774R3300	0.123 (0.271)

S: screw connection
P: push-in connection

Three-phase monitoring relays

Selection table - multifunctional

	Order number	1SVR730885R1300	1SVR740885R1300	1SVR730885R3300	1SVR740885R3300	1SVR730884R1300	1SVR740884R1300	1SVR730884R3300	1SVR740884R3300	1SVR730885R4300	1SVR740885R4300	1SVR730884R4300	1SVR740884R4300	1SVR750487R8300	1SVR760487R8300	1SVR750488R8300	1SVR760488R8300	1SVR750489R8300	1SVR760489R8300
	Type	CM-MPS.11S	CM-MPS.11P	CM-MPS.21S	CM-MPS.21P	CM-MPS.31S	CM-MPS.31P	CM-MPS.41S	CM-MPS.41P	CM-MPS.23S	CM-MPS.23P	CM-MPS.43S	CM-MPS.43P	CM-MPN.52S	CM-MPN.52P	CM-MPN.62S	CM-MPN.62P	CM-MPN.72S	CM-MPN.72P
Rated control supply voltage U_s																			
Phase to phase																			
160-300 V AC						■	■												
300-500 V AC								■	■			■	■						
350-580 V AC														■	■				
450-720 V AC																■	■		
530-820 V AC																		■	■
Phase to neutral																			
90-170 V AC		■	■																
180-280 V AC				■	■					■	■								
Rated frequency																			
50/60 Hz		■	■	■	■	■	■	■	■					■	■	■	■	■	■
50/60/400 Hz										■	■	■	■						
Suitable for monitoring																			
Mains with harmonic content										■	■	■	■						
Single-phase mains		■	■	■	■					■	■								
Three-phase mains		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Monitoring function																			
Phase failure		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Phase sequence		sel	sel	sel	sel	sel	sel	sel	sel	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj
Automatic phase sequence correction										adj	adj	adj	adj	adj	adj	adj	adj	adj	adj
Overvoltage		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Undervoltage		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Unbalance		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Interrupted neutral monitoring [1]		■	■	■	■					■	■								
Thresholds																			
Adjustable (adj)		adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj
Timing functions for tripping delay																			
On- or OFF delay		adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj	adj
Connection type																			
Push-in terminals			■		■		■		■		■		■		■		■		■
Double-chamber cage connection terminals		■		■		■		■		■		■		■		■		■	

1) The relay detects by means of a phase unbalance the interruption of the neutral conductor.
The external conductor voltage towards the neutral conductor is measured too.

adj: adjustable
sel: selectable

Three-phase monitoring relays

Ordering details - multifunctional



CM-MPS.23P



CM-MPN.52P

Description

The three-phase monitoring relays are designed for use in three-phase mains for monitoring the phase parameters, such as phase sequence, phase failure, over- and undervoltage, as well as phase unbalance.

Ordering details

Characteristics	Type	Order code	Weight (1 pc) kg (lb)
See selection table	CM-MPS.11S	1SVR730885R1300	0.148 (0.326)
	CM-MPS.11P	1SVR740885R1300	0.137 (0.302)
	CM-MPS.21S	1SVR730885R3300	0.146 (0.322)
	CM-MPS.21P	1SVR740885R3300	0.135 (0.298)
	CM-MPS.31S	1SVR730884R1300	0.142 (0.313)
	CM-MPS.31P	1SVR740884R1300	0.133 (0.293)
	CM-MPS.41S	1SVR730884R3300	0.140 (0.309)
	CM-MPS.41P	1SVR740884R3300	0.132 (0.291)
	CM-MPS.23S	1SVR730885R4300	0.149 (0.328)
	CM-MPS.23P	1SVR740885R4300	0.138 (0.304)
	CM-MPS.43S	1SVR730884R4300	0.148 (0.327)
	CM-MPS.43P	1SVR740884R4300	0.137 (0.302)
	CM-MPN.52S	1SVR750487R8300	0.230 (0.507)
	CM-MPN.52P	1SVR760487R8300	0.226 (0.498)
	CM-MPN.62S	1SVR750488R8300	0.229 (0.505)
	CM-MPN.62P	1SVR760488R8300	0.225 (0.496)
	CM-MPN.72S	1SVR750489R8300	0.224 (0.494)
	CM-MPN.72P	1SVR760489R8300	0.220 (0.485)

S: screw connection
P: push-in connection

Grid feeding monitoring relays
Selection table

	Order number	1SVR560731R3700	1SVR560730R3401	1SVR560731R3701	1SVR560730R3402	1SVR560731R3702	1SVR560731R3703
	Type	CM-UFD.M22M	CM-UFD.M31	CM-UFD.M31M	CM-UFD.M33	CM-UFD.M33M	CM-UFD.M34M
Rated control supply voltage U_s							
24-240 V AC/DC		■	■	■	■	■	■
Standard							
CEI 0-21		■					
VDE AR-N 4105, VDE AR-N 4110, VDE AR-N 4120			■	■			
ENA G98, G99					■	■	
DRRG standard of DEWA							■
Rated frequency							
DC or 50/60 Hz		■	■	■	■	■	■
Modbus RTU		■		■		■	■
Suitable for monitoring							
Single-phase mains		■	■	■	■	■	■
Three-phase mains		■	■	■	■	■	■
Monitoring function							
Over-/undervoltage		■	■	■	■	■	■
Over-/underfrequency		■	■	■	■	■	■
ROCOF (rate of change of frequency)		■	■	■	■	■	■
10 minutes average value		■	■	■	■	■	■
Vector shift			■	■	■	■	■
Thresholds		adj	adj	adj	adj	adj	adj

Grid feeding monitoring relays
Ordering details



CM-UFD.M*M

Description

The grid feeding monitoring relays CM-UFD.M*M are designed to monitor the voltage and the frequency of the public low voltage or medium voltage grid. Whenever the measured values are not within the range of the adjusted threshold values, the CM-UFD.M*M causes tripping of the section switch (consisting of 1 or 2 switching devices according to the applicable standard). This tripping disconnects the power generation, such as photovoltaic systems, wind turbines, block-type thermal power stations from the grid.

Ordering details

Description	Type	Order code	Weight (1 pc) kg (lb)
See selection table	CM-UFD.M22M	1SVR560731R3700	0.312 (0.688)
	CM-UFD.M31	1SVR560730R3401	0.304 (0.670)
	CM-UFD.M31M	1SVR560731R3701	0.312 (0.688)
	CM-UFD.M33	1SVR560730R3402	0.304 (0.670)
	CM-UFD.M33M	1SVR560731R3702	0.312 (0.688)
	CM-UFD.M34M	1SVR560731R3703	0.312 (0.688)

Insulation monitoring relays
Ordering details


CM-IWS.1


CM-IWS.2


CM-IWN.1


CM-IWM.10


CM-IWM.11


CM-IVN

Description
The CM-IWx serves to monitor insulation resistance in accordance with IEC 61557-8 in unearthed IT AC systems, IT AC systems with galvanically connected DC circuits, or IT DC systems. The devices are able to monitor control circuits (single-phase) and main circuits (3-phase).
The CM-IWM.x provides the best and up-to-date insulation monitoring of modern IT supply systems in an optimum and state of-the-art way according to IEC 61558-8 including annex C. The device can be used in the most flexible way for AC, DC and AC/DC systems, even with a large leakage capacity to earth (PE) and under adverse conditions.

Ordering details

Type	Rated control supply 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)	Type	Order code	Weight (1 pc) kg (lb)
CM-IWS.x	24-240 V AC/DC	0-250 V AC / 0-300 V DC	10 µF	1-100 kΩ	CM-IWS.1S	1SVR730660R0100	0.148 (0.326)
					CM-IWS.1P	1SVR740660R0100	0.137 (0.302)
		0-400 V AC			CM-IWS.2S	1SVR730670R0200	0.141 (0.311)
					CM-IWS.2P	1SVR740670R0200	0.130 (0.287)
CM-IWN.x		0-400 V AC / 0-600 V DC	20 µF	1-100 kΩ 2-200 kΩ	CM-IWN.1S	1SVR750660R0200	0.241 (0.531)
					CM-IWN.1P	1SVR760660R0200	0.217 (0.478)
CM-IWM.x	24 V DC	0-690 V AC/DC [1]	1000 µF	1-250 kΩ 20 kΩ-2 MΩ	CM-IWM.10	1SVR470670R1000	0.500 (1.1)
		0-1000 V AC/DC [2]	3000 µF		CM-IWM.11	1SVR470670R1100	

1) Allowed voltage range of the supervised network: 0-760 V AC / 0-1000 V DC
2) Allowed voltage range of the supervised network: 0-1100 V AC / 0-1500 V DC

Coupling unit

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	Type	Order code	Weight (1 pc) kg (lb)
Passive device, no control supply voltage needed	0-690 V AC / 0-1000 V DC	CM-IVN.S	1SVR750669R9400	0.179 (0.395)
		CM-IVN.P	1SVR760669R9400	0.165 (0.364)

S: screw connection
P: push-in connection

Thermistor motor protection relays
Selection table

	Order code	1SVR550805R9300	1SVR550800R9300	1SVR550801R9300	1SVR740720R1400	1SVR730720R1400	1SVR740700R0100	1SVR730700R0100	1SVR740700R2100	1SVR730700R2100	1SVR740722R1400	1SVR730722R1400	1SVR740700R0200	1SVR730700R0200	1SVR740700R2200	1SVR730700R2200	1SVR740712R1400	1SVR730712R1400	1SVR740712R0200	1SVR730712R0200	1SVR740712R2200	1SVR730712R2200	1SVR740712R1200	1SVR730712R1200	1SVR740712R1300	1SVR730712R1300
	Type	CM-MSE	CM-MSE	CM-MSE	CM-MSS.11P	CM-MSS.11S	CM-MSS.12P	CM-MSS.12S	CM-MSS.13P	CM-MSS.13S	CM-MSS.21P	CM-MSS.21S	CM-MSS.22P	CM-MSS.22S	CM-MSS.23P	CM-MSS.23S	CM-MSS.31P	CM-MSS.31S	CM-MSS.32P	CM-MSS.32S	CM-MSS.33P	CM-MSS.33S	CM-MSS.41P	CM-MSS.41S	CM-MSS.51P	CM-MSS.51S
Characteristics																										
ATEX approval					■	■					■	■					■	■	■	■	■	■	■	■	■	■
Number of sensor circuits		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
Single or accumulative evaluation																									■	■
Number of LEDs					3	3	2	2	2	2	3	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3
Contacts																										
1 c/o (SPDT) contact							■	■	■	■																
2 c/o (SPDT) contacts													■	■	■	■			■	■	■	■	■	■		
1 n/o		■	■	■																						
1 n/c and 1 n/o					■	■					■	■					■	■								
2 x 1 c/o or 1 x 2 c/o contacts, configurable																									■	■
Reset																										
Manual													■	■	■	■	■	■	■	■	■	■	■	■	■	■
Remote													■	■	■	■	■	■	■	■	■	■	■	■	■	■
Auto		■	■	■	■	■	■	■	■	■	■	■	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (1)	■ (2)	■ (2)
Test button																	■	■	■	■	■	■	■	■	■	■
Functions																										
Short-circuit detection											■	■					■	■	■	■	■	■				
Short-circuit detection, configurable																							■	■	■	■
Dynamic interrupted wire detection					■	■					■	■					■	■	■	■	■	■	■	■	■	■
Non-volatile fault storage					■	■					■	■					■	■								
Non-volatile fault storage, configurable																							■	■	■	■
Rated control supply voltage U_s																										
24 V AC		■																								
110-130 V AC			■																							
220-240 V AC				■																						
24-240 V AC/DC					■	■					■	■					■	■					■	■	■	■
24 V AC/DC							■	■					■	■					■	■						
110-130 V AC, 220-240 V AC									■	■					■	■					■	■				
Connection type																										
Push-in terminals					■		■		■		■		■		■		■		■		■		■		■	
Double-chamber cage connection terminals						■		■		■		■		■		■		■		■		■		■		■
Screw		■	■	■																						

1) For automatic reset, connect terminals S1 to T2.
2) For automatic reset, connect Terminals S1 to 1T2/2T2.

Thermistor motor protection relays
Ordering details



CM-MSS.12S



CM-MSS.41S



CM-MSS.51S

Description

The thermistor motor protection relay CM-MSS monitors the winding temperature and thus protects the motor from overheating, overload and insufficient cooling in accordance to the product standard IEC/EN 60947-8.

Ordering details

CM-MSx

Characteristics	Type	Order code	Weight (1 pc) kg (lb)
See selection table	CM-MSE	1SVR550805R9300	0.11 (0.24)
	CM-MSE	1SVR550800R9300	0.11 (0.24)
	CM-MSE	1SVR550801R9300	0.11 (0.24)
	CM-MSS.11P	1SVR740720R1400	0.119 (0.263)
	CM-MSS.11S	1SVR730720R1400	0.127 (0.280)
	CM-MSS.12P	1SVR740700R0100	0.105 (0.231)
	CM-MSS.12S	1SVR730700R0100	0.113 (0.249)
	CM-MSS.13P	1SVR740700R2100	0.147 (0.324)
	CM-MSS.13S	1SVR730700R2100	0.155 (0.342)
	CM-MSS.21P	1SVR740722R1400	0.118 (0.260)
	CM-MSS.21S	1SVR730722R1400	0.126 (0.278)
	CM-MSS.22P	1SVR740700R0200	0.121 (0.267)
	CM-MSS.22S	1SVR730700R0200	0.132 (0.291)
	CM-MSS.23P	1SVR740700R2200	0.163 (0.359)
	CM-MSS.23S	1SVR730700R2200	0.174 (0.384)
	CM-MSS.31P	1SVR740712R1400	0.120 (0.265)
	CM-MSS.31S	1SVR730712R1400	0.128 (0.282)
	CM-MSS.32P	1SVR740712R0200	0.120 (0.265)
	CM-MSS.32S	1SVR730712R0200	0.130 (0.287)
	CM-MSS.33P	1SVR740712R2200	0.162 (0.357)
	CM-MSS.33S	1SVR730712R2200	0.172 (0.379)
	CM-MSS.41P	1SVR740712R1200	0.130 (0.287)
	CM-MSS.41S	1SVR730712R1200	0.141 (0.311)
	CM-MSS.51P	1SVR740712R1300	0.135 (0.298)
	CM-MSS.51S	1SVR730712R1300	0.145 (0.320)

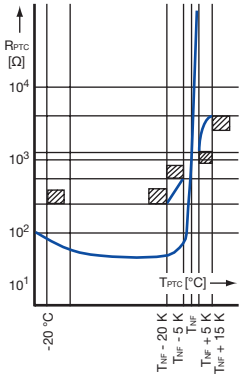
S: screw connection
P: push-in connection

Thermistor motor protection relays

Ordering details - PTC temperature sensors C011



Temperature sensor example



Temperature sensor characteristics

Description

The PTC temperature sensors (temperature-dependent with positive temperature coefficient) are selected by the manufacturer of the motor depending on:

- the motor insulation class according to IEC/EN 60034-11,
- the special characteristics of the motor, such as the conductor cross-section of the windings, the permissible overload factor, etc.
- special conditions prescribed by the user, such as the permissible ambient temperature, risks resulting from locked rotor, extent of permitted overload, etc.

One temperature sensor must be embedded in each phase winding. For instance, in case of three-phase squirrel cage motors, three sensors are embedded in the stator windings. For pole-changing motors with one winding (Dahlander connection), three sensors are also required. Pole-changing motors with two windings, however, require six sensors. If an additional warning is required before the motor is switched off, separate sensors for a correspondingly lower temperature must be embedded in the winding. They have to be connected to a second control unit.

The sensors are suitable for embedding in motor windings with rated operating voltages of up to 600 V AC. Conductor length: 500 mm per sensor. A 14 V varistor can be connected in parallel to protect the sensors from overvoltage. Due to their characteristics, the thermistor motor protection relays can also be used with PTC temperature sensors of other manufacturers which comply with IEC/EN 60947-8.

Ordering details

CM-MSS accessories

Rated response temperature T_{NF}	Color coding	Type	Order code	Weight (1 pc) kg (lb)
70 °C	white-brown	C011-70[1)]	GHC0110003R0001	0.02 (0.044)
80 °C	white-white	C011-80[1)]	GHC0110003R0002	0.02 (0.044)
90 °C	green-green	C011-90[1)]	GHC0110003R0003	0.02 (0.044)
100 °C	red-red	C011-100[1)]	GHC0110003R0004	0.02 (0.044)
110 °C	brown-brown	C011-110[1)]	GHC0110003R0005	0.02 (0.044)
120 °C	gray-gray	C011-120[1)]	GHC0110003R0006	0.02 (0.044)
130 °C	blue-blue	C011-130[1)]	GHC0110003R0007	0.02 (0.044)
140 °C	white-blue	C011-140[1)]	GHC0110003R0011	0.02 (0.044)
150 °C	black-black	C011-150[1)]	GHC0110003R0008	0.02 (0.044)
160 °C	blue-red	C011-160[1)]	GHC0110003R0009	0.02 (0.044)
170 °C	white-green	C011-170[1)]	GHC0110003R0010	0.02 (0.044)
150 °C	black-black	C011-3-150[2)]	GHC0110033R0008	0.05 (0.11)

1) Temperature sensor C011, standard version acc. to IEC/EN 60947-8
2) Triple temperature sensor C011-3

Smart monitoring relays
Ordering details



CM-TCN

Description

The temperature monitoring relays CM-TCN are able to measure temperatures of solids, liquids and gaseous media within up to three sensor circuits using different types of sensors, such as PT100, PT1000, PTC or NTC within the same time. Different types of sensors, e.g. PT100 and PTC sensors, can be monitored simultaneously.
The temperature is obtained by the sensors in the medium, evaluated by the device and monitored to determine whether it is within an operating range (range monitoring function) or has exceeded or fallen below a threshold. Depending on the parametrization, up to three output relays signalize the changes in the measuring circuits.

Smart temperature monitoring relays CM-TCN

Rated control supply voltage	Terminal type	Display & NFC	Modbus RTU	Temperature sensor	Width mm	Type	Order code	Weight (1 pc) kg (lb)
24-240 V AC/DC*	Screw	yes	no	PT100, PTC, PT1000, NTC	45	CM-TCN.011S	**1SVR750740R0110**	0.293 (0.646)
	Push-in	yes	no			CM-TCN.011P	**1SVR760740R0110**	0.293 (0.646)
	Screw	yes	yes			CM-TCN.012S	**1SVR750740R0120**	0.299 (0.659)
	Push-in	yes	yes			CM-TCN.012P	**1SVR760740R0120**	0.299 (0.659)

* CM-TCN.011: supply voltage 24-240 V AC/DC for revision G or later and supply voltage 24 V AC/DC for revision F or earlier.

Accessories

Description	for type	Width mm	Type	Order code	Pkg qty	Weight (1 pc) kg (lb)
Adapter for screw mounting	CM-N.S/P	45	ADP.02	**1SVR**440029R0100	1	36.7 (1.30)
Marker label	CM-S.S/P CM-N.S/P		MAR.01	**1SVR**366017R0100	10	0.19 (0.007)
Sealable transparent cover	CM-N.S/P	45	COV.12	**1SVR750005R0100**	1	7 (0.247)

Liquid level monitoring relays
Ordering details



CM-ENE MIN



CM-ENS.3x

Description
The liquid level monitoring relays CM-ENS and CM-ENE monitors and controls the liquid level and ratios of mixtures of conductive fluids. It is used for filling and draining applications, to protect pumps against dry-running, to protect tanks against overflow, and for signalization of the status of the monitored liquid level.

Ordering details

Characteristics	Type	Order code	Weight (1 pc) kg (lb)
See selection table	CM-ENE MIN	1SVR550855R9500	0.15 (0.33)
		1SVR550850R9500	0.15 (0.33)
		1SVR550851R9500	0.15 (0.33)
	CM-ENE MAX	1SVR550855R9400	0.15 (0.33)
		1SVR550850R9400	0.15 (0.33)
		1SVR550851R9400	0.15 (0.33)
	CM-ENS.11S	1SVR730850R0100	0.124 (0.273)
	CM-ENS.11P	1SVR730850R2100	0.117 (0.258)
	CM-ENS.13S	1SVR740850R0100	0.153 (0.337)
	CM-ENS.13P	1SVR740850R2100	0.145 (0.320)
	CM-ENS.21S	1SVR730850R0200	0.125 (0.276)
	CM-ENS.21P	1SVR740850R0200	0.117 (0.258)
	CM-ENS.23S	1SVR730850R2200	0.154 (0.340)
	CM-ENS.23P	1SVR740850R2200	0.147 (0.324)
	CM-ENS.31S	1SVR730850R0300	0.143 (0.315)
	CM-ENS.31P	1SVR740850R0300	0.134 (0.295)



CT-PAC.22

Description
The alternating relay CT-PAC is designed to evenly use the electromechanical resource of a twin pump, dual compressors and generators. The alternating relay has two normally open contacts, which are closed alternately each time the control supply voltage is applied to terminals A1-A2.

A front-face rotary switch allows to select among three functions:
- R1 – each power cycle contact 13-14 closes
- R2 – each power cycle contact 13-24 closes
- alt. (default) – output contacts close alternately each power cycle

Ordering details

Rated control supply voltage	Type	Order code	Weight (1 pc) kg (lb)
24-240 V AC/ 24-48 V DC	CT-PAC.22	1SVR508180R0100	0.059 (0.130)

The technical data can be found in the time relays chapter.

Power supplies

548 CP-E range

549 CP-T range

550 CP-S.1 range

551 CP-C.1 range

552 CP-D range

553 CP-B range

554 Redundancy units

CP-E range
Ordering details



CP-E 5/3.0



CP-E 12/2.5



CP-E 48/5.0



CP-E 24/20.0

Description

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. With their high thermal efficiency of up to 90 %, these power supplies have very low power and heat dissipation and can be operated 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.

Ordering details - CP-E < 100 W

Input voltage range	Rated output voltage / current	Type	Order code	Weight (1 pc.) kg (lb)
90-264 V AC / 120-375 V DC	5 V DC / 3 A	CP-E 5/3.0	1SVR427033R3000	0.15 (0.33)
85-264 V AC / 90-375 V DC	12 V DC / 2.5 A	CP-E 12/2.5	1SVR427032R1000	0.29 (0.64)
90-132 V AC, 180-264 V AC / 210-375 V DC	12 V DC / 10 A	CP-E 12/10.0	1SVR427035R1000	1.00 (2.20)
90-264 V AC / 120-375 V DC	24 V DC / 0.75 A	CP-E 24/0.75	1SVR427030R0000	0.15 (0.33)
85-264 V AC / 90-375 V DC	24 V DC / 1.25 A	CP-E 24/1.25	1SVR427031R0000	0.29 (0.64)
85-264 V AC / 90-375 V DC	24 V DC / 2.5 A	CP-E 24/2.5	1SVR427032R0000	0.36 (0.79)

Ordering details - CP-E ≥ 120 W

Input voltage range	Rated output voltage / current	Type	Order code	Weight (1 pc.) kg (lb)
90-132 V AC, 180-264 V AC / 210-375 V DC	24 V DC / 5 A	CP-E 24/5.0	1SVR427034R0000	1.00 (2.20)
90-132 V AC, 180-264 V AC / 210-375 V DC	24 V DC / 10 A	CP-E 24/10.0	1SVR427035R0000	1.36 (3.01)
90-264 V AC / 120-375 V DC	24 V DC / 20 A	CP-E 24/20.0	1SVR427036R0000	1.90 (4.18)
85-264 V AC / 90-375 V DC	48 V DC / 0.625 A	CP-E 48/0.62	1SVR427030R2000	0.29 (0.64)
85-264 V AC / 90-375 V DC	48 V DC / 1.25 A	CP-E 48/1.25	1SVR427031R2000	0.36 (0.79)
90-132 V AC, 180-264 V AC / 210-375 V DC	48 V DC / 5 A	CP-E 48/5.0	1SVR427034R2000	1.36 (3.01)
90-264 V AC / 120-375 V DC	48 V DC / 10 A	CP-E 48/10.0	1SVR427035R2000	1.90 (4.19)

CP-T range
Ordering details



CP-T 24/5.0



CP-T 24/10.0, CP-T 48/5.0



CP-T 24/20.0, CP-T 48/10.0

Description

In terms of design and functionality, the CP-T range perfectly supplements the existing products and extends the range appropriately. The devices can be supplied with a three-phase voltage as well as with two-phase mains. Here, ABB offers power supply units with 24 V DC and 48 V DC outputs with 5 A, 10 A, 20 A and 40 A and efficiency of up to 93 %.

As in the case of all products, they are designed for an ambient temperature of up to 70 °C. All products can be supplied within an AC supply voltage range between 340 to 575 V AC and a DC supply voltage range between 480 to 820 V DC.

Ordering details

Input voltage range	Rated output voltage / current	Type	Order code	Weight (1 pc.) kg (lb)
340-575 V AC / 480-820 V DC	24 V DC / 5 A	CP-T 24/5.0	1SVR427054R0000	0.80 (1.77)
340-575 V AC / 480-820 V DC	24 V DC / 10 A	CP-T 24/10.0	1SVR427055R0000	1.05 (2.31)
340-575 V AC / 480-820 V DC	24 V DC / 20 A	CP-T 24/20.0	1SVR427056R0000	1.75 (3.86)
340-575 V AC / 480-820 V DC	24 V DC / 40 A	CP-T 24/40.0	1SVR427057R0000	3.20 (7.05)
340-575 V AC / 480-820 V DC	48 V DC / 5 A	CP-T 48/5.0	1SVR427054R2000	1.05 (2.31)
340-575 V AC / 480-820 V DC	48 V DC / 10 A	CP-T 48/10.0	1SVR427055R2000	1.75 (3.86)
340-575 V AC / 480-820 V DC	48 V DC / 20 A	CP-T 48/20.0	1SVR427056R2000	3.40 (7.50)

CP-S.1 power supplies
Ordering details



CP-S.1 24/3.0



CP-S.1 24/20.0



CP-C.1-A-RU

Description

ABB's new generation of CP-S.1 power supplies for machine building applications deliver high efficiency, high reliability and a minimized footprint. This advanced range of power supplies has an integrated 150 % power reserve functionality for up to 5 s and operate at an efficiency of up to 94 %. They come equipped with overheat protection and active power factor correction*, combined with a broad AC and DC input voltage range and extensive worldwide approvals. Make the all-new CP-S.1 power supplies your preferred choice for professional DC applications. UL listing as well as marine approvals complete the assortment offering.

CP-S.1 power supplies have a rated output voltage of 24 V DC that is adjustable via a front-face rotary potentiometer "OUTPUT Adjust". The power supplies are available with rated output currents of 3.0 A, 5.0 A, 10 A, 20 A and 40 A. The rated output power ranges from 72 - 960 W and the rated supply voltage range from 100-240 V AC / 100-250 V DC. The typical efficiency is up to 94 % with low power dissipation and low heating. CP-S.1 power supplies have free convection cooling (no forced cooling with ventilators) and operate at an ambient temperature range from -25...+60 °C without derating (+70 °C with derating). They feature an open-circuit and are overload and short-circuit stable as well as an integrated input fuse.

Additionally, true redundancy for critical applications can be achieved with the optional redundancy units CP-C.1-A-RU which is available as an accessory. One LED on the front of the power supplies indicates the status and a transistor DC OK - signalling output "13-14".

Ordering details

Description	Rated input voltage	Rated output voltage	Rated output current	Output power	Order code
CP-S.1 24/3.0	100-240 V AC, 100-250 V DC	24 V DC	3.0 A	72 W	1SVR320361R1000
CP-S.1 24/5.0			5.0 A	120 W	1SVR320561R1000
CP-S.1 24/10.0			10.0 A	240 W	1SVR320661R1000
CP-S.1 24/20.0			20.0 A	480 W	1SVR320761R1000
CP-S.1 24/40.0	110-240 V AC, 110-250 V DC		40.0 A	960 W	1SVR320861R1000
CP-C.1-A-RU	10 - 56 V DC	12 - 48 V DC	2 x 20 A or 1 x 40 A	-	1SVR360060R1001

*) Not equipped with 72 W variant (3A).

*) Not equipped with 72 W variant (3A).

CP-C.1 range
Ordering details



CP-C.1 24/5.0
CP-C.1 24/5.0-C



CP-C.1 24/10.0
CP-C.1 24/10.0-C



CP-C.1 24/20.0
CP-C.1 24/20.0-C



CP-C.1 24/5.0-L



CP-C.1 24/10.0-L

Description

High-performance CP-C.1 power supplies are ABB's most advanced range. With excellent efficiency, high reliability, and innovative functionality, it is ready to take on the most demanding industrial applications. These power supplies have up to 50 % integrated power reserve and operate at an efficiency of up to 94 %. They are equipped with overheat protection and active power factor correction. Combined with a broad AC and DC input range and extensive worldwide approvals, the CP-C.1 power supplies are the preferred choice for professional DC applications.

Ordering details - CP-C.1

Input voltage range	Rated output voltage / current	PCBA	Color	Type	Order code	Weight (1 pc.) kg (lb)
85-264 V AC, 90-300 V DC	24 V DC / 5 A	uncoated	dark grey	CP-C.1 24/5.0	1SVR360563R1001	0.87 (1.92)
	24 V DC / 10 A			CP-C.1 24/10.0	1SVR360663R1001	1.21 (2.67)
	24 V DC / 20 A			CP-C.1 24/20.0	1SVR360763R1001	1.70 (3.75)
	24 V DC / 5 A	coated		CP-C.1 24/5.0-C	1SVR360563R2001	0.87 (1.92)
	24 V DC / 10 A			CP-C.1 24/10.0-C	1SVR360663R2001	1.24 (2.73)
	24 V DC / 20 A			CP-C.1 24/20.0-C	1SVR360763R2001	1.72 (3.79)
	24 V DC / 5 A	uncoated	light grey	CP-C.1 24/5.0-L	1SVR361563R1001	0.87 (1.92)
	24 V DC / 10 A			CP-C.1 24/10.0-L	1SVR361663R1001	1.21 (2.67)
	24 V DC / 20 A			CP-C.1 24/20.0-L	1SVR361763R1001	1.70 (3.75)

CP-D range
Ordering details



CP-D 12/0.83, CP-D 24/0.42



CP-D 12/2.1, CP-D 24/1.3



CP-D 24/2.5

Description

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 their high thermal efficiency, these power supplies have very low power and heat dissipation and can be operated without forced cooling. All power supply units in the CP-D range are approved according to all relevant international standards.

Ordering details

Input voltage range	Rated output voltage / current	Type	Order code	Weight (1 pc.) kg (lb)
90-264 V AC/ 120-375 V DC	12 V DC / 0.83 A	CP-D 12/0.83	1SVR427041R1000	0.06 (0.13)
90-264 V AC/ 120-375 V DC	12 V DC / 2.1 A	CP-D 12/2.1	1SVR427043R1200	0.19 (0.41)
90-264 V AC/ 120-375 V DC	24 V DC / 0.42 A	CP-D 24/0.42	1SVR427041R0000	0.06 (0.13)
90-264 V AC/ 120-375 V DC	24 V DC / 1.3 A	CP-D 24/1.3	1SVR427043R0100	0.19 (0.41)
90-264 V AC/ 120-375 V DC	24 V DC / 2.5 A	CP-D 24/2.5	1SVR427044R0200	0.25 (0.56)
90-264 V AC/ 120-375 V DC	24 V DC / 4.2 A	CP-D 24/4.2	1SVR427045R0400	0.32 (0.71)

CP-B range
Ordering details



CP-B 24/3.0



CP-B 24/10.0



CP-B 24/20.0

Description

Ultra capacitor based buffer units of the CP-B range offer the highest reliability also in harsh environments. Thanks to their ultra-cap based technology, the units are maintenance free, there will be no deep discharge and these products offer a very wide operational ambient temperature range. CP-B range buffer units are an excellent solution for avoiding voltage drops in solar applications, for example.

Ordering details

Rated input voltage	Rated current	Type	Order code	Weight (1 pc.) kg (lb)
24 V DC	3 A DC	CP-B 24/3.0	1SVR427060R0300	0.59 (1.31)
	10 A DC	CP-B 24/10.0	1SVR427060R1000	2.10 (4.63)
	20 A DC	CP-B 24/20.0	1SVR427060R2000	2.20 (4.85)

Redundancy units
Ordering details



CP-C.1-A-RU



CP-C.1-A-RU-L



CP-D RU

Description

Whenever the highest availability and reliability are key requirements, a true redundancy setup with two power supplies connected to a redundancy unit is the best solution. In case one power supply fails, the other one keeps supplying the load. Furthermore, even a short circuit in one power supply will not affect the other one, which keeps supplying the load. The CP-C.1-A-RU is also available with coated PCBA (CP-C.1-A-RU-C) for harsh environments.

Ordering details - CP-C.1-A-RU for decoupling of CP power supplies up to 20 A per input / channel

Input voltage range	Rated input current per channel	Rated output voltage / current		Type	Order code	Weight (1 pc.) kg (lb)
10 - 58 V DC	20 A	12 - 48 V DC / 2 x 20 A or 1 x 40 A	uncoated	CP-C.1-A-RU	1SVR360060R1001	1.04 (2.29)
			coated	CP-C.1-A-RU-C	1SVR360060R2001	1.04 (2.29)
			uncoated	CP-C.1-A-RU-L	1SVR361060R1001	1.04 (2.29)

Ordering details - CP-D RU for decoupling of two CP-D power supply units

Input voltage range	Rated input current per channel	Rated output voltage / current	Type	Order code	Weight (1 pc.) kg (lb)
9-35 V DC	5 A	24 V DC / 1 x 10 A	CP-D RU	1SVR427049R0000	0.075 (0.165)

Pluggable interface relays and optocouplers

556	**CR-S range**
558	**CR-P range**
562	**CR-M range**
569	**CR-P/M range**
571	**CR-U range**

Pluggable interface relays and optocouplers

Ordering details – CR-S range



CR-S relay

The slim pluggable interface relays and optocouplers of the CR-S range may be used for electrical isolation, amplification and signal matching. The CR-S relays are 6.2 mm wide and therefore allow for the switching high currents on a small footprint.

Ordering details - CR-S range pluggable interface relays

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
5 V DC	1 c/o (SPDT) standard contacts	250 V AC, 6 A	CR-S005VDC1R	1SVR405501R1010	10	0.005 (0.011)
12 V DC			CR-S012VDC1R	1SVR405501R2010		
24 V DC			CR-S024VDC1R	1SVR405501R3010		
48 V DC			CR-S048VDC1R	1SVR405501R4010		
60 V DC			CR-S060VDC1R	1SVR405501R5010		
5 V DC	1 c/o (SPDT) gold plated contacts	12 V, 250 mA (3W)[1]	CR-S005VDC1RG	1SVR405501R1020	10	0.005 (0.011)
12 V DC			CR-S012VDC1RG	1SVR405501R2020		
24 V DC			CR-S024VDC1RG	1SVR405501R3020		
48 V DC			CR-S048VDC1RG	1SVR405501R4020		
60 V DC			CR-S060VDC1RG	1SVR405501R5020		



CR-S optocoupler

Ordering details - CR-S range pluggable optocouplers

Rated control supply voltage	Outputs	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V DC	Transistor, 100 mA - 48 V DC	CR-S024VDC1TRA	1SVR405510R3050	10	0.004 (0.009)
	MOS-FET, 2 A - 24 V DC	CR-S024VDC1MOS	1SVR405510R3060		
	Triac, 2 A - 240 V AC	CR-S024VDC1TRI	1SVR405510R3070		



CR-S complete interface relay

Ordering details - CR-S range complete interface relays (relay + socket)

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V AC/DC	1 c/o (SPDT) standard contacts	250 V AC, 6 A	CR-S012VADC1CRS	1SVR405541R2110	10	0.03 (0.066)
			CR-S012VADC1CRZ	1SVR405541R2210		
			CR-S024VADC1CRS	1SVR405541R3110		
			CR-S024VADC1CRZ	1SVR405541R3210		
110 V AC/DC			CR-S110VADC1CRS	1SVR405541R6110		
			CR-S110VADC1CRZ	1SVR405541R6210		
230 V AC/DC			CR-S230VADC1CRS	1SVR405541R7110		
			CR-S230VADC1CRZ	1SVR405541R7210		
24 V AC/DC	1 c/o (SPDT) gold plated contacts	12 V, 250 mA (3W)[1]	CR-S024VADC1CRGS	1SVR405541R3120	10	0.03 (0.066)
			CR-S024VADC1CRGZ	1SVR405541R3220		
110 V AC/DC			CR-S110VADC1CRGS	1SVR405541R6120		
			CR-S110VADC1CRGZ	1SVR405541R6220		
230 V AC/DC			CR-S230VADC1CRGS	1SVR405541R7120		
			CR-S230VADC1CRGZ	1SVR405541R7220		

[1] If specified maximum values exceeded, the gold plating is destroyed. The maximum values of the standard contacts are then valid.

Pluggable interface relays and optocouplers

Ordering details – CR-S range



CR-S socket

Ordering details - CR-S range sockets

Rated control supply voltage	Connection type	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V DC	screw	CR-S006/024VDC1SS	1SVR405521R1100	10	0.025 (0.055)
	spring	CR-S006/024VDC1SZ	1SVR405521R1200		
12-24 V AC/DC	screw	CR-S012/024VADC1SS	1SVR405521R3100		
	spring	CR-S012/024VADC1SZ	1SVR405521R3200		
48-60 V AC/DC	screw	CR-S048/060VADC1SS	1SVR405521R5100		
	spring	CR-S048/060VADC1SZ	1SVR405521R5200		
110-125 V AC/DC	screw	CR-S110/125VADC1SS	1SVR405521R6100		
	spring	CR-S110/125VADC1SZ	1SVR405521R6200		
220-240 V AC/DC	screw	CR-S220/240VADC1SS	1SVR405521R7100		
	spring	CR-S220/240VADC1SZ	1SVR405521R7200		

Ordering details - CR-S range accessories

Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Jumper bar 20 pole, blue color	CR-SJB20-BLUE	1SVR405598R0700	10	0.008 (0.018)
Jumper bar 20 pole, red color	CR-SJB20-RED	1SVR405598R0800		
Jumper bar 20 pole, black color	CR-SJB20-BLACK	1SVR405598R0900		
Separator	CR-SSEP	1SVR405599R0000	10	0.012 (0.026)

Pluggable interface relays and optocouplers

Ordering details – CR-P range

The CR-P range offers the highest current switching in an IP67 rated relay housing. This range comprises of pluggable interface relays and optocouplers offered in 10 different control supply voltages. Additionally, gold plated contacts are available for applications where sensitive signals are to be switched. The CR-P range also includes complete versions consisting of a relay, socket, holder, marker and function module.



CR-P relay

Ordering details - CR-P range relays

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	1 c/o (SPDT)	250 V AC, 16 A	CR-P012DC1	1SVR405600R4000	10	0.014 (0.031)
24 V DC			CR-P024DC1	1SVR405600R1000		
48 V DC			CR-P048DC1	1SVR405600R6000		
110 V DC			CR-P110DC1	1SVR405600R8000		
24 V AC			CR-P024AC1	1SVR405600R0000		
48 V AC			CR-P048AC1	1SVR405600R5000		
110 V AC			CR-P110AC1	1SVR405600R7000		
120 V AC			CR-P120AC1	1SVR405600R2000		
230 V AC			CR-P230AC1	1SVR405600R3000		
12 V DC	2 c/o (SPDT)	250 V AC, 8 A	CR-P012DC2	1SVR405601R4000	10	0.014 (0.031)
24 V DC			CR-P024DC2	1SVR405601R1000		
48 V DC			CR-P048DC2	1SVR405601R6000		
110 V DC			CR-P110DC2	1SVR405601R8000		
12 V AC			CR-P012AC2	1SVR405601R0200		
24 V AC			CR-P024AC2	1SVR405601R0000		
48 V AC			CR-P048AC2	1SVR405601R5000		
110 V AC			CR-P110AC2	1SVR405601R7000		
120 V AC			CR-P120AC2	1SVR405601R2000		
230 V AC			CR-P230AC2	1SVR405601R3000		

Ordering details - CR-P range relays with gold contacts

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V DC	2 c/o (SPDT) gold contact	250 V AC, 8 A	CR-P024DC2G	1SVR405606R1000	10	0.014 (0.031)
24 V AC			CR-P024AC2G	1SVR405606R0000		
110 V AC			CR-P110AC2G	1SVR405606R7000		
230 V AC			CR-P230AC2G	1SVR405606R3000		



CR-P optocoupler

Ordering details - CR-P range pluggable optocouplers

Rated control supply voltage (Us)	Outputs	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
10-32 V DC	MOS-FET, 5 A - 35 V DC	CR-P024MOS1	1SVR405610R4060	10	0.011 (0.618)
	Triac, 3 A - 275 V AC	CR-P024TRI1	1SVR405610R4070		

Pluggable interface relays and optocouplers

Ordering details – CR-P range



CR-PLSX



CR-PSS

Standard and logical sockets for CR-P interface relays are suitable for snap-on mounting onto a DIN rail. Optional function modules for the CR-P range are plugged into both standard and logical sockets.

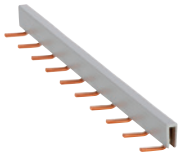
Ordering details - Sockets*

Version	Connection terminal	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Logical socket with protective separation	screw	CR-PLS	1SVR405650R0000	10	0.045 (0.099)
Logical socket	spring	CR-PLC	1SVR405650R0200		0.042 (0.093)
Standard socket	screw	CR-PSS	1SVR405650R1000		0.038 (0.084)

*All CR-P socket packages include a set of markers.

Standard sockets
Position of connection terminals: coil connection (A1-A2) on lower side of the socket, contact connections (n/o and n/c contacts) on the lower and upper side of the socket.

Logical sockets
Position of connection terminals: coil connection (A1-A2) on lower side of the socket, all contact connections (common contacts, n/o and n/c contacts) on the upper side of the socket.



CR-PJ

Ordering details - Accessories

Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Plastic holder for socket	CR-PH	1SVR405659R0000	10	0.002 (0.004)
Metal holder for socket	CR-PH1	1SVR405659R0100		0.4g
Jumper bar for sockets with screw connection	CR-PJ	1SVR405658R5000		0.018 (0.040)
Marker	CR-PM	1SVR405658R0000	10	0.0002 (0.0004)

Pluggable interface relays and optocouplers

Ordering details – CR-P range



CR-P complete version

Ordering details - CR-P range complete versions

Rated control supply voltage	Out-puts	Description	Socket type	Connection terminal	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	1 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P012DC1SS42V	1SVR405600R4010	10	0.057 (0.126)
24 V DC	1 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P024DC1SS42V	1SVR405600R1010	10	0.057 (0.126)
		Reverse polarity protection and freewheeling diode, LED green, holder	logical	spring	CR-P024DC1LC42V	1SVR405600R1011	10	0.057 (0.126)
		Varistor and LED red, holder	logical	spring	CR-P024DC1LC62C	1SVR405600R1013	10	0.057 (0.126)
110 V DC	1 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P110DC1SS42CV	1SVR405600R8010	10	0.057 (0.126)
24 V AC	1 c/o	Varistor and LED green, holder	standard	screw	CR-P024AC1SS62CV	1SVR405600R0010	10	0.057 (0.126)
120 V AC	1 c/o	Varistor and LED green, holder	standard	screw	CR-P120AC1SS92CV	1SVR405600R2010	10	0.057 (0.126)
230 V AC	1 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P230AC1SS92CV	1SVR405600R3110	10	0.057 (0.126)
		Holder	logical	screw	CR-P230AC1LS	1SVR405600R3011	10	0.057 (0.126)
		Varistor and LED green, holder	logical	spring	CR-P230AC1LC92CV	1SVR405600R3010	10	0.057 (0.126)

Pluggable interface relays and optocouplers

Ordering details – CR-P range



CR-P complete version

Ordering details - CR-P range complete versions

Rated control supply voltage	Out-puts	Description	Socket type	Connec-tion terminal	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P012DC2SS42V	1SVR405601R4010	10	0.057 (0.126)
24 V DC	2 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P024DC2SS42V	1SVR405601R1010	10	0.057 (0.126)
		Reverse polarity protection and freewheeling diode, LED red, holder	logical	screw	CR-P024DC2LS42	1SVR405601R1013	10	0.057 (0.126)
		Reverse polarity protection and freewheeling diode, LED green, holder	logical	screw	CR-P024DC2LS42V	1SVR405601R1011	10	0.057 (0.126)
		Reverse polarity protection and freewheeling diode, LED red, holder	logical	spring	CR-P024DC2LC42	1SVR405601R1012	10	0.057 (0.126)
24 V DC	2 c/o gold plated	Reverse polarity protection and freewheeling diode, LED green, holder	logical	spring	CR-P024DC2GLC42V	1SVR405606R1010	10	0.057 (0.126)
		Varistor and LED red, holder	logical	spring	CR-P024DC2GLC62C	1SVR405606R1013	10	0.057 (0.126)
		Varistor and LED green, holder	logical	spring	CR-P024DC2GLC62CV	1SVR405606R1011	10	0.057 (0.126)
110 V DC	2 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P110DC2SS42CV	1SVR405601R8010	10	0.057 (0.126)
24 V AC	2 c/o	Varistor and LED green, holder	standard	screw	CR-P024AC2SS62CV	1SVR405601R0010	10	0.057 (0.126)
120 V AC	2 c/o	Varistor and LED green, holder	standard	screw	CR-P120AC2SS92CV	1SVR405601R2010	10	0.057 (0.126)
230 V AC	2 c/o	Reverse polarity protection and freewheeling diode, LED green, holder	standard	screw	CR-P230AC2SS92CV	1SVR405601R3110	10	0.057 (0.126)
		Varistor and LED green, holder	logical	screw	CR-P230AC2LS92CV	1SVR405601R3011	10	0.057 (0.126)
		Diode and LED red, holder	logical	spring	CR-P230AC2LC92	1SVR405601R3012	10	0.057 (0.126)
230 V AC	2 c/o gold plated	Diode and LED red, holder	logical	spring	CR-P230AC2GLC92	1SVR405606R3013	10	0.057 (0.126)
		Varistor and LED red, holder	logical	spring	CR-P230AC2GLC92C	1SVR405606R3012	10	0.057 (0.126)
		Varistor and LED green, holder	logical	spring	CR-P230AC2GLC92CV	1SVR405606R3010	10	0.057 (0.126)

Pluggable interface relays and optocouplers

Ordering details – CR-M range



CR-M

The CR-M range offers the possibility of switching up to 4 different circuits with a single relay. The integrated LED and test button* allow for easy testing and commissioning. This range of relays are available at a wide range of different coil voltages and are accompanied by a wide variety of function modules. The CR-M range also includes complete versions consisting of a relay, socket, holder, marker and where applicable, function module.

Ordering details - CR-M range without LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 12 A	CR-M012DC2	1SVR405611R4000	10	0.033 (0.073)
24 V DC			CR-M024DC2	1SVR405611R1000		
48 V DC			CR-M048DC2	1SVR405611R6000		
60 V DC			CR-M060DC2	1SVR405611R4200		
110 V DC			CR-M110DC2	1SVR405611R8000		
125 V DC			CR-M125DC2	1SVR405611R8200		
220 V DC			CR-M220DC2	1SVR405611R9000		
24 V AC			CR-M024AC2	1SVR405611R0000		
48 V AC			CR-M048AC2	1SVR405611R5000		
110 V AC			CR-M110AC2	1SVR405611R7000		
120 V AC			CR-M120AC2	1SVR405611R2000		
230 V AC			CR-M230AC2	1SVR405611R3000		
12 V DC	3 c/o (SPDT)	250 V AC, 10 A	CR-M012DC3	1SVR405612R4000	10	0.033 (0.073)
24 V DC			CR-M024DC3	1SVR405612R1000		
48 V DC			CR-M048DC3	1SVR405612R6000		
60 V DC			CR-M060DC3	1SVR405612R4200		
110 V DC			CR-M110DC3	1SVR405612R8000		
125 V DC			CR-M125DC3	1SVR405612R8200		
220 V DC			CR-M220DC3	1SVR405612R9000		
24 V AC			CR-M024AC3	1SVR405612R0000		
48 V AC			CR-M048AC3	1SVR405612R5000		
60 V AC			CR-M060AC3	1SVR405612R5200		
110 V AC			CR-M110AC3	1SVR405612R7000		
120 V AC			CR-M120AC3	1SVR405612R2000		
230 V AC			CR-M230AC3	1SVR405612R3000		
12 V DC	4 c/o (SPDT)	250 V AC, 6 A	CR-M012DC4	1SVR405613R4000	10	0.033 (0.073)
24 V DC			CR-M024DC4	1SVR405613R1000		
48 V DC			CR-M048DC4	1SVR405613R6000		
60 V DC			CR-M060DC4	1SVR405613R4200		
110 V DC			CR-M110DC4	1SVR405613R8000		
125 V DC			CR-M125DC4	1SVR405613R8200		
220 V DC			CR-M220DC4	1SVR405613R9000		
24 V AC			CR-M024AC4	1SVR405613R0000		
48 V AC			CR-M048AC4	1SVR405613R5000		
110 V AC			CR-M110AC4	1SVR405613R7000		
120 V AC			CR-M120AC4	1SVR405613R2000		
230 V AC			CR-M230AC4	1SVR405613R3000		

* Note: During the operation of the relay, the temperature of the test button will increase. In order to manually operate the test button, the supply voltage should first be disconnected. The test button is only safe to operate once it has cooled down or by using protective gloves and insulated tools. During operation, the test button should be pressed smoothly and quickly. When the test button is depressed, the n/o contacts will close and remain closed. Once the button is released, the n/o contacts change status and open. A 90 degree rotation of the test button closes and holds the n/o contacts in a closed position. Reverse rotation of the test button will once again change the status of the n/o contacts to their default open position.

Pluggable interface relays and optocouplers

Ordering details – CR-M range



CR-M

Ordering details - CR-M range with LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 12 A	CR-M012DC2L	1SVR405611R4100	10	0.033 (0.073)
24 V DC			CR-M024DC2L	1SVR405611R1100		
48 V DC			CR-M048DC2L	1SVR405611R6100		
60 V DC			CR-M060DC2L	1SVR405611R4300		
110 V DC			CR-M110DC2L	1SVR405611R8100		
125 V DC			CR-M125DC2L	1SVR405611R8300		
220 V DC			CR-M220DC2L	1SVR405611R9100		
12 V AC			CR-M012AC2L	1SVR405611R0300		
24 V AC			CR-M024AC2L	1SVR405611R0100		
48 V AC			CR-M048AC2L	1SVR405611R5100		
110 V AC			CR-M110AC2L	1SVR405611R7100		
120 V AC			CR-M120AC2L	1SVR405611R2100		
230 V AC			CR-M230AC2L	1SVR405611R3100		
12 V DC	3 c/o (SPDT)	250 V AC, 10 A	CR-M012DC3L	1SVR405612R4100	10	0.033 (0.073)
24 V DC			CR-M024DC3L	1SVR405612R1100		
48 V DC			CR-M048DC3L	1SVR405612R6100		
60 V DC			CR-M060DC3L	1SVR405612R4300		
110 V DC			CR-M110DC3L	1SVR405612R8100		
125 V DC			CR-M125DC3L	1SVR405612R8300		
220 V DC			CR-M220DC3L	1SVR405612R9100		
12 V AC			CR-M012AC3L	1SVR405612R0300		
24 V AC			CR-M024AC3L	1SVR405612R0100		
48 V AC			CR-M048AC3L	1SVR405612R5100		
110 V AC			CR-M110AC3L	1SVR405612R7100		
120 V AC			CR-M120AC3L	1SVR405612R2100		
230 V AC			CR-M230AC3L	1SVR405612R3100		
12 V DC	4 c/o (SPDT)	250 V AC, 6 A	CR-M012DC4L	1SVR405613R4100	10	0.033 (0.073)
24 V DC			CR-M024DC4L	1SVR405613R1100		
48 V DC			CR-M048DC4L	1SVR405613R6100		
60 V DC			CR-M060DC4L	1SVR405613R4300		
110 V DC			CR-M110DC4L	1SVR405613R8100		
125 V DC			CR-M125DC4L	1SVR405613R8300		
220 V DC			CR-M220DC4L	1SVR405613R9100		
12 V AC			CR-M012AC4L	1SVR405613R0300		
24 V AC			CR-M024AC4L	1SVR405613R0100		
48 V AC			CR-M048AC4L	1SVR405613R5100		
110 V AC			CR-M110AC4L	1SVR405613R7100		
120 V AC			CR-M120AC4L	1SVR405613R2100		
230 V AC			CR-M230AC4L	1SVR405613R3100		

Pluggable interface relays and optocouplers

Ordering details – CR-M range



CR-M

Ordering details - CR-M range with LED and free-wheeling diode

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 6 A	CR-M012DC2LD	1SVR405611R4400	10	0.033 (0.073)
24 V DC			CR-M024DC2LD	1SVR405611R1400	10	0.033 (0.073)
48 V DC			CR-M048DC2LD	1SVR405611R6400	10	0.033 (0.073)
110 V DC			CR-M110DC2LD	1SVR405611R8400	10	0.033 (0.073)
125 V DC			CR-M125DC2LD	1SVR405611R8500	10	0.033 (0.073)
220 V DC			CR-M220DC2LD	1SVR405611R9400	10	0.033 (0.073)
12 V DC	3 c/o (SPDT)	250 V AC, 10 A	CR-M012DC3LD	1SVR405612R4400	10	0.033 (0.073)
24 V DC			CR-M024DC3LD	1SVR405612R1400	10	0.033 (0.073)
48 V DC			CR-M048DC3LD	1SVR405612R6400	10	0.033 (0.073)
110 V DC			CR-M110DC3LD	1SVR405612R8400	10	0.033 (0.073)
125 V DC			CR-M125DC3LD	1SVR405612R8500	10	0.033 (0.073)
220 V DC			CR-M220DC3LD	1SVR405612R9400	10	0.033 (0.073)
12 VDC	4 c/o (SPDT)	250 V AC, 6 A	CR-M012DC4LD	1SVR405613R4400	10	0.033 (0.073)
24 V DC			CR-M024DC4LD	1SVR405614R1100	10	0.033 (0.073)
48 V DC			CR-M048DC4LD	1SVR405613R6400	10	0.033 (0.073)
110 V DC			CR-M110DC4LD	1SVR405613R8400	10	0.033 (0.073)
125 V DC			CR-M125DC4LD	1SVR405613R8500	10	0.033 (0.073)
220 V DC			CR-M220DC4LD	1SVR405613R9400	10	0.033 (0.073)

Ordering details - CR-M range with gold contacts

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V DC	4 c/o (SPDT)	250 V AC, 6 A	CR-M024DC4G	1SVR405618R1000	10	0.033 (0.073)
24 V AC			CR-M024AC4G	1SVR405618R0000		
110 V AC			CR-M110AC4G	1SVR405618R7000		
230 V AC			CR-M230AC4G	1SVR405618R3000		

Pluggable interface relays and optocouplers

Ordering details – CR-M range



CR-M

Ordering details – CR-M range with gold contacts and LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	4 c/o (SPDT)	250 V AC, 6 A	CR-M012DC4LG	1SVR405618R4100	10	0.033 (0.073)
24 V DC			CR-M024DC4LG	1SVR405618R1100		
48 V DC			CR-M048DC4LG	1SVR405618R6100		
60 V DC			CR-M060DC4LG	1SVR405618R4300		
110 V DC			CR-M110DC4LG	1SVR405618R8100		
125 V DC			CR-M125DC4LG	1SVR405618R8300		
220 V DC			CR-M220DC4LG	1SVR405618R9100		
24 V AC			CR-M024AC4LG	1SVR405618R0100	10	0.033 (0.073)
48 V AC			CR-M048AC4LG	1SVR405618R5100		
110 V AC			CR-M110AC4LG	1SVR405618R7100		
120 V AC			CR-M120AC4LG	1SVR405618R2100		
230 V AC			CR-M230AC4LG	1SVR405618R3100		

Ordering details – CR-M range with gold contacts, LED and free-wheeling diode

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	4 c/o (SPDT)	250 V AC, 6 A	CR-M012DC4LDG	1SVR405618R4400	10	0.033 (0.073)
24 V DC			CR-M024DC4LDG	1SVR405618R1400		

Pluggable interface relays and optocouplers

Ordering details – CR-M range



CR-M complete version

Ordering details – CR-M range complete version

Rated control supply voltage	Out-puts	Description	Socket type	Connec-tion terminal	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	4 c/o gold-plated	LED red, holder	standard	screw	CR-M012DC4LDGSS	1SVR405618R4410	10	0.0109 (0.024)
24 V DC	4 c/o	Reverse polarity protection and free-wheeling diode, LED green, holder	standard	screw	CR-M024DC4SS42V	1SVR405613R1010	10	0.0109 (0.024)
		Reverse polarity protection and free-wheeling diode, LED green, holder	logical	screw	CR-M024DC4LS42V	1SVR405613R1011	10	0.0109 (0.024)
		Reverse polarity protection and free-wheeling diode, LED red, holder	logical	spring	CR-M024DC4LC42	1SVR405613R1012	10	0.0109 (0.024)
24 V DC	4 c/o gold-plated	Reverse polarity protection and free-wheeling diode, LED green, holder	standard	screw	CR-M024DC4GSS42V	1SVR405618R1011	10	0.0109 (0.024)
		Varistor, LED green, holder	logical	spring	CR-M024DC4GLC62CV	1SVR405618R1010	10	0.0109 (0.024)
		LED, free-wheeling diode, holder	logical	spring	CR-M024DC4LGLC22	1SVR405618R1110	10	0.0109 (0.024)
		LED red, free-wheeling diode, holder	standard	screw	CR-M024DC4LDGSS	1SVR405618R1410	10	0.0109 (0.024)
24 V AC	4 c/o	Varistor and LED green, holder	logical	screw	CR-M024AC4LS62CV	1SVR405613R0010	10	0.0109 (0.024)

Pluggable interface relays and optocouplers

Ordering details – CR-M range



CR-M complete version

Ordering details – CR-M range complete version

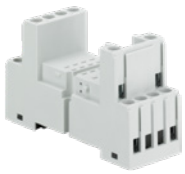
Rated control supply voltage	Out-puts	Description	Socket type	Connection terminal	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
230 V AC	4 c/o	Varistor, LED green, holder	standard	screw	CR-M230AC4SS92CV	1SVR405613R3110	10	0.0109 (0.024)
		Varistor, LED green, holder	logical	screw	CR-M230AC4LS92CV	1SVR405613R3011	10	0.0109 (0.024)
		Diode and LED red, holder	logical	spring	CR-M230AC4LC92	1SVR405613R3012	10	0.0109 (0.024)
230 V AC	4 c/o gold-pla-ted	Reverse polarity protection and free-wheeling diode, LED green, holder	standard	screw	CR-M230AC4GSS92CV	1SVR405618R3112	10	0.0109 (0.024)
		LED red, holder	logical	screw	CR-M230AC4LGLC	1SVR405618R3110	10	0.0109 (0.024)
		LED red, holder	standard	screw	CR-M230AC4LGSS	1SVR405618R3111	10	0.0109 (0.024)

Pluggable interface relays and optocouplers

Ordering details – CR-M range



CR-M2LS



CR-M4SS

Standard and logical sockets for CR-M interface relays are suitable for snap-on mounting onto a DIN rail. Optional function modules for the CR-M range are plugged into both standard and logical sockets.

Ordering details - Sockets*

Version	Connection terminal	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Logical socket for 2 c/o	screw	CR-M2LS	1SVR405651R1100	10	0.055 (0.121)
Logical socket for 3 c/o		CR-M3LS	1SVR405651R2100		0.062 (0.137)
Logical socket for 2/4 c/o		CR-M4LS	1SVR405651R3100		0.066 (0.146)
High Performance Logical Socket for 2 c/o		CR-M2LSH	1SVR405651R4100		0.064 (0.141)
High Performance Logical Socket for 3 c/o		CR-M3LSH	1SVR405651R5100		0.071 (0.157)
Logical socket for 2/4 c/o	spring	CR-M4LC	1SVR405651R3200	10	0.066 (0.146)
Standard socket for 2 c/o	screw	CR-M2SS	1SVR405651R1000	10	0.066 (0.146)
Standard socket for 3 c/o		CR-M3SS	1SVR405651R2000		0.068 (0.150)
Standard socket for 2/4 c/o		CR-M4SS	1SVR405651R3000		0.070 (0.154)
Standard socket for 2 c/o	fork type	CR-M2SF	1SVR405651R1300	10	0.040 (0.088)
Standard socket for 2/4 c/o		CR-M4SF	1SVR405651R3300		0.048 (0.106)

*All CR-M socket packages include a set of markers.

Standard sockets
Position of connection terminals: coil connection (A1-A2) on lower side of the socket, contact connections (n/o and n/c contacts) on the lower and upper side of the socket.

Logical sockets
Position of connection terminals: coil connection (A1-A2) on lower side of the socket, all contact connections (common contacts, n/o and n/c contacts) on upper side of the socket.



CR-MJ

Ordering details - Accessories

Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
Plastic holder for socket	CR-MH	1SVR405659R1000	10	0.003 (0.007)
Metal holder for socket	CR-MH1	1SVR405659R1100	10	0.0005 (0.001)
Jumper bar for sockets with screw connection	CR-MJ	1SVR405658R6000	10	0.029 (0.064)
Marker for CR-M standard sockets	CR-MM	1SVR405658R1000	10	0.0005 (0.001)
Plug for test button replacement	CR-MP	1SVR405658R2000	100	0.001 (0.002)

Pluggable interface relays and optocouplers

Ordering details – CR-P/M function modules



CR-P/M ...

Ordering details - Diode - Reverse polarity protection / free-wheeling diode

Rated control supply voltage U_s	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-220 V DC	A1+, A2-	CR-P/M 22	1SVR405651R0000	10	0.003 (0.007)

Ordering details - Diode and LED - Reverse polarity protection / free-wheeling diode and LED to indicate energized coil

Rated control supply voltage U_s	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V DC	red, A1+, A2-	CR-P/M 42	1SVR405652R0000	10	0.003 (0.007)
6-24 V DC	green, A1+, A2-	CR-P/M 42 V	1SVR405652R1000		
24-60 V DC	red, A1+, A2-	CR-P/M 42 B	1SVR405652R4000		
24-60 V DC	green, A1+, A2-	CR-P/M 42 BV	1SVR405652R4100		
110 V DC	red, A1+, A2-	CR-P/M 42 C	1SVR405652R9000		
110 V DC	green, A1+, A2-	CR-P/M 42 CV	1SVR405652R9100		

Ordering details - RC element - Spark quenching

Rated control supply voltage U_s	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC		CR-P/M 52B	1SVR405653R0000	10	0.003 (0.007)
24-60 V AC/DC		CR-P/M 52D	1SVR405653R4000		
110-230 V AC/DC		CR-P/M 52C	1SVR405653R1000		

Ordering details - Diode and LED - LED to indicate energized coil

Rated control supply voltage U_s	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC	red, for DC: A1+, A2-	CR-P/M 62	1SVR405654R0000	10	0.003 (0.007)
6-24 V AC/DC	green, for DC: A1+, A2-	CR-P/M 62 V	1SVR405654R1000		
24-60 V AC/DC	red, for DC: A1+, A2-	CR-P/M 62 E	1SVR405654R4000		
24-60 V AC/DC	green, for DC: A1+, A2-	CR-P/M 62 EV	1SVR405654R4100		
110-230 V AC/DC	red, for DC: A1+, A2-	CR-P/M 92	1SVR405654R0100		
110-230 V AC/DC	green, for DC: A1+, A2-	CR-P/M 92 V	1SVR405654R1100		

Pluggable interface relays and optocouplers

Ordering details – CR-P/M function modules



CR-P/M ...

Ordering details - Varistor and LED - Overvoltage protection and LED to indicate energized coil

Rated control supply voltage U_s	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC	red, for DC: A1+, A2-	CR-P/M 62 C	1SVR405655R0000	10	0.003 (0.007)
6-24 V AC/DC	green, for DC: A1+, A2-	CR-P/M 62 CV	1SVR405655R1000		
24-60 V AC/DC	red, for DC: A1+, A2-	CR-P/M 62 D	1SVR405655R4000		
24-60 V AC/DC	green, for DC: A1+, A2-	CR-P/M 62 DV	1SVR405655R4100		
110-230 V AC/DC	red, for DC: A1+, A2-	CR-P/M 92 C	1SVR405655R0100		
110-230 V AC/DC	green, for DC: A1+, A2-	CR-P/M 92 CV	1SVR405655R1100		

Ordering details - Varistor - Overvoltage protection

Rated control supply voltage U_s	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V AC		CR-P/M 72	1SVR405656R0000	10	0.002 (0.004)
115 V AC		CR-P/M 72 A	1SVR405656R1000		
230 V AC		CR-P/M 82	1SVR405656R2000		

Pluggable interface relays and optocouplers

Ordering details – CR-U range



CR-U

The CR-U range offers up to 3 change over contacts in single relay. The integrated LED and test button* allow for easy testing and commissioning. This robust range of relays are available at a wide range of different coil voltages and are accompanied by a wide variety of function modules.

Ordering details - CR-U range without LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 10 A	CR-U012DC2	1SVR405621R4000	10	0.083 (0.183)
24 V DC			CR-U024DC2	1SVR405621R1000		
48 V DC			CR-U048DC2	1SVR405621R6000		
110 V DC			CR-U110DC2	1SVR405621R8000		
220 V DC			CR-U220DC2	1SVR405621R9000		
24 V AC			CR-U024AC2	1SVR405621R0000		
48 V AC			CR-U048AC2	1SVR405621R5000		
110 V AC			CR-U110AC2	1SVR405621R7000		
120 V AC			CR-U120AC2	1SVR405621R2000		
230 V AC			CR-U230AC2	1SVR405621R3000		
12 V DC	3 c/o (SPDT)	250 V AC, 10 A	CR-U012DC3	1SVR405622R4000	10	0.083 (0.183)
24 V DC			CR-U024DC3	1SVR405622R1000		
48 V DC			CR-U048DC3	1SVR405622R6000		
110 V DC			CR-U110DC3	1SVR405622R8000		
125 V DC			CR-U125DC3	1SVR405622R8200		
220 V DC			CR-U220DC3	1SVR405622R9000		
24 V AC			CR-U024AC3	1SVR405622R0000		
48 V AC			CR-U048AC3	1SVR405622R5000		
60 V AC			CR-U060AC3	1SVR405622R5200		
110 V AC			CR-U110AC3	1SVR405622R7000		
120 V AC			CR-U120AC3	1SVR405622R2000		
230 V AC			CR-U230AC3	1SVR405622R3000		

* Note: During the operation of the relay, the temperature of the test button will increase. In order to manually operate the test botton, the supply voltage should first be disconnected. The test button is only safe to operate once it has cooled down or by using protective gloves and insulated tools. During operation, the test button should be pressed smoothly and quickly. When the test button is depressed, the n/o contacts will close and remain closed. Once the button is released, the n/o contacts change status and open. A 90 degree rotation of the test button closes and holds the n/o contacts in a closed position. Reverse rotation of the test button will once again change the status of the n/o contacts to their default open position.

Ordering details - CR-U range with LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 10 A	CR-U012DC2L	1SVR405621R4100	10	0.083 (0.183)
24 V DC			CR-U024DC2L	1SVR405621R1100		
48 V DC			CR-U048DC2L	1SVR405621R6100		
110 V DC			CR-U110DC2L	1SVR405621R8100		
220 V DC			CR-U220DC2L	1SVR405621R9100		
12 V AC			CR-U012AC2L	1SVR405621R0300		
24 V AC			CR-U024AC2L	1SVR405621R0100		
48 V AC			CR-U048AC2L	1SVR405621R5100		
110 V AC			CR-U110AC2L	1SVR405621R7100		
120 V AC			CR-U120AC2L	1SVR405621R2100		
230 V AC			CR-U230AC2L	1SVR405621R3100		

Pluggable interface relays and optocouplers

Ordering details – CR-U range

Ordering details - CR-U range with LED

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	3 c/o (SPDT)	250 V AC, 10 A	CR-U012DC3L	1SVR405622R4100	10	0.083 (0.183)
24 V DC			CR-U024DC3L	1SVR405622R1100		
48 V DC			CR-U048DC3L	1SVR405622R6100		
110 V DC			CR-U110DC3L	1SVR405622R8100		
220 V DC			CR-U220DC3L	1SVR405622R9100		
12 V AC			CR-U012AC3L	1SVR405622R0300		
24 V AC			CR-U024AC3L	1SVR405622R0100		
48 V AC			CR-U048AC3L	1SVR405622R5100		
110 V AC			CR-U110AC3L	1SVR405622R7100		
120 V AC			CR-U120AC3L	1SVR405622R2100		
230 V AC			CR-U230AC3L	1SVR405622R3100		



CR-U

Ordering details - CR-U range with LED and free-wheeling diode

Rated control supply voltage	Outputs	Contact ratings	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
12 V DC	2 c/o (SPDT)	250 V AC, 10 A	CR-U012DC2LD	1SVR405621R4400	10	0.033 (0.073)
24 V DC			CR-U024DC2LD	1SVR405621R1400	10	0.033 (0.073)
48 V DC			CR-U048DC2LD	1SVR405621R6400	10	0.033 (0.073)
110 V DC			CR-U110DC2LD	1SVR405621R8400	10	0.033 (0.073)
12 V DC	3 c/o (SPDT)		CR-U012DC3LD	1SVR405622R4400	10	0.033 (0.073)
24 V DC			CR-U024DC3LD	1SVR405623R1100	10	0.033 (0.073)
48 V DC			CR-U048DC3LD	1SVR405622R6400	10	0.033 (0.073)
110 V DC			CR-U110DC3LD	1SVR405622R8400	10	0.033 (0.073)

The sockets for CR-U interface relays have screw connection terminals and are suitable for snap-on mounting onto a DIN rail. Optional function modules for the CR-U range may only be plugged into compatible standard sockets.

Ordering details - Sockets and Accessories

Version	Type	Order code	Pkg qty	Weight (1 pc.) kg
Socket for 2 c/o and function module	CR-U2S	1SVR405670R0000	10	0.065
Socket for 3 c/o and function module	CR-U3S	1SVR405660R0000		0.065
Small socket for 2 c/o	CR-U2SM	1SVR405670R1100		0.054
Small socket for 3 c/o	CR-U3SM	1SVR405660R1100		0.058
Metal holder for socket	CR-UH	1SVR405669R0000		0.001



CR-U2S

CR-U sockets
Position of connection terminals: coil connection (A1-A2) on lower side of socket, contact connections (n/o and n/c contacts) on the lower and upper side of socket.

Pluggable interface relays and optocouplers

Ordering details – CR-U function modules



CR-U...

CR-U function modules are compatible with the CR-U2S and CR-U3S sockets only.

Diode - Reverse polarity protection / free-wheeling diode

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-220 V DC	A1+, A2-	CR-U 21	1SVR405661R0000	10	0.007 (0.015)

Diode and LED - Reverse polarity protection / free-wheeling diode and LED to indicate energized coil

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V DC	red, A1+, A2-	CR-U 41	1SVR405662R0000	10	0.007 (0.015)
6-24 V DC	green, A1+, A2-	CR-U 41V	1SVR405662R1000		
24-60 V DC	red, A1+, A2-	CR-U 41B	1SVR405662R4000		
24-60 V DC	green, A1+, A2-	CR-U 41BV	1SVR405662R4100		
110 V DC	red, A1+, A2-	CR-U 41C	1SVR405662R9000		
110 V DC	green, A1+, A2-	CR-U 41CV	1SVR405662R9100		

RC element - Spark quenching

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC		CR-U 51B	1SVR405663R0000	10	0.007 (0.015)
24-60 V AC/DC		CR-U 51D	1SVR405663R4000		
110 -230 V AC/DC		CR-U 51C	1SVR405663R1000		

Diode and LED - LED to indicate energized coil

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC	red, for DC A1+, A2-	CR-U 61	1SVR405664R0000	10	0.007 (0.015)
6-24 V AC/DC	green, for DC A1+, A2-	CR-U 61V	1SVR405664R1000		
24-60 V AC/DC	red, for DC A1+, A2-	CR-U 61E	1SVR405664R4000		
24-60 V AC/DC	green, for DC A1+, A2-	CR-U 61EV	1SVR405664R4100		
110-230 V AC/DC	red, for DC A1+, A2-	CR-U 91	1SVR405664R0100		
110-230 V AC/DC	green, for DC: A1+, A2-	CR-U 91V	1SVR405664R1100		

Pluggable interface relays and optocouplers

Ordering details – CR-U function modules



CR-U...

Varistor and LED - Overvoltage protection and LED to indicate energized coil

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
6-24 V AC/DC	red, for DC A1+, A2-	CR-U 61C	1SVR405665R0000	10	0.007 (0.015)
6-24 V AC/DC	green, for DC A1+, A2-	CR-U 61CV	1SVR405665R1000		
24-60 V AC/DC	red, for DC A1+, A2-	CR-U 61D	1SVR405665R4000		
24-60 V AC/DC	green, for DC A1+, A2-	CR-U 61DV	1SVR405665R4100		
110-230 V AC/DC	red, for DC A1+, A2-	CR-U 91C	1SVR405665R0100		
110-230 V AC/DC	green, for DC A1+, A2-	CR-U 91CV	1SVR405665R1100		



CR-U T

Varistor - Overvoltage protection

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24 V AC		CR-U 71	1SVR405666R0000	10	0.007 (0.015)
115 V AC		CR-U 71A	1SVR405666R1000		
230 V AC		CR-U 81	1SVR405666R2000		

Multi-function time module*

Rated control supply voltage	Version	Type	Order code	Pkg qty	Weight (1 pc.) kg (lb)
24-240 V AC/DC	green LED	CR-U T	1SVR405667R0000	10	0.014 (0.031)

* For more details, refer to the CR-U T datasheet.

06
Control and signalling

577 **Pilot devices - Modular plastic range**

599 **Pilot devices, 22 mm - Modular metal range**

619 **Pilot devices - Compact range**

639 **Pilot devices - Enclosures and assembled stations**

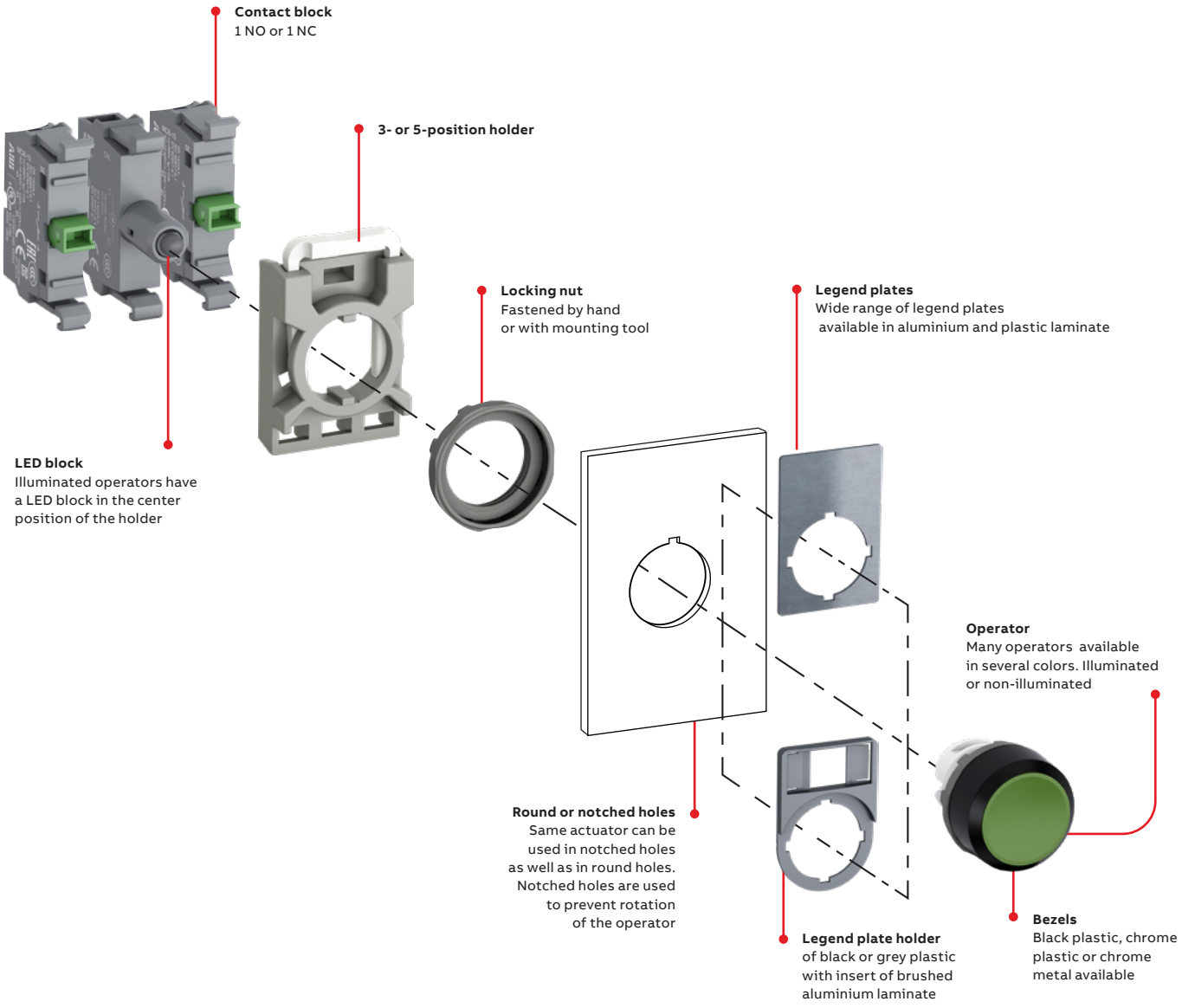
645 **Legend plates and text caps**

Pilot devices
Modular plastic range

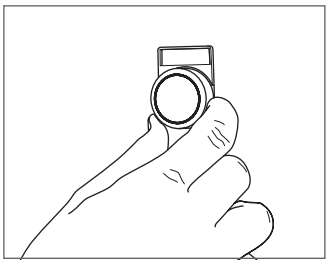
Ordering details
579 Non-illuminated pushbuttons
581 Illuminated pushbuttons
582 Non-illuminated double pushbuttons
583 Illuminated double pushbuttons
584 Mushroom pushbuttons
585 Emergency stop pushbuttons
586 Heavy duty pushbuttons
587 Non-illuminated selector switches
589 Key-operated selector switches
591 Potentiometers
592 Reset pushbuttons
593 Reset pushbuttons with shaft

Accessories for modular range
594 Holders and contact blocks for front mounting
595 LED blocks for front mounting
597 Other accessories

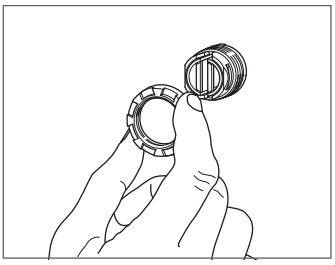
Modular plastic range



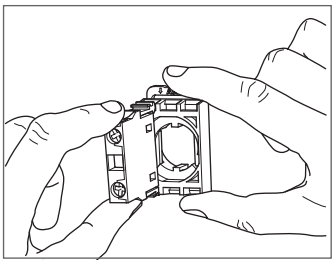
Easy to install



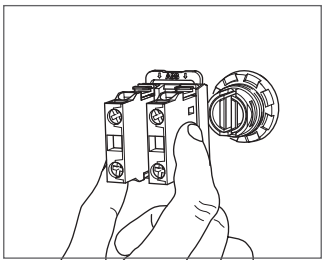
The operator is to be inserted from the front...



...and secured at the back with the nut.

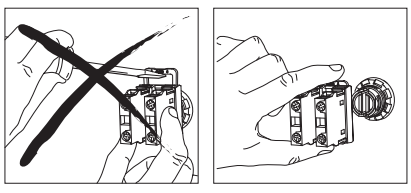


The contact blocks/LED block are then snapped on to the holder...



...and the holder snaps on to the operator.

...and to remove



Press down the spring on the holder and pull the holder from the actuator.

Simple and fast installation

Watch the video

Modular plastic range

Non-illuminated flush pushbuttons



MP1-10R



MP1-10Y



MP1-30L



MP2-10G

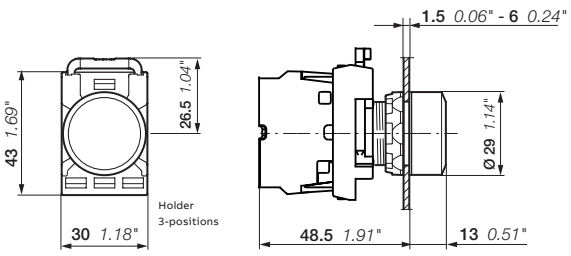


MP2-10W



MP2-20B

Operator	Bezel	Type	Order code	Pkg qty	Weight (1 pce) kg
Momentary					
● Red	Black plastic	MP1-10R	1SFA611100R1001	1	0.016
	Chrome plastic	MP1-20R	1SFA611100R2001	1	0.016
	Chrome metal	MP1-30R	1SFA611100R3001	1	0.026
● Green	Black plastic	MP1-10G	1SFA611100R1002	1	0.016
	Chrome plastic	MP1-20G	1SFA611100R2002	1	0.016
	Chrome metal	MP1-30G	1SFA611100R3002	1	0.026
● Yellow	Black plastic	MP1-10Y	1SFA611100R1003	1	0.016
	Chrome plastic	MP1-20Y	1SFA611100R2003	1	0.016
	Chrome metal	MP1-30Y	1SFA611100R3003	1	0.026
● Blue	Black plastic	MP1-10L	1SFA611100R1004	1	0.016
	Chrome plastic	MP1-20L	1SFA611100R2004	1	0.016
	Chrome metal	MP1-30L	1SFA611100R3004	1	0.026
○ White	Black plastic	MP1-10W	1SFA611100R1005	1	0.016
	Chrome plastic	MP1-20W	1SFA611100R2005	1	0.016
	Chrome metal	MP1-30W	1SFA611100R3005	1	0.026
● Black	Black plastic	MP1-10B	1SFA611100R1006	1	0.016
	Chrome plastic	MP1-20B	1SFA611100R2006	1	0.016
	Chrome metal	MP1-30B	1SFA611100R3006	1	0.026
○ Clear	Black plastic	MP1-10C	1SFA611100R1008	1	0.016
	Chrome plastic	MP1-20C	1SFA611100R2008	1	0.016
	Chrome metal	MP1-30C	1SFA611100R3008	1	0.026
Maintained					
● Red	Black plastic	MP2-10R	1SFA611101R1001	1	0.016
	Chrome plastic	MP2-20R	1SFA611101R2001	1	0.016
	Chrome metal	MP2-30R	1SFA611101R3001	1	0.026
● Green	Black plastic	MP2-10G	1SFA611101R1002	1	0.016
	Chrome plastic	MP2-20G	1SFA611101R2002	1	0.016
	Chrome metal	MP2-30G	1SFA611101R3002	1	0.026
● Yellow	Black plastic	MP2-10Y	1SFA611101R1003	1	0.016
	Chrome metal	MP2-30Y	1SFA611101R3003	1	0.026
● Blue	Black plastic	MP2-10L	1SFA611101R1004	1	0.016
	Chrome plastic	MP2-20L	1SFA611101R2004	1	0.016
	Chrome metal	MP2-30L	1SFA611101R3004	1	0.026
○ White	Black plastic	MP2-10W	1SFA611101R1005	1	0.016
	Chrome plastic	MP2-20W	1SFA611101R2005	1	0.016
● Black	Black plastic	MP2-10B	1SFA611101R1006	1	0.016
	Chrome plastic	MP2-20B	1SFA611101R2006	1	0.016
	Chrome metal	MP2-30B	1SFA611101R3006	1	0.026
○ Clear	Black plastic	MP2-10C	1SFA611101R1008	1	0.016



MP1, MP2

Dimensions (mm, inches)

Modular plastic range

Non-illuminated extended pushbuttons



MP3-10R



MP3-20Y



MP3-10W



MP3-10C



MP4-10G

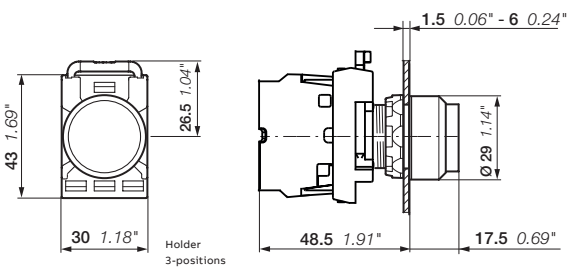


MP4-10L



MP4-10B

Operator	Bezel	Type	Order code	Pkg qty	Weight (1 pce) kg
Momentary					
● Red	Black plastic	MP3-10R	1SFA611102R1001	1	0.016
	Chrome plastic	MP3-20R	1SFA611102R2001	1	0.016
	Chrome metal	MP3-30R	1SFA611102R3001	1	0.026
● Green	Black plastic	MP3-10G	1SFA611102R1002	1	0.016
	Chrome plastic	MP3-20G	1SFA611102R2002	1	0.016
	Chrome metal	MP3-30G	1SFA611102R3002	1	0.026
● Yellow	Black plastic	MP3-10Y	1SFA611102R1003	1	0.016
	Chrome plastic	MP3-20Y	1SFA611102R2003	1	0.016
	Chrome metal	MP3-30Y	1SFA611102R3003	1	0.026
● Blue	Black plastic	MP3-10L	1SFA611102R1004	1	0.016
	Chrome plastic	MP3-20L	1SFA611102R2004	1	0.016
	Chrome metal	MP3-30L	1SFA611102R3004	1	0.026
○ White	Black plastic	MP3-10W	1SFA611102R1005	1	0.016
	Chrome plastic	MP3-20W	1SFA611102R2005	1	0.016
	Chrome metal	MP3-30W	1SFA611102R3005	1	0.026
● Black	Black plastic	MP3-10B	1SFA611102R1006	1	0.016
	Chrome plastic	MP3-20B	1SFA611102R2006	1	0.016
	Chrome metal	MP3-30B	1SFA611102R3006	1	0.026
○ Clear	Black plastic	MP3-10C	1SFA611102R1008	1	0.016
	Chrome metal	MP3-30C	1SFA611102R3008	1	0.026
Maintained					
● Red	Black plastic	MP4-10R	1SFA611103R1001	1	0.016
	Chrome plastic	MP4-20R	1SFA611103R2001	1	0.016
● Green	Black plastic	MP4-10G	1SFA611103R1002	1	0.016
	Chrome plastic	MP4-20G	1SFA611103R2002	1	0.016
	Chrome metal	MP4-30G	1SFA611103R3002	1	0.026
● Yellow	Black plastic	MP4-10Y	1SFA611103R1003	1	0.016
	Chrome plastic	MP4-20Y	1SFA611103R2003	1	0.016
● Blue	Black plastic	MP4-10L	1SFA611103R1004	1	0.016
	Chrome plastic	MP4-20L	1SFA611103R2004	1	0.016
○ White	Black plastic	MP4-10W	1SFA611103R1005	1	0.016
● Black	Black plastic	MP4-10B	1SFA611103R1006	1	0.016
	Chrome metal	MP4-30B	1SFA611103R3006	1	0.026
○ Clear	Black plastic	MP4-10C	1SFA611103R1008	1	0.016



MP3, MP4

Dimensions (mm, inches)

Modular plastic range

Illuminated flush pushbuttons



MP1-31G



MP1-11Y



MP1-21L



MP2-31R

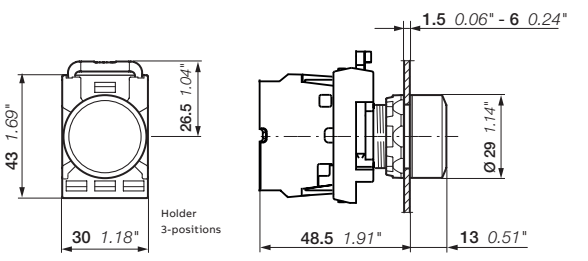


MP2-11L



MP2-11C

Operator	Bezel	Type	Order code	Pkg qty	Weight (1 pce) kg
Momentary					
● Red	Black plastic	MP1-11R	1SFA611100R1101	1	0.016
	Chrome plastic	MP1-21R	1SFA611100R2101	1	0.016
	Chrome metal	MP1-31R	1SFA611100R3101	1	0.026
● Green	Black plastic	MP1-11G	1SFA611100R1102	1	0.016
	Chrome plastic	MP1-21G	1SFA611100R2102	1	0.016
	Chrome metal	MP1-31G	1SFA611100R3102	1	0.026
● Yellow	Black plastic	MP1-11Y	1SFA611100R1103	1	0.016
	Chrome plastic	MP1-21Y	1SFA611100R2103	1	0.016
	Chrome metal	MP1-31Y	1SFA611100R3103	1	0.026
● Blue	Black plastic	MP1-11L	1SFA611100R1104	1	0.016
	Chrome plastic	MP1-21L	1SFA611100R2104	1	0.016
	Chrome metal	MP1-31L	1SFA611100R3104	1	0.026
○ White	Black plastic	MP1-11W	1SFA611100R1105	1	0.016
	Chrome plastic	MP1-21W	1SFA611100R2105	1	0.016
	Chrome metal	MP1-31W	1SFA611100R3105	1	0.026
○ Clear	Black plastic	MP1-11C	1SFA611100R1108	1	0.016
	Chrome plastic	MP1-21C	1SFA611100R2108	1	0.016
	Chrome metal	MP1-31C	1SFA611100R3108	1	0.026
Maintained					
● Red	Black plastic	MP2-11R	1SFA611101R1101	1	0.016
	Chrome plastic	MP2-21R	1SFA611101R2101	1	0.016
	Chrome metal	MP2-31R	1SFA611101R3101	1	0.026
● Green	Black plastic	MP2-11G	1SFA611101R1102	1	0.016
	Chrome plastic	MP2-21G	1SFA611101R2102	1	0.016
	Chrome metal	MP2-31G	1SFA611101R3102	1	0.026
● Yellow	Black plastic	MP2-11Y	1SFA611101R1103	1	0.016
	Chrome plastic	MP2-21Y	1SFA611101R2103	1	0.016
	Chrome metal	MP2-31Y	1SFA611101R3103	1	0.026
● Blue	Black plastic	MP2-11L	1SFA611101R1104	1	0.016
	Chrome plastic	MP2-21L	1SFA611101R2104	1	0.016
	Chrome metal	MP2-31L	1SFA611101R3104	1	0.026
○ White	Black plastic	MP2-11W	1SFA611101R1105	1	0.016
	Chrome plastic	MP2-21W	1SFA611101R2105	1	0.016
	Chrome metal	MP2-31W	1SFA611101R3105	1	0.026
○ Clear	Black plastic	MP2-11C	1SFA611101R1108	1	0.016
	Chrome metal	MP2-31C	1SFA611101R3108	1	0.026



MP1, MP2

Dimensions (mm, inches)

Modular plastic range

Non-illuminated double pushbuttons momentary



MPD1-11B



MPD5-11B



MPD13-11B



MPD15-11B



MA1-8139

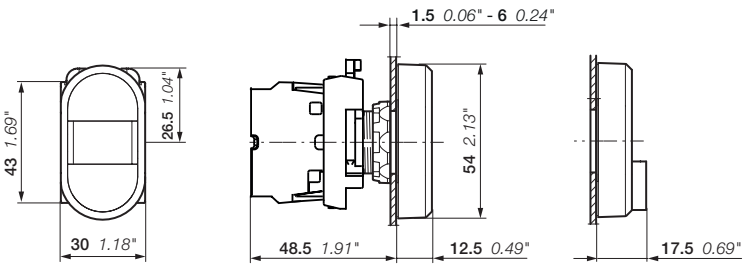
Operator upper button	Operator lower button	Type	Order code	Pkg qty	Weight (1 pce) kg
Flush pushbutton					
● **Green**	● **Red**				
No text	No text	MPD1-11B	1SFA611130R1106	1	0.025
I	0	MPD2-11B	1SFA611131R1106	1	0.025
ON	OFF	MPD3-11B	1SFA611132R1106	1	0.025
START	STOP	MPD4-11B	1SFA611133R1106	1	0.025
○ **White**	● **Black**				
No text	No text	MPD5-11B	1SFA611134R1106	1	0.025
I	0	MPD6-11B	1SFA611135R1106	1	0.025
ON	OFF	MPD7-11B	1SFA611136R1106	1	0.025
START	STOP	MPD8-11B	1SFA611137R1106	1	0.025
● **Black**	● **Red**				
No text	No text	MPD9-11B	1SFA611138R1106	1	0.025
Extended lower pushbutton					
● **Green**	● **Red**				
No text	No text	MPD12-11B	1SFA611141R1106	1	0.025
I	0	MPD13-11B	1SFA611142R1106	1	0.025
ON	OFF	MPD14-11B	1SFA611143R1106	1	0.025
START	STOP	MPD15-11B	1SFA611144R1106	1	0.025
○ **White**	● **Black**				
No text	No text	MPD16-11B	1SFA611145R1106	1	0.025
I	0	MPD17-11B	1SFA611146R1106	1	0.025
ON	OFF	MPD18-11B	1SFA611147R1106	1	0.025
START	STOP	MPD19-11B	1SFA611148R1106	1	0.025

Accessories

Legend plate holder

2-position	MA1-8139	1SFA611920R8139	10	0.030

Note: Insert not included. Suitable for insert size 27 x 15 mm. Refer to Legend plates section.



MPD

Dimensions (mm, inches)

Modular plastic range

Illuminated double pushbuttons momentary - Flush lower button



MPD4-11C


MPD5-11C



MPD2-11R

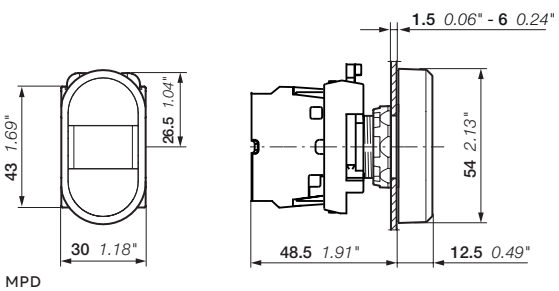


MDP3-11G


MA1-8139

Operator upper button	Operator lower button	Type	Order code	Pkg qty	Weight (1 pce) kg
Clear light indicator					
● **Green**	● **Red**				
No text	No text	MPD1-11C	1SFA611130R1108	1	0.025
I	0	MPD2-11C	1SFA611131R1108	1	0.025
ON	OFF	MPD3-11C	1SFA611132R1108	1	0.025
START	STOP	MPD4-11C	1SFA611133R1108	1	0.025
○ **White**	● **Black**				
No text	No text	MPD5-11C	1SFA611134R1108	1	0.025
I	0	MPD6-11C	1SFA611135R1108	1	0.025
START	STOP	MPD8-11C	1SFA611137R1108	1	0.025
Red light indicator					
● **Green**	● **Red**				
No text	No text	MPD1-11R	1SFA611130R1101	1	0.025
I	0	MPD2-11R	1SFA611131R1101	1	0.025
ON	OFF	MPD3-11R	1SFA611132R1101	1	0.025
START	STOP	MPD4-11R	1SFA611133R1101	1	0.025
○ **White**	● **Black**				
No text	No text	MPD5-11R	1SFA611134R1101	1	0.025
Green light indicator					
● **Green**	● **Red**				
No text	No text	MPD1-11G	1SFA611130R1102	1	0.025
I	0	MPD2-11G	1SFA611131R1102	1	0.025
ON	OFF	MPD3-11G	1SFA611132R1102	1	0.025
START	STOP	MPD4-11G	1SFA611133R1102	1	0.025
○ **White**	● **Black**				
No text	No text	MPD5-11G	1SFA611134R1102	1	0.025
I	0	MPD6-11G	1SFA611135R1102	1	0.025
ON	OFF	MPD7-11G	1SFA611136R1102	1	0.025
START	STOP	MPD8-11G	1SFA611137R1102	1	0.025
Yellow light indicator					
● **Green**	● **Red**				
No text	No text	MPD1-11Y	1SFA611130R1103	1	0.025
I	0	MPD2-11Y	1SFA611131R1103	1	0.025
ON	OFF	MPD3-11Y	1SFA611132R1103	1	0.025
START	STOP	MPD4-11Y	1SFA611133R1103	1	0.025
○ **White**	● **Black**				
No text	No text	MPD5-11Y	1SFA611134R1103	1	0.025
Accessories					
Legend plate holder					
2-position		MA1-8139	1SFA611920R8139	10	0.030

Note: Insert not included. Suitable for insert size 27 x 15 mm. Refer to Legend plates section.



MPD

Dimensions (mm, inches)

Modular plastic range

Mushroom pushbuttons momentary



MPM1-10G



MPM1-10B



MPM2-10R



MPM2-10Y

Non illuminated

Operator	Type	Order code	Pkg qty	Weight (1 pce) kg
Ø 40 mm				
Red	MPM1-10R	1SFA611124R1001	1	0.018
Green	MPM1-10G	1SFA611124R1002	1	0.018
Yellow	MPM1-10Y	1SFA611124R1003	1	0.018
Black	MPM1-10B	1SFA611124R1006	1	0.018
Ø 60 mm				
Red	MPM2-10R	1SFA611125R1001	1	0.020
Yellow	MPM2-10Y	1SFA611125R1003	1	0.020
Black	MPM2-10B	1SFA611125R1006	1	0.020



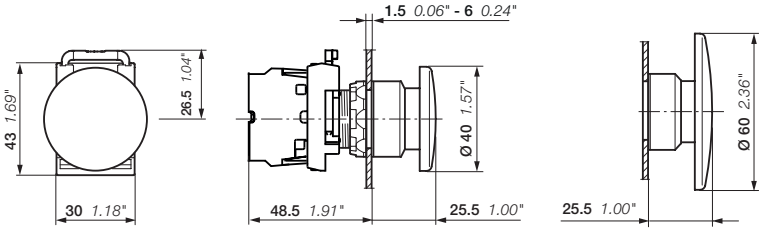
MPM1-11G



MPM2-11R

Illuminated

Operator	Type	Order code	Pkg qty	Weight (1 pce) kg
Ø 40 mm				
Red	MPM1-11R	1SFA611124R1101	1	0.018
Green	MPM1-11G	1SFA611124R1102	1	0.018
Yellow	MPM1-11Y	1SFA611124R1103	1	0.018
Ø 60 mm				
Red	MPM2-11R	1SFA611125R1101	1	0.020
Yellow	MPM2-11Y	1SFA611125R1103	1	0.020



MPM1, MPM2

Dimensions (mm, inches)

Modular plastic range

Emergency stop pushbuttons



MPET3-10R



MPEK3-11R



MPET4-10R



MPMP4-10R

Non illuminated

The emergency stops pushbuttons conform to the standard EN/IEC 60947-5-5, Safety of machinery EN/ISO 13850, IEC 60204-1 and to Machinery directive 2006/42/EC.

Operator	Release method	Type	Order code	Pkg qty	Weight (1 pce) kg
Ø 30 mm					
Red	Twist release	MPET3-10R	1SFA611520R1001	1	0.036
Red	Pull release	MPEP3-10R	1SFA611521R1001	1	0.036
Red	Key code 455	MPEK3-11R	1SFA611522R1101	1	0.065
Red	Key code 421	MPEK3-12R	1SFA611522R1201	1	0.065
Red	Key code 3433-E	MPEK3-13R	1SFA611522R1301	1	0.065
Ø 40 mm					
Red	Twist release	MPET4-10R	1SFA611523R1001	1	0.036
Red	Pull release	MPEP4-10R	1SFA611524R1001	1	0.036
Red	Key code 455	MPEK4-11R	1SFA611525R1101	1	0.065
Red	Key code 421	MPEK4-12R	1SFA611525R1201	1	0.065
Red	Key code 3433-E	MPEK4-13R	1SFA611525R1301	1	0.065
Ø 60 mm					
Red	Twist release	MPMT4-10R	1SFA611513R1001	1	0.048
Red	Pull release	MPMP4-10R	1SFA611514R1001	1	0.048



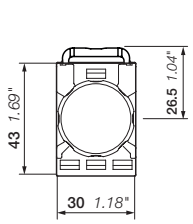
MPMP3-11R



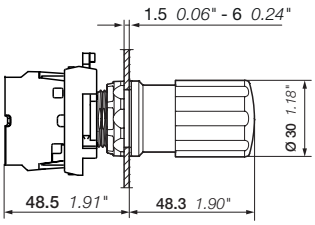
MPMT4-11R

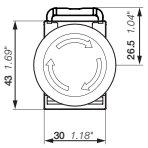
Illuminated

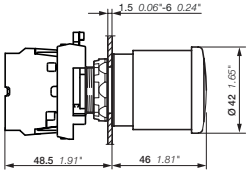
Operator	Release method	Type	Order code	Pkg qty	Weight (1 pce) kg
Ø 40 mm					
Red	Twist release	MPMT3-11R	1SFA611510R1101	1	0.041
Red	Pull release	MPMP3-11R	1SFA611511R1101	1	0.041
Ø 60 mm					
Red	Twist release	MPMT4-11R	1SFA611513R1101	1	0.048
Red	Pull release	MPMP4-11R	1SFA611514R1101	1	0.048



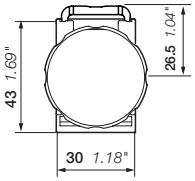
MPET3, MPEP3



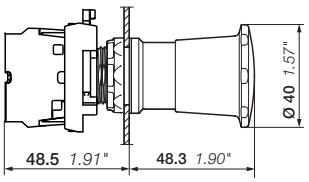


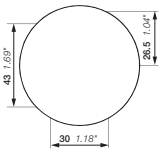


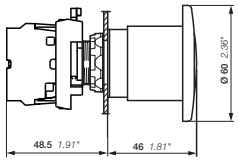
MPMT3, MPMP3



MPET4, MPEP4







MPMT4, MPMP4

Dimensions (mm, inches)

Modular plastic range

Heavy duty pushbuttons



KP6-40R



KP6-40G

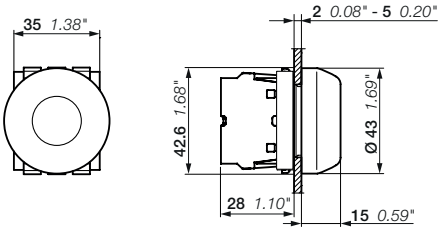


KP6-40B

Description

For 30 mm mounting hole, 3-position holder included

Color	Type	Order code	Pkg qty	Weight (1 pce) kg
Red	KP6-40R	1SFA616105R4001	1	0.028
Green	KP6-40G	1SFA616105R4002	1	0.028
Black	KP6-40B	1SFA616105R4006	1	0.028



KP6

Modular plastic range

Pilot lights



ML1-100R



ML1-100G



ML1-100Y



ML1-100C



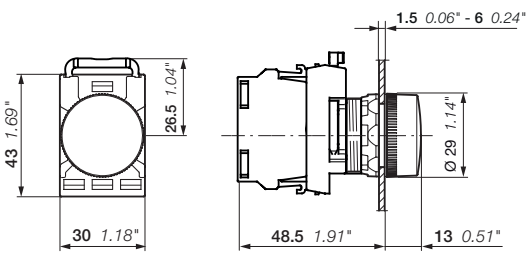
ML1-100L

Color	Type	Order code	Pkg qty	Weight (1 pce) kg
Red	ML1-100R	1SFA611400R1001	1	0.018
Green	ML1-100G	1SFA611400R1002	1	0.018
Yellow	ML1-100Y	1SFA611400R1003	1	0.018
Blue	ML1-100L	1SFA611400R1004	1	0.018
White	ML1-100W	1SFA611400R1005	1	0.018
Clear	ML1-100C	1SFA611400R1008	1	0.018

Lens

Light diffusing lens	KA1-8005	1SFA616920R8005	10	0.001

Note: Light diffusing lens is used to improve spread of illumination from LED blocks. Cannot be used together with text cap.



ML1

Dimensions (mm, inches)

Modular plastic range

Non-illuminated selector switches - 2-position - Short handle



M2SS1-10R



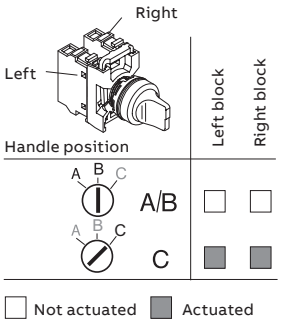
M2SS1-30B

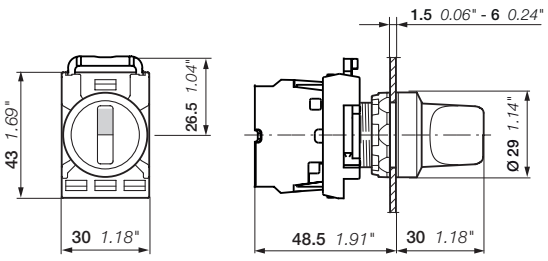


M2SS1-10U

Operating principle	Color	Bezel	Type	Order code	Pkg qty	Weight (1 pce) kg
	● Red	Black plastic	M2SS1-10R	1SFA611200R1001	1	0.015
		Chrome plastic	M2SS1-20R	1SFA611200R2001	1	0.015
		Chrome metal	M2SS1-30R	1SFA611200R3001	1	0.024
	● Black	Black plastic	M2SS1-10B	1SFA611200R1006	1	0.015
		Chrome plastic	M2SS1-20B	1SFA611200R2006	1	0.015
		Chrome metal	M2SS1-30B	1SFA611200R3006	1	0.024
	● Grey	Black plastic	M2SS1-10U	1SFA611200R1007	1	0.015
		Chrome plastic	M2SS1-20U	1SFA611200R2007	1	0.015
	● Red	Black plastic	M2SS2-10R	1SFA611201R1001	1	0.015
		Chrome plastic	M2SS2-20R	1SFA611201R2001	1	0.015
		Chrome metal	M2SS2-30R	1SFA611201R3001	1	0.024
	● Black	Black plastic	M2SS2-10B	1SFA611201R1006	1	0.015
		Chrome plastic	M2SS2-20B	1SFA611201R2006	1	0.015
		Chrome metal	M2SS2-30B	1SFA611201R3006	1	0.024
	● Grey	Black plastic	M2SS2-10U	1SFA611201R1007	1	0.015
		Chrome plastic	M2SS2-20U	1SFA611201R2007	1	0.015
		Chrome metal	M2SS2-30U	1SFA611201R3007	1	0.024
	● Red	Black plastic	M2SS3-10R	1SFA611202R1001	1	0.015
		Chrome plastic	M2SS3-20R	1SFA611202R2001	1	0.015
		Chrome metal	M2SS3-30R	1SFA611202R3001	1	0.024
	● Black	Black plastic	M2SS3-10B	1SFA611202R1006	1	0.015
		Chrome plastic	M2SS3-20B	1SFA611202R2006	1	0.015
		Chrome metal	M2SS3-30B	1SFA611202R3006	1	0.024
	● Grey	Black plastic	M2SS3-10U	1SFA611202R1007	1	0.015
		Chrome plastic	M2SS3-20U	1SFA611202R2007	1	0.015

Contacts actuated





M2SS

Dimensions (mm, inches)

Modular plastic range

Non-illuminated selector switches - 3-position - Short handle



M3SS1-30R



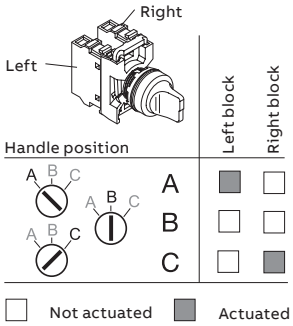
M3SS2-10B

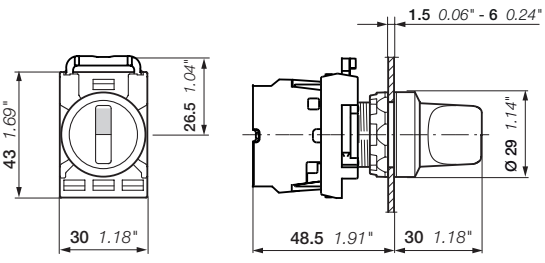


M3SS3-10U

Operating principle	Color	Bezel	Type	Order code	Pkg qty	Weight (1 pce) kg
	● Red	Black plastic	M3SS1-10R	1SFA611210R1001	1	0.015
		Chrome plastic	M3SS1-20R	1SFA611210R2001	1	0.015
		Chrome metal	M3SS1-30R	1SFA611210R3001	1	0.024
	● Black	Black plastic	M3SS1-10B	1SFA611210R1006	1	0.015
		Chrome plastic	M3SS1-20B	1SFA611210R2006	1	0.015
		Chrome metal	M3SS1-30B	1SFA611210R3006	1	0.024
	● Grey	Black plastic	M3SS1-10U	1SFA611210R1007	1	0.015
		Chrome plastic	M3SS1-20U	1SFA611210R2007	1	0.015
		Chrome metal	M3SS1-30U	1SFA611210R3007	1	0.024
	● Red	Black plastic	M3SS2-10R	1SFA611211R1001	1	0.015
		Chrome plastic	M3SS2-20R	1SFA611211R2001	1	0.015
		Chrome metal	M3SS2-30R	1SFA611211R3001	1	0.024
	● Black	Black plastic	M3SS2-10B	1SFA611211R1006	1	0.015
		Chrome plastic	M3SS2-20B	1SFA611211R2006	1	0.015
		Chrome metal	M3SS2-30B	1SFA611211R3006	1	0.024
	● Grey	Black plastic	M3SS2-10U	1SFA611211R1007	1	0.015
		Chrome plastic	M3SS2-20U	1SFA611211R2007	1	0.015
	● Red	Black plastic	M3SS3-10R	1SFA611212R1001	1	0.015
	● Black	Black plastic	M3SS3-10B	1SFA611212R1006	1	0.015
		Chrome plastic	M3SS3-20B	1SFA611212R2006	1	0.015
		Chrome metal	M3SS3-30B	1SFA611212R3006	1	0.024
	● Grey	Black plastic	M3SS3-10U	1SFA611212R1007	1	0.015
		Chrome plastic	M3SS3-20U	1SFA611212R2007	1	0.015
	● Red	Black plastic	M3SS7-10R	1SFA611216R1001	1	0.015
		Chrome plastic	M3SS7-20R	1SFA611216R2001	1	0.015
	● Black	Black plastic	M3SS7-10B	1SFA611216R1006	1	0.015
		Chrome plastic	M3SS7-20B	1SFA611216R2006	1	0.015
		Chrome metal	M3SS7-30B	1SFA611216R3006	1	0.024
	● Grey	Black plastic	M3SS7-10U	1SFA611216R1007	1	0.015

Contacts actuated





M3SS

Dimensions (mm, inches)

Modular plastic range

Key-operated selector switches - 2-position



M2SSK1-101

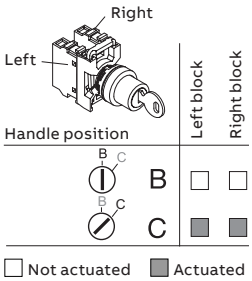
Description

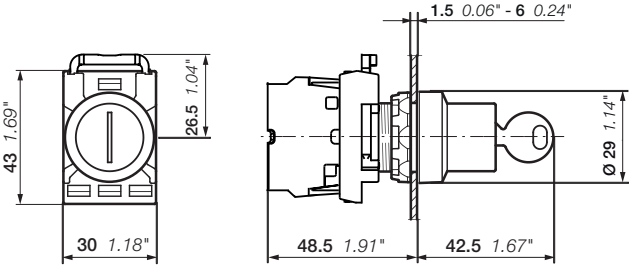
Key-operated selector switches are delivered in black color.

Operating principle	Key	Bezel	Type	Order code	Pkg qty	Weight (1 pce) kg
 Key can be removed in both positions	Key code 455	Black plastic	M2SSK1-101	1SFA611280R1001	1	0.045
		Chrome plastic	M2SSK1-201	1SFA611280R2001	1	0.045
		Chrome metal	M2SSK1-301	1SFA611280R3001	1	0.054
	Key code 421	Black plastic	M2SSK1-102	1SFA611280R1002	1	0.045
		Chrome metal	M2SSK1-302	1SFA611280R3002	1	0.054
	Key code 3433-E	Black plastic	M2SSK1-103	1SFA611280R1003	1	0.045
		Chrome metal	M2SSK1-303	1SFA611280R3003	1	0.054
	Random selection (1)	Black plastic	M2SSK1-104	1SFA611280R1004	25	0.045
		Chrome metal	M2SSK1-304	1SFA611280R3004	25	0.054
 Key can be removed in B position only	Key code 455	Black plastic	M2SSK2-101	1SFA611281R1001	1	0.045
		Chrome plastic	M2SSK2-201	1SFA611281R2001	1	0.045
		Chrome metal	M2SSK2-301	1SFA611281R3001	1	0.054
	Key code 421	Black plastic	M2SSK2-102	1SFA611281R1002	1	0.045
		Chrome metal	M2SSK2-302	1SFA611281R3002	1	0.054
	Key code 3433-E	Black plastic	M2SSK2-103	1SFA611281R1003	1	0.045
		Chrome plastic	M2SSK2-203	1SFA611281R2003	1	0.045
		Chrome metal	M2SSK2-303	1SFA611281R3003	1	0.054
	Random selection (1)	Black plastic	M2SSK2-104	1SFA611281R1004	25	0.045
		Chrome metal	M2SSK2-304	1SFA611281R3004	25	0.054
 Key can be removed in position B only	Key code 455	Black plastic	M2SSK3-101	1SFA611282R1001	1	0.045
		Chrome metal	M2SSK3-301	1SFA611282R3001	1	0.054
	Key code 421	Black plastic	M2SSK3-102	1SFA611282R1002	1	0.045
		Chrome metal	M2SSK3-302	1SFA611282R3002	1	0.054
	Key code 3433-E	Black plastic	M2SSK3-103	1SFA611282R1003	1	0.045
		Chrome metal	M2SSK3-303	1SFA611282R3003	1	0.054
	Random selection (1)	Black plastic	M2SSK3-104	1SFA611282R1004	25	0.045
		Chrome metal	M2SSK3-304	1SFA611282R3004	25	0.054
 Key can be removed in A only	Key code 455	Black plastic	M2SSK4-101	1SFA611289R1001	1	0.045

(1) The order code includes 25 keys operated selector switches. Each selector switch includes unique key code. Key codes 455, 421 and 3433-E not included.

Contacts actuated





M2SSK

Dimensions (mm, inches)

Modular plastic range

Key-operated selector switches - 3-position



M2SSK1-101

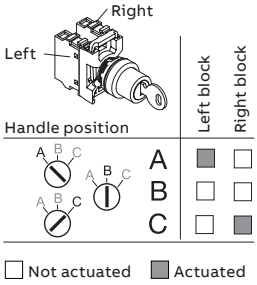
Description

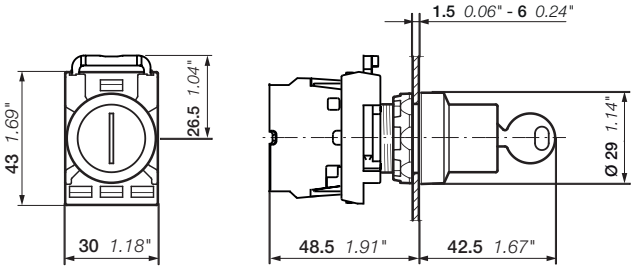
Key-operated selector switches are delivered in black color.

Operating principle	key	Bezel	Type	Order code	Pkg qty	Weight (1 pce) kg
 Key can be removed in all positions	Key code 455	Black plastic	M3SSK1-101	1SFA611283R1001	1	0.045
		Chrome plastic	M3SSK1-201	1SFA611283R2001	1	0.045
		Chrome metal	M3SSK1-301	1SFA611283R3001	1	0.054
	Key code 421	Black plastic	M3SSK1-102	1SFA611283R1002	1	0.045
		Chrome metal	M3SSK1-302	1SFA611283R3002	1	0.054
	Key code 3433-E	Black plastic	M3SSK1-103	1SFA611283R1003	1	0.045
		Chrome metal	M3SSK1-303	1SFA611283R3003	1	0.054
	Random selection (1)	Black plastic	M3SSK1-104	1SFA611283R1004	25	0.045
		Chrome metal	M3SSK1-304	1SFA611283R3004	25	0.054
 Key can be removed in position B only	Key code 455	Black plastic	M3SSK2-101	1SFA611284R1001	1	0.045
		Chrome metal	M3SSK2-301	1SFA611284R3001	1	0.054
	Key code 421	Black plastic	M3SSK2-102	1SFA611284R1002	1	0.045
	Key code 3433-E	Black plastic	M3SSK2-103	1SFA611284R1003	1	0.045
	Random selection (1)	Black plastic	M3SSK2-104	1SFA611284R1004	25	0.045
 Key can be removed in position B only	Key code 455	Black plastic	M3SSK3-101	1SFA611285R1001	1	0.045
		Chrome metal	M3SSK3-301	1SFA611285R3001	1	0.054
	Key code 421	Black plastic	M3SSK3-102	1SFA611285R1002	1	0.045
		Chrome metal	M3SSK3-302	1SFA611285R3002	1	0.054
	Key code 3433-E	Black plastic	M3SSK3-103	1SFA611285R1003	1	0.045
		Chrome metal	M3SSK3-303	1SFA611285R3003	1	0.054
	Random selection (1)	Black plastic	M3SSK3-104	1SFA611285R1004	25	0.045
 Key can be removed in position A only	Key code 455	Black plastic	M3SSK4-101	1SFA611286R1001	1	0.045
		Chrome metal	M3SSK4-301	1SFA611286R3001	1	0.054
	Key code 421	Black plastic	M3SSK4-102	1SFA611286R1002	1	0.045
		Chrome metal	M3SSK4-302	1SFA611286R3002	1	0.054
 Key can be removed in all positions	Key code 455	Black plastic	M3SSK5-101	1SFA611287R1001	1	0.045
		Chrome metal	M3SSK5-301	1SFA611287R3001	1	0.054
	Key code 3433-E	Black plastic	M3SSK5-103	1SFA611287R1003	1	0.045
 Key can be removed in A only	Key code 455	Black plastic	M3SSK6-101	1SFA611288R1001	1	0.045

(1) The order code includes 25 key operated selector switches. Each selector switch includes unique key code. Key codes 455, 421 and 3433-E not included.

Contacts actuated





M3SSK

Dimensions (mm, inches)

Modular plastic range
Potentiometers



MT-110B

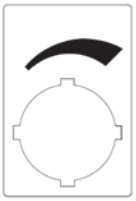
Description
Black knob with integrated position indication and marking in white.

Bezel		Type	Order code	Pkg qty	Weight (1 pce) kg
Knob with resistor 5 kΩ					
Black plastic		MT-105B	1SFA611410R1056	1	0.040
Chrome plastic		MT-205B	1SFA611410R2056	1	0.040
Chrome metal		MT-305B	1SFA611410R3056	1	0.049
Knob with resistor 10 kΩ					
Black plastic		MT-110B	1SFA611410R1106	1	0.040
Chrome plastic		MT-210B	1SFA611410R2106	1	0.040
Chrome metal		MT-310B	1SFA611410R3106	1	0.048
Knob with resistor 50 kΩ					
Black plastic		MT-150B	1SFA611410R1506	1	0.040
Chrome plastic		MT-250B	1SFA611410R2506	1	0.040
Chrome metal		MT-350B	1SFA611410R3506	1	0.049
Knob without resistor (1)					
Black plastic		MT-1B	1SFA611410R1006	10	0.022
Chrome metal		MT-3B	1SFA611410R3006	10	0.030
Legend plates aluminum					
29.6 x 44.5 mm	Ø 22 mm	–	SK615562-87	10	0.002
48.5 x 44.5 mm, scale: 0-10	Ø 22 mm	–	SK615562-88	10	0.002
48.5 x 44.5 mm, scale: 0-50	Ø 22 mm	MA6-1252	1SFA611930R1252	10	0.002

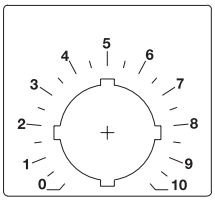
(1) Knob without resistor: for shaft diameter 6-6.35 mm. Min. shaft length 20 mm.



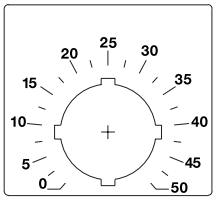
MA6-1252



SK615562-87



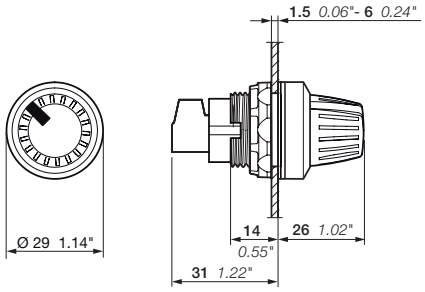
SK615562-88



MA6-1252

Technical data

Power rating	2 W
Mechanical angle	280°
Insulation voltage	900 V
Operating temperature	-1 ... + 70° C
Resistance tolerance	± 10 ohm
Mechanical life	20 000 operations



MT

Dimensions (mm, inches)

Modular plastic range

Reset pushbuttons



KPR1-100G



KPR1-101L

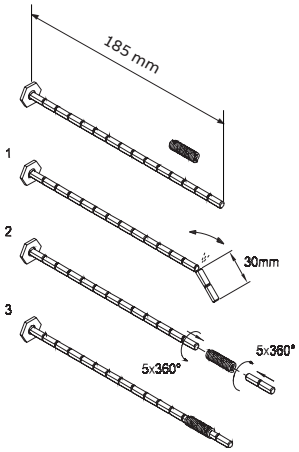


KPR1-104B

Description

Reset pushbuttons are momentary and include only black plastic bezel.

Color	Text	Type	Order code	Pkg qty	Weight (1 pce) kg
Flush reset pushbutton					
● Red	No text	KPR1-100R	1SFA616160R1001	10	0.020
● Green	No text	KPR1-100G	1SFA616160R1002	10	0.020
	I	KPR1-102G	1SFA616160R1022	10	0.020
● Yellow	No text	KPR1-100Y	1SFA616160R1003	10	0.020
● Blue	No text	KPR1-100L	1SFA616160R1004	10	0.020
	R	KPR1-101L	1SFA616160R1014	10	0.020
○ White	No text	KPR1-100W	1SFA616160R1005	10	0.020
	R	KPR1-101W	1SFA616160R1015	10	0.020
	I	KPR1-102W	1SFA616160R1025	10	0.020
	II	KPR1-103W	1SFA616160R1035	10	0.020
● Black	No text	KPR1-100B	1SFA616160R1006	10	0.020
	RESET	KPR1-104B	1SFA616160R1046	10	0.020
Extended reset pushbutton					
● Red	No text	KPR2-100R	1SFA616161R1001	10	0.021
	O	KPR2-105R	1SFA616161R1051	10	0.021
● Black	No text	KPR2-100B	1SFA616161R1006	10	0.021



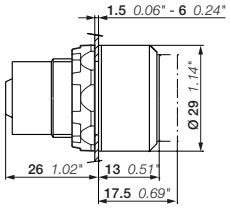
KA1-8046



KA1-8047

Accessories

	Type	Order code	Pkg qty	Weight (1 pce) kg
Shaft	KA1-8046	1SFA616920R8046	10	0.007
Flexible joint	KA1-8047	1SFA616920R8047	10	0.005



KPR1, KPR2

Dimensions (mm, inches)

Modular plastic range

Reset pushbuttons with shaft



KPR3-100R



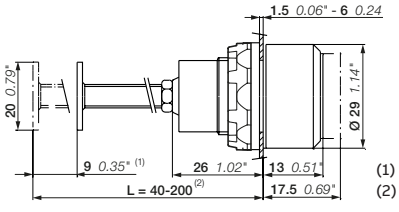
KPR3-104B

Description

Reset pushbuttons are momentary and include only black plastic bezel.

Color	Text	Type	Order code	Pkg qty	Weight (1 pce) kg
Flush reset pushbutton					
● Red	No text	KPR3-100R	1SFA616162R1001	1	0.027
● Green	No text	KPR3-100G	1SFA616162R1002	1	0.027
	II	KPR3-103G	1SFA616162R1032	1	0.027
● Yellow	No text	KPR3-100Y	1SFA616162R1003	1	0.027
● Blue	No text	KPR3-100L	1SFA616162R1004	1	0.027
	R	KPR3-101L	1SFA616162R1014	1	0.027
○ White	No text	KPR3-100W	1SFA616162R1005	1	0.027
	R	KPR3-101W	1SFA616162R1015	1	0.027
● Black	No text	KPR3-100B	1SFA616162R1006	1	0.027
	RESET	KPR3-104B	1SFA616162R1046	1	0.027
Extended reset pushbutton					
● Red	No text	KPR4-100R	1SFA616163R1001	1	0.028
	O	KPR4-105R	1SFA616163R1051	1	0.028
● Black	No text	KPR4-100B	1SFA616163R1006	1	0.028
	O	KPR4-105B	1SFA616163R1056	1	0.028

Note: Flexible joint not included.



(1) Length of stroke
(2) Can be cut to desired length

KPR3, KPR4

Dimensions (mm, inches)

Modular plastic range

Holders and contact blocks for front mounting


MCBH-00


MCBH5-00

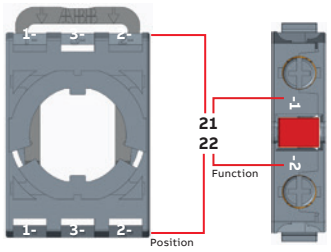

MCB-10


MCB-02


MCBL-01

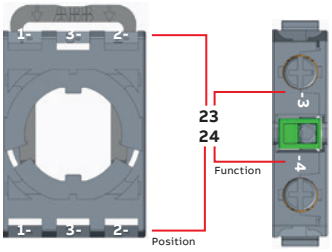
Description	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg
Holders					
3-position	– –	MCBH-00	1SFA611605R1100	10	0.006
5-position	– –	MCBH5-00	1SFA611601R1100	10	0.008
Single contact blocks					
For 3 & 5-position holder	1 0	MCB-10	1SFA611610R1001	10	0.013
	0 1	MCB-01	1SFA611610R1010	10	0.013
Single contact blocks, gold plated contacts					
For 3 & 5-position holder	1 0	MCB-10G	1SFA611610R1101	10	0.013
	0 1	MCB-01G	1SFA611610R1110	10	0.013
Double contacts blocks					
For 3 & 5-position holder	2 0	MCB-20	1SFA611610R1002	10	0.026
	0 2	MCB-02	1SFA611610R1020	10	0.026
	1 1	MCB-11	1SFA611610R1011	10	0.026
Double contact blocks, gold plated contacts					
For 3 & 5-position holder	2 0	MCB-20G	1SFA611610R1102	10	0.026
	0 2	MCB-02G	1SFA611610R1120	10	0.026
	1 1	MCB-11G	1SFA611610R1111	10	0.026
Micro switch contact blocks					
For 3-position holder	1 0	MCBL-10	1SFA611612R1010	10	0.013
	0 1	MCBL-01	1SFA611612R1001	10	0.013

Note: 3 micro switch contact blocks max. allowed. If more than 3 contact blocks are needed, micro switch contact block to be mounted on the second stack.



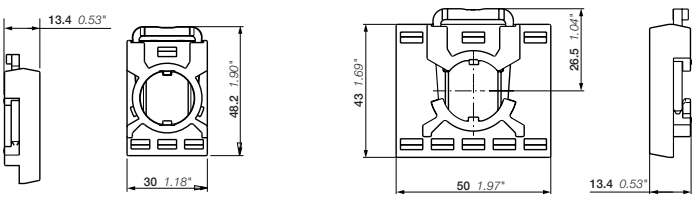
Combined markings

11	31	21
12	32	22

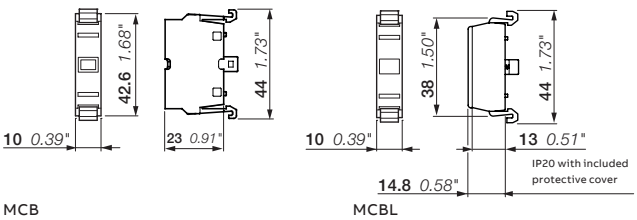


Combined markings

13	33	23
14	34	24



MCBH MCBH5



MCB MCBL

Dimensions (mm, inches)

Modular plastic range

LED blocks for front mounting



MLBL-00W

Color	Rated current mA	Wavelength nm	Luminance mcd	Type	Order code	Pkg qty	Weight (1pce) kg
Rated voltage 12 V DC							
Red	12.0	620	320	MLBL-00R	1SFA611621R1001	10	0.012
Green	12.0	520	1500	MLBL-00G	1SFA611621R1002	10	0.012
Yellow	12.0	588	380	MLBL-00Y	1SFA611621R1003	10	0.012
Blue	12.0	468	450	MLBL-00L	1SFA611621R1004	10	0.012
White	12.0	(1)	600	MLBL-00W	1SFA611621R1005	10	0.012
Rated voltage 24 V AC/DC							
Red	10.0	620	250	MLBL-01R	1SFA611621R1011	10	0.012
Green	10.0	520	1500	MLBL-01G	1SFA611621R1012	10	0.012
Yellow	10.0	588	250	MLBL-01Y	1SFA611621R1013	10	0.012
Blue	10.0	468	450	MLBL-01L	1SFA611621R1014	10	0.012
White	10.0	(1)	600	MLBL-01W	1SFA611621R1015	10	0.012
Rated voltage 48 V AC/DC							
Red	10.0	620	260	MLBL-02R	1SFA611621R1021	10	0.012
Green	13.0	520	1500	MLBL-02G	1SFA611621R1022	10	0.012
Yellow	10.0	588	300	MLBL-02Y	1SFA611621R1023	10	0.012
Blue	13.0	468	450	MLBL-02L	1SFA611621R1024	10	0.012
White	13.0	(1)	600	MLBL-02W	1SFA611621R1025	10	0.012
Rated voltage 60 V AC/DC							
Red	13.0	620	350	MLBL-03R	1SFA611621R1031	10	0.012
Green	13.0	520	2000	MLBL-03G	1SFA611621R1032	10	0.012
Yellow	13.0	588	400	MLBL-03Y	1SFA611621R1033	10	0.012
Blue	13.0	468	550	MLBL-03L	1SFA611621R1034	10	0.012
White	13.0	(1)	750	MLBL-03W	1SFA611621R1035	10	0.012
Rated voltage 110-130 V AC							
Red	10.0	620	200	MLBL-04R	1SFA611621R1041	10	0.012
Green	10.0	520	1200	MLBL-04G	1SFA611621R1042	10	0.012
Yellow	10.0	588	250	MLBL-04Y	1SFA611621R1043	10	0.012
Blue	10.0	468	400	MLBL-04L	1SFA611621R1044	10	0.012
White	10.0	(1)	500	MLBL-04W	1SFA611621R1045	10	0.012
Rated voltage 110-130 V AC high anti-inductive voltage (2)							
Red	10.0	620	250	MLBL-04AR	1SFA611621R3041	10	0.012
Green	10.0	520	1500	MLBL-04AG	1SFA611621R3042	10	0.012
Yellow	10.0	582	300	MLBL-04AY	1SFA611621R3043	10	0.012
Blue	10.0	468	450	MLBL-04AL	1SFA611621R3044	10	0.012
White	10.0	(1)	600	MLBL-04AW	1SFA611621R3045	10	0.012
Rated voltage 110-130 V DC							
Red	10.0	620	250	MLBL-05R	1SFA611621R1051	10	0.012
Green	10.0	520	1500	MLBL-05G	1SFA611621R1052	10	0.012
Yellow	10.0	588	300	MLBL-05Y	1SFA611621R1053	10	0.012
Blue	10.0	468	450	MLBL-05L	1SFA611621R1054	10	0.012
White	10.0	(1)	600	MLBL-05W	1SFA611621R1055	10	0.012
Rated voltage 220 V DC							
Red	8.0	620	180	MLBL-06R	1SFA611621R1061	10	0.012
Green	8.0	520	110	MLBL-06G	1SFA611621R1062	10	0.012
Yellow	8.0	588	200	MLBL-06Y	1SFA611621R1063	10	0.012
Blue	8.0	468	450	MLBL-06L	1SFA611621R1064	10	0.012
White	8.0	(1)	600	MLBL-06W	1SFA611621R1065	10	0.012

Note: care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product.
(1) X=0.31, Y=0.32 according to the ICI Chromaticity diagram.
(2) Higher threshold to light up LED to be used in application where there is risk of large induced voltages.

Modular plastic range

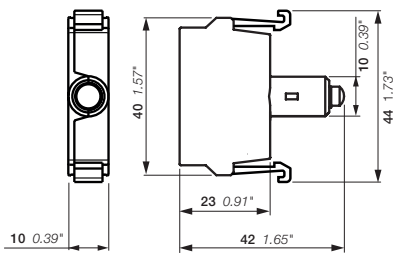
LED blocks for front mounting



MLBL-00W

Color	Rated current mA	Wavelength nm	Luminance mcd	Type	Order code	Pkg qty	Weight (1pce) kg
Rated voltage 230 V AC							
Red	10.0	620	250	MLBL-07R	1SFA611621R1071	10	0.012
Green	10.0	520	1500	MLBL-07G	1SFA611621R1072	10	0.012
Yellow	10.0	588	300	MLBL-07Y	1SFA611621R1073	10	0.012
Blue	10.0	468	450	MLBL-07L	1SFA611621R1074	10	0.012
White	10.0	(1)	600	MLBL-07W	1SFA611621R1075	10	0.012
Rated voltage 230 V AC high anti-inductive voltage (2)							
Red	10.0	620	250	MLBL-99R	1SFA611621R1991	10	0.012
Green	10.0	520	1500	MLBL-99G	1SFA611621R1992	10	0.012
Yellow	10.0	588	300	MLBL-99Y	1SFA611621R1993	10	0.012
Blue	10.0	468	450	MLBL-99L	1SFA611621R1994	10	0.012
White	10.0	(1)	600	MLBL-99W	1SFA611621R1995	10	0.012
Rated voltage 380 V AC							
Red	10.0	620	250	MLBL-08R	1SFA611621R1081	10	0.012
Green	10.0	520	1500	MLBL-08G	1SFA611621R1082	10	0.012
Yellow	10.0	582	300	MLBL-08Y	1SFA611621R1083	10	0.012
Blue	10.0	468	450	MLBL-08L	1SFA611621R1084	10	0.012
White	10.0	(1)	600	MLBL-08W	1SFA611621R1085	10	0.012
Rated voltage 415 V AC							
Red	11	620	280	MLBL-09R	1SFA611621R1091	10	0.012
Green	11	520	1800	MLBL-09G	1SFA611621R1092	10	0.012
Yellow	11	588	350	MLBL-09Y	1SFA611621R1093	10	0.012
Blue	11	468	500	MLBL-09L	1SFA611621R1094	10	0.012
White	11	(1)	650	MLBL-09W	1SFA611621R1095	10	0.012

Note: care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product.
(1) X=0.31, Y=0.32 according to the ICI Chromaticity diagram.
(2) Higher threshold to light up LED to be used in application where there is risk of large induced voltages.



MLBL

Dimensions (mm, inches)

Modular plastic range
Accessories


KA1

MA1-8052


MA1-8126


KA1-8010


KA1-8022/KA1-8021


SK616016-2


MA1-8153

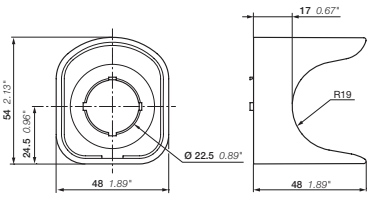

MA1-8152


MA1-8053


MA1-8128

Description	Bezel / color	Type	Order code	Pkg qty	Weight (1pce) kg
30 mm adaptors for 22 mm operator (1.5 - 4 mm panel thickness)					
Emergency stop pushbuttons, MPM	Black plastic	KA1-8027	1SFA616920R8027	1	0.007
	Chrome metal	KA1-8028	1SFA616920R8028	1	0.021
Pushbuttons, selector switches, pilot lights, potentiometers, emergency stop pushbuttons, MPE, MJS	Black plastic	KA1-8029	1SFA616920R8029	1	0.010
Flush mounted pushbuttons	Chrome metal	KA1-8073	1SFA616920R8073	1	0.050
Flush mounted selector switches	Chrome metal	MA1-8074	1SFA611920R8074	1	0.050
Protective membrane, silicone					
Flush pushbutton		MA1-8052	1SFA611920R8052	10	0.002
Double pushbutton		MA1-8126	1SFA611920R8126	10	0.002
Extended pushbutton		MA1-8002	1SFA611920R8002	10	0.002
Protective ring To prevent accidental operation. Cannot be used together with Legend plate holder					
Flush and extended pushbuttons	Clear plastic	-	SK615512-1	10	0.002
Flush pushbuttons	Metal and black plastic	KA1-8010	1SFA616920R8010	10	0.008
Bezel					
Pushbuttons	Black plastic	KA1-8022	1SFA616920R8022	10	0.002
	Chrome plastic	KA1-8020	1SFA616920R8020	10	0.002
	Chrome metal	KA1-8021	1SFA616920R8021	10	0.015
Selector switches	Black plastic	KA1-8080	1SFA616920R8080	10	0.002
	Chrome metal	KA1-8024	1SFA616920R8024	10	0015
Square bezel					
Black plastic		-	SK616016-2	10	0.001
Lockable shroud					
Pushbuttons, selector switches	Plastic	MA1-8153	1SFA611920R8153	1	0.023
Emergency stop 30 mm	Metal	-	SK615502-D	1	0.080
Touch guard					
Touch guard		MA1-8152	1SFA611920R8152	1	0.023
Shroud with anti rotation tabs, slot for pad-lock and with water drainage					
Emergency stop, machine stop 40 mm	Yellow	MA1-8053	1SFA611920R8053	1	0.020
	Grey	MA1-8128	1SFA611920R8128	1	0.020

Note: Din-rail adaptor should be used with 2 contact blocks for rear mounting type MCB..B.



MA1

Dimensions (mm, inches)

Modular plastic range
Accessories


MA1-8131


MDB-2


MA1-8015


MA1-8149


MA1-8019

Description	Bezel / color	Type	Order code	Pkg qty	Weight (1pce) kg
DIN-rail adaptor					
DIN-rail adaptor		MA1-8131	1SFA611920R8131	1	0.020
DIN-rail adaptor with one dummy block		MA1-8001	1SFA611920R8001	1	0.028
Dummy block		MDB-2	1SFA611630R1002	10	0.003
Note: Din-rail adaptor should be used with 2 contact blocks for rear mounting type MCB..B.					
Note: Dummy blocks are used when only one contact block or a compact pilot device is used together with the DIN-rail adaptor					
Mounting tools					
Mounting tool for tightening the locking nut		MA1-8015	1SFA611920R8015	1	0.021
Mounting tool for power tool		MA1-8149	1SFA611920R8149	1	0.155
Extra key					
Key code 455			SK616021-71	10	0.007
Key code 421			SK616021-72	10	0.007
Key code 3433-E			SK616021-73	10	0.007
Locking nut					
Locking nut		MA1-8019	1SFA611920R8019	10	0.001

Pilot devices, 22 mm
Modular metal range

Ordering details
600 Non-illuminated pushbuttons momentary
601 Non-illuminated marked pushbuttons momentary
602 Illuminated pushbuttons momentary
603 Non-illuminated mushroom pushbuttons
604 Pilot lights
605 Non-illuminated selector switches
609 Key-operated selector switches
611 Joysticks

Accessories for modular range
614 Holders and contact blocks for front mounting
615 Power supplies
616 LED bulbs for power supplies
617 LED blocks for front mounting
618 Other accessories

Modular metal range

Non-illuminated pushbuttons momentary


P9MPNRG
with holder


P9MPNGG


P9MPNBG


P9MPNNG


P9MPNRS


P9MPNVS


P9MPNLS

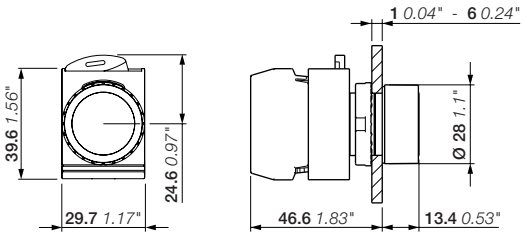

P9MPNNS


P9ACDPP

Description

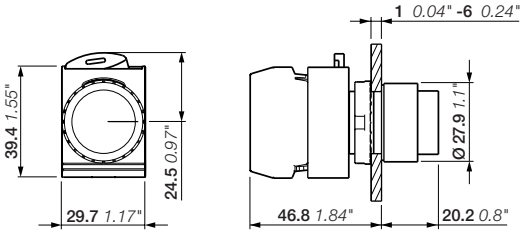
Each reference includes the satin chrome metal body and nut together with the holder.

Operator	Type	Order code	Pkg qty	Weight (1 pce) kg
Flush pushbutton				
Red	P9MPNRG	1SFA184001R9001	1	0.058
Green	P9MPNVG	1SFA184002R9002	1	0.058
Yellow	P9MPNGG	1SFA184003R9003	1	0.058
Blue	P9MPNLG	1SFA184006R9004	1	0.058
White	P9MPNBG	1SFA184007R9005	1	0.058
Black	P9MPNNG	1SFA184000R9006	1	0.058
Grey	P9MPNHG	1SFA184008R9007	1	0.058
Extended pushbutton				
Red	P9MPNRS	1SFA184011R9001	1	0.062
Green	P9MPNVS	1SFA184012R9002	1	0.062
Yellow	P9MPNGS	1SFA184057R9003	1	0.062
Blue	P9MPNLS	1SFA184016R9004	1	0.062
White	P9MPNBS	1SFA184017R9005	1	0.062
Black	P9MPNNS	1SFA184010R9006	1	0.062
Maintained accessory				
Device for standard pushbuttons, illuminated pushbuttons: To be used only with contact blocks P9B01VN, P9B01VR, P9B10VA and P9B01FN	P9ACDPP	1SFA187843R8000	1	0.012



P9MPN..G

P9ACDPP



P9MPN..S

Dimensions (mm, inches)

Modular metal range

Non-illuminated marked pushbuttons momentary


P9MPNLG037


P9MPNBG030


P9MPNBG028


P9MPNRG029


P9MPNNG029

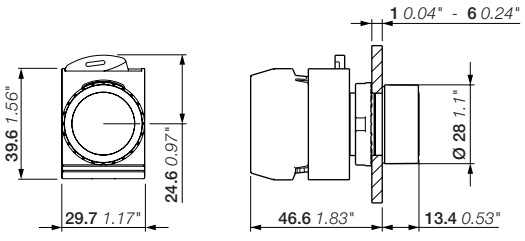

P9MPNVG006


P9MPNRS029

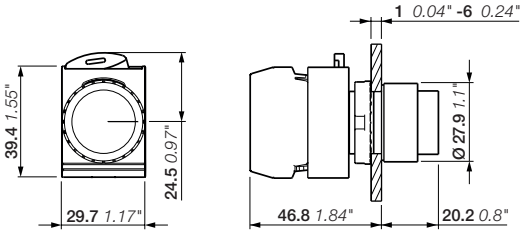
Flush pushbuttons

Each reference includes the satin chrome metal body and nut together with the holder.

Text/symbol	Color	Type	Order code	Pkg qty	Weight (1 pce) kg
Flush puttonbuttons					
START	Green	P9MPNVG202	1SFA187149R9502	1	0.058
STOP	Red	P9MPNRG201	1SFA187147R9501	1	0.058
	Black	P9MPNNG201	1SFA188908R9506	1	0.058
R	Blue	P9MPNLG037	1SFA187143R9504	1	0.058
⊖	Green	P9MPNVG030	1SFA187146R9502	1	0.058
	White	P9MPNBG030	1SFA188057R9505	1	0.058
	Black	P9MPNNG030	1SFA187145R9506	1	0.058
I	Green	P9MPNVG028	1SFA187112R9502	1	0.058
	White	P9MPNBG028	1SFA187151R9505	1	0.058
	Black	P9MPNNG028	1SFA187111R9506	1	0.058
O	Red	P9MPNRG029	1SFA187110R9501	1	0.058
	Black	P9MPNNG029	1SFA187150R9506	1	0.058
→	Green	P9MPNVG006	1SFA187118R9502	1	0.058
	White	P9MPNBG006	1SFA187152R9505	1	0.058
	Black	P9MPNNG006	1SFA187117R9506	1	0.058
→←	Black	P9MPNNG085	1SFA188886R9506	1	0.058
⟷	Blue	P9MPNLG007	1SFA188900R9504	1	0.058
	Black	P9MPNNG002	1SFA187139R9506	1	0.058
Extended pushbutton					
O	Red	P9MPNRS029	1SFA187210R9501	1	0.058
O	Black	P9MPNNS029	1SFA187250R9506	1	0.058
	Black	P9MPNNS032	1SFA187235R9506	1	0.058



P9MPN..G



P9MPN..S

Dimensions (mm, inches)

Modular metal range

Illuminated pushbuttons momentary



P9MPLVGD
with holder



P9MPLRGD



P9MPLGGD



P9MPLBGD



P9MPLRSD



P9MPLLGV



P9MPLGGV



P9MPLVSD



P9MPLASD

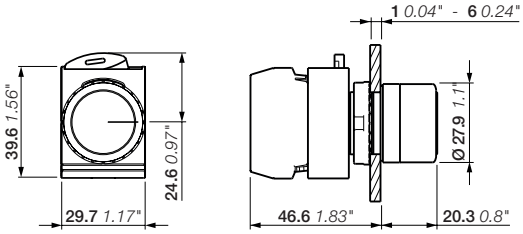


P9ACDPP

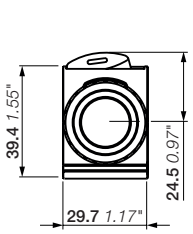
Description

Each reference includes the satin chrome metal body and nut together with the holder.

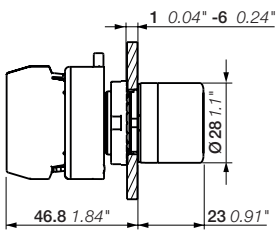
Operator	Type	Order code	Pkg qty	Weight (1 pce) kg
Flush pushbutton - Plastic lens type				
Red	P9MPLRGD	1SFA184491R9101	1	0.057
Green	P9MPLVGD	1SFA184492R9102	1	0.057
Yellow	P9MPLGGD	1SFA184493R9103	1	0.057
Blue	P9MPLLGD	1SFA184496R9104	1	0.057
White	P9MPLBGD	1SFA184497R9105	1	0.057
Orange	P9MPLAGD	1SFA184495R9109	1	0.057
Clear	P9MPLIGD	1SFA184498R9108	1	0.057
Flush pushbutton - Glass lens type				
Red	P9MPLRGV	1SFA184521R9101	1	0.060
Green	P9MPLVGV	1SFA184522R9102	1	0.060
Yellow	P9MPLGGV	1SFA184523R9103	1	0.060
Blue	P9MPLLGV	1SFA184526R9104	1	0.060
White	P9MPLBGV	1SFA184527R9105	1	0.060
Extended pushbutton - Plastic lens type				
Red	P9MPLRSD	1SFA184501R9101	1	0.059
Green	P9MPLVSD	1SFA184502R9102	1	0.059
Yellow	P9MPLGSD	1SFA184503R9103	1	0.059
Blue	P9MPLLSD	1SFA184506R9104	1	0.059
White	P9MPLBSD	1SFA184507R9105	1	0.059
Orange	P9MPLASD	1SFA184505R9109	1	0.059
Maintained accessory				
Device for standard pushbuttons, illuminated pushbuttons: To be used only with contact blocks P9B01VN, P9B01VR, P9B10VA and P9B01FN	P9ACDPP	1SFA187843R8000	1	0.012

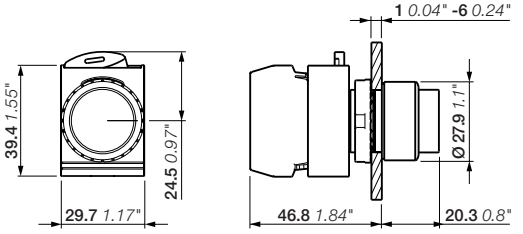


P9MPL..GD, P9MPL..GV

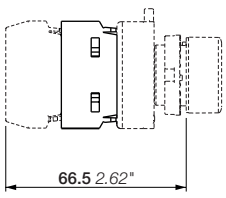


P9MPL..V





P9MPL..SD



P9ACDPP

Dimensions (mm, inches)

Modular metal range

Non-illuminated mushroom pushbuttons



P9MER3RN
with holder



P9MEM3GN



P9MEM4VN



P9MEM6GN



P9MEM6NN



P9MER4RN



P9MET4VN1



P9MET4NN1



P9MEC4RN01

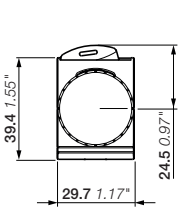


P9MEC4RN37

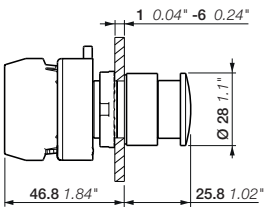
Description

Each reference includes the satin chrome metal body and nut together with the holder.

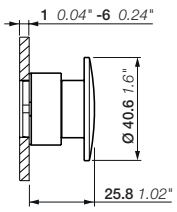
Color	Release method	Type	Order code	Pkg qty	Weight (1 pce) kg
Momentary					
Ø 28 mm					
Red	–	P9MEM3RN	1SFA184031R9001	1	0.060
Green	–	P9MEM3VN	1SFA184032R9002	1	0.060
Yellow	–	P9MEM3GN	1SFA184033R9003	1	0.060
Black	–	P9MEM3NN	1SFA184030R9006	1	0.060
Ø 40 mm					
Red	–	P9MEM4RN	1SFA184041R9001	1	0.061
Green	–	P9MEM4VN	1SFA184042R9002	1	0.061
Yellow	–	P9MEM4GN	1SFA184043R9003	1	0.061
Black	–	P9MEM4NN	1SFA184040R9006	1	0.061
Ø 60 mm					
Red	–	P9MEM6RN	1SFA184051R9001	1	0.070
Green	–	P9MEM6VN	1SFA184052R9002	1	0.070
Yellow	–	P9MEM6GN	1SFA184053R9003	1	0.070
Black	–	P9MEM6NN	1SFA184050R9006	1	0.070
Maintained					
Ø 28 mm					
Red	Twist release	P9MER3RN	1SFA184070R9001	1	0.066
Ø 40 mm					
Red	Pull release	P9MET4RN1	1SFA184061R9001	1	0.069
	Twist release	P9MER4RN	1SFA184071R9001	1	0.069
Green	Pull release	P9MET4VN1	1SFA184062R9002	1	0.069
Yellow	Pull release	P9MET4GN1	1SFA184063R9003	1	0.069
Black	Pull release	P9MET4NN1	1SFA184060R9006	1	0.069
Maintained with key					
Ø 40 mm					
Red	Key code 01	P9MEC4RN01	1SFA192000R9001	1	0.090
	Key code 37	P9MEC4RN37	1SFA192012R9001	1	0.090
	Key code 95	P9MEC4RN95	1SFA184073R9001	1	0.090



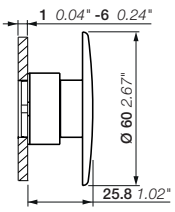
P9MEM..N, P9MER..N, P9MET..N



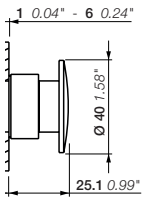
P9MEM3..N, P9MER3RN



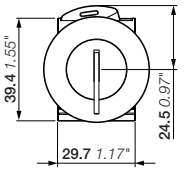
P9MEM4..N, P9MER4RN



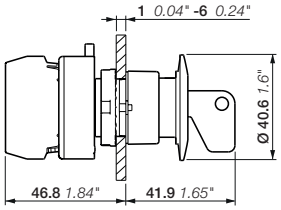
P9MEM6..N



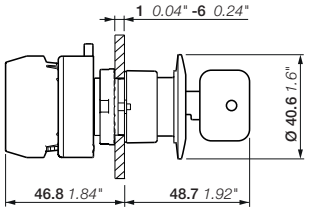
P9MET4..N



P9MEC4..N



P9MEC4RN01, P9MEC4RN95



P9MEC4RN37

Dimensions (mm, inches)

Modular metal range



P9MLBD
with holder



P9MLRD



P9MLVD



P9MLGD



P9MLLD



P9MLID

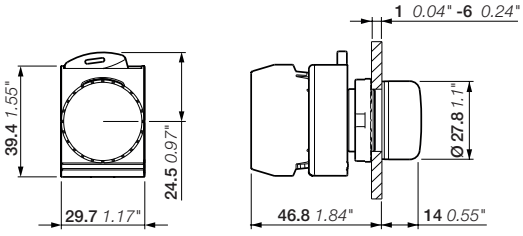


P9MLAD

Description

Each reference includes the satin chrome metal body and nut together with the holder.

Color	Type	Order code	Pkg qty	Weight (1 pce) kg
Operator - Plastic lens type				
Red	P9MLRD	1SFA184791R9001	1	0.050
Green	P9MLVD	1SFA184792R9002	1	0.050
Yellow	P9MLGD	1SFA184793R9003	1	0.050
Blue	P9MLLD	1SFA184796R9004	1	0.050
White	P9MLBD	1SFA184797R9005	1	0.050
Clear	P9MLID	1SFA184798R9008	1	0.050
Orange	P9MLAD	1SFA184795R9009	1	0.050



P9ML..D

Dimensions (mm, inches)

Modular metal range

Non-illuminated selector switches - 2-position



P9MSMI0N
with holder



P9MSMI0N



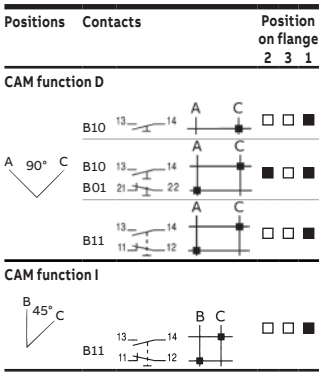
P9MSMD0R

Description

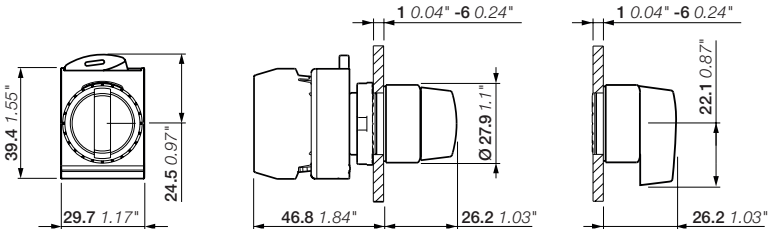
Each reference includes the satin chrome metal body and nut together with the holder.

Operating principle	Color	CAM function	Type	Order code	Pkg qty	Weight (1 pce) kg
Short handle						
	● Yellow	I	P9MSMI0G	1SFA184123R9003	1	0.065
	● Black	I	P9MSMI0N	1SFA184120R9006	1	0.065
	● Red	D	P9MSMD0R	1SFA184111R9001	1	0.065
	● Black	D	P9MSMD0N	1SFA184110R9006	1	0.065
	● Red	I	P9MSMI5R	1SFA184151R9001	1	0.065
	● Green	I	P9MSMI5V	1SFA184152R9002	1	0.065
	● Black	I	P9MSMI5N	1SFA184150R9006	1	0.065
	● Red	D	P9MSMD5R	1SFA184141R9001	1	0.065
	● Yellow	D	P9MSMD5G	1SFA184143R9003	1	0.065
	● Black	D	P9MSMD5N	1SFA184140R9006	1	0.065
Long handle						
	● Black	I	P9MSVI0N	1SFA184371R9006	1	0.068
	● Yellow	D	P9MSVD0G	1SFA184822R9003		
	● Black	D	P9MSVD0N	1SFA184370R9006	1	0.068
	● Black	I	P9MSVI5N	1SFA184374R9006	1	0.068
	● Black	D	P9MSVD5N	1SFA184373R9006	1	0.068

Electrical diagram



Note: dot in this diagram = contact closed.
B10 = P9B10VN, P9B10FN contact blocks
B01 = P9B01VN, P9B01FN contact blocks
B11 = P9B11VN contact blocks



P9MSM, P9MSV

Dimensions (mm, inches)

Modular metal range

Non-illuminated selector switches - 3-position



P9MSVZ0N
wit holder



P9MSMZ0R



P9MSMZ3N



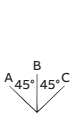
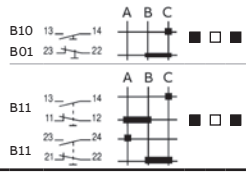
P9MSVZ5N

Description

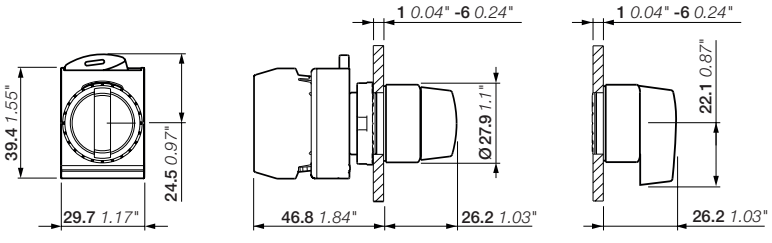
Each reference includes the satin chrome metal body and nut together with the holder.

Operating principle	Color	CAM function	Type	Order code	Pkg qty	Weight (1 pce) kg
Short handle						
	● Red	Z	P9MSMZ0R	1SFA184201R9001	1	0.065
	● Black	Z	P9MSMZ0N	1SFA184200R9006	1	0.065
	● Red	Z	P9MSMZ3R	1SFA184321R9001	1	0.065
	● Black	Z	P9MSMZ3N	1SFA184320R9006	1	0.065
	● Black	Z	P9MSMZ5N	1SFA184280R9006	1	0.065
	● Red	Z	P9MSMZ1R	1SFA184241R9001	1	0.065
	● Black	Z	P9MSMZ1N	1SFA184240R9006	1	0.065
Long handle						
	● Red	Z	P9MSVZ0R	1SFA184856R9001	1	0.068
	● Black	Z	P9MSVZ0N	1SFA184379R9006	1	0.068
	● Black	Z	P9MSVZ3N	1SFA184391R9006	1	0.068
	● Black	Z	P9MSVZ5N	1SFA184387R9006	1	0.068
	● Black	Z	P9MSVZ1N	1SFA184383R9006	1	0.068

Electrical diagram

Positions	Contacts	Position on flange 2 3 1
CAM function Z		
		

Note: dot in this diagram = contact closed.
B10 = P9B10VN, P9B10FN contact blocks
B01 = P9B01VN, P9B01FN contact blocks
B11 = P9B11VN contact blocks



P9MSM, P9MSV
Dimensions (mm, inches)

Modular metal range

Non-illuminated selector switches - 4-position



P9MSMX0N
with holder



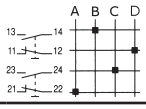
P9MSMX0N

Description

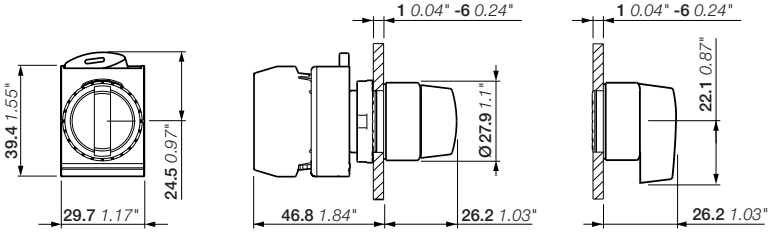
Each reference includes the satin chrome metal body and nut together with the holder.

Operating principle	Color	CAM function	Type	Order code	Pkg qty	Weight (1 pce) kg
Short handle						
	● Black	X	P9MSMX0N	1SFA184397R9006	1	0.065
	● Black	X	P9MSMX5N	1SFA184340R9006	1	0.065
Long handle						
	● Black	X	P9MSVX0N	1SFA184392R9006	1	0.068
	● Black	X	P9MSVX5N	1SFA184393R9006	1	0.068

Electrical diagram

Positions	Contacts	Position on flange 2 3 1
CAM function X		
		■ □ ■

Note: dot in this diagram = contact closed.
B10 = P9B10VN, P9B10FN contact blocks
B01 = P9B01VN, P9B01FN contact blocks
B11 = P9B11VN contact blocks



P9MSM, P9MSV
Dimensions (mm, inches)

Modular metal range

Non-illuminated selector switches - 5-position



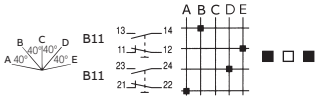
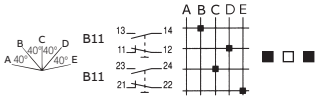
P9MSMYOR

Description

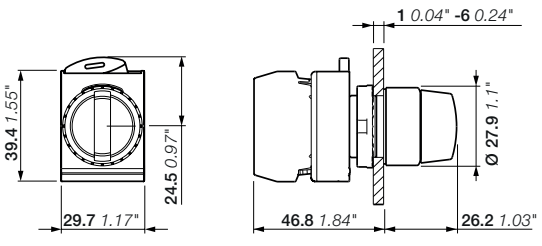
Each reference includes the satin chrome metal body and nut together with the holder.

Operating principle	Color	CAM function	Type	Order code	Pkg qty	Weight (1 pce) kg
Short handle						
	● Black	W	P9MSMW0N	1SFA184360R9006	1	0.065
	● Red	Y	P9MSMY0R	1SFA184351R9001	1	0.065
	● Black	Y	P9MSMY0N	1SFA184350R9006	1	0.065

Electrical diagram

Positions	Contacts	Position on flange 2 3 1
CAM function Y		■ □ ■
CAM function W		■ □ ■

Note: dot in this diagram = contact closed.
B10 = P9B10VN, P9B10FN contact blocks
B01 = P9B01VN, P9B01FN contact blocks
B11 = P9B11VN contact blocks



P9MSM

Dimensions (mm, inches)

Modular metal range

Key-operated selector switches - 2-position



P9MSCI0C37
with holder



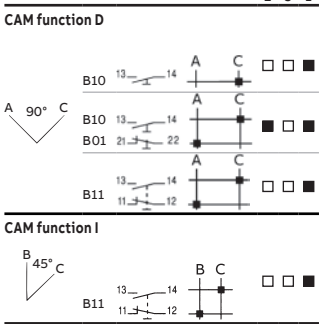
P9MSCI0C95

Description

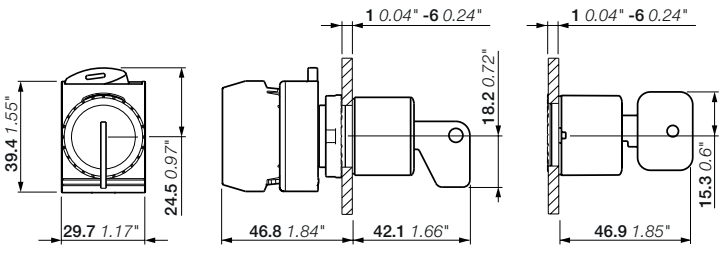
Each reference includes the satin chrome metal body and nut together with the holder, 2 keys included.

Operating principle	Key code	Key head color	CAM function	Type	Order code	Pkg qty	Weight (1 pce) kg
 Key can be removed in B only	37	Red/Metal	I	P9MSCI0C37	1SFA192162R9006	1	0.120
	01	Metal	I	P9MSCI0C01	1SFA192150R9006	1	0.120
	95	Metal	I	P9MSCI0C95	1SFA184403R9006	1	0.120
 Key can be removed in C only	01	Metal	I	P9MSCI0E01	1SFA192165R9006	1	0.120
	95	Metal	I	P9MSCI0E95	1SFA184404R9006	1	0.120
 Key can be removed in B and C	95	Metal	I	P9MSCI0N95	1SFA184405R9006	1	0.120
 Key can be removed in A only	37	Red/Metal	D	P9MSCD0A37	1SFA192117R9006	1	0.120
	01	Metal	D	P9MSCD0A01	1SFA192105R9006	1	0.120
	95	Metal	D	P9MSCD0A95	1SFA184400R9006	1	0.120
 Key can be removed in C only	01	Metal	D	P9MSCD0E01	1SFA192120R9006	1	0.120
	95	Metal	D	P9MSCD0E95	1SFA184401R9006	1	0.120
 Key can be removed in A and C positions	37	Red/Metal	D	P9MSCD0K37	1SFA192147R9006	1	0.120
	01	Metal	D	P9MSCD0K01	1SFA192135R9006	1	0.120
	95	Metal	D	P9MSCD0K95	1SFA184402R9006	1	0.120
 Key can be removed in B position	37	Red/Metal	I	P9MSCI5C37	1SFA192267R9006	1	0.120
	01	Metal	I	P9MSCI5C01	1SFA192255R9006	1	0.120
	95	Metal	I	P9MSCI5C95	1SFA184410R9006	1	0.120
 Key can be removed in A position	37	Red/Metal	D	P9MSCD5A37	1SFA192252R9006	1	0.120
	01	Metal	D	P9MSCD5A01	1SFA192240R9006	1	0.120
	95	Metal	D	P9MSCD5A95	1SFA184409R9006	1	0.120
	33	Yellow	D	P9MSCD5A33	1SFA192250R9006	1	0.120

Electrical diagram



Note: dot in this diagram = contact closed.
B10 = P9B10VN, P9B10FN contact blocks
B01 = P9B01VN, P9B01FN contact blocks
B11 = P9B11VN contact blocks



P9MSC..01, P9MSC..95

P9MSC..37

Dimensions (mm, inches)

Modular metal range

Key-operated selector switches - 3-position



P9MSCZ0T37
with holder



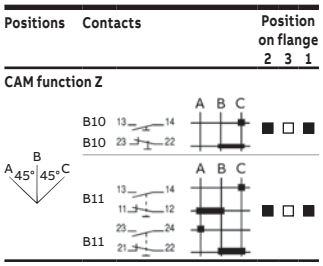
P9MSCZ0T95

Description

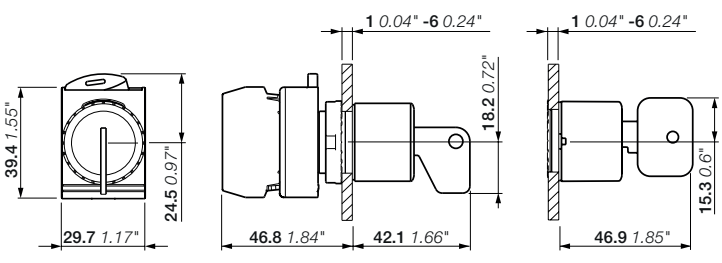
Each reference includes the satin chrome metal body and nut together with the holder, 2 keys included.

Operating principle	Key code	Key head color	CAM function	Type	Order code	Pkg qty	Weight (1 pce) kg
 Key can be removed in all positions	37	Red/Metal	Z	P9MSCZ0T37	1SFA192702R9006	1	0.120
	01	Metal	Z	P9MSCZ0T01	1SFA192690R9006	1	0.120
	95	Metal	Z	P9MSCZ0T95	1SFA184439R9006	1	0.120
Key can be removed in A position only	95	Metal	Z	P9MSCZ0A95	1SFA184433R9006	1	0.120
Key can be removed in B position only	95	Metal	Z	P9MSCZ0C95	1SFA184434R9006	1	0.120
Key can be removed in A and B positions	95	Metal	Z	P9MSCZ0H95	1SFA184436R9006	1	0.120
Key can be removed in B and C positions	95	Metal	Z	P9MSCZ0N95	1SFA184438R9006	1	0.120
 Key can be removed in position B only	95	Metal	Z	P9MSCZ1C95	1SFA184449R9006	1	0.120
Key can be removed in A and C positions	95	Metal	Z	P9MSCZ1N95	1SFA184451R9006	1	0.120

Electrical diagram



Note: dot in this diagram = contact closed.
B10 = P9B10VN, P9B10FN contact blocks
B01 = P9B01VN, P9B01FN contact blocks
B11 = P9B11VN contact blocks



P9MSC..01, P9MSC..95

P9MSC..37

Dimensions (mm, inches)

Modular metal range

Key-operated selector switches - 3-position



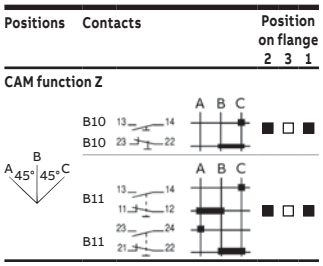
P9MSCZ3C01
with holder

Description

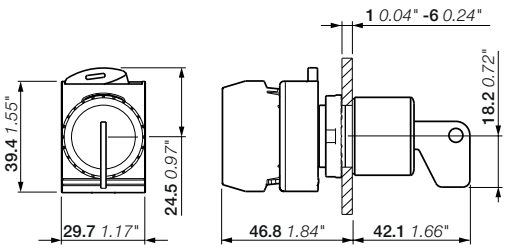
Each reference includes the satin chrome metal body and nut together with the holder, 2 keys included.

Operating principle	Key code	Key head color	CAM function	Type	Order code	Pkg qty	Weight (1 pce) kg
 Key can be removed in B position only	01	Metal	Z	P9MSCZ3C01	1SFA193110R9006	1	0.120
Key can be removed in B position only	95	Metal	Z	P9MSCZ3C95	1SFA184467R9006	1	0.120
 Key can be removed in A position only	01	Metal	Z	P9MSCZ5A01	1SFA193020R9006	1	0.120
	95	Metal	Z	P9MSCZ5A95	1SFA184461R9006	1	0.120
Key can be removed in B position only	95	Metal	Z	P9MSCZ5C95	1SFA184462R9006	1	0.120
Key can be removed in A and B positions	01	Metal	Z	P9MSCZ5H01	1SFA193050R9006	1	0.120
	95	Metal	Z	P9MSCZ5H95	1SFA184463R9006	1	0.120

Electrical diagram



Note: dot in this diagram = contact closed.
B10 = P9B10VN, P9B10FN contact blocks
B01 = P9B01VN, P9B01FN contact blocks
B11 = P9B11VN contact blocks



P9MSC..01, P9MSC..95
Dimensions (mm, inches)

Modular metal range

Joysticks - 2-position and 4-position



P9MMN2A
with holder



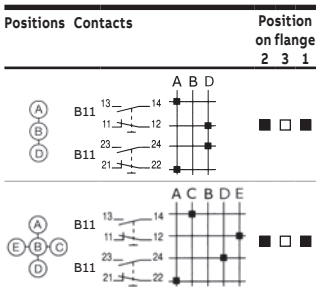
P9MMB2FG

Description

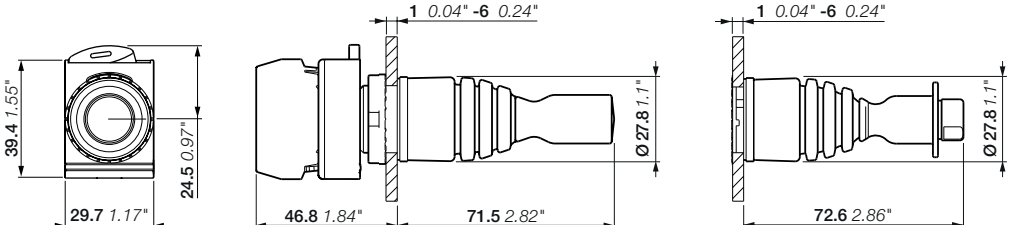
Each reference includes the satin chrome metal body and nut together with the holder.

Position	Material Color	Type	Order code	Pkg qty	Weight (1 pce) kg
Without latching function					
	Rubber/Black	P9MMN2F	1SFA184700R9006	1	0.090
	Rubber/Black	P9MMN2T	1SFA184701R9006	1	0.090
	Rubber/Black	P9MMN2A	1SFA184702R9006	1	0.090
	Rubber/Black	P9MMN2B	1SFA184703R9006	1	0.090
	Rubber/Black	P9MMN4F	1SFA184720R9006	1	0.090
	Rubber/Black	P9MMN4T	1SFA184721R9006	1	0.090
	Silicone/Grey	P9MMN4TG	1SFA184716R9006	1	0.090
With latching function					
	Rubber/Black	P9MMB2F	1SFA184710R9006	1	0.090
	Silicone/Grey	P9MMB2FG	1SFA184709R9006	1	0.090
	Rubber/Black	P9MMB2T	1SFA184711R9006	1	0.090
	Rubber/Black	P9MMB2A	1SFA184712R9006	1	0.090
	Rubber/Black	P9MMB4F	1SFA184740R9006	1	0.090
	Rubber/Black	P9MMB4T	1SFA184741R9006	1	0.090
	Silicone/Grey	P9MMB4TG	1SFA184744R9006	1	0.090

Electrical diagram



Note: dot in this diagram = contact closed.
B11= P9B11VN contact blocks



P9MMN, P9MMB

Dimensions (mm, inches)

Modular metal range

Joysticks - Accessories



P9ARSCMN



P9ARSCMB



P9ARSGMN



P9ARSGMB

Accessories

Description	Color	Type	Order code	Pkg qty	Weight (1 pce) kg
Rubber boot for joystick without latching	● Black	P9ARSCMN	1SFA188043R8000	5	0.008
Rubber boot for joystick with latching	● Black	P9ARSCMB	1SFA188044R8000	5	0.008
Silicone boot for joystick without latching	● Grey	P9ARSGMN	1SFA187495R8000	5	0.008
Silicone boot for joystick with latching	● Grey	P9ARSGMB	1SFA187496R8000	5	0.008

Modular metal range

Holders and contact blocks for front mounting



P9ACFS3



P9ACFS5



P9B10VN



P9B20VN



1SFC151611V0001

P9B10VA



P9B10FN

Screw terminals

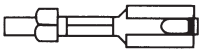
Description	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg
Holders					
3-position	- -	P9ACFS3	1SFA187841R8000	1	0.009
5-position	- -	P9ACFS5	1SFA187842R8000	1	0.016
Single contact blocks					
For 3 & 5-position holder	1 0	P9B10VN	1SFA187002R8001	1	0.009
	1 0	P9B10VN-AA	1SFA215832R8001	200	0.009
	0 1	P9B01VN	1SFA187001R8010	1	0.009
Double contact blocks					
For 3 & 5-position holder	2 0	P9B20VN	1SFA187009R8002	1	0.016
	0 2	P9B02VN	1SFA187008R8020	1	0.016
	0 2	P9B02VN-AA	1SFA205236R8020	200	0.016
	1 1	P9B11VN	1SFA187000R8011	1	0.016
	1 1	P9B11VN-AA	1SFA242712R8011	500	0.016
Single contact blocks with N.O. early make contacts and N.C. late break contacts					
For 3 & 5-position holder	1 0	P9B10VA	1SFA187004R8201	1	0.009
	0 1	P9B01VR	1SFA187003R8110	1	0.010

Faston terminals

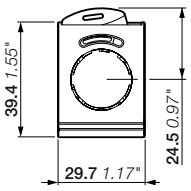
Single contact blocks (1)

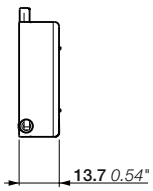
For 3 & 5-position holder	1 0	P9B10FN	1SFA187013R8301	1	0.009
	1 0	P9B10FN-AA	1SFA215835R8301	200	0.009
	0 1	P9B01FN	1SFA187012R8310	1	0.009

(1)

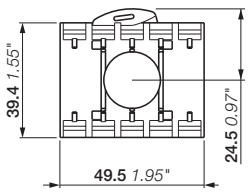


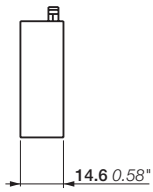
1x (6.35 x 0.8 mm)
2x (2.8 x 0.8 mm)



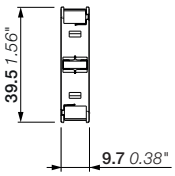


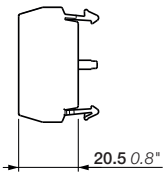
P9ACFS3



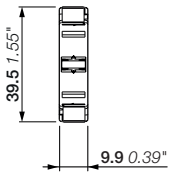


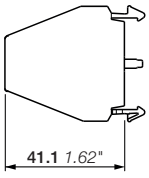
P9ACFS5



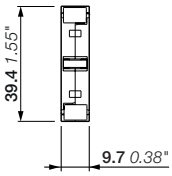


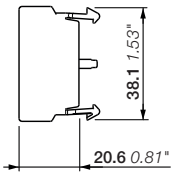
P9B10VN, P9B01VN, P9B10VA, P9B01VR





P9B20VN, P9B02VN, P9B11VN





P9B10FN, P9B01FN

Dimensions (mm, inches)

Modular metal range

Power supplies



P9PDNV0

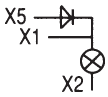


P9PDTV0

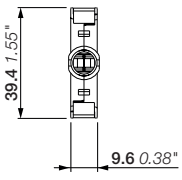


P9PDNF0

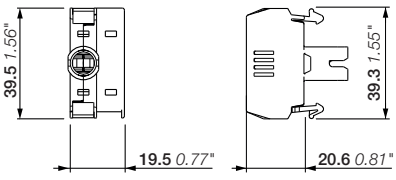
Contacts actuated

Power supplies	Position on flange 2 3 1
P9PDNV0 	□ ■ □
P9PDTV0 - P9PDNF0 	■ ■ □

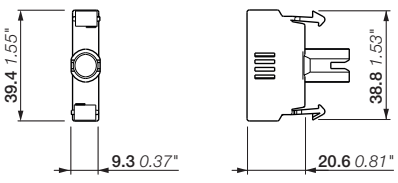
Description	Type	Order code	Pkg qty	Weight (1 pce) kg
Screw terminals				
Full voltage IEC: BA9S max 380 V - 2 W bulb not included UL - CSA: BA9S max 250 V - 2 W bulb not included	P9PDNV0	1SFA187020R1080	1	0.010
	P9PDNV0-AA	1SFA215831R1000	100	0.010
Test full voltage IEC: BA9S max 380 V - 2 W bulb not included UL - CSA: BA9S max 250 V - 2 W bulb not included	P9PDTV0	1SFA187027R8000	1	0.018
Note: P9PDTV0 are not included in UL listing.				
Faston terminals				
Full voltage IEC: BA9S max 380 V - 2 W bulbs not included UL - CSA: BA9S max 250 V... - 2 W bulbs not included	P9PDNF0	1SFA187055R1300	1	0.013
	P9PDNF0-AA	1SFA215834R1300	100	0.013



P9PDNV0



P9PDTV0



P9PDNF0

Dimensions (mm, inches)

Modular metal range

LED bulbs for power supplies



BA9S6LEDB

Color	Type	Order code	Pkg qty	Weight (1 pce) kg
Rated voltage 6 V AC/DC				
Red	BA9S6LEDR	1SFA187163R1001	5	0.002
Green	BA9S6LEDV	1SFA187164R1002	5	0.002
Yellow	BA9S6LEDG	1SFA187161R1003	5	0.002
Blue	BA9S6LEDL	1SFA187162R1004	5	0.002
White	BA9S6LEDB	1SFA187160R1005	5	0.002
Rated voltage 12 V AC/DC				
Red	BA9S12LEDR	1SFA187168R1011	5	0.002
Green	BA9S12LEDV	1SFA187169R1012	5	0.002
Yellow	BA9S12LEDG	1SFA187166R1013	5	0.002
Blue	BA9S12LEDL	1SFA187167R1014	5	0.002
White	BA9S12LEDB	1SFA187165R1015	5	0.002
Rated voltage 24 V AC/DC				
Red	BA9S24LEDR	1SFA187173R1021	5	0.002
Green	BA9S24LEDV	1SFA187174R1022	5	0.002
Yellow	BA9S24LEDG	1SFA187171R1023	5	0.002
Blue	BA9S24LEDL	1SFA187172R1024	5	0.002
White	BA9S24LEDB	1SFA187170R1025	5	0.002
Rated voltage 48 V AC/DC				
Red	BA9S48LEDR	1SFA187178R1031	5	0.002
Green	BA9S48LEDV	1SFA187179R1032	5	0.002
Yellow	BA9S48LEDG	1SFA187176R1033	5	0.002
Blue	BA9S48LEDL	1SFA187177R1034	5	0.002
White	BA9S48LEDB	1SFA187175R1035	5	0.002
Rated voltage 60 V AC/DC				
White	BA9S60LED	1SFA187191R1045	5	0.002
Rated voltage 110 - 120 V AC/DC				
Red	BA9S110LEDR	1SFA187183R1041	5	0.002
Green	BA9S110LEDV	1SFA187184R1042	5	0.002
Yellow	BA9S110LEDG	1SFA187181R1043	5	0.002
Blue	BA9S110LEDL	1SFA187182R1044	5	0.002
White	BA9S110LEDB	1SFA187180R1045	5	0.002
Rated voltage 130 V AC/DC				
White	BA9S130LED	1SFA187190R1045	5	0.002
Rated voltage 230 V AC				
Red	BA9S230LEDR	1SFA187188R1051	5	0.002
Green	BA9S230LEDV	1SFA187189R1052	5	0.002
Yellow	BA9S230LEDG	1SFA187186R1053	5	0.002
Blue	BA9S230LEDL	1SFA187187R1054	5	0.002
White	BA9S230LEDB	1SFA187185R1055	5	0.002

Modular metal range

LED blocks for front mouting



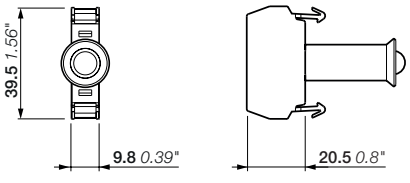
P9PLNVDR

Standard Light

Color	Type	Order code	Pkg qty	Weight (1 pce) kg
Rated voltage 24 V AC/DC				
Red	P9PLNVDR	1SFA197004R1011	1	0.020
Green	P9PLNVDV	1SFA197005R1012	1	0.020
Yellow	P9PLNVDG	1SFA197002R1013	1	0.020
Blue	P9PLNVDL	1SFA197003R1014	1	0.020
White	P9PLNVDB	1SFA197001R1015	1	0.020
Rated voltage 120 V AC				
Red	P9PLNVJR	1SFA197010R1041	1	0.020
Green	P9PLNVJV	1SFA197011R1042	1	0.020
Yellow	P9PLNVJG	1SFA197008R1043	1	0.020
Blue	P9PLNVJL	1SFA197009R1044	1	0.020
White	P9PLNVJB	1SFA197007R1045	1	0.020
Rated voltage 230 V AC				
Red	P9PLNVNR	1SFA197016R1071	1	0.020
Green	P9PLNVNV	1SFA197017R1072	1	0.020
Yellow	P9PLNVNG	1SFA197014R1073	1	0.020
Blue	P9PLNVNL	1SFA197015R1074	1	0.020
White	P9PLNVNB	1SFA197013R1075	1	0.020

Flashing Light

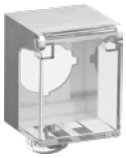
Color	Type	Order code	Pkg qty	Weight (1 pce) kg
Rated voltage 24 V AC/DC				
Red	P9PLFVDR	1SFA197022R1011	1	0.020
Green	P9PLFVDV	1SFA197023R1012	1	0.020
Yellow	P9PLFVDG	1SFA197020R1013	1	0.020
Blue	P9PLFVDL	1SFA197021R1014	1	0.020
White	P9PLFVDB	1SFA197019R1015	1	0.020
Orange	P9PLFVDA	1SFA197018R1019	1	0.020
Rated voltage 120 V AC				
Red	P9PLFVJR	1SFA197028R1041	1	0.020
Yellow	P9PLFVJG	1SFA197026R1043	1	0.020
White	P9PLFVJB	1SFA197025R1045	1	0.020
Rated voltage 230 V AC				
Red	P9PLFVNR	1SFA197034R1071	1	0.020
Yellow	P9PLFVNG	1SFA197032R1073	1	0.020
White	P9PLFVNB	1SFA197031R1075	1	0.020



P9PL

Dimensions (mm, inches)

Modular metal range
Accessories



P9ACRCL



P9ACDPP



P9ACWAF



P9ARAM32



P9ACA6

Description	Contacts	Type	Order code	Pkg qty	Weight (1 pce) kg
Protection cover					
Protection cover padlockable for standard pushbuttons, illuminated pushbuttons, selector switches, illuminated selector switches		P9ACRCL	1SFA187840R8000	1	0.039
Maintained accessory					
Device for standard pushbuttons, illuminated pushbuttons: To be used only with contact blocks P9B01VN, P9B01VR, P9B10VA and P9B01FN		P9ACDPP	1SFA187843R8000	1	0.012
Tools					
Locking ring wrench		P9ACWAF	1SFA187845R8000	1	0.037
Adapter ring					
Adapter ring for 30 mm hole to mount P9 22 mm in a 30 mm hole		P9ARAM32	1SFA188801R8000	5	0.006
Terminal adapter					
PCB adapter for faston contacts		P9ACA6	1SFA188804R8000	5	0.051



080CPR



080CPN

P9ARCST

Rubber protective caps (IP66) for standard pushbuttons
Flush pushbuttons

Description nutrilic rubber	Type	Order code	Pkg qty	Weight (1 pce) kg
Red	080CPR	1SFA170191R8000	5	0.004
Green	080CPV	1SFA170192R8000	5	0.004
Black	080CPN	1SFA170190R8000	5	0.004
Clear	080CPT	1SFA170198R8000	5	0.004
Extended pushbuttons				
Clear	P9ARCST	1SFA187490R8000	5	0.004

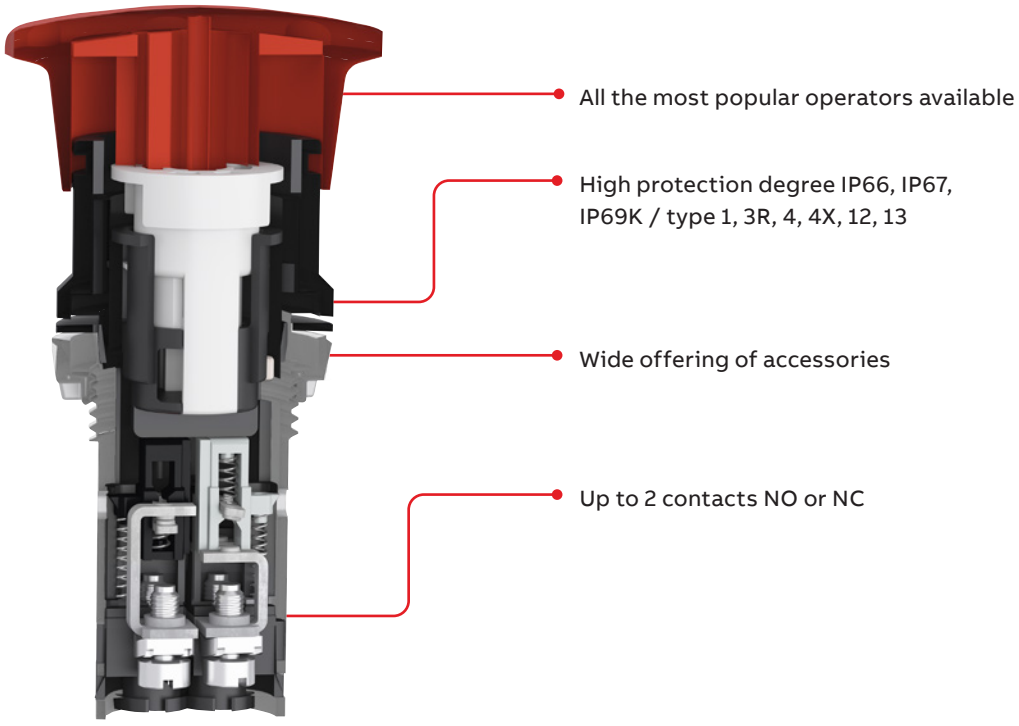
Pilot devices
Compact range

Ordering details
621 Non-illuminated pushbuttons
623 Illuminated pushbuttons
627 Mushroom pushbuttons
628 Emergency stop pushbuttons
627 Heavy duty pushbuttons
630 Pilot lights
632 Selector switches

634 Accessories

Compact range

The compact range is the most efficient solution reducing both installation time and cost thanks to the all-in-one design.
It is perfect for tough environment thanks to the market leading level of dust and water resistance.



Compact range

Non-illuminated flush pushbuttons - Momentary



CP1-10R-10



CP1-30G-10



CP1-10Y-10



CP1-10L-10

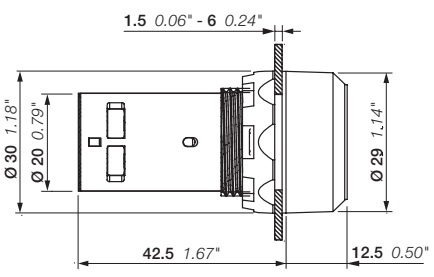


CP1-30W-10



CP1-10B-10

Operator	Bezel	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
						kg
● Red	Black plastic	1 0	CP1-10R-10	1SFA619100R1011	10	0.018
		0 1	CP1-10R-01	1SFA619100R1041	10	0.018
		1 1	CP1-10R-11	1SFA619100R1071	10	0.022
		2 0	CP1-10R-20	1SFA619100R1021	10	0.022
		0 2	CP1-10R-02	1SFA619100R1051	10	0.022
	Chrome metal	1 0	CP1-30R-10	1SFA619100R3011	10	0.032
		0 1	CP1-30R-01	1SFA619100R3041	10	0.032
		1 1	CP1-30R-11	1SFA619100R3071	10	0.036
		2 0	CP1-30R-20	1SFA619100R3021	10	0.036
		0 2	CP1-30R-02	1SFA619100R3051	10	0.036
● Green	Black plastic	1 0	CP1-10G-10	1SFA619100R1012	10	0.018
		1 1	CP1-10G-11	1SFA619100R1072	10	0.022
		2 0	CP1-10G-20	1SFA619100R1022	10	0.022
	Chrome metal	1 0	CP1-30G-10	1SFA619100R3012	10	0.032
		1 1	CP1-30G-11	1SFA619100R3072	10	0.036
		2 0	CP1-30G-20	1SFA619100R3022	10	0.036
● Yellow	Black plastic	1 0	CP1-10Y-10	1SFA619100R1013	10	0.018
		1 1	CP1-10Y-11	1SFA619100R1073	10	0.022
		2 0	CP1-10Y-20	1SFA619100R1023	10	0.022
	Chrome metal	1 0	CP1-30Y-10	1SFA619100R3013	10	0.032
		1 1	CP1-30Y-11	1SFA619100R3073	10	0.036
		2 0	CP1-30Y-20	1SFA619100R3023	10	0.036
● Blue	Black plastic	1 0	CP1-10L-10	1SFA619100R1014	10	0.018
		1 1	CP1-10L-11	1SFA619100R1074	10	0.022
		2 0	CP1-10L-20	1SFA619100R1024	10	0.022
	Chrome metal	1 0	CP1-30L-10	1SFA619100R3014	10	0.032
		1 1	CP1-30L-11	1SFA619100R3074	10	0.036
		2 0	CP1-30L-20	1SFA619100R3024	10	0.036
○ White	Black plastic	1 0	CP1-10W-10	1SFA619100R1015	10	0.018
		1 1	CP1-10W-11	1SFA619100R1075	10	0.022
		2 0	CP1-10W-20	1SFA619100R1025	10	0.022
	Chrome metal	1 0	CP1-30W-10	1SFA619100R3015	10	0.032
		1 1	CP1-30W-11	1SFA619100R3075	10	0.036
		2 0	CP1-30W-20	1SFA619100R3025	10	0.036
● Black	Black plastic	1 0	CP1-10B-10	1SFA619100R1016	10	0.018
		0 1	CP1-10B-01	1SFA619100R1046	10	0.018
		1 1	CP1-10B-11	1SFA619100R1076	10	0.022
		2 0	CP1-10B-20	1SFA619100R1026	10	0.022
		0 2	CP1-10B-02	1SFA619100R1056	10	0.022
	Chrome metal	1 0	CP1-30B-10	1SFA619100R3016	10	0.032
		0 1	CP1-30B-01	1SFA619100R3046	10	0.032
		1 1	CP1-30B-11	1SFA619100R3076	10	0.036
		2 0	CP1-30B-20	1SFA619100R3026	10	0.036
		0 2	CP1-30B-02	1SFA619100R3056	10	0.036



CP1

Dimensions (mm, inches)

Compact range

Non-illuminated flush pushbuttons - Maintained



CP2-10R-10



CP2-10G-10



CP2-10Y-10



CP2-30L-10

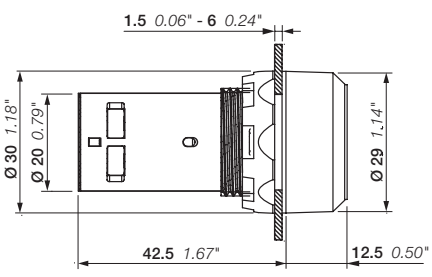


CP2-10W-10



CP2-30B-10

Operator	Bezel	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
						kg
● Red	Black plastic	1 0	CP2-10R-10	1SFA619101R1011	10	0.018
		0 1	CP2-10R-01	1SFA619101R1041	10	0.018
		1 1	CP2-10R-11	1SFA619101R1071	10	0.022
		2 0	CP2-10R-20	1SFA619101R1021	10	0.022
		0 2	CP2-10R-02	1SFA619101R1051	10	0.022
	Chrome metal	1 0	CP2-30R-10	1SFA619101R3011	10	0.032
		0 1	CP2-30R-01	1SFA619101R3041	10	0.032
		1 1	CP2-30R-11	1SFA619101R3071	10	0.036
		2 0	CP2-30R-20	1SFA619101R3021	10	0.036
		0 2	CP2-30R-02	1SFA619101R3051	10	0.036
● Green	Black plastic	1 0	CP2-10G-10	1SFA619101R1012	10	0.018
		1 1	CP2-10G-11	1SFA619101R1072	10	0.022
		2 0	CP2-10G-20	1SFA619101R1022	10	0.022
	Chrome metal	1 0	CP2-30G-10	1SFA619101R3012	10	0.032
		1 1	CP2-30G-11	1SFA619101R3072	10	0.036
		2 0	CP2-30G-20	1SFA619101R3022	10	0.036
● Yellow	Black plastic	1 0	CP2-10Y-10	1SFA619101R1013	10	0.018
		1 1	CP2-10Y-11	1SFA619101R1073	10	0.022
		2 0	CP2-10Y-20	1SFA619101R1023	10	0.022
	Chrome metal	1 1	CP2-30Y-11	1SFA619101R3073	10	0.036
		2 0	CP2-30Y-20	1SFA619101R3023	10	0.036
● Blue	Black plastic	1 0	CP2-10L-10	1SFA619101R1014	10	0.018
		1 1	CP2-10L-11	1SFA619101R1074	10	0.022
		2 0	CP2-10L-20	1SFA619101R1024	10	0.022
	Chrome metal	1 0	CP2-30L-10	1SFA619101R3014	10	0.032
		2 0	CP2-30L-20	1SFA619101R3024	10	0.036
○ White	Black plastic	1 0	CP2-10W-10	1SFA619101R1015	10	0.018
		1 1	CP2-10W-11	1SFA619101R1075	10	0.022
		2 0	CP2-10W-20	1SFA619101R1025	10	0.022
	Chrome metal	1 0	CP2-30W-10	1SFA619101R3015	10	0.032
		2 0	CP2-30W-20	1SFA619101R3025	10	0.036
● Black	Black plastic	1 0	CP2-10B-10	1SFA619101R1016	10	0.018
		0 1	CP2-10B-01	1SFA619101R1046	10	0.018
		1 1	CP2-10B-11	1SFA619101R1076	10	0.022
		2 0	CP2-10B-20	1SFA619101R1026	10	0.022
		0 2	CP2-10B-02	1SFA619101R1056	10	0.022
	Chrome metal	1 0	CP2-30B-10	1SFA619101R3016	10	0.032
		0 1	CP2-30B-01	1SFA619101R3046	10	0.032
		1 1	CP2-30B-11	1SFA619101R3076	10	0.036
		2 0	CP2-30B-20	1SFA619101R3026	10	0.036



CP2

Dimensions (mm, inches)

Compact range

Illuminated flush pushbuttons - Momentary



CP1-11R-10



CP1-11G-10



CP1-31Y-10

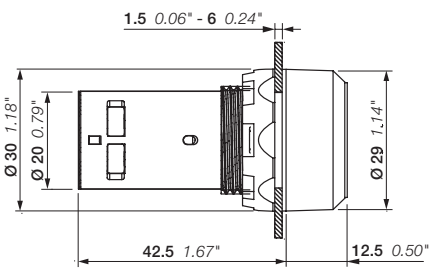


CP1-11L-10



CP1-31C-10

Operator	Bezel	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
						kg
Rated voltage 24 V AC / DC						
● Red	Black plastic	1 0	CP1-11R-10	1SFA619100R1111	10	0.025
		0 1	CP1-11R-01	1SFA619100R1141	10	0.025
	Chrome metal	1 0	CP1-31R-10	1SFA619100R3111	10	0.039
		0 1	CP1-31R-01	1SFA619100R3141	10	0.039
● Green	Black plastic	1 0	CP1-11G-10	1SFA619100R1112	10	0.025
	Chrome metal	1 0	CP1-31G-10	1SFA619100R3112	10	0.039
● Yellow	Black plastic	1 0	CP1-11Y-10	1SFA619100R1113	10	0.025
	Chrome metal	1 0	CP1-31Y-10	1SFA619100R3113	10	0.039
● Blue	Black plastic	1 0	CP1-11L-10	1SFA619100R1114	10	0.025
	Chrome metal	1 0	CP1-31L-10	1SFA619100R3114	10	0.039
		0 1	CP1-31L-01	1SFA619100R3144	10	0.039
○ Clear	Black plastic	1 0	CP1-11C-10	1SFA619100R1118	10	0.025
	Chrome metal	1 0	CP1-31C-10	1SFA619100R3118	10	0.039
Rated voltage 110...130 V AC / DC						
● Red	Black plastic	1 0	CP1-12R-10	1SFA619100R1211	10	0.025
		0 1	CP1-12R-01	1SFA619100R1241	10	0.025
● Green	Black plastic	1 0	CP1-12G-10	1SFA619100R1212	10	0.025
● Yellow	Black plastic	1 0	CP1-12Y-10	1SFA619100R1213	10	0.025
● Blue	Black plastic	1 0	CP1-12L-10	1SFA619100R1214	10	0.025
○ Clear	Black plastic	1 0	CP1-12C-10	1SFA619100R1218	10	0.025
Rated voltage 220 V AC / DC						
● Red	Black plastic	1 0	CP1-13R-10	1SFA619100R1311	10	0.025
		0 1	CP1-13R-01	1SFA619100R1341	10	0.025
● Green	Black plastic	1 0	CP1-13G-10	1SFA619100R1312	10	0.025
● Yellow	Black plastic	1 0	CP1-13Y-10	1SFA619100R1313	10	0.025
● Blue	Black plastic	1 0	CP1-13L-10	1SFA619100R1314	10	0.025
○ Clear	Black plastic	1 0	CP1-13C-10	1SFA619100R1318	10	0.025



CP1

Dimensions (mm, inches)

Compact range

Illuminated flush pushbuttons - Maintained



CP2-11G-10



CP2-11Y-10

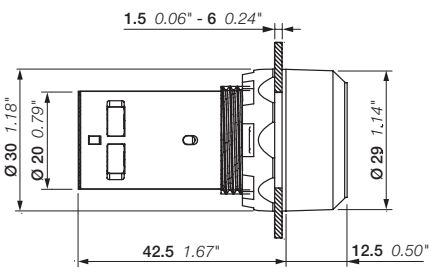


CP1-11L-10



CP2-11C-10

Operator	Bezel	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
						kg
Rated voltage 24 V AC / DC						
● Red	Black plastic	1 0	CP2-11R-10	1SFA619101R1111	10	0.025
		0 1	CP2-11R-01	1SFA619101R1141	10	0.025
● Green	Black plastic	1 0	CP2-11G-10	1SFA619101R1112	10	0.025
● Yellow	Black plastic	1 0	CP2-11Y-10	1SFA619101R1113	10	0.025
● Blue	Black plastic	1 0	CP2-11L-10	1SFA619101R1114	10	0.025
○ Clear	Black plastic	1 0	CP2-11C-10	1SFA619101R1118	10	0.025
Rated voltage 110...130 V AC / DC						
● Red	Black plastic	1 0	CP2-12R-10	1SFA619101R1211	10	0.025
		0 1	CP2-12R-01	1SFA619101R1241	10	0.025
● Green	Black plastic	1 0	CP2-12G-10	1SFA619101R1212	10	0.025
● Yellow	Black plastic	1 0	CP2-12Y-10	1SFA619101R1213	10	0.025
● Blue	Black plastic	1 0	CP2-12L-10	1SFA619101R1214	10	0.025
○ Clear	Black plastic	1 0	CP2-12C-10	1SFA619101R1218	10	0.025
Rated voltage 220 V AC / DC						
● Red	Black plastic	1 0	CP2-13R-10	1SFA619101R1311	10	0.025
		0 1	CP2-13R-01	1SFA619101R1341	10	0.025
● Green	Black plastic	1 0	CP2-13G-10	1SFA619101R1312	10	0.025
● Yellow	Black plastic	1 0	CP2-13Y-10	1SFA619101R1313	10	0.025
● Blue	Black plastic	1 0	CP2-13L-10	1SFA619101R1314	10	0.025
○ Clear	Black plastic	1 0	CP2-13C-10	1SFA619101R1318	10	0.025



CP1

Dimensions (mm, inches)

Compact range

Illuminated extended pushbuttons - Momentary



CP3-11R-10

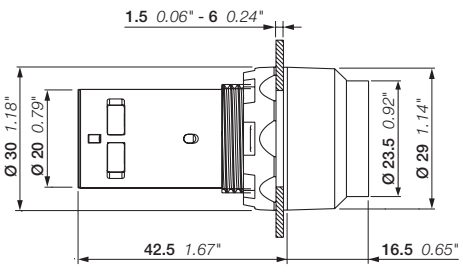


CP3-11G-10



CP3-11Y-10

Operator	Bezel	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
						kg
Rated voltage 24 V AC / DC						
Red	Black plastic	1 0	CP3-11R-10	1SFA619102R1111	10	0.025
		0 1	CP3-11R-01	1SFA619102R1141	10	0.025
Green	Black plastic	1 0	CP3-11G-10	1SFA619102R1112	10	0.025
Yellow	Black plastic	1 0	CP3-11Y-10	1SFA619102R1113	10	0.025
Blue	Black plastic	1 0	CP3-11L-10	1SFA619102R1114	10	0.025
Clear	Black plastic	1 0	CP3-11C-10	1SFA619102R1118	10	0.025
Rated voltage 110...130 V AC / DC						
Red	Black plastic	1 0	CP3-12R-10	1SFA619102R1211	10	0.025
		0 1	CP3-12R-01	1SFA619102R1241	10	0.025
Green	Black plastic	1 0	CP3-12G-10	1SFA619102R1212	10	0.025
Yellow	Black plastic	1 0	CP3-12Y-10	1SFA619102R1213	10	0.025
Blue	Black plastic	1 0	CP3-12L-10	1SFA619102R1214	10	0.025
Clear	Black plastic	1 0	CP3-12C-10	1SFA619102R1218	10	0.025
Rated voltage 220 V AC / DC						
Red	Black plastic	1 0	CP3-13R-10	1SFA619102R1311	10	0.025
		0 1	CP3-13R-01	1SFA619102R1341	10	0.025
Green	Black plastic	1 0	CP3-13G-10	1SFA619102R1312	10	0.025
Yellow	Black plastic	1 0	CP3-13Y-10	1SFA619102R1313	10	0.025
Blue	Black plastic	1 0	CP3-13L-10	1SFA619102R1314	10	0.025
Clear	Black plastic	1 0	CP3-13C-10	1SFA619102R1318	10	0.025



CP3

Dimensions (mm, inches)

Compact range

Illuminated extended pushbuttons - Maintained



CP4-11R-10

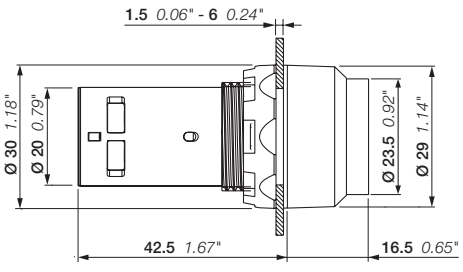


CP4-11G-10



CP4-11Y-10

Operator	Bezel	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
						kg
Rated voltage 24 V AC / DC						
Red	Black plastic	1 0	CP4-11R-10	1SFA619103R1111	10	0.025
		0 1	CP4-11R-01	1SFA619103R1141	10	0.025
Green	Black plastic	1 0	CP4-11G-10	1SFA619103R1112	10	0.025
Yellow	Black plastic	1 0	CP4-11Y-10	1SFA619103R1113	10	0.025
Blue	Black plastic	1 0	CP4-11L-10	1SFA619103R1114	10	0.025
Clear	Black plastic	1 0	CP4-11C-10	1SFA619103R1118	10	0.025
Rated voltage 110...130 V AC / DC						
Red	Black plastic	1 0	CP4-12R-10	1SFA619103R1211	10	0.025
		0 1	CP4-12R-01	1SFA619103R1241	10	0.025
Green	Black plastic	1 0	CP4-12G-10	1SFA619103R1212	10	0.025
Yellow	Black plastic	1 0	CP4-12Y-10	1SFA619103R1213	10	0.025
Blue	Black plastic	1 0	CP4-12L-10	1SFA619103R1214	10	0.025
Clear	Black plastic	1 0	CP4-12C-10	1SFA619103R1218	10	0.025
Rated voltage 230 V AC / DC						
Red	Black plastic	1 0	CP4-13R-10	1SFA619103R1311	10	0.025
		0 1	CP4-13R-01	1SFA619103R1341	10	0.025
Green	Black plastic	1 0	CP4-13G-10	1SFA619103R1312	10	0.025
Yellow	Black plastic	1 0	CP4-13Y-10	1SFA619103R1313	10	0.025
Blue	Black plastic	1 0	CP4-13L-10	1SFA619103R1314	10	0.025
Clear	Black plastic	1 0	CP4-13C-10	1SFA619103R1318	10	0.025



CP4

Dimensions (mm, inches)

Compact range

Non-illuminated mushroom pushbuttons - Momentary



CPM3-10R-11



CPM3-10G-11



CPM3-10Y-11

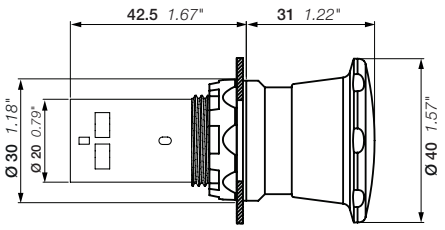


CPM3-10L-11



CPM3-10B-11

Operator	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg
Ø 40 mm					
Red	1 1	CPM3-10R-11	1SFA619126R1071	1	0.036
Green	1 1	CPM3-10G-11	1SFA619126R1072	1	0.036
Yellow	1 1	CPM3-10Y-11	1SFA619126R1073	1	0.036
Blue	1 1	CPM3-10L-11	1SFA619126R1074	1	0.036
Black	1 1	CPM3-10B-11	1SFA619126R1076	1	0.036



CPM3

Dimensions (mm, inches)

Compact range

Non-illuminated emergency stop pushbuttons



CE3T-10R-01



CE3K1-10R-01



CE4T-10R-01



CE4P-10R-01

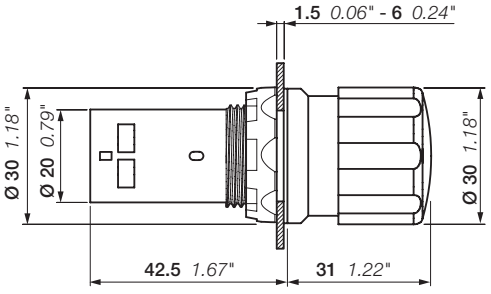


CE4K1-10R-02

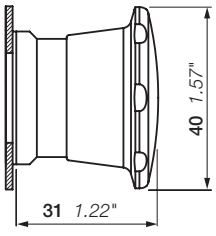
Description

The emergency stop pushbuttons conform to the standard EN/IEC 60947-5-5, Safety of machinery standard EN/ISO 13850, IEC 60204-1 and to Machinery directive 2006/42/EC.

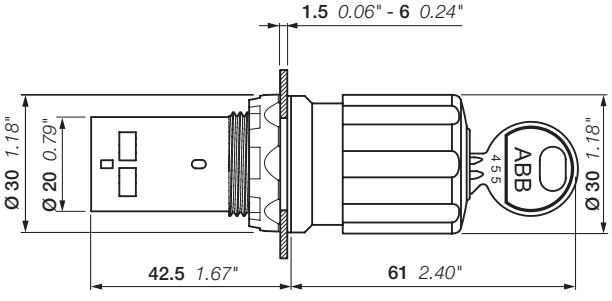
Operator	Release method	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
						kg
Ø 30 mm						
● Red	Twist release	0 1	CE3T-10R-01	1SFA619500R1041	1	0.032
		1 1	CE3T-10R-11	1SFA619500R1071	1	0.032
		0 2	CE3T-10R-02	1SFA619500R1051	1	0.032
● Red	Pull release	0 1	CE3P-10R-01	1SFA619501R1041	1	0.032
		1 1	CE3P-10R-11	1SFA619501R1071	1	0.032
		0 2	CE3P-10R-02	1SFA619501R1051	1	0.032
● Red	Key code 455	0 1	CE3K1-10R-01	1SFA619502R1041	1	0.060
		1 1	CE3K1-10R-11	1SFA619502R1071	1	0.060
		0 2	CE3K1-10R-02	1SFA619502R1051	1	0.060
Ø 40 mm						
● Red	Twist release	0 1	CE4T-10R-01	1SFA619550R1041	1	0.036
		1 1	CE4T-10R-11	1SFA619550R1071	1	0.036
		0 2	CE4T-10R-02	1SFA619550R1051	1	0.036
● Red	Pull release	0 1	CE4P-10R-01	1SFA619551R1041	1	0.036
		1 1	CE4P-10R-11	1SFA619551R1071	1	0.036
		0 2	CE4P-10R-02	1SFA619551R1051	1	0.036
● Red	Key code 455	0 1	CE4K1-10R-01	1SFA619552R1041	1	0.064
		1 1	CE4K1-10R-11	1SFA619552R1071	1	0.064
		0 2	CE4K1-10R-02	1SFA619552R1051	1	0.064



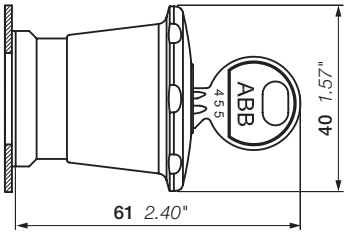
CE3P, CE3T



CE4P, CE4T



CE3K



CE4K

Dimensions (mm, inches)

Compact range

Heavy duty pushbuttons



CP6-10R-11



CP6-10G-11

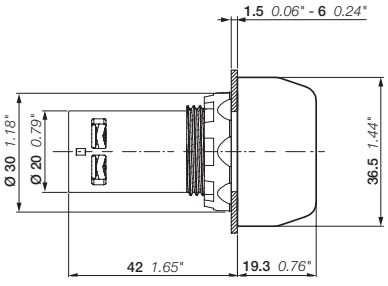


CP6-10B-11

Description

Silicone rubber cap.

Color	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg
Red	1 1	CP6-10R-11	1SFA619105R1071	10	0.031
	2 0	CP6-10R-20	1SFA619105R1021	10	0.031
	0 2	CP6-10R-02	1SFA619105R1051	10	0.031
Green	1 1	CP6-10G-11	1SFA619105R1072	10	0.031
	2 0	CP6-10G-20	1SFA619105R1022	10	0.031
Black	1 1	CP6-10B-11	1SFA619105R1076	10	0.031
	2 0	CP6-10B-20	1SFA619105R1026	10	0.031
	0 2	CP6-10B-02	1SFA619105R1056	10	0.031



CP6

Dimensions (mm, inches)

Compact range
Pilot lights


CL2-502R


CL2-506G


CL2-508Y

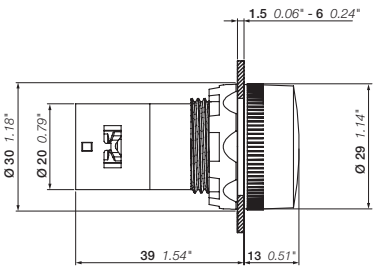

CL2-506L


CL2-506C

Description
Integrated LED, no bulb needed.

Color	Rated current	Anti-inductive voltage	Wave-length	Illumi-nation	Type	Order code	Pkg qty	Weight (1 pce)
	mA	Vpeak	nm	lx				kg
Voltage 6.3 V								
Red	16	2	625	70	CL2-506R	1SFA619403R5061	10	0.016
Green	16	2	520	125	CL2-506G	1SFA619403R5062	10	0.016
Yellow	16	2	590	75	CL2-506Y	1SFA619403R5063	10	0.016
Blue	16	2	470	10	CL2-506L	1SFA619403R5064	10	0.016
Clear	16	2	(1)	290	CL2-506C	1SFA619403R5068	10	0.016
Voltage 12 V DC								
Red	16	2	625	110	CL2-501R	1SFA619403R5011	10	0.016
Green	16	2.5	520	165	CL2-501G	1SFA619403R5012	10	0.016
Yellow	16	2.5	590	85	CL2-501Y	1SFA619403R5013	10	0.016
Blue	16	2.5	470	15	CL2-501L	1SFA619403R5014	10	0.016
Clear	16	2.5	(1)	320	CL2-501C	1SFA619403R5018	10	0.016
Voltage 24 V AC / DC								
Red	16	6	625	80	CL2-502R	1SFA619403R5021	10	0.016
Green	16	6	520	135	CL2-502G	1SFA619403R5022	10	0.016
Yellow	16	6	590	55	CL2-502Y	1SFA619403R5023	10	0.016
Blue	16	6	470	10	CL2-502L	1SFA619403R5024	10	0.016
Clear	16	6	(1)	230	CL2-502C	1SFA619403R5028	10	0.016
Voltage 48 ... 60 V AC / DC								
Red	13-17	7	625	75	CL2-507R	1SFA619403R5071	10	0.016
Green	13-17	7	520	140	CL2-507G	1SFA619403R5072	10	0.016
Yellow	13-17	7	590	80	CL2-507Y	1SFA619403R5073	10	0.016
Blue	13-17	7	470	10	CL2-507L	1SFA619403R5074	10	0.016
Clear	13-17	7	(1)	260	CL2-507C	1SFA619403R5078	10	0.016
Voltage 110 ... 130 V AC								
Red	15-17	20	625	85	CL2-513R	1SFA619403R5131	10	0.016
Green	15-17	20	520	90	CL2-513G	1SFA619403R5132	10	0.016
Yellow	15-17	20	590	85	CL2-513Y	1SFA619403R5133	10	0.016
Blue	15-17	20	470	10	CL2-513L	1SFA619403R5134	10	0.016
Clear	15-17	20	(1)	340	CL2-513C	1SFA619403R5138	10	0.016
Voltage 110 ... 130 V DC								
Red	8-9	20	625	55	CL2-515R	1SFA619403R5151	10	0.016
Green	8-9	20	520	125	CL2-515G	1SFA619403R5152	10	0.016
Yellow	8-9	20	590	50	CL2-515Y	1SFA619403R5153	10	0.016
Blue	8-9	20	470	10	CL2-515L	1SFA619403R5154	10	0.016
Clear	8-9	20	(1)	210	CL2-515C	1SFA619403R5158	10	0.016

(1) X = 0.31, Y = 0.32



CL2

Dimensions (mm, inches)

Compact range
Pilot lights


CL2-502R


CL2-506G


CL2-508Y

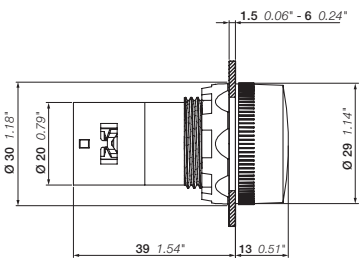

CL2-506L


CL2-506C

Description
Integrated LED, no bulb needed.

Color	Rated current	Anti-inductive voltage	Wave-length	Illumi-nation	Type	Order code	Pkg qty	Weight (1 pce)
	mA	Vpeak	nm	lx				kg
Voltage 220 V DC								
Red	6	20	625	40	CL2-520R	1SFA619403R5201	10	0.016
Green	6	20	520	90	CL2-520G	1SFA619403R5202	10	0.016
Yellow	6	20	590	30	CL2-520Y	1SFA619403R5203	10	0.016
Blue	6	20	470	5	CL2-520L	1SFA619403R5204	10	0.016
Clear	6	20	(1)	120	CL2-520C	1SFA619403R5208	10	0.016
Voltage 230 V AC								
Red	17	30	625	95	CL2-523R	1SFA619403R5231	10	0.016
Green	17	35	520	155	CL2-523G	1SFA619403R5232	10	0.016
Yellow	17	35	590	70	CL2-523Y	1SFA619403R5233	10	0.016
Blue	17	35	470	10	CL2-523L	1SFA619403R5234	10	0.016
Clear	17	35	(1)	225	CL2-523C	1SFA619403R5238	10	0.016
Rated voltage 230 V AC high anti-inductive voltage (2)								
Red	17	60	625	75	CL2-623R	1SFA619403R6231	10	0.016
Green	17	80	520	70	CL2-623G	1SFA619403R6232	10	0.016
Yellow	17	70	590	50	CL2-623Y	1SFA619403R6233	10	0.016
Blue	17	80	470	5	CL2-623L	1SFA619403R6234	10	0.016
Clear	17	80	(1)	155	CL2-623C	1SFA619403R6238	10	0.016
Rated voltage 380 ... 415 V AC								
Red	15-17	55	625	85	CL2-542R	1SFA619403R5421	10	0.016
Green	15-17	65	520	130	CL2-542G	1SFA619403R5422	10	0.016
Yellow	15-17	65	590	60	CL2-542Y	1SFA619403R5423	10	0.016
Blue	15-17	65	470	10	CL2-542L	1SFA619403R5424	10	0.016
Clear	15-17	65	(1)	395	CL2-542C	1SFA619403R5428	10	0.016

(1) X = 0.31, Y = 0.32
(2) Higher threshold to light up LED to be used in application where there is risk of large induced voltages.



CL2

Dimensions (mm, inches)

Compact range

Non-illuminated selector switches - 2-position



C2SS1-10B-10



C2SS3-30B-10

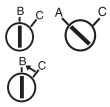
Description

Compact selector switches are delivered in black color.

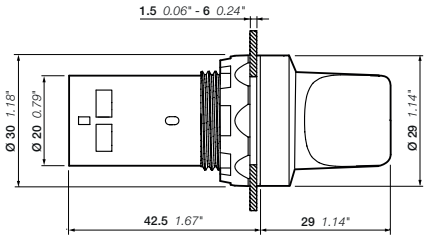
Operating principle	Bezel	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
						kg
Short handle						
B C	Black plastic	1 0	C2SS1-10B-10	1SFA619200R1016	10	0.02
		0 1	C2SS1-10B-01	1SFA619200R1046	10	0.02
		1 1	C2SS1-10B-11	1SFA619200R1076	10	0.024
		2 0	C2SS1-10B-20	1SFA619200R1026	10	0.024
	Chrome metal	1 0	C2SS1-30B-10	1SFA619200R3016	10	0.029
		0 1	C2SS1-30B-01	1SFA619200R3046	10	0.029
		1 1	C2SS1-30B-11	1SFA619200R3076	10	0.032
		2 0	C2SS1-30B-20	1SFA619200R3026	10	0.032
A C	Black plastic	1 0	C2SS2-10B-10	1SFA619201R1016	10	0.02
		0 1	C2SS2-10B-01	1SFA619201R1046	10	0.02
		1 1	C2SS2-10B-11	1SFA619201R1076	10	0.024
		2 0	C2SS2-10B-20	1SFA619201R1026	10	0.024
	Chrome metal	1 0	C2SS2-30B-10	1SFA619201R3016	10	0.029
		0 1	C2SS2-30B-01	1SFA619201R3046	10	0.029
		1 1	C2SS2-30B-11	1SFA619201R3076	10	0.032
		2 0	C2SS2-30B-20	1SFA619201R3026	10	0.032
B C	Black plastic	1 0	C2SS3-10B-10	1SFA619202R1016	10	0.02
		0 1	C2SS3-10B-01	1SFA619202R1046	10	0.02
		1 1	C2SS3-10B-11	1SFA619202R1076	10	0.024
		2 0	C2SS3-10B-20	1SFA619202R1026	10	0.024
	Chrome metal	1 0	C2SS3-30B-10	1SFA619202R3016	10	0.029
		1 1	C2SS3-30B-11	1SFA619202R3076	10	0.032
		2 0	C2SS3-30B-20	1SFA619202R3026	10	0.032
Long handle						
A C	Chrome metal	1 0	C2SS5-30B-10	1SFA619204R3016	10	0.029
		1 1	C2SS5-30B-11	1SFA619204R3076	10	0.032

Contacts actuated

2-position selector switch
Contacts included,

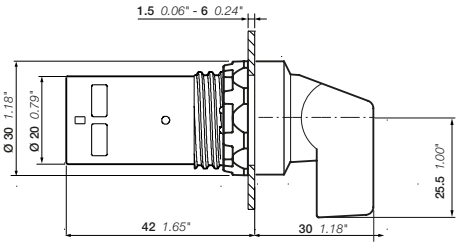


	actuated in position C			
	NC	NO	NC	NO
	11	13	21	23
	12	14	22	24
1 NO	–	1	–	–
2 NO	–	1	–	1
1 NC	1	–	–	–
2 NC	1	–	1	–
1 NO + 1 NC	–	1	1	–



C2SS, short handle

Dimensions (mm, inches)



C2SS, long handle

Compact range

Non-illuminated selector switches - 3-position



C3SS1-10B-11



C3SS2-30B-20

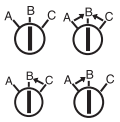
Description

Compact selector switches operators are delivered in black color.

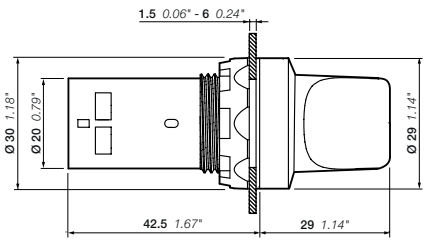
Operating principle	Bezel	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
						kg
Short handle						
	Black plastic	1 1	C3SS1-10B-11	1SFA619210R1076	10	0.024
		2 0	C3SS1-10B-20	1SFA619210R1026	10	0.024
	Chrome metal	1 1	C3SS1-30B-11	1SFA619210R3076	10	0.032
		2 0	C3SS1-30B-20	1SFA619210R3026	10	0.032
	Black plastic	1 1	C3SS2-10B-11	1SFA619211R1076	10	0.024
		2 0	C3SS2-10B-20	1SFA619211R1026	10	0.024
	Chrome metal	1 1	C3SS2-30B-11	1SFA619211R3076	10	0.032
		2 0	C3SS2-30B-20	1SFA619211R3026	10	0.032
	Black plastic	1 1	C3SS3-10B-11	1SFA619212R1076	10	0.024
		2 0	C3SS3-10B-20	1SFA619212R1026	10	0.024
	Chrome metal	1 1	C3SS3-30B-11	1SFA619212R3076	10	0.032
		2 0	C3SS3-30B-20	1SFA619212R3026	10	0.032
	Black plastic	1 1	C3SS7-10B-11	1SFA619216R1076	10	0.024
		2 0	C3SS7-10B-20	1SFA619216R1026	10	0.024
	Chrome metal	2 0	C3SS7-30B-20	1SFA619216R3026	10	0.032
Long handle						
	Black plastic	1 1	C3SS4-10B-11	1SFA619213R1076	10	0.024
		2 0	C3SS4-10B-20	1SFA619213R1026	10	0.024
	Black plastic	1 1	C3SS5-10B-11	1SFA619214R1076	10	0.024
		2 0	C3SS5-10B-20	1SFA619214R1026	10	0.024
	Chrome metal	2 0	C3SS5-30B-20	1SFA619214R3026	10	0.032

Contacts actuated

3-position selector switch
Contacts included,
actuated in position:

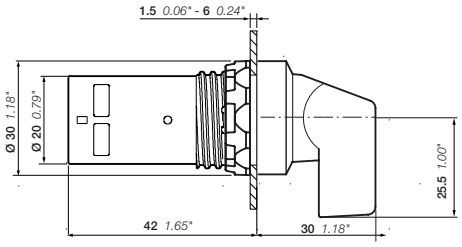


	A		C	
	NC	NO	NC	NO
	21	23	11	13
	22	24	12	14
2 NO	–	1	–	1
2 NC	1	–	1	–
1 NO + 1 NC	1	–	–	1



C3SS, short handle

Dimensions (mm, inches)



C3SS, long handle

Compact range
Accessories


KA1

MA1-8052


KA1-8010


KA1-8022/KA1-8021


SK616016-2

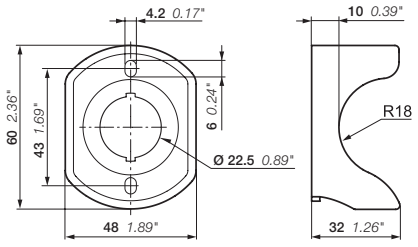

MA1-8153


CA1-8054


CA1-8053

Description	Bezel / color	Type	Order code	Pkg qty	Weight (1pce) kg
30 mm adaptors for 22 mm operator (1.5 - 4 mm panel thickness)					
Emergency stop pushbuttons, MPM	Black plastic	KA1-8027	1SFA616920R8027	1	0.007
	Chrome metal	KA1-8028	1SFA616920R8028	1	0.021
Pushbuttons, selector switches, pilot lights, potentiometers, emergency stop pushbuttons, MPE	Black plastic	KA1-8029	1SFA616920R8029	1	0.010
Flush mounted pushbuttons	Chrome metal	KA1-8073	1SFA616920R8073	1	0.050
Flush mounted selector switches	Chrome metal	MA1-8074	1SFA611920R8074	1	0.050
Protective membrane, silicone					
Flush pushbutton		MA1-8052	1SFA611920R8052	10	0.002
Extended pushbutton		MA1-8002	1SFA611920R8002	10	0.002
Protective ring To prevent accidental operation. Cannot be used together with Legend plate holder					
Flush and extended pushbuttons	Clear plastic	-	SK615512-1	10	0.002
Flush pushbuttons	Metal and black plastic	KA1-8010	1SFA616920R8010	10	0.008
Bezel					
Pushbuttons	Black plastic	KA1-8022	1SFA616920R8022	10	0.002
	Chrome plastic	KA1-8020	1SFA616920R8020	10	0.002
	Chrome metal	KA1-8021	1SFA616920R8021	10	0.015
Selector switches	Black plastic	CA1-8077	1SFA619920R8077	10	0.002
	Chrome metal	CA1-8078	1SFA619920R8078	10	0.010
Square bezel					
Black plastic		-	SK616016-2	10	0.001
Lockable shroud					
Pushbuttons, selector switches	Plastic	MA1-8153	1SFA611920R8153	10	0.023
Emergency stop 30 mm	Metal	-	SK615502-D	1	0.080
Touch guard					
Touch guard		MA1-8152	1SFA611920R8152	10	0.023
Shroud with anti rotation tabs, slot for water drainage					
Emergency stop, machine stop 40 mm	Yellow	CA1-8053	1SFA619920R8053	10	0.016
	Grey	CA1-8054	1SFA619920R8054	10	0.016
Lamp changing tool					
Lamp changing tool		KA1-8072	1SFA616920R8072	1	0.002

Note: Din-rail adaptor should be used with 2 contact blocks for rear mounting type MCB..B.



CA1

Dimensions (mm, inches)

Compact range
Accessories



CA1-8080



MA1-8015



MA1-8149



MA1-8019

Description	Bezel / color	Type	Order code	Pkg qty	Weight (1pce) kg
DIN-rail adaptator					
DIN-rail adaptor with 2 dummy block		CA1-8080	1SFA619920R8080	1	0.028
Mounting tools For tightening the locking nut					
Plastic / Mounting tool manual		MA1-8015	1SFA611920R8015	1	0.021
Metal / Mounting tool for power tool		MA1-8149	1SFA611920R8149	1	0.155
Extra key					
Key code 455			SK616021-71	10	0.007
Key code 421			SK616021-72	10	0.007
Key code 3433-E			SK616021-73	10	0.007
Locking nut					
Locking nut		MA1-8019	1SFA611920R8019	10	0.001

Pilot devices
Enclosures and assembled stations

Ordering details
639 Plastic enclosures for modular and compact range
640 Accessories for plastic enclosures
641 LED blocks for rear mounting
643 Assembled stations

Enclosures





Plastic enclosure for 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



Metal enclosure
Metal line is made in addition to our plastic lines when metal is required. 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.

Enclosures

Plastic enclosures for modular and compact range



MEPY1-0



MEP2-0



MEP3-0



MA1-8053



MA1-8128



CEP1-0



CEPY1-0



CA1-8054



CA1-8053

Description

When ordering complete enclosures:

- Select operators (modular or compact)
- For modular, select contact blocks and LED blocks for rear mounting (in accessories section)
- Per operator select between
  - One legend plate
  - One shroud (only for 1-seat)
  - One spacer
  - No accessory (only for compact range)
- Select cable gland

UL-listed applications: For end of line use only

According to the safety of machinery EN / ISO 13850 emergency stop pushbuttons should be mounted on yellow background

Description	Color	Holes for cable gland	Type	Order code	Pkg qty	Weight (1 pce) kg
Plastic enclosures						
Empty plastic enclosures with stainless steel screws for modular and compact range						
1-seat	Dark grey / light grey	M20 and Pg 13.5/ Pg16 and (M20)	MEP1-0	1SFA611811R1000	1	0.15
1-seat	Yellow / light grey	M20 and Pg 13.5/ Pg16 and (M20)	MEPY1-0	1SFA611821R1000	1	0.15
2-seat	Dark grey / light grey	M20 and Pg 13.5/ Pg16 and (M20)	MEP2-0	1SFA611812R1000	1	0.17
3-seat	Dark grey / light grey	M20 and Pg 13.5/ Pg16 and (M20)	MEP3-0	1SFA611813R1000	1	0.20
4-seat	Dark grey / light grey	M25/Pg 16 and (M20)	MEP4-0	1SFA611814R1000	1	0.23
6-seat	Dark grey / light grey	M25/Pg 16 and (M20)	MEP6-0	1SFA611816R1000	1	0.30
Shrouds						
To be mounted on MEP 1-seat enclosures or on panels						
Yellow			MA1-8053	1SFA611920R8053	1	0.02
Grey			MA1-8128	1SFA611920R8128	1	0.02
Compact plastic enclosures						
Empty enclosure for compact range						
1-seat	Yellow / light grey	M20 and Pg 13.5/ Pg16 and (M20)	CEPY1-0	1SFA619821R1000	1	0.072
1-seat	Dark grey / light grey	M20 and Pg 13.5/ Pg16 and (M20)	CEP1-0	1SFA619811R1000	1	0.072
Shrouds						
To be mounted on CEP-series of enclosures or on panel						
Yellow			CA1-8053	1SFA619920R8053	1	0.016
Grey			CA1-8054	1SFA619920R8054	1	0.016

Enclosures

Accessories for plastic enclosures



MCB-10B



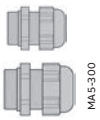
MCB-11B



MCB-02B



MCB-01BG



MA5-3001



MA1-8129



MA1-8130

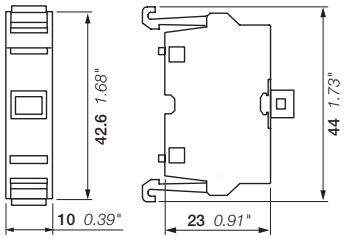


MA1-8136

Description

To be used with MEP plastic enclosure or on DIN-rail

Description	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg
Contact blocks for rear mounting					
Single contact block	1 0	MCB-10B	1SFA611610R2001	10	0.013
	0 1	MCB-01B	1SFA611610R2010	10	0.013
Double contact block	1 1	MCB-11B	1SFA611610R2011	10	0.026
	2 0	MCB-20B	1SFA611610R2002	10	0.026
	0 2	MCB-02B	1SFA611610R2020	10	0.026
Contact blocks with gold plated contacts					
Single contact block	1 0	MCB-10BG	1SFA611610R2101	10	0.013
	0 1	MCB-01BG	1SFA611610R2110	10	0.013
Cable glands Grey plastic, threaded outer sleeve with sealing ring included. Nut not included.					
M25		MA5-3001	1SFA611925R3001	10	0.015
M20		MA5-3002	1SFA611925R3002	10	0.015
PG 13.5		MA5-3006	1SFA611925R3006	10	0.010
PG 16		MA5-3007	1SFA611925R3007	10	0.015
Nuts Grey plastic, for cable glands above					
M25		MA5-3003	1SFA611925R3003	10	0.005
M20		MA5-3004	1SFA611925R3004	10	0.005
PG 13.5		MA5-3008	1SFA611925R3008	10	0.001
PG 16		MA5-3009	1SFA611925R3009	10	0.001
Sealing ring for operator hole					
For plastic enclosure		MA1-8150	1SFA611920H8150	100	0.001
Spacers Needed when legend plates or shrouds are not used in plastic enclosures with rear mounted contact block. 1 mm thick.					
Spacer		-	SK615516-1	10	0.002
Spacer for modular MPMP/T		KA1-8045	1SFA616920R8045	10	0.004
Spacer with rotation stop		MA1-8160	1SFA611920R8160	10	0.003
Blanking plugs					
Grey		MA1-8129	1SFA611920R8129	10	0.005
Black		MA1-8130	1SFA611920R8130	10	0.005
Light grey		MA1-8136	1SFA611920R8136	10	0.005
Adaptor					
PG 16/M20		MA5-3010	1SFA611925R3010	10	0.010



MCB

Dimensions (mm, inches)

Enclosures

LED blocks for rear mounting



MLBL-00BW

Description

To be used in MEP plastic enclosure or on DIN-rail

Color	Rated current mA	Wave-length nm	Lumi-nance mcd	Type	Order code	Pkg qty	Weight (1 pce) kg
Rated voltage 12 V DC (1)							
Red	12.0	620	320	MLBL-00BR	1SFA611621R2001	10	0.012
Green	9.3	520	1500	MLBL-00BG	1SFA611621R2002	10	0.012
Yellow	12.0	588	380	MLBL-00BY	1SFA611621R2003	10	0.012
Blue	9.5	468	450	MLBL-00BL	1SFA611621R2004	10	0.012
White	9.3	(2)	600	MLBL-00BW	1SFA611621R2005	10	0.012
Rated voltage 24 V AC / DC (1)							
Red	9.9	620	250	MLBL-01BR	1SFA611621R2011	10	0.012
Green	9.2	520	1500	MLBL-01BG	1SFA611621R2012	10	0.012
Yellow	9.9	588	250	MLBL-01BY	1SFA611621R2013	10	0.012
Blue	9.3	468	450	MLBL-01BL	1SFA611621R2014	10	0.012
White	9.2	(2)	600	MLBL-01BW	1SFA611621R2015	10	0.012
Rated voltage 48 V AC / DC (1)							
Red	10.0	620	260	MLBL-02BR	1SFA611621R2021	10	0.012
Green	9.7	520	1500	MLBL-02BG	1SFA611621R2022	10	0.012
Yellow	10.0	588	300	MLBL-02BY	1SFA611621R2023	10	0.012
Blue	9.7	468	450	MLBL-02BL	1SFA611621R2024	10	0.012
White	9.7	(2)	600	MLBL-02BW	1SFA611621R2025	10	0.012
Rated voltage 60 V AC / DC (1)							
Red	13.0	620	350	MLBL-03BR	1SFA611621R2031	10	0.012
Green	12.7	520	2000	MLBL-03BG	1SFA611621R2032	10	0.012
Yellow	13.0	588	400	MLBL-03BY	1SFA611621R2033	10	0.012
Blue	12.7	468	550	MLBL-03BL	1SFA611621R2034	10	0.012
White	12.7	(2)	750	MLBL-03BW	1SFA611621R2035	10	0.012
Rated voltage 110 ... 130 V AC							
Red	8.6	620	200	MLBL-04BR	1SFA611621R2041	10	0.012
Green	8.5	520	1200	MLBL-04BG	1SFA611621R2042	10	0.012
Yellow	8.6	588	250	MLBL-04BY	1SFA611621R2043	10	0.012
Blue	7.0	468	400	MLBL-04BL	1SFA611621R2044	10	0.012
White	7.0	(2)	500	MLBL-04BW	1SFA611621R2045	10	0.012
Rated voltage 110 ... 130 V DC (1)							
Red	9.9	620	250	MLBL-05BR	1SFA611621R2051	10	0.012
Green	9.8	520	1500	MLBL-05BG	1SFA611621R2052	10	0.012
Yellow	9.9	588	300	MLBL-05BY	1SFA611621R2053	10	0.012
Blue	9.8	468	450	MLBL-05BL	1SFA611621R2054	10	0.012
White	9.8	(2)	600	MLBL-05BW	1SFA611621R2055	10	0.012
Rated voltage 220 V DC (1)							
Red	8.0	620	180	MLBL-06BR	1SFA611621R2061	10	0.012
Green	8.0	520	110	MLBL-06BG	1SFA611621R2062	10	0.012
Yellow	8.0	588	200	MLBL-06BY	1SFA611621R2063	10	0.012
Blue	8.0	468	450	MLBL-06BL	1SFA611621R2064	10	0.012
White	8.0	(2)	600	MLBL-06BW	1SFA611621R2065	10	0.012

Note:
(1) Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product.
(2) X=0.31, Y=0.32 according to the ICI Chromaticity diagram.
For technical data, please refer to modular range section.

Enclosures

LED blocks for rear mounting



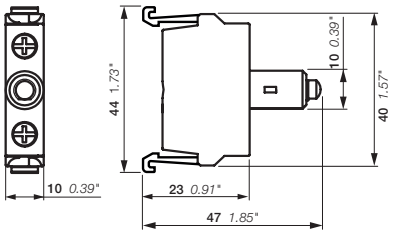
MLBL-07BW

Description

To be used in MEP plastic enclosure or on DIN-rail

Color	Rated current mA	Wave-length nm	Lumi-nance mcd	Type	Order code	Pkg qty	Weight (1 pce) kg
Rated voltage 230 V AC							
Red	9.5	620	250	MLBL-07BR	1SFA611621R2071	10	0.012
Green	9.4	520	1500	MLBL-07BG	1SFA611621R2072	10	0.012
Yellow	9.5	588	300	MLBL-07BY	1SFA611621R2073	10	0.012
Blue	8.2	468	450	MLBL-07BL	1SFA611621R2074	10	0.012
White	8.2	(2)	600	MLBL-07BW	1SFA611621R2075	10	0.012
Rated voltage 380 V AC							
Red	10.2	620	250	MLBL-08BR	1SFA611621R2081	10	0.012
Green	10.2	520	1500	MLBL-08BG	1SFA611621R2082	10	0.012
Yellow	10.2	582	300	MLBL-08BY	1SFA611621R2083	10	0.012
Blue	9.1	468	450	MLBL-08BL	1SFA611621R2084	10	0.012
White	9.1	(2)	600	MLBL-08BW	1SFA611621R2085	10	0.012
Rated voltage 415 V AC							
Red	11.2	620	280	MLBL-09BR	1SFA611621R2091	10	0.012
Green	11.2	520	1800	MLBL-09BG	1SFA611621R2092	10	0.012
Yellow	11.2	588	350	MLBL-09BY	1SFA611621R2093	10	0.012
Blue	9.9	468	500	MLBL-09BL	1SFA611621R2094	10	0.012
White	9.9	(2)	650	MLBL-09BW	1SFA611621R2095	10	0.012

Note:
(1) Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product.
(2) X=0.31, Y=0.32 according to the ICI Chromaticity diagram.
For technical data, please refer to modular range section.



MLBL

Dimensions (mm, inches)

Enclosures

Assembled stations



MEPY1-1042



CEPY1-2001



MEP2-1001

Description

Assembled enclosures with emergency stop pushbuttons, yellow / light grey color designed according to the Safety of machinery standard EN/ISO 13850 for emergency stops.

Release method	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg
1-seat plastic enclosures with 40 mm modular emergency stop pushbuttons Yellow / light grey color					
Twist release	0 2	MEPY1-1042	1SFA611821R1042	1	0.240
Twist release	1 2	MEPY1-1041	1SFA611821R1041	1	0.250
Pull release	0 2	MEPY1-1035	1SFA611821R1035	1	0.466
Twist release with plastic legend plate "Emergency stop"	0 2	MEPY1-1040	1SFA611821R1040	1	0.240
1-seat plastic enclosures with 40 mm compact emergency stop pushbuttons Yellow / light grey color					
Twist release	0 2	CEPY1-1001	1SFA619821R1001	1	0.108
Pull release	0 2	CEPY1-1002	1SFA619821R1002	1	0.108
Key release	1 1	CEPY1-1006	1SFA619821R1006	1	0.105
Twist release, yellow shroud	0 2	CEPY1-2001	1SFA619821R2001	1	0.124
Pull release, yellow shroud	0 2	CEPY1-2002	1SFA619821R2002	1	0.124
1-seat plastic enclosures with 40 mm compact machine stop pushbuttons Dark grey / light grey color					
Twist release	1 1	CEP1-1001	1SFA619811R1001	1	0.108
Pull release	1 1	CEP1-1002	1SFA619811R1002	1	0.108
Twist release, grey shroud	1 1	CEP1-2001	1SFA619811R2001	1	0.124
Pull release, grey shroud	1 1	CEP1-2002	1SFA619811R2002	1	0.124
2-seat plastic enclosure with modular pushbuttons Dark grey / light grey Two flush pushbuttons, momentary, black bezel					
● Green ● Red		MEP2-1001	1SFA611812R1001	1	0.220
1 NO 1 NC					
I O					

Legend plates and text caps

647 **Legend plates**

649 **Text caps**

Legend plates and text caps



ABB offers a wide range of alternatives to label our products. Choose between marked aluminium legend plates, insert holders with a wide range of marked inserts or texts caps to mount under the lens of the pilot device.



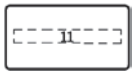


Legend plates and text caps

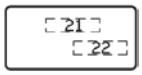
Legend plate holder with inserts



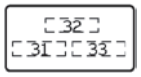
KA1-8120



1-position insert



2-postion insert



3-position insert

Description

For Ø 22 mm operators installed in panel, laser marked with text or symbols.
Inserts made of plastic and aluminium laminate.

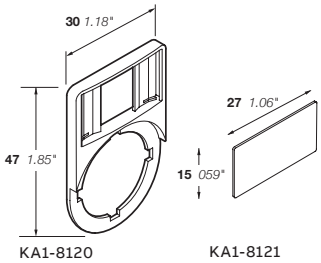
Description	Type	Order code	Pkg qty	Weight (1pce) kg
Legend plate holder				
Black plastic	KA1-8120	1SFA616920R8120	100	0.002
Insert				
Without text or symbol	KA1-8121	1SFA616920R8121	100	0.001
1-position inserts				
O	MA6-1032	1SFA611930R1032	10	0.001
I	MA6-1033	1SFA611930R1033	10	0.001
→	MA6-1034	1SFA611930R1034	10	0.001
→ →	MA6-1035	1SFA611930R1035	10	0.001
Close	MA6-1036	1SFA611930R1036	10	0.001
Open	MA6-1037	1SFA611930R1037	10	0.001
On	MA6-1038	1SFA611930R1038	10	0.001
Off	MA6-1039	1SFA611930R1039	10	0.001
Fast	MA6-1040	1SFA611930R1040	10	0.001
Slow	MA6-1041	1SFA611930R1041	10	0.001
Down	MA6-1042	1SFA611930R1042	10	0.001
Up	MA6-1043	1SFA611930R1043	10	0.001
Start	MA6-1044	1SFA611930R1044	10	0.001
Stop	MA6-1045	1SFA611930R1045	10	0.001
Reset	MA6-1047	1SFA611930R1047	10	0.001
Run	MA6-1054	1SFA611930R1054	10	0.001
Fault	MA6-1058	1SFA611930R1058	10	0.001
Trip	MA6-1118	1SFA611930R1118	10	0.001
	MA6-1210	1SFA611930R1210	10	0.001

2-position inserts for selector switches

Pos. 21	Pos. 22				
O	I	MA6-1070	1SFA611930R1070	10	0.001
I	II	MA6-1071	1SFA611930R1071	10	0.001
Off	On	MA6-1073	1SFA611930R1073	10	0.001
Stop	Start	MA6-1074	1SFA611930R1074	10	0.001
Low	High	MA6-1075	1SFA611930R1075	10	0.001
Slow	Fast	MA6-1076	1SFA611930R1076	10	0.001
Close	Open	MA6-1077	1SFA611930R1077	10	0.001
Hand	Auto	MA6-1079	1SFA611930R1079	10	0.001

3-position inserts for selector switches

Pos.31	Pos.32	Pos.33			
←	O	→	MA6-1080	1SFA611930R1080	10	0.001
I	O	II	MA6-1082	1SFA611930R1082	10	0.001
Hand	O	Auto	MA6-1083	1SFA611930R1083	10	0.001
Slow	Off	Fast	MA6-1084	1SFA611930R1084	10	0.001
Man		Auto	MA6-1085	1SFA611930R1085	10	0.001
Man	Off	Auto	MA6-1086	1SFA611930R1086	10	0.001
O		I	MA6-1087	1SFA611930R1087	10	0.001



KA1-8120 KA1-8121

Dimensions (mm, inches)

Legend plates and text caps

Legend plates for emergency stop



1SFA616915R1005



SK615546-2

Description

For Ø 22 mm operators installed in panel. Combine the emergency stops with the yellow legend plates and black text to conform with the Safety machinery standard EN/ISO 13850.

Legend plates made of laminate have adhesive back.

Description	Type	Order code	Pkg qty	Weight (1pce) kg
Plastic Ø 70mm				
Without text	KTC15-1038	1SFA616915R1038	10	0.003
Emergency stop	KTC15-1005	1SFA616915R1005	10	0.003
Not Aus	KTC15-6005	1SFA616915R6005	10	0.003
Aluminium Ø 70 mm				
Without text	–	SK615546-8	10	0.010
Nöd Stopp	–	SK615546-1	10	0.010
Emergency stop	–	SK615546-2	10	0.010
Not Aus	–	SK615546-3	10	0.010
ARRET D'URGENCE	–	SK615546-4	10	0.010
HÄTÄSEIS	–	SK615546-5	10	0.010
PARADA DE EMERGENCIA	–	SK615546-6	10	0.010
Emergency stop NOT AUS ARRET D'URGENCE	–	SK615546-13	10	0.010
Noodstop	–	SK615546-15	10	0.010
Aluminum laminate rectangular 59 x 39.5 mm				
Without text	MA6-1010	1SFA611930R1010	10	0.005
Nöd stopp	MA6-1017	1SFA611930R1017	10	0.005
Not haus	MA6-1018	1SFA611930R1018	10	0.005
Emergency stop	MA6-1019	1SFA611930R1019	10	0.005
ARRET D'URGENCE	MA6-1020	1SFA611930R1020	10	0.005
Hätäseis	MA6-1021	1SFA611930R1021	10	0.005
PARADA DE EMERGENCIA	MA6-1022	1SFA611930R1022	10	0.005
Plastic laminate rectangular 59 x 39.5 mm				
Without text	MA6-1011	1SFA611930R1011	10	0.002
Emergency stop	MA6-1023	1SFA611930R1023	10	0.002

Legend plates and text caps

Text caps for illuminated pushbuttons and pilot lights



KTC1-1020



KTC1-9004



KTC1-1019



KTC2-1020



KTC3-1019



KTC3-1020

Description

To be mounted under the lens of illuminated pushbutton or pilot light to add symbol or text.
Choose only white text caps with illuminated products due to high opacity of the colored text caps.
Choose colored text caps in combination with clear lens.

Text/symbol	Color	Type	Order code	Pkg qty	Weight (1pce) kg
For flush pushbuttons					
Without text	White	KTC1-9000	1SFA616901R9000	10	0.001
START	White	KTC6-1042	1SFA616906R1042	10	0.001
R	White	KTC1-9009	1SFA616901R9009	10	0.001
On	White	KTC1-1020	1SFA616901R1020	10	0.001
ON	White	KTC1-1039	1SFA616901R1039	10	0.001
	Green	KTC6-1039	1SFA616906R1039	10	0.001
	Black	KTC8-1039	1SFA616908R1039	10	0.001
Off	White	KTC1-1019	1SFA616901R1019	10	0.001
Stop	White	KTC1-1031	1SFA616901R1031	10	0.001
STOP	Red	KTC4-1047	1SFA616904R1047	10	0.001
Reset	White	KTC1-1025	1SFA616901R1025	10	0.001
O	White	KTC1-9004	1SFA616901R9004	10	0.001
	Red	KTC4-9004	1SFA616904R9004	10	0.001
	Black	KTC8-9004	1SFA616908R9004	10	0.001
I	White	KTC1-9002	1SFA616901R9002	10	0.001
	Green	KTC6-9002	1SFA616906R9002	10	0.001
	Black	KTC8-9002	1SFA616908R9002	10	0.001
II	White	KTC1-9003	1SFA616901R9003	10	0.001
	Black	KTC8-9003	1SFA616908R9003	10	0.001
III	White	KTC1-9028	1SFA616901R9028	10	0.001
+	Black	KTC8-9011	1SFA616908R9011	10	0.001
-	Black	KTC8-9012	1SFA616908R9012	10	0.001
↑	White	KTC1-9005	1SFA616901R9005	10	0.001
	Black	KTC8-9005	1SFA616908R9005	10	0.001
⇨|⇦	Black	KTC8-9015	1SFA616908R9015	10	0.001
⇦|⇨	White	KTC1-9016	1SFA616901R9016	10	0.001
	Black	KTC8-9016	1SFA616908R9016	10	0.001
→▷▷	White	KTC1-9006	1SFA616901R9006	10	0.001
⊕	Black	KTC8-9018	1SFA616908R9018	10	0.001
⌀	White	KTC1-9020	1SFA616901R9020	10	0.001
⍋	White	KTC1-9026	1SFA616901R9026	10	0.001
	Black	KTC8-9026	1SFA616908R9026	10	0.001
For extended pushbuttons					
Without text	White	KTC2-9000	1SFA616902R9000	10	0.001
On	White	KTC2-1020	1SFA616902R1020	10	0.001
Off	Red	KTC5-1040	1SFA616905R1040	10	0.001
Stop	White	KTC2-1031	1SFA616902R1031	10	0.001
STOP	Red	KTC5-1047	1SFA616905R1047	10	0.001
Reset	White	KTC2-1025	1SFA616902R1025	10	0.001
O	Red	KTC5-9004	1SFA616905R9004	10	0.001
I	White	KTC2-9002	1SFA616902R9002	10	0.001
II	White	KTC2-9003	1SFA616902R9003	10	0.001
III	White	KTC2-9028	1SFA616902R9028	10	0.001
↑	White	KTC2-9005	1SFA616902R9005	10	0.001
⇨|⇦	White	KTC2-9015	1SFA616902R9015	10	0.001
⇦|⇨	White	KTC2-9016	1SFA616902R9016	10	0.001
→▷▷	White	KTC2-9006	1SFA616902R9006	10	0.001
For pilot lights					
Without text	White	KTC3-9000	1SFA616903R9000	10	0.001
On	White	KTC3-1020	1SFA616903R1020	10	0.001
ON	White	KTC3-1039	1SFA616903R1039	10	0.001
Off	White	KTC3-1019	1SFA616903R1019	10	0.001
I	White	KTC3-9002	1SFA616903R9002	10	0.001

07
Electric vehicle charging

652 **Terra AC Wallbox**

654 **Terra DC Wallbox**

Terra AC Wallbox

IEC portfolio
AC charger for electric vehicles, type 2
Power supply network: 220 ... 240 V single phase and 380 ... 415 V three phase, 50 / 60 Hz



Terra AC W7-T-0



Terra AC W11-G5-R-0



Terra AC W22-T-RD-M-0

Rated power (kW)	Max. current (A)	Socket outlet or connector type	Other features	Type	Order code	Weight Pkg (1pce) (kg)
Single phase						
3.7	16	Socket with shutter, type 2	-	Terra AC W4-S-0	ABB6AGC082587	3
		Socket with shutter, type 2	RFID	Terra AC W4-S-R-0	ABB6AGC085384	3
7.4	32	Socket, type 2	-	Terra AC W7-T-0	ABB6AGC081278	3
		Socket, type 2	RFID	Terra AC W7-T-R-0	ABB6AGC085382	3
		Socket, type 2	RFID, 4G	Terra AC W7-T-R-C-0	ABB6AGC085383	3
		Cable 5 m, type 2	RFID	Terra AC W7-G5-R-0	ABB6AGC082155	5
		Cable 5 m, type 2	RFID, 4G	Terra AC W7-G5-R-C-0	ABB6AGC085385	6.5
Single phase with display and MID certification						
7.4	32	Socket, type 2	RFID, 4G, daisy-chain ethernet	Terra AC W7-T-RD-MC-0	ABB6AGC082174	3
		Cable 5m, type 2	RFID, 4G, daisy-chain ethernet	Terra AC W7-G5-RD-MC-0	ABB6AGC085386	6.5
Three phase						
11	16	Cable 5 m, type 2	RFID	Terra AC W11-G5-R-0	ABB6AGC082156	6
22	32	Socket, type 2	-	Terra AC W22-T-0	ABB6AGC081279	3
		Socket, type 2	RFID	Terra AC W22-T-R-0	ABB6AGC082152	3
		Socket, type 2	RFID, 4G	Terra AC W22-T-R-C-0	ABB6AGC082153	3
		Socket with shutter, type 2	RFID	Terra AC W22-S-R-0	ABB6AGC082589	3
		Socket with shutter, type 2	RFID, 4G	Terra AC W22-S-R-C-0	ABB6AGC082154	3
		Cable 5 m, type 2	RFID, 4G	Terra AC W22-G5-R-C-0	ABB6AGC082157	6.5
Three phase with display and MID certification						
22	32	Socket, type 2	RFID, daisy-chain ethernet	Terra AC W22-T-RD-M-0	ABB6AGC081280	3
		Socket, type 2	RFID, 4G, daisy-chain ethernet	Terra AC W22-T-RD-MC-0	ABB6AGC081281	3
		Socket with shutter, type 2	RFID, 4G, daisy-chain ethernet	Terra AC W22-S-RD-MC-0	ABB6AGC081282	3
		Cable 5 m, type 2	RFID, 4G, daisy-chain ethernet	Terra AC W22-G5-RD-MC-0	ABB6AGC081285	6.5

Terra AC wallbox accessories

Description	Current (A)	Type	Order code	Weight Pkg (1pce) (kg)
Pedestal For floor standing installation				
Metal pedestal for 1 charger, free-standing	-	TAC pedestal single	ABB6AGC085345	9.12
RFID card (MIFARE)				
RFID cards with ABB logo, pack of 5	-	SER-abbRFIDtags	ABB6AGC082175	0.07
RFID cards, blank, pack of 5	-	SER-blankRFIDtags	ABB6AGC082176	0.07
Charge cables Length: 7 m Cables with 2 connectors of same or different types				
Single phase				
Type 2 to type 1	16	TAC-cable T2-T1 7m1P16A	ABB6AGC082538	2.56
Type 2 to type 2	32	TAC-cable T2-T2 7m1P32A	ABB6AGC082535	2.95
Type 2 to type 1	32	TAC-cable T2-T1 7m1P32A	ABB6AGC082539	3.77
Three phase				
Type 2 to type 2	16	TAC-cable T2-T2 7m3P16A	ABB6AGC082536	2.15
Type 2 to type 2	32	TAC-cable T2-T2 7m3P32A	ABB6AGC082537	4.18
Spare parts				
Water and dust proofing set for cable entries including 1 * 32 mm and 2 * 25 mm grommets	-	SER-Grommet	ABB6AGC085387	0.04
Front cover (non-display), 2 screws included	-	SER-Front cover (non-display)	ABB6AGC085388	1.50
Maintenance cover, internal (non-display), 6 screws included	-	SER-Maintenance cover (non-display)	ABB6AGC085389	1.50
Spare cables Length: 5 m For cable replacement of existing cable version charger				
Type 2, three phase	16	SER-TAC-cable T2 5m3P16A	ABB6AGC082555	1.41
Type 2, single phase	32	SER-TAC-cable T2 5m1P32A	ABB6AGC082554	2.05
Type 2, three phase	32	SER-TAC-cable T2 5m3P32A	ABB6AGC082556	2.95
Type 1, single phase	40	SER-TAC-cable T1 5m1P40A		-
Type 1, single phase	80	SER-TAC-cable T1 5m1P80A		-
Warranty				
Total warranty time of 3 years (standard warranty 2 years + 1 year)		TAC extended warranty 3 yr	ABB6AGC084053	-
Total warranty time of 4 years (standard warranty 2 years + 2 years)		TAC extended warranty 4 yr	ABB6AGC084054	-
Total warranty time of 5 years (standard warranty 2 years + 3 years)		TAC extended warranty 5 yr	ABB6AGC084055	-

Terra DC Wallbox

—
EU portfolio, three phase

Description
DC charger for electric vehicles, CCS2 and CHAdeMO
Total weight 10 kg backplate + 60 kg main body and cables
Power supply network: 3 phase 400 V AC +/-10 % (50/60 Hz)
Connectivity: Cellular connection, 3G / 4G, 2 port RJ45, Ethernet
Metal Connector/cable holders for inside use provided standard with the product


TWB CE 24 C 7-7M-0-0

Rated continuous power (kW)	Rated peak power (kW)	Charging standard	EMC classification	Cable length (m / ft)	Type	Order code	Weight Pkg (1pce) (kg)
22.5	24	CCS2	Class B	3.5 / 12	TWB CE 24 C 3T-7M-0-0	6AGC077815	70
22.5	24	CCS2	Class B	7 / 23	TWB CE 24 C 7T-7M-0-0	6AGC077816	70
22.5	24	CHAdeMo / CCS2	Class B	3.5 / 12	TWB CE 24 CJ 3T-7M-0-0	6AGC077814	70
22.5	24	CHAdeMo / CCS2	Class B	7 / 23	TWB CE 24 CJ 7T-7M-0-0	6AGC077817	70

Terra DC wallbox accessories

	Description	Type	Order code	Weight Pkg (1 pce) (kg)
	Connector holder Plastic /cable holders for outside use: to be ordered separately * Metal cable holders for inside use are provided with the product			
	CCS-1	TWB Ext.Con.Hol. CCS1	6AGC076604	4.66
	CCS-2	TWB Ext.Con.Hol. CCS2	6AGC076603	4.14
	CHAdeMO	TWB Ext.Con.Hol. J	6AGC076601	4.24
	Mobile cart including Terra DC wallbox Perfect fit for workshops at car dealers or at bus and truck depots Wheels are made of stainless steel, providing grounding of the cart to the earth The mobile cart is pre-assembled in the factory and delivered as one with Terra DC Wallbox already installed. Total weight: Mobile cart 70 kg + Terra DC wallbox 70 kg AC cable from the wall plug to the mobile cart is **not** provided with the product			
	Terra DC wallbox CE 24 kWp, 3 phases, CCS, 3.5 m cable, EMC Class B including mobile cart, CE	TWB CE 24 C 3T-7M-0-0 + mobile cart, CE	6AGC102583	140
	Terra DC wallbox CE 24 kWp, 3 phase, CCS, 7 m cable, EMC Class B including mobile cart, CE	TWB CE 24 C 7T-7M-0-0 + mobile cart, CE	6AGC102584	140

Warranty			
Total warranty time of 3 years (standard warranty 2 years + 1 year)	EVC Extended warranty 3 yr	6AGC100306	-
Total warranty time of 4 years (standard warranty 2 years + 2 year)	EVC Extended warranty 4 yr	6AGC100307	-
Total warranty time of 5 years (standard warranty 2 years + 3 year)	EVC Extended warranty 5 yr	6AGC100308	-

All In One Charging

Terra DC fast chargers - from 20 kW to 180 kW

The Terra fast chargers are designed for convenient charging of all types of electric vehicles, including the upcoming ones equipped with high voltage systems. The compact size makes it perfect for urban use, while its modularity allows to increase the charging power up to 180 kW and serve up to 3 electric vehicles at the same time.

Main features and key benefits

- DC fast charger supporting CCS (type 1 and 2), CHAdeMO 1.2 and GB/T.
- Serving up to 3 vehicles at the same time, 2 fast-charging and one AC charging.
- Modular design allows to increase the power level depending on the specific needs of the site, from 20 to 50 kW (Terra 24-54) and from 90 to 120 to 180 kW (Terra 94-124-184)
- The 300 A CCS cables allow high power charging speed in a compact form factor, ideal for urban environments.
- Capable of charging high voltage batteries (up to 920 Vdc)
- Simultaneous AC charging via optional 22/43 kW cable (Terra 24/54) or 22 kW socket AC Type-2 (all models).
- MID and Eichrecht (PTB) compliant metering system for DC and AC outlets available as option.
- Upgradable with cable management system to handle long cables and enhance the user experience.
- IEC 61000 EMC Class B certified for industrial and residential areas (including petrol stations, retail outlets, offices, etc.)
- Future-proof connection via open industry standards:
- Easy integration in OCPP backends and local control systems via OPC-UA (optional)
- Remote uptime monitoring and assistance
- Remote updates and upgrades
- Easy to use:
  - Daylight readable touchscreen display
  - Graphic visualization of the charging progress
  - RFID/PIN/Remote authorization
- Upgradable with credit card payment terminals

Configurations

- Low power models: Terra 24 (20 kW), Terra 54 (50 kW)
- High power models: Terra 94 (90 kW), Terra 124 (120 kW), Terra 184 (180 kW)
- European, US, Japan and China versions available, for 400 V, 480 V and 380 V AC grid inputs
- Many combinations of the open protocols CCS, CHAdeMO, GB/T and AC charging
- Continuous current output up to 125 A (Terra 24/54) and 300 A (Terra 94/124/184)
- Different cable lengths available and optional cable management system

01 Terra 54CT
02 Terra 54 CJG
03 Terra 184 CC
04 Terra 184 CJ (USA)
05 Terra 184 CJ with cable management system

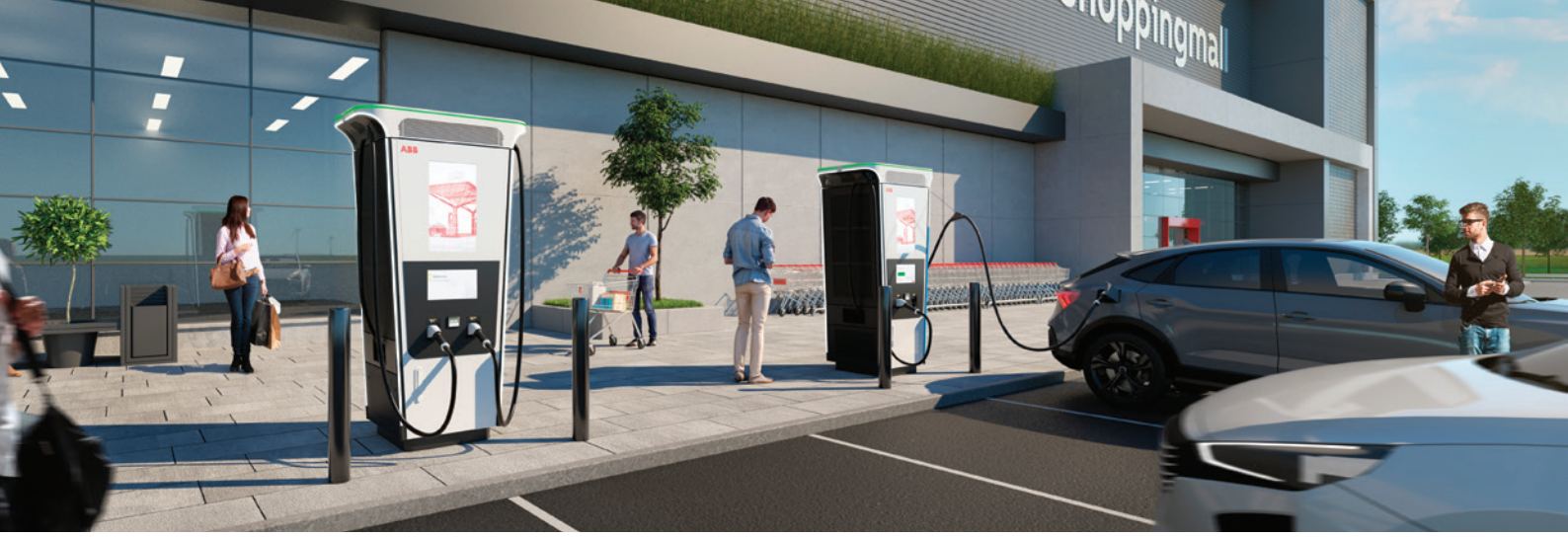

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05



Terra 360 all-in-one high power charger – from 90 kW to 360 kW

The Terra 360 is the fastest all-in-one charger on the market. Designed around the needs of today's EV driver, the Terra 360 is powerful, flexible, user-friendly and designed for accessibility.

ABB's Terra 360 charging network operators deploy fast-charging stations and accelerate the transition to future mobility.

—
06 Terra CE 360 CC

Key features

- "All-in-one" integrated design
- Up to 360 kW of charging power
- Modular and scalable in 30 kW steps
- Serving multiple EVs at the same time
- Dynamic power allocation across the outlets
- Supporting the major charging standards
- CCS charging up to 500A (liquid cooled option available in 2022)
- The only charger that can serve a high performance car, such as the Porsce Taycan, at full power (270 kW) and charger a second vehicle (90 kW)
- Serving up to four vehicles at the same time (available from 2022)
- Charging batteries up to 920 Vdc
- Integrated cable management system
- Five meters of cable reach on all sides of the charger
- 15" touchscreen user interface
- Optional 27" advertisement screens
- Optional credit card payment terminals
- Native support to OCPP 1.6 JSON
- Easy and fast installation and commissioning
- Online and local service and configuration tools
- Native integration to ABB site and fleet power management solutions



—
06

Heavy vehicle charging infrastructure

Connector based
Charge electric buses and trucks with a connector



ABB offers a complete portfolio for charging heavy electric vehicles such as buses and trucks with a CCS connector. Due their large voltage range the DC wall box (24 kW) and Terra 54HV (50 kW) are perfectly suited to charge electric buses and trucks. For higher power the products with 100 kW up to 160 kW including sequential charging, are specially designed to charge larger fleets of electric vehicles in it its most optimized way.

Main features and key benefits:
- Power range of 24 kW, 50 kW with Voltage range from 150-920 V_{DC}
- Power range of 100 kW up to 160 kW with Voltage range from 150-850 V_{DC}
- Sequential charging with up to 4 outlets with 107 and 160 kW dual outlet depot box
- Compliant with ISO 15118 / DIN 70121 / IEC 61851-23 & -24
- OCPP compliant
- Remote diagnostics and management tools
- EU and US models available

Sequential charging
Instead of having one charger per vehicle, ABB offers sequential charging for the 100 kW up to 160 kW chargers. A single power cabinet is paired with up to 2 Dual CCS outlet depot charge boxes (4 outlets). After the first vehicle has finished charging, the next vehicle will start charging automatically. The advantages are:

- Vehicles are charged with high power, maximizing vehicle availability
- The required grid connection is smaller, reducing initial investments and operational costs
- Optimal utilization of installed infrastructure, meaning lower investments in charging equipment

HVC-150C with 150 kW power cabinet and three depot charge boxes with sequential charging



08
Safety products ABB Jokab Safety

662 **Overview**

665 **Safety controllers**

673 **Optical safety devices**

693 **Sensors and locks**

703 **Control devices**

713 **Emergency stops and pilot devices**

Our range of safety products

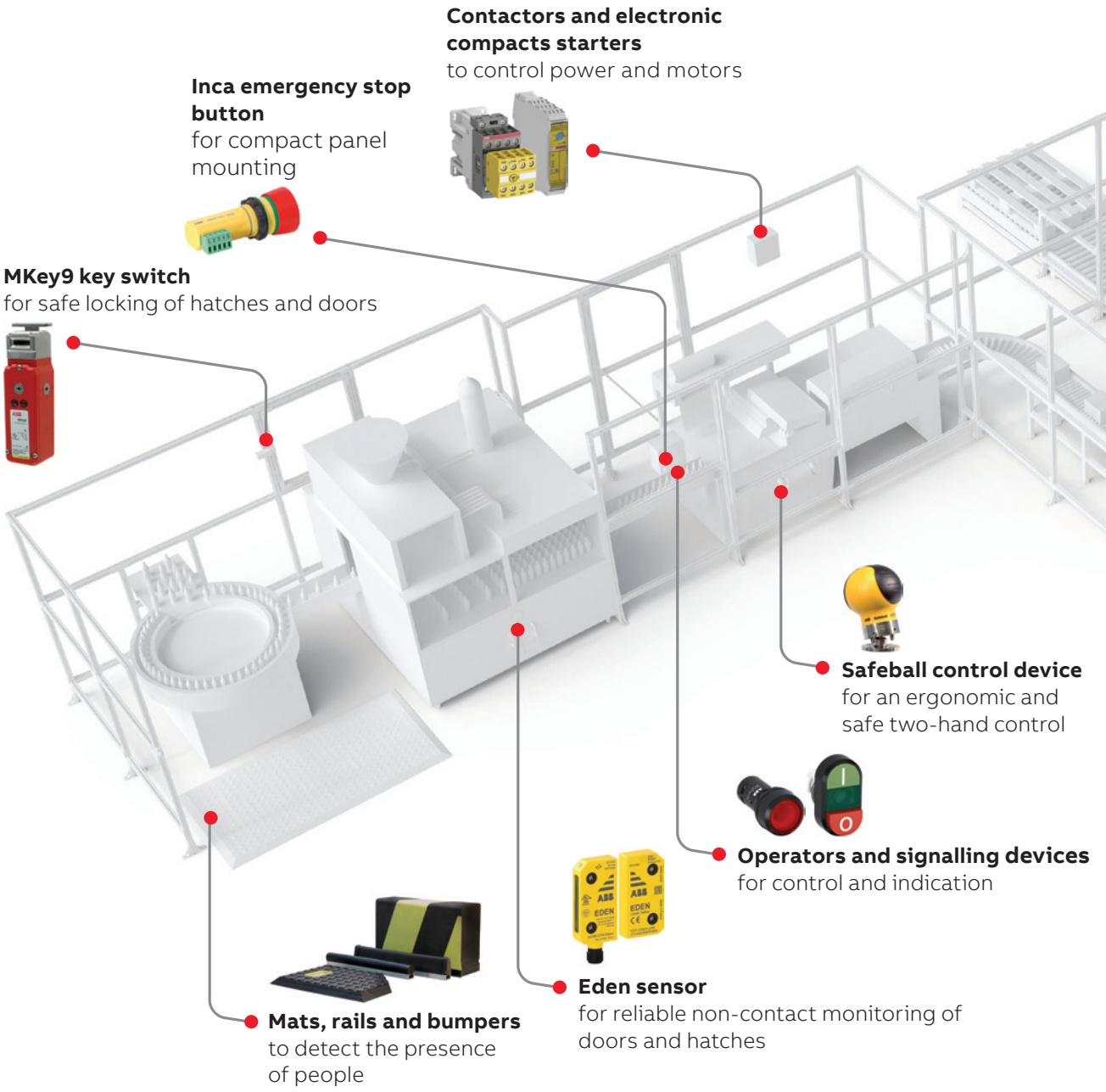


ABB is the only supplier that can deliver complete safety solutions (including output devices such as contactors and frequency converters) together with automation solutions such as robotics, motors, drives and PLCs.

Magne magnetic lock
to keep doors and hatches locked during a process



Pluto programmable safety controller, Vital safety controller and Sentry safety relays
for flexible monitoring of safety devices



Smile emergency stop button
to safely stop machinery in hazardous situations



Orion light guards
for a production friendly safety detection







GKey safety lock
for safe locking of doors

JSHD4 three-position device
for safe and ergonomic inspection and troubleshooting



LineStrong pull wire emergency stop switch
for easy access of emergency stop function

Safety controllers

666 **Introduction and overview**

668 **Programmable safety controller Pluto**

672 **Safety controller Vital**

Introduction and overview
Selection guide

The safety controllers from ABB can monitor anything from a single safety function to complete manufacturing lines.

	Pluto	Vital	Sentry
Image			
Type	Programmable safety controller	Safety controller	Safety relay
Description	A cost-effective, powerful and compact programmable safety controller for all types of safety applications.	A configurable safety controller that can monitor all safety devices on smaller machines.	Powerful and easy-to-install safety relays suitable for all common types of safety devices.
Application(s)	Monitoring of multiple safety devices and several safety functions, as well as control of machines and/or processes. Many I/Os and programmable logic.	Monitoring multiple safety devices with all the advantages of the DYNlink system.	Monitoring safety devices with one safety function, as well as expansion of safety outputs, with or without time delay.
Compatible safety devices	All types of conventional safety devices and DYNlink devices	DYNlink devices	All types of conventional safety devices
Advantages	- Easy-to-use while still allowing advanced programming - Free software - Easy system modification - Gateway communication with all main fieldbuses	- Monitor up to 30 sensors in series maintaining Cat. 4/PL e - No programming	- Easy and fast to install with push-in terminals - Universal models for all common applications - Extensive status information - Advanced timer functions - Multireset of up to 10 safety relays

Overview
Selection orientation

Conventional safety devices
By conventional safety devices, we mean safety devices with one or two channels with contacts (e.g. key switches and emergency stop buttons), devices with OSSD outputs (e.g. light guards and Eden OSSD), safety devices with solid state outputs (e.g. safety magnetic sensors) and pressure sensitive devices (e.g. safety mats, safety edges and bumpers).
A safety controller compatible with conventional safety devices can be used with most safety devices on the market, independently of the brand.

The DYNlink solution
The DYNlink solution is a unique ABB Jokab Safety feature allowing to connect safety devices in series and still reach category 4/PL e/SIL 3 with only one channel (instead of two with conventional safety devices). This saves cabling and hardware.
For a small machine, the Vital safety controller can be a very cost effective solution since up to 30 DYNlink devices can be connected to one Vital and still reach category 4/PL e/SIL 3. With conventional safety devices this would require one safety relay per safety device.
When Pluto programmable safety controller is used, only one safety input is necessary for each DYNlink circuit instead of two inputs for a traditional safety device, which means that less I/Os are necessary.
Tina adapters allow to use conventional safety devices in a DYNlink solution and transform between DYNlink signals and conventional safety signals, while maintaining the highest level of safety. This means that most conventional safety devices can be used in a DYNlink solution when used together with a suitable Tina adapter.

Programmable logic
Quite often, there is a need for logic between the different safety functions. For instance: IF (“door A” AND “door B” are open) OR (“door C” is open) THEN “Action 1”.
A logic like this can be hardwired without using programmable safety controllers, but the cabling becomes much more complicated, modifications are time consuming, errors happen more often and are difficult to find.
With a programmable safety controller, the safety devices are simply connected to the safe inputs of the controller and the logic is made in the program of the safety controller. The logic is then easy to modify without changing anything in the cabling. The Pluto Manager programming software allows to test the logic and see on the screen if there are any problems, which means much faster troubleshooting.
Pluto also offers many functions that enables it to do much more than supervising safety functions. It can e.g. control the complete manufacturing process of a smaller machine, thus saving the cost of a standard (non-safety) PLC.

Ordering information

Pluto



Pluto S20 v2



Pluto A20 v2



Pluto D45

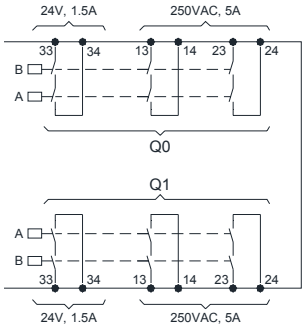
Pluto ordering table

Pluto is available in different models depending on the needs of your application.
Optional features includes bus communication, high resolution analog inputs and current monitoring.

Safety bus	Failsafe outputs [a]	Failsafe inputs (max) [b]	Analog inputs (max) [b]	Fast counter inputs (max) [b]	StatusBus inputs (max) [b]	Non failsafe outputs (max) [b]	Width mm	Type	Order code
No	4	16	1 [c]	-	4	8	45	Pluto S20	2TLA020070R4700
	6	40	3 [c]	-	4	16	90	Pluto S46	2TLA020070R1800
Yes	-	22	1 [c]	-	4	8	45	Pluto B22 [e]	2TLA020070R4800
	2	4	-	-	2	2	45	Pluto O2 [f]	2TLA020070R8500
	4	16	1 [c]	-	4	8	45	Pluto A20 [g]	2TLA020070R4500
								Pluto B20	2TLA020070R4600
			4 [d] + 1 [c]	-	4	8	45	Pluto D20	2TLA020070R6400
	6	40	3 [c]	-	4	16	90	Pluto B46	2TLA020070R1700
		39	8 [d]	4	4	15	90	Pluto D45	2TLA020070R6600

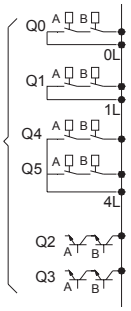
a) Failsafe outputs

2 failsafe outputs:
- 2 independent individually safe potential free relay outputs (Q0 and Q1) with 3 contacts each



4 failsafe outputs:
- 2 independent individually safe potential free relay outputs (Q0 and Q1)
- 2 independent individually safe transistor outputs (-24 VDC) (Q2 and Q3)

6 failsafe outputs:
- 2 independent individually safe potential free relay outputs (Q0 and Q1)
- 2 independent individually safe potential free relay outputs with common supply (Q4 and Q5)
- 2 independent individually safe transistor outputs (-24 VDC) (Q2 and Q3)



b) -The number of failsafe inputs available decreases with the number of used non-failsafe outputs, analog inputs, fast counter inputs and StatusBus inputs.
-The number of analogue inputs available decreases with the number of used fast counter inputs.
-The number of non-failsafe outputs available decreases with the number of StatusBus inputs used.
Check the Pluto hardware manual for more information.

c) 0-27 V analog inputs

d) 0-10 V/4-20 mA (high resolution) analog inputs

e) Expansion model with failsafe inputs and no failsafe outputs.

f) Expansion model with 2 failsafe outputs with 3 contacts each. Also possible to use as stand-alone unit.

g) Model with current monitoring

Ordering information
Pluto accessories



IDFIX-R



IDFIX-RW



IDFIX-DATA



IDFIX-PROG 2k5



IDFIX-PROG 10k



FIXA



R120 Resistor

IDFIX identifiers

IDFIX is an identification circuit that is connected to Pluto. It must be used:

- when several Pluto are connected to the Pluto Safety bus (IDFIX-R or IDFIX-RW)
- to get the possibility to replace a stand-alone Pluto with a new one without the need of a PC (IDFIX-PROG stores the Pluto program)

Description	Type	Order code
Pre-programmed unique identification number.	IDFIX-R	2TLA020070R2000
Programmable identification number, i.e. the user can choose identification number.	IDFIX-RW	2TLA020070R2100
Programmable identification number and storage of AS-i safety codes.	IDFIX-DATA	2TLA020070R2300
Storage of the Pluto program, 2.5 Kbyte. Especially useful for stand-alone Pluto.	IDFIX-PROG 2k5	2TLA020070R2400
Storage of the Pluto program, 10 Kbyte. Especially useful for stand-alone Pluto.	IDFIX-PROG 10k	2TLA020070R2600

Pluto cables and connection accessories

Description	Type	Order code
Pluto programming and on-line monitoring cable. For a PC serial port, 9-pole D-sub connector.	Pluto cable serial	2TLA020070R5600
Pluto programming and on-line monitoring cable. For a PC USB port.	Pluto cable USB	2TLA020070R5800
Cable for connecting a HMI-panel to the Pluto programming port. Connector on HMI-side: 15-pole D-sub. On Pluto side: 90 degrees angled Modbus contact.	Pluto cable HMI	2TLA020070R5700
Cable for connecting HMI-panel ABB CP400 to Pluto programming port. Connector on HMI-side: 9-pole D-sub.	Pluto cable CP400	2TLA020070R6700
Cable for connecting HMI-panel ABB CP600 to Pluto programming port. Connector on HMI-side: 9-pole D-sub.	Pluto cable CP600	2TLA020070R6900
Bus cable for Pluto safety bus, 2 x 0.75 mm^2. Ordered by meter, cut to size. Minimum order length 10 m.	PCABLE-000	2TLA020070R6800
Bus cable for Pluto safety bus, 2 x 0.75 mm^2. 50-meter ring.	PCABLE-050	2TLA020070R6805
Bus cable for Pluto safety bus, 2 x 0.75 mm^2. 100-meter ring.	PCABLE-100	2TLA020070R6810
Bus cable for Pluto safety bus, 2 x 0.75 mm^2. 500-meter drum.	PCABLE-500	2TLA020070R6850
Bus cable for Pluto safety bus, 2 x 0.75 mm^2. Halogen free. Ordered by meter, cut to size. Minimum order length 10 m.	PCABLE-000-HF	2TLA020070R8600
Bus cable for Pluto safety bus, 2 x 0.75 mm^2. Halogen free. 50-meter ring.	PCABLE-050-HF	2TLA020070R8605
Bus cable for Pluto safety bus, 2 x 0.75 mm^2. Halogen free. 100-meter ring.	PCABLE-100-HF	2TLA020070R8610
Bus cable for Pluto safety bus, 2 x 0.75 mm2. Halogen free. 500-meter drum.	PCABLE-500-HF	2TLA020070R8650

Other accessories

Description	Type	Order code
Set of function blocks for mechanical presses.	Pluto press block	2TLA020070R4100
Smile reset button for light button function with M12-5 connector.	Smile 11 RB	2TLA030053R0100
Handheld terminal for StatusBus. Used for e.g. addressing and test. Connection to PC via USB-micro cable	FIXA	2TLA020072R2000
Terminating resistor for Pluto safety bus. Necessary for each stand-alone Pluto and on the Pluto units at each end of the Pluto safety bus. Should be removed from the other Pluto units.	R120 Resistor	2TLA020070R2200

Pluto spare parts (included when ordering a Pluto)

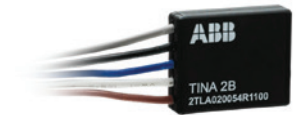
Description	Type	Order code
Contact block for safety relays and Pluto. 7 poles. Grey.	Contact block 7 grey	2TLA081200R1500

Ordering information

DYNlink solution



Tina 2A



Tina 2B



Tina 3A



Tina 7A



Tina 10A



Tina 10B



Tina 10C



Tina 6A

Tina adaptation units to DYNlink

The Tina devices adapt the DYNlink signals from Pluto to safety components with mechanical contacts, such as E-stops, switches and light beams/curtains with dual outputs. Tina is available in several versions depending on the type of safety component that is connected to the DYNlink solution. Also available is connector blocks and a blind plug.

Type of safety device	Type of connection to the DYNlink loop	Description	Type	Order code
Devices with positively driven force-guided contacts like E-stop buttons and key switches	Via the device connection	Mounted directly on the device enclosure to a M20 cable entry.	Tina 2A	2TLA020054R0100
		Placed inside the safety device enclosure	Tina 2B	2TLA020054R1100
	M12-5 male connector	Mounted directly on the device enclosure to a M20 cable entry.	Tina 3A	2TLA020054R0200
	M12-5 male connector with extra conductor for the supply of the safety device	Two circuits and with supply voltage for the safety sensor. Connects to a M20 cable entry.	Tina 3Aps	2TLA020054R1400
	Removable terminal blocks	Mounted on a DIN rail in the electrical cabinet. Note that the connected safety device(s) must be mounted on the same cabinet.	Tina 7A	2TLA020054R0700
Devices with OSSD outputs like Orion light guards	M12-5 male connector	Adaptation of OSSD to DYNlink. M12-8 connector for OSSD and M12-5 for DYNlink.	Tina 10A v2	2TLA020054R1210
		Adaptation of OSSD to DYNlink with possibility to connect a local reset button. M12-8 for OSSD and M12-5 for DYNlink and reset.	Tina 10B v2	2TLA020054R1310
		Adaptation of OSSD to DYNlink with possibility to power the transmitter. M12-8 connector for OSSD and M12-5 for DYNlink and power.	Tina 10C v2	2TLA020054R1610
Safety mats, edges and bumpers with short-circuit detection	M12-5 male connector	Short-circuit detection and adaptation to DYNlink.	Tina 6A	2TLA020054R0600

Connection blocks for serial connection of DYNlink devices (or devices with Tina adapter)

Description	Type	Order code
Connection block for serial connection of up to 4 DYNlink devices with M12-5 connectors	Tina 4A	2TLA020054R0300
Connection block for serial connection of up to 8 DYNlink devices with M12-5 connectors	Tina 8A	2TLA020054R0500
Connection block for serial connection of 2 DYNlink devices with M12-5 connectors	Tina 11A	2TLA020054R1700
Connection block for serial connection of 2 DYNlink devices with M12-8 connectors, e.g. Magne.	Tina 12A	2TLA020054R1800

Blind plug to complete the serial connection on a connection block

All M12 connectors on Tina 4A or Tina 8A must be connected to a safety device or a Tina 1A. For example, if only 6 devices are connected to a Tina 8A, two Tina 1A are necessary.

Description	Type	Order code
Tina 1A is a blind plug connected to the unused M12 connectors of the connection blocks Tina 4A and Tina 8A.	Tina 1A	2TLA020054R0000

M12 Y-connectors

Description	Type	Order code
M12 Y-connector for series connection of DYNlink devices such as Eden, Smile, Inca and Tina.	M12-3A	2TLA020055R0000
M12 Y-connector for parallel connection of 2 DYNlink devices.	M12-3B	2TLA020055R0100
M12 Y-connector for the connection of 2 DYNlink devices or one DYNlink and one light button to Pluto safety PLC with only one cable.	M12-3E	2TLA020055R0200
M12 Y-connector for series connection of DYNlink devices with the StatusBus function.	M12-3S	2TLA020055R0600

Ordering information
Accessories



GATE-C2



GATE-EC



RSA 597



RSA 698

Pluto gateways
With the use of a gateway, Pluto can communicate with other control systems and form a part of a larger network. The gateway models GATE-D2 and C2 can also be used as an extension of the safety bus cable to extend the Pluto network.

Fieldbus	Ethernet	Type	Order code
CANopen		GATE-C2	2TLA020071R8100
DeviceNet		GATE-D2	2TLA020071R8200
PROFIBUS-DP		GATE-P2	2TLA020071R8000
EtherCAT	x	GATE-EC	2TLA020071R9100
Ethernet/IP	x	GATE-EIP	2TLA020071R9000
Modbus TCP	x	GATE-MT	2TLA020071R9400
PROFINET	x	GATE-PN	2TLA020071R9300
SERCOS III	x	GATE-S3	2TLA020071R9200

For more information, see the gateway manuals:
Pluto gateways 2TLC172009M0210
Pluto Ethernet gateways 2TLC172285M0203

Pluto safe encoders
The safe encoders can be used together with Pluto to safely determine the position of machine movements.

Function	Shaft	Shaft diameter (mm)	Type of connection	Type	Order code
Single-turn	Solid	10	Connector male 12 poles	RSA 597 connector	2TLA020070R3600
		6	1.5 m cable	RSA 597 1.5 m cable	2TLA020070R3300
	Hollow	12	2 m cable	RHA 597 2 m cable	2TLA020070R3400
			10 m cable	RHA 597 10 m cable	2TLA020070R5900
Multi-turn	Solid	6	M12 connector	RSA 698 6 mm solid	2TLA020071R7800
		10	M12 connector	RSA 698 10 mm solid	2TLA020070R3700
	Holow	12	M12 connector	RHA 698 hollow	2TLA020071R7900

For more information, see the manual:
Pluto safe encoders 2TLC172006M0206

Pluto safe encoders accessories

Description	Type	Order code
Female 12 pole connector to be used with absolute encoder “RSA 597 connector”. Connector to be mounted on the cable.	Connector for absolute encoder	2TLA020070R3900
M12 plug with Pluto safety bus termination resistor. To be used when the encoder is at one end of the Pluto safety bus.	M12-CANend	2TLA020061R0300



CP604

Operator panels
An operator panel (also called HMI) can be connected to the Pluto programming port (on the Pluto front) with a special cable and communicate with Pluto using MODBUS ASCII. We recommend the ABB CP600 series that offer the appropriate communication driver. An operator panel can also communicate with Pluto via a GATE-MT gateway.

Description	Type	Order code
Operator panel, 4.3” touch screen, 480 x 272 pixels	CP604	1SAP504100R0001

For more sizes and version, see: http://new.abb.com/plc/control-panels

Ordering information

Vital



Vital 1



Tina 2A



Tina 2B



Tina 3A



Tina 7A



Tina 10A



Tina 10B



Tina 6A

Description

DYNlink circuits	Maximum DYNlink devices	Safe outputs	Type	Order code
1	30	2 NO	Vital 1	2TLA020052R1000

Tina adaptation units to DYNlink

The Tina devices adapt the DYNlink signals from Pluto to safety components with mechanical contacts, such as E-stops, switches and light beams/curtains with dual outputs. Tina is available in several versions depending on the type of safety component that is connected to the DYNlink solution. Also available is connector blocks and a blind plug.

Type of safety device	Type of connection to the DYNlink loop	Description	Type	Order code
Devices with positively driven force-guided contacts like E-stop buttons and key switches	Via the device connection	Mounted directly on the device enclosure to a M20 cable entry.	Tina 2A	2TLA020054R0100
		Placed inside the safety device enclosure	Tina 2B	2TLA020054R1100
	M12-5 male connector	Mounted directly on the device enclosure to a M20 cable entry.	Tina 3A	2TLA020054R0200
	M12-5 male connector with extra conductor for the supply of the safety device	Two circuits and with supply voltage for the safety sensor. Connects to a M20 cable entry.	Tina 3Aps	2TLA020054R1400
	Removable terminal blocks	Mounted on a DIN rail in the electrical cabinet. Note that the connected safety device(s) must be mounted on the same cabinet.	Tina 7A	2TLA020054R0700
Devices with OSSD outputs like Orion light guards	M12-5 male connector	Adaptation of OSSD to DYNlink. One M12-5 and one M12-8 connector.	Tina 10A v2	2TLA020054R1210
		Adaptation of OSSD to DYNlink with possibility to connect a local reset button. M12-8 connector for OSSD. M12-5 connector for DYNlink and reset button.	Tina 10B v2	2TLA020054R1310
		Adaptation of OSSD to DYNlink with possibility to power the transmitter. M12-8 connector for OSSD. M12-5 for DYNlink and power.	Tina 10C v2	2TLA020054R1610
Safety mats, edges and bumpers with short-circuit detection	M12-5 male connector	Short-circuit detection and adaptation to DYNlink.	Tina 6A	2TLA020054R0600

Connection blocks for serial connection of DYNlink devices (or devices with Tina adapter)

Description	Type	Order code
Connection block for serial connection of up to 4 DYNlink devices with M12-5 connectors	Tina 4A	2TLA020054R0300
Connection block for serial connection of up to 8 DYNlink devices with M12-5 connectors	Tina 8A	2TLA020054R0500
Connection block for serial connection of 2 DYNlink devices with M12-5 connectors	Tina 11A	2TLA020054R1700
Connection block for serial connection of 2 DYNlink devices with M12-8 connectors, e.g. Magne.	Tina 12A	2TLA020054R1800

Blind plug to complete the serial connection on a connection block

All M12 connectors on Tina 4A or Tina 8A must be connected to a safety device or a Tina 1A. For example, if only 6 devices are connected to a Tina 8A, two Tina 1A are necessary.

Description	Type	Order code
Blind plug connected to unused M12 connectors of the connection blocks Tina 4A and Tina 8A.	Tina 1A	2TLA020054R0000

M12 Y-connectors

Description	Type	Order code
M12 Y-connector for series connection of DYNlink devices such as Eden, Smile, Inca and Tina.	M12-3A	2TLA020055R0000
M12 Y-connector for parallel connection of 2 DYNlink devices.	M12-3B	2TLA020055R0100
M12 Y-connector for the connection of 2 DYNlink devices with only one cable.	M12-3E	2TLA020055R0200
M12 Y-connector for series connection of DYNlink devices with the StatusBus function.	M12-3S	2TLA020055R0600

Optical safety devices

674 Safety light curtain - Orion1 Base

677 Safety light curtain - Orion1 Extended

680 Safety light grid - Orion2 Base

683 Safety light grid - Orion2 Extended

686 Safety light grid - Orion3 Base

689 Safety light grid - Orion3 Extended

Safety light curtain

Orion1 Base



Orion1 Base

Ordering Details

Detection (Resolution mm)	Protected height mm	Type (Transmitter + receiver)	Order code
Finger (14)	150	Orion1-4-14-015-B	2TLA022300R0000
	300	Orion1-4-14-030-B	2TLA022300R0100
	450	Orion1-4-14-045-B	2TLA022300R0200
	600	Orion1-4-14-060-B	2TLA022300R0300
	750	Orion1-4-14-075-B	2TLA022300R0400
	900	Orion1-4-14-090-B	2TLA022300R0500
	1050	Orion1-4-14-105-B	2TLA022300R0600
	1200	Orion1-4-14-120-B	2TLA022300R0700
	1350	Orion1-4-14-135-B	2TLA022300R0800
	1500	Orion1-4-14-150-B	2TLA022300R0900
	1650	Orion1-4-14-165-B	2TLA022300R1000
	1800	Orion1-4-14-180-B	2TLA022300R1100
Hand (30)	150	Orion1-4-30-015-B	2TLA022302R0000
	300	Orion1-4-30-030-B	2TLA022302R0100
	450	Orion1-4-30-045-B	2TLA022302R0200
	600	Orion1-4-30-060-B	2TLA022302R0300
	750	Orion1-4-30-075-B	2TLA022302R0400
	900	Orion1-4-30-090-B	2TLA022302R0500
	1050	Orion1-4-30-105-B	2TLA022302R0600
	1200	Orion1-4-30-120-B	2TLA022302R0700
	1350	Orion1-4-30-135-B	2TLA022302R0800
	1500	Orion1-4-30-150-B	2TLA022302R0900
	1650	Orion1-4-30-165-B	2TLA022302R1000
	1800	Orion1-4-30-180-B	2TLA022302R1100



JSM Orion01

Spare parts (included when ordering Orion)

Description	Type	Order code
4 standard brackets for Orion1 & Orion2	JSM Orion01	2TLA022310R0000

Accessories

Orion1 Base



Orion Laser pointer



JSM Orion03



Smile 11 RB



M12-3R



Tina 10C

Accessories

Mounting accessories		
Description	**Type**	**Order code**
Orion Test Piece 14 mm	Orion TP-14	2TLA022310R5200
Orion Test Piece 30 mm	Orion TP-30	2TLA022310R5300
Orion Laser pointer	Orion Laser	2TLA022310R5000
JSM M5B special T-nut M5 to be used with M5x12 screw for mounting Orion on Quick-Guard	T-nut JSM M5B	2TLA040035R0400
4 rotation brackets for Orion1 Base	JSM Orion03	2TLA022310R0100
Kit for mounting of Orion1 & Orion2 in Stand (4 pieces for lengths shorter than 1200 mm)	JSM Orion06	2TLA022310R0400
Kit for mounting of Orion1 & Orion2 in Stand (6 pieces for lengths of 1200 mm or more)	JSM Orion07	2TLA022310R0500
Kit for mounting of Orion1 Mirror in Stand	JSM Orion11	2TLA022310R0900
Orion Plate kit for adjustment of protective stand	Orion Stand Plate	2TLA022312R5000
Deviating mirror to be mounted in Orion Stand with one kit JSM Orion11	Orion1 Mirror*	
Protective stand	Orion Stand*	
Protective tube	Orion WET*	
Lens shield	Orion Shield*	
Connection accessories		
Smile reset button with NO contact	Smile 11 RA	2TLA030053R0000
Smile reset button with NO contact for Pluto	Smile 11 RB	2TLA030053R0100
Smile reset button with NO contact for Orion1 Base	Smile 11RO1	2TLA022316R3000
Y-connector for series connection of DYNlink devices with M12-5 connectors, e.g. Eden	M12-3A	2TLA020055R0000
Y-connector for connection of a Smile reset button to Orion	M12-3R	2TLA022316R0000
Y-connector for easy connection of a transmitter	M12-3D	2TLA020055R0300
Adaptation of OSSD to DYNlink. M12-8 connector for OSSD and M12-5 for DYNlink.	Tina 10A v2	2TLA020054R1210
Adaptation of OSSD to DYNlink with possibility to connect a local reset button. M12-8 connector for OSSD and M12-5 for DYNlink and reset.	Tina 10B v2	2TLA020054R1310
Adaptation of OSSD to DYNlink with possibility to power the transmitter. M12-8 connector for OSSD and M12-5 for DYNlink and transmitter.	Tina 10C v2	2TLA020054R1610

*These accessories are available in different sizes.
For more information see:
Orion1 Mirror 2TLC172058L0201, Orion Stand 2TLC172059L0201, Orion WET 2TLC172061L0201, Orion Shield 2TLC172071L0201

For more information about the connection accessories, please see:
Orion connection accessories 2TLC172101L0201

How to choose correct reset button

Local or global reset	Adaption to DYNlink*	Safety controle module	Type	Useful connection accessories
Local reset button connected to the light guard (Orion in manual reset mode)	Yes	Vital or Pluto	Smile 11RO1	Tina 10B: OSSD to DYNlink + local reset button M12-3A: Serial connection of DYNlink
	No	Any safety control module compatible with light guard	Smile 11RO1	M12-3R: Easy connection of a local reset button
Global reset button connected to the control module (Orion in automatic reset mode)	Yes	Vital	Smile 11 RA	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
		Pluto	Smile 11 RB	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
	No	Any safety control module compatible with light guard	Smile 11 RA**	-

* The ABB Jokab Safety DYNlink solution offers the following advantages:
- Serial connection of safety devices while maintaining PLe/cat. 4, up to 25 Tina 10 per Vital and up to 5 Tina 10 per Pluto input.
- Only one safety input of the Pluto instead of two with the standard OSSD outputs.

** Smile 11 RA has one NO contact, which is the most common for reset buttons. Please check what is requested for the chosen safety control module.

Cables and connectors

Orion1 Base



M12-C61



M12-C61HE



M12-C334

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
	(b)	6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
	(a)	0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
	(c)	10 m		M12-C102	2TLA020056R1200
M12-8	Female	3 m		M12-C33	2TLA020056R2900
	(d)	6 m		M12-C63	2TLA020056R3000
		10 m		M12-C103	2TLA020056R4000
		20 m		M12-C203	2TLA020056R4100
	Female + male	0.06 m		M12-C00634	2TLA020056R6400
	(e)	1 m		M12-C134	2TLA020056R5000
		3 m		M12-C334	2TLA020056R5100
M12-8 male + female	Female + male	0.2		M12-CTO1BA[1]	2TLA022315R3000
M12-8 male + female	Female + male	0.2		M12-CTO1BM[2]	2TLA022315R3100

Letters (a, b, c, d, e, t_1, t_2) refer to cables in connection examples, e.g:
2TLC010002T0001 Connection diagram Orion_cables_Tina10_M12-3A_M12-3D

1) M12-CTO1BA (t_1) can be used for:
- connection of Orion1 Base to Tina 10A/C
- replacement of Focus II in automatic reset with Orion in automatic reset.
The EDM function should be deactivated in all cases.

2) M12-CTO1BM (t_2) can be used for:
- connection of Orion1 Base to Tina 10B or M12-3R for use of a local reset button, for example Smile 11ROx
- replacement of Focus II in manual reset with Orion in manual reset.
The EDM function should be deactivated in all cases.



M12-C01



C5 cable

Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Ordering information

Orion1 Extended



Orion1 Extended

Ordering Details

Resolution mm	Protected height mm	Type (Transmitter + receiver)	Order code
Finger (14)	300	Orion1-4-14-030-E	2TLA022301R0100
	450	Orion1-4-14-045-E	2TLA022301R0200
	600	Orion1-4-14-060-E	2TLA022301R0300
	750	Orion1-4-14-075-E	2TLA022301R0400
	900	Orion1-4-14-090-E	2TLA022301R0500
	1050	Orion1-4-14-105-E	2TLA022301R0600
	1200	Orion1-4-14-120-E	2TLA022301R0700
	1350	Orion1-4-14-135-E	2TLA022301R0800
	1500	Orion1-4-14-150-E	2TLA022301R0900
	1650	Orion1-4-14-165-E	2TLA022301R1000
	1800	Orion1-4-14-180-E	2TLA022301R1100
Hand (30)	300	Orion1-4-30-030-E	2TLA022303R0100
	450	Orion1-4-30-045-E	2TLA022303R0200
	600	Orion1-4-30-060-E	2TLA022303R0300
	750	Orion1-4-30-075-E	2TLA022303R0400
	900	Orion1-4-30-090-E	2TLA022303R0500
	1050	Orion1-4-30-105-E	2TLA022303R0600
	1200	Orion1-4-30-120-E	2TLA022303R0700
	1350	Orion1-4-30-135-E	2TLA022303R0800
	1500	Orion1-4-30-150-E	2TLA022303R0900
	1650	Orion1-4-30-165-E	2TLA022303R1000
	1800	Orion1-4-30-180-E	2TLA022303R1100



JSM Orion01

Spare parts (included when ordering Orion)

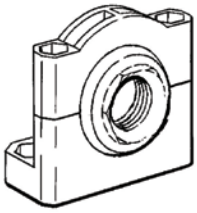
Description	Type	Order code
4 standard brackets for Orion1 & Orion2	JSM Orion01	2TLA022310R0000

Accessories

Orion1 Extended



OMC1



JSM 64



Orion Laser pointer

Accessories

Connection accessories		
Description	**Type**	**Order code**
Connection box for two or four muting sensors	OMC1	2TLA022316R2000
Retroreflex photoelectric sensor	Mute R2	2TLA022044R0500
Adjustable mounting bracket for M18 sensors (e.g. Mute R2).	JSM 64	2TLA040007R0200
Reflector diameter 63 mm	Reflect 1	2TLA022044R2000
Reflector diameter 82 mm	Reflect 2	2TLA022044R3000
Smile reset button with NO contact	Smile 11 RA	2TLA030053R0000
Smile reset button with NO contact for Pluto	Smile 11 RB	2TLA030053R0100
Mounting accessories		
Orion Test Piece 14 mm	Orion TP-14	2TLA022310R5200
Orion Test Piece 30 mm	Orion TP-30	2TLA022310R5300
Orion Laser pointer	Orion Laser	2TLA022310R5000
JSM M5B special T-nut M5 to be used with M5x12 screw for mounting Orion on Quick-Guard	T-nut JSM M5B	2TLA040035R0400
Kit for mounting of Orion1 & Orion2 in Stand (4 pieces for lengths shorter than 1200 mm)	JSM Orion06	2TLA022310R0400
Kit for mounting of Orion1 & Orion2 in Stand (6 pieces for lengths of 1200 mm or more)	JSM Orion07	2TLA022310R0500
Kit for mounting of Orion1 Mirror in Stand	JSM Orion11	2TLA022310R0900
Orion Plate kit for adjustment of protective stand	Orion Stand Plate	2TLA022312R5000
Deviating mirror to be mounted in Orion Stand with one kit JSM Orion11	Orion1 Mirror*	
Protective stand	Orion Stand*	

*These accessories are available in different sizes.
For more information see:
Orion1 Mirror 2TLC172058L0201
Orion Stand 2TLC172059L0201

For more information about the connection accessories, please see:
Orion connection accessories 2TLC172101L0201

Cables

Orion1 Extended



M12-C61



M12-C61HE



M12-C2012

Cables with connectors

Muting to be used	Neccessary transmitter/receiver cable	Suitable cable between transmitter/receiver cable and el-cabinet	Length	Special feature	Type	Order code
Yes	Transmitter M12-C02PT2T	M12-5 female single ended, to e.g. el-cabinet (b)	3 m		M12-C31	2TLA020056R0500
			6 m		M12-C61	2TLA020056R0000
			6 m	Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
			10 m		M12-C101HE	2TLA020056R8100
			10 m		M12-C101	2TLA020056R1000
			20 m		M12-C201	2TLA020056R1400
	Receiver M12-C02PT62RM	M12-5 male + female, to e.g. OMC1 (a)	0.06 m		M12-C00612	2TLA020056R6300
			0.3		M12-C0312	2TLA020056R5800
			1 m		M12-C112	2TLA020056R2000
			3 m		M12-C312	2TLA020056R2100
			6 m		M12-C612	2TLA020056R2200
			10 m		M12-C1012	2TLA020056R2300
			16 m		M12-C1612	2TLA020056R5400
			20 m		M12-C2012	2TLA020056R2400
		M12-12 female single ended, to e.g. el-cabinet	6 m		M12-C65	2TLA020056R7200
			10 m		M12-C105	2TLA020056R7300
			20 m		M12-C205	2TLA020056R7500
No	Transmitter M12-C02PT2T	M12-5 female single ended, to e.g. el-cabinet (b)	6 m		M12-C61	2TLA020056R0000
			6 m	Harsh environment, halogen free	M12-C61HE	2TLA020056R8100
			10 m		M12-C101HE	2TLA020056R5400
			10 m		M12-C101	2TLA020056R1000
			20 m		M12-C201	2TLA020056R1400
	Receiver M12-C02PT6RB	M12-12 female single ended, to e.g. el-cabinet	6 m		M12-C65	2TLA020056R7200
			10 m		M12-C105	2TLA020056R7300
			20 m		M12-C205	2TLA020056R7500



M12-C01



C5 cable



M12-C02PT2T

Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050

Special cables for Orion1 Extended

Description	Length	Type	Order code
Transmitter cable for Orion1 Extended. M12-5 male connector.	0.2 m	M12-C02PT2T	2TLA022315R0100
Receiver cable for Orion1 Extended when no muting. M12-12 male connector.	0.2 m	M12-C02PT6RB	2TLA022315R0200
Receiver cable for Orion1 Extended when muting. M12-5 male connector (for muting sensors) and M12-12 male connector.	0.2 m	M12-C02PT62RM	2TLA022315R0300
Cascade cable for Orion1 Extended	1 m	PT-C1PT	2TLA022315R1000
Cascade cable for Orion1 Extended	0.5 m	PT-C05PT	2TLA022315R1100
Cascade cable for Orion1 Extended	0.05 m	PT-C005PT	2TLA022315R1200

Ordering information

Orion2 Base



Orion2 Base

Ordering details

Detection	Protected height mm	Type (Transmitter + receiver)	Order code
Body	500 (2 beams)	Orion2-4-K2-050-B	2TLA022304R0000
	800 (3 beams)	Orion2-4-K3-080-B	2TLA022304R0100
	900 (4 beams)	Orion2-4-K4-090-B	2TLA022304R0200
	1200 (4 beams)	Orion2-4-K4-120-B	2TLA022304R0300



JSM Orion01

Spare parts (imcluded when ordering Orion)

Description	Type	Order code
4 standard brackets for Orion1 & Orion2	JSM Orion01	2TLA022310R0000

Accessories
Orion2 Base



JSM Orion 04



M12-3R



Smile 11 RB



Tina 10 C

Accessories

Mounting accessories		
Description	**Type**	**Order code**
Orion Test Piece 14 mm	Orion TP-14	2TLA022310R5200
Orion Test Piece 30 mm	Orion TP-30	2TLA022310R5300
Orion Laser pointer	Orion Laser	2TLA022310R5000
JSM M5B special T-nut M5 to be used with M5x12 screw for mounting Orion on Quick-Guard	T-nut JSM M5B	2TLA040035R0400
4 rotation brackets for Orion2	JSM Orion04	2TLA022310R0200
Kit for mounting of Orion1 & Orion2 in Stand (4 pieces for lengths shorter than 1200 mm)	JSM Orion06	2TLA022310R0400
Kit for mounting of Orion1 & Orion2 in Stand (6 pieces for lengths of 1200 mm or more)	JSM Orion07	2TLA022310R0500
Orion Plate kit for adjustment of protective stand	Orion Stand Plate	2TLA022312R5000
Deviating mirror in stand for Orion 2 and 3	Orion Mirror*	
Protective stand	Orion Stand*	
Protective tube	Orion WET*	
Lens shield	Orion Shield*	
Connection accessories		
Smile reset button with NO contact	Smile 11 RA	2TLA030053R0000
Smile reset button with NO contact for Pluto	Smile 11 RB	2TLA030053R0100
Smile reset button with NO contact for Orion1 Base	Smile 11RO1	2TLA022316R3000
Y-connector for series connection of DYNlink devices with M12-5 connectors, e.g. Eden	M12-3A	2TLA020055R0000
Y-connector for connection of a Smile reset button to Orion	M12-3R	2TLA022316R0000
Y-connector for easy connection of a transmitter	M12-3D	2TLA020055R0300
Adaptation of OSSD to DYNlink. M12-8 connector for OSSD and M12-5 for DYNlink.	Tina 10A v2	2TLA020054R1210
Adaptation of OSSD to DYNlink with possibility to connect a local reset button. M12-8 connector for OSSD and M12-5 for DYNlink and reset button.	Tina 10B v2	2TLA020054R1310
Adaptation of OSSD to DYNlink with possibility to power the transmitter. M12-8 connector for OSSD and M12-5 for DYNlink and transmitter.	Tina 10C v2	2TLA020054R1610

*These accessories are available in different sizes.
For more information see:
Orion Mirror 2TLC172060L0201, Orion Stand 2TLC172059L0201, Orion WET 2TLC172061L0201, Orion Shield 2TLC172071L0201

For more information about the connection accessories, please see:
Orion connection accessories 2TLC172101L0201

How to choose correct reset button

Local or global reset	Adaption to DYNlink*	Safety controle module	Type	Useful connection accessories
Local reset button connected to the light guard (Orion in manual reset mode)	Yes	Vital or Pluto	Smile 11RO2	Tina 10B: OSSD to DYNlink + local reset button M12-3A: Serial connection of the DYNlink
	No	Any safety control module compatible with light guard	Smile 11RO2	M12-3R: Easy connection of a local reset button
Global reset button connected to the control module (Orion in automatic reset mode)	Yes	Vital	Smile 11 RA	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
		Pluto	Smile 11 RB	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
	No	Any safety control module compatible with light guard	Smile 11 RA**	-

* The ABB Jokab Safety DYNlink solution offers the following advantages:
- Serial connection of safety devices while maintaining PLe/cat. 4, up to 25 Tina 10 per Vital and up to 5 Tina 10 per Pluto input.
- Only one safety input of the Pluto instead of two with the standard OSSD outputs.

** Smile 11RA has one NO contact, which is the most common for reset buttons. Please check what is requested for the chosen safety control module.

Cables

Orion2 Base



M12-C61



M12-C61HE



M12-C334

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
	(b)	6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
	(a)	0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
	(c)	10 m		M12-C102	2TLA020056R1200
M12-8	Female	3 m		M12-C33	2TLA020056R2900
	(d)	6 m		M12-C63	2TLA020056R3000
		10 m		M12-C103	2TLA020056R4000
		20 m		M12-C203	2TLA020056R4100
	Female + male	0.06 m		M12-C00634[1]	2TLA020056R6400
	(e)	1 m		M12-C134[1]	2TLA020056R5000
		3 m		M12-C334[1]	2TLA020056R5100

Letters (a, b, c, d, e) refer to cables in connection examples, e.g:
2TLC010002T0001 Connection diagram Orion_cables_Tina10_M12-3A_M12-3D

1) Used for the connection to Tina 10, M12-3D and M12-3R. Tina 10 can be connected directly to the light guard without cable, but will form an angle (i.e. not be aligned) with the light guard, which might be a problem if the light guard is mounted close to a wall/aluminum profile.



M12-C01



C5 cable

Separate Cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Ordering information
Orion2 Extended



Orion2 Extended

Ordering details

Resolution (Detection) mm	Protected height mm	Type (Transmitter + receiver)	Order code
Body	500 (2 beams)	Orion2-4-K2-050-E	2TLA022305R0000
	800 (3 beams)	Orion2-4-K3-080-E	2TLA022305R0100
	900 (4 beams)	Orion2-4-K4-090-E	2TLA022305R0200
	1200 (4 beams)	Orion2-4-K4-120-E	2TLA022305R0300



JSM Orion01

Spare parts (included when ordering Orion)

Description	Type	Order code
4 standard brackets for Orion1 & Orion2	JSM Orion01	2TLA022310R0000

Accessories

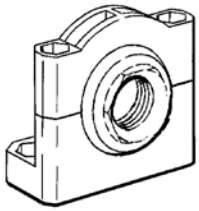
Orion2 Extended



OMC1



Mute R2



JSM 64



Reflect 2



Smile 11 RB



Orion Laser pointer

Connection Accessories

Description	Type	Order code
Connection box for two or four muting sensors	OMC1	2TLA022316R2000
Retroreflex photoelectric sensor	Mute R2	2TLA022044R0500
Adjustable mounting bracket for M18 sensors (e.g. Mute R2).	JSM 64	2TLA040007R0200
Reflector diameter 63 mm	Reflect 1	2TLA022044R2000
Reflector diameter 82 mm	Reflect 2	2TLA022044R3000
Smile reset button with NO contact	Smile 11 RA	2TLA030053R0000
Smile reset button with NO contact for Pluto	Smile 11 RB	2TLA030053R0100
Smile reset button with NC contact for Orion2 Base/Extended and Orion3 Extended	Smile 11RO2	2TLA022316R3100
Y-connector for series connection of DYNlink devices with M12-5 connectors, e.g. Eden	M12-RA	2TLA020055R0000
Y-connector for connection of a Smile reset button to Orion	M12-3R	2TLA022316R0000
Y-connector for easy connection of a transmitter	M12-3D	2TLA020055R0300
Adaptation of OSSD to DYNlink. M12-8 connector for OSSD and M12-5 for DYNlink.	Tina 10A v2	2TLA020054R1210
Adaptation of OSSD to DYNlink with possibility to connect a local reset button. M12-8 connector for OSSD and M12-5 connector for DYNlink and reset button..	Tina 10B v2	2TLA020054R1310
Adaptation of OSSD to DYNlink with possibility to power the transmitter. M12-8 connector for OSSD and M12-5 connector for DYNlink and transmitter.	Tina 10C v2	2TLA020054R1610
Mounting accessories		
Orion Test Piece 14 mm	Orion TP-14	2TLA022310R5200
Orion Test Piece 30 mm	Orion TP-30	2TLA022310R5300
Orion Laser pointer	Orion Laser	2TLA022310R5000
JSM M5B special T-nut M5 to be used with M5x12 screw for mounting Orion on Quick-Guard	T-nut JSM M5B	2TLA040035R0400
4 standard brackets for Orion1 & Orion2	JSM Orion01	2TLA022310R0000
4 rotation brackets for Orion2	JSM Orion04	2TLA022310R0200
Kit for mounting of Orion1 & Orion2 in Stand (4 pieces for lengths shorter than 1200 mm)	JSM Orion06	2TLA022310R0400
Kit for mounting of Orion1 & Orion2 in Stand (6 pieces for lengths of 1200 mm or more)	JSM Orion07	2TLA022310R0500
Orion Plate kit for adjustment of protective stand	Orion Stand Plate	2TLA022312R5000
Deviating mirror in stand for Orion 2 and 3	Orion Mirror*	
Protective stand	Orion Stand*	
Protective tube	Orion WET*	
Lens shield	Orion Shield*	

*These accessories are available in different sizes. For more information see:
Orion Mirror 2TLC172060L0201,,Orion Stand 2TLC172059L0201, Orion WET 2TLC172061L0201, Orion Shield 2TLC172071L0201

For more information about the connection accessories, please see:
Orion connection accessories 2TLC172101L0201

How to choose correct reset button

Local or global reset	Adaption to DYNlink*	Safety controle module	Type	Useful connection accessories
Local reset button connected to the light guard	Yes	Vital or Pluto	Smile 11RO2	Tina 10B: OSSD to DYNlink + local reset button M12-3A: Serial connection of DYNlink
(Orion in manual reset mode)	No	Any safety control module compatible with light guard	Smile 11RO2	M12-3R: Easy connection of a local reset button
Global reset button connected to the control module	Yes	Vital	Smile 11 RA	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
(Orion in automatic reset mode)		Pluto	Smile 11 RB	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
	No	Any safety control module compatible with light guard	Smile 11 RA**	-

* The ABB Jokab Safety DYNlink solution offers the following advantages:
- Serial connection of safety devices while maintaining PLe/cat. 4, up to 25 Tina 10 per Vital and up to 5 Tina 10 per Pluto input.
- Only one safety input of the Pluto instead of two with the standard OSSD outputs.

** Smile 11 RA has one NO contact, which is the most common for reset buttons. Please check what is requested for the chosen safety control module.

Cables

Orion2 Extended



M12-C61



M12-C61HE



M12-C334

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
	(b)	6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
	(a)	0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
	(c)	10 m		M12-C102	2TLA020056R1200
M12-8	Female	3 m		M12-C33	2TLA020056R2900
	(d)	6 m		M12-C63	2TLA020056R3000
		10 m		M12-C103	2TLA020056R4000
		20 m		M12-C203	2TLA020056R4100
	Female + male	0.06 m		M12-C00634[1]	2TLA020056R6400
	(e)	1 m		M12-C134[1]	2TLA020056R5000
		3 m		M12-C334[1]	2TLA020056R5100
M12-8 female - M12-5 male	Female + male	1		M12-CYMUTE[2]	2TLA022316R0100

Letters (a, b, c, d, e) refer to cables in connection examples, e.g:
2TLC010002T0001 Connection diagram Orion_cables_Tina10_M12-3A_M12-3D

1) Used for the connection to Tina 10, M12 3D and M12-3R. Tina 10 can be connected directly to the light guard without cable, but will form an angle (i.e. not be aligned) with the light guard, which might be a problem if the light guard is mounted close to a wall/aluminum profile.

2) M12-CYMUTE is used to simplify the connection of 2 or 4 muting sensors with the help of the OMC1 connection box.



M12-C01



C5 cable

Separate cables and connectors

Description		Type	Order code
Connectors			
	M12-5 pole female, straight	M12-C01	2TLA020055R1000
	M12-5 pole male, straight	M12-C02	2TLA020055R1100
	M12-8 pole female, straight	M12-C03	2TLA020055R1600
	M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors			
	10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
	50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
	100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
	200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
	500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors			
	50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
	100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
	200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
	500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Ordering information

Orion3 Base



Orion3 Base

Ordering details

Detection	Protected height mm	Active or passive part	Type	Order code
Body	500 (2 beams)	Active part	Orion3-4-K1C-050-B	2TLA022306R0000
		Passive part	Orion3-4-M1C-050	2TLA022306R1000
	800 (3 beams)	Active part	Orion3-4-K2C-080-B	2TLA022306R0100
		Passive part	Orion3-4-M2C-080	2TLA022306R1100
	900 (4 beams)	Active part	Orion3-4-K2C-090-B	2TLA022306R0200
		Passive part	Orion3-4-M2C-090	2TLA022306R1300
	1200 (4 beams)	Active part	Orion3-4-K2C-120-B	2TLA022306R0300
		Passive part	Orion3-4-M2C-120	2TLA022306R1400



JSM Orion02

Spare parts (included when ordering Orion)

Description	Type	Order code
4 standard brackets for Orion3	JSM Orion02	2TLA022310R1000

Accessories
Orion3 Base



Orion Laser pointer



Smile 11 RB



M12-3R



Tina 10C

Accessories

Mounting accessories		
Description	**Type**	**Order code**
Orion Laser pointer	Orion Laser	2TLA022310R5000
JSM M5B special T-nut M5 to be used with M5x12 screw for mounting Orion on Quick-Guard	T-nut JSM M5B	2TLA040035R0400
4 standard brackets for Orion3	JSM Orion05	2TLA022310R0300
Kit for mounting of Orion3 in Stand (4 pieces for lengths shorter than 1200 mm)	JSM Orion08	2TLA022310R0600
Kit for mounting of Orion3 in Stand (6 pieces for lengths of 1200 mm or more)	JSM Orion09	2TLA022310R0700
Orion Plate kit for adjustment of protective stand	Orion Stand Plate	2TLA022312R5000
Deviating mirror in stand for Orion 2 and 3	Orion Mirror*	
Protective stand	Orion Stand*	
Connection accessories		
Smile reset button with NO contact	Smile 11 RA	2TLA030053R0000
Smile reset button with NO contact for Pluto	Smile 11 RB	2TLA030053R0100
Smile reset button with NC contact for Orion3 Base	Smile 11 RO3	2TLA022316R3200
Y-connector for series connection of DYNlink devices with M12-5 connectors, e.g. Eden	M12-3A	2TLA020055R0000
Y-connector for connection of a Smile reset button to Orion	M12-3R	2TLA022316R0000
Y-connector for easy connection of a transmitter	M12-3D	2TLA020055R0300
Adaptation of OSSD to DYNlink. M12-8 connector for OSSD and M12-5 for DYNlink.	Tina 10A v2	2TLA020054R1210
Adaptation of OSSD to DYNlink with possibility to connect a local reset button. M12-8 connector for OSSD and M12-5 for DYNlink and reset button.	Tina 10B v2	2TLA020054R1310
Adaptation of OSSD to DYNlink with possibility to power the transmitter. M12-8 connector for OSSD and M12-5 connector for DYNlink and transmitter.	Tina 10C v2	2TLA020054R1610

*These accessories are available in different sizes.
For more information see:
Orion Mirror 2TLC172060L0201
Orion Stand 2TLC172059L0201

For more information about the connection accessories, please see:
Orion connection accessories 2TLC172101L0201

How to choose correct reset button

Local or global reset	Adaption to DYNlink*	Safety controle module	Type	Useful connection accessories
Local reset button connected to the light guard (Orion in manual reset mode)	Yes	Vital or Pluto	Smile 11 RO3	Tina 10B: OSSD to DYNlink solution + local reset button M12-3A: Serial connection of the DYNlink solution
	No	Any safety control module compatible with light guard	Smile 11 RO3	M12-3R: Easy connection of a local reset button
Global reset button connected to the control module (Orion in automatic reset mode)	Yes	Vital	Smile 11 RA	Tina 10A: OSSD to DYNlink solution Tina 10C: OSSD to DYNlink solution + supply to transmitter/active part
		Pluto	Smile 11 RB	Tina 10A: OSSD to DYNlink solution Tina 10C: OSSD to DYNlink solution + supply to transmitter/active part
	No	Any safety control module compatible with light guard	Smile 11 RA**	-

* The ABB Jokab Safety DYNlink solution offers the following advantages:
- Serial connection of safety devices while maintaining PLe/cat. 4, up to 25 Tina 10 per Vital and up to 5 Tina 10 per Pluto input.
- Only one safety input of the Pluto instead of two with the standard OSSD outputs.

** Smile 11 RA has one NO contact, which is the most common for reset buttons. Please check what is requested for the chosen safety control module.

Cables

Orion3 Base



M12-C61



M12-C61HE



M12-C334

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
	(b)	6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
	(a)	0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
	(c)	10 m		M12-C102	2TLA020056R1200
M12-8	Female	3 m		M12-C33	2TLA020056R2900
	(d)	6 m		M12-C63	2TLA020056R3000
		10 m		M12-C103	2TLA020056R4000
		20 m		M12-C203	2TLA020056R4100
	Female + male	0.06 m		M12-C00634	2TLA020056R6400
		1 m		M12-C134	2TLA020056R5000
		3 m		M12-C334	2TLA020056R5100
		0,2 m		M12-CTO3B [1]	2TLA022315R3200

Letters (a, b, c, d, t_2) refer to cables in connection examples, e.g:
2TLC010002T0002 Connection diagram Cables Orion3 to Tina10

1) M12-CTO3B (t_2) can be used for: - connection of Orion3 Base to Tina 10A/B/C.
- connection of Orion 3 Base to M12-3R.

The EDM function is deactivated in all cases



M12-C01



C5 cable

Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Ordering information
Orion3 Extended



Orion3 Extended

Ordering details

Detection	Protected height mm	Active or passive part	Type	Order code
Body	500 (2 beams)	Active part	Orion3-4-K1C-050-E	2TLA022307R0000
		Passive part	Orion3-4-M1C-050	2TLA022306R1000
	800 (3 beams)	Active part	Orion3-4-K2C-080-E	2TLA022307R0100
		Passive part	Orion3-4-M2C-080	2TLA022306R1100
	900 (4 beams)	Active part	Orion3-4-K2C-090-E	2TLA022307R0200
		Passive part	Orion3-4-M2C-090	2TLA022306R1300
	1200 (4 beams)	Active part	Orion3-4-K2C-120-E	2TLA022307R0300
		Passive part	Orion3-4-M2C-120	2TLA022306R1400

Please note that active and passive parts are ordered separately and both are necessary for Orion3 Extended to function.



JSM Orion02

Spare parts (included when ordering Orion

Description	Type	Order code
4 standard brackets for Orion3	JSM Orion02	2TLA022310R1000

Accessories

Orion3 Extended



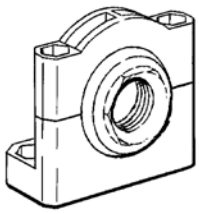
OMC1



Mute R2



Reflect 2



JSM 64



Smile 11 RB



Tina 10B



Orion Laser pointer

Accessories

Connection accessories		
Description	**Type**	**Order code**
Connection box for two or four muting sensors	OMC1	2TLA022316R2000
Retroreflex photoelectric sensor	Mute R2	2TLA022044R0500
Adjustable mounting bracket for M18 sensors (e.g. Mute R2).	JSM 64	2TLA040007R0200
Reflector diameter 63 mm	Reflect 1	2TLA022044R2000
Reflector diameter 82 mm	Reflect 2	2TLA022044R3000
Smile reset button with NO contact	Smile 11 RA	2TLA030053R0000
Smile reset button with NO contact for Pluto	Smile 11 RB	2TLA030053R0100
Smile reset button with NC contact for Orion2 Base/Extended and Orion3 Extended	Smile 11R02	2TLA022316R3100
Y-connector for series connection of DYNlink devices with M12-5 connectors, e.g. Eden	M12-3A	2TLA020055R0000
Y-connector for connection of a Smile reset button to Orion	M12-3R	2TLA022316R0000
Adaptation of OSSD to DYNlink. M12-8 connector for OSSD and M12-5 for DYNlink.	Tina 10A v2	2TLA020054R1210
Adaptation of OSSD to DYNlink with possibility to connect a local reset button. M12-8 connector for OSSD and M12-5 for DYNlink and reset button.	Tina 10B v2	2TLA020054R1310
Mounting accessories		
Orion Laser pointer	Orion Laser	2TLA022310R5000
JSM M5B Special T-nut M5 to be used with screw M5x12 screw for mounting Orion on QuickGuard	T-nut JSM M5B	2TLA040035R0400
4 rotation brackets for Orion3	JSM Orion05	2TLA022310R0300
Kit for mounting of Orion3 in Stand (4 pieces) - For a pair Orion3 - 050 / 080 / 090 (active + passive units)	JSM Orion08	2TLA022310R0600
For a pair Orion3 - 120 (Orion3-4-K2C-120 + Orion3-4-M2C-120)	JSM Orion09	2TLA022310R0700
Orion Plate kit for adjustment of protective stand	Orion Stand Plate	2TLA022312R5000
Deviating mirror in stand for Orion 2 and 3	Orion Mirror*	
Protective stand	Orion Stand*	
Protective tube	Orion WET*	
Lens shield	Orion Shield*	

*These accessories are available in different sizes.
For more information see:
Orion Mirror 2TLC172060L0201, Orion Stand 2TLC172059L0201, Orion WET 2TLC172061L0201, Orion Shield 2TLC172071L0201

For more information about the connection accessories, please see:
Orion connection accessories 2TLC172101L0201

How to choose correct reset button

Local or global reset	Adaption to the DYNlink solution*	Safety controle module	Type	Suitable connection accessories
Local reset button connected to the light guard (Orion in manual reset mode)	Yes	Vital or Pluto	Smile 11RO2	Tina 10B: OSSD to DYNlink + local reset button M12-3A: serial connection of DYNlink
	No	Any safety control module compatible with light guard	Smile 11RO2	M12-3R: Easy connection of a local reset button
Global reset button connected to the control module (Orion in automatic reset mode)	Yes	Vital	Smile 11 RA	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
		Pluto	Smile 11 RB	Tina 10A: OSSD to DYNlink Tina 10C: OSSD to DYNlink + supply to transmitter
	No	Any safety control module compatible with light guard	Smile 11 RA**	-

* The ABB Jokab safety DYNlink solution offers the following advantages:
- Serial connection of safety devices while maintaining PLe/cat. 4, up to 25 Tina 10 per Vital and up to 5 Tina 10 per Pluto input.
- Only one safety input of the Pluto instead of two with the standard OSSD outputs.

** Smile 11RA has one NO contact, which is the most common for reset buttons. Please check what is requested for the chosen safety control module.

Cables
Orion3 Extended



M12-C61



M12-C61HE



M12-C334

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
	(b)	6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
	(a)	0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
	(c)	10 m		M12-C102	2TLA020056R1200
M12-8	Female	3 m		M12-C33	2TLA020056R2900
	(d)	6 m		M12-C63	2TLA020056R3000
		10 m		M12-C103	2TLA020056R4000
		20 m		M12-C203	2TLA020056R4100
	Female + male	0.06 m		M12-C00634[1]	2TLA020056R6400
		1 m		M12-C134[1]	2TLA020056R5000
		3 m		M12-C334[1]	2TLA020056R5100
M12-8 female + M12-5 male	Female + male	1		M12-CYMUTE[2]	2TLA022316R0100

Letters (a, b, c, d, t_2) refer to cables in connection examples, e.g:
2TLC010002T0002 Connection diagram Cables Orion3 to Tina10

1) These cables (t_2) are used for the connection to Tina 10, M12 3D and M12-3R. Tina 10 can be connected directly to the light guard without cable, but will form an angle (i.e. not be aligned) with the light guard, which might be a problem if the light guard is mounted close to a wall/aluminum profile.

2) M12-CYMUTE is used to simplify the connection of 2 or 4 muting sensors with the help of the OMC1 connection box.



M12-C01



C5 cable

Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050


ABB
EDEN
ABB
EDEN
ABB
MKey8Z
ABB
MKey5
ABB
Sense7Z
ABB
Sense7Z
Safety Switch

Sensors and locks

694 **Non-contact safety sensor Eden**

697 **Safety magnetic switch Sense7**

698 **Safety interlock switch MKey**

700 **Electromagnetic process lock Magne**

702 **Safety lock GKey**

Ordering information

Eden



Adam DYN-Info M12-5

Adam

Type of safety controller	StatusBus	Info signal	Local reset	Series connection	Connector male	Type	Order code
Pluto	x	x [1]		x	M12-5	Adam DYN-Status M12-5	2TLA020051R5200
Pluto or Vital		x		x	M12-5	Adam DYN-Info M12-5	2TLA020051R5100
			x	x	M12-5	Adam DYN-Reset M12-5	2TLA020051R5300
OSSD compatible (incl. Pluto and Sentry)		x			M12-5	Adam OSSD-Info M12-5	2TLA020051R5400
		x		x	M12-8	Adam OSSD-Info M12-8	2TLA020051R5700
			x		M12-5	Adam OSSD-Reset M12-5	2TLA020051R5600
		x	x	x	M12-8	Adam OSSD-Reset M12-8	2TLA020051R5900

1) Pin 5 can be used as a standard info signal or StatusBus.



Eva General code

Eva

Code description	Code level	Type	Order code
General code. (Eva is interchangeable)	Low level	Eva General code	2TLA020046R0800
Unique code. (Prevents defeat/fraud)	High level	Eva Unique code	2TLA020046R0900



JSM D20 Eden slide lock

Accessories

Description	Type	Order code
Mounting plate for conventional door/hatch and folding door. Two pieces are needed for a complete set.	JSM D4H	2TLA040033R3600
Mounting plate for folding doors. Used together with one piece of JSM D4H.	JSM D4J	2TLA042020R4000
Sliding lock for Eden on conventional doors. (Eden is not included.)	JSM D20	2TLA020302R1000
Mounting converting plate from Eden E to Eden OSSD or Eden DYN	DA 3A	2TLA020053R0600
Heat shrinking tubes for M12 connectors. Protects M12 connectors in harsh environments and provides extra protection against tampering.	M12 Safety seal	2TLA020053R0800
Wrench for tightening of M12 connectors according to specified torque: 0.6 Nm.	M12 Torque wrench	2TLA020053R0900
Handheld terminal for addressing, configuration and testing of StatusBus devices, DYN-link devices and conventional PNP devices.	FIXA	2TLA020072R2000



FIXA

Spare parts (included with main product on delivery)

Description	Type	Order code
Distance plate in yellow PBT (4 pcs).	DA 1B	2TLA020053R0700
Black distance rings to be mounted in Adam and Eva mounting holes (4 pcs).	DA 2B	2TLA020053R0300



Distance plate

Reset buttons for local reset

Description	Type	Order code
Reset button for Adam with 5 pins	Smile 12RF	2TLA030053R2600
Reset button for Adam with 8 pins	Smile 12RG	2TLA030053R2700



Smile 12RG Reset button

Cables and connectors

Eden



M12-C61



M12-C61HE



M12-C334

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
		6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
		0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
			Angled female connector	M12-C1012V2	2TLA020056R6700
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
		10 m		M12-C102	2TLA020056R1200
M12-8	Female	3 m		M12-C33	2TLA020056R2900
		6 m		M12-C63	2TLA020056R3000
		10 m		M12-C103	2TLA020056R4000
		20 m		M12-C203	2TLA020056R4100
	Female + male	0.06 m		M12-C00634	2TLA020056R6400
		1 m		M12-C134	2TLA020056R5000
		3 m		M12-C334	2TLA020056R5100



M12-C01



C5 cable

Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Connection Accessories

Eden



JSOP-2 Terminator

Connection accessories

Description	Type	Order code
Y-connector for series connection of DYNlink devices with M12-5 connectors, e.g. Eden.	M12-3A	2TLA020055R0000
Y-connector for series connection of DYNlink devices with the StatusBus function.	M12-3S	2TLA020055R0600
Y-connector for series connection of Adam OSSD M12-8 with M12-8 cables	M12-3G	2TLA020055R0700
Y-connector for series connection of Adam OSSD M12-8 with M12-5 cables	M12-3H	2TLA020055R0800
Termination plug M12-5. For Adam OSSD with M12-3H. Connects pin 1 with pin 2 and 4.	JSOP-1 Terminator	2TLA020053R7000
Termination plug M12-8. For Adam OSSD with M12-3G. Connects pin 2 with pin 3 and 4.	JSOP-2 Terminator	2TLA020053R7100

Ordering details
Sense7



Sense7Z 2M

Ordering details

Sense7 is always delivered with both switch and actuator.

Description	Connector	Cable length (m)	Contacts	Type	Order code
Safety magnetic switch	M12-8 male	0,25	2NC+1NO	Sense7Z M12	2TLA050056R2120
Safety magnetic switch	-	2	2NC+1NO	Sense7Z 2M	2TLA050056R4120
Safety magnetic switch	-	5	2NC+1NO	Sense7Z 5M	2TLA050056R5120
Safety magnetic switch	-	10	2NC+1NO	Sense7Z 10M	2TLA050056R6120



Sense7Z Key SS

Spare part

Type of handle	Type	Order code
Actuator to safety magnetic switch Sense7Z, stainless steel.	Sense7Z Key SS	2TLA050040R0212

Ordering information

MKey



MKey5



MKey5 SSH



MKey5Z



MKey9



MKey8ER



MKey8Z

MKey ordering information

Locking function	Material housing	Material head	Holding force	Special feature	Type	Order code
—	Plastic	Plastic	12 N		MKey5	2TLA050003R0100
			40 N		MKey5+	2TLA050003R0101
		Stainless steel	12 N		MKey5 SSH	2TLA050003R0110
			40 N		MKey5+ SSH	2TLA050003R0111
	Stainless steel	Stainless steel	12 N	IP69K	MKey5Z	2TLA050003R0120
			40 N	IP69K	MKey5+Z	2TLA050003R0121
Process lock (power to lock)	Plastic	Stainless steel	1800 N		MKey9M 24VDC	2TLA050009R0112
	Die cast	Die cast	2000 N		MKey8M 24VDC	2TLA050013R0132
Safety lock (power to unlock)	Plastic	Stainless steel	1800 N		MKey9 24VDC	2TLA050007R0112
				No key supplied	MKey9 24VDC, No Key	2TLA050007R0012
	Die cast	Die cast	2000 N		MKey8 24VDC	2TLA050011R0132
				With escape release button	MKey8ER 24VDC	2TLA050015R0132
	Stainless steel	Stainless steel	2000 N	IP69K	MKey8Z 24VDC	2TLA050011R0122

Accessories

MKey



MKey Key 2



MKey Key 3



MKey Key 4



MKey Key 6



MKey slide lock left



MKey slide lock right

Actuator keys

All MKey safety switches are supplied with the appropriate standard key, except MKey9 24VDC, No key. Choose standard key or flat key depending on suitable mounting direction, e.g. standard door or sliding door. Flexible keys are suitable for doors/hatches with a smaller opening radius (i.e. 100-175 mm).

Type of key	Compatible MKey models	Key housing	Description	Type	Order code
Standard key	MKey5 MKey5+	None	Standard key for MKey safety switches with plastic head. Stainless steel key.	MKey Key 1	2TLA050040R0201
	MKey5 SSH MKey5+ SSH MKey5Z MKey5+Z All MKey8 All MKey9	None	Standard key for MKey safety switches with metal head. Stainless steel key.	MKey Key 2	2TLA050040R0202
Flat key	All	Plastic shroud	Flat key for MKey safety switches. Stainless steel key with plastic shroud.	MKey Key 3	2TLA050040R0220
Flexible key	All MKey5	Plastic	Flexible key for MKey5 safety switches. Stainless steel key with plastic housing.	MKey Key 4	2TLA050040R0221
	All	Die cast	Flexible key for MKey safety switches. Stainless steel key with black die cast metal housing.	MKey Key 5	2TLA050040R0203
	All	Stainless steel	Flexible key for MKey safety switches. Stainless steel key with stainless steel housing.	MKey Key 6	2TLA050040R0204

Other accessories

Description	Type	Order code
Bit for manual unlocking of MKey8Z. Stainless steel.	MKey8Z Manual release	2TLA050040R0400
Maintenance lockout actuator key. Compatible with all MKey switches.	MKey Lockout key	2TLA050040R0401
Slide Lock for MKey8 and MKey9, left.	MKey slide lock left	2TLA050040R0500
Slide Lock for MKey8 and MKey9, right.	MKey slide lock right	2TLA050040R0501
Fitting in stainless steel for mounting MKey5 on a Quick-Guard conventional door.	JSM D29A	2TLA040033R6000
Fitting in stainless steel for mounting MKey5 on a Guick-Guard sliding door.	JSM D29B	2TLA040033R6100
Fitting in stainless steel for mounting Mkey8 and Mkey9 on a Quick-Guard conventional door.	JSM D29C	2TLA040033R6200
Fitting in stainless steel for mounting Mkey8 and MKey9 on a Quick-Guard sliding door.	JSM D29D	2TLA040033R6300
Spacer in stainless steel for flexible keys. Required when using JSM D29A and JSM D29C.	JSM D29E	2TLA040033R6400
Rear handle for sliding doors.	RHS GKey MKey	2TLA050040R0510
Spring loaded catch for sliding doors.	SCS GKey MKey	2TLA050040R0511

Ordering information

Magne



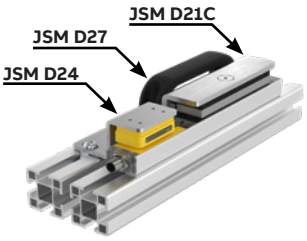
Magne 3



Magne 4



JSM D28





JSM D23C



Tina 12A



Magne rubber 1B



Magne Anchor 32E

Ordering details

For a complete Magne lock both door part and frame parts are necessary. Magne 4 also requires a separate Eva sensor.

Safe interlocking with integrated Adam	Safety signal	Extra function	Connector	Type	Order code
No	-	-	M12-5 male	Magne 3X M12-5	2TLA042022R2700
Yes	DYNlink	-	M12-5 male	Magne 4X DYN M12-5	2TLA042022R3000
		One combined "locked and closed" information output	M12-8 male	Magne 4 DYN-Info	2TLA042022R3400
		Two separate “locked” and “closed” information outputs	M12-8 male	Magne 4 DYN-2Info	2TLA042022R3410
	OSSD	One combined "locked and closed" information output	M12-8 male	Magne 4 OSSD-Info	2TLA042022R4600

Accessories

Description	Type	Order code
Aluminium profile for door handle that completely covers a Magne unit when the door is closed. For conventional door (5–15 mm door gap)	JSM D28	2TLA042023R0100
Mounting kit for Magne. For conventional door (5 -15 mm door gap) *	JSM D21C	2TLA042023R0510
Mounting kit for Magne. For sliding door *	JSM D23C	2TLA042023R0210
Mounting kit for Eva. For conventional door*	JSM D24	2TLA042023R0300
Door handle for JSM D21C	JSM D27	2TLA042023R1000
Connection block for serial connection of two Magne (M12-8)	Tina 12A	2TLA020054R1800
Cellular rubber, 10 mm thick. Spare part for Magne Anchor plate.	Magne rubber 1B	2TLA042023R3610

* All mounting kits include the bolts and nuts necessary to mount Magne on ABB Quick-Guard® fencing system

Door part

Description	Type	Order code
Anchor plate with permanent magnet. Delivered with Magne rubber.	Magne Anchor 32E	2TLA042023R0420
Anchor plate without permanent magnet. Delivered with Magne rubber.	Magne Anchor 32D	2TLA042023R0410

Eva sensor for Magne 4 models

Compatible Adam	Code description	Code level	Type	Order code
Adam DYN and OSSD	General code. (Eva is interchangeable)	Low level	Eva General code	2TLA020046R0800
	Unique code. (Prevents defeat/fraud)	High level	Eva Unique code	2TLA020046R0900

Cables and connectors

Magne



M12-C61



M12-C61HE



M12-C334

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
		6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
		0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
			Angled female connector	M12-C1012V2	2TLA020056R6700
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
		10 m		M12-C102	2TLA020056R1200
M12-8	Female	3 m		M12-C33	2TLA020056R2900
		6 m		M12-C63	2TLA020056R3000
		10 m		M12-C103	2TLA020056R4000
		20 m		M12-C203	2TLA020056R4100
	Female + male	0.06 m		M12-C00634	2TLA020056R6400
		1 m		M12-C134	2TLA020056R5000
		3 m		M12-C334	2TLA020056R5100



M12-C01



C5 cable

Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Ordering details

GKey

Ordering Details

For a complete safety lock, a switch and a mounting plate with front handle must be ordered separately. Rear handle, spring catch, pilot devices and blanking plugs for the unused positions are available and also ordered separately.



GKey4 RU

Switches

All models are fitted with an escape release button and delivered with a high level coded RFID actuator.

Material (body)	Positions for pilot devices	Manual unlock	Type	Order code
Die cast	4	Yes	GKey4 RU	2TLA050304R0002



FHS GKey4

Mounting plate with front handle

The handle can be mounted on hinged doors and sliding doors, on the left or on the right.
Note that door and frame must be aligned when the door is closed.
Each order code includes a mounting plate for the switch and a front handle.

Type of handle	Material (mounting plates and sliding bolt)	Type	Order code
Sliding	Die cast	FHS GKey4	2TLA050310R0032



RHS GKey MKey

Accessories - Rear handle and spring loaded catch

The spring loaded catch prevents from closing the door by mistake. When the sliding handle is in open position, the catch must be pulled in order to be able to push back the handle to closed position.

Type of handle	Material	Description	Type	Order code
Sliding	Die cast	Rear handle	RHS GKey MKey	2TLA050040R0510
		Spring catch	SCS GKey MKey	2TLA050040R0511



SCS GKey MKey



CE3P-10R-02

Accessories - Pilot devices

Pilot devices and blanking plugs must be ordered separately. Make sure that the total amount is 4, so that all holes in GKey4 are covered.

Description	Contacts	Illuminated	Voltage	Type	Order code
Emergency stop button	2NC	No	24 V AC/DC	CE3P-10R-02	1SFA619501R1051
Selector switch	2NO	No	24 V AC/DC	C2SS1-10B-20	1SFA619200R1026
Push button Green	1NO	Yes	24 V AC/DC	CP1-11G-10	1SFA619100R1112
Push button Yellow	1NO	Yes	24 V AC/DC	CP1-11Y-10	1SFA619100R1113
Push button Blue	1NO	Yes	24 V AC/DC	CP1-11L-10	1SFA619100R1114
Push button White/Clear	1NO	Yes	24 V AC/DC	CP1-11C-10	1SFA619100R1118
Push button Black	1NO	No	24 V AC/DC	CP2-10B-10	1SFA619101R1016
Blanking plug Black				MA1-8130	1SFA611920R8130
Legend plate holder (without insert)				KA1-8120	1SFA616920R8120



C2SS1-10B-20



CP1-11C-10



MA1-8130

More information
For more optional pilot devices, pre-printed legend plate inserts and other accessories, please see the Compact range of ABB pilot devices:
http://new.abb.com/low-voltage/products/pilot-devices



KA1-8120

Accessories for cable holes

Description	Type	Order code
Cable gland M20 x 1.5	Gland M20x1.5	2TLA050040R0002
Conduit plug M20 x 1.5	Cond.Plug M20x1.5	2TLA050040R0004

Control devices

704 **One- and two-hand devices**
Safeball™

706 **Three-position device**
JSHD4

711 **Three-position device**
HD5

Ordering information

Safeball™



Safeball™

Safeball™ JSTD1

Types of switches	Cable length	Type	Order code
1 NO + 1 NC	2 m	JSTD1-A	2TLA020007R3000
	0.2 m	JSTD1-B	2TLA020007R3100
	10 m	JSTD1-C	2TLA020007R3200
2 NO	0.2 m	JSTD1-E	2TLA020007R3400



JSTD25F



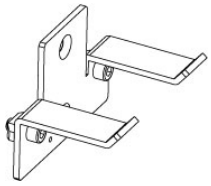
JSTD25K

Two-hand control devices JSTD25

Extra feature	Connector male	Type	Order code
None	M12-5	JSTD25F	2TLA020007R6000
	M12-8	JSTD25H	2TLA020007R6300
Pre-mounted Smile 10 EK emergency stop button	M12-8	JSTD25K	2TLA020007R6900



JSMC5



JSMC7

Accessories

Description	Type	Order code
Mounting bracket for JSTD1 with orientation possibility (ball joint)	JSM C5	2TLA020007R0900
Suspension shelf for JSTD25F/H/K	JSM C7	2TLA020007R1200
Protection coat for Safeball	Safeball coat	2TLA020007R1900

Cables and connectors

Safeball™



M12-C61



M12-C61HE



M12-C334

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
		6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
		0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
			Angled female connector	M12-C1012V2	2TLA020056R6700
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
		10 m		M12-C102	2TLA020056R1200
M12-8	Female	3 m		M12-C33	2TLA020056R2900
		6 m		M12-C63	2TLA020056R3000
		10 m		M12-C103	2TLA020056R4000
		20 m		M12-C203	2TLA020056R4100
	Female + male	0.06 m		M12-C00634	2TLA020056R6400
		1 m		M12-C134	2TLA020056R5000
		3 m		M12-C334	2TLA020056R5100



M12-C01



C5 cable

Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Ordering information

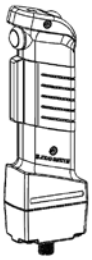
JSHD4



JSHD4-1-AC



JSHD4-2-AB



JSHD4-2-AD



JSHD4-2-AH

Complete list of JSHD4 models

This list shows the possible combination of features. Some combinations can be ordered pre-assembled with a single order code. Other combinations need to be ordered in separate parts (see next page).

Top part	Bottom part			Anti-		
Buttons and LEDs	Feature	ID	Connection	tamper	Type	Order code
JSHD4-1	Use your own cable	AA	Cable gland and 5 screw connections		JSHD4-1-AA	2TLA019995R0000
No LEDs No buttons	Cost effective and quick connection	AC	M12-5 male		JSHD4-1-AC	2TLA019995R0100
	Holder for Eva (used with JSM54)	AL	Cable gland and 10 screw connections		JSHD4-1-AL	Order separate parts
JSHD4-2	Cost effective and robust	AB	Cannon 12 male pins		JSHD4-2-AB	2TLA019995R0200
LEDs Front button Top button				•	JSHD4-2-AB-A	Order separate parts
	Cost effective and quick connection	AD	M12-8 male		JSHD4-2-AD	2TLA019995R0400
				•	JSHD4-2-AD-A	Order separate parts
	Use your own cable, simplified connection	AH	Cable gland and 10 screw connections		JSHD4-2-AH	2TLA019995R0800
				•	JSHD4-2-AH-A	Order separate parts
	Use your own cable, full pin connection	AJ	Cable gland and 16 screw connections		JSHD4-2-AJ	Order separate parts
				•	JSHD4-2-AJ-A	Order separate parts
	Replacement of old units*	AK	Cannon 12 male pins		JSHD4-2-AK	2TLA019995R4800
	Holder for Eva (used with JSM54)	AL	Cable gland and 10 screw connections		JSHD4-2-AL	Order separate parts
				•	JSHD4-2-AL-A	Order separate parts
JSHD4-3	Cost effective and robust	AB	Cannon 12 male pins		JSHD4-3-AB	Order separate parts
LEDs No buttons				•	JSHD4-3-AB-A	Order separate parts
	Cost effective and quick connection	AD	M12-8 male		JSHD4-3-AD	Order separate parts
				•	JSHD4-3-AD-A	Order separate parts
	E-stop	AE	M12-8 male		JSHD4-3-AE	Order separate parts
	Use your own cable, simplified connection	AH	Cable gland and 10 screw connections		JSHD4-3-AH	2TLA019995R2000
				•	JSHD4-3-AH-A	Order separate parts
	Use your own cable, full pin connection	AJ	Cable gland and 16 screw connections		JSHD4-3-AJ	Order separate parts
				•	JSHD4-3-AJ-A	Order separate parts
	Replacement of old units*	AK	Cannon 12 male pins		JSHD4-3-AK	Order separate parts
	Holder for Eva (used with JSM54)	AL	Cable gland and 10 screw connections		JSHD4-3-AL	Order separate parts
				•	JSHD4-3-AL-A	Order separate parts
JSHD4-4	Cost effective and robust	AB	Cannon 12 male pins		JSHD4-4-AB	Order separate parts
LEDs Front button				•	JSHD4-4-AB-A	Order separate parts
	Cost effective and quick connection	AD	M12-8 male		JSHD4-4-AD	Order separate parts
				•	JSHD4-4-AD-A	Order separate parts
	Use your own cable, simplified connection	AH	Cable gland and 10 screw connections		JSHD4-4-AH	Order separate parts
				•	JSHD4-4-AH-A	Order separate parts
	Use your own cable, full pin connection	AJ	Cable gland and 16 screw connections		JSHD4-4-AJ	Order separate parts
				•	JSHD4-4-AJ-A	Order separate parts
	Replacement of old units*	AK	Cannon 12 male pins		JSHD4-4-AK	Order separate parts
	Holder for Eva (used with JSM54)	AL	Cable gland and 10 screw connections		JSHD4-4-AL	Order separate parts
				•	JSHD4-4-AL-A	Order separate parts
JSHD4-5	Cost effective and robust	AB	Cannon 12 male pins		JSHD4-5-AB	Order separate parts
LEDs Top button				•	JSHD4-5-AB-A	Order separate parts
	Cost effective and quick connection	AD	M12-8 male		JSHD4-5-AD	Order separate parts
				•	JSHD4-5-AD-A	Order separate parts
	Use your own cable, simplified connection	AH	Cable gland and 10 screw connections		JSHD4-5-AH	Order separate parts
				•	JSHD4-5-AH-A	Order separate parts
	Use your own cable, full pin connection	AJ	Cable gland and 16 screw connections		JSHD4-5-AJ	Order separate parts
				•	JSHD4-5-AJ-A	Order separate parts
	Replacement of old units*	AK	Cannon 12 male pins		JSHD4-5-AK	Order separate parts
	Holder for Eva (used with JSM54)	AL	Cable gland and 10 screw connections		JSHD4-5-AL	Order separate parts
				•	JSHD4-5-AL-A	Order separate parts

* See document 2TLC010007L0201 for information about replacement

Ordering information

JSHD4



JSHD4-2 Top part



AA, AH, AJ - Cable gland



AB, AK - Cannon connection



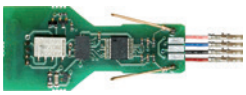
AC, AD - M12 connection



AE - M12 with E-stop



AL - Cable gland and holder for Eva (used with JSM54)



Anti-tamper PCB

Top parts, bottom parts and anti-tamper

To order a complete JSHD4, a top part and a bottom part must be included.
Don't forget the anti-tamper PCB if required.

For example, if you want to order a JSHD4-3-AB-A, please order
- JSHD4-3 top part
- JSHD4 AB bottom part
- Anti-tamper PCB (the "-A" at the end of the designation stands for Anti-tamper)

Please note that all combinations are not compatible. See previous page for possible combinations.

Description	Type	Order code
Top parts		
Top part with no LEDs, no buttons	JSHD4-1 Top part	2TLA020006R2100
Top part with LEDs, front and top buttons	JSHD4-2 Top part	2TLA020006R2200
Top part with LEDs, no buttons	JSHD4-3 Top part	2TLA020006R2300
Top part with LEDs, front button	JSHD4-4 Top part	2TLA020006R2400
Top part with LEDs, top button	JSHD4-5 Top part	2TLA020006R2500
Bottom parts		
Bottom part with cable gland	JSHD4 AA	2TLA020005R1000
Bottom part with Cannon connector	JSHD4 AB	2TLA020005R1100
Bottom part with M12-5 connector	JSHD4 AC	2TLA020005R1200
Bottom part with M12-8 connector	JSHD4 AD	2TLA020005R1300
Bottom part with M12-8 connector and E-stop button	JSHD4 AE	2TLA020005R1400
Bottom part with cable gland and PCB with 10 screw terminals	JSHD4 AH	2TLA020005R1700
Bottom part with cable gland and PCB with 16 screw terminals	JSHD4 AJ	2TLA020005R1800
Bottom part with cannon connector (replacement of former JSHD4)	JSHD4 AK	2TLA020005R1900
Bottom part with cable gland and holder for Eva	JSHD4 AL	2TLA020005R2000
Anti tamper		
Anti-tamper PCB	JSHD4 Anti-tamper	2TLA020005R0900

Cables and connectors

JSHD4



M12-C61



M12-C61HE



M12-C334



HK20S4

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
		6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
		0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
		10 m		M12-C102	2TLA020056R1200
M12-8	Female	3 m		M12-C33	2TLA020056R2900
		6 m		M12-C63	2TLA020056R3000
		10 m		M12-C103	2TLA020056R4000
		20 m		M12-C203	2TLA020056R4100
	Female + male	0.06 m		M12-C00634	2TLA020056R6400
		1 m		M12-C134	2TLA020056R5000
		3 m		M12-C334	2TLA020056R5100
Cannon	Female	5 m		HK5	2TLA020003R4700
		10 m		HK10	2TLA020003R4800
		20 m		HK20	2TLA020003R4900
		1.6 m	Spiral cable	HK16S4	2TLA020003R5000
		2 m	Spiral cable	HK20S4	2TLA020003R5100
		3.2 m	Spiral cable	HK32S4	2TLA020003R5200
		4 m	Spiral cable	HK40S4	2TLA020003R3500
		6 m	Spiral cable	HK60S4	2TLA020003R3600
		8 m	Spiral cable	HK80S4	2TLA020003R5300



M12-C01



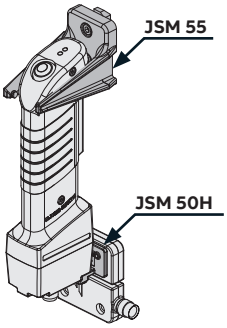
C5 cable

Separate cables and connectors

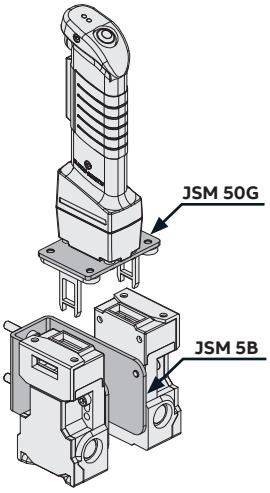
Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
12-pole female cannon connector for JSHD4	JSHK0	2TLA020003R0300
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Accessories

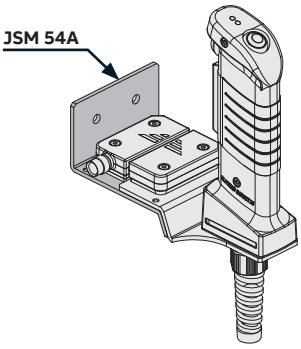
JSHD4



JSM 55 wall bracket and JSM 50H bracket for Eden



JSM 50G bracket for key switches and JSM 5B wall bracket for 2 pcs MKey5



JSM 54A wall bracket for Adam (and AL bottom part that has a holder for Eva)



JSHD4 protection coat

Accessories

Description	Type	Order code
Brackets and bottom plates		
JSM 55 Wall bracket for three position device	JSM 55	2TLA040005R0500
JSM 5B Wall bracket for 2 pcs MKey5 interlock switches	JSM 5B	2TLA040005R0700
JSM 54A Wall bracket for Adam. Used with AL bottom part that has a holder for Eva	JSM 54A	2TLA020205R2800
JSM 50G Bracket for key switches	JSM 50G	2TLA020205R6300
JSM 50H Bracket for Eden sensor	JSM 50H	2TLA020205R6400
Others		
JSHD4 protection coat	JSHD4 Coat	2TLA020200R4600

Accessories
JSHD4

JSHD4H2
The three-position button of JSHD4 is available as a separate part for either external mounting or panel mounting. JSHD4H2A/B are intended for mounting on the back side of a handheld teaching pendant or similar.
JSHD4H2 can be mounted in a panel hole.



JSHD4H2A



JSHD4H2B



JSHD4H2

Mounting	Leads	Hand	Type	Order code
External mounting	6 x 150 mm	Left	JSHD4H2A	2TLA020002R0200
		Right	JSHD4H2B	2TLA020002R0210
Internal panel mounting	6 x 150 mm	-	JSHD4H2 0.15 m	2TLA020002R3100
	6 x 1200 mm	-	JSHD4H2 1.2 m	2TLA020002R4500

Ordering information

HD5



HD5-S-102



HD5-S-104



HD5-S-111



HD5-M-001

HD5 ordering information

AS-i interface	Emergency stop with LED	Home position sensor	Motion sensor	LED flashlight	Connector	Two top buttons	Type	Order code
No	No	No	No	No	M23-12	No	HD5-S-102	2TLA023001R0000
						Yes	HD5-S-104	2TLA023001R0200
	Yes	Yes	Yes	Yes	M23-19	Yes	HD5-S-111	2TLA023001R0100
Yes	Yes	Yes	Yes	Yes	M12-5	Yes	HD5-B-101	2TLA920502R0003
	No	Yes	Yes	Yes	M12-5	Yes	HD5-B-102	2TLA920502R0004

HD5 accessories

Description	Suitable for	Type	Order code
Active holder (for home position sensor)	All models	HD5-M-001	2TLA920509R0001
Passive holder	All models	HD5-M-002	2TLA920509R0002
5 m cable with M23-12 female connector	HD5-S-102/104	JSD-TK5-12	2TLA930050R0000
10 m cable with M23-12 female connector	HD5-S-102/104	JSD-TK10-12	2TLA930051R0000
10 m spiral cable with M23-12 female connector	HD5-S-102/104	JSD-TK100S-12	2TLA930034R0000
5 m cable with M23-19 female connector	HD5-S-111	JSD-TK5-19	2TLA930057R0000
10 m cable with M23-19 female connector	HD5-S-111	JSD-TK10-19	2TLA930058R0000
5 m unshielded cable with M12-5 female connector	HD5-B-101/102	M12-C51-ASi	2TLA910093R0000
2.5 m unshielded spiral cable with M12-5 female connector	HD5-B-101/102	M12-C251S-ASi	2TLA910094R0000


ABB
Smile 41 EWWP
ABB SMILE 11 EC Tina
LineStrong3D
ABB SMILE 12 EA
EStrongZ

Emergency stops and pilot devices

714 **Emergency stop buttons**
Smile, INCA, EStrong and Compact

717 **Safety stop buttons**
Smile, INCA, and Compact

719 **Pull wire emergency stop switch**
LineStrong

723 **Reset button**
Smile

Ordering information

Emergency stop buttons



Smile 10 EA Tina



Smile 11 EC Tina



Smile 12 EA



ABB Compact emergency stop shroud



EStrongZ and EStrongZ LED

External mounting

Description	Type of safety signal	Connection type	Feature	Type	Order code
Compact size Plastic housing IP65	DYNlink	1 m cable from bottom	Status LED	Smile 10 EA Tina	2TLA030050R0400
		1 x M12-5 male	Status LED	Smile 11 EA Tina	2TLA030050R0000
		1 x M12-5 male	Status LED, StatusBus	Smile 11 EC Tina	2TLA030050R0900
		2 x M12-5 male	Status LED	Smile 12 EA Tina	2TLA030050R0200
	2 NC	1 m cable from bottom	Status LED	Smile 10 EA	2TLA030051R0400
		1 m leads from bottom	-	Smile 10 EK	2TLA030051R0600
		1 x M12-5 male	Status LED	Smile 11 EA	2TLA030051R0000
		2 x M12-5 male	Status LED	Smile 12 EA	2TLA030051R0200
Plastic housing IP66, IP67 and IP69K	2 NC*	2 x M20 conduits	-	CEPY1-1002 (Compact)	1SFA619821R1002
			With shroud	CEPY1-2002 (Compact)	1SFA619821R2002
Metal housing IP67 and IP69K	2 NO + 2 NC	3 x M20 conduits	Status LED	EStrongZ LED	2TLA050220R0222
			-	EStrongZ	2TLA050220R0020

* Can be adapted to DYNlink with Tina



Smile 11 EAR



INCA 1

Panel mounting

IP rating	Depth	Connection type	Type of safety signal	Feature	Type	Order code
IP65	26 mm	1 x M12-5 male	DYNlink	Status LED	Smile 11 EAR Tina	2TLA030050R0100
			2 NC	Status LED	Smile 11 EAR	2TLA030051R0100
Button IP65, connector IP20	53 mm	Removable terminal block	DYNlink	Status LED	INCA 1 Tina	2TLA030054R0000
				Status LED, StatusBus	INCA 1 EC Tina	2TLA030054R1400
			2 NC	Status LED	INCA 1	2TLA030054R0100

Accessories

Emergency stop buttons



M12-3S



Tina 8A



E-sign 22.5

Connection accessories

Description	Type	Order code
Connection accessories		
M12 Y-connector for serial connection of device with StatusBus functionality.	M12-3S	2TLA020055R0600
M12 Y-connector for serial connection of devices without StatusBus functionality.	M12-3A	2TLA020055R0000
Connection block for the serial connection of up to 4 DYNlink devices with 12-5 connectors.	Tina 4A	2TLA020054R0300
Connection block for the serial connection of up to 8 DYNlink devices with 12-5 connectors.	Tina 8A	2TLA020054R0500
Adaptation unit for DYNlink solution with M20 fitting. For e.g. Compact.	Tina 2A*	2TLA020054R0100
Adaptation unit for DYNlink solution, internal assembly. For e.g. Compact.	Tina 2B*	2TLA020054R1100
Adaptation unit for DYNlink solution with M20 fitting and M12 connector. For e.g. connecting Compact to Pluto/Vital.	Tina 3A*	2TLA020054R0200
Termination for Smile 12	JST2	2TLA030051R1300
Accessories		
Emergency stop sign, yellow, no text, for INCA (22.5mm)	E-Sign 22.5	2TLA030054R0900
Emergency stop sign, yellow, no text, for Smile (32.5mm)	E-Sign 32.5	2TLA030054R1000
Yellow surround for Inca	Surround for Inca	2TLA030054R0400
Yellow shroud for Compact	CA1-8053	1SFA619920R8053
Stainless steel cable gland, for EStrong	Gland M20x1.5	2TLA050040R0002
Stainless steel conduit plug, for EStrong	Conduit Plug M20x1.5	2TLA050040R0004
LED Green/Red 230 VAC, for EStrong	LED 230	2TLA050211R0003

* For more information about Tina adapter units, please see Pluto and Vital chapters.



M12-C61



M12-C61HE

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
		6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
		0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
			Angled female connector	M12-C1012V2	2TLA020056R6700
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
		10 m		M12-C102	2TLA020056R1200



M12-C01



C5 cable

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Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050

Ordering information

Safety stop buttons



Smile 11 SA Tina



CEP1-1002



INCA 1S

Safety stop buttons

Mounting	Type of safety signal	Connection type	Feature	Type	Order code
External	DYNlink	1 m cable from bottom	Status LED	Smile 11 SA Tina	2TLA030050R0500
	2 NC	1 x M12-5	Status LED	Smile 11 SA	2TLA030051R0900
	1 NO + 1 NC*	2 x M20 conduits	-	CEP1-1002 (Compact)	1SFA619811R1002
			With shroud	CEP1-2002 (Compact)	1SFA619811R2002
Panel	DYNlink	5 pole terminal block	Status LED	INCA 1S Tina	2TLA030054R0200
	2 NC	5 pole terminal block	Status LED	INCA 1S	2TLA030054R0300

* Can be adapted to DYNlink with Tina



Tina 8A

Accessories

Description	Type	Order code
M12 Y-connector for serial connection of devices without StatusBus functionality.	M12-3A	2TLA020055R0000
Connection block for the serial connection of up to 4 DYNlink devices with 12-5 connectors.	Tina 4A	2TLA020054R0300
Connection block for the serial connection of up to 8 DYNlink devices with 12-5 connectors.	Tina 8A	2TLA020054R0500
Grey shroud for Compact	CA1-8054	1SFA619920R8054
Adaptation unit for DYNlink solution with M20 fitting. For e.g. Compact.	Tina 2A *	2TLA020054R0100
Adaptation unit for DYNlink solution, internal assembly. For e.g. Compact.	Tina 2B *	2TLA020054R1100
Adaptation unit for DYNlink solution with M20 fitting and M12 connector. For e.g. connecting Compact to Pluto/Vital.	Tina 3A *	2TLA020054R0200

* For more information about Tina adapter units, please see Pluto and Vital chapters.

Cable and connectors

Safety stop buttons



M12-C61



M12-C61HE

Cable with connectors

Connector	Female/male	Length	Special feature	Type	Order code
M12-5	Female	3 m		M12-C31	2TLA020056R0500
		6 m		M12-C61	2TLA020056R0000
			Harsh environment, halogen free	M12-C61HE	2TLA020056R8000
		10 m		M12-C101	2TLA020056R1000
			Harsh environment, halogen free	M12-C101HE	2TLA020056R8100
		20 m		M12-C201	2TLA020056R1400
	Female + male	0.3 m		M12-C0312	2TLA020056R5800
		0.06 m		M12-C00612	2TLA020056R6300
		1 m		M12-C112	2TLA020056R2000
		3 m		M12-C312	2TLA020056R2100
		6 m		M12-C612	2TLA020056R2200
		10 m		M12-C1012	2TLA020056R2300
			Angled female connector	M12-C1012V2	2TLA020056R6700
		16 m		M12-C1612	2TLA020056R5400
		20 m		M12-C2012	2TLA020056R2400
	Male	6 m		M12-C62	2TLA020056R0200
		10 m		M12-C102	2TLA020056R1200



M12-C01



C5 cable

Separate cables and connectors

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050

Ordering information

LineStrong



LineStrong1



LineStrong2



LineStrong2Z



LineStrong3R



LineStrong3L



LineStrong3D

LineStrong

IP rating	Material	E-stop button	Contacts	Max. wire length (m)		Feature	Type	Order code
				1 unit	2 units			
IP67	Yellow die cast aluminum alloy	No	2 NO + 2 NC	30	50	-	LineStrong1	2TLA050200R0030
		Yes	2 NO + 2 NC	60	80	-	LineStrong2	2TLA050202R0332
			2 NO + 4 NC	100	125	Left hand	LineStrong3L	2TLA050206R0332
						Right hand	LineStrong3R	2TLA050208R0332
				200	325	Both sides	LineStrong3D	2TLA050204R0332
IP67, IP69K	Stainless steel 316	Yes	2 NO + 2 NC	80	100	-	LineStrong2Z	2TLA050202R0322
			2 NO + 4 NC	100	125	Left hand	LineStrong3LZ	2TLA050206R0322
						Right hand	LineStrong3RZ	2TLA050208R0322
				200	325	Both sides	LineStrong3DZ	2TLA050204R0322

Accessories
LineStrong



Wire pull kit



Wire tensioner



Corner pulley



Eyebolt



Safety spring



LineStrong Screwdriver



Gland



Conduit plug



LineStrong LED 230

Mounting Accessories

Description	Material	Length	Type	Order code
Wire pull kit including wire, eyebolts, tensioner/gripper, quick-link termination and Allen key in right quantity for the included wire length.	Galvanized	10 m wire	10 m wire kit, gal	2TLA050210R0130
		20 m wire	20 m wire kit, gal	2TLA050210R0330
		80 m wire	80 m wire kit, gal	2TLA050210R0630
		100 m wire	100 m wire kit, gal	2TLA050210R0730
	Stainless steel	50 m wire	50 m wire kit, SS	2TLA050210R0520
		100 m wire	100 m wire kit, SS	2TLA050210R0720
Wire tensioner/gripper	Galvanized		Wire tensioner, gal	2TLA050210R4030
	Stainless steel		Wire tensioner, SS	2TLA050210R4020
Corner pulley	Galvanized		Corner pulley, gal	2TLA050210R6030
	Stainless steel		Corner pulley, SS	2TLA050210R6020
Eyebolt M8 x 1.25 8 pcs	Galvanized		Eyebolt M8x1.25, gal	2TLA050210R8030
	Stainless steel		Eyebolt M8x1.25, SS	2TLA050210R8020
Safety spring, 220mm	Stainless steel		Spring 220 mm, SS	2TLA050211R0004

Other accessories

Description	Type	Order code
Screwdriver, anti-tamper, Torx T20	Screwdriver T20	2TLA050211R0006
Gland M20 x 1.5	Gland M20x1.5	2TLA050040R0002
Conduit plug M20 x 1.5	Cond.Plug M20x1.5	2TLA050040R0004

Spare parts

Description	Type	Order code
LineStrong LED Green/Red +24 VDC	LineStrong LED 24	2TLA050211R0001
LineStrong LED Green/Red 230 VAC	LineStrong LED 230	2TLA050211R0003
LineStrong2 and LineStrong3 Emergency stop button.	LineStrong E-Stop	2TLA050211R0005

Cables
LineStrong



M12-C01



C5 cable

LineStrong

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Cables
LineStrong



M12-C01



C5 cable

LineStrong

Description	Type	Order code
Connectors		
M12-5 pole female, straight	M12-C01	2TLA020055R1000
M12-5 pole male, straight	M12-C02	2TLA020055R1100
M12-8 pole female, straight	M12-C03	2TLA020055R1600
M12-8 pole male, straight	M12-C04	2TLA020055R1700
Cable with 5 conductors		
10 m cable with 5 x 0.34 shielded conductors	C5 cable 10 m	2TLA020057R0001
50 m cable with 5 x 0.34 shielded conductors	C5 cable 50 m	2TLA020057R0005
100 m cable with 5 x 0.34 shielded conductors	C5 cable 100 m	2TLA020057R0010
200 m cable with 5 x 0.34 shielded conductors	C5 cable 200 m	2TLA020057R0020
500 m cable with 5 x 0.34 shielded conductors	C5 cable 500 m	2TLA020057R0050
Cable with 8 conductors		
50 m cable with 8 x 0.34 shielded conductors	C8 cable 50 m	2TLA020057R1005
100 m cable with 8 x 0.34 shielded conductors	C8 cable 100 m	2TLA020057R1010
200 m cable with 8 x 0.34 shielded conductors	C8 cable 200 m	2TLA020057R1020
500 m cable with 8 x 0.34 shielded conductors	C8 cable 500 m	2TLA020057R1050

Ordering information

Smile reset buttons



Smile 11 RO1

Ordering details

Type of contact	Intended use	Connectors	Type	Order code
1 NO	Most reset applications	M12-5 male	Smile 11 RA	2TLA030053R0000
1 NO	Pluto Safety PLC light button function*	M12-5 male	Smile 11 RB	2TLA030053R0100
1 NO	Local reset of Orion1 Base	M12-5 male	Smile 11RO1	2TLA022316R3000
1 NC	Local reset of Orion2 Base and Extended, and Orion3 Extended	M12-5 male	Smile 11RO2	2TLA022316R3100
1 NC	Local reset of Orion3 Base	M12-5 male	Smile 11RO3	2TLA022316R3200
1 NO	Local reset of Eden DYN-Reset M12-5 and Eden OSSD-Reset M12-5	M12-5 male + female	Smile 12 RF	2TLA030053R2600
1 NO	Local reset of Eden OSSD-Reset M12-8	M12-8 male + female	Smile 12 RG	2TLA030053R2700

* See Pluto hardware manual for more information about the light button function



M12-3x



Tina 10B

Accessories

Description	Type	Order code
Y-connector for series connection of DYNlink devices with M12-5 connectors, e.g. Eden.	M12-3A	2TLA020055R0000
Y-connector for series connection of Adam OSSD M12-8 with M12-5 cables	M12-3H	2TLA020055R0800
Y-connector for series connection of Adam OSSD M12-8 with M12-8 cables	M12-3G	2TLA020055R0700
Y-connector for connection of Smile reset button to Orion.	M12-3R	2TLA022316R0000
Adaptation unit of OSSD outputs to DYNlink signals for use with Vital control module or Pluto Safety PLC. Tina 10B has an extra M12 connector for connection of a reset button.	Tina 10B v2	2TLA020054R1310



Colored filters

Spare parts

Description	Type	Order code
Kit of colored filters (yellow, green, white, blue, red)	Colored filters	2TLA030059R2600

Cables

Smile reset buttons

Cables for Smile 12 RF (with Eden DYN/OSSD Reset M12-5)

Description	Female/male	Length	Type	Order code	Eden Reset M12-5 to Smile 12 RF	Smile 12 RF to M12-3A	M12-3A to M12 3A	El-cabinet to M12-3A	M12-3A to el-cabinet
M12-5	Female	6 m	M12-C61	2TLA020056R0000				•	
		10 m	M12-C101	2TLA020056R1000				•	
		20 m	M12-C201	2TLA020056R1400				•	
	Female + male	1 m	M12-C112	2TLA020056R2000	•	•	•		
		3 m	M12-C312	2TLA020056R2100	•	•	•		
		6 m	M12-C612	2TLA020056R2200	•	•	•		
		10 m	M12-C1012	2TLA020056R2300	•	•	•		
		20 m	M12-C2012	2TLA020056R2400	•	•	•		
	Male	6 m	M12-C62	2TLA020056R0200					•
		10 m	M12-C102	2TLA020056R1200					•

Cables for Smile 12 RG (with Eden DYN/OSSD Reset M12-8)

Connector	Female/male	Length	Type	Order code	Eden Reset M12-8 to Smile 12 RG	Smile 12 RG to M12-3G or M12-3H	M12-3G to M12-3G	El-cabinet to M12-3G	M12-3G to el-cabinet	M12-3H to M12-3H	El-cabinet to M12-3H	M12-3H to el-cabinet
M12-5	Female	6 m	M12-C61	2TLA020056R0000							•	
		10 m	M12-C101	2TLA020056R1000							•	
		20 m	M12-C201	2TLA020056R1400							•	
	Female + male	1 m	M12-C112	2TLA020056R2000						•		
		3 m	M12-C312	2TLA020056R2100						•		
		6 m	M12-C612	2TLA020056R2200						•		
		10 m	M12-C1012	2TLA020056R2300						•		
		20 m	M12-C2012	2TLA020056R2400						•		
	Male	6 m	M12-C62	2TLA020056R0200								•
		10 m	M12-C102	2TLA020056R1200								•
M12-8	Female	3 m	M12-C33	2TLA020056R2900				•				
		6 m	M12-C63	2TLA020056R3000				•				
		10 m	M12-C103	2TLA020056R4000				•				
		20 m	M12-C203	2TLA020056R4100				•				
	Female + male	1 m	M12-C134	2TLA020056R5000	•	•	•					
		3 m	M12-C334	2TLA020056R5100	•	•	•					
	Male	By meter	M12-C04	2TLA020055R1700					•			

Cables for Smile 11 RX and ROx

Connector	Female/male	Length	Type	Order code	Smile11 Rx to another M12	Smile 11 Rx to el-cabinet	Smile 11 ROx to Tina 10B	Tina 10B to el-cabinet	Smile 11 ROx to M12-3R	M12-3R to el-cabinet	Tina 10B to M12-3A	M12-3A to M12 3A	El-cabinet to M12-3A	M12-3A to el-cabinet
M12-5	Female	6 m	M12-C61	2TLA020056R0000		•		•		•			•	
		10 m	M12-C101	2TLA020056R1000		•		•		•			•	
		20 m	M12-C201	2TLA020056R1400		•		•		•			•	
	Female + male	1 m	M12-C112	2TLA020056R2000	•		•		•		•	•		
		3 m	M12-C312	2TLA020056R2100	•		•		•		•	•		
		6 m	M12-C612	2TLA020056R2200	•		•		•		•	•		
		10 m	M12-C1012	2TLA020056R2300	•		•		•		•	•		
		20 m	M12-C2012	2TLA020056R2400	•		•		•		•	•		
	Male	6 m	M12-C62	2TLA020056R0200										•
		10 m	M12-C102	2TLA020056R1200										•

09
General terms and conditions of sale

ABB Limited, New Zealand

GENERAL TERMS AND CONDITIONS OF SALE

Goods and services are sold and supplied by ABB Limited on the following General Terms and Conditions of business unless otherwise expressly agreed in writing between ABB Limited and the Purchaser.

1. DEFINITIONS

1.1 "Contract" means these general terms and conditions of sale, the Purchaser's order as accepted by the Vendor pursuant to clause 3.2, and any other expressly specified terms and specifications agreed by both parties in writing.
1.2 "Contract Works" means, where the additional clauses E1 to E8 apply, the Goods and the erection/installation of other works (if any) to be carried out by the Vendor at the Site.
1.3 "Commencement Date" means the commencement date of the Contract of which these terms and conditions form part.
1.4 "day" or "days" means calendar days unless stated otherwise.
1.5 "Goods" means the goods, equipment, material and/or services supplied by the Vendor to the Purchaser as indicated in the Contract.
1.6 Goods and Services Tax" means the tax payable under the Goods and Services Tax Act 1985.
1.7 "Intellectual Property Rights" includes all present and future rights in and to all technology, techniques (both patented and non-patented), know-how, confidential information, patents, copyright, trademarks, 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 exist or may exist anywhere in the world,
1.8 "PPS Act" means the New Zealand Personal Property Security Act 1999.
1.9 "Purchaser" means the person, company or other relevant legal entity to whom or to which this document is addressed.
1.10 "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.
1.11 "Vendor" means ABB Limited, a New Zealand company having its registered office at 83 Grafton Road, Auckland, New Zealand.

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 terms 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 the Vendor expressly agrees in writing to any variation thereof. 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.

2.3 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.

2.4 THE PURCHASER'S ATTENTION IS DRAWN TO STATUTORY PROVISIONS WHICH MAY APPLY TO THIS CONTRACT. To the fullest extent permitted by 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 in writing.

2.5 The guarantees implied by the Consumer Guarantees Act 1993 are expressly excluded where the Purchaser is acquiring Goods for the purpose of a business.

3. QUOTATION AND OFFER TO PURCHASE

3.1 The Vendor's quotation is not to be construed as an obligation to sell Goods to the Purchaser but is rather an invitation to the Purchaser to make an offer to purchase Goods 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 as are specified therein and is given subject to such Goods 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 or affiliate.

3.4 Prices included in the Vendor's quotation are based upon the quantities of Goods referred to in the quotation. Should the Purchaser offer to purchase a quantity of Goods which is at variance with the quantity referred to in the quotation, the Vendor reserves the right to amend the price quoted for such Goods.

3.5 The quotation remains open for acceptance for a period of 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 the Goods 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**. The Purchaser will act reasonably and without undue delay in any 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 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 supplied by the Vendor to the Purchaser and, to the extent permitted under law, the Vendor makes no representation nor gives any warranty in respect of such particular use or fitness for any such purpose..

Responsibility for licenses, approvals etc.

4.8 Unless otherwise agreed in writing, it is the Purchaser's responsibility to obtain and provide any licenses, 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 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 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.

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 for the Goods agreed to be supplied 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 7 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.**

Quoted Time

6.2 The Vendor will use reasonable endeavours 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, if a fixed date or time has been 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 referrable to such portion only of the Goods the subject of the contract which cannot in consequence of such delay be effectively used by the Purchaser. Such payment of liquidated damages shall be the sole and exclusive remedy for such delay and be in full satisfaction of and the Vendor's total liability arising from such delay.

Extension of Time and Force Majeure

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 Contract.

6.5 The Vendor shall not be liable to the Purchaser for any failure to meet any obligation under the Contract 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.

6.6 The parties are aware of the outbreak of a Coronavirus (commonly known as COVID-19) or any mutation of such virus which is or may impact normal business and execution of this Contract. The parties agree that the Vendor is entitled to cost compensation, time extension, or other reasonably required Contract adjustments, if any consequences whether directly or indirectly resulting out of, or in connection with the coronavirus outbreak, lead to delays in delivery of Goods or otherwise affect the Vendor's contractual obligations.

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 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, or as agreed otherwise in writing. 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 3 days of delivery.

Shortages in Delivery

8.4 Any claims for shortages in deliveries shall be notified in writing to the Vendor within 10 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, , where such invoices relate to complete and usable Goods, payment thereof will fall due in accordance with **clause 11.2**.

Storage

8.6 If after a period of 14 days from the date of notification by the Vendor to the Purchaser that Goods 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 costs of such storage together with all 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 11.2**.

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** 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 shall remain with the Vendor only until the first in time of anyone 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 the Goods 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 title and property in such Goods they may not be resold, pledged, or 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 its premises separately from 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 its business, process in such fashion as 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, it will, if called upon so to do by the Vendor, within 7 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 , 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 PPS Act).

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. 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) New Zealand costs;

(ii) overseas costs;

(iii) foreign currency and exchange rates;

(iv) customs and excise duties, levies, charges, imposts and the like; and

(v) transport costs.

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 7 days' notice in writing of such termination and provided that it has first made payment to the Vendor for any Goods supplied by the Vendor to the Purchaser prior to such termination.

Tax and other excluded charges

10.2. Charges specifically excluded in any quotation shall be to the Purchaser's account at cost.

10.3 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.

10.4 Unless otherwise stated in writing in any quotation, customs duties, levies, taxes and the like imposed in respect of the import of goods (but always excluding those taxes referred to in clause 10.3) 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.

10.5 If the supply of Goods to the Purchaser under this Contract is a taxable supply in respect of which the Vendor is required to account for Goods and Services Tax, then the Purchaser shall pay to the Vendor an amount equal to the amount of such Goods and Services Tax in addition to the purchase price and on the same date as the Purchaser pays the purchase price to the Vendor.

GST

10.6 GST means any tax, levy, charge, or impost implemented under the New Zealand Goods and Services Tax Act 1985.

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 net 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 Contract.

Cost of Delay or Variation

10.11 Where work is delayed or varied by an act or omission of the Purchaser or that of its agent, or any contractor for whom 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.

Costs of Complying with Regulations

10.12 If the costs to the Vendor of performing its obligations under the Contract 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

10.13 For the purpose of Clause 10 the expression 'cost' is deemed to include overheads and interest paid by the Vendor.

Exchange Rate Variation

10.14 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) on the 20th day of the month following the date of the invoice issued by the Vendor to the Purchaser; or

(ii) in the case of contracts which include deposit payment provisions, the deposit payment is due on invoicing.

(iii) 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 the Goods 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.

Delay or Default in **Payment**

11.3 Should the Purchaser 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 chargeholders 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).

12. WARRANTY

12.1

(i) The Vendor warrants to the Purchaser that Goods manufactured by the Vendor, or its related companies, 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).

(ii) With respect to Goods or parts or components of Goods purchased by the Vendor and sold to the Purchaser which are not manufactured by the Vendor or its related companies, the Vendor will use its reasonable endeavours to assign to the Purchaser any warranties which the Vendor may have received from the supplier of such Goods or parts or components.

12.2 If it is proven to the Vendor's reasonable satisfaction that Goods manufactured by the Vendor or its related companies are not free from defects due to faulty design, materials and workmanship (except as revealed by examination as referred to in clause 12.1) 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; or
(iii) refund to the Purchaser the contract price of such Goods.

12.3 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.

12.4 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) the Vendor is notified in writing within 7 days of the alleged defect first coming to the notice of the Purchaser and 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

(iv) the Purchaser has fulfilled all of its contractual obligations.

12.5 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 upon the expiry of 2 years from the date of the end of the defects liability period in clause 12.4(ii), and claims made after that period will be time barred absolutely.

12.6 The benefit of this Warranty is personal to the Purchaser and is non-assignable without the prior written consent of the Vendor.

Exclusion of UN Convention

12.7 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 Contract.

13. LIMITATION OF LIABILITY

Notwithstanding anything else contained in this Contract to the contrary, 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 data, 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.

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 of any Intellectual Property Rights in respect of which publication occurs prior to the date of any quotation relating to Goods the subject of such claim, and in respect of which quotation such Goods 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 it to the Vendor shall not be such as to cause the Vendor to infringe any Intellectual Property Rights, and the Purchaser hereby indemnifies the Vendor and agrees to keep the Vendor indemnified against any claims, cost or losses which may 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, maintenance or alteration of the Works by or on behalf of the Purchaser.

15. DEFAULT, BANKRUPTCY, LIQUIDATION

15.1 If the Purchaser
(a) defaults under this Contract;
(b) being a person, dies or commits an act of bankruptcy; or
(c) 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 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,
(i) suspend or cancel such contract (including, without limitation, deferring manufacture or delivery of Goods);
(ii) require payments in cash before or on delivery of the Goods notwithstanding the agreed terms of payment;
(iii) may cancel any undelivered or uncompleted Goods then outstanding under such contract;
(iv) 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/or
(v) 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

16.1 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 third business day (if within Australia) or on the tenth business day (if beyond Australia) 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 it will not, directly or indirectly, and it has no knowledge that other persons connected with its 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 it 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. The Purchaser represents and warrants that it is acquiring the Goods from ABB for its own use and not for resale or export, unless otherwise agreed in writing with ABB.

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: 0800 440 129 (toll free from NZ)
Mail: ABB Limited
Country Integrity Officer
Private Bag 92609
Symonds Street
Auckland 1150
New Zealand

18. DISPUTE RESOLUTION

18.1 If there is a dispute between the parties arising out of, or in connection with, this Contract, 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 7 days of a Dispute Notice being received by a party, a senior representative (such as the CEO) of each party must meet and will endeavour, 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 18 must be in writing and signed by both parties.

18.3 If a dispute has not been resolved within 30 days after the relevant Notice of Dispute was given, the dispute is to be mediated according to the standard mediation agreement (NZ version) of the Resolution Institute. The mediation shall be conducted by a mediator and at a fee agreed by the parties. Failing agreement between the parties, the mediator shall be selected, by the Chair for the time being of Resolution Institute.

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 be entitled to terminate this Contract by 30 days' notice to the Purchaser.

19.2 Whole Agreement

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 2 days 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 Contract, the singular includes the plural and vice versa, and each gender includes every other gender.

19.6 Warranties by the Parties

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.

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 venturers.

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

This Contract is governed by and construed with reference to the laws for the time being in force in New Zealand. Each party irrevocably and unconditionally submits to the exclusive jurisdiction of the courts of New Zealand, 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 Contract.

19.12 Costs

Each of the parties will pay the costs and expenses incurred by it in connection with this Contract.

19.13 Termination

The Vendor may terminate this Contract or the Order at its convenience without any form of remedy (liquidated or equitable) being available to the Purchaser.

The Purchaser may not terminate this Contract and/or cancel an Order related to this Contract – 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 in accordance with clause E5 (**Taken 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/INSTALLATION

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. The Vendor shall from time to time, when so required by the Purchaser, produce proof of insurance cover in the form of a certificate of currency. All moneys received under any such policy shall be applied in or towards (in order of precedence):

(i) the replacement or repair of the Contract Works 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 Contract. Site tests shall be carried out within 1 month after completion of erection. The Vendor will give the Purchaser 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 specified guarantees, the Vendor reserves the right to repeat the tests within 14 days after the date when the Contract Works are ready for retest.

E5 TIME OF TAKING OVER

The Contract Works shall be deemed to have been taken over by Purchaser when erection/installation has been completed or on completion of tests on site under clause E4 when these are included or one month after the Contract Works 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 months after Vendor gives the Purchaser written notice that erection/installation 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 because of interruptions, delays, overtime, unusual hours, mistakes, or work for which the Vendor is not responsible under this Contract, such extra cost 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.

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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