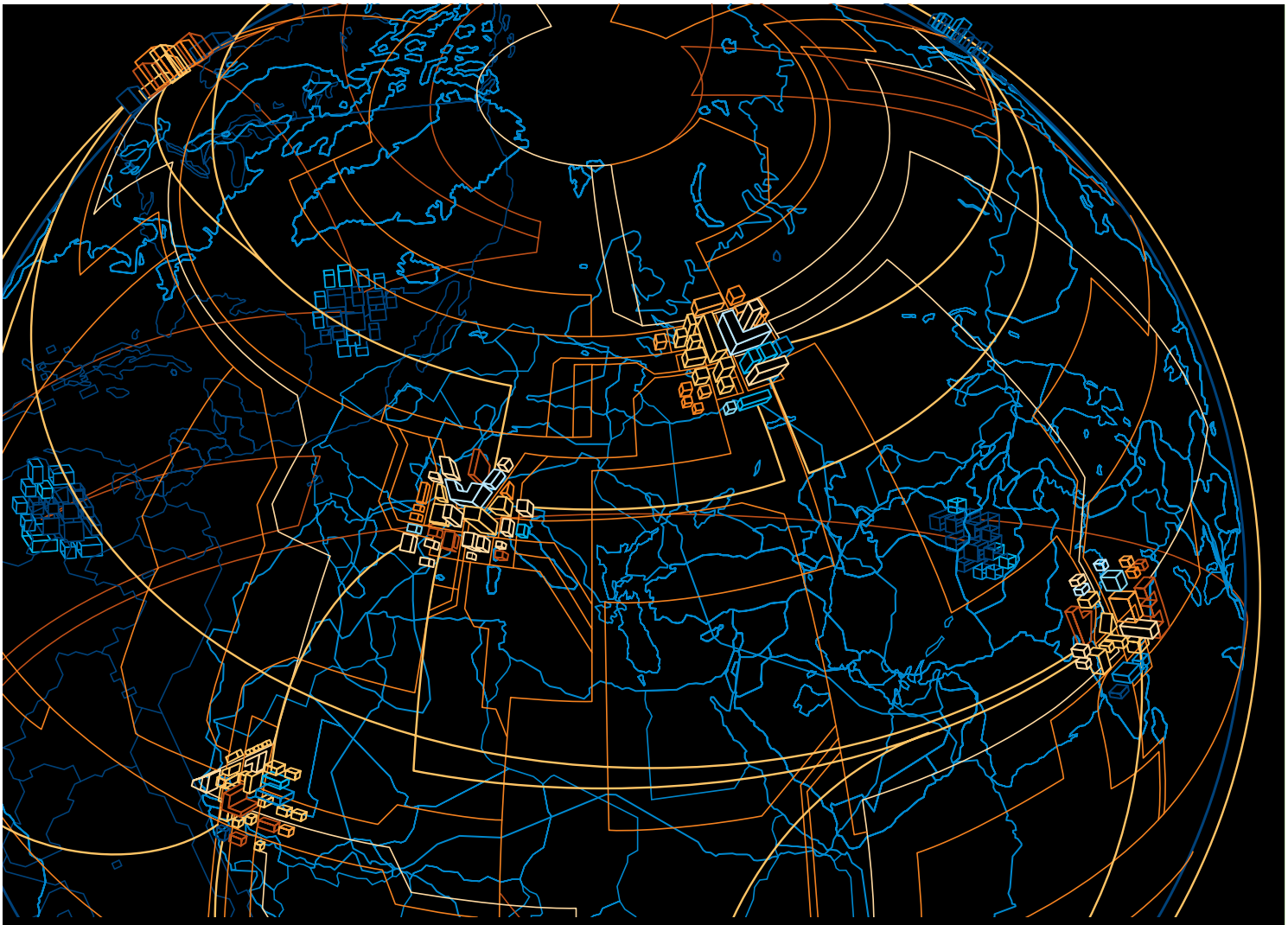


Electrification Products | Edition 1

Low Voltage Product Book
Australia and New Zealand

Power and productivity
for a better world™

Low Voltage Product Book
Australia and New Zealand

How to use this book 3

1 Living Space® and Building Space® 7

2 Final Distribution 85

3 Service for Low Voltage Products 183

4 Power Distribution 191

5 Meters and Measurement 285

6 Consumer Units, Load Centres and Distribution Boards 303

7 Enclosures and Switchboard Systems 327

8 Control and Protection 385

9 Pilot Devices 511

10 Electronic Products and Relays 557

11 Arc Guard System™ 577

12 Terminal Blocks – SNK Series 583

13 ABB Jokab Safety 603

14 Mining 609

15 Solar 623

Index 638

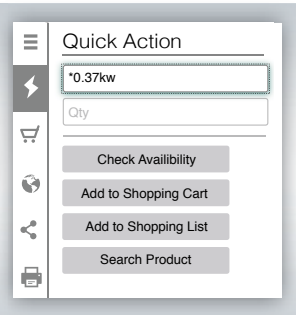
Power and productivity
for a better world™

cBOL: ABB's online ordering system Improvements and new features

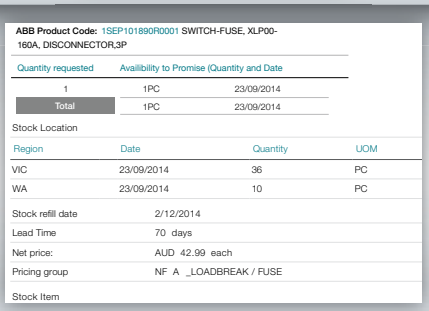
We are excited to announce some improvements and changes to our cBOL online ordering system. You will have noticed that the front-end has been revamped to tie in with the new ABB Australia website, this layout will provide you with a better user interface. New local features to the Australian site have also been added to cBOL originating from feedback we have received from our customers. These features are listed below, for more information speak to your ABB sales representative.

www.abbaustralia.com.au

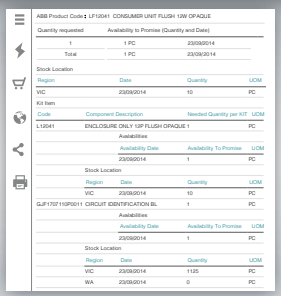
Enhanced search capabilities.
Find product by description
with wildcard search.



Find stock locations and
check availability.



Stock check for Kit item.



Optimised for smart phones
for ease of use.

How to use this book

Section header

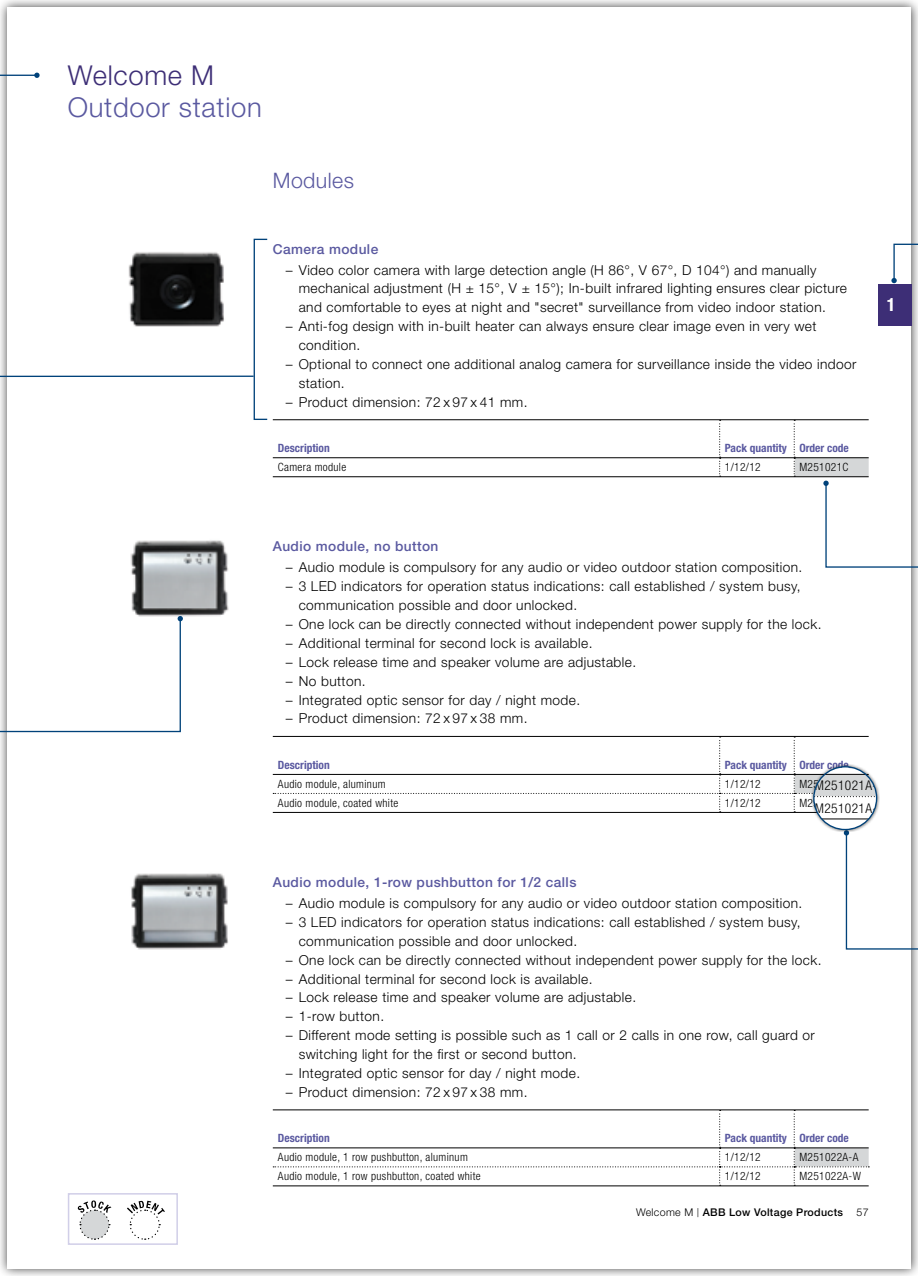
This is the product group title

Description

Item specific product description

Product image

Helping you to find the correct product at a glance



Section number

Colour coded helping you find the correct section

Order code

When placing an order this is the number to quote

Stock status

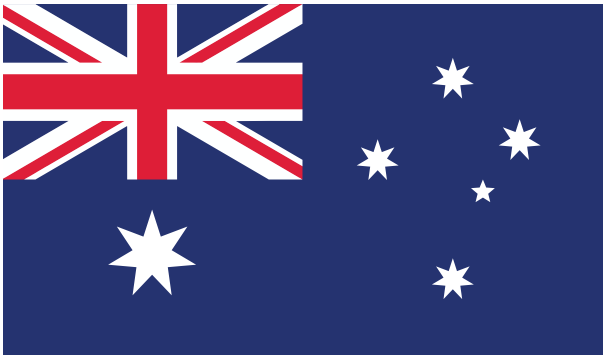
This is colour coded for convenience

Grey = Product stocked in Australia

White = Product available on quoted factory lead-times*

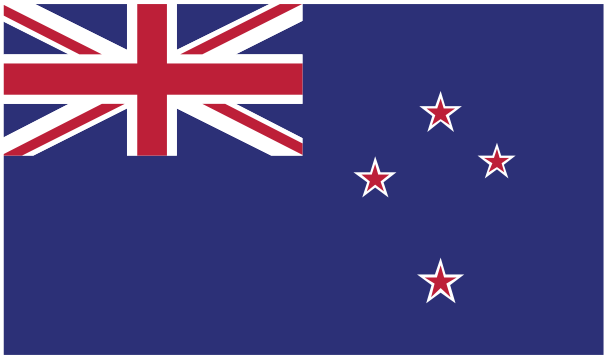
* **Factory lead-time product:** If the order code is in white this means that the product is not stocked in ABB Australia and is available on factory lead times. Please enquire with our customer service team regarding factory lead times as they vary depending on product group.

How to contact us – Australia

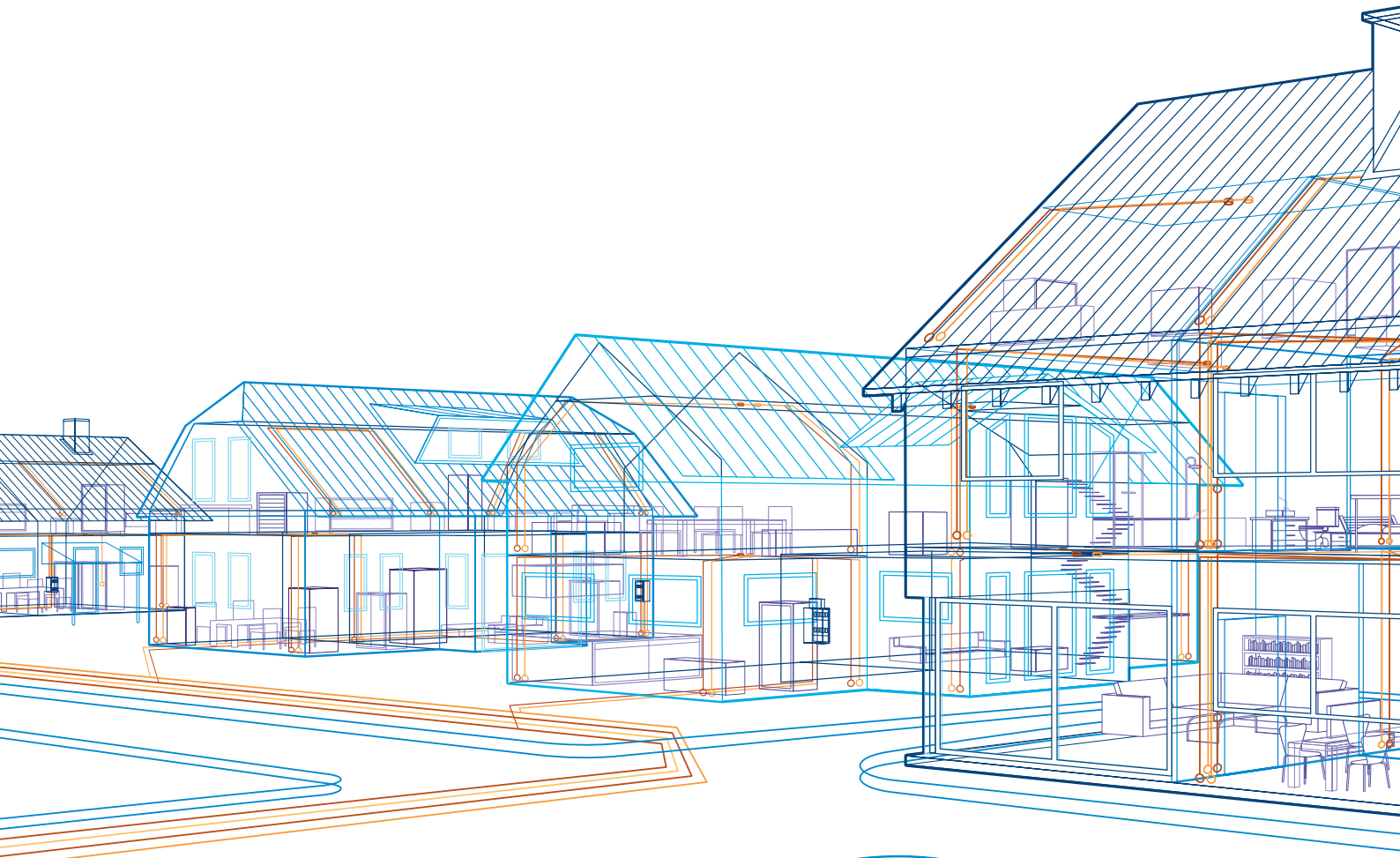


	cBOL Online www.online.abb.com	Phone 1800 602 020	Email abb.lvp.sales@au.abb.com	EDI	Web www.abbaustralia.com.au	Emergency 1800 222 435
Technical enquiries		✓	✓		✓	
Quotations / projects			✓			
Price & availability enquiries Our customer service team endeavour to answer your call without delay, however lines can be especially busy at peak times. Use cBOL for instant answers or speak to your local ABB representative today.	✓	✓				
Order placing	✓		✓			
LVP service			✓	✓		
Emergency number						✓
Contact availability	24/7	**Summer – Daylight savings time:** 8am – 7pm (AEDT) 7:30am – 6:30pm (ACDT) / 5am – 4pm (AWST) **Winter – Standard time:** 8am – 6pm (AEST) 7:30am - 5:30pm (ACST) / 6am – 4pm (AWST)			24/7	Outside standard working hours

How to contact us – New Zealand



	cBOL Online www.online.abb.com	**Phone** 0800 222 078	**Email** abb.lvp.sales@au.abb.com	**Web** www.abb.co.nz/lowvoltage	**Emergency** 0800 464 222
Technical enquiries		✓	✓	✓	
Quotations / projects			✓		
Price & availability enquiries Our customer service team endeavour to answer your call without delay, however lines can be especially busy at peak times. Use cBOL for instant answers or speak to your local ABB representative today.	✓	✓			
Order placing	✓		✓		
LVP service			✓		
Emergency number					✓
Contact availability	24/7	**New Zealand Customer Service operating hours:** 8:30am – 9pm (Monday to Friday)		24/7	Outside standard working hours



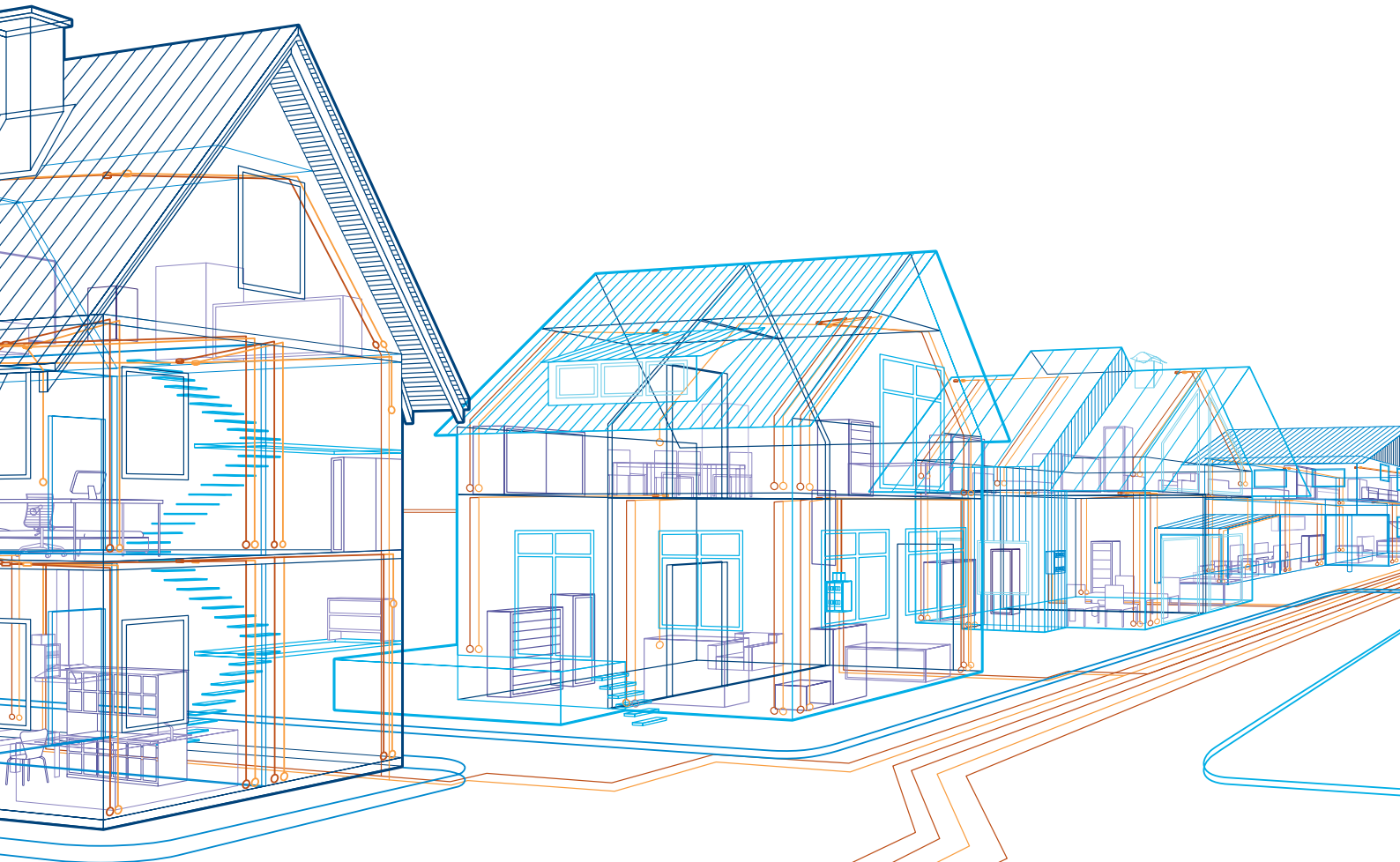
Living Space®
and Building Space®

1

ABB i-bus® KNX 9

ABB-free@home® 43

Welcome M 53



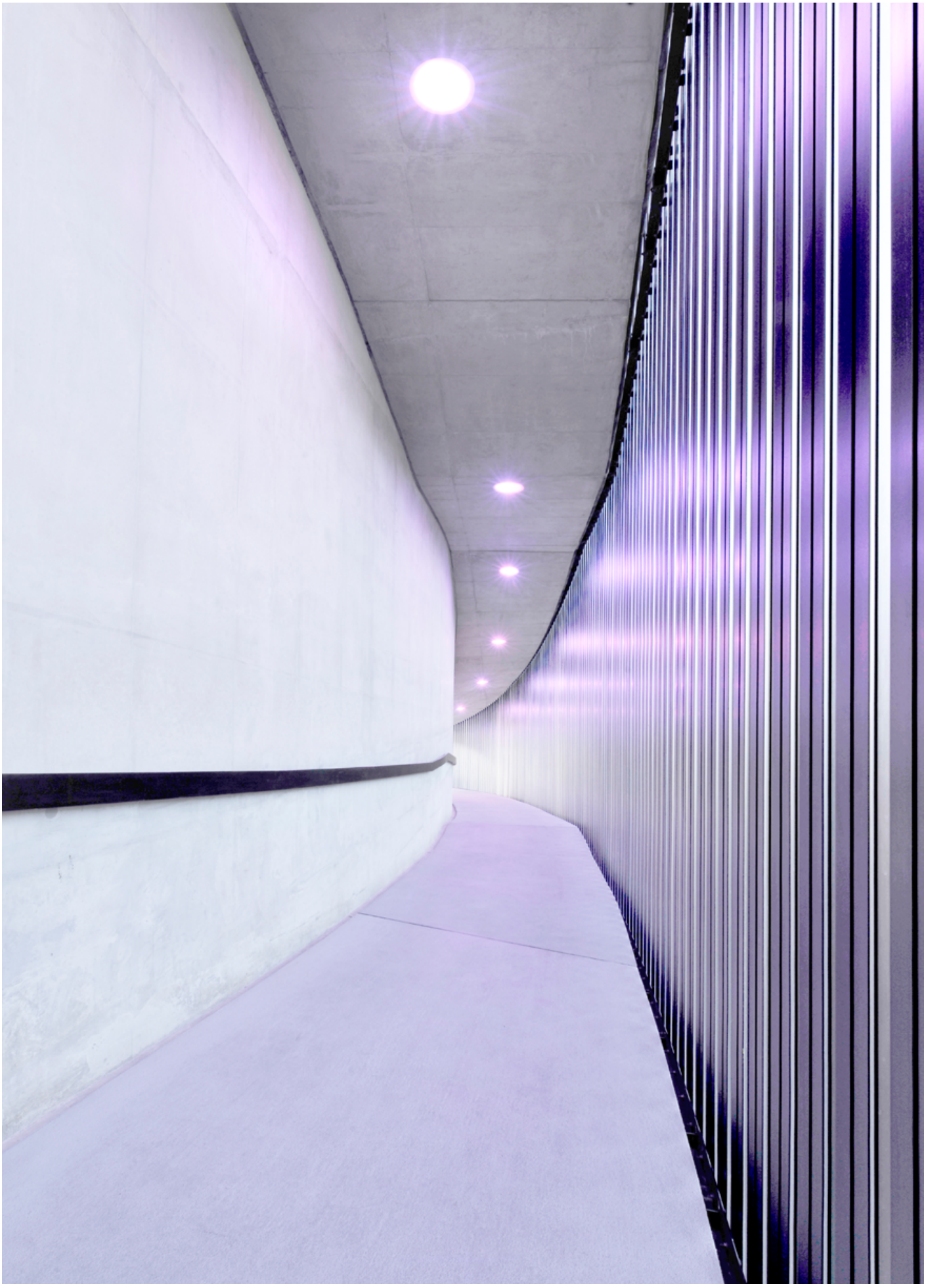


ABB i-bus® KNX

Overview 10

Power Supplies 12

System Components and Interfaces 14

Connection and Wiring 16

Room Automation 17
Room Controller Basis Devices 17
Room Controller Function Modules 18
Room Master 19
Flush-mounted Combined Devices 20
Inputs 20
Outputs 22

Shutters and Sun Protection 23

Illumination and Light Sensors 24
DALI 24

Heating and Cooling 27

Control, Logic and Time 29

Visualisation, Display and Signalling 30

Operation 31
Busch-priOn® 31
Busch-triton® 34
Push Button Coupling Unit 35
Room Temperature Controllers 36
Millenium 37
Zenit 38

Energy measurement 40

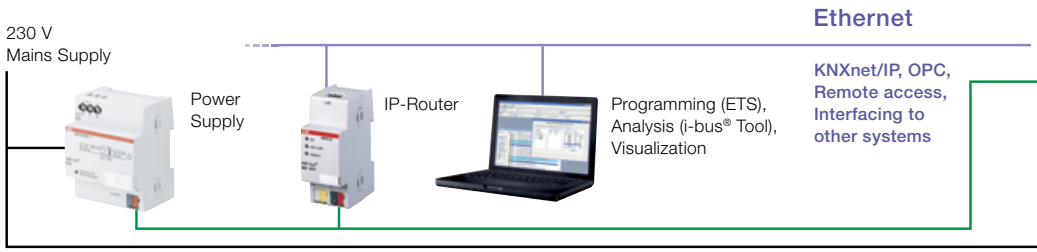
Security and Surveillance – Fault Monitoring and Data Logging 41

1

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

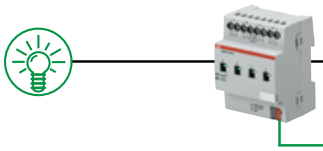
– Product Range Overview – 2CDC500098C0202

ABB i-bus® KNX
Overview



– Energy Meter with Meter Interface Module
– Energy Module

Switch energy with and without current detection

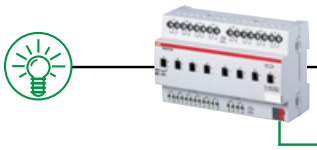


– Switch Actuator

Switch energy with energy measurement

– Energy Actuator

Switch, dim and control light

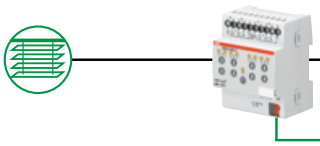


– Universal Dim Actuator
– Switch/Dim Actuator 1–10 V
– Light Controller

Digital lighting control by the use of DALI

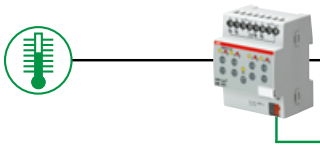
– DALI Gateway
– DALI Light Controller
– DALI Gateway with Emergency Lighting Control

Drive control of rolling shutters, blinds and ventilation fl aps with and without automatic travelling time detection



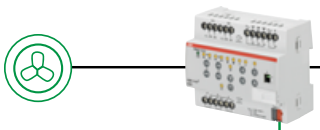
– Blind/Roller Shutter Actuator
– SMI Blind-/Roller Shutter Actuator

Heating/cooling by the control of valves

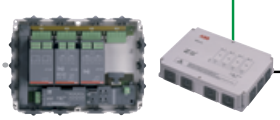


– Electronic Switch Actuator
– Valve Drive Actuator
– Electromotor Valve Drive

Ventilation/climatization



– Blower/Fan Coil Actuator
– Fan Coil Actuator and Controller



Room Controller with functional modules

Actuator functions

KNX-Main Line/TP

Line 1 2 3 4 ... ... 13 14 15

Power Supply

Line Coupler

– 64 devices/line
– 15 lines/area with superordinated main line
– max. 15 areas with superordinated area line

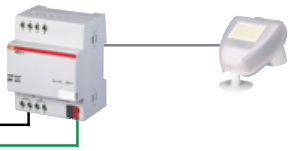
– Binary Input

Detect and evaluate switching commands

– Analogue Input

Capture, evaluate and monitor physical values

– Weather Station and Weather Sensor



Evaluate and monitor meteorological data (wind, temperature, rain, etc.)

Display operating conditions and control functions

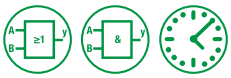
– Presence Detector
– Movement Sensor
– Light Sensor

Detect presence and movement

Measure brightness level

Lighting Control

– Logic Module
– Application Unit Logic
– Application Unit Time
– Time Switch

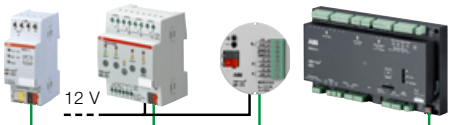


Perform logical operations and trigger timer-controlled functions

– Room Thermostat
– Air Quality Sensor

Capture, evaluate, monitor and control room conditions, temperature, air quality, etc.

– Security Terminal
– Security Module
– KNX Security Panel
– Fault Monitoring Unit
– Monitoring Unit
– Data Logging Unit



12 V

Security System

Monitor operating conditions, signal technical faults, recognize hazardsand trigger alarms

Room Master devices with different combinations of inputs and outputs and internal logical interconnection

Sensor functions

Solutions for rooms with sensor and actuator functions

ABB i-bus® KNX
Power Supplies

SV/S 30.160.1.1

Power Supply

Description	Module width	Order code
Power Supply, 160 mA, MDRC	4	SV/S30.160.1.1
Power Supply, 320 mA, MDRC	4	SV/S30.320.1.1
Power Supply, 640 mA, MDRC	4	SV/S30.640.3.1

SV/S 30.320.2.1

Power Supply with diagnostics

Description	Module width	Order code
Power Supply with diagnostics, 320 mA, MDRC	4	SV/S30.320.2.1
Power Supply with diagnostics, 640 mA, MDRC	4	SV/S30.640.5.1

SU/S 30.640.1

Uninterruptible Power Supply, 640 mA, MDRC

Description	Module width	Order code
Uninterruptible Power Supply, 640 mA, MDRC	8	SU/S30.640.1

AM/S 12.1

Battery Module, 12 V DC, MDRC

Description	Module width	Order code
Battery Module, 12 V DC, MDRC	8	AM/S12.1

KS/K 4.1

KS/K 2.1

Cable Sets

Description	Order code
Basic	KS/K4.1
Extension	KS/K2.1

STOCK INDENT

ABB i-bus® KNX
Power Supplies

SAK17, SAK12, SAK7

Sealed Lead Acid Batteries, 12 V DC

Description	Order code
7 Ah	SAK7
12 Ah	SAK12
17 Ah	SAK17

DR/S 4.1

Choke, MDRC

Description	Module width	Order code
Choke, MDRC	2	DR/S4.1

NTI/Z 28.30.1

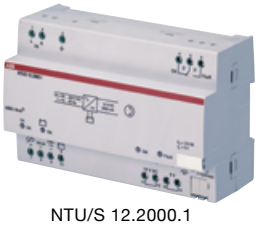
Commissioning Power Supply, 28 V DC, 30 mA

Description	Order code
Commissioning Power Supply, 28 V DC, 30 mA	NTI/Z28.30.1

NT/S 12.1600

Power Supply Units, MDRC

Description	Module width	Order code
12 V DC, 1,6 A	4	NT/S12.1600
24 V DC, 1,6 A	4	NT/S24.800



NTU/S 12.2000.1

Uninterruptible Power Supply, 640 mA, MDRC

Description	Module width	Order code
12 V DC, 2 A	8	NTU/S12.2000.1

ABB i-bus® KNX
System Components and Interfaces

LK/S 4.2

Line Coupler, MDRC

Description	Module width	Order code
Line Coupler, MDRC	2	LK/S4.2

IPR/S 2.1

IP Router, MDRC

Description	Module width	Order code
IP Router, MDRC	2	IPR/S2.1
	2	IPR/S3.1.1*

* New

IP Interface, MDRC

Description	Module width	Order code
IP Interface, MDRC	2	IPS/S2.1
	2	IPS/S3.1.1*

* New

ISM/S 5.1

IP Switch, Master, MDRC

Description	Module width	Order code
IP Switch, Master, MDRC	6	ISM/S5.1

ISS/S 5.1

IP Switch, Slave, MDRC

Description	Module width	Order code
IP Switch, Slave, MDRC	6	ISS/S5.1

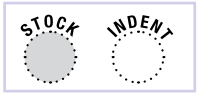


ABB i-bus® KNX
System Components and Interfaces

8186/03-500

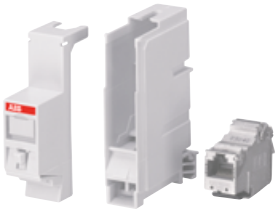
Patch Panel PoE 3gang, MDRC

Description	Order code
Patch Panel PoE 3gang, MDRC	8186/03-500

8186/04-500

Power supply PoE 48 V, DRA

Description	Order code
Power supply PoE 48 V, DRA	8186/04-500



IPM/S 1.1

IP Patch Module, MDRC

Description	Module width	Order code
IP Patch Module, MDRC	1	IPM/S1.1

USB/S 1.1

USB Interface, MDRC

Description	Module width	Order code
USB Interface, MDRC	2	USB/S1.1

LL/S 1.1

Optical Fibre Interface, MDRC

Description	Module width	Order code
Optical Fibre Interface, MDRC	4	LL/S1.1

ABB i-bus® KNX
Connection and Wiring

DSM/S 1.1

Diagnosis and Protection Module, MDRC

Description	Module width	Order code
Diagnosis and Protection Module, MDRC	2	DSM/S1.1

VB/K ...

Wiring Jumpers

Description	Module width	Order code
Horizontal, 100 mm	2	VB/K100.1
Horizontal, 200 mm	4	VB/K200.1
Vertical, 270 mm	–	VB/K270.1
Vertical, 360 mm	–	VB/K360.1

PS 1/4/6-KNX

PS-END 1-S

Busbars

Description	Order code
1 Phase, 4 contacts	PS1/4/6-KNX
1 Phase, 60 contacts	PS1/60/6-KNX
End cap	PS-END1-S

US/E 1

Connection terminals

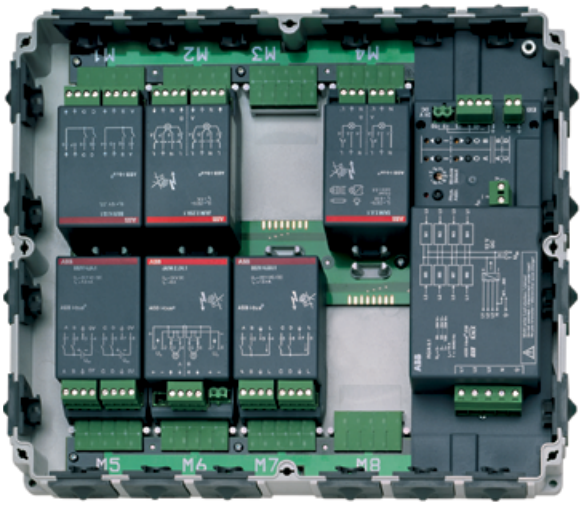
Description	Order code
Black/red	BUSKLEMME
White/yellow	KLEMME
With surge protector	US/E1

KNX cable

Description	Order code
100m roll	KNXCABLE(100m)
500m drum	KNXCABLE(500m)

STOCK INDENT

ABB i-bus® KNX
Room Automation – Room Controller Basis Devices



Configuration example
RC/A 8.2

Room Controller

The Room Controller controls all the functions in the room as a central device. Due to its modular design, it can be adapted flexibly to the required functionality.
On-site installation enables short assembly and commissioning times. A structured cable entry creates clarity and flexibility for changes in function – both during planning and operation.

RC/A 4.2

Special features

- Height 50 mm: optimised for underfloor installation or suspended ceilings
- Room Controller counts as just one bus device
- Robust housing, IP 54 degree of protection
- Manual operation for immediate testing – even without bus voltage
- Comprehensive software functionality

RC/A 8.2

Room Controller

Description	Order code
Basis Device for 4 Modules, SM	RC/A4.2
Basis Device for 8 Modules, SM	RC/A8.2

Please note: With the new DALI Light Controller 4-fold, SM DLR/A 4.8.1.1 the DALI Lighting Control can be integrated in a decentralised KNX installation too! Further information about DLR/A 4.8.1.1 on page 24.

ABB i-bus® KNX
Room Automation – Room Controller Function Modules

BE/M 4.230.1

Binary Input Modules, 4-fold

Description	Order code
230 V	BE/M4.230.1
12/24 V	BE/M4.24.1
Contact scanning	BE/M4.12.1

SA/M 2.6.1

SA/M 2.16.1

Switch Actuator Module

Description	Order code
Switch Actuator Module, 2-fold, 6 A	SA/M2.6.1
Switch Actuator Module, 2-fold, 16 A, floating contacts	SA/M2.16.1

JA/M 2.230.1

Shutter Actuator Modules, 2-fold

Description	Order code
230 V AC	JA/M2.230.1
24 V DC	JA/M2.24.1

SD/M 2.6.2

Switch/Dim Actuator Module, 2-fold, 6 AX

Description	Order code
Switch/Dim Actuator Module, 2-fold, 6 AX	SD/M2.6.2

LR/M 1.6.2

Light Controller Module, 1-fold, 6 AX

Description	Order code
Light Controller Module, 1-fold, 6 AX	LR/M1.6.2

UD/M 1.300.1

Universal Dim Actuator Module, 1-fold, 300 VA

Description	Order code
Universal Dim Actuator Module, 1-fold, 300 VA	VD/M1.300.1

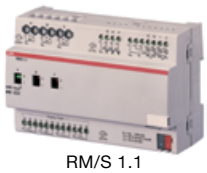
ES/M 2.230.1

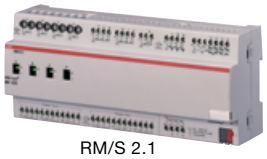
Electronic Switch Actuator Module, 2-fold

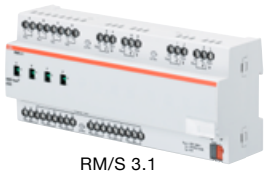
Description	Order code
115/230 V	ES/M2.230.1
24 V	ES/M2.24.1

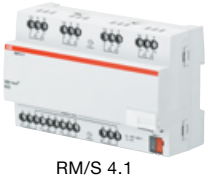
STOCK INDENT

ABB i-bus® KNX
Room Automation – Room Master


RM/S 1.1


RM/S 2.1


RM/S 3.1


RM/S 4.1

Overview of the inputs and outputs

	RM/S 1.1	RM/S 2.1	RM/S 3.1	RM/S 4.1	Application possibilities
Binary inputs via contact scanning	8	18	12	8	For connection of switches or push-buttons (light on/off, shutter up/down,etc.) or sensors (window contacts, door contacts, water sensors, condensation water sensors, hotel acrd readers, etc.)
Outputs 20 A (16 AX)	1	3	4	–	Bathroom fan, switching of electrical sockets
Outputs 16 A (10 AX)	2	1	–	–	Auxiliary electrical heating of fan-coil units (at RM/S 1.1 and 2.1), lighting
Outputs 6 A	3	12	–	8	3-speed fan control (at RM/S 1.1 and 2.1), lighting
Outputs 0.5 A electronic	4	4	–	–	Valve control (heating, cooling)
Outputs 6 A changeover contact	–	1	4 (configurable as switch outputs too)	–	Blind or roller blind control

- RM/S 1.1 and RM/S 2.1 are preprogrammed ex factory
- RM/S 3.1 and RM/S 4.1 are programmable with predefined and tested example projects (ETS 4) for different fields of application (office, schools, hotel rooms, ...)
- Commissioning of the preprogrammed devices on the construction site without notebook and ETS programming. With the electrical connection all room functions are available.
- Optional functional extensions via integration into KNX networks with ETS software.

Further information about Room Master on www.abb.com/knx

Room Master RM/S x.1

Description	Module width	Order code
Inputs, Outputs, Fan Coil	8	RM/S1.1
Inputs, Outputs, Blind Control, Fan Coil	12	RM/S2.1
Inputs, Outputs, Blind Control or Outputs	12	RM/S3.1
Inputs, Outputs	8	RM/S4.1

6173/11 U-500

6151/11 U-500

6152/11 U-500

6164/11 U-500

Flush-mounted Combined Devices

Actuators

Description	Order code
Flush-mounted combined actuator	6173/11U-500
Switch actuator, 16 A	6151/11U-500
Blind actuator	6152/11U-500
Heating actuator	6164/11U-500

BE/S 8.230.2.1

Inputs

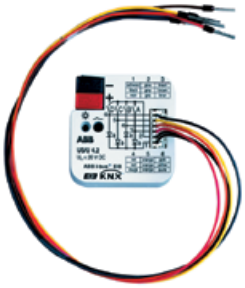
Binary Inputs, 10 – 230 V AC/DC, MDRC

Description	Module width	Order code
4-fold	2	BE/S4.230.2.1
8-fold	4	BE/S8.230.2.1

BE/S 4.20.2.1

Binary Inputs, Contact Scanning, MDRC

Description	Module width	Order code
4-fold	2	BE/S4.20.2.1
8-fold	4	BE/S8.20.2.1


US/U 4.2

Universal Interface, FM

Description	Order code
US/U 2.2	US/U2.2
US/U 4.2	US/U4.2
US/U 12.2	US/U12.2

STOCK INDENT

ABB i-bus® KNX
Inputs

AE/S 4.1.1.3

Analogue Input, 4-fold, MDRC

Description	Module width	Order code
4-fold, MDRC	4	AE/S4.1.1.3

AE/A 2.1

Analogue Input, 2-fold, SM

Description	Module width	Order code
2-fold, SM	4	AE/A2.1

WZ/S 1.3.1.2

WES/A 3.1

Weather Unit, MDRC and Weather Sensor, SM

Description	Module width	Order code
Weather Unit	4	WZ/S1.3.1.2
Weather Sensor	–	WES/A3.1

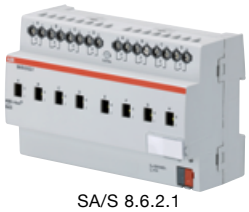
WS/S 4.1.1.2

Weather Station, 4-fold, MDRC

Description	Module width	Order code
Weather Station, 4-fold, MDRC	4	WS/S4.1.1.2

ABB i-bus® KNX
Outputs

SA/S 8.6.1.1


SA/S 8.6.2.1

SA/S 4.10.2.1

Switch Actuators

Description	Type	Module width	Order code
6 A, MDRC	4-fold	4	SA/S4.6.1.1
	8-fold	6	SA/S8.6.1.1
	12-fold	8	SA/S12.6.1.1
6 A, MDRC, Manual Operation	2-fold	2	SA/S2.6.2.1
	4-fold	4	SA/S4.6.2.1
	8-fold	8	SA/S8.6.2.1
	12-fold	12	SA/S12.6.2.1
10 AX, MDRC, Manual Operation	2-fold	2	SA/S2.10.2.1
	4-fold	4	SA/S4.10.2.1
	8-fold	8	SA/S8.10.2.1
	12-fold	12	SA/S12.10.2.1
16 AC1, MDRC, Manual Operation	2-fold	2	SA/S2.16.2.1
	4-fold	4	SA/S4.16.2.1
	8-fold	8	SA/S8.16.2.1
	12-fold	12	SA/S12.16.2.1
16/20 AX, C-Load, MDRC, Manual Operation	2-fold	2	SA/S2.16.5.1
	4-fold	4	SA/S4.16.5.1
	8-fold	8	SA/S8.16.5.1
	12-fold	12	SA/S12.16.5.1

SA/S 8.16.6.1

Switch Actuator with Current Detection, 16/20 AX, C-Load

Description	Module width	Order code
2-fold	2	SA/S2.16.6.1
4-fold	4	SA/S4.16.6.1
8-fold	8	SA/S8.16.6.1
12-fold	12	SA/S12.16.6.1

IO/S 4.6.1.1

I/O Actuator, 6 A, MDRC

Description	Module width	Order code
4-fold	4	IO/S4.6.1.1
8-fold	8	IO/S8.6.1.1

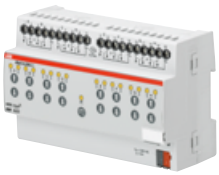
AA/S 4.1

Analogue Actuator, 4-fold and Analogue Actuator Module, 4-fold, MDRC

Description	Module width	Order code
Analogue Actuator, 4-fold	4	AA/S4.1
Analogue Actuator Module, 4-fold, MDRC	4	AAM/S4.1

STOCK INDENT

ABB i-bus® KNX
Shutters and Sun Protection


JRA/S 8.230.5.1

JRA/S 4.24.5.1

Blind/Roller Shutter Actuator with Travel Detection and Manual Operation

Description	Type	Module width	Order code
230 V AC, MDRC	2-fold	4	JRA/S2.230.5.1
	4-fold	4	JRA/S4.230.5.1
	8-fold	8	JRA/S8.230.5.1
4-fold, 24 V DC, MDRC		4	JRA/S4.24.5.1

JRA/S 2.230.2.1

Blind/Roller Shutter Actuator with Manual Operation, 230 V AC, MDRC

Description	Module width	Order code
2-fold	4	JRA/S2.230.2.1
4-fold	4	JRA/S4.230.2.1
8-fold	8	JRA/S8.230.2.1

JRA/S 2.230.1.1

Blind/Roller Shutter Actuator, 230 V AC, MDRC

Description	Module width	Order code
2-fold	4	JRA/S2.230.1.1
4-fold	4	JRA/S4.230.1.1
8-fold	8	JRA/S8.230.1.1

SJR/S 4.24.2.1

SMI Shutter Actuators

Description	Module width	Order code
SMI Shutter Actuator with Manual Operation, 4-fold, MDRC	4	JA/S4.SMI.1M
SMI Blind/Roller Shutter Actuator, 4-fold, LoVo, MDRC	4	SJR/S4.24.2.1

JSB/S 1.1

Shutter Control Unit, MDRC

Description	Module width	Order code
Shutter Control Unit, MDRC	2	JSB/S1.1

ABB i-bus® KNX
Illumination and Light Sensors – DALI

DG/S 8.1

DALI Gateway

Description	Module width	Order code
8-fold, MDRC	6	DG/S8.1
1-fold, MDRC	4	DG/S1.1
1-fold, Group Control, MDRC	4	DG/S1.16.1

DGN/S 1.16.1

DALI-Gateway with Emergency Lighting Control, 1-fold, Group Control, MDRC

Description	Module width	Order code
DALI-Gateway with Emergency Lighting Control, 1-fold, Group Control, MDRC	4	DGN/S1.16.1

DLR/S 8.16.1M

DLR/A 4.8.1.1

DALI Light Controller

Description	Module width	Order code
8-fold, MDRC	6	DLR/S8.16.1M
4-fold, SM	–	DLR/A4.8.1.1

DSA/S 2.16.1

DALI Switch Actuator, 2-fold, 16 AX, C-load, MDRC

Description	Order code
DALI Switch Actuator, 2-fold, 16 AX, C-load, MDRC	DSA/S2.16.1

STOCK INDENT

ABB i-bus® KNX
Illumination and Light Sensors

LR/S 4.16.1

Light Controller, 16 A, MDRC

Description	Module width	Order code
2-fold	4	LR/S2.16.1
4-fold	6	LR/S4.16.1

LF/U 2.1

Light Sensor, FM

Description	Order code
Light Sensor, FM	LF/U2.1

SD/S x.16.1

Switch/Dim Actuator, 16 A, MDRC

Description	Module width	Order code
2-fold	4	SD/S2.16.1
4-fold	6	SD/S4.16.1
8-fold	8	SD/S8.16.1

UD/S 2.300.2

6197/13-101-500

Universal Dim Actuators

Description	Module width	Order code
2-fold, 300 W, MDRC	4	UD/S2.300.2
4-fold, 210 W, MDRC	8	6197/12-101-500
4-fold, 315 W, MDRC	8	6197/13-101-500
6-fold, 315 W, MDRC	12	6197/14-101-500
4-fold, 600 W, MDRC	12	6197/15-101-500
1-fold, 1.260 W, MDRC	12	6197/52-101-500
1-fold, 2.400 W, MDRC	12	6197/53-101-500

HS/S 4.2.1

Interface for Outside Light Sensor, MDRC

Description	Order code
Interface for Outside Light Sensor, MDRC	HS/S4.2.1

LFO/A 1.1

Outside Light Sensor

Description	Order code
Outside Light Sensor	LFO/A1.1

STOCK INDENT

ABB i-bus® KNX
Illumination and Light Sensors

6131/20-24-500

Busch-Presence detectors

Description	Type	Order code
Mini KNX, 8 meter	Alpine white	6131/20-24-500
	Aluminium silver	6131/20-183-500
Mini premium KNX, 8 meter	Alpine white	6131/21-24-500
	Aluminium silver	6131/21-183-500
KNX, 12 meter	Alpine white	6131/30-24-500
	Aluminium silver	6131/30-183-500
Premium KNX, 12 meter	Alpine white	6131/31-24-500
	Aluminium silver	6131/31-183-500

6131/40-24-500

Busch-Watchdog Sky KNX

Description	Type	Order code
24 meter	Alpine white	6131/40-24-500

6131/29-24-500

6131/39-24-500

Surface-mounting box

Description	Type	Order code
Dimensions: (L x W x D): 80 mm x 80 mm x 35 mm	Alpine white	6131/29-24-500
	Aluminium silver	6131/29-183-500
Dimensions: (L x W x D): 91 mm x 91 mm x 33 mm	Alpine white	6131/39-24-500
	Aluminium silver	6131/39-183-500

6179/01-204-500

Busch-Watchdog

Description	Type	Order code
220 MasterLINE KNX	White	6179/01-204-500
	Silver metallic	6179/01-208-500
220 MasterLINE KNX premium	White	6179/02-204-500
	Silver metallic	6179/02-208-500

6179-500

IR Remote Control KNX

Description	Type	Order code
IR Remote Control KNX	Grey / anthracite	6179-500

STOCK INDENT

ES/S 4.1.2.1

Electronic Switch Actuator, 4-fold, 1 A, MDRC

Description	Module width	Order code
4-fold	4	ES/S4.1.2.1
8-fold	8	ES/S8.1.2.1

VAA/S 6.230.2.1

VAA/A 6.24.1

Valve Drive Actuators

Description	Type	Module width	Order code
230 V, MDRC	6-fold	4	VAA/S6.230.2.1
	12-fold	8	VAA/S12.230.2.1
6-fold, 24 V, SM	–	–	VAA/A6.24.1

FCL/S 1.6.1.1

FCL/S 2.6.1.1

Blower Actuator, 6 A, MDRC

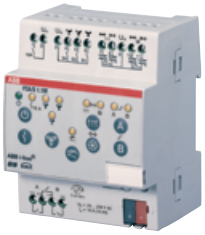
Description	Module width	Order code
1-fold	4	FCL/S1.6.1.1
2-fold	6	FCL/S2.6.1.1

6138/11-84-500

Room Thermostat Fan Coil with Display, SM

Description	Order code
Alpine white	6138/11-84-500
Aluminium silver	6138/11-83-500

STOCK INDENT



FCA/S 1.1M

Fan Coil Actuator, MDRC

Description	Module width	Order code
For thermoelectric or motor-driven valve drives	4	FCA/S1.1M
For 0...10 V valve drives	6	FCA/S1.2.2.1

FC/S 1.1

Fan Coil Controller, MDRC

Description	Module width	Order code
Fan Coil Controller, MDRC	6	FC/S1.1
Temperature Sensor for FC/S 1.1	–	TS/K1.1

LGS/A 1.1

Air Quality Sensor, SM

Description	Order code
Air Quality Sensor, SM	LGS/A1.1

ST/K 1.1

Electromotor Valve Drive

Description	Order code
Electromotor Valve Drive	ST/K1.1

TSA/K 230.1

Electromotor Valve Drive

Description	Order code
230 V	TSA/K230.1
24 V	TSA/K24.1
Valve Adapter for valves from Dumser, Chronatherm, Vescal, KaMo	VA/Z10.1
Valve Adapter for valves from Honeywell, Reich, Cazzaniga, Landis & Gyr. MNG	VA/Z50.1
Valve Adapter for valves from Danfoss RA	VA/Z78.1
Valve Adapter for valves from Heimeier, Herb, Onda, Schlösser (ab 93), Oventrop	VA/Z80.1

STOCK INDENT

ABB i-bus® KNX
Control, Logic and Time

LM/S 1.1

Logic Module, MDRC

Description	Module width	Order code
Logic Module, MDRC	2	LM/S1.1

ABL/S 2.1

ABZ/S 2.1

Application Unit

Description	Module width	Order code
Logic, MDRC	2	ABL/S2.1
Time, MDRC	2	ABZ/S2.1

FW/S 8.2.1

Radio Time Switch , 8-channel, MDRC

Description	Module width	Order code
Radio Time Switch , 8-channel, MDRC	3	FW/S8.2.1

PS/E 2.1

Programming Set OBELISK top2 for Radio Time Switch

Description	Order code
Programming Set OBELISK top2 for Radio Time Switch	PS/E2.1

PK/E 2.1

Memory Card OBELISK top2

Description	Order code
Memory Card OBELISK top2	PK/E2.1

UK/S 32.2

Universal I/O Concentrator, 32-fold, MDRC

Description	Module width	Order code
Universal I/O Concentrator, 32-fold, MDRC	4	UK/S32.2

ABB i-bus® KNX
Visualisation, Display and Signalling

8136/09-811-500

8136/12-811-500

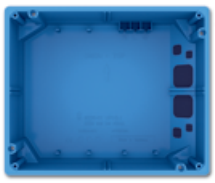
Busch-ComfortTouch®

Description	Type	Order code
9"	White glass	8136/09-811-500
	Black	8136/09-825-500
12.1"	White glass	8136/12-811-500
	Black	8136/12-825-500

6186/01 UP-500

Power adapter module for Busch ComfortTouch

Description	Order code
Power adapter module ABB i-bus® KNX	6186/01UP-500


8136/01 UP-500

Flush-mounted installation box

Description	Order code
Flush-mounted installation box	8136/01UP-500

6136/100 C-102-500

Controlpanel SMARTtouch

Description	Order code
SMARTtouch, colour (210 functions)	6136/100C-102-500
Bang & Olufsen, colour (210 functions)	6136/100CB-102

6136/15-500

Design Frame for SMARTtouch

Description	Order code
Dark glass with flap in chrome	6136/10-500
Dark glass with flap in aluminium	6136/11-500
White glass, satin finish with flap in aluminium	6136/15-500

STOCK INDENT

ABB i-bus® KNX
Operation – Busch-priOn®

6120/12-101-500

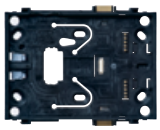
Bus Coupler, FM

Description	Order code
Bus Coupler, FM	6120/12-101-500

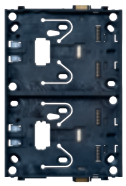
6120/13-500

Power Bus Coupler, FM, Busch-priOn®

Description	Order code
Power Bus Coupler, FM, Busch-priOn®	6120/13-500



6346/10-101-500



6346/11-101-500

Base Frame, Busch-priOn®

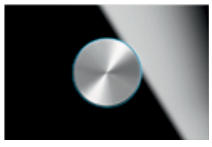
Description	Order code
1-fold	6346/10-101-500
2-fold	6346/11-101-500
3-fold	6346/12-101-500

6340-825-101-500

6342-825-101-500

Control Element, Busch-priOn®

Description	Type	Order code
1-fold	Studio white, high gloss	6340-24G-101-500
	White glass	6340-811-101-500
	Glass black	6340-825-101-500
	Stainless steel	6340-866-101-500
3-fold	Studio white, high gloss	6342-24G-101-500
	White glass	6342-811-101-500
	Glass black	6342-825-101-500
	Stainless steel	6342-866-101-500



6341-825-101-500

Rotary Control Element, 1-fold, Busch-priOn®

Description		Order code
1-fold	Studio white, high gloss	6341-24G-101-500
	White glass	6341-811-101-500
	Glass black	6341-825-101-500
	Stainless steel	6341-866-101-500

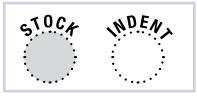


ABB i-bus® KNX
Operation – Busch-priOn®

6344-825-101-500

8.89 cm (3.5”) TFT Colour Display with Rotary Control Element, Busch-priOn®

Description	Order code
Studio white, high gloss	6344-24G-101-500
White glass	6344-811-101-500
Glass black	6344-825-101-500
Stainless steel	6344-866-101-500

6345-825-101-500

Busch watchdog® 180 fm sensor, busch-prion®

Description	Order code
Studio white, high gloss	6345-24G-101-500
White glass	6345-811-101-500
Glass black	6345-825-101-500
Stainless steel	6345-866-101-500

6348-825-101-500

Top end strip, busch-prion®

Description	Order code
Studio white, high gloss	6348-24G-101-500
White glass	6348-811-101-500
Glass black	6348-825-101-500
Stainless steel	6348-866-101-500

6350-825-101-500

Top end strip with ir receiver and proximity sensor, busch-prion®

Description	Order code
Glass black	6350-825-101-500

6349-825-101-500

Top end strip with ir receiver and proximity sensor, busch-prion®

Description	Order code
Studio white, high gloss	6349-24G-101-500
White glass	6349-811-101-500
Glass black	6349-825-101-500
Stainless steel	6349-860-101-500

STOCK INDENT

ABB i-bus® KNX
Operation – Busch-priOn®

6352-825-101-500

Bottom End Strip with Temperature Sensor, Busch-priOn®

Description	Order code
Studio white, high gloss	6352-24G-101-500
White glass	6352-811-101-500
Glass black	6352-825-101-500
Stainless steel	6352-860-101-500

6351-825-101-500

Top end strip with display, room thermostat, ir receiver and proximity sensor, busch-prion®

Description	Order code
Glass black	6351-825-101-500

6353/20-860-500

Inscription symbols, busch-prion®

Description	Order code
Lighting	6353/20-860-500
Blind	6353/30-860-500
Room temperature	6353/40-860-500
Scene	6353/50-860-500

6149/21-500

Commissioning Interface / Adapter

Description	Order code
Commissioning Interface / Adapter	6149/21-500

CP-D 24/2.5

Power Supply, 24 V, 2.5 A, MDRC

Description	Order code
Power Supply, 24 V, 2.5 A, MDRC	CP-D24/2.5

STOCK INDENT

ABB i-bus® KNX
Operation – Busch-triton®

6320/10-24G-500

Busch-triton® Control Element, 1/2-fold, FM

Description	Type	Order code
Alpha	Platinum	6320/10-20-500
	Studio white,high gloss	6320/10-24G-500
	Palladium	6320/10-260-500
Impuls	Champagne metallic	6320/10-79-500
future® linear	Aluminium silver	6320/10-83-500

6320/30-24G-500

Busch-triton® Control Element, 3/6-fold, FM

Description	Type	Order code
Alpha	Platinum	6320/30-20-500
	Studio white,high gloss	6320/30-24G-500
	Palladium	6320/30-260-500
Impuls	Champagne metallic	6320/30-79-500
future® linear	Aluminium silver	6320/30-83-500

6320/50-24G-500

Busch-triton® Control Element, 5/10-fold, FM

Description	Type	Order code
Alpha	Platinum	6320/50-20-500
	Studio white,high gloss	6320/50-24G-500
	Palladium	6320/50-260-500
Impuls	Champagne metallic	6320/50-79-500
future® linear	Aluminium silver	6320/50-83-500

6320/38-24G-500

Busch-triton® Control Element with Room Thermostat and 3/6-fold Switch Sensor, FM

Description	Type	Order code
Alpha	Platinum	6320/38-20-500
	Studio white,high gloss	6320/38-24G-500
	Palladium	6320/38-260-500
Impuls	Champagne metallic	6320/38-79-500
future® linear	Aluminium silver	6320/38-83-500

6320/58-24G-500

Busch-triton® Control Element with Room Thermostat and 5/10-fold Switch Sensor, FM

Description	Type	Order code
Alpha	Platinum	6320/58-20-500
	Studio white,high gloss	6320/58-24G-500
	Palladium	6320/58-260-500
Impuls	Champagne metallic	6320/58-79-500
future® linear	Aluminium silver	6320/58-83-500

6010-25-500

Infra-Red Hand Held Transmitter

Description	Order code
Infra-Red Hand Held Transmitter	6010-25-500

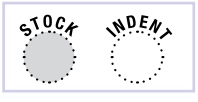
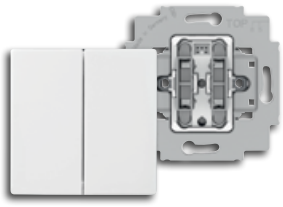


ABB i-bus® KNX
Operation – Push Button Coupling Unit

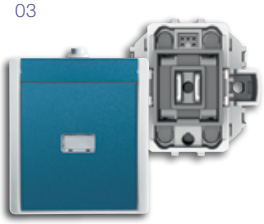
The push-button coupling unit with a centre position offers maximum flexibility. Installed in a flush-mounted wall box, it accepts switch rockers from conventional switch ranges* like a completely standard flush-mounted insert. Covers from all conventional ranges can now be used for KNX. This offers maximum freedom in the selection of the switch range and makes retrofitting easier.

01

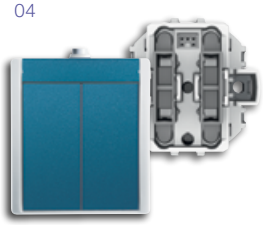
02



03



04



Features

- Easy mounting and commissioning
- All flush-mounted switch ranges* can be used for the ABB i-bus® KNX
- Affordable solution for renovations
- Status/orientation light (red/green/OFF) (only with 1gang push-button/switches)
- Integration in surface-mounted water protected units

01 Push-button coupler 1/2gang with integrated bus coupler

02 Push-button coupler 2/4gang with integrated bus coupler

03 Push-button coupler 1/2gang for ocean with integrated bus coupler

04 Push-button coupler 2/4gang for ocean with integrated bus coupler

Design without limits. The push-button coupling unit includes the complete range* of switches for KNX. Switch rockers from all switch ranges can now be converted to KNX push buttons, which not only switch on and off but also dim or show the status with an LED (6108/01 and 6108/04 only). 1gang and 2gang models for single and 2gang switch rockers are available.

KNX – water protected

The push-button coupling unit also allows special products to be used for KNX. Special models for water-protected installation allow covers from, for example, the ocean® surface-mounted range to be used. This means that KNX sensors can also be safely installed in a cellar, outside on a patio or in commercial applications.
Temperature range: -25 °C to 45 °C

*except impuls, basic55® and All Weather 44 Busch Jaeger switch ranges only available for selected markets. For further information please contact your local ABB office.

ABB i-bus® KNX
Operation – Push Button Coupling Unit and Room Temperature Controller

Push Button Coupling Units

6108/01-500

6108/04-500

KNX Switch Connection Units

Description	Type	Order code
KNX Switch Connection Unit, FM	1/2-fold	6108/01-500
	2/4-fold	6108/02-500
KNX Switch Connection Unit for design ocean® (IP44), FM	1/2-fold	6108/04-500
	2/4-fold	6108/05-500

*All available switch rockers and additional information about Busch-Jaeger design ranges under www.busch-jaeger.com

6108/03-500

Room Temperature Controllers

Room Temperature Controller, Commercial, FM

Description	Order code
Room Temperature Controller, Commercial, FM	6108/03-500

Cover Plate for Room Temperature Controller, Commercial

6541-84

6541-24

2114-212

Description	Type	Order code
future® linear	Anthracite	6541-81
	Savanna/ivory	6541-82
	Aluminium silver [1]	6541-83
	Davos/studio white	6541-84
	Studio white, matt [1]	6541-884
	Black matt [1]	6541-885
solo®	Savanna/ivory	6541-82
	Davos/studio white	6541-84
	Meteor/grey metallic [1]	6541-803
	Sahara/yellow	6541-815
Carat	Anthracite	6541-81
	Savanna/ivory	6541-82
	Davos/studio white	6541-84
Pure stainless steel [1]	Pure stainless steel	6541-866
Busch-axcent®	Davos/studio white	6541-84
	Chalet-white	6541-896
Alpha	Ivory	6541-22G
	Studio white, matt	6541-24
	Studio white, high gloss	6541-24G
	Platinum [2]	6541-20
	Bronze [2]	6541-21
	Palladium [2]	6541-260
	Titanium [2]	6541-266
Impuls	Alpine white	6541-74
	Champagne metallic	6541-79
	Ivory	6541-72
	Studio white matt [1]	6541-774
	Black matt [1]	6541-775
	Blackberry [1]	6541-777
	Aluminium silver [1]	6541-783
Busch-Duro 2000 SI	White (si-series)	2114-212
Reflex SI	Alpine white (si-series)	2114-214-500

1) Surface painted
2) Real metal surface

STOCK INDENT

ABB i-bus® KNX
Operation – Millenium

6125/20-981-500

6126/20-981-500

Sensors

Description	Order code
2-fold sensor	6125/20-981-500
4-fold sensor	6126/20-981-500
6-fold sensor	6129/20-981-500
6-fold sensor with IR	6129/21-981-500

6122/20-981-500

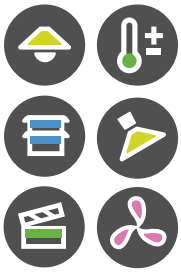
Watchdog 180 flush mounted

Description	Order code
Watchdog 180 flush mounted	6122/20-981-500

6124/20-981-500

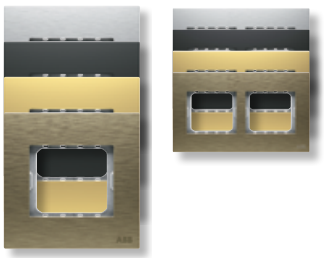
Room thermostat heating/cooling Fan Coil

Description	Order code
Room thermostat heating/cooling Fan Coil	6124/20-981-500



Buttons with symbols

Description	Order code
Ceiling light symbol	6123/20-500
Blinds symbol	6123/21-500
Scene symbol	6123/22-500
Temperature symbol	6123/23-500
Light symbol	6123/24-500
Fan Coil symbol	6123/26-500



Sensor frames

Description	Type	Order code
1 gang	Stainless steel	AMD5153-ST
	Silk black	AMD5153-SB
	Matt gold	AMD5153-MG
	Antique gold	AMD5153-AG
2 gang	Stainless steel	AMD5253-ST
	Silk black	AMD5253-SB
	Matt gold	AMD5253-MG
	Antique gold	AMD5253-AG

AMD5053

Special metal mounting plate for KNX sensors

Description	Order code
Special metal mounting plate for KNX sensors 1 gang	AMD5053

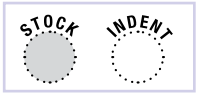


ABB i-bus® KNX
Operation – Zenit

6125/98-509

6126/98-509

6129/96-509

6129/98-509

Fold sensor

Description	Order code
1/2-Fold sensor	6125/98-509
2/4 -Fold sensor	6126/98-509
3/6 -Fold sensor	6129/96-509
3/6 -Fold sensor with IR	6129/98-509

N2221.2

N2221.4

N2221.6

N2221.7

Cover Zenit

Description	Type	Order code
Cover Zenit 1/2 fold	White	N2221.2 BL
	Anthracite	N2221.2 AN
	Silver	N2221.2 PL
Cover Zenit 2/4 fold	White	N2221.4 BL
	Anthracite	N2221.4 AN
	Silver	N2221.4 PL
Cover Zenit 3/6 fold	White	N2221.6 BL
	Anthracite	N2221.6 AN
	Silver	N2221.6 PL
Cover Zenit 3/6 fold with IR	White	N2221.7 BL
	Anthracite	N2221.7 AN
	Silver	N2221.7 PL

6124/98-509

Room thermostat heating / cooling Fan Coil

Description	Order code
Room thermostat heating / cooling Fan Coil	6124/98-509

N2240.4

Cover Zenit room thermostat

Description	Type	Order code
Cover Zenit RTC	White	N2240.4 BL
	Anthracite	N2240.4 AN
	Silver	N2240.4 PL

6122/98-509

Watchdog 180 flush mounted

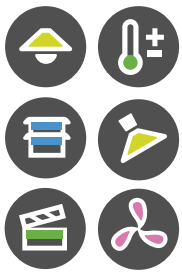
Description	Order code
Watchdog 180 flush mounted	6122/98-509

N2241.4

Cover Zenit watchdog

Description	Type	Order code
Cover Zenit watchdog	White	N2241.4 BL
	Anthracite	N2241.4 AN
	Silver	N2241.4 PL

STOCK INDENT



Buttons with symbols

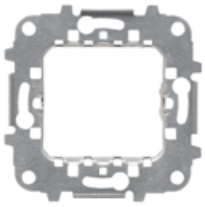
Description	Order code
Ceiling light symbol	6123/20-500
Blinds symbol	6123/21-500
Scene symbol	6123/22-500
Temperature symbol	6123/23-500
Light symbol	6123/24-500
Fan Coil symbol	6123/26-500

N2271 XX

Frames, Zenit VDE

Description	Order code
1 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	N2271 XX
1 fold basic (without logo), Available in AN, BL, CV, PL*	N2271.1 XX
2 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	N2272 XX
2 fold basic (without logo), Available in AN, BL, CV, PL*	N2272.1 XX
3 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	N2273 XX
3 fold basic (without logo), Available in AN, BL, CV, PL*	N2273.1 XX
4 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	N2274 XX
4 fold basic (without logo), Available in AN, BL, CV, PL*	N2274.1 XX

* AN = Anthracite, BL = White, CB = White glass, CN = Black glass, CV = Cava, OX = Stainless Steel, PL = Silver, PZ = Slate, WG = Wengue wood



N2271.9

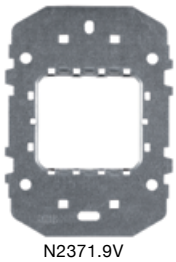
Metal mounting plate

Description	Order code
Metal mounting plate	N2271.9

N2372.1 XX

Frame, Zenit NEMA

Description	Order code
1 fold	N2372.1 XX



N2371.9V

Metal mounting plate

Description	Order code
Metal mounting plate	N2371.9V

STOCK INDENT

ABB i-bus® KNX
Energy measurement

SE/S 3.16.1

Energy Actuator, 3-fold, 16/20 AX, MDRC

Description	Module width	Order code
Energy Actuator, 3-fold, 16/20 AX, MDRC	4	SE/S 3.16.1

EM/S 3.16.1

Energy Module, MDRC

Description	Module width	Order code
Energy Module, MDRC	4	EM/S 3.16.1

ZS/S 1.1

Meter Interface Module, MDRC

Reads measured values from the ABB A and B series energy meters via an infra-red interface. Thís data can be used for cost centre accounting, energy optimisation, monitoring of installations and visualisation.

The following values are available (depending on the meter type):

Meter reading

Active energy	Tariff 1-4, total
Reactive energy	Tariff 1-4, total

Power values

Active power	L1, L2, L3, total
Reactive power	L1, L2, L3, total
Apparent power	L1, L2, L3, total
Phase angle power	L1, L2, L3, total
Power factor	L1, L2, L3, total

Instrument values

Voltages	L1-N, L2-N, L3-N, L1-L2, L2-L3, L1-L3
Currents	L1, L2, L3, N
Phase angle voltage	L1, L2, L3, total
Phase angle current	L1, L2, L3, total
Quadrant	L1, L2, L3, total
Mains frequency	

Other

Transformer ratio	Read CT and VT
Power failures	Send and delete
Tariffs	Read and change-over
Status information	Send and read
Communication monitoring	
Intermediate meter	Read and reset

Meter Interface Module, MDRC

Description	Order code
Meter Interface Module, MDRC	ZS/S 1.1

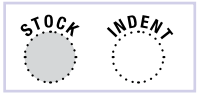


ABB i-bus® KNX
Security and Surveillance – Fault Monitoring and Data Logging

SMB/S 1.1

Fault Monitoring Unit, MDRC

Description	Module width	Order code
Fault Monitoring Unit, MDRC	2	SMB/S 1.1

EUB/S 1.1

Monitoring Unit, MDRC

Description	Module width	Order code
Monitoring Unit, MDRC	2	EUB/S 1.1

BDB/S 1.1

Data Logging Unit, MDRC

Description	Module width	Order code
Data Logging Unit, MDRC	2	BDB/S 1.1

ABB-free@home®

System Access Point and 7″ Touch Screen 44

Zenit – Complete units 45
Complete units for centralised installation 45
Complete units for decentralised installation 45
Modules 46

future® linear 48

DIN rail devices and Binary inputs 51

1

For more detailed product information, please refer to the Technical Catalogue available on the ABB-free@home® homepage:

– www.abb.com/freeathome

ABB-free@home®
System Access Point and 7″ Touch Screen

System Access Point

Description	Dimensions (H × W × D)	Order code
System Access Point	110 mm × 170 mm × 31 mm	SAP-S-1-84

ABB-free@homeTouch 7″

Description	Colour	Dimensions (H × W × D)	Order code
ABB-free@homeTouch 7″	Black	155 mm × 218 mm × 29 mm	DP7-S-625
	White	155 mm × 218 mm × 29 mm	DP7-S-611

STOCK INDENT

ABB-free@home®
Zenit – Complete units

Complete units for centralised installation

SUCPFWB-2.0-W

SUCPFWB-4.0-W

Switch unit, white, complete

Description	Dimensions (H × W)	Order code
Switch unit, 1/2gang	122 mm x 90 mm	SUCPFWB-2.0-W
Switch unit, 2/4gang	122 mm x 90 mm	SUCPFWB-4.0-W

Interchangeable icons are available (blind, light, dimmer, scene):

Movement detector unit, white, complete

Description	Dimensions (H × W)	Order code
Movement detector unit	122 mm x 90 mm	MDCPFWB-1.0-W

Room thermostat unit, white, complete

Description	Dimensions (H × W)	Order code
Room thermostat unit	122 mm x 90 mm	RTCPFWB-1.0-W

Complete units for decentralised installation

1/2gang

2/4gang

Input/output unit, white, complete

Description	Dimensions (H × W)	Order code
1/2gang		
Switch/Relay unit + 1 relay	122 mm x 90 mm	SRCPFWB-2.1-W
Switch/Dimmer unit + 1 dimmer	122 mm x 90 mm	SDCPFWB-2.1-W
Switch/Blind Relay unit + 1 blind relay	122 mm x 90 mm	SBCPFWB-2.1-W
2/4gang		
Switch/Relay unit + 1 relay	122 mm x 90 mm	SRCPFWB-4.1-W
Switch/Relay unit + 2 relay	122 mm x 90 mm	SRCPFWB-4.2-W
Switch/Dimmer unit + 1 dimmer	122 mm x 90 mm	SDCPFWB-4.1-W
Switch/Blind relay unit + 1 blind relay	122 mm x 90 mm	SBCPFWB-4.1-W

Interchangeable icons are available (blind, light, dimmer, scene):

Movement detector/relay unit, white, complete

Description	Dimensions (H × W)	Order code
Movement detector/relay unit	122 mm x 90 mm	MDCPFWB-1.1-W

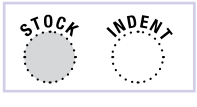


ABB-free@home®
Zenit – Modules

Cover plate for push buttons

Description	Colour	Dimensions (H × W)	Order code
Cover plate for 2 fold push buttons	White	44 mm x 44 mm	SR-2-N2BL
	Anthracite	44 mm x 44 mm	SR-2-N2AN
	Silver	44 mm x 44 mm	SR-2-N2PL
	Champagne	44 mm x 44 mm	SR-2-N2CV
Cover plate for 4 fold push buttons	White	44 mm x 44 mm	SR-4-N2BL
	Anthracite	44 mm x 44 mm	SR-4-N2AN
	Silver	44 mm x 44 mm	SR-4-N2PL
	Champagne	44 mm x 44 mm	SR-4-N2CV

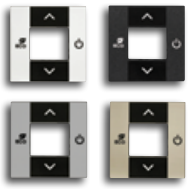
Note: Interchangeable icons are available (see 'Button Icons' section below).

Buttons with icon

Description	Type	Order code
White	Button with blind icon	SBB-N2BL
	Button with dimmer icon	SBD-N2BL
	Button with light icon	SBL-N2BL
	Button with scene icon	SBS-N2BL
Grey	Button with blind icon	SBB-N2GR
	Button with dimmer icon	SBD-N2GR
	Button with light icon	SBL-N2GR
	Button with scene icon	SBS-N2GR

Cover plate for movement detector

Description	Colour	Dimensions (H × W)	Order code
Cover plate for movement detector	White	44 mm x 44 mm	CP-MD-N2BL
	Anthracite	44 mm x 44 mm	CP-MD-N2AN
	Silver	44 mm x 44 mm	CP-MD-N2PL
	Champagne	44 mm x 44 mm	CP-MD-N2CV



Cover plate for room thermostat

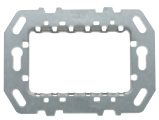
Description	Colour	Dimensions (H × W)	Order code
Cover plate for room thermostat	White	44 mm x 44 mm	CP-RTC-N2BL
	Anthracite	44 mm x 44 mm	CP-RTC-N2AN
	Silver	44 mm x 44 mm	CP-RTC-N2PL
	Champagne	44 mm x 44 mm	CP-RTC-N2CV

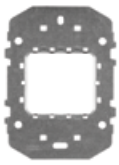
Rectangular frame

Description	Colour	Dimensions (H × W)	Order code
Rectangular frame	White	122 mm x 90 mm	N2372.1BL
	Anthracite	122 mm x 90 mm	N2372.1AN
	Silver	122 mm x 90 mm	N2372.1PL
	Champagne	122 mm x 90 mm	N2372.1CV
	Wengue wood	122 mm x 90 mm	N2372.1WG
	Stone slate	122 mm x 90 mm	N2372.1PZ
	White glass	122 mm x 90 mm	N2372.1CB
	Black glass	122 mm x 90 mm	N2372.1CN
	Stainless steel	122 mm x 90 mm	N2372.1OX

STOCK INDENT

ABB-free@home®
Zenit – Modules


N2373.9


N2371.9 V

Wall bracket

Description	Dimensions (H × W)	Order code
Horizontal	74 mm x 102 mm	N2373.9
Vertical	102 mm x 74 mm	N2371.9V

SSA-F-1.1.PB.1

SSA-F-2.1.PB.1
SSA-F-2.2.PB.1

Switch/relay

Description	Dimensions (H × W × D)	Order code
Switch/relay 1/2gang + 1 relay	44 mm x 44 mm x 40.9 mm	SSA-F-1.1.PB.1
Switch/relay 2/4gang + 1 relay	44 mm x 44 mm x 40.9 mm	SSA-F-2.1.PB.1
Switch/relay 2/4gang + 2 relay	44 mm x 44 mm x 40.9 mm	SSA-F-2.2.PB.1

SDA-F-1.1.PB.1

SDA-F-2.1.PB.1

Switch/dimmer

Description	Dimensions (H × W × D)	Order code
Switch/dimmer 1/2gang + dimmer	44 mm x 44 mm x 40.9 mm	SDA-F-1.1.PB.1
Switch/dimmer 2/4gang + dimmer	44 mm x 44 mm x 40.9 mm	SDA-F-2.1.PB.1

SBA-F-1.1.PB.1

SBA-F-2.1.PB.1

Switch/blind relay

Description	Dimensions (H × W × D)	Order code
Switch/blind relay 1/2gang + 1 blind relay	44 mm x 44 mm x 40.9 mm	SBA-F-1.1.PB.1
Switch/blind relay 2/4gang + 1 blind relay	44 mm x 44 mm x 40.9 mm	SBA-F-2.1.PB.1

RTC-F-1.PB

Room thermostat

Description	Dimensions (H × W × D)	Order code
Room thermostat	44 mm x 44 mm x 29.4 mm	RTC-F-1.PB

SU-F-1.0.PB.1

SU-F-2.0.PB.1

Switch

Description	Dimensions (H × W	Order code
Switch 1/2gang	44 mm x 44 mm x 23.5 mm	SU-F-1.0.PB.1
Switch 2/4gang	44 mm x 44 mm x 23.5 mm	SU-F-2.0.PB.1

MD-F-1.0.PB.1
MSA-F-1.1.PB.1

Movement detector

Description	Dimensions (H × W	Order code
Movement detector	44 mm x 44 mm x 29.6 mm	MD-F-1.0.PB.1
Movement detector/relay	44 mm x 44 mm x 47 mm	MSA-F-1.1.PB.1

1

Rocker

Description	Colour	Dimensions (H × W)	Order code
1gang	White	63 mm x 63 mm	SR-1-84
	Anthracite	63 mm x 63 mm	SR-1-81
	Silver	63 mm x 63 mm	SR-1-83
1gang, blind icon	White	63 mm x 63 mm	SRB-1-84
	Anthracite	63 mm x 63 mm	SRB-1-81
	Silver	63 mm x 63 mm	SRB-1-83
1gang, dimmer icon	White	63 mm x 63 mm	SRD-1-84
	Anthracite	63 mm x 63 mm	SRD-1-81
	Silver	63 mm x 63 mm	SRD-1-83
1gang, light icon	White	63 mm x 63 mm	SRL-1-84
	Anthracite	63 mm x 63 mm	SRL-1-81
	Silver	63 mm x 63 mm	SRL-1-83
1gang, scene icon	White	63 mm x 63 mm	SRS-1-84
	Anthracite	63 mm x 63 mm	SRS-1-81
	Silver	63 mm x 63 mm	SRS-1-83
2gang	White	63 mm x 31.5 mm	SR-2-84
	Anthracite	63 mm x 31.5 mm	SR-2-81
	Silver	63 mm x 31.5 mm	SR-2-83
2gang, blind icon	White	63 mm x 31.5 mm	SRB-2-84
	Anthracite	63 mm x 31.5 mm	SRB-2-81
	Silver	63 mm x 31.5 mm	SRB-2-83
2gang, left dimmer icon	White	63 mm x 31.5 mm	SRD-2-L-84
	Anthracite	63 mm x 31.5 mm	SRD-2-L-81
	Silver	63 mm x 31.5 mm	SRD-2-L-83
2gang, right dimmer icon	White	63 mm x 31.5 mm	SRD-2-R-84
	Anthracite	63 mm x 31.5 mm	SRD-2-R-81
	Silver	63 mm x 31.5 mm	SRD-2-R-83
2gang, left light icon	White	63 mm x 31.5 mm	SRL-2-L-84
	Anthracite	63 mm x 31.5 mm	SRL-2-L-81
	Silver	63 mm x 31.5 mm	SRL-2-L-83
2gang, right light icon	White	63 mm x 31.5 mm	SRL-2-R-84
	Anthracite	63 mm x 31.5 mm	SRL-2-R-81
	Silver	63 mm x 31.5 mm	SRL-2-R-83
2gang, left scene icon	White	63 mm x 31.5 mm	SRS-2-L-84
	Anthracite	63 mm x 31.5 mm	SRS-2-L-81
	Silver	63 mm x 31.5 mm	SRS-2-L-83
2gang, right scene icon	White	63 mm x 31.5 mm	SRS-2-R-84
	Anthracite	63 mm x 31.5 mm	SRS-2-R-81
	Silver	63 mm x 31.5 mm	SRS-2-R-83
Cover plate for room thermostat	White	63 mm x 63 mm	CP-RTC-84
	Anthracite	63 mm x 63 mm	CP-RTC-81
	Silver	63 mm x 63 mm	CP-RTC-83

STOCK INDENT

ABB-free@home®
future® linear

Frames

Description	Colour	Dimensions (H × W)	Order code
1gang	White	80 mm x 80 mm	1721-184K
	Anthracite	80 mm x 80 mm	1721-181K
	Silver	80 mm x 80 mm	1721-183K
2gang	White	151 mm x 80 mm	1722-184K
	Anthracite	151 mm x 80 mm	1722-181K
	Silver	151 mm x 80 mm	1722-183K
3gang	White	222 mm x 80 mm	1723-184K
	Anthracite	222 mm x 80 mm	1723-181K
	Silver	222 mm x 80 mm	1723-183K
4gang	White	293 mm x 80 mm	1724-184K
	Anthracite	293 mm x 80 mm	1724-181K
	Silver	293 mm x 80 mm	1724-183K
5gang	White	364 mm x 80 mm	1725-184K
	Anthracite	364 mm x 80 mm	1725-181K
	Silver	364 mm x 80 mm	1725-183K

Wallbox

Description	Diameter (mm)	Order code
Wallbox for cavity wall	74 mm	3050

SU-F-1.0.1

SU-F-2.0.1

Switch

Description	Dimensions (H × W × D)	Order code
Switch 1/2gang	71 mm × 71 mm × 45 mm	SU-F-1.0.1
Switch 2/4gang	71 mm × 71 mm × 45 mm	SU-F-2.0.1

SSA-F-1.1.1

SSA-F-2.1.1
SSA-F-2.2.1

Switch/relay

Description	Dimensions (H × W × D)	Order code
Switch/relay 1/2gang + 1 relay	71 mm × 71 mm × 45 mm	SSA-F-1.1.1
Switch/relay 2/4gang + 1 relay	71 mm × 71 mm × 45 mm	SSA-F-2.1.1
Switch/relay 2/4gang + 2 relay	71 mm × 71 mm × 45 mm	SSA-F-2.2.1

SDA-F-1.1.1

SDA-F-2.1.1

Switch/dimmer

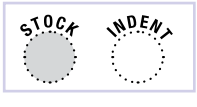
Description	Dimensions (H × W × D)	Order code
Switch/dimmer 1/2gang + 1 dimmer	71 mm × 71 mm × 45 mm	SDA-F-1.1.1
Switch/dimmer 2/4gang + 1 dimmer	71 mm × 71 mm × 45 mm	SDA-F-2.1.1

SBA-F-1.1.1

SBA-F-2.1.1

Switch/blind relay

Description	Dimensions (H × W × D)	Order code
Switch/blind relay 1/2gang + 1 blind relay	71 mm × 71 mm × 45 mm	SBA-F-1.1.1
Switch/blind relay 2/4gang + 1 blind relay	71 mm × 71 mm × 45 mm	SBA-F-2.1.1



1

Movement detector

Description	Colour	Dimensions (H × W × D)	Order code
Movement detector	white	71 mm x 71 mm x 53 mm	MD-F-1.0.1-84
	anthracite	71 mm x 71 mm x 53 mm	MD-F-1.0.1-81
	silver	71 mm x 71 mm x 53 mm	MD-F-1.0.1-83
Movement detector/relay	white	71 mm x 71 mm x 53 mm	MSA-F-1.1.1-84
	anthracite	71 mm x 71 mm x 53 mm	MSA-F-1.1.1-81
	silver	71 mm x 71 mm x 53 mm	MSA-F-1.1.1-83

Room thermostat

Description	Dimensions (H × W × D)	Order code
Room thermostat	71 mm × 71 mm × 45 mm	RTC-F-1

STOCK INDENT

ABB-free@home®
DIN rail devices and Binary inputs

BI-F-2.0.1

BI-F-4.0.1

BI-M-4.0.1

Binary input

Description	Dimensions (H × W × D)	Order code
2gang, flush-mounted	39 mm × 40 mm × 12 mm	BI-F-2.0.1
4gang, flush-mounted	39 mm × 40 mm × 12 mm	BI-F-4.0.1
4gang	90 mm × 36 mm × 64 mm	BI-M-4.0.1

Power supply

Description	Dimensions (H × W × D)	Order code
Power supply	90 mm × 72 mm × 64 mm	PS-M-64.1.1

4gang

Relays

Description	Dimensions (H × W × D)	Order code
Relay, 4gang, 16 A, MDRC	90 mm × 72 mm × 64 mm	SA-M-0.4.1
Relay, 8gang, 6 A / 8gang Binary Input, MDRC	90 mm × 144 mm × 64 mm	SA-M-8.8.1

Universal dimmer, 4gang

Description	Dimensions (H × W × D)	Order code
Universal dimmer, 4gang	90 mm × 144 mm × 64 mm	DA-M-0.4.1

Blind/shutter relay, 4gang

Description	Dimensions (H × W × D)	Order code
Blind/shutter relay, 4gang	90 mm × 72 mm × 64 mm	BA-M-0.4.1

HA-M-0.6.1

HA-M-0.12.1

Electronic relay for valves

Description	Dimensions (H × W × D)	Order code
6gang	90 mm × 72 mm × 64 mm	HA-M-0.6.1
12gang	90 mm × 72 mm × 64 mm	HA-M-0.12.1

Welcome M

Single-family kit 54
Audio kit 54
Video kit 55

Outdoor station 56
Assembled outdoor station 56
Modules 57
Accessories 61
Quick composition guide for pushbutton outdoor station 67
Audio outdoor station 68
Video outdoor station 69

Indoor station 70
Video indoor stations – common features 70
Audio indoor stations – common features 71
Accessories 72

System devices 73

System composition 75
Audio solution 75
Video solution 78

Composition networked 82
Typical Looping through Application 82
Typical Branch-line Application 83

1

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

– Welcome M System Manual

Welcome M
Single-family kit

The complete solution for all intents and purposes. 7 different opportunities – perfectly arranged. Each set contains all necessary devices optimally matched in function and design – easy to order and install.

Audio kit – common features

- Audio outdoor station, 1/2 push button, aluminum
- Flush mounted box, size 1/1
- Mini system controller
- Technical data: please refer to individual devices.
- The installation video can be linked by scanning the QR code printed on the package.
- Package dimension: 315 x 184 x 295 mm.

Audio single-family kit, with induction loop

The single-family kit consists of audio indoor station (M22003), audio outdoor station, 1/2 push button (M21021P1-A), mini system controller (M2301) and flush mounted box (41021F).

Description	Order code
Audio single-family kit, with induction loop	M20003

STOCK INDENT

Welcome M
Single-family kit

Video kit – common features

- Video outdoor station, 1/2 push button, aluminum
- Flush mounted box, size 1/2
- Mini system controller
- Technical data: please refer to individual devices.
- The installation video can be linked by scanning the QR code printed on the package.
- Package dimension: 315 x 184 x 295 mm.

Video handset kit, 4.3” color video indoor station, with induction loop

The single-family kit consists of video indoor station (M22301-W), video outdoor station, 1/2 push button (M21351P1-A), mini system controller (M2301) and flush mounted box (41022F).

Description	Order code
4.3" color video handset indoor station with induction loop, white	M20313

Video single-family kit, 4.3'' color video hands-free indoor station, with induction loop

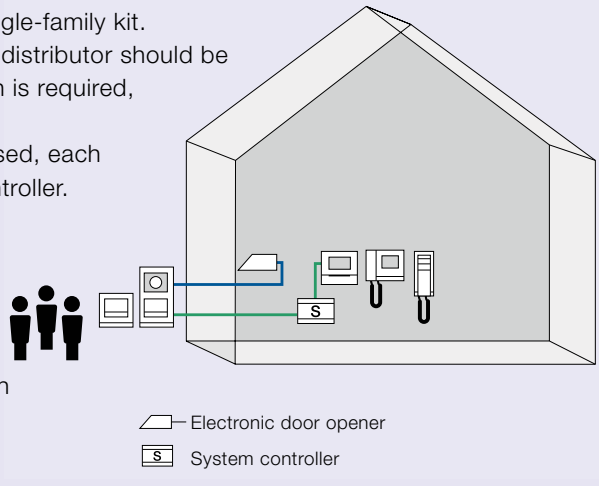
The single-family kit consists of video indoor station (M22313-W), video outdoor station, 1/2 push button (M21351P1-A), mini system controller (M2301) and flush mounted box (41022F).

Description	Order code
4.3" video hands-free indoor station, induction loop, white	M20323

Easy to expand

It is also easy to expand the application based on the Welcome M single-family kit.

- In case more than one outdoor station is required, video outdoor distributor should be used plus the Welcome M kit. When more than one indoor station is required, additional indoor station(s) should be purchased.
- In case more than 2 outdoor stations and 2 indoor stations are used, each additional device should be powered locally by a mini system controller.
- The wiring can be looping through like the diagram, or a 4-way distributor can be used. If using cable with dia. of 0.8 mm, the distance between outdoor station and the farthest indoor station is up to 200 meters. For longer distance, either better cable (e.g. coaxial) or amplifier should be used.
- In case of customized solution like RFID reader or keypad solution for given project, please consult your local distributor or installer about the required article list.



Welcome M
Outdoor station

Assembled outdoor station

Audio outdoor station, 1-row pushbutton for 1/2 calls

- The assembled product includes audio module with 1/2 pushbutton (M251022A-A) and 1-module cover frame (51021CF-A).
- Dustproof and waterproof as IP54, and vandal proof as IK07.
- Different mode setting is possible for pushbutton, such as 1 call or 2 calls in one row.
- Surface mounting (41021F and 51021RH needed) and flush mounting (41021F needed).
- The related tool is also provided in the package.
- Product dimension: 128 x 125 x 49 mm.

Description	Pack quantity	Order code
Audio outdoor station, 1/2 pushbutton, aluminum	1/19	M21021P1-A

Video outdoor station, 1-row pushbutton for 1/2 calls

- The assembled product includes camera module (M251021C), audio module with 1/2 push button (M251022A-A) and 2-module cover frame (51022CF-A).
- Dustproof and waterproof as IP54, and vandal proof as IK07.
- Different mode setting is possible for pushbutton, such as 1 call or 2 calls in one row.
- Surface mounting (41022F and 51022RH needed) and flush mounting (41022F needed).
- The related tool is also provided in the package.
- Product dimension: 201 x 125 x 49 mm.

Description	Pack quantity	Order code
Video outdoor station, 1/2 pushbutton, aluminum	1/19	M21351P1-A

Video keypad outdoor station with speech synthesis

- The assembled product includes camera module (M251021C), audio module with speech synthesis (M251024A-A), keypad module (M251021K-A) and display module (M251021CR/M251022CR).
- Dustproof and waterproof as IP54, and vandal proof as IK07.
- In-built card reader in camera module, support ID card (M21351K-A) and IC card (M21352K-A).
- Surface mounting (41024F and 51024RH needed) and flush mounting (41024F needed).
- Product dimension: 347 x 125 x 49 mm.

Description	Pack quantity	Order code
Video outdoor station with keypad, with ID card reader	1/12	M21351K-A
Video outdoor station with keypad, with IC card reader	1/12	M21352K-A

STOCK INDENT

Welcome M
Outdoor station

Modules

Camera module

- Video color camera with large detection angle (H 86°, V 67°, D 104°) and manually mechanical adjustment (H ± 15°, V ± 15°); In-built infrared lighting ensures clear picture and comfortable to eyes at night and "secret" surveillance from video indoor station.
- Anti-fog design with in-built heater can always ensure clear image even in very wet condition.
- Optional to connect one additional analog camera for surveillance inside the video indoor station.
- Product dimension: 72 x 97 x 41 mm.

Description	Pack quantity	Order code
Camera module	1/12/12	M251021C

Audio module, no button

- Audio module is compulsory for any audio or video outdoor station composition.
- 3 LED indicators for operation status indications: call established / system busy, communication possible and door unlocked.
- One lock can be directly connected without independent power supply for the lock.
- Additional terminal for second lock is available.
- Lock release time and speaker volume are adjustable.
- No button.
- Integrated optic sensor for day / night mode.
- Product dimension: 72 x 97 x 38 mm.

Description	Pack quantity	Order code
Audio module, aluminum	1/12/12	M251021A-A
Audio module, coated white	1/12/12	M251021A-W

Audio module, 1-row pushbutton for 1/2 calls

- Audio module is compulsory for any audio or video outdoor station composition.
- 3 LED indicators for operation status indications: call established / system busy, communication possible and door unlocked.
- One lock can be directly connected without independent power supply for the lock.
- Additional terminal for second lock is available.
- Lock release time and speaker volume are adjustable.
- 1-row button.
- Different mode setting is possible such as 1 call or 2 calls in one row, call guard or switching light for the first or second button.
- Integrated optic sensor for day / night mode.
- Product dimension: 72 x 97 x 38 mm.

Description	Pack quantity	Order code
Audio module, 1 row pushbutton, aluminum	1/12/12	M251022A-A
Audio module, 1 row pushbutton, coated white	1/12/12	M251022A-W

STOCK INDENT

Welcome M
Outdoor station

Audio module, 2-row pushbutton for 2/4 calls

- Audio module is compulsory for any audio or video outdoor station composition.
- 3 LED indicators for operation status indications: call established / system busy, communication possible and door unlocked.
- One lock can be directly connected without independent power supply for the lock.
- Additional terminal for second lock is available.
- Lock release time and speaker volume are adjustable.
- 2-row button.
- Different mode setting is possible such as 1 call or 2 calls in one row, call guard or switching light for the first or second button.
- Integrated optic sensor for day / night mode.
- Product dimension: 72 x 97 x 38mm.

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

Audio module, no button, with speech synthesis

- Audio module is compulsory for any audio or video outdoor station composition.
- 3 LED indicators for operation status indications: call established / system busy, communication possible, door unlocked.
- One lock can be directly connected without independent power supply for the lock.
- Additional terminal for second lock is available.
- Lock release time and speaker volume are adjustable.
- No button, with speech synthesis to play voice message according to the status.
- Integrated optic sensor for day / night mode.
- Product dimension: 72 x 97 x 38 mm.

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

Pushbuttons module, 3-row for 3/6 calls

- Nameplate is extractable by tool, without the need to disassemble the panel.
- Backlight ensures clear visuality at night.
- 3-rows can be set for 3/6 calls.
- Either 1 call or 2 calls for 1 row of button are set in the audio module.
- Product dimension: 72 x 97 x 25 mm.

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

STOCK INDENT

Welcome M
Outdoor station

Pushbuttons module, 4-row for 4/8 calls

- Nameplate is extractable by tool, without the need to disassemble the panel.
- Backlight ensures clear visuality at night.
- 4-rows can be set for 4/8 calls.
- Either 1 call or 2 calls for 1 row of button are set in the audio module.
- Product dimension: 72 x 97 x 25 mm.

Description	Pack quantity	Order code
4/8 pushbutton module	1/10/8	M251021P4
Accessory: 1/4 height cover for 4/8 pushbutton module and audio module with button		51021P4

Keypad module, letter A–Z

- Inputting device for keypad outdoor station.
- Letter from A–Z.
- Scroll up and down for residents' names or input letters of the calling name (display module must be accompanied, sorting is progressive upon inputting next letter of name).
- Names or call code can be downloaded from PC though USB cable or can be edited from the keyboard.
- Up to 3000 names can be saved in the memory.
- Both public password and up to 6000 customized passwords are allowed.
- If repeatedly inputting wrong password, the keypad will be locked.
- Password availible with 6–8 digits and calling code with 1–6 digits.
- Call guard unit is also available.
- Backlight ensures clear visuality at night.
- Product dimension: 72 x 97 x 31 mm.

Description	Pack quantity	Order code
Keypad module, letter A-Z, aluminum	1/10/8	M251021K-A
Keypad module, letter A-Z, white	1/10/8	M251021K-W

Keypad module, letter A–L

- Inputting device for keypad outdoor station.
- Letter from A–L.
- Scroll up and down for residents' names or input letters of the calling name (display module must be accompanied, sorting is progressive upon inputting next letter of name).
- Calls can also be made by combining number and letter, e.g. 112A.
- Names or call code can be downloaded from PC though USB cable or can be edited from the keyboard.
- Up to 3000 names can be saved in the memory.
- Both public password and up to 6000 customized passwords are allowed.
- If repeatedly inputting wrong password, the keypad will be locked.
- Password availible with 6–8 digits and calling code with 1–6 digits.
- Call guard unit is also available.
- Backlight ensures clear visuality at night.
- Product dimension: 72 x 97 x 31 mm.

Description	Pack quantity	Order code
Keypad module, letter A–L , aluminum	1/10/8	M251022K-A
Keypad module, letter A–L , white	1/10/8	M251022K-W

Welcome M
Outdoor station

Display module with card reader

- Large screen ensures customized message, code or names readable easily.
- Wiegand output is available to connect to the third party controller.
- ID card reader (accept the card with frequency of 125KHz) or IC card reader (accept the card with frequency of 13.56MHz) is integrated into the module.
- Up to 3000 different cards can be registered.
- Register and delete cards locally in setting menu.
- Different feedback sounds for accepting or rejecting the reading card.
- Support connection to audio module without the keypad module.
- Product dimension: 72 x 97 x 31 mm.

Description	Pack quantity	Order code
Display module with ID card reader	1/10/8	M251021CR
Display module with IC card reader	1/10/8	M251022CR

Nameplate module

- It can be used to hold the address of the building or the resident directory for keypad outdoor station, or simply to complete the module within the cover frame.
- Backlight ensures clear visibility at night.
- Product dimension: 72 x 97 x 24 mm.

Description	Pack quantity	Order code
Directory nameplate module	1/10/8	51021DN

STOCK INDENT

Welcome M
Outdoor station: Accessories

Cover frames

The invisible screw design with provision of double columns ensures good appearance.
The tool to dismount the end strip is also included in the package.

Cover frame, size 1/1

Size 1/1, 128 x 125 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 1-module, size 1/1, aluminum	1/34	51021CF-A
Cover frame, 1-module, size 1/1, coated white	1/34	51021CF-W

Cover frame, size 1/2

Size 1/2, 201 x 125 x 19 mm

Description	Pack quantity	Order code
Cover frame, 2-module, size 1/2, aluminum	1/34	51022CF-A
Cover frame, 2-module, size 1/2, coated white	1/34	51022CF-W

Cover frame, size 1/3

Size 1/3, 274 x 125 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 3-module, size 1/3, aluminum	1/22	51023CF-A
Cover frame, 3-module, size 1/3, coated white	1/22	51023CF-W

Cover frame, size 1/4

Size 1/4, 347 x 125 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 4-module, size 1/4, aluminum	1/22	51024CF-A
Cover frame, 4-module, size 1/4, coated white	1/22	51024CF-W

Cover frame, size 1/5

Size 1/5, 420 x 125 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 5-module, size 1/5, aluminum	1/22	51028CF-A

Welcome M
Outdoor station: Accessories

Cover frame, size 2/3

Size 2/3, 274 x 230 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 6-module, size 2/3, aluminum	1/11	51025CF-A
Cover frame, 6-module, size 2/3, coated white	1/11	51025CF-W

Cover frame, size 2/4

Size 2/3, 347 x 230 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 8-module, size 2/4, aluminum	1/11	51026CF-A
Cover frame, 8-module, size 2/4, coated white	1/11	51026CF-W

Cover frame, size 2/5

Size 2/5, 420 x 230 x 19 mm.

Description	Pack quantity	Order code
Cover frame, 10-module, size 2/5, aluminum	1/11	51029CF-A

End strip

End strip for outdoor station cover frame.
2 types available, one for 125 mm wide outdoor station (size 1/X, 125 x 19 x 1 mm), the other for 230 mm wide outdoor station (size 2/X, 230 x 19 x 15 mm)

Description	Pack quantity	Order code
End strip, size 1/x, aluminum	1/36	51021EP-A
End strip, size 2/x, aluminum	1/20	51022EP-A
End strip, size 1/x, white	1/36	51021EP-W
End strip, size 2/x, white	1/20	51022EP-W

STOCK INDENT

Welcome M
Outdoor station: Accessories

Flush mounted boxes

The anodized aluminum flush box is fitted with knock down holes for cabling from left, right, bottom or back.
The product is packed with accessories to ensure quality installation.

Flush mounted box, size 1/1

Size 1/1, 126 x 124 x 46 mm.

Description	Pack quantity	Order code
Flush-mounted box, 1-module, size 1/1	1/19	41021F

Flush mounted box, size 1/2

Size 1/2, 199 x 124 x 46 mm.

Description	Pack quantity	Order code
Flush-mounted box, 2-module, size 1/2	1/19	41022F

Flush mounted box, size 1/3

Size 1/3, 272 x 124 x 46 mm.

Description	Pack quantity	Order code
Flush-mounted box, 3-module, size 1/3	1/12	41023F

Flush mounted box, size 1/4

Size 1/4, 345 x 124 x 46 mm.

Description	Pack quantity	Order code
Flush-mounted box, 4-module, size 1/4	1/12	41024F

Flush mounted box, size 1/5

Size 1/5, 418 x 124 x 416 mm.

Description	Pack quantity	Order code
Flush-mounted box, 5-module, size 1/5	1/6	41028F

STOCK INDENT

Welcome M
Outdoor station: Accessories

Flush mounted box, size 2/3

Size 2/3, 272 x 228 x 47 mm.

Description	Pack quantity	Order code
Flush-mounted box, 6-module, size 2/3	1/6	41025F

Flush mounted box, size 2/4

- Size 2/4, 345 x 228 x 47 mm.

Description	Pack quantity	Order code
Flush-mounted box, 8-module, size 2/4	1/6	41026F

Flush mounted box, size 2/5

- Size 2/5, 418 x 228 x 47 mm.

Description	Pack quantity	Order code
Flush-mounted box, 10-module, size 2/5	1/6	41029F

Joining fixture

It is used when more than one flush mounted box (size 1/4, 41024F) needs to be connected together

Description	Order code
Joining fixture for multi- flush mounted boxes connection	51021J

STOCK INDENT

Welcome M
Outdoor station: Accessories

Rain hoods

The anodized aluminum rain hood is fit for both surface mounting (by screwing into the flush box) and flush mounting (supporting tool kit is provided in the package).

Rain hood, size 1/1

Size 1/1, 128 x 131 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 1-module, size 1/1	1/14	51021RH

Rain hood, size 1/2

Size 1/2, 201 x 131 x 70mm.

Description	Pack quantity	Order code
Rain hood, 2-module, size 1/2	1/14	51022RH

Rain hood, size 1/3

Size 1/3, 274 x 131 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 3-module, size 1/3	1/8	51023RH

Rain hood, size 1/4

Size 1/4, 347 x 131 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 4-module, size 1/4	1/8	51024RH

Rain hood, size 1/5

Size 1/5, 420 x 131 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 5-module, size 1/5	1/8	51028RH

STOCK INDENT

Welcome M
Outdoor station: Accessories

Rain hood, size 2/3

- Size 2/3, 274 x 237 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 6-module, size 2/3	1/4	51025RH

Rain hood, size 2/4

Size 2/4, 347 x 237 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 8-module, size 2/4	1/4	51026RH

Rain hood, size 3/4

Size 3/4, 347 x 378 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 12-module, size 3/4	1/2	51027RH

Rain hood, size 2/5

Size 2/5, 420 x 378 x 70 mm.

Description	Pack quantity	Order code
Rain hood, 10-module, size 2/5	1/4	51029RH

Labelling sheet, A4

- Quality labelling sheet for nameplate.
- Easy to be printed and cut.
- Waterproof.
- Size 2/5, 210 x 297 mm.

Description	Order code
Labelling sheet for nameplate, A4	51021L
Labelling sheet for 1/3 height, A4	51022L
Labelling sheet for 1/4 height, A4	51023L

STOCK INDENT

Welcome M
Outdoor station

Quick composition guide for pushbutton outdoor station

Welcome M provides a wide range of outdoor stations with pushbutton by the combination of the modules, covers and boxes. For pushbutton outdoor stations, it multiplies the application by setting as one column or double column for the same pushbutton module. The setting is made by the audio modules. We call the different pushbutton status 'single row' or 'double row'. 3-row pushbutton and 4-row pushbutton are optional for application.
For pushbutton outdoor stations, to compose an outdoor station, audio module (with no pushbutton, with 1-row pushbutton or 2-row pushbutton), pushbutton module (3-row pushbutton or 4-row pushbutton), cover frame and flush mounted boxes are compulsory. If surface mounting is required, a rain hood is needed.
There is a quick composition table for pushbutton outdoor station on pages 68–69. Please follow the guide below and refer to the table to choose the articles for the desired pushbutton outdoor station.

Step 1

Audio or video?

Please refer to page 68 for audio pushbutton outdoor station and page 69 for video pushbutton outdoor station.

Step 2

3–row pushbutton or 4–row pushbutton?

Please refer to the 3-row pushbutton or 4-row pushbutton table for different pushbutton application.

* It is technically possible but esthetically inconsistent for combining audio module with pushbutton and 3-row pushbutton module. For better appearance as an outdoor station, the composition of pushbuttons follows the rule that every pushbutton should have the same height. Thus if 3-row pushbutton module is used, audio module with pushbutton and 4-row pushbutton module are not recommended.

Step 3

How many calls are needed?

Please decide whether single row or double row pushbutton is needed, then please turn to the button ranges to quickly locate the possible composition.

* In case the light and call guard functions are required for the outdoor station, then the total buttons should be the combination of the apartment number and button number for the extra functions.

** In case it is not sure whether single or double pushbuttons for one row is optimal, it is also possible to turn to the pushbutton range to see all the possibilities.

Step 4

Choose the right composition by balancing the cost and esthetics

* There may be more than one possibility of compositing outdoor station in certain cases by choosing 3-row pushbutton module or 4–row pushbutton module, choosing a nameplate module or not and setting as single row or double row for the same pushbutton module. It is advised to consider the cost and esthetics together when making the composition decision.

Welcome M
Outdoor station

Audio outdoor station

* An audio outdoor station = 1 audio module + pushbutton module and nameplate module (when needed) + cover frame and flush mounted box + rain hood (when needed).

3-row pushbutton

Button range		Order code																	
		Audio module						Pushbutton module and nameplate module		Cover frame and flush mounted box									
Single Row*	Double Row*	M251021A-.		M251022A-.		M251023A-.		M251021P3	51021DN	51021CF-. + 41021F	51022CF-. + 41022F	51023CF-. + 41023F	51024CF-. + 41024F	51028CF-. + 41028F	51025CF-. + 41025F	51026CF-. + 41026F	51029CF-. + 41029F	51024CF-. + 41024F + 51021J
		x1		x1		x1													
		Single	Double	Single	Double	Single	Double												
1 - 2	1 - 4			1	1 - 2	2	1 - 4												
3 - 5	5 - 10	3	5 - 6	4	7 - 8	5	9 - 10	x1											
6 - 8	11 - 16	6	11 - 12	7	13 - 14	8	15 - 16	x2											
9 - 11	17 - 22	9	17 - 18	10	19 - 20	11	21 - 22	x3											
12 - 14	23 - 28	12	23 - 24	13	25 - 26	14	27 - 28	x4											
15 - 17	29 - 34	15	29 - 30	16	31 - 32	17	33 - 34	x5											
18 - 20	35 - 40	18	35 - 36	19	37 - 38	20	39 - 40	x6	x1										
21 - 23	41 - 46	21	41 - 42	22	43 - 44	23	45 - 46	x7											
24 - 26	47 - 52	24	47 - 48	25	49 - 50	26	51 - 52	x8	x1										
27 - 29	53 - 58	27	53 - 54	28	55 - 56	29	57 - 58	x9											
30 - 32	59 - 64	30	59 - 60	31	61 - 62	32	63 - 64	x10	x1										
33 - 35	65 - 70	33	65 - 66	34	67 - 68	35	69 - 70	x11											
										51021RH	51022RH	51023RH	51024RH	51028RH	51025RH	51026RH	51029RH	51027RH

* Optional to install rain hood for surface mounted installation

4-row pushbutton

Button range		Order code																	
		Audio module						Pushbutton module and nameplate module		Cover frame and flush mounted box									
Single Row*	Double Row*	M251021A-.		M251022A-.		M251023A-.		M251021P3	51021DN	51021CF-. + 41021F	51022CF-. + 41022F	51023CF-. + 41023F	51024CF-. + 41024F	51028CF-. + 41028F	51025CF-. + 41025F	51026CF-. + 41026F	51029CF-. + 41029F	51024CF-. + 41024F + 51021J
		x1		x1		x1													
		Single	Double	Single	Double	Single	Double												
1 - 2	1 - 4			1	1 - 2	2	1 - 4												
4 - 6	7 - 12	4	7 - 8	5	9 - 10	6	11 - 12	x1											
8 - 10	15 - 20	8	15 - 16	9	17 - 18	10	19 - 20	x2											
12 - 14	23 - 28	12	23 - 24	13	25 - 26	14	27 - 28	x3											
16 - 18	31 - 36	16	31 - 32	17	33 - 34	18	35 - 36	x4											
20 - 22	39 - 44	20	39 - 40	21	41 - 42	22	43 - 44	x5											
24 - 26	47 - 52	24	47 - 48	25	49 - 50	26	51 - 52	x6	x1										
28 - 30	55 - 60	28	55 - 56	29	57 - 58	30	59 - 60	x7											
32 - 34	63 - 68	32	63 - 64	33	65 - 66	34	67 - 68	x8	x1										
36 - 38	71 - 76	36	71 - 72	37	73 - 74	38	75 - 76	x9											
40 - 47	79 - 84	40	79 - 80	41	81 - 82	42	83 - 84	x10	x1										
44 - 46	87 - 92	44	87 - 88	45	89 - 90	46	91 - 92	x11											
										51021RH	51022RH	51023RH	51024RH	51028RH	51025RH	51026RH	51029RH	51027RH

* Optional to install rain hood for surface mounted installation

Welcome M
Outdoor station

Video outdoor station

* A video outdoor station = 1 camera module + pushbutton module and nameplate module (when needed) + cover frame and flush mounted box + rain hood (when needed).

3-row pushbutton

Button range		Order code																	
		Camera Module	Audio module						Pushbutton module and nameplate module		Cover frame and flush mounted box								
Single Row*	Double Row*	M251021C	M251021A-.		M251022A-.		M251023A-.		M251021P3	51021DN	51022CF-. + 41022F	51023CF-. + 41023F	51024CF-. + 41024F	51028CF-. + 41028F	51025CF-. + 41025F	51026CF-. + 41026F	51029CF-. + 41029F	51024CF-. + 41024F + 51021J
		x1	x1		x1		x1											
			Single	Double	Single	Double	Single	Double										
1 - 2	1 - 4				1	1 - 2	2	1 - 4										
3 - 5	5 - 10		3	5 - 6	4	7 - 8	5	9 - 10	x1									
6 - 8	11 - 16		6	11 - 12	7	13 - 14	8	15 - 16	x2									
9 - 11	17 - 22		9	17 - 18	10	19 - 20	11	21 - 22	x3									
12 - 14	23 - 28		12	23 - 24	13	25 - 26	14	27 - 28	x4									
15 - 17	29 - 34		15	29 - 30	16	31 - 32	17	33 - 34	x5	x1								
18 - 20	35 - 40		18	35 - 36	19	37 - 38	20	39 - 40	x6									
21 - 23	41 - 46		21	41 - 42	22	43 - 44	23	45 - 46	x7	x1								
24 - 26	47 - 52		24	47 - 48	25	49 - 50	26	51 - 52	x8									
27 - 29	53 - 58		27	53 - 54	28	55 - 56	29	57 - 58	x9	x1								
30 - 32	59 - 64		30	59 - 60	31	61 - 62	32	63 - 64	x10									
											51022RH	51023RH	51024RH	51028RH	51025RH	51026RH	51029RH	51027RH

* Optional to install rain hood for surface mounted installation

4-row pushbutton

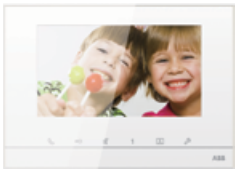
Button range		Order code																	
		Camera Module	Audio module						Pushbutton module and nameplate module		Cover frame and flush mounted box								
Single Row*	Double Row*	M251021C	M251021A-.		M251022A-.		M251023A-.		M251021P4	51021DN	51022CF-. + 41022F	51023CF-. + 41023F	51024CF-. + 41024F	51028CF-. + 41028F	51025CF-. + 41025F	51026CF-. + 41026F	51029CF-. + 41029F	51024CF-. + 41024F + 51021J
		x1	x1		x1		x1											
			Single	Double	Single	Double	Single	Double										
1 - 2	1 - 4				1	1 - 2	2	1 - 4										
4 - 6	7 - 12		4	7 - 8	5	9 - 10	6	11 - 12	x1									
8 - 10	15 - 20		8	15 - 16	9	17 - 18	10	19 - 20	x2									
12 - 14	23 - 28		12	23 - 24	13	25 - 26	14	27 - 28	x3									
16 - 18	31 - 36		16	31 - 32	17	33 - 34	18	35 - 36	x4									
20 - 22	39 - 44		20	39 - 40	21	41 - 42	22	43 - 44	x5	x1								
24 - 26	47 - 52		24	47 - 48	25	49 - 50	26	51 - 52	x6									
28 - 30	55 - 60		28	55 - 56	29	57 - 58	30	59 - 60	x7	x1								
32 - 34	63 - 68		32	63 - 64	33	65 - 66	34	67 - 68	x8									
36 - 38	71 - 76		36	71 - 72	37	73 - 74	38	75 - 76	x9	x1								
40 - 42	79 - 84		40	79 - 80	41	81 - 82	42	83 - 84	x10									
											51022RH	51023RH	51024RH	51028RH	51025RH	51026RH	51029RH	51027RH

* Optional to install rain hood for surface mounted installation

Welcome M
Indoor station

Video indoor stations – common features

- 6 touch film buttons for communication, unlocking, mute, programmable button (can be set as intercom, call guard unit, etc.), surveillance and setting.
- Call transfer among different apartments and guard unit is available.
- Doctor function for automatic unlock.
- 5 ringtones for different call sources, i.e. from default outdoor station, secondary outdoor station,door bell, intercom or guard unit.
- The detailed user manual can be downloaded though scanning the QR code on the screen.



Assembled display module

Display module with card reader

- Large 17.8 cm (7") color display with intuitive touch control.
- During resident's absence, voice message of the resident will be played automatically in case of door calls, and 3 pictures of the visitor will be automatically stored.
- The number of pictures that can be stored is decided by the capacity of the SD card (not provided).
- Send SOS alarm to guard unit in emergency.
- Surface mounting and desktop mounting (desktop bracket 42311D is needed).
- Product dimension: 155 x 218 x 29 mm.

Description	Pack quantity	Order code
7" hands-free video indoor station, white	1/16	M22331-W
7" hands-free video indoor station, black	1/16	M22331-B

4.3" video hands-free indoor station with induction loop

- Electromagnetic signals will be emitted by a special inductive loop for audial indication of any incoming calls. Function for users with hearing-aids.
- 4.3" color display with OSD.
- 2 pictures of the visitor will be automatically stored in the picture memory for door calls during resident's absence.
- The number of the pictures is up to 60 pcs.
- Broadcast by simply long pressing the communication button.
- Surface mounting, flush mounting (flush mounted box 42311F is needed) and desktop mounting (desktop bracket 42311D is needed).
- Product dimension: 137 x 155 x 24 mm.

Description	Pack quantity	Order code
4.3" hands-free video indoor station, induction loop, white	1/28	M22313-W

4.3" video handset indoor station, color display with induction loop

- Electromagnetic signals will be emitted by a special inductive loop for audial indication of any incoming calls. Function for users with hearing-aids.
- Slim indoor station with handset (depth of 45 mm).
- 4.3" color display with OSD.
- 2 pictures of the visitor will be automatically stored in the picture memory for door calls during resident's absence.
- The number of the pictures is up to 25 pcs.
- Surface mounting and desktop mounting (desktop bracket 42311D is needed).
- Product dimension: 144 x 198 x 45 mm.

Description	Pack quantity	Order code
4.3" handset color video indoor station with induction loop, white	1/15	M22302-W

STOCK INDENT

Welcome M
Indoor station

Audio indoor stations – common features

- 1 easy pushbutton for unlock, and 2 additional buttons for self setting functions, e.g. intercom ,door status check, second lock release or even calling the security guard, etc.
- Max-mid-mute volume adjuster on the side.
- 2 LEDs to indicate different working status.
- 5 ringtones for different call sources, i.e. from default outdoor station, secondary outdoor station, door bell, intercom or guard unit.
- The activating or deactivating of automatic unlock can be made by simply pressing the unlock button or second lock release for 10 seconds, or even calling the security guard, etc.
- Product dimension: 198 x 81 x 43 mm.

Audio handset indoor station, 3 buttons with induction loop

- Electromagnetic signals will be emitted by a special inductive loop to provide hearing assistance to hearing aid users.

Description	Pack quantity	Order code
Audio handset indoor station, 3 buttons with induction loop, white	1/25	M22003-W

Audio handset indoor station, 6 buttons

- The activating or deactivating of automatic unlock can be made by simply pressing the unlock button or second lock release for 10 seconds, or even calling the security guard, etc.

Description	Pack quantity	Order code
Audio handset indoor station, 6 buttons, white	1/25	M22001-W

Welcome M
Indoor station: Accessories

Changeable front cover for 4.3" video hands-free indoor station

5 face covers of different colors are available, which are easily changeable for 4.3" video hands-free indoor station to meet personal esthetic preference.

Description	Pack quantity	Order code
Front cover for 4.3" video hands-free, white	1/36	52311FC-W
Front cover for 4.3" video hands-free , silver	1/36	52311FC-S
Front cover for 4.3" video hands-free , black	1/36	52311FC-B
Front cover for 4.3" video hands-free , golden	1/36	52311FC-G
Front cover for 4.3" video hands-free , light blue	1/36	52311FC-L

Changeable front cover for 4.3" video hands-free indoor station with induction loop

5 face covers of different colors are available, which are easily changeable for 4.3" video hands-free indoor station with induction loop to meet personal esthetic preference.

Description	Pack quantity	Order code
Front cover for 4.3" video hands-free with induction loop, white	1/36	52313FC-W
Front cover for 4.3" video hands-free with induction loop, silver	1/36	52313FC-S
Front cover for 4.3" video hands-free with induction loop, black	1/36	52313FC-B
Front cover for 4.3" video hands-free with induction loop, golden	1/36	52313FC-G
Front cover for 4.3" video hands-free with induction loop, light blue	1/36	52313FC-L

Flush mounted box for 4.3" video hands-free indoor station

Metal box for flush mounted 4.3" video hands-free indoor stations.
Product dimension: 145 x 125 x 27 mm.

Description	Pack quantity	Order code
Metal flush mounted box	1/60	42311F

Desktop bracket

Full metal design with brush finish base, it is fit for 7" all touch, 4.3" hands-free video indoor station, 4.3" handset video indoor station and guard unit.
Product dimension: 125 x 107 x 134 mm.

Description	Pack quantity	Order code
Metal desktop bracket	1/12	42311D

Handset with induction loop

It is fit for audio handset indoor station with induction loop and 4.3" video handset indoor station with induction loop.

Description	Order code
Handset with induction loop (spare part)	52303HS-W

Jumper

Jumper set for audio / video hanset indoor stations is used to set the adress, master / slave indoor station and RC on / off of indoor stations.

Description	Order code
Jumper set for audio handset indoor station	52001J
Jumper set for 4.3" video handset indoor station	52301J

STOCK INDENT

Welcome M
System devices

System controller

Mini system controller

System controllers

- As the 'brain' of the individual system, it manages the communication between outdoor station and indoor station.
- Two working modes to switch between 'all on' and 'one on'.
- If in 'all on' mode, and the apartment contains more than 1 video indoor station, all the screens in this apatment will be on while only one is on if in 'one on' mode.
- It can also serve as auxiliary BUS power supply when connected to gateway in certain mode.
- 1LED for normal working condition indication.
- Overheat, short-circuit and lightening protection.

Description	Product dimension	Pack quantity	Order code
System controller, 1.2A output, MDRC 8U	90x144x65 mm	1/10	M2300
Mini system controller, 0.65A output, MDRC 4U	90x72x65 mm	1/10	M2301

Gateway

- It offers 5 different modes which can be set by dipswitch: apartment gateway, floor gateway, building gateway, auxiliary BUS power supply interface and line amplifier.
- Product dimension: 90 x 72 x 65 mm.

Description	Pack quantity	Order code
Gateway, MDRC 4U	1/10	M2302

Video outdoor distributor

- It is used for buildings with more than 1 outdoor station.
- 2-way inputs are connected to different outdoor stations.
- Product dimension: 90 x 36 x 65 mm.

Description	Pack quantity	Order code
Video outdoor distributor, MDRC 2U	1/20	83325/2-500

Welcome M
System devices

Guard unit

- 4.3" touch screen and 6 touch film buttons can ensure the communication with calls from outdoor station, indoor station or other guard unit (if any).
- It can be manually or automatically set into intercept mode to increase security level for all users or only VIPs.
- Surveillance can be done through the camera of outdoor stations or integrated analog camera.
- Missed calls and alarm messages stored in the memory can be reviewed.
- It can be surface mounted on the wall or desktop mounted (desktop bracket 42311D is needed).
- Product dimension: 144 x 198 x 45 mm.

Description	Pack quantity	Order code
Guard Unit	1/15	M2303

Video distributor

- This compact device supports 4-way outputs connected to different apartments or different high-rise buildings.
- Flush-mounted into VDE/Italian box or surface mounted through the hole in the middle.
- Product dimension: 45 x 45 x 26 mm.

Description	Pack quantity	Order code
Video distributor, FM	1/18	M2304

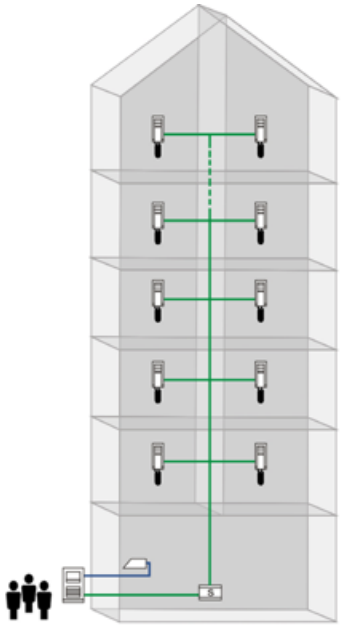
Switch actuator

- This compact device has 3 working modes: extend door bell, door opener and time relay.
- Local pushbutton can be connected as control input.
- The switching duration of unlock or switching on lightings is adjustable.
- Flush-mounted.
- Product dimension: 51 x 51 x 29 mm.

Description	Pack quantity	Order code
Switch actuator, FM	1/18	M2305

STOCK INDENT

Welcome M
System composition – audio solution



Welcome M is right for pure audio solution, regardless of new or renovation installation.

- In case of pushbutton solution, either 2 calls or 1 call for 1 button is possible. For user's convenience, it is not recommended to use pushbutton solution for buildings with more than 40 apartments.
- The recommended modules composition and products for different no. of apartment are listed on the given data sheet (Page 76).
- Keypad solution with display (in-built RFID reader) is also possible, and it is a good solution for high-rise building. The recommended modules and products for given no. of apartments are listed on the given data sheet (See table below).
- The wiring can be rising mains with branch connection like the given diagram, but it is only fit for pure audio installation when no video indoor station is installed. If only 1 video indoor station is needed, rising mains with branch is not allowed. A looping through or branch line topology can be used.
- If using cable with dia. of 0.8 mm, the distance between outdoor station and the farthest indoor station is up to 300 meters. For longer distance, either better cable (e.g. coaxial) or amplifier should be used.

Display with keypad solution

The chart below is a simple composition suggestion for display with keypad outdoor station for audio solution.

	Keypad Outdoor Station					Indoor Stations with System Devices			
								Mode set as auxiliary power supply	
Users	**51023CF-.**	**41023F**	**M251021A-.or M251024A-.**	**M251021CR or M251022CR**	**M251021K-. or M251022K-.**	**M2300**	**M2301**	**M2302**	**M2200.-.**
See the number of the indoor station	1	1	1	1	1		1		12~24
	1	1	1	1	1	1			25~55
	System controller feeds indoor stations only, outdoor station is fed by local power supply								
	1	1	1	1	1	1	1	1	56~91
	System controller feeds outdoor station only, up to 2 outdoor stations can be used. Auxiliary power supply is used for all indoor stations: **1)** 79 x audo indoor station by one standard auxiliary power supply. **2)** 43 x audio indoor station by one mini auxiliayr power supply. All the gateways are looped through to connect to the system controller.								
	2	2	2	2	2	2	1	2	97~122
	2	2	2	2	2	3		2	123~158
	2	2	2	2	2	3	1	3	159~201
	2	2	2	2	2	4		3	202~237
	2	2	2	2	2	4	1	4	238~250

Notes:

1) The above data sheet is based on one indoor station for one apartment. For other application, please refer to the system manual.
2) It is recommended to use direct call outdoor station for application with less than 12 residents.
3) The power consumption of the electrical lock is already considered. For magnetic lock, local power supply should be fed independently.
4) In case surface mounting is needed, article 51023RH should be used.
5) Auxiliary power supply (gateway in auxiliary power supply mode + system controller) should be used in case one system controller can not cover the required power consumption.

Welcome M
System composition – audio solution

Pushbutton solution for audio outdoor station

The following charts are simple pushbutton outdoor station composition suggestion for audio solution.

Single Pushbutton

1

Users	510210F..	510220F..	510230F..	510240F..	510250F..	510260F..	510280F..	510290F..	41021F	41022F	41023F	41024F	41025F	41026F	41028F	41029F	M251021A-.. or M251024A-..	M251022A-..	M251023A-..	M251021P3	M251021P4	510210N
2	1								1										1			
3		1								1							1			1		
4		1								1							1				1	
5		1								1								1			1	
6		1								1									1		1	
7			1								1						1				2	
8			1								1						1				2	
9			1								1							1			2	
10			1								1								1		2	
11				1								1					1				3	
12				1								1					1				3	
13				1								1						1			3	
14				1								1							1		3	
15							1								1		1				4	
16							1								1		1				4	
17							1								1			1			4	
18							1								1				1		4	
19					1								1				1				5	
20					1								1				1				5	
21					1								1					1			5	
22					1								1						1		5	
23						1								1			1				6	1
24						1								1			1				6	1
25						1								1				1			6	1
26						1								1					1		6	1
27						1								1			1				7	
28						1								1			1				7	
29						1								1				1			7	
30						1								1					1		7	
31								1								1	1				8	1
32								1								1	1				8	1
33								1								1		1			8	1
34								1								1			1		8	1
35								1								1	1				9	
36								1								1	1				9	
37								1								1		1			9	
38								1								1			1		9	
39				3								3					1				10	1
40				3								3					1				10	1

Notes:

1) The composition of call buttons follows the rule that every call button should be of the same height for better appearance as an outdoor station, thus if 3-row button module is used, only pure audio module should be used and 4-row button module is not recommended.
2) Branch line topology is recommended for easier wiring and future refrofit, e.g. upgrade audio indoor station to video indoor station. However, if looping through is used, video distributor is unnecessary.
3) To fit correct frame, sometimes the number of call buttons might be more than that of users. For example, for 38 users, totally 10 x 4-row pushbutton modules are needed.
4) There can be other ways of compositions that are not listed on the data sheet, for example, for 19 users in single button solution, besides the solution of 5 x 4-row pushbutton modules plus pure audio module and 1 frame with 6-module holder, it can also be composed with 7 x 3-row pushbutton modules plus 1 pure audio module and 1 frame with 8-module holder.

Welcome M
System composition – audio solution

Double Pushbutton

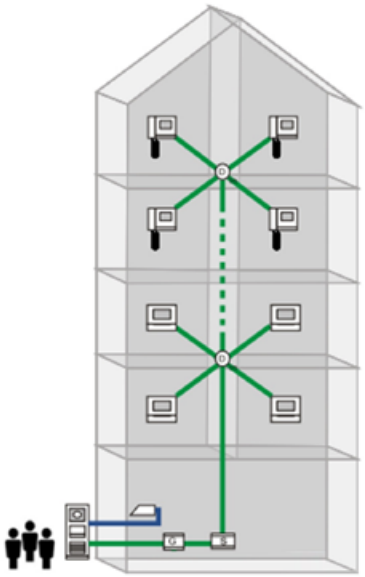
Users	510210F-..	510220F-..	510230F-..	510240F-..	510250F-..	510280F-..	41021F	41022F	41023F	41024F	41025F	41028F	M251021A-.. or M251024A-..	M251022A-..	M251023A-..	M251021P3	M251021P4
2	1						1							1			
3	1						1								1		
4	1						1								1		
5		1						1					1			1	
6		1						1					1			1	
7		1						1						1		1	
8		1						1						1		1	
9		1						1						1			1
10		1						1						1			1
11		1						1								1	1
12		1						1								1	1
13			1						1					1		2	
14			1						1					1		2	
15			1						1				1				2
16			1						1				1				2
17			1						1					1			2
18			1						1					1			2
19			1						1						1		2
20			1						1						1		2
21				1						1			1				3
22				1						1			1				3
23				1						1			1				3
24				1						1			1				3
25				1						1				1			3
26				1						1				1			3
27				1						1					1		3
28				1						1					1		3
29						1						1	1				4
30						1						1	1				4
31						1						1	1				4
32						1						1	1				4
33						1						1		1			4
34						1						1		1			4
35						1						1			1		4
36						1						1			1		4
37					1						1		1				5
38					1						1		1				5
39					1						1		1				5
40					1						1		1				5

Audio Indoor Station with System Devices

M2300	M2301	M2231-.. or M2230-..
	1	2
	1	3
	1	4
	1	5
	1	6
	1	7
	1	8
	1	9
	1	10
	1	11
	1	12
	1	13
	1	14
	1	15
	1	16
	1	17
	1	18
	1	19
	1	20
	1	21
	1	22
	1	23
	1	24
	1	25
	1	26
	1	27
	1	28
	1	29
	1	30
	1	31
	1	32
	1	33
	1	34
	1	35
	1	36
	1	37
1*		38
1*		39
1*		40

For single row, quantities bigger than 37 should use M2300. For double row, can use 2301.

Welcome M
System composition – video solution



Welcome M is right for video solution, regardless of new or renovation installation.

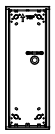
- In case of pushbutton solution, either 2 calls or 1 call for 1 button is possible. For user's convenience, it is not recommended to use pushbutton solution for buildings with more than 40 apartments.
- The recommended modules composition and products for different no. of apartment are listed on the given data sheet (Page 80–81).
- Keypad solution with display (in-built RFID reader) is also possible, and it is a good solution for high-rise buidings. The recommended modules and products for given no. of apartments are listed on the given data sheet (Page 79).
- Despite looping through is possible for wiring, branch line with 4-way distributor is recommended for easier wiring and reducing the distance.
- If using cable with dia. of 0.8 mm, the distance between outdoor station and the farthest indoor station is up to 200 meters. For longer distance, either better cable (e.g. coaxial) or amplifier should be used.

Welcome M
System composition – video solution

Display with keypad solution

The chart below is a simple composition suggestion of display with keypad outdoor station for video solution.

Keypad Outdoor Station

						
Users	**51024CF-.**	**41024F**	**M251021C**	**M251021A-. or M251024A-.**	**M251021CR or M251022CR**	**M251021K-. or M251022K-.**
See the number of the indoor station	1	1	1	1	1	1
	System controller feeds indoor stations only, outdoor station is fed by local power supply					
	1	1	1	1	1	1
	System controller feeds outdoor station only. Up to 2 outdoor stations can be used. Auxiliary power supply is used for all indoor stations: Up to 63 x 4.3" video indoor station or 63 x audio indoor station + 16 x video distributor can be powered by one standard auxiliary power supply. All the gateways are looped through to connect to the system controller.					
	2	2	2	2	2	2
	2	2	2	2	2	2
	2	2	2	2	2	2

Indoor Stations with System Devices

	Audio Handset				**4.3" Video Handset/Hands-free**				**7" Video Hands-free**			
		In auxiliary power supply mode				In auxiliary power supply mode				In auxiliary power supply mode		
Users	**M2300**	**M2302**	**M2304**	**M2231.-. M2230.-.**	**M2300**	**M2302**	**M2304**	**M2231.-. M2230.-.**	**M2300**	**M2302**	**M2304**	**M22311-.**
See the number of the indoor station	1		3~10	12~40	1		3~10	12~40	1			2
	System controller feeds indoor stations only, outdoor station is fed by local power supply											
	1	1	11~18	41~72	1	1	11~18	41~72	2	1	1~2	2~6
	System controller feeds outdoor station only. Up to 2 outdoor stations can be used. Auxiliary power supply is used for all indoor stations: Up to 63 x 4.3" video indoor station or 63 x audio indoor station + 16 x video distributor can be powered by one standard auxiliary power supply. All the gateways are looped through to connect to the system controller.											
	3	2	20~36	77~126	3	2	20~36	77~126	2	1	1~2	2~6
	4	3	36~47	127~189	4	3	36~47	127~189				
	5	4	36~64	190~250	5	4	36~64	190~250				

Notes:

1) For buildings with less than 12 residents, it is recommended to use the direct-call outdoor station.
2) The power consumption of the electrical lock is already considered. For magnetic lock, local power supply should be fed independently.
3) In case surface mounting is needed, article 51024RH should be used.
4) In case of audio indoor station, the video distributor is recommended to use for future retrofit into video indoor station.

Welcome M
System composition – video solution

Pushbutton solution for video outdoor station

The following charts are simple pushbutton outdoor station composition suggestion for video solution.

Single Pushbutton

1

Users	1022CF..	1023CF..	1024CF..	1025CF..	1026CF..	1028CF..	1029CF..	41022F	41023F	41024F	41025F	41026F	41028F	41029F	M251021C	M251021A-.. or M251024A-..	M251022A-..	M251023A-..	M251021P3	M251021P4	1021DN
2	1							1							1			1			
3		1							1						1	1			1		
4		1							1						1	1				1	
5		1							1						1		1			1	
6		1							1						1			1		1	
7			1							1					1	1				2	
8			1							1					1	1				2	
9			1							1					1		1			2	
10			1							1					1			1		2	
11						1							1		1	1				3	
12						1							1		1	1				3	
13						1							1		1		1			3	
14						1							1		1			1		3	
15				1							1				1	1				4	
16				1							1				1	1				4	
17				1							1				1		1			4	
18				1							1				1			1		4	
19					1							1			1	1				5	1
20					1							1			1	1				5	1
21					1							1			1		1			5	1
22					1							1			1			1		5	1
23					1							1			1	1				6	
24					1							1			1	1				6	
25					1							1			1		1			6	
26					1							1			1			1		6	
27							1							1	1	1				7	1
28							1							1	1	1				7	1
29							1							1	1		1			7	1
30							1							1	1			1		7	1
31							1							1	1	1				8	
32							1							1	1	1				8	
33							1							1	1		1			8	
34							1							1	1			1		8	
35			3							3					1	1				9	1
36			3							3					1	1				9	1
37			3							3					1		1			9	1
38			3							3					1			1		9	1
39			3							3					1	1				10	
40			3							3					1	1				10	

Notes:

1) The composition of call buttons follows the rule that every call button should be of the same height for better appearance as an outdoor station, thus if 3-row button module is used, only pure audio module should be used and 4-row button module is not recommended.
2) Branch line topology is recommended for easier wiring and future retrofit, e.g. upgrade audio indoor station to video indoor station. However, if looping through is used, video distributor is unnecessary.
3) For audio indoor station fitted with video outdoor station, it is recommended to use the same amount of system controller as for video 4.3" indoor station for future retrofit, e.g. upgrade the system from audio into video.

Welcome M
System composition – video solution

Double Pushbutton

Users	51022CF-..	51023CF-..	51024CF-..	51025CF-..	51026CF-..	51028CF-..	41022F	41023F	41024F	41025F	41026F	41028F	M251021C	M251021A-.. or M251024A-..	M251022A-..	M251023A-..	M251021P3	M251021P4	51021DN
2	1						1						1		1				
3	1						1						1			1			
4	1						1						1			1			
5		1						1					1	1			1		
6		1						1					1	1			1		
7		1						1					1	1				1	
8		1						1					1	1				1	
9		1						1					1		1			1	
10		1						1					1		1			1	
11		1						1					1			1		1	
12			1						1				1	1			2		
13			1						1				1	1				2	
14			1						1				1	1				2	
15			1						1				1	1				2	
16			1						1				1	1				2	
17			1						1				1		1			2	
18			1						1				1		1			2	
19			1						1				1			1		2	
20			1						1				1			1		2	
21						1						1	1	1				3	
22						1						1	1	1				3	
23						1						1	1	1				3	
24						1						1	1	1				3	
25						1						1	1		1			3	
26						1						1	1		1			3	
27						1						1	1			1		3	
28						1						1	1			1		3	
29				1						1			1	1				4	
30				1						1			1	1				4	
31				1						1			1	1				4	
32				1						1			1	1				4	
33				1						1			1		1			4	
34				1						1			1		1			4	
35				1						1			1			1		4	
36					1						1		1				6		1
37					1						1		1	1				5	1
38					1						1		1	1				5	1
39					1						1		1	1				5	1
40					1						1		1	1				5	1

System controller with video indoor station 4.3"

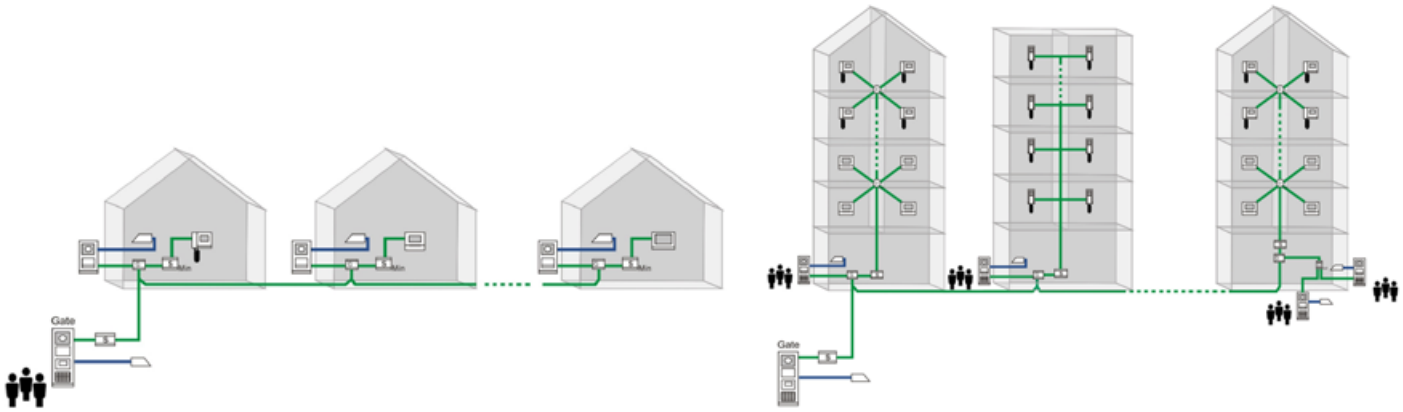
M2300	M2301	M2304	M2231-.. or M2230-..
	1	1	2
	1	1	3
	1	1	4
	1	2	5
1		2	6
1		2	7
1		2	8
1		3	9
1		3	10
1		3	11
1		3	12
1		4	13
1		4	14
1		4	15
1		4	16
1		5	17
1		5	18
1		5	19
1		5	20
1		6	21
1		6	22
1		6	23
1		6	24
1		7	25
1		7	26
1		7	27
1		7	28
1		8	29
1		8	30
1		8	31
1		8	32
1		9	33
1		9	34
1		9	35
1		9	36
1		10	37
1		10	38
1		10	39
1		10	40

System controller with video indoor station 7"

M2300	M2302	M2304	M2231-..
1		1	2
1		1	3
1		1	4
2	1	2	5
2	1	2	6
2	1	2	7
2	1	2	8
3	2	3	9
3	2	3	10
3	2	3	11
3	2	3	12
4	3	4	13
4	3	4	14
4	3	4	15
4	3	4	16
5	4	5	17
5	4	5	18
5	4	5	19
5	4	5	20
6	5	6	21
6	5	6	22
6	5	6	23
6	5	6	24
7	6	7	25
7	6	7	26
7	6	7	27
7	6	7	28
8	7	8	29
8	7	8	30
8	7	8	31
8	7	8	32
9	8	9	33
9	8	9	34
9	8	9	35
9	8	9	36
10	9	10	37
10	9	10	38
10	9	10	39
10	9	10	40

Welcome M
Composition networked

Typical Looping through Application



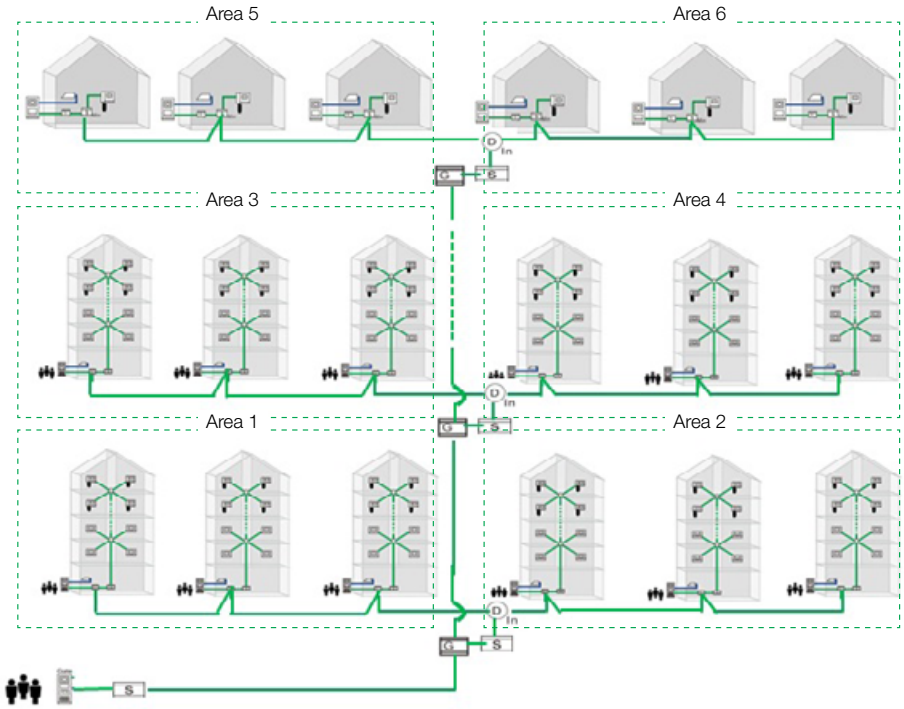
1. The maximum distance between gate station and the last gateway should be less than 200 meters. However, the distance varies according to different types of cables. For more details, please refer to the system manual.
2. The given case assumes the wiring distance between two houses is ≤40 meters.
3. An additional gateway (set into amplifier mode) can be used to increase another 200 meters. In total, 2 gateways in amplifier mode can be used.
4. The number of guard units and gate stations is subject to project requirement. An additional mini system controller is needed for an additional device. For any additional gate station, one video outdoor distributor should be added.

Common part										Single or multi-family house or individual building part	
									(In amplifiery mode)		
Building number	51024CF-.	41024F	M251021C	M251021A-. or M251024A-.	M251021CR or M251022CR	M251021K.-. or M251022K.-.	M2301	M2303	M2302	M2302	Number of devices within this area* Unit: set
1~5	1	1	1	1	1	1	1	1		1~5	1~5
6~10	1	1	1	1	1	1	1	1	1	6~10	6~10
11~15	1	1	1	1	1	1	1	1	2	11~15	11~15

Notes:
* For detailed information, please refer to the devices of system composition of individual buildings.

Welcome M
Composition networked

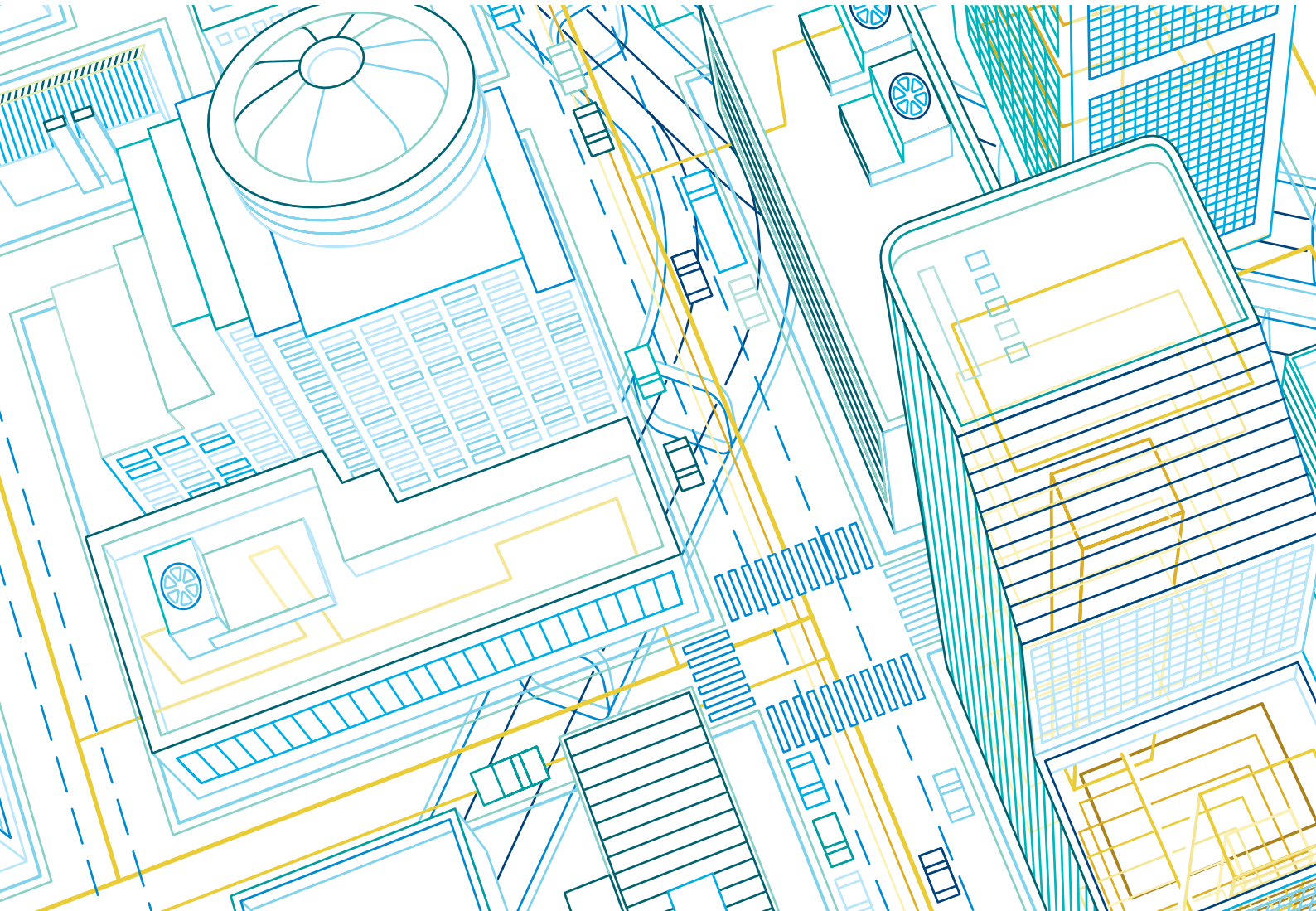
Typical Branch-line Application



1. The maximum distance between gate station and the last gateway should be less than 200 meters. However, the distance varies according to different types of cable. For detailed information, please refer to the user manual.
2. An additional gateway (set into amplifier mode) can be used to increase another 200 meters. In total, 2 gateways in amplifier mode can be used.
3. To maximize the use of cable according to distance calculation rule, the symmetrical topology with trunk line in the middle is recommended.
4. The number of guard units and gate stations is subject to project requirement. An additional mini system controller is needed for an additional device. For an additional gate station, one video outdoor distributor should be added.
5. The maximum number of distributors in common part is recommended to be ≤10. For information about distance, please refer to the system manual.
6. The maximum number of houses in the total area should be less than 60 in case of multi-family house, and less than 99 in case of single-family house.
7. If there is only 1 or 2 areas and the total number of buildings or houses is as below, video distributor is enough to make the star-sharp connection to each building. Auxiliary power supply (gateway + system controller) is unnecessary.

Common part												Area part
							System controller		(In amplifiery mode)		Distributor	
Area number	51024CF-.	41024F	M251021C	M251021A-. or M251024A-.	M251021CR or M251022CR	M251021K.-. or M251022K.-.	M2300	M2303	M2302	M2301	M2304	Number of devices within this area* Unit: set
2~4	1	1	1	1	1	1	1	1	1	1	1	2~4
5~8	1	1	1	1	1	1	1	1	2	2	2	5~8
9~12	1	1	1	1	1	1	1	1	3	3	3	9~12
13~16	1	1	1	1	1	1	1	1	4	4	4	13~16
..	1	1	1	1	1	1	1	1	..	..	..	..

Notes:
* For detailed information, please refer to the devices of individual buildings.



Final Distribution

Residential products 87

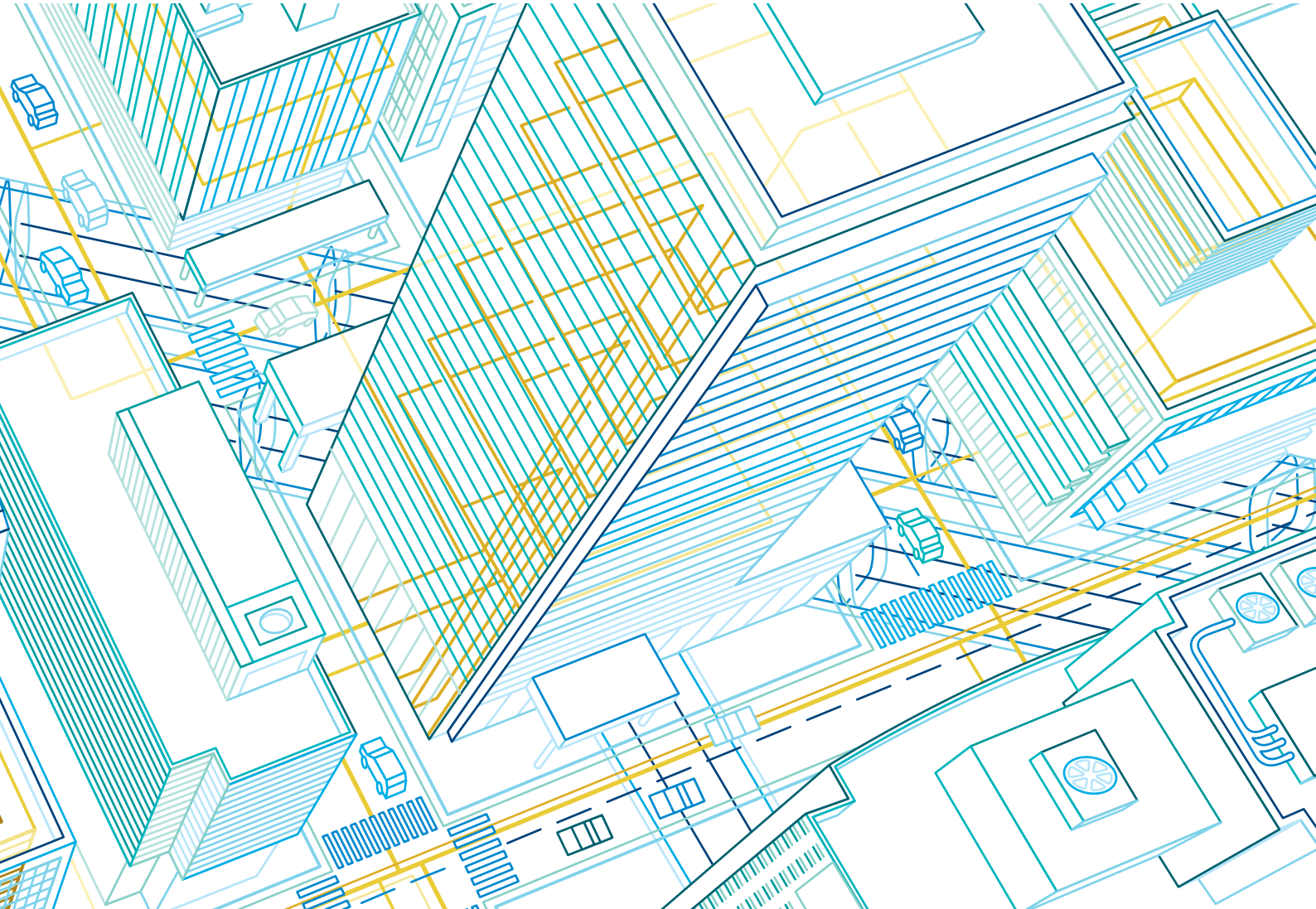
Miniature circuit breakers (MCB) 101

Residual current devices RCD, RCCB, RCBO 125

Auxiliary elements and accessories 149

Modular DIN rail components 161

Industrial plugs and sockets 177



Residential products

Miniature circuit breakers 88
S91 88
SH200 88

Residual current devices 89
FH200 RCCB 89
DSN201 RCBO 90
DS201 RCBO 91

Surge Protection Devices (SPD) 92
OVR SPD 92

Switch Disconnectors 92
SHD200 and E200 92

DIN switches 93
E213 – E214 93

Time switches 93
Analogue and digital 93

Twilight switches 94
T line modular twilight switch 94
Astronomical twilight switches 94

Weatherguard range 95
Socket outlets, switches and enclosed isolators 95

Consumer units 96
Economy 96
Designer IP41 and IP65 97

Loaded consumer units 99

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

- System pro *M* compact© – 2CSC400002D0211
- System pro *E* comfort MISTRAL® – 1SLC801013D0201
- Surge protection devices – 1TXH000375C0202
- Time and twilight switches – 2CSC440020B0203

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

– Protection against overloads and short circuits
– Ideally suited for retro-fitting into fuse bases in domestic applications
– Not suitable for fitting System pro *M* accessories

Standard AS/NZS 60898, IEC/EN 60898
Rated short circuit capacity 3kA
Voltage range 1P : 230 – 240 V

Rating (A)	Description	Order code
6	Plug-in MCB 3kA 6A C-curve	S91-C6
10	Plug-in MCB 3kA 10A C-curve	S91-C10
16	Plug-in MCB 3kA 16A C-curve	S91-C16
20	Plug-in MCB 3kA 20A C-curve	S91-C20
25	Plug-in MCB 3kA 25A C-curve	S91-C25
32	Plug-in MCB 3kA 32A C-curve	S91-C32

Miniature circuit breakers (MCB) 6kA home range

– Protection against overloads and short circuits
– Ideally suited for domestic and light commercial applications in consumer units
– Not suitable for fitting System pro *M* accessories

Standard AS/NZS 60898, IEC/EN 60898
ICN 6kA
Voltage range 1P : 230 – 240 V
3P : 230/415 V

Rating (A)	Description	Order code	
		1 Pole	3 Pole
6	MCB 6kA 6A C-curve	SH201C6	SH203C6
8	MCB 6kA 8A C-curve	SH201C8	SH203C8
10	MCB 6kA 10A C-curve	SH201C10	SH203C10
13	MCB 6kA 13A C-curve	SH201C13	SH203C13
16	MCB 6kA 16A C-curve	SH201C16	SH203C16
20	MCB 6kA 20A C-curve	SH201C20	SH203C20
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

STOCK INDENT

Final Distribution
Residential products

Residual current device (RCCB) Type AC home range

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

Standard AS/NZS 61008, IEC/EN 61008
Rated short circuit capacity 6kA with 63A fuse or MCB
Voltage range 230/400 V – 240/415 V

Sensitivity (mA)	Rating (A)	Description	Order code	
			2 Pole	4 Pole
30	25	RCCB, 25A, 30mA, Type AC	FH20225	FH20425
	40	RCCB, 40A, 30mA, Type AC	FH20240	FH20440
	63	RCCB, 63A, 30mA, Type AC	FH20263	FH20463

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

Residual current device (RCCB) Type A home range

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

Standard AS/NZS 61008, IEC/EN 61008
Rated short circuit capacity 6kA with 63A fuse or MCB
Voltage range 230/400 V – 240/415 V

Sensitivity (mA)	Rating (A)	Description	Order code	
			2 Pole	4 Pole
30	40	RCCB, 40A, 30mA, Type A	FH202A40	FH204A40
	63	RCCB, 63A, 30mA, Type A	FH202A63	FH204A63

Residual Current Device with Overcurrent (RCBO) Type AC

Single module

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

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA
Voltage range 230/400 V

Sensitivity (mA)	Rating (A)	Description	Order code
30	6	RCBO, 1P, 6A, C-curve, 30mA, Type AC	DSN201C6
	10	RCBO, 1P, 10A, C-curve, 30mA, Type AC	DSN201C10
	16	RCBO, 1P, 16A, C-curve, 30mA, Type AC	DSN201C16
	20	RCBO, 1P, 20A, C-curve, 30mA, Type AC	DSN201C20
	25	RCBO, 1P, 25A, C-curve, 30mA, Type AC	DSN201C25

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

Residual Current Device with Overcurrent (RCBO) Type A

Single module

- Compact single module size
- Protection against short circuit, thermal overload and earth leakage
- Connect supply from top or bottom
- Ideally suited for domestic and light commercial applications in consumer units
- Type A, used where the earth fault waveform is sinusoidal or pulsating DC (computer loads etc)
- Accepts accessories if interface module type SN201-IH is used

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA
Voltage range 230–240 V

Sensitivity (mA)	Rating (A)	Description	Order code
10	6	RCBO, 1P, 6A, C-curve, 10mA, Type A	DSN201C6A10
	10	RCBO, 1P, 10A, C-curve, 10mA, Type A	DSN201C10A10
	16	RCBO, 1P, 16A, C-curve, 10mA, Type A	DSN201C16A10
	20	RCBO, 1P, 20A, C-curve, 10mA, Type A	DSN201C20A10
	25	RCBO, 1P, 25A, C-curve, 10mA, Type A	DSN201C25A10
30	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DSN201C6A30
	10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DSN201C10A30
	16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DSN201C16A30
	20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DSN201C20A30
	25	RCBO, 1P, 25A, C-curve, 30mA, Type A	DSN201C25A30

STOCK INDENT

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
- Type AC, used where the earth fault is sinusoidal
- Contact position indicator
- Can be used on ABB 3 phase busbar chassis due to isolated neutral terminal

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA
Voltage range 230/400 V

Sensitivity (mA)	Rating (A)	Description	Order code
30	6	RCBO, 2P, 6A, C-curve, 30mA, Type AC	DS201BSC6
	10	RCBO, 2P, 10A, C-curve, 30mA, Type AC	DS201BSC10
	16	RCBO, 2P, 16A, C-curve, 30mA, Type AC	DS201BSC16
	20	RCBO, 2P, 20A, C-curve, 30mA, Type AC	DS201BSC20
	25	RCBO, 2P, 25A, C-curve, 30mA, Type AC	DS201BSC25
	32	RCBO, 2P, 32A, C-curve, 30mA, Type AC	DS201BSC32
	40	RCBO, 2P, 40A, C-curve, 30mA, Type AC	DS201BSC40

Note: Type AC devices are not suitable in New Zealand

Residual Current Device with Overcurrent (RCBO)

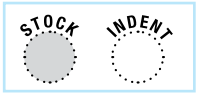
Two module, Type A

- 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 (computer loads etc)
- Contact position indicator

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA and 10kA
Voltage range 230 – 240 V

Sensitivity (mA)	Rating kA	Rating (A)	Description	Order code
10	6	10	RCBO, 1P, 10A, C-curve, 10mA, Type A	DS201C10A10
		16	RCBO, 1P, 16A, C-curve, 10mA, Type A	DS201C16A10
30	6	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DS201C6A30
		10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DS201C10A30
		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

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



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 Device
- 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

Standard IEC 61643-1, EN 61643-11
Nominal voltage 230/400 V
Max. cont. operating voltage 275 V

Max Discharge Current	Modules (18mm)	Voltage protection level (kV)	Max. backup fuse/MCB	Description	Order code
20	1	0.9	50	OVRT2-T3 20-275P QS SPD 20 kA	2CTB803871R2400
40	1	1.25	50	OVR T2 40-275PTS QS SPD 40 kA	2CTB803871R1700

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 165 in the *Modular DIN rail components* section of this catalogue.

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

SHD 201

SHD 202

SHD 203

SHD 204

Standard AS/NZS 60947.3, IEC/EN 60947-3
Voltage range 230/400 V

Rating (A)	Order code 1 Pole	2 Pole	3 Pole	4 Pole
25	SHD20125	SHD20225	SHD20325	SHD20425
32	SHD20132	SHD20232	SHD20332	SHD20432
40	SHD20140	SHD20240	SHD20340	SHD20440
63	SHD20163	SHD20263	SHD20363	SHD20463
80	E20180RD	E20280RD	E20380RD	E20480RD
100	E201100RD	E202100RD	E203100RD	E204100RD
125	E201125RD	E202125RD	E203125RD	E201125RD

STOCK INDENT

DIN mounting changeover switches

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

E213-16-001

E 213-16-002

Changeover Switches

Standard EN 60669-1
Voltage range 1 C/O, 2 C/O 250 V

Current rating	Contacts	Width (mm)	Order code
16	1 C/O	9	E213-16-001
	2 C/O	18	E213-16-002
25	1 C/O	9	E213-25-001
	2 C/O	18	E213-25-002

E214-16-101

E214-16-202

Group Switches (I-0-II, manual-off-auto)

Standard EN 60669-1
Voltage range 1 C/O, 2 C/O 250 V

Current rating	Contacts	Width (mm)	Order code
16	1 C/O	9	E214-16-101
	2 C/O	18	E214-16-102
25	1 C/O	9	E214-25-101
	2 C/O	18	E214-25-102

Time switches

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

Analogue time switch

Voltage 230 V
Contacts 16A
Programs Maximum 96 programs per cycle
Minimum switching 15 minutes

Contacts	Running reserve	Version	Modules	Order code
1 N/O	200h	Daily	1	AT1R
1 C/O	–	Daily	3	AT3
1 C/O	200h	Daily	3	AT3R

Digital time switch

Voltage 230 V
Contacts 16A
Programs Maximum 64 programs per cycle
Minimum switching 1 second

Channels	Running reserve	Version	Modules	Order code
1 C/O	6 years	Weekly	2	D1
2 C/O	6 years	Weekly	2	D2

STOCK INDENT

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

T1 T1 PLUS

T line modular twilight switch

Voltage 230 V
Contacts 16A (resistive), 3A inductive

Brightness range (lux)	Contacts	Maximum loads			Module width	Order code
		Incandescent	Fluorescent	Electronic		
2 : 200	1 N/O	960W	720W	200W	1	T1
2 : 15000	1 C/O	1080W	720W	200W	2	T1PLUS

Accessories (spare parts)

Description	Order code
IP65 Sensor	LS-D

Pole mounting twilight switch

Voltage 230 V
Contacts 16A (resistive), 3A inductive

Brightness range (lux)	Contacts	Maximum loads			Module width	Order code
		Incandescent	Fluorescent	Electronic		
2 : 200	1 N/O	960W	720W	200W	–	T1POLE

Astronomical twilight switches

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

TWA-1

TWA twilight astronomical switch

Voltage 230 V
Contacts 16A (resistive), 3A inductive

Brightness range (lux)	Contacts	Maximum loads			Module width	Order code
		Incandescent	Flourescent	Electronic		
2 : 200	1 C/O	2300W	400W	500W	2	TWA1
2 : 15000	2 C/O	2300W	400W	500W	2	TWA2

STOCK INDENT

Final Distribution
Residential products

Weatherguard socket outlets

– General purpose outlet rated 10A

Standard AS/NZS 3112
Rated voltage 250 V AC
Protection rating IP53

Type	Current rating	Description	Order code
Single	10	Weather protected single 10A GPO, IP53	WSO110
Double	10	Weather protected single 10A GPO, IP53	WSO210

Weatherguard switches

– Weatherproof switches with modern design for lighting and general loads

Standard AS/NZS 3112
Rated voltage 250 V AC
Protection rating IP66

Current rating	Description	Order code
16 AX	Weather protected single switch, 16A, IP53	WSW211
16 AX	Weather protected double switch, 16A, IP53	WSW221

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 IEC 60947-3
Rated voltage 240 V AC
Protection rating IP66

Current rating	Poles	Description	Order code
20	2	Switch isolator, 2P, 20A, IP66	WSD220
32	2	Switch isolator, 2P, 32A, IP66	WSD232
45	2	Switch isolator, 2P, 45A, IP66	WSD245
63	2	Switch isolator, 2P, 63A, IP66	WSD263
20	4	Switch isolator, 4P, 20A, IP66	WSD420
32	4	Switch isolator, 4P, 32A, IP66	WSD432
45	4	Switch isolator, 4P, 45A, IP66	WSD445
63	4	Switch isolator, 4P, 63A, IP66	WSD463

STOCK INDENT

Economy consumer units

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

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

Pole capacity	Rows	Dimensions (H x W x D)	Order code
12	1	210 mm x 256 mm x 100 mm	LC12ST
18	1	222 mm x 354 mm x 100 mm	LC18ST
24	2	325 mm x 270 mm x 100 mm	LC24ST

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

Pole capacity	Rows	Dimensions (H x W x D)	Order code
12	1	210 mm x 256 mm x 100 mm	LC12SW
18	1	222 mm x 354 mm x 100 mm	LC18SW
24	2	325 mm x 270 mm x 100 mm	LC24SW

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

Pole capacity	Rows	Dimensions (H x W x D)	Base depth	Order code
12	1	222 mm x 256 mm x 27 mm	76 mm	LC12FMT
18	1	252 mm x 354 mm x 27 mm	76 mm	LC18FMT
24	2	345 mm x 270 mm x 27 mm	76 mm	LC24FMT

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

Pole capacity	Rows	Dimensions (H x W x D)	Base depth	Order code
12	1	222 mm x 256 mm x 27 mm	76 mm	LC12FMW
18	1	252 mm x 354 mm x 27 mm	76 mm	LC18FMW
24	2	345 mm x 270 mm x 27 mm	76 mm	LC24FMW

Accessories

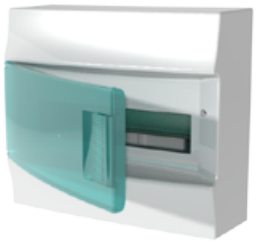
Metal backing plate for cable protection in cavity walls (1mm galvanised steel) – supplied loose

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

STOCK INDENT

Designer consumer units

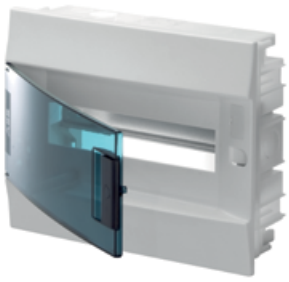
– Ideal for domestic homes and residential apartments.
– Earth and neutral bars included as shown
– Suits DIN profile products – MCB, RCD, RCBO, SPD, time switches



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

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

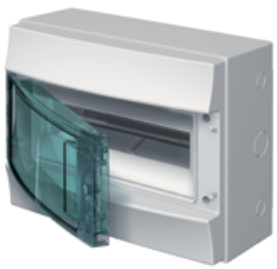
Note: Models available with opaque door.
48, 54 and 72 pole sizes also available.



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

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

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



IP65 Designer range of surface mount consumer units – MISTRAL 65

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

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

Wall fixing bracket

Accessories

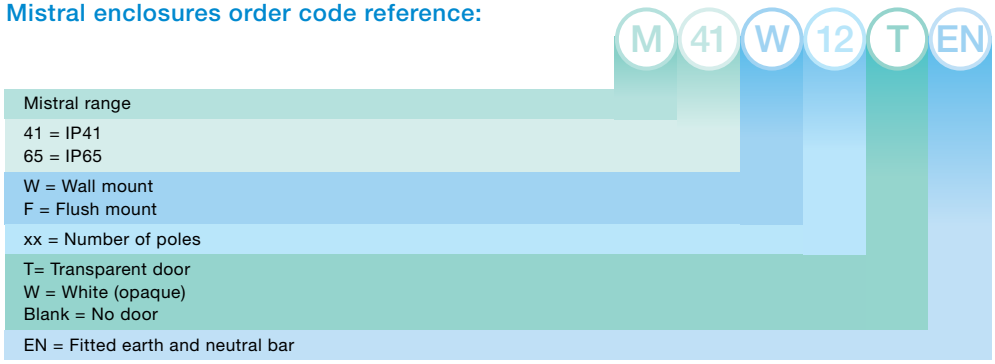
Description	Order code
Wall fixing brackets (4pcs) for MISTRAL65	1SL1927A00
Lock with key MISTRAL65	1SL1931A00
4 module strip	LA12859
12 module strip	SZBP12
Circuit identification sticker card – Blue	GJF1707P0011
Circuit identification sticker card – Red	GJF1707P0012

Accessories – Metal backing plate for flush mount consumer units

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

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

Mistral enclosures order code reference:



STOCK INDENT

Loaded consumer units

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

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

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

Other configurations are available. Please contact your ABB representative.

STOCK INDENT

System pro *M* compact©
Miniature circuit breakers (MCB)

System pro *M* compact® 102
Quick selection of MCBs for residential and industrial applications 102

Miniature circuit breakers 103
Selection table 103
S 200 technical features 106
Tripping characteristics 108
S91, SH200 110
SN200 111
S200 112
S200M 113
S200P, S200MUC 114

S800 high performance MCB technical features 116
S800B – S800C 120
S800N – S800S 121

Solar photovoltaic string protection MCB – 27mm pole width 122
S800PVS 122

1000V MCB – 27mm pole width 123
S800HV 123

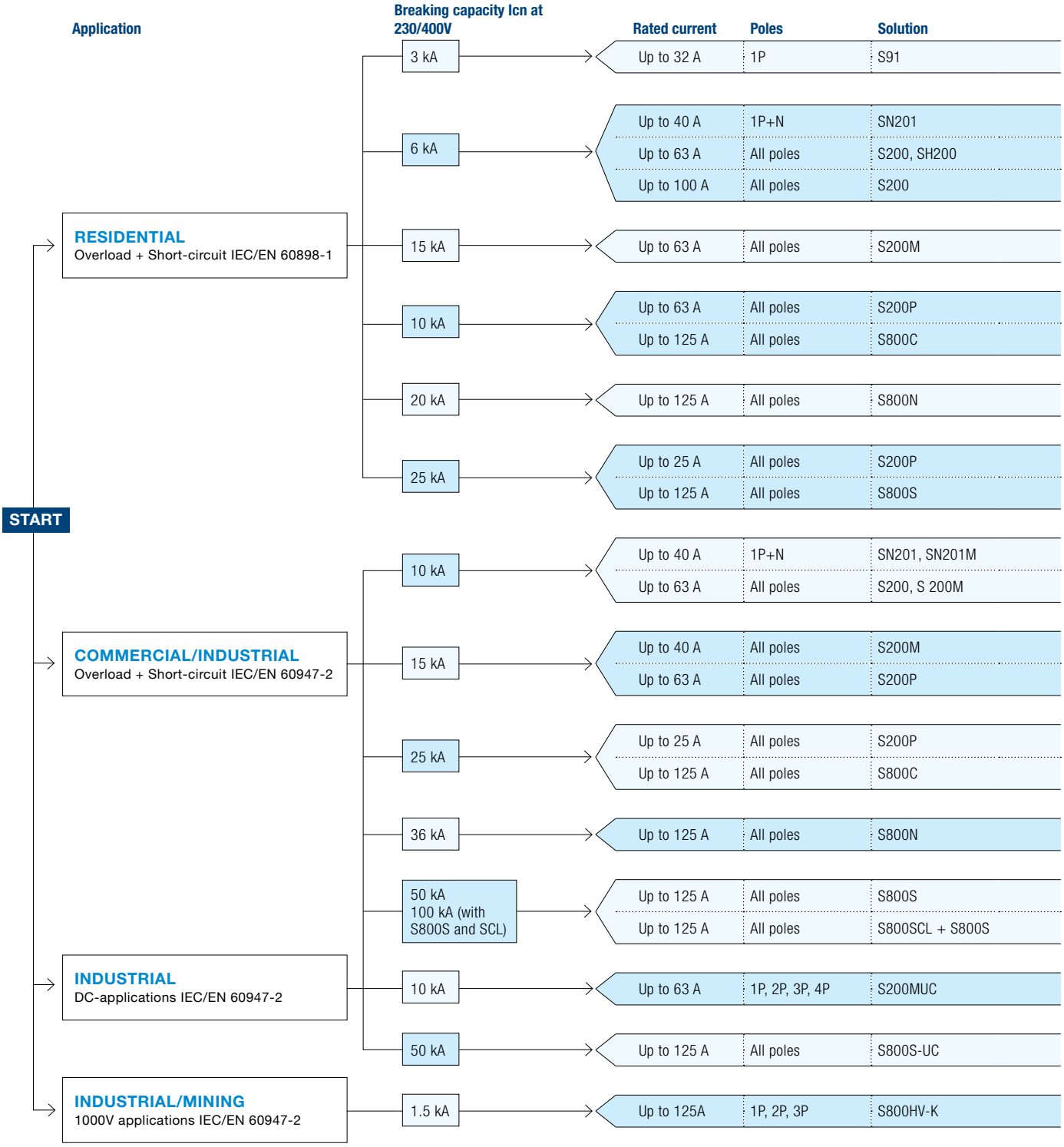
2

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

- System pro *M* compact© – 2CSC400002D0211
- S800HV 1000V MCB – 2CCC413010L0201

System pro *M* compact®
Quick selection of MCBs for residential and industrial applications

Easy! Find the right range and the corresponding catalogue page at a glance using this selection chart.



Miniature circuit breakers
Selection table

Series				S 91	SH 201	S 200	S 200 M	S 200 M UC	S 200 P			SN 201	SN 201 M	S 200
Characteristics				C	C	B, C, D, K, Z	B, C, D, K, Z	B, C, K, Z	B, C, D, K, Z	B, C, D, K, Z	B, C, D, K, Z	B, C, D	B, C	B, C
Rated current	**[A]**			6 ≤ In ≤ 32	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	**Icn**		230/400	3	6	6	10	10	25	15	15	6	10	6
IEC/EN 60947-2 Alternating current	**Icu**	1, 1P+N	133			20	25		40	25	25	15	20	15
			230			10	15		25	15	15	10	10	10
			253											
		2, 3, 4	230			20	25	10[1] / 6[2]	40	25	25			10
			400			10	15		25	15	15			6
			440			10	15	10[1] / 6[2]						
		2, 3, 4	500											
			690											
	Ics	1, 1P+N	133			15	18.7		20	18.7	18.7	10	10	15
			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	**Icu**	1, 1P+N	24			20								
			60			10	10		15	10	10	15	15	
			125											
			220					10						
			250											
		2	48			20								
			125			10	10		15	10	10	15	15	
			250											
			440					10						
			500											
			800											
		3,4	375											
			500											
			750											
			1200											

1) ≤ 40 A
2) > 40 A

▶ Table continued on next page

Miniature circuit breakers
Selection table

▶ Table continued from previous page

Series				S800S					S800N	S800C	S800B	S800U	S800PV-S	S800HV	
Characteristics				B, C, D	K	KM	UCB	UCK	B, C, D	B, C, D, K	B, C, D, K	Z, K, UCZ, PVS	PV-S	K	
Rated current	**[A]**			6 ≤ In ≤ 125	6 ≤ In ≤ 125	20 ≤ In ≤ 80	10 ≤ In ≤ 125	10 ≤ In ≤ 125	6 ≤ In ≤ 125	10 ≤ In ≤ 125	10 ≤ In ≤ 100/ 125[6]	5 ≤ In ≤ 100	10 ≤ In ≤ 125	6 ≤ In ≤ 63	80 ≤ In ≤ 125
Breaking capacity	**[kA]**														
Reference standard		**Number of poles**	**Ue[V]**												
IEC/EN 60898	**Icn**		230/400	25[7]					20[7]	15					
IEC/EN 60947-2 Alternating current	**Icu**	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						
	Ics	1, 1P+N	133												
			230	40	40				30	18	10	25			
			253												
		2, 3, 4	230	40	40	40 f			30	18	10	40			
			400	40	40	40 f			30	18	10				
			440												
		2, 3, 4	500	11[1]	11[1]										
			690	4[1]	4[1]				3						
	Icu	1	580											4	3
		2, 3	1000											4	3
IEC/EN 60947-2 Direct current T=l/R≤5ms for all series, except S280 UC and S800S-UC, where T=l/R<15ms	**Icu**	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

STOCK INDENT

MCB S 200. The details make the difference

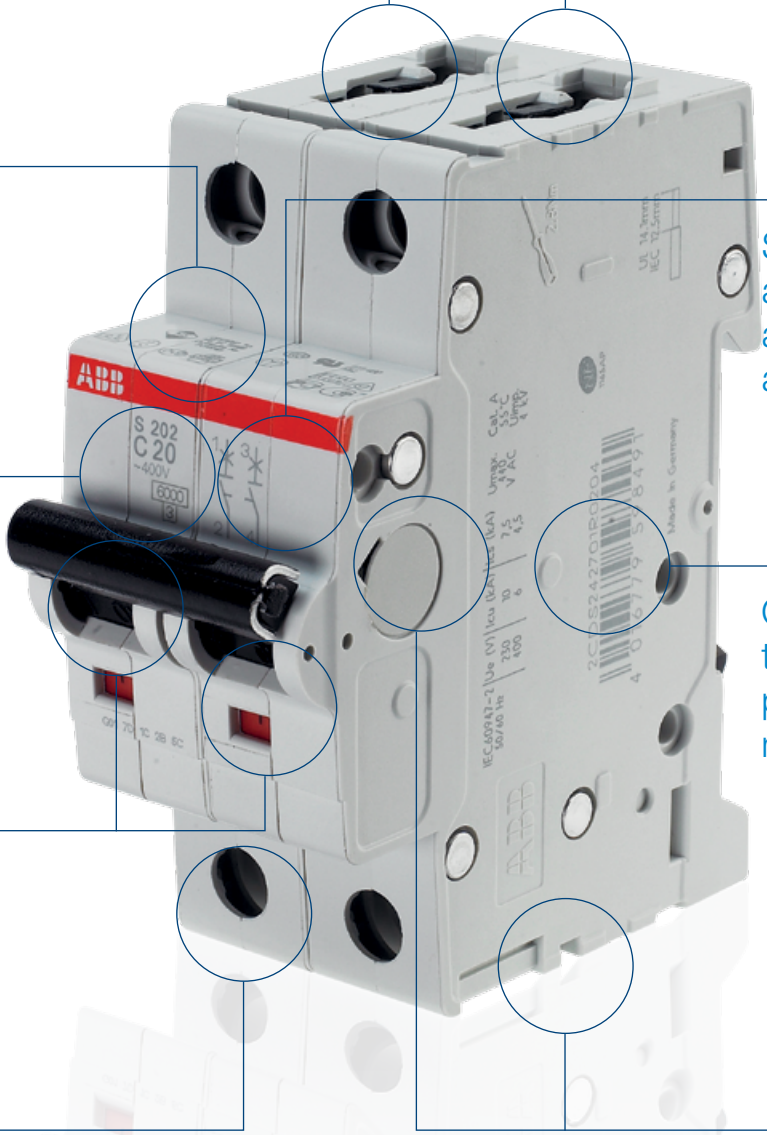
A range designed to ensure efficiency and protection

Twin terminal for separate feeding of busbar and conductor

IP20 - finger safety.

Easy identification of the product and highly resistant laser marking.

Safe 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 loose what's important for you.

Whatever your application need is applicable with a wide range of accessories.

Miniature circuit breakers
S 200 technical features

2

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

***** Only acc. to IEC/EN 60898-1

▶ Table continued on next page

STOCK INDENT

Miniature circuit breakers
S 200 technical features

▶ Table continued from previous page

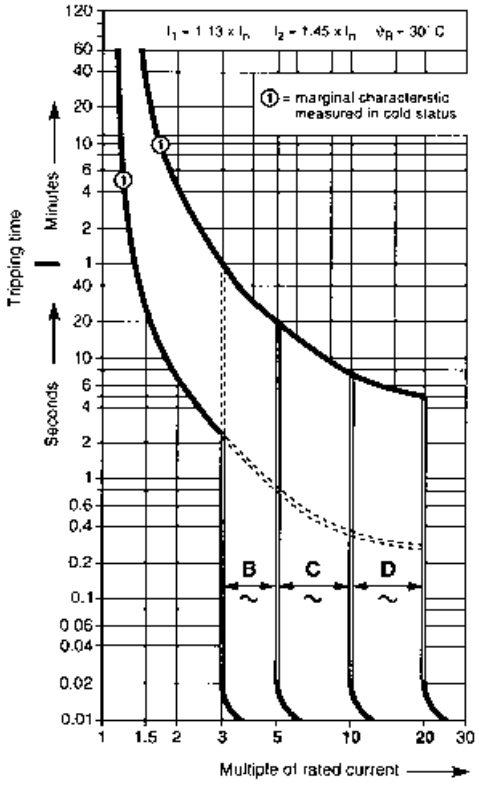
				S 91	SH 200	S 200	S 200 M
Mechanical Data	Housing			Insulation group II, RAL 7035			
	Toggle			Insulation group II, black, sealable			
	Contact position indication			Marking on toggle (I ON / 0 OFF), Real CPI (red ON / green OFF)			
	Protection degree acc. to EN 60529			IP20**, IP40 in enclosure with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

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

Miniature circuit breakers
Tripping characteristics

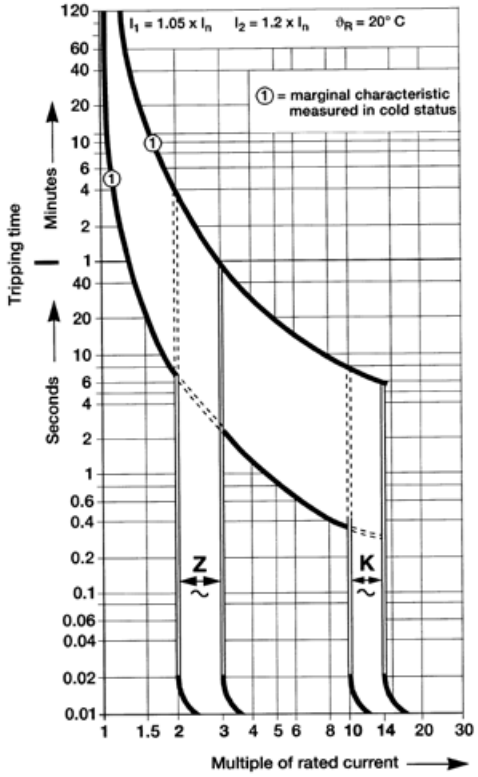
Tripping characteristic: B,C,D

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 restive 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.

STOCK INDENT

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

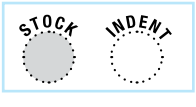
K characteristic
Protection and control of the circuits supplying motors, transformers and auxiliary circuits, against overloads and short-circuits
Advantages: no nuisance tripping in the case of peak currents up to 8xIn, depending on the version; through its highly sensitive thermal trip, the K-type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

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

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



Miniature circuit breakers
S91, SH200

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

– Protection against overloads and short circuits
– Ideally suited for retro-fitting into fuse bases in domestic applications
– Not suitable for fitting System pro *M* accessories

Standard AS/NZS 60898, IEC/EN 60898
Rated short circuit capacity 3kA
Voltage range 1P : 230 – 240 V

Rating (A)	Description	Order code
6	Plug-in MCB 3kA 6A C-curve	S91-C6
10	Plug-in MCB 3kA 10A C-curve	S91-C10
16	Plug-in MCB 3kA 16A C-curve	S91-C16
20	Plug-in MCB 3kA 20A C-curve	S91-C20
25	Plug-in MCB 3kA 25A C-curve	S91-C25
32	Plug-in MCB 3kA 32A C-curve	S91-C32

Miniature circuit breakers (MCB) 6kA home range

– Protection against overloads and short circuits
– Ideally suited for domestic and light commercial applications in consumer units
– Not suitable for fitting System pro *M* accessories

Standard AS/NZS 60898, IEC/EN 60898
I_{CN} 6kA
Voltage range 1P: 230 – 240 V AC
3P: 230/415 V AC

Rating (A)	Description	Order code	
		1 Pole	3 Pole
6	MCB 6kA 6A C-curve	SH201C6	SH203C6
8	MCB 6kA 8A C-curve	SH201C8	SH203C8
10	MCB 6kA 10A C-curve	SH201C10	SH203C10
13	MCB 6kA 13A C-curve	SH201C13	SH203C13
16	MCB 6kA 16A C-curve	SH201C16	SH203C16
20	MCB 6kA 20A C-curve	SH201C20	SH203C20
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

STOCK INDENT

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

Standard AS/NZS 60898, IEC/EN 60898
I_{CN} 6kA (10kA model available in request)
Voltage range 1P: 230 – 240 V AC, 60 V DC
1P+N: 230 – 240 V AC, 125 V DC

Rating (A)	Description	Poles	Order code 1 Pole
2	MCB 6kA 2A C-curve	1P+N	SN201C2
4	MCB 6kA 4A C-curve	1P+N	SN201C4
6	MCB 6kA 6A C-curve	1P+N	SN201C6
10	MCB 6kA 10A C-curve	1P+N	SN201C10
13	MCB 6kA 13A C-curve	1P+N	SN201C13
16	MCB 6kA 16A C-curve	1P+N	SN201C16
20	MCB 6kA 20A C-curve	1P+N	SN201C20
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

Standard AS/NZS 60898, IEC/EN 60898, AS/NZS60947, IEC/EN60947
I_{CN} 6kA
Voltage range 1P: 230 – 240 V AC, 72 V DC (DC rating to 63 A only)
2 – 4P: 230/400 V AC, 240/415 V AC, 125 V DC (DC rating to 63 A only)

C-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole	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	Order code 1 Pole	2 Pole	3 Pole	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

STOCK INDENT

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

Standard AS/NZS 60898, IEC/EN 60898, AS/NZS60947, IEC/EN60947
I_{CN} 10kA
Voltage range 1P: 230 – 240 V AC, 72 V DC
2 – 4P: 230/400 V AC, 240/415 V AC, 125 V DC

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

B, K and Z curves available on request

Miniature circuit breakers
S200P, S200MUC

S 201 P

S 202 P

S 203 P

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

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

Standard AS/NZS 60898, IEC/EN 60898, AS/NZS60947, IEC/EN60947
I_{CN} 25kA (0.5A to 25A) 15kA (32 A to 63 A)
Voltage range 1P: 230 – 240 V AC, 72 V DC
2 – 4P: 230/400 V AC, 240/415 V AC, 125 V DC

C-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole	4 Pole
0.5	MCB 15kA 0.5A C-curve	S201PC0.5	S202PC0.5	S203PC0.5	S204PC0.5
1	MCB 15kA 1A C-curve	S201PC1	S202PC1	S203PC1	S204PC1
1.6	MCB 15kA 1.6A C-curve	S201PC1.6	S202PC1.6	S203PC1.6	S204PC1.6
2	MCB 15kA 2A C-curve	S201PC2	S202PC2	S203PC2	S204PC2
3	MCB 15kA 3A C-curve	S201PC3	S202PC3	S203PC3	S204PC3
4	MCB 15kA 4A C-curve	S201PC4	S202PC4	S203PC4	S204PC4
6	MCB 15kA 6A C-curve	S201PC6	S202PC6	S203PC6	S204PC6
8	MCB 15kA 8A C-curve	S201PC8	S202PC8	S203PC8	S204PC8
10	MCB 15kA 10A C-curve	S201PC10	S202PC10	S203PC10	S204PC10
13	MCB 15kA 13A C-curve	S201PC13	S202PC13	S203PC13	S204PC13
16	MCB 15kA 16A C-curve	S201PC16	S202PC16	S203PC16	S204PC16
20	MCB 15kA 20A C-curve	S201PC20	S202PC20	S203PC20	S204PC20
25	MCB 15kA 25A C-curve	S201PC25	S202PC25	S203PC25	S204PC25
32	MCB 15kA 32A C-curve	S201PC32	S202PC32	S203PC32	S204PC32
40	MCB 15kA 40A C-curve	S201PC40	S202PC40	S203PC40	S204PC40
50	MCB 15kA 50A C-curve	S201PC50	S202PC50	S203PC50	S204PC50
63	MCB 15kA 63A C-curve	S201PC63	S202PC63	S203PC63	S204PC63

B, K , D and Z curves available on request

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)

Standard AS/NZS 60898, IEC/EN 60898, AS/NZS60947, IEC/EN60947
ICN 10kA
Voltage range 1P: 230 V AC, 220 V DC
2 – 4P: 400 V AC, 440 V DC

K-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole	4 Pole
0.5	MCB DC 10kA 0.5A K-curve	S201MK0.5UC	S202MK0.5UC	S203MK0.5UC	S204MK0.5UC
1	MCB DC 10kA 1A K-curve	S201MK1UC	S202MK1UC	S203MK1UC	S204MK1UC
1.6	MCB DC 10kA 1.6A K-curve	S201MK1.6UC	S202MK1.6UC	S203MK1.6UC	S204MK1.6UC
2	MCB DC 10kA 2A K-curve	S201MK2UC	S202MK2UC	S203MK2UC	S204MK2UC
3	MCB DC 10kA 3A K-curve	S201MK3UC	S202MK3UC	S203MK3UC	S204MK3UC
4	MCB DC 10kA 4A K-curve	S201MK4UC	S202MK4UC	S203MK4UC	S204MK4UC
6	MCB DC 10kA 6A K-curve	S201MK6UC	S202MK6UC	S203MK6UC	S204MK6UC
8	MCB DC 10kA 8A K-curve	S201MK8UC	S202MK8UC	S203MK8UC	S204MK8UC
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
32	MCB DC 10kA 32A K-curve	S201MK32UC	S202MK32UC	S203MK32UC	S204MK32UC
40	MCB DC 10kA 40A K-curve	S201MK40UC	S202MK40UC	S203MK40UC	S204MK40UC
50	MCB DC 10kA 50A K-curve	S201MK50UC	S202MK50UC	S203MK50UC	S204MK50UC
63	MCB DC 10kA 63A K-curve	S201MK63UC	S202MK63UC	S203MK63UC	S204MK63UC

B, C and Z curves available on request

STOCK INDENT

Is it possible to switch off AC / DC?

Certainly.

The S 200 M UC impresses with its performance range and the accordingly large amount of approvals. Its high inbuilt short circuit breaking capacity across the entire model line, its flexible application for both direct and alternating currents and its approval and compliance in accordance with all major international and local standards make it truly unique. The miniature circuit breaker is a valuable addition to the existing System pro *M* compact® range which allows all known components to be combined effortlessly with the new model line. Whether warehousing and project engineering, planning and installation or maintaining your equipment, the S 200 M UC is a simple and flexible solution.

For more information: **www.abbaustralia.com.au/lowvoltage**

Power and productivity
for a better world™

Miniature circuit breakers
S800 series technical features

S800

2

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

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

	S800S-UC	S800N	S800C	S800B
	IEC / EN 60947-2	IEC 60947-2,EN 60898-1	EN 60947-2, EN 60898-1	IEC 60947-2, EN60898-1
	1 … 4	1 … 4	1 … 4	1 … 4
	UCB, UCK	B,C,D	B, C, D, K	B, C, D, K
	10 … 125	6 … 125	10 … 125	32 ... 125 (Char. B, C) 32 ... 100 (Char. D, K)
	DC	50/60 Hz	50/60 Hz	
	750 V DC	690 V AC	500 V AC	440 V AC
	8	8	8	4
	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	–
		12V AC	12V AC	–
	–	20kA (10 ... 80A)	15kA	–
	–	-	-	–
		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	–
	1-pole: 250V DC 2-pole: 500V DC 3- and 4-pole 750V DC	400/690V AC 1-pole: 125V DC; 2-pole: 250V DC; 3-pole: 375V DC; 4-pole: 500V DC	400/690V 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 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	
	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

2

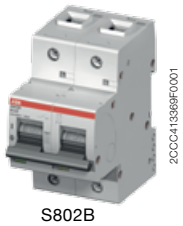
▶ Table continued from previous page

			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. 240 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		

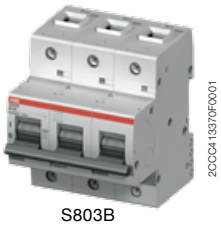
	S800S-UC	S800N	S800C	S800B
				–
				–
				–
				–
	Failsafe cage or ringlug terminal	Failsafe cage or ringlug terminal	Failsafe cage or ringlug terminal	Failsafe cage or ringlug terminal
	1 … 50	1 … 50	1 … 50	1 … 50
	1 … 70	1 … 70	1 … 70	1 … 70
	ca. 240 g	ca. 240 g	ca. 250 g	ca. 240 g

High performance MCB – 27mm pole width
S800B – S800C

S801B



S802B



S803B

S800B

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

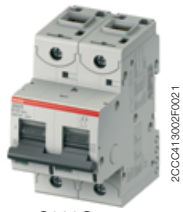
The ABB S800B range of high performance miniature circuit breakers are designed to provide protection and control of the circuit against overloads and short circuits. Ideally suited for commercial and industrial applications.

Standard AS/NZS60947, IEC/EN60947, EN60898-1
Icu 16kA
Voltage range 1P: 230 V AC
2– 4P: 230/400 V AC

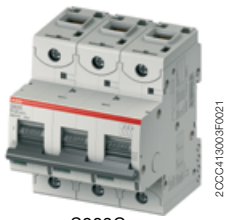
C-Curve		Order code			
Rating (A)	Description	1 Pole	2 Pole	3 Pole	4 Pole
32	MCB 16kA 32A C-curve	S801BC32	S802BC32	S803BC32	S804BC32
40	MCB 16kA 40A C-curve	S801BC40	S802BC40	S803BC40	S804BC40
50	MCB 16kA 50A C-curve	S801BC50	S802BC50	S803BC50	S804BC50
63	MCB 16kA 63A C-curve	S801BC63	S802BC63	S803BC63	S804BC63
80	MCB 16kA 80A C-curve	S801BC80	S802BC80	S803BC80	S804BC80
100	MCB 16kA 100A C-curve	S801BC100	S802BC100	S803BC100	S804BC100
125	MCB 16kA 125A C-curve	S801BC125	S802BC125	S803BC125	S804BC125

B, D and K curves available on request

S801C



S802C



S803C

S800C

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

The ABB S800B 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.

Standard AS/NZS60947, IEC/EN60947
Icu 25kA
Voltage range 400/690 V AC
1P: 125 V DC, 2P: 250 V DC, 3P: 375 V DC, 4P: 500 V DC

C-Curve	Description	Order code			
Rating (A)		1 Pole	2 Pole	3 Pole	4 Pole
10	MCB 25kA 10A C-curve	S801CC10	S802CC10	S803CC10	S804CC10
13	MCB 25kA 13A C-curve	S801CC13	S802CC13	S803CC13	S804CC13
16	MCB 25kA 16A C-curve	S801CC16	S802CC16	S803CC16	S804CC16
20	MCB 25kA 20A C-curve	S801CC20	S802CC20	S803CC20	S804CC20
25	MCB 25kA 25A C-curve	S801CC25	S802CC25	S803CC25	S804CC25
32	MCB 25kA 32A C-curve	S801CC32	S802CC32	S803CC32	S804CC32
40	MCB 25kA 40A C-curve	S801CC40	S802CC40	S803CC40	S804CC40
50	MCB 25kA 50A C-curve	S801CC50	S802CC50	S803CC50	S804CC50
63	MCB 25kA 63A C-curve	S801CC63	S802CC63	S803CC63	S804CC63
80	MCB 25kA 80A C-curve	S801CC80	S802CC80	S803CC80	S804CC80
100	MCB 25kA 100A C-curve	S801CC100	S802CC100	S803CC100	S804CC100
125	MCB 25kA 125A C-curve	S801CC125	S802CC125	S803CC125	S804CC125

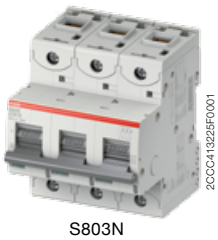
B, D and K curves available on request

STOCK INDENT

High performance MCB – 27mm pole width
S800N – S800S

S801N

S802N



S803N

S800N

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

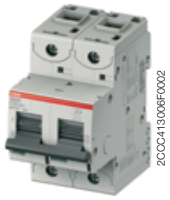
The ABB S800B range of high performance miniature circuit breakers are designed to provide protection and control of the circuit against overloads and short circuits. Ideally suited for commercial and industrial applications. 690V rated for industrial and mining applications.

Standard AS/NZS60947, IEC/EN60947
Icu 36kA
Voltage range 400/690 V AC
1P: 125 V DC, 2P: 250 V DC, 3P: 375 V DC, 4P: 500 V DC

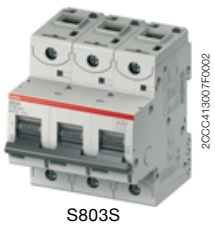
C-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole	4 Pole
10	MCB 36kA 10A C-curve	S801NC10	S802NC10	S803NC10	S804NC10
13	MCB 36kA 13A C-curve	S801NC13	S802NC13	S803NC13	S804NC13
16	MCB 36kA 16A C-curve	S801NC16	S802NC16	S803NC16	S804NC16
20	MCB 36kA 20A C-curve	S801NC20	S802NC20	S803NC20	S804NC20
25	MCB 36kA 25A C-curve	S801NC25	S802NC25	S803NC25	S804NC25
32	MCB 36kA 32A C-curve	S801NC32	S802NC32	S803NC32	S804NC32
40	MCB 36kA 40A C-curve	S801NC40	S802NC40	S803NC40	S804NC40
50	MCB 36kA 50A C-curve	S801NC50	S802NC50	S803NC50	S804NC50
63	MCB 36kA 63A C-curve	S801NC63	S802NC63	S803NC63	S804NC63
80	MCB 36kA 80A C-curve	S801NC80	S802NC80	S803NC80	S804NC80
100	MCB 36kA 100A C-curve	S801NC100	S802NC100	S803NC100	S804NC100
125	MCB 36kA 125A C-curve	S801NC125	S802NC125	S803NC125	S804NC125

B, D and K curves available on request

S801S



S802S



S803S

S800S

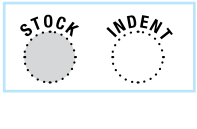
Miniature circuit breaker (MCB) 50kA commercial and industrial range

The ABB S800B 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.

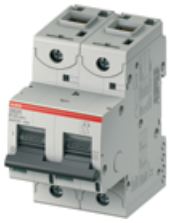
Standard AS/NZS60947, IEC/EN60947
Icu 50kA
Voltage range 400/690 V AC
1P: 125 V DC, 2P: 250 V DC, 3P: 375 V DC, 4P: 500 V DC

C-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole	4 Pole
10	MCB 50kA 10A C-curve	S801SC10	S802SC10	S803SC10	S804SC10
13	MCB 50kA 13A C-curve	S801SC13	S802SC13	S803SC13	S804SC13
16	MCB 50kA 16A C-curve	S801SC16	S802SC16	S803SC16	S804SC16
20	MCB 50kA 20A C-curve	S801SC20	S802SC20	S803SC20	S804SC20
25	MCB 50kA 25A C-curve	S801SC25	S802SC25	S803SC25	S804SC25
32	MCB 50kA 32A C-curve	S801SC32	S802SC32	S803SC32	S804SC32
40	MCB 50kA 40A C-curve	S801SC40	S802SC40	S803SC40	S804SC40
50	MCB 50kA 50A C-curve	S801SC50	S802SC50	S803SC50	S804SC50
63	MCB 50kA 63A C-curve	S801SC63	S802SC63	S803SC63	S804SC63
80	MCB 50kA 80A C-curve	S801SC80	S802SC80	S803SC80	S804SC80
100	MCB 50kA 100A C-curve	S801SC100	S802SC100	S803SC100	S804SC100
125	MCB 50kA 125A C-curve	S801SC125	S802SC125	S803SC125	S804SC125

B, D and K curves available on request



Solar photovoltaic string protection MCB – 27mm pole width
S800PVS



S802PV

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

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

Standard AS/NZS60947, IEC/EN60947
Icu 36kA
Voltage range 2P up to 80A – 800 V DC , 2P 100A to 125A – 600 V DC
4P 10A to 125A – 1200 V DC

C-Curve Rating (A)	Description	Order code 2 Pole	4 Pole
10	MCB 10A for solar PV strings	S802PVS10	S804PVS10
13	MCB 13A for solar PV strings	S802PVS13	S804PVS13
16	MCB 16A for solar PV strings	S802PVS16	S804PVS16
20	MCB 20A for solar PV strings	S802PVS20	S804PVS20
25	MCB 25A for solar PV strings	S802PVS25	S804PVS25
32	MCB 32A for solar PV strings	S802PVS32	S804PVS32
40	MCB 40A for solar PV strings	S802PVS40	S804PVS40
50	MCB 50A for solar PV strings	S802PVS50	S804PVS50
63	MCB 63A for solar PV strings	S802PVS63	S804PVS63
80	MCB 80A for solar PV strings	S802PVS80	S804PVS80
100	MCB 100A for solar PV strings	S802PVS100	S804PVS100
125	MCB 125A for solar PV strings	S802PVS125	S804PVS125

3 pole available on request

STOCK INDENT

1000V MCB – 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.

Standard AS/NZS60947, IEC/EN60947
I_{cu} 4kA (6 – 63A)
3kA (80 – 100A)
Voltage range 580/1000 V

I_{cu} (kA)	K-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole
4	6	MCB, 4kA, 6A for 1000 V AC	S801HVK6	S802HVK6	S803HVK6
4	8	MCB, 4kA, 8A for 1000 V AC	S801HVK8	S802HVK8	S803HVK8
4	10	MCB, 4kA, 10A for 1000 V AC	S801HVK10	S802HVK10	S803HVK10
4	13	MCB, 4kA, 13A for 1000 V AC	S801HVK13	S802HVK13	S803HVK13
4	16	MCB, 4kA, 16A for 1000 V AC	S801HVK16	S802HVK16	S803HVK16
4	20	MCB, 4kA, 20A for 1000 V AC	S801HVK20	S802HVK20	S803HVK20
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 (Icu) can be increased to 15kA
- S803HV-SCL-SR can be used either for line or group protection

Poles	Current Rating (A)		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

System pro *M* compact©
Residual current devices RCD, RCCB, RCBO

Residual current devices 126
Functions and classification criteria for RCDs 126
Technical details 128

Residual current devices – RCCB 131
Residual current circuit breaker – FH200 131
Residual current circuit breaker – F200 series A Type and AC Type 132
Residual current circuit breaker – F200 series AP-R Type and B Type 133
Technical details 134
Use of a 4P RCCB in a 3-phase circuit without neutral 134

Residual current devices – RCD Blocks 135
RCD Block DDA 135

Residual current devices – RCBO 136
RCBO Type DSN201 137
RCBO Type DS201 139
RCBO Type DS202 141
RCBO Type DSE201 143
RCBO Type DS271 144

Residual current relays – DIN rail mounting 145
RD2 145
RD3 145

Residual current relays – Panel mounting 146
ELR 146
TR – Toroidal transformers 146

2

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

- System pro *M* compact© – 2CSC400002D0211
- DSE201 RCBO – 2CSC423013B0201

RCDs technical details
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).

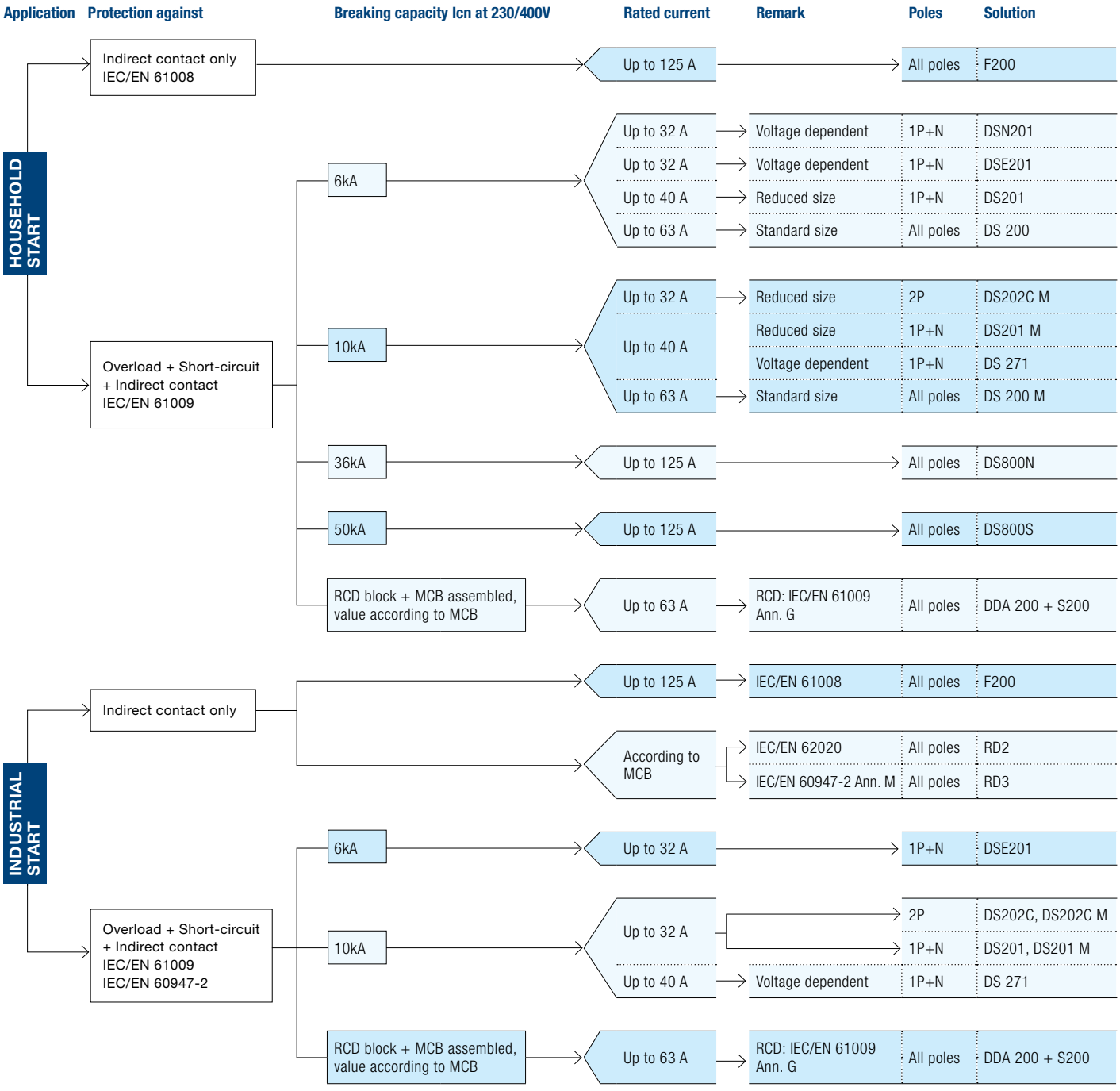
AC type RCDs are suitable for all systems where users have sinusoidal earth current.

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.

System pro *M* compact®
Quick selection of RCDs for household and industrial applications



Residual current devices
Technical details

	Technical features		FH200	F200	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	AC, A, B, AP-R
	Poles		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	110	2P-110. 3P/4P-195
	Rated frequency		50…60	50…60	50…60
	Rated breaking capacity acc. to IEC 61009	Ultimate Icn kA			per associated MCB
	Rated breaking capacity acc. to IEC 60947-2	Ultimate Icu 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	oC			
	Ambient temperature	oC	-25…+55	-25…+55	-25…+55
	Storage temperature	oC	-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	DS203NC	DSE201	DS271
	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 ≤ 32	6 ≤ In ≤ 40
	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	254
	110	110	300	195	110
	50…60	50…60	50…60	50…60	50…60
	6000	6000	6000		
	10	10	10		
	6	6	5		
	4	4	4	4	5
	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			
	-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	Bi-cylinder lift
	º(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	205
	Yes	Yes	Yes	Yes	No
	Yes	Yes	Yes	Yes	No
	Yes	Yes	Yes	Yes	No
	Yes	Yes	Yes	Yes	No

RCCB F 200. The details make the difference
A range designed to ensure efficiency and protection

Test pushbutton to verify the correct functioning of the device.

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

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

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

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

Residual current devices – RCCB
Residual current circuit breaker – FH200

RCCB FH200 AC Type

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

Standard AS/NZS 61008, IEC/EN 61008
I_{CN} 6 kA with 63A MCB or fuse
Voltage range 1P : 230 – 240 V
3P : 230/415 V

Rated residual current In mA	Rated Current	Description	Order code 2 Pole	4 Pole
30	25	RCCB 25A 30mA Type AC	FH20225	FH20425
	40	RCCB 40A 30mA Type AC	FH20240	FH20440
	63	RCCB 63A 30mA Type AC	FH20263	FH20463
100	25	RCCB 25A 100mA Type AC	FH20225/0.1	FH20425/0.1
	40	RCCB 40A 100mA Type AC	FH20240/0.1	FH20440/0.1
	63	RCCB 63A 100mA Type AC	FH20263/0.1	FH20463/0.1
300	25	RCCB 25A 300mA Type AC	FH20225/0.3	FH20425/0.3
	40	RCCB 40A 300mA Type AC	FH20240/0.3	FH20440/0.3
	63	RCCB 63A 300mA Type AC	FH20263/0.3	FH20463/0.3

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

Residual current device (RCCB) Type A home range

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

Standard AS/NZS 61008, IEC/EN 61008
Rated short circuit capacity 6kA with 63A fuse or MCB
Voltage range 230/400 V – 240/415 V

Sensitivity (mA)	Rating (A)	Description	Order code 2 Pole	4 Pole
30	40	RCCB, 40 A, 30mA, Type AC	FH202A40	FH204A40
	63	RCCB, 63 A, 30mA, Type AC	FH202A63	FH204A63

Residual current devices – RCCB
Residual current circuit breaker – F200 series A Type and AC Type

RCCB F200 AC Type

- Protection for people and buildings against earth leakage faults
- Ideally suited for domestic and commercial applications
- Can be used with System proM Compact accessories

Standard AS/NZS 61008, IEC/EN 61008
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	4 Pole
30	25	RCCB 25A 30mA Type AC	F20225	F20425
	40	RCCB 40A 30mA Type AC	F20240	F20440
	63	RCCB 63A 30mA Type AC	F20263	F20463
	80	RCCB 80A 30mA Type AC	F20280	F20480
	100	RCCB 100A 30mA Type AC	F202100	F204100

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

RCCB F200 A Type

- Protection for people and buildings against earth leakage faults
- Ideally suited for commercial and industrial applications
- Used where earth fault waveform may be sinusoidal or pulsating DC
- Can be used with System proM Compact accessories

Standard AS/NZS 61008, IEC/EN 61008
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	4 Pole
10	16	RCCB 16A 10mA Type A	F202A16/0.01	
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:
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 ⅔ Hz available. Please ask your ABB representative.

STOCK INDENT

Residual current devices – RCCB
Residual current circuit breaker – F200 series AP-R Type and B Type

RCCB F200 high immunity AP-R Type

- Protection for people and buildings against earth leakage faults
- Ideally suited for commercial and industrial applications
- Used where earth fault waveform may be sinusoidal or pulsating DC
- Resistant to unwanted tripping due to electrical transients and indirect lightning strikes
- Can be used with System proM Compact accessories

Standard AS/NZS 61008, IEC/EN 61008
I_{CN} 10kA with 100A MCB or fuse
Voltage range 230/400 V – 240/415 V
Surge current resistance (8/20 wave) 3000A

Rated residual current In mA	Rated current	Description	Order code 2 Pole	4 Pole
30	25	RCCB 25A 30mA Type AP-R	F202A25AP-R	F204A25AP-R
	40	RCCB 40A 30mA Type AP-R	F202A40AP-R	F204A40AP-R
	63	RCCB 63A 30mA Type AP-R	F202A63AP-R	F204A63AP-R

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

RCCB F200 B Type

- Protection for people and buildings against earth leakage faults
- Ideally suited for industrial applications
- Used where earth fault waveform may be sinusoidal, pulsating DC or smooth DC
- Recommended when earth protection is required for VSD applications
- Resistant to unwanted tripping due to electrical transients and indirect lightning strikes

Standard AS/NZS 61008, IEC/EN 61008
I_{CN} 10kA with 100A MCB or fuse
Voltage range 230/400 V – 240/415 V
Surge current resistance (8/20 wave) 3000A

Rated residual current In mA	Rated current	Description	Order code 4 Pole
30	40	RCCB 25A 30mA Type B	F204B40
	63	RCCB 40A 30mA Type B	F204B63

Note:
300mA and 500mA models available on request

Residual current devices – RCCB
Technical details

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.

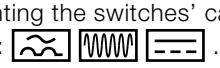
Type A RCDs sensitive to pulsating currents (in addition to sinusoidal currents detected by RDCs of type AC as well) cannot detect and break these earth fault direct currents or currents with a minimum level residual ripple. In case there are electrical appliances which generate this type of currents 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 an 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:

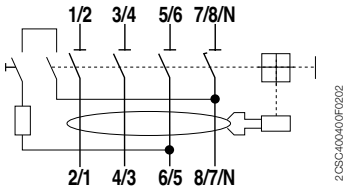
- alternating currents up to a frequency of 1000 Hz;
- alternating and/or pulsating currents with DC components overlapping with a direct current;
- earth fault currents generated by a rectifier with two or more phases;
- direct earth fault currents without residual ripple

...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:  .

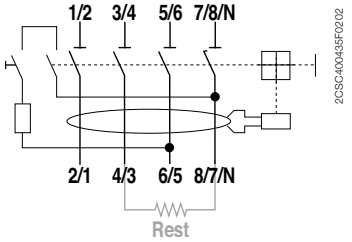
Use of a 4P RCCB in a 3-phase circuit without neutral

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.



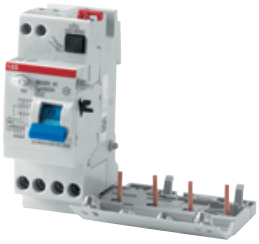
In case of installation in a 3 phase circuit without neutral.

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 above.
In this way the test button circuit is fed at 400 V - 480 V - but for example in an RCCB with IΔn=0.03 A there will be the Rest=3.3 kOhm resistance in series to the test circuit resistance. Rest will cause a voltage drop that leaves in the test circuit a voltage less than 254 V - 277 V according to UL 1053. Rest resistance must have a power loss higher than 4 W.
In the normal operation of the RCCB (test circuit opened) the Rest resistance is not fed so it does not cause any power loss.



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

Residual current devices – RCD Blocks
RCD Block DDA



RCD Block DDA200 AC Type

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

Standard AS/NZS 61009, IEC/EN 61009 Annex G.
I_{CN} According to the coupled MCB
Voltage range 230/415 V

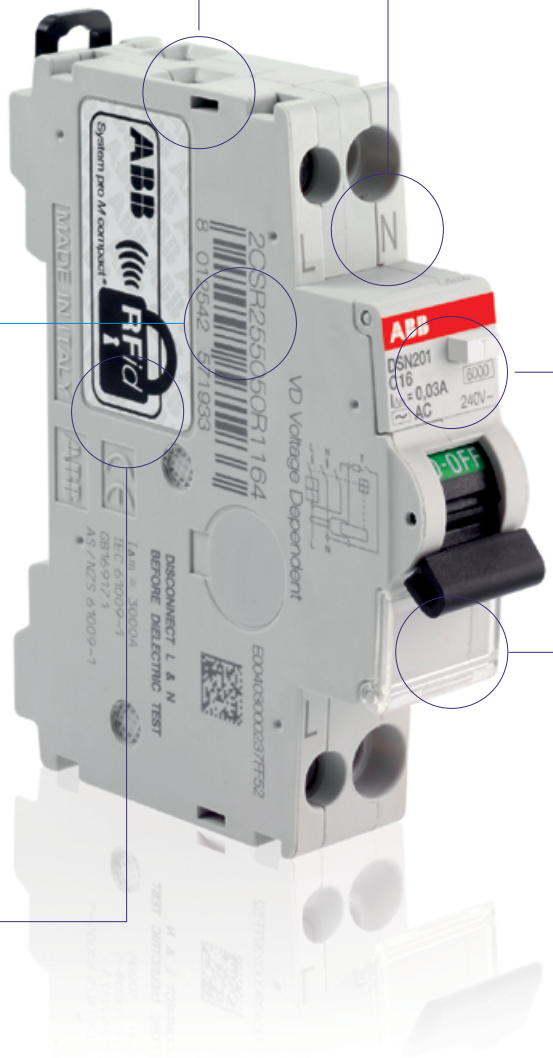
Rated residual current In mA	Rated current	Modules without MCB	Description	Order code 2 Pole	3 Pole	4 Pole
30	25	2	RCCB 25A 30mA Type AC	DDA20225	DDA20325	DDA20425
	40	2	RCCB 40A 30mA Type AC	DDA20240	DDA20340	DDA20440
	63	4	RCCB 63A 30mA Type AC	DDA20263	DDA20363	DDA20463
100	25	2	RCCB 25A 100mA Type AC	DDA20225/0.1	DDA20325/0.1	DDA20425/0.1
	40	2	RCCB 40A 100mA Type AC	DDA20240/0.1	DDA20340/0.1	DDA20440/0.1
	63	4	RCCB 63A 100mA Type AC	DDA20263/0.1	DDA20363/0.1	DDA20463/0.1
300	25	2	RCCB 25A 300mA Type AC	DDA20225/0.3	DDA20325/0.3	DDA20425/0.3
	40	2	RCCB 40A 300mA Type AC	DDA20240/0.3	DDA20340/0.3	DDA20440/0.3
	63	4	RCCB 63A 300mA Type AC	DDA20263/0.3	DDA20363/0.3	DDA20463/0.3

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

Residual current devices – RCBO
RCBO Type DSN201

Terminals for flexible cabling

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



Space for insulated screwdrivers

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

Product coding

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

Test button

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

Label carrier for a clear identification

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

Anti-counterfeiting

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

Residual current devices – RCBO
RCBO Type DSN201

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

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

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA
Voltage range 230 – 240 V

Sensitivity (mA)	Rating (A)	Description	Order code
30	6	RCBO, 1P, 6A, C-curve, 30mA, Type AC	DSN201C6
	10	RCBO, 1P, 10A, C-curve, 30mA, Type AC	DSN201C10
	16	RCBO, 1P, 16A, C-curve, 30mA, Type AC	DSN201C16
	20	RCBO, 1P, 20A, C-curve, 30mA, Type AC	DSN201C20
	25	RCBO, 1P, 25A, C-curve, 30mA, Type AC	DSN201C25

Type AC devices are not suitable in New Zealand.

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

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

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA
Voltage range 230 – 240 V

Sensitivity (mA)	Rating (A)	Description	Order code
10	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DSN201C6A10
	10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DSN201C10A10
	16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DSN201C16A10
	20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DSN201C20A10
30	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DSN201C6A30
	10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DSN201C10A30
	16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DSN201C16A30
	20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DSN201C20A30
	25	RCBO, 1P, 25A, C-curve, 30mA, Type A	DSN201C25A30

RCBO DS201 and DS202C. The details make the difference

A range designed to ensure efficiency and protection

2

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.

The label carrier to clearly identify the protected circuit.

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.

Test pushbutton to verify the correct functioning of the device

Residual current devices – RCBO
RCBO Type DS201

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

- Two module size
- Protection against short circuit, thermal overload and earth leakage
- Ideally suited for domestic and light commercial applications in consumer units
- Type AC, used where the earth fault waveform is sinusoidal
- Contact position indicator
- Can be used on 3 phase busbar chassis due to isolated neutral terminal

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA
Voltage range 230 – 240 V

Sensitivity (mA)	Rating (A)	Description	Order code
30	6	RCBO, 1P+N, 6A, C-curve, 30mA, Type AC	DS201BS-C6
	10	RCBO, 1P+N, 10A, C-curve, 30mA, Type AC	DS201BS-C10
	16	RCBO, 1P+N, 16A, C-curve, 30mA, Type AC	DS201BS-C16
	20	RCBO, 1P+N, 20A, C-curve, 30mA, Type AC	DS201BS-C20
	25	RCBO, 1P+N, 25A, C-curve, 30mA, Type AC	DS201BS-C25
	32	RCBO, 1P+N, 32A, C-curve, 30mA, Type AC	DS201BS-C32
	40	RCBO, 1P+N, 40A, C-curve, 30mA, Type AC	DS201BS-C40

Type AC devices are not suitable in New Zealand.

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

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

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA and 10kA
Voltage range 230 – 240 V

Sensitivity (mA)	Rating kA	Rating (A)	Description	Order code
30	6	6	RCBO, 1P+N, 6A, C-curve, 30mA, Type AC	DS201C6
		10	RCBO, 1P+N, 10A, C-curve, 30mA, Type AC	DS201C10
		16	RCBO, 1P+N, 16A, C-curve, 30mA, Type AC	DS201C16
		20	RCBO, 1P+N, 20A, C-curve, 30mA, Type AC	DS201C20
		25	RCBO, 1P+N, 25A, C-curve, 30mA, Type AC	DS201C25
		32	RCBO, 1P+N, 32A, C-curve, 30mA, Type AC	DS201C32
		40	RCBO, 1P+N, 40A, C-curve, 30mA, Type AC	DS201C40
30	10	6	RCBO, 1P+N, 6A, C-curve, 30mA, Type AC	DS201MC6
		10	RCBO, 1P+N, 10A, C-curve, 30mA, Type AC	DS201MC10
		16	RCBO, 1P+N, 16A, C-curve, 30mA, Type AC	DS201MC16
		20	RCBO, 1P+N, 20A, C-curve, 30mA, Type AC	DS201MC20
		25	RCBO, 1P+N, 25A, C-curve, 30mA, Type AC	DS201MC25
		32	RCBO, 1P+N, 32A, C-curve, 30mA, Type AC	DS201MC32
		40	RCBO, 1P+N, 40A, C-curve, 30mA, Type AC	DS201MC40

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

STOCK INDENT

Residual current devices – RCBO
RCBO Type DS201

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

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA and 10kA
Voltage range 230 – 240 V

Sensitivity (mA)	Rating kA	Rating (A)	Description	Order code
10	6	10	RCBO, 1P, 10A, C-curve, 10mA, Type A	DS201C10A10
		16	RCBO, 1P, 16A, C-curve, 10mA, Type A	DS201C16A10
30	6	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DS201C6A30
		10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DS201C10A30
		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

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

STOCK INDENT

Residual current devices – RCBO
RCBO Type DS202

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

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA and 10kA
Voltage range 230 – 240 V

Sensitivity	Rating		Description	Order code
(mA)	kA	(A)		
30	6	6	RCBO, 2P, 6A, C-curve, 30mA, Type A	DS202CC6A30
		10	RCBO, 2P, 10A, C-curve, 30mA, Type A	DS202CC10A30
		16	RCBO, 2P, 16A, C-curve, 30mA, Type A	DS202CC16A30
		20	RCBO, 2P, 20A, C-curve, 30mA, Type A	DS202CC20A30
		25	RCBO, 2P, 25A, C-curve, 30mA, Type A	DS202CC25A30
		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

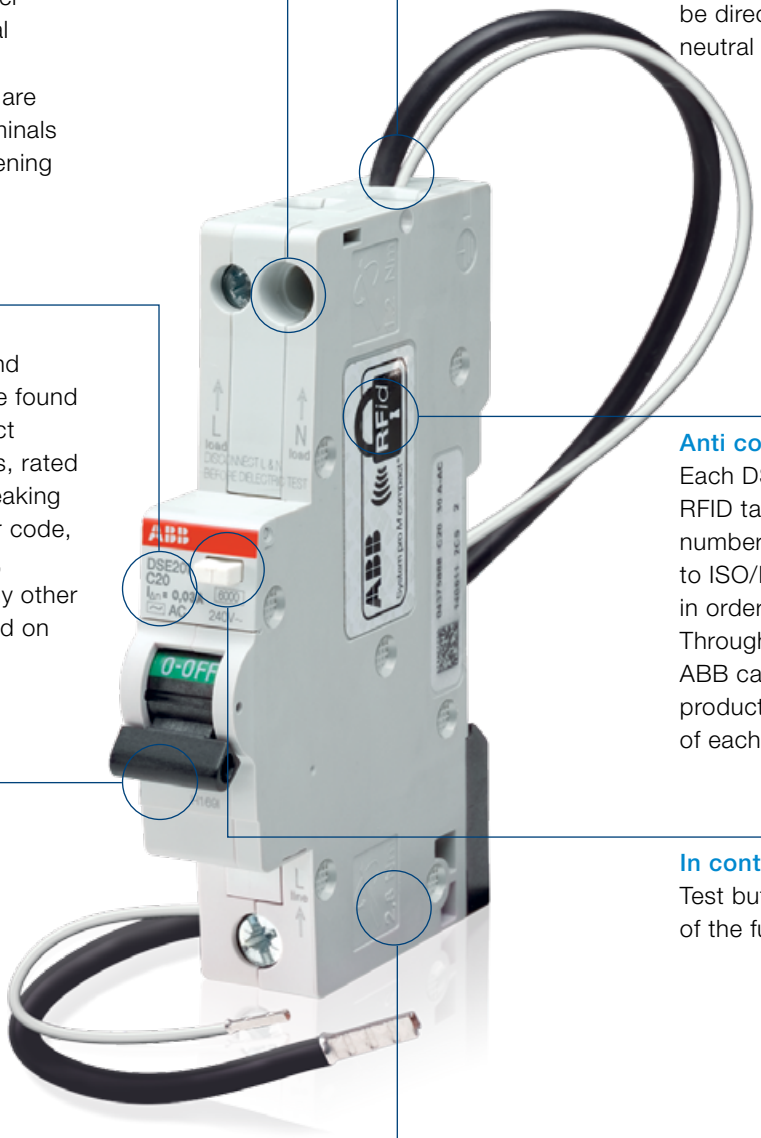
Note:
High immunity Type AP-R available on request
300mA versions available on request
B-curve available on request

The value of quality
Made in Italy with attention to detail

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

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

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



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

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

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

Reduced height
Thanks to its reduced height, only 10 cm, DSE201 makes easier wiring operation inside the consumer unit or the distribution board.

Residual current devices – RCBO
RCBO Type DSE201

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

– Single module size
– Protection against short circuit, thermal overload and earth leakage
– Ideally suited for commercial panelboad applications
– Type AC, used where the earth fault waveform is sinusoidal
– New compact design

DSE201

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA
Voltage range 230 – 240 V

Sensitivity (mA)	Rating (A)	Description	Order code
30	6	RCBO, 1P, 6A, C-curve, 30mA, Type AC	DSE201C6AC30
	10	RCBO, 1P, 10A, C-curve, 30mA, Type AC	DSE201C10AC30
	16	RCBO, 1P, 16A, C-curve, 30mA, Type AC	DSE201C16AC30
	20	RCBO, 1P, 20A, C-curve, 30mA, Type AC	DSE201C20AC30
	25	RCBO, 1P, 25A, C-curve, 30mA, Type AC	DSE201C25AC30
	32	RCBO, 1P, 32A, C-curve, 30mA, Type AC	DSE201C32AC30

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

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

– Single module size
– Protection against short circuit, thermal overload and earth leakage
– Ideally suited for commercial panelboad applications
– Type A, used where the earth fault waveform is sinusoidal or pulsating DC
– New compact design

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 6kA
Voltage range 230 – 240 V

Sensitivity (mA)	Rating (A)	Description	Order code
30	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DSE201C6A30
	10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DSE201C10A30
	16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DSE201C16A30
	20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DSE201C20A30
	25	RCBO, 1P, 25A, C-curve, 30mA, Type A	DSE201C25A30
	32	RCBO, 1P, 32A, C-curve, 30mA, Type A	DSE201C32A30

STOCK INDENT

Residual current devices
RCBO Type DS271

DS 271

Residual current device with overcurrent (RCBO) DS271
Single module, Type A

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

Standard AS/NZS 61009.1, IEC/EN 61009-1
Rated short circuit capacity 10kA
Voltage range 230 – 240 V

Sensitivity (mA)	Rating (A)	Description	Order code
10	6	RCBO, 1P, 6A, C-curve, 10mA, Type A	DS2716/0.01
	10	RCBO, 1P, 10A, C-curve, 10mA, Type A	DS27110/0.01
	16	RCBO, 1P, 16A, C-curve, 10mA, Type A	DS27116/0.01
	20	RCBO, 1P, 20A, C-curve, 10mA, Type A	DS27120/0.01
	25	RCBO, 1P, 25A, C-curve, 10mA, Type A	DS27125/0.01
	32	RCBO, 1P, 32A, C-curve, 10mA, Type A	DS27132/0.01
30	6	RCBO, 1P, 6A, C-curve, 30mA, Type A	DS2716
	10	RCBO, 1P, 10A, C-curve, 30mA, Type A	DS27110
	16	RCBO, 1P, 16A, C-curve, 30mA, Type A	DS27116
	20	RCBO, 1P, 20A, C-curve, 30mA, Type A	DS27120
	25	RCBO, 1P, 25A, C-curve, 30mA, Type A	DS27125
	32	RCBO, 1P, 32A, C-curve, 30mA, Type A	DS27132
	40	RCBO, 1P, 40A, C-curve, 30mA, Type A	DS27140

STOCK INDENT

Residual current devices
Residual current relays – DIN rail mounting

RD2

Residual current relay Type RD2

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

Standard IEC/EN 62020

Sensitivity (A)	Trip Time (s)	Operating voltage	Order code
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

2

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 Annx 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
- Use in conjunction with TR toroidal transformer

Standard IEC/EN 60947-2 Annex M

Sensitivity (A)	Trip Time (s)	Operating voltage	Order code
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
		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

STOCK INDENT

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 Annx 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
- Use in conjunction with TR toroidal transformer

Standard IEC/EN 60947-2 Annex M

Sensitivity (A)	Trip Time (s)	Panel size (mm)	Contacts	Operating voltage	Order code
from 0.03 to 30	from 0 to 5	48x48	2	110 VAC/ VDC, 230 VAC	ELR48P
		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

STOCK INDENT

For your notes

System pro *M* compact©
Auxiliary elements and accessories

Selection tables 150

Auxiliary elements for S200, SN200, F200, DS200, SD200 153

Shunt trip and undervoltage trip 154

Busbar systems 156

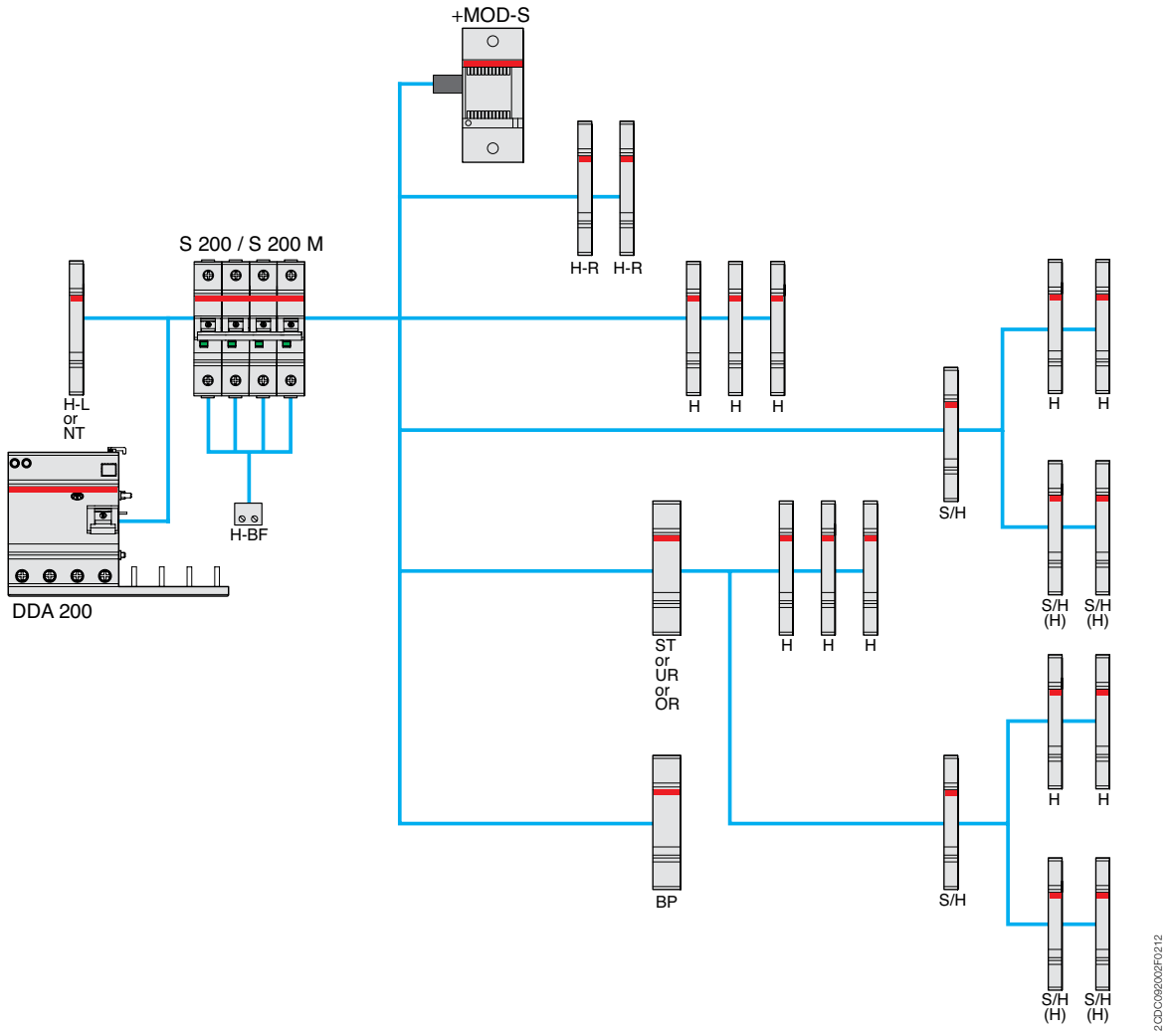
Short circuit limiter for S800 MCB 158

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

– System pro *M* compact© – 2CSC400002D0211

Auxiliary elements and accessories
Selection tables

Combination of auxiliary elements with S 200, DDA 200 + S 200 or DS 200

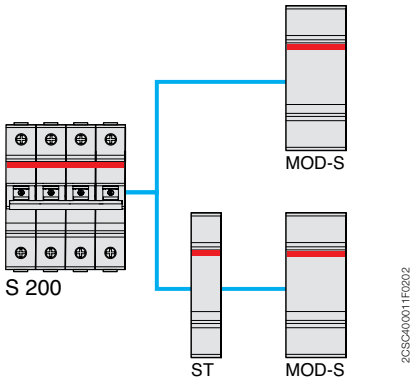


H	Auxiliary contact	S2C-H6R
H-R	Auxiliary contact	S2C-H6-...R
S/H	Signal/Auxiliary contact	S2C-S/H6R
S/H (H)	Signal/Auxiliary contact used as auxiliary contact	S2C-S/H6R
ST	Shunt trip for S 200 MCB	S2C-A...
UR	Undervoltage release	S2C-UA
OR	Overvoltage release	S2C-OVP
H-L	Auxiliary contact for S 200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

Auxiliary elements and accessories
Selection tables

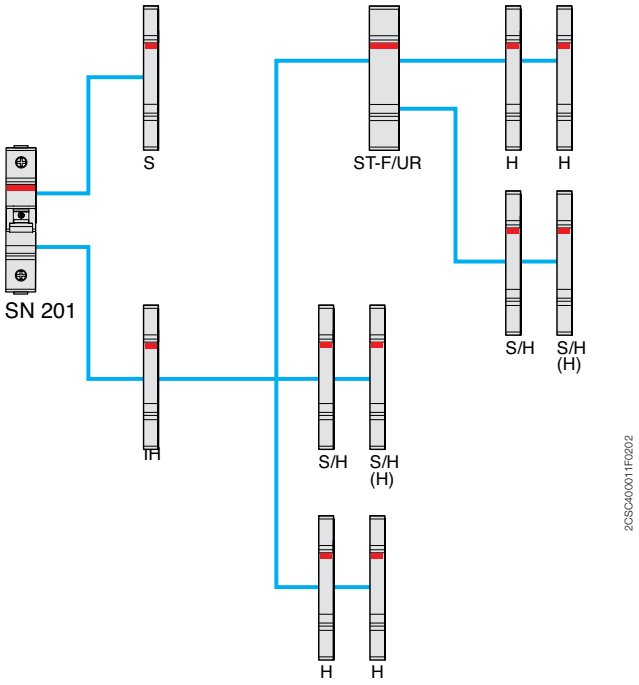
Combination of S 200 with motor operating device



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

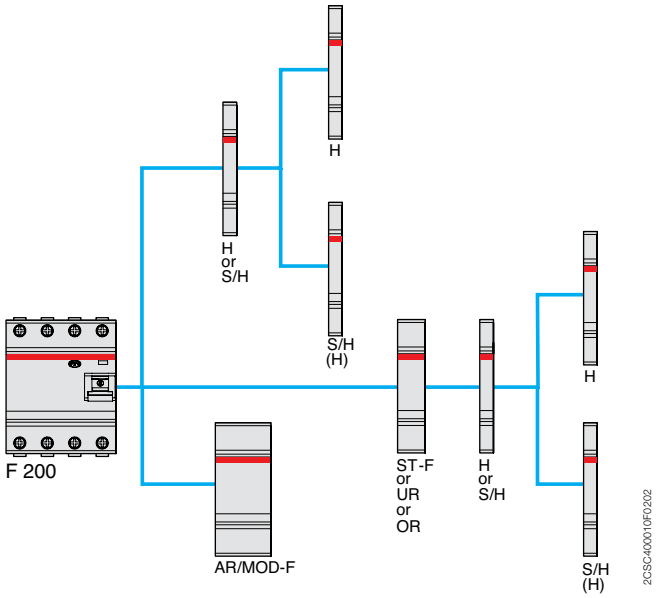
Combination of auxiliary elements with SN 201



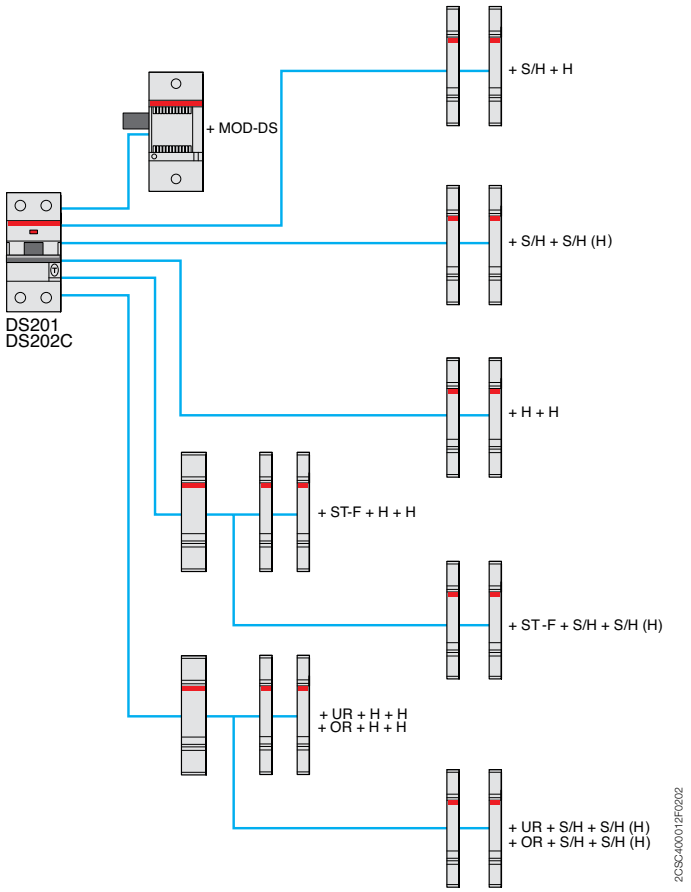
IH	Coupling interface/ auxiliary contact	SN201-IH
S	Signal contact	SN201-S
H	Auxiliary contact	S2C-H6R
S/H	Signal/auxiliary contact	S2C-S/H6R
S/H (H)	Signal/auxiliary contact used as auxiliary contact	S2C-S/H6R
ST-F	Shunt trip of F200 RCD	F2C-A
UR	Undervoltage release	S2C-UA

Auxiliary elements and accessories for MCBs and RCDs
Selection tables

Combination of auxiliary elements with F 200



Combination of auxiliary elements with DS201, DS202C



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, SD200

Side mount signal and 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 ansd SN201. Allows other auxiliary contacts and accessories to be fitted.

Signal/auxiliary contacts

Description	Configuration	Suits	Order code
Signalcontact/auxiliary contact	1CO	S200, F200, DS201, DS202C, SD200	S2CSH6R
Signalcontact/auxiliary contact	1NO, NC	SN201, DSN201	SN201S
Signalcontact/auxiliary contact	1CO	S800	S800AUX/ALT

Auxiliary contacts

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

Interface module/auxiliary contact

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

2CSC400682F0001

SN201-S

Signalling contact

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

Bottom fitting auxiliary contacts

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

2CSC400155F0201

S2C-H

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

STOCK INDENT

Auxiliary elements and accessories
Shunt trip and undervoltage trip

S2C-A

Shunt trip

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

* Must be used with SN201-IH inteface module

S2C-UA

Undervoltage trip

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

* Must be used with SN201-IH inteface module

STOCK INDENT

Busbar systems
Selection table

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

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

Coding of PS busbars

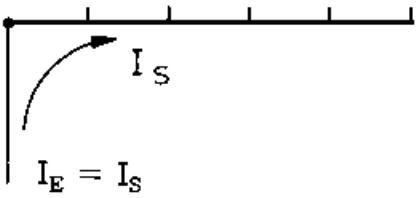
PS [ ] / [ ][ ] / [ ][ ] [ ][ ][ ]

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

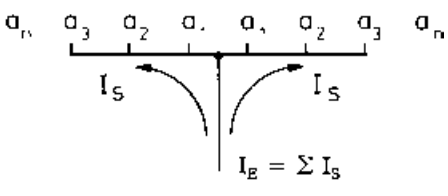
Note: Combinations of above applications are possible

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

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

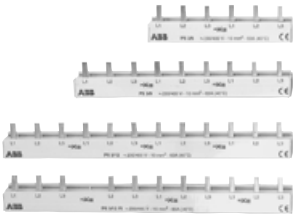


Feed in from the end of the busbar



Feed in from the middle of the busbar

Auxiliary elements and accessories
Busbar systems


PS 3/6 - PS 3/12

Pre-assembled busbar systems (not to be cut)

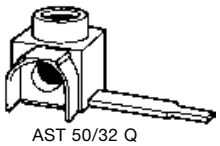
Phases	Number of pins	Cross section	Amps	Suits	Order code
1	12	10 mm²	63	SH200, S200, DSE201, DS271	PS1/12
3	12	10 mm²	63	SH200, S200, DSE201, DS271	PS3/12

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, DSE201, DS271	–	PS1/4
1	12	10 mm²	63	SH200, S200, DSE201, DS271	–	PS1/12N
1	60	10 mm²	63	SH200, S200, DSE201, DS271	PS-END 0	PS1/60
1	60	16 mm²	80	SH200, S200, DSE201, DS271	PS-END 0	PS1/60/16
1	12	10 mm²	63	SH200, SN201, DSN201	–	BS91/12
1	12	10 mm²	63	SH200, SN201, DSN201	–	BS91/12NA
1	56	10 mm²	63	SH200, SN201, DSN201	–	BS91/56
2	12	10 mm²	63	SH200, S200, DSE201, DS271	PS-END	PS2/12
2	58	10 mm²	63	SH200, S200, DSE201, DS271	PS-END	PS2/58
2	58	16 mm²	80	SH200, S200, DSE201, DS271	PS-END	PS2/58/16
3	6	10 mm²	63	SH200, S200, DSE201, DS271	–	PS3/6
3	60	10 mm²	63	SH200, S200, DSE201, DS271	PS-END	PS3/60
3	60	16 mm²	80	SH200, S200, DSE201, DS271	PS-END	PS3/60/16
3	12	10 mm²	63	SN201, DSN201	–	BS93/12
3	57	10 mm²	63	SN201, DSN201	BS9-END 3P	B593/57

Busbar system end caps

Description	Order code
End cap for busbar	PS-END
End cap for busbar	PS-END0
End cap for busbar	BS9-END3P


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

STOCK INDENT

Auxiliary elements and accessories
Busbar systems

SZ-BSK

Shock protection cap – protects unused poles on PS busbars

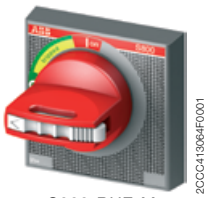
Description	Order code
5 pole strip	SZBSK5

F200LINK

RCD Connector – allows 3 terminations on RCCB's

Capacity	Suits	Order code
3 x 10mm^2	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 6mm^2 shaft		S200	S2CDH
Handle – Black		S200	OHBS2AJ
Handle – Red/Yellow		S200	OHYS2AJ
6mm^2 Shaft	L = 105 mm	S200	OXS6X105
6mm^2 Shaft	L = 120 mm	S200	OXS6X105
6mm^2 Shaft	L = 180 mm	S200	OXS6X105
6mm^2 Shaft	L = 250 mm	S200	OXS6X105
6mm^2 Shaft	L = 330 mm	S200	OXS6X105
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,DS271	SA1
For padlock bar	6 mm	S200,DS271	SA1-E
Padlock with 2 keys	3 mm	S200,DS271	SA2
Lock adapter incl. padlock with3 keys in transparent box	6 mm	S200,DS271	SA3

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

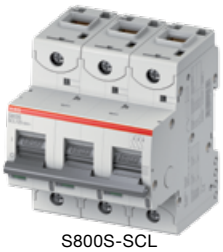
Description	Hasp Diameter	Suits	Order code
Special locking device that clamps to toggle	6.5 mm	S200,DS271	S2C-PD-S200
Special locking device that clamps to toggle	6.5 mm	DS201	S2C-PD-DS201
Locking device	4 mm	S800	S800PLL

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

2


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

STOCK INDENT

DSE201

Compact design with enhanced protection

The 1P+N electronic residual current circuit-breakers with overcurrent protection (RCBO's) DSE201 meet the demand for devices that fully protect modern installations against short-circuit currents, overloads, earth fault currents and personal protection against direct contact (30mA versions). The new compact single module design provides increased wiring space making the RCBO ideally suited for distribution board and load centre applications. Advanced features such as overvoltage protection, double slot terminals for line side connections and a functional earth wire ensures these electronic RCBO's offer the most technologically advanced and comprehensive ranges available with outstanding features, sizes and tripping characteristics.

For more information: **www.abbaustralia.com.au/lowvoltage**

Power and productivity
for a better world™

ABB
Band 3 779715
8247921 S801SB100A
Band 4

System pro *M* compact©
Modular DIN rail components

Surge protective devices 162
Australian Standards 162
Protection level and impulse withstand voltage 162
QuickSafe® technology 163
Technical selection of surge protective devices 164
OVR – Type 1 – Unpluggable 165
OVR – Type 1+2 165
OVR – Type 2 single phase and Type 2-3 single phase 165
OVR – Type 2 – 3P+N 165
OVR Photovoltaic – Type 1 PV 166
OVR Photovoltaic – Type 2 PV 166
OVR for Dataline protection 166

Switch disconnectors 167

DIN mounting changeover switches 167

DIN pushbuttons and indicators 168
DIN pushbuttons 168
DIN single indicator lights 168
DIN double indicator lights 168
DIN triple indicator lights 168

E90 fuse switch disconnectors 169
E90 fuse switch disconnector 169
Cylindrical fuses – 10.3 x 30 type gG 169
E90PV fuse disconnector 169

DIN contactors and latching relays 170
Contactors type ESB 170
Latching relay type E250 171
Time delay relay type CT MFD 171

Time switches 172
Analogue and digital 172

Twilight switches and astronomical twilight switches 173

Other products 174

2

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

- System pro *M* compact© – 2CSC400002D0211
- Surge protection devices – 1TXH000375C0202
- Time and twilight switches – 2CSC440020B0203

Modular DIN rail components
Selection of surge protective devices

Australian Standards

The Australian Lightning Protection Standard AS/NZS1768 provides details of the risk analysis required to assess a structure against the potential for damage. To simplify selection the Lightning Protection Standard AS/NZS 1768 and the Australian Wiring Rules AS/NZS 3000 provide a simple selection recommendation as follows.

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

The above table only considers the use of Type 2 SPD with an I_{max} rating based upon a 8/20 waveform. In the IEC Standards a Type 1 SPD with an I_{imp} rating based upon a 10/350 waveform is considered most appropriate for high lightning risk locations. In order to compare the two ratings it is generally considered that a factor of 10 may be applied to give an equivalence between these ratings. For example, an SPD withstanding a 100kA 8/20 impulse may be expected to withstand a 10kA impulse. Similarly a Type 1 SPD with a 25kA 10/350 rating would have an equivalent withstand capacity to a 250kA Type 2 8/20 SPD.

It is common practice in larger installations to include a number of SPD in the network. The first (or primary) SPD will be designed to handle to bulk of the energy (surge current). The subsequent (or secondary) SPD are not required to have as high value of surge current and can be installed close to the equipment to be protected and offer lower values of Up (protection voltage level).

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

Protection level and impulse withstand voltage

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

Up/f ≤ Uw

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

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

* IEC 60664-1

Modular DIN rail components
Selection of surge protective devices

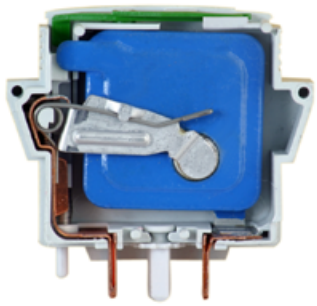
QuickSafe® technology

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

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

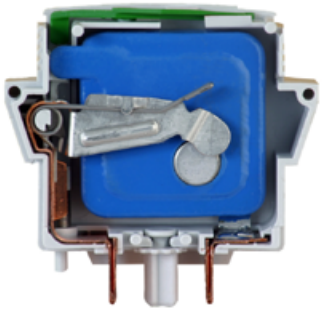
Changes to the IEC 61643-11 standard for Low Voltage Surge Protective Devices has lead ABB to develop a new, patented, range of Type 2 and Type 3 SPD‘s with QuickSafe® technology to provide a more rapid disconnection in the event of thermal runaway.

QuickSafe® technology means better protection for the installation and prolonged life of the SPD.



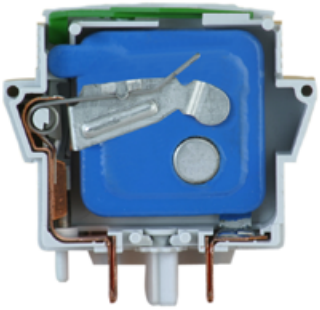
1

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



2

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



3

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

4

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

Modular DIN rail components
Technical selection of surge protective devices

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

Protected lines	Impulse current I_{imp} (kA)	Max discharge current I_{max} (kA)	Voltage protection level U_p	Max. cont operating voltage U (V)	Backup fuse/MCB	Module width	Type Description	Order code
Type 1								
1	25	60	2.5 kV	255	≤ 125	2	OVRT1 25-255	2CTB815101R0100
3	25	60	2.5 kV	255	≤ 125	6	OVRT1 3L 25-255TS	2CTB815101R0600
1	15	80	1.4 kV	440	50	2	OVR HL 15-440SPTS	OVRHL15-440SPTS
Type 1 - Type 2								
1	12.5	80	1.1 kV	275	≤ 125	2	OVRT1-T2 12.5-275 sPTS QS	2CTB815710R0000
3	12.5	80	1.1 kV	275	≤ 125	7	OVRT1-T2 3L 12.5-275 sPTS QS	2CTB815710R0600
Type 2 - Type 3								
1	2	20	0.9 kV	275	≤ 125	1	OVRT2-T3 20-275 P QS	2CTB803871R2400
Type 2 - Type 3								
1	2	40	1.25 kV	275	≤ 125	1	OVRT2 40-275 PTS QS	2CTB803871R1700
1	6.25	80	1.8 kV	275	≤ 125	1	OVRT2 80-275 sPTS QS	2CTB815708R0000
3+1	2	40	1.25 kV	275	≤ 125	4	OVRT2 3N 40-275 sPTS QS	2CTB815704R0800
3+1	6.25	80	1.8 kV	275	≤ 125	4	OVRT2 3N 80-275 sPTS QS	2CTB815708R0800
Type 1 Photovoltaic								
2	6.25	—	1.9 kV	670	—	9	OVR PV T1 6.25-600 PTS	2CTB803953R5700
2	6.25	—	2.5 kV	1000	—	9	OVR PV T1 6.25-1000 PTS	2CTB803953R6700
Type 2 Photovoltaic								
2	—	40	1.4 kV	670	—	3	OVR PV 40-600 PTS	OVRPV40-600PTS
2	—	40	3.8 kV	1100	—	3	OVR PV 40-1000 PTS	OVRPV40-1000PTS
Dataline network protection								
1 pair	—	10	15 V	7	—	12 mm	OVR TC 6 P	OVRTC6P
1 pair	—	10	20 V	14	—	12 mm	OVR TC 12 P	OVRTC12P
1 pair	—	10	35 V	27	—	12 mm	OVR TC 24 P	OVRTC24P
1 pair	—	10	70 V	53	—	12 mm	OVR TC 48 P	OVRTC48P
1 pair	—	10	700 V	220	—	12 mm	OVR TC 200 P	OVRTC200P
1 pair	—	10	400 V	220	—	12 mm	OVR TC 200 FRP	OVRTC200FRP

STOCK INDENT

Modular DIN rail components
Selection of surge protective devices

OVR T1

Surge protection devices – Type 1 – Unpluggable

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

Protected poles	Impulse current I_{imp}	Max disharge current I_{max}	Type Description	Order code
1	25	60	OVRT1 25-255 Type 1 25kA 1 Phase	2CTB815101R0100
3	25	60	OVRT1 3L 25-255TS Type 1 25kA 3 Phase	2CTB815101R0600
1	15	100	OVR HL 15-440SPTS Type 1 15kA 1 Phase	OVRHL15-440SPTS

OVR T1-T2 12.5-275s P QS

Surge protection devices – Type 1+2

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

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

OVR T2 40-275 P QS

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

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

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

OVR T2 4L 40-275 P QS

Surge protection devices – Type 2 – 3P+N

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

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

Modular DIN rail components
Selection of surge protective devices

OVR PV T1 6.25-600 P TS

OVR PV 40-1000 P TS

Photovoltaic application surge protection devices

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

Type 1 PV

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

Type 2 PV

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

OVR TC 200FR P

Base OVR TC RJ 45

Dataline protection

- Reliable surge protection for dataline networks for datacentres, water treatment installations or wind turbine installations
- RJ11 and RJ45 bases provides flexible and easy installation

Dataline protection module - Pluggable

Protected poles	Max disharge current I_{max}	Nominal rated current kA/mA	Voltage protection level U_p	Max. cont operating voltage U_{cpv}	Backup fuse/MCB	Modules	Order code
1 pair	10	5/140	15	7	–	12	OVRTC6P
1 pair	10	5/140	20	14	–	12	OVRTC12P
1 pair	10	5/140	35	27	–	12	OVRTC24P
1 pair	10	5/140	70	53	–	12	OVRTC48P
1 pair	10	5/ –	700	220	–	12	OVRTC200P
1 pair	10	5/140	400	220	–	12	OVRTC200FRP

Bases

–	–	–	–	–	–	24	BASEOVRTCRJ45

STOCK INDENT

Modular DIN rail components
Switch disconnectors, changeover switches, man-off-auto switches

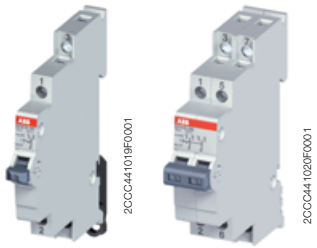
Switch disconnectors

- 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

Standard AS/NZS 60947.3, IEC/EN 60947-3
Voltage range 230/400V – 240/415V

Rating (A)	Order code 1 Pole	2 Pole	3 Pole	4 Pole
25	SHD20125	SHD20225	SHD20325	SHD20425
32	SHD20132	SHD20232	SHD20332	SHD20432
40	SHD20140	SHD20240	SHD20340	SHD20440
63	SHD20163	SHD20263	SHD20363	SHD20463
80	E20180RD	E20280RD	E20380RD	E20480RD
100	E201100RD	E202100RD	E203100RD	E204100RD
125	E201125RD	E202125RD	E203125RD	E201125RD

DIN mounting changeover switches



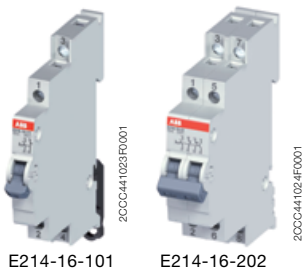
- Space saving design – only 9 mm or 18 mm wide
- Suited for consumer units, load centres and distribution boards

Changeover switches

Standard EN 60669-1
Voltage range 1 C/O, 2 C/O 250V

Current rating	Contacts	Width mm	Order code
16	1 C/O	9	E213-16-001
	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)



Standard EN 60669-1
Voltage range 1 C/O, 2 C/O 250V

Current rating	Contacts	Width mm	Order code
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

STOCK INDENT

Modular DIN rail components
DIN pushbuttons and indicators

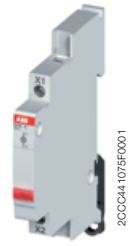
E 215

DIN pushbuttons

Standard EN 60669-1
Rated voltage 250V

Current rating		Contacts	Width (mm)	Order code
16	Grey	1 N/O + 1 N/C	9	E215-16-11B
	Red	1 N/O + 1 N/C	9	E215-16-11C
	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 EN 60669-1
Rated voltage 115 – 250V AC

Power loss (W)	LED colour	Width mm	Order code
0.47	Red	9	E219C
	Green	9	E219D
	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

E 219-2CD

DIN double indicator lights

Standard EN 60669-1
Rated voltage 115 – 250V AC

Power loss (W)	LED colour	Width mm	Order code
0.8	Red, Green	9	E219-2CD

E 219-3CDE

DIN triple indicator lights

Standard EN 60669-1
Rated voltage 115 – 250V AC

Power loss (W)	LED colour	Width mm	Order code
1.2	Red, Red, Red	9	E219-3C
	Green, Green, Green	9	E219-3D
	Red, Yellow, Green	9	E219-3CDE

STOCK INDENT

Modular DIN rail components
E90 fuse switch disconnectors

E90 fuse switch disconnector

Standard IEC 60947-3

E 92

E 931

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	E931/50
2	50	3	E932/50
3	50	4.5	E933/50

Cylindrical fuses – 10.3 x 30 type gG

E 9F14 AM

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

E90PV fuse disconnector

- Rated 1000VDC for photovoltaic applications
- Padlockable in open position
- DC-20B

Standard: IEC 60947-3

E 92

E90PV fuse switch disconnector for 8.5 x 31.5mm fuses

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

Modular DIN rail components
DIN contactors

ESB20

ESB24

ESB40

ESB63

Contactors type ESB

– Convenient control of lighting, heating, ventilation and pumps
– DIN profile suits consumer units, load centres, panel boards and distribution boards
– ESB 20 are AC coil operated
– ESB 24, 40 and 63 have a DC solenoid actuator allowing AC/DC coil voltages with hum-free operation, no vibration, silent operation and low power consumption.

IEC Rated curent θ ≤ 40°C AC-1/AC-7a	IEC Rated motor load AC-3/AC-7b	Rated control voltage U_c		Auxiliary contacts fitted		Order code
A	kW	V 50Hz	DC			
2 main poles, 3 or 4 main poles						
20	1,1	24 V		2	0	ESB202024
		230 V		2	0	ESB2020230
		240 V		2	0	ESB2020240
		24 V		0	2	ESB200224
		230 V		0	2	ESB2002230
		240 V		0	2	ESB2002240
		24 V		1	1	ESB201124
		230 V		1	1	ESB2011230
		240 V		1	1	ESB2011240
24	4	24 V	24 V	2	0	ESB242024
		230 V	230 V	2	0	ESB2420230
40	22	24 V	24 V	2	0	ESB402024
		230 V	230 V	2	0	ESB4020230
24	4	24 V	24 V	4	0	ESB244024
		230 V	230 V	4	0	ESB2440230
		24 V	24 V	0	4	ESB240424
		230 V	230 V	0	4	ESB2404230
		24 V	24 V	2	2	ESB242224
		230 V	230 V	2	2	ESB2422230
		24 V	24 V	3	1	ESB243124
		230 V	230 V	3	1	ESB2431230
40	22	24 V	24 V	4	0	ESB404024
		230 V	230 V	4	0	ESB4040230
		240 V	240 V	4	0	ESB4040240
		24 V	24 V	2	2	ESB402224
		230 V	230 V	2	2	ESB4022230
		24 V	24 V	3	1	ESB403124
		230 V	230 V	3	1	ESB4031230
		24 V	24 V	3	0	ESB403024
		230 V	230 V	3	0	ESB4030230
63	30	24 V	24 V	4	0	ESB634024
		230 V	230 V	4	0	ESB6340230
		240 V	240 V	4	0	ESB6340240
		230 V	230 V	3	1	ESB6331230

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0202

EH04 ...

ESBDIS

ESBPLK24

Ordering details accessories

Description		Order code
Aux. switches	2 N.O.	EH0420[1]
	1 N.O. + 1 N.C.	EH0411[1]
Distance piece		ESBDIS
Sealing covers		ESBPLK24
		ESBPLK40/63

1) Mounting onto ESB 20 not possible.
For more detailed product information, please refer to the Technical Catalogue: 2CDC103023C0201

STOCK INDENT

Modular DIN rail components
DIN latching relays

E 251-230

Latching relay type E250

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

E250

Current AC-1	Main poles	Coil voltage	Modules	Order code
16	1 N/O	240 V AC	1	E251-230

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

Time switches

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

Analogue time switch

Voltage 230 V
Contacts 16A
Programs Maximum 96 programs per cycle
Minimum switching 15 minutes

Contacts	Running reserve	Version	Order code
1 N/O	200h	Daily	AT1R
1 C/O	–	Daily	AT3
1 C/O	200h	Daily	AT3R

Weekly digital time switch

Voltage 230 V
Contacts 16A
Programs Maximum 64 programs per cycle
Minimum switching 1 second
Permanent memory EEPROM

Channels	Running reserve	Modules	Order code
1 C/O	6 years	2	D1
2 C/O	6 years	2	D2

D 365

D 365 CE

Yearly digital time switch

Voltage 230 V
Contacts 16A
Programs Up to 80 memory spaces
Manage up to 8 independent contacts through the use of extension modules

Channels	Description	Contact configuration	Running reserve	Modules	Order code
2	Yearly time switch	2 C/O	6 years	3	D365
2	Channel extension	2 C/O		2	D365CE

Note: Maximum of 3 D365CE channel extensions can be used

STOCK INDENT

Modular DIN rail components
Twilight switches and astronomical twilight switches

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 series modular twilight switch

Voltage 230 V
Contacts 16A (resistive), 3A Inductive

Brightness range (lux)	Contacts	Maximum loads			Module width	Order code
		Flourescent	Flourescent	Electronic		
2 : 200	1 N/O	960W	720W	200W	1	T1
2 : 15000	1 C/O	1080W	720W	200W	2	T1PLUS

Accessories (spare parts)

Description	Order code
IP65 Sensor	LS-D

Pole mounting twilight switch

Voltage 230 V
Contacts 16A (resistive), 3A Inductive

Brightness range (lux)	Contacts	Maximum loads			Order code
		Flourescent	Flourescent	Electronic	
2 : 200	1 N/O	960W	720W	200W	T1POLE

Astronomical twilight switches

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

TWA-1

TWA twilight astronomical switch

Voltage 230 V
Contacts 16A (resistive), 3A Inductive

Brightness range (lux)	Contacts	Maximum loads			Module width	Order code
		Incandescent	Flourescent	Electronic		
2 : 200	1 C/O	2300W	400W	500W	2	TWA1
2 : 15000	2 C/O	2300W	400W	500W	2	TWA2

STOCK INDENT

Modular DIN rail components
Other products

TM fail safe bell transformer

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

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

SM 1-230

RM electro-mechanical buzzer

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

Rated voltage		Modules	Order code
230	Discontinous 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

STOCK INDENT

For your notes

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

Industrial plugs and sockets

Product overview 178

IEC 60309 Plugs and connectors 179

IP44 Plugs 179
IP44 Connectors 179
IP44 Surface mounted socket outlets 179
IP44 Angled flange outlets 179
IP67 Plugs 180
IP67 Connectors 180
IP67 Surface mounted socket outlets 180
IP67 Angled flange outlets 181
IP67 Straight Flange – 125A 181

Accessories 181

2

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

– Industrial plugs and sockets – 2CMC700014C0008

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

Tough & Safe is the range for applications in environments that have high demand of functionality and safety. The robust housing is made of PBT plastic. The range Tough & Safe is available as watertight (IP67, 16 - 125A) and splashproof (IP44, 16-63A). The devices are equipped with internal and external cable clamps. The 125A devices are equipped with two screws on each terminal.

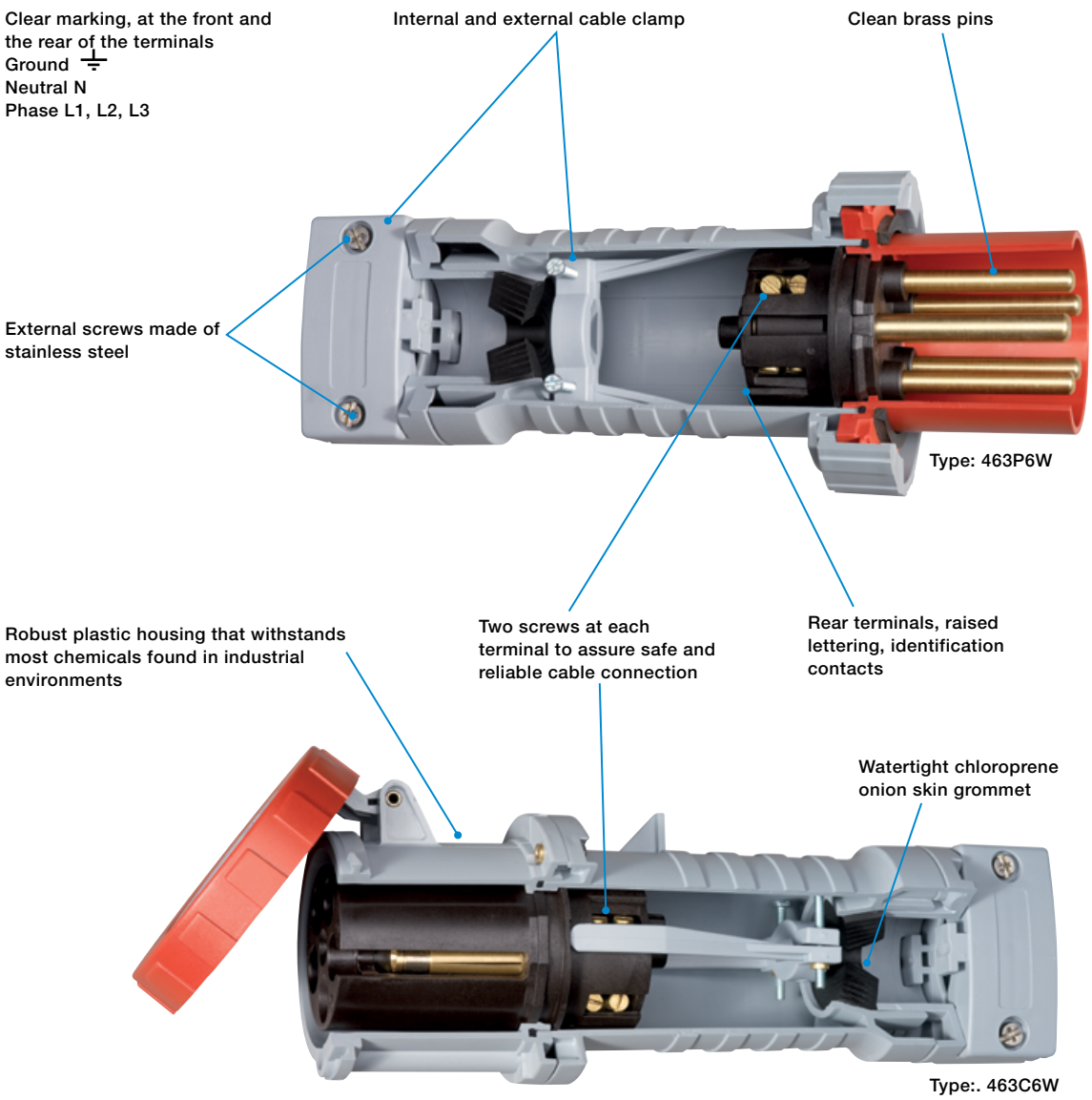
Features

- IP67 Watertight or IP44 Splashproof
- 16 – 125 A, 50 – 690 VAC
- IEC 60309-1, -2
- All external screws are made of stainless steel.
- Food & beverage

Application examples

- Industry / workshops
- Harbours / shipyards
- Mines

2



STOCK INDENT

Industrial plugs and sockets
IEC 60309 Plugs and connectors
IP44

P6

IP44 Splash proof plugs

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

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

C6

IP44 Splash proof connectors

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

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

RS6

IP44 Splash proof surface mounted socket outlets

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

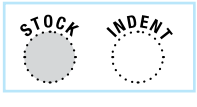
Cable entry: Membrane (included) Knock-outs on rear, M20 on top (≤ 32A), M32 on top (63A)

RAM6

IP44 Splash proof outlets angled flange

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

Note: For inlet units in surface and flange mount, refer to catalogue, Industrial Plugs and Sockets



Industrial plugs and sockets
IEC 60309 Plugs and connectors
IP67

P6W

IP67 Watertight plugs

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

Cable entry: Compression gland (included)

C6W

S6W

IP67 Watertight connectors

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

Cable entry: Compression gland (included)

RAU6W

RU6W

IP67 Watertight surface mounted socket outlets

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

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

STOCK INDENT

RAU6W

RU6W

IEC 60309 Plugs and connectors
IP67 *(cont.)*

IP67 Watertight angled flange outlet

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

IP67 Watertight Straight Flange – 125A

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

Accessories

CLF16-125

Plugblocker

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

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

Protective cover, 16 – 125A

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

GP125

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

Service for Low Voltage Products

Every solution at your disposal 184

Maintenance 185

Warranty extension 186

Training 187

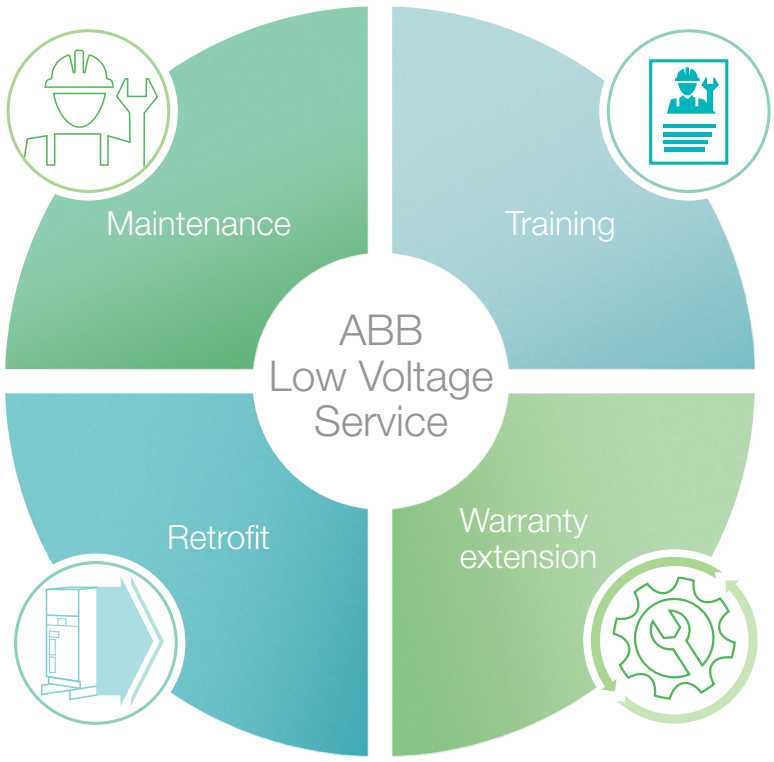
Retrofit of ABB and third party air circuit breakers 188

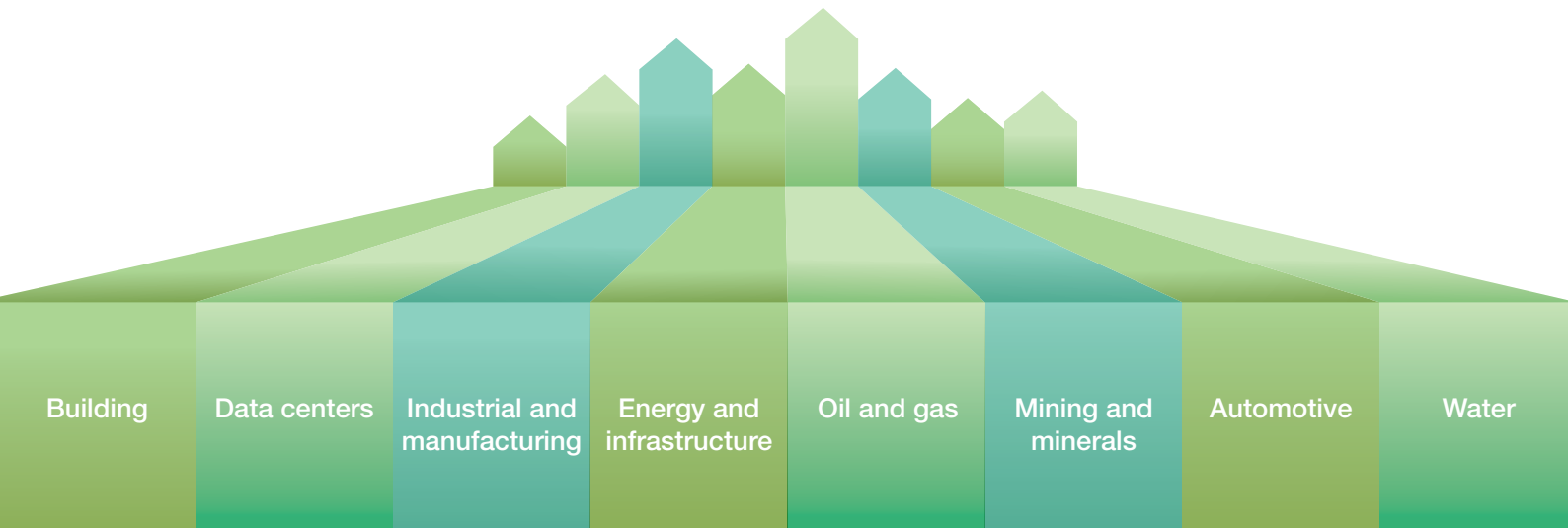
ABB Low Voltage Service
Every solution at your disposal

ABB Low Voltage Service offers a complete range of services to support customers in all stages of the product‘s life. By integrating information with customers, ABB can collect all requests for assistance and maintenance. In this way, ABB services are always immediate and of the highest level.

ABB Low Voltage Service offers every kind of maintenance solution for customers in order to maximize circuit-breaker efficiency, safety, performance and life span:

- On-site repairs performed by ABB field engineers who are highly trained and equipped with the proper tools.
- Preventive and Predictive maintenance in order to maximize circuit-breaker performance; increasing the reliability, safety and the lifetime of switchgear, switchboards and electrical power systems and reducing the total costs.





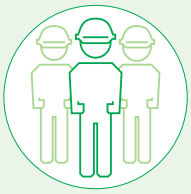
Maintenance

ABB understands the importance of the constant availability of circuit breakers for your business. When product fails, it causes costly downtime and ad hoc repair. That is why ABB low voltage service workshops offer you high-quality repair services.

On-site maintenance

Extensively trained engineers supported by design experts and ABB's global service network

Avoid the need to ship damaged equipment for repair resulting in less downtime



Engineers on hand to: Analyze the root cause of the problem; determine corrective actions needed; and carry out any repair works on site.

Workshop maintenance

Extensively trained engineers supported by design experts and ABB's global service network

All workshops maintain high quality standards in product repairs.

Supported by ABB Service Centers

Provide service solutions for ABB active and legacy products

Genuine factory supported solutions for customers

Warranty extension

The warranty extension has to be requested from ABB SACE and will be subject to a preventive authorization from ABB SACE, followed by the customer acceptance on clauses described below.

General description and application

This procedure is applicable on the following range of circuit breakers, identified with a serial number, and their related **accessories installed in the ABB factory**:

- ABB new Emax and Emax 2 ranges of Air Circuit Breaker (ACB)
- ABB Tmax T and Tmax XT ranges of Moulded Case Circuit Breaker (MCCB)

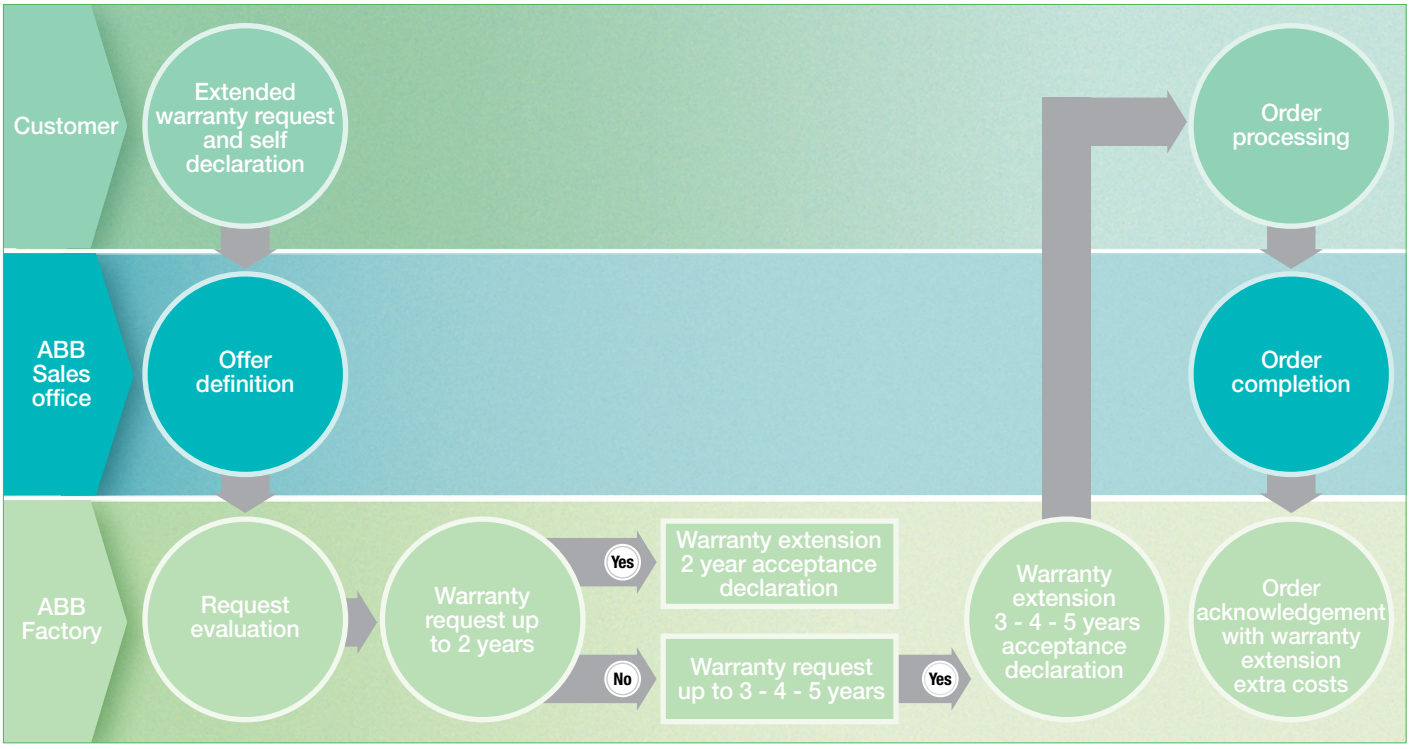
Device serial numbers will be appropriately recorded.

Warranty extension request to be initiated from the customer by fulfilling the 'Warranty extension request'. The warranty extension request will include: the plant or installation information type, plant location, final customer general information and also the declaration that the plant is characterized by normal operational and environmental conditions. (Please refer to Condition section for standard warranty environment conditions).

Customer applications will be analyzed by factory Product Management, Quality department and Order-Handling offices.

After the application acceptance process, ABB SACE Quality office will proceed raising a warranty extension acceptance declaration for every project. The order will be processed, as a next step, including the extended warranty technical notification and extra-cost (by means of extra codes) for each circuit breaker.

Warranty extension procedure



Training

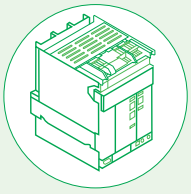
Stay up-to-date on the latest products and services available in the marketplace to help improve the performance and reliability of your low voltage circuit breakers.

- Gain technical knowledge needed to reduce the time and cost associated with maintenance of your equipment. Develop the skills needed to improve your equipment's operating life.
- Improve your troubleshooting skills through training by experienced ABB field service technicians.
- Bring knowledge and expertise to your business through an improved understanding of your low voltage products.
- Work first-hand with functioning circuit breakers and life-size models in a training lab or your site, as ABB experts demonstrate maintenance and troubleshooting techniques.
- Get answers to all of your questions related to ABB's wide range of low voltage products from our experienced staff of engineers and service technicians.

ABB Factory training

Facility for hands on training based in Melbourne

Fully equipped classroom setting with adjacent training lab



Training lab complete with fully functioning training products

Access to ABB specialists

On-site training

Convenient to make the most of customers training budgets

Maximize the amount of attendees and avoid costly travel expenses

Work with the customer to tailor the course for their particular needs

The following is required for on-site training:

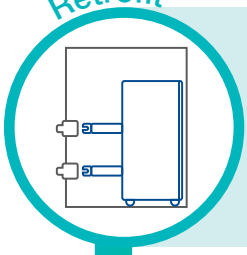
- Free and clear room for the training
- One computer per breaker
- Power for tools, lighting and measurement equipment
- One air circuit breaker per two trainees is the recommended ratio

Retrofit of ABB and third party air circuit breakers

Circuit breaker retrofit is a cost-effective switchgear modernization solution. The result is noticeable improvement on reliability, safety, maintenance and performance. ABB is a full system provider, from the proposal and design, through to the manufacturing and testing, up to installation and commissioning. Both ABB and non-ABB installed base can be addressed.

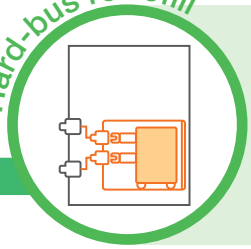
3

Retrofit



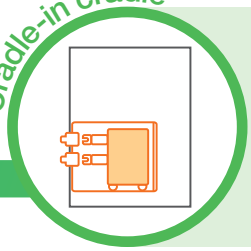
Retrofit breakers are normally used to replace phased out devices by current production versions. They are mechanically and electrically engineered to adapt to the existing solution on site. ABB Service experts conduct site audits on existing installations to asses the condition of the equipment, recommend the proper solution and support the right investment decision.

Hard-bus retrofill



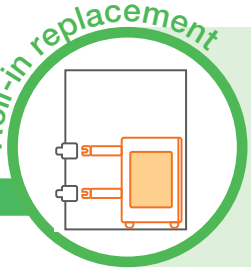
The obsolete circuit breaker is totally removed and replaced with the new circuit breaker. The kit contains special designed and preconfigured busbar and covers to adapt the new circuit breakers to the existing busbars. It is necessary to order both the fixed part and the moving part of the new circuit breaker.

Cradle-in cradle



Fixed part of the new circuit breaker is suitabily adapted and tested in ABB. This solution allows the new fixed part to be fast fitted inside the existing fixed part.

Roll-in replacement



This is fastest solution for the customer: the moving part of the old circuit breaker is removed and the moving part of the new circuit breaker is suitably modified and tested in ABB to be fitted into the existing fixed part. This implies very short plant shutdown. The kit pre-mounted by ABB changes the fixed circuit breaker into a proper moving part to be fitted into the existing fixed part.

ABB

Upgrade existing SACE air circuit breakers (ACBs) with direct replacement air circuit breaker or retrofill solution.

- Isomax
- Tmax
- Novomax
- Otomax
- Megamax
- ITE
- ASEA
- BBC
- Softstarters
- Automatic transfer switch

Third party

Upgrade/retrofit with SACE new ACBs, retrofill or direct replacement solutions solutions. Retrofit breakers based on the current technology air circuit breaker and customized for panel adaptations.

- Nilsen
- Schneider
- Terasaki
- Crompton Parkinson
- Hundt & Weber
- Mitsubishi
- General Electric
- Siemens
- Standard Waygood
- Westinghouse
- Other brands

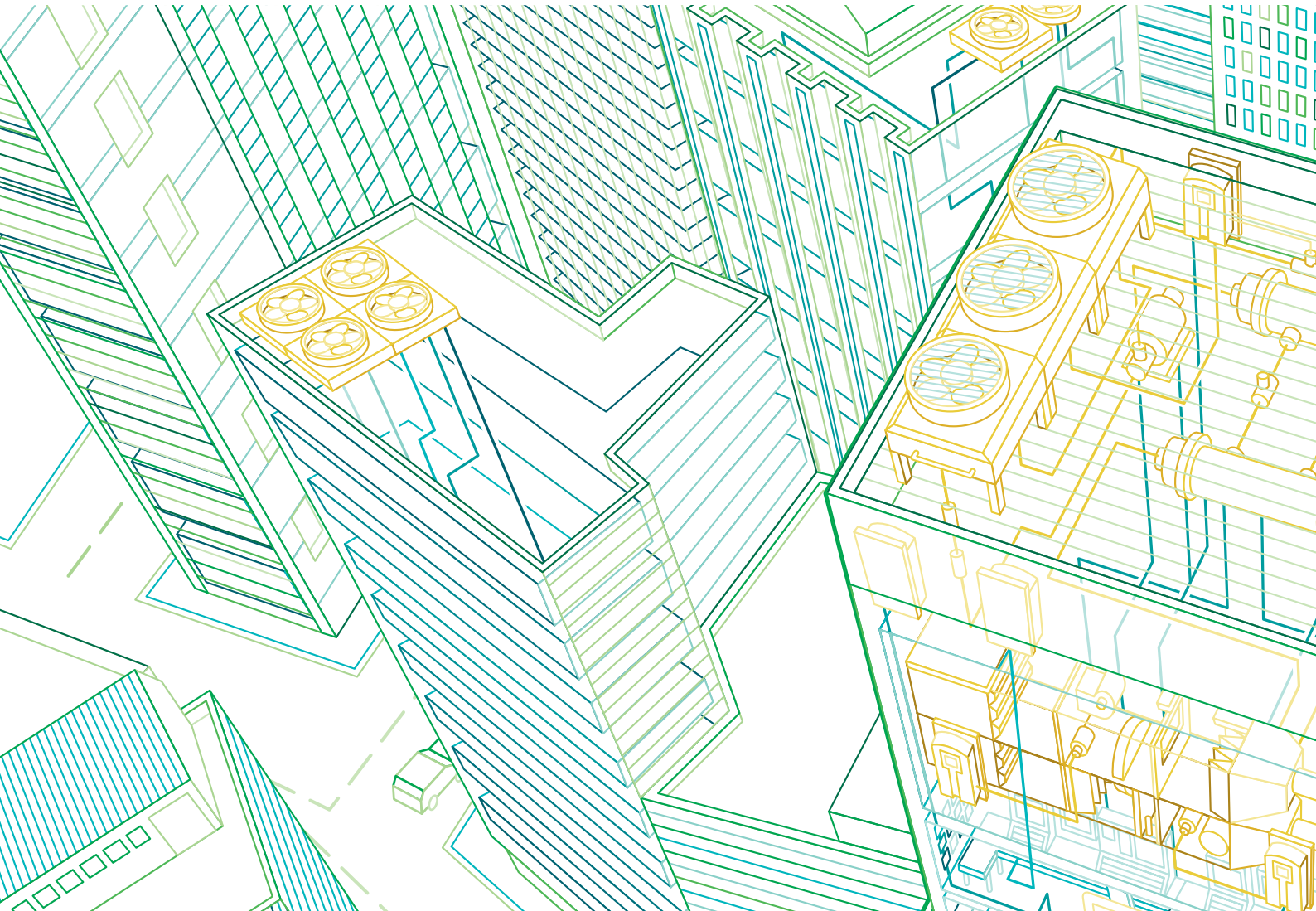
Circuit breaker retrofit is a cost-effective switchgear modernization solution. The result is a noticeable improvement on reliability, safety, maintenance and performances. ABB is a full system provider, from the proposal and design, through the manufacturing and testing, up to the installation and commissioning. Both ABB and non-ABB installed base can be addressed.

This solution balances the need for a retrofill solution with reasonably limited site works and linked outage. OneFit is the latest ABB hard-bus retrofill design concept, embedding an integrally safe plug-in technology to easily connect the new breaker to a wide range of existing panels.

The time and effort of emptying the compartment and arranging it to fit the new cassette is offset by providing a modern, reliable and interchangeable solution. The relevant longer downtimes must be considered when choosing this option.

This product family includes a range of solutions supporting the switchgear upgrade when additional constraints are in place:

- other parts than the breaker (shutters, interlocks, etc.) need to be replaced;
- the original panel design does not allow to meet today required features and Standards.

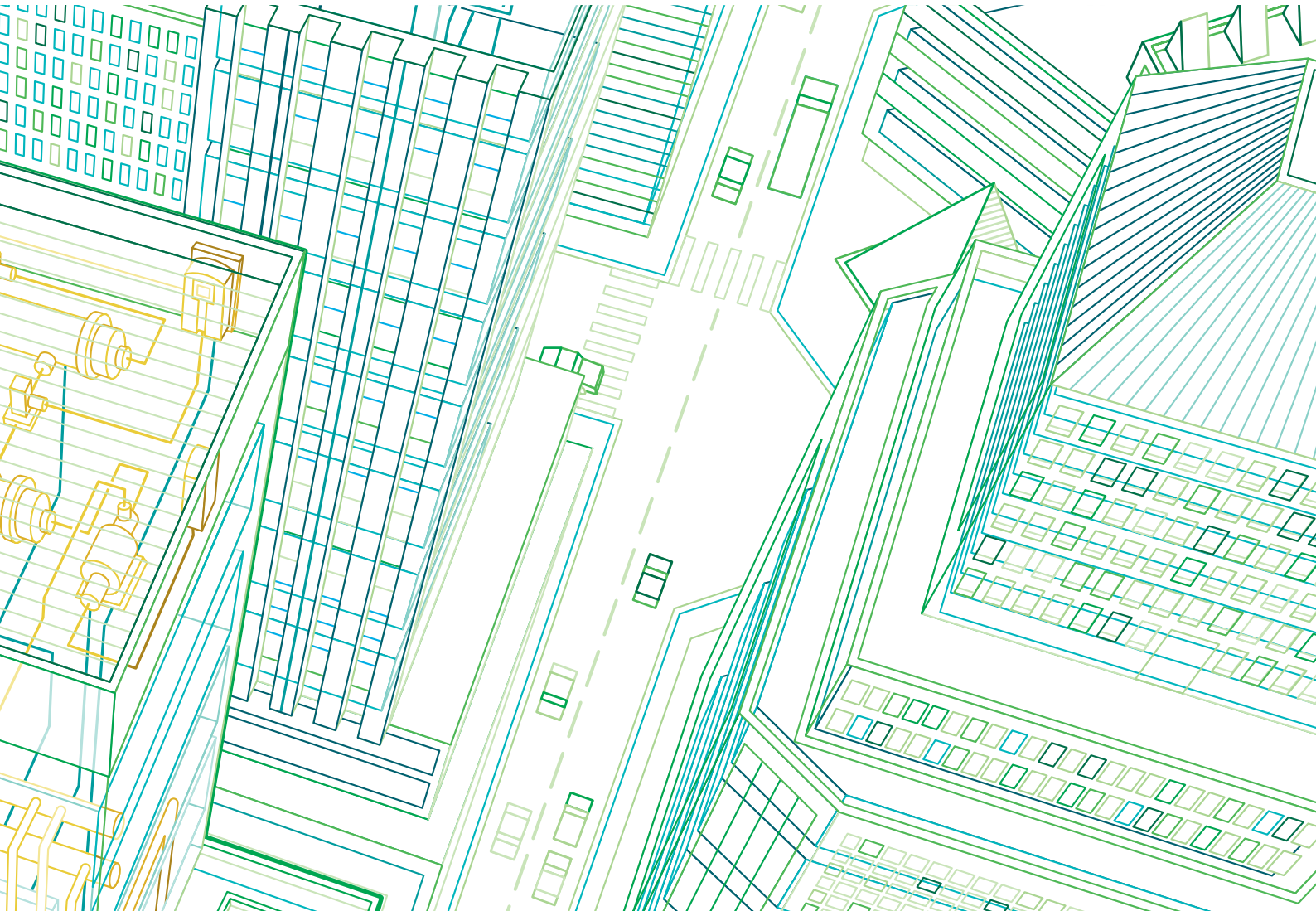


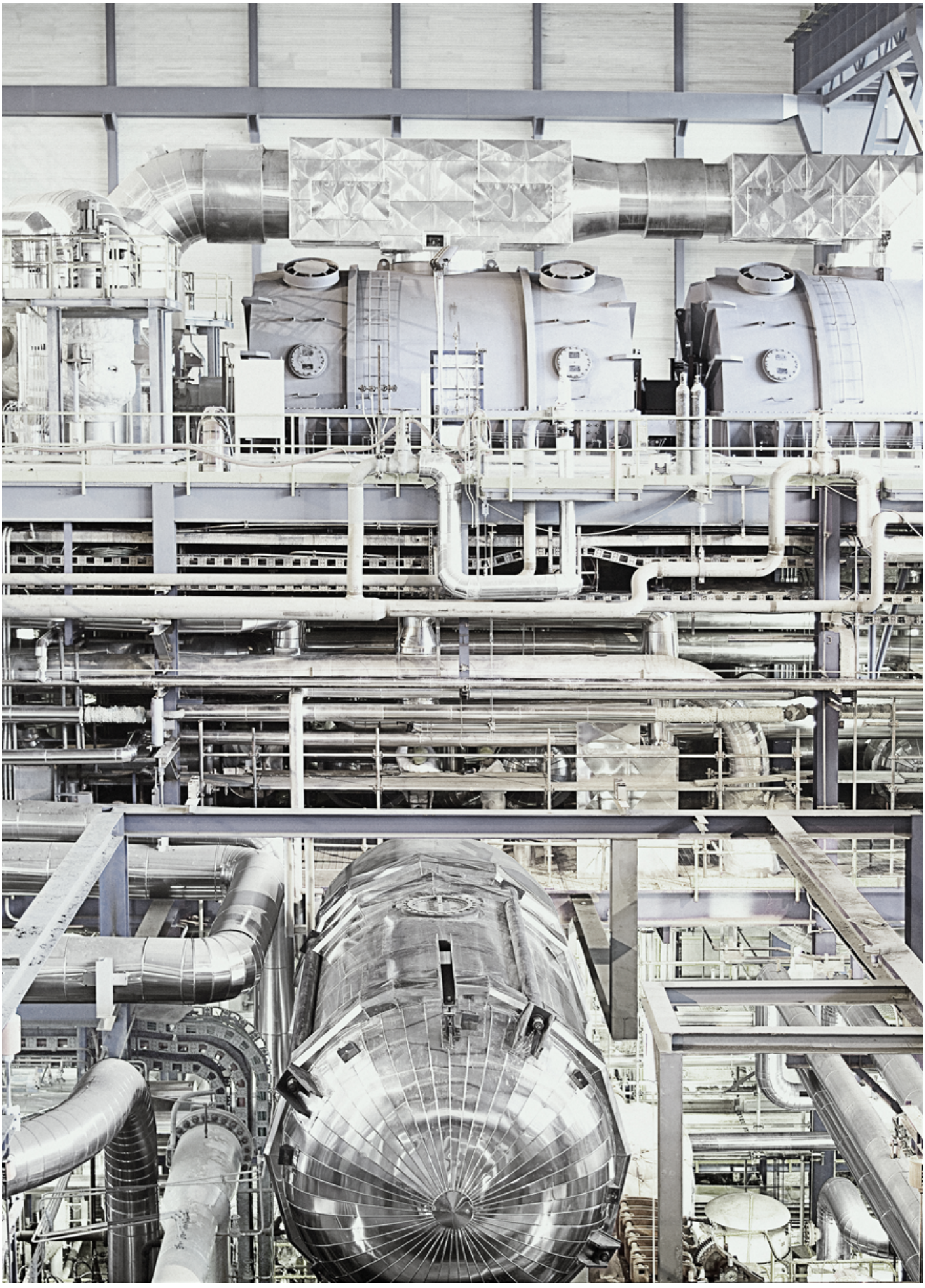
Power Distribution

Air Circuit Breakers (ACB) – Emax 2 193

Moulded Case Circuit Breakers (MCCB) – Tmax 207

Load Break Switches 237





Air Circuit Breakers (ACB) – Emax 2

Emax 2, Air Circuit Breakers – Technical Data 194

Automatic Circuit Breakers 196
Fixed version for power distribution 196
Withdrawable version for power distribution 196

Switch-disconnectors 197
Fixed versions 197
Withdrawable versions 197

Accessories 198
Standard supply accessories 198
Electrical accessories 199
Mechanical accessories 201

Ekip modules 203

Mechanical interlock 204

4

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

– Emax 2 – 1SDC200023D0201

Air Circuit Breakers – Emax 2
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 – Emax 2
Automatic Circuit Breakers

Fixed version

Withdrawable version
Moving part

Withdrawable version
Fixed part

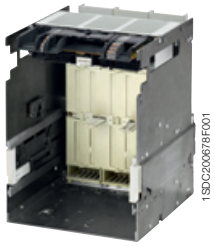
				Fixed version for power distribution		Withdrawable version for power distribution			
				3 and 4 Poles Trip unit – Ekip Touch LSIG		3 Poles Trip unit – Ekip Touch LSIG		4 Poles Trip unit – Ekip Touch LSIG	
				E1.2...E4.2 have 100% rated neutral. E6.2 has 50% rated neutral.		Withdrawable ACB consists 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

STOCK INDENT

Air Circuit Breakers – Emax 2
Switch-disconnectors

Fixed version

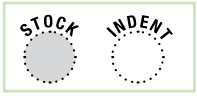
Withdrawable version
Moving part



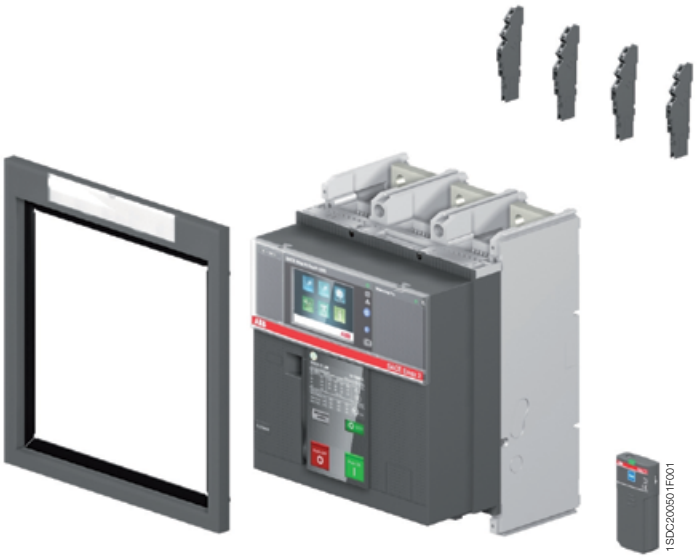
Withdrawable version
Fixed part

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
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



Accessories – Emax 2
Standard supply



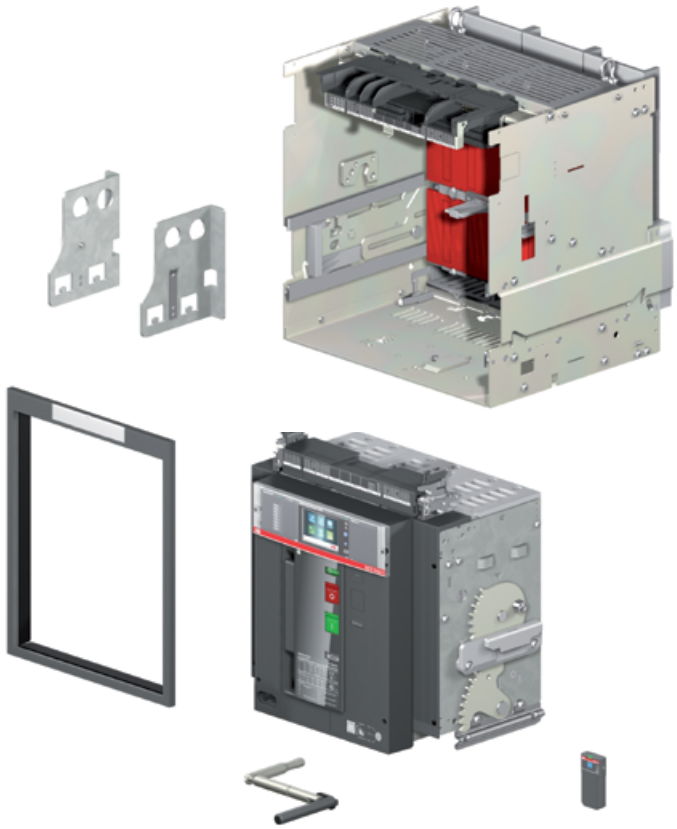
Fixed versions

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

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

In addition, for fixed automatic circuit-breakers only:

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



Withdrawable versions

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

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

In addition, for withdrawable automatic circuit-breakers only:

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

The fixed parts feature:

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

Air Circuit Breakers – Emax 2
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

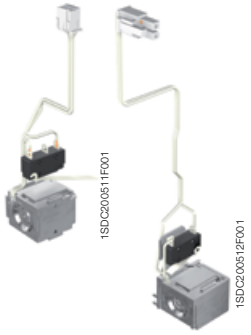
First and Second Closing Release – YC

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

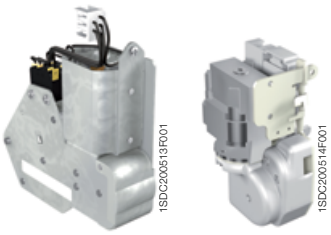


Remote Reset - YR

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 – Emax 2
Electrical accessories

1SDC200687F001

Current sensor for neutral conductor outside the ACB

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

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

1SDC200504F001

Open/Close auxiliary contacts – AUX

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

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

1SDC200505F001

15 Additional auxiliary contacts – AUX 15Q

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

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

1SDC200506F001

Auxiliary position contacts – AUP

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

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

STOCK INDENT

Air Circuit Breakers – Emax 2
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.

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

4

Air Circuit Breakers – Emax 2
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

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

STOCK INDENT

Air Circuit Breakers – Emax 2
Ekip Modules

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 RS-485	1SDA074150R1
	Ekip Com Modbus TCP	1SDA074151R1
	Ekip Com Ethernet/IP	1SDA074155R1
	Ekip Com Actuator	1SDA074166R1

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

Measuring and protection modules

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

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

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

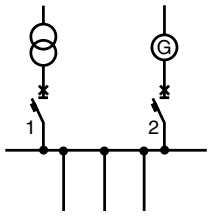
Note: E6.2 Ekip Measuring available. Please contact ABB.

Rating plug for Ekip trip units – Replacements

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

Air Circuit Breakers – Emax 2
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

4

Mechanical Interlock selection guide

Type A

Interlock between two fixed circuit breakers

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

Type A

Interlock between two withdrawable circuit breakers

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

Interlock of three ACBs available, please contact ABB.

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

Automatic Transfer Switch – ATS022

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

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

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

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

STOCK INDENT

Emax 2
Managing the power

Light up the future with the new Emax 2 for UL 1066. Not just a circuit breaker, but a true power manager that controls every electrical system, raising the efficiency. Emax 2 for UL 1066 protects the system, manages loads and generators, measures and analyses energy quality. It is simply integrated into all projects – from standard systems to the most complex automated networks – all with the simplicity and reliability you would expect. Circuit breakers switch power. Emax 2 manages it.

www.abbaustralia.com.au/lowvoltage

Power and productivity
for a better world™

Moulded Case Circuit Breakers (MCCB) – Tmax

Tmax, Moulded Case Circuit Breakers – Technical Data 208

Moulded Case Circuit Breakers 210
MCCB for Power distribution 212
MCCB for Power distribution and Energy measurement 215
MCCB for Motor protection 215
Moulded Case Switch-disconnectors 215

Conversion Kits 216
FIXED to PLUG-IN Tmax XT1…XT4, T5 216
FIXED to WITHDRAWABLE Tmax XT2, XT4, T5, T6 217
FIXED to WITHDRAWABLE Tmax T7-T7M 218

Electrical Accessories 219
Residual Current Devices 219
Shunt Open Release – SOR 219
Shunt Closing Release – SCR 219
Undervoltage Release – UVR 220
Auxiliary Contacts – AUX 220
Auxiliary contact for signalling trip coil release trip – S51 220

Mechanical Accessories 221
Motor operator – MOD / MOE 221
Handles 221
Protection devices 222
Locks 222
Mechanical interlock with cables 223
Terminals 224
Terminal shrouds and phase barriers 225
Accessories for electronic Trip Units 225

Basic Transfer Switches (BTS) 227

Chassis 230

4

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

- Tmax XT – 1SDC210033D0202
- Tmax T – 1SDC210015D0206

Technical data
Moulded Case Circuit Breakers (MCCB) – Tmax XT

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

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

2) XT1 plug-in In max=125A

3) XT1 500V DC 4 poles in series

4) XT4 750V DC please ask ABB for availability

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

■ Complete circuit-breaker
▲ Loose trip unit

Circuit breakers for power distribution
Electrical characteristics

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

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

Terminal Caption

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

4

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

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

Moulded Case Circuit Breakers (MCCB) – Tmax
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	Order code 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	T5N	TMA	1SDA054436R1	1SDA054477R1
		T4N	PR221DS LS/I	1SDA054117R1	1SDA054121R1
	400	T5N	TMA	1SDA054437R1	1SDA054478R1
			PR221DS LS/I	1SDA054317R1	1SDA054325R1
	500	T5N	TMA	1SDA054456R1	1SDA054487R1
	630	T6N	TMA	1SDA060202R1	1SDA060210R1
		T5N	PR221DS LS/I	1SDA054396R1	1SDA054400R1
	800	T6N	PR221DS LS/I	1SDA060268R1	1SDA060273R1

Note:
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

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
Circuit Breakers

▶ Table continued from previous page

XT1 circuit breaker

XT2 circuit breaker

XT3 circuit breaker

T6 circuit breaker

T7 circuit breaker

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
		XT3S	TMD	1SDA068215R1	1SDA068222R1
	80	XT1S	TMD	1SDA067433R1	1SDA067441R1
		XT3S	TMD	1SDA068216R1	1SDA068223R1
	100	XT1S	TMD	1SDA067434R1	1SDA067442R1
		XT3S	TMD	1SDA068217R1	1SDA068224R1
	125	XT1S	TMD	1SDA067435R1	1SDA067445R1
		XT3S	TMD	1SDA068218R1	1SDA068229R1
	160	XT1S	TMD	1SDA067436R1	1SDA067446R1
		XT3S	TMD	1SDA068219R1	1SDA068230R1
	200	XT3S	TMD	1SDA068220R1	1SDA068231R1
	250	XT3S	TMD	1SDA068221R1	1SDA068232R1
	320	T4S	PR221DS LS/I	1SDA054125R1	1SDA054129R1
	400	T5S	TMA	1SDA054441R1	1SDA054479R1
			PR221DS LS/I	1SDA054333R1	1SDA054341R1
			PR222DS/P LSI	1SDA054337R1	1SDA054345R1
	630	T6S	TMA	1SDA060204R1	1SDA060211R1
		T5S	PR221DS LS/I	1SDA054404R1	1SDA054408R1
			PR222DS/P LSI	1SDA054406R1	1SDA054410R1
		T6S	PR222DS/P LSI	1SDA060238R1	1SDA060243R1
	800	T6S	TMA	1SDA060216R1	1SDA060223R1
			PR221DS LS/I	1SDA060278R1	1SDA060283R1
			PR222DS/P LSI	1SDA060280R1	1SDA060285R1
	1000	T7S	PR231/P LS/I	1SDA062738R1	1SDA062746R1
		Manual	PR232/P LSI	1SDA062739R1	1SDA062747R1
		T7S M	PR231/P LS/I	1SDA062754R1	1SDA062762R1
		Motorizable	PR232/P LSI	1SDA062755R1	1SDA062763R1
	1250	T7S	PR231/P LS/I	1SDA062866R1	1SDA062874R1
		Manual	PR232/P LSI	1SDA062867R1	1SDA062875R1
		T7S M	PR231/P LS/I	1SDA062882R1	1SDA062890R1
		Motorizable	PR232/P LSI	1SDA062883R1	1SDA062891R1
	1600	T7S	PR231/P LS/I	1SDA062994R1	1SDA063002R1
		Manual	PR232/P LSI	1SDA062995R1	1SDA063003R1
		T7S M	PR231/P LS/I	1SDA063010R1	1SDA063018R1
		Motorizable	PR232/P LSI	1SDA063011R1	1SDA063019R1

Note:
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 (MCCB) – Tmax
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	T5H	TMA	1SDA054444R1	1SDA054481R1
		T4H	PR221/P LS/I	1SDA054133R1	1SDA054137R1
			PR222DS/P LSI	1SDA054135R1	1SDA054139R1
	400	T5H	TMA	1SDA054445R1	1SDA054482R1
			PR221DS LS/I	1SDA054349R1	1SDA054356R1
			PR222/P LSI	1SDA054353R1	1SDA054360R1
	630	T6H	TMA	1SDA060206R1	1SDA060212R1
		T5H	PR221DS LS/I	1SDA054412R1	1SDA054416R1
			PR222DS/P LSI	1SDA054414R1	1SDA054418R1
	800	T6H	TMA	1SDA060218R1	1SDA060224R1
			PR221DS LS/I	1SDA060289R1	1SDA060294R1
			PR222DS/P LSI	1SDA060291R1	1SDA060296R1
	1000	T7H	PR231/P LS/I	1SDA062770R1	1SDA062778R1
		Manual	PR232/P LSI	1SDA062771R1	1SDA062779R1
		T7H M	PR231/P LS/I	1SDA062786R1	1SDA062794R1
		Motorizable	PR232/P LSI	1SDA062787R1	1SDA062795R1
	1250	T7H	PR231/P LS/I	1SDA062898R1	1SDA062906R1
		Manual	PR232/P LSI	1SDA062899R1	1SDA062907R1
		T7H M	PR231/P LS/I	1SDA062914R1	1SDA062922R1
		Motorizable	PR232/P LSI	1SDA062915R1	1SDA062923R1
	1600	T7H	PR231/P LS/I	1SDA063026R1	1SDA063034R1
		Manual	PR232/P LSI	1SDA063027R1	1SDA063035R1
		T7H M	PR231/P LS/I	1SDA063042R1	1SDA063050R1
		Motorizable	PR232/P LSI	1SDA063043R1	1SDA063051R1
85	2000	T8L	PR331/P LSI	1SDA065723R1	1SDA065729R1
	2500	T8L	PR331/P LSI	1SDA065758R1	1SDA065764R1

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

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
Circuit Breakers

XT4 circuit breaker

MCCB for Power distribution and Energy measurement

XT4 – Ekip E LSIG – 3 Poles

Measuring: Current (Three phases, Neutral and Earth fault), Voltage (f-f and f-N), Energy (active, reactive, apparent and counter),
Power (active, reactive and apparent), Power Factor, Frequency and Peak factor.

Icu 415V kA	In A	Order code 3 poles
36	40	1SDA069601R1
	63	1SDA069602R1
	100	1SDA069603R1
	160	1SDA069604R1
	250	1SDA069605R1
70	40	1SDA069621R1
	63	1SDA069622R1
	100	1SDA069623R1
	160	1SDA069624R1
	250	1SDA069625R1

XT2 circuit breaker

XT4 circuit breaker

MCCB for Motor protection

3 Poles

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
	32	XT2S	MA	1SDA067766R1
	52	XT2S	MA	1SDA067767R1
	80	XT2S	MA	1SDA067768R1
	100	XT2S	MA	1SDA067769R1
	200	XT3S	MA	1SDA068282R1
	250	XT4S	Ekip I	1SDA068480R1
70	320	T4H	PR221DS I	1SDA054134R1
	400	T5H	PR221DS I	1SDA054351R1

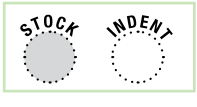
XT1 circuit breaker

XT3 circuit breaker

Moulded Case Switch-disconnectors

3 and 4 Poles

In A	Tmax type	Order code 3 poles	4 poles
160	XT1D	1SDA068208R1	1SDA068209R1
250	XT3D	1SDA068210R1	1SDA068211R1
320	T4D	1SDA054597R1	1SDA054598R1
400	T5D	1SDA054599R1	1SDA054600R1
630	T5D	1SDA054601R1	1SDA054602R1
800	T6D	1SDA060345R1	1SDA060346R1
1000	T7D Manual	1SDA062032R1	1SDA062033R1
	T7D Motorizable	1SDA062034R1	1SDA062035R1
1250	T7D Manual	1SDA062036R1	1SDA062037R1
	T7D Motorizable	1SDA062038R1	1SDA062039R1
1600	T7D Manual	1SDA062040R1	1SDA062041R1
	T7D Motorizable	1SDA062042R1	1SDA062043R1
2000	T8D	1SDA065752R1	1SDA065753R1
2500	T8D	1SDA065754R1	1SDA065755R1
3200	T8D	1SDA065756R1	1SDA065757R1



Moulded Case Circuit Breakers (MCCB) – Tmax
Conversion Kits

Conversion kit from FIXED to PLUG-IN
Tmax XT1…XT4, T5

+

+

=

The complete assembly is composed by:

Plug-in Fixed part

+ Tmax Fixed circuit breaker
+ Conversion kit

Plug-in, Fixed part

Fixed part supplied with Frontal Extended terminals (EF). Other terminal combinations available, please contact ABB.
Available 4 pole versions, please contact ABB.

Suitable type	Order code 3 poles
XT1	1SDA068183R1
XT2	1SDA068187R1
XT3	1SDA068192R1
XT4	1SDA068196R1
T5 (Max. 570A)	1SDA054762R1

+

Tmax Fixed circuit breaker

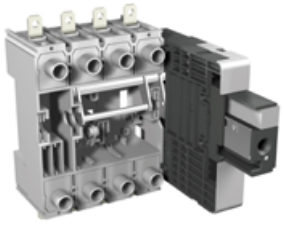
+

Conversion kit

Suitable type	Order code 3 poles
XT1	1SDA066276R1
XT2	1SDA066278R1
XT3	1SDA066280R1
XT4	1SDA066282R1
T5 (Max. 570A)	1SDA054847R1

STOCK INDENT

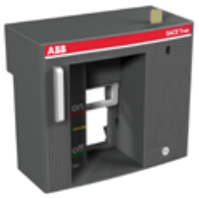
Moulded Case Circuit Breakers (MCCB) – Tmax
Conversion Kits



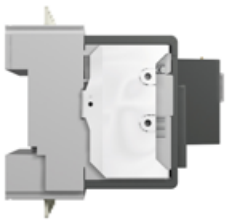
+

+

+



=



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	4 poles
XT2	1SDA068200R1	1SDA068202R1
XT4	1SDA068204R1	1SDA068206R1
T5 (Max. 400A)	1SDA054755R1	1SDA054758R1
T6	1SDA060384R1	1SDA060387R1

+

Tmax Fixed circuit breaker

+

Conversion kit

Suitable type	Order code	
	3 poles	4 poles
XT2	1SDA066284R1	1SDA066285R1
XT4	1SDA066286R1	1SDA066287R1
T5 (Max. 400A)	1SDA054845R1	1SDA054846R1
T6	1SDA060390R1	1SDA060391R1

+

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

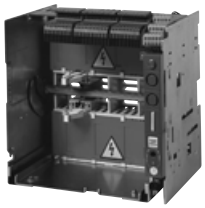
4

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
Conversion Kits

+

+



+

=

Conversion kit from FIXED to WITHDRAWABLE
Tmax T7-T7M

The complete assembly is composed by:

Withdrawable Fixed part
- + Tmax Fixed circuit breaker
- + Conversion kit
- + Sliding contacts for automatic circuit breaker or electronic accessories

Withdrawable, Fixed part

Suitable type	Description	Order code	
		3 poles	4 poles
T7-T7M	Fixed part with Rear terminals (HR/VR)	1SDA062044R1	1SDA062048R1

+

Moulded Case Circuit Breaker, Fixed version

+

Conversion Kit

Suitable type	Order code	
	3 poles	4 poles
T7-T7M	1SDA062162R1	1SDA062163R1

+

Sliding Contacts

Moving part

Standard delivery on fitted accessories.

Suitable type	Description	Order code
T7-T7M	Left block	1SDA062164R1
	Central block	1SDA062165R1
	Right block	1SDA062166R1

Fixed part

Standard delivery on fitted accessories

Suitable type	Description	Order code
T7	Left block	1SDA063572R1
T7M	Left block	1SDA062167R1
T7-T7M	Central block	1SDA062168R1
	Right block	1SDA062169R1

Which block is necessary for every accessory?

Left block	Central block	Right block
Spring charging motor	PR331	Auxiliary contacts (Q or SY)
Spring charged contact (AUX-SC)	PR332	Shunt opening release
Ready to close contact (AUX-RTC)	Communication module	Shunt closing release
Early auxiliary contacts (AUE)	Voltage module	Under voltage release
Contact for signalling trip coil release trip (AUX-SA)	PR231/232 don't need central block	
Trip reset		

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
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		1SDA067125R1
XT2	RC Sel		1SDA067126R1
XT3	RC Inst	1SDA067127R1	1SDA067129R1
XT4	RC Sel		1SDA067131R1
T5	RC222/5		1SDA054955R1

Shunt Open Release – SOR

Uncabled versions.

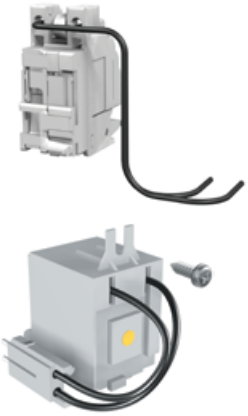
Suitable type	Description	Order code
XT1…XT4	24-30V AC/DC	1SDA066314R1
	110-127V AC / 110-125V DC	1SDA066316R1
	220-240V AC / 220-250V DC	1SDA066317R1
T4…T6	24-30V AC/DC	1SDA054863R1
	110-120V AC/DC	1SDA054865R1
	220-240V AC / 220-250V DC	1SDA054866R1
T7-T7M	24V AC/DC	1SDA062065R1
	110-120V AC/DC	1SDA062069R1
	220-240V AC/DC	1SDA063548R1

Shunt Closing Release – SCR

Uncabled versions.

Suitable type	Description	Order code
T7-T7M	24V AC/DC	1SDA062076R1
	110-120V AC/DC	1SDA062080R1
	220-240V AC/DC	1SDA063550R1

Moulded Case Circuit Breakers (MCCB) – Tmax
Electrical Accessories



Undervoltage Release – UVR

Uncabled versions.

Suitable type	Description	Order code
XT1…XT4	24-30V AC/DC	1SDA066389R1
	110-127V AC / 110-125V DC	1SDA066391R1
	220-240V AC / 220-250V DC	1SDA066392R1
T4…T6	24-30V AC/DC	1SDA054880R1
	110-120V AC/DC	1SDA054883R1
	220-240V AC / 220-250V DC	1SDA054884R1
T7-T7M	24V AC/DC	1SDA062087R1
	110-120V AC/DC	1SDA062091R1
	220-240V AC/DC	1SDA063552R1

4

Auxiliary Contacts – AUX

Q, open/closed: indication of the position of the circuit-breaker power contacts.
SY, trip: signalling CB opening due to current release tripping (owing to overload or short-circuit), residual current device, the opening or undervoltage releases, the emergency push button of the motor, or owing to use of the test button.
Uncabled versions.

Suitable type	Description	Order code
XT1…XT4	1Q 24V DC	1SDA066423R1
Fixed or Plug-in	1Q+1SY 24V DC	1SDA066446R1
	1Q 250V AC/DC	1SDA066422R1
	1Q+1SY 250V AC	1SDA066431R1
T4…T6	1Q+1SY 250V AC/DC	1SDA051368R1
	3Q+1SY 250V AC/DC	1SDA051369R1
	3Q+1SY 24V DC	1SDA054914R1
T7	1Q+1SY 400V AC	1SDA062104R1
T7-T7M	2Q 400V AC	1SDA062102R1

T7-T7M available Auxiliary contacts combinations.

T7					
	SY	Q1			1Q + 1SY
			Q2	Q3	2Q
	SY	Q1	Q2	Q3	3Q + 1SY

T7M					
			Q2	Q3	2Q
	Q4	Q1			2Q
	Q4	Q1	Q2	Q3	4Q

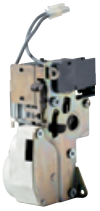
Auxiliary contact for signalling trip coil release trip – S51

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–XT4	1SDA066424R1
T4…T6	1SDA055050R1
T7	1SDA062105R1
T7M	1SDA063553R1

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
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-XT3	24V DC	1SDA066457R1
	110…125V AC/DC	1SDA066459R1
	220…250V AC/DC	1SDA066460R1
XT2-XT4	24V DC	1SDA066463R1
	110…125V AC/DC	1SDA066465R1
	220…250V AC/DC	1SDA066466R1
T4-T5	24V DC	1SDA054894R1
	110…125V AC/DC	1SDA054896R1
	220…250V AC/DC	1SDA054897R1
T6	24V DC	1SDA060395R1
	110…125V AC/DC	1SDA060397R1
	220…250V AC/DC	1SDA060398R1
T7M	24...30V AC/DC	1SDA062113R1
	100…130V AC/DC	1SDA062115R1
	220…250V AC/DC	1SDA062116R1

4

Rotary Direct Handle Operating Mechanism – RHD

Available for Fixed or Plug-in versions.

Suitable type	Description	Order code
XT1-XT3	Normal	1SDA066475R1
	Emergency	1SDA066477R1
XT2-XT4	Normal	1SDA069053R1
	Emergency	1SDA069054R1
T4-T5	Normal	1SDA054926R1
	Emergency	1SDA054927R1
T6	Normal	1SDA060405R1
	Emergency	1SDA060406R1
T7	Normal	1SDA062120R1
	Emergency	1SDA062121R1

Moulded Case Circuit Breakers (MCCB) – Tmax
Mechanical Accessories

Rotary Transmitted Handle Operating Mechanism – RHE

Available for Fixed or Plug-in versions. T7 part number is available for Withdrawable and Fixed versions.

Suitable type	Description	Order code
XT1–XT3	Normal	1SDA066479R1
	Emergency	1SDA066481R1
XT2–XT4	Normal	1SDA069055R1
	Emergency	1SDA069056R1
T4–T5	Normal	1SDA054929R1
	Emergency	1SDA054930R1
T6	Normal	1SDA060409R1
	Emergency	1SDA060410R1
T7	Normal	1SDA062122R1
	Emergency	1SDA062123R1

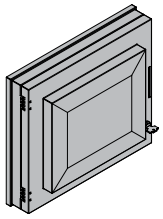
4

IP54 Protection for transmitted rotary handle (RHE)

Suitable type	Order code
XT1…XT4	1SDA066587R1
T4…T7	1SDA054938R1

Transparent protection for buttons

Suitable type	Description	Order code
T7M	One dependant cover for both buttons	1SDA062132R1
	Two Independent covers for both buttons	1SDA062133R1



IP54 Door protection

Suitable type	Order code
T7M	1SDA062161R1

Padlock Lever Lock – PLL

PLL for T4…T6 not available.

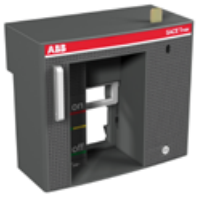
Suitable type	Description	Order code
XT1-XT3	Removable lock with padlocks in open position	1SDA066588R1
	Fixed lock with padlocks in open/closed position	1SDA066591R1
XT2-XT4	Fixed lock with padlocks in open/closed position	1SDA066592R1
T7		1SDA062150R1
T7M		1SDA069656R1

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
Mechanical Accessories

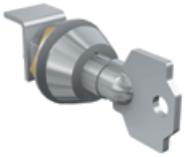
Key Lock for Frontal accessory (FLD) or Rotary Handle – KLF

Suitable type	Description	Order code
XT1…XT4	Different keys	1SDA066617R1
	Same key (type A) for different groups of CBs	1SDA066618R1
T4-T5	Different keys	1SDA054939R1
	Same key (no. 20005) for different groups of CBs	1SDA054940R1
T6	Different keys	1SDA060658R1
	Same key (no. 20005) for different groups of CBs	1SDA060659R1
T7	Different keys	1SDA063555R1
	Same key (no. 20005) for different groups of CBs	1SDA063556R1



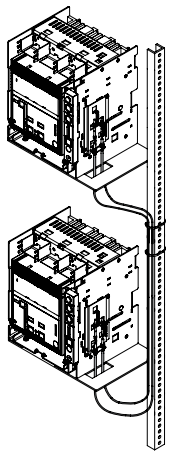
Front Lever operating Mechanism – FLD

Suitable type	Description	Order code
XT2-XT4	Withdrawable	1SDA066636R1
	Fixed or Plug-in	1SDA066635R1
T4-T5	Withdrawable	1SDA054945R1
	Fixed or Plug-in	1SDA054944R1
T6	Withdrawable	1SDA060418R1
	Fixed or Plug-in	1SDA060417R1



Key Lock on the motor – MOL-M

Suitable type	Description	Order code
XT2-XT4	Against manual operation	1SDA066634R1



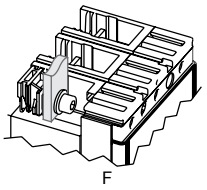
Mechanical interlock with cables between T7/T7M and T7/T7M

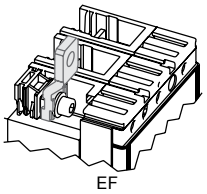
Suitable type	Description	Order code
Cables kit for interlock		1SDA062127R1
Plate	For Fixed versions - wall fixed	1SDA062129R1
	For Withdrawable unit	1SDA062131R1

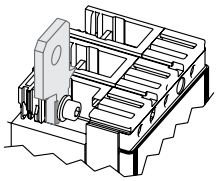
Moulded Case Circuit Breakers (MCCB) – Tmax
Mechanical Accessories

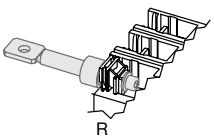
Terminals

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

Terminal type	Suitable type	Order code	
		3 poles	4 poles
F - Front terminals	XT1	1SDA066849R1	1SDA066850R1
	XT2	1SDA066853R1	1SDA066854R1
	XT3	1SDA066857R1	1SDA066858R1
	XT4	1SDA066861R1	1SDA066862R1
	T4	1SDA054976R1	1SDA054977R1
	T5	1SDA055012R1	1SDA055013R1
	T6 (max. 800A)	1SDA060421R1	1SDA060422R1
	T7-T7M	1SDA063099R1	1SDA063100R1
EF - Front extended terminals	XT1	1SDA066865R1	1SDA066866R1
	XT2	1SDA066869R1	1SDA066870R1
	XT3	1SDA066873R1	1SDA066874R1
	XT4	1SDA066877R1	1SDA066878R1
	T4	1SDA055000R1	1SDA055001R1
	T5	1SDA055036R1	1SDA055037R1
	T6 (max. 630A)	1SDA023379R1	1SDA023389R1
	T6 (max. 800A)	1SDA023383R1	1SDA023393R1
	T7-T7M	1SDA063103R1	1SDA063104R1
ES - Front extended spread terminals	XT1	1SDA066889R1	1SDA066890R1
	XT2	1SDA066893R1	1SDA066894R1
	XT3	1SDA066897R1	1SDA066898R1
	XT4	1SDA066901R1	1SDA066902R1
	T4	1SDA055004R1	1SDA055005R1
	T5	1SDA055040R1	1SDA055041R1
	T6 upper kit	1SDA050692R1	
	T6 lower kit	1SDA050704R1	
	T6 complete		1SDA050693R1
	T7-T7M upper kit	1SDA063107R1	
	T7-T7M lower kit	1SDA063108R1	
	T7-T7M complete		1SDA063109R1
R - Rear terminals	XT1	1SDA066937R1	1SDA066938R1
	XT2	1SDA066941R1	1SDA066942R1
	XT3	1SDA066945R1	1SDA066946R1
	XT4	1SDA066949R1	1SDA066950R1
	T4	1SDA055008R1	1SDA055009R1
	T5	1SDA055044R1	1SDA055045R1
	T6 (max. 800A)	1SDA060425R1	1SDA060426R1
	T7-T7M	1SDA063116R1	1SDA063117R1
FC Cu - Front terminals for copper cables	T4	1SDA054980R1	
	T5	1SDA055016R1	
	T6 (max. 630A)	1SDA023380R1	
HR - Rear flat horizontal terminals	T7-T7M	1SDA063120R1	

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
Mechanical Accessories

Bracket for fixing onto DIN-rail

Suitable type	Order code	
	3 poles	4 poles
XT1	1SDA066652R1	1SDA066419R1
XT2-XT4	1SDA066653R1	1SDA066653R1
XT3	1SDA066420R1	1SDA066421R1

Terminal shrouds

Standard supply comes as a pair.
- LTC: Low size terminal shroud
- HTC: High size terminal shroud

Suitable type	Description	Order code	
		3 poles	4 poles
XT1	LTC	1SDA066655R1	1SDA066656R1
	HTC	1SDA066664R1	1SDA066665R1
XT2	LTC	1SDA066657R1	1SDA066659R1
	HTC	1SDA066666R1	1SDA066667R1
XT3	LTC	1SDA066660R1	1SDA066661R1
	HTC	1SDA066668R1	1SDA066669R1
XT4	LTC	1SDA066662R1	1SDA066663R1
	HTC	1SDA066670R1	1SDA066671R1
T4	LTC	1SDA054966R1	1SDA054967R1
	HTC	1SDA054958R1	1SDA054959R1
T5	LTC	1SDA054968R1	1SDA054969R1
	HTC	1SDA054960R1	1SDA054961R1
T6	LTC	1SDA014038R1	1SDA014039R1
	HTC	1SDA014040R1	1SDA014041R1
T7-T7M	LTC	1SDA063093R1	1SDA063094R1
	HTC	1SDA063091R1	1SDA063092R1

Phase barriers separators – PB

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

Terminal type	Description	Order code	
		4 pieces	6 pieces
XT1-XT3	100mm height	1SDA066676R1	1SDA066681R1
XT2-XT4	100mm height	1SDA066675R1	1SDA066680R1
T4-T5-T7-T7M	100mm height	1SDA054970R1	1SDA054971R1
	200mm height	1SDA054972R1	1SDA054973R1
T6	100mm height	1SDA050696R1	1SDA050697R1

Note: When ordering terminal shrouds or phase barriers, please order sealable screw kit
XT1 – XT4: 1SDA066672R1
T4 – T5: 1SDA051504R1
T6 – T7/T7M: 1SDA013699R1

Accessories for electronic Trip Units

Terminal type	Description	Order code
XT2-XT4	Ekip Com for Fixed or Plug-in	1SDA068661R1
	Ekip Com for Withdrawable	1SDA068662R1
	Ekip LED Meter	1SDA068659R1
	Ekip Display	1SDA068660R1

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
Mechanical Accessories

Test and Configuration Unit

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

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

Interface screen on the front of the switchgear – HMI030

Terminal type	Order code
XT2-XT4-T4-T5-T6-T7-T7M	1SDA063143R1

Connectors for PR222DS or PR223DS trip units – X3/X4

Terminal type	Description	Order code
T4…T6	X3 connector for Fixed versions	1SDA055059R1
	X3 connector for Plug-in/Withdrawable versions	1SDA055061R1
	X4 connector for Fixed versions	1SDA055060R1
	X4 connector for Plug-in/Withdrawable versions	1SDA055062R1

Measurement module for PR223DS or PR223EF – VM210

Terminal type	Order code
T4…T6	1SDA059602R1

STOCK INDENT

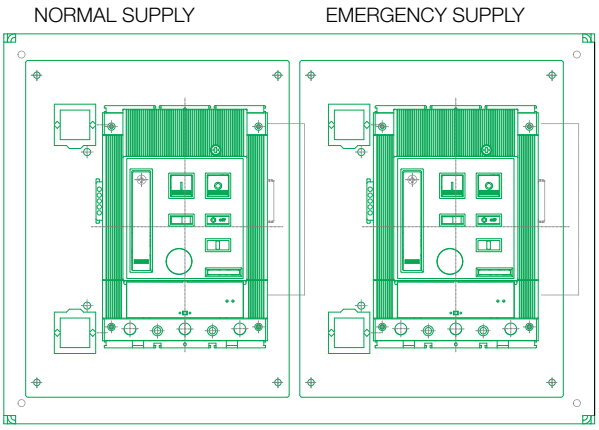
Moulded Case Circuit Breakers (MCCB) – Tmax
Basic Transfer Switches (BTS)

What is a BTS?

A basic transfer switch (BTS) consists of two circuit breakers assembled on a backplate, which are mechanically interlocked and equipped with motor operators that allows remote or manual operation.

The BTS consist of:

BTS =
2 x Moulded case circuit breaker
+ Motor operator
+ Mechanical Interlock
+ Auxiliaries to signal operation



FRONT VIEW

BTS is designed to work as a standard transfer switch. However, it can also be upgraded to work as a smart unit capable of automatcally transferring the supply of a load. To do this it is necessary to add an ATS controller and a Loom kit (that consists of required devices) to operate the BTS.

Automatic Transfer Supply consist of:

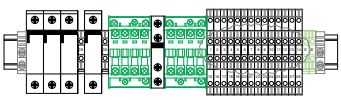
Automatic Transfer Supply =
BTS
+ ATS controller
+ Loom Kit

BTS + **ATS Controller** + **Loom Kit**

ATS022 controller

Suitable for	Order code
Tmax XT -Tmax T	1SDA065524R1

Loom kit

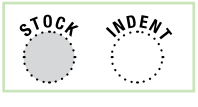


Suitable for	Order code
XT1-XT3	1SDAA99205A1
XT2-XT4 -Tmax T	1SDAA99203A1

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
Basic Transfer Switches (BTS)

			Thermo Magnetic - TMA/TMD				Electronic			
Icu	In			Order code				Order code		
[kA]	[A]		Trip unit	3–3 pole	3–4 pole	4–4 pole	Trip unit	3–3 pole	3–4 pole	4–4 pole
36KA	63	XT1	TMD	1SDAA99301A1	1SDAA99331A1	1SDAA99361A1		—	—	—
		XT2	TMA	1SDAA99820A1	1SDAA99431A1	1SDAA99461A1	Ekip LS/I	—	1SDAA99440A1	1SDAA99470A1
	100	XT2	TMA	1SDAA99821A1	1SDAA99822A1	1SDAA99823A1	Ekip LS/I	1SDAA99411A1	1SDAA99441A1	1SDAA99471A1
		XT3	TMD	1SDAA99508A1	1SDAA99507A1	1SDAA99824A1		—	—	—
	125	XT1	TMD	1SDAA99302A1	1SDAA99332A1	1SDAA99362A1		—	—	—
		XT2	TMA	1SDAA99402A1	1SDAA99432A1	1SDAA99462A1		—	—	—
	160	XT1	TMD	1SDAA99303A1	1SDAA99333A1	1SDAA99363A1		—	—	—
		XT2	TMA	1SDAA99403A1	1SDAA99433A1	1SDAA99463A1	Ekip LS/I	1SDAA99412A1	1SDAA99442A1	1SDAA99472A1
		XT3	TMD	1SDAA99501A1	1SDAA99531A1	1SDAA99561A1		—	—	—
	200	XT3	TMD	1SDAA99502A1	1SDAA99532A1	1SDAA99562A1		—	—	—
	250	XT3	TMD	1SDAA99503A1	1SDAA99533A1	1SDAA99563A1		—	—	—
	400	T5	TMA	1SDAA99825A1	1SDAA99826A1	1SDAA99827A1	PR221DS-LS/I	1SDAA99062A1	1SDAA99064A1	1SDAA99063A1
	630	T5	TMA	1SDAA99828A1	1SDAA99829A1	1SDAA99830A1	PR221DS-LS/I	1SDAA99068A1	1SDAA99070A1	1SDAA99069A1
50KA	63	XT1	TMD	1SDAA99304A1	1SDAA99334A1	1SDAA99364A1		—	—	—
		XT2	TMA	1SDAA99404A1	1SDAA99434A1	1SDAA99464A1	Ekip LS/I	1SDAA99413A1	1SDAA99443A1	1SDAA99473A1
	100	XT2	TMA	1SDAA99831A1	1SDAA99832A1	1SDAA99833A1	Ekip LS/I	1SDAA99414A1	1SDAA99444A1	1SDAA99474A1
		XT3	TMD	1SDAA99510A1	1SDAA99509A1	1SDAA99834A1		—	—	—
	125	XT1	TMD	1SDAA99305A1	1SDAA99335A1	1SDAA99365A1		—	—	—
		XT2	TMA	1SDAA99405A1	1SDAA99435A1	1SDAA99465A1		—	—	—
	160	XT1	TMD	1SDAA99306A1	1SDAA99336A1	1SDAA99366A1		—	—	—
		XT2	TMA	1SDAA99406A1	1SDAA99436A1	1SDAA99466A1	Ekip LS/I	1SDAA99415A1	1SDAA99445A1	—
		XT3	TMD	1SDAA99504A1	1SDAA99534A1	1SDAA99564A1		—	—	—
	200	XT3	TMD	1SDAA99505A1	1SDAA99535A1	1SDAA99565A1		—	—	—
	250	XT3	TMD	1SDAA99506A1	1SDAA99536A1	1SDAA99566A1		—	—	—
	630	T6	TMA	1SDAA99835A1	1SDAA99836A1	1SDAA99837A1	PR222DS/P-LSI	1SDAA99074A1	1SDAA99075A1	1SDAA99076A1
	800	T6	TMA	1SDAA99838A1	1SDAA99839A1	1SDAA99092A1	PR221DS-LS/I	1SDAA99080A1	1SDAA99082A1	1SDAA99081A1
	1000	T6		—	—	—	PR222DS/P-LSI	1SDAA99086A1	1SDAA99088A1	1SDAA99087A1
		T7M		—	—	—	PR232/P-LSI	1SDAA99140A1	1SDAA99142A1	1SDAA99141A1
	1250	T7M		—	—	—	PR232/P-LSI	1SDAA99108A1	1SDAA99109A1	1SDAA99094A1
	1600	T7M		—	—	—	PR232/P-LSI	1SDAA99096A1	1SDAA99095A1	1SDAA99110A1
70KA	63	XT1	TMD	1SDAA99307A1	1SDAA99337A1	1SDAA99367A1		—	—	—
		XT2	TMA	1SDAA99407A1	1SDAA99437A1	1SDAA99467A1	Ekip LS/I	1SDAA99416A1	1SDAA99446A1	1SDAA99476A1
	100	XT2	TMA	1SDAA99852A1	1SDAA99853A1	1SDAA99854A1	Ekip LS/I	1SDAA99417A1	1SDAA99447A1	1SDAA99477A1
		XT3	TMA	1SDAA99855A1	1SDAA99856A1	1SDAA99664A1		—	—	—
		XT4	TMA	1SDAA99857A1	1SDAA99858A1	1SDAA99859A1	Ekip LS/I	1SDAA99604A1	1SDAA99634A1	
	125	XT1	TMD	1SDAA99308A1	1SDAA99338A1	1SDAA99368A1		—	—	—
		XT2	TMA	1SDAA99408A1	1SDAA99438A1	1SDAA99468A1		—	—	—
	160	XT1	TMD	1SDAA99309A1	1SDAA99339A1	1SDAA99369A1		—	—	—
		XT2	TMA	1SDAA99409A1	1SDAA99439A1	1SDAA99469A1	Ekip LS/I	1SDAA99418A1	1SDAA99448A1	1SDAA99478A1
		XT3	TMD	1SDAA99860A1	1SDAA99861A1	1SDAA99665A1		—	—	—
		XT4	TMA	1SDAA99601A1	1SDAA99631A1	1SDAA99661A1		1SDAA99886A1	1SDAA99887A1	1SDAA99888A1
	200	XT4	TMA	1SDAA99602A1	1SDAA99632A1	1SDAA99662A1	Ekip LS/I	1SDAA99605A1	1SDAA99635A1	1SDAA99889A1
	250	XT4	TMA	1SDAA99603A1	1SDAA99633A1	1SDAA99663A1	Ekip LS/I	1SDAA99606A1	1SDAA99636A1	1SDAA99666A1
	320	T4	TMA	1SDAA99059A1	1SDAA99061A1	1SDAA99060A1		1SDAA99890A1	1SDAA99891A1	1SDAA99892A1
	400	T5	TMA	1SDAA99862A1	1SDAA99863A1	1SDAA99864A1	PR221DS-LS/I	1SDAA99065A1	1SDAA99067A1	1SDAA99066A1
	630	T5	TMA (up to 500A)	1SDAA99865A1	1SDAA99866A1	1SDAA99867A1	PR221DS-LS/I	1SDAA99071A1	1SDAA99073A1	1SDAA99072A1
		T6	TMA	1SDAA99868A1	1SDAA99869A1	1SDAA99870A1	PR222DS/P-LSI	1SDAA99077A1	1SDAA99079A1	1SDAA99078A1
	800	T6	TMA	1SDAA99871A1	1SDAA99872A1	1SDAA99873A1	PR222DS/P-LSI	1SDAA99083A1	1SDAA99085A1	1SDAA99084A1
	1000	T6		—	—	—	PR222DS/P-LSI	1SDAA99089A1	1SDAA99091A1	1SDAA99090A1
		T7M		—	—	—	PR232DS/P-LSI	1SDAA99150A1	1SDAA99152A1	1SDAA99151A1
	1250	T7M		—	—	—	PR232DS/P-LSI	1SDAA99160A1	1SDAA99162A1	1SDAA99161A1
	1600	T7M		—	—	—	PR231/P-LS/I	1SDAA99170A1	1SDAA99172A1	1SDAA99171A1



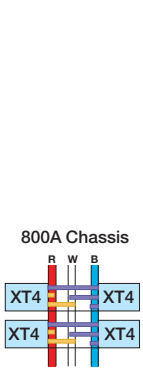
Moulded Case Circuit Breakers (MCCB) – Tmax
Other chassis combinations

Chassis codification

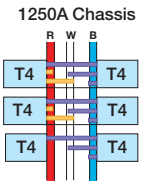
Variables	C	X	X	X	X	X	X	X
		↓	↓			Repeat final three codes for additional breaker combination		
Chassis Feed	Top Feed	**T**						
	Bottom Feed	**B**						
	Universal Feed	**U**						
Chassis Base Frame	up to 800 A		**B**			Comment: 800 A version: Maximum 24 circuit breakers		
	up to 1250 A		**C**			Comment: 1250 A version: Maximum 24 circuit breakers		
	up to 1600 A		**D**	↓		Comment: 1600 A version: Maximum 24 circuit breakers		
Number of Circuit Breakers	One circuit breaker (on 1600 A and T5 on 1250 A)			**L**				
	One circuit breaker (on 1600 A and T5 on 1250 A)			**R**				
	Two circuit breakers			**2**				
	Three circuit breakers			**4**				
				...				
	Twenty third circuit breakers			**22**				
	Twenty forth circuit breakers			**24**	↓			
Circuit Breaker Model	Tmax XT1				**X1**	Comment: Suitable for 800 A chassis		
	Tmax XT2				**X2**	Comment: Suitable for 800 A chassis		
	Tmax XT3				**X3**	Comment: Suitable for 800 A, 1250 A, 1600 A chassis		
	Tmax XT4				**X4**	Comment: Suitable for 800 A, 1250 A, 1600 A chassis		
	Tmax T4 (320 A only)				**T4**	Comment: Suitable for 1250 A, 1600 A chassis		
	Tmax T5				**T5**	Comment: Suitable for 1250 A single sided only, 1600 A single and double sided		
	Tmax T6				**T6**	Comment: Suitable for 1600 A only single sided (Max. 2 pcs).		

Ordering example

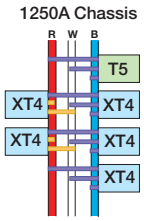
For odd combinations of circuit breakers ABB will provide the even sided equivalent and shroud. For instance, the CUC6T4 would be supplied for either 5 x T4 breakers or 6 x T4 breakers.



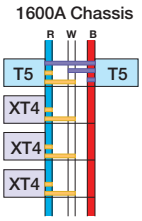
CUB4X4



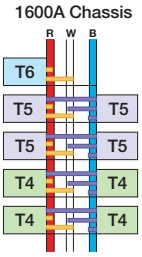
CUC6T4



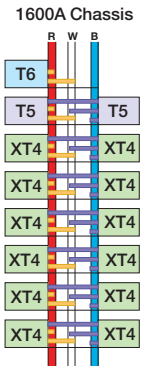
CUCR1T56X4



CUD2T56X4



CUDLT64T54T4



CUDLT62T512X4

Moulded Case Circuit Breakers (MCCB) – Tmax
Chassis

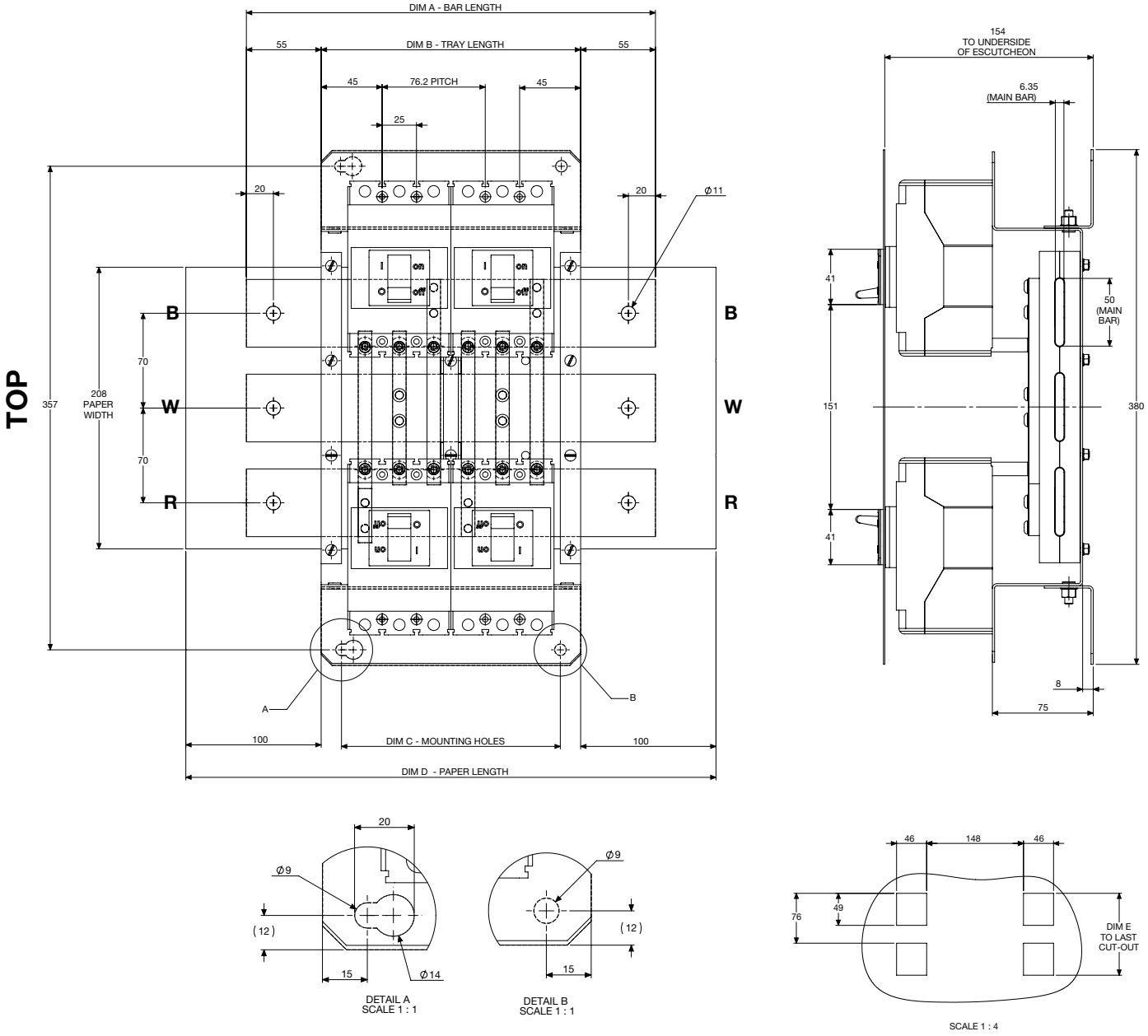
Chassis range

Chassis size	Breaker size	Number of breakers	Number of poles	Order code
Up to 800 A	Tmax XT1 double sided	up to 4	12	CUB4X1
Lovag testing up to Icw = 50 kA (1 sec)		up to 6	18	CUB6X1
		up to 8	24	CUB8X1
		up to 12	36	CUB12X1
		up to 16	48	CUB16X1
		up to 20	60	CUB20X1
	Tmax XT2 double sided	up to 4	12	CUB4X2
		up to 6	18	CUB6X2
		up to 8	24	CUB8X2
		up to 12	36	CUB12X2
		up to 16	48	CUB16X2
		up to 20	60	CUB20X2
	Tmax XT3 double sided	up to 4	12	CUB4X3
		up to 6	18	CUB6X3
		up to 8	24	CUB8X3
		up to 12	36	CUB12X3
		up to 16	48	CUB16X3
		up to 20	60	CUB20X3
	Tmax XT4 double sided	up to 4	12	CUB4X4
		up to 6	18	CUB6X4
		up to 8	24	CUB8X4
		up to 12	36	CUB12X4
		up to 16	48	CUB16X4
		up to 20	60	CUB20X4
Up to 1250 A	Tmax XT4 double sided	up to 4	12	CUC4X4
Lovag testing up to Icw = 50 kA (1 sec)		up to 6	18	CUC6X4
		up to 8	24	CUC8X4
		up to 10	30	CUC10X4
		up to 12	36	CUC12X4
		up to 16	48	CUC16X4

Any other combination not listed in the above table is available on request. Please see Chassis combinations on page 229.

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
Chassis



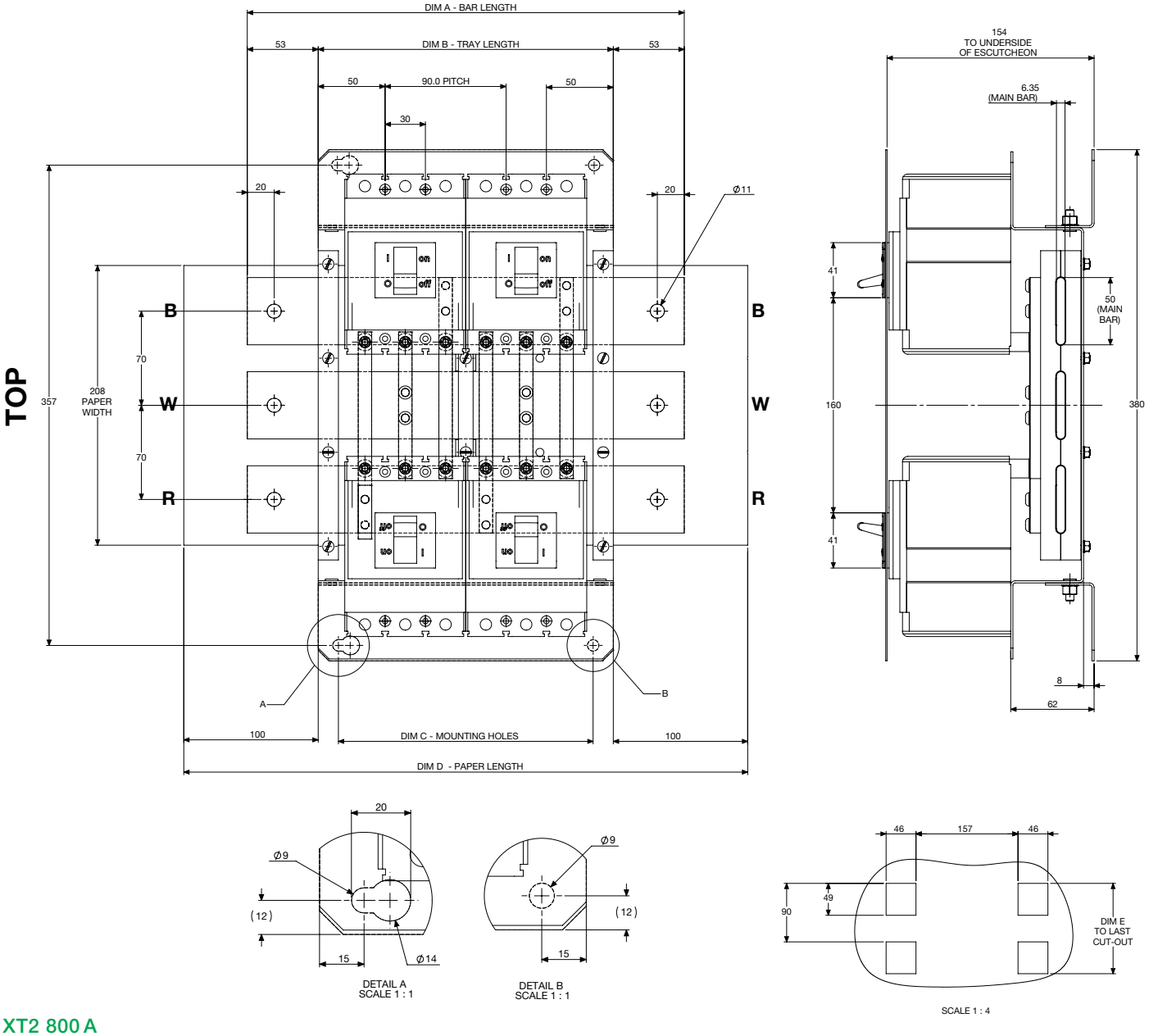
4

XT1 800 A

Range	BASE PLATE					Number of poles	Order code
	A	B	C	D	E		
	Bar length (mm)	Tray length (mm)	Mounting holes (m)	Paper length (mm)	Last cut out (mm)		
XT1 800 A	302.2	191.7	161.7	391.7	125.2	12	CUB4X1
	378.4	267.9	237.9	467.9	201.4	18	CUB6X1
	454.6	344.1	314.1	544.1	277.6	24	CUB8X1
	607.0	496.5	466.5	696.5	430.0	36	CUB12X1
	759.4	648.9	618.9	848.9	582.4	48	CUB16X1
	911.8	801.3	771.3	1001.3	734.8	60	CUB20X1
	1064.2	953.7	923.7	1153.7	887.2	72	CUB24X1

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
Chassis

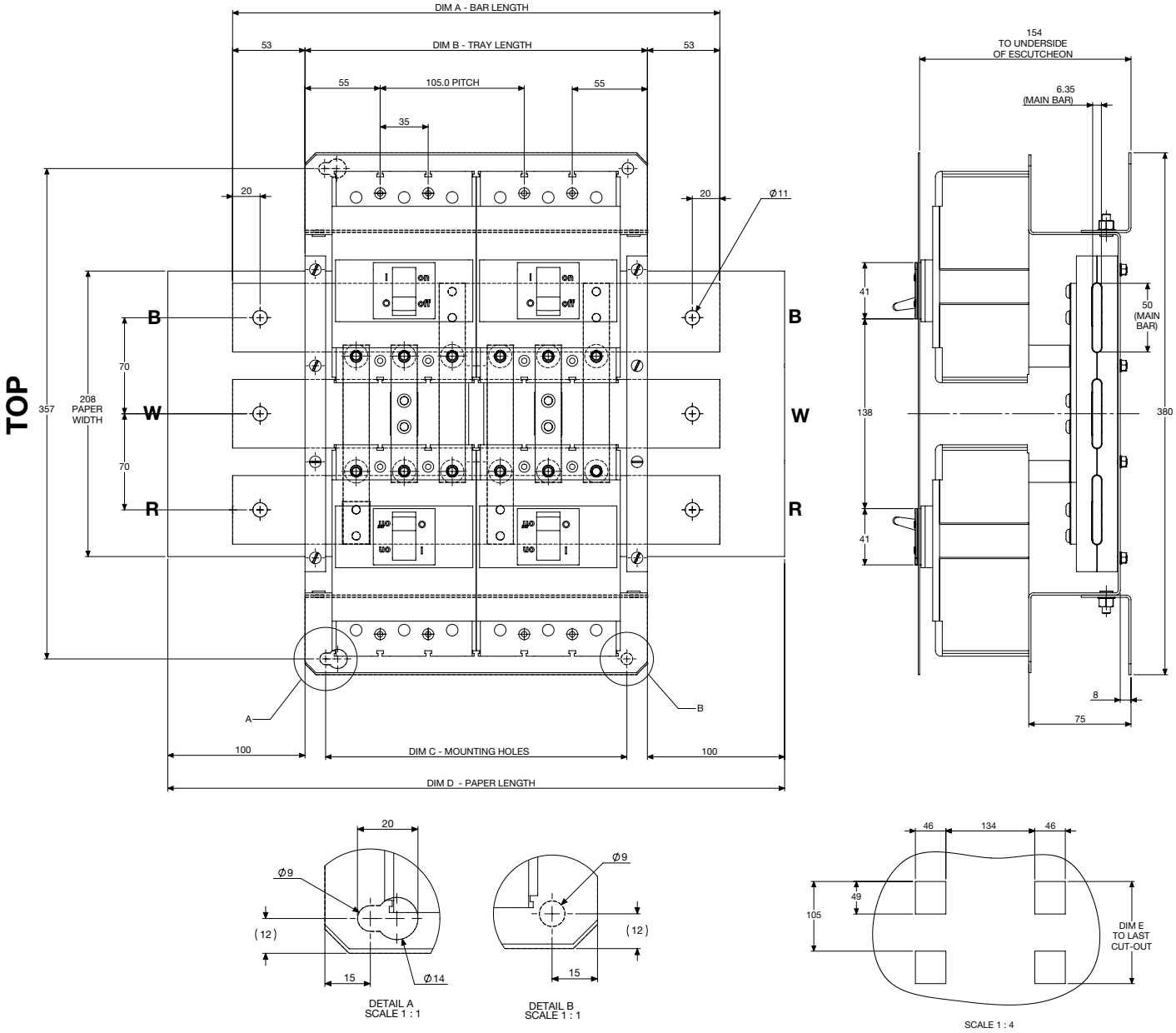


XT2 800 A

Range	BASE PLATE					Number of poles	Order code
	A	B	C	D	E		
	Bar length (mm)	Tray length (mm)	Mounting holes (m)	Paper length (mm)	Last cut out (mm)		
XT2 800 A	325.0	219.5	189.5	419.5	139.0	12	CUB4X2
	415.0	309.5	279.5	509.5	229.0	18	CUB6X2
	505.0	399.5	369.5	599.5	319.0	24	CUB8X2
	685.0	579.5	549.5	779.5	499.0	36	CUB12X2
	865.0	759.5	729.5	959.5	679.0	48	CUB16X2
	1045.0	939.5	909.5	1139.5	859.0	60	CUB20X2
	1225.0	1119.5	1089.5	1319.5	1039.0	72	CUB24X2

STOCK INDENT

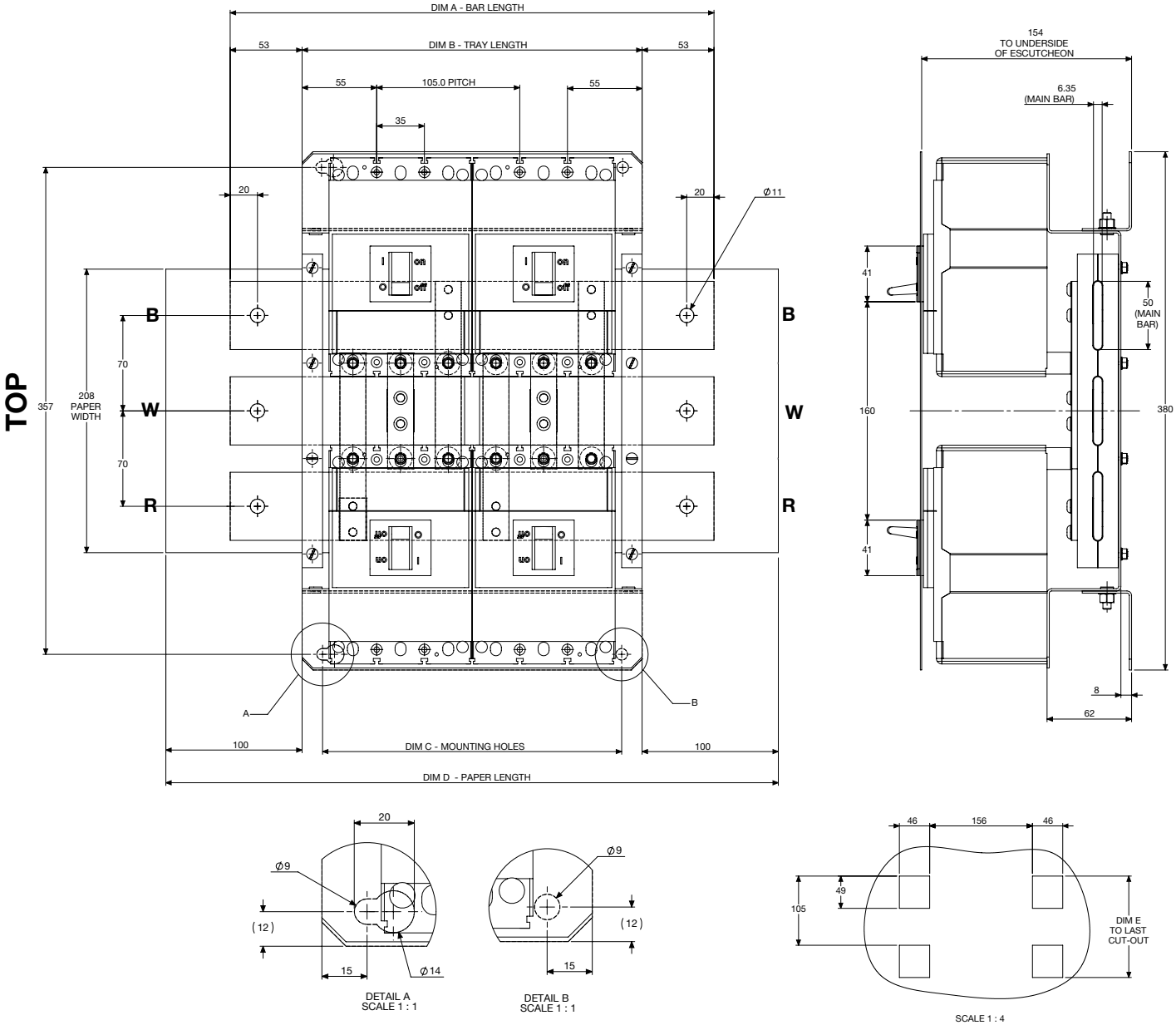
Moulded Case Circuit Breakers (MCCB) – Tmax
Chassis



XT3 800 A

Range	BASE PLATE					Number of poles	Order code
	A	B	C	D	E		
	Bar length (mm)	Tray length (mm)	Mounting holes (m)	Paper length (mm)	Last cut out (mm)		
XT3 800 A	355.0	249.5	219.5	449.5	154.0	12	CUB4X3
	460.0	354.5	324.5	554.5	259.0	18	CUB6X3
	565.0	459.5	429.5	659.5	364.0	24	CUB8X3
	775.0	669.5	639.5	869.5	574.0	36	CUB12X3
	985.0	879.5	849.5	1079.5	784.0	48	CUB16X3
	1195.0	1089.5	1059.5	1289.5	994.0	60	CUB20X3
	1405.0	1299.5	1269.5	1499.5	1204.0	72	CUB24X3

Moulded Case Circuit Breakers (MCCB) – Tmax
Chassis

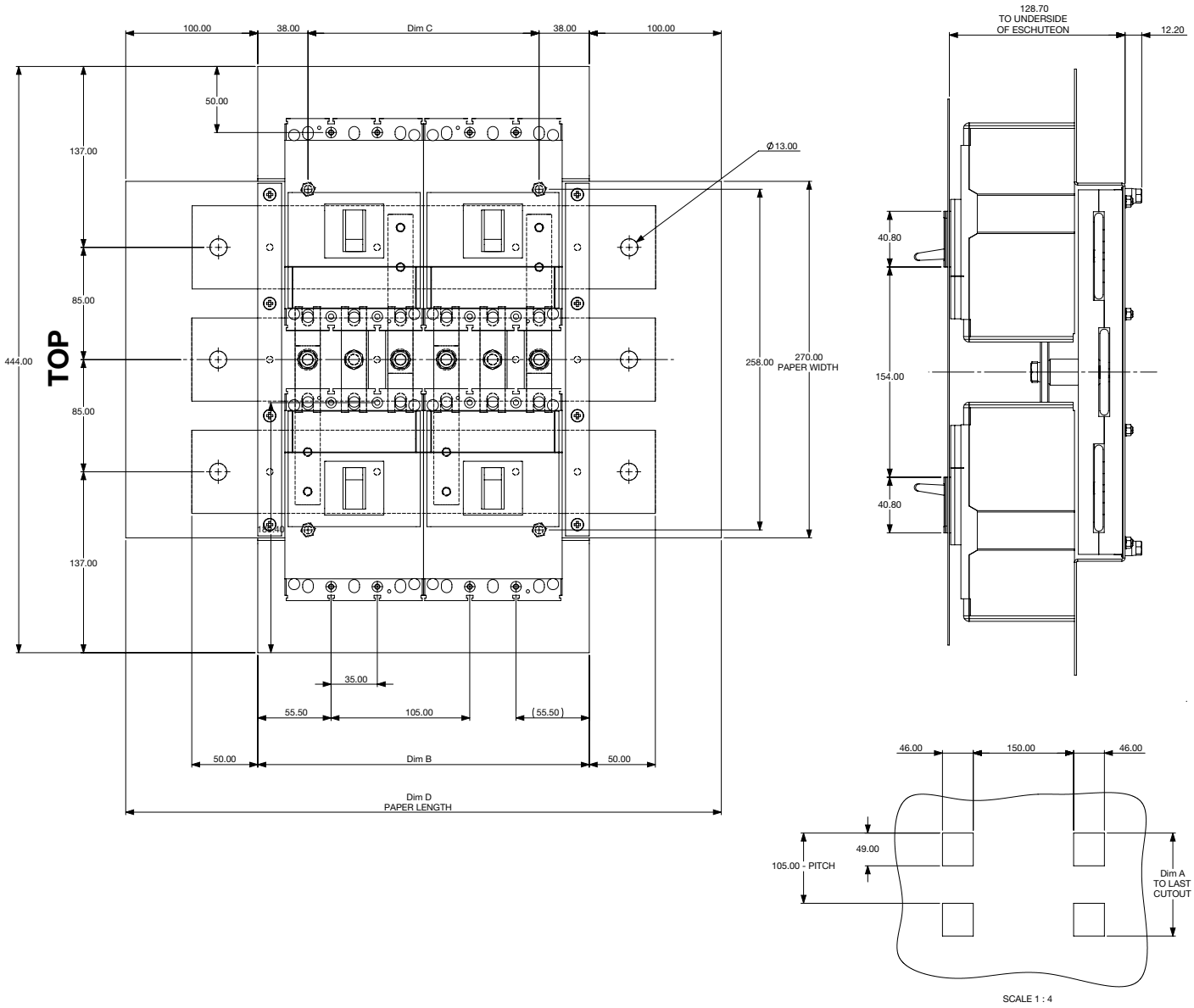


XT4 800 A

Range	BASE PLATE					Number of poles	Order code
	A	B	C	D	E		
	Bar length (mm)	Tray length (mm)	Mounting holes (m)	Paper length (mm)	Last cut out (mm)		
XT4 800 A	355.0	249.5	219.5	449.5	154.0	12	CUB4X4
	460.0	354.5	324.5	554.5	259.0	18	CUB6X4
	565.0	459.5	429.5	659.5	364.0	24	CUB8X4
	775.0	669.5	639.5	869.5	574.0	36	CUB12X4
	985.0	879.5	849.5	1079.5	784.0	48	CUB16X4
	1195.0	1089.5	1059.5	1289.5	994.0	60	CUB20X4
	1405.0	1299.5	1269.5	1499.5	1204.0	72	CUB24X4

STOCK INDENT

Moulded Case Circuit Breakers (MCCB) – Tmax
Chassis



4

XT4 1250 A

Range	BASE PLATE				Number of poles	Order code
	A	B	C	D		
	Bar length (mm)	Tray length (mm)	Mounting holes (m)	Paper length (mm)		
XT4 1250A	152	251	175	451	12	CUC4X4
	257	356	280	556	18	CUC6X4
	362	461	385	661	24	CUC8X4
	467	566	490	766	30	CUC10X4
	572	671	595	871	36	CUC12X4
	782	881	805	1081	48	CUC16X4

ABB
ABB

Load Break Switches

Switch-disconnectors: Technical data 238
Switch-disconnectors OT16...125 238
Switch-disconnectors OT160...800 240
Switch-disconnectors OT1000...4000 242

Switch-disconnectors 244
Switch-disconnectors OT16…125 244
Switch-disconnectors OT160…4000 248

Automatic transfer and Change-over switches: Technical data 254
Manual change-over switches OT16...125_C 254
Motorized change-over switches OTM40...125_C_ 256
Manual, motorized and automatic transfer switches, OT/OTM160... 3200_C_ 258

Change-over Switches 260
Change-over switches OT16…125_C 260
Change-over switches OT160…3200_C 263
Automatic transfer switches and Motorised change-over switches OTM40…2500_C 266

Switch fuses: Technical data 272
Switch fuses OS16...160 272
Switch fuses OS200…1250 274

Switch fuses 276
Switch fuses OS32…1250 276

Fuse Switch-disconnectors 282
XLP 282

FuseLine 283
HRC Fuse links 283

4

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

- OT, Switch-disconnectors: 1SCC301020C0201
- OT_C, Change-over switches: 1SCC303003C0201
- OTM, Transfer switches: 1SCC303003C0201
- OS, Switch fuses: 1SCC311013C0201
- XLP, Fuse switch-disconnectors: 1SEC312011B0202
- Fuseline: 1SCC317001C0201

Technical data, IEC
Switch-disconnectors OT16...125

Technical data according to IEC 60947-3				Size [A] / Switch type 16 / OT16F
Rated insulation voltage and rated operational voltage AC20/DC20	Pollution degree 3		V	750
Dielectric strength		50 Hz 1min.	kV	6
Rated impulse withstand voltage			kV	8
Rated thermal current and rated operational current AC20/DC20	Ambient 40°C[2]	In open air	A	25
	Ambient 40°C[2]	In enclosure	A	25
	Ambient 60°C	In enclosure	A	20
..with minimum conductor cross section		Cu	mm^2	4
Rated operational current, AC-21A		up to 415 V	A	16
		440...690 V	A	16
Rated operational current, AC-22A		up to 415 V	A	16
		440...500 V	A	16
		690 V	A	16
Rated operational current, AC-23A		up to 415 V	A	16
		440 V	A	16
		500 V	A	16
		690 V	A	10
Rated operational current / poles in series, DC-21A		24...48 V[1]	A	16/1
		110 V	A	16/2
		220 V	A	16/3
		440 V	A	16/4
		500 V	A	16/4
		750 V	A	16/8
Rated operational current / poles in series, DC-22A		24...48 V[1]	A	16/1
		110 V	A	16/2
		220 V	A	16/3
		440 V	A	10/4
		750 V	A	16/8
Rated operational current / poles in series, DC-23A		24...48 V[1]	A	16/1
		110 V	A	16/2
		220 V	A	16/4
		440 V	A	10/4
		750 V	A	16/8
Rated operational power, AC-23A (These values are given for guidance and may vary acc. to the motor manufacturer)		220...240 V	kW	3
		400...415 V	kW	7.5
		440 V	kW	7.5
		500 V	kW	7.5
		690 V	kW	7.5
Rated breaking capacity, AC-23A		up to 415 V	A	128
		440 V	A	128
		500 V	A	128
		690 V	A	80
Rated breaking capacity/poles in series, DC-23A		24...48 V	A	64/1
		220 V	A	64/3
		110 V	A	64/2
		440 V	A	40/4
		750 V	A	64/8
Rated conditional short-circuit current I_p (r.m.s.) and corresponding max. allowed cut-off current $\hat{i}_c$. The cut-off current $\hat{i}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269)	I_p (r.m.s.)	50 kA	kA	6.5
	Max. OFA_ fuse size gG/aM	≤ 415 V	A	40/32
	I_p(r.m.s.)	100 kA	kA	
	Max. OFA_ fuse size gG/aM	≤ 500 V	A	
	I_p (r.m.s.)	10 kA	kA	
	Max. OFA_ fuse size gG/aM	≤ 690 V	A	
	I_p(r.m.s.)	50 kA	kA	4
	Max. OFA_ fuse size gG/aM	≤ 690 V	A	25/16
Rated short-time withstand current	r.m.s. -value I_{cw}	690 V, 0.25 s	kA	
	r.m.s. -value I_{cw}	690 V, 1 s	kA	0.5
Rated short circuit making capacity	Peak value I_{cm}	690 V/500 V	kA	0.705
Rated capacitor power (The capacitor ratings are limited by the fuse link.)		400...415 V	kVAr	6.5
Power loss / pole	At rated operational current		W	0.3
Mechanical endurance	Divide by two for operation cycles		Oper.	20 000
Weight without accessories	3 Pole		kg	0.11
	4 Pole		kg	0.15
Cable size	Cu-wire size suitable for terminal clamps		mm^2	0.75...10
			AWG	18-8
Terminal tightening torque	Counter torque required		Nm	0.8
Operating torque	3 Pole switch-disconnector		Nm	1

1) Below 48 V, two poles in parallel up to OT80 are recommended particularly in polluted atmosphere.
2) Acc. to IEC 60947-1, § 6.1.1.

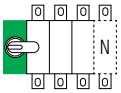
	25 / OT25	40 / OT40F	63 / OT63F	80 / OT80F	100 / OT100F	125 / OT125F
	750	750	750	750	750	750
	6	6	6	6	6	6
	8	8	8	8	8	8
	32	40	63	80	115	125
	32	40	63	80	115	125
	25	32	50	63	80	100
	6	10	16	25	35	50
	25	40	63	80	100	125
	25	40	63	80	100	125
	25	40	63	80	100	125
	25	40	63	80	100	125
	25	40	63	80	100	125
	20	23	63	75	80	90
	20	23	63	65	65	78
	20	23	45	58	60	70
	11	12	20	20	40	50
	25/1	32/1	63/1	80/1	100/1	125/1
	25/2	32/2	63/2	80/2	100/2	125/2
	25/3	32/3	63/4	80/4	100/4	125/4
	16/4	16/4	16/4	16/4		
	16/4	16/4	16/4	16/4		
	25/8	32/8				
	25/1	32/1	63/1	80/1	100/1	125/1
	25/2	32/2	63/2	80/2	100/2	125/2
	25/3	32/4	45/4	45/4	63/4	80/4
	10/4	10/4	10/4	10/4		
	25/8	25/8				
	25/1	32/1	63/1	80/1	100/1	125/1
	25/2	32/2	63/2	80/2	100/2	125/2
	25/4	32/4	45/4	45/4	63/4	63/4
	10/4	10/4	10/4	10/4		
	16/8	16/8				
	4	5.5	11	22	22	22
	9	11	22	37	37	45
	9	11	22	37	37	45
	9	11	22	37	37	45
	9	11	15	18.5	37	45
	160	184	360	640	640	720
	160	184	360	448	520	624
	160	184	360	464	480	560
	88	96	160	160	320	40
	100/1	128/1	180/1	252/1	400/1	500/1
	100/4	128/4	180/4	180/4	252/4	252/4
	100/2	128/2	180/2	252/2	400/2	500/2
	40/4	40/4	40/4	40/4		
	64/8	64/8				
	6.5	6.5	13	13	16.5	16.5
	40/32	40/32	100/80	100/80	125/125	125/125
			17	17		
			100/80	100/80		
					8.2	8.2
					125/100	125/100
	4	4	11	11	10	10
	25/16	25/16	80/63	80/63	63/63	63/63
	0.5	0.5	1	1.5	2.5	2.5
	0.705	0.705	1.4	2.1	3.6	3.6
	10	15	25	30	40	50
	0.6	1.6	2.8	4.5	4.0	6.3
	20 000	20 000	20 000	20 000	20 000	20 000
	0.11	0.11	0.27	0.27	0.36	0.36
	0.15	0.15	0.35	0.35	0.50	0.50
	0.75...10	0.75...10	1.5...35	1.5...35	10...70	10...70
	18-8	18-8	14-4	14-4	8-00	8-00
	0.8	0.8	2	2	6	6
	1	1	1.2	1.2	2	2

Technical data, IEC
Switch-disconnectors OT160...800

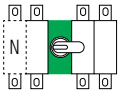
Technical data according to IEC 60947-3				Size [A] / Switch type 160 / OT160EV
Rated insulation voltage and rated operational voltage AC-20, DC-20	Pollution degree 3		V	1 000
Dielectric strength		50 Hz 1min.	kV	10
Rated impulse withstand voltage			kV	12
Rated thermal current and rated operational current AC-20, DC-20	In open air		A	200
in ambient 40 °C[4]	In enclosure		A	160
...with minimum cable cross section		Cu	mm^2	70
Rated operational current, AC-21A		≤ 500 V	A	200
		690 V	A	160
		1000 V	A	160
Rated operational current, AC-22A		≤ 500 V	A	200
		690 V	A	160
		1000 V	A	160
Rated operational current, AC-23A		≤ 500 V	A	160
		690 V	A	160
		1000 V	A	135
Rated operational current / poles in series, DC-21A[1]		24...110 V	A	160/2
		220 V	A	160/2
		440 V	A	160/3
		660 V	A	160/4
Rated operational current / poles in series, DC-21B		800 V	A	160/5
		1000 V	A	160/6
Rated operational power, AC-23[3]		230 V	kW	48
		400 V	kW	80
		415 V	kW	88
		500 V	kW	112
		690 V	kW	144
Rated breaking capacity in category AC-23		≤ 500 V	A	1 280
		690 V	A	1 280
Rated conditional short-circuit current I_p (r.m.s.) and corresponding	I_p (r.m.s.)	100 kA, 500 V	kA	40.5
max. allowed cut-off current $\hat{i}_c$. The cut-off current $\hat{i}c$ refers to values	Max. OFA_ fuse size	gG/aM	A	315/315
listed by fuse manufacturers (single phase test acc. to IEC60269).	I_p (r.m.s.)	80 kA, 690 V	kA	40.5
	Max. OFA_ fuse size	gG/aM	A	355/315
Rated short-time withstand current	r.m.s. value I_{cw}	≤ 1000 V 0,15 s	kA	15
		≤ 1000 V 0,25 s	kA	15
		≤ 1000 V 1 s	kA	8
Rated short-time making capacity	Peak value I_{cm}	≤ 1000 V	kA	30
Rated capacitor power when no initial charge on the capacitor	The capacitor ratings are limited by the fuse links	415 V	kVAr	80
		500 V	kVAr	96
		690 V	kVAr	128
Power loss / pole	With rated current		W	3.2
Mechanical endurance	Divide by two for oper. cycles		Oper.	20 000
Weight without accessories	3 Pole switch		kg	1.2
Terminal bolt size	Metric thread diameter x length		mm	M8x25
Terminal tightening torque	Counter torque required		Nm	15-22
Operating torque	3 Pole switch disconnector		Nm	7

1) Further ratings on request.
2) Category B.
3) These values are given for guidance and may vary acc. to the motor manufacturer.
4) Acc. to IEC 60947-1, § 6.1.1.

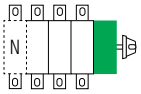
Placing options of the operating mechanism for OT160EV...800



At the end of the switch OT_03 or 04



Between the poles OT_12 or 22



Side operated types OT_30 or 40, OT_03 or 04

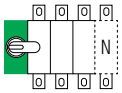
	200 / OT200E	250 / OT250E	315 / OT315E	400 / OT400E	630 / OT630E	800 / OT800E
	1 000	1 000	1 000	1 000	1 000	1 000
	10	10	10	10	10	10
	12	12	12	12	12	12
	200	250	315	400	630	800
	200	250	315	400	630	800
	95	120	185	240	2x185	2x240
	200	250	315	400	630	800
	200	250	315	400	630	800
	200	250	315	400	630	800
	200	250	315	400	630	800
	200	250	315	400	630	800
	200	250	315	400	630	800
	200	250	315	400	630	800
	200	250	315	400	630	800
	135	135	200	200	400	400
	200/2	250/2	315/1[2)]	400/1[2)]	630/1	800/1
	200/2	250/2	315/2[2)]	400/2[2)]	630/1	800/1
	200/3	250/3	315/3	360/3	630/2	800/2
	200/4	230/42)	315/4	360/4	630/4[2)]	650/4[2)]
	200/5	250/5	315/5	400/5	600/5	600/5
	200/6	250/6	315/6	400/6	600/6	600/6
	60	75	100	132	200	250
	110	140	160	220	355	450
	110	145	180	230	355	450
	132	170	220	280	400	560
	200	250	315	400	630	800
	1 600	2 000	2 520	3 200	5 040	6 400
	1 600	2 000	2 520	3 200	5 040	6 400
	40.5	40.5	61.5	61.5	90	90
	315/315	315/315	500/450	500/450	800/1 000	800/1 000
	40.5	40.5	59	59	83.5	83.5
	355/315	355/315	500/500	500/500	800/1 000	800/1 000
	15	15	31	31	38	38
	15	15	24	24	36	36
	8	8	15	15	20	20
	30	30	65	65	80	80
	100	115	145	180	250	310
	120	135	175	215	300	375
	160	190	250	325	450	550
	4	6.5	6.5	10	25	40
	20 000	20 000	16 000	16 000	10 000	10 000
	1.2	1.2	2.2	2.2	5.2	5.2
	M8x25	M8x25	M10x30	M10x30	M12x40	M12x40
	15-22	15-22	30-44	30-44	50-75	50-75
	7	7	16	16	27	27

Technical data, IEC
Switch-disconnectors OT1000...4000

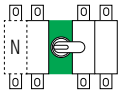
Technical data according to IEC 60947-3				Size [A] / Switch type 1000 / OT1000E
Rated insulation voltage and rated operational voltage AC20/DC20	Pollution degree 3		V	1 000
Dielectric strength		50 Hz 1min.	kV	10
Rated impulse withstand voltage			kV	12
Rated thermal current and rated operational current AC20/DC20	Ambient 40°C[1)]	In open air	A	1 000
	Ambient 40°C[1)]	In enclosure	A	1 000
..with minimum conductor cross section	Cu		mm^2	2x300
Rated operational current, AC-21A		up to 690 V	A	1 000
		1000 V	A	1 000
Rated operational current, AC-22A		up to 415 V	A	1 000
		500 - 690 V	A	1 000
Rated operational current, AC-23A		up to 500 V	A	1 000
		690 V	A	1 000
Rated operational power, AC-23A (These values are given for guidance and may vary acc. to the motor manufacturer)		400...415 V	kW	560
		440 V	kW	630
		500 V	kW	710
		690 V	kW	1 000
Rated breaking capacity, AC-23A		up to 500 V	A	10 000
		690 V	A	10 000
Rated conditional short-circuit current I_p (r.m.s.) and corresponding max. allowed cut-off current $\hat{i}_c$. The cut-off current $\hat{i}c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	I_p (r.m.s.)	80 kA	kA	100
	Max. OFA_ fuse size gG/aM	≤ 415 V	A	1 250/1 250
	I_p (r.m.s.)	100 kA	kA	106
	Max. OFA_ fuse size gG/aM	≤ 500 V	A	1 250/1 250
Rated short-time withstand current	r.m.s. -value I_{cw}	690 V, 0.25 s	kA	50
		690 V, 1 s	kA	50
Rated short circuit making capacity	Peak value I_{cm}	690 V	kA	110[4)]
	Max. distance from switch frame to nearest busbar/cable support		mm	150
Rated capacitor power when no initial charge on the capacitor	The capacitor ratings are limited by the fuse links	415 V	kVAr	460
		500 V	kVAr	550
		690 V	kVAr	750
Power loss / pole	At rated operational current		W	19
Mechanical endurance	Divide by two for operation cycles		Oper.	6 000
Weight without accessories	3 Pole		kg	14.1
	4 Pole		kg	18
Terminal bolt size	Metric thread diameter x length		mm	M12x50
Terminal tightening torque	Counter torque required		Nm	50...75
Operating torque	3 Pole switch-disconnector		Nm	65

1) Acc. to IEC60947-1, § 6.1.1.
2) IEC 947-3, utilization category B, infrequent operation.
3) Phase barriers or terminal shrouds must be used on both sides of the switch at voltages ≥ 500 V.
4) The value is 92 kA for 4 Pole switch-disconnectors.

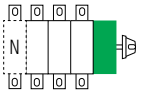
Placing options of the operating mechanism for OT1000...3200



At the end of the switch OT_03 or 04



Between the poles OT_12 or 22



Side operated types OT_30 or 40, OT_03 or 04

	1250 / OT1250E	1600 / OT1600E	2000 / OT2000E	2500 / OT2500E	3200 / OT3200E	4000/OT4000E
	1 000	1 000	1 000	1 000	1 000	1 000
	10	10	10	10	10	10
	12	12	12	12	8	8
	1 250	1 600	2 000	2 500	3 200	3 800
	1 250	1 600				
	2x400	2x500	3x500	4x500	4x1 000	5x1 000
	1 250	1 600	2 000[2]	2 500[2]	3 200[2]	3 800
	1 250	1 600				
	1 250	1 600	2 000[2]	2 500[2]	3 200[2]	3 800
	1 250	1 600	2 000[2] [3]	2 500[2] [3]		
	1 250	1 250				
	1 250	1 250				
	710	710				
	800	800				
	900	900				
	1 200	1 200				
	10 000	10 000				
	10 000	10 000				
	100	100				
	1 250/1 250	1 250/1 250				
	106	106				
	1 250/1 250	1 250/1 250				
	50	50	80	80	60	60
	50	50	55	55		
	110[4]	110[4]	176	176	176	176
	150	150	150	150	150	150
	575	575				
	690	690				
	950	950				
	29	48	55	85	95	120
	6 000	6 000	6 000	6 000	5 000	5 000
	14.1	15.2	22	22	24.7	28.9
	18	19.5	28	28	32.1	37.7
	M12x50	M12x60	M12x60	M12x60	M12x60	M12x60
	50...75	50...75	50...75	50...75	50...75	50...75
	65	65	65	65	65	65

Load Break Switches
Switch-disconnectors OT16…125

OT16…40F3

OT63…80F3

OT100…125F3

Front operated switch-disconnectors

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.
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

Ordering example

Selector handle

OT16F3	+	OHBS3AH1	+	OX**S**6x180
Load break switch	+	Selector handle	+	Shaft

Pistol handle

OT16F3	+	OHB45J6	+	OX**P**6x290
Load break switch	+	Pistol handle	+	Shaft

Door mount – Selector handle

OT16FT3	+	OHBS2PJ
Load break switch	+	Selector handle

STOCK INDENT

Load Break Switches
Accessories: Switch-disconnectors OT16…125

OHBS1

OHBS3

OHRS3

Optional handle knobs, for base and DIN-rail mounted switches

Mounted directly to the switch, no shaft required. IP20.

Suitable switches	Handle description	Knob length mm	Colour	Order code
OT16…80F3 & F4	Non padlockable	31	Black	OHBS1
OT16…125F3 & F4	Padlockable on O-OFF position	40	Black	OHBS2
	Non padlockable	39	Black	OHBS3
			Red	OHRS3

OHBS2AJ

OHYS2AJ

Optional Selector type handles, for base and DIN-rail mounted switches

For shaft diameter 6mm (to be ordered separately, type OXS6X_), door drilling 22.5mm.
Indication I-O/ON-OFF.
OH_S3AH1 padlock diameter: 5…6.3mm. OH_S2AJ padlock diameter: 5…8mm.

Suitable switches	Handle description	Colour	Order code
OT16…125F_	Padlockable with 1 padlock in pos. O-OFF and door lock in pos I-ON. 45mm. IP54	Black	OHBS3AH1
		Red-Yellow	OHYS3AH1
	Padlockable with 3 padlock in pos. O-OFF and door lock in pos I-ON. 65mm. IP65	Black	OHBS2AJ
		Red-Yellow	OHYS2AJ

Compulsory Selector type handles, for door mounted switches

Shaft not required. Indication I-O/ON-OFF. Padlockable with max. 3 padlocks.
Padlock diameter: 5…8mm. IP65.

Suitable switches	Handle description	Colour	Order code
OT16…40FT_	Snap-on mounted, door drilling 22.5mm	Black	OHBS2PJ
		Red-Yellow	OHYS2PJ
OT16…125FT_	Screw mounted, hole distance 36mm	Black	OHBS2RJ
		Red-Yellow	OHYS2RJ

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

Stainless Steel Pistol Handle

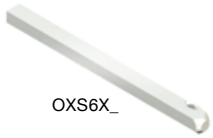
Forwarded handle, IP66. Screw fixing from the back side of the handle. No screws on the front ensures double insulation.
Indication I-O/ON-OFF. Padlockable with 3 padlocks in O-OFF position, door interlock in I-ON position.
Shaft to be ordered separately.

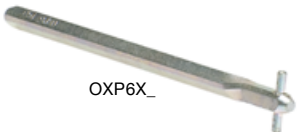
OHM65L6

Suitable switches	Handle length mm	Suitable shaft mm	Order code
OT16…125F_	65	6	OHM65L6

STOCK INDENT

Load Break Switches
Accessories: Switch-disconnectors OT16…125

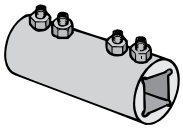

OXS6X_


OXP6X_

Shafts

Shaft diameter 6mm.

Suitable	Shaft length mm	Order code
Selector type handles		
0T16…125F_	120	0XS6X120
	180	0XS6X180
	250	0XS6X250
	330	0XS6X330
Pistol type handles		
0T16…125F_	150	0XP6X150
	210	0XP6X210
	265	0XP6X265
	290	0XP6X290
	360	0XP6X360
	430	0XP6X430


OESAZX167

Shaft extension socket

For extending the shaft on combination attachment.

Suitable	Order code
For 6mm shafts	OESAZX167

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
0T16…125F_, FT_	1 N.C. mounted on the left side, max. 2 units	0A1G01
	1 N.O. mounted on the right side, max. 2 units	0A1G10
0T16..125F_	1 N.C. + 1 N.O. not mountable on the same side as fourth pole	0A2G11

OTP_63_

Fourth Poles

IP20. Mountable on the side of the switch. Simultaneous function with main contacts.

Suitable switches	Order code
0T16…40F3	0TPS40FPN1*
0T63…80F3	0TPS80FP
0T100…125F3	0TPS125FP
0T16…40FT3	0TPS40FDN1*
0T63…80FT3	0TPS80FD
0T100…125FT3	0TPS125FD

***Note:** N1 = on left hand side of switch

STOCK INDENT

Load Break Switches
Accessories: Switch-disconnectors OT16…125

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.

OTS63T3

OTS63T1

Suitable switches	Number of poles	Order code
0T16…40F3, FT3	3 poles	OTS40T3
	4th pole	OTS40T1
0T63…80F3, FT3	3 poles	OTS63T3
	4th pole	OTS63T1
0T100…125F3, FT3	3 poles	OTS125T3
	4th pole	OTS125T1

Conversion kits for front operated switch combinations

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.

OWP6D40

OWP6D80

Suitable switches	Order code
0T16...40	OWP6D40
0T63...80	OWP6D80
0T100...125	OWP6D125

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.

OTZW8

Suitable switches	Distance mm	Order code
0T16...40	45+(0...12)x15 mm	OTZW8
0T63...80	60+(0...11)x15 mm	
0T100...125	75+(0...10)x15 mm	

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).

OTZW24

Suitable switches	Order code
0T16…125	OTZW24

STOCK INDENT

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	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

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

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

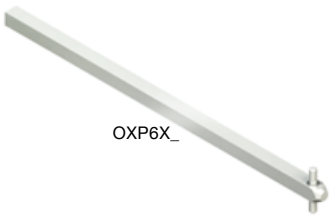
Direct Mounted Pistol Handle

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

4

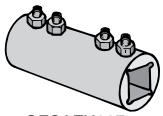
Load Break Switches
Accessories: Switch-disconnectors OT160…4000

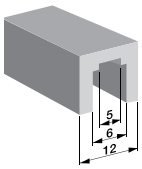

OXP6X_

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


OESAZX167



OESTLZK19

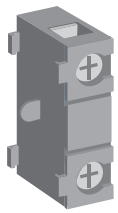
Shaft extension socket

For extending the shaft on combination attachment.

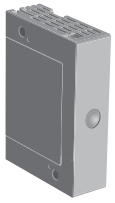
Suitable for	Description	Order code
For 6mm shafts		OESAZX167
For 12mm shafts	Shaft extension socket	OETLZX95
	6mm adapter able to place it inside the OETLZX95	OETLZK19

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.


OA_

Suitable for	Description	Order code
OT160EV…4000	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 for	Description	Order code
OT160EV…4000	Max. 8 additional auxiliary contact blocks inside the OEA28 module	OEA28

STOCK INDENT

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

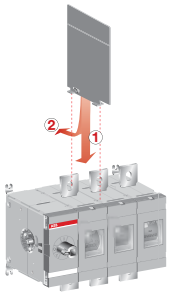
OTS1600G1L

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



OTB800/6

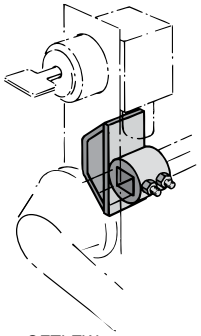
Phase separators

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

4

Load Break Switches
Accessories: Switch-disconnectors OT160…4000



OETLZW_

Locking accessories

Cam attachment for Castell, Lowe&Fletcher and Ronis interlock.
This accessory is mounted on the operating shaft of the switch to allow key interlock to the door. Lock, handle and shaft not included.

Suitable for	Order code
OT160…250	OETLZW16
OT315…4000	OETLZW5

Conversion kits for front operated switch combinations

Attachment levers for connecting two 3- or 4 Pole switches

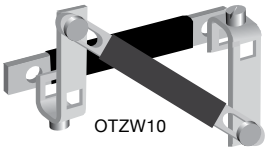
Attachment levers provided with holes, enabling different shaft distances.
The combination switches can be mounted either horizontally or vertically. Two 3 or 4 Pole switches needed.

OESAZW2

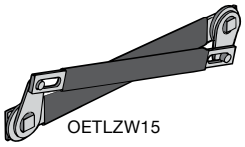
Suitable switches	Distance mm	Order code
OT160EV…250	45+(0…13)x15 mm	OESAZW2
OT315…800	60+(0…19)x20 mm	OETLZW9

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).



OTZW10



OETLZW15

Suitable switches	Distance mm	Order code
OT160…250	190	OTZW10
OT315…400	250	OETLZW14
OT315…800	300	OETLZW3
OT315…4000	500	OETLZW15

STOCK INDENT

Optimised performance
DC switch-disconnectors from 16 to 1600 Amperes

OTDC switches from 16 to 1600 Amperes have been specifically designed for DC applications. OTDC switches are compact in size, have high DC voltage ratings and unique safety features. Thanks to a modular design the rated operational voltage can be scaled up to 1500 V DC. IEC and UL versions are available and additional pole configurations are possible for more flexibility in the installation. OTDC enhances the safety and reliability of the PV system. **www.abbaustralia.com.au/lowvoltage**

Power and productivity
for a better world™

Technical data
Manual change-over switches OT16...125_C

Manual change-over switches

Data according to IEC 60947-3

Rated insulation voltage and rated operational voltage AC20/DC20		Pollution degree 3	V
Dielectric strength		50 Hz 1min.	kV
Rated impulse withstand voltage			kV
Rated thermal current and rated operational current AC20/DC20	/ ambient 40°C	In open air	A
	/ ambient 40°C	In enclosure	A
	/ ambient 60°C	In enclosure	A
..with minimum conductor cross section		Cu	mm^2
Rated operational current, AC-21A		up to 500 V	A
		690 V	A
Rated operational current, AC-22A		up to 500 V	A
		690 V	A
Rated operational current, AC-23A		up to 415 V	A
		440 V	A
		500 V	A
		690 V	A
Rated operational current / poles in series, DC-21A		up to 48 V[1]	A
		110 V	A
		220 V	A
		440 V	A
		500 V	A
Rated operational current / poles in series, DC-22A		up to 48 V[1]	A
		110 V	A
		220 V	A
		440 V	A
Rated operational current / poles in series, DC-23A		up to 48 V[1]	A
		110 V	A
		220 V	A
		440 V	A
Rated operational power, AC-23A[2]		230 V	kW
The kW-ratings are accurate for 3-phase 1500 R.P.M. standard asychronous motors		400 V	kW
		415 V	kW
		500 V	kW
		690 V	kW
Rated breaking capacity in category AC-23		up to 415 V	A
		500 V	A
		690 V	A
Rated conditional short-circuit current I_p (r.m.s.) and corresponding max. allowed cut-off current $\hat{i}_c$ (peak) value.	I_p (r.m.s.) 50 kA, 415 V	$\hat{i}_c$ (peak)	kA
The cut-off current $\hat{i}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	Max. OFA_ fuse size	gG/aM	A/A
	I_p (r.m.s.) 100 kA, 500 V	$\hat{i}_c$ (peak)	kA
	Max. OFA_ fuse size	gG/aM	A
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 1s	kA
Rated short-time making capacity[3]	I_{cm} (peak)	690 V	kA
Power loss / pole	With rated current		W
Mechanical endurance	Number of oper. cycles[4]		Cycles
Cable size	Cu-wire size suitable for terminal clamps		mm^2
			AWG
Terminal tightening torque	Counter torque required		Nm
Operating torque	Typical for 3 Pole switches		Nm
Weight without accessories	3 Pole switch		kg
	4 Pole switch		kg

Data according to UL508 (Listed)

Current			A
Horsepower, 3-phase		200 V	HP
		208 V	HP
		240 V	HP
		480 V	HP
		600 V	HP

1) Below 48 V, two poles in parallel up to OT80 are recommended particularly in polluted atmosphere.
2) These values are given for guidance and may vary according to the motor manufacturer.
3) Short circuit duration >50ms, without fuse protection.
4) Operating cycle: O - I - O - II - O.

	Switch size						
	OT16_	OT25_	OT40_	OT63_	OT80_	OT100_	OT125_
	750	750	750	750	750	750	750
	6	6	6	6	6	6	6
	8	8	8	8	8	8	8
	25	32	40	63	80	115	125
	25	32	40	63	80	115	125
	20	25	32	50	63	80	100
	4	6	10	16	25	35	50
	16	25	40	63	80	100	125
	16	25	40	63	80	100	125
	16	25	40	63	80	100	125
	16	25	40	63	80	100	125
	16	20	23	45	75	80	90
	16	20	23	45	65	65	78
	16	20	23	45	58	60	70
	10	11	12	20	20	40	50
	16/1	25/1	32/1	63/1	80/1	100/1	125/1
	16/2	25/2	32/2	63/2	80/2	100/2	125/2
	16/3	25/3	32/3	63/4	63/4	100/4	100/4
	16/4	16/4	16/4	16/4	16/4		
	16/4	16/4	16/4	16/4	16/4		
	16/1	25/1	32/1	63/1	80/1	100/1	125/1
	16/2	25/2	32/2	63/2	80/2	100/2	125/2
	16/3	25/3	32/4	45/4	45/4	63/4	80/4
	10/4	10/4	10/4	10/4	10/4		
	16/1	25/1	32/1	63/1	80/1	100/1	125/1
	16/2	25/2	32/2	63/2	80/2	100/2	125/2
	16/4	25/4	32/4	45/4	45/4	63/4	63/4
	10/4	10/4	10/4	10/4	10/4		
	3	4	5,5	11	22	22	22
	7.5	9	11	22	37	37	45
	7.5	9	11	22	37	37	45
	7.5	9	11	22	37	37	45
	7.5	9	11	15	18.5	37	45
	128	160	184	360	640	640	720
	128	160	184	360	464	480	560
	80	88	96	160	160	320	400
	6.5	6.5	6.5	13	13	16.5	16.5
	40/32	40/32	40/32	100/80	100/80	125/125	125/125
				17	17		
				100/80	100/80		
	0.5	0.5	0.5	1	1.5	2.5	2.5
	0.7	0.7	0.7	1.4	2.1	3.6	3.6
	0.3	0.6	1.6	2.8	4.5	4.0	6.3
	10 000	10 000	10 000	10 000	10 000	10 000	10 000
	0.75-10	0.75-10	0.75-10	1.5-35	1.5-35	10-70	10-70
	18-8	18-8	18-8	14-4	14-4	8-00	8-00
	0.8	0.8	0.8	2	2	6	6
	1	1	1	1.2	1.2	2	2
	0.25	0.25	0.25	0.64	0.64	0.90	0.90
	0.31	0.31	0.31	0.70	0.70	1.18	1.18
	16	25	40	60	80		
	3	7.5	10	15	20		
	3	7.5	10	15	20		
	5	7.5	10	15	20		
	10	15	20	30	40		
	10	20	25	30	40		

Technical data
Motorized change-over switches OTM40...125_C_

Motorized change-over switches

Data according to IEC 60947-3

Rated insulation voltage and rated operational voltage AC20/DC20		Pollution degree 3	V
Dielectric strength		50 Hz 1min.	kV
Rated impulse withstand voltage			kV
Rated thermal current and rated operational current AC20/DC20	/ ambient 40°C	In open air	A
	/ ambient 40°C	In enclosure	A
	/ ambient 60°C	In enclosure	A
..with minimum conductor cross section		Cu	mm^2
Rated operational current, AC-21A		up to 500 V	A
		690 V	A
Rated operational current, AC-22A		up to 500 V	A
		690 V	A
Rated operational current, AC-23A		up to 415 V	A
		500 V	A
		690 V	A
Rated operational current / poles in series, DC-21A		up to 48 V	A
		110 V	A
		220 V	A
Rated operational current / poles in series, DC-22A		up to 48 V	A
		110 V	A
		220 V	A
Rated operational current / poles in series, DC-23A		up to 48 V	A
		110 V	A
		220 V	A
Rated operational power, AC-23A[1]		230 V	kW
The kW-ratings are accurate for 3-phase 1500 R.P.M. standard asychronous motors		400 V	kW
		415 V	kW
		500 V	kW
		690 V	kW
Rated breaking capacity in category AC-23		up to 415 V	A
		500 V	A
		690 V	A
Rated conditional short-circuit current I_p (r.m.s.) and corresponding max. allowed cut-off current $\hat{i}_c$ (peak) value.	I_p (r.m.s.) 50 kA, 415 V	$\hat{i}_c$ (peak)	kA
The cut-off current $\hat{i}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	Max. OFA_ fuse size	gG/aM	A/A
	I_p (r.m.s.) 18 kA, 690 V	$\hat{i}_c$ (peak)	kA
	Max. OFA_ fuse size	gG	A
	I_p (r.m.s.) 50 kA, 690 V	$\hat{i}_c$ (peak)	kA
	Max. OFA_ fuse size	gG/aM	A/A
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 1s	kA
Rated short-time making capacity[2]	I_{cm} (peak)	690 V	kA
Power loss / pole	With rated current		W
Mechanical endurance	Number of oper. cycles[3]		Cycles
Cable size	Cu-wire size suitable for terminal clamps		mm^2
			AWG
Terminal tightening torque	Counter torque required		Nm
Operating torque	Typical for 3 Pole switches		Nm
Weight without accessories	3 Pole switch		kg
	4 Pole switch		kg

Data according to IEC 60947-6-1

Class of equipment			
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.1s	kA
Conditional short-circuit current	I_{cc} (r.m.s.)	415 V	kA
Corresponding fuse rating	gG/aM fuse	415 V	A
Rated operational current, AC-31B		up to 415 V	A
Rated operational current, AC-32B		up to 415 V	A
Rated operational current, AC-33B		up to 415 V	A

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.

	Switch size				
	OTM40_	OTM63_	OTM80_	OTM100_	OTM125_
	800	800	800	800	800
	6	6	6	6	6
	8	8	8	8	8
	40	63	80	115	125
	40	63	80	115	125
	32	50	63	80	100
	10	16	25	35	50
	40	63	80	100	125
	40	63	80	100	125
	40	63	80	100	125
	40	63	80	100	125
	40	63	80	80	90
	40	60	60	60	70
	40	40	40	40	50
	40/1	63/1	80/1	100/1	125/1
	40/2	63/2	80/2	100/2	125/2
	40/4	63/4	80/4	100/4	100/4
	40/1	63/1	80/1	100/1	125/1
	40/2	63/2	80/2	100/2	125/2
	40/4	63/4	80/4	80/4	80/4
	40/1	63/1	80/1	100/1	125/1
	40/2	63/2	80/2	100/2	125/2
	40/4	63/4	63/4	63/4	63/4
	7.5	15	22	22	22
	18.5	30	37	37	45
	18.5	30	37	37	45
	22	37	37	37	45
	37	37	37	37	45
	320	504	640	640	720
	320	480	480	480	560
	320	320	320	320	400
	16.5	16.5	16.5	16.5	16.5
	125/125	125/125	125/125	125/125	125/125
	11	11	11	11	11
	125	125	125	125	125
	10	10	10	10	10
	63/63	63/63	63/63	63/63	63/63
	2.5	2.5	2.5	2.5	2.5
	3.6	3.6	3.6	3.6	3.6
	1.6	2.8	3.5	4.0	6.3
	10 000	10 000	10 000	10 000	10 000
	2.5-25/2x2.5-16	10-70	10-70	10-70	10-70
	14-4/2x14-6	8-00	8-00	8-00	8-00
	6	6	6	6	6
	5	5	5	5	5
	1.37	1.37	1.37	1.37	1.37
	1.60	1.60	1.60	1.60	1.60
	PC	PC	PC	PC	PC
	5	5	5	5	
	50	50	50	50	50
	125	125	125	125	125
	40	63	80	100	125
	40	63	80	100	125
	40	63	80	80	80

Technical data
Manual, motorized and automatic transfer switches, OT/OTM160... 3200_C_

Manual / motorized change-over switches and automatic transfer switches

				Switch size , OT_, OTM_	
Data according to IEC 60947-3				**OT_160_**	**OT_200_**
Rated insulation voltage and rated operational voltage AC20/DC20[1]		Pollution degree 3[2]	V	1000	1000
Dielectric strength		50 Hz 1min.	kV	10	10
Rated impulse withstand voltage[3]			kV	12	12
Rated thermal current and rated operational current AC20/DC20	/ ambient 40°C	In open air	A	160	200
	/ ambient 40°C	In enclosure	A	160	200
..with minimum conductor cross section		Cu	mm^2	70	95
Rated operational current, AC-21A		up to 500 V	A	160	200
		690 V	A	160	200
Rated operational current, AC-22A		up to 500 V	A	160	200
		690 V	A	160	200
Rated operational current, AC-23A		up to 415 V	A	160	200
		440 V	A	160	200
		500 V	A	160	200
		690 V	A	160	200
Rated operational current / poles in series, DC-21A[13]		≤ 110 V	A	160/2	200/2
		220 V	A	160/2	200/2
		440 V	A	160/3	200/3
		660 V	A	160/4	200/4
Rated operational power, AC-23A[5]		230 V	kW	45	60
The kW-ratings are accurate for 3-phase 1500 R.P.M. standard		400 V	kW	90	110
asychronous motors		415 V	kW	90	110
		500 V	kW	110	132
		690 V	kW	160	200
Rated breaking capacity in category AC-23		up to 415 V	A	1 280	1 600
		500 V	A	1 280	1 600
		690 V	A	1 280	1 600
Rated conditional short-circuit current I_p (r.m.s.) and cut-off current $\hat{i}_c$	I_p (r.m.s.) 80 kA, 415 V	$\hat{i}_c$ (peak)	kA	40.5	40.5
(peak) value. The cut-off current $\hat{i}_c$ refers to values listed by fuse	Max. OFA_ fuse size	gG/aM	A/A	355/315	355/315
manufacturers (single phase test acc. to IEC60269).	I_p (r.m.s.) 100 kA, 500 V	$\hat{i}_c$ (peak)	kA	40.5	40.5
	Max. OFA_ fuse size	gG/aM	A	315/315	315/315
	I_p (r.m.s.) 80 kA, 690 V	$\hat{i}_c$ (peak)	kA	40.5	40.5
	Max. OFA_ fuse size	gG/aM	A	355/315	355/315
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.15s	kA	15	15
		690 V 0.25s	kA	15	15
		690 V 1s	kA	8	8
Rated short-time making capacity[6]	I_{cm} (peak)[7]	690 V	kA	30	30
Power loss / pole	With rated current		W	2.4	4
Mechanical endurance	Number of oper. cycles[8]		Cycles	8 000	8 000
Terminal bolt size	Metric thread diameter x length		mm	M8x25	M8x25
Terminal tightening torque	Counter torque required		Nm	15-22	15-22
Operating torque	Typical for 3 Pole change-over switches		Nm	7	7
	Typical for 3 Pole bypass switches		Nm	14	14
Weight without accessories	Manual change-over switches	3 Pole switch	kg	2.5	2.5
		4 Pole switch	kg	3.2	3.2
	Motorized and automatic transfer switches	3 Pole switch	kg	5.7	5.7
		4 Pole switch	kg	6.4	6.4
	Manual bypass switches	3 Pole switch	kg	4.3	4.3
		4 Pole switch	kg	5.8	5.8
Data according to IEC 60947-6-1					
Class of equipment				PC	PC
Rated short-time withstand current	I_{cw} (r.m.s.)	690 V 0.1s	kA	15	15
Rated operational current, AC-31B		up to 415 V	A	160	200
Rated operational current, AC-33B		up to 415 V	A	160	200

1) Automatic transfer switches: operational voltage = max. 415 V AC for OTM_C8D_
2) Automatic transfer switches: pollution degree 2 for OTM_C8D_
3) Automatic transfer switches: U_{imp} = 6 kV for OTM_C8D_
4) Utilization category B.
5) These values are given for guidance and may vary acc. to the motor manufacturer.
6) Short circuit duration > 50ms, without fuse protection.
7) Max. distance from switch frame to nearest busbar / cable support 150 mm.
8) Operating cycle: O - I - O - II - O.
9) Category AC-21B, up to 415V.
10) For manual change-over and bypass switches.
11) For motorized and automatic transfer switches.
12) 500 V.
13) Further ratings on request.

	OT_250_	OT_315_	OT_400_	OT_630_	OT_800_	OT_1000_	OT_1250_	OT_1600_	OT_2000_	OT_2500_	OT_3200_
	1000	1000	1000	1000	1000	1 000	1 000	1 000	1 000	1 000	1 000
	10	10	10	10	10	10	10	10	10	10	10
	12	12	12	12	12	12	12	12	12	12	8
	250	315	400	630	800	1 000	1 250	1 600	2 000	2 500	3 200
	250	315	400	630	800						
	120	185	240	2x185	2x240	2x300	2x400	2x500	3x500	4x500	4x1000
	250	315	400	630	800	1 000	1 250	1 600	2 000[9]	2 500[9]	3 200[9]
	250	315	400	630	800	1 000	1 250	1 600			
	250	315	400	630	800	1 000	1 250	1 600			
	250	315	400	630	800	1 000	1 250	1 600			
	250	315	400	630	800	1 000	1 250	1 250			
	250	315	400	630	800	1 000	1 250	1 250			
	250	315	400	630	800	1 000	1 250	1 250			
	250	315	400	630	800	1 000	1 250	1 250			
	250/2	315/1[4]	400/1[4]	630/1	800/1						
	250/2	315/2[4]	400/2[4]	630/1	800/1						
	230/3	315/3	360/3	630/2	720/2						
	200/4	315/4	315/4	630/4[4]	630/4[4]						
	75	100	132	200	250	315	400	400			
	140	160	220	355	450	560	710	710			
	145	180	230	355	450	560	710	710			
	170	220	280	400	560	710	900	900			
	250	315	400	630	800	1 000	1 200	1 200			
	2 000	2 520	3 200	5 040	6 400	10 000	10 000	10 000			
	2 000	2 520	3 200	5 040	6 400	10 000	10 000	10 000			
	2 000	2 520	3 200	5 040	6 400	10 000	10 000	10 000			
	40.5	59	59	83.5	83.5	100	100	100			
	355/315	500/500	500/500	800/1 000	800/1 000	1 250/1 250	1 250/1 250	1 250/1 250			
	40.5	61.5	61.5	90	90	106	106	106			
	315/315	500/450	500/450	800/800	800/800	1 250/1 250	1 250/1 250	1 250/1 250			
	40.5	59	59	83.5	83.5						
	355/315	500/500	500/500	800/1 000	800/1 000						
	15	31	31	38	38	50	50	50	50	50	
	15	24	24	36	36	50	50	50	50	50	
	8	15	15	20	20	50	50	50	55	55	65 [12]
	30	65	65	80	80	92	92	92	110	110	143 [12]
	6.5	6.5	10	25	40	19	29	48	55	85	95
	8 000	8 000	8 000	5 000	5 000	3 000	3 000	3 000	2000	2000	400
	M8x25	M10x30	M10x30	M12x40	M12x40	M12x60	M12x60	M12x60	M12x60	M12x60	M12x100
	15-22	30-44	30-44	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75
	7	16	16	27	27	78	78	78	78	78	80
	14	32	32	54	54						
	2.5	4.7	4.7	12.8	12.8	32.3	32.3	34.8	48	48	57
	3.2	5.8	5.8	15.6	15.6	40.2	40.2	43.3	60	60	72
	5.7	10.2	10.2	17.5	17.5	42	42	44	56	56	
	6.4	11.4	11.4	20.4	20.4	50	50	52	70	70	
	4.3	8.2	8.2	19.9	19.9						
	5.8	11.0	11.0	26.6	26.6						
	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC	
	15	25	25	38	38	50	50	50	50	50	
	250	315	400	630[10]/650[11]	800[10]/720[11]	1 000	1 250	1 600	2000[10]	2000[10]	
	250	315	400	630[10]/650[11]	800[10]/650[11]	1 000	1 000	1 000			

Load Break Switches
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.
Extension shaft (OXP6X_) and pistol handle (OH_J6E_11) available as an accessory.
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	+	OX**S**6x120
Change-over switch	+	Selector handle	+	Shaft

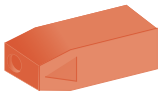
Pistol handle

OT16F3C	+	OHB45J6E311	+	OX**P**6x150
Change-over switch	+	Pistol handle	+	Shaft

STOCK INDENT

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_

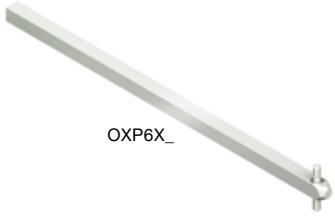
Optional Pistol handle, for base and DIN-rail mounted switches

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_

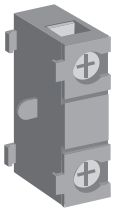


OXP6X_

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

STOCK INDENT

Load Break Switches
Accessories: Change-over switches OT16…125_C


OA1G_

Auxiliary contact blocks

IP20. Snap-on mounted to both sides of the switch. I=16A, cable cross section max. 2x2.5mm^2
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.

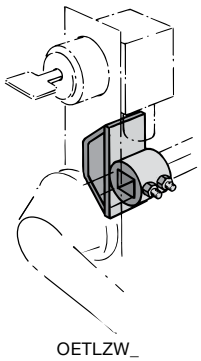
Suitable switches	Number of poles	Order code
OT16…40_C	3 poles	OTS40T3
	4th pole	OTS40T1
OT63…80_C	3 poles	OTS63T3
	4th pole	OTS63T1
OT100…125_C	3 poles	OTS125T3
	4th pole	OTS125T1

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


OETLZW_

Locking accessories

Cam attachment for Castell, Lowe&Fletcher and Ronis interlock.
This accessory is mounted to the operating shaft of the switch to allow key interlock to the door. Lock, handle and shaft not included.

Suitable switches	Order code
OT16…125_C	OETLZW16

STOCK INDENT

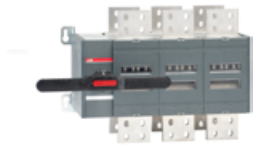
Load Break Switches
Change-over switches OT160…3200_C

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.

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

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

4

STOCK INDENT

Load Break Switches
Accessories: Change-over switches OT160…3200_C

OHB_

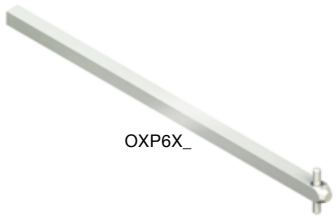
OHB200_P_

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

4


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. 2 x 2.5 mm^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

STOCK INDENT

Load Break Switches
Accessories: Change-over switches OT160…3200_C

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.

OTS1600G1L

OTS1600G1S

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

Bridging Bars

The bridging bars provide a connection link either on the incoming or outcoming side of the switch.

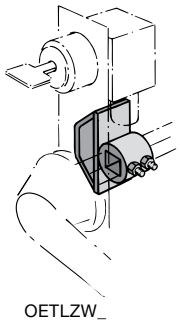
OTZC13...34

OTZC43...44

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

Locking accessories

Cam attachment for Castell, Lowe&Fletcher and Ronis interlock. This accessory is mounted on the operating shaft of the switch to allow key interlock to the door. Lock, handle and shaft not included.


OETLZW_

Suitable switches	Order code
OT160…250_C	OETLZW16
OT315…3200_C	OETLZW5

STOCK INDENT

Ordering information:
Automatic transfer switches

Automatic transfer switches functionality

	OTM_C8D_
OTM_C_D products overview	
Includes automatic control unit	OMD800_
Manual operation with handle	x
Local operation with front panel keypad	x
Automatic transfer switching equipment (ATSE)	x
Dual power source for the motor operator[1)]	o
Measurements	
Three phase voltage measurement on LINE 1	x
Single phase voltage measurement on LINE 1	x
Three phase voltage measurement on LINE 2	x
Single phase voltage measurement on LINE 2	x
Frequency on LINE 1	x
Frequency on LINE 2	x
Possibility to check the measurements via LCD	x
Source failure detections	
No voltage	x
Undervoltage	x
Overvoltage	x
Phase missing	x
Voltage unbalance	x
Invalid frequency	x
Incorrect phase sequence	x
Configuration	
By keypad and LCD	x
Voltage threshold setting	x
Voltage hysteresis setting	x
Frequency threshold setting	x
Frequency hysteresis setting	x
Time delays	
Switching delay	0...60 s
Delay on transfer[2)]	0...600 s
Dead band time I-II (stop switching to position 0)	0...60 s
Back-switching delay	0...5400 s
Dead band time II-I (stop switching to position 0)	0...60 s
Generator stop delay	0...1800 s
Status of time delays on the LCD	x

▶ Table continued on next page

1) Dual power source allows the motor operator to be supplied by two separate voltage supplies. This way the motor operator is always energized from the available line. Request the ODPSE230C accessory to provide power supply to the motor.
2) Delaying the switching sequence before transferring to generator, guaranteeing that in cold locations the generator is properly warmed up.

x = included as standard
o = as an accessory

STOCK INDENT

Ordering information:
Automatic transfer switches

▶ Table continued from previous page

	OTM_C8D_
Features	
Generator start and stop	x
Off-load test sequence	x
On-load test sequence	x
Source status via front panel	x
Source status via digital outputs	x
Switch position via front panel	x
LCD[3]	x
Fieldbus interface[4]	x
Event/alarm log	x
Counter for number of operations	x
Auxiliary voltage supply[5]	x
Programmable digital inputs (eight) and digital outputs (six)	x
Secondary load control (load shedding)	x
Digital input - Allow transfer to secondary[6]	x
Digital input - Generator alarm[7]	x
Digital input - Remote control to positions I, 0 and II	x
Operating mode	
Line priority	x[8]
Manual back-switching[9]	x
Automatic operation to position 0, in case of source failure[10]	x
Applications	
Transfer between two transformers	x
Transfer between a transformer and a generator	x

3) Menus available in eight languages; English, French, German, Italian, Spanish, Russian, Chinese and Finnish.
4) Two-way communication, bus communication protocol is Modbus.
5) In case of source failure, the control unit can be supplied with an external auxiliary supply with 24…110 V DC.
6) Control unit requires an external signal before allowing the transfer to secondary.
7) Two options for the operating mode after receiving the alarm: control unit either works normally, or initiates generator stop with operation to position O.
8) Three options: No line priority, Source 1 or Source 2 is the priority source.
9) Automatic back-switching to primary source is prevented.
10) Control unit and motor operator must be energized.

x = included as standard
o = as an accessory

Load Break Switches
Motorised Change-over switches OTM40…2500_C

OTM40…125F3C_

OTM40…125F4C_

OTM160…250E3C

OTM1000…1250E3C_

OTM2000…2500E3C_

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.

OTM160…2500

Frontal switch allowing: motorized 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_).

In 415V A	Rated Power 415V S [kVA]	Rated current AC31B/AC33B, 415V I [A]	Number of poles	Order code
40	27	40/40	3	OTM40F3CMA230V
			4	OTM40F4CMA230V
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
800	550	720/650	3	OTM800E3CM230C
			4	OTM800E4CM230C
1000	680	1000/1000	3	OTM1000E3CM230C
			4	OTM1000E4CM230C
1250	850	1250/1000	3	OTM1250E3CM230C
			4	OTM1250E4CM230C
1600	1000	1600/1000	3	OTM1600E3CM230C
			4	OTM1600E4CM230C
2000	1350	—	3	OTM2000E3CM230C
			4	OTM2000E4CM230C
2500	1700	—	3	OTM2500E3CM230C
			4	OTM2500E4CM230C

STOCK INDENT

Load Break Switches
Motorised Change-over switches OTM40…2500_C

OTM160…250E3C8_

Automatic transfer switch, I-O-II operation, open transition

Including an IP65 black I-O-II direct plastic handle for manual operation, a PCB connectors, bolt kit with nuts and washers for all terminals.
Frontal switch allowing: motorized operation or manual operation (through the handle).
Including a voltage sensing kit on top of the switch, storage clip for the handle and spare fuse.
Padlock interlock on O-position (maximum 3 padlocks). Bridging bars should be ordered separately (OTZC_).
Motor voltage: 0.85…1.10 x Un. IP20. Available versions up to 1600A. To supply the motor please check: ODPSE230C.

In 415V A	Rated Power 415V S [kVA]	Rated current AC31B/AC33B, 415V I [A]	Number of poles	Order code
160	110	160/160	3	OTM160E3C8D230C
			4	OTM160E4C8D230C
200	135	200/200	3	OTM200E3C8D230C
			4	OTM200E4C8D230C
250	170	250/250	3	OTM250E3C8D230C
			4	OTM250E4C8D230C
315	215	315/315	3	OTM315E3C8D230C
			4	OTM315E4C8D230C
400	275	400/400	3	OTM400E3C8D230C
			4	OTM400E4C8D230C
630	435	650/650	3	OTM630E3C8D230C
			4	OTM630E4C8D230C

STOCK INDENT

Load Break Switches
Accessories: Motorised Change-over switches OTM40…2500_C

OTVS0

Handle and spare fuse storage clip

The handle can be stored in clip. The clip can be fixed to a panel frame using the included adhesive tape.

Suitable switches	Order code
OTM40…125F_	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

OMD800

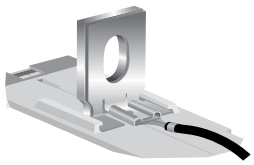
Automatic control units

OMD automatic control units can be used with OTM40…2500_CM_ motorized 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_motorized 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_motorized 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. Please refer to the *Moulded Case Circuit Breaker* section of this catalogue for information about control on pages 219 – 220, while the dimension drawings can be found on pages 231 – 235.

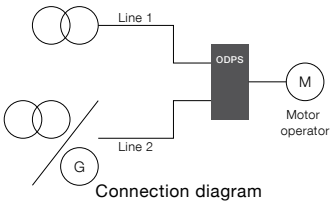

OMZB18...28 mounted

Voltage sensing connectors

For 0.5…1.5mm^2 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



Connection diagram

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 energized 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

STOCK INDENT

Simply optimal
DC switch-disconnectors from 16 to 1600 Amperes

OTDC switch disconnectors have been designed to provide you with reliability and simplicity, while minimising the heat generation and power losses. The OTDC range includes two pole switches for 1000 V DC and three pole switches for 1500 V DC, from 100 to 1600 Amperes. Thanks to a modular design, OTDC is adaptable to a wide variety of installation requirements. **www.abbaustralia.com.au/lowvoltage**

Power and productivity
for a better world™

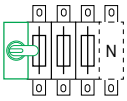
Technical data
Switch fuses OS16...160

Technical data according to IEC 60947-3		Switch size	A
Rated insulation voltage	Pollution degree 3		V
Dielectric strength		50 Hz 1min.	kV
Rated impulse withstand voltage			kV
Rated thermal current in ambient 35 °C and temporarily 40 °C[5] / max. fuse power dissipation[1] ...with minimum cable cross section	In open air		A/W
	In enclosure[2]		A/W
		Cu	mm²
Rated operational voltage AC-20 and DC-20			V
Rated operational current, AC-21A		up to 500 V	A
		690 V	A
Rated operational current, AC-22A		up to 500 V	A
		690 V	A
Rated operational current, AC-23A		up to 500 V	A
		690 V	A
Rated operational current / poles in series DC-21A		48 V	A
		110-220 V	A
		440 V	A
Rated operational current / poles in series DC-22A		48 V	A
		110-220 V	A
Rated operational current / poles in series DC-23A		48 V	A
		110-220 V	A
Rated operational power, AC-23[4]	The kW-ratings are accurate for three-phase 1500 R.P.M. standard asynchronous motors.	230 V	kW
		400 V	kW
		415 V	kW
		500 V	kW
		690 V	kW
Rated breaking capacity in category AC-23		≤ 690 V	A
Rated breaking capacity / poles in series in category DC-23		up to 220 V	A
Rated conditional short-circuit current I_p (r.m.s.) and corresponding max. allowed cut-off current $\hat{I}_c$	at prospective SC-current	80 kA, 415 V	kA
	Max. OFA_ fuse size gG / aM		A
	at prospective SC-current	100 kA, 500 V	kA
	Max. OFA_ fuse size gG / aM		A
The cut-off current $\hat{I}_c$ refers to values listed by fuse manufacturers (single phase test acc. to IEC60269).	at prospective SC-current	50 kA, 690 V	kA
	Max. OFA_ fuse size gG / aM		A
	at prospective SC-current	80 kA, 690 V	kA
	Max. OFA_ fuse size gG / aM		A
Rated short-time withstand current, 1 s.	r.m.s. -value		kA
Rated capacitor power when no initial charge on the capacitor	The capacitor rating of the switch-fuse is limited by the fuse link.	400 V	kVAr
		415 V	kVAr
		690 V	kVAr
Power loss / pole	With rated current, without fuse		W
Mechanical endurance	Divide by two for operation cycles		Oper.
Fuse types, IEC 60269-2-1	DIN 43620, Neozed DIN49522		
	NFC 63210, 63211		
	BS 88-2, -6 -size /		
	distance of fuse-link bolts		mm
Weight without accessories	3 Pole switch fuses		kg
	4 Pole switch fuses		kg
Built-in terminal size		Cu	mm²
Terminal bolt size (included)	Metric thread diameter x length		mm
Terminal tightening torque	Counter torque required		Nm
Fuse-links bolts tightening torque			Nm
Operating torque	Typical for 3 Pole switch fuses		Nm

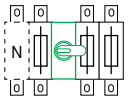
* = Utilization category B

1) Ambient temperature 60°C: derating 20%. Mounting on ceiling: derating 10%.
2) OS160G: Mounting on wall, horizontal fuses: derating 5%.
3) Max. fuse body diam. 32 mm.
4) Some fuse links limit these figures further. Starting current characteristics must be considered separately.
5) Acc. to IEC 60947-1, § 6.1.1. Minimum ambient temperature -5°C. Category B: -5°C...-35°C.
6) Max. fuse body diam. 22 mm.
7) 3 Nm with cable sizes 2.5...6 mm², 4 Nm with cable sizes 10...25 mm².

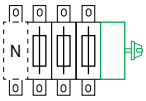
Placing options of the operating mechanism



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

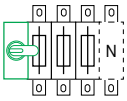
	OS_32G	OS_63G	OS_100G	OS_125G	OS_160G
	1 000	1 000	1 000	1 000	1 000
	10	10	10	10	10
	12	12	8	8	8
	32/7.5	63/7.5	100/12	125/12	160/12
	32/7.5	63/7.5	100/12	125/12	160/12
	6	16	50	50	70
	1 000	1 000	1 000	1 000	1 000
	32	63	100	125	160
	320	63	100	125	160
	32	63	100	125	160
	32	63	100	125	160
	32	63	100	125	160
	32	63	100	125	160
	32/2	63/2	100/2	125/2	160/2
	32/2*	63/2*	100/2*	125/2*	125/2*
	32/4*	50/4*	100/4*	125/4*	125/4*
	32/2	63/2	100/2	125/2	160/2
	32/2*	63/2*	100/2*	125/2*	125/2*
	32/2	63/2	100/2	125/2	160/2
	32/2*	63/2*	100/2*	125/2*	125/2*
	7.5	18.5	30	37	45
	15	30	55	55	75
	15	30	55	55	75
	37	55	75	90	
	55	90	110	132	
	504	1280	1280	1280	
	252/2	640/2	640/2	640/2	
	13.5	13.5	23.5	23.5	23.5
	80/63	80/63	160/160	160/160	160/160
	12.5	12.5	25.5	25.5	25.5
	63/50	63/50	160/160	160/160	160/160
	9.5	9.5	17.5	17.5	17.5
	63/50	63/50	125/160	125/160	125/160
	11.5	11.5	20.5	20.5	20.5
	50/50	50/50	125/160	125/160	125/160
	2.5	5	5	5	
	25	40	50	60	
	32	42	55	65	
	50	75	90	100	
	4	4	5	9	
	20 000	20 000	20 000	20 000	20 000
	000		000, 00	000, 00	
					22x58
	A2-A3[6]	A2-A3[6]	A2-A4[3]	A2-A4[3]	A2-A4[3]
	M5/73	M5/73	M5/73, M8/94	M5/73, M8/94	M5/73, M8/94
	1.1	1.1	1.5	1.5	1.5
	01.3	1.3	1.8	1.8	1.8
	2.5...25	2.5...25			
			M8x25	M8x25	M8x25
	3/4[7]	3/4[7]	15-22	15-22	15-22
	3.5	3.5	M5:3.5 M8:5	M5:3.5 M8:5	M5:3.5 M8:5
	5	5	7	7	7

Technical data
Switch fuses OS200…1250

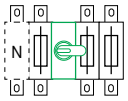
Technical data according to IEC 60947-3		Switch size	A
Rated insulation voltage and rated operational voltage AC-20 and DC-20	Pollution degree 3		V
Dielectric strength		50 Hz 1min.	kV
Rated impulse withstand voltage			kV
Rated thermal current in ambient 35 °C and temporarily in 40 °C /	In open air		A/W
max. fuse power dissipation	In enclosure		A/W
...with minimum cable cross section		Cu	mm2
Rated thermal current of detachable neutral	In open air / Cu cable or bar cross section	In 'N3' types	A/mm2
Derating, mounting on wall horizontal fuses	In open air or ventilated enclosure		%
	Totally enclosed		%
Derating, mounting on ceiling			%
Derating at 60 °C	In open air / in enclosure		%
Rated operational current AC-21A		≤ 500 V	A
		690 V	A
Rated operational current AC-22A		≤ 415 V	A
		500 V	A
		690 V	A
Rated operational current AC-23A		≤ 415 V	A
		500 V	A
		690 V	A
Rated operational current / poles in series DC-21A, DC-22A and DC-23A		≤ 220 V	A
		440 V	A
		660 V	A
		750 V	A
		880 V	A
Rated operational power AC-23[1)]		230 V	kW
		400 V	kW
		415 V	kW
		500 V	kW
		690 V	kW
Rated breaking capacity AC-23		≤ 690 V	A
Rated conditional short-circuit current Ip (r.m.s.) and corresponding max.	at prospective SC-current	80 kA, 415 V	kA
allowed cut-off current îc	Max. OFA_ fuse size gG/aM		A
	at prospective SC-current	100 kA, 500 V	kA
	Max. OFA_ fuse size gG/aM		A
	at prospective SC-current	80 kA, 690 V	kA
	Max. OFA_ fuse size gG/aM		A
The cut-off current îc refers to values listed by fuse	at prospective SC-current	50 kA, 415 V	kA
manufacturers (single phase test acc. to IEC60269)	Max. BS fuse size gG/gM		A
	at prospective SC-current	80 kA, 690 V	kA
	Max. BS fuse size gG/gM	A	200/200M250
Rated short-time withstand current, 1s.	r.m.s. -value		kA
	Max. distance from switch frame to nearest busbar/cable support	mm	150
Rated capacitor power when no initial charge of the capacitor	The capacitor ratings of the switch-fuses are limited by the fuse links	400 V	kVAr
		415 V	kVAr
		500 V	kVAr
		690 V	kVAr
Power loss / pole	With rated current, without fuse		W
Mechanical endurance	Divide by two for operation cycles		Oper.
Fuse types, IEC 60269-2	Sec. I, DIN 43620		
	Sec. IA, NFC 0-3 Ref.A, 4a Ref.B		
	Sec. II, BS 88		
	Size / distance of fuse-link bolts		mm
Weight without accessories	3 Pole switch fuses		kg
Terminal bolt size (included)	Metric thread diameter x length		mm
Terminal tightening torque	Counter torque required		Nm
Fuse-links bolts tightening torque			Nm
Operating torque	Typical for 3 Pole switch fuses		Nm

1) These values are given for guidance and may vary acc. to the motor manufacturer.
2) Max fuse body dia 52 mm.
3) Max fuse body dia 62 mm.
4) Category B.
5) Acc. to IEC 60957-2, IEC 60947-1, § 6.1.1. Minimum ambient temperature -5°C. Category B: -5°C...-35°C.

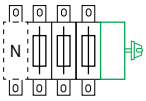
Placing options of the operating mechanism



At the end of the switch fuse OS_03 or 04



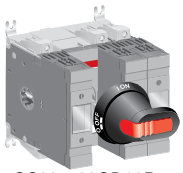
Between the poles OS_12 or 22

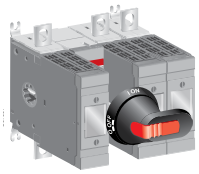


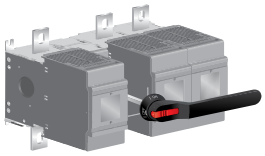
Side operated types OS_30 or 40 OS_03 or 04

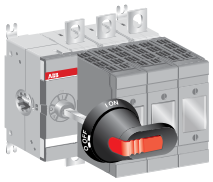
	OS_200_	OS_250_	OS_315_	OS_400_	OS_630_	OS_800_	OS_1250_
	1000	1000	1000	1000	1000	1000	1000
	10	10	10	10	10	10	10
	12	12	12	12	12	12	12
	200/17	250/23	315/32	400/45	630/60	800/65	1250/110
	200/15	250/20	315/32	400/30	570/50	720/55	1000/85
	95	120	185	240	2 x 185	2 x 240	2 x 400
	290/120	290/120	450/240	450/240	900/2 x 240	900/2 x 240	1250/2 x 400
	0	0	0	4	0	4	4
	5	5	5	8	5	8	8
	10	10	10	10	10	10	10
	20/20	20/20	20/20	20/20	20/20	20/20	20/20
	200	250	315	400	630	800	1250[4)]
	200	250	315	400	630	800	1250[4)]
	200	250	315	400	630	800	1250
	200	250	315	400	630	800	1250[4)]
	200	250	315	400	630	800	1250[4)]
	200	250	315	400	630	800	1000
	200	250	315	400	630	800	1000[4)]
	200	250	315	400	630	800	1000[4)]
	200/1	250/1	315/2	400/2	630/1[4)]	800/1[4)]	
	200/2	250/2	315/3[4)]	400/3[4)]	630/2[4)]	800/2[4)]	
	200/3	250/3	315/4[4)]	400/4[4)]	630/3[4)]	720/3[4)]	
	180/4	230/4	315/4[4)]	400/4[4)]	630/4[4)]	720/4[4)]	
	180/4	230/4			630/4[4)]	720/4[4)]	
	60	75	100	132	200	250	315
	110	140	160	220	355	450	560
	110	145	180	230	355	450	560
	132	170	220	280	450	560	710
	200	250	315	400	630	710	1000
	1600	2000	3200	3200	6400	6400	8000
	35	40.5		59	77	77	89
	250/200	355/315		500/500	800/800	800/800	1250/1250
	37.5	37.5		63.5	83	83	105
	250/200	250/250		500/500	800/800	800/800	1250/-
	25	32.5		46	55	55	88
	160/	200/250		315/400	500/630	500/630	1000/1000
	28	28	44	44	67	67	90
	200/200M315	250/200M315	400/400M500	400/400M500			
	28	28	48	48	55	55	109
	250/200M250	400/400M450	400/400M450			1250/-	
	8	8	14	14	18	18	40
	150	150	150	150	150	150	
	90	105	145	180	250	310	440
	100	115	160	200	270	340	460
	120	135	175	215	300	375	550
	160	190	250	325	450	550	750
	8	13	19	30	46	75	75
	20 000	20 000	16 000	16 000	10 000	10 000	6000
	0	0-1		0-2	3	3	4, 4 a
	1		2	3	3	4 a	
	B1-B2	B1-B3[2)]	B1-B4[3)]	B1-B4[3)]	C1-C2	C1-C3	D1
	M6/111	M8/111	M8/111	M8/111	M10/133, 184	M10/133, 184	2xM12/149
	2.6	3.1	5.7	5.7	11.5	11.5	29
	M8x25	M10x30	M10x30	M10x30	M12x40	M12x40	M12x50
	15-22	30-44	30-44	30-44	50-75	50-75	50-75
	4	5	20	20	M10:30 M12:40	M10:30 M12:40	M12:40
	7	7	19	19	38	38	65

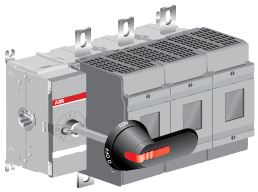
Load Break Switches
Switch fuses OS32…1250


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.

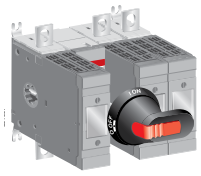
In A	Rated operational current AC23 - 415/500/690V kW	Fuse Size	Order code
Mechanism between poles			
32	15/18.5/22	000	OS32GD12P
63	30/37/55	000	OS63GD12P
125	55/75/110	000, 00	OS125GD12P
160	75/90/132	000, 00	OS160GD12P
200	110/132/200	0	OS200D12P
250	145/170/250	0-1	OS250D12P
400	230/280/400	0-2	OS400D12P
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

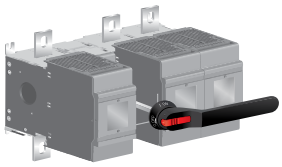
Shafts, Handles and Terminals included as standard

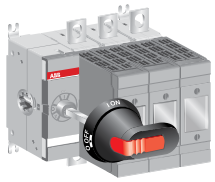
Suitable for switches	Included Shaft	Included Handle	Included Terminals
OS32…63_	OXP6X161	OHB45J6	Tunnel terminals
OS125…160_	OXP6X161	OHB65J6	Tunnel terminals
OS200_	OXP6X210	OHB65J6	M8X25
OS250_	OXP6X210	OHB65J6	M10x30
OS400_	OXP12X250	OHB95J12	M10x30
OS630…800_	OXP12X280	OHB145J12	M12x40
OS1250_	OXP12X395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

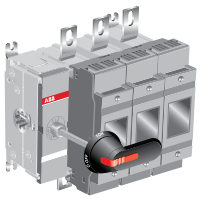
STOCK INDENT

Load Break Switches
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

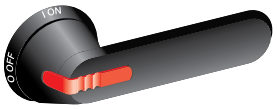
Shafts, Handles and Terminals included as standard

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

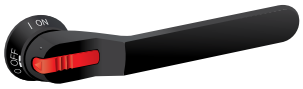
Load Break Switches
Accessories: Switch fuses OS32…1250

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.



OHB_



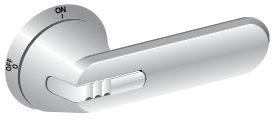
OHB274J12

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

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.

OHM65L6

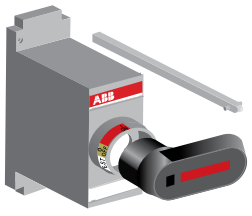


OHM_

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

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.

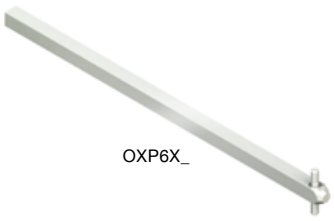


OSV_

Suitable switches	Colour	Order code
OS32…160_	Black	OSV200BK
OS200…250D/B_	Black	OSV250DK
OS400D_	Black	OSV400DK
OS600…800_	Black	OSV800DK
OS1250_	Black	OSV1250DK

STOCK INDENT

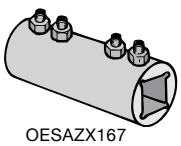
Load Break Switches
Accessories: Switch fuses OS32…1250

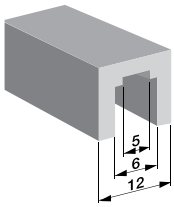

OXP6X_

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


OESAZX167



OETLZK19

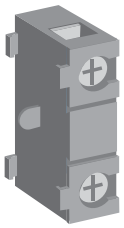
Shaft extension socket

For extending the shaft on combination attachment.

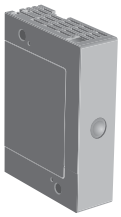
Suitable shafts	Description	Order code
For 6mm shafts		OESAZX167
For 12mm shafts	Shaft extension socket	OETLZX95
	6mm adapter able to place it inside the OETLZX95	OETLZK19

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.


OA1G_

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

Load Break Switches
Accessories: Switch fuses OS32…1250

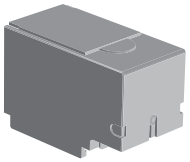
OXN_

Neutral Links

Detachable, mounted separately to the base plate.

Suitable switches	Order code
OS200…250_	OXN250
OS315...400_	OXN400
OS600…800_	OXN800S
OS1250_	OXN1250S

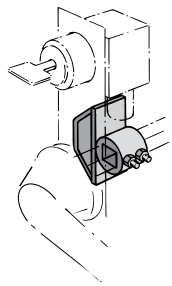
OSS_L


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


OETLZW_

Locking accessories

Cam attachment for Castell, Lowe&Fletcher and Ronis interlock.
This accessory is mounted to the operating shaft of the switch to allow key interlock to the door. Lock, handle and shaft not included.

Suitable switches	Order code
OS160…250	OETLZW16
OS315…1250	OETLZW5

OESAZW2

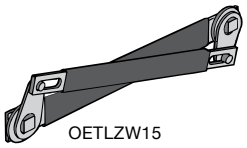
Attachment levers for connecting two 3 Pole switches

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

STOCK INDENT

Load Break Switches
Accessories: Switch fuses OS32…1250


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
0S32…250_	190	0TZW10
0S315…1250_	500	0ETLZW15

4

STOCK INDENT

Fuse Switch-disconnectors
XLP

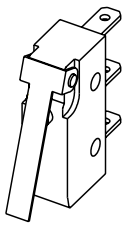
XLP range

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.

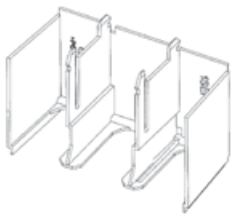
In A	Fuse size	Order code 3 poles
100	000	1SEP201428R0001
160	00	1SEP101890R0004
250	1	1SEP101891R0004
400	2	1SEP101892R0002
630	3	1SEP101975R0002



Micro auxiliary switch

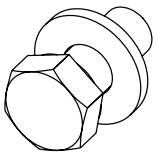
Not available for XLP000.

In A	Order code
XLP00…3	1SEP407742R0001



Terminal shrouds

In A	Order code
XLP00	1SEP407793R0001
XLP1	1SEP407793R0002
XLP2 and 3	1SEP407952R0001



Terminals

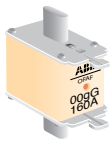
Every kit include three bolts and washers.

In A	Description	Order code
XLP00	M8x16mm	NHP400940R0006
XLP1	M10x20mm	NHP403625R0001
XLP2 and 3	M12x30mm	NHP403626R0001

STOCK INDENT

FuseLine
HRC Fuse links

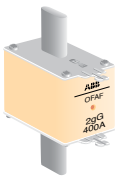
OFAF000H_



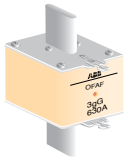
OFAF00H_

OFAF0H_

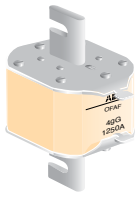
OFAF1H_



OFAF2H_



OFAF3H_



OFAF4H_

HRC Fuse links, universal fuses
Type Gg up to 500V

Type code includes one fuse link.

IEC size	In A	Ph W	Order code
000	6	1.6	OFAF000H6
	10	1.1	OFAF000H10
	16	1.8	OFAF000H16
	20	2.4	OFAF000H20
	25	2.4	OFAF000H25
	32	2.7	OFAF000H32
	35	3.0	OFAF000H35
	40	3.4	OFAF000H40
	50	3.9	OFAF000H50
	63	4.7	OFAF000H63
	80	5.7	OFAF000H80
	100	6.7	OFAF000H100
00	125	8.4	OFAF00H125
	160	10.6	OFAF00H160
0	125	11.0	OFAF0H125
	160	11.7	OFAF0H160
	200	15.0	OFAF0H200
1	50	5.1	OFAF1H50
	80	7.1	OFAF1H80
	100	8.7	OFAF1H100
	160	11.0	OFAF1H160
	200	14.5	OFAF1H200
	224	15.9	OFAF1H224
	250	19.7	OFAF1H250
2	80	8.6	OFAF2H80
	100	10.6	OFAF2H100
	200	15.4	OFAF2H200
	250	22.5	OFAF2H250
	315	26.2	OFAF2H315
	400	30.2	OFAF2H400
3	315	22.4	OFAF3H315
	425	33.0	OFAF3H425
	450	36.0	OFAF3H450
	500	44.0	OFAF3H500
	630	47.5	OFAF3H630
	800	56.9	OFAF3H800
4A	1000	71.0	OFAF4AH1000
	1250	85.0	OFAF4AH1250

STOCK INDENT

Meters and Measurement

Quick selection guide for meters and power analyzers 286

Energy efficiency 289
M2M Network Analyser 289
ANR Network Analyser 290
DMTME Multimeters 291

EQ electricity meters 292
DIN rail mount A-Series 292
DIN rail mount B-Series 293
DIN rail mount C-Series 293

Measurement current transformers 294
TRF M modular current transformers 294
CT PRO XT current transformers 294
CT MAX current transformers 294
CT 6 …/5A current transformers 295
CT 8 …/5A current transformers 295
CT 12 …/5A current transformers 295
CT 30 …/5A current transformers 296
CT 80…/5A current transformers 296
CT 120 …/5A current transformers 296
Current transformer terminals 297

CMS – Current Measurement System 298
CMS-600 Control Unit, current sensor with Modbus 300
CMS-770 Control Unit, energy monitor 300
CMS Current sensors 301
Accessories 301

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

- System pro *M* compact© – 2CSC400002D0211
- Current measuring system – 2CCC481002C0201

Quick selection guide for meters and power analyzers

		M2M	M2M LV	ANR96	ANR96P	DMTME	DMTME-96
DIN Mount						■	
Panel Mount		■	■	■	■		■
Distribution networks							
LV		■	■	■	■	■	■
MV		■		■	■	■	■
Single phase		■	■				
Three phase		■	■	■	■	■	■
Direct connect							
CT Connect		■	■	■	■	■	■
Accuracy	**Voltage**	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Current	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Power	1%	1%	1%	1%	1%	1%
	Energy	Cl. 1	Cl. 1	Cl. 1	Cl. 1	Cl. 1	Cl. 1
Voltage	**L-L**	■	■	■	■	■	■
	L-N	■	■	■	■	■	■
Current	**Phase**	■	■	■	■	■	■
	Neutral			■	■		
Frequency		■	■	■	■	■	■
Power Factor		■	■	■	■	■	■
Total Power	**Active**	■	■	■	■	■	■
	Reactive	■	■	■	■	■	■
	Apparent	■	■	■	■	■	■
Phase power	**Active**	■	■	■	■	■	■
	Reactive	■	■	■	■	■	■
	Apparent	■	■	■	■	■	■
Energy	**Active**	■	■	■	■	■	■
	Reactive	■	■	■	■	■	■
	Apparent	■	■	■	■		
Import/export		■	■	■	■		
Hour counter		■	■	■	■	■	■
THD Voltage		■	■	■	■		
THD Current		■	■	■	■		
Harmonic order		10	10	31	31		
Max demand							
Active power		■	■	■	■	■	■
Apparent power		■	■	■	■	■	■
Communication							
RS-485 port		OPT	OPT	■	■	OPT	OPT
Modbus		OPT	OPT	■	■	OPT	OPT
Ethernet		OPT	OPT	■	■		
Profibus		OPT	OPT	■	■		
Inputs and outputs							
Internal memory				■	■		
Digital inputs		OPT	OPT	2	2		
Digital outputs		2	2	2	2	2	2
Analogue outputs		OPT	OPT	■	■		
Alarm output		OPT	OPT	■	■	OPT	OPT
Pulse output		■	■	■	■	OPT	OPT

Note: OPT = option available depending upon model chosen

		C11	C13	B21	B23	B24	A41	A42	A43	A44
DIN Mount		■	■	■	■	■	■	■	■	■
Panel Mount										
Distribution networks										
LV		■	■	■	■	■	■	■	■	■
MV								■		■
Single phase		■		■			■	■		
Three phase			■		■	■			■	■
Direct connect		■	■	■	■		■		■	
CT Connect						■		■		■
Accuracy	Voltage	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Current	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
	Power	1%	1%	1%	1%	1%	1%	1%	1%	1%
	Energy	Cl. 1	Cl. 1	Cl. 1	Cl. 1	Cl. 1/ Cl. 0.5	Cl. 1	Cl. 1/ Cl. 0.5	Cl. 1	Cl. 1/ Cl. 0.5
Voltage	L-L				■	■			■	■
	L-N	■	■	■	■	■	■	■	■	■
Current	Phase	■	■	■	■	■	■	■	■	■
	Neutral						OPT	OPT	OPT	OPT
Frequency				■	■	■	■	■	■	■
Power Factor		■	■	■	■	■	■	■	■	■
Total Power	Active	■	■	■	■	■	■	■	■	■
	Reactive				OPT	OPT	OPT	OPT	OPT	OPT
	Apparent				OPT	OPT	OPT	OPT	OPT	OPT
Phase power	Active		■		■	■			■	■
	Reactive				OPT	OPT			OPT	OPT
	Apparent				OPT	OPT			OPT	OPT
Energy	Active	■	■	■	■	■	■	■	■	■
	Reactive			OPT	OPT	OPT	OPT	OPT	OPT	OPT
	Apparent			OPT	OPT	OPT	OPT	OPT	OPT	OPT
Import/export				OPT	OPT	OPT	OPT	OPT	OPT	OPT
Hour counter										
THD Voltage							OPT	OPT	OPT	OPT
THD Current							OPT	OPT	OPT	OPT
Harmonic order							16	16	16	16
Max demand										
Active power							OPT	OPT	OPT	OPT
Apparent power							OPT	OPT	OPT	OPT
Communication										
RS-485 port				OPT	OPT	OPT	OPT	OPT	OPT	OPT
Modbus				OPT	OPT	OPT	OPT	OPT	OPT	OPT
Ethernet										
Profibus										
Inputs and outputs										
Internal memory							OPT	OPT	OPT	OPT
Digital inputs				2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)
Digital outputs				2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)	2 (OPT)
Analogue outputs										
Alarm output		■	■	■	■	■	■	■	■	■
Pulse output		■	■	■	■	■	■	■	■	■

Note: OPT = option available depending upon model chosen

M2M. The measure of efficiency
Measurement and advanced analysis of electrical parameters

Easy fixing system with clips which ensure the device is held reliably on the front-panel.

Multi-voltage auxiliary power supply range, from 24 V DC to 230 V AC

Real time display of energy consumption also in Euros and kg CO_2

Multilingual backlit display with two lines of scrolling text to guide and help the user in reading data and programming.

Communication without limits thanks to the availability of different protocols for any types of network

Reduced depth: only 57mm inside the panel.

Intuitive and easy-to-use front keypad for navigating in the menu and configuring the device.

Meter and Measurement
Energy efficiency

M2M Network Analyser
96 x 96 mm panel mount

- Accurate measurement of main electrical parameters
  - Voltages – phase-neutral and phase-phase and relative peak values
  - Currents and relative peak values
  - Power factors or PF phases and the 3-phase system
  - Frequency
  - Active, reactive and apparent phase energy and 3-phase system (2 quadrant)
  - Active, reactive and apparent phase power and 3-phase system (4 quadrant)
  - Average power values on a time period programmed by the user
  - Maximum calculated demand on active and apparent power
  - Voltage and current THdF expressed in absolute and percent values up to 10th harmonic
  - 2 Programmable outputs with pulses or threshold alarms
  - Communication options – Modbus RTU, Modbus TCP/IP, Profibus
  - Multivoltage supply voltage input
  - Multi-language display
  - Self-diagnosis
  - Password protection
  - Suitable for low and medium voltage networks (via VT)
  - Compact depth, only 57 mm inside the panel

M2M

Communication protocol	Programmable outputs x 2	Relay outputs x 2	Digital inputs x3 Analogue outputs x 2	Order code
—	■			M2M
Modbus RTU RS-485	■			M2M MODBUS
Ethernet RJ45	■			M2M ETHERNET
Profibus RS-485	■			M2M PROFIBUS
Modbus RTU RS-485	■	■		M2M ALARM
Modbus RTU RS-485	■		■	M2M I/O
—	■			M2M LV
Modbus RTU RS-485	■			M2M LV MODBUS

STOCK INDENT

ANR Network Analyser

96 x 96 mm panel mount

- Accurate measurement of main electrical parameters
  - Voltages - phase-neutral and phase-phase and relative peak values
  - Currents and relative peak values
  - Power factors or PF phases and the 3-phase system
  - Frequency
  - Active, reactive and apparent phase energy and 3-phase system (2 quadrant)
  - Active, reactive and apparent phase power and 3-phase system (4 quadrant)
  - Average power values on a time period programmed by the user
  - Maximum calculated demand on active and apparent power
  - Voltage and current THdF expressed in absolute and percent values up to 31st harmonic
  - 2 Programmable outputs with pulses or threshold alarms
  - Graphical representation of voltage and current waveforms
  - All codes have built in communication options - Modbus RTU, Modbus TCP/IP, Profibus DP
  - Multivoltage supply voltage input
  - Storage of parameters in 128kbyte internal memory, optional 1 Mbyte capacity
  - Suitable for low and medium voltage networks (via VT)

ANR

Auxiliary suppy V AC/DC	Programmable display input	Storage	Order code
20 …60	2	128kb	ANR96-24
85 … 265	2	128kb	ANR96-230
20 …60	4	1mb	ANR96P-24
85 … 265	4	1mb	ANR96P-230

STOCK INDENT

DMTME Multimeters

DIN rail and panel mount

- True RMS measurement of main electrical parameters
  - Voltage - phase-neutral and phase-phase
  - Current
  - Power factor
  - Frequency
  - Active and reactive energy
  - Active, reactive and apparent phase power
  - Maximum calculated demand on active, reactive and apparent power
  - Pulse output
- Automatic detection of CT's current flow direction
- Displayed max values
- Voltage - phase-neutral
  - Current
  - Active, reactive and apparent power
- Displayed min values
  - Voltage - phase-neutral
  - Current
  - Active, reactive and apparent power

DMTME

DMTME-96

Auxiliary supply	RS-485 serial port	Programmable Digital output	Dimensions	Order code
DIN rail mounting				
110/115-230/240			6 DIN modules	DMTME
110/115-230/240	■	2	6 DIN modules	DTMTE-I-485
Panel mounting				
110/115-230/240			96 x 96 mm	DMTME-96
110/115-230/240	■	2	96 x 96 mm	DMTME-I-485-96

Meter and Measurement
EQ electricity meters

A41

A42

A43

A44

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 phase 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

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	Order code
80A Direct connect									
57.7 ... 288 VAC	■	■					■		A41-111-100
57.7 ... 288 VAC	■	■		■	■		■	■	A41-212-100
57.7 ... 288 VAC	■	■	■	■	■	■	■	■	A41-412-100
5A CT/VT connect									
57.7 ... 288 VAC	■	■					■		A42-111-100
57.7 ... 288 VAC	■	■		■	■		■	■	A42-212-100
57.7 ... 288 VAC	■	■	■	■	■	■	■	■	A42-412-100

Three phase A-Series electricity meters (7 DIN modules)

80A Direct connect									
57.7 ... 288 VAC	■	■					■		A43-111-100
57.7 ... 288 VAC	■	■		■	■		■	■	A43-212-100
57.7 ... 288 VAC	■	■	■	■	■	■	■	■	A43-412-100
5A CT/VT connect									
57.7 ... 288 VAC	■	■					■		A44-111-100
57.7 ... 288 VAC	■	■		■	■		■	■	A44-212-100
57.7 ... 288 VAC	■	■	■	■	■	■	■	■	A44-452-100

STOCK INDENT

Meter and Measurement
EQ electricity meters

DIN rail mount B-Series- Accuracy Class 1

- 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 phase power
  - Pulse output
- Automatic detection of CT's current flow direction

B21

B23

B24

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	Order code
65A Direct connect									
220 … 240 V AC	■	■					■		B21-111-100
220 … 240 V AC	■	■		■	■		■	■	B21-212-100
220 … 240 V AC	■	■	■	■	■		■	■	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	Order code
65A Direct connect									
220 … 240 V AC	■	■					■		B23-111-100
220 … 240 V AC	■	■		■	■		■	■	B23-212-100
220 … 240 V AC	■	■	■	■	■		■	■	B23-312-100
5A CT connect									
220 … 240 V AC	■	■					■		B24-111-100
220 … 240 V AC	■	■		■	■		■	■	B24-212-100
220 … 240 V AC	■	■	■	■	■		■	■	B24-352-100

DIN rail mount C-Series

- Accuracy Class 1
- Accurate measurement of main electrical parameters
  - Voltage
  - Current
  - Power factor
  - Active energy
  - Active power
  - Pulse output

C11

C13

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 V AC	Configurable pulse/alarm output	■		C11-110-300
Three phase C-Series electricity meters (3 DIN modules)				
230 V AC	Configurable pulse/alarm output	■		C13-110-300

STOCK INDENT

Meter and Measurement
Measurement current transformers

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

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

CT PRO XT

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 PRO XT series through primary	Max section (mm)
cable	18
horizontal bar	20 x 10
vertical bar	–

CT MAX

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

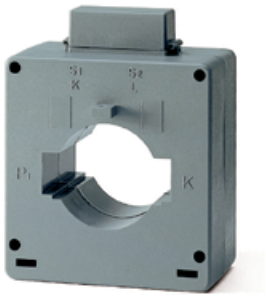
CT MAX series through primary	Max section (mm)
cable	30
horizontal bar	30 x 15, 40 x 10
vertical bar	–

STOCK INDENT

Meter 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

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

CT6 series through primary		Max section (mm)
cable	○	50
horizontal bar	▭	60 x 20
vertical bar	▯	–

CT8

CT 8 .../5A current transformers

Primary rated current	Accuracy class	Rated power	Order code
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

CT8 series through primary		Max section (mm)
cable	○	2 x 30
horizontal bar	▭	80 x 30
vertical bar	▯	–

CT12

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

CT12 series through primary		Max section (mm)
cable	○	2 x 50
horizontal bar	▭	125 x 50
vertical bar	▯	–

STOCK INDENT

Meter 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

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

CT30 series through primary		Max section (mm)
cable	○	
horizontal bar	▭	
vertical bar	▯	2 x 30 x 10

5

CT80

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
2000	0.5	35	50 x 80	CT80/2000
2500	0.5	40	50 x 80	CT80/2500

Notes: Other primary ratios available on request

CT80 series through primary		Max section (mm)
cable	○	
horizontal bar	▭	
vertical bar	▯	3 x 80 x 10

CT120

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

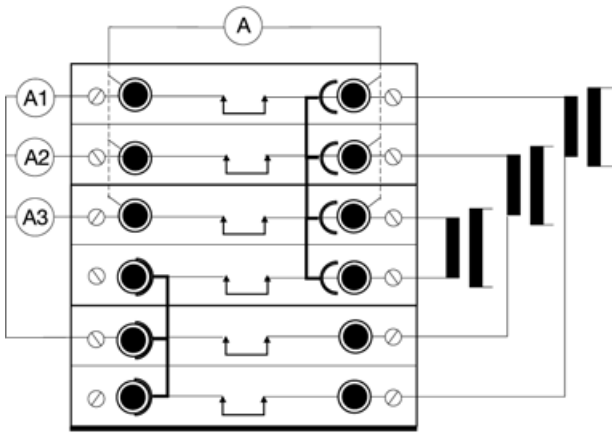
Notes: Other primary ratios available on request

CT120 series through primary		Max section (mm)
cable	○	
horizontal bar	▭	
vertical bar	▯	4 x 120 x 10

STOCK INDENT

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

Energy efficiency
CMS – Current Measurement System

Up to 64 sensors
can be connected
to each Control Unit

Backlighted
touchscreen

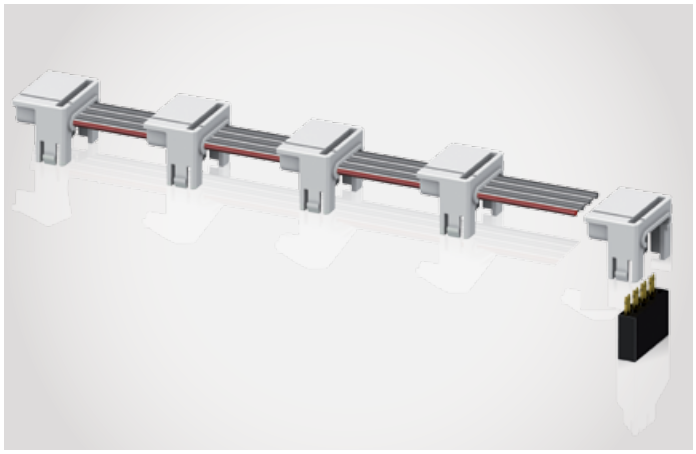
Easy connectors
assembling on flat
cables

Energy efficiency
CMS – Current Measurement System

The CMS is a multichannel current measurement system for branch monitoring of alternating (AC) and direct (DC) currents up to 160 A. Various sensor types allow the mounting in every installation environment. Measuring currents within power distribution units (PDUs), very close to the electrical loads, increases the efficiency and availability of every installation.

Many companies are very dependent on the trouble-free operation of their electrical systems. Monitoring every branch circuit of an installation with the CMS enables to detect deviations quickly before serious damage is caused.

Branch monitoring gives the maximum transparency on where and how the electricity is used. It allows an effective energy management in order to save costs and to assign them fairly.



Up to 64 sensors can be connected to each Control Unit. The sensors measure True RMS, AC and DC currents (actual, min/max, hold values) and transmit their measurement data via the flat cable to the Control Unit. The measured values are displayed locally on the Control Unit's touch display and can be queried remotely by an RS485 Modbus connection.

Meter and Measurement
CMS – Current Measurement System

CMS-600

CMS-600 Control Unit, current sensor with Modbus

- Auxiliary supply voltage 24 VDC
- up to 64 current sensors
- Current measurement up to 125A, AC or DC
- Modbus RTU protocol
- RS-485 2-wire interface
- DIN rail mounting

Description	Modules width	Order code
CMS-600 Control unit, Modbus RTU	4	CMS600

CMS-770 Control Unit, energy monitor

- Auxiliary supply voltage 230 VAC
- Three phase measurement device for power and energy
- Captures various electrical parameter for up to 8 circuits
  - voltage
  - current
  - frequency
  - power factor
  - active power
  - reactive power
  - apparent power
  - Suitable for LAN or WLAN network
  - DIN rail mounting

Description	Modules width	Order code
CMS-770 Control unit, Energy monitor	4	CMS770

STOCK INDENT

Meter and Measurement
CMS – Current Measurement System

CMS-10xPS

CMS-10xS8

CMS-10xDR

CMS-10xDR

CMS-20xS8

CMS-20xDR

CMS-20xCA

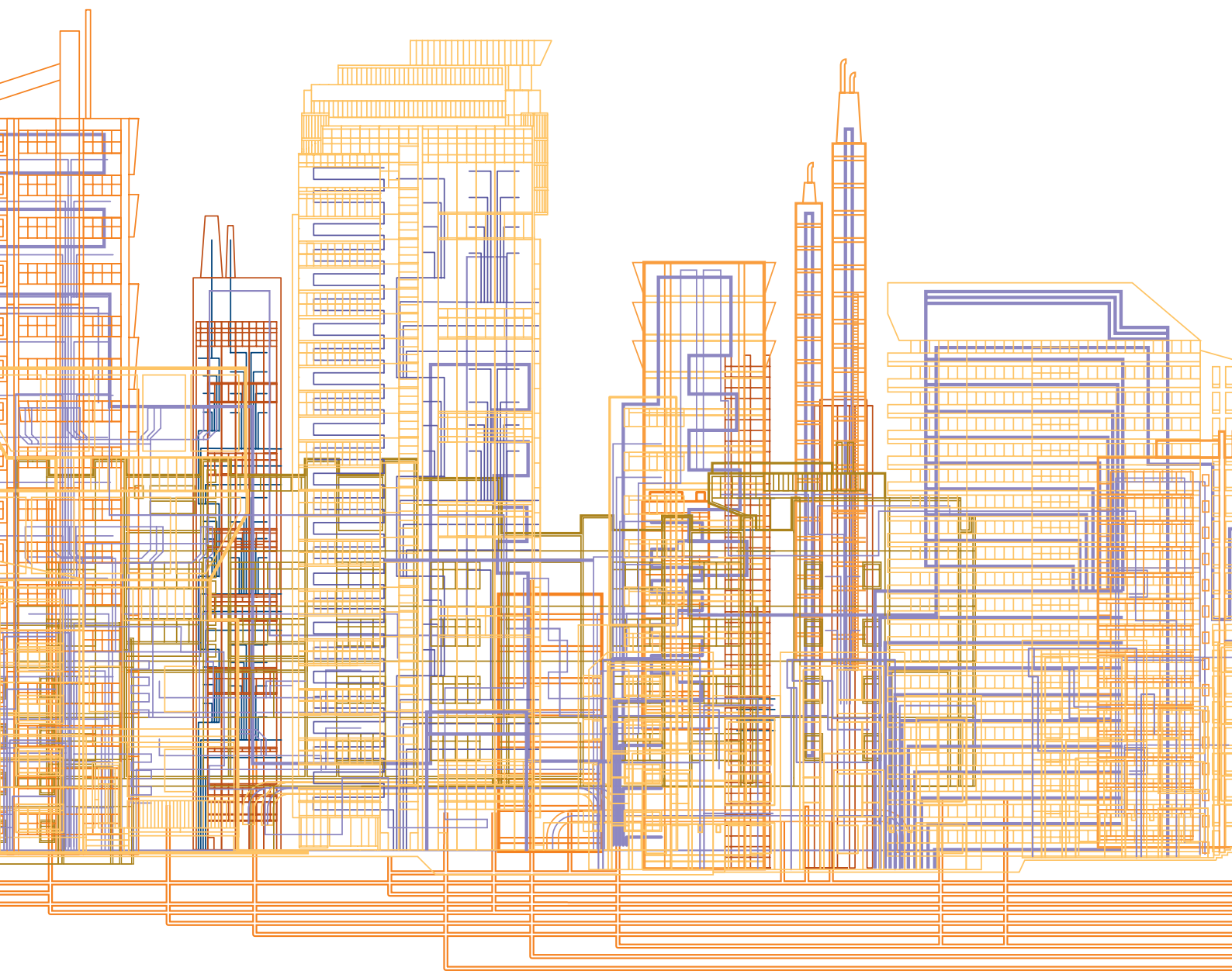
CMS Current sensors

- Up to 160A
- Measures TRMS AC or DC
- LED staus indication

Sensor width	Maximum current (A)	Suitable for	Cable window size diameter	Order code
18mm	80	S200, F200, DS201 with bi-cylinder lift terminal	10 mm	CMS100PS
	40	S200, F200, DS201 with bi-cylinder lift terminal	10 mm	CMS101PS
	20	S200, F200, DS201 with bi-cylinder lift terminal	10 mm	CMS102PS
	80	S800 MCB with cage terminal	10 mm	CMS100S8
	40	S800 MCB with cage terminal	10 mm	CMS101S8
	20	S800 MCB with cage terminal	10 mm	CMS102S8
	80	DIN rail mounting (Universal use)	10 mm	CMS100DR
	40	DIN rail mounting (Universal use)	10 mm	CMS101DR
	20	DIN rail mounting (Universal use)	10 mm	CMS102DR
	80	Cable mounting (Universal use)	10 mm	CMS100CA
	40	Cable mounting (Universal use)	10 mm	CMS101CA
	20	Cable mounting (Universal use)	10 mm	CMS102CA
25mm	160	S800 MCB with cage terminal	15 mm	CMS200S8
	80	S800 MCB with cage terminal	15 mm	CMS201S8
	40	S800 MCB with cage terminal	15 mm	CMS202S8
	160	DIN rail mounting (Universal use)	15 mm	CMS200DR
	80	DIN rail mounting (Universal use)	15 mm	CMS201DR
	40	DIN rail mounting (Universal use)	15 mm	CMS202DR
	160	Cable mounting (Universal use)	15 mm	CMS200CA
	80	Cable mounting (Universal use)	15 mm	CMS201CA
	40	Cable mounting (Universal use)	15 mm	CMS202CA

Accessories

Description	Order code
Flat cable 2m length	CMS800
Flat cable 3m length	CMS801
Connector set (35pcs per packet)	CMS820
WLAN antenna for CMS-770	CMS870



Consumer Units, Load Centres and Distribution Boards

Quick selection guide 304
Quick selection guide for plastic consumer units 305
Cross reference guide from new MISTRAL® range to previous Europa and Fly series 305

Economy range consumer units 306

MISTRAL® – designer range consumer units 307

Loaded consumer units 316

Metal load centres 317

Distribution boards 318
Distribution boards – IP42 319
Distribution boards – IP55 321

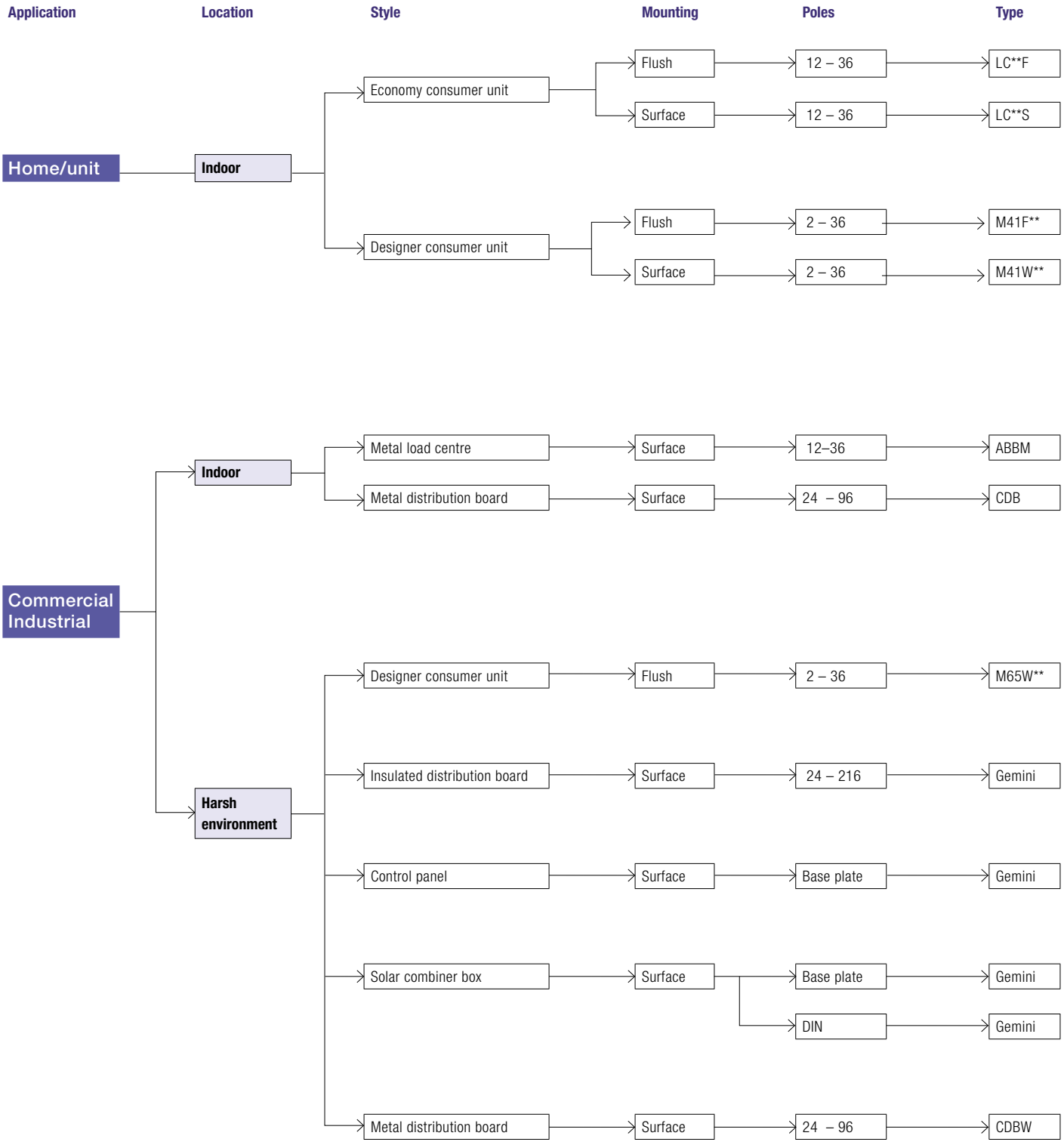
Miniature circuit breaker chassis 323

Emergency lighting test unit 325

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

– System pro *E* comfort MISTRAL® – 1SLC801013D0201

Consumer units, load centres and distribution boards
Quick selection guide



Consumer units, load centres and distribution boards
Quick selection guide for plastic consumer units

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

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

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

Consumer units, load centres and distribution boards
Economy range consumer units

Economy consumer units

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

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

Pole capacity	Rows	Dimensions (H x W x D)	Order code
12	1	210mm x 256mm x 100mm	LC12ST
18	1	222mm x 354mm x 100mm	LC18ST
24	2	325mm x 270mm x 100mm	LC24ST

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

Pole capacity	Rows	Dimensions (H x W x D)	Order code
12	1	210mm x 256mm x 100mm	LC12SW
18	1	222mm x 354mm x 100mm	LC18SW
24	2	325mm x 270mm x 100mm	LC24SW

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

Pole capacity	Rows	Dimensions (H x W x D)	Order code
12	1	210mm x 256mm x 100mm	LC12FMT
18	1	222mm x 354mm x 100mm	LC18FMT
24	2	325mm x 270mm x 100mm	LC24FMT

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

Pole capacity	Rows	Dimensions (H x W x D)	Order code
12	1	210mm x 256mm x 100mm	LC12FMW
18	1	222mm x 354mm x 100mm	LC18FMW
24	2	325mm x 270mm x 100mm	LC24FMW

Accessories

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

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

Pole fillers

Description	Order code
Pole fillers – 4 module strip	LA12859
Pole fillers – 12 module strip	SZBP12

Sticker cards

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

STOCK INDENT

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

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

Endless installation possibilities

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

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

Concealed rear mounts for secure wall installation.

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

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

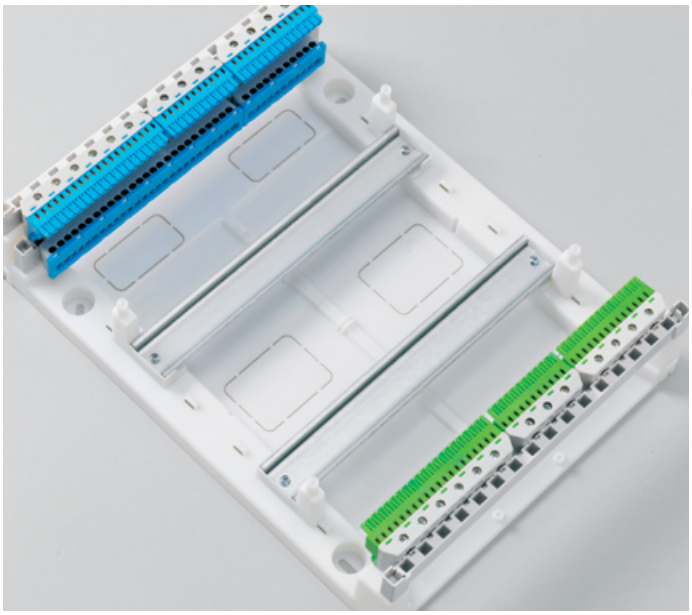
Endless installation possibilities

Invisible cable entry and exit

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

More than enough internal space

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



Easy installation of extra modules

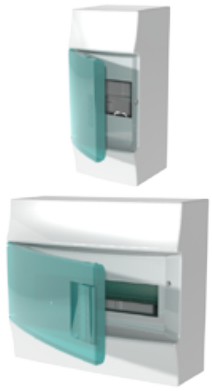
An extra module can be added by removing two pre-cut elements. This offers a quick and easy solution when unexpected additional installation is required.

Fast and tidy cabling

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

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

- Ideal for domestic homes and residential apartments.
- Customisable earth and neutral bars (Refer to pages 313 – 314)
- 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

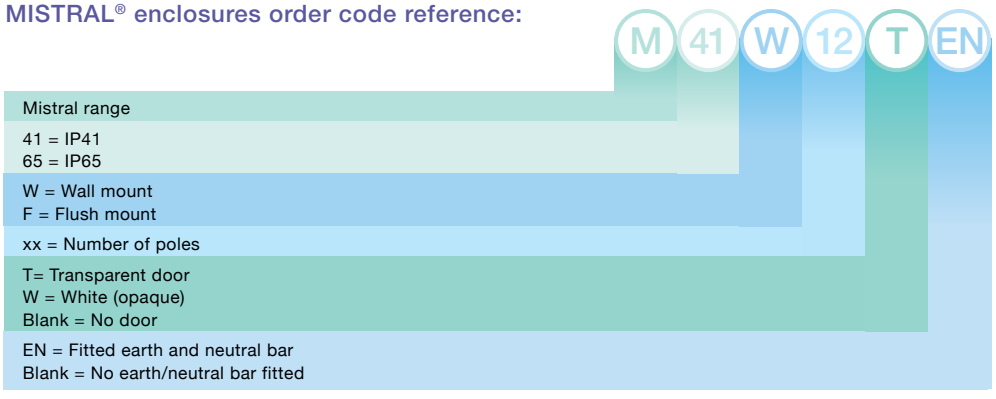
Surface mount - white body, opaque door

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

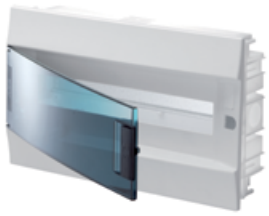
MISTRAL® enclosures order code reference:



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

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

– Ideal for domestic homes and residential apartments.
– Customisable earth and neutral bars (Refer to pages 313 – 314)
– 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

6

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

STOCK INDENT

Accessories

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

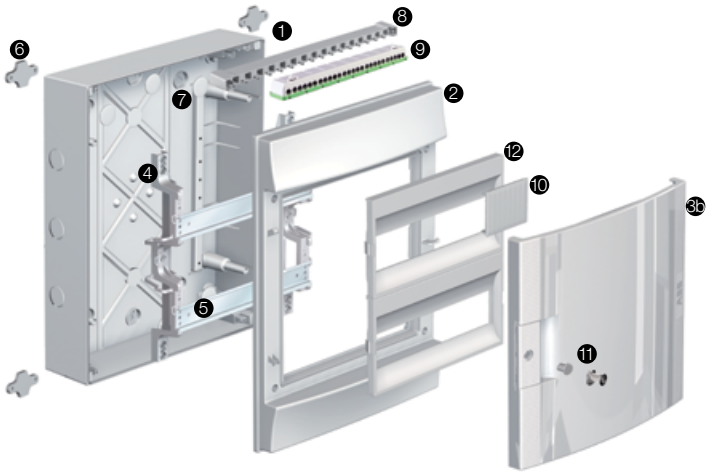
Suits enclosure	Dimensions (H x W)	Order code
Mistral 41 flush series, 12P	380mm x 300mm	M41F12WPP
Mistral 41 flush series, 18P	380mm x 410mm	M41F18WPP
Mistral 41 flush series, 24P	555mm x 300mm	M41F24WPP
Mistral 41 flush series, 36P	555mm x 410mm	M41F36WPP

Pole fillers

Description	Order code
Pole fillers – 4 module strip	LA12859
Pole fillers – 12 module strip	SZBP12

Sticker cards

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



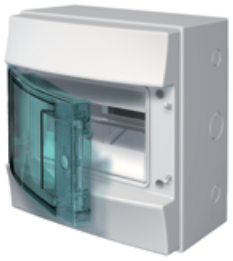
1) Box for wall mounting
2) Reversible front panel
3) a) Transparent door
   b) Opaque door, RAL 7035
4) Fixed support for DIN rail
5) DIN rail
6) Wall fastening brackets
7) Plugs, protection class II
8) Jumper for terminals
9) Quick-coupling terminals
10) Module cover
11) Finish or closure elements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

STOCK INDENT

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

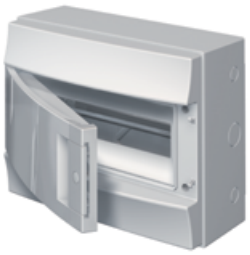
IP65 designer range of surface mount consumer units – MISTRAL® 65 – without earth/neutral bars

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



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

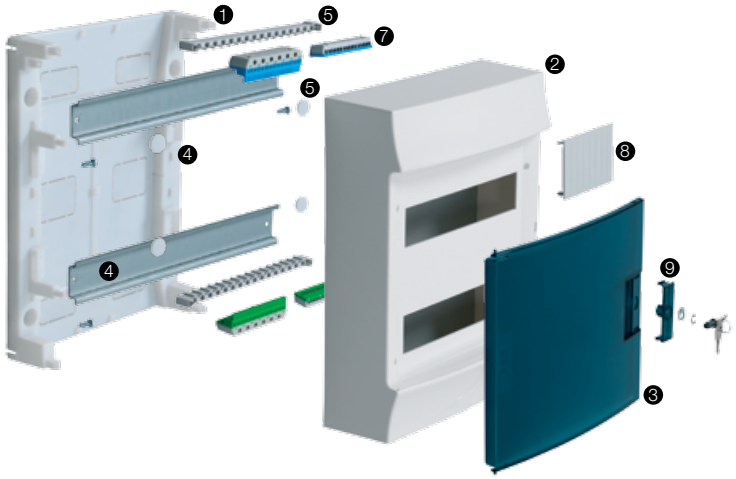


Surface mount - white body, opaque door

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	LA12859
Pole fillers – 12 module strip	SZBP12
Circuit identification card – Blue	GJF1707110P0011
Circuit identification card – Red	GJF1707110P0012

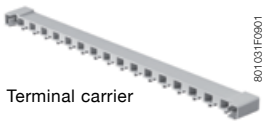


1) Base for wall mounting
2) Reversible cover
3) Transparent door
4) DIN rail
5) Plugs, protection class II
6) Terminal carrier
7) Quick coupling terminal blocks
8) Module cover
9) Finish or closure element (optional lock)

STOCK INDENT

Earth and neutral bars for MISTRAL® range

– Easily customised to suit application requirements



Terminal carriers

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

Neutral terminal blocks

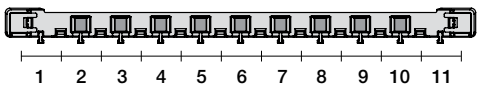
Configuration	Space in terminal carrier	Maximum current	Order code
3 x 16mm² + 3 x 6mm²	3 modules	100A	NKS06
5 x 16mm² + 6 x 6mm²	5 modules	100A	NKS11
7 x 16mm² + 9 x 6mm²	7 modules	100A	NKS16
9 x 16mm² + 12 x 6mm²	9 modules	100A	NKS21
11 x 16mm² + 15 x 6mm²	11 modules	100A	NKS26

Earth terminal blocks

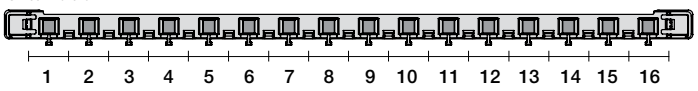
Configuration	Space in terminal carrier	Maximum current	Order code
3 x 16mm² + 3 x 6mm²	3 modules	100A	PEKS06
5 x 16mm² + 6 x 6mm²	5 modules	100A	PEKS11
7 x 16mm² + 9 x 6mm²	7 modules	100A	PEKS16
9 x 16mm² + 12 x 6mm²	9 modules	100A	PEKS21
11 x 16mm² + 15 x 6mm²	11 modules	100A	PEKS26

Terminal carrier

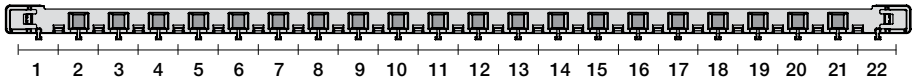
1SPE007715F0751



1SPE007715F0752

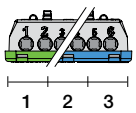


1SPE007715F0753

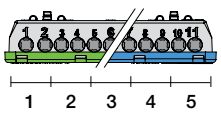


Terminal block

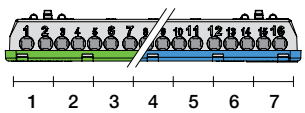
1SPE007715F0741
1SPE007715F0731



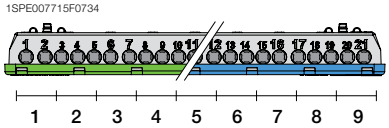
1SPE007715F0742
1SPE007715F0732



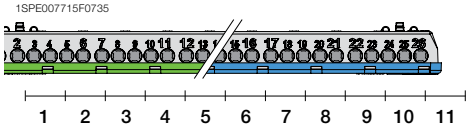
1SPE007715F0743
1SPE007715F0733



1SPE007715F0744
1SPE007715F0734



1SPE007715F0745
1SPE007715F0735



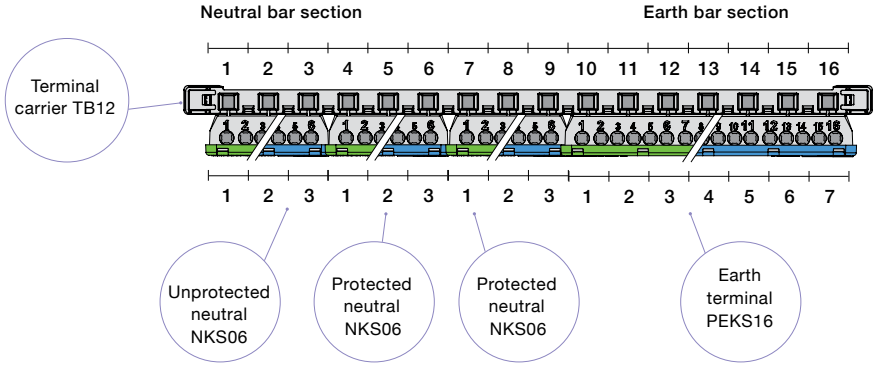
STOCK INDENT

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

Parts required

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

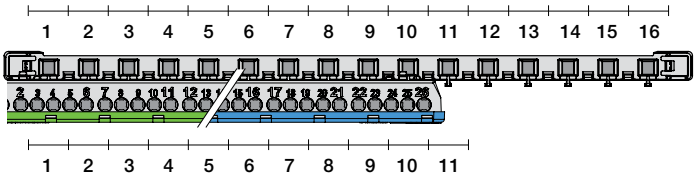


24 pole consumer board application witth full neutral bar and earth bar

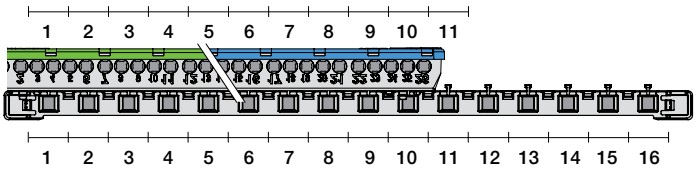
Parts required

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

Neutral bar section



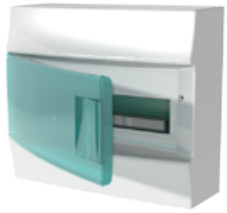
Earth bar



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

Designer consumer units with earth/neutral bars fitted

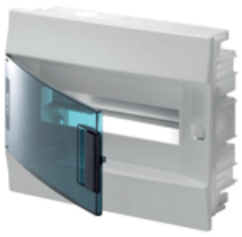
– Ideal for domestic homes and residential apartments.
– Earth and neutral bars included as shown
– Suits DIN profile products - MCB, RCD, RCBO, SPD, time switches



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

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

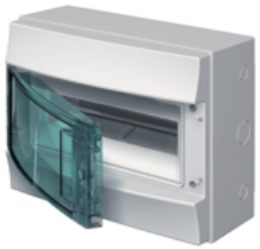
Note: Models available with opaque door



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

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

Note: Models available with opaque door



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

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

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

Wall fixing bracket

Accessories

Description	Order code
Wall fixing brackets (4pcs) for MISTRAL65	1SL1927A00
Lock with key MISTRAL65	1SL1931A00
Pole fillers – 4 module strip	LA12859
Pole fillers – 12 module strip	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	M41W12WPP
Mistral 41 flush series, 18P	380mm x 410mm	M41W18WPP
Mistral 41 flush series, 24P	555mm x 300mm	M41W24WPP
Mistral 41 flush series, 36P	555mm x 410mm	M41W36WPP

6

Economy range – loaded consumer units

Loaded consumer units

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

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

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

Other configurations are available. Please contact your ABB representative.

STOCK INDENT

Consumer units, load centres and distribution boards
Metal load centres

ABBM series metal load centres

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

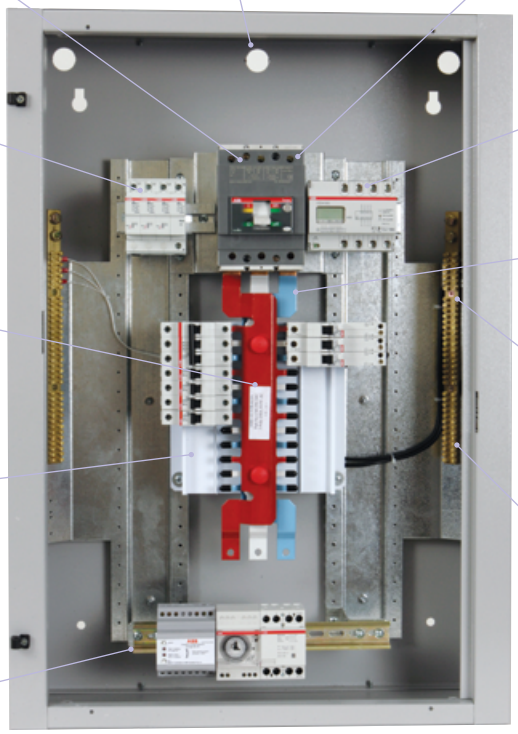
ABBM series – IP30, enclosure base and surface mount escutcheon, E/N bars included

Pole capacity	Configuration	Dimensions h x w x d (mm)	Order code
12	1 x 12	250 x 340 x 70	ABBM12SM
18	1 x 18	250 x 490 x 70	ABBM18SM
24	2 x 12	420 x 340 x 70	ABBM24SM

ABBM accessories

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

Consumer units, load centres and distribution boards
Distribution boards



Main switch easily changed to MCCB

1.6mm steel body and door

Amble incomer cable space

Meters for energy efficiency, Greenstar, NABERS or BCA compliance

Space for surge protection or other accessories

Suits S200 MCB, DSE201 RCBO, DS271RCBO

Modular design allow CT's to be fitted into design

Hybrid chassis available to suit S200/S800 combinations

165A earth and neutral bars with Ø6mm tunnels for cables up to 16mm² and 2xM8 hex head screws

CDBDIN bracket can be used to create multiple horizontal mountings for lighting controls, KNC, C-Bus etc

Split earth and neutral bars available to simplify wiring

Quick release hinges for easy removal of escutcheon

Removeable gland plant on top and bottom

Circuit label on escutcheon and circuit schedule card inside door

18 modules DIN rail space for accessories

STOCK INDENT

Consumer units, load centres and distribution boards
Distribution boards – IP42

CDB distribution board

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

	Body	Escutcheon	Door
Standard width across the range	600mm	—	—
Standard depth across the range	199mm	—	—
Material	1.6mm steel	1.6mm steel	1.6mm steel
Key lock	CL001 (standard)	—	—
Pole capacity	24-96 (other sizes on request)	—	—
Standard colour	RAL7035 Grey or X15 Orange	Gloss white	RAL7035 Grey or X15 Orange
Paint finish	Ripple texture	—	—
Paint thickness	50 micron minimum	50 micron minimum	50 micron minimum
Gland plates	Removable top and bottom	—	—
Additional DIN rail accessory capacity	30 poles	—	—
Hinge location	—	Left hand hinge	Left hand hinge
Protection Rating	—	—	IP30 without door
			IP42 with door (dust kit option)

Main switch	Pole capacity	Height (mm)	Width (mm)	Depth (mm)	Order code RAL 7035 Grey	X15 Orange
250A	24	700	600	199	CDB24M250G	CDB24M250OR
	36	900	600	199	CDB36M250G	CDB36M250OR
	48	1100	600	199	CDB48M250G	CDB48M250OR
	60	1100	600	199	CDB60M250G	CDB60M250OR
	72	1300	600	199	CDB72M250G	CDB72M250OR
	84	1500	600	199	CDB84M250G	CDB84M250OR
	96	1500	600	199	CDB96M250G	CDB96M250OR

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

Consumer units, load centres and distribution boards
Distribution boards – IP42

Pole capacity	DIN Format	Height (mm)	Width (mm)	Depth (mm)	Order code RAL 7035 Grey	X15 Orange
CDB DIN Distribution Board						
54	3 x 18p	700	600	199	CDB700DING	CDB700DINOR
72	4 x 18p	900	600	199	CDB900DING	CDB900DINOR
90	5 x 18p	1100	600	199	CDB1100DING	CDB1100DINOR
108	6 x 18p	1300	600	199	CDB1300DING	CDB1300DINOR
CDB Equipment Box - complete with mounting plate and escutcheon						
		400	600	199	CDB400MAG	CDB400MAOR
		600	600	199	CDB600MAG	CDB600MAOR
CDB distribution board - empty (no escutcheon)						
		700	600	199	CDB700AG	CDB700AOR
		900	600	199	CDB900AG	CDB900AOR
		1100	600	199	CDB1100AG	CDB1100AOR
		1300	600	199	CDB1300AG	CDB1300AOR
		1500	600	199	CDB1500AG	CDB1500AOR
		1800	600	199	CDB1800AG	CDB1800AOR

6

CDB Accessories

Description	Order code RAL 7035 Grey	X15 Orange
24 pole escutcheon (gloss white)	CDB24ESC	
36 pole escutcheon (gloss white)	CDB36ESC	
48 pole escutcheon (gloss white)	CDB48ESC	
60 pole escutcheon (gloss white)	CDB60ESC	
72 pole escutcheon (gloss white)	CDB72ESC	
84 pole escutcheon (gloss white)	CDB84ESC	
96 pole escutcheon (gloss white)	CDB96ESC	
Flush kit 700mm high enclosure (G/grey, OR/orange)	CDB700FSG	CDB700FSOR
Flush kit 900mm high enclosure (G/grey, OR/orange)	CDB900FSG	CDB900FSOR
Flush kit 1100mm high enclosure (G/grey, OR/orange)	CDB1100FSG	CDB1100FSOR
Flush kit 1300mm high enclosure (G/grey, OR/orange)	CDB1300FSG	CDB1300FSOR
Flush kit 1500mm high enclosure (G/grey, OR/orange)	CDB1500FSG	CDB1500FSOR
Flush kit 1800mm high enclosure (G/grey, OR/orange)	CDB1800FSG	CDB1800FSOR
Floor standing plinth (black powder coated)	CDBPLINTHBL	
Floor standing plinth (galvanised)	CDBPLINTHGAL	
Segregation plate	CDBSEG	
Hanga bracket - spare	CDBHANGA	
DIN rail assembly	CDBDIN	
Main switch top hat bracket	CDBSWTOPHAT	
Chassis support (2 pieces required per chassis)	CDBZBRKT	
Pole filler - 4 module strip	LA12859	
Pole filler - 12 module strip	SZBP12	
NSW Dept of Commerce E-lock kit	CDBELOCK	
IP42 dust kit	CDBDK42	

STOCK INDENT

Consumer units, load centres and distribution boards
Distribution boards – IP55

CDBW distribution board

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

	Body	Escutcheon	Door
Standard width across the range	600mm	—	—
Standard depth across the range	275mm	—	—
Material	2.0mm steel	2.0mm steel	2.0mm steel
Key lock	CL001 (standard)	—	—
Pole capacity	24-96 (other sizes on request)	—	—
Standard colour	RAL7035 Grey or X15 Orange	Gloss white	RAL7035 Grey or X15 Orange
Paint finish	Ripple texture	—	—
Paint thickness	50 micron minimum	50 micron minimum	50 micron minimum
Gland plates	Removable top and bottom	—	—
Additional DIN rail accessory capacity	30 poles	—	—
Hinge location	—	Right hand hinge	Right hand hinge

Main switch	Pole capacity	Height (mm)	Width (mm)	Depth (mm)	Order code RAL 7035 Grey	X15 Orange
250A	24	700	600	199	CDBW24M250G	CDBW24M250OR
	36	900	600	199	CDBW36M250G	CDBW36M250OR
	48	1100	600	199	CDBW48M250G	CDBW48M250OR
	60	1100	600	199	CDBW60M250G	CDBW60M250OR
	72	1300	600	199	CDBW72M250G	CDBW72M250OR
	84	1500	600	199	CDBW84M250G	CDBW84M250OR
	96	1500	600	199	CDBW96M250G	CDBW96M250OR

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

Consumer units, load centres and distribution boards
Distribution boards – IP55

CDBW equipment box and CDBW distribution board

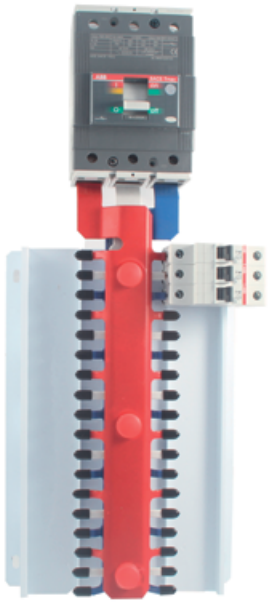
Height (mm)	Width (mm)	Depth (mm)	Order code RAL 7035 Grey	X15 Orange
CDBW equipment box - complete with mounting plate and escutcheon				
400	600	275	CDBW400MAG	CDBW400MAOR
600	600	275	CDBW600MAG	CDBW600MAOR
CDBW distribution board - empty (no escutcheon)				
900	600	275	CDBW900AG	CDBW900AOR
1100	600	275	CDBW1100AG	CDBW1100AOR
1300	600	275	CDBW1300AG	CDBW1300AOR
1500	600	275	CDBW1500AG	CDBW1500AOR
1800	600	275	CDBW1800AG	CDBW1800AOR

CDBW Accessories

Description	Order code
24 pole escutcheon	CDBW24ESC
36 pole escutcheon	CDBW36ESC
48 pole escutcheon	CDBW48ESC
60 pole escutcheon	CDBW60ESC
72 pole escutcheon	CDBW72ESC
84 pole escutcheon	CDBW84ESC
96 pole escutcheon	CDBW96ESC
Floor standing plinth (black powder coated)	CDBWPLINTHBL
Floor standing plinth (galvanised)	CDBWPLINTHGAL
Segregation plate	CDBWSEG
Hanga bracket - spare	CDBHANGA
Pole filler - 4 module strip	LA12859
Pole filler - 12 module strip	SZBP12
DIN rail assembly	CDBWDIN
Main switch top hat bracket	CDBWSWTOPHAT
Chassis support (2 pieces required per chassis)	CDBWZBRKT

STOCK INDENT

Consumer units, load centres and distribution boards
Miniature circuit breaker chassis



Compact chassis system to suit the System pro *M* miniature circuit breaker range. Suitable for S200, S200M, S200P, DS271, DSE201, RCBO's and DDA200 RCBO Blocks.
Where DS271 RCBO's are utilised all MCB's and RCBO's are bottom fed. For DDA blocks all components are top fed.
CM chassis are available as a universal (dual feed), Top feed or bottom feed according to the installation requirements.

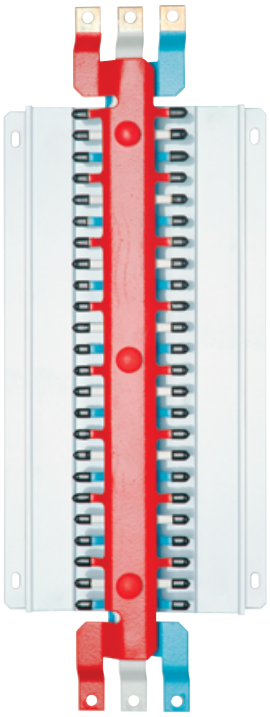
Technical data

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

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

Note: Bottom feed available on request

Consumer units, load centres and distribution boards
Miniature circuit breaker chassis



Hybrid chassis for high performance circuit breakers

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

Technical data

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

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

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

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

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

Note: Larger pole capacities available on request

Earth and neutral bars (mounting feet included)

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

Description		Order code
E & N Bar	12 way	EN12
	18 way	EN18
	24 way	EN24
	36 way	EN36
	42 way	EN42
	48 way	EN48
	60 way	EN60
	72 way	EN72
	84 way	EN84
	96 way	EN96
	6 x M10 studs	NB6S

STOCK INDENT

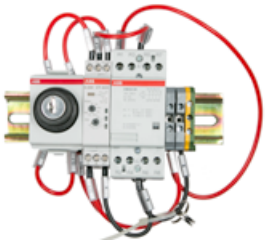
Consumer units, load centres and distribution boards
Emergency lighting test unit

Emergency lighting test

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

Pre-wired Emergency Lighting Test Unit - Enclosed

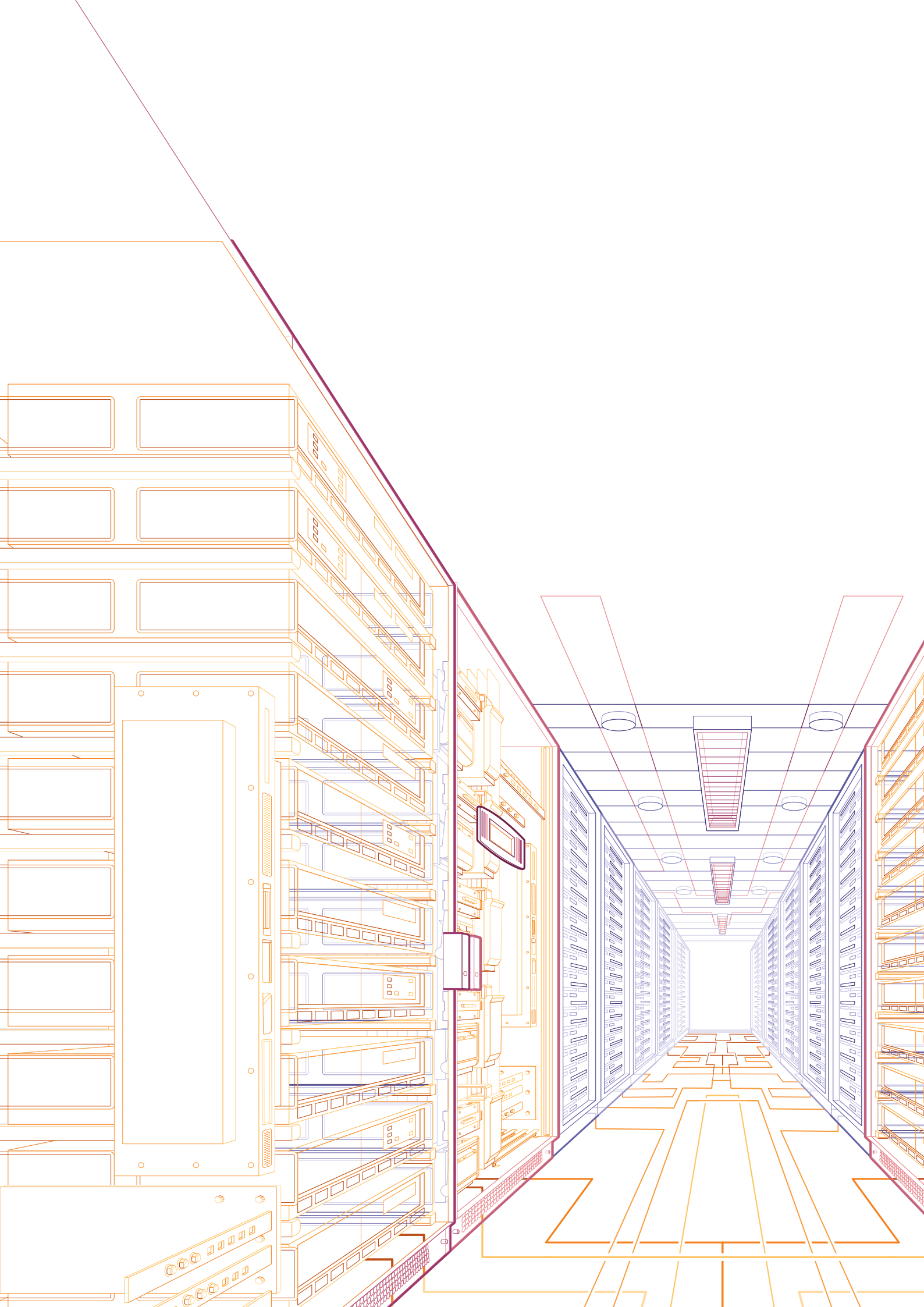
Description	Dimensions w x h x d (mm)	Order code
Emergency light test unit enclosed	230 x 200 x 90	ELTU4



Pre-wired Emergency Lighting Test Unit - Enclosed

Description	Order code
Emergency light test unit DIN mount	ELTU4DIN

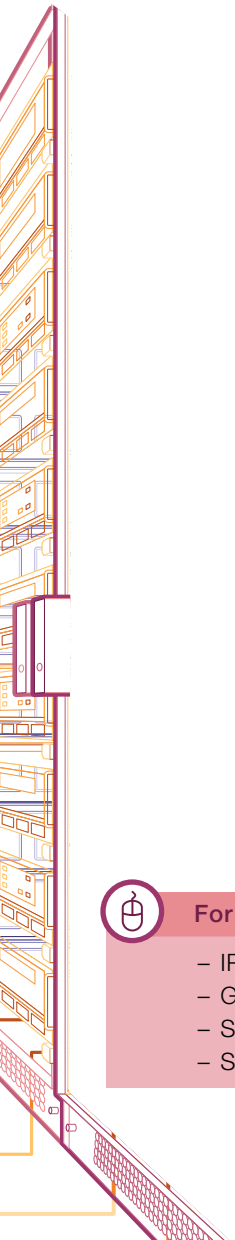
6



Enclosures and Switchboard Systems

Insulating enclosures and enclosures for automation 329

System pro *E* power 337



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

- IP55 and IP65 Boxes – 1SLC001001D0204
- Gemini enclosures – 1STC804013D0204
- SR2 – 1STC804013D0204
- System pro *E* power catalogue – 1STC803005D0204

Insulating enclosures and enclosures for automation

IP55 Thermoplastic and IP65 polycarbonate enclosures 330

IP66 Gemini weatherproof range 332
Basic configuration 333
Components for automation 333
Accessories for distribution 333

IP65 SR2 Sheet steel enclosures 335

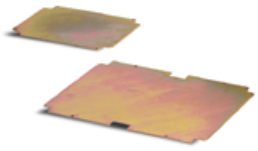
Insulating enclosures and enclosures for automation
IP55 Thermoplastic and IP65 polycarbonate enclosures

IP55 Thermoplastic enclosures

- RAL7035 grey colour
- Opaque and transparent screw on lid versions
- Operating temperature from -25°C to +75°C
- Shock resistance to 6 joules
- High resistance to heat, chemical and atmospheric agents
- Lids have stainless steel screws or quarter turn plastic screws, depending upon the enclosure size

Cover	External dimensions H x W x D (mm)	Internal dimensions H x W x D (mm)	Lid screw type	Order code
Opaque	113 x 113 x 67	100 x 100 x 50	Stainless	LE00846
	114 x 79 x 67	105 x 70 x 50	Stainless	LE00850
	113 x 113 x 87	100 x 100 x 80	Stainless	LE00851
	162 x 120 x 73	153 x 110 x 66	Stainless	LE00852
	170 x 145 x 87	160 x 135 x 77	¼ turn plastic	LE00854
	231 x 181 x 89	220 x 170 x 80	¼ turn plastic	LE00856
	323 x 251 x 117	310 x 240 x 110	¼ turn plastic	LE00858
	170 x 145 x 156	160 x 135 x 150	¼ turn plastic	LE00860
	231 x 181 x 160	220 x 170 x 150	¼ turn plastic	LE00862
	323 x 251 x 170	310 x 240 x 160	¼ turn plastic	LE00864
Clear	162 x 120 x 73	153 x 110 x 66	¼ turn plastic	LE00872
	170 x 145 x 87	160 x 135 x 77	¼ turn plastic	LE00874
	231 x 181 x 89	220 x 170 x 80	¼ turn plastic	LE00876
	323 x 251 x 117	310 x 240 x 110	¼ turn plastic	LE00878
	170 x 145 x 156	160 x 135 x 150	¼ turn plastic	LE00880
	231 x 181 x 160	220 x 170 x 150	¼ turn plastic	LE00882
	323 x 251 x 170	310 x 240 x 160	¼ turn plastic	LE00884

Accessories for IP55 thermoplastic enclosures



Description	Suits enclosure type	Order code
Mounting plate	LE00824-LE00830-LE00824-LE00830-LE00874-LE00854-LE00860-LE00880	LP00900
	LE00826-LE00832-LE00876-LE00856-LE00862-LE00882	LP00902
	LE00929-LE00834-LE00878-LE00858-LE00864-LE00884	LP00904
35mm DIN rail - slotted - 2metre length		DR12849

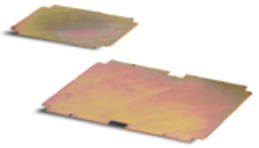
STOCK INDENT

Insulating enclosures and enclosures for automation
IP55 Thermoplastic and IP65 polycarbonate enclosures

IP65 polycarbonate enclosures

- RAL7035 grey colour
- Opaque and transparent screw on lid versions
- Operating temperature from -25°C to +75°C
- Shock resistance to 20 joules
- High resistance to UV rays, heat, chemical and atmospheric agents
- Hinged lid screws included with each enclosure to allow hinging on left or right with 140° opening

Cover	External dimensions H x W x D (mm)	Order code
Opaque	140 x 220 x 140	LE12804
	205 x 220 x 140	LE12808
	275 x 220 x 140	LE12812
	275 x 370 x 140	LE12814
	275 x 570 x 140	LE12816
	380 x 570 x 140	LE12818



Accessories for IP65 thermoplastic enclosures

Description	Suits enclosure type	Order code
Mounting plate	LE12804	LP12842
	LE12808	LP12844
	LE12812	LP12845
	LE12814	LP12846
	LE12816	LP12847
	LE12818	LP12848
Wall mounting brackets for IP65 enclosures (Pack of 4)		LA12858
35mm DIN rail – slotted – 2metre length		DR12849

Spare lid screws for enclosure

Description	Suits enclosure type	Order code
Steel lid screw	LE00846, LE0050, LE00851, LE00852, LE00872	M910520000
¼ turn standard lid screw	LE00854, LE00856, LE00858, LE00860, LE00862, LE00864, LE00874, LE00876, LE00878, LE00880, LE00882, LE00884	M912890000
¼ turn hinged lid screw	LE00854, LE00856, LE00858, LE00860, LE00862, LE00864, LE00874, LE00876, LE00878, LE00880, LE00882, LE00884	M912880000
Threaded standard lid screw	LE12804, LE12808, LE12812, LE12814, LE12816, LE12818	M952310000
Threaded hinged lid screw	LE12804, LE12808, LE12812, LE12814, LE12816, LE12818	M911020000

Insulating enclosures and enclosures for automation
IP66 Gemini weatherproof range

The Gemini series ensures maximum protection in the toughest environments

- Ideal for control panels and distribution boards in harsh environments such as food industry washdown areas
- Provides the strength of glass reinforced polyester without the environmental and personal risk
- Lightweight
- Strong

The Gemini range is revolutionising the market of low voltage electrical insulating switchboards as it is the first switchboard made of thermoplastic material, to which the co-injection moulding technique gives the same mechanical characteristics as polyester.
Extremely sturdy, with its rigid covering and expanded internal core Gemini switchboards are IP66, IP30 with the door open afford a very high resistance to chemical and atmospheric agents and guarantees excellent performances even in severe operating conditions.
In distribution and mixed applications, the Gemini switchboard is designed to be fitted with System pro M modular devices and Tmax moulded-case circuit breakers. Gemini switchboards are designed to be compatible with ABB components for low voltage control, protection, monitoring and switching.

Technical characteristics

Rated service voltage	CEI EN 50298, CEI 23-48, CEI23-49,
	IEC 60670, CEI EN 60439-1, CEI EN 62208,
	IEC 61439-1-2
Compliance with standards	Ue 1000 V AC - 1500V DC
Operating temperature °C	-25°C +100°C
Resistance to abnormal heat and fire	up to 750°C
Degree of resistance to impacts	IK10 (IEC 62262)
Degree protection (CEI EN 60529)	IP30 open door
	IP66 closed door
Recyclable	100%

ABB is the first manufacturer in the electrical field to use co-injection moulding technique. This process is a 'sandwich' of two materials with a compact external covering and an expanded core, guaranteeing the highest level of mechanical protection against impacts (IK10).

Ordering guide

Select enclosure base (box) size

Size 1	400 x 335 x 210
Size 2	550 x 460 x 260
Size 3	700 x 460 x 260
Size 4	700 x 590 x 260
Size 5	855 x 590 x 360
Size 6	1006 x 840 x 360

Select door style

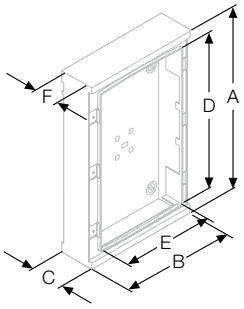
- Opaque
- Transparent

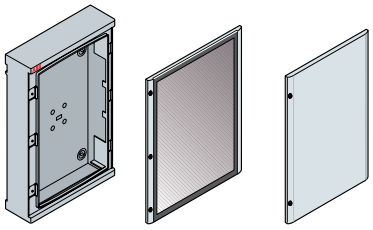
Base plate required?

- YES → **Select base plate**
- NO → **Select uprights** → **Select accessories: DIN rail, Drilled panels, Tmax mounting kits etc**

Insulating enclosures and enclosures for automation
IP66 Gemini weatherproof range

Basic configuration

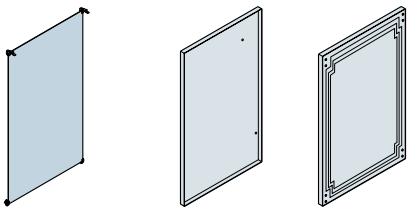




Size	Number of installable DIN modules	Number of vertical modules	External dimensions			Internal dimensions			Box	Door	
	(mod. x row)	H=150 mm	A	B	C	D	E	F		Transparent	Opaque
1	24 (12x2)	2	400	335	210	300	250	180	1SL0221A00	1SL0241A00	1SL0231A00
2	54 (18x3)	3	550	460	260	450	375	230	1SL0222A00	1SL0242A00	1SL0232A00
3	72 (18x4)	4	700	460	260	600	375	230	1SL0223A00	1SL0243A00	1SL0233A00
4	96 (24x4)	4	700	590	260	600	500	230	1SL0224A00	1SL0244A00	1SL0234A00
5	120 (24x5)	5	855	590	360	750	500	330	1SL0225A00	1SL0245A00	1SL0235A00
6	216 (36x6)	6	1005	840	360	900	750	330	1SL0226A00	1SL0246A00	1SL0236A00

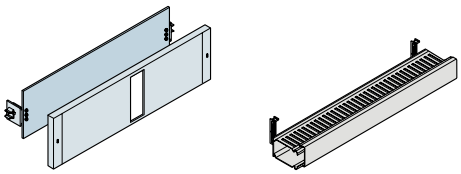
Note: Upright are required to fit DIN rail panels and modular plate

Components for automation



Size	Base plate	Inner door
	Blank	
1	1SL0259A00	1SL0251A00
2	1SL0260A00	1SL0252A00
3	1SL0261A00	1SL0253A00
4	1SL0262A00	1SL0254A00
5	1SL0263A00	1SL0255A00
6	1SL0264A00	1SL0256A00

Accessories for distribution

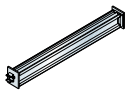
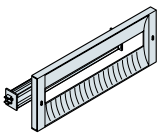
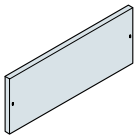
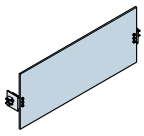


Size	Kit for Tmax XT		x-O-Rapid kit with wiring duct	
	H. 150 mm	H. 300 mm	25x60 mm	40x60 mm
1	–	–	1SL0353A00	1SL0360A00
2	1SL0373A00	1SL0376A00	1SL0354A00	1SL0361A00
3	1SL0373A00	1SL0376A00	1SL0354A00	1SL0361A00
4	1SL0374A00	1SL0377A00	1SL0355A00	1SL0362A00
5	1SL0374A00	1SL0377A00	1SL0355A00	1SL0362A00
6	1SL0375A00	1SL0378A00	1SL0356A00	1SL0363A00

STOCK INDENT

Insulating enclosures and enclosures for automation
IP66 Gemini weatherproof range

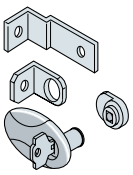
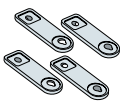
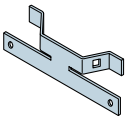
Components for automation

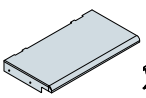
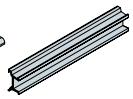
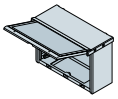





Size	Uprights	DIN rail	DIN panel kit Panel + DIN rail		Blank panel			Modular plate	
			H=150 mm	H=225 mm	H=75 mm	H=150mm	H=300 mm	H=150 mm	H=300 mm
1	1SL0283A00	1SL0290A00	1SL0307A00	–	1SL0318A00	1SL0324A00	1SL0330A00	1SL0296A00	–
2	1SL0284A00	1SL0291A00	1SL0308A00	1SL0313A00	1SL0319A00	1SL0325A00	1SL0331A00	1SL0297A00	1SL0302A00
3	1SL0285A00	1SL0291A00	1SL0308A00	1SL0313A00	1SL0319A00	1SL0325A00	1SL0331A00	1SL0297A00	1SL0302A00
4	1SL0285A00	1SL0292A00	1SL0309A00	1SL0314A00	1SL0320A00	1SL0326A00	1SL0332A00	1SL0298A00	1SL0303A00
5	1SL0286A00	1SL0292A00	1SL0309A00	1SL0314A00	1SL0320A00	1SL0326A00	1SL0332A00	1SL0298A00	1SL0303A00
6	1SL0287A00	1SL0293A00	1SL0310A00	1SL0315A00	1SL0321A00	1SL0327A00	1SL0333A00	1SL0299A00	1SL0304A00

7

Accessories common to the whole range

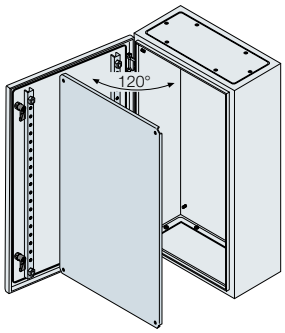




Size	Lock with handle	Lock with triangular impression	Lock with square impression	Anti tampering locking kit	Bounting brackets	Pole installation kit	Anti condensation kit	Integral cover	Depth adapter	Horizontal kit
1	1SL0340A00	1SL0341A00	1SL0339A00	1SL0458A00	1SL0342A00	1SL0343A00	1SL0351A00	1SL0451A00	AP6000	–
2						1SL0344A00		1SL0452A00		1SL0470A00
3						1SL0344A00		1SL0452A00		1SL0471A00
4						1SL0345A00		1SL0454A00		
5						1SL0345A00		1SL0455A00		1SL0472A00
6						1SL0346A00		1SL0456A00		1SL0473A00

STOCK INDENT

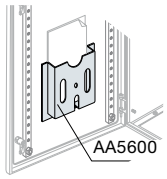
Insulating enclosures and enclosures for automation
IP65 SR2 Sheet steel enclosures

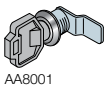
- The SR2 enclosures range is a complete offer of monobloc enclosures for constructing small and medium sized automation, switching and control switchboards for industrial applications.
- IP65 rated according to AS/NZS 60529
- 1.5mm steel
- Welded steel construction
- Top and bottom gland plates
- 2mm galvanised steel mounting plate included



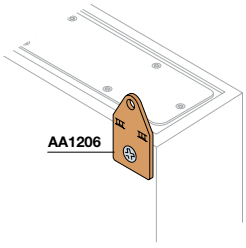
SR2 metal enclosures IP65 – (indoor use only)

	Height (mm)	Width (mm)	Depth (mm)	Order code
SR2 enclosure	300	200	150	SRN3215K
		300	150	SRN3315K
	400	300	150	SRN4315K
		300	200	SRN4320K
		400	200	SRN4420K
	500	400	200	SRN5420K
		400	250	SRN5425K
	600	400	200	SRN6420K
		400	250	SRN6425K
		600	250	SRN6625K
	700	500	250	SRN7525K
	800	600	300	SRN8630K
	1000	600	300	SRN10630K
		800	300	SRN10830K
	1200	800	300	SRN12830K




AA8001

AA8002



Accessories for SR2 metal enclosures IP65

Description	Order code
Document pocket	AA5600
Wall mounting brackets (Packet of 4 pcs)	AA1206
Double tongue lock and key (spare part	AA8001
Flush key lock with Yale type key	AA8002

7

STOCK INDENT

ABB

System pro *E* power

Choice of the structure 338

Frame 340

External covers 343

Structure finishing components 345
Accessories and spare parts 346

Kits for moulded-case circuit-breakers 348

Kits for air circuit-breakers 354

Internal kits 355
Accessories and spare parts 362

InLine II 364

Selection guides 365
Fixing between uprights and crosspieces 365
Fixing between crosspieces 365
Crosspieces selections 365
Earth fixing 366
Brackets selections 366
Neutral fixing 366
Linear System – Flat Busbars and Shaped Busbars 367
Compensators and connections for flat and shaped busbar 372

Modular dividers and Distribution systems 374
Accessories 375

Choice of segregation to suit height of kits 376
Tmax T and Tmax XT moulded-case circuit-breakers 376

Choice of segregation 380
Emax 2 air circuit-breakers 380

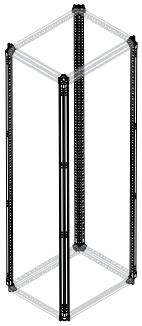
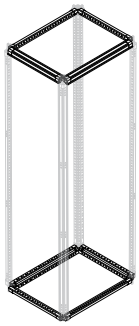
Choice of busbars segregation 382

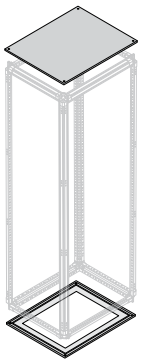
For more detailed product information, please refer to the Technical Catalogue:

– System pro *E* power catalogue – 1STC803005D0204

System pro *E* power
Choice of the structure

H=2000mm quick selection guide



Functional dimensions		External dimensions *		FRAME						EXTERNAL COVERS		
				Uprights	Structure crosspieces		H=100mm plinth			Top/bottom panels		
					Galvanized sheet metal In≤4000A		Galvanized sheet metal			Top/Bottom		Bottom
								Plinth flanges		Blind	Open[1] **	Without plinth
Height 2000mm W (mm)	Height 2000mm D (mm)	Height 2213mm W (mm)	Height 2213mm D (mm)	Galvanized sheet metal In≤4000A	Front/ Rear	Sides	Angle pieces	Front/Rear	Sides	IP65	IP65	IP40[2]
300	500	416	616	PUPM2000	PCFM0300	PCFM0500	PPAM0100	PPFM1030	PPFM1050	PTBB3056	PTBO3050	PBWP3050
	700		816			PCFM0700			PPFM1070	PTBB3076	PTBO3070	PBWP3070
	900		1016			PCFM0900			PPFM1090	PTBB3096	PTBO3090	PBWP3090
400	500	516	616	PUPM2000	PCFM0400	PCFM0500	PPAM0100	PPFM1040	PPFM1050	PTBB4056	PTBO4050	PBWP4050
	700		816			PCFM0700			PPFM1070	PTBB4076	PTBO4070	PBWP4070
	900		1016			PCFM0900			PPFM1090	PTBB4096	PTBO4090	PBWP4090
600	500	716	616	PUPM2000	PCFM0600	PCFM0500	PPAM0100	PPFM1060	PPFM1050	PTBB6056	PTBO6050	PBWP6050
	700		816			PCFM0700			PPFM1070	PTBB6076	PTBO6070	PBWP6070
	900		1016			PCFM0900			PPFM1090	PTBB6096	PTBO6090	PBWP6090
800	500	916	616	PUPM2000	PCFM0800	PCFM0500	PPAM0100	PPFM1080	PPFM1050	PTBB8056	PTBO8050	PBWP8050
	700		816			PCFM0700			PPFM1070	PTBB8076	PTBO8070	PBWP8070
	900		1016			PCFM0900			PPFM1090	PTBB8096	PTBO8090	PBWP8090
1000	500	1116	616	PUPM2000	PCFM1000	PCFM0500	PPAM0100	PPFM1000	PPFM1050	PTBB1056	PTBO1050	PBWP1050
	700		816			PCFM0700			PPFM1070	PTBB1076	PTBO1070	PBWP1070
	900		1016			PCFM0900			PPFM1090	PTBB1096	PTBO1090	PBWP1090
1250	900		1016	PUPM2000	PCFM1250	PCFM0900	PPAM0100	PPFM1250	PPFM1090		PTBO1290	PBWP1290

Note: To complete the selection for Inline see page 364

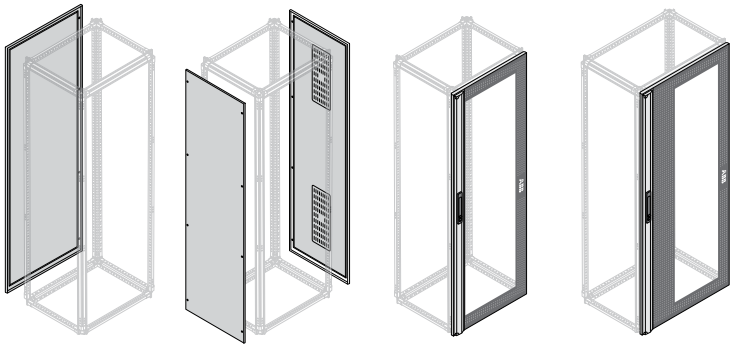
1) Use the dedicated incoming cable flanges to obtain protection class IP65.

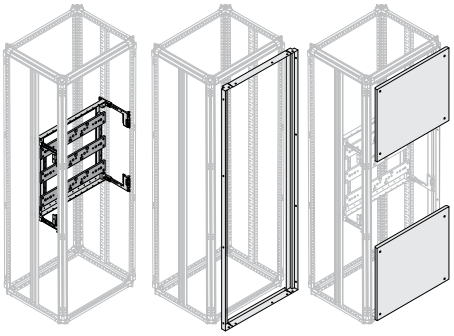
2) Bottom for switchboard without plinth complete with the dedicated set of brackets, which can be ordered separately.

* The external dimensions include the H=100mm plinth and the panels.

** For structures with internal cable container and open top/base, please see special covers and flanges on page 343.

STOCK INDENT



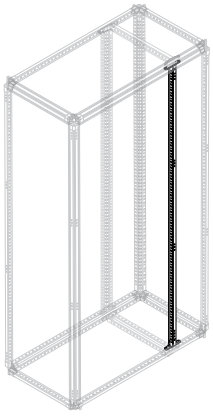


	Front/side panels					INLINE II		
	Rear panel Blind IP65	Side panel Blind IP65	Glass door 12/24 36/48 mod. DIN IP65	Glass door 12/24/36 mod. DIN + internal cable compartment Cable comp. W=200mm IP65	 Cable comp. W=400mm IP65	InLine II kit	Fixed frame	Front panels
	PPEB2036	PPEB2056				PKNL1260	PFNL1860	No.2 PPNL3060
		PPEB2046						
		PPEB2066						
	PPEB2046	PPEB2056	PDLG2046			PKNL1280	PFNL1880	No.2 PPNL3080
		PPEB2016						
		PPEB2096						
	PPEB2066	PPEB2056	PDLG2066	PDLG2042		PKNL1210	PFNL1810	No.2 PPNL3010
		PPEB2076						
		PPEB2096						
	PPEB2086	PPEB2056	PDLG2086	PDLG2062	PDLG2044	PKNL1260	PFNL2060	No.2 PPNL4060
		PPEB2076						
		PPEB2096						
	PPEB2016	PPEB2056	PDLG2016	PDLG2082	PDLG2064	PKNL1280	PFNL2080	No.2 PPNL4080
		PPEB2076						
		PPEB2096						
						PKNL1210	PFNL2010	No.2 PPNL4010

7

STOCK INDENT

System pro *E* power
Order codes – Frame

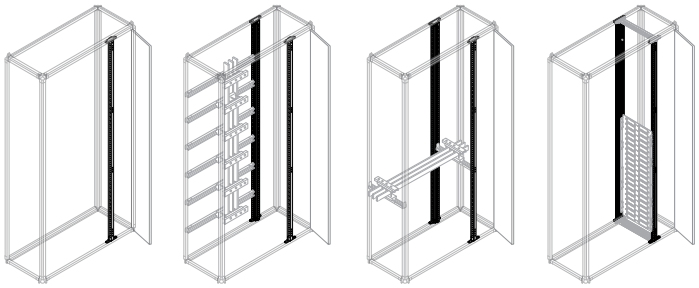


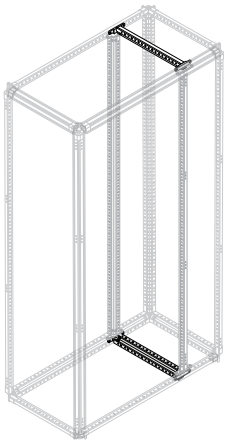
Uprights for internal cable compartment – Galvanized sheet metal

Upright formed by a closed profile in galvanized sheet metal for internal cable compartment with fixing brackets. For applications with In ≤4000A.

Description	Dimensions H (mm)	Package/ No. pcs	Order code
No.1 galv. sheet metal upright for cable compartment	2000	1/1	PUCM2000

Application examples





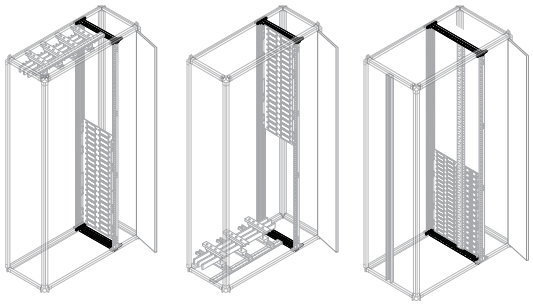
Crosspieces for internal cable compartment – Galvanized sheet metal

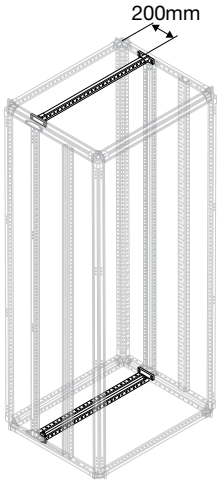
Crosspieces for internal cable compartment in galvanized sheet metal. For applications with In ≤4000A with fixing brackets.

Description	Dimensions D (mm)	Package/ No. pcs	Order code
No.2 galvanized sheet cable cont. crosspieces	500	1/2	PCCM0500
No.2 galvanized sheet cable cont. crosspieces	700	1/2	PCCM0700
No.2 galvanized sheet cable cont. crosspieces	900	1/2	PCCM0900

To be ordered when there is an intermediate upright for mounting kit PUKI.... or an intermediate crosspiece for installing busbars horizontally under the top or on the bottom of the PCKI.... structure or when vertical side partitions are installed. Not compatible with IP40 PBWP....

Application examples





Crosspieces for structures – Galvanized sheet metal

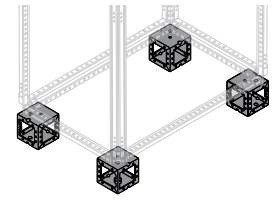
Allows the creation of a cable compartment with D=200mm at the back of the stuctures. To be assembled with 2 intermediate uprights for internal cable container PUCM.... o PUCS....

Description	Dimensions W (mm)	Package/ No. pcs	Order code
No.2 galvanized sheet crosspieces for structures	400	1/2	PCCM0400
No.2 galvanized sheet crosspieces for structures	600	1/2	PCCM0600
No.2 galvanized sheet crosspieces for structures	800	1/2	PCCM0800
No.2 galvanized sheet crosspieces for structures	1000	1/2	PCCM1000

STOCK INDENT

System pro *E* power
Order codes – Frame

PPAM0100

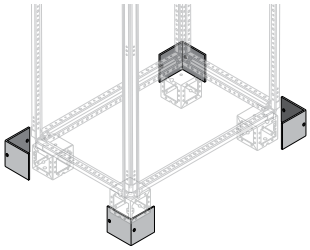


Universal angle pieces for plinths in galvanized sheet metal

Not pre-assembled to the structure. New angle piece with high mechanical strength. Can be fixed from the outside and from the inside of the structure even at a later date. Equipped with anti-rotation system and bottom that can be transported with a transpallet.

Description	Dimensions H (mm)	Package/ No. pcs	Order code
No.4 plinth angle pieces	100	1/4	PPAM0100

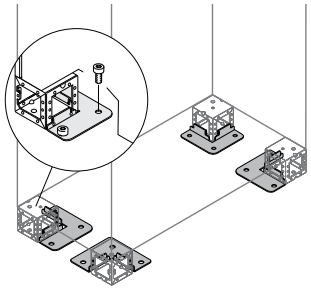
*Order no. 2 pieces of H=100mm covering flange kits to complete the H=200mm plinth.



'L' covers for plinth angle-pieces

Used for covering the sides of the plinth when the flanges are not used.

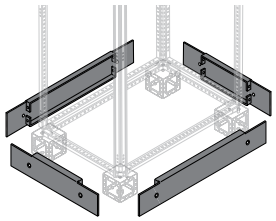
Description	Dimensions H (mm)	Package/ No. pcs	Order code
No.4 angle-piece covers	100	1/4	PCPA0004



Brackets for fixing to the floor

The kit allows the floor or on container fixing of the structure by means of M12 screws.

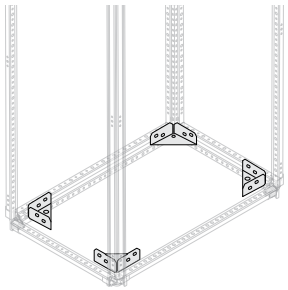
Description	Package/ No. pcs	Order code
No.4 floor fixing brackets	1/4	ZN1041



Plinth flanges

Side and front/rear plinth flanges H=100mm RAL 7012.

Description	Dimensions (mm) W	D	Package/ No. pcs	Order code
Front/rear plinth flanges				
No.2 plinth flanges	300		1/2	PPFM1030
No.2 plinth flanges	400		1/2	PPFM1040
No.2 plinth flanges	600		1/2	PPFM1060
No.2 plinth flanges	800		1/2	PPFM1080
No.2 plinth flanges	1000		1/2	PPFM1010
Side plinth flanges				
No.2 plinth flanges		500	1/2	PPFM1050
No.2 plinth flanges		700	1/2	PPFM1070
No.2 plinth flanges		900	1/2	PPFM1090



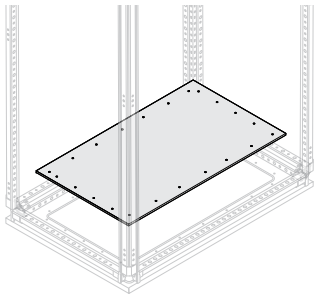
Brackets for bottoms without plinth

The kit allows the mounting of the angle pieces PPAM…. from the inside of the structure or the application of enclosures without plinth when combined with the proper internal bottom PBWP…. IP40 or the other bottom codes available that have to be cut according to the drilling indication in chapter 8 of the System pro *E* power technical catalogue – 1STC803005D0204.

Description	Package/ No. pcs	Order code
No. 4 brackets for bottoms without plinth	1/4	PBRB0004

STOCK INDENT

System pro *E* power
Order codes – Frame

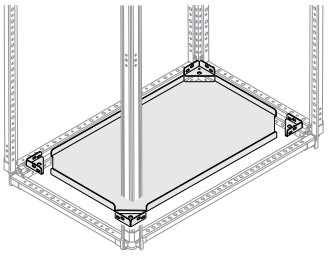


Fixed incoming cable flange

Fixed incoming cable flange in sheet metal to use in conjunction with the open bottom to guarantee IP65 protection class. With internal cable compartment crosspieces it is necessary to mount the fixed flange first.

Description	Dimensions (mm) W	D	Package/ No. pcs	Order code
Fixed incoming cable flange	300	500	1/1	PFCF3050
Fixed incoming cable flange	300	700	1/1	PFCF3070
Fixed incoming cable flange	300	900	1/1	PFCF3090
Fixed incoming cable flange	400	500	1/1	PFCF4050
Fixed incoming cable flange	400	700	1/1	PFCF4070
Fixed incoming cable flange	400	900	1/1	PFCF4090
Fixed incoming cable flange	600	500	1/1	PFCF6050
Fixed incoming cable flange	600	700	1/1	PFCF6070
Fixed incoming cable flange	600	900	1/1	PFCF6090
Fixed incoming cable flange	800	500	1/1	PFCF8050
Fixed incoming cable flange	800	700	1/1	PFCF8070
Fixed incoming cable flange	800	900	1/1	PFCF8090
Fixed incoming cable flange	1000	500	1/1	PFCF1050
Fixed incoming cable flange	1000	700	1/1	PFCF1070
Fixed incoming cable flange	1000	900	1/1	PFCF1090
Fixed incoming cable flange	1250	900	1/1	2xPFCF6090

7



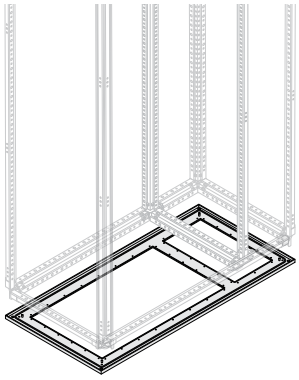
Internal bottom IP40

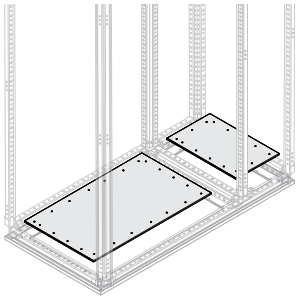
Internal galvanized steel bottom with special brackets kit included (special brackets kit available also as spare part with the code PBRB0004).

Description	Dimensions (mm) W	D	Package/ No. pcs	Order code
Internal bottom	300	500	1/1	PBWP3050
Internal bottom	300	700	1/1	PBWP3070
Internal bottom	300	900	1/1	PBWP3090
Internal bottom	400	500	1/1	PBWP4050
Internal bottom	400	700	1/1	PBWP4070
Internal bottom	400	900	1/1	PBWP4090
Internal bottom	600	500	1/1	PBWP6050
Internal bottom	600	700	1/1	PBWP6070
Internal bottom	600	900	1/1	PBWP6090
Internal bottom	800	500	1/1	PBWP8050
Internal bottom	800	700	1/1	PBWP8070
Internal bottom	800	900	1/1	PBWP8090
Internal bottom	1000	500	1/1	PBWP1050
Internal bottom	1000	700	1/1	PBWP1070
Internal bottom	1000	900	1/1	PBWP1090

STOCK INDENT

System pro *E* power
Order codes – External covers





Open bottom IP65 – for internal cable container

Pickled sheet steel with IP65 gasket. In order to reach IP65 protection degree, use the dedicated fixed cable incoming flanges both for equipment compartment and internal cable compartment.

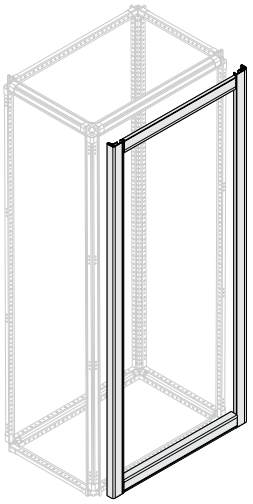
Description	Dimensions (mm) W	D	Package/ No. pcs	Order code
Open bottom IP65				
Open bottom 600+200mm	800	500	1/1	PTBO8251
Open bottom 600+200mm	800	700	1/1	PTBO8271
Open bottom 600+200mm	800	900	1/1	PTBO8291
Open bottom 800+200mm	1000	500	1/1	PTBO1251
Open bottom 800+200mm	1000	700	1/1	PTBO1271
Open bottom 800+200mm	1000	900	1/1	PTBO1291
Open bottom 600+400mm	1000	500	1/1	PTBO1451
Open bottom 600+400mm	1000	700	1/1	PTBO1471
Open bottom 600+400mm	1000	900	1/1	PTBO1491
Blind fixed flange IP65 for internal cable container				
Blind fixed flange	200	500	1/1	PFCF2051
Blind fixed flange	200	700	1/1	PFCF2071
Blind fixed flange	200	900	1/1	PFCF2091
Blind fixed flange	400	500	1/1	PFCF4051
Blind fixed flange	400	700	1/1	PFCF4071
Blind fixed flange	400	900	1/1	PFCF4091

Example:
Base IP65 W 800mm D 500mm with 200mm W internal cable container.

Order:
n°1 PTBO8251 open bottom W 800mm (600 + 200) D 500mm
n°1 PFCF2051 blind fixed flange for internal cable contaioner W 200mm D 500mm
n°1 PFCF6050 blind fixed flange for equipment compartment W 600mm D 500mm

STOCK INDENT

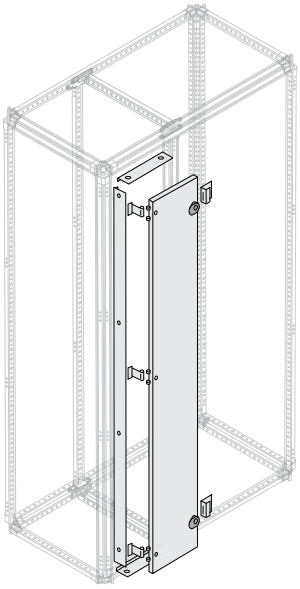
System pro *E* power
Order codes – External covers



Horizontal/vertical front closing profiles IP30

Profiles for IP30/IP31 pickled sheet painted RAL 7035.

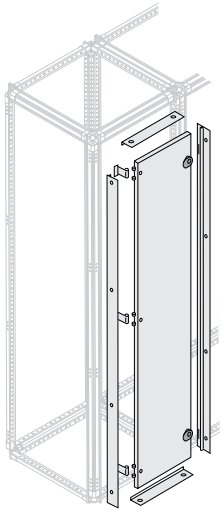
Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Finishing profiles vertical structure and external cable compartment				
No.2 vertical profiles IP30	2000		1/2	PPFV2000
Finishing profile vertical internal cable compartment				
No.1 profile vertical IP30	2000		1/1	PPCV2000
Finishing profiles horizontal structure and external cable compartment				
No.2 horizontal profiles IP30		300	1/2	PPFH0300
No.2 horizontal profiles IP30		400	1/2	PPFH0400
No.2 horizontal profiles IP30		600	1/2	PPFH0600
No.2 horizontal profiles IP30		800	1/2	PPFH0800
No.2 horizontal profiles IP30		1000	1/2	PPFH1000



Internal door for internal cable compartment

Internal door in pickled steel sheet for cable compartment IP30.

Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Blind door for internal cable compartment	2000	200	1/1	PDCB2020
Blind door for internal cable compartment	2000	400	1/1	PDCB2040



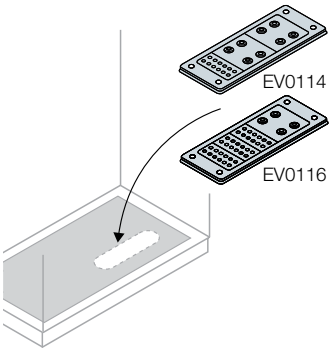
Internal door for external cable compartment

Internal door in pickled steel sheet for cable compartment IP30.

Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Blind door for external cable compartment	2000	300	1/1	PDCB2030
Blind door for external cable compartment	2000	400	1/1	PDCB2044

STOCK INDENT

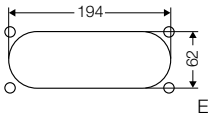
System pro *E* power
Order codes – Structure finishing components



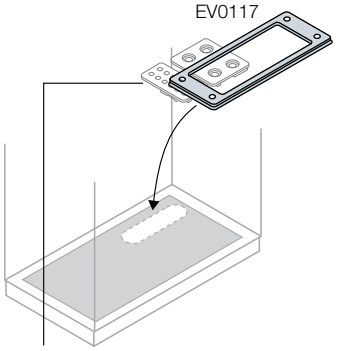
Pre-configured plastic cable gland flanges IP65

Allow numerous cables to be installed and guarantee that the components inside the switchboards are protected. The inserts have a membrane through which the cable can be easily pushed without the need for tools. IP65 protection class is guaranteed over the entire flange regardless of the number of cables installed. Cable clamp, and cable gland with cable clamp can also be installed.
RAL 7035 grey colour; operating temperature from -20 °C to +125 °C, IP65 protection class in accordance with EN 60529 specifications.

Description	Dimensions (mm) W	D	Package/ No. pcs	Order code
Pre-configured modular flange IP65				
No.1 pre-configured incoming cable flange for 18 cables (Ø min/max 8/14mm) and 10 cables (Ø min/max 4/10mm)	214	90	1/1	EV0114
No.1 pre-configured incoming cable flange for 30 cables (Ø min/max 4/10mm), 2 cables (M20 Ø min/max 7/13mm) and 2 cables (M25 Ø min/max 8/17mm)	214	90	1/1	EV0116



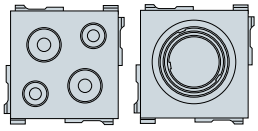
EV0117

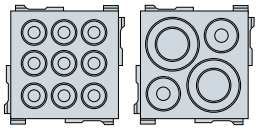


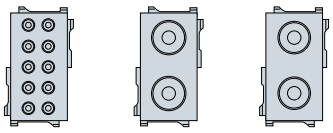
Flanges with adaptable plastic cable gland inserts IP65

Thanks to the frame and inserts available, the flange can be adapted to suit the size, quantity and position of the cables installed. The inserts have a membrane through which the cable can be easily pushed without the need for tools.
IP65 protection class is guaranteed over the entire flange regardless of the number of cables installed. Cable clamp, and cable gland with cable clamp can also be installed.
RAL 7035 grey colour; operating temperature from -20 °C to +125 °C, IP65 protection class in accordance with EN 60529 specifications.

Description	Dimensions (mm) W	D	Package/ No. pcs	Order code
Adaptable modular flanges				
No.1 flange frame for incoming cables to create with individual inserts	214	90	1/1	EV0117
Inserts for adaptable flanges				
No.10 (ten) 68x68mm inserts for 4 incoming cables, 2 cables (M25 Ø min/max 8/17mm), 2 cables (M16 Ø min/max 5/10mm)	68	68	1/1	EV0119
No.10 (ten) 68x68mm inserts for 1 incoming cable type M32 / M40 / M50	68	68	1/1	EV0121
No.10 (ten) 68x68mm inserts for 9 incoming cables (Ø min/max 8/14mm)	68	68	1/1	EV0123
No.10 (ten) 68x68mm inserts for 4 incoming cables, 2 (Ø min/max 10/20) and 2 (Ø min/max 20/30mm)	68	68	1/1	EV0124
No.10 (ten) 34x68mm inserts for 2 incoming cables (Ø min/max 8/17mm)	34	68	1/1	EV0125
No.10 (ten) 34x68mm inserts for 2 incoming cables (Ø min/max 7/13mm)	34	68	1/1	EV0126
No.10 (ten) 34x68mm inserts for 10 incoming cables (Ø min/max 4/10mm)	34	68	1/1	EV0127

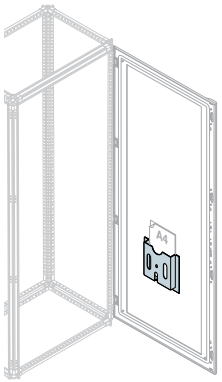






7

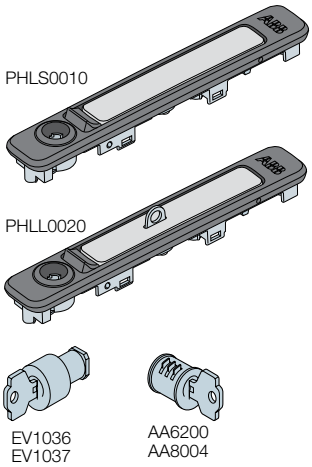
System pro *E* power
Order codes – Accessories and spare parts



Plastic pocket for documents

Complete with adhesive parts for fixing to the door.

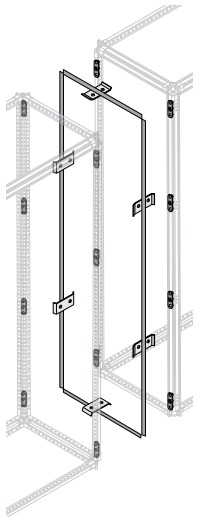
Description	Package/ No. pcs	Order code
Plastic pocket for A4 documents	1/1	EV1075K



Closing systems

Can replace the standard closing systems of the external doors. The inserts are interchangeable and can be easily replaced by loosening just one nut.

Description	Package/ No. pcs	Order code
Handle		
Standard lever handle (spare)	1/1	PHLS0010
Padlockable lever handle (spare)	1/1	PHLL0020
Inserts		
Yale insert+key for external door, single door version	1/1	AA6200
One-code Yale insert for inner door	1/1	EV1036



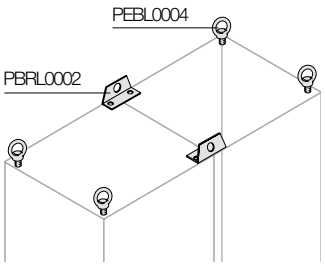
Kit for joining structures

The kit for joining structures is composed of different brackets and a gasket for the maintenance of the IP protection degree and allows both a side-by-side and a back-to-back joining of structures.

Description	Package/ No. pcs	Order code
Kit for joining structures side by side / back to back	1/1	PSBS0065

STOCK INDENT

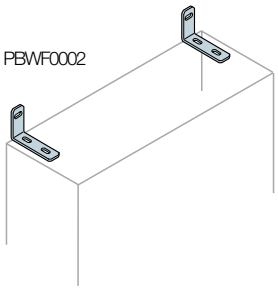
System pro *E* power
Order codes – Accessories and spare parts



Eyebolts for lifting

Allow wired switchboards to be lifted. Made of steel treated with a white passivated galvanizing process.

Description	Package/ No. pcs	Order code
No.4 steel M12 eyebolts	1/4	PEBL0004



Lifting reinforcements

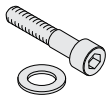
Used for handling several adjacent switchboards.

Description	Package/ No. pcs	Order code
No.2 lifting reinforcements for adjacent switchboards	1/2	PBRL0002

Wall-mounting brackets

Allow the switchboards to be fixed to a wall

Description	Package/ No. pcs	Order code
No.2 wall-mounting brackets	1/2	PBWF0002



Screws

Description	Package/ No. pcs	Order code
No.24 screws for side/rear panels	1/24	PSCP0024
No.24 screws 1/4 turn with washers	1/24	PCSS0024

Spray paints

Description	Package/ No. pcs	Order code
RAL7035 colour spray paint for structures	1/1	VB7035
RAL7012 colour spray paint for plinths	1/1	VB7012

Axial screws for uprights

Axial screws for 3 way joint uprights.

Description	Package/ No. pcs	Order code
No.16 axial screws for uprights	1/16	PSAF0016

Hinges for standard doors

Description	Package/ No. pcs	Order code
No.4 hinges for standard door	1/4	PHDR0004
No.4 180° opening hinges	1/4	PHFR4180

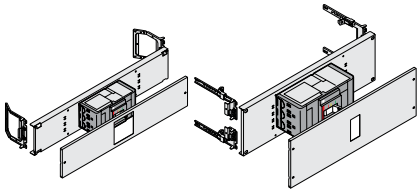
STOCK INDENT

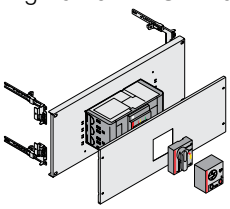
System pro *E* power
Quick selection guides

Kits for moulded-case circuit-breakers

Tmax XT horizontal installation

To assemble these kits, order the dedicated intermediate depth uprights PUKI2000 for H=2000mm. Intermediate uprights are not required for assembling fixed Tmax XT1, XT2, XT3, XT4, T4, T5, T6 and XT1, XT3 with Direct Rotary Handle only in non-segregated structures. Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.





NON-ACCESSORIZED CIRCUIT-BREAKERS

Front or rear CB connections	No. poles	Dimensions (mm) H	W	No. CB per compartment	Fixed	Withdrawable
XT1	3P 4P	200	400	1	PHBX1101	
	3P 4P	200	600	1	PHCX1101	
XT2	3P 4P	200	400	1	PHBX2401	PHBX2310 (1)
	3P 4P	200	600	1	PHCX2401	PHCX2310 (1)
	3P 4P	200	800	1	PHDX2401	
XT3	3P	150	400	1	PHBX3301 (3) (4)	
	3P	150	600	1	PHCX3301 (4)	
	3P 4P	200	400	1	PHBX3401 (3)	
	3P 4P	200	600	1	PHCX3401	
XT4	3P 4P	200	400	1	PHBX4401 (3)	
	3P 4P	200	600	1	PHCX4401	
	3P 4P	200	800	1	PHDX4401	
	3P 4P	250	400	1		PHBX4410
	3P 4P	250	600	1		PHCX4410

1) Only 3 poles
2) Only 4 poles
3) Not compatible with high terminal covers
4) No rear terminal segregation

ACCESSORIZED CIRCUIT-BREAKERS

Front or rear CB connections	No. poles	Dimensions (mm) H	W	No. CB per compartment	Fixed: Residual current device	Fixed: Direct Rotary Handle
XT1	3P	200	400	1	PHBX1323	
	3P	200	600	1	PHCX1323	
	3P 4P	200	400	1	PHBX1423 (2)	PHBX1105
	3P 4P	200	600	1	PHCX1423 (2)	PHCX1105
	3P 4P	500	400	2		
	3P 4P	500	600	2		
	4P	200	800	1	PHDX1423	
XT2	3P 4P	200	400	1	PHBX2423 (2)	PHBX2405
	3P 4P	200	600	1	PHCX2423 (2)	PHCX2405
	3P 4P	200	800	1	PHDX2423 (2)	
	3P 4P	500	400	2		
	3P 4P	500	600	2		
	4P	250	800	1		
XT3	3P 4P	200	400	1		PHBX3405
	3P 4P	200	600	1		PHCX3405
	3P 4P	500	400	2		
	3P 4P	500	600	2		
	4P	200	800	1	PHDX3423	
XT4	3P 4P	200	400	1	PHBX4423 (2) (4)	PHBX4405
	3P 4P	200	600	1	PHCX4423 (2)	PHCX4405
	3P 4P	200	800	1	PHDX4423 (2)	
	3P 4P	250	400	1		
	3P 4P	250	600	1		
	3P 4P	500	400	2		
	3P 4P	500	600	2		
	4P	250	800	1		

1) Only 3 poles
2) Only 4 poles
3) Compatible residual current devices: RC Inst. XT1-XT3, RC Sel. XT1-XT3 and RC Sel.. XT2-XT4 Type A. For XT1-XT3 fixed with residual current device high terminal covers are not available.
4) Not compatible with high terminal covers.

For fixed and withdrawable 3P breakers Tmax XT, non accessorized and mounted on 3/4P kit, it is necessary to order the dedicated cover flanges: AD3305 flange for XT1 3P mounted on plate, AD3306 flange for XT2 3P mounted on plate, AD3307 flange for XT3 3P mounted on plate, AD3308 flange for XT4 3P mounted on plate. With interlocked or interlocked motor-operated kits, it is necessary to order the quantity of flanges equal to the quantity of breakers.

STOCK INDENT

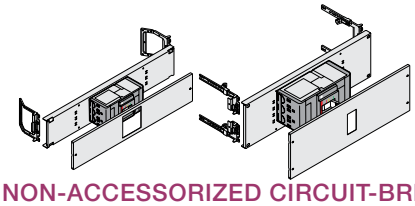
				Withdrawable				
	Motor operator	Interlocked	Interlocked motor-operated	Residual current device[3]	Direct Rotary Handle	Motor operator	Interlocked	Interlocked motor-operated
	PHBX1404							
	PHCX1404							
		PHBX1422	PHBX1424					
		PHCX1422	PHCX1424					
	PHBX2404				PHBX2300[1]	PHBX2312[1]		
	PHCX2404				PHCX2300[1]	PHCX2312[1]		
	PHDX2404							
		PHBX2402	PHBX2424				PHBX2425	PHBX2425
		PHCX2402	PHCX2424				PHCX2425	PHCX2425
	PHBX3404							
	PHCX3404							
		PHBX3422	PHBX3424					
		PHCX3422	PHCX3424					
	PHBX4404							
	PHCX4404							
	PHDX4404							
					PHBX4400	PHBX4412		
				PHCX4417[2]	PHCX4400	PHCX4412		
		PHBX4402	PHBX4424				PHBX4425	PHBX4425
		PHCX4402	PHCX4424				PHCX4425	PHCX4425

System pro *E* power
Quick selection guides

Kits for moulded-case circuit-breakers

Tmax T horizontal installation

To assemble these kits, order the dedicated intermediate depth uprights PUKI2000 for H=2000mm. Intermediate uprights are not required for assembling fixed Tmax XT1, XT2, XT3, XT4, T4, T5, T6 and XT1, XT3 with Direct Rotary Handle only in non-segregated structures. Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.

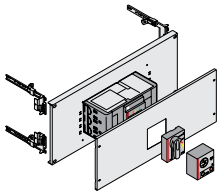


NON-ACCESSORIZED CIRCUIT-BREAKERS

Front or rear circuit- breaker connec.	No. poles	Dimensions (mm) H	W	No. CB per compart.	Fixed	Withdrawable
T4	3P	150	400	1	PHBT4301 (3) (4)	
	3P	150	600	1	PHCT4301 (4)	
	3P 4P	200	400	1	PHBT4406 (3)	
	3P 4P	200	600	1	PHCT4406	
T5 400A	3P	200	400	1		
	3P	200	600	1		
	3P	200	800	1		
	3P	300	400	1		PHBT5314
	3P	300	600	1		PHCT5314
	3P	300	800	1		PHDT5314
400A/630A	3P	200	400	1	PHBT5306 (3)	
	3P	200	600	1	PHCT5306	
	3P	200	800	1	PHDT5306	
400A	3P 4P	250	400	1		
	3P 4P	250	600	1		
	3P 4P	250	800	1		
	3P 4P	350	400	1		PHBT5414
	3P 4P	350	600	1		PHCT5414
	3P 4P	350	800	1		PHDT5414
400A/630A	3P 4P	250	400	1	PHBT5406 (3)	
	3P 4P	250	600	1	PHCT5406	
	3P 4P	250	800	1	PHDT5406	
630A	3P	200	600			
	3P	300	600			PHCT5310 ■
T6	3P	300	600	1	PHCT6301	
	3P	300	800	1	PHDT6301	
	3P 4P	350	600	1	PHCT6401	PHCT6314 (1) ■
	3P 4P	350	800	1	PHDT6401	PHDT6314 (1) ■
	3P 4P	500	600	1		PHCT6410 ■
	3P 4P	500	800	1		PHDT6414 ■
T7	3P	300	600	1	PHCT7329	
	3P	300	800	1	PHDT7329	
	3P	400	600	1		
	3P	400	800	1		
	3P 4P	350	600	1	PHCT7420	
	3P 4P	350	800	1	PHDT7420	
	3P 4P	500	600	1		PHCT7430 *
	3P 4P	500	800	1		PHDT7430 *

1) Only 3 poles
2) Only 4 poles
3) Not compatible with high terminal covers
4) No rear terminal segregation

■ Front terminals, only Form 1
* Only rear terminals



ACCESSORIZED CIRCUIT-BREAKERS

Front or rear circuit- breaker connections	No. poles	Dimensions (mm) H	W	No. CB per compart.	Fixed Residual current device (4)	Fixed Direct Rotary Handle
T4	3P 4P	200	400	1		PHBT4406 (3)
	3P 4P	200	600	1	PHCT4423(2)	PHCT4406
	3P 4P	600	400	2		
	3P 4P	600	600	2		
	3P 4P	600	800	2		
T5 400A	3P	200	400	1		
	3P	200	600	1		
	3P	200	800	1		
	3P	300	400	1		
	3P	300	600	1		
	3P	300	800	1		
400A/630A	3P	200	400	1		PHBT5306 (3)
	3P	200	600	1		PHCT5306
	3P	200	800	1		PHDT5306
400A	3P 4P	250	400	1		
	3P 4P	250	600	1		
	3P 4P	250	800	1		
	3P 4P	350	400	1		
	3P 4P	350	600	1		
	3P 4P	350	800	1		
	3P 4P	600	400	2		
	3P 4P	600	600	2		
	3P 4P	600	800	2		
400A/630A	3P 4P	250	400	1		PHBT5406 (3)
	3P 4P	250	600	1		PHCT5406
	3P 4P	250	800	1		PHDT5406
	3P 4P	600	600	2		
400A	4P	250	600	1	PHCT5423	
	4P	250	800	1	PHDT5423	
T6	3P	300	600	1		PHCT6305
	3P	300	800	1		PHDT6305
	3P 4P	350	600	1		PHCT6405
	3P 4P	350	800	1		PHDT6405
	3P 4P	500	600	1		
	3P 4P	500	800	1		
	3P 4P	700	600	2		
T7	3P	300	600	1		PHCT7329
	3P	300	800	1		PHDT7329
	3P 4P	350	600	1		PHCT7420
	3P 4P	350	800	1		PHDT7420
	3P 4P	400	600	1		
	3P 4P	400	8 00	1		
	3P 4P	500	600	1		
	3P 4P	500	800	1		

1) Only 3 poles
2) Only 4 poles
3) Not compatible with high terminal covers.
4) Compatible residual current devices: RC222 for T4 and T5.

STOCK INDENT

				Withdrawable			
	Motor operator	**Interlocked**	**Interlocked motor-operated**	**Direct Rotary Handle**	**Motor operator**	**Interlocked**	**Interlocked motor-operated**
	PHBT4404						
	PHCT4404						
		PHBT4402					
		PHCT4402	PHCT4403				
		PHDT4402	PHDT4403				
				PHBT5314	PHBT5312		
				PHCT5314	PHCT5312		
				PHDT5314	PHDT5312		
	PHBT5304						
	PHCT5304						
	PHDT5304						
				PHBT5414	PHBT5412		
				PHCT5414	PHCT5412		
				PHDT5414	PHDT5412		
						PHCT5425	PHCT5411
						PHDT5425	PHDT5411
	PHBT5404						
	PHCT5404						
	PHDT5404						
		PHCT5402	PHCT5403				
	PHCT6304						
	PHDT6304						
	PHCT6404			PHCT6314 (1) ■	PHCT6312 (1) ■		
	PHDT6404			PHDT6314 (1) ■	PHDT6312 (1) ■		
				PHCT6400 ■	PHCT6412 ■		
				PHDT6414 ■	PHDT6412 ■		
		PHCT6402	PHCT6403			PHCT6425 ■	PHCT6411 ■
	PHCT7329	PHCT7329	PHCT7329				
	PHDT7329	PHDT7329	PHDT7329				
	PHCT7420						
	PHDT7420						
		PHCT7418	PHCT7418				
		PHDT7418	PHDT7418				
				PHCT7430 *	PHCT7430 *	PHCT7430 *	PHCT7430 *
				PHDT7430 *	PHDT7430 *	PHDT7430 *	PHDT7430 *

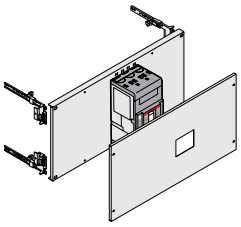
■ Front terminals, only Form 1
* Only rear terminals

System pro *E* power
Quick selection guides

Kits for moulded-case circuit-breakers

Tmax T vertical installation

To assemble these kits, order the dedicated intermediate depth uprights PUKI2000 for H=2000mm. Intermediate uprights are not required for assembling fixed Tmax XT1, XT2, XT3, XT4, T4, T5, T6 and XT1, XT3 with Direct Rotary Handle only in non-segregated structures.
Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.

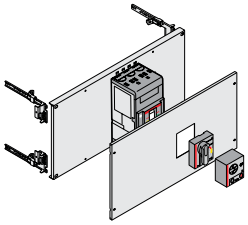


NON-ACCESSORIZED CIRCUIT-BREAKERS

Front or rear circuit-breaker connections	No. poli	Dimensions (mm) H	Dimensions (mm) W	No. adjacent CB	Fixed	Withdrawable
T6	3P	450	400	1		PVBT6314
	3P 4P	400	400	1	PVBT6401	
	3P 4P	400	600	1	PVCT6401	
	3P 4P	400	800	1	PVDT6401	
	3P 4P	450	600	1		PVCT6414 ■
	3P 4P	450	800	1		PVDT6414 ■
	3P 4P	450	1000	2		PVFT6610 ■
T7	3P 4P	450	600	1	PVCT7419	
	3P 4P	450	800	1	PVDT7419	
	3P 4P	500	600	1		PVCT7413 *
	3P 4P	500	800	1		PVDT7413 *
	3P 4P	500	1000	2		PVFT7633 *

1) Only front terminals not segregated

■ Front terminals, only Form 1
* Only rear terminals



ACCESSORIZED CIRCUIT-BREAKERS

Rear circuit-breaker connections	No. poles	Dimensions (mm) H	Dimensions (mm) W	No. adjacent CB	Fixed Residual current device (1)
T6	3P	450	400	1	
	3P 4P	400	400	1	
	3P 4P	400	600	1	
	3P 4P	400	800	1	
	3P 4P	450	600	1	
	3P 4P	450	800	1	
	3P 4P	450	1000	2	
T7	3P 4P	450	600	1	
	3P 4P	450	800	1	
	3P 4P	500	600	1	
	3P 4P	500	800	1	
	3P 4P	500	1000	2	

1) Compatible residual current devices: RC222 for T4 and T5.

■ Front terminals, only Form 1
* Only rear terminals

STOCK INDENT

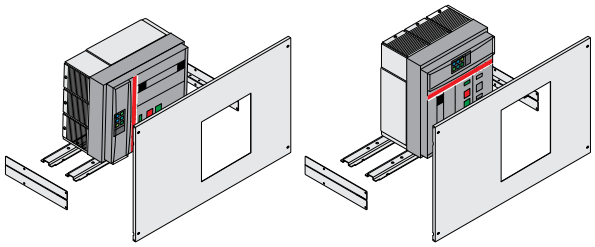
					Withdrawable			
	Direct rotary handle	Motor operator	Interlocked	Interlocked motor-operated	Direct rotary handle	Motor operator	Interlocked	Interlocked motor-operated
					PVBT6314	PVBT6312		
	PVBT6405	PVBT6404						
	PVCT6405	PVCT6404						
	PVDT6405	PVDT6404						
					PVCT6414 ■	PVCT6412 ■		
					PVDT6414 ■	PVDT6412 ■		
						PVFT6612 ■		
		PVCT7419	PVCT7419	PVCT7419				
		PVDT7419	PVDT7419	PVDT7419				
						PVCT7413 *	PVCT7413 *	PVCT7413 *
						PVDT7413 *	PVDT7413 *	PVDT7413 *
						PVFT7633 *		

System pro *E* power
Quick selection guides

Kits for air circuit-breakers

Emax 2 horizontal / vertical installation

To assemble these kits, order the dedicated intermediate depth upright PUKI2000 for H=2000mm.
Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.



NON-ACCESSORIZED CIRCUIT-BREAKERS

		Dimensions (mm)			
	No. poles	H	W	Fixed	Withdrawable
Front or rear connections, horizontal installation					
E1.2	3P 4P	400	600	PHCE1241	
	3P 4P	400	800	PHDE1241	
	3P 4P	500	600		PHCE1240 *
	3P 4P	500	800		PHDE1240 *
Front or rear connections, vertical installation					
E1.2	3P 4P	450	400	PVBE1241	
	3P 4P	450	600	PVCE1241	
	3P 4P	450	800	PVDE1241	
	3P 4P	450	800	PVDE1262(1)	
	3P 4P	500	600		PVCE1240 *
	3P 4P	500	800		PVDE1240 *
	3P 4P	500	1000		PVFE1263(1) *
Rear connections, vertical installation					
E2.2	3P 4P	600	600	PVCE2441	PVCE2450
	3P 4P	600	800	PVDE2441	PVDE2440
E4.2	3P 4P	600	600	PVCE2442	PVCE4350(2)
	3P 4P	600	800	PVDE2441	PVDE2440
E6.2	3P	700	1000		PVFE6230
E6.2 Neutral 50%	3P/4P	700	1000	PVFE6231	
E6.2 Neutral 50/100%	4P	700	1250		PVGE6230
E6.2 Neutral 50/100%	4P	700	1250	PVGE6231	

For 3200A busbar systems use structures with D=700mm, for 4000A busbar systems use structures with D=900mm.

1) Kit for 2 adjacent circuit-breakers.
2) Only 3 poles.

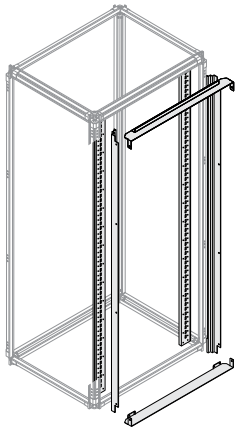
* Only rear terminals.

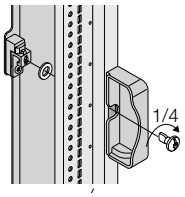
ACCESSORIZED CIRCUIT-BREAKERS

		Dimensions (mm)		Fixed	Withdrawable
Rear circuit-breaker connections	No. poles	H	W	Interlocked	Interlocked
Front or rear connections, horizontal installation					
E1.2	3P 4P	400	600	PHCE1241	
	3P 4P	400	800	PHDE1241	
	3P 4P	500	600		PHCE1240
	3P 4P	500	800		PHDE1240
Front or rear connections, vertical installation					
E1.2	3P 4P	450	400	PVBE1241	
	3P 4P	450	600	PVCE1241	
	3P 4P	450	800	PVDE1241	
	3P 4P	500	600		PVCE1240 *
	3P 4P	500	800		PVDE1240 *
Rear connections, vertical installation					
E2.2	3P 4P	600	600	PVCE2441	PVCE2450
	3P 4P	600	800	PVDE2441	PVDE2440
E4.2	3P	600	600		PVCE4350
	3P 4P	600	800	PVDE2441	PVDE2440
E6.2	3P	700	1000	PVFE6231	PVFE6230
E6.2 50/100% Neutral	4P	700	1250	PVGE6231	PVGE6230

STOCK INDENT

System pro *E* power
Order codes – Internal kits





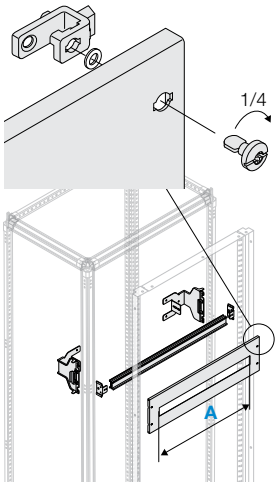
Special fixed frame for panels

Fixed frame for internal panels; the useful height of the switchboard can be used to full advantage. With fixed frame for panels, maximum wiring ducts dimension is 80 x 60 mm. The main advantage of the special fixed frame is to permit the addition of MCCBS kit or DIN rail kits without having to remove the entire frame with the front panels already installed.

Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Special fixed frame for panels	2000	400	1/1	PFFA2040
Special fixed frame for panels	2000	600	1/1	PFFA2060
Special fixed frame for panels	2000	800	1/1	PFFA2080
Special fixed frame for panels	2000	1000	1/1	PFFA2010
Special fixed frame for panels	2000	1250	1/1	PFFA2025

Kits for DIN rail

Description	Dimensions W (mm)	Package/ No. pcs	Order code
Standard DIN rail	400	1/1	PDRS0400
Standard DIN rail	600	1/1	PDRS0600
Standard DIN rail	800	1/1	PDRS0800



Panels for System Pro-*M* modular circuit-breakers and Tmax XT1 and Tmax XT3 moulded-case circuit-breakers [1]

Panels with 1/4 turn screws, hinged on the right or the left with the dedicated PHFP0020 kit.

Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Panel with 12 DIN modules	150	400	1/1	PPMF1540
Panel with 24 DIN modules	150	600	1/1	PPMF1560
Panel with 36 DIN modules	150	800	1/1	PPMF1580
Panel with 12 DIN modules	200	400	1/1	PPMF2040
Panel with 24 DIN modules	200	600	1/1	PPMF2060
Panel with 36 DIN modules	200	800	1/1	PPMF2080
Panel with 12x2 DIN modules	300	400	1/1	PPMF3040
Panel with 24x2 DIN modules	300	600	1/1	PPMF3060
Panel with 36x2 DIN modules	300	800	1/1	PPMF3080

1) The bracket and glossy plate kit can be ordered from the circuit-breaker catalogue. The sole glossy plate is available among the accessories in this catalogue.

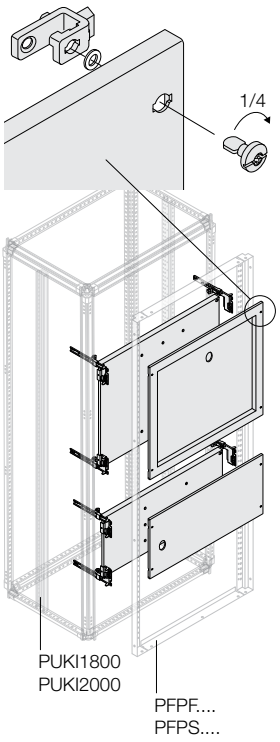
N° circuit breakers for each DIN rail

	A (mm)		
	12 mod.	24 mod.	36 mod.
Tmax	210	420	630
XT1 3P	2	5	8
XT1 4P	2	4	6
XT3 3P	2	4	6
XT3 4P	1	3	4

Compatible residual current devices:
Tmax XT
RC Inst. XT1-XT3, RC Sel. XT1-XT3 and RC Sel.. XT2-XT4 Type A. For XT1-XT3 fixed with residual current device high terminal covers are not available.
Tmax T
RC222 for T4 and T5.

To assemble these kits, order the dedicated intermediate depth uprights PUKI2000 for H=2000mm. Intermediate uprights are not required for assembling fixed Tmax XT1, XT2, XT3, XT4, T4, T5, T6 and XT1, XT3 with Direct Rotary Handle only in non-segregated structures. Order the dedicated fixed frame PFPF...for assembling internal panels.
For fixed and withdrawable 3P breakers Tmax XT, non accessorized and mounted on 3/4P kit, it is necessary to order the dedicated cover flanges: AD3305 flange for XT1 3P mounted on plate, AD3306 flange for XT2 3P mounted on plate, AD3307 flange for XT3 3P mounted on plate, AD3308 flange for XT4 3P mounted on plate. With interlocked or interlocked motor-operated kits, it is necessary to order the quantity of flanges equal to the quantity of breakers.

System pro *E* power
Order codes – Internal kits



Kits for OT

Kit for OT switch-disconnectors available up to 1600A both in horizontal and vertical version. The kit includes the dedicated fixing brackets, the mounting plate and panels with 1/4 turn screws, hinged on the right or the left with the dedicated PHFP0020 kit. For structure with intermediate upright.

Description	Dimensions (mm) H	L	Length Max lever (mm)	Min. shaft (mm)	Lever position	Package/No. pcs	Order code
Vertical installation 3/4 poles							
Kits for OT 160, 200, 250	350	600	80 (Ø6)	130 (Ø6)	E03-E04	1/1	PKOV1660
Kits for OT 160, 200, 250	350	800	80 (Ø6)	130 (Ø6)	E03-E04	1/1	PKOV1680
Kits for OT 315, 400	450	600	175 (Ø12)	95 (Ø12)	E03-E04	1/1	PKOV3160
Kits for OT 315, 400	450	800	175 (Ø12)	95 (Ø12)	E03-E04	1/1	PKOV3180
Kits for OT 630, 800	500	600	175 (Ø12)	70 (Ø12)	E03-E04	1/1	PKOV6360
Kits for OT 630, 800	500	800	175 (Ø12)	70 (Ø12)	E03-E04	1/1	PKOV6380
Kits for OT 1000, 1250, 1600	600	600	175 (Ø12)	170 (Ø12)	E12-E22	1/1	PKOV1060
Kits for OT 1000, 1250, 1600	600	800	175 (Ø12)	170 (Ø12)	E12-E22	1/1	PKOV1080
Horizontal installation 3/4 poles							
Kits for OT 160, 200, 250	250	600	80 (Ø6)	130 (Ø6)	E03-E04	1/1	PKOH1660
Kits for OT 160, 200, 250	250	800	80 (Ø6)	130 (Ø6)	E03-E04	1/1	PKOH1680
Kits for OT 315, 400	300	600	175 (Ø12)	95 (Ø12)	E03-E04	1/1	PKOH3160
Kits for OT 315, 400	300	800	175 (Ø12)	95 (Ø12)	E03-E04	1/1	PKOH3180
Kits for OT 630, 800	500	600	175 (Ø12)	70 (Ø12)	E03-E04	1/1	PKOH6360
Kits for OT 630, 800	500	800	175 (Ø12)	70 (Ø12)	E03-E04	1/1	PKOH6380
Kits for OT 1000, 1250, 1600	600	600	175 (Ø12)	170 (Ø12)	E12-E22 (1)	1/1	PKOH1060
Kits for OT 1000, 1250, 1600	600	800	175 (Ø12)	170 (Ø12)	E12-E22	1/1	PKOH1080

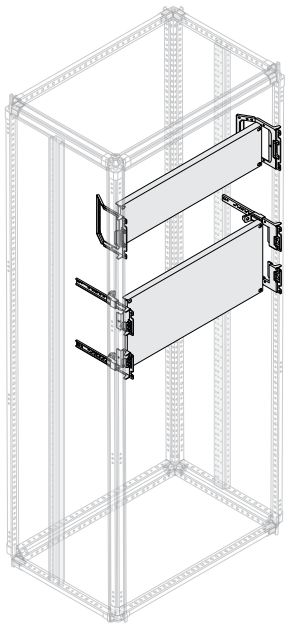
1) Only low terminal covers.

Order the dedicated fixed frame PFPF.... for assembling internal panels.

7

STOCK INDENT

System pro *E* power
Order codes – Internal kits

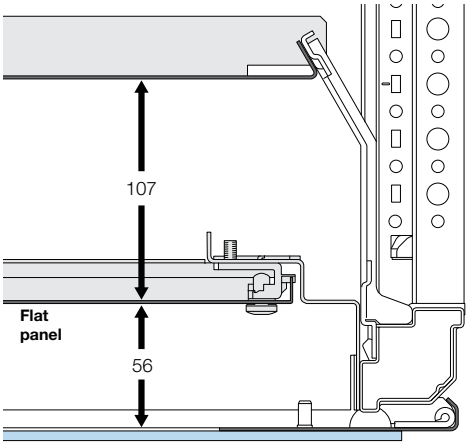


Blind mounting plates

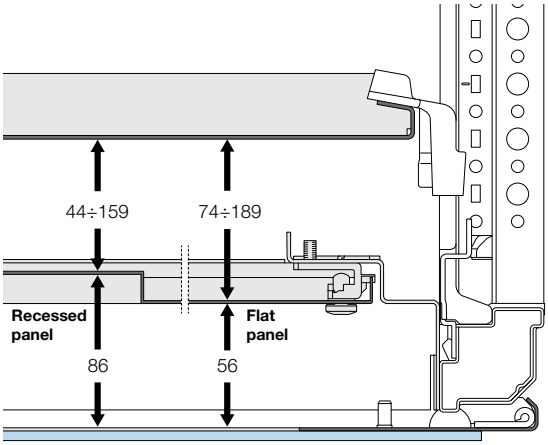
The kit includes the dedicated fixing brackets and the mounting plate.

Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Blind assembly plate	150	400	1/1	PPMB1540
Blind assembly plate	200	400	1/1	PPMB2040
Blind assembly plate	250	400	1/1	PPMB2540
Blind assembly plate	300	400	1/1	PPMB3040
Blind assembly plate	400	400	1/1	PPMB4040
Blind assembly plate	500	400	1/1	PPMB5004
Blind assembly plate	600	400	1/1	PPMB6040
Blind assembly plate	150	600	1/1	PPMB1560
Blind assembly plate	200	600	1/1	PPMB2060
Blind assembly plate	250	600	1/1	PPMB2560
Blind assembly plate	300	600	1/1	PPMB3060
Blind assembly plate	400	600	1/1	PPMB4060
Blind assembly plate	500	600	1/1	PPMB5006
Blind assembly plate	600	600	1/1	PPMB6060
Blind assembly plate	150	800	1/1	PPMB1580
Blind assembly plate	200	800	1/1	PPMB2080
Blind assembly plate	250	800	1/1	PPMB2580
Blind assembly plate	300	800	1/1	PPMB3080
Blind assembly plate	400	800	1/1	PPMB4080
Blind assembly plate	500	800	1/1	PPMB5008
Blind assembly plate	600	800	1/1	PPMB6080
Blind assembly plate	200	1000	1/1	PPMB2010
Blind assembly plate	300	1000	1/1	PPMB3010
Blind assembly plate	400	1000	1/1	PPMB4010
Blind assembly plate	500	1000	1/1	PPMB5001
Blind assembly plate	600	1000	1/1	PPMB6010

PPMB1540
PPMB1580

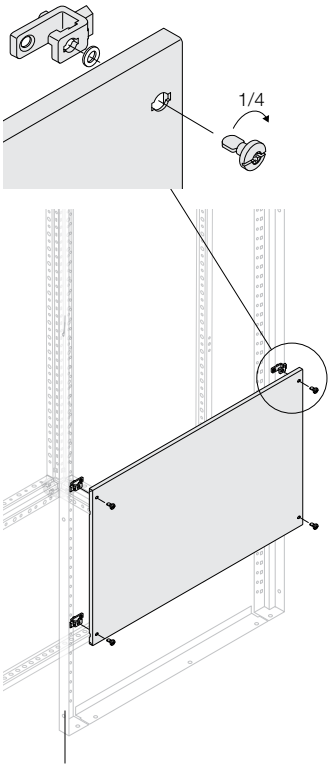


PPMB2040....PPMB6010



STOCK INDENT

System pro *E* power
Order codes – Internal kits



Flat blind panels

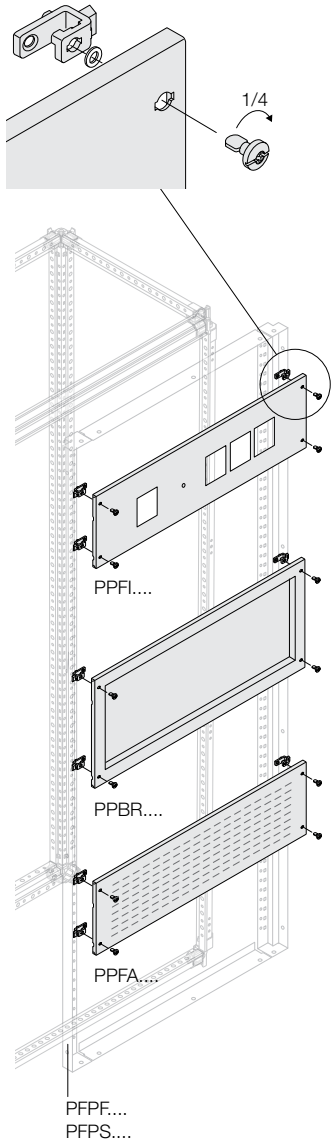
Panels with 1/4 turn screws, hinged on the right or left with the dedicated PHFP0020 kit.

Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Flat blind panel	50	400	1/1	PPFB5040
Flat blind panel	100	400	1/1	PPFB1040
Flat blind panel	150	400	1/1	PPFB1540
Flat blind panel	200	400	1/1	PPFB2040
Flat blind panel	250	400	1/1	PPFB2540
Flat blind panel	300	400	1/1	PPFB3040
Flat blind panel	400	400	1/1	PPFB4040
Flat blind panel	500	400	1/1	PPFB5004
Flat blind panel	600	400	1/1	PPFB6040
Flat blind panel	800	400	1/1	PPFB8040
Flat blind panel	1800	400	1/1	PPFB1840*
Flat blind panel	2000	400	1/1	PPFB2004*
Flat blind panel	50	600	1/1	PPFB5060
Flat blind panel	100	600	1/1	PPFB1060
Flat blind panel	150	600	1/1	PPFB1560
Flat blind panel	200	600	1/1	PPFB2060
Flat blind panel	250	600	1/1	PPFB2560
Flat blind panel	300	600	1/1	PPFB3060
Flat blind panel	400	600	1/1	PPFB4060
Flat blind panel	500	600	1/1	PPFB5006
Flat blind panel	600	600	1/1	PPFB6060
Flat blind panel	800	600	1/1	PPFB8060
Flat blind panel	1800	600	1/1	PPFB1860*
Flat blind panel	2000	600	1/1	PPFB2006*
Flat blind panel	50	800	1/1	PPFB5080
Flat blind panel	100	800	1/1	PPFB1080
Flat blind panel	150	800	1/1	PPFB1580
Flat blind panel	200	800	1/1	PPFB2080
Flat blind panel	250	800	1/1	PPFB2580
Flat blind panel	300	800	1/1	PPFB3080
Flat blind panel	400	800	1/1	PPFB4080
Flat blind panel	500	800	1/1	PPFB5008
Flat blind panel	600	800	1/1	PPFB6080
Flat blind panel	800	800	1/1	PPFB8080
Flat blind panel	1800	800	1/1	PPFB1880*
Flat blind panel	2000	800	1/1	PPFB2008*
Flat blind panel	100	1000	1/1	PPFB1010
Flat blind panel	200	1000	1/1	PPFB2010
Flat blind panel	300	1000	1/1	PPFB3010
Flat blind panel	400	1000	1/1	PPFB4010
Flat blind panel	500	1000	1/1	PPFB5001
Flat blind panel	600	1000	1/1	PPFB6010
Flat blind panel	800	1000	1/1	PPFB8010
Flat blind panel	200	1250	1/1	PPFB2012
Flat blind panel	250	1250	1/1	PPFB2512
Flat blind panel	300	1250	1/1	PPFB3012
Flat blind panel	350	1250	1/1	PPFB3512

Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.
* Only for swing frame PFPS.... Not compatible with the hinges accessory PHFP0020.

STOCK INDENT

System pro *E* power
Order codes – Internal kits



Panels for square measuring instruments

Panels with 1/4 turn screws, hinged on the right or left with the dedicated PHFP0020 kit.

Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Panel 2 instruments 96x96	200	600	1/1	PPFI2966
Panel 2 instruments 96x96	200	800	1/1	PPFI2968
Panel 4 instruments 96x96	200	800	1/1	PPFI4968

Recessed blind panels

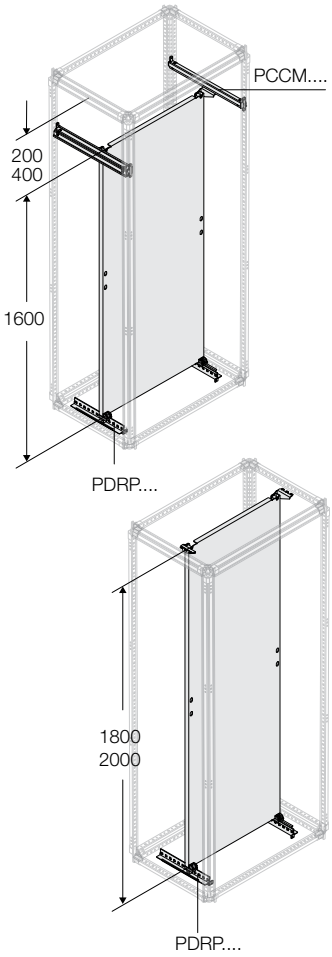
Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Recessed blind panel	200	400	1/1	PPBR2040
Recessed blind panel	400	400	1/1	PPBR4040
Recessed blind panel	600	400	1/1	PPBR6040
Recessed blind panel	200	600	1/1	PPBR2060
Recessed blind panel	400	600	1/1	PPBR4060
Recessed blind panel	600	600	1/1	PPBR6060
Recessed blind panel	200	800	1/1	PPBR2080
Recessed blind panel	400	800	1/1	PPBR4080
Recessed blind panel	600	800	1/1	PPBR6080

Ventilated panels

Description	Dimensions (mm) H	W	Package/No. pcs	Order code
Ventilated panel	100	400	1/1	PPFA1040
Ventilated panel	200	400	1/1	PPFA2040
Ventilated panel	100	600	1/1	PPFA1060
Ventilated panel	200	600	1/1	PPFA2060
Ventilated panel	100	800	1/1	PPFA1080
Ventilated panel	200	800	1/1	PPFA2080
Ventilated panel	100	1000	1/1	PPFA1010
Ventilated panel	200	1000	1/1	PPFA2010

Order the dedicated fixed frame PFPF.... or swing frame PFPS.... for assembling internal panels.

System pro *E* power
Order codes – Internal kits



Blind mounting plates total height

Description	Dimensions (mm) H	W	D	Package/No. pcs	Order code
Blind assembly plate	1800	400		1/1	PWRP1840
Blind assembly plate	1800	600		1/1	PWRP1860
Blind assembly plate	1800	800		1/1	PWRP1880
Blind assembly plate	2000	400		1/1	PWRP2040
Blind assembly plate	2000	600		1/1	PWRP2060
Blind assembly plate	2000	800		1/1	PWRP2080
Tracks for front insertion					
Pair of tracks for total height mounting plate			500	1/1	PDRP0500
Pair of tracks for total height mounting plate			700	1/1	PDRP0700
Pair of tracks for total height mounting plate			900	1/1	PDRP0900

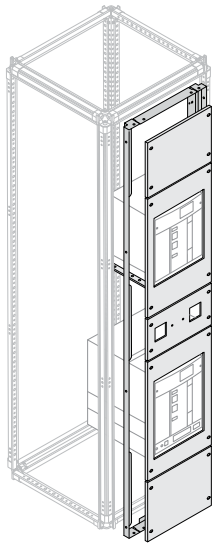
Crosspieces for mounting blind total height plate

Description	Dimensions D (mm)	Package/ No. pcs	Order code
No.2 crosspieces	500	1/2	PCCM0500
No.2 crosspieces	700	1/2	PCCM0700
No.2 crosspieces	900	1/2	PCCM0900

If the enclosure is higher than total height mounting plate, order no. 1 PCCM.... to mount the total height blind plate.

STOCK INDENT

System pro *E* power
Order codes – Internal kits



‘Space-saving’ column W=400mm

The ‘space-saving’ column is an extra opportunity in addition to the offer presented until now.

The ‘space-saving’ column is composed of one reduced fixed frame (H=1800mm or H=2000mm) for W=400mm columns with two fixed positions for the kit exclusively dedicated to:

E1.2 3/4P W;
E2.2 3P F;
E2.2 3P W.

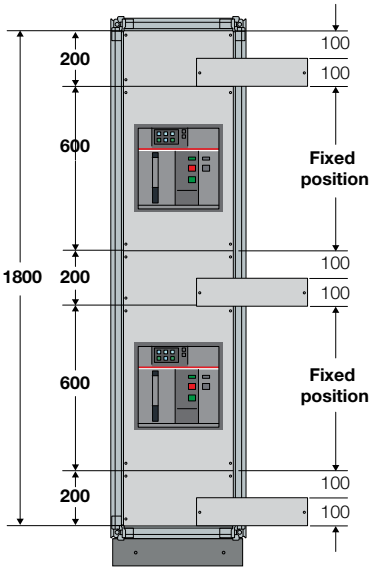
In order to complete this solution:
blind panel H=100, 200, 300 and 600mm;
modular or instrument panels H=200mm.

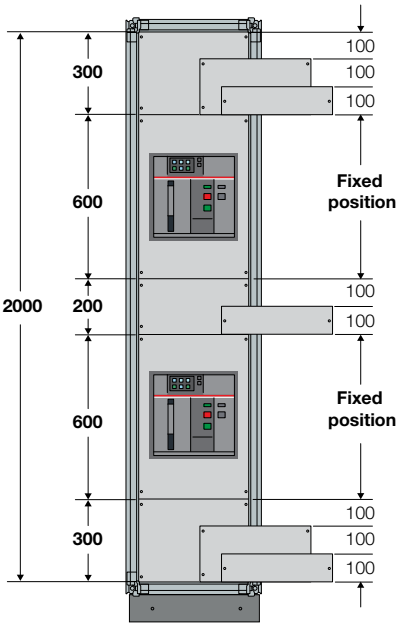
In this column type, it is not possible to mount kits for air-circuit breakers, moulded-case circuit breakers or modular breakers. The only possible configurations are the following ones.

Key:

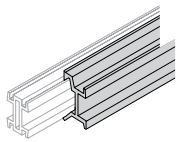
F fixed
W withdrawable

Description	Dimensions (mm) H	W	Package No. pcs	Order code
Frame				
Reduced fixed frame	2000	400	1/1	PFRF2040
Kit for reduced frame				
E1.2 3/4 P W vertical	600	400	1/1	PRBE1243
E2.2 3 P F vertical	600	400	1/1	PRBE2232
E2.2 3 P W vertical	600	400	1/1	PRBE2233
Panel for reduced frame				
Blind panel	100	400	1/1	PBRP1040
Blind panel	200	400	1/1	PBRP2040
Blind panel	300	400	1/1	PBRP3040
Blind panel	600	400	1/1	PBRP6040
Modular panel	200	400	1/1	PMRP2040
Standard DIN Rail		400	1/1	PDRS0400
Panel 2 instruments 72x72	200	400	1/1	PIRP2040





System pro *E* power
Order codes – Accessories and spare parts

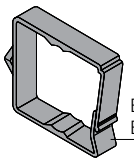


AP6000

DIN rail accessories

With fixed frame for panels, maximum wiring ducts dimension is 60 x 60mm.

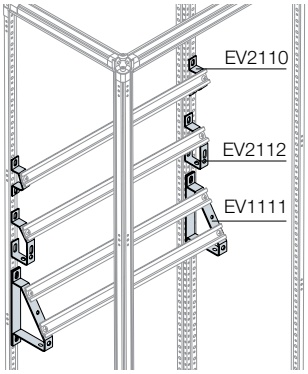
Description	Package/ No. pcs	Order code
Depth adapter		
Depth adapter for Tmax T1-T2-T3-XT1-XT3 W=600mm	1/1	AP6000



EV0036
EV0037

Universal cable holder brackets

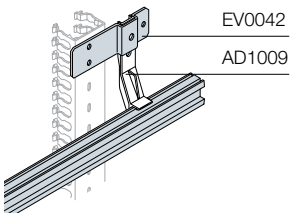
Description	Package/ No. pcs	Order code
No.5 cable holder D=28,5mm	1/5	EV0036
No.5 cable holder D=55mm	1/5	EV0037



EV2110
EV2112
EV1111

Angled supports for terminal boxes and earthing busbars

Description	Package/ No. pcs	Order code
No.10 angled supports 1 row of terminals	1/10	EV2110
No.10 angled supports double row of terminals	1/10	EV1111
No.10 angled supports 1 row of terminals + earth	1/10	EV2112



EV0042
AD1009

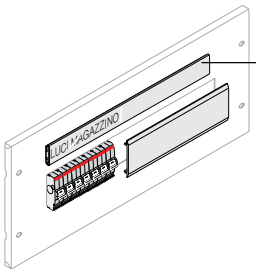
DIN rail and support for cable duct

With fixed frame for panels, maximum wiring ducts dimension is 60x60mm.

Description	Package/No. pcs	Order code
No.4 horizontal/vertical support for cable duct	1/4	EV0042
No. 4 plastic supports for horizontal DIN rail	1/4	AD1009

STOCK INDENT

System pro *E* power
Order codes – Accessories and spare parts

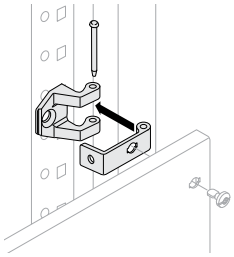


Panel Accessories

Description	Package/ No. pcs	Order code
No. 20 label holders 24 DIN mod	1/20	AD1600
No. 20 label holders 36 DIN mod	1/20	AD1800

Closing plug for instrument holder panels

Description	Package/ No. pcs	Order code
No.5 closing plug for instrument holder panels 96x96mm	1/5	EV1136

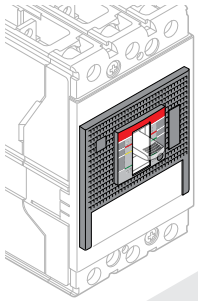


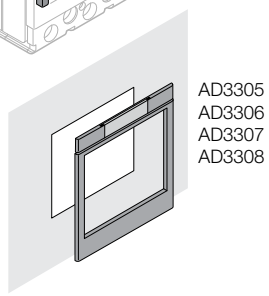
Hinges for panels

Hinges kit for panels (blind, instruments, recessed and vented panels). Not suitable for blind panels H=1800/2000mm.

Description	Package/ No. pcs	Order code
No. 20 hinges for frontal panels	1/20	PHFP0020

For the mounting of the internal panels order the fixed PFPF.... or swing PFPS.... dedicated frame





Spare parts Tmax XT cover plate for DIN rail

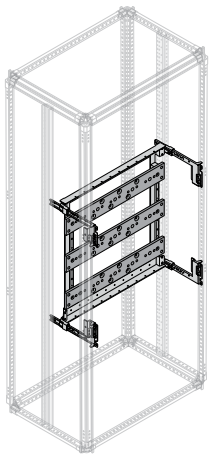
Description	Package/ No. pcs	Order code
Cover plate for Tmax XT1 3P mounted on DIN rail	1/1	AD3301
Cover plate for Tmax XT1 4P mounted on DIN rail	1/1	AD3302
Cover plate for Tmax XT3 3P mounted on DIN rail	1/1	AD3303
Cover plate for Tmax XT3 4P mounted on DIN rail	1/1	AD3304
Cover for panel XT1 3P mounted on plate	1/1	AD3305
Cover for panel XT2 3P mounted on plate	1/1	AD3306
Cover for panel XT3 3P mounted on plate	1/1	AD3307
Cover for panel XT4 3P mounted on plate	1/1	AD3308

Screws

Description	Package/ No. pcs	Order code
No. 24 1/4 turn screws with washers	1/24	PCSS0024

STOCK INDENT

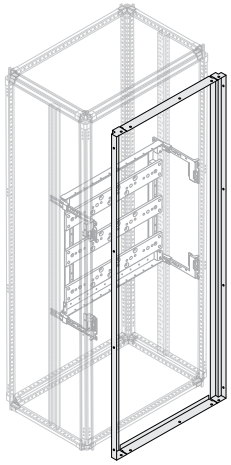
System pro *E* power
InLine II – Order codes



InLine II mounting kit

Kit for the fixing of InLine II fuseholders

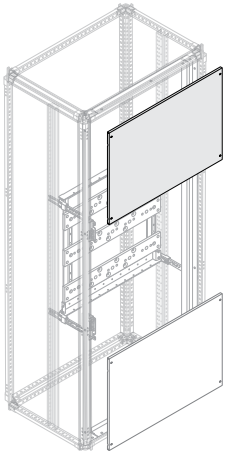
Description	Dimensions (mm) H	W	Package/No. pcs	Order code
InLine mounting kit + front panel	1200	600	1/1	PKNL1260
InLine mounting kit + front panel	1200	800	1/1	PKNL1280
InLine mounting kit + front panel	1200	1000	1/1	PKNL1210



Fixed frame for InLine II panels

Fixed frame for InLine II internal panels. InLine II fixed frame allows to fit only InLine II panels listed below.

Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Fixed frame for panels in the InLine column	2000	600	1/1	PFNL2060
Fixed frame for panels in the InLine column	2000	800	1/1	PFNL2080
Fixed frame for panels in the InLine column	2000	1000	1/1	PFNL2010

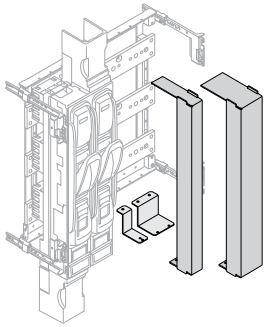


Flat blind panels for InLine II fixed frame

Panels with 1/4 turn screws, hinged on the right or left with the dedicated PHFP0020 kit. These panels are dedicated to InLine II fixed frame only.

Description	Dimensions (mm) H	W	Package/ No. pcs	Order code
Blind flat panel for InLine column	300	600	1/1	PPNL3060
Blind flat panel for InLine column	300	800	1/1	PPNL3080
Blind flat panel for InLine column	300	1000	1/1	PPNL3010
Blind flat panel for InLine column	400	600	1/1	PPNL4060
Blind flat panel for InLine column	400	800	1/1	PPNL4080
Blind flat panel for InLine column	400	1000	1/1	PPNL4010

Order 2 pieces for a complete structure.



InLine II dummy modules

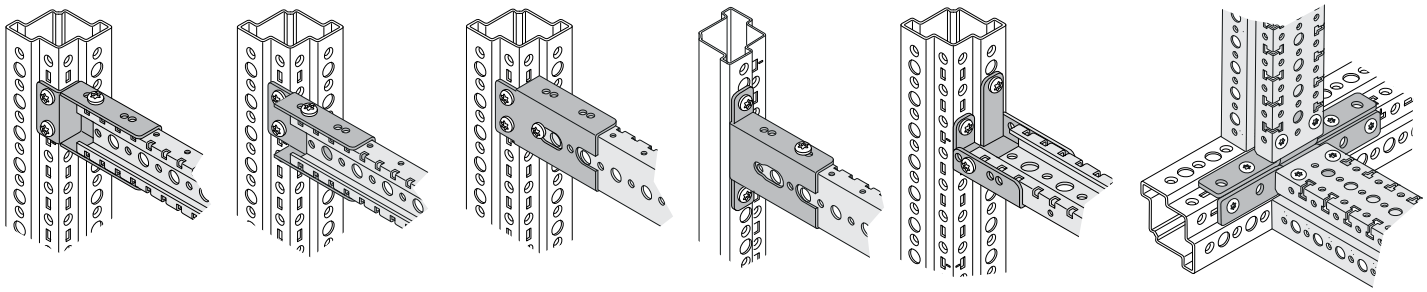
Dummy InLine II to cover free space in the enclosure and guarantee touch protection.

Description	Dimensions (mm) W	Package/No. pcs	Order code
InLine vertical compensator	50	1/1	PCNL0050
InLine vertical compensator	100	1/1	PCNL0100

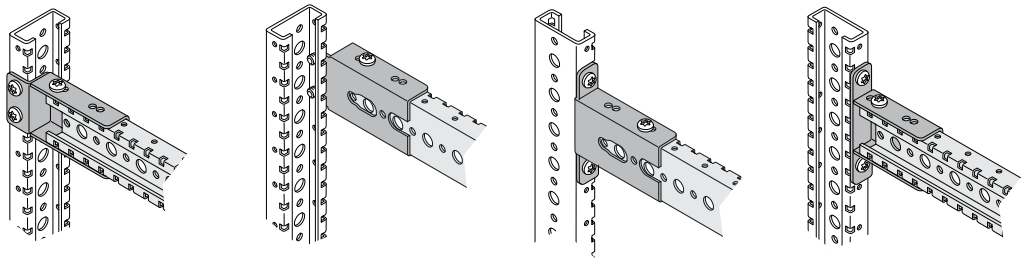
STOCK INDENT

System pro *E* power
Selection guides

Fixing between uprights and crosspieces



Fixing between crosspieces

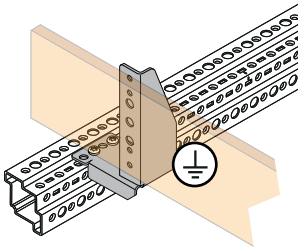


Crosspieces selections

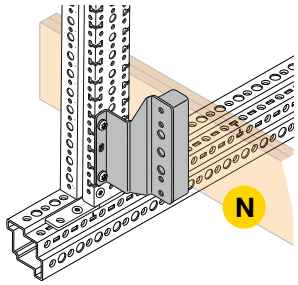
Description	Enclosure	Length [mm]	To be fitted in the following functional dimensions	Order code
Crosspieces with “C” profile	Structure without intermediate upright	188	No. 2 at 200	PCRM0188
		288	No. 2 at 300	PCRM0288
		388	No. 2 at 400	PCRM0388
		488	No. 2 at 500	PCRM0488
		588	No. 2 at 600	PCRM0588
		688	No. 2 at 700	PCRM0688
		788	No. 2 at 800	PCRM0788
		888	No. 2 at 900	PCRM0888
		988	No. 2 at 1000	PCRM0988
		1238	No. 2 at 1250	PCRM1238
	Structure with vertical intermediate upright	238	No. 2 at 500 with intermediate upright	PCRM0238
		338	No. 2 at 600 with intermediate upright	PCRM0338
		438	No. 2 at 700 with intermediate upright	PCRM0438
		538	No. 2 at 800 with intermediate upright	PCRM0538
		638	No. 2 at 900 with intermediate upright	PCRM0638
		738	No. 2 at 1000 with intermediate upright	PCRM0738
	Any type	2013	To be cut according to the need	PCRM2013
Crosspieces with intermediate upright profile	Any type	300	No. 2 at 300	PCKI0300
		400	No. 2 at 400	PCKI0400
		600	No. 2 at 600	PCKI0600
		800	No. 2 at 800	PCKI0800
		1000	No. 2 at 1000	PCKI1000
		1250	No. 2 at 1250	PCKI1250
		1800	No. 2 at 1800	PUKI1800
		2000	No. 2 at 2000	PUKI2000

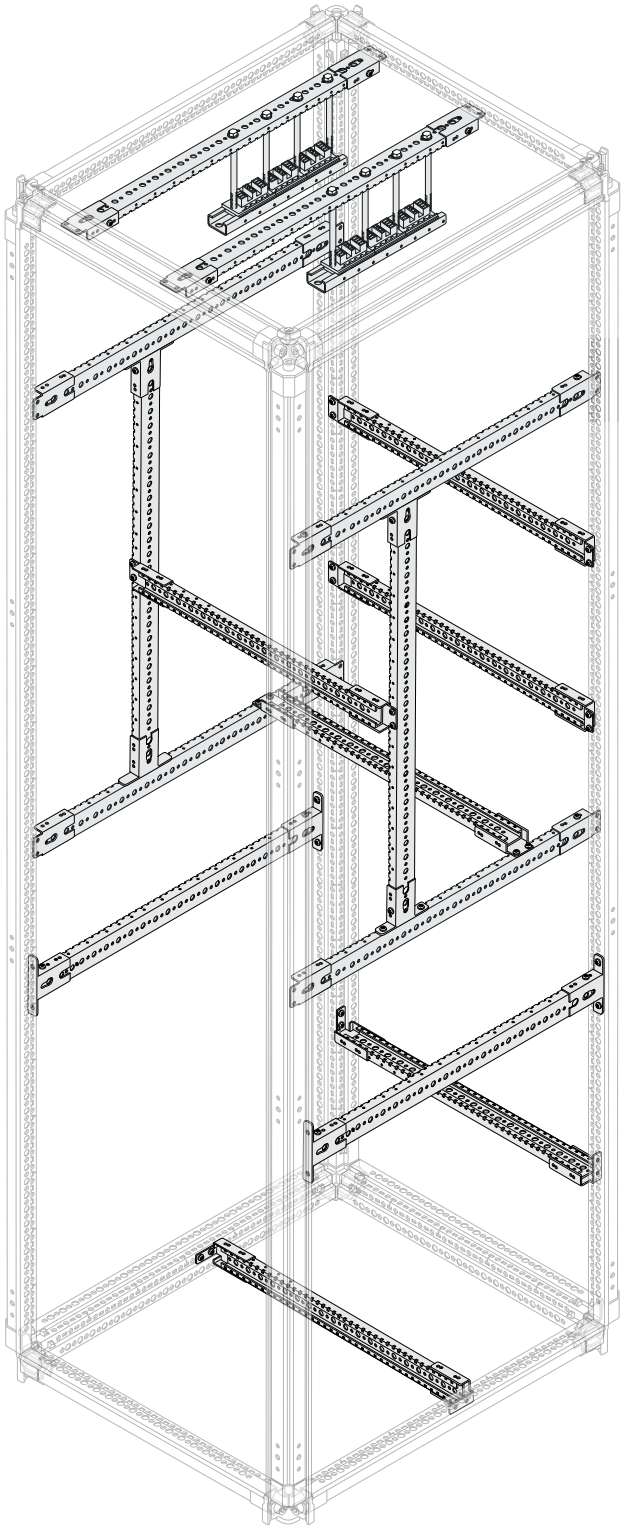
System pro *E* power
Selection guides

Earth fixing

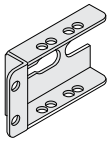
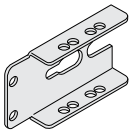
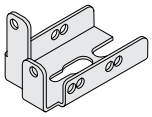
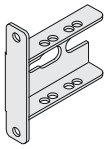
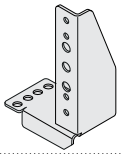
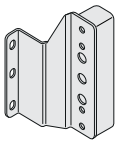


Neutral fixing



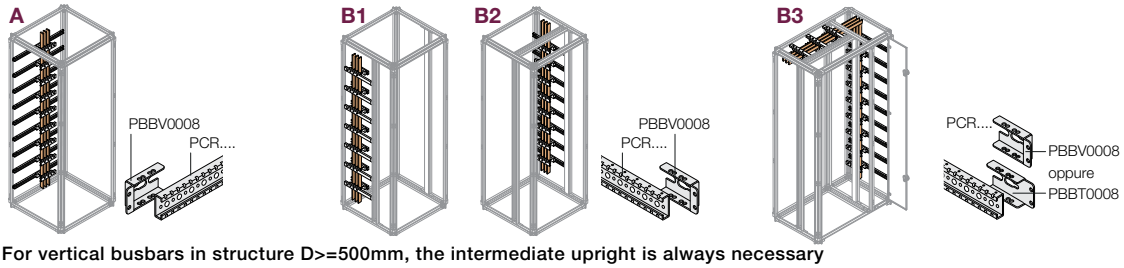


Brackets selections

Description	Order code
No. 8 recessed bracket for crosspiece 	PBBV0008
No. 8 flat bracket for crosspiece 	PBBT0008
No. 4 stepped bracket for crosspiece 	PBBH0004
No. 2 T-bracket for crosspiece 	PBMC0002
No. 2 bracket for PE busbar 	PBRP0002
No. 2 bracket for neutral busbar 	PBRN0002

STOCK INDENT

Linear System – Flat Busbars and Shaped Busbars
Fixing busbar holders to the structure.



For vertical busbars in structure D>=500mm, the intermediate upright is always necessary

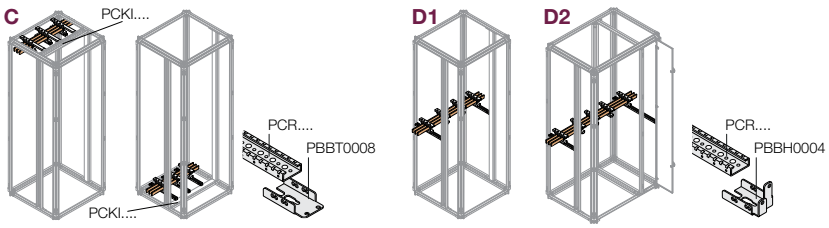
SUPPORTS FOR FIXING Crosspieces TO THE STRUCTURE (2 pieces per crosspiece)

A - Vertical busbars at the rear of the structure **PBBV0008** (1)	B1 - vertical busbars on the side of the structure B2 - vertical busbars with orizontal busbars in the structure - **PBBV0008** B3 - vertical busbars in the cable compartment with orizontal busbars in the structure **PBBV0008** (1) **- PBBT0008** (2) **(table 1)**	C - Horizontal busbars under the top or on the bottom of the structure (3) **PBBT0008** (4)	D1 - Horizontal busbars at any height of the structure D2 - Horizontal busbars at any height of the structure and internal cable compartment **PBBH0004**

Crosspieces FOR BUSBAR HOLDERS (1 piece per busbar holder)

Structure W (mm)	Crosspiece in galvanized sheet metal	Structure D (mm)	Crosspiece in galvanized sheet metal	Crosspiece in galvanized sheet metal + intermediate upright	Crosspiece in galvanized sheet metal + intermediate crosspiece PCKI....	Crosspiece in galvanized sheet metal (5)	Crosspiece in galvanized sheet metal + intermediate upright
		200	PCRM0188			PCRM0188	
300	PCRM0288	300	PCRM0288			PCRM0288	
400	PCRM0388						
		500	PCRM0488	PCRM0238	PCRM0238	PCRM0488	PCRM0238
600	PCRM0588						
		700	PCRM0688	PCRM0438	PCRM0438	PCRM0688	PCRM0438
800	PCRM0788						
		900	PCRM0888	PCRM0638	PCRM0638	PCRM0888	PCRM0638
1000	PCRM0988						

1) Use busbars with 100x10mm maximum section for structures with internal cable compartment L=200mm.
2) Use busbars with 80x10mm maximum section for structures with internal cable compartment L=200mm.
3) Order crosspieces PCKI.... to assemble busbars under the top or on the bottom, order PCCM.... cable compartment depth crosspieces as well.
4) Supports for vertical busbars, if present, will always have code PBBV0008.
5) In structures without intermediate upright, swing frame PFPS.... cannot be installed with horizontal busbars at all height.



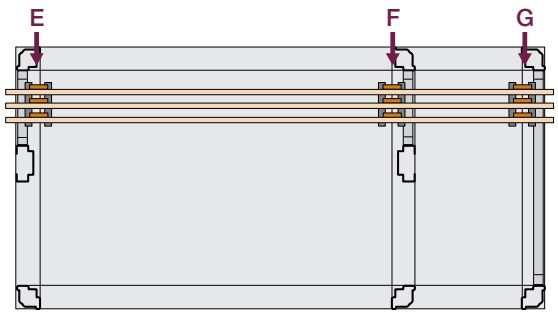
For horizontal busbars at each height in structure D>=500mm, the intermediate upright is always necessary

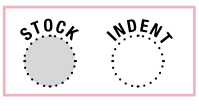
Table 1

Examples of the choice of supports for vertical busbars at the side

Position of the busbar holders		Supports for fixing vertical busbars
Horizontal busbars	Vertical busbars	
E+F	**E o F**	PBBT0008
E+F	**G**	PBBV0008
E+G	**E o G**	PBBT0008
E+G	**F**	PBBV0008

In case of separation Form 2b, 3b and 4b, use bracket PBBT0008.

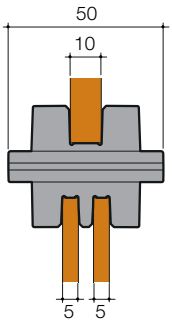




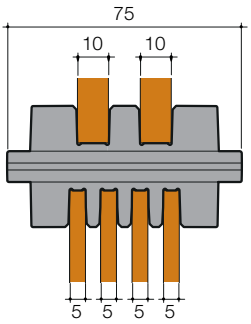
Linear System – Copper Flat Busbars

Choice of busbar holders and closing crosspieces in relation to the rated current In (A) and IP protection class.

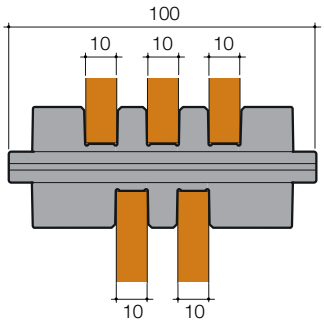
PBHB1125

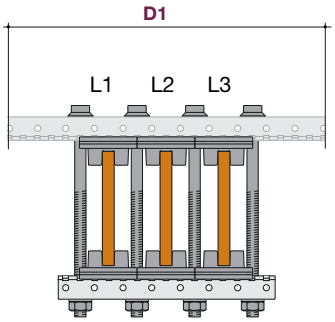


PBHB2145



PBHB3121

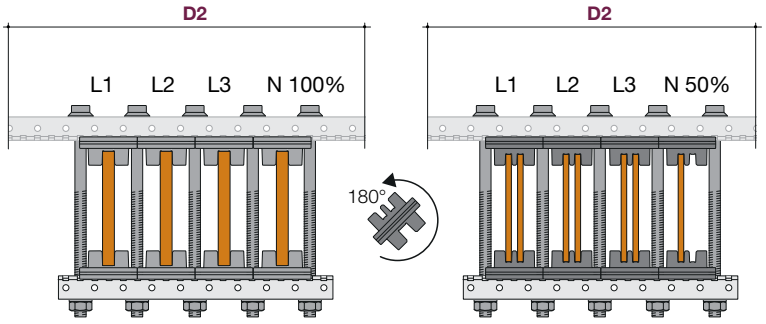




Description			Recommended D (busbar/ circuit-breaker/connection interaction) 3/4 pole			3 poles	Overall dimensions crosspieces supports 3-pole D1 (mm)		
Capacity In (A)	Number of busbars per phase	Section (mm)	D≥300	D≥700	D=900	Closing crosspiece 3-pole busbar holders 1 piece [3]	D1=all	D1≥300 [1]	D1≥400 [1]
IP40 / IP41 / IP65									
250	1	20x5	■			PCRM0188	■		
400	1	32x5	■			PCRM0188	■		
630	1	50x5	■			PCRM0188	■		
800	1	63x5	■			PCRM0188	■		
1000	2	40x5	■			PCRM0188	■		
1250	1	100x5	■			PCRM0188	■		
1600	1	100x10	■			PCRM0188	■		
2000	1	120x10		■		PCRM0188	■		
2000	2	60x10		■		PCRM0288		■	
2500	2	100x10		■		PCRM0288		■	
3200	3	100x10		■		PCRM0338			■
4000	3	120x10			■	PCRS0338			■
IP30 / IP31 / IP40 / IP41									
5000	3	160x10			■	PCRS0338			■
7000	3	200x10			■	PCRS0338			■

1) Excluding D=500mm with intermediate upright.
2) Use sheet metal crosspiece and nylon tie rods.
3) When busbars with increased center distance are installed, the length of the closing crosspiece must also be increased.
4) The pack contains 24 pieces.
5) The pack contains 10 pieces.

STOCK INDENT



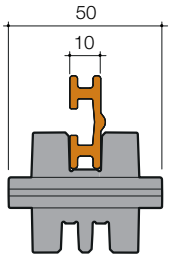
	4 poles				Overall dimensions crosspieces supports 4-pole D2 (mm)			Insulators [4]	Tie rods [5]
	100% Neutral Number busbars per phase	50% Neutral Number busbars per phase	Section (mm)	Closing crosspiece 4-pole busbar holders 1 piece [3]	D2≥300	D2≥400[1]	D2≥500[1]	3 poles 6 pieces 4 poles 8 pieces	3 poles 4 pieces 4 poles 5 pieces
	1	–	20x5	PCRM0238	■			PBHB1125	PTRN1951
	1	–	32x5	PCRM0238	■			PBHB1125	PTRN1951
	1	–	50x5	PCRM0238	■			PBHB1125	PTRN1951
	1	–	63x5	PCRM0238	■			PBHB1125	PTRN1951
	2	1	40x5	PCRM0238	■			PBHB1125	PTRN1951
	1	–	100x5	PCRM0238	■			PBHB1125	PTRN1951
	1	–	100x10	PCRM0238	■			PBHB1125	PTRN1951
	1	–	120x10	PCRM0238	■			PBHB1125	PTRN1951
	2	1	60x10	PCRM0338		■		PBHB2145	PTRN1951
	2	1	100x10	PCRM0338		■		PBHB2145	PTRN1951
	3	2	100x10	PCRM0438			■	PBHB3121	PTRN1951
	3	2	120x10	PCRS0438			■	PBHB3121	PTRS1201
	3	2	160x10	PCRS0438			■	PBHB3121	PTRS1601
	3	2	200x10	PCRS0438			■	PBHB3121	PTRS2001

System pro *E* power
Selection guides

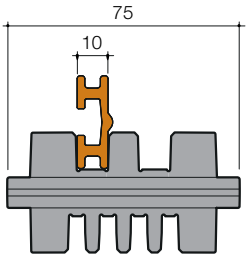
Linear System – Shaped Busbars

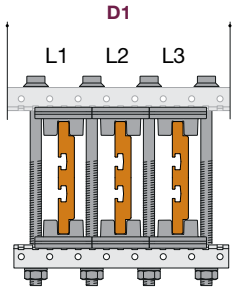
Choice of busbar holders and closing crosspieces in relation to rated current In (A) and IP protection class.

PBHB1125



PBHB2145

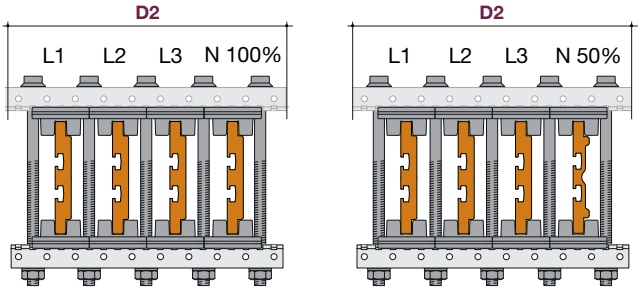




Capacity In (A)			Number of busbars per phase	WxW (mm)	Section (mm²)	Busbars	Recommended D (busbar/ circuit-breaker/connection interaction)		3 poles		Overall dimensions crosspieces supports 3-pole D1 (mm)	
							D≥300	D≥700	L1 L2 L3	Closing crosspiece 3-pole busbar holder 1 piece	D1=all	D1≥300 [1]
IP30/31	IP40/41	IP65										
475	440	400	1	30x10	165	PBSC0400	■		3xPBSC0400	PCRM0188	■	
655	643	630	1	35x10	204	PBSC0630	■		3xPBSC0630	PCRM0188	■	
958	840	800	1	45x10	324	PBSC0800	■		3xPBSC0800	PCRM0188	■	
1342	1220	1000	1	67x10	454	PBSC1000	■		3xPBSC1000	PCRM0188	■	
1418	1338	1250	1	70x10	516	PBSC1250	■		3xPBSC1250	PCRM0188	■	
1857	1744	1600	1	95x10	758	PBSC1600	■		3xPBSC1600	PCRM0188	■	
2354	2200	2000	1	105x15	995	PBSC2000		■	3xPBSC2000	PCRM0288		■
2860	2750	2500	1	105x15	1255	PBSC2500		■	3xPBSC2500	PCRM0288		■

1) Excluding D=500mm with intermediate upright.

STOCK INDENT



4 poles			Overall dimensions crosspieces supports 4-pole D2 (mm)		Insulators [3]	Tie rods [4]
100% Neutral	50% Neutral	Closing crosspiece 4-pole busbar holder 1 piece [2]	D2≥300	D2≥400[1]	3 poles 6 pieces 4 poles 8 pieces	3 poles 4 pieces 4 poles 5 pieces
4xPBSC0400	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC0630	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC0800	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC1000	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC1250	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC1600	–	PCRM0238	■		PBHB1125	PTRN1951
4xPBSC2000	–	PCRM0338		■	PBHB2145	PTRN1951
4xPBSC2500	3xPBSC2500 + 1xPBSC2000	PCRM0338		■	PBHB2145	PTRN1951

2) When busbars with increased center distance are installed, the length of the closing crosspiece must also be increased.

3) The pack contains 24 pieces.

4) The pack contains 10 pieces.

System pro *E* power
Selection guides

Compensators and connections for flat and shaped busbar

		Shaped busnbars							
	In / In	400A	630A	800A	1000A	1250A	1600A	2000A	2500A
Shaped busbars	400A	PFCB4080							PFCB4080
	630A	PFCB4080							PFCB4080
	800A	PFCB4080							PFCB4080
	1000A				PFCB1016				PFCB1016
	1250A				PFCB1016				PFCB1016
	1600A						PFCB1016	PFCB2025	PFCB2025
	2000A							2x PFCB2025	2x PFCB2025
	2500A								2x PFCB2025

PFCB4080 – Connections between shaped busbar/shaped busbar or shaped busbar/flat busbar for 400A, 630A, 800A
PFCB1016 – Connections between shaped busbar/shaped busbar or shaped busbar/flat busbar for 1000A, 1250A, 1600A
PFCB2025 – Connections between shaped busbar/shaped busbar or shaped busbar/flat busbar for 2000A, 2500A
PFCC0023 – Compensator for configurations compose of no. of busbar per phase>1

The connections can be used also for joining flat busbar/ shaped busbar (as per the chart above) if the following conditions are fulfilled:

- use of insulating support of the same size both in H and in V
- use of flat busbar with 10mm thickness

In case of joining a main flat busbar system composed of more than one busbar per phase and shaped busbar distribution system, it is recommended to align the shaped busbar to the flat busbar in the most rearward position.
The number of code for connection shall be multiplied by the number of phases included into the busbars system.

Example

Connection between shaped busbars 2500A and flat busbars 2500A

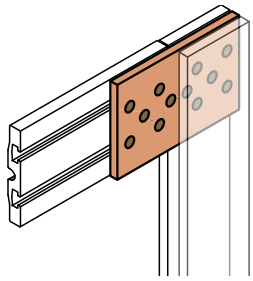
3P busbars system	6 x PFCB2025 + 3 x PFCC0029
4P busbars system	8 x PFCB2025 + 4 x PFCC0029

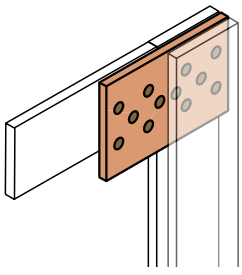
STOCK INDENT

	Flat busbars											
	800A	1000A	1250A	1600A	2000A	2000A	2500A	3200A	3200A	4000A	5000A	6300A
	1 Busbar for phase					2 Busbars for phase			3 Busbars for phase			
	PFCB4080								PFCB4080 + PFCC0023			
	PFCB4080								PFCB4080 + PFCC0023			
	PFCB4080								PFCB4080 + PFCC0023			
		PFCB1016							PFCB1016 + PFCC0023			
			PFCB1016						PFCB1016 + PFCC0023			
				PFCB2025					PFCB2025 + PFCC0023			
						2x PFCB2025 + PFCC0023						
							2x PFCB2025 + PFCC0023					

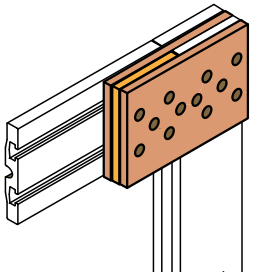
Examples of use

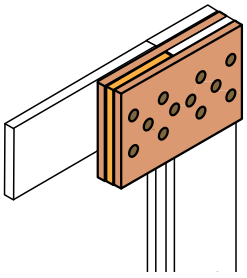
Flat busbars 2 for phase
Shaped busbar ≤ 2000A
PFCB4080 or PFCB1016 or PFCB2025



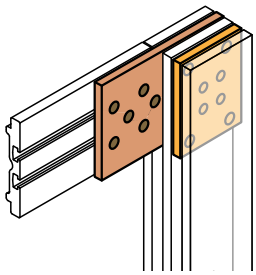


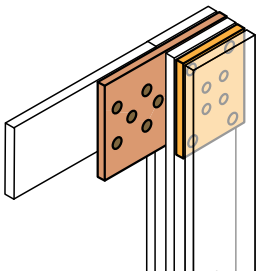
Flat busbars 2 for phase
Shaped busbar ≥ 2000A
2 x PFCB2025 + PFCC0023



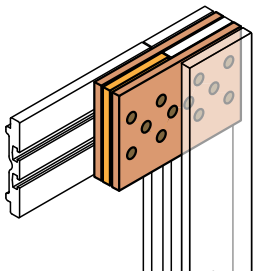


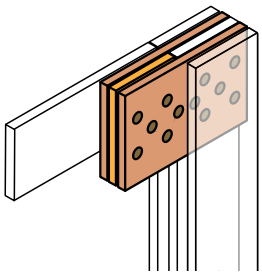
Flat busbars 3 for phase
Shaped busbar ≤ 1600A
PFCB4080 or PFCB1016 or PFCB2025 + PFCC0023



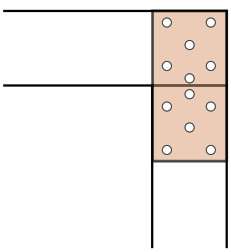


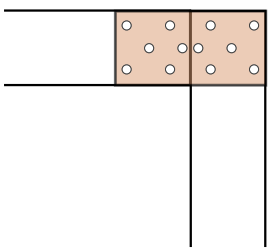
Flat busbars 3 for phase
Shaped busbar ≥ 2000A
2 x PFCB2025 + PFCC0023

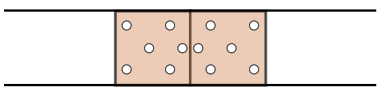




Examples of busbars junction

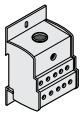
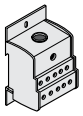
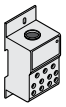
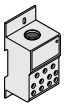
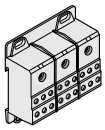
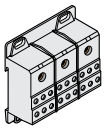




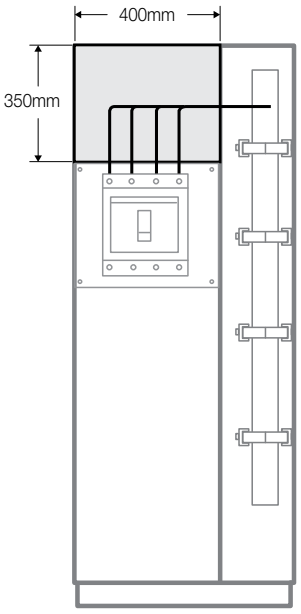


System pro *E* power
Modular dividers and Distribution systems

Modular dividers

		Single-pole						Three-poles	
									
Code		**AD1076**	**AD1080**[1]	**AD1007**	**AD1081**[2]	**AD1030**	**AD1031**	**AD1075**	**AD1006**
In	IEC (A)	125	125	160	160	250	400	125	160
	UL (A)	115	115	175	160	230	310	115	175
Icw	(kA)	4.4	4.2	11	1.1	21	21	4.4	11
Version	pole	1	1	1	1	1	1	3	3
Installation		DIN35/plate	DIN35/plate	DIN35/plate	DIN35/plate	DIN35/plate	DIN35/plate	DIN35/plate	DIN35/plate
power supply Ø cable (mm^2)	min.	10	6	16	10	35	95	10	16
	max	35	35	70	70	120	185	35	70
No. outgoing feeder Ø cable (mm^2)	1,5÷10					4	4		
	2,5÷16	10	6	10	6	5	5	6	6
	2,5÷25					2	2		
Dimensions HxWxD	(mm)	71x45x42,5	74x27x47	71x45x42,5	92x35x49	95.5x45x49	95.5x45x49	71.5x80x42,5	71.5x80x42,5
No. DIN modules		2,5	1,5	2,5	2	3	3	4.5	4.5
Rated service voltage Ue	(V)	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC	1000 V AC 1500 V DC
Degree of protection	IP	20	20	20	20	20	20	20	20
Mark		c UL us	c UL us	c UL us	UL	UL	UL	c UL us	c UL us

1) Possibility of putting in parallel with AD1083 connections.
2) Possibility of putting in parallel with comb type connection (not supplied).

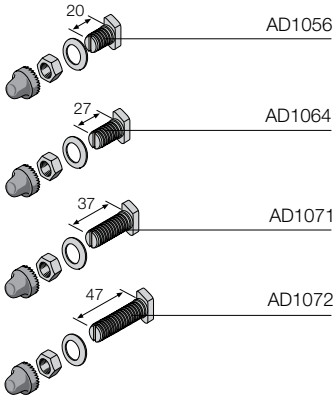


Distribution systems

Insulator for connections

Description	Package/ No.pcs	Order code
Horizontal insulator for XT1-XT2-XT3-XT4-T4	1/1	PITH1234
Horizontal insulator for T5	1/1	PITH5000
Horizontal insulator for T6	1/1	PITH6000
Vertical insulator for T6	1/1	PITV6000
Horizontal/Vertical insulator for T7-E1.2	1/1	PITE7120

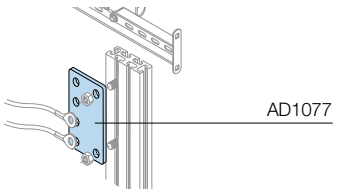
STOCK INDENT



Distribution systems *(conti.)*

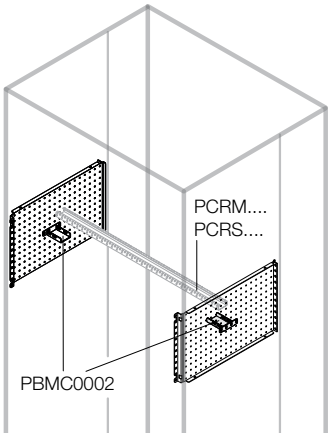
Hammer-head screws for shaped profile busbars

Description	Package/ No.pcs	Order code
No.12 screws M8 - L=20mm for cable terminals	1/12	AD1056
No.12screws M8 - L=27mm for plates up to 10mm, complete with screw cap	1/12	AD1064
No.12 screws M8 - L=37mm for plates up to 20mm, complete with screw cap	1/12	AD1071
No.12 screws M8 - L=47mm for plates up to 30mm, complete with screw cap	1/12	AD1072



Couplings for shaped profile busbars

Description	Package/ No.pcs	Order code
No.4 400A branch connectors in copper	1/4	AD1077



Accessories

Lateral connection module for terminal ditching

Lateral drilled module 25mm pitch for fixing the crosspieces with insulating supports in width from the intermediate upright up to the rear structural upright. In order to complete the terminals ditching it is necessary to fix sideways the two connection modules included in the code. The crosspieces PCRM .... or PCRS .... is fixed using the special fixing brackets for module connection PBMC0002. The crosspiece is to be chosen and ordered separately according to the width of the structure.

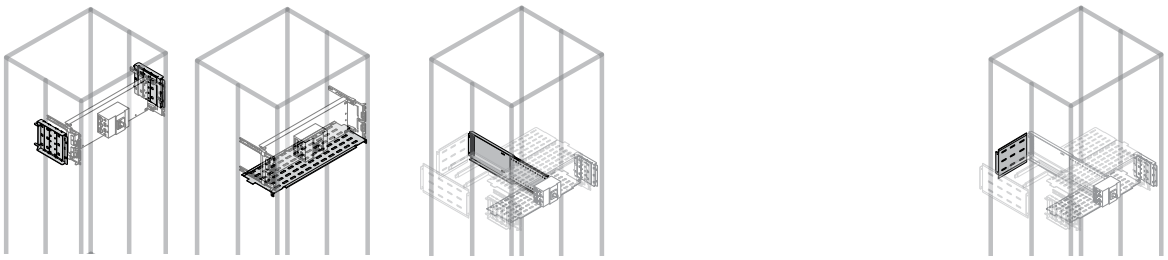
Description	Dimensions (mm) H	D	Package/ No. pcs	Order code
No.2 lateral connection modules	200	500	1/2	PMCS2050
No.2 lateral connection modules	225	500	1/2	PMCS2255
No.2 lateral connection modules	250	500	1/2	PMCS2550
No.2 lateral connection modules	300	500	1/2	PMCS3050
No.2 lateral connection modules	175	700	1/2	PMCS1757
No.2 lateral connection modules	200	700	1/2	PMCS2070
No.2 lateral connection modules	225	700	1/2	PMCS2257
No.2 lateral connection modules	250	700	1/2	PMCS2570
No.2 lateral connection modules	300	700	1/2	PMCS3070
No.2 lateral connection modules	175	900	1/2	PMCS1759
No.2 lateral connection modules	200	900	1/2	PMCS2090
No.2 lateral connection modules	225	900	1/2	PMCS2259
No.2 lateral connection modules	250	900	1/2	PMCS2590
No.2 lateral connection modules	300	900	1/2	PMCS3090
No.2 fixing brackets connection module			1/2	PBMC0002

STOCK INDENT

Choice of segregation to suit height of kits

Tmax T and Tmax XT moulded-case circuit-breakers

Horizontal installation

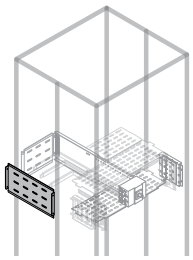


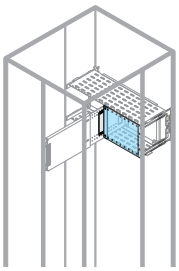
Height of kits (mm)	Form 2a	Form 3a [2]		Form 3b					
	Universal compartment side closing element	Universal horizontal shelf		Vertical segregation of terminals				Rear vertical bottom segregation on busbar side	
		Width of structure (mm)	For all depths	Width of structure (mm)	Depth of structure (mm) 500	700	900	Width of structure (mm)	For all depths
200	PPVS2200	400	PSHS1904	400	PSVS2050	PSVS2070	PSVS2090	400	PRVS2041
		600	PSHS1906	600	PSVS2050	PSVS2070	PSVS2090	600	PRVS2061
		800	PSHS1908	800	PSVS2050	PSVS2070	PSVS2090	800	PRVS2081
250	PPVS2250	400	PSHS1904	400	PSVS2550	PSVS2570	PSVS2590	400	PRVS2541
		600	PSHS1906	600	PSVS2550	PSVS2570	PSVS2590	600	PRVS2561
		800	PSHS1908	800	PSVS2550	PSVS2570	PSVS2590	800	PRVS2581
300	PPVS2300	400	PSHS1904	400	PSVS3050	PSVS3070	PSVS3090	400	PRVS3041
		600	PSHS1906	600	PSVS3050	PSVS3070	PSVS3090	600	PRVS3061
		800	PSHS1908	800	PSVS3050	PSVS3070	PSVS3090	800	PRVS3081
		1000	PSHS1901	1000	PSVS3050	PSVS3070	PSVS3090	1000	
350	PPVS2350	400	PSHS1904	400	PSVS3550	PSVS3570	PSVS3590	400	PRVS3541
		600	PSHS1906	600	PSVS3550	PSVS3570	PSVS3590	600	PRVS3561
		800	PSHS1908	800	PSVS3550	PSVS3570	PSVS3590	800	PRVS3581
400	PPVS2400	400	PSHS1904	400	PSVS4050	PSVS4070	PSVS4090	400	PRVS4041
		600 [1]	PSHS1906	600	PSVS4050	PSVS4070	PSVS4090	600	PRVS4061
		800 [1]	PSHS1908	800	PSVS4050	PSVS4070	PSVS4090	800	PRVS4081
500	PPVS2500	400	PSHS1904	400	PSVS5050	PSVS5070	PSVS5090	400	PRVS5041
		600 [3]	PSHS1906	600	PSVS5050	PSVS5070	PSVS5090	600	PRVS5061
		800 [3]	PSHS1908	800	PSVS5050	PSVS5070	PSVS5090	800	PRVS5081
		1000	PSHS1901	1000	PSVS5050	PSVS5070	PSVS5090	1000	
600	PPVS2600	400	PSHS1904	400	PSVS6050	PSVS6070	PSVS6090	400	PRVS6041
		600	PSHS1906	600	PSVS6050	PSVS6070	PSVS6090	600	PRVS6061
		800	PSHS1908	800	PSVS6050	PSVS6070	PSVS6090	800	PRVS6081
700	PPVS2700	600	PSHS1906						

1) Also for fixed/interlocked horizontal Emax 2 E1.2 for W=600mm and W=800mm.
2) To install only between kits with different depths (D≥38mm) and above and below the kit compositions (top and bottom).
3) For T7 withdrawable and withdrawable interlocked use the segregations for horizontal E1.2 withdrawable for W=600mm and W=800mm.
4) Only required when columns are installed side by side, to separate the cable area and busbar area.

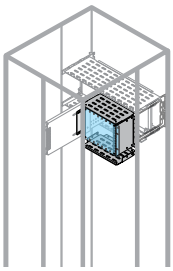
STOCK INDENT

For the cubicles assembly position please refer to page 6/46 taking into consideration the breakers type.

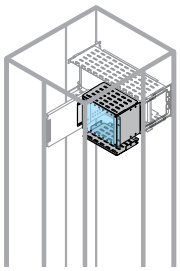




P0



P1



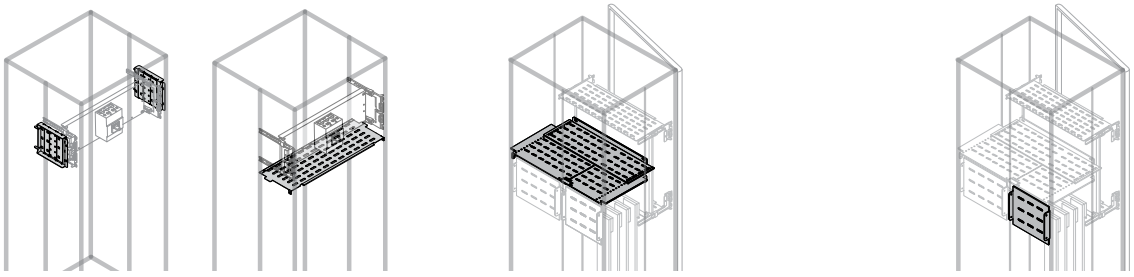
P2

					Form 4b		
	Side vertical segregation [4]				Cubicles to suit depth of circuit-breaker		
		Depth of structure (mm)			Assembly position		
	Width of structure (mm)	500	700	900	P0	P1	P2
	400	PLVS2052	PLVS2072	PLVS2092	PCVS0204	PCVS1204	PCVS2204
	600	PLVS2052	PLVS2072	PLVS2092	PCVS0206	PCVS1206	PCVS2206
	800	PLVS2052	PLVS2072	PLVS2092	PCVS0208	PCVS1208	PCVS2208
	400	PLVS2552	PLVS2572	PLVS2592	PCVS0254	PCVS1254	PCVS2254
	600	PLVS2552	PLVS2572	PLVS2592	PCVS0256	PCVS1256	PCVS2256
	800	PLVS2552	PLVS2572	PLVS2592	PCVS0258	PCVS1258	PCVS2258
	400	PLVS3052	PLVS3072	PLVS3092	PCVS0304	PCVS1304	PCVS2304
	600	PLVS3052	PLVS3072	PLVS3092	PCVS0306	PCVS1306	PCVS2306
	800	PLVS3052	PLVS3072	PLVS3092	PCVS0308	PCVS1308	PCVS2308
	1000						
	400	PLVS3552	PLVS3572	PLVS3592	PCVS0354	PCVS1354	PCVS2354
	600	PLVS3552	PLVS3572	PLVS3592	PCVS0356	PCVS1356	PCVS2356
	800	PLVS3552	PLVS3572	PLVS3592	PCVS0358	PCVS1358	PCVS2358
	400	PLVS4052	PLVS4072	PLVS4092	PCVS0404	PCVS1404	PCVS2404
	600	PLVS4052	PLVS4072	PLVS4092	PCVS0406	PCVS1406	PCVS2406
	800	PLVS4052	PLVS4072	PLVS4092	PCVS0408	PCVS1408	PCVS2408
	400	PLVS5052	PLVS5072	PLVS5092	PCVS0504	PCVS1504	PCVS2504
	600	PLVS5052	PLVS5072	PLVS5092	PCVS0506	PCVS1506	PCVS2506
	800	PLVS5052	PLVS5072	PLVS5092	PCVS0508	PCVS1508	PCVS2508
	1000						
	400	PLVS6052	PLVS6072	PLVS6092	PCVS0604	PCVS1604	PCVS2604
	600	PLVS6052	PLVS6072	PLVS6092	PCVS0606	PCVS1606	PCVS2606
	800	PLVS6052	PLVS6072	PLVS6092	PCVS0608	PCVS1608	PCVS2608

Choice of segregation to suit height of kits

Tmax T and Tmax XT moulded-case circuit-breakers

Vertical installation



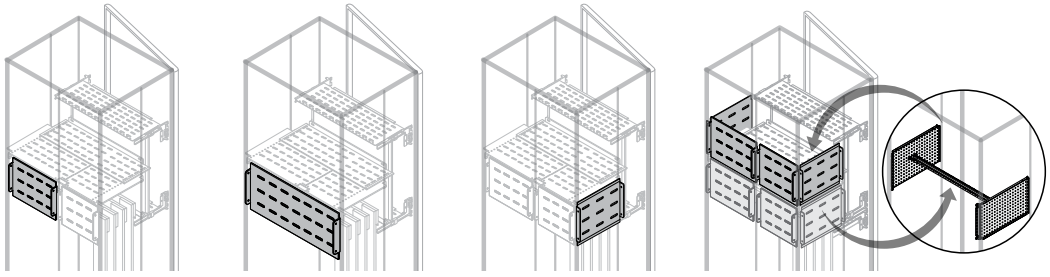
Height of kits (mm)	Form 2a	Form 3a [2]		Form 3b				
		Universal horizontal shelf		Horizontal segregation of terminals			Rear vertical bottom segregation on busbar side	
	Universal compartment side closing element	Width of structure (mm)	For all depths	Depth of structure (mm) 500	700	900	Width of structure (mm)	For all depths
200	PPVS2200	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	
		600	PSHS1906	PSHS6050	PSHS6070	PSHS6090	600	
		800	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	
		1000	PSHS1901				1000	
300	PPVS2300	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	
		600	PSHS1906	PSHS6050	PSHS6070	PSHS6090	600	
		800	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	
		1000	PSHS1901				1000	
350	PPVS2350	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	PRVS1741
		600	PSHS1906	PSHS6050	PSHS6070	PSHS6090	600	PRVS1761
		800	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	PRVS1781
		1000	PSHS1901				1000	
400	PPVS2400	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	PRVS2041
		800	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	PRVS2081
		1000	PSHS1901				1000	
450	PPVS2450	400 [1]	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	PRVS2241
		800 [1]	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	PRVS2251
		1000	PSHS1901				1000	
500	PPVS2500	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	PRVS2541
		600 [3]	PSHS1906	PSHS6050	PSHS6070	PSHS6090	600	PRVS2561
		800 [3]	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	PRVS2581
		1000	PSHS1901				1000	
600	PPVS2600	400	PSHS1904	PSHS4050	PSHS4070	PSHS4090	400	PRVS3041
		600	PSHS1906	PSHS6050	PSHS6070	PSHS6090	600	PRVS3061
		800	PSHS1908	PSHS8050	PSHS8070	PSHS8090	800	PRVS3081
		1000	PSHS1901				1000	
		1250					1250	

1) Also for fixed/interlocked vertical Emax 2 E1.2 for L=400mm, L=600mm and L=800mm.
2) To install only between kits with different depths (D≥38mm) and above and below the kit compositions (top and bottom).
3) For T7 withdrawable and withdrawable interlocked use the segregations for vertical E1.2 withdrawable for W=600mm and W=800mm.

STOCK INDENT

Form 4b

Form 4b is obtained by duplicating the codes of vertical bottom segregations PRVS... and vertical side segregations PLVS..., closing the circuit-breaker compartments over the entire height of the switchboard and installing an additional vertical side segregation on the output side.



As an alternative to the PLVS... vertical side segregations, in the case of main circuit-breakers (Tmax T5, T6, T7), use the PMCS... side connection module for fixing terminal extensions and the relative fixing brackets PBMC0002 (page 375).

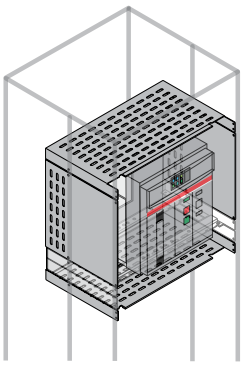
	Vertical bottom segregation on busbar side		Full width vertical bottom segregation		Vertical side segregation		
	Width of structure (mm)	For all depths	Width of structure (mm)	For all depths	Depth of structure (mm) 500	700	900
	400		400				
	600		600				
	800		800				
	1000		1000				
	400		400				
	600		600				
	800		800				
	1000		1000				
	400		400	PRVS1740	PLVS1752	PLVS1772	PLVS1792
	600	PRVS1762	600	PRVS1760	PLVS1752	PLVS1772	PLVS1792
	800	PRVS1782	800	PRVS1780	PLVS1752	PLVS1772	PLVS1792
	1000		1000	PRVS1710	PLVS1752	PLVS1772	PLVS1792
	400		400	PRVS2040	PLVS2052	PLVS2072	PLVS2092
	800	PRVS2082	800	PRVS2080	PLVS2052	PLVS2072	PLVS2092
	1000		1000	PRVS2010	PLVS2052	PLVS2072	PLVS2092
	400		400	PRVS2240	PLVS2252	PLVS2272	PLVS2292
	800	PRVS2282	800	PRVS2280	PLVS2252	PLVS2272	PLVS2292
	1000		1000	PRVS2210	PLVS2252	PLVS2272	PLVS2292
	400		400		PLVS2552	PLVS2572	PLVS2592
	600	PRVS2562	600	PRVS2560	PLVS2552	PLVS2572	PLVS2592
	800	PRVS2582	800	PRVS2580	PLVS2552	PLVS2572	PLVS2592
	1000		1000	PRVS2510	PLVS2552	PLVS2572	PLVS2592
	400		400	PRVS3040	PLVS3052	PLVS3072	PLVS3092
	600	PRVS3062	600	PRVS3060	PLVS3052	PLVS3072	PLVS3092
	800	PRVS3082	800	PRVS3080	PLVS3052	PLVS3072	PLVS3092
	1000		1000	PRVS3010	PLVS3052	PLVS3072	PLVS3092
	1250		1250	PRVS3125			

STOCK INDENT

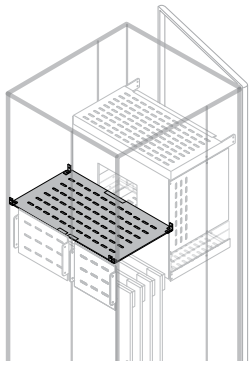
Choice of segregation

Emax 2 air circuit-breakers

E1.2 withdrawable - E2.2 - E4.2 - E6.2 vertical



E1.2 withdrawable - E2.2 - E4.2 - E6.2 vertical



Vertical fixed Emax 2

Form 2a-3a				Form 3b					
	Segregation kit			Horizontal terminal separator					
	E2.2	E4.2	E6.2		E2.2	E2.2	E4.2	E4.2	E6.2
	Height of kits (mm)				Depth (mm)				
Width of Kit/column (mm)	600	600	700	Width of Kit/column (mm)	700	900	700	900	900
600	PSVF6062	PSVF6064		600	PSHF6072	PSHF6092	PSHF6072	PSHF6092	
800	PSVF6082	PSVF6084		800	PSHF8072	PSHF8092	PSHF8072	PSHF8092	
1000			PSVF7016	1000					PSHF1096
1250			PSVF7126	1250					PSHF1296

Vertical withdrawable Emax 2

Form 2a-3a					Form 3b								
	Segregation kit				Horizontal terminal separator								
	E1.2	E2.2	E4.2	E6.2		E1.2	E1.2	E1.2	E2.2	E2.2	E4.2	E4.2	E6.2
	Height of kits (mm)					Depth (mm)							
Width of Kit/column (mm)	500	600	600	700	Width of Kit/column (mm)	500	700	900	700	900	700	900	900
600	PSVW5061[1]	PSVW6062	PSVW6064		600	PSHW6051[1]	PSHW6071[1]	PSHW6091	PSHW6072	PSHW6092	PSHW6074	PSHW6094	
800	PSVW5081[1]	PSVW6082	PSVW6084		800	PSHW8051[1]	PSHW8071[1]	PSHW8091	PSHW8072	PSHW8092	PSHW8074	PSHW8094	
1000				PSVW7016	1000								PSHW1096
1250				PSVW7126	1250								PSHW1296

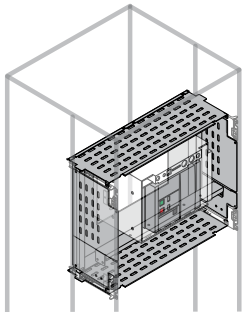
Horizontal withdrawable Emax 2

	Form 2a-3a		Form 3b		Form 4b	
	Segregation kit		Vertical terminal separator		Rear cubicle	
	E1.2		E1.2		E1.2	
	Width of kits (mm)		Depth (mm)		Width of column (mm)	
Height of kits (mm)	600	800	700	900	600	800
500	PSHW5061[2]	PSHW5081[2]	PSVS0055[2]	PSVS0057[2]	PCVS5060[2]	PCVS5080[2]

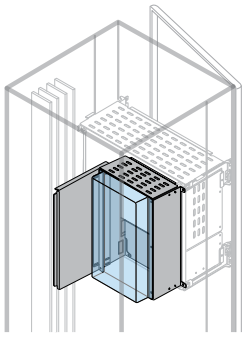
1) Also suitable for vertical T7 withdrawable and withdrawable interlocked.
2) Also suitable for horizontal T7 withdrawable and withdrawable interlocked.

Form 2a-3a

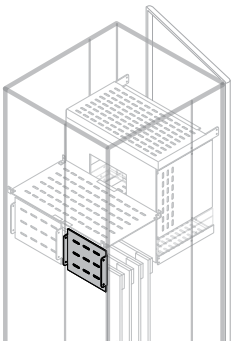
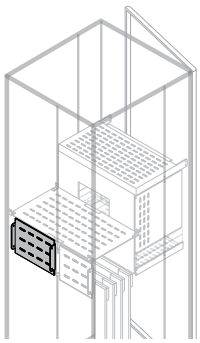
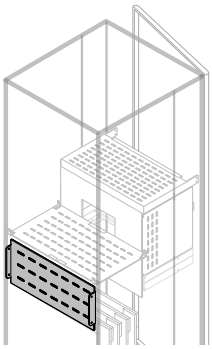
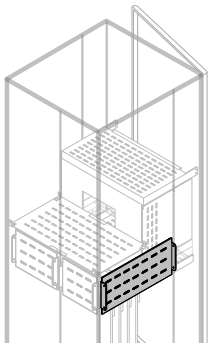
E1.2 horizontal



Form 3b-4b



STOCK INDENT

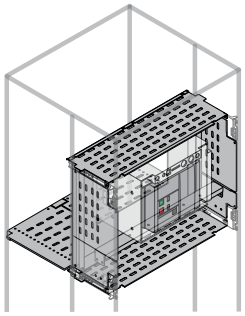





Bottom segregations					Side segregations		
	Structures with rear intermediate upright on busbar side	Structures with rear intermediate upright on output side	Structures without intermediate rear upright full-width segregation		Assembly between intermediate upright and rear structural upright		
	E2.2/E4.2	E2.2/E4.2	E2.2/E4.2	E6.2		E2.2/E4.2	E6.2
Width of Kit/column (mm)	Height of kits (mm)				Depth (mm)	Height of kits (mm)	
	600	600	600	700		600	700
600	PRVS3061	PRVS3062	PRVS3060		700	PLVS3072	PLVS3572
800	PRVS3081	PRVS3082	PRVS3080		900	PLVS3092	PLVS3592
1000			PRVS3010	PRVS3510			
1250			PRVS3125	PRVS3501			

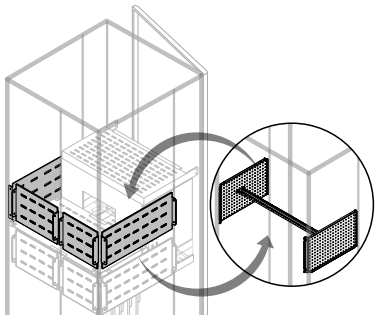
Bottom segregations								Side segregations			
	Structures with rear intermediate upright on busbar side		Structures with rear intermediate upright on output side		Structures without intermediate rear upright full-width segregation			Assembly between intermediate upright and rear structural upright			
Width of Kit/column (mm)	Height of kits (mm)							Height of kits (mm)	Depth (mm)		
	500	600	500	600	500	600	700		500	700	900
600	PRVS2561	PRVS3061	PRVS2562	PRVS3062	PRVS2560	PRVS3060		500	PLVS2552	PLVS2572	PLVS2592
800	PRVS2581	PRVS3081	PRVS2582	PRVS3082	PRVS2580	PRVS3080		600	PLVS3052	PLVS3072	PLVS3092
1000					PRVS2510	PRVS3010	PRVS3510	700	PLVS3552	PLVS3572	PLVS3592
1250					PRVS2512	PRVS3125	PRVS3501				

Form 2b

Breakers with rear terminals.
use dedicated kit 2a-3a and shelf PTHS... page 382.



Vertical circuit-breakers Form 4b

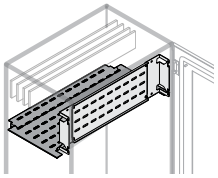
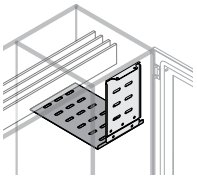
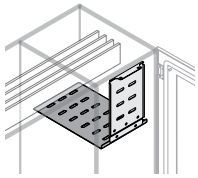


Form 4b is obtained by duplicating the codes of vertical bottom segregations PRVS... and vertical side segregations PLVS..., closing the circuit-breaker compartments over the entire height of the switchboard and installing an additional vertical side segregation on the output side.

As an alternative to the PLVS... vertical side segregations, in the case of main circuit-breakers, use the PMCS... side connection module for fixing terminal extensions and the relative fixing brackets PBMC0002 (page 375).

System pro *E* power
General information

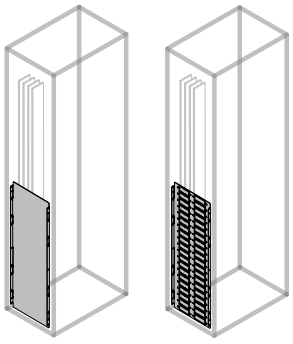
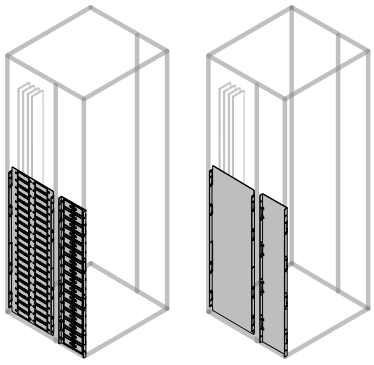
Choice of busbars segregation

Horizontal busbars

	Segregation for horizontal busbars: at top, at the bottom and at each height [1]											
	Structure				External cable compartment				Internal cable compartment			
	Form 2b				Form 2b, 3b, 4b				Form 2b, 3b, 4b			
	Without intermediate upright				Without intermediate upright				Without intermediate upright side structure			
	Horizontal shelves			Front segregations	Horizontal shelves			Front segregations	Horizontal shelves			Front segregations
	Depth (mm)			Height (mm)	Depth (mm)			Height (mm)	Depth (mm)			Height (mm)
Width (mm)	300	500	700	200	500	700	900	200	500	700	900	200
200									PTHS2050	PTHS2070	PTHS2090	PFVS2220
300					PTHS3050	PTHS3070	PTHS3090	PFVS2130				
400	PTHS4030	PTHS4050	PTHS4070	PFVS2040	PTHS4050	PTHS4070	PTHS4190	PFVS2140	PTHS4250	PTHS4270	PTHS4290	PFVS2240
600	PTHS6030	PTHS6050	PTHS6070	PFVS2060								
800	PTHS8030	PTHS8050	PTHS8070	PFVS2080								
1000												
1250												

1) Busbars at each height are foreseen only for segregation form different from Form 2b.
For the closing at the back off the structure use Form 3b segregations PRVS.... busbars/outgoing side at whole height.

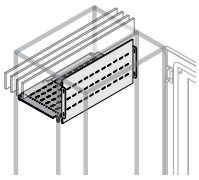



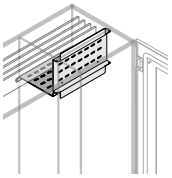
Vertical busbars

		Side segregation for vertical busbars					
		Structure					
		Form 2b		Form 2b [2]	Form 2b, 3b, 4b		
		Without intermediate upright		With intermediate upright Front	Rear		
		Depth(mm)		Depth (mm)			
Height (mm)	Type	500	700	179	500	700	900
700	blind				PLVS7052	PLVS7072	PLVS7092
800	blind	PTBS8050	PTBS8070	PTBS8001	PTBS8052	PTBS8072	PTBS8091
1000	blind	PTBS1050	PTBS1070	PTBS1001	PTBS1052	PTBS1072	PTVB1091
800	pre-cut	PTVS8050	PTVS8070	PTVS8001	PTVS8052	PTVS8072	PTVS8091
1000	pre-cut	PTVS1050	PTVS1070	PTVS1001	PTVS1052	PTVS1072	PTVS1091

2) Segregation Form 3b, 4b from the intermediate upright up to the front structural upright can be obtained only by means of lateral segregation closing Form 2a-3a.
For the closing at the back off the structure use Form 3b segregations PRVS.... busbars/outgoing side at whole height.

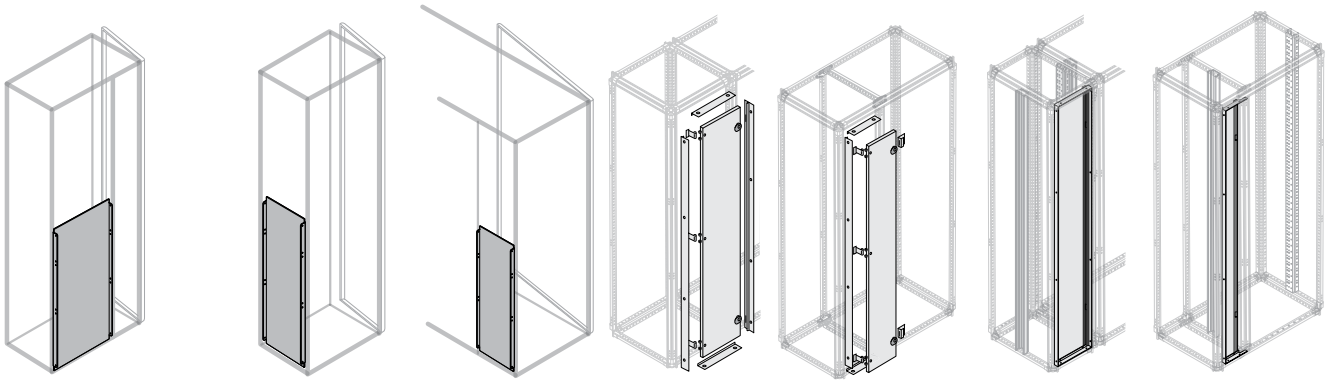
STOCK INDENT





Segregation for horizontal busbars: at top, at the bottom and at each height [1]																	
Structure					External cable compartment					Internal cable compartment							
Form 2b, 3b, 4b					Form 2b, 3b, 4b					Form 2b, 3b, 4b					Form 3b, 4b		
With intermediate upright					With intermediate upright					With intermediate upright side structure							
Horizontal shelves			Front segregations		Horizontal shelves			Front segregations		Horizontal shelves			Front segregations		Front segregations at each heights		
Depth (mm)			Height (mm)		Depth (mm)			Height (mm)		Depth (mm)			Height (mm)		Height (mm)		
500	700	900	200 [2]	300 [3]	500	700	900	200 [2]	300 [3]	500	700	900	200	300	200 [2]	300 [3]	
										PTHS2052	PTHS2072	PTHS2092	PFVS2222	PFVS3222	PFVS2223	PFSV3223	
					PTHS3052	PTHS3072	PTHS3092	PFVS2132	PFVS3132								
PTHS4052	PTHS4072	PTHS4092	PFVS2042	PFVS3042	PTHS4152	PTHS4172	PTHS4192	PFVS2042	PFVS3042	PTHS4252	PTHS4272	PTHS4292	PFVS2242	PFVS3242	PFVS2243	PFVS3243	
PTHS6052	PTHS6072	PTHS6092	PFVS2062	PFVS3062													
PTHS8052	PTHS8072	PTHS8092	PFVS2082	PFVS3082													
PTHS1052	PTHS1072	PTHS1092	PFVS2012	PFVS3012													
		PTHS1292	PFVS2122	PFVS3122													

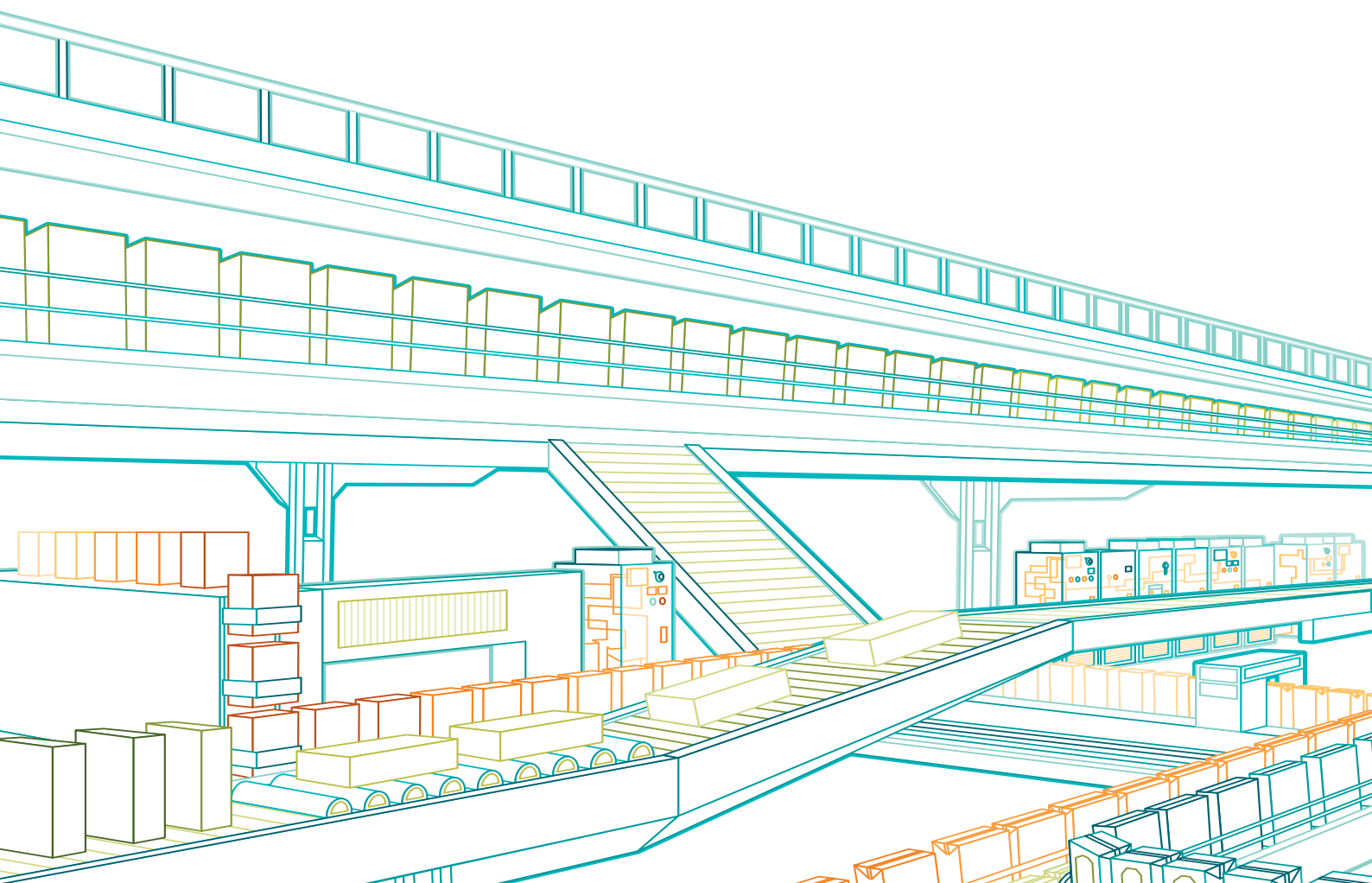
1) Busbars at each height are foreseen only for segregation form different from Form 2b.
2) For busbars at each height ≤100mm; for busbars at the top/bottom < 120mm.
3) For busbars at each height >100mm; for busbars at the top/bottom >120mm.



Cable compartment

Height (mm)	Blind side segregation for external cable compartment with intermediate upright			Rear segregation for external cable compartment		Rear segregation for internal cable compartment with rear intermediate upright		Internal door for external cable compartment		Internal door for internal cable compartment		Front vertical segregation for external cable compartment		Front vertical segregation for internal cable compartment	
	Depth (mm)			Width (mm)		Width (mm)		Width (mm)		Width (mm)		Width (mm)		Width (mm)	
	500	700	900	300	400	200	400	300	400	200	400	300	400	200	400
700	PLVS7052	PLVS7072	PLVS7092												
800	PTBS8052	PTBS8072	PTBS8091	PRVS8062	PRVS8082	PRBS8220	PRBS8240								
1000	PTBS1052	PTBS1072	PTVB1091	PRVS1062	PRVS1082	PRBS1220	PRBS1240								
1800								PDCB1830	PDCB1844	PDCB1820	PDCB1840	PFVS8030	PFVS8040	PFBS8020	PFBS8040
2000								PDCB2030	PDCB2044	PDCB2020	PDCB2040	PFVS1030	PFVS1040	PFBS1020	PFBS1040

STOCK INDENT



Control and Protection

Motor starting solutions 387

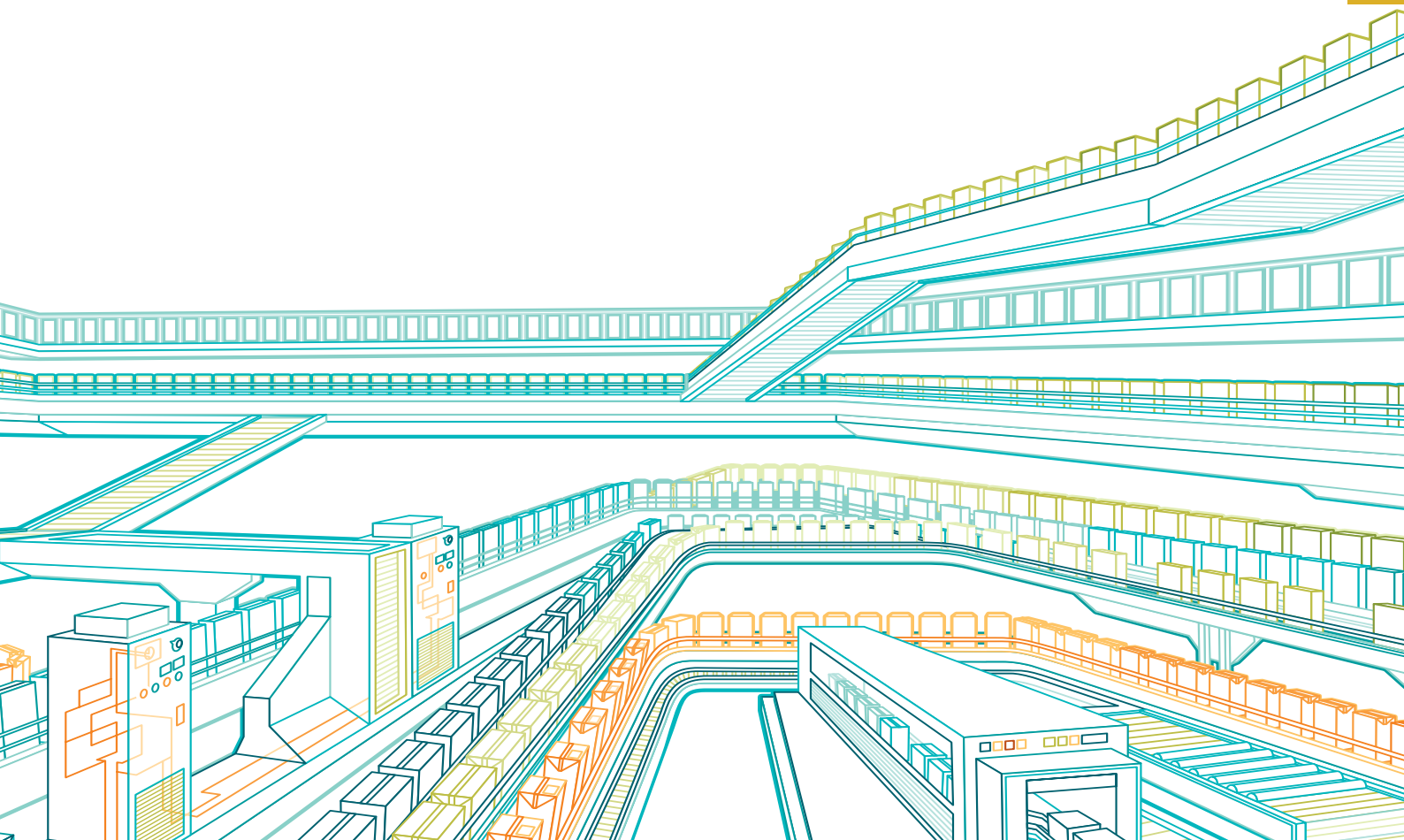
Manual motor starters 405

Contactors and contactor relays 423

Thermal and electronic overload relays 467

Softstarters 483

Electromechanical motor starter coordination tables 503



FIR
ABB
ABB

Motor starting solutions

Overview 388

Direct-on-line starters with AF Contactors 389
Open type version in kit form 389
Enclosed version 390

Reversing starters 391

Star-delta starters 392

ABB Softstarters 393

Universal Motor Controller – UMC100.3 394
Ordering details 395
Accessories 397
Universal Motor Controller 400

Low voltage AC drives 402

8

For more information on Motor starting solutions, please contact your local ABB representative.

One product family
Overview

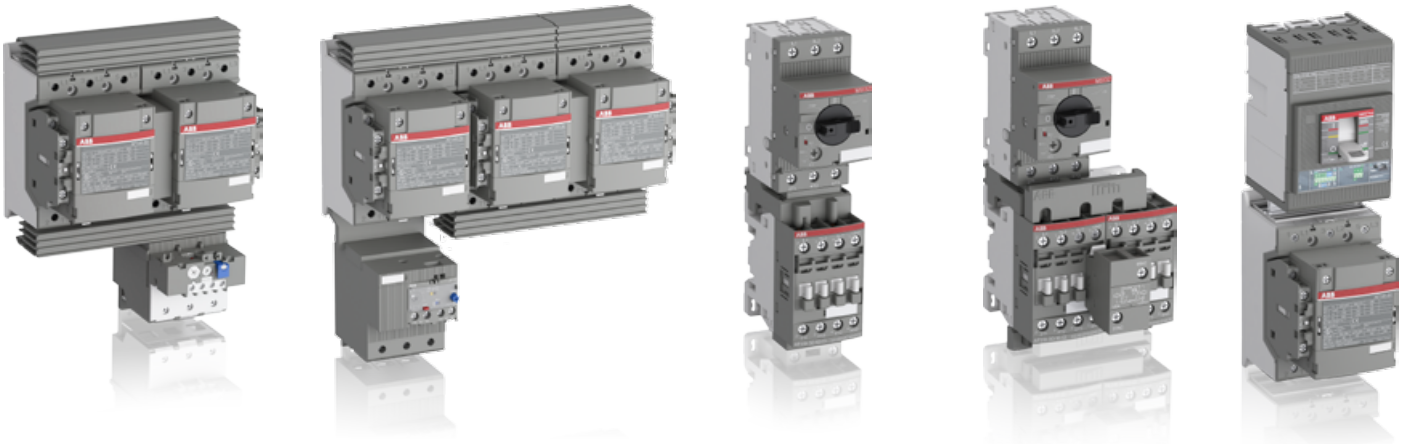
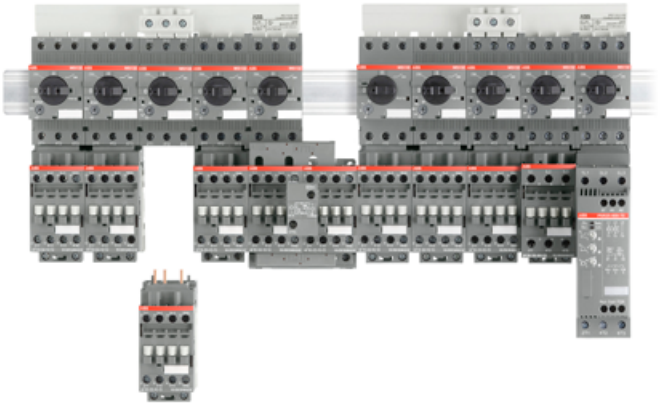


ABB presents a new generation of first-class specialized components: manual motor starters, contactors, overload relays and softstarters for motor starting solutions.

- Harmonized design and colour
- Compact and modular
- Low energy consumption
- Small number of parts
- Minimum need for accessories
- Optimized wiring and configuration
- High ratings and service capability
- Increased application possibilities
- Reliability proven over many years of experience



Large choice of starting solutions in kit form

Short-circuit and overload protection

- Type 1 or type 2 coordination guaranteed with manual motor starters
- Choice of thermal or electronic overload relays

Simple construction

- All starters in 45 mm width module

Time/cost saving

- Same frame size for AC or DC control supply
- Easy, fast and secure assembly, fitting and wiring of components

Coordination Types

The contactor and protection devices protect motors against overload and short-circuits according to coordination types 1 and 2 (IEC 60947-4-1 / EN 60947-4-1) defining the anticipated level of service continuity as follow:

Type 1: In short-circuit conditions, the contactor or starter does not endanger persons or installations and will be able to then not operate without being repaired or having parts replaced.

Type 2: In short-circuit conditions, the contactor or starter does not endanger persons or installations and will be able to operate afterwards. The risk of contacts light welding is acceptable.

Direct-on-line starters with AF Contactors – Open type version in kit form

Application

Full voltage direct-on-line starting for controlling three-phase asynchronous motors is a simple and economic solution characterised by a high starting torque (1.9 to 2.1 times full-speed torque) and a starting current 5.5 to 7 times nominal current. Protection can be provide by a manual motor starter or by fuses with overload relays.

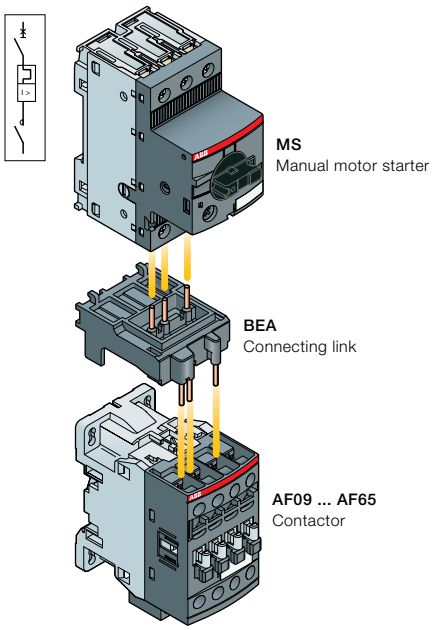
Description for protection with manual motor starter

You can easily assemble a direct-on-line starter by using the BEA..4 connecting link 3-pole insulated. It is used to electrically and mechanically connect MS... manual motor starter and AF... contactor, AC or DC operated.

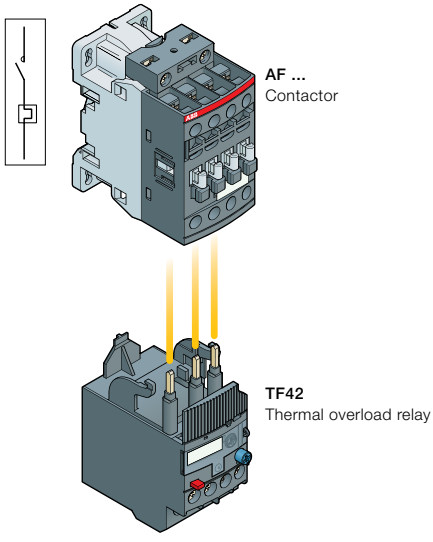
Description for protection with overload relay

You can easily assemble a direct-on-line starter by connecting AF contactor and TF42 thermal overload relay.

Product selection can be done via chapter 5 of the main catalogue and by the online coordination tool:
http://applications.it.abb.com/SOC/Page/Selection.aspx



Direct-on-line starter with manual motor starter protection



Direct-on-line starter with overload relay protection

8

Direct-on-line starters with AF Contactors – Enclosed version
DRAF09 … DRAF16 enclosed direct-on-line starters
Up to 7.5 kW, protected by thermal overload relays, AC operated

Description

Enclosed direct-on-line (DOL) starters are used for controlling 3-phase asynchronous motors up to 690 V AC.
Each starter is delivered assembled and wired. It contains:

- IP66 and type 4X plastic enclosure with double insulation, equiped with:
- 1 green flush 'I' ON button and 1 red protruding 'O' OFF/RESET button
- 4 cable inlets and outlets via knockouts.
- 1 AF 3-pole contactor with holding contact
- 1 CB510 start contact block
- 1 PE and 1 neutral terminal.

Control supply wiring:

IEC starters type: phase-to-phase, separate supply or phase-to-neutral.
TF42 thermal overload relay to be ordered separately and selected according to motor's nominal current (see selection on page 471 in the *Thermal and electronic overload relays* chapter).

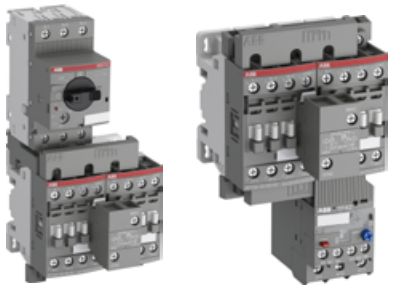
DRAF enclosed DOL starters

IEC - AC-3					Control supply wiring	Rated control circuit voltage Uc min ... Uc max [1]	Factory code	Order code
Rated operational power								
220 V 230 V 240 V	380 V 400 V	500 V	690 V	max. current θ ≤ 40 °C Ue=400 V				
kW	kW	kW	kW	A		V 50/60 Hz		
IEC starters type								
2.2	4	5.5	5.5	9	Separate supply	24…60	1SBK134237R1100	DRAF09-11S
					Phase-to-neutral	100…250	1SBK134137R1300	DRAF09-13N
					Phase-to-phase	250…500	1SBK134037R1400	DRAF09-14P
3	5.5	7.5	7.5	12	Separate supply	24…60	1SBK154237R1100	DRAF12-11S
					Phase-to-neutral	100…250	1SBK154137R1300	DRAF12-13N
					Phase-to-phase	250…500	1SBK154037R1400	DRAF12-14P
4	7.5	9	9	18	Separate supply	24…60	1SBK174237R1100	DRAF16-11S
					Phase-to-neutral	100…250	1SBK174137R1300	DRAF16-13N
					Phase-to-phase	250…500	1SBK174037R1400	DRAF16-14P

1) Select DRAF..S with separate supply for 24...60 V DC control circuit voltage (change A2 - Us wire to blue color acc. to IEC 60947-4-1).

STOCK INDENT

Reversing starters



Application

Full voltage reversing starting for controlling three-phase asynchronous motors is a simple and economic solution characterised by a high starting torque (1.9 to 2.1 times full speed torque) and a starting current 5.5 to 7 times nominal current.

Description for protection with manual motor starter

You can easily assemble reversing starter thanks to our complete range of accessories:

- BEA..4 connecting link 3-pole insulated: it is used to electrically and mechanically connect MS... manual motor starter and AF contactor, AC or DC operated.
- VEM4 mechanical and electrical interlock set for reversing starter in 90 mm width.

It includes:

- VM4 mechanical interlock unit including 2 fixing clips
- VE4 electrical interlock block with A2-A2 connection.
- BER..4 connection set: it assures a safe and simple reversing connection between both contactor main terminals.

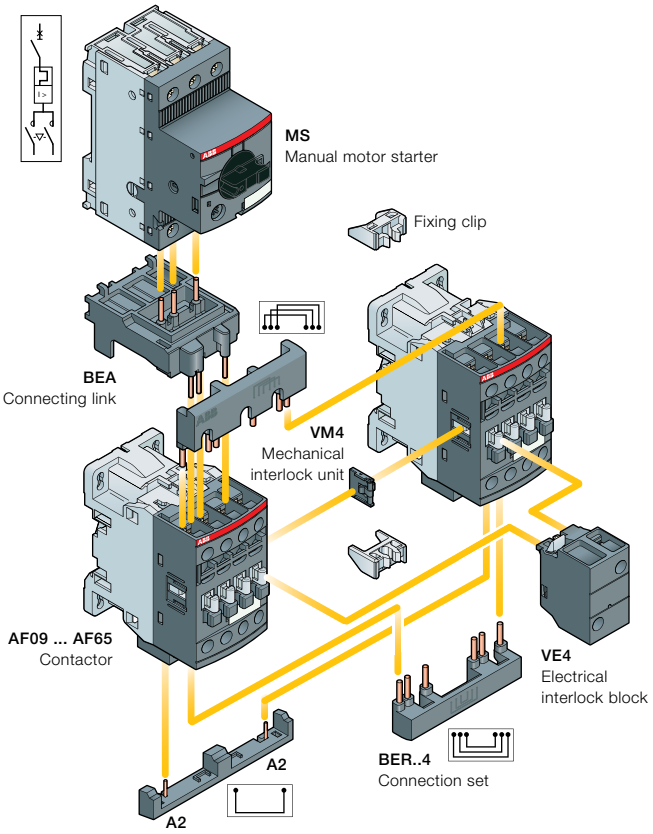
Description for protection with overload relay

You can easily assemble reversing starter thanks to our complete range of accessories:

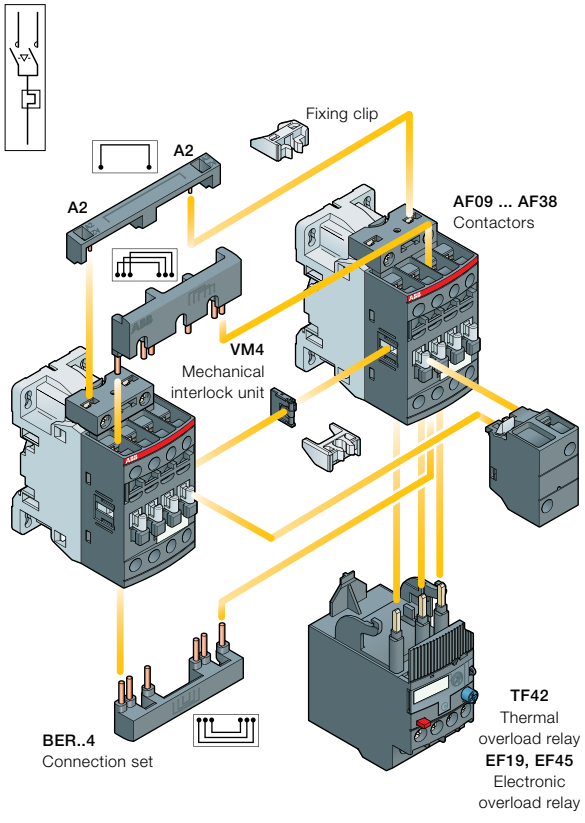
- VEM4 mechanical and electrical interlock set for reversing starter in 90 mm width.

It includes:

- VM4 mechanical interlock unit including 2 fixing clips
- VE4 electrical interlock block with A2-A2 connection.
- BER..4 connection set: it assures a safe and simple reversing connection between both contactor main terminals.



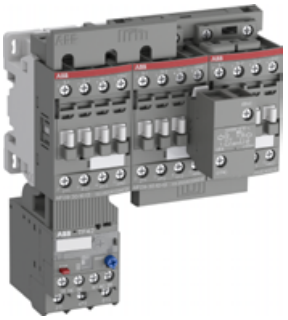
Reversing starter with manual motor starter protection



Reversing starter with overload relay protection

8

Star-delta starters



Application

Star-delta starting is the most common method to reduce the starting current of a motor. This system can be used on all the squirrel cage motors, which are normally used in delta connection. In this type of starting, it is recommended to choose motors having high starting torque i.e. much higher than the resistive torque in order to reach sufficient high speed when the motor is connected in star.

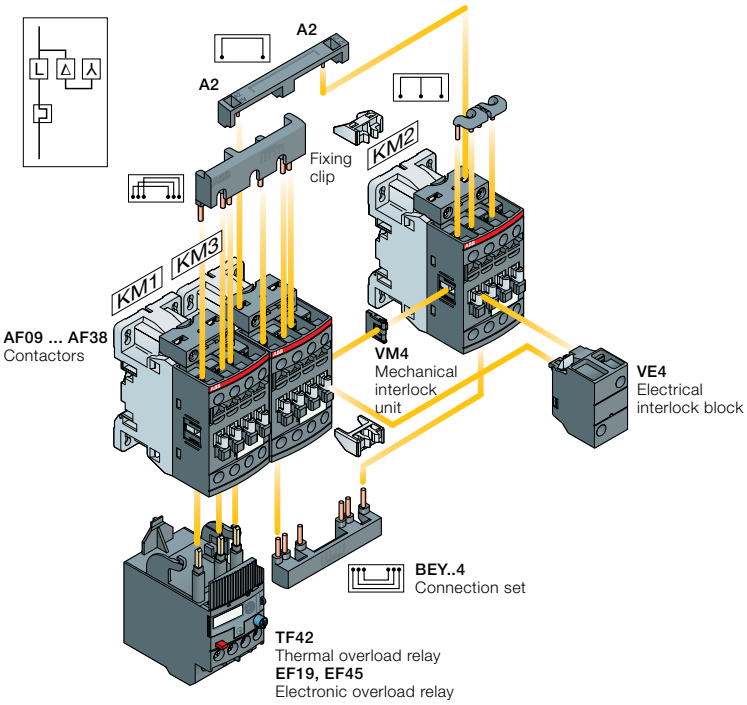
Description

You can easily assemble a star-delta starter thanks to our complete range of accessories:

– VEM4 mechanical and electrical interlock set without increasing starter width.

It includes:

– VM4 mechanical interlock unit and fixing clips
– VE4 electrical interlock block with A2-A2 connection.
– BEY..4 connection set: it assures a safe and simple connection between contactors main terminals.



Star-delta starter

ABB Softstarters
Easy and reliable for energy savings

A very efficient way to save energy and reduce the environmental footprint in industry is to extend the life of machinery and equipment. By reducing the unnecessary wear and tear produced by high starting torque from motors, process equipment life can be extended. ABB offers softstarters to reduce this unwanted high torque and remove the current peaks that electrical motors produce at startup.

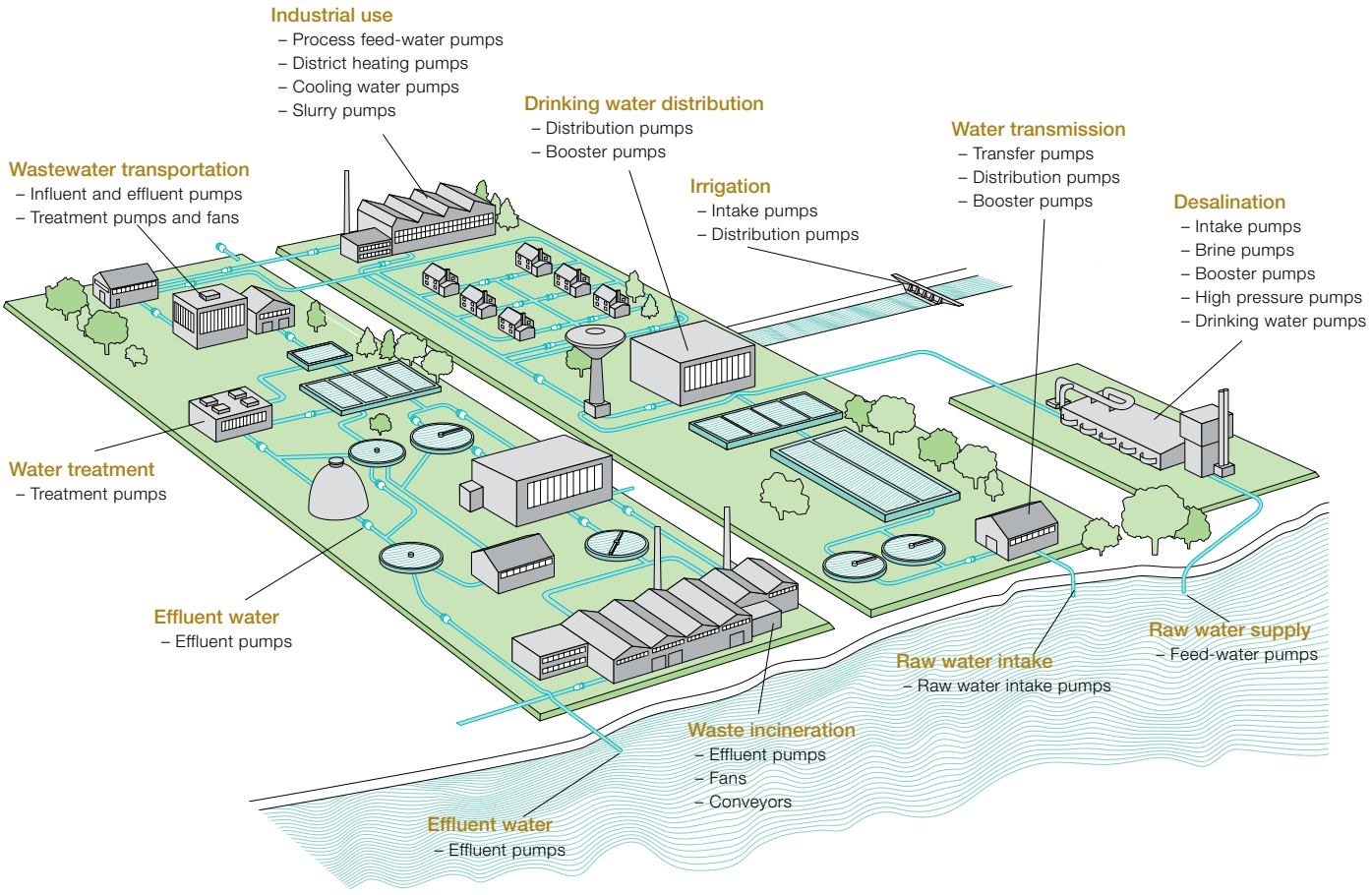
Applications for softstarters

Softstarters will prolong the life of the equipment and reduce the need for process maintenance. Softstarters are used in a wide range of applications and you can find them everywhere in an industrial environment. Some typical applications for the softstarters in motordriven processes include:

- Pumps for water and waste water management
- Ventilation fans
- Compressors and heat pumps
- Conveyor belts

These are a few examples of where softstarters help saving energy. In industrial and commercial facilities, a lot of applications benefit from soft starting and soft stopping.

Water and wastewater treatment plant softstarter applications:



Note:
For full selection and technical details, please refer to the *Softstarters* chapter on page 483 of this catalogue.

ABB’s intelligent motor management for continuous operation
Keeping the motors running with UMC

Any unplanned or sudden motor stops can lead to faults in the process sequence, which can be very costly. ABB´s Motor Controllers stand for motor protection, motor control, fieldbus and Ethernet communication and fault diagnosis. The UMC is used in many segments with several thousand motor controllers installed worldwide.

8

ABB’s new UMC100.3 offers you the optimal solution for your motor control center (MCC) applications

UMC100.3 is a flexible, modular and expandable motor management system for constant-speed, low-voltage range motors. Its most important tasks include motor protection, preventing plant standstills and reducing down time. Early information relating to potential motor problems and swift diagnosis ensure continuous operation of any application such as:

- The oil and gas industry
- The cement plants
- The steel industry
- Mining
- The chemicals industry
- Water supply and distribution
- Power plant engineering
- The food and beverage industry
- Pulp and paper plants

Due to the benefits it provides, the UMC100.3 is used worldwide in many segments and in projects with several thousand motor controllers.

High plant availability

The UMC100.3 continuously transmits comprehensive operational, service and diagnostic data from the motor to the control system. This means that faults can be detected early on and can be avoided by suitable measures, or their effects can be limited. This increases the plant’s availability.

Open communication

The UMC100.3 is equipped with an interface for mounting a communication adapter. Selecting the relevant adapter enables the motor controller to communicate using the widespread fieldbuses Profibus DP, DeviceNet or Modbus RTU. Even communication via Ethernet networks is possible using the Modbus TCP or Profinet protocol. UMC100.3 can also be used without communication as a stand-alone motor controller, e.g. in simple pumpstations.

Made in Germany, approved worldwide

The Universal Motor Controller is developed and produced in the federal republic of Germany. Approvals and certificates ensure the worldwide use of the product which has been proven in a lot of applications and in huge projects with thousands of motor controllers all around the world. With our long time experience of project management ABB gives you the best possible support.

Motor management system – UMC100.3
Ordering details

UMC100.3DC

UMC100.3UC

Universal Motor Controller UMC100.3

Intelligent motor management system for single and three-phase motors with Ie = 0.24 - 63 A in one single device. Compact housing with integrated current transformer for cable cross section up to 25 mm² (max. Ø with Insulation 11 mm). Higher currents with additional external current transformer. Thermal overload protection according to EN/IEC 60947-4-1, selectable trip classes 5E, 10E, 20E, 30E, 40E. Some functions require an additional expansion module.

Motor protection functions:

- Over-/underload, over-/undercurrent, over-/undervoltage, rotor blocking, phase failure / imbalance / sequence
- Earth fault detection integrated or with external sensor CEM11
- Hot motor protection with thermistor or temperature measurement

Motor control functions:

- Easily configurable motor control functions: direct, reverse, star-delta starter, pole-changing, overload relay, actuator mode, softstarter mode. Additionally 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), active power, apparent power, energy, total harmonic distortion (THD).

Integrated I/Os:

- 6 digital inputs, 1 PTC input, 4 digital outputs.

Expansion modules (maximum allowed):

- 14 digital inputs, 1 PTC input, 9 digital outputs, 6 analogue inputs, 1 analogue output.

Communication interfaces:

- 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 and with ATEX approval.

Ordering details

Description	Supply voltage	Factory code	Order code
Universal Motor Controller	24 V DC	1SAJ530000R0100	UMC100.3DC
Universal Motor Controller	110 – 240 V AC/DC	1SAJ530000R1100	UMC100.3UC
Universal Motor Controller, ATEX	24 V DC	1SAJ530000R0200	UMC100.3DCEX
Universal Motor Controller, ATEX	110 – 240 V AC/DC	1SAJ530000R1200	UMC100.3UCEX

Motor management system – UMC100.3
Ordering details

UMC100.3-PAN

Operating panel UMC100-PAN

Operator panel for Universal Motor Controller UMC100. Backlit graphical and multilingual fulltext display, LEDs for status. Assembly directly on UMC100 or on the control cabinet door via extension cable and door mounting set.

Functions:

- Monitoring: Shows motor status and diagnostics
- Operate: Start, stop, fault reset
- Parametrize: Setting and changing of motor and fieldbus parameters (password protection possible)
- Copy settings
- USB port for up/download of parameters and logic

Supports 8 languages: English, French, German, Italian, Spanish, Polish, Portuguese, Russian
Replaces all former UMC100 operator panels

Ordering details

Description	Factory code	Order code
Operating panel	1SAJ590000R0103	UMC100.3-PAN
0.7 m ext. cable with door mounting set	1SAJ510003R0002	UMCPAN-CAB.070
1.5 m ext. cable with door mounting set	1SAJ510004R0002	UMCPAN-CAB.150
3 m ext. cable with door mounting set	1SAJ510002R0002	UMCPAN-CAB.300

8

DX111

Expansion modules

Up to 4 expansion-modules can be connected to one UMC100.3

- 1 digital expansion module DX111 or DX122
- 1 voltage expansion module VI150 or VI155
- 2 analog/temperature expansion modules AI111

Ordering details

Description	Factory code	Order code
I/O module for UMC100, 24 V DC digital input	1SAJ611000R0101	DX111
I/O module for UMC100, 110 – 230 V AC digital input	1SAJ622000R0101	DX122
3 phase voltage module for grounded networks	1SAJ650000R0100	VI150
3 phase voltage module for all networks	1SAJ655000R0100	VI155
Analog/temperature module 3 analogue inputs	1SAJ613000R0101	AI111
Connection cable UMC100 - I/O module, length 0.30 m	1SAJ691000R0001	UMCIO-CAB.030
Connection cable IO-module - IO-module, length 0,30 m	1SAJ692000R0001	IOIO-CAB.030

STOCK INDENT

Motor management system – UMC100.3
Ordering details

PDP32.0

Open communication interfaces

Open communication interfaces enable the UMC100.3 to communicate via open.
The interfaces can be used in 2 ways

- Mounted directly on a UMC100.3: in this case the interface is supplied from the UMC100.3, no further accessory is required
- Mounted separately on a SMK3.0 adapter in the cable chamber of an MCC: in this case the interface plugged on SMK3.0 needs to be supplied with 24 V DC
  Ready made cables for the application in withdrawable systems are available as well as terminal blocks for making own cables
  CDP18: Cable for use inside the drawer
  CDP24: Cable from SMK3.0 to drawer outside

Ordering details

Description	Factory code	Order code
Profibus DP communication interface	1SAJ242000R0001	PDP32.0
Modbus RTU communication interface; terminal block for fieldbus connection included	1SAJ251000R0001	MRP31.0
DeviceNet communication interface; terminal block for fieldbus connection included	1SAJ231000R0001	DNP31.0
Profibus DP active bus termination	1SAJ243000R0001	PDR31.0

SMK3.0

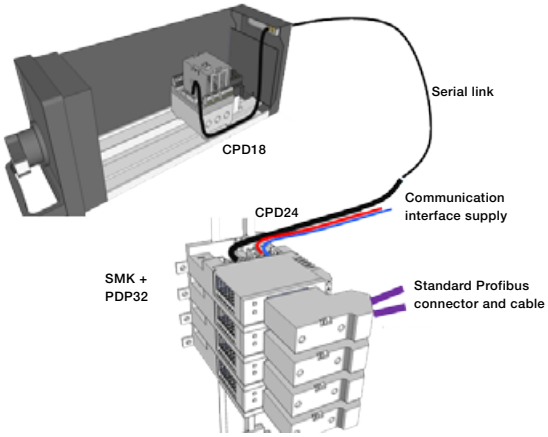
Fieldbus communication interfaces – Accessories

Adapter and ready-made cables

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

Ordering details

Description	Factory code	Order code
Adapter for separate mounting of a communication interface; terminal block for 24 V DC supply included	1SAJ929600R0001	SMK3.0
Cable for drawer inside, length 1.5 m	1SAJ929180R0015	CDP18.150
Cable from SMK3.0 to drawer outside, length 1. 5 m	1SAJ929240R0015	CDP24.150
Terminal block 2-pol for SMK3.0 supply / 10 pcs per pck. (spare parts)	1SAJ929610R0001	SMK3-X2.10
Terminal block 5-pol for SMK3.0 comm. / 10 pcs per pck. (spare parts)	1SAJ929620R0001	SMK3-X1.10



8

Motor management system – UMC100.3
Ordering details

MTQ22.0

PNQ22.0

Ethernet communication interfaces

Ethernet communication interfaces enable the UMC100.3 to communicate via an ethernet network

- Up to 4 motor controllers UMC100.3 can be connected to one interface
- Supports all network topologies
- Ring topology with redundancy (MRP protocol)
- No special ethernet connectors required in MCCs
- Easy to use in widthdrawable applications
- Integrated ethernet switch
- 24 V DC supply voltage
- DIN-rail mounting

MTQ22

- Ethernet communication interface with protocol Modbus TCP
- Supports multimaster mode
- Master supervision with timeout control
- Micro USB port for configuration via PC

PNQ22

- Ethernet communication interface with protocol Profinet IO
- Integrated into AC800xA
- Time stamped events (with AC800)
- GSDML download from UMC100.3 webpage

Ordering details

Description	Factory code	Order code
Ethernet Modbus TCP interface	1SAJ260000R0100	MTQ22.0
Ethernet Profinet IO interface	1SAJ261000R0100	PNQ22.0

STOCK INDENT

Motor management system – UMC100.3
Ordering details

Ethernet communication interfaces – Accessories

Ready-made cables

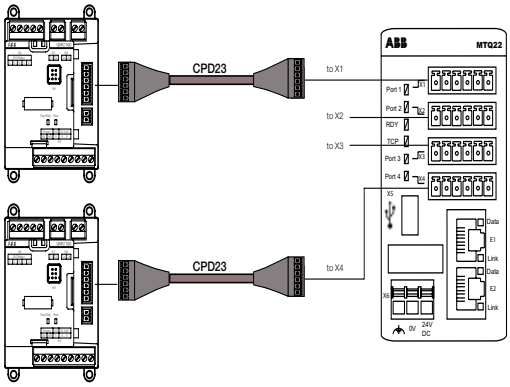
Ready made cables are available for the application in withdrawable systems as well as for fixed installations.
Cables are including terminal blocks. Terminal blocks for making own cables are also available:

- CDP18 cable for use inside and outside a drawer
- CDP23 cable from ethernet interface to UMC100.3

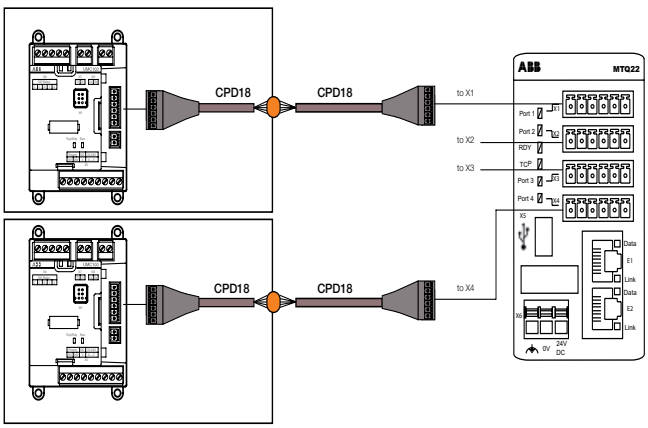
Ordering details

Description	Factory code	Order code
Cable for drawer in- and outside, length 1.5 m	1SAJ929180R0015	CDP18.150
Cable ethernet interface - UMC100.3, length 1.5 m	1S AJ929230R0015	CDP23.150
Cable ethernet interface – UMC100.3, length 3 m	1SAJ929230R0030	CDP23.300
Terminal bloc for MTQ22/PNQ22 X1…X4, 4 pcs	1SAJ929200R0001	ETHTB-FBP.4

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

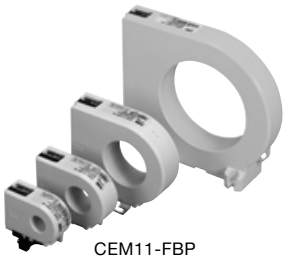


UMC100.3, withdrawable application with MTQ22.0 / PNQ22.0



8

Universal Motor Controller
Ordering details – Devices for extension of protection functions



2CDC 345 011 F0008

CEM11-FBP

Earth fault monitors CEM11-FBP for use with Universal Motor Controller UMC100-FBP

Description	Through-hole diameter	Factory code	Order code
80[1], 300, 550, 750, 1000, 1200, 1500, 1700	20 mm	1SAJ929200R0020	CEM11-FBP.20
100[1], 500, 1000, 1400, 2000, 2400, 3000, 3400	35 mm	1SAJ929200R0035	CEM11-FBP.35
120[1], 1000, 2000, 2800, 4000, 4800, 6000, 6800	60 mm	1SAJ929200R0060	CEM11-FBP.60
300[1], 2000, 4000, 5600, 8000, 9600, 12000, 13600	120 mm	1SAJ929200R0120	CEM11-FBP.120

1) lower values have higher inaccuracy

2CDC 341 001 F0012

CT4L185R/4, CT4L310R/4

2CDC 341 002 F0012

CT5L500R/4, CT5L850R/4

Current transformers for use with Universal Motor Controller UMC100-FBP

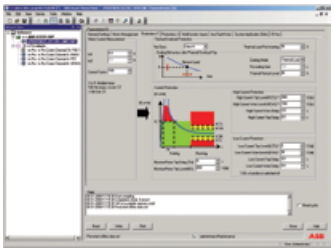
Linear type transformers, 3-phase, with terminal block, for conductors Cu 2.5 mm^2. For use with UMC100 and nominal motor currents >63 A

Description	Recommended current range	Factory code	Order code
Current transformer	60…185 A AC	1SAJ929500R0185	CT4L185R/4
Current transformer	180…310 A AC	1SAJ929500R0310	CT4L310R/4
Current transformer	300…500 A AC	1SAJ929501R0500	CT5L500R/4
Current transformer	500…850 A AC	1SAJ929501R0850	CT5L850R/4

8

STOCK INDENT

Universal Motor Controller
Ordering details – Configuration software overview



PBDTM-FBP

Configuration software for the UMC100-FBP motor management system
The software screwdriver for your application

Asset Vision Basic is an FDT frame application with a modern and simple graphical user interface. It provides effective basic functionality for configuration, diagnosis and maintenance of intelligent low voltage switching devices from ABB. Furthermore, due to the open FDT interface, other ABB and 3rd party DTMs can also be used.
Asset Vision Basic is the optimal tool for configuring FBP devices during commissioning, in the workshop or as second master in a PROFIBUS network of a process control system.
System requirements: Windows XP / Windows 7

Overview of features:

- Online/offline configuration and parameterization of devices
- Reading parameterization and configuration information from the device
- Online display of measuring and status data
- Online operation and error acknowledgement
- Creation of customer-specific logics
- Archiving
- Connection to the device can either be via PROFIBUS or as point to point connection directly to the device.

UTP22-FBP

Connection to a Profibus
Connection to an UMC100.3
Connection to an UMC100-FBP

DP network UTP22-FBP
With micro-USB cable via operator panel
With interface UTF21-FBP

UTF21-FBP

Ordering details

Description	Factory code	Order code
USB interface for PROFIBUS networks	1SAJ924013R0001	UTP22-FBP
PDP22/PDQ22 Device Type Manager (DTM) incl. FDT/DTM frame application	1SAJ924012R0006	PBDTM-FBP
USB to FBP-interface cable	1SAJ929400R0002	UTF21-FBP

8

STOCK INDENT

Low voltage AC drives

To boost the productivity of your processes, improve energy efficiency and cut maintenance costs, you can rely on our broad portfolio of low voltage AC drives to deliver just that.

The portfolio covers the complete spectrum of drives. From micro and machinery drives for machine building to industrial drives for controlling processing lines, all the way up to industry specific drives with purpose-designed features and functionality.

ABB drives are available directly from stock or can be built to order to meet more complex requirements. Our life cycle services ensure your processes run exactly as you expect, year after year.

Products

General purpose

All the essential features built-in, simplifying drive selection, installation and use.

Micro

Precise speed control and simple integration.

Machinery

Premium motor control with hardware flexibility, programmability and scalability for an optimal solution

Industrial

Our benchmark of performance, expertise and quality, serving you locally on a global scale.

Industry specific

Dedicated drive solutions for industries such as HVAC and water and wastewater.

Classic, limited and obsolete products

Lifecycle management model aimed to provide proactive service offerings for maximizing availability and performance.

For more information please contact your local ABB sales representative or visit the link below:
http://new.abb.com/drives/low-voltage-ac

STOCK INDENT

For your notes

ABB

Manual motor starters

Overview 406

MS116 manual motor starters 408
Ordering details 408

MS132 manual motor starters 409
Ordering details 409

MS165 manual motor starters 410
Ordering details 410

Main accessories 411
MS116, MS132, MO132, MS132-T, MS165 411
MS116, MS132, MO132, MS165 414
MS116, MS132, MO132, MS132-T, MS165 415
MS116, MS132, MO132, MS165 416
MS495, MS497 417
MS49x, MO49x 418

MS116, MS132, MO132, MS165, M0165, MS4xx, MO4xx 420
General accessories 420

8

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

– Motor protection and control: Manual motor starters, contactors and overload relays – 1SBC100192C0204

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 I_e	0.16 ... 32 A	0.16 ... 32 A	16 ... 65 A
Setting range	0.1 ... 32 A	0.1 ... 32 A	10 ... 65 A
Ambient air temperature	-25 ... +55 °C [1]	-25 ... +60 °C [1]	-20 ... +60 °C [1]

1) Compensated

Accessories

Auxiliary contact		HKF1, HK1	
Signalling contact	for tripped alarm	SK1	
	for short-circuit alarm	-	CK1
Shunt trip		AA1	
Undervoltage release		UA1	

Table for short-circuit ratings for 400/415 V

	Standard range			Performance range		
	MS116			MS132, MS165		
Selection parameters						
Rated operational power	Setting range for thermal release	Type	Short-circuit breaking capacity		Type	Short-circuit breaking capacity	
			I_{cu}	I_{cs}		I_{cu}	I_{cs}
0.03 kW[1]	0.1 ... 0.16 A	MS116-0.16	50 kA	50 kA	MS132-0.16	100 kA	100 kA
0.06 kW	0.16 ... 0.25 A	MS116-0.25	50 kA	50 kA	MS132-0.25	100 kA	100 kA
0.09 kW	0.25 ... 0.4 A	MS116-0.4	50 kA	50 kA	MS132-0.4	100 kA	100 kA
0.18 kW	0.4 ... 0.63 A	MS116-0.63	50 kA	50 kA	MS132-0.63	100 kA	100 kA
0.25 kW	0.63 ... 1.0 A	MS116-1.0	50 kA	50 kA	MS132-1.0	100 kA	100 kA
0.55 kW	1.0...1.6 A	MS116-1.6	50 kA	50 kA	MS132-1.6	100 kA	100 kA
0.75 kW	1.6...2.5 A	MS116-2.5	50 kA	50 kA	MS132-2.5	100 kA	100 kA
1.5 kW	2.5...4.0 A	MS116-4.0	50 kA	50 kA	MS132-4.0	100 kA	100 kA
2.2 kW	4.0...6.3 A	MS116-6.3	50 kA	50 kA	MS132-6.3	100 kA	100 kA
4.0 kW	6.3...10 A	MS116-10	50 kA	50 kA	MS132-10	100 kA	100 kA
5.5 kW	8...12 A	MS116-12	25 kA	25 kA	MS132-12	100 kA	100 kA
7.5 kW	10...16 A	MS116-16	16 kA	16 kA	MS132-16 / MS165-16	100 kA	100 kA
7.5 kW	14 ... 20 A				MS165-20	100 kA	100 kA
7.5 kW	16...20 A	MS116-20	15 kA	10 kA	MS132-20	100 kA	100 kA
11 kW	18 ... 25 A				MS165-25	100 kA	100 kA
11 kW	20...25 A	MS116-25	15 kA	10 kA	MS132-25	50 kA	50 kA
15 kW	25...32 A	MS116-32	10 kA	10 kA	MS132-32	50 kA	25 kA
15 kW	23 ... 32 A				MS165-32	100 kA	75 kA
22 kW	30 ... 42 A				MS165-42	50 kA	25 kA
22 kW	40 ... 54 A				MS165-54	50 kA	25 kA
30 kW	52 ... 65 A				MS165-65	50 kA	25 kA

1) 690 V

	M0132	M0165	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 ... 65 A	0.16 ... 32 A
	-	-	0.1 ... 25 A
	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C [1]

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

	Standard range M0132		Performance range M0132, M0165			Transformer protection MS132-T	
	Type	Short-circuit breaking capacity		Type	Short-circuit breaking capacity		Type	Short-circuit breaking capacity
		I_{cu}	I_{cs}		I_{cu}	I_{cs}		I_{cu} / I_{cs}
	M0132-0.16	100 kA	100 kA	M0132-0.16	100 kA	100 kA	MS132-0.16T	100 kA
	M0132-0.25	100 kA	100 kA	M0132-0.25	100 kA	100 kA	MS132-0.25T	100 kA
	M0132-0.4	100 kA	100 kA	M0132-0.4	100 kA	100 kA	MS132-0.4T	100 kA
	M0132-0.63	100 kA	100 kA	M0132-0.63	100 kA	100 kA	MS132-0.63T	100 kA
	M0132-1.0	100 kA	100 kA	M0132-1.0	100 kA	100 kA	MS132-1.0T	100 kA
	M0132-1.6	100 kA	100 kA	M0132-1.6	100 kA	100 kA	MS132-1.6T	100 kA
	M0132-2.5	100 kA	100 kA	M0132-2.5	100 kA	100 kA	MS132-2.5T	100 kA
	M0132-4.0	100 kA	100 kA	M0132-4.0	100 kA	100 kA	MS132-4.0T	100 kA
	M0132-6.3	100 kA	100 kA	M0132-6.3	100 kA	100 kA	MS132-6.3T	100 kA
	M0132-10	100 kA	100 kA	M0132-10	100 kA	100 kA	MS132-10T	100 kA
	M0132-12	100 kA	100 kA	M0132-12	100 kA	100 kA	MS132-12T	100 kA
	M0132-16	100 kA	100 kA	M0132-16 / M0165-16	100 kA	100 kA	MS132-16T	100 kA
				M0165-20	100 kA	100 kA		
	M0132-20	100 kA	100 kA	M0132-20	100 kA	100 kA	MS132-20T	100 kA
	M0132-25	50 kA	50 kA	M0132-25 / M0165-25	50 kA / 100 kA	50 kA / 100 kA	MS132-25T	50 kA
	M0132-32	50 kA	25 kA	M0132-32	50 kA	25 kA	Transformer protection: The instantaneous short-circuit current setting is 20 times the rated operational current.	
				M0165-32	100 kA	50 kA		
				M0165-42	50 kA	25 kA		
				M0165-54	50 kA	25 kA		
				M0165-65	50 kA	25 kA		

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

Manual motor starters (MMS) are protection devices for the main circuit. They combine motor control and protection in a single device. MMS are used mainly to switch motors manually ON/OFF and protect them and the installation fuse-less against short-circuit, overload and phase failures. Fuse-less protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds.

Description

MS116 is a compact and economic range for motor protection up to 15.5 kW (400 V) / 32 A in width of 45 mm. Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, three-phase bus bars, power in-feed blocks and locking devices for protection against unauthorized changes are available as accessory.

Ordering details

Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
0.03	0.10 ... 0.16	50	1.56	1SAM250000R1001	MS116-0.16
0.06	0.16 ... 0.25	50	2.44	1SAM250000R1002	MS116-0.25
0.09	0.25 ... 0.40	50	3.90	1SAM250000R1003	MS116-0.4
0.12	0.40 ... 0.63	50	6.14	1SAM250000R1004	MS116-0.63
0.25	0.63 ... 1.00	50	11.50	1SAM250000R1005	MS116-1.0
0.55	1.00 ... 1.60	50	18.40	1SAM250000R1006	MS116-1.6
0.75	1.60 ... 2.50	50	28.75	1SAM250000R1007	MS116-2.5
1.5	2.50 ... 4.00	50	50.00	1SAM250000R1008	MS116-4.0
2.2	4.00 ... 6.30	50	78.75	1SAM250000R1009	MS116-6.3
4.0	6.30 ... 10.0	50	150	1SAM250000R1010	MS116-10
5.5	8.00 ... 12.0	25	180	1SAM250000R1012	MS116-12
7.5	10.0 ... 16.0	16	240	1SAM250000R1011	MS116-16
9.0	16.0 ... 20.0	10	300	1SAM250000R1013	MS116-20
12.5	20.0 ... 25.0	10	375	1SAM250000R1014	MS116-25
15.5	25.0 ... 32.0	10	480	1SAM250000R1015	MS116-32

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0204.
Manual motor starters should always be selected so that the actual motor current is within the setting range.

STOCK INDENT

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

Description

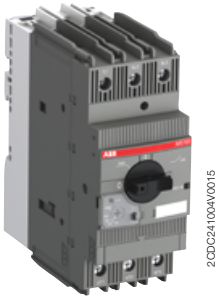
MS132 is a compact and powerful range for motor protection up 15.5 kW (400 V) / 32 A in width of 45 mm. This type has also a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signaling contacts, undervoltage releases, shunt trips, three-phase bus bars, power in-feed blocks.

Ordering details

Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
0.03	0.10 … 0.16	100	1.56	1SAM350000R1001	MS132-0.16
0.06	0.16 … 0.25	100	2.44	1SAM350000R1002	MS132-0.25
0.09	0.25 … 0.40	100	3.90	1SAM350000R1003	MS132-0.4
0.12	0.40 … 0.63	100	6.14	1SAM350000R1004	MS132-0.63
0.25	0.63 … 1.00	100	11.50	1SAM350000R1005	MS132-1.0
0.55	1.00 … 1.60	100	18.40	1SAM350000R1006	MS132-1.6
0.75	1.60 … 2.50	100	28.75	1SAM350000R1007	MS132-2.5
1.5	2.50 … 4.00	100	50.00	1SAM350000R1008	MS132-4.0
2.2	4.00 … 6.30	100	78.75	1SAM350000R1009	MS132-6.3
4.0	6.30 … 10.0	100	150	1SAM350000R1010	MS132-10
5.5	8.00 … 12.0	100	180	1SAM350000R1012	MS132-12
7.5	10.0 … 16.0	100	240	1SAM350000R1011	MS132-16
9.0	16.0 … 20.0	100	300	1SAM350000R1013	MS132-20
12.5	20.0 … 25.0	50	375	1SAM350000R1014	MS132-25
15.5	25.0 … 32.0	25	480	1SAM350000R1015	MS132-32

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0204.
Manual motor starters should always be selected so that the actual motor current is within the setting range.

MS165 manual motor starters
10 to 65 A – with thermal and electromagnetic protection



MS165-65

Description

MS165 is a compact and powerful range for motor protection up to 30 kW (400 V) / 65 A in width of 55 mm. This type has also a clear and reliable indication of fault in a separate window in the event of short-circuit tripping. Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against 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.

Ordering details

Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
7.5	10 ... 16	100	240	1SAM451000R1011	MS165-16
7.5	14 ... 20	100	300	1SAM451000R1012	MS165-20
11	18 ... 25	100	375	1SAM451000R1013	MS165-25
15	23 ... 32	75	480	1SAM451000R1014	MS165-32
22	30 ... 42	25	630	1SAM451000R1015	MS165-42
22	40 ... 54	25	810	1SAM451000R1016	MS165-54
30	52 ... 65	25	975	1SAM451000R1017	MS165-65

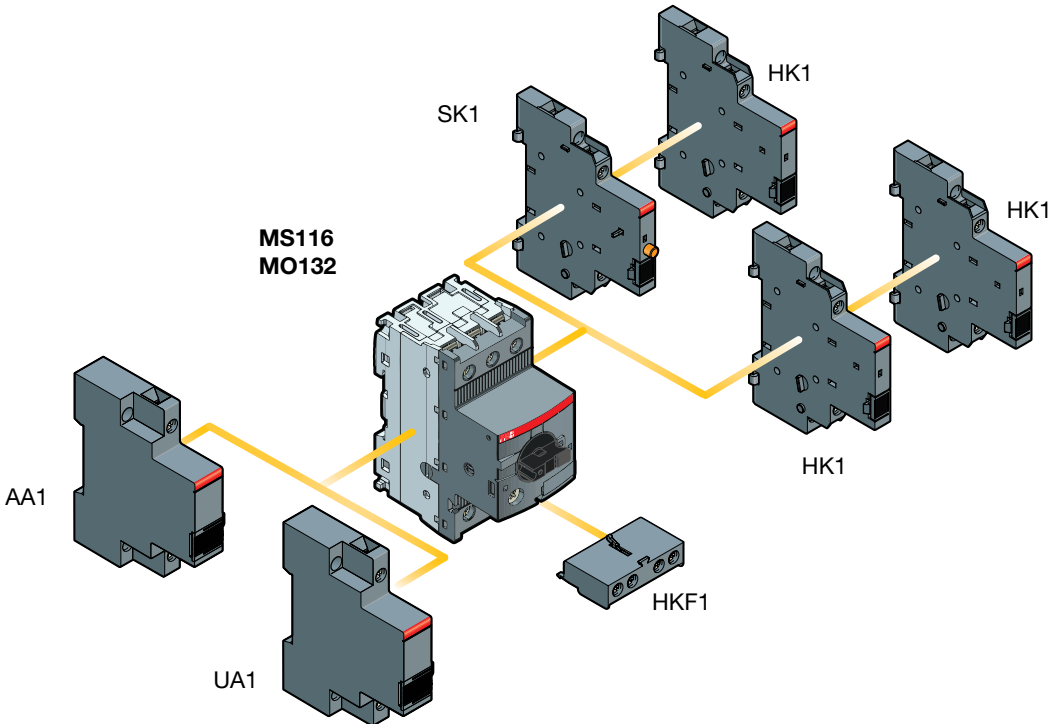
Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0204.
Manual motor starters should always be selected so that the actual motor current is within the setting range.

8

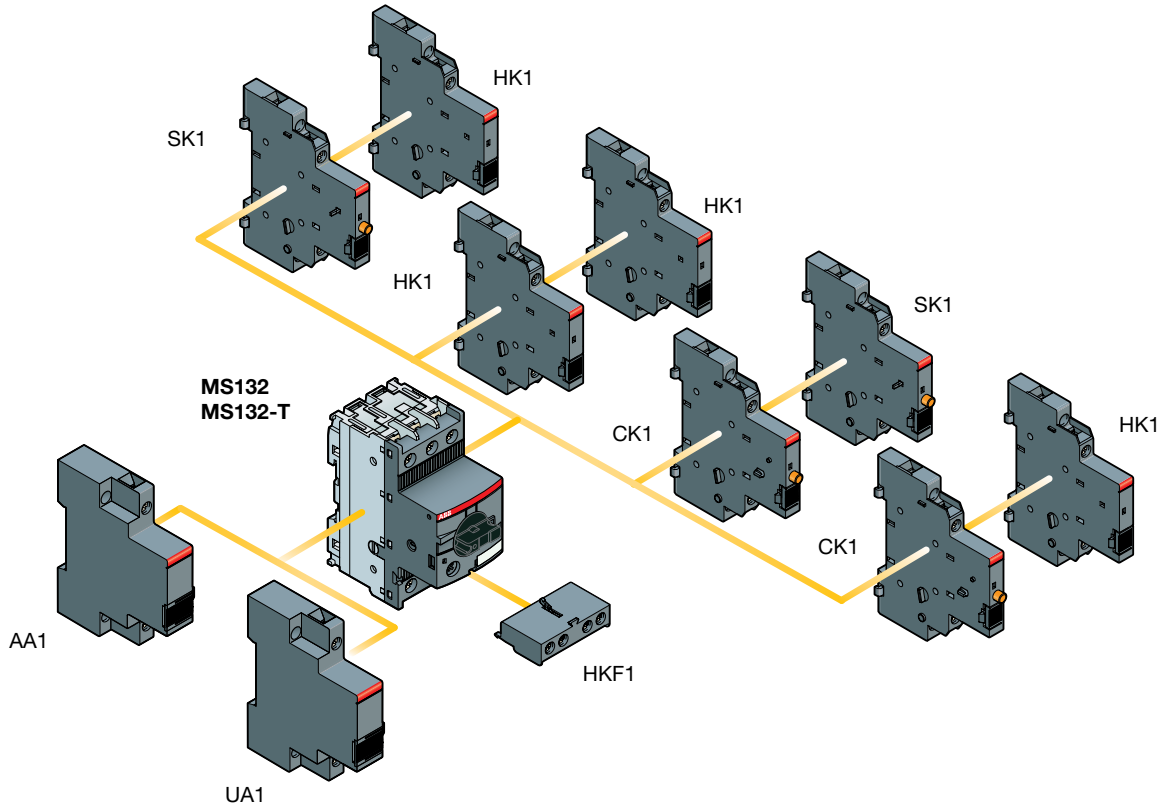
STOCK INDENT

Main accessories
MS116, MS132, MO132, MS132-T, MS165

Manual motor starter with accessories (MS116, MO132)



Manual motor starter with accessories (MS132) and circuit breaker for transformer protection (MS132-T)



8

Main accessories
MS116, MS132, MO132, MS132-T, MS165

HKF1-11

HK1-11

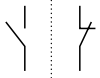
SK1-11

CK1-11

Description

MMS and MS132-T can be equipped with auxiliary contacts for lateral/front mounting, signaling contact for lateral mounting, undervoltage release and shunt trips. Two different signaling contacts are available. The accessories can be fitted wiring free and without tools. A variety of combinations is possible as required for the application. The auxiliary contacts change position with the main contacts. The signaling contact SK signals tripping regardless if it was caused by short-circuit or overload. The signaling contact CK signals tripping in case it was caused by short-circuit. Undervoltage release are used for remote tripping of the manual motor starter especially for emergency stop circuits. Shunt trips release the MMS used for remote tripping.

Ordering details

Suitable for	Auxiliary contacts fitted		Description	Factory code	Order code
					
Auxiliary contacts – mountable on the front					
MS116, MS132, MO132, MS132-T, MS165, MO165	1	1		1SAM201901R1001	HKF1-11
	2	0		1SAM201901R1002	HKF1-20
Auxiliary contacts – mountable on the right					
MS116, MS132, MO132, MS132-T, MS165, MO165	1	1	max. 2 pieces	1SAM201902R1001	HK1-11
	2	0	max. 2 pieces	1SAM201902R1002	HK1-20
	0	2	max. 2 pieces	1SAM201902R1003	HK1-02
	2	0	with lead contacts	1SAM201902R1004	HK1-20L
Signaling contacts – mountable on the right					
MS116, MS132, MO132, MS132-T, MS165, MO165	1	1	for tripped alarm, max. 2 pieces	1SAM201903R1001	SK1-11
	2	0	for tripped alarm, max. 2 pieces	1SAM201903R1002	SK1-20
	0	2	for tripped alarm, max. 2 pieces	1SAM201903R1003	SK1-02
MS132, MS132-T, MS165, MO165	1	1	for short-circuit alarm, max. 2 pieces	1SAM301901R1001	CK1-11
	2	0	for short-circuit alarm, max. 2 pieces	1SAM301901R1002	CK1-20
	0	2	for short-circuit alarm, max. 2 pieces	1SAM301901R1003	CK1-02

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0204.

8

STOCK INDENT

Main accessories
MS116, MS132, MO132, MS132-T, MS165

AA1-24

UA1-24

Ordering details

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

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0204.

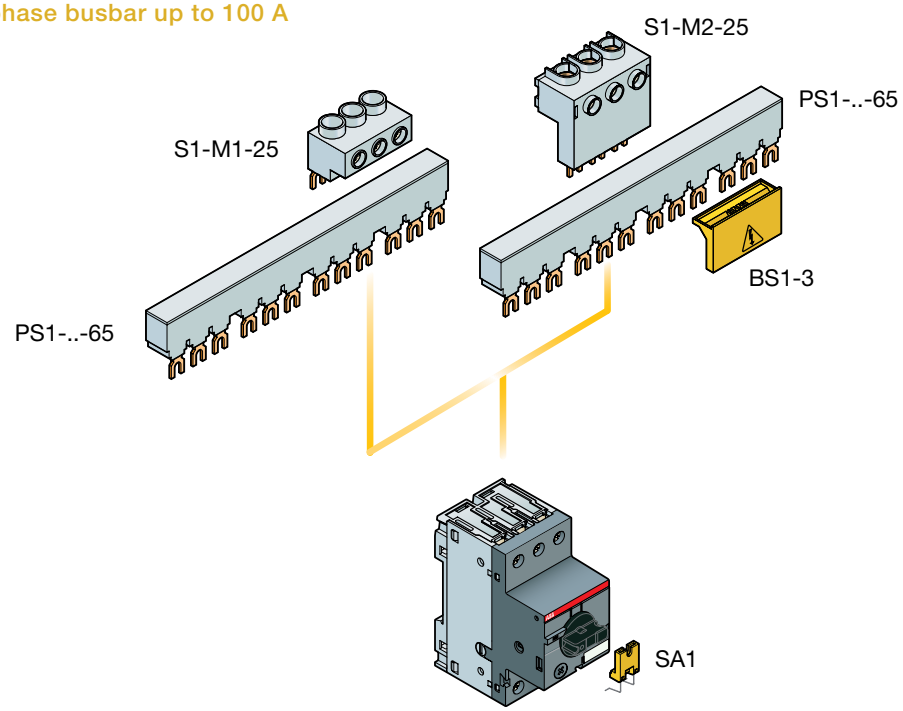
8

STOCK INDENT

Main accessories
MS116, MS132, MO132, MS165

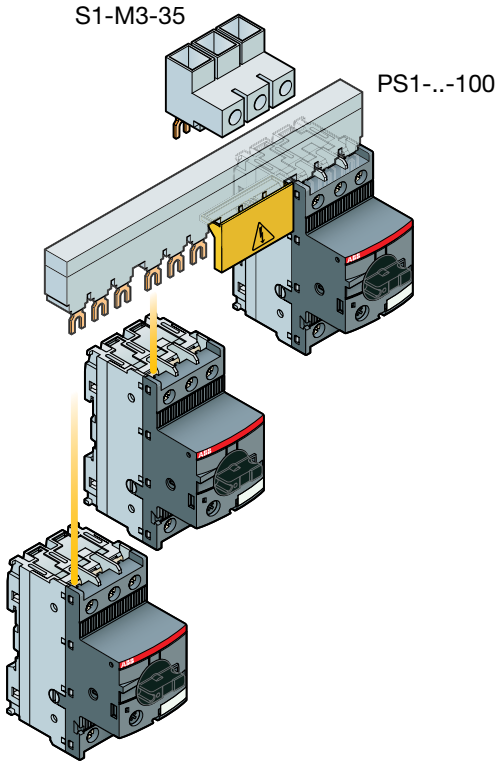
Manual motor starter with three-phase busbar systems

Three-phase busbar up to 100 A

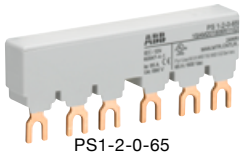


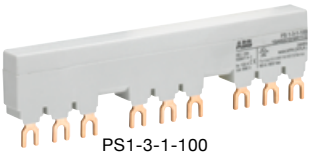
8

Three-phase busbar up to 65 A



Main accessories
MS116, MS132, MO132, MS132-T, MS165


PS1-2-0-65


PS1-3-1-100

S1-M1-25

S1-M2-25

SA2

SA1

PB1-1-32

S1-PB1-25

Description

Three-phase busbars ensure a quick and safe connection and are therefore a cost effective solution. A variety of different three-phase busbars up to 100 A are in the assortment. Between 2 and 5 manual motor starters with none, one or two lateral auxiliary contacts can be connected. Different three-phase feeder terminals are available according to the application. Phase connecting links and phase power infeed blocks are also available for single-phase applications.

Ordering details

Suitable for	Rated operational current A	Number of MMS	Number of lateral aux.	Factory code	Order code
Three-phase busbars					
MS116, MS132, MO132, MS165, MO165	65	2	0	1SAM201906R1102	PS1-2-0-65
	65	3	0	1SAM201906R1103	PS1-3-0-65
	65	4	0	1SAM201906R1104	PS1-4-0-65
	65	5	0	1SAM201906R1105	PS1-5-0-65
	65	2	1	1SAM201906R1112	PS1-2-1-65
	65	3	1	1SAM201906R1113	PS1-3-1-65
	65	4	1	1SAM201906R1114	PS1-4-1-65
	65	5	1	1SAM201906R1115	PS1-5-1-65
	65	2	2	1SAM201906R1122	PS1-2-2-65
	65	3	2	1SAM201906R1123	PS1-3-2-65
	65	4	2	1SAM201906R1124	PS1-4-2-65
	65	5	2	1SAM201906R1125	PS1-5-2-65
MS116, MS132, MO132, MS165, MO165	100	3	0	1SAM201916R1103	PS1-3-0-100
	100	4	0	1SAM201916R1104	PS1-4-0-100
	100	5	0	1SAM201916R1105	PS1-5-0-100
	100	3	1	1SAM201916R1113	PS1-3-1-100
	100	4	1	1SAM201916R1114	PS1-4-1-100
	100	5	1	1SAM201916R1115	PS1-5-1-100
	100	3	2	1SAM201916R1123	PS1-3-2-100

Suitable for	Rated operational current A	Rated cross section mm²	Mounting form	Factory code	Order code
Three-phase feeder terminals					
MS116, MS132, MO132, MS165, MO165	65	25	Flat	1SAM201907R1101	S1-M1-25
	65	25	High	1SAM201907R1102	S1-M2-25
	65	25	UL type E and IEC	1SAM201907R1103	S1-M3-25
	100	35	UL type E and IEC	1SAM201913R1103	S1-M3-35

Suitable for	Description	Factory code	Order code
MS116, MS132, MO132, MS165	Protection cover for busbars	1SAM201908R1001	BS1-3
MS116, MS132, MO132, MS132-T, MS165, MO165	Screw fixing kit	1SAM201909R1001	FS116
	Padlock + two keys	GJF1101903R0002	SA2
MS116	Lock handle	GJF1101903R0001	SA1
	Lock handle box SA1/SA2	GJF1101903R0003	SA3
Accessories for single-phase connection			
MS116, MS132, MO132, MS132-T, MS165, MO165	Phase connecting link	1SAM201914R1001	PB1-1-32
	Phase power infeed block	1SAM201914R1002	S1-PB1-25

Main accessories
MS116, MS132, MO132, MS165

IB132-Y

IB132-G

DMS132-Y

DMS132-G

Description

IB132 are IP65 enclosures for single MMS installation. Additional mounting of auxiliary and signaling contacts, shunt trips and undervoltage release is possible. The handle is lockable in OFF position. For detailed specification see installation instruction.
DMS132 are IP65 door mounting kits for MMS installation in any enclosure. Additional mounting of auxiliary, signaling, shunt trips and undervoltage release is possible. The handle is lockable in OFF position. For detailed specification see installation instruction.

Ordering details

Suitable for	Description	Colour	Factory code	Order code
IP65 enclosures (UL: Type 12)				
MS116, MS132, MO132, MS165, MO165	Padlockable max. 3 padlocks with bail diameter 4 ... 6.5 mm	Yellow/red	1SAM201911R1011	IB132-Y
		Grey/black	1SAM201911R1010	IB132-G
IP65 door mounting kits (UL: Type 12)				
MS116, MS132, MO132, MS165, MO165	Padlockable max. 3 padlocks with bail diameter 4 ... 6.5 mm	Yellow/red	1SAM201912R1011	DMS132-Y
		Grey/black	1SAM201912R1010	DMS132-G

Note:
Indication I-O-T and ON-OFF-T
Please check for further equipment chapter General accessories.
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0204.

8

STOCK INDENT

MS495, MS497 manual motor starters
22 to 100 A – with thermal and electromagnetic protection

MS450-40

MS495-40

MS497-100

Description

Manual motor starters (MMS) are protection devices for the main circuit. They combine motor control and protection in a single device. MMS are used mainly to switch motors manually ON/OFF and protect them and the installation fuse-less against short-circuit, overload and phase failures. Fuse-less protection with a manual motor starter saves costs, space and ensures a quick reaction under short-circuit condition, by switching off the motor within milliseconds. Further features are the build-in disconnect function, temperature compensation, trip-free mechanism and a rotary handle with a clear switch position indication. The manual motor starter is suitable for three- and single-phase applications. The handle is lockable to protect against unauthorized changes. Auxiliary contacts, signalling contacts, undervoltage releases, shunt trips, three-phase busbars, power in-feed blocks are available as accessory.

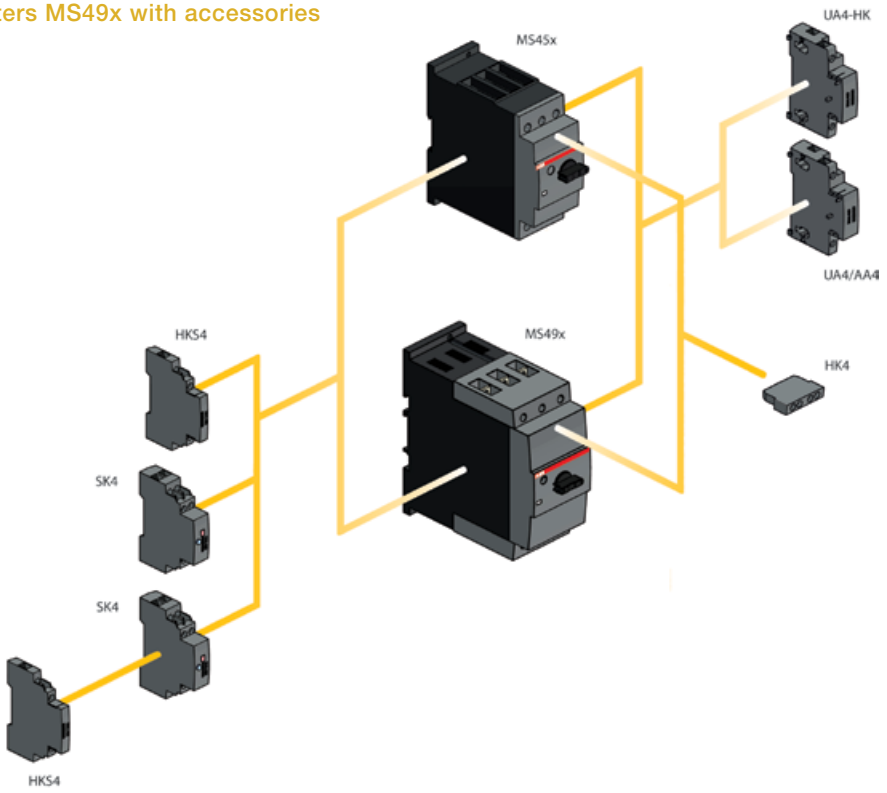
Ordering details

Rated operational power 400 V AC-3	Setting range	Short-circuit breaking capacity I_{cs} at 400 V AC	Rated instantaneous short-circuit current setting I_i	Factory code	Order code
kW	A	kA	A		
MS495 manual motor starters					
30	45.0 … 63.0	25	819.00	1SAM550000R1007	MS495-63
37	57.0 … 75.0	25	975.00	1SAM550000R1008	MS495-75
45	70.0 … 90.0	25	1170.00	1SAM550000R1009	MS495-90
55	80.0 … 100.0	25	1235.00	1SAM550000R1010	MS495-100
MS497 manual motor starters					
15	22.0 … 32.0	50	416.00	1SAM580000R1004	MS497-32
18.5	28.0 … 40.0	50	520.00	1SAM580000R1005	MS497-40
22	36.0 … 50.0	50	650.00	1SAM580000R1006	MS497-50
30	45.0 … 63.0	50	819.00	1SAM580000R1007	MS497-63
37	57.0 … 75.0	50	975.00	1SAM580000R1008	MS497-75
45	70.0 … 90.0	50	1170.00	1SAM580000R1009	MS497-90
55	80.0 … 100.0	50	1235.00	1SAM580000R1010	MS497-100

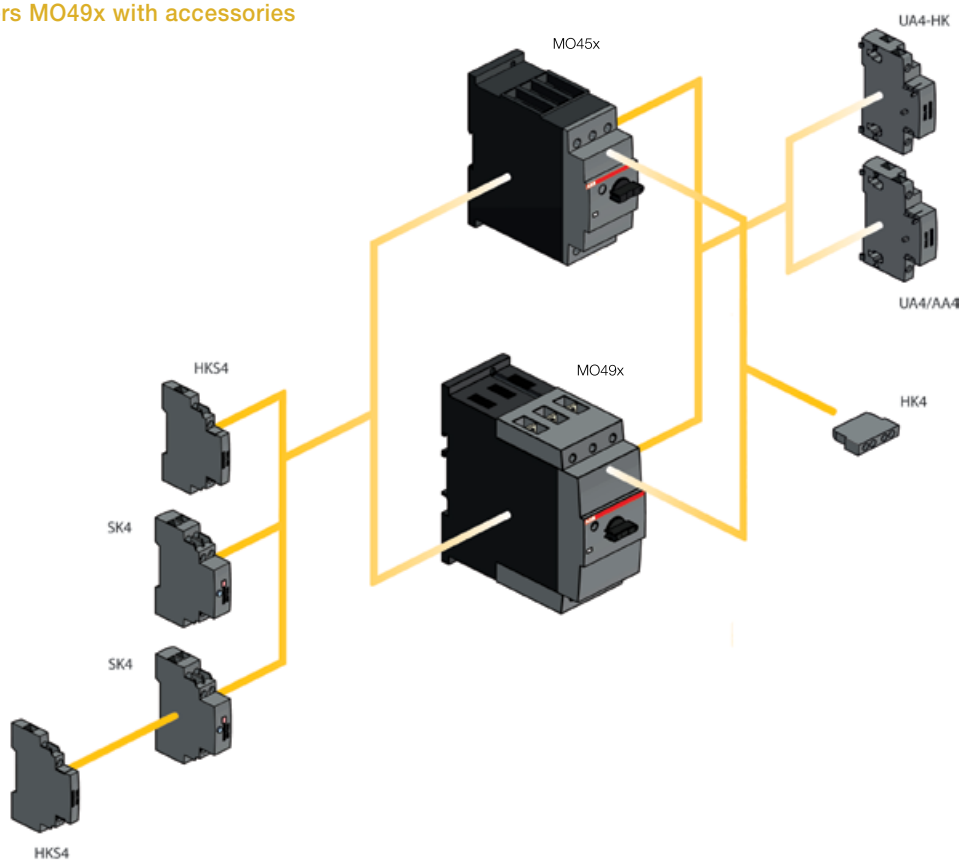
Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0204.

MS49x, MO49x manual motor starters
Main accessories

Manual motor starters MS49x with accessories



Manual motor starters MO49x with accessories



8

MS49x, MO49x manual motor starters
Main accessories

HK4-11

HKS4-20

SK4-11

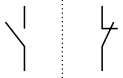
AA4-24

UA4-110

Description

Manual motor starters can be equipped with auxiliary contacts for lateral/front mounting, signalling contact for lateral mounting, undervoltage release and shunt trips. The accessories can be fitted wiring free and without tools. A variety of combinations is possible as required for the application. The auxiliary contacts change position with the main contacts. Undervoltage release are used for remote tripping of the manual motor starter especially for emergency stop circuits. Shunt trips release the MMS used for remote tripping.

Ordering details

Suitable for	Auxiliary contacts fitted		Description	Factory code	Order code
					
Auxiliary contacts – mountable on the front					
MS49x, MO49x	1	1		1SAM401901R1001	HK4-11
			Changeover	1SAM401901R1002	HK4-W
Auxiliary contacts – mountable on the left					
MS49x, MO49x	1	1	Max. 1 piece	1SAM401902R1001	HKS4-11
	2	0	Max. 1 piece	1SAM401902R1002	HKS4-20
	0	2	Max. 1 piece	1SAM401902R1003	HKS4-02
Signalling contacts – mountable on the left					
MS49x, MO49x	2	2	Separate signalling acc. UL508E 1 N.O. + 1 N.C. for short circuit alarm and 1 N.O. + 1 N.C. for tripped alarm, max. 1x SK4-11 + 1 x HKS4-xx	1SAM401904R1001	SK4-11

Suitable for	Rated control supply voltage V	Frequency Hz	Factory code	Order code
Shunt trip units – mountable on the right				
MS49x, MO49x	20 ... 24	50/60	1SAM401907R1001	AA4-24
	90 ... 110	50/60	1SAM401907R1002	AA4-110
	200 ... 240	50/60	1SAM401907R1003	AA4-230
	350 ... 415	50/60	1SAM401907R1004	AA4-400
Undervoltage releases – mountable on the right				
MS49x, MO49x	24	50/60	1SAM401905R1004	UA4-24
	110/120	50/60	1SAM401905R1001	UA4-110
	230/240	50/60	1SAM401905R1002	UA4-230
	400/440	50/60	1SAM401905R1003	UA4-400
	230/240	50/60	1SAM401906R1001	UA4-HK-230
	400/440	50/60	1SAM401906R1002	UA4-HK-400

Note:
For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0204.

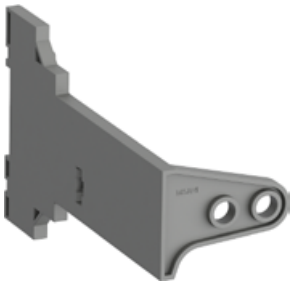
MS116, MS132, MO132, MS165, M0165, MS4xx, MO4xx
General accessories

MSHD-LB

MSHD-LY

MSMN

MSH-AR


MSAH1

Description

With this solution of door coupling rotary mechanism it is possible to operate a Manual Motor Starter in the back of a switch cabinet from outside. The door coupling mechanism prevents opening of the door of a switch cabinet with the Manual Motor Starter in ON position.
The complete mechanism includes handle, shaft, driver, shaft alignment ring and shaft supporter.
All accessories fit for 6 mm shafts with a maximum length of 180 mm. The degree of protection for handles MSHD is IP64.

Ordering details

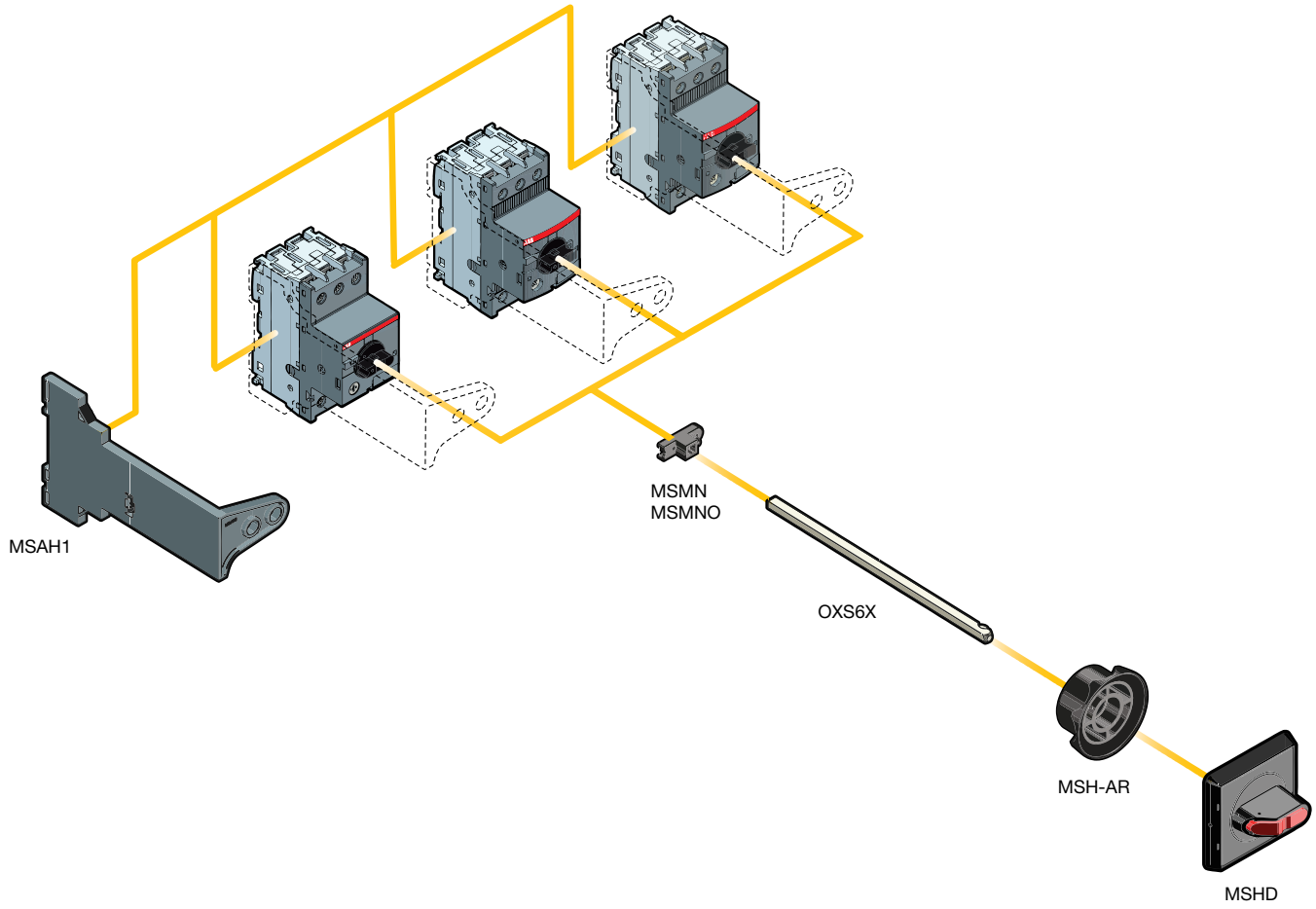
Suitable for	Description	Shaft length mm	Colour	Factory code	Order code
Shafts					
MS116, MS132, MO132, MS165, MO165, MS4xx, MO4xx	For MSHD handles. Shaft diameter 6 mm. Shaft extension for door coupling driver.	85		1SCA101647R1001	OXS6X85
		105		1SCA108043R1001	OXS6X105
		130		1SCA101655R1001	OXS6X130
		180		1SCA101659R1001	OXS6X180
IP64 handles (UL: Type 1, 3R, 12)					
MS116, MS132, MO132, MS165, MO165, MS4xx, MO4xx	Padlockable max. 3 padlocks with bail diameter 5 … 8 mm, door interlock in ON position defeatable, for use with 6 mm OXS6…types up to 180 mm or driver shafts MSOX.		Black	1SAM201920R1001	MSHD-LB [1]
			Yellow	1SAM201920R1002	MSHD-LY [1]
			Black	1SAM201920R1011	MSHD-LTB [2]
			Yellow	1SAM201920R1012	MSHD-LTY [2]
Driver					
MS116, MS132, MO132, MS165, MO165, MS4xx, MO4xx	Coupling driver for use with 6 mm OXS6… types up to 180 mm.			1SAM101923R0002	MSMN [3]
				1SAM101923R0012	MSMNO [4]
Shaft alignment ring					
MS116, MS132, MO132, MS165, MO165, MS4xx, MO4xx	The MSH-AR supports the long shafts for alignment to the handle inlet. It makes closing panel doors more easy. Use for OXS6X > 105 mm.			1SAM201920R1000	MSH-AR
Shaft supporter					
MS116, MS132, MO132, MS165, MO165	With the MSAH it is possible to support the shaft in the extension of handle (MSHD). It is mandatory for the usage of shafts >130 mm.			1SAM201909R1021	MSAH1

Note:
1) Indication I-O and ON-OFF (recommended for MS116, MS4xx, MO4xx)
2) Indication I-O and ON-OFF + Trip indication
3) Coded - Positioning of ON indication dependent from mounting orientation of the MMS
4) Uncoded - Positioning of ON indication independent from mounting orientation of the MMS

For full selection and technical details, please refer to main Manual motor starters catalogue 1SBC100192C0204.

STOCK INDENT

MS116, MS132, MO132, MS4xx, MO4xx
General accessories



8

Contactors and contactor relays

Mini contactors and contactor relays 424
Overview 424
Ordering details 426
Accessories 429

ESB installation contactors 430
Ordering details 430
Lamp load table 431

AF 3-pole contactors 432
Overview 432
Ordering details AF09 ... AF38 (4 – 18.5 kW) 434
Ordering details AF40 ... AF96 (18.5 – 45 kW) 435
Accessories AF09 ... AF96 (4 – 45 kW) 436
Ordering details AF116 ... AF370 (55 – 200 kW) 438
Accessories AF116 ... AF370 (55 – 200 kW) 439
Ordering details AF400 ... AF2650 (200 – 560 kW) 441
Accessories AF400 ... AF2650 (200 – 560 kW) 442

AF 4-pole contactors 444
Overview 444
Ordering details AF09 ... AF80 (25 – 125 A) 446
Accessories AF09 ... AF80 (25 – 125 A) 448
Ordering details AF116 … AF370 (160 – 525 A) 450
Accessories AF116 ... AF370 (160 – 525 A) 451
Ordering details EK550, EK1000 (800 – 1000 A) 453
Accessories EK550, EK1000 (800 – 1000 A) 453

NF 4-pole and NF 8-pole contactor relays 454
Ordering details NF 4-pole 454
Ordering details NF 8-pole 455
Accessories NF 4-pole and 8-pole 456

Contactors for capacitor switching 457

Coil voltage code table 458

Safety Contactors 461
Ordering details Contactors for safety applications with AF technology 461

Bar contactors 463
Specification questionnaire 465

8

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

- 1SBC100192C0204: Motor Protection and Control – main catalogue
- 2CDC103023C0201: ESB Installation Contactors – main catalogue

Mini contactors and contactor relays
Overview

Mini contactors

				Screw terminals			
AC Control supply							
3–pole contactors	Coil consumption 3.5 W	Type		B6	B7	–	–
3–pole reversing contactors	Coil consumption 3.5 W	Type		–	–	VB6 VB6A[2]	VB7 VB7A[2]
4–pole contactors	Coil consumption 3.5 W	Type		B6	B7	–	–
DC Control supply							
3–pole contactors	Coil consumption 3.5 W	Type		BC6	BC7 B7D[1]	–	–
3–pole interface contactors	Coil consumption 1.4 ... 2.4 W	Type		BC6	BC7	–	–
3–pole reversing contactors	Coil consumption 3.5 W	Type		–	–	VBC6 VBC6A[2]	VBC7 VBC7A[2]
4–pole contactors	Coil consumption 3.5 W	Type		BC6	B7D		
Wide range types	Extended coil voltage and temperature	Type		–	TBC7		
PLC types	Coil consumption 1.7 W	Type		B6S[1]	B7S[1]		
IEC **Rated operational power AC–3**	220–230–240 V	kW		2.2	3	2.2	3
	380–400 V	kW		4	5.5	4	5.5
Rated operational current AC–1	400 V, θ ≤ 40 °C	A		20	20	20	20

1) With integrated surge suppressor
2) With safety blocking function

Main accessories

Auxiliary contact blocks	Front mounting	CAF6
	Side mounting	CA6
Connection sets	For reversing contactors	BSM630
Surge suppressors	Varistor (AC/DC)	RV-BC6

Overload relays

Thermal overload relays Thermal and phase failure protection, with single setup possible	Class 10	T16
Electronic overload relays With single setup possible	Class 10E, 20E, 30E	E16DU

Manual motor starters

Thermal / magnetic protection	Class 10	MS116, MS132
Magnetic only types		MO132
Connecting link to manual motor starters		BEA7/132

Contactors relays

				Screw terminals
AC Control supply				
4-pole contactor relays	Coil consumption 3.5 W	Type		K6
DC Control supply				
4-pole contactor relays	Coil consumption 3.5 W	Type		KC6
4-pole interface contactor relays	Coil consumption 1.4 ... 2.4 W	Type		KC6
Wide range types	Extended coil voltage and temperature	Type		TKC6
IEC **Rated operational current AC-15**	220-230-240 V	A		4
	380-400 V	A		3
Rated operational current DC-13	24 V	A		2.5

Main accessories

Auxiliary contact blocks	Front mounting	CAF6
	Side mounting	CA611K

	Soldering pins*				Flat pins*			
	B6...P	B7...P	–	–	B6...F	B7...F	–	–
	–	–	VB6...P VB6A...P[2]	VB7...P VB7A...P[2]	–	–	VB6...F VB6A...F[2]	VB7...F VB7A...F[2]
	–	–	–	–	–	–		
	BC6...P	BC7...P B7D...P1)	–	–	BC6...F	BC7...F B7D...F[1]	–	–
	BC6...P	BC7...P	–	–	BC6...F	BC7...F	–	–
	–	–	VBC6...P VBC6A...P[2]	VBC7...P VBC7A...P[2]	–	–	VBC6...F VBC6A...F[2]	VBC7...F VBC7A...F[2]
	–	–			–	–		
	2.2	3	2.2	3	2.2	3	2.2	3
	4	5.5	4	5.5	4	5.5	4	5.5
	12	12	12	12	20	20	20	20

	–	–
	CA611KP	CA611KF
	–	–
	–	–

	–	–
	–	–

	MS116, MS132	MS116, MS132
	M0132	M0132
	–	–

	Soldering pins*	Flat pins*
	K6...P	K6...F

	KC6...P	KC6...F
	KC6...P	KC6...F
	4	4
	3	3
	2.5	2.5
	–	–
	CA611KP	CA611KF

*** For more information:** see Motor Protection and Control – main catalogue

B6, B7, BC6, BC7 3-pole mini contactors
AC or DC operated with screw terminals – 4 to 5.5 kW

B6-30-10

B7-30-01

BC6-30-10

BC7-30-01

Description

Mini contactors are space optimized control products for switching resistive or motor loads. Compact motor starting modules up to 5.5 kW can be realized with small space as a premium.

- possible to add 1 auxiliary-contact block at top or on side
- surge suppressors and accessories for wiring and connecting link available
- see Ordering details on page 470 for suitable overloads

3-pole mini contactors with screw terminals

IEC Rated		Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current $\theta \leq 40$ °C AC-1	50 Hz					
kW	A	V AC	V DC				
4	16	24		1	0	GJL1211001R0101	B6301001
		24		0	1	GJL1211001R0011	B6300101
		220 … 240		1	0	GJL1211001R8100	B6301080
		220 … 240		0	1	GJL1211001R8010	B6300180
5.5	20	24		1	0	GJL1311001R0101	B7301001
		24		0	1	GJL1311001R0011	B7300101
		220 … 240		1	0	GJL1311001R8100	B7301080
		220 … 240		0	1	GJL1311001R8010	B7300180
4	16		24	1	0	GJL1213001R0101	BC6301001
			24	0	1	GJL1213001R0011	BC6300101
5.5	20		24	1	0	GJL1313001R0101	BC7301001
			24	0	1	GJL1313001R0011	BC7300101

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

STOCK INDENT

VB6, VB7, VBC6, VBC7 3-pole mini reversing contactors
AC or DC operated with screw terminals – 4 to 5.5 kW

VB6-30-01

VB7-30-10

VBC6-30-10

VBC7-30-10

3-pole mini reversing contactors with screw terminals

IEC Rated		Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current θ ≤ 40 °C AC-1	50 Hz					
kW	A	V AC	V DC				
4	16	24		1	0	GJL1211901R0101	VB6301001
		24		0	1	GJL1211901R0011	VB6300101
		220 … 240		1	0	GJL1211901R8100	VB6301080
		220 … 240		0	1	GJL1211901R8010	VB6300180
5.5	20	24		1	0	GJL1311901R0101	VB7301001
		24		0	1	GJL1311901R0011	VB7300101
		220 … 240		1	0	GJL1311901R8100	VB7301080
		220 … 240		0	1	GJL1311901R8010	VB7300180
4	16		24	1	0	GJL1213901R0101	VBC6301001
			24	0	1	GJL1213901R0011	VBC6300101
5.5	20		24	1	0	GJL1313901R0101	VBC7301001
			24	0	1	GJL1313901R0011	VBC7300101

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

B6, B7, BC6, BC7 4-pole mini contactors and K6, KC6 4-pole mini contactor relays operated with screw terminals – 4 to 5.5 kW

B6-22-00

BC6-22

K6-222

KC6-40E

4-pole mini contactors

IEC Rated		Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current θ ≤ 40 °C AC-1	50 Hz					
kW	A	V AC	V DC				
4-pole mini contactors with screw terminals							
4	16	24		4	0	GJL1211201R0001	B6400001
5.5	20	24		4	0	GJL1311201R0001	B7400001
4	16		24	4	0	GJL1213201R0001	BC6400001
5.5	20		24	4	0	GJL1313201R0001	BC7400001
4	16	24		2	2	GJL1211501R0001	B6220001
5.5	20	24		2	2	GJL1311501R0001	B7220001
4	16		24	2	2	GJL1213501R0001	BC6220001
5.5	20		24	2	2	GJL1313501R0001	BC7220001
4-pole mini contactor relays with screw terminals							
–	4	220 … 240		2	2	GJH1211001R8220	K622Z80
		220 … 240		3	1	GJH1211001R8310	K631Z80
		220 … 240		4	0	GJH1211001R8400	K640E80
			24	2	2	GJH1213001R0221	KC622Z01
			110 … 125	2	2	GJH1213001R0224	KC622Z04
			24	3	1	GJH1213001R0311	KC631Z01
			110 … 125	3	1	GJH1213001R0314	KC631Z04
			24	4	0	GJH1213001R0401	KC640E01
			110 … 125	4	0	GJH1213001R0404	KC640E04

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

STOCK INDENT

B mini contactor and K mini contactor relays
Accessories

CA611E

Side mounted instantaneous auxiliary contact block[1]

Suitable for	Factory code	Order code
K6 and KC6	GJL1201317R0001	CA611K
B6(7)-40-00 and BC6(7)-40-00	GJL1201317R0002	CA611E
B6(7)-30-10 and BC6(7)-30-10	GJL1201317R0003	CA611M
B6(7)-30-01 and BC6(7)-30-01	GJL1201317R0004	CA611N

1) Auxiliary Switches CA 6 and CAF 6 may not be fitted simultaneously

CAF611N

Front mounted instantaneous auxiliary contact block[1]

Suitable for	Factory code	Order code
K6 and KC6	GJL1201330R0001	CAF611K
K6 and KC6	GJL1201330R0005	CAF620K
K6 and KC6	GJL1201330R0009	CAF602K
B(C)6-, B(C)7-40-00, VB(C)…(A)	GJL1201330R0002	CAF611E
B(C)6-, B(C)7-40-00, VB(C)…(A)	GJL1201330R0006	CAF620E
B(C)6-, B(C)7-40-00, VB(C)…(A)	GJL1201330R0010	CAF602E
B(C)6-, B(C)7-30-10, VB(C)…(A)	GJL1201330R0003	CAF611M
B(C)6-, B(C)7-30-10, VB(C)…(A)	GJL1201330R0007	CAF620M
B(C)6-, B(C)7-30-10, VB(C)…(A)	GJL1201330R0011	CAF602M
B(C)6-, B(C)7-30-01, VB(C)…(A)	GJL1201330R0004	CAF611N
B(C)6-, B(C)7-30-01, VB(C)…(A)	GJL1201330R0008	CAF620N
B(C)6-, B(C)7-30-01, VB(C)…(A)	GJL1201330R0012	CAF602N

1) Auxiliary Switches CA 6 and CAF 6 may not be fitted simultaneously

BSM630

Reversing connecting link

Description	Factory code	Order code
VB, VBC with Screw Connection	GJL1201908R0001	BSM630

LP6

Parallel connecting link

Description	Factory code	Order code
B, BC, with Screw Connection	GJL1201907R0001	LP6

ESB installation contactors
AC / AC-DC operated – with screw terminals

ESB20

ESB24

ESB40

ESB63

Description

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

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

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

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

Ordering details accessories

EH04 ...

ESBDIS

ESBPLK24

Description		Factory code	Order code
Aux. switches	2 N.O.	GHE3401321R0001	EH0420[1]
	1 N.O. + 1 N.C.	GHE3401321R0002	EH0411[1]
Distance piece		GHE3201902R0001	ESBDIS
Sealing covers		GHE3201903R0001	ESBPLK24
		GHE3401903R0001	ESBPLK40/63

1) Mounting onto ESB 20 not possible.
For more detailed product information, please refer to the Technical Catalogue: 2CDC103023C0201

STOCK INDENT

Lamp load table

Please note:

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

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

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

Example of lamp load calculation:

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

Please see the following examples for a reliable project lamp calculation

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

3-pole contactors, for motor control and power switching
AF09…AF2650

AC / DC Control supply				Type	AF09	AF12	AF16	AF26	AF30	AF38	AF40	AF52	AF65	AF80	AF96
IEC	**AC-3**	Rated operational power θ ≤ 60 °C for AF09 … AF370 θ ≤ 55 °C for AF400 … AF2650	220 - 230 - 240 V	kW	2.2	3	4	6.5	9	11	11	15	18.5	22	25
			380 - 400 V	kW	4	5.5	7.5	11	15	18.5	18.5	22	30	37	45
			415 V	**kW**	**4**	**5.5**	**9**	**11**	**15**	**18.5**	**22**	**30**	**37**	**45**	**55**
			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	**415 V**	**A**	**9**	**12**	**18**	**26**	**32**	**38**	**40**	**53**	**65**	**80**	**96**
			1000 V	**A**	—	—	—	—	—	—	—	—	—	**25**	**30**
	AC-1	Rated operational current	**θ ≤ 40 °C, 690 V**	**A**	**25**	**28**	**30**	**45**	**50**	**50**	**70**	**100**	**105**	**125**	**130**
UL / CSA	**1-phase motor rating**		120 V	hp	0.75	1	1.5	2	2	2	3	3	5	7.5	7.5
			240 V	hp	1.5	2	3	3	5	5	7.5	10	15	15	20
	3-phase motor rating		200 - 208 V	hp	2	3	5	7.5	10	10	10	15	20	25	30
			220 - 240 V	hp	2	3	5	7.5	10	10	15	20	25	30	30
			440 - 480 V	**hp**	**5**	**7.5**	**10**	**15**	**20**	**20**	**30**	**40**	**50**	**60**	**60**
			550 - 600 V	hp	7.5	10	15	20	25	25	40	50	60	75	75
	General use rating		**600 V**	**A**	**25**	**28**	**30**	**45**	**50**	**50**	**60**	**80**	**90**	**105**	**115**
NEMA	**NEMA Size**				**00**	**0**	—	**1**	—	—	**2**	—	—	**3**	—

8

Main accessories

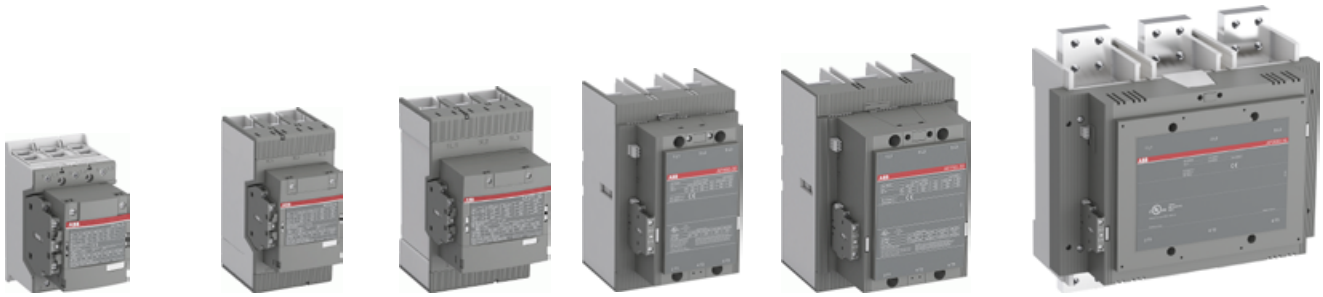
Auxiliary contact blocks	Front mounting	**CA410** (1 x N.O.) **CA401** (1 x N.C.)				
	Side mounting	**CAL411** (1 x N.O. + 1 x N.C.)				
Timers	Electronic	**TEF4ON** **TEF4OFF**				
Interlocking units	Mechanical	**VM4**		**VM96-4**		
	Mechanical / Electrical	**VEM4**				
Connection sets	For reversing contactors	**BER164**	**BER384**	**BER654**	**BER964**	
Surge suppressors		Built-in surge protection				

Overload relays

Thermal relays	Class 10 (Class 10A for TF140, TA200DU)	**TF42** (0.10…38 A)		**TF65** (22...67 A)	**TF96** (40...96 A)
Electronic relays	Class 10E, 20E, 30E	**EF19** (0.10…18.9 A)	**EF19** (0.10…18.9 A) **EF45** (9…45 A)	**EF65** (25...70 A)	**EF96** (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		**MS450** (28...50 A) Ics up to 50 kA	
		MS132 (0.10...32 A) Ics up to 100 kA			**MS495** (45…100 A) Ics up to 50 kA
				MS497 (22…100 A) Ics up to 100 kA	
	Magnetic only types	**MO132** (0.16...32 A) Ics up to 100 kA		**MO496** (32…100 A) Ics up to 100 kA	
				MO450 (40…50 A) Ics up to 50 kA	**MO495** (63…100 A) Ics up to 50 kA
Accessories	For contactor mounting	**BEA164**	**BEA384**		



	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050	AF2650
	30	37	45	55	55	75	90	110	110	132	160	220	—	257	315	—	—
	55	75	75	90	110	132	160	200	200	250	315	400	—	475	560	—	—
	55	**75**	**75**	**90**	**110**	**132**	**160**	**200**	**220**	**250**	**355**	**425**	—	**500**	**600**	—	—
	75	90	90	110	132	160	160	200	220	250	355	450	—	560	670	—	—
	75	90	90	110	132	160	200	250	250	315	400	520	—	560	700	—	—
	55	75	90	132	160	200	250	315	315	355	500	600	—	750	900	—	—
	—	—	75	110	132	132	132	132	220	280	355	400	—	—	—	—	—
	116	**140**	**146**	**190**	**205**	**265**	**305**	**370**	**400**	**460**	**580**	**750**	—	**860**	**1060**	**1060**	—
	—	—	**60**	**85**	**100**	**100**	**100**	**100**	**155**	**200**	**250**	**300**	—	—	—	—	—
	160	**200**	**225**	**275**	**350**	**400**	**500**	**600**	**600**	**700**	**800**	**1050**	**1260**	**1350**	**1650**	**2050**	**2650**

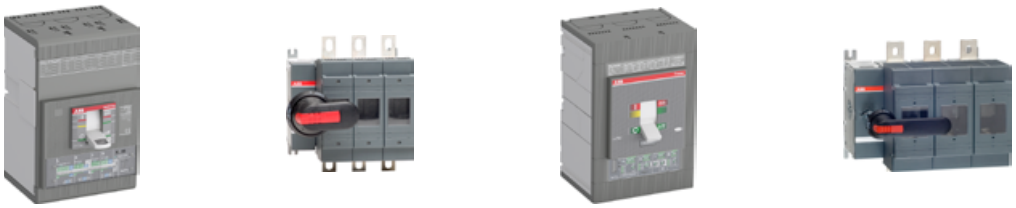
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	30	40	40	50	60	75	100	125	125	150	200	250	—	—	—	—	—
	40	50	50	60	75	100	125	150	150	200	250	300	—	400	450	—	—
	75	**100**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**500**	**600**	—	**800**	**900**	—	—
	100	125	125	150	200	250	300	350	400	500	600	700	—	1000	1150	—	—
	160	**200**	**200**	**250**	**300**	**350**	**400**	**520**	**550**	**650**	**750**	**900**	**1210**	**1350**	**1650**	**2100**	**2700**
	—	**4**	—	—	—	**5**	—	—	—	**6**	—	**7**	—	—	**8**	—	—

	CAL1911 (1 x N.O. + 1 x N.C.)								CAL1811 (1 x N.O. + 1 x N.C.)								
	VM19 (for same size contactors)								**VM750H** **VM750V**					**VM1650H**			
	BER1404			**BER2054**		**BER3704**			**BEM46030**		**BEM75030**						

	TF140DU (66...142 A) $\theta \leq 55$ °C			**TA200DU** (66...200 A) $\theta \leq 55$ °C													
	EF146 (54...150 A)			EF205 (63...210 A)		**EF370** (115...380 A)			**EF460 - 500** (150…500 A)		**EF750 - 800** (250…800 A)			**E1250DU - 1250** (375…1250 A)			

Short-circuit protection devices

Tmax Circuit breaker and accessories



AF09 ... AF38 3-pole contactors
4 to 18.5 kW, AC / DC operated

AF09-30-10

AF26-30-00

Description

AF09 ... AF38 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

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

IEC Rated		Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current $\theta \leq 40$ °C AC-1	50/60 Hz					
kW	A	V AC	V DC				
4	25	24…60	20…60	1	0	1SBL137001R1110	AF09301011
		24…60	20…60	0	1	1SBL137001R1101	AF09300111
		48…130	48…130	1	0	1SBL137001R1210	AF09301012
		48…130	48…130	0	1	1SBL137001R1201	AF09300112
		100…250	100…250	1	0	1SBL137001R1310	AF09301013
		100…250	100…250	0	1	1SBL137001R1301	AF09300113
		250…500	250…500	1	0	1SBL137001R1410	AF09301014
		250…500	250…500	0	1	1SBL137001R1401	AF09300114
5.5	28	24…60	20…60	1	0	1SBL157001R1110	AF12301011
		24…60	20…60	0	1	1SBL157001R1101	AF12300111
		48…130	48…130	1	0	1SBL157001R1210	AF12301012
		48…130	48…130	0	1	1SBL157001R1201	AF12300112
		100…250	100…250	1	0	1SBL157001R1310	AF12301013
		100…250	100…250	0	1	1SBL157001R1301	AF12300113
		250…500	250…500	1	0	1SBL157001R1410	AF12301014
		250…500	250…500	0	1	1SBL157001R1401	AF12300114
7.5	30	24…60	20…60	1	0	1SBL177001R1110	AF16301011
		24…60	20…60	0	1	1SBL177001R1101	AF16300111
		48…130	48…130	1	0	1SBL177001R1210	AF16301012
		48…130	48…130	0	1	1SBL177001R1201	AF16300112
		100…250	100…250	1	0	1SBL177001R1310	AF16301013
		100…250	100…250	0	1	1SBL177001R1301	AF16300113
		250…500	250…500	1	0	1SBL177001R1410	AF16301014
		250…500	250…500	0	1	1SBL177001R1401	AF16300114
11	45	24…60	20…60	0	0	1SBL237001R1100	AF26300011
		48…130	48…130	0	0	1SBL237001R1200	AF26300012
		100…250	100…250	0	0	1SBL237001R1300	AF26300013
		250…500	250…500	0	0	1SBL237001R1400	AF26300014
15	50	24…60	20…60	0	0	1SBL277001R1100	AF30300011
		48…130	48…130	0	0	1SBL277001R1200	AF30300012
		100…250	100…250	0	0	1SBL277001R1300	AF30300013
		250…500	250…500	0	0	1SBL277001R1400	AF30300014
18.5	50	24…60	20…60	0	0	1SBL297001R1100	AF38300011
		48…130	48…130	0	0	1SBL297001R1200	AF38300012
		100…250	100…250	0	0	1SBL297001R1300	AF38300013
		250…500	250…500	0	0	1SBL297001R1400	AF38300014

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

1) For 24...60 V 50/60 Hz - 20...60 V DC, use AF..-30-..-11 (see voltage code table). AF..-30-..-11 not suitable for direct control by PLC-output.
2) For direct PLC control, please contact ABB.

STOCK INDENT

AF40 ... AF96 3-pole contactors
18.5 to 45 kW, AC / DC operated

AF40-30-00

AF80-30-00

Description

AF40 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. AF80 and AF96 also suitable up to 1000 V AC applications. These contactors are of the block type design with 3 main poles.

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

IEC Rated		Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current $\theta \leq 40$ °C AC-1	50 Hz	60 Hz				
kW	A	V AC	V DC				
18.5	70	24...60	20...60	0	0	1SBL347001R1100	AF40300011
		48...130	48...130	0	0	1SBL347001R1200	AF40300012
		100...250	100...250	0	0	1SBL347001R1300	AF40300013
		250...500	250...500	0	0	1SBL347001R1400	AF40300014
22	100	24...60	20...60	0	0	1SBL367001R1100	AF52300011
		48...130	48...130	0	0	1SBL367001R1200	AF52300012
		100...250	100...250	0	0	1SBL367001R1300	AF52300013
		250...500	250...500	0	0	1SBL367001R1400	AF52300014
30	105	24...60	20...60	0	0	1SBL387001R1100	AF65300011
		48...130	48...130	0	0	1SBL387001R1200	AF65300012
		100...250	100...250	0	0	1SBL387001R1300	AF65300013
		250...500	250...500	0	0	1SBL387001R1400	AF65300014
37	125	24...60	20...60	0	0	1SBL397001R1100	AF80300011
		48...130	48...130	0	0	1SBL397001R1200	AF80300012
		100...250	100...250	0	0	1SBL397001R1300	AF80300013
		250...500	250...500	0	0	1SBL397001R1400	AF80300014
45	130	24...60	20...60	0	0	1SBL407001R1100	AF96300011
		48...130	48...130	0	0	1SBL407001R1200	AF96300012
		100...250	100...250	0	0	1SBL407001R1300	AF96300013
		250...500	250...500	0	0	1SBL407001R1400	AF96300014

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

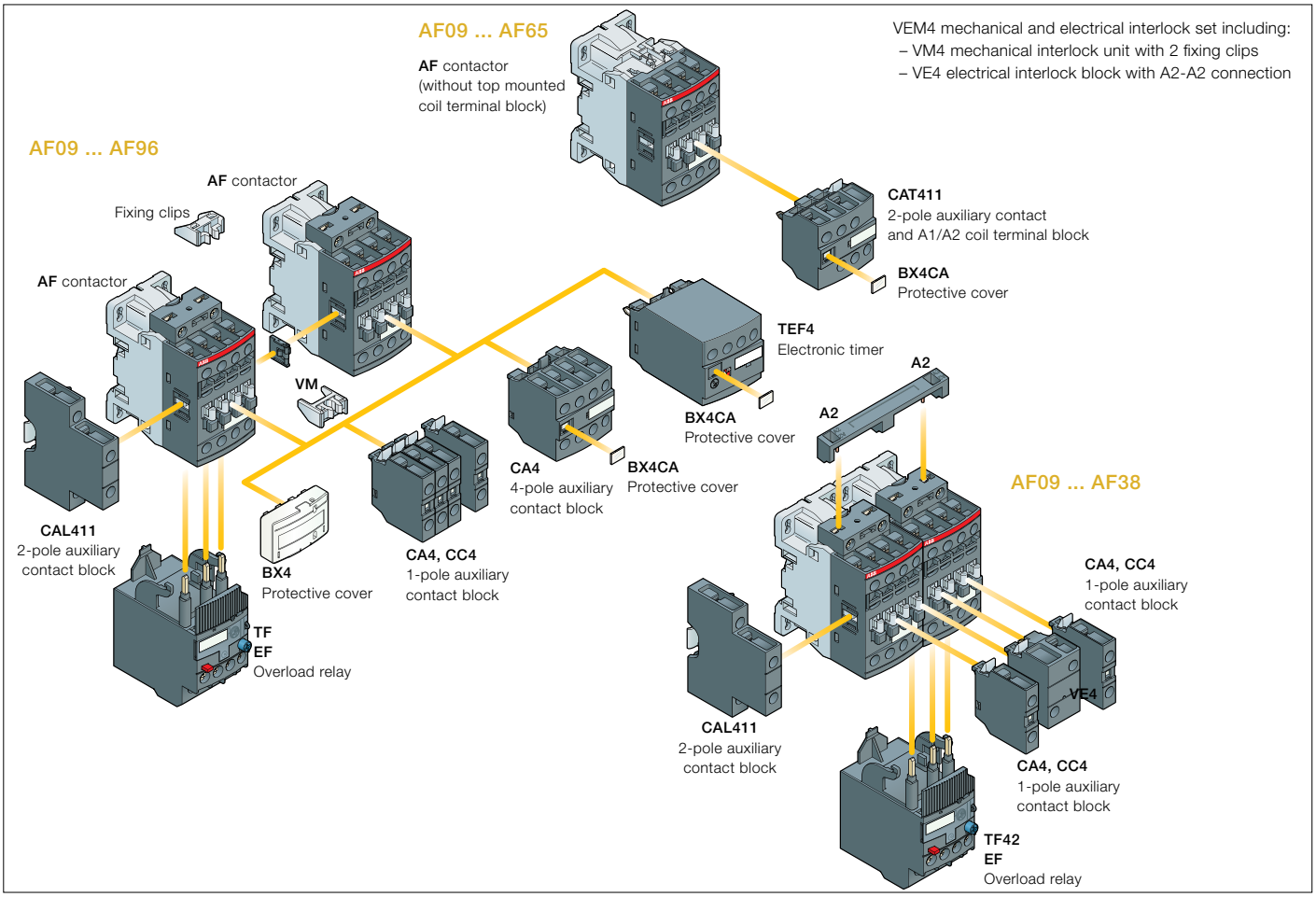
1) AF..-30-..-11 not suitable for direct control by PLC-output.
2) For direct PLC control, please contact ABB.

8

STOCK INDENT

AF09 ... AF96 3-pole contactors
Main accessories

Contactor and main accessories *(other accessories available)*



Main accessory fitting details

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles	Built-in auxiliary contacts	Front-mounted accessories									Side-mounted accessories		
			Auxiliary contact blocks						Electronic timer		Electrical and mechanical interlock set (between 2 contactors)	Auxiliary contact blocks		
			1-pole CA4 1-pole CC4		2-pole CAL411		4-pole CA4		TEF4		VEM4	Left side 2-pole CAL411		Right side
	Max. N.C. built-in and add-on N.C. auxiliary contacts: 4 N.C. max. on positions 1, 2, 3, 4 and 3 N.C. max. on positions 1 ±30°, 5													
AF09 ... AF16	3 0		4 max.	or	1	or	1	or	1		–	+	1		–
AF09 ... AF16	3 0		2 max.	or	1		–	or	1		–	+	1	+	1
AF26 ... AF38	3 0		3 max.		–		–		–	+	1	+	1	or	1
AF40 ... AF65	0 0	0 0	4 max.	or	1	or	1	or	1		–	+	1		1
AF80, AF96	02 0	0 0	4 max.	or	–	or	1	or	1		–	+	1	+	1

Overload relays fitting details [1]

Contactor types	Thermal overload relays	Electronic overload relays
AF09 ... AF38	TF42 (0.10...38 A)	EF19 (0.10...19 A)
AF26 ... AF38	TF42 (0.10...38 A)	EF45 (9...45 A)
AF40 ... AF65	TF65 (22...67 A)	EF65 (25...70 A)
AF80, AF96	TF96 (40...96 A)	EF96 (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.

For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

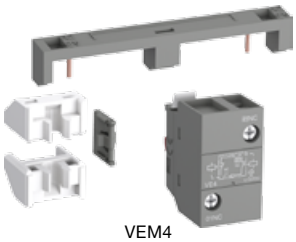
AF09 ... AF96 3-pole contactors
Main accessories

CA410

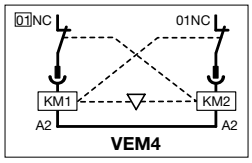
CAL411

CA422E

CAT411E



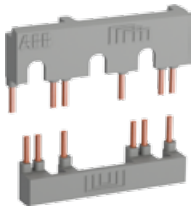
VEM4



VEM4

TEF4-ON

BEA164



BER164

Ordering details [1]

For contactors	Auxiliary contacts				Factory code	Order code
Front-mounted instantaneous auxiliary contact blocks						
AF09 ... AF96	1	0	–	–	1SBN010110R1010	CA410
	0	1	–	–	1SBN010110R1001	CA401
AF09 ... AF16..-30-10	2	2	–	–	1SBN010140R1122	CA422M
AF26 ... AF96..-30-00	2	2	–	–	1SBN010140R1022	CA422E
AF09 ... AF16..-30-01	2	2	–	–	1SBN010140R1322	CA422U
Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact						
AF09 ... AF96	–	–	1	0	1SBN010111R1010	CC410
	–	–	0	1	1SBN010111R1001	CC401
Side-mounted instantaneous auxiliary contact blocks						
AF09 ... AF96	1	1	–	–	1SBN010120R1011	CAL411
Front-mounted instantaneous auxiliary contact and A1/A2 coil terminal blocks						
AF09 ... AF16..-30-10	1	1	–	–	1SBN010151R1111	CAT411M
AF26 ... AF65..-30-00	1	1	–	–	1SBN010151R1011	CAT411E
AF09 ... AF16..-30-01	1	1	–	–	1SBN010151R1311	CAT411U

Note: CAT4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

Mechanical interlock unit						
AF09 ... AF38					1SBN030105T1000	VM4
AF40 ... AF96					1SBN033405T1000	VM96-4
Mechanical and electrical interlock set						
AF09 ... AF16	0	2	–	–	1SBN030111R1000	VEM4
AF26 ... AF38						

Note:
– VEM4 includes a VM4 mechanical interlock unit with 2 fixing clips (BB4), a VE4 electrical interlock block. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.
– VEM4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

For contactors	Time delay range selected by switch	Delay type	Auxiliary contacts		Factory code	Order code
Electronic timers						
AF09 ... AF96	0.1...1 s	ON-delay	1	1	1SBN020112R1000	TEF4-ON
	1...10 s 10...100 s	OFF-delay	1	1	1SBN020114R1000	TEF4-OFF

Note: Rated control circuit voltage Uc 24...240 V 50/60 Hz or DC.

Connecting links with manual motor starters				
AF09 ... AF16	with	MS116-0.16 ... MS116-25, MS132-0.16 ... MS132-25	1SBN081306T1000	BEA164
AF26 ... AF38	with	MS116-0.16 ... MS116-16, MS132-0.16 ... MS132-10	1SBN082306T1000	BEA264
	with	MS116-20 ... MS116-32, MS132-12 ... MS132-32	1SBN082306T2000	BEA384
Connection sets for reversing contactors				
AF09 ... AF16			1SBN081311R1000	BER164
AF26 ... AF38			1SBN082311R1000	BER384
AF40 ... AF65			1SBN083411R1000	BER654
AF80 ... AF96			1SBN083911R1000	BER964
Connection sets for star-delta starting				
AF09 ... AF16		With or without VM4	1SBN081313R2000	BEY164
AF26 ... AF38		With or without VM4	1SBN082713R2000	BEY384
AF40 ... AF65		With or without VM96-4	1SBN083413R2000	BEY654
AF80 ... AF96		With or without VM96-4	1SBN083913R2000	BEY964

1) For more information, refer to main catalog 'Accessories' section.

8

AF116 ... AF370 3-pole contactors
55 to 200 kW, AF / DC operated with 1 N.O. + 1 N.C. auxiliary contacts

AF146-30-11

AF146-30-11B

Description

AF116 ... AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC, AF146 ...AF370 up to 1000 V AC. These contactors are of the block type design with 3 main poles.

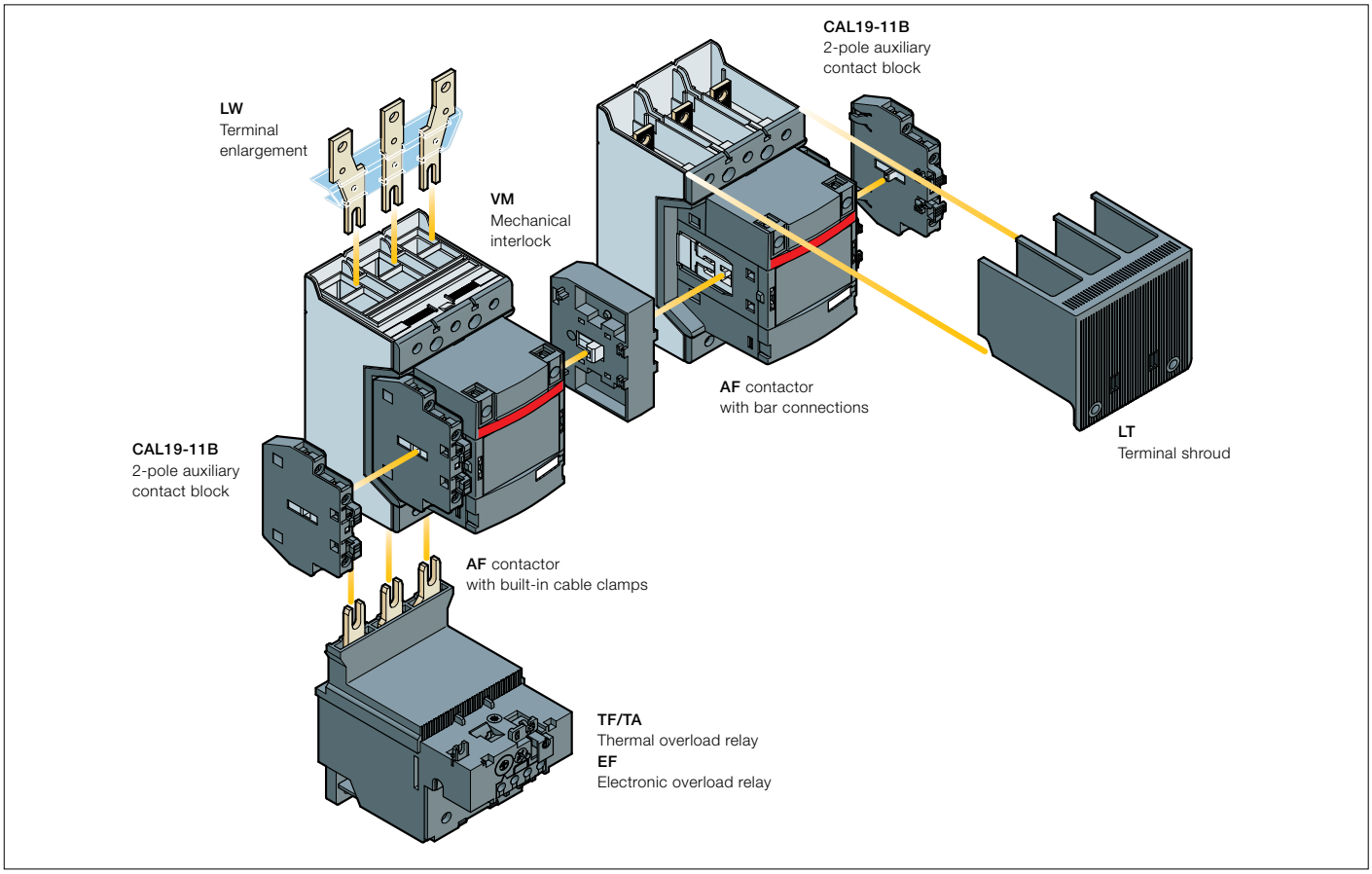
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 3 coils to cover control voltages between 24...250 V 50/60 Hz and 20...250 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated		Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current θ ≤ 40 °C AC-1	50/60 Hz					
kW	A	V AC	V DC				
55	160	24…60	20…60	1	1	1SFL427001R1111	AF116301111
		48…130	48…130	1	1	1SFL427001R1211	AF116301112
		100…250	100…250	1	1	1SFL427001R1311	AF116301113
		250…500	250…500	1	1	1SFL427001R1411	AF116301114
75	200	24…60	20…60	1	1	1SFL447001R1111	AF140301111
		48…130	48…130	1	1	1SFL447001R1211	AF140301112
		100…250	100…250	1	1	1SFL447001R1311	AF140301113
		250…500	250…500	1	1	1SFL447001R1411	AF140301114
75	225	24…60	20…60	1	1	1SFL467001R1111	AF146301111
		48…130	48…130	1	1	1SFL467001R1211	AF146301112
		100…250	100…250	1	1	1SFL467001R1311	AF146301113
		250…500	250…500	1	1	1SFL467001R1411	AF146301114
90	275	24…60	20…60	1	1	1SFL487002R1111	AF190301111
		48…130	48…130	1	1	1SFL487002R1211	AF190301112
		100…250	100…250	1	1	1SFL487002R1311	AF190301113
		250…500	250…500	1	1	1SFL487002R1411	AF190301114
110	350	24…60	20…60	1	1	1SFL527002R1111	AF205301111
		48…130	48…130	1	1	1SFL527002R1211	AF205301112
		100…250	100…250	1	1	1SFL527002R1311	AF205301113
		250…500	250…500	1	1	1SFL527002R1411	AF205301114
140	400	24…60	20…60	1	1	1SFL547002R1111	AF265301111
		48…130	48…130	1	1	1SFL547002R1211	AF265301112
		100…250	100…250	1	1	1SFL547002R1311	AF265301113
		250…500	250…500	1	1	1SFL547002R1411	AF265301114
160	500	24…60	20…60	1	1	1SFL587002R1111	AF305301111
		48…130	48…130	1	1	1SFL587002R1211	AF305301112
		100…250	100…250	1	1	1SFL587002R1311	AF305301113
		250…500	250…500	1	1	1SFL587002R1411	AF305301114
200	600	24…60	20…60	1	1	1SFL607002R1111	AF370301111
		48…130	48…130	1	1	1SFL607002R1211	AF370301112
		100…250	100…250	1	1	1SFL607002R1311	AF370301113
		250…500	250…500	1	1	1SFL607002R1411	AF370301114

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

STOCK INDENT

AF116 ... AF370 3-pole contactors
with 1 N.O. + 1 N.C. auxiliary contacts
Main accessories *(other accessories available)*



8

Main accessory fitting details

Contactor types	Main poles		Available auxiliary contacts		Side-mounted accessories				
					Auxiliary mounted contact blocks				
					CAL19-11		CAL19-11B		Mechanical interlock units (between two contactors)
AF116 ... AF370	3	0	1	1	1 x CAL19-11	+	2 x CAL19-11B		–
AF116 ... AF370	3	0	1	1	–	+	2 x CAL19-11B (1)	+	VM... (2)

1) Total number of auxiliary contact blocks for the two contactors.
2) Interlock type, according to the contactor ratings (see 'Accessories').

Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AF116 ... AF140	TF140DU (66...142 A)	EF146 (54...150 A)
AF146	–	EF146 (54...150 A)
AF190, AF205	TA200DU (66...200 A)	EF205 (63...210 A)
AF265 ... AF370	–	EF370 (115...380 A)

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in 'Main accessory fitting details' table.
1) Direct mounting – No kit required.

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

Main accessories *(other accessories available)*

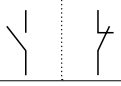
CAL19-11

VM19

LT37030C

LX140

Ordering details [1]

For contactors	Auxiliary contacts		Factory code	Order code
				
Side-mounted instantaneous auxiliary contact blocks				
AF116 …AF370	1	1	1SFN010820R1011	CAL19-11
	1	1	1SFN010820R3311	CAL19-11B
Mechanical interlock unit				
AF116 ... AF370			1SFN030300R1000	VM19
AF116 ... AF146 and AF190, AF205			1SFN034403R1000	VM140/190
AF190, AF205 and AF265 ... AF370			1SFN035203R1000	VM205/265
Terminal shrouds				
AF116 ... AF146, with compression lugs			1SFN124203R1000	LT14030L
AF190, AF205, with cable clamps			1SFN124801R1000	LT20530C
AF190, AF205, with compression lugs			1SFN124803R1000	LT20530L
AF190, AF205, with shorting bar or between contactor and TOL/EOL in DOL-starters			1SFN124804R1000	LT20530Y
AF265 ... AF370, with cable clamps			1SFN125401R1000	LT37030C
AF265 ... AF370, with compression lugs			1SFN125403R1000	LT37030L
AF265 ... AF370, with shorting bar or between contactor and TOL/EOL in DOL-starters			1SFN125404R1000	LT37030Y
AF265 ... AF370, for use with extending cable clamps, ATK300/2 and OZXB4			1SFN125406R1000	LT37030D

For contactors	Dimensions		Factory code	Order code
	hole Ø mm	bar mm		
Terminal enlargements				
AF116...AF146	6.5	13 x 3	1SFN074207R1000	LW140
AF190...AF205	10.5	17.5 x 5	1SFN074807R1000	LW205
AF265...AF370	10.5	20 x 5	1SFN075407R1000	LW370
Terminal extension				
AF116...AF146	6.5	13 x 3	1SFN074210R1000	LW140
AF190...AF250	8.5	17.5 x 5	1SFN074810R1000	LW205
AF265...AF370	10.5	20 x 5	1SFN075410R1000	LW370

1) For more information, refer to main catalog 'Accessories' section.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

STOCK INDENT

AF400 ... AF2650 3-pole contactors
200 to 560 kW
AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts

AF460301170

AF750301170

AF1250301170

AF2650301170

Description

AF400 ... AF750 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC or 600 V DC [2]. AF1250 ... AF2050 contactors are mainly used for controlling power circuits up to 1000 V AC or 850 V DC, AF2650 for controlling power up to 1000 V AC. These contactors are of the block type design with 3 main poles.

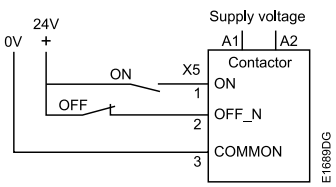
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
  - only 4 coils for AF1250 to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
  - only 1 coil for AF1350 ... AF2650 to cover control voltages between 100...250 V 50/60 Hz and 100...250 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltages sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated		Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Power 400 V AC-3	Current θ ≤ 40 °C AC-1	50/60 Hz					
kW	A	V AC	V DC				
200	600	100…250	100…250	1	1	1SFL577001R7011	AF400301170
250	700	100…250	100…250	1	1	1SFL597001R7011	AF460301170
315	800	100…250	100…250	1	1	1SFL617001R7011	AF580301170
400	1050	100…250	100…250	1	1	1SFL637001R7011	AF750301170
–	1250	100…250	100…250	1	1	1SFL647001R7011	AF1250301170
475	1350	100…250	100…250	1	1	1SFL657001R7011	AF1350301170
560	1650	100…250	100…250	1	1	1SFL677001R7011	AF1650301170
–	2050	100…250	100…250	1	1	1SFL707001R7011	AF2050301170
–	2650	100…250	100…250	1	1	1SFL667001R7011	AF2650301170

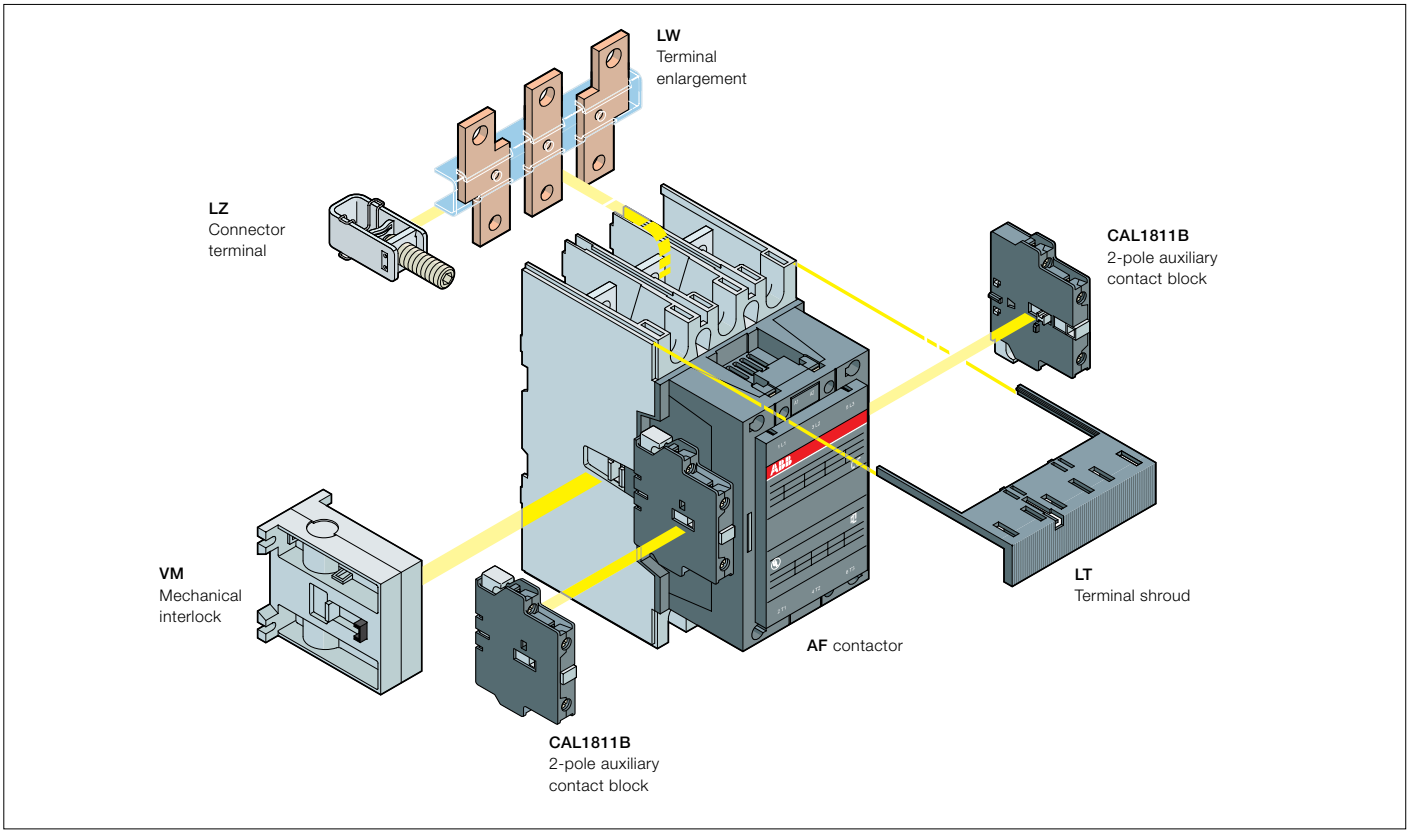
1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.
2) Up to 850 V DC for AF580, AF750.

AF400 ... AF2650 are equipped with low voltage inputs for control, for example by a PLC.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

Control inputs



AF400 ... AF2650 3-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts Main accessories *(other accessories available)*



8

Main accessory fitting details

Contactor types	Main poles		Available auxiliary contacts		Side-mounted accessories				
					Auxiliary mounted contact blocks				
					CAL1811		CAL1811B [3]		Mechanical interlock units (between two contactors)
Contactors + auxiliary contact blocks									
AF400 ... AF2650	3	0	1	1	1 x CAL1811	+	2 x CAL1811B		–
Contactors with mechanical interlocking + auxiliary contact blocks									
AF400 ... AF2650	3	0	1	1	2 x CAL1811 [1]	+	4 x CAL1811B [1]	+	VM...H [2]

1) Total number of auxiliary contact blocks for the two contactors.
2) Interlock type, according to the contactor ratings (see 'Accessories').
3) The CEL18-.. auxiliary contact blocks can replace the CAL1811 and CAL1811B. Though, no auxiliary contact block can be mounted outside the CEL18-.

Overload relays fitting details

Contactor types	Thermal overload relays	Electronic overload relays
AF400, AF460	–	EF460 – 500 (150...500 A) [4]
AF580, AF750	–	EF750 – 800 (250...800 A) [4]
AF1350, AF1650	–	E1250DU – 1250 (375...1250 A) [4]

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in 'Main accessory fitting details' table.

4) Mounting kit required (see 'Motor protection').

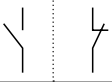
AF400 ... AF2650 3-pole contactors
with 1 N.O. + 1 N.C. auxiliary contacts
Main accessories

CAL1811

VM750H

LT460AC

Ordering details [1]

For contactors	Auxiliary contacts		Factory code	Order code
				
Side-mounted instantaneous auxiliary contact blocks				
AF400 ... AF2650	1	1	1SFN010720R1011	CAL1811
	1	1	1SFN010720R3311	CAL1811B
Mechanical interlock unit				
AF400 ... AF1250			1SFN035700R1000	VM750H
AF1350 ... AF2650			1SFN036503R1000	VM1650H
Terminal shrouds				
AF400, AF460 with connectors			1SFN125701R1000	LT460AC
AF400, AF460 with lugs			1SFN125703R1000	LT460AL
AF580 ... AF750 with connectors			1SFN126101R1000	LT750AC
AF580 ... AF750 with lugs			1SFN126103R1000	LT750AL

For contactors	Dimensions		Factory code	Order code
	hole Ø mm	bar mm		
Terminal enlargements				
AF400, AF460	10.5	25 x 5	1SFN075707R1000	LW460
AF580, AF750	13	40 x 6	1SFN076107R1000	LW750
AF1250	13	50 x 10	1SFN076407R1000	LW1250
Terminal extension				
AF400, AF460	10.5	25 x 5	1SFN075710R1000	LX460
AF580, AF750	13	40 x 6	1SFN076110R1000	LX750

1) For more information, refer to main catalog 'Accessories' section.

8

STOCK INDENT

4-pole contactors

IEC	**AC-1 Rated operational current**	θ ≤ 40 °C, 690 V	**A**	**25**	**30**	**45**	**55**	**70**	**100**	**125**
UL/CSA	**General use rating**	600 V	**A**	**25**	**30**	**45**	**55**	—	—	—
AC / DC Control supply			Type	**AF09**	**AF16**	**AF26**	**AF38**	**AF40**	**AF52**	**AF80**
AC Control supply			Type	**AF09**	**AF16**	**AF26**	**AF38**	**AF40**	**AF52**	**AF80**
DC Control supply			Type	**AF09**	**AF16**	**AF26**	**AF38**	**AF40**	**AF52**	**AF80**
IEC	**AC-1 Rated operational current**	θ ≤ 40 °C	**A**	**25**	**30**	**45**	**55**	**70**	**100**	**125**
		θ ≤ 60 °C [1]	**A**	**25**	**30**	**40**	**45**	**60**	**80**	**105**
		θ ≤ 70 °C	**A**	**22**	**26**	**32**	**37**	**50**	**70**	**90**
	With conductor cross sectional area		**mm²**	**4**	**6**	**10**	**16**	**35**	**35**	**50**
	Rated operational voltage Ue max.		**V**	**690**	**690**	**690**	**690**	**690**	**690**	**690**
UL/CSA	**General use rating**	600 V	**A**	**25**	**30**	**45**	**55**	—	—	—

1) θ ≤ 55 °C for EK550, EK1000 contactors

Main accessories

Auxiliary contact blocks	Front mounting	**CA410** (1 x N.O.), **CA401** (1 x N.C.)	
	Side mounting	**CAL411** (1 x N.O. + 1 x N.C.)	
Timers	Electronic	**TEF4-ON** **TEF4-OFF**	
Interlocking units	Mechanical	**VM4**	**VM96-4**
	Mechanical / Electrical	**VEM4**	
Surge suppressors	Varistor + RC (AC / DC)	Built-in surge protection	

8

	160	**200**	**275**	**350**	**400**	**500**	**525**	**800**	**1000**
	—	—	—	—	—	—	—	**540**	—
	AF116	**AF140**	**AF190**	**AF205**	**AF265**	**AF305**	**AF370**	—	—
	AF116	**AF140**	**AF190**	**AF205**	**AF265**	**AF305**	**AF370**	**EK550**	**EK1000**
	AF116	**AF140**	**AF190**	**AF205**	**AF265**	**AF305**	**AF370**	**EK550**	**EK1000**
	160	**200**	**250**	**275**	**350**	**375**	**400**	**800**	**1000**
	145	**175**	**225**	**250**	**300**	**325**	**350**	**650**	**800**
	130	**160**	**185**	**200**	**240**	**260**	**290**	**575**	**720**
	70	**95**	**150**	**240**	**240**	**300**	**2 x 185**	**2 x 240**	**2 x 300**
	690	**690**	**1000**	**1000**	**1000**	**1000**	**1000**	**1000**	**1000**
	—	—	—	—	—	—	—	**540**	—

	CAL19-11 (1 x N.O. + 1 x N.C.)	**CAL1611** (1 x N.O. + 1 x N.C.)
	VM19 (for same size contactors)	**VH800**
		RCEH800

AF09 ... AF80 4-pole contactors
25 to 125 A AC-1
AC / DC operated

AF09400011

AF26400013

Description

AF09 ... AF80 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC and 440 V DC. These contactors are of the block type design with 4 main poles.

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

IEC Rated Current $\theta \leq 40$ °C AC-1	Rated control voltage U_c 50/60 Hz		Auxiliary contacts fitted		Factory code	Order code
A	V AC	V DC				
4 N.O. main poles						
25	24…60	20…60	0	0	1SBL137201R1100	AF09400011
	48…130	48…130	0	0	1SBL137201R1200	AF09400012
	100…250	100…250	0	0	1SBL137201R1300	AF09400013
	250…500	250…500	0	0	1SBL137201R1400	AF09400014
30	24…60	20…60	0	0	1SBL177201R1100	AF16400011
	48…130	48…130	0	0	1SBL177201R1200	AF16400012
	100…250	100…250	0	0	1SBL177201R1300	AF16400013
	250…500	250…500	0	0	1SBL177201R1400	AF16400014
45	24…60	20…60	0	0	1SBL237201R1100	AF26400011
	48…130	48…130	0	0	1SBL237201R1200	AF26400012
	100…250	100…250	0	0	1SBL237201R1300	AF26400013
	250…500	250…500	0	0	1SBL237201R1400	AF26400014
55	24…60	20…60	0	0	1SBL297201R1100	AF38400011
	48…130	48…130	0	0	1SBL297201R1200	AF38400012
	100…250	100…250	0	0	1SBL297201R1300	AF38400013
	250…500	250…500	0	0	1SBL297201R1400	AF38400014
2 N.O. + 2 N.C. main poles						
25	24…60	20…60	0	0	1SBL137501R1100	AF09220011
	48…130	48…130	0	0	1SBL137501R1200	AF09220012
	100…250	100…250	0	0	1SBL137501R1300	AF09220013
	250…500	250…500	0	0	1SBL137501R1400	AF09220014
30	24…60	20…60	0	0	1SBL177501R1100	AF16220011
	48…130	48…130	0	0	1SBL177501R1200	AF16220012
	100…250	100…250	0	0	1SBL177501R1300	AF16220013
	250…500	250…500	0	0	1SBL177501R1400	AF16220014
45	24…60	20…60	0	0	1SBL237501R1100	AF26220011
	48…130	48…130	0	0	1SBL237501R1200	AF26220012
	100…250	100…250	0	0	1SBL237501R1300	AF26220013
	250…500	250…500	0	0	1SBL237501R1400	AF26220014
55	24…60	20…60	0	0	1SBL297501R1100	AF38220011
	48…130	48…130	0	0	1SBL297501R1200	AF38220012
	100…250	100…250	0	0	1SBL297501R1300	AF38220013
	250…500	250…500	0	0	1SBL197501R1400	AF38220014

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

STOCK INDENT

AF09 ... AF80 4-pole contactors
25 to 125 A AC-1
AC / DC operated

AF40400013

AF80400014

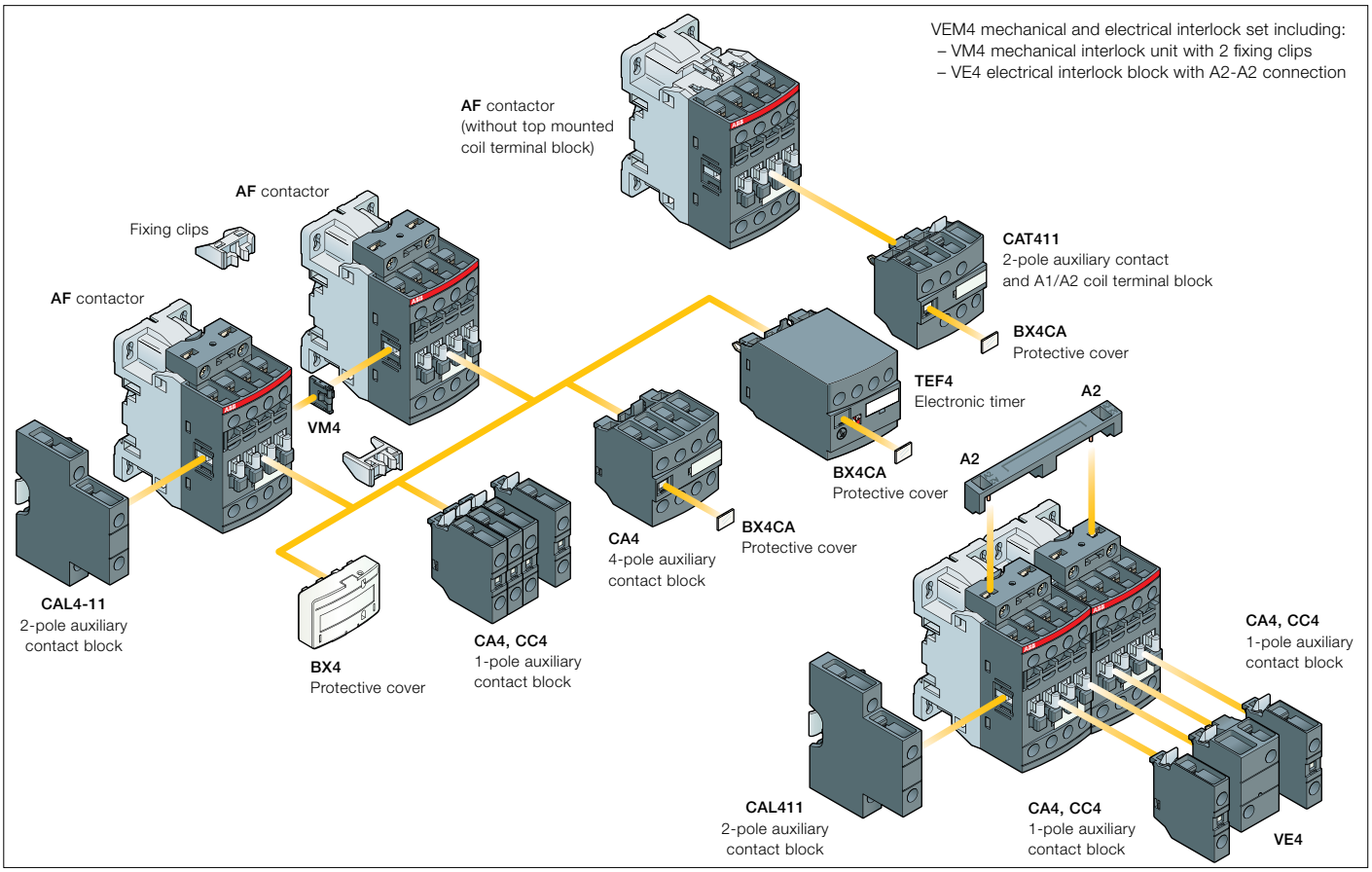
IEC Rated Current θ ≤ 40 °C AC-1 A	Rated control voltage U_c 50/60 Hz V AC	V DC	Auxiliary contacts fitted		Factory code	Order code
4 N.O. main poles						
70	24...60	20...60[1]	0	0	1SBL347201R1100	AF40400011
	48...130	48...130	0	0	1SBL347201R1200	AF40400012
	100...250	100...250	0	0	1SBL347201R1300	AF40400013
	250...500	250...500	0	0	1SBL347201R1400	AF40400014
100	24...60	20...60[1]	0	0	1SBL367201R1100	AF52400011
	48...130	48...130	0	0	1SBL367201R1200	AF52400012
	100...250	100...250	0	0	1SBL367201R1300	AF52400013
	250...500	250...500	0	0	1SBL367201R1400	AF52400014
125	24...60	20...60	0	0	1SBL397201R1100	AF80400011
	48...130	48...130	0	0	1SBL397201R1200	AF80400012
	100...250	100...250	0	0	1SBL397201R1300	AF80400013
	250...500	250...500	0	0	1SBL397201R1400	AF80400014
2 N.O. + 2 N.C. main poles						
70	24...60	20...60[1]	0	0	1SBL347501R1100	AF40220011
	48...130	48...130	0	0	1SBL347501R1200	AF40220012
	100...250	100...250	0	0	1SBL347501R1300	AF40220013
	250...500	250...500	0	0	1SBL347501R1400	AF40220014
125	24...60	20...60[1]	0	0	1SBL397501R1100	AF80220011
	48...130	48...130	0	0	1SBL397501R1200	AF80220012
	100...250	100...250	0	0	1SBL397501R1300	AF80220013
	250...500	250...500	0	0	1SBL397501R1400	AF80220014

1) AF..-..-..-11 not suitable for direct control by PLC-output.
Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

AF09 ... AF80 4-pole contactors
Main accessories

Contactor and main accessories (other accessories available)



8

Main accessory fitting details

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles		Built-in auxiliary contacts		Front-mounted accessories									Side-mounted accessories		
					Auxiliary contact blocks						Electronic timer		Electrical and mechanical interlock set (between 2 contactors)	Auxiliary contact blocks		
					1-pole CA4 1-pole CC4		2-pole CAL411		4-pole CA4		TEF4		VEM4	Left side 2-pole CAL411		Right side
Max. add-on N.C. auxiliary contacts: 4 N.C. max. on positions 1, 2, 3, 4 and 3 N.C. max. on positions 1 ±30°, 5																
AF09 ... AF16	4	0	0	0	4 max.	or	1	or	1	or	1		–	+	1	–
					2 max.	or	1		–	or	1		–	+	1	+ 1
					3 max.		–		–		–	+	1	+	1	or 1
Max. add-on N.C. auxiliary contacts: 6 N.C. max. on positions 1, 1 ±30°, 2, 3, 4, 5																
AF26 ... AF38	4	0	0	0	4 max.	or	1	or	1	or	1		–	+	1	–
					2 max.	or	1		–	or	1		–	+	1	+ 1
					3 max.		–		–		–	+	1	+	1	or 1
AF4 ... AF52	4	0	0	0	4 max.	or	1	or	1	or	1		–	+	1	–
AF80	4	0	0	0	2 max.	or	1		–	or	1		–	+	1	+ 1
Max. add-on N.C. auxiliary contacts: 3 N.C. max. on positions 1, 2, 3, 4 and 2 N.C. max. on positions 1 ±30°, 5																
AF09 ... AF16	2	2	0	0	4 max.	or	1	or	1	or	1		–	+	1	+ –
AF26 ... AF38	2	2	0	0	2 max.	or	1		–	or	1		–	+	1	+ 1
Max. add-on N.C. auxiliary contacts: 2 N.C. max. on positions 1, 1 ±30°, 2, 3, 4, 5																
AF40	2	2	0	0	4 max.	or	1	or	1	or	1		–	+	1	–
	2	2	0	0	4 max.		–	or	1	or	1		–	+	1	+ 1
AF80	2	2	0	0	4 max.		–	or	1	or	1		–	+	1	+ 1

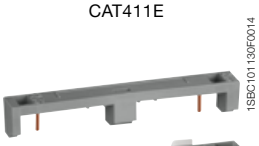
AF09 ... AF80 4-pole contactors
Main accessories

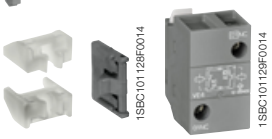
CA410

CAL411

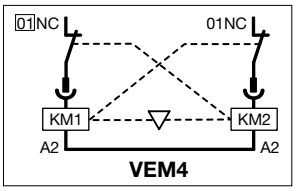
CA422E

CAT411E





VEM4



Ordering details [1]

For contactors	Auxiliary contacts				Factory code	Order code
Front-mounted instantaneous auxiliary contact blocks						
AF09 ... AF80-40-00	1	0	–	–	1SBN010110R1010	CA410
AF09 ... AF80-22-00	0	1	–	–	1SBN010110R1001	CA401
	2	2	–	–	1SBN010140R1022	CA422E
	3	1	–	–	1SBN010140R1031	CA431E
	4	0	–	–	1SBN010140R1040	CA440E
AF09 ... AF16..-40-00	0	4	–	–	1SBN010140R1004	CA404E
AF40 ... AF80-40-00						
Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact						
AF09 ... AF80-40-00	–	–	1	0	1SBN010111R1010	CC410
AF09 ... AF80-22-00						
Side-mounted instantaneous auxiliary contact blocks						
AF09 ... AF80-40-00	1	1	–	–	1SBN010120R1011	CAL411
AF09 ... AF80-22-00						
Front-mounted instantaneous auxiliary contact and A1/A2 coil terminal blocks						
AF09 ... AF52..-40-00	1	1	–	–	1SBN010151R1011	CAT411E
AF09 ... AF40..-22-00						

Note: CAT4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

Mechanical interlock unit					
AF09 ... AF38..-40-00				1SBN030105T1000	VM4
AF40 ... AF80..-40-00				1SBN033405T1000	VM96-4
Mechanical and electrical interlock set					
AF09, AF16..-40-00	0	2	–	–	1SBN030111R1000	VEM4
AF26, AF38..-40-00						

Note:
– VEM4 includes a VM4 mechanical interlock unit with 2 fixing clips (BB4), a VE4 electrical interlock block. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.
– VEM4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

TEF4-ON

For contactors	Time delay range selected by switch	Delay type	Auxiliary contacts		Factory code	Order code
Electronic timers						
AF09 ... AF80	0.1...1 s	ON-delay	1	1	1SBN020112R1000	TEF4-ON
	1...10 s 10...100 s	OFF-delay	1	1	1SBN020114R1000	TEF4-OFF

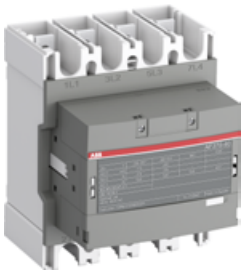
Note: Rated control circuit voltage Uc 24...240 V 50/60 Hz or DC.
1) For more information, refer to main catalog 'Accessories' section.

AF116 ... AF370 4-pole contactors
160 to 525 A AC-1, AC / DC operated

AF140400011

AF1404000B11

AF205400013


AF370400014

Description

AF116 ... AF140 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC. AF190...AF370 up to 1000 V AC. These contactors are of the block type design with 4 main poles.

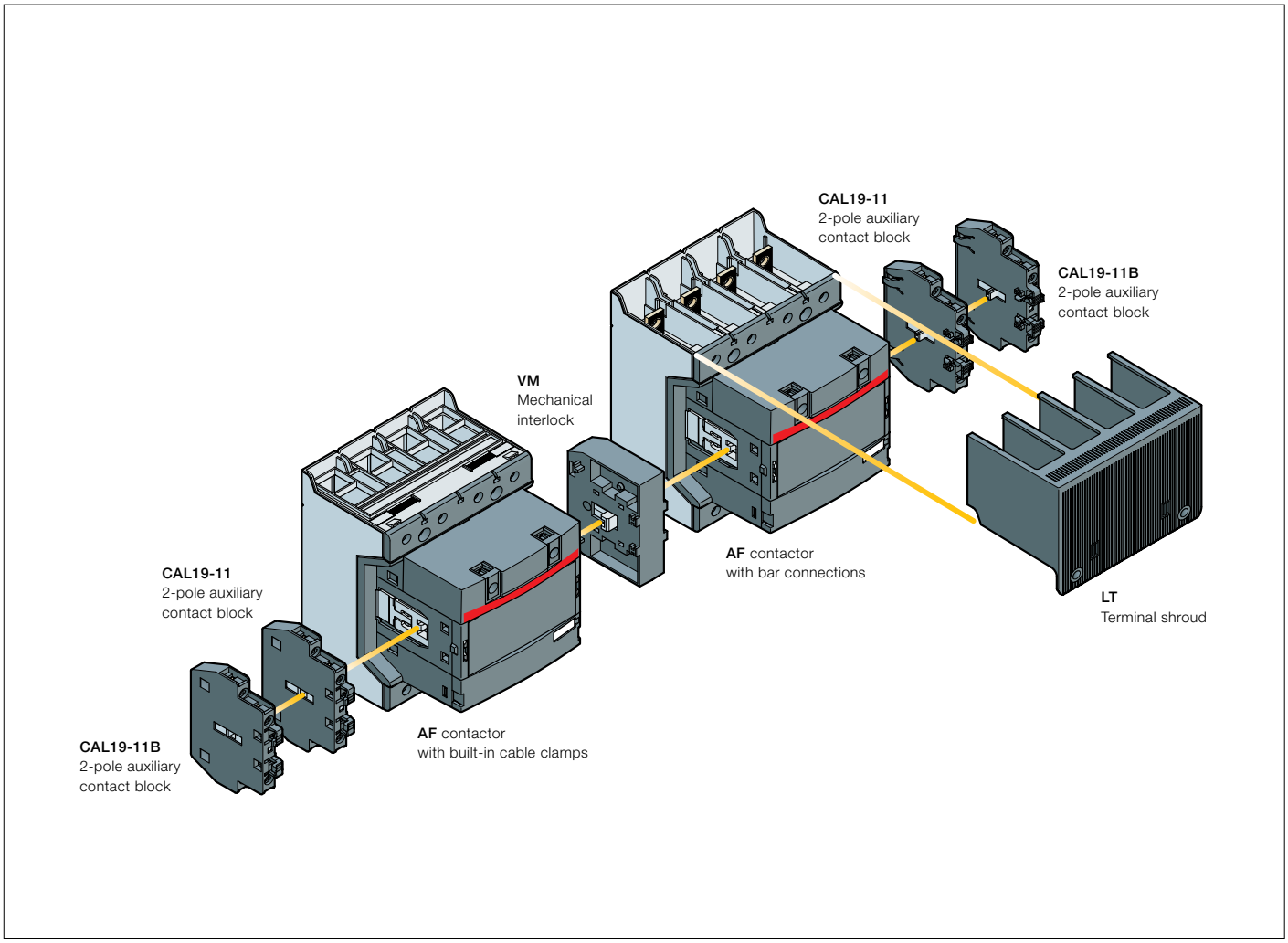
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption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

IEC Rated Current $\theta \leq 40$ °C AC-1	Rated control voltage U_c 50/60 Hz		Auxiliary contacts fitted		Factory code	Order code
A	V AC	V DC				
4 N.O. main poles. For connection with built-in cable clamps						
160	24...60	20...60	0	0	1SFL427101R1100	AF116400011
	48...130	48...130	0	0	1SFL427101R1200	AF116400012
	100...250	100...250	0	0	1SFL427101R1300	AF116400013
	250...500	250...500	0	0	1SFL427101R1400	AF116400014
200	24...60	20...60	0	0	1SFL447101R1100	AF140400011
	48...130	48...130	0	0	1SFL447101R1200	AF140400012
	100...250	100...250	0	0	1SFL447101R1300	AF140400013
	250...500	250...500	0	0	1SFL447101R1400	AF140400014
275	24...60	20...60	0	0	1SFL487102R1100	AF190400011
	48...130	48...130	0	0	1SFL487102R1200	AF190400012
	100...250	100...250	0	0	1SFL487102R1300	AF190400013
	250...500	250...500	0	0	1SFL487102R1400	AF190400014
350	24...60	20...60	0	0	1SFL527102R1100	AF205400011
	48...130	48...130	0	0	1SFL527102R1200	AF205400012
	100...250	100...250	0	0	1SFL527102R1300	AF205400013
	250...500	250...500	0	0	1SFL527102R1400	AF205400014
400	24...60	20...60	0	0	1SFL547102R1100	AF265400011
	48...130	48...130	0	0	1SFL547102R1200	AF265400012
	100...250	100...250	0	0	1SFL547102R1300	AF265400013
	250...500	250...500	0	0	1SFL547102R1400	AF265400014
500	24...60	20...60	0	0	1SFL587102R1100	AF305400011
	48...130	48...130	0	0	1SFL587102R1200	AF305400012
	100...250	100...250	0	0	1SFL587102R1300	AF305400013
	250...500	250...500	0	0	1SFL587102R1400	AF305400014
525	24...60	20...60	0	0	1SFL607102R1100	AF370400011
	48...130	48...130	0	0	1SFL607102R1200	AF370400012
	100...250	100...250	0	0	1SFL607102R1300	AF370400013
	250...500	250...500	0	0	1SFL607102R1400	AF370400014

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

STOCK INDENT

AF116 ... AF370 4-pole contactors
Main accessories *(other accessories available)*



8

Main accessory fitting details

Contactor types	Main poles		Available auxiliary contacts		Side-mounted accessories				
					Auxiliary mounted contact blocks				
					CAL19-11		CAL19-11B		Mechanical interlock units (between two contactors)
AF116 ... AF370	4	0	0	0	2 x CAL19-11	+	2 x CAL19-11B		–
AF116 ... AF370	4	0	0	0	2 x CAL19-11B [1]	+	2 x CAL19-11B [1]	+	VM...[2]

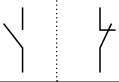
1) Total number of auxiliary contact blocks for the two contactors.
2) Interlock type, according to the contactor ratings (see 'Accessories').

AF116 ... AF370 4-pole contactors
Main accessories

CAL19-11

VM19

Ordering details [1]

For contactors	Auxiliary contacts		Factory code	Order code
				
Side-mounted instantaneous auxiliary contact blocks				
AF116 ... AF370	1	1	1SFN010820R1011	CAL19-11
	1	1	1SFN010820R3311	CAL19-11B
Mechanical interlock unit				
AF116 ... AF370			1SFN030300R1000	VM19
AF116 ... AF146 and AF190, AF205			1SFN034403R1000	VM140/190
AF190, AF205 and AF265 ... AF370			1SFN035203R1000	VM205/265
Terminal shrouds				
AF116 … AF140, with compression lugs			1SFN124203R2000	LT14040L
AF190 … AF205, with cable clamps			1SFN124801R2000	LT20540C
AF190 … AF205, with compression lugs			1SFN124803R2000	LT20540L
AF265 … AF370, with cable clamps			1SFN125401R2000	LT37040C
AF265 … AF370, with compression lugs			1SFN125403R2000	LT37040L

For contactors	Dimensions		Factory code	Order code
	hole Ø mm	bar mm		
Terminal enlargements				
AF190 … AF205	10.5	20 x 5	1SFN074807R2000	LW205
AF265 … AF370	10.5	25 x 5	1SFN075407R2000	LW370

1) For more information, refer to main catalog ‘Accessories’ section.

8

STOCK INDENT

EK550, EK1000 4-pole contactors
800 to 1000 A AC-1

EK1000-40-11

AC or DC operated

EK550 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 1000 V AC and 600 V DC, EK1000 up to 1000 V AC.
These contactors are of the block type design with:

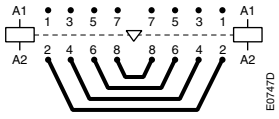
- 4 main poles
- control circuit: AC operated
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

Ordering details

IEC	UL/CSA	Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Rated operational current	General use rating						
θ ≤ 40 °C AC-1	600 V AC	50/60 Hz					
A	A	V AC	V DC				
800	540	230…240		1	1	SK827041-AM	SK827041-AM
1000	–	230…240		1	1	SK827044-AM	SK827044-AM
800	540		24	2	1	SK827041-DB	SK827041-DB
1000	–		24	2	1	SK827044-DB	SK827044-DB

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

Main accessories



BSS550 ... BSS1000

Ordering details [1]

For contactors	Auxiliary contacts		Factory code	Order code
Side-mounted auxiliary contact blocks				
EK550, EK1000	1	1	SK829002-B	CAL1611B
	1	1	SK829002-C	CAL1611C
	1	1	SK829002-D	CAL1611D
	1	1	SK829002-E	CCL1611E [2]
Mechanical interlock unit for two horizontal mounted contactors				
EK550, EK1000			SK829070-F	SK829070-F
Connecting sets				
EK550			SK829090-E	SK829090-E
EK1000			SK829090-H	SK829090-H

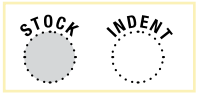
1) See 'Main accessory fitting details' table.
2) Mounting of CCL1611E blocks does not allow an additional second block to be added on top of it. All DC operated EK contactors are equipped with one CCL1611E on the right side.

RC-EH

Surge suppressors

For contactors	Rated control voltage Uc			Factory code	Order code
	V	AC	DC		
EK550, EK1000	48...110	●	–	SK829007-C	SK829007-C
EK550, EK1000	24...125	–	●	SK829007-C	SK829007-C
EK550, EK1000	220...600	●	–	SK829007-D	SK829007-D

Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204



NF 4-pole contactor relays
AC / DC operated

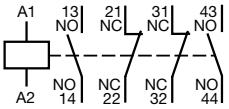
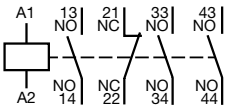
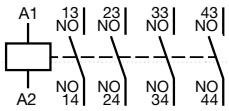
NF22E11

Description

NF contactor relays are used for switching auxiliary and control circuits.
These contactor relays are of the block type design with:

- 4 poles. Contactor relays have mechanically linked auxiliary contact elements (side-marked symbol)
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
  - can manage large control voltage variations
  - only 4 control voltage ranges covering 24...500 V 50/60 Hz and 20...500 V DC
  - reduced panel energy consumption
  - very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

Ordering details

Number of contactors	Rated control voltage Uc		Factory code	Order code
	50/60 Hz			
	V AC	V DC		
	24...60	20…60	1SBH137001R4122	NF22E11
	100...250	100...250	1SBH137001R1322	NF22E13
	24...60	20…60	1SBH137001R4131	NF31E11
	100...250	100...250	1SBH137001R1331	NF31E13
	24...60	20…60	1SBH137001R4140	NF40E11
	100...250	100...250	1SBH137001R1340	NF40E13

NF..E-11 not suitable for direct control by PLC-output. Please use NF(Z) Contactor Relays.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

STOCK INDENT

NF 8-pole contactor relays
AC / DC operated

NF44E11

NF33/1113

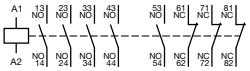
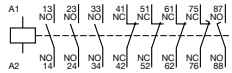
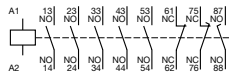
NF51/1114

Description

NF contactor relays are used for switching auxiliary and control circuits.
These contactor relays are of the block type design with:

- 8 poles with a permanently fixed 4pole auxiliary contact block. Contactor relays have mechanically linked auxiliary contact elements (sidemarked symbol) except for NF33/11 and NF51/11 variants
- overlapping of lagging / leading contacts for NF33/11 and NF51/11 variants
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC)
  - can manage large control voltage variations
  - only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
  - reduced panel energy consumption
  - very distinct closing and opening
- builtin surge suppression
- addon auxiliary contact blocks for side mounting and a wide range of accessories.

Ordering details

Number of contactors		Rated control voltage		Factory code	Order code
		50/60 Hz			
1st stack	2nd stack	V AC	V DC		
8 pole contactor relays					
		24...60	20...60 (1)	1SBH137001R1144	NF44E11
		100...250	100...250	1SBH137001R1344	NF44E13
		24...60	20...60 (1)	1SBH137001R1153	NF53E11
		100...250	100...250	1SBH137001R1353	NF53E13
		24...60	20...60 (1)	1SBH137001R1162	NF62E11
		100...250	100...250	1SBH137001R1362	NF62E13
		24...60	20...60 (1)	1SBH137001R1171	NF71E11
		100...250	100...250	1SBH137001R1371	NF71E13
		24...60	20...60 (1)	1SBH137001R1180	NF80E11
		100...250	100...250	1SBH137001R1380	NF80E13
8 pole contactor relays with overlapping of lagging / leading contacts					
		24...60	20...60 (1)	1SBH137001R1139	NF33/1111
		48...130	48...130	1SBH137001R1239	NF33/1112
		100...250	100...250	1SBH137001R1339	NF33/1113
		250...500	250...500	1SBH137001R1439	NF33/1114
		24...60	20...60 (1)	1SBH137001R1159	NF51/1111
		48...130	48...130	1SBH137001R1259	NF51/1112
		100...250	100...250	1SBH137001R1359	NF51/1113
		250...500	250...500	1SBH137001R1459	NF51/1114

1) NF..11 not suitable for direct control by PLC output.
Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

NF 4-pole and 8-pole contactor relays
Main accessories

CA410

CA422N

CAL411

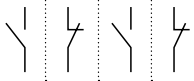
TEF4-ON

LDC4

BX4

BX4CA

Ordering details [1]

For contactors	Auxiliary contacts				Factory code	Order code
						
Front-mounted instantaneous auxiliary contact blocks						
4-pole NF	1	0	–	–	1SBN010110R1010	CA410
	0	1	–	–	1SBN010110R1001	CA401
	4	0	–	–	1SBN010140R1240	CA440N
	3	1	–	–	1SBN010140R1231	CA431N
	2	2	–	–	1SBN010140R1222	CA422N
	1	3	–	–	1SBN010140R1213	CA413N
NF…40E	0	4	–	–	1SBN010140R1204	CA404N
Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact						
4-pole NF	–	–	1	0	1SBN010111R1010	CC410
	–	–	0	1	1SBN010111R1001	CC401
Side-mounted instantaneous auxiliary contact blocks						
NF	1	1	–	–	1SBN010120R1011	CAL411
	1	1	–	–	1SBN010120T1011	CAL411T

For contactors	Time delay range selected by switch	Delay type	Auxiliary contacts		Factory code	Order code
Electronic timers						
NF	0.1...1 s 1...10 s 10...100 s	ON-delay	1	1	1SBN020112R1000	TEF4-ON
		OFF-delay	1	1	1SBN020114R1000	TEF4-OFF

Note: Rated control circuit voltage Uc 24...240 V 50/60 Hz or DC.

Additional coil terminal block		
NF	1SBN070156T1000	LDC4

Protective covers		
All 1-stack contactor relays	1SBN110108T1000	BX4
4-pole CA4 auxiliary contact blocks and TEF4 electronic timer	1SBN110109W1000	BX4CA

1) For more information, refer to main Technical Catalogue: 1SBC100192C0204 'Accessories' section.

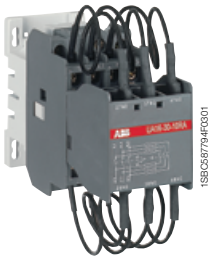
STOCK INDENT

Contactors for capacitor switching
The ABB solutions

ABB offers 3 contactor versions according to the value of the inrush current peak and the power of the capacitor bank.

UA..RA contactors for capacitor switching (UA16..RA to UA110..RA) with insertion of damping resistors

The insertion of damping resistors protects the contactor and the capacitor from the highest inrush currents.



UA contactors for capacitor switching (UA16 to UA110)

Maximum permissible peak current $\hat{I} \leq$ 100 times the nominal rms current of the switched capacitor.

AF contactors for capacitor switching (AF12...AF750)

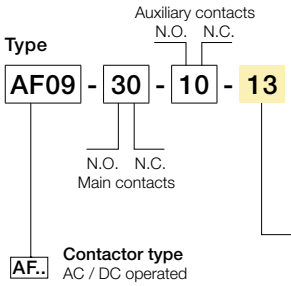
Maximum permissable peak current ≤30 times the normal rms current of the switched capacitor.

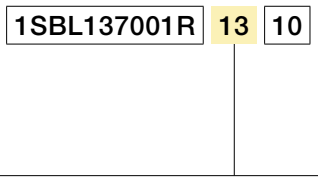
For selection tables, please see chapter 5 of the Motor Protection and Control – main catalogue (1SBC100192C0204)

Coil voltage code table

The below tables indicate the available coil voltages and corresponding digits for order codes. When placing an order, please give the order code. Select a standard contactor from ordering detail pages. Change the **coil voltage code** in the order code according to the table below. Example: for contactor AF400-30-11 and coil 100...250 V 50/60 Hz, the order code is 1SFL577001R**70**11.

AF09 ... AF370 3-pole contactors
AF09 ... AF370 4-pole contactors





	AC coil code 50/60 Hz	DC coil code
41	24...60 V	–
11	24...60 V	20...60 V
12	48...130 V	48...130 V
13	**100...250 V**	**100...250 V**
14	250...500 V	250...500 V

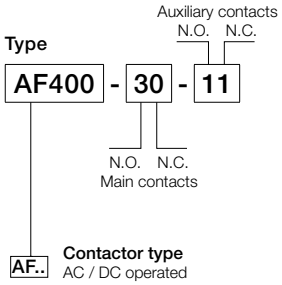
Coil 41: not available for AF116 ... AF370

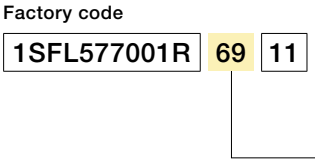
Note: Please use coil code 13 for 110 V applications

AF116 ... AF370 3-pole contactors with built-in PLC interface

	AC coil code 50/60 Hz	DC coil code
33	100...250 V	100...250 V
34	250...500 V	250...500 V

AF400 ... AF2650 3-pole contactors

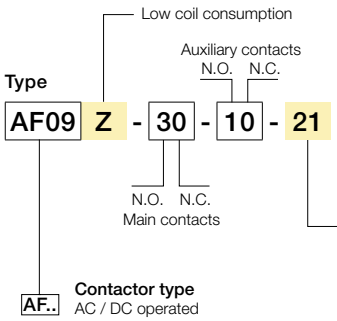


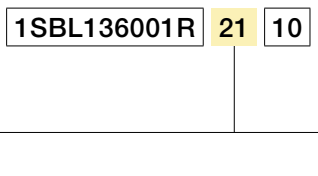


	AC coil code 50/60 Hz	DC coil code
68	–	24...60 V
69	**48...130 V**	**48...130 V**
70	100...250 V	100...250 V
71	250...500 V	250...500 V

Coil 68, 69, 71: not available for AF1350 ... AF2650

AF09 ... AF38 3- and 4-pole contactors – low consumption

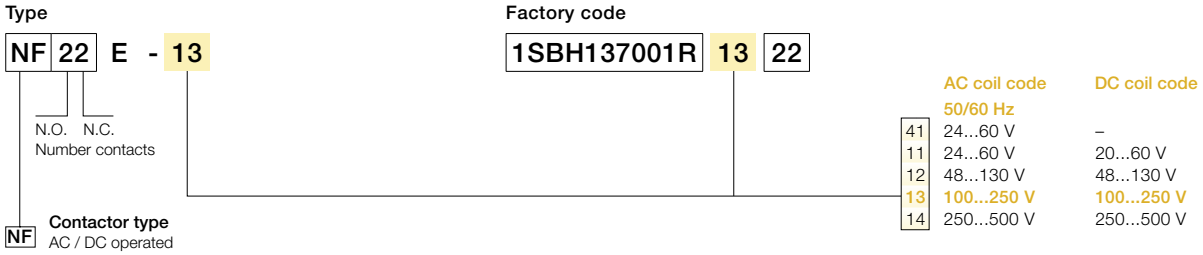




	AC coil code 50/60 Hz	DC coil code
20	–	12...20 V
21	**24...60 V**	**20...60 V**
22	48...130 V	48...130 V
23	100...250 V	100...250 V

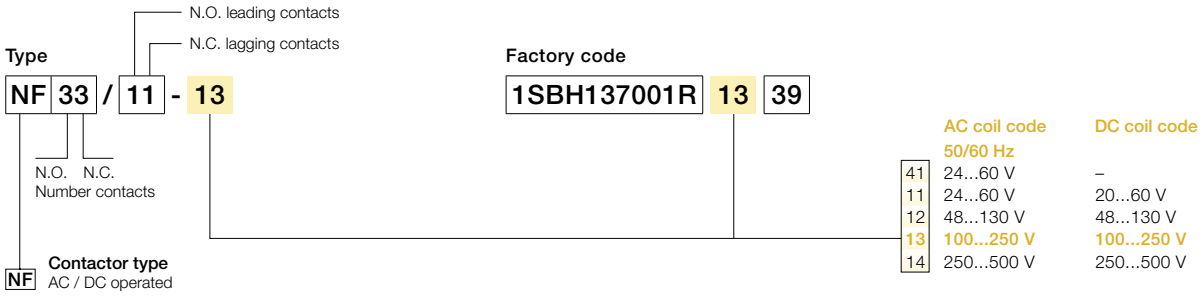
Coil voltage code table

NF contactor relays



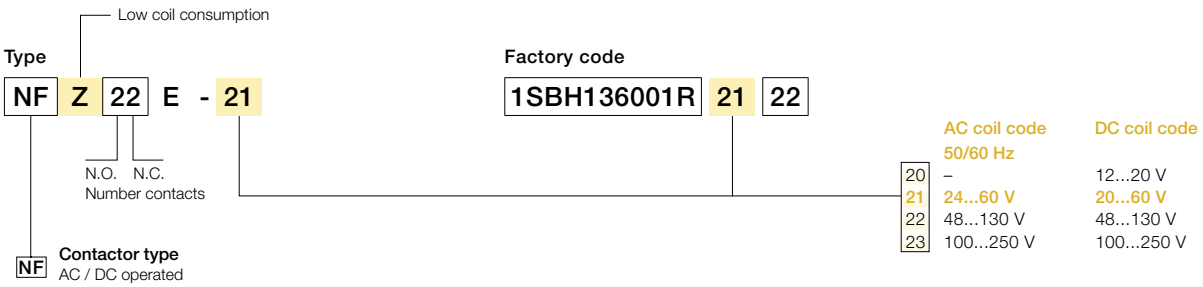
	AC coil code 50/60 Hz	DC coil code
41	24...60 V	–
11	24...60 V	20...60 V
12	48...130 V	48...130 V
13	**100...250 V**	**100...250 V**
14	250...500 V	250...500 V

NF contactor relays with overlapping of lagging / leading contacts



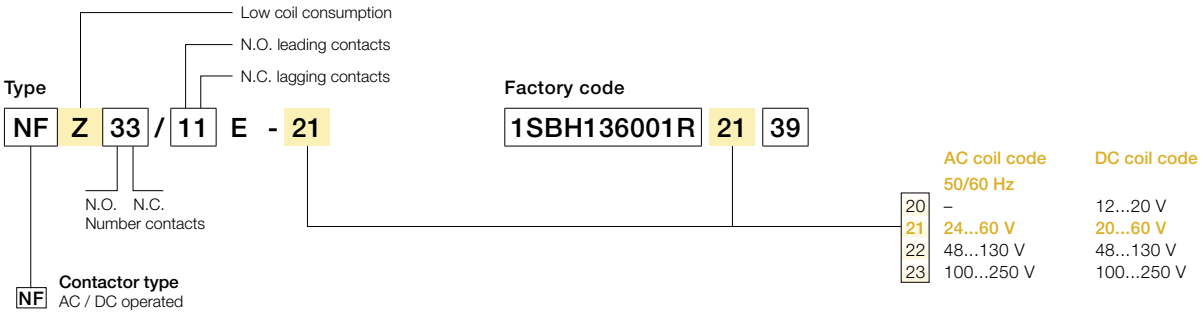
	AC coil code 50/60 Hz	DC coil code
41	24...60 V	–
11	24...60 V	20...60 V
12	48...130 V	48...130 V
13	**100...250 V**	**100...250 V**
14	250...500 V	250...500 V

NF contactor relays – low consumption



	AC coil code 50/60 Hz	DC coil code
20	–	12...20 V
21	**24...60 V**	**20...60 V**
22	48...130 V	48...130 V
23	100...250 V	100...250 V

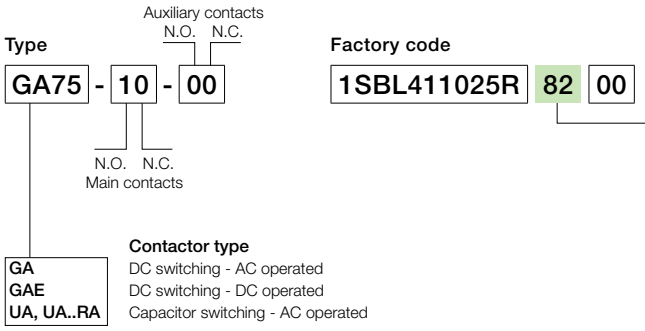
NF contactor relays with overlapping of lagging / leading contacts – low consumption



	AC coil code 50/60 Hz	DC coil code
20	–	12...20 V
21	**24...60 V**	**20...60 V**
22	48...130 V	48...130 V
23	100...250 V	100...250 V

Coil voltage code table

UA, UA..RA contactors
GA contactors



Contactors: UA, UA..RA, GA
AC coil code

	50 Hz	60 Hz
81	**24 V**	**24 V**
16	26 V	28 V
17	28 V	32 V
82	**42 V**	**42 V**
20	42 V	48 V
83	**48 V**	**48 V**
73	**60 V**	**60 V**
74	**100 V**	**100**...110 V
26	105 V	110...127 V
84	**110 V**	**110**...120 V
89	110...**115 V**	**115**...127 V
29	120 V	140 V
30	125...127 V	150 V
34	175 V	208 V
36	190 V	220 V
40	210 V	240 V
80	220...**230 V**	**230**...240 V
88	230...**240 V**	**240**...260 V
42	230...240 V	277 V
85	380...**400 V**	**400**...415 V
86	400...**415 V**	**415**...440 V
50	400 V	440 V
51	400...415 V	480 V
87	415...**440 V**	**440**...460 V
53	440 V	500 V
55	500 V	600 V
56	550 V	–
58	660...690 V	–
59	–	690 V

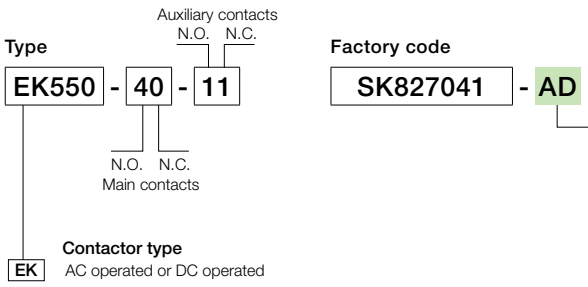
Codes in bold for dual frequency coils.

Contactors: GAE
DC coil code

80	12 V
81	24 V
82	42 V
83	48 V
21	50 V
84	60 V
85	75 V
86	110 V
87	125 V
88	220 V
89	240 V
38	250 V

8

EK550, EK1000 contactors



AC coil code

	50 Hz	60 Hz
AD	48 V	–
AE	–	110 V
AF	110 V	120 V
AG	127 V	–
AZ	–	208 V
AH	190 V	220 V
AK	–	240 V
AL	220...230 V	240 V
AM	230...240 V	–
AN	–	380 V
AP	380...400 V	440 V
AR	400...415 V	–
AS	–	480 V
AT	440 V	–
AU	500 V	–
AV	–	600 V

Dual frequency coil code

	50 Hz	60 Hz
EF	110 V	110...120 V
EG	110...115 V	115...127 V
EL	220 V	220...240 V
EM	220...230 V	230...255 V
EP	380 V	380...415 V
ER	380...400 V	400...440 V

2 auxiliary contact blocks maximum per contactor, ambient temperature ≤ 55 °C and mounting positions 2 and 6 excluded.

DC coil code

DB	24 V
DC	36 V
DD	48 V
DT	60 V
DG	75 V
DE	110 V
DU	125 V
DF	220 V

Safety Contactors
Contactors for safety applications with AF technology

AF09 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 440 V DC (AF80 and AF96 are also rated for 1000 V (AC-3) applications). These contactors are of the block type design with:

- 3 main poles
- permanently fixed auxiliary contact block. The built-in auxiliary contact elements are mechanically linked (side-marked symbol) and the N.C. auxiliary contacts are mirror contacts
- control circuit: AC 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
- suitable for use in Category 4 applications

	Coil Voltage	Ratings at 415 V AC		Auxiliary Contacts		Order code
		AC-3 (kW)	AC-3 (A)	Normally Open	Normally Closed	
Low Consumption Coil	24 … 60 V AC, 20 … 60 V DC	4	9	2	2	AF09Z302221
	100 - 250 V AC/DC					AF09Z302223
	24 … 60 V AC, 20 … 60 V DC	5.5	12	2	2	AF12Z302221
	100 - 250 V AC/DC					AF12Z302223
	24 … 60 V AC, 20 … 60 V DC	9	18	2	2	AF16Z302221
	100 - 250 V AC/DC					AF16Z302223
	24 … 60 V AC, 20 … 60 V DC	11	26	2	2	AF26Z302221
	100 - 250 V AC/DC					AF26Z302223
	24 … 60 V AC, 20 … 60 V DC	15	32	2	2	AF30Z302221
	100 - 250 V AC/DC					AF30Z302223
	24 … 60 V AC, 20 … 60 V DC	18.5	38	2	2	AF38Z302221
	100 - 250 V AC/DC					AF38Z302223
	24 … 60 V AC, 20 … 60 V DC	22	40	2	2	AF40302211
	100 - 250 V AC/DC					AF40302213
	24 … 60 V AC, 20 … 60 V DC	30	53	2	2	AF52302211
	100 - 250 V AC/DC					AF52302213
	24 … 60 V AC, 20 … 60 V DC	37	65	2	2	AF65302211
	100 - 250 V AC/DC					AF65302213
	24 … 60 V AC, 20 … 60 V DC	45	80	2	2	AF80302211
	100 - 250 V AC/DC					AF80302213
	24 … 60 V AC, 20 … 60 V DC	55	96	2	2	AF96302211
	100 - 250 V AC/DC					AF96302213

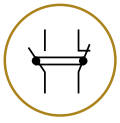
Other coil voltages and auxiliary contact arrangements available.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

Accessory

Description	Order code
Required to prevent finger operation of auxiliary contact block	BX4CA

Make your control circuits safe

High reliability for low signals

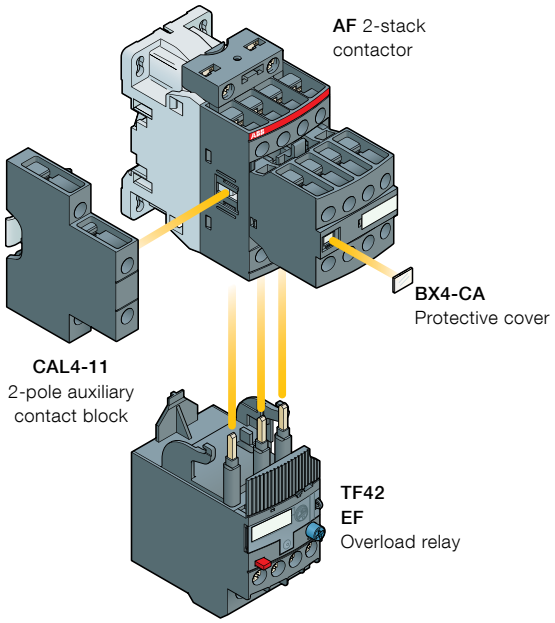


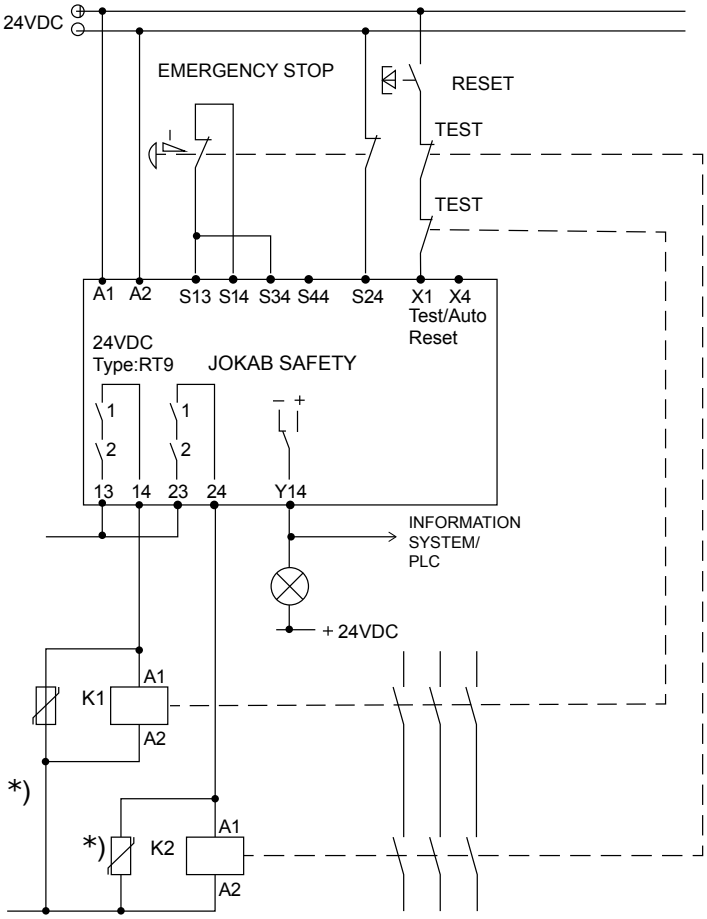
Mechanically linked contacts according to IEC 60947-5-1 Annex L 3.0

Mirror contact according to IEC 60947-4-1 Annex F 2.1

Safety Contactors
Contactors for safety applications with AF technology

AF09 ... AF96-30-22





*** Note:** Always use the transient suppressors, eg VOR's.
However, not required with AF Contactors which already have built-in suppression.

8

Bar contactors
85 to 5000 A

R contactors with variable number of poles and their variants (contactors with N.C. + N.O. poles, couplers...) are used for controlling power circuits up to 1000 V AC or 1500 V DC. They are designed with common standard components. With the combination of these elements and the adaptation possibilities, special versions can be provided. Designed for long-lasting operation and demanding applications, the ABB R contactors are used for many applications all over the world.

Flexibility of design
Variable number of poles
Adjustable number of auxiliary contacts
Optional combination of N.O. and N.C. poles
Mechanical or magnetic latching available.

Easy maintenance
Direct access to all the components of the contactor
Complete and didactic instruction manual
Spare parts available
Dedicated service for bar contactors.

Exceptional durability
Mechanical durability up to 10 millions operating cycles
Mechanical switching frequency up to 1200 cycles per hour
Electrical durability up to 350 000 operating cycles.

Ideal for heavy duty applications
High making and breaking capacity
Fully compatible with the requirements of utilization categories AC-3, DC-3 and DC-5 (control of AC / DC motors for mining, iron and steel industries...).

Custom-made solutions
More than 60 years' experience in dealing with customers projects
Development of solutions from specifications
Pre-sales support to identify and define customer requirements
Specialists available to help you, select your product or optimize your configuration.

Bar contactors
For heavy duty applications

R contactors meet the particular requirements of each AC / DC control application up to 5000 A, where the demands are increasing:

- Power distribution
- Photovoltaic, hydroelectric power stations
- Batteries
- Mining
- Railway networks and rolling stock
- Induction furnaces
- Pump stations
- Travelling cranes.

8

Control your AC applications up to 5000 A

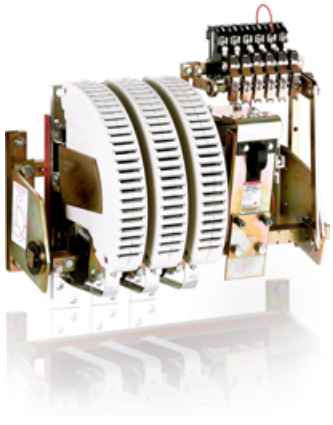
- AC-1 Rated operational current up to 5000 A
- AC-3 Rated power up to 1500 kW (1520 A – 440 V)

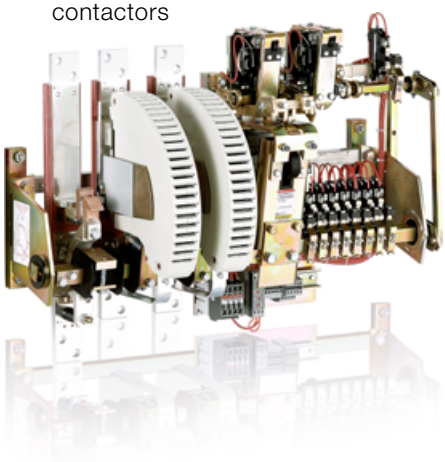
Control your DC applications up to 5000 A

- DC-1 Rated operational current up to 5000 A
- DC-3 / DC-5 Rated operational current up to 2000 A
- 1500 V with poles in series

Special applications

- AC / DC coupling: LOR.. contactors
- Slip ring motor control: FOR.. contactors
- AC / DC switching (N.C. / N.O. main poles): NOR & JOR.. contactors
- Latching contactors for energy saving and safety requirements: AMA or AME contactors
- Field discharge: AM(F)-CC-JORE.. contactors





Questionnaire
Specification for Bar contactors

ABB .....
Contact person.....
Tel.....

Customer ..... Contact person ..... Date .....
Tel. ..... e-mail .....
Quantity ..... Requested delivery date .....
Project / Application .....

Power circuit

AC switching

Application type

- ☐ AC-1 (resistive load)
- ☐ AC-3 (direct starting, switching off running motors)
- ☐ No load breaking
- ☐ Other .....

Number of poles: N.O. ..... N.C. .....
Rated operational current Ie: ..... A
Max. making current: ..... A
Max. breaking current: ..... A
Rated operational voltage Ue: ..... V ..... Hz

OR

DC switching

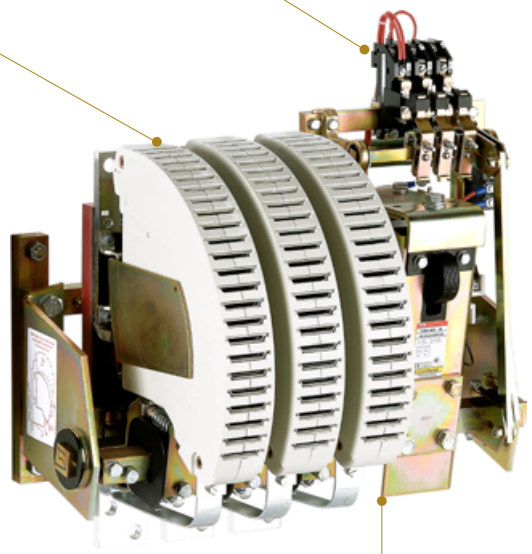
Application type

- ☐ DC-1 (resistive load)
- ☐ DC-3 (shunt motors)
- ☐ DC-5 (series motors)
- ☐ No load breaking
- ☐ Other ..... L/R ..... ms

Number of poles: N.O. ..... N.C. .....
Rated operational current Ie: ..... A
Making current: ..... A
Breaking current: min. ..... A max. ..... A
Rated operational voltage Ue: ..... V DC

Auxiliary contacts

Number of N.O. auxiliary contacts .....
Number of N.C. auxiliary contacts .....



Control circuit (coil)

- ☐ AC Voltage ..... V ..... Hz
- ☐ DC Voltage ..... V DC

Options

- ☐ Magnetical latching
- ☐ Mechanical latching

Operating conditions

Switching frequency ..... cycles/h
Mech. durability required (millions of operating cycles) .....
Remarks .....
.....

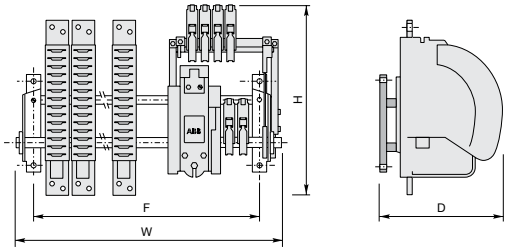
Accessories

.....
.....

(Please add any other useful documents for further information. e.g. technical specification, drawing, wiring diagram etc.)

Replacement of an existing contactor

Brand: .....
Type: .....
Fixing dimension: F = ... mm
Overall dimensions: W = ... mm
H = ... mm
D = ... mm



Please photocopy and email to: abb.lvp.sales@au.abb.com

Questionnaire also available on the ABB website: **www.abb.com/lowvoltage**, under the following directory:
Our Offering / Automation, control and protection / Motor protection and control / R bar contactors for advanced ... / Questionnaire

Thermal and electronic overload relays

Overview 468

Thermal overload relays 470

Electronic overload relays 476

8

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

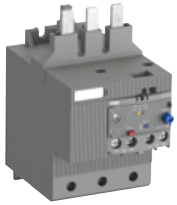
– Motor protection and control: Manual motor starters, contactors and overload relays – 1SBC100192C0204

Thermal and electronic overload relays

Thermal overload relays

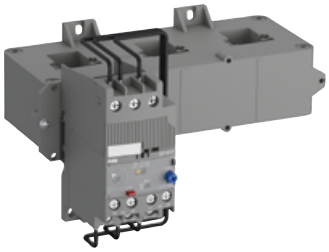
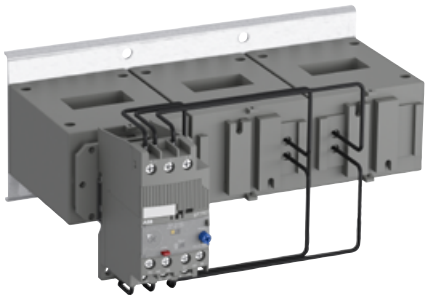
IEC: rated operational power AC-3	**400 V**	0.03 … 4.0 kW	0.03 … 4.0 kW	4.0 … 18.5 kW	18.5 … 30 kW
UL/CSA: 3-phase hp-ratings	**480 V**	1/2 … 5 hp	1/2 … 10 hp	5 … 20 hp	30 … 60 hp
Fitting to contactors		B6, B7	AS09 … AS16	AF09 ... AF38	AF40, AF52, AF65
Type		**T16**	**T16**	**TF42**	**TF65**
Current 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	–

Electronic overload relays
with integrated CT

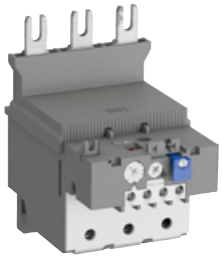
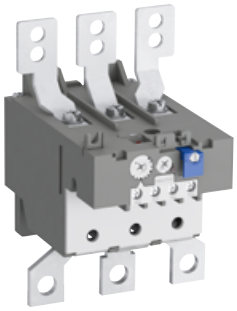


IEC: rated operational power AC-3	**400 V**	0.03 … 4.0 kW	4 … 7.5 kW	4.0 … 18.5 kW	18.5 … 30 kW
UL/CSA: 3-phase hp-ratings	**480 V**	1 … 5 hp	5 … 10 hp	5 … 20 hp	30 … 60 hp
Fitting to contactors		B6, B7	AF09 … AF16	AF26 ... AF38	AF40, AF52, AF65
Type		**E16DU**	**EF19**	**EF45**	**EF65**
Current range		0.10 … 18.9 A	0.10 … 18.9 A	9 … 45 A	20 … 70 A
Trip class		10E, 20E, 30E selectable			
Single mounting kit		DB16E	DB19EF	-DB45EF	–

Electronic overload relays
with external separate CT

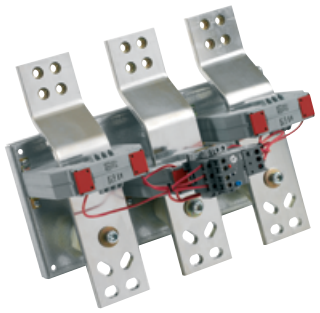



IEC: rated operational power AC-3	**400 V**	200 … 250 kW	315 … 400 kW
UL/CSA: 3-phase hp-ratings	**480 V**	350 … 400 hp	500 … 600 hp
Fitting to contactors		AF400, AF460	AF580, AF750, AF1250
Type		**EF460-500**	**EF750-800**
Current range		150 … 500 A	250 … 800 A
Trip class		10E, 20E, 30E selectable	

37 … 45 kW	55 … 75 kW	90 … 110 kW	
60 hp	75 … 100 hp	125 … 150 hp	
AF80, AF96	AF116, AF140	AF190, AF205	
TF96	**TF140DU**	**TA200DU**	
40 … 96 A	66 … 142 A	66 … 200 A	
10	10A	10A	
–	–	DB200	

37 … 45 kW	55 … 75 kW	90 … 110 kW	132 … 200 kW
60 hp	75 … 100 hp	125 … 150 hp	200 … 350 hp
AF80, AF96	AF116, AF140, AF146	AF190, AF205	AF265, AF305, AF370
EF96	**EF146**	**EF205**	**EF370**
36 … 100 A	54 … 150 A	63 … 210 A	115 … 380 A
10E, 20E, 30E selectable			
–	–	–	–



475 … 560 kW
800 … 900 hp
AF1350, AF1650
E1250DU-1250
375 … 1250 A
10E, 20E, 30E selectable

T16 thermal overload relays
0.10 to 16.0 A

T16

T16 + DB16

KPR3-101L

DB16

Description

The T16 / TF42 / TF65 / TF96 / TF140DU / TA200DU thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10.
The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bend as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications

T16 overload relay

Suitable for Contactors
B6, BC6, VB6, VBC6
B7, BC7, VB7, VBC7
AS09 …AS16
ASL09 …ASL16

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
0.10 ... 0.13	0.5 A, fuse type T	10	1SAZ711201R1005	T16-0.13
0.13 ... 0.17	1.0 A, fuse type T	10	1SAZ711201R1008	T16-0.17
0.17 ... 0.23	1.0 A, fuse type T	10	1SAZ711201R1009	T16-0.23
0.23 ... 0.31	1.0 A, fuse type T	10	1SAZ711201R1013	T16-0.31
0.31 ... 0.41	2.0 A, fuse type gG	10	1SAZ711201R1014	T16-0.41
0.41 ... 0.55	2.0 A, fuse type gG	10	1SAZ711201R1017	T16-0.55
0.55 ... 0.74	4.0 A, fuse type gG	10	1SAZ711201R1021	T16-0.74
0.74 ... 1.00	6.0 A, fuse type gG	10	1SAZ711201R1023	T16-1.0
1.00 ... 1.30	6.0 A, fuse type gG	10	1SAZ711201R1025	T16-1.3
1.30 ... 1.70	10.0 A, fuse type gG	10	1SAZ711201R1028	T16-1.7
1.70 ... 2.30	10.0 A, fuse type gG	10	1SAZ711201R1031	T16-2.3
2.30 ... 3.10	10.0 A, fuse type gG	10	1SAZ711201R1033	T16-3.1
3.10 ... 4.20	20.0 A, fuse type gG	10	1SAZ711201R1035	T16-4.2
4.20 ... 5.70	20.0 A, fuse type gG	10	1SAZ711201R1038	T16-5.7
5.70 ... 7.60	35.0 A, fuse type gG	10	1SAZ711201R1040	T16-7.6
7.60 ... 10.0	35.0 A, fuse type gG	10	1SAZ711201R1043	T16-10
10.0 ... 13.0	40.0 A, fuse type gG	10	1SAZ711201R1045	T16-13
13.0 ... 16.0	40.0 A, fuse type gG	10	1SAZ711201R1047	T16-16

Ordering details accessories

Suitable for	Description	Factory code	Order code
T16	Single mounting kit	1SAZ701901R0001	DB16
T16	Reset push button	1SFA616162R1014	KPR3-101L

Note: For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

STOCK INDENT

TF42 thermal overload relays
0.10 to 38.0 A

TF42

DB42

TF42 + DB42

KPR3-101L

TF42 overload relay

Suitable for Contactors
AF09 …AF38

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
0.10 ... 0.13	0.5 A, fuse type T	10	1SAZ721201R1005	TF42-0.13
0.13 ... 0.17	1.0 A, fuse type T	10	1SAZ721201R1008	TF42-0.17
0.17 ... 0.23	1.0 A, fuse type T	10	1SAZ721201R1009	TF42-0.23
0.23 ... 0.31	1.0 A, fuse type T	10	1SAZ721201R1013	TF42-0.31
0.31 ... 0.41	2.0 A, fuse type gG	10	1SAZ721201R1014	TF42-0.41
0.41 ... 0.55	2.0 A, fuse type gG	10	1SAZ721201R1017	TF42-0.55
0.55 ... 0.74	4.0 A, fuse type gG	10	1SAZ721201R1021	TF42-0.74
0.74 ... 1.00	6.0 A, fuse type gG	10	1SAZ721201R1023	TF42-1.0
1.00 ... 1.30	6.0 A, fuse type gG	10	1SAZ721201R1025	TF42-1.3
1.30 ... 1.70	10.0 A, fuse type gG	10	1SAZ721201R1028	TF42-1.7
1.70 ... 2.30	10.0 A, fuse type gG	10	1SAZ721201R1031	TF42-2.3
2.30 ... 3.10	10.0 A, fuse type gG	10	1SAZ721201R1033	TF42-3.1
3.10 ... 4.20	20.0 A, fuse type gG	10	1SAZ721201R1035	TF42-4.2
4.20 ... 5.70	20.0 A, fuse type gG	10	1SAZ721201R1038	TF42-5.7
5.70 ... 7.60	35.0 A, fuse type gG	10	1SAZ721201R1040	TF42-7.6
7.60 ... 10.0	35.0 A, fuse type gG	10	1SAZ721201R1043	TF42-10
10.0 ... 13.0	40.0 A, fuse type gG	10	1SAZ721201R1045	TF42-13
13.0 ... 16.0	40.0 A, fuse type gG	10	1SAZ721201R1047	TF42-16
16.0 ... 20.0	63.0 A, fuse type gG	10	1SAZ721201R1049	TF42-20
20.0 ... 24.0	63.0 A, fuse type gG	10	1SAZ721201R1051	TF42-24
24.0 ... 29.0	63.0 A, fuse type gG	10	1SAZ721201R1052	TF42-29
29.0 ... 35.0	80.0 A, fuse type gG	10	1SAZ721201R1053	TF42-35
35.0 ... 38.0/40.0	80.0 A, fuse type gG	10	1SAZ721201R1055	TF42-38

Ordering details accessories

Suitable for	Description	Factory code	Order code
TF42	Single mounting kit	1SAZ701902R0001	DB42
TF42	Reset push button	1SFA616162R1014	KPR3-101L

Note: For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

TF65 thermal overload relays
22.0 to 67.0 A

TF65

KPR3-101L

TF65 overload relay

Suitable for Contactors
AF40 …AF65

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

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: 1SBC100192C0204

8

STOCK INDENT

TF96 thermal overload relays
40.0 to 96.0 A

TF96

TF96 overload relay

Suitable for Contactors
AF80 …AF96

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	Reset push button	1SFA616162R1014	KPR3-101L

Note: For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

TF140DU thermal overload relays
66 to 142 A

TF140DU

KPR3-101L

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

Ordering details accessories

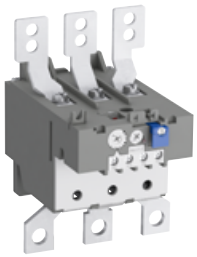
Suitable for	Description	Factory code	Order code
TF65	Reset push button	1SFA616162R1014	KPR3-101L

Note: For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

STOCK INDENT

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: 1SBC100192C0204

8

STOCK INDENT

E16DU, E45DU, E80DU, E140DU electronic overload relays 0.10 to 140 A

E16DU-1.0

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 single-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, E45DU, E80DU. E140DU	Single mounting kit	1SAZ401110R0001	DB200
E16DU, E45DU, E80DU. E140DU	Reset push button*	1SFA616162R1014	KPR3-101L

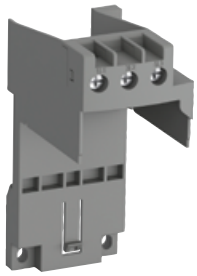
Note: For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

STOCK INDENT

EF19, EF45 electronic overload relays
0.10 to 45.0 A

EF19-18.9

EF45-30



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: 1SBC100192C0204

8

STOCK INDENT

EF65, EF96, EF146 electronic overload relays
20 to 150 A

EF65-70

EF96-100

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
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
EF65, EF96, EF146	Reset push button	1SFA616162R1014	KPR3-101L

Note: For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

STOCK INDENT

EF205, EF370 electronic overload relays
63 to 380 A

EF205-210

EF370-380

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

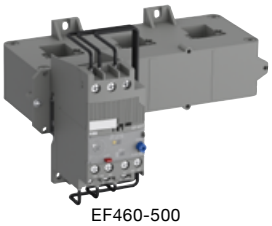
Ordering details accessories

Suitable for	Description	Factory code	Order code
EF205, EF370	Reset push button	1SFA616162R1014	KPR3-101L

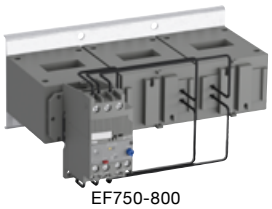
Note: For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

EF460-500, EF750-800 electronic overload relays
150 to 800 A



EF460-500



EF750-800

KPR3-101L

Description

The EF460-500, EF750-800 and E1250DU-1250 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, AF1250

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

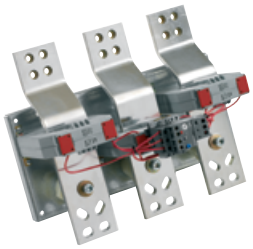
Suitable for	Description	Factory code	Order code
EF460-500, EF750-800	Reset push button	1SFA616162R1014	KPR3-101L

Note: For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

STOCK INDENT

E1250DU-1250 electronic overload relays
375 to 1250 A



E1250DU-1250

E1250DU-1250 overload relay

Suitable for Contactors
AF1350, AF1650

Ordering details

Setting range A	Short-circuit protective device	Trip class	Factory code	Order code
E1250DU-1250 electronic overload relay				
375 ... 1250	–	10E, 20E, 30E	1SFA739001R1000	E1250DU-1250

Note: For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0204

8

STOCK INDENT

ABB
ABB
ABB

Softstarters

ABB Softstarters – The complete range 484
Comparison between ABB's softstarters 484

PSR – The compact range 485
Description 485
Overview 486
Ordering details 487
Accessories 488

PSE – The efficient range 489
Description 489
Overview 490
Ordering details 492
Accessories 493

PSTX – The advanced range 495
Introduction – World's first softstarter with pump clean function 495
Overview 496
Ordering details 498
Accessories 499
Anybus communications 500

8

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

- PSR, PSE – 1SFC132005C0201
- PSTX – 1SFC132011C0201

ABB Softstarters – The complete range
Comparison between ABB's softstarters

	Features	PSR The compact range	PSE The efficient range	PSTX The advanced range
Secure motor reliability	Soft start	●	●	●
	Current limit	—	●	●
	Electronic overload protection (EOL)	—	●	●
	Underload protection	—	●	●
	Locked rotor protection	—	●	●
	Current ramp	—	—	●
	Dual current limit	—	—	●
	Current imbalance protection	—	—	●
	Voltage imbalance protection	—	—	●
	Phase reversal protection	—	—	●
	Customer-defined protection	—	—	●
	PTC input for motor protection	—	—	●
	PT100 input for motor protection	—	—	●
	Overvoltage protection	—	—	●
	Undervoltage protection	—	—	●
	Earth-fault protection	—	—	●
	Motor runtime measurement	—	—	●
Improve installation efficiency	Built-in bypass	●	●	●
	Inside-delta connection	—	—	●
	Coated PCBA	—	●	●
	Graphical display and keypad	—	●	●
	Detachable keypad	—	○	●
	Programmable warning	—	—	●
	Diagnostics	—	—	●
	Analog output	—	●	●
	Fieldbus communication	○	○	●
	Event log	—	○	●
Increase application productivity	Multiple languages	Symbols	Symbols	15
	Soft stop	●	●	●
	Torque control	—	●	●
	Limp mode	—	—	●
	Jog with slow speed	—	—	●
	Motor heating	—	—	●
	Motor brake	—	—	●
	Sequence start	—	—	●
	Full voltage start	—	—	●
	Kick-start	—	●	●
	Emergency DOL start	—	—	●
	Pump cleaning	—	—	●

Legend:

● = Yes
○ = Optional
— = No

PSR – The compact range
Description

Product description

- Wide rated operational voltage 208 – 600 V
- Rated control supply voltage 24 V AC/DC or 100 – 240 V AC
- Rated operational current 3 – 105 A
- Wide ambient temperature range, -25 to +60 °C
- Built-in by-pass on all sizes, saving energy and reducing installation time
- Potentiometer settings
- Run signal relay on all devices
- TOR signal relay on PSR25 … PSR105
- Optional fieldbus communication using Profibus, Modbus, Devicenet or CANopen
- DIN rail mounting on PSR3 … PSR45
- Screw mounting on all sizes
- Connection kits for easy connection with ABB's manual motor starters
- Sophisticated algorithm eliminating the DC-component and thereby providing excellent starting performance

The PSR range is the most compact of all ABB's softstarter ranges. The compact PSR range makes it possible to fit many devices into the same enclosure. A PSR together with a MMS (manual motor starter) makes up a far more compact starting solution than a Star-Delta starter, for instance.

Flexible mounting

PSR softstarters from 3 to 45 A are possible to mount on a DIN-rail, ensuring quick and easy mounting. Naturally, all sizes can be screw mounted.

Few settings

The setup of the PSR is easily done and confirmed using the three clearly marked potentiometers on the front.

Built-in by-pass for energy saving

The built-in by-pass on all sizes does not only save energy; it will also ensure the most compact ABB's softstarter design and reduce the installation time. Thanks to the reduced heat generation, the softstarter can be mounted inside high IP class enclosures.

Suitable for stopping pumps

Even without using torque control, the PSR range is designed to reduce water hammering. Compared to the direct stops of a Star-Delta starter or a DOL starter the PSR is superior. See the stop ramp with step-down voltage below.

System concept with manual motor starters

All PSR softstarter sizes can easily be connected to the corresponding manual motor starters from ABB by using the special designed connection kits. This makes both the mounting and the connection easier and will provide a very compact starting solution containing short circuit and thermal protection, isolation function and soft starter - everything that you need.

PSR – The compact range
Overview

	PSR3 ... PSR16					PSR25 ... PSR30		PSR37... PSR45		PSR60 ... PSR105			
	Softstarter, type												
Normal start In-line connected	**PSR3**	**PSR6**	**PSR9**	**PSR12**	**PSR16**	**PSR25**	**PSR30**	**PSR37**	**PSR45**	**PSR60**	**PSR72**	**PSR85**	**PSR105**
(400 V) kW	1.5	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55
IEC, max. A	3.9	6.8	9	12	16	25	30	37	45	60	72	85	105
(440-480 V) hp	2	3	5	7.5	10	15	20	25	30	40	50	60	75
UL, max FLA	3.4	6.1	9	11	15.2	24.2	28	34	46.2	59.4	68	80	104
	400 V, 40 °C												
Using manual motor starters type 1 coordination will be achieved	**Manual motor starter (50 kA) type**												
	MS116			MS132				MS450/MS165		MS495			—
Using gG fuses type 1 coordination will be achieved	**Fuse protection (50 kA) gG Fuse**												
	10 A	16 A	25 A	32 A		50 A	63 A	100 A	125 A		200 A		250 A
Suitable switch fuse for the above gG fuses	**Switch fuse, type**												
	OS32GD							OS125GD			OS250D		
Overload protection is used to protect the motor from over heating	**Thermal overload relay**												
	TF42								TF65		TF96		TF140DU
The line contactor is not required for the softstarter itself but often used to open if OL trips	**Line contactor, type**												
	AF9			AF12	AF16	AF26	AF30	AF38	AF52	AF65	AF80	AF96	AF116
Using by-pass will reduce the power loss and allow more starts per hour	**By-pass contacts**												
	Built-in												

How to select the correct size
By using the guide here, you can quickly select a suitable softstarter for the most common applications. If a more precise selection is required, you can use the softstarter selection tool available at
www.abb.com/lowvoltage

Quick guide for selection

Normal start class 10		Heavy-duty start class 30	
Typical applications			
• Bow thruster	• Centrifugal pump	• Centrifugal fan	• Conveyor belt (long)
• Compressor	• Conveyor belt (short)	• Crusher	• Mill
• Elevator	• Escalator	• Mixer	• Stirrer

If more than 10 starts/h or heavy-duty start
Select one size larger than the standard selection

PSR – The compact range
Ordering details

PSR3 ... PSR16

PSR25 ... PSR30

PSR37 ... PSR45

PSR60 ... PSR105

PSR3 ... PSR105

Rated operational voltage Ue, 208-600 V AC

Rated control supply voltage, Us, 100-240 V AC

Motor power				Factory code	Order code
230 V Pe kW	400 V Pe kW	500 V Pe kW	IEC Max rated operational current Ie A		
0.75	1.5	2.2	3.9	1SFA896103R7000	PSR3-600-70
1.5	3	4	6.8	1SFA896104R7000	PSR6-600-70
2.2	4	4	9	1SFA896105R7000	PSR9-600-70
3	5.5	5.5	12	1SFA896106R7000	PSR12-600-70
4	7.5	7.5	16	1SFA896107R7000	PSR16-600-70
5.5	11	15	25	1SFA896108R7000	PSR25-600-70
7.5	15	18.5	30	1SFA896109R7000	PSR30-600-70
7.5	18.5	22	37	1SFA896110R7000	PSR37-600-70
11	22	30	45	1SFA896111R7000	PSR45-600-70
15	30	37	60	1SFA896112R7000	PSR60-600-70
22	37	45	72	1SFA896113R7000	PSR72-600-70
22	45	55	85	1SFA896114R7000	PSR85-600-70
30	55	55	105	1SFA896115R7000	PSR105-600-70

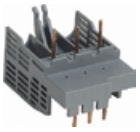
24V AC/DC control also available. Please refer to catalogue 1SFC132005C0201 for selection and ordering details.

In line wiring only

8

STOCK INDENT

PSR – The compact range
Accessories



PSR16-MS116

PSR30-MS132

PSR45-MS450

PSR105-MS495

PSR-FAN3-45A

PSR-FAN60-105A

PS-FBPA

PSLW

Connection kit

For softstarter type	Packing piece	Factory code	Order code
PSR3...PSR16 with MS116 or MS132	1	1SFA896211R1001	PSR16-MS116
PSR25...PSR30 with MS132-12...MS132-32	1	1SFA896212R1001	PSR30-MS132
PSR37...PSR45 with MS450/MS165	1	1SFA896213R1001	PSR45-MS450
PSR60...PSR105 with MS495	1	1SAM501903R1001	PSR105-MS495

Fan

For softstarter type	Packing piece	Factory code	Order code
PSR3...PSR45	1	1SFA896311R1001	PSR-FAN3-45A
PSR60...PSR105	1	1SFA896313R1001	PSR-FAN60-105A

Terminal enlargements

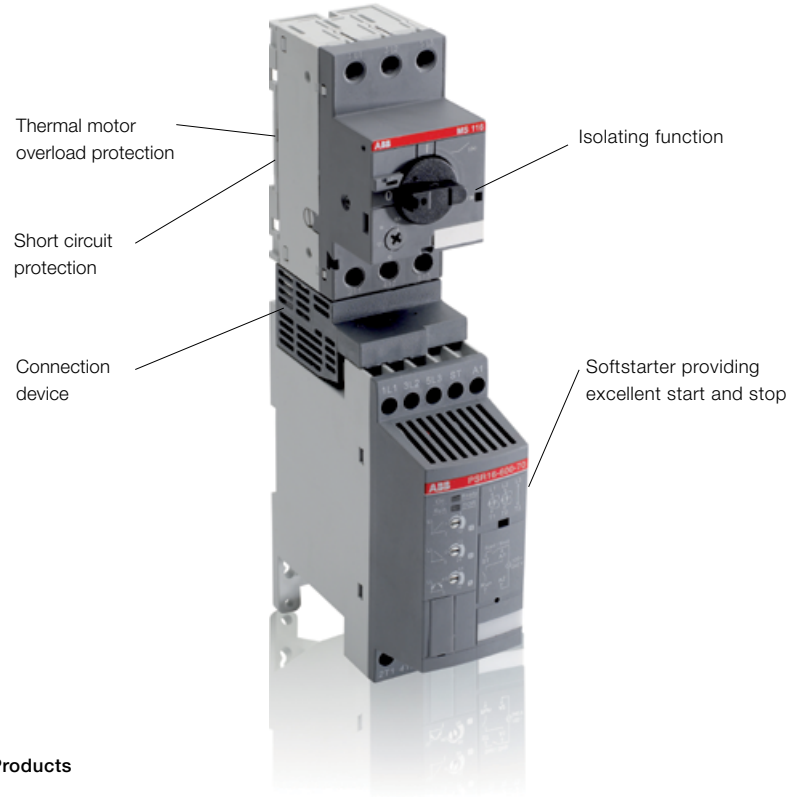
For softstarter type	Packing piece	Factory code	Order code
PSR60...105 Wire range mm² 1x10...50, 2x10...25	1	1SFA899002R1072	PSLW-72

FieldBusPlug connection accessory

For softstarter type	Packing piece	Factory code	Order code
The same accessory for all sizes	1	1SFA896312R1002	PS-FBPA

ABB's FieldBusPlug suitable for all sizes.

Connection kit



STOCK INDENT

PSE – The efficient range
Description

Product description

- Wide rated operational voltage 208 – 600 V AC
- Wide rated control supply voltage 100 – 250 V, 50/60 Hz
- Rated operational current 18 to 370 A
- Wide ambient temperature range, -25 to +60 °C
- Coated circuit boards for reliable operation in harsh environment
- Built-in by-pass on all sizes, saving energy and reducing installation time
- User friendly HMI with illuminated language neutral display and four button keypad
- Optional external keypad, IP66
- Torque control for excellent control of pumps
- Current limit, adjustable between 1.5 – 7 x Ie
- Motor overload protection with classes 10A, 10, 20 and 30
- Motor underload protection to detect pumps running dry
- Locked rotor protection, detecting jammed pumps
- Kick start to start jammed pumps or conveyor belts
- Analog output showing operational current, 4 – 20 mA
- Optional fieldbus communication using Profibus, Modbus, Devicenet or CANopen
- Sophisticated algorithm eliminating the DC-component and thereby providing excellent starting performance

The PSE softstarter range is the world's first compact softstarter range with torque control. This makes the PSE range an ideal choice for pumping applications where water hammering normally is a big problem. The compactness and advanced functionality of the PSE means that it is also a very efficient solution for other applications such as compressors and fans.

Torque control

The most important function when stopping pumps is torque control. Since the PSE softstarter is optimized for controlling pumps, this feature is a must.

Built-in by-pass for energy saving

Using by-pass after reaching full voltage will greatly reduce the power loss and thereby save energy. In the PSE softstarter range, the by-pass is built-in on all sizes which will give the most compact starting solution and reduce the need for wiring during installation.

Coated circuit boards

All circuit boards in the new PSE softstarter have a protective coating to ensure a reliable operation even in tough environments like wastewater plants, where corrosive gases and acids may exist.

Motor protection

The PSE softstarter is equipped with built-in electronic overload protection, preventing the motor from overheating. Since no additional overload device is needed, our efficient design saves both space, installation time, and ultimately money.

Analog output

The analog output terminals can be connected to an analog current meter to show the current during operation. This eliminates the need of an additional current transformer. The analog output signal can also be used as an analog input to a PLC.

Display and keypad

The setup of the PSE softstarter is done using the four button keypad and the illuminated display, providing a quick and easy setup. While operating, the display will also provide important status information such as current and voltage.

External keypad

As an option the PSE softstarter can be equipped with an external keypad for easy setup and monitoring of the unit without opening the enclosure door. The keypad can also be used to copy parameters between different softstarters.

PSE – The efficient range
Overview

	PSE18 ... PSE105								
	Softstarter, type								
Normal start In-line connected	**PSE18**	**PSE25**	**PSE30**	**PSE37**	**PSE45**	**PSE60**	**PSE72**	**PSE85**	**PSE105**
(400 V) kW	7.5	11	15	18.5	22	30	37	45	55
IEC, max. A	18	25	30	37	45	60	72	85	106
(440-480 V) hp	10	15	20	25	30	40	50	60	75
UL, max FLA	18	25	28	34	42	60	68	80	104
	400 V, 40 °C								
Using MCCB only, type 1 coordination will be achieved	**MCCB (35 kA), type**								
	T2N160								T3N250
	MCCB (50 kA), type								
	T2S160								T3S250
To achieve type 2 coordination, semi-conductor fuses must be used	**Fuse protection (85 kA), Semiconductor fuses, Bussmann, type**								
	170M1563	170M1564	170M1566	170M1567	170M1568	170M1569	170M1571	170M1572	170M3819
Suitable switch fuse for recommended semi-conductor fuses	**Switch fuse, type**								
	OS32GD03P			OS63GD03P			OS125GD03P		OS250D03P
The line contactor is not required for the softstarter itself but often used to open if OL trips	**Line contactor, type**								
	AF26		AF30	AF38	AF52	AF65	AF80	AF96	AF116
Overload protection is used to protect the motor from over heating	**Electronic overload relay, type**								
	Built-in								
The by-pass will reduce the power loss of the softstarter.	**By-pass, type**								
	Built-in								

The table above is an overview of possible combinations of devices.
Complete coordination tables are available at **www.abb.com/lowvoltage**

How to select the correct size
By using the guide here, you can quickly select a suitable softstarter for the most common applications. If a more precise selection is required, you can use the softstarter selection tool available at
www.abb.com/lowvoltage

Quick guide for selection

Normal start class 10		**Heavy-duty start class 30**	
Typical applications			
• Bow thruster	• Centrifugal pump	• Centrifugal fan	• Conveyor belt (long)
• Compressor	• Conveyor belt (short)	• Crusher	• Mill
• Elevator	• Escalator	• Mixer	• Stirrer

If more than 10 starts/h or heavy-duty start
Select one size larger than the standard selection

PSE – The efficient range
Overview

PSE142 ... PSE170		PSE210 ... PSE370			
Softstarter, type					
PSE142	PSE170	PSE210	PSE250	PSE300	PSE370
75	90	110	132	160	200
143	171	210	250	300	370
100	125	150	200	250	300
130	169	192	248	302	361
400 V, 40 °C					
MCCB (35 kA), type					
T3N250		T4N320	T5N400		T5N630
MCCB (50 kA), type					
T3S250		T4S320	T5S400		T5S630
Fuse protection (85kA), Semiconductor fuses, Bussmann, type					
170M5809	170M5810	170M5812	170M5813	170M6812	170M6813
Switch fuse, type					
OS400D03P				OS630D03P	
Line contactor, type					
AF140	AF190	AF205	AF265	AF305	AF370
Electronic overload relay, type					
Built-in					
By-pass, type					
Built-in					

8

How to select the correct size
By using the guide here, you can quickly select a suitable softstarter for the most common applications. If a more precise selection is required, you can use the softstarter selection tool available at
www.abb.com/lowvoltage

Quick guide for selection

Normal start class 10		Heavy-duty start class 30	
Typical applications			
• Bow thruster	• Centrifugal pump	• Centrifugal fan	• Conveyor belt (long)
• Compressor	• Conveyor belt (short)	• Crusher	• Mill
• Elevator	• Escalator	• Mixer	• Stirrer

If more than 10 starts/h or heavy-duty start
Select one size larger than the standard selection

PSE – The efficient range
Normal starts, class 10, in-line, ordering details

PSE18 ... PSE105

PSE142 ... PSE170

PSE210 ... PSE370

PSE18 ... PSE370

Rated operational voltage, Ue, 208-600 V AC

Rated control supply voltage, Us, 100-250 V AC, 50/60 Hz

Motor power				Factory code	Order code
230 V Pe kW	400 V Pe kW	500 V Pe kW	IEC Max rated operational curent Ie A		
4	7.5	11	18	1SFA897101R7000	PSE18-600-70
5.5	11	15	25	1SFA897102R7000	PSE25-600-70
7.5	15	18.5	30	1SFA897103R7000	PSE30-600-70
9	18.5	22	37	1SFA897104R7000	PSE37-600-70
11	22	30	45	1SFA897105R7000	PSE45-600-70
15	30	37	60	1SFA897106R7000	PSE60-600-70
18.5	37	45	72	1SFA897107R7000	PSE72-600-70
22	45	55	85	1SFA897108R7000	PSE85-600-70
30	55	75	106	1SFA897109R7000	PSE105-600-70
40	75	90	143	1SFA897110R7000	PSE142-600-70
45	90	110	171	1SFA897111R7000	PSE170-600-70
59	110	132	210	1SFA897112R7000	PSE210-600-70
75	132	160	250	1SFA897113R7000	PSE250-600-70
90	160	200	300	1SFA897114R7000	PSE300-600-70
110	200	250	370	1SFA897115R7000	PSE370-600-70

Torque control for superior pump control

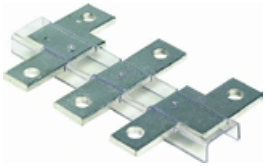
In line wiring only

8

STOCK INDENT

PSE – The efficient range
Accessories

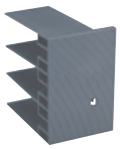
LZ...



LW...

LE185

LT ... -AC



LT ... -AL

PSEEK

PSECA

PS-FBPA

Cable connectors for Cu cables

For softstarter type	Wire range mm²	Tightening torque max. Nm	Packing piece	Factory code	Order code
PSE142 ...170	6-120	14	3	1SDA066913R1	1SDA066913R1
PSE142 ...170	2 x (50-120)	16	3	1SFN074709R1000	LZ185-2C/120
PSE210 ... 370	16-240	25	3	1SDA055016R1	1SDA055016R1

Cable connectors for Al and Cu cables

For softstarter type	Wire range mm²	Tightening torque max. Nm	Packing piece	Factory code	Order code
PSE142 ...170	95-185	31	3	1SDA054988R1	1SDA054988R1
PSE210 ... 370	185-240	43	3	1SDA055020R1	1SDA055020R1

Terminal enlargements

For softstarter type	Dimensions hole ø mm²	bar mm	Packing piece	Factory code	Order code
PSE18...105	6.5	15 x 3	1	1SFN074307R1000	LW110
PSE142...170	10.5	17.5 x 5	1	1SFN074707R1000	LW185
PSE210...370	10.5	20 x 5	1	1SFN075107R1000	LW300

Terminal nut washer

For softstarter type	Required quantity	Packing piece	Factory code	Order code
PSE142...170	2	2	1SFN074716R1000	LE185
PSE210...370	2	2	1SFN075116R1000	LE300

Terminal shrouds

For softstarter type	Suitable for	Required quantity	Packing piece	Factory code	Order code
PSE142...170	Cable connectors	2	2	1SFN124701R1000	LT185AC
PSE142...170	Compression lugs	2	2	1SFN124703R1000	LT185AL
PSE210...370	Cable connectors	2	2	1SFN125101R1000	LT300AC
PSE210...370	Compression lugs	2	2	1SFN125103R1000	LT300AL

External keypad including a 3m cable

For softstarter type	Packing piece	Factory code	Order code
PSE18...370	1	1SFA897100R1001	PSEEK

USB-cable for Service Engineer Tool

For softstarter type	Packing piece	Factory code	Order code
PSE18...370	1	1SFA897201R1001	PSECA

FieldBusPlug connection accessory

For softstarter type	Packing piece	Factory code	Order code
The same accessory for all sizes	1	1SFA896312R1002	PS-FBPA

ABB's FieldBusPlug suitable for all sizes.

STOCK INDENT

PSTX softstarters
Leading the way in soft starting

More than 40 percent of the world's electricity is used by the industry. Two thirds of that goes to powering electric motors. The PSTX softstarters will help you use both your motor and application more sustainably, reliably and efficiently.
Imagine its potential. Motor starting matters.

www.abb.com/connecttocontrol

Power and productivity
for a better world™

PSTX – The advanced range
Introduction – World's first softstarter with pump clean function

The PSTX combines many years of research and product development with extensive knowledge of application specific requirements and needs. It is our latest advancement in motor control and protection and adds new functionality and increased reliability.

- Three-phase controlled
- Operational voltage: 208 – 690 VAC
- Wide rated control supply voltage: 100 – 250 V, 50/60 Hz
- PSTX rated operational current: 30 to 1250 A (inside-delta: 2160 A)
- Both in-line and inside-delta connection
- Coated circuit boards protecting from dust, moist and corrosive atmosphere
- Detachable keypad rated IP66 (Type 1, 4X,12)
- Graphical display with 15 languages for easy setup and operation
- Built-in bypass for energy saving and easy installation
- Built-in Modbus RTU for monitoring and control
- Support for all major communication protocols
- Analog output for measurement of current, voltage, power factor etc.

Secure **motor**
Reliability

Complete motor protection
The PSTX offers complete motor protection in only one unit and is able to handle both load and network irregularities. PT-100, earth fault protection and over/under voltage protection along with many other functions keep your motor safer than ever.

Three types of current limit
PSTX offers three types of current limit: standard, dual and ramp. This gives you full control of your motor during start. It also allows you to use your motor in weaker networks.

Improve **installation**
Efficiency

Built-in bypass saves time and energy
When reaching full speed, the PSTX will activate its bypass. This saves energy while reducing the softstarter's heat generation. On the PSTX, the bypass is built in and verified by ABB, saving you time during installation and space in your panel.

Easy-to-use and detachable keypad
A user-friendly and clear display saves you time and resources during both setup and operation. The detachable keypad is standard on all PSTX softstarters.

Increase **application**
Productivity

Complete control of pumps
Time to use your processes to their full potential. The PSTX features many application enhancing features, including torque control: the most efficient way to start and stop pumps. The pump cleaning feature can reverse pump flow and clean out pipes, securing uptime of your pump system.

Jog with slow speed
The slow speed forward and backward jog feature will make you more flexible when operating e.g. conveyor belts and cranes. The PSTX provides positioning capabilities, letting you take control of your process.

PSTX – The advanced range
Overview

Normal start In-Line connected	PSTX30	PSTX37	PSTX45	PSTX60	PSTX72	PSTX85	PSTX105	PSTX142	PSTX170
(400 V) kW	15	18.5	22	30	37	45	55	75	90
IEC, Max. A	30	37	45	60	72	85	106	143	171
(440-480 V) hp	20	25	30	40	50	60	75	100	125
UL, Max. A	28	34	42	60	68	80	104	130	169
	400 V, 40 °C								
Using manual motor starter or MCCB, type 1 coordination will be achieved.[1]	**MCCB (50 kA)**								
	XT2S160								XT4S250
Using gG fuses, type 1 coordination will be achieved. To achieve type 2 coordination, semiconductor fuses must be used.[1]	**Fuse protection (80 kA), Semiconductor fuses, Bussmann**								
	170M1567	170M1568	170M1569		170M1571	170M1572	170M3819	170M5810	170M5812
Suitable switch fuse for the recommended semiconductor fuses.[1]	**Switch fuse**								
	OS32G	OS63G			OS125G		OS250	OS400	
The line contactor is not required for the softstarter itself but often used to open if OL trips[1]	**Line contactor**								
	AF30	AF38	AF52	AF65	AF80	AF96	AF116	AF140	AF190
	Electronic overload relay								
Overload protection is always required to protect the motor[1]	Built-in								

1) This is an example of short circuit coordination. For more examples see: **applications.it.abb.com/SOC**

8

How to select the correct size
By using the guide here, you can quickly select a suitable softstarter for the most common applications. If a more precise selection is required, you can use the softstarter selection tool available at
www.abb.com/lowvoltage

Quick guide for selection

Normal start class 10		Heavy-duty start class 30	
Typical applications			
• Bow thruster	• Centrifugal pump	• Centrifugal fan	• Conveyor belt (long)
• Compressor	• Conveyor belt (short)	• Crusher	• Mill
• Elevator	• Escalator	• Mixer	• Stirrer

If more than 10 starts/h or heavy-duty start
Select one size larger than the standard selection

PSTX – The advanced range
Overview

PSTX210	PSTX250	PSTX300	PSTX370	PSTX470	PSTX570	PSTX720	PSTX840	PSTX1050	PSTX1250
110	132	160	200	250	315	400	450	560	710
210	250	300	370	470	570	720	840	1050	1250
150	200	250	300	400	500	600	700	900	1000
192	248	302	361	480	590	720	840	1062	1250

400 V, 40 °C

MCCB (50 kA)

T4S320	T5S400	T5S630	T7S800	Contact ABB for more information

Fuse protection (80 kA), Semiconductor fuses, Bussmann

170M5812	170M5813	170M6812	170M6813	170M6813	170M6814	Contact ABB for more information

Switch fuse

OS400	OS630	Contact ABB for more information

Line contactor

AF205	AF265	AF305	AF370	AF460	AF580	AF750	AF1350	AF1650	–

Electronic overload relay

Built-in

1) This is an example of short circuit coordination. For more examples see: **applications.it.abb.com/SOC**

How to select the correct size
By using the guide here, you can quickly select a suitable softstarter for the most common applications. If a more precise selection is required, you can use the softstarter selection tool available at
www.abb.com/lowvoltage

Quick guide for selection

Normal start class 10		Heavy-duty start class 30	
Typical applications			
• Bow thruster	• Centrifugal pump	• Centrifugal fan	• Conveyor belt (long)
• Compressor	• Conveyor belt (short)	• Crusher	• Mill
• Elevator	• Escalator	• Mixer	• Stirrer

If more than 10 starts/h or heavy-duty start
Select one size larger than the standard selection

PSTX30 ... PSTX1250 – 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 Ue, 208-600 V

Rated control supply voltage Us, 100-250 V AC, 50/60 Hz

IEC				UL/CSA					Factory code	Order code
Rated operational power			current	Rated operational power				current		
400 V P_e kW	500 V P_e kW	690 V P_e kW	I_e A	200 / 208 V P_e hp	220 / 240 V P_e hp	440 / 480 V P_e hp	550 / 600 V P_e hp	FLA A		
15	18.5	–	30	7.5	10	20	25	28	1SFA898103R7000	PSTX30-600-70
18.5	22	–	37	10	10	25	30	34	1SFA898104R7000	PSTX37-600-70
22	25	–	45	10	15	30	40	42	1SFA898105R7000	PSTX45-600-70
30	37	–	60	20	20	40	50	60	1SFA898106R7000	PSTX60-600-70
37	45	–	72	20	25	50	60	68	1SFA898107R7000	PSTX72-600-70
45	55	–	85	25	30	60	75	80	1SFA898108R7000	PSTX85-600-70
55	75	–	106	30	40	75	100	104	1SFA898109R7000	PSTX105-600-70
75	90	–	143	40	50	100	125	130	1SFA898110R7000	PSTX142-600-70
90	110	–	171	50	60	125	150	169	1SFA898111R7000	PSTX170-600-70
110	132	–	210	60	75	150	200	192	1SFA898112R7000	PSTX210-600-70
132	160	–	250	75	100	200	250	248	1SFA898113R7000	PSTX250-600-70
160	200	–	300	100	100	250	300	302	1SFA898114R7000	PSTX300-600-70
200	257	–	370	125	150	300	350	361	1SFA898115R7000	PSTX370-600-70
250	315	–	470	150	200	400	500	480	1SFA898116R7000	PSTX470-600-70
315	400	–	570	200	200	500	600	590	1SFA898117R7000	PSTX570-600-70
400	500	–	720	250	300	600	700	720	1SFA898118R7000	PSTX720-600-70
450	600	–	840	300	350	700	800	840	1SFA898119R7000	PSTX840-600-70
560	730	–	1050	400	450	900	1000	1062	1SFA898120R7000	PSTX1050-600-70
710	880	–	1200	400	500	1000	1200	1250	1SFA898121R7000	PSTX1250-600-70

690V PSTX version also available. Please refer to catalogue 1SFC132011C0201 for selection and ordering details.

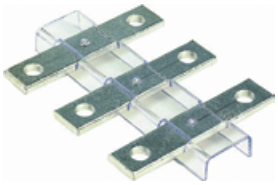
Torque control for superior pump control | In line wiring | Inside Delta wiring

STOCK INDENT

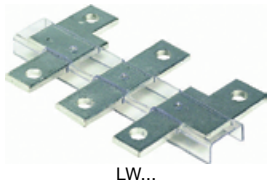
PSTX – The advanced range
Accessories

LZ...

For softstarter type	Wire range mm²	Tightening torque max. Nm	Factory code	Order code
Cable connectors for Cu cables				
PSTX142 ... PSTX170	6-120	8	1SDA066917R1	1SDA066917R1
PSTX142 ... PSTX170	2 x (50-95)	16	1SFN074709R1000	LZ185-2C/120
PSTX210 ... PSTX370	16-240	25	1SDA055016R1	1SDA055016R1
PSTX210 ... PSTX370	2 x (70-185)	22	1SCA022194R0890	OZXB4
PSTX470 ... PSTX570	2 x (120-240)	35	1SDA013922R1	1SDA013922R1
PSTX570 ... PSTX1050	3 x (70-185)	45	1SDA013956R1	1SDA013956R1
Cable connectors for Al cables				
PSTX142 ... PSTX170	95-185	31	1SDA054988R1	1SDA054988R1
PSTX210 ... PSTX370	185-240	43	1SDA055020R1	1SDA055020R1
PSTX470 ... PSTX1050	2 x (120-240)	31	1SDA023380R0001	1SDA023380R1



LX...

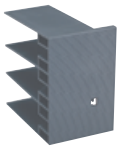


LW...

For softstarter type	Dimensions hole ø mm²	Dimensions bar mm	Factory code	Order code
Terminal extensions				
PSTX142 ... PSTX170	8.5	17.5 x 5	1SFN074810R1000	LX205
PSTX210 ... PSTX370	10.5	20 x 5	1SFN075410R1000	LX370
PSTX470 ... PSTX570	10.5	25 x 5	1SFN075710R1000	LX460
PSTX720 ... PSTX840	13	40 x 6	1SFN076110R1003	LX750
Terminal enlargements				
PSTX30 ... PSTX105	6.5	15 x 3	1SFN074307R1000	LW110
PSTX142 ... PSTX170	10.5	17.5 x 5	1SFN074807R1000	LW205
PSTX210 ... PSTX370	10.5	20 x 5	1SFN075407R1000	LW370
PSTX470 ... PSTX570	10.5	25 x 5	1SFN075707R1000	LW460
PSTX720 ... PSTX840	13	40 x 6	1SFN076107R1000	LW750

PSLE460

LT ... -AC
LT ... -C

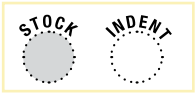


LT ... -AL
LT ... -L

For softstarter type	Req. qty	Factory code	Order code
Terminal nut washer			
PSTX142 ... PSTX170	6	1SFN074811R1000	LL205-30
PSTX210 ... PSTX370	6	1SFN075411R1000	LL370-30
PSTX210 ... PSTX370	2	1SFA899221R1003	PSLE300
PSTX470 ... PSTX570	6	1SFA899221R1004	PSLE460
PSTX720 ... PSTX840	6	1SFA899221R1005	PSLE750
Terminal shrouds			
PSTX142 ... PSTX170, short for use with cable clamps	2	1SFN124801R1000	LT20530C
PSTX142 ... PSTX170, long for use with compression lugs	2	1SFN124803R1000	LT20530L
PSTX210 ... PSTX370, short for use with cable clamps	2	1SFN125401R1000	LT37030C
PSTX210 ... PSTX370, long for use with compression lugs	2	1SFN125403R1000	LT37030L
PSTX210 ... PSTX370, long and deep for use with extending cable clamps, ATK300/2 and OZXB4	2	1SFN125406R1000	LT37030D
PSTX470 ... PSTX570 , short for use with cable clamps	2	1SFN125701R1000	LT460AC
PSTX470 ... PSTX570, long for use with compression lugs	2	1SFN125703R1000	LT460AL
PSTX720 ... PSTX840, short for use with cable clamps	2	1SFN126101R1000	LT750AC
PSTX720 ... PSTX840, long for use with compression lugs	2	1SFN126103R1000	LT750AL

For softstarter type	Factory code	Order code
Anybus connection accesssory		
Anybus suitable for PSTX30 ... PSTX1250, See page 81		
FieldBusPlug connection accesssory		
PSTX30 ... PSTX1250	1SFA896312R1002	PS-FBPA
ABB's FieldBusPlug suitable for all sizes, see latest 1SFC132005C0201 catalog.		
I/O module, 24 V DC digital input		
PSTX30 ... PSTX1250	1SAJ611000R0101	DX111

8



PSTX - The advanced range
Anybus communications

Profibus
Modbus-RTU

DeviceNet

EtherNet/IP (1-port)
Modbus/TCP (1-port)

EtherNet/IP (2-port)
Modbus/TCP (2-port)
Profinet (2-port)

For communication protocol	Factory code	Order code
Profibus	1SFA899300R1001	AB-PROFIBUS-1
DeviceNet	1SFA899300R1002	AB-DEVICENET-1
Modbus-RTU	1SFA899300R1003	AB-MODBUS-RTU-1
EtherNet/IP (1-port)	1SFA899300R1005	AB-ETHERNET-IP-1
EtherNet/IP (2-port)	1SFA899300R1006	AB-ETHERNET-IP-2
Modbus/TCP (1-port)	1SFA899300R1007	AB-MODBUS-TCP-1
Modbus/TCP (2-port)	1SFA899300R1008	AB-MODBUS-TCP-2
Profinet (2-port)	1SFA899300R1010	AB-PROFINET-2

STOCK INDENT

For your notes

ABB
Nr 2

Electromechanical motor starter coordination tables

Coordination with short-circuit protection devices 504

Fuses 505

Manual motor starter 507

Moulded case circuit breaker 508

8

For more information on coordination tables for motor protection, please refer to the link below:

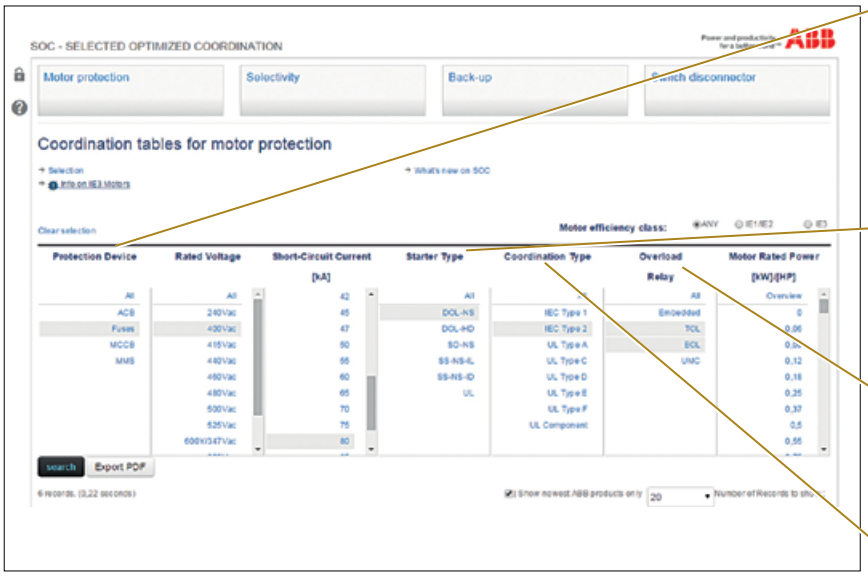
– http://applications.it.abb.com/SOC/Page/Selection.aspx

Coordination with short-circuit protection devices

A complete data base of coordination tables, according to **IEC 60947-4-1** (EN 60947-4-1) **or UL 508 / UL 60947-4-1**, is available on the ABB Website: see below.

Selection

Simple or multiple selections all from the same screen.



Short-circuit protection devices

- Air circuit breakers
- Fuses ‘gG’ or ‘aM’
- Miniature circuit breaker
- Moulded case circuit breaker
- Manual motor starter

Starter type

- Direct-on-line normal start
- Direct-on-line heavy duty
- Star-delta normal start
- Soft starter normal start

Overload relay

- TOL : thermal overload relay
- EOL : electronic overload relay
- UMC : Universal motor controller

Coordination

- IEC type 1 or type 2 coordination
- UL type A to Type F

8

Note:
For more information on coordination tables for motor protection, please see:
http://applications.it.abb.com/SOC/Page/Selection.aspx

Coordination tables for motor protection
Selected optimized coordination

SCPD type: Fuses
Short circuit current: 80 kA
Coordination type: IEC Type 2
Disconnecting mean present: no
Current transformer present: no

Rated voltage: 440 V AC
Starting type: Softstarter Normal Start In-Line
Overload relay: Electronic Overload Relay
Backup / limitor present: no
Frequency: 50-60 Hz

Motor		Fuses IEC			Softstarter	Contactor type			Overload relay		
Rated power	Rated current	Switch-fuse type	Rating gG/aM	Type and size	Type	Line	By-pass	Max. ambient temperature	Type	Current range	Max. allowed load current
	A		A					°C		A	A
15.00	25.40	OS32GD03P	100	Bussman 170M1567	PSTX30-600-70	AF30	Built-in	40	EOL, Class 10, Built-in	9.00 – 30.00	30.00
18.50	30.70	OS32GD03P	125	Bussman 170M1568	PSTX37-600-70	AF30	Built-in	40	EOL, Class 10, Built-in	11.10 – 37.00	32.00
22.00	35.90	OS63GD03P	125	Bussman 170M1568	PSTX37-600-70	AF38	Built-in	40	EOL, Class 10, Built-in	11.10 – 37.00	37.00
22.00	35.90	OS63GD03P	160	Bussman 170M1569	PSTX45-600-70	AF52	Built-in	40	EOL, Class 10, Built-in	13.50 – 45.00	45.00
30.00	48.20	OS63GD03P	160	Bussman 170M1569	PSTX60-600-70	AF52	Built-in	40	EOL, Class 10, Built-in	18.00 – 60.00	53.00
37.00	58.00	OS63GD03P	160	Bussman 170M1569	PSTX60-600-70	AF65	Built-in	40	EOL, Class 10, Built-in	18.00 – 60.00	60.00
45.00	70.00	OS125GD03P	250	Bussman 170M1571	PSTX72-600-70	AF80	Built-in	40	EOL, Class 10, Built-in	21.60 – 72.00	72.00
55.00	85.00	OS125GD03P	315	Bussman 170M1572	PSTX85-600-70	AF96	Built-in	40	EOL, Class 10, Built-in	25.50 – 85.00	85.00
55.00	85.00	OS250D03P	400	Bussman 170M3819	PSTX105-600-70	AF116	Built-in	40	EOL, Class 10, Built-in	31.80 – 106.00	106.00
75.00	116.00	OS400D03P	500	Bussman 170M5810	PSTX142-600-70	AF146	Built-in	40	EOL, Class 10, Built-in	42.90 – 143.00	143.00
90.00	140.00	OS400D03P	630	Bussman 170M5812	PSTX170-600-70	AF190	Built-in	40	EOL, Class 10, Built-in	51.30 – 171.00	171.00
110.00	171.00	OS400D03P	630	Bussman 170M5812	PSTX210-600-70	AF265	Built-in	40	EOL, Class 10, Built-in	63.00 – 210.00	210.00
132.00	202.00	OS400D03P	700	Bussman 170M5813	PSTX250-600-70	AF265	Built-in	40	EOL, Class 10, Built-in	75.00 – 250.00	250.00
160.00	245.00	OS630D03P	800	Bussman 170M6812	PSTX300-600-70	AF305	Built-in	40	EOL, Class 10, Built-in	90.60 – 300.00	300.00
200.00	307.00	OS630D03P	900	Bussman 170M6813	PSTX370-600-70	AF370	Built-in	40	EOL, Class 10, Built-in	111.00 – 370.00	370.00

Note:
For coodination above PSTX370, please contact your local ABB representative.

Coordination tables for motor protection
Selected optimized coordination

SCPD type: Fuses
Short circuit current: 100 kA
Coordination type: IEC Type 2
Disconnecting Mean present: no
Current Transformer present: no

Rated voltage: 440 V AC
Starting type: Direct-On-Line Normal Start
Overload relay: Thermal Overload
Backup / limitor present: no
Frequency: 50-60 Hz

Motor		Fuses IEC			Contactor	Overload relay		
Rated power	Rated current	Switch-fuse type	Rating gG/aM	Type and size	Type	Type	Current range	Max. allowed load current
	A		A				A	A
0.12	0.39	OS32GD_	2	OFAF 000H	AF09	TF42-0,41	0.31 – 0.41	0.41
0.18	0.53	OS32GD_	2	OFAF 000H	AF09	TF42-0,55	0.42 – 0.55	0.55
0.25	0.74	OS32GD_	4	OFAF 000H	AF09	TF42-1,0	0.74 – 1.00	1.00
0.37	1.00	OS32GD_	6	OFAF 000H	AF09	TF42-1,3	1.00 – 1.30	1.30
0.55	1.30	OS32GD_	6	OFAF 000H	AF09	TF42-1,7	1.30 – 1.70	1.70
0.75	1.70	OS32GD_	6	OFAF 000H	AF09	TF42-2,3	1.70 – 2.30	2.00
0.75	1.70	OS32GD_	10	OFAF 000H	AF09	TF42-2,3	1.70 – 2.30	2.30
1.10	2.40	OS32GD_	10	OFAF 000H	AF09	TF42-3,1	2.30 – 3.10	3.10
1.50	3.20	OS32GD_	16	OFAF 000H	AF09	TF42-4,2	3.10 – 4.20	4.20
2.20	4.30	OS32GD_	20	OFAF 000H	AF09	TF42-5,7	4.20 – 5.70	5.20
3.00	5.70	OS32GD_	25	OFAF 000H	AF09	TF42-7,6	5.70 – 7.60	6.80
4.00	7.40	OS32GD_	25	OFAF 000H	AF09	TF42-7,6	5.70 – 7.60	7.60
4.00	7.40	OS32GD_	32	OFAF 000H	AF09	TF42-10	7.60 – 10.00	9.00
5.50	10.10	OS32GD_	32	OFAF 000H	AF16	TF42-13	10.00 – 13.00	11.50
5.50	10.10	OS63GD_	40	OFAF 000H	AF26	TF42-13	10.00 – 13.00	13.00
7.50	13.60	OS63GD_	40	OFAF 000H	AF26	TF42-16	13.00 – 16.00	15.50
9.00	16.30	OS63GD_	50	OFAF 000H	AF26	TF42-20	16.00 – 20.00	19.00
11.00	19.30	OS63GD_	50	OFAF 000H	AF26	TF42-20	16.00 – 20.00	19.00
11.00	19.30	OS63GD_	63	OFAF 000H	AF26	TF42-24	20.00 – 24.00	23.00
15.00	25.40	OS100GD_	63	OFAF 000H	AF30	TF42-29	24.00 – 29.00	26.00
18.50	30.70	OS100GD_	80	OFAF 000H	AF30	TF42-35	29.00 – 35.00	32.00
22.00	35.90	OS100GD_	80	OFAF 000H	AF38	TF42-38	35.00 – 38.00	38.00
22.00	35.90	OS100GD_	100	OFAF 000H	AF40	TF65-40	30.00 – 40.00	40.00
25.00	40.80	OS100GD_	100	OFAF 000H	AF52	TF65-47	36.00 – 47.00	44.00
30.00	48.20	OS125GD_	125	OFAF 00H	AF65	TF65-53	44.00 – 53.00	55.00
37.00	58.00	OS160GD_	160	OFAF 00H	AF80	TF96-68	57.00 – 68.00	65.00
45.00	70.00	OS160GD_	160	OFAF 00H	AF96	TF96-78	65.00 – 78.00	78.00
55.00	85.00	OS250D_	200	OFAF 1H	AF96	TF96-87	75.00 – 87.00	87.00
75.00	116.00	OS250D_	224	OFAF 1H	AF140	TF140DU-135	100.00 – 135.00	120.00
90.00	140.00	OS250D_	250	OFAF 1H	AF190	TA200DU-150	110.00 – 150.00	135.00
110.00	171.00	OS400D_	315	OFAF 2H	AF205	TA200DU-175	130.00 – 175.00	175.00
132.00	202.00	OS400D_	315	OFAF 2H	AF265	TA450DU-235	165.00 – 235.00	235.00
160.00	245.00	OS400D_	400	OFAF 2H	AF265	TA450DU-310	220.00 – 310.00	265.00
200.00	307.00	OS400D_	400	OFAF 2H	AF370	TA450DU-310	220.00 – 310.00	310.00
200.00	307.00	OS630D_	630	OFAF 3H	AF370	E500DU-500 10 *	150.00 – 500.00	370.00
250.00	377.00	OS630D_	630	OFAF 3H	AF400	E500DU-500 10 *	150.00 – 500.00	400.00
315.00	473.00	OS800D_	800	OFAF 3H	AF580	E800DU-800 10 *	250.00 – 800.00	580.00
355.00	535.00	OS800D_	800	OFAF 3H	AF580	E800DU-800 10 *	250.00 – 800.00	580.00
400.00	605.00	OS800D_	800	OFAF 3H	AF750	E800DU-800 10 *	250.00 – 800.00	610.00
400.00	605.00	OS1250DA_	1000	OFAF 4AH	AF1350	E1250DU-1250 10 *	375.00 – 1250.00	800.00
500.00	745.00	OS1250DA_	1000	OFAF 4AH	AF1350	E1250DU-1250 10 *	375.00 – 1250.00	800.00
560.00	832.00	OS1250DA_	1250	OFAF 4AH	AF1650	E1250DU-1250 10 *	375.00 – 1250.00	1000.00
630.00	929.00	OS1250DA_	1250	OFAF 4AH	AF1650	E1250DU-1250 10 *	375.00 – 1250.00	1000.00

Note:
* selected trip class of E_DU

Coordination tables for motor protection
Selected optimized coordination

SCPD type: Manual motor starter
Short circuit current: 50 kA
Coordination type: IEC Type 2
Disconnecting Mean present: no
Current Transformer present: no
Motor Efficiency Class: IE1 + IE2 + IE3

Rated voltage: 400 V AC
Starting type: Direct-On-Line Normal Start
Overload relay: Embedded
Backup / limitor present: no
Frequency: 50-60 Hz

Motor		Manual motor starter			Contactor	
Rated power	Rated current	Type	Inst. trip current	Current range	Type	Max. allowed load current
	A		A	A		A
0.06	0.20	MS132–0,25	3.13	0.16 – 0.25	AF09	0.25
0.09	0.30	MS132–0,40	5.00	0.25 – 0.40	AF09	0.40
0.12	0.44	MS132–0,63	7.8	0.40 – 0.63	AF09	0.63
0.18	0.60	MS132–0,63	7.88	0.40 – 0.63	AF09	0.63
0.25	0.85	MS132–1,0	12.50	0.63 – 1.00	AF09	1.00
0.37	1.10	MS132–1,6	20.00	1.00 – 1.60	AF09	1.60
0.55	1.50	MS132–1,6	20.00	1.00 – 1.60	AF09	1.60
0.75	1.90	MS132–2,5	31.25	1.60 – 2.50	AF09	2.50
1.10	2.70	MS132–4,0	50.00	2.50 – 4.00	AF26	4.00
1.50	3.60	MS132–4,0	50.00	2.50 – 4.00	AF26	4.00
2.20	4.90	MS132–6,3	78.75	4.00 – 6.30	AF26	6.30
3.00	6.50	MS132–10	150.00	6.30 – 10.00	AF26	10.00
4.00	8.50	MS132–10	150.00	6.30 – 10.00	AF26	10.00
5.50	11.50	MS132–16	240.00	10.00 – 16.00	AF26	12.00
7.50	15.50	MS132–20	300.00	16.00 – 20.00	AF30	20.00
11.00	22.40	MS132–25	375.00	20.00 – 25.00	AF30	25.00
15.00	29.00	MS132–32	480.00	25.00 – 32.00	AF30	32.00
15.00	29.00	MS165–32	480.00	23.00 – 32.00	AF40	2.00
18.50	35.00	MS165–42	630.00 3	0.00 – 42.00	AF40	40.00
22.00	41.00	MS165–54	810.00	40.00 – 54.00	AF52	53.00
25.00	46.60	MS165–54	810.00	40.00 – 54.00	AF52	53.00
30.00	55.00	MS165–65	975.00	52.00 – 65.00	AF65	65.00

Note:
Valid also for 415 V AC

Coordination tables for motor protection
Selected optimized coordination

SCPD type: Moulded case circuit breaker
Short circuit current: 65 kA
Coordination type: IEC Type 2
Disconnecting Mean present: no
Current Transformer present: no

Rated voltage: 440 V AC
Starting type: Direct-On-Line Normal Start
Overload relay: Thermal Overload
Backup / limitor present: no
Frequency: 50-60 Hz

Motor		Moulded case circuit breaker		Contactor	Overload relay		
Rated power	Rated current	Type	Inst. trip current	Type	Type	Current range	Max. allowed load current
	A		A			A	A
0.25	0.74	XT2H 160 MF 1	14.00	AF9	TF42-1	0.74 – 1.00	1.00
0.37	1.00	XT2H 160 MF 2	28.00	AF9	TF42-1.3	1.00 – 1.30	1.30
0.55	1.30	XT2H 160 MF 2	28.00	AF9	TF42-1.7	1.30 – 1.70	1.70
0.75	1.70	XT2H 160 MF 2	28.00	AF9	TF42-2.3	1.70 – 2.30	2.00
1.10	2.40	XT2H 160 MF 4	56.00	AF26	TF42-3.1	2.30 – 3.10	3.10
1.50	3.20	XT2H 160 MF 4	56.00	AF26	TF42-4.2	3.10 – 4.20	4.00
2.20	4.30	XT2H 160 MF 8.5	120.00	AF38	TF42-5.7	4.20 – 5.70	5.70
3.00	5.70	XT2H 160 MF 8.5	120.00	AF38	TF42-7.6	5.70 – 7.60	7.60
4.00	7.40	XT2H 160 MF 8.5	120.00	AF38	EF19-18.9 *	5.70 – 18.90	12.50
5.50	10.10	XT2H 160 MF 12.5	175.00	AF38	EF19-18.9 *	5.70 – 18.90	12.50
7.50	13.60	XT2H 160 MA 20	200.00	AF38	EF19-18.9 *	5.70 – 18.90	18.90
9.00	16.30	XT2H 160 MA 20	240.00	AF40	TA42DU-25 **	18.00 – 25.00	20.00
11.00	19.30	XT2H 160 MA 32	288.00	AF40	TF65-28	22.00 – 28.00	28.00
15.00	25.40	XT2H 160 MA 32	384.00	AF40	TF65-33	25.00 – 33.00	32.00
18.50	30.70	XT2H 160 MA 52	468.00	AF40	TF65-40	30.00 – 40.00	40.00
22.00	35.90	XT2H 160 MA 52	520.00	AF52	TF65-47	36.00 – 47.00	47.00
25.00	40.80	XT2H 160 MA 52	624.00	AF52	TF65-47	36.00 – 47.00	47.00
30.00	48.20	XT2H 160 MA 80	720.00	AF65	TF65-60	50.00 – 60.00	60.00
37.00	58.00	XT2H 160 MA 80	880.00	AF80	TF96-68	57.00 – 68.00	68.00
45.00	70.00	XT2H 160 MA 100	1100.00	AF96	TF96-87	75.00 – 87.00	87.00
55.00	85.00	XT2H 160 MA 160 **	1280.00	AF116	TF140DU-110	80.00 – 110.00	110.00
75.00	116.00	XT2H 160 MA 160 **	1750.00	AF140	TF140DU-142	110.00 – 142.00	140.00
90.00	140.00	XT4H 250 Ekip I In 250	2125.00	AF190	TA200DU-175	130.00 – 175.00	175.00
110.00	171.00	T4H 250 PR221-I In 250	2500.00	AF205	TA200DU-200	155.00 – 200.00	200.00
132.00	202.00	T5H 400 PR221-I In 320	3200.00	AF265	TA450DU-235	165.00 – 235.00	235.00
160.00	245.00	T5H 400 PR221-I In 400	3600.00	AF305	TA450DU-310	220.00 – 310.00	305.00
200.00	307.00	T5H 630 PR221-I In 630	4725.00	AF400	TA450DU-400	285.00 – 400.00	350.00

Note:
* Type1 with TF42
** XT4L 250 Ekip I In 250 can also be used.

Can we slim inventory and slash administration?

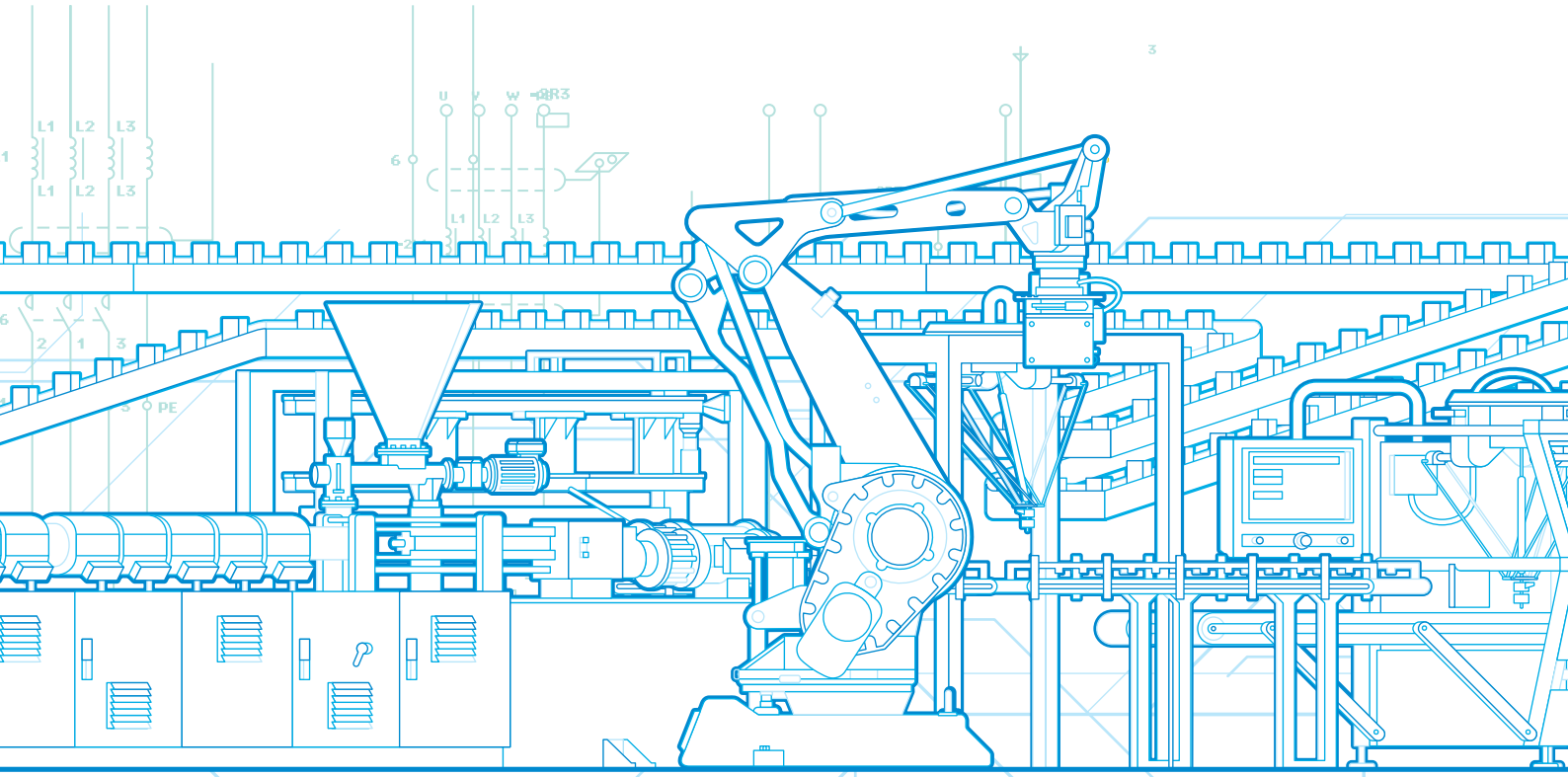
Certainly.

The heating and ventilation sector in Russia is booming. To meet rising demand, Moscow-based OEMs ADL and Free Tech have had to resolve the challenge of swelling inventories and expanding administration costs. Contactors are a key product component and inventory item. A single ABB AF multi-voltage contactor can supplant many conventional units: fewer units, more space, less administration, higher profit margins. To ensure flexibility, you need Control.

Connect to Control. **www.abb.com/connecttocontrol**

Power and productivity
for a better world™

ABB


L1 L2 L3
L1 L2 L3
U V W
L1 L2 L3
PE

Pilot Devices

L-mark – Customer specific marking online 512

Overview 513

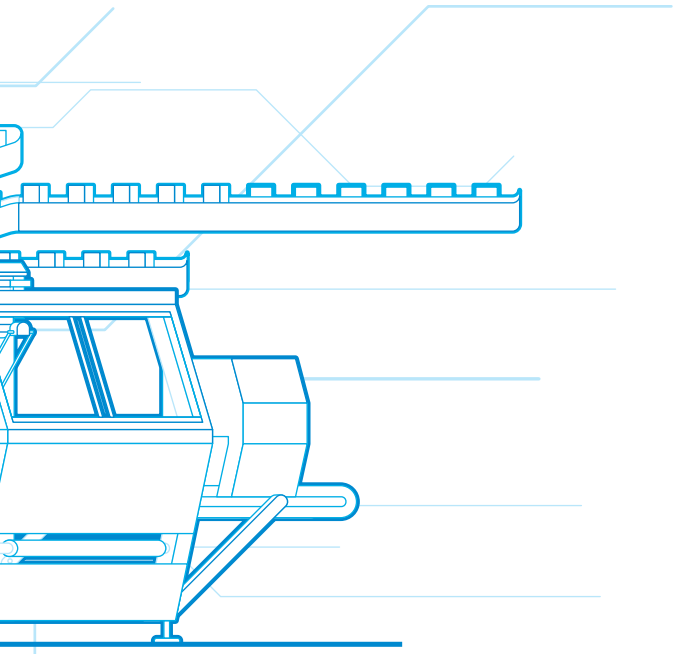
Compact range 514
Pushbuttons 515
Mushroom pushbuttons 515
Illuminated pushbuttons 516
Pilot lights with integrated LED 517
Selector switches 518
Emergency stops 519
Machine stops 519
Buzzers 520
Heavy duty pushbuttons 520
Accessories for compact range 521

Modular range 523
Pushbuttons 524
Double pushbuttons 525
Mushroom pushbuttons 528
Pilot lights 528
Emergency stop pushbuttons 529
Selector switches 530
Key-operated selector switches 533
Potentiometers 534
Reset pushbuttons 535
Joysticks 536
Toggle switches 2 and 3-positions 537
Accessories for modular range 538

Enclosures and assembled stations 543
Plastic enclosures 544
LED blocks for rear mounting 545
Accessories for plastic enclosures 546
Metallic enclosures and accessories 547
Assembled stations 548

Legend plates 549
Legend plate holder with inserts for plastic enclosures and pilot devices 549
Legend plates for emergency stop pushbuttons 550

Signal towers and signal beacons 551



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

– Pilot Devices catalogue – 1SFC151005C0201

L-mark
Customer specific marking online

L-mark makes customer specific marking easy

A new system for custom marking our pilot devices is now available. In addition to engraving legend plates, ABB can now laser-engrave our entire pilot device offering as well.

The customer will receive a reference number for their specified marking from the L-mark web page, where it also will be saved, making reordering simple and ensuring that our customers receive their preferred marking every time they order.

Text only available in black.

It's now possible to create a customer specific marking online using our five step marking tool:

Visit: **http://bolservices.it.abb.com/pilot-devices**

Step 1 Find your product by typing the type or order code
Step 2 Choose between text or symbol marking.
Step 3 Choose your preferred marking layout.
Step 4 Type marking or choose any of our 3000 symbols including the ISO 7000 library.
Step 5 Order the product by the order code + ref. code provided on the site. Example:
order code CP1-10B-11-L
(order code always with a '-L')
reference number: MUE979

Pricing – Standard price of pilot device or legend plate plus $1.50 (ex GST) per engraving

Overview

Compact range

Pushbuttons
515

Mushroom pushbuttons
515

Illuminated pushbuttons
516

Pilot lights
517

Selector switches
518

Emergency stop pushbuttons
519

Machine stop pushbuttons
519

Buzzer
520

Heavy duty pushbuttons
520

Accessories
521

Modular range

Pushbuttons
524

Double pushbuttons
525

Mushroom pushbuttons
528

Pilot lights
528

Emergency stop pushbuttons
529

Selector switches
530

Key-operated Selector switches
533

Potentiometers
534

Reset pushbuttons
535

Joysticks
536

Toggle switches
537

Accessories
538

Other products

Enclosures and stations
543

Legend plates
549

Signal towers and signal beacons
551

9

Compact range

The compact range is designed to be our most efficient solution when it comes to assembly and cost, suitable for the most demanding environments. It can also be combined with the modular range to cover the needs of additional flexibility.

9

General construction

- ‘All-in-one’ design
- Same front as modular range
- 42mm built in depth
- Up to 2 electrical contacts
- Metal or black plastic look

Product features

- Suitable in the toughest environments IP 66, 67 and 69K
- Wiping action gives high performance with low energies
- UL/NEMA Type 1,3R,4,4X,12,13

Operators

- Pushbuttons (illuminated and non-illuminated)
- Emergency stops (twist, pull and key release)
- Machine stops (twist, pull and key release)
- Selector switches (2 and 3 position)
- Mushrooms

Pilot lights

- Integrated LED (wide range of voltages)
- BA9s base for filament bulb or LED

Pushbuttons
Flush and extended

Colours	Red	Green	Yellow	Blue	White	Black	Grey
Replace ■ in Order code with	R	G	Y	L	W	B	U
Replace □ in Factory code with	1	2	3	4	5	6	7

CP1-10R-10

CP1-30W-10

CP1-10U-10

CP1-30L-10

CP3-10Y-10

CP3-30G-10

CP11-10W-10

Description	Factory code	Order code
Flush pushbutton		
Momentary		
2 NO	1SFA619100R102□	CP1-10■-20
2 NC	1SFA619100R105□	CP1-10■-02
1 NO +1 NC	1SFA619100R107□	CP1-10■-11
Maintained		
2 NO	1SFA619101R102□	CP2-10■-20
2 NC	1SFA619101R105□	CP2-10■-02
1 NO +1 NC	1SFA619101R107□	CP2-10■-11
Extended pushbutton		
Momentary		
2 NO	1SFA619102R102□	CP3-10■-20
2 NC	1SFA619102R105□	CP3-10■-02
1 NO +1 NC	1SFA619102R107□	CP3-10■-11
Maintained		
2 NO	1SFA619103R102□	CP4-10■-20
2 NC	1SFA619103R105□	CP4-10■-02
1 NO +1 NC	1SFA619103R107□	CP4-10■-11
Flush pushbutton		
Momentary, white button marked with I (black)		
1 NO	1SFA619110R1015	CP11-10W-10
Momentary, white button with II (black)		
1 NO	1SFA619120R1015	CP12-10W -10
Extended pushbutton		
Momentary, black button with O (white)		
1 NC	1SFA619132R1046	CP33-10B-01

Bezel

Accessories

Bezel options, how to order		
Black plastic – standard	1SFA61910XR10XX	CP(X)-10X-XX
Chrome metal – replace '1' with '3' in type and order codes	1SFA61910XR30XX	CP(X)-30X-XX

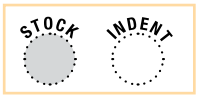
Mushroom pushbuttons

CPM3-10R-11

CPM3-10L-11

Description		Factory code	Order code
● Red	1 NO + 1 NC	1SFA619126R1071	CPM3-10R-11
● Green	1 NO + 1 NC	1SFA619126R1072	CPM3-10G-11
● Yellow	1 NO + 1 NC	1SFA619126R1073	CPM3-10Y-11
● Blue	1 NO + 1 NC	1SFA619126R1074	CPM3-10L-11
● Black	1 NO + 1 NC	1SFA619126R1076	CPM3-10B-11

Note: All mushroom pushbuttons are momentary. For maintained functions see machine stops or emergency stops



Illuminated pushbuttons
Flush and extended

Colours	● Red	● Green	● Yellow	● Blue	○ Clear
Replace ■ in Order code with	R	G	Y	L	C
Replace □ in Factory code with	1	2	3	4	8

CP1-11L-10

CP1-31R-10

CP1-31Y-10

CP1-31C-10

CP3-11G-01

CP3-31Y-01

Description	Factory code	Order code
Flush pushbutton		
Rated voltage 24 V AC/DC		
Momentary		
1 NC	1SFA619100R114□	CP1-11■-01
1 NO	1SFA619100R111□	CP1-11■-10
Maintained		
1 NC	1SFA619101R114□	CP2-11■-01
1 NO	1SFA619101R111□	CP2-11■-10
Rated voltage 110 – 130 V AC/DC		
Momentary		
1 NC	1SFA619100R124□	CP1-12■-01
1 NO	1SFA619100R121□	CP1-12■-10
Maintained		
1 NC	1SFA619101R124□	CP2-12■-01
1 NO	1SFA619101R121□	CP2-12■-10
Rated voltage 220 V AC/DC		
Momentary		
1 NC	1SFA619100R134□	CP1-13■-01
1 NO	1SFA619100R131□	CP1-13■-10
Maintained		
1 NC	1SFA619101R134□	CP2-13■-01
1 NO	1SFA619101R131□	CP2-13■-10
Extended pushbutton		
Rated voltage 24 V AC/DC		
Momentary		
1 NC	1SFA619102R114□	CP3-11■-01
1 NO	1SFA619102R111□	CP3-11■-10
Maintained		
1 NC	1SFA619103R114□	CP4-11■-01
1 NO	1SFA619103R111□	CP4-11■-10
Rated voltage 110 – 130 V AC/DC		
Momentary		
1 NC	1SFA619102R124□	CP3-12■-01
1 NO	1SFA619102R121□	CP3-12■-10
Maintained		
1 NC	1SFA619103R124□	CP4-12■-01
1 NO	1SFA619103R121□	CP4-12■-10
Rated voltage 220 V AC/DC		
Momentary		
1 NC	1SFA619102R134□	CP3-13■-01
1 NO	1SFA619102R131□	CP3-13■-10
Maintained		
1 NC	1SFA619103R134□	CP4-13■-01
1 NO	1SFA619103R131□	CP4-13■-10

Bezel

Accessories

Bezel options, how to order		
Black plastic – standard	1SFA61910XR10XX	CP(X)-10X-XX
Chrome metal – replace '1' with '3' in type and order codes	1SFA61910XR30XX	CP(X)-30X-XX

STOCK INDENT

Pilot lights with integrated LED

Colours	● Red	● Green	● Yellow	● Blue	○ Clear
Replace ■ in Order code with	R	G	Y	L	C
Replace □ in Factory code with	1	2	3	4	8

CL2-501R

CL2-501L

Pilot lights with integrated LED

Description	Factory code	Order code
Rated voltage 6.3 V DC [1]	1SFA619403R506□	CL2-506■
Rated voltage 12 V DC [1]	1SFA619403R501□	CL2-501■
Rated voltage 24 V AC/DC	1SFA619403R502□	CL2-502■
Rated voltage 48 – 60 V AC/DC	1SFA619403R507□	CL2-507■
Rated voltage 110 – 130 V AC	1SFA619403R513□	CL2-513■
Rated voltage 110 – 130 V DC [1]	1SFA619403R515□	CL2-515■
Rated voltage 220 V DC [1]	1SFA619403R520□	CL2-520■
Rated voltage 230 V AC	1SFA619402R523□	CL2-523■
Rated voltage 230 V AC with 60 V anti-inductive voltage	1SFA619403R623□	CL2-623■
Rated voltage 380 – 415 V AC	1SFA619403R542□	CL2-542■

Note:

1) Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product. For information on rated current, wavelength and luminance – please refer to the technical catalogue.

9

STOCK INDENT

Selector switches
2- and 3-position, non-illuminated

Colours	● Red	● Black*	● Grey
Replace ■ in Order code with	R	B	U
Replace ☐ in Factory code with	1	6	7

***Note:** Black is stocked in 2 NO configuration

C2SS1-10R-20

C2SS1-10B-02

C2SS1-30U-11

2-position

Description		Factory code	Order code
Maintained			
	2 NO	1SFA619200R102☐	C2SS1-10■-20
	2 NC	1SFA619200R105☐	C2SS1-10■-02
	1 NO +1 NC	1SFA619200R107☐	C2SS1-10■-11
Maintained			
	2 NO	1SFA619201R102☐	C2SS2-10■-20
	2 NC	1SFA619201R105☐	C2SS2-10■-02
	1 NO +1 NC	1SFA619201R107☐	C2SS2-10■-11
Momentary			
	2 NO	1SFA619202R102☐	C2SS3-10■-20
	2 NC	1SFA619202R105☐	C2SS3-10■-02
	1 NO +1 NC	1SFA619202R107☐	C2SS3-10■-11

C3SS1-10R-20

C3SS1-10B-02

C3SS1-30U-11

3-position

Description		Factory code	Order code
Maintained			
	2 NO	1SFA619210R102☐	C3SS1-10■-20
	2 NC	1SFA619210R105☐	C3SS1-10■-02
	1 NO +1 NC	1SFA619210R107☐	C3SS1-10■-11
Momentary			
	2 NO	1SFA619211R102☐	C3SS2-10■-20
	2 NC	1SFA619211R105☐	C3SS2-10■-02
	1 NO +1 NC	1SFA619211R107☐	C3SS2-10■-11
Momentary			
	2 NO	1SFA619212R102☐	C3SS3-10■-20
	2 NC	1SFA619212R105☐	C3SS3-10■-02
	1 NO +1 NC	1SFA619212R107☐	C3SS3-10■-11
Momentary			
	2 NO	1SFA619216R102☐	C3SS7-10■-20
	2 NC	1SFA619216R105☐	C3SS7-10■-02
	1 NO +1 NC	1SFA619216R107☐	C3SS7-10■-11

Bezel

Accessories

Bezel options, how to order		
Black plastic – standard	1SFA619XXXR10XX	C(X)SS(X)-10X-XX
Chrome metal – replace '1' with '3' in type and order codes	1SFA619XXXR30XX	C(X)SS(X)-30X-XX

STOCK INDENT

Emergency stops
Non-illuminated

CE3T-10R-01

CE3P-10R-02

Ø 30 mm

Description	Factory code	Order code
Twist release		
2 NC	1SFA619500R1051	CE3T-10R-02
1 NO + 1 NC	1SFA619500R1071	CE3T-10R-11
Pull release		
2 NC	1SFA619501R1051	CE3P-10R-02
1 NO + 1NC	1SFA619501R1071	CE3P-10R-11
Key release, ronis 455, key code 71		
2 NC	1SFA619502R1051	CE3K1-10R-02
1 NO +1 NC	1SFA619502R1071	CE3K1-10R-11

CE4T-10R-01

CE4K1-10R-02

Ø 40 mm

Description	Factory code	Order code
Twist release		
2 NC	1SFA619550R1051	CE4T-10R-02
1 NO + NC	1SFA619550R1071	CE4T-10R-11
Pull release		
2 NC	1SFA619551R1051	CE4P-10R-02
1 NO + 1 NC	1SFA619551R1071	CE4P-10R-11
Key release, ronis 455, key code 71		
2 NC	1SFA619552R1051	CE4K1-10R-02
1 NO +1 NC	1SFA619552R1071	CE4K1-10R-11

Machine stops
Non-illuminated

CE3T-10B-11

CE3P-10B-11

Ø 30 mm

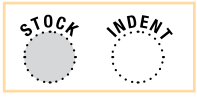
Description	Factory code	Order code
Twist release		
1 NO +1 NC	1SFA619500R1076	CE3T-10B-11
Pull release		
1 NO +1 NC	1SFA619501R1076	CE3P-10B-11
Key release, ronis 455, key code 71		
1 NO +1 NC	1SFA619502R1076	CE3K1-10B-11

CE4P-10B-11

CE4K1-10B-11

Ø 40 mm

Description	Factory code	Order code
Twist release		
1 NO +1 NC	1SFA619550R1076	CE4T-10B-11
Pull release		
1 NO +1 NC	1SFA619551R1076	CE4P-10B-11
Key release, ronis 455, key code 71		
1 NO +1 NC	1SFA619552R1076	CE4K1-10B-11



Buzzers

CB1-600G

CB1-610R

CB1-610Y

CB1-620B

Illuminated

Description	Lights and sound output	Rated current mA	Luminance mcd	Factory code	Order code
Rated voltage 24 V AC/DC					
● Green	Continuous	48	126	1SFA619600R6002	CB1-600G
● Red	Pulsation	53	60	1SFA619600R6101	CB1-610R
● Yellow	Pulsation	53	60	1SFA619600R6103	CB1-610Y
Rated voltage 110 – 130 V AC					
● Green	Continuous	55	126	1SFA619600R6012	CB1-601G
● Red	Pulsation	70	60	1SFA619600R6111	CB1-611R
● Yellow	Pulsation	70	60	1SFA619600R6113	CB1-611Y
Rated voltage 110 – 130 V DC					
● Green	Continuous	15	126	1SFA619600R6022	CB1-602G
● Red	Pulsation	15	60	1SFA619600R6121	CB1-612R
● Yellow	Pulsation	15	60	1SFA619600R6123	CB1-612Y
Rated voltage 230 V AC					
● Green	Continuous	55	126	1SFA619600R6032	CB1-603G
● Red	Pulsation	70	60	1SFA619600R6131	CB1-613R
● Yellow	Pulsation	70	60	1SFA619600R6133	CB1-613Y

Non-illuminated

Description	Lights and sound output	Rated current mA	Luminance mcd	Factory code	Order code
Rated voltage 24 V AC/DC					
● Black	Continuous	40	–	1SFA619600R6206	CB1-620B
● Black	Pulsation	48	–	1SFA619600R6306	CB1-630B
Rated voltage 110 – 130 V AC					
● Black	Continuous	40	–	1SFA619600R6216	CB1-621B
● Black	Pulsation	48	–	1SFA619600R6316	CB1-631B
Rated voltage 110 – 130 V DC					
● Black	Continuous	15	–	1SFA619600R6226	CB1-622B
● Black	Pulsation	15	–	1SFA619600R6326	CB1-632B
Rated voltage 230 V AC					
● Black	Continuous	40	–	1SFA619600R6236	CB1-623B
● Black	Pulsation	40	–	1SFA619600R6336	CB1-633B

Heavy duty pushbuttons

CP6-10R

CP6-10G

CP6-10B

Colours	● Red	● Green	● Black
Replace ■ in Order code with	R	G	B
Replace □ in Factory code with	1	2	6

Heavy duty pushbutton

Description	Factory code	Order code
2NO	1SFA619105R102□	CP6-10■-20
2NC	1SFA619105R105□	CP6-10■-02
1NO+1NO	1SFA619105R107□	CP6-10■-11

STOCK INDENT

Accessories for compact range

Light diffusing lens

Description	Factory code	Order code
Light diffusing lens	1SFA616920R8005	KA1-8005

Note: To improve illumination. Cannot be used with Text cap. The lens is used instead of Text cap

MA1-8015

MA1-8149

Mounting tool

Description	Factory code	Order code
Used for tightening the Locking nut	1SFA611920R8015	MA1-8015
Mounting tool for power tool	1SFA611920R8149	MA1-8149

CA1-8080

DIN-rail adaptor

Description	Factory code	Order code
DIN-rail adaptor	1SFA619920R8080	CA1-8080
Dummy block	1SFA611630R1002	MDB-2

Note: Two dummy blocks are included with the DIN-rail adaptor to make it possible to mount any compact device

Adaptors 30 mm

Description	Factory code	Order code
Black plastic	1SFA616920R8029	KA1-8029
Metal	1SFA616920R8030	KA1-8030

Note: For use when fitting the 22 mm pilot devices in 30 mm mounting holes (1.5 – 4 mm panels)
For use with pushbuttons, selector switches, emergency stop pushbutton and pilot lights

KA1-80..

Adaptors

Description	Factory code	Order code
For flush mounted pushbutton	1SFA616920R8073	KA1-8073
For flush mounted selector switches	1SFA619920R8075	CA1-8075

Membrane

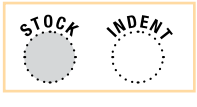
Description	Factory code	Order code
Flush button	1SFA611920R8052	MA1-8052
Extended button	1SFA616920R8002	MA1-8002

Note: Made of transparent, heat and cold resistant silicon rubber. Does not harden at low temperature. Remove the gasket when using membrane.

Protective ring

Description	Factory code	Order code
Protective ring	–	SK615512-1

Note: For flush and extended pushbutton to prevent inadvertent operation. Cannot be used together with Legend plate holder.



Accessories for compact range

KA1-8010

Protective cover

Description	Factory code	Order code
Protective cover	1SFA616920R8010	KA1-8010

Note: For flush pushbutton. To prevent accidental operation. Cannot be used together with Legend plate holder.

Button

Description	Factory code	Order code
Grey flush	1SFA616920R8087	KA1-8087
Grey extended	1SFA616920R8097	KA1-8097

Bezel

Bezel

Description	Factory code	Order code
For pushbuttons		
Black plastic	1SFA616920R8022	KA1-8022
Chrome metal	1SFA616920R8021	KA1-8021
For selector switches		
Black plastic	1SFA619920R8077	CA1-8077
Chrome metal	1SFA619920R8078	CA1-8078

MA1-8124

Square bezel

Description	Factory code	Order code
Black plastic	–	SK616016-2
Grey plastic	1SFA611920R8124	MA1-8124

MA1-81...

Blanking plug

Description	Factory code	Order code
Light grey	1SFA611920R8136	MA1-8136
Grey	1SFA611920R8129	MA1-8129
Black	1SFA611920R8130	MA1-8130

MA1-8153

MA1-8152

Shroud for pushbuttons

Description	Factory code	Order code
Lockable shroud	1SFC611920R8153	MA1-8153
Touch guard	1SFC611920R8152	MA1-8152

Note: Touch guard for modular and compact pushbutton. Lockable shroud for modular and compact pushbuttons and selector switches

Extra key

Description	Factory code	Order code
Key code 71 = ronis 455	–	SK616021-71

STOCK INDENT

Modular range
Contact block combinations

Pushbuttons and mushrooms

Double pushbuttons

Emergency stops

Selector switches

Toggles

Pilot lights

Joysticks

9

Pushbuttons

Colours	● Red	● Green	● Yellow	● Blue	○ White	● Black	● Grey	○ Clear
Replace ■ in Order code with	R	G	Y	L	W	B	U	C
Replace □ in Factory code with	1	2	3	4	5	6	7	8

MP1-10R

MP1-30Y

MP1-10G

MP1-30W

MP3-10L

MP3-30B

How to order non-illuminated pushbutton:

Alt.1 operator (with locking nut) + holder + contact block(s)
Alt.2 operator (with locking nut) + holder with contact block(s)

Description	Factory code	Order code
Flush pushbutton *(Available in: red, green, yellow, blue, white, black, clear)*		
Momentary	1SFA611100R100□	MP1-10■
Maintained	1SFA611101R100□	MP2-10■
Extended pushbutton *(Available in: red, green, yellow, blue, white, black, clear)*		
Momentary	1SFA611102R100□	MP3-10■
Maintained	1SFA611103R100□	MP4-10■

How to order illuminated pushbutton:

Operator (with locking nut) + holder + contact block(s) + LED block

MP1-11R

MP1-31Y

MP3-11L

MP3-31G

Description	Factory code	Order code
Illuminated flush pushbutton *(Available in: red, green, yellow, blue, white, clear)*		
Momentary	1SFA611100R110□	MP1-11■
Maintained	1SFA611101R110□	MP2-11■

Note: Light bulb max 2 W, not included

Description	Factory code	Order code
Illuminated extended pushbutton *(Available in: red, green, yellow, blue, white, clear)*		
Momentary	1SFA611102R110□	MP3-11■
Maintained	1SFA611103R110□	MP4-11■

Note: Light bulb max 2 W, not included

Accessories

Bezel

Description	Factory code	Order code
Bezel options - how to order		
Black plastic – standard	1SFA61110XR1XXX	MPX-10X
Chrome plastic – replace '1' with '2' in Factory and Order codes	1SFA61110XR2XXX	MPX-20X
Chrome metal	1SFA61110XR3XXX	MPX-30X

STOCK INDENT

Double pushbuttons

MPD2-11B

MPD12-11B

MPD3-11B

MPD16-11B

MA1-8138

How to order:

Alt.1 operator + holder + contact blocks
Alt.2 operator + holder with contact blocks

Flush pushbutton

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611130R1106	MPD1-11B
I	O	1SFA611131R1106	MPD2-11B
ON	OFF	1SFA611132R1106	MPD3-11B
START	STOP	1SFA611133R1106	MPD4-11B
○ White	● Black		
No text	No text	1SFA611134R1106	MPD5-11B
Customer specific marking		1SFA611134L1106	MPD5-11B-L

Extended lower Pushbutton

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611141R1106	MPD12-11B
I	O	1SFA611142R1106	MPD13-11B
ON	OFF	1SFA611143R1106	MPD14-11B
START	STOP	1SFA611144R1106	MPD15-11B
○ White	● Black		
No text	No text	1SFA611145R1106	MPD16-11B
Customer specific marking		1SFA611145L1106	MPD16-11B-L

Accessories

Description	Factory code	Order code
Legend plate holder		
2-position	1SFA611920R8138	MA1-8138

9

STOCK INDENT

Double pushbuttons
Illuminated

How to order:

Operator + holder + contact blocks + LED block

MPD2-11R

Red indicator light

Upper button	Lower button	Order code	Factory code
● Green	● Red		
No text	No text	1SFA611130R1101	MPD1-11R
I	O	1SFA611131R1101	MPD2-11R
ON	OFF	1SFA611132R1101	MPD3-11R
START	STOP	1SFA611133R1101	MPD4-11R
○ White	● Black		
No text	No text	1SFA611134R1101	MPD5-11R
Customer specific marking		1SFA611134L1101	MPD5-11R-L

MPD3-11G

Green indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611130R1102	MPD1-11G
I	O	1SFA611131R1102	MPD2-11G
ON	OFF	1SFA611132R1102	MPD3-11G
START	STOP	1SFA611133R1102	MPD4-11G
○ White	● Black		
No text	No text	1SFA611134R1102	MPD5-11G
Customer specific marking		1SFA611134L1102	MPD5-11G-L

MPD1-11Y

Yellow indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611130R1103	MPD1-11Y
I	O	1SFA611131R1103	MPD2-11Y
ON	OFF	1SFA611132R1103	MPD3-11Y
START	STOP	1SFA611133R1103	MPD4-11Y
○ White	● Black		
No text	No text	1SFA611134R1103	MPD5-11Y
Customer specific marking		1SFA611134L1103	MPD5-11Y-L

MPD5-11C

Clear indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611130R1108	MPD1-11C
I	O	1SFA611131R1108	MPD2-11C
ON	OFF	1SFA611132R1108	MPD3-11C
START	STOP	1SFA611133R1108	MPD4-11C
○ White	● Black		
No text	No text	1SFA611134R1108	MPD5-11C
Customer specific marking		1SFA611134L1108	MPD5-11C-L

MA1-8138

Accessories

Description	Factory code	Order code
Legend plate holder		
2-position	1SFA611920R8138	MA1-8138

STOCK INDENT

Double pushbuttons
Illuminated, extended lower button

MPD13-11R

MPD14-11G

MPD12-11Y

MPD15-11C

MA1-8138

How to order:

Operator + holder + contact blocks + LED block

Red indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611141R1101	MPD12-11R
I	O	1SFA611142R1101	MPD13-11R
ON	OFF	1SFA611143R1101	MPD14-11R
START	STOP	1SFA611144R1101	MPD15-11R
○ White	● Black		
No text	No text	1SFA611145R1101	MPD16-11R
Customer specific marking		1SFA611145L1101	MPD16-11R-L

Green indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611141R1102	MPD12-11G
I	O	1SFA611142R1102	MPD13-11G
ON	OFF	1SFA611143R1102	MPD14-11G
START	STOP	1SFA611144R1102	MPD15-11G
○ White	● Black		
No text	No text	1SFA611145R1102	MPD16-11G
Customer specific marking		1SFA611145L1102	MPD16-11G-L

Yellow indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611141R1103	MPD12-11Y
I	O	1SFA611142R1103	MPD13-11Y
ON	OFF	1SFA611143R1103	MPD14-11Y
START	STOP	1SFA611144R1103	MPD15-11Y
○ White	● Black		
No text	No text	1SFA611145R1103	MPD16-11Y
Customer specific marking		1SFA611145L1103	MPD16-11Y-L

Clear indicator light

Upper button	Lower button	Factory code	Order code
● Green	● Red		
No text	No text	1SFA611141R1108	MPD12-11C
I	O	1SFA611142R1108	MPD13-11C
ON	OFF	1SFA611143R1108	MPD14-11C
START	STOP	1SFA611144R1108	MPD15-11C
○ White	● Black		
No text	No text	1SFA611145R1108	MPD16-11C
Customer specific marking		1SFA611145L1108	MPD16-11C-L

Accessories

Description	Factory code	Order code
Legend plate holder		
2-position	1SFA611920R8138	MA1-8138

Mushroom pushbuttons
Illuminated*

Colours	● Red	● Green	● Yellow
Replace ■ in Order code with	R	G	Y
Replace □ in Factory code with	1	2	3

MPM1-10B

MPM1-11G

MPM2-10Y

MPM2-11R

How to order illuminated:

Operator (with lockning nut) + holder + contact block(s) + LED block

Illuminated

Description	Factory code	Order code
Ø 40 mm available in: red, green, yellow	1SFA611124R110□	MPM1-11■
Ø 60 mm available in: red, yellow	1SFA611125R110□	MPM2-11■

Note: Light bulb max 2 W, not included

*Non-illuminated also available. Please see technical catalogue.

Pilot lights

Colours	● Red	● Green	● Yellow	● Blue	○ White	○ Clear
Replace ■ in Order code with	R	G	Y	L	W	C
Replace □ in Factory code with	1	2	3	4	5	8

9

ML1-100R

ML1-100G

ML1-100Y

ML1-100L

ML1-100C

How to order:

Alt.1 Indicator + holder + LED block
Alt.2 Indicator + holder + LED block + lens: used together with LED to improve light diffusion (Cannot be used together with text cap)

Pilot light

Description	Factory code	Order code
Pilot light	1SFA611400R100□	ML1-100■

Note: Light source not included. Bulbs and lamp blocks or LED blocks – See Accessories.

Accessories

Description	Factory code	Order code
Lens		
Light diffusing lens	1SFA616920R8005	KA1-8005

Note: Light diffusing lens is used to improve illumination of LED bulbs. Cannot be used together with text cap.

STOCK INDENT

Emergency stop pushbuttons
Non-illuminated, illuminated

MPET3-10R

MPEK3-11R

MPET4-10R

MPEP4-10R

MPMT4-10R

MPMP4-10R

How to order non-illuminated:

Alt.1 operator + holder + contact block(s)
Alt.2 operator + holder with contact block(s)

Non-illuminated

Description		Factory code	Order code
Ø 30 mm			
● Red	Twist release	1SFA611520R1001	MPET3-10R
● Red	Pull release	1SFA611521R1001	MPEP3-10R
● Red	Key release code 71/ronis 455	1SFA611522R1101	MPEK3-11R
● Red	Key release code 72/ronis 421	1SFA611522R1201	MPEK3-12R
● Red	Key release code 73/ronis 3433-E	1SFA611522R1301	MPEK3-13R
Ø 40 mm			
● Red	Twist release	1SFA611523R1001	MPET4-10R
● Red	Pull release	1SFA611524R1001	MPEP4-10R
● Red	Key release code 71/ronis 455	1SFA611525R1101	MPEK4-11R
● Red	Key release code 72/ronis 421	1SFA611525R1201	MPEK4-12R
● Red	Key release code 73/ronis 3433-E	1SFA611525R1301	MPEK4-13R
Ø 60 mm			
● Red	Twist release	1SFA611513R1001	MPMT4-10R
● Red	Pull release	1SFA611514R1001	MPMP4-10R

How to order illuminated:

Operator + holder + contact block(s) + LED block

MPMP3-11R

MPMT3-11R

Illuminated

Description		Factory code	Order code
Ø 40 mm			
● Red	Twist release	1SFA611510R1101	MPMT3-11R
● Red	Pull release	1SFA611511R1101	MPMP3-11R
Ø 60 mm			
● Red	Twist release	1SFA611513R1101	MPMT4-11R
● Red	Pull release	1SFA611514R1101	MPMP4-11R

Note: Light bulb max 2 W, not included

Selector switches
2-position

Colours	● Red	● Green	● Yellow	● Blue	● Black	● Grey	○ Clear
Replace ■ in Order code with	R	G	Y	L	B	U	C
Replace ☐ in Factory code with	1	2	3	4	6	7	8

How to order non-illuminated:

Alt.1 operator + holder + contact block(s)
Alt.2 operator + holder with contact block(s)

M2SS1-10B

M2SS1-10R

M2SS4-30B

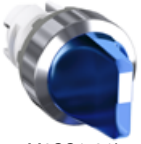
M2SS4-30U

Non-illuminated

Description		Factory code	Order code
Short handle available in: red, black, grey			
	Maintained	1SFA611200R100☐	M2SS1-10■
	Maintained	1SFA611201R100☐	M2SS2-10■
	Momentary, spring return from C to B	1SFA611202R100☐	M2SS3-10■
Long handle available in: red, black, grey			
	Maintained	1SFA611203R100☐	M2SS4-10■
	Maintained	1SFA611204R100☐	M2SS5-10■
	Momentary, spring return from C to B	1SFA611205R100☐	M2SS6-10■

How to order illuminated:

Operator + holder + contact block(s) + LED block


M2SS1-31L

M2SS1-11C

M2SS4-31R

M2SS4-11G

Illuminated

Description		Factory code	Order code
Short handle available in: red, green, yellow, blue, clear			
	Maintained	1SFA611200R110☐	M2SS1-11■
	Maintained	1SFA611201R110☐	M2SS2-11■
	Momentary, spring return from C to B	1SFA611202R110☐	M2SS3-11■
Long handle available in: red, green, yellow, blue, clear			
	Maintained	1SFA611203R110☐	M2SS4-11■
	Maintained	1SFA611204R110☐	M2SS5-11■
	Momentary, spring return from C to B	1SFA611205R110☐	M2SS6-11■

Note: Light bulb max 2 W, not included

Bezel

Accessories

Description	Factory code	Order code
Bezel options, how to order		
Black plastic – standard	1SFA61120XR**1**0XX	M2SS(X)-**1**0X
Chrome metal – replace '**1**' with '**3**' in type and order codes	1SFA61120XR**3**0XX	M2SS(X)-**3**0X

STOCK INDENT

Selector switches
3-position

Colours	● Red	● Green	● Yellow	● Blue	● Black	● Grey	○ Clear
Replace ■ in Order code with	R	G	Y	L	B	U	C
Replace □ in Factory code with	1	2	3	4	6	7	8

How to order non-illuminated:

Alt.1 operator + holder + contact block(s)
Alt.2 operator + holder with contact block(s)

M3SS1-10B

M3SS1-10R

M3SS4-30B

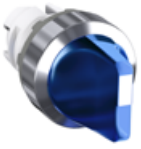
M3SS4-30U

Non-illuminated

Description		Factory code	Order code
Short handle available in: red, black, grey			
	Maintained	1SFA611210R100□	M3SS1-10■
	Momentary, spring return from A to B and from C to B	1SFA611211R100□	M3SS2-10■
	Momentary, spring return from C to B	1SFA611212R100□	M3SS3-10■
	Momentary, spring return from A to B	1SFA611216R100□	M3SS7-10■
Long handle available in: red, black, grey			
	Maintained	1SFA611213R100□	M3SS4-10■
	Momentary, spring return from A to B and from C to B	1SFA611214R100□	M3SS5-10■
	Momentary, spring return from C to B	1SFA611215R100□	M3SS6-10■
	Momentary, spring return from A to B	1SFA611217R100□	M3SS8-10■

How to order illuminated:

Operator + holder + contact block(s) + LED block


M3SS1-31L

M3SS1-11C

M3SS4-31R

M3SS4-11G

Illuminated

Description		Factory code	Order code
Short handle available in: red, green, yellow, blue, clear			
	Maintained	1SFA611210R110□	M3SS1-11■
	Momentary, spring return from A to B and from C to B	1SFA611211R110□	M3SS2-11■
	Momentary, spring return from C to B	1SFA611212R110□	M3SS3-11■
	Momentary, spring return from A to B	1SFA611216R110□	M3SS7-11■
Long handle available in: red, green, yellow, blue, clear			
	Maintained	1SFA611213R110□	M3SS4-11■
	Momentary, spring return from A to B and from C to B	1SFA611214R110□	M3SS5-11■
	Momentary, spring return from C to B	1SFA611215R110□	M3SS6-11■
	Momentary, spring return from A to B	1SFA611217R110□	M3SS8-11■

Note: Light bulb max 2 W, not included

Bezel

Accessories

Description	Factory code	Order code
Bezel options, how to order		
Black plastic – standard	1SFA6112XXR10XX	M3SS(X)-10X
Chrome metal – replace '1' with '3' in type and order codes	1SFA6112XXR30XX	M3SS(X)-30X

STOCK INDENT

Selector switches
3 and 4-position

M3SS1-10B

M3SSC4-30B

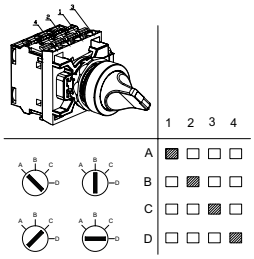
How to order 3-position with operation of centre position:

Alt.1 operator + holder + contact block(s)
Alt.2 operator + holder with contact block(s)

Description		Factory code	Order code
Short handle			
	Maintained	1SFA611250R1006	M3SSC1-10B*
	Momentary, spring return from A to B and from C to B	1SFA611251R1006	M3SSC2-10B*
	Momentary, spring return from C to B	1SFA611252R1006	M3SSC3-10B*
	Momentary, spring return from A to B	1SFA611256R1006	M3SSC7-10B
Long handle			
	Maintained	1SFA611253R1006	M3SSC4-10B*
	Momentary, spring return from A to B and from C to B	1SFA611254R1006	M3SSC5-10B
	Momentary, spring return from C to B	1SFA611255R1006	M3SSC6-10B
	Momentary, spring return from A to B	1SFA611257R1006	M3SSC8-10B

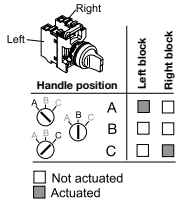
Note: * Version with black plastic bevel is stocked

Contacts actuated



Colours	● Red	● Black
Replace ■ in Order code with	R	B
Replace □ in Factory code with	1	6

Contacts actuated



How to order 4-position:

Alt.1 operator + holder + contact block(s)
Alt.2 operator + holder with contact block(s)

Description		Factory code	Order code
Short handle			
	Maintained	1SFA611290R400□	M4SS1-10■*
Long handle			
	Maintained	1SFA611291R400□	M4SS2-10■*

Note: * Black version is stocked

Accessories

Bezel

Description	Factory code	Order code
Bezel options, how to order		
Black plastic – standard	1SFA61125XR1006	M3SSC(X)-10B
Chrome metal – replace '1' with '3' in type and order codes	1SFA61125XR3006	M3SSC(X)-30B

STOCK INDENT

Key-operated selector switches
2 and 3-positions

M2SSK1-101

How to order 2-positions:

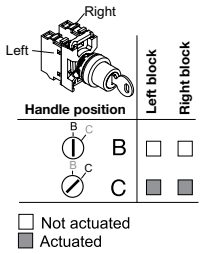
Alt.1 operator + holder + contact block(s)
Alt.2 operator + holder with contact block(s)

2-positions

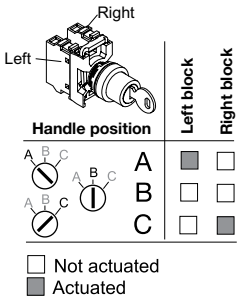
Description		Factory code	Order code
Maintained (The key can be removed in both positions)			
	Key release code 71/ronis 455	1SFA611280R1001	M2SSK1-101*
	Key release code 72/ronis 421	1SFA611280R1002	M2SSK1-102*
	Key release code 73/ronis 3433-E	1SFA611280R1003	M2SSK1-103*
	Random selection *	1SFA611280R1004	M2SSK1-104
Maintained (The key can be removed in position B only)			
	Key release code 71/ronis 455	1SFA611281R1001	M2SSK2-101*
	Key release code 72/ronis 421	1SFA611281R1002	M2SSK2-102
	Key release code 73/ronis 3433-E	1SFA611281R1003	M2SSK2-103
	Random selection *	1SFA611281R1004	M2SSK2-104
Momentary, spring return from C to B (The key can be removed in position B only)			
	Key release code 71/ronis 455	1SFA611282R1001	M2SSK3-101*
	Key release code 72/ronis 421	1SFA611282R1002	M2SSK3-102
	Key release code 73/ronis 3433-E	1SFA611282R1003	M2SSK3-103
	Random selection *	1SFA611282R1004	M2SSK3-104

Note: * Version with black plastic bevel is stocked

Contacts actuated



Contacts actuated



How to order 3-positions:

Alt.1 operator + holder + contact block(s)
Alt.2 operator + holder with contact block(s)

3-positions

Description		Factory code	Order code
Maintained (The key can be removed in all positions)			
	Key release code 71/ronis 455	1SFA611283R1001	M3SSK1-101*
	Key release code 72/ronis 421	1SFA611283R1002	M3SSK1-102
	Key release code 73/ronis 3433-E	1SFA611283R1003	M3SSK1-103
	Random selection**	1SFA611283R1004	M3SSK1-104
Maintained (The key can be removed in position B only)			
	Key release code 71/ronis 455	1SFA611284R1001	M3SSK2-101*
	Key release code 72/ronis 421	1SFA611284R1002	M3SSK2-102
	Key release code 73/ronis 3433-E	1SFA611284R1003	M3SSK2-103
	Random selection**	1SFA611284R1004	M3SSK2-104
Momentary, spring return from A to B and from C to B (The key can be removed in position B only)			
	Key release code 71/ronis 455	1SFA611285R1001	M3SSK3-101*
	Key release code 72/ronis 421	1SFA611285R1002	M3SSK3-102
	Key release code 73/ronis 3433-E	1SFA611285R1003	M3SSK3-103
	Random selection**	1SFA611285R1004	M3SSK3-104

Note: * Version with black plastic bevel is stocked
** 25 randomly picked unique key codes. (Key codes 71,72 and 73 not included)

Bezel

Accessories

Description	Factory code	Order code
Bezel options, how to order		
Black plastic – standard	1SFA61128XR100X	M3SSK(X)-10X
Chrome metal – replace '1' with '3' in type and order codes	1SFA61128XR300X	M3SSK(X)-30X

STOCK INDENT

Potentiometers

MT-105B

Complete potentiometers

Description	Factory code	Order code
Black knob with integrated position indication and marking in white		
With resistor 5 kohm		
Black plastic bezel	1SFA611410R1056	MT-105B
Chrome metal bezel	1SFA611410R3056	MT-305B
With resistor 10 kohm		
Black plastic bezel	1SFA611410R1106	MT-110B
Chrome metal bezel	1SFA611410R3106	MT-310B
With resistor 50 kohm		
Black plastic bezel	1SFA611410R1506	MT-150B
Chrome metal bezel	1SFA611410R3506	MT-350B

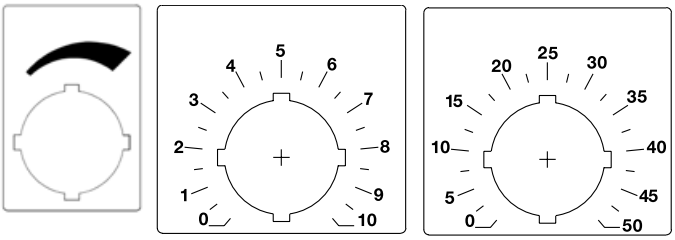
Knob without resistor

Black knob with integrated position indication and marking in white.
For shaft diameter 6 –6.35 mm.
Min. shaft length 20 mm.

Description	Factory code	Order code
Black plastic bezel	1SFA616410R1006	KT-100B
Chrome metal bezel	1SFA616410R3006	KT-300B

Legend plates aluminium

Description		Factory code	Order code
Symbol: see fig.	(29.6 x 44.5 mm)	–	SK615562-87
Scale: 0–10	(48.5 x 44.5 mm)	–	SK615562-88
Scale: 0–50	(48.5 x 44.5 mm)	–	1SFA611930R1252



STOCK INDENT

Reset pushbuttons

KPR1-103G

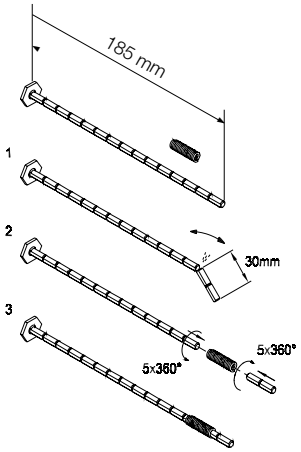
KPR1-101L

KPR1-304B

KPR3-100Y

KPR3-101L

KPR3-104B



Bezel

Reset pushbuttons

Description	Text	Factory code	Order code
Flush button			
● Red	No text	1SFA616160R1001	KPR1-100R
● Green	No text	1SFA616160R1002	KPR1-100G
	II	1SFA616160R1032	KPR1-103G
● Yellow	No text	1SFA616160R1003	KPR1-100Y
● Blue	No text	1SFA616160R1004	KPR1-100L
	R	1SFA616160R1014	KPR1-101L
○ White	No text	1SFA616160R1005	KPR1-100W
	R	1SFA616160R1015	KPR1-101W
	I	1SFA616160R1025	KPR1-102W
	II	1SFA616160R1035	KPR1-103W
● Black	No text	1SFA616160R1006	KPR1-100B
	RESET	1SFA616160R1046	KPR1-104B
Extended button			
● Red	No text	1SFA616161R1001	KPR2-100R
	0	1SFA616161R1051	KPR2-105R
○ White	No text	1SFA616161R1005	KPR2-100W
● Black	No text	1SFA616161R1006	KPR2-100B
	0	1SFA616161R1056	KPR2-105B

Reset pushbutton with shaft (flexible joint not included)

Description	Text	Factory code	Order code
Flush button			
● Red	No text	1SFA616162R1001	KPR3-100R
● Green	No text	1SFA616162R1002	KPR3-100G
	II	1SFA616162R1032	KPR3-103G
● Yellow	No text	1SFA616162R1003	KPR3-100Y
● Blue	No text	1SFA616162R1004	KPR3-100L
	R	1SFA616162R1014	KPR3-101L
○ White	No text	1SFA616162R1005	KPR3-100W
	R	1SFA616162R1015	KPR3-101W
	I	1SFA616162R1025	KPR3-102W
● Black	No text	1SFA616162R1006	KPR3-100B
	RESET	1SFA616162R1046	KPR3-104B
Extended button			
● Red	No text	1SFA616163R1001	KPR4-100R
	0	1SFA616163R1051	KPR4-105R
○ White	No text	1SFA616163R1005	KPR4-100W
● Black	No text	1SFA616163R1006	KPR4-100B
	0	1SFA616163R1056	KPR4-105B

Accessories

Description	Factory code	Order code
Shaft		
Shaft	1SFA616920R8046	KA1-8046
Flexible joint	1SFA616920R8047	KA1-8047
Bezel options, how to order		
Black plastic – standard	1SFA61616XR100X	KPRX-10XX
Chrome metal – replace '1' with '3' in type and order codes	1SFA61616XR300X	KPRX-30XX

STOCK INDENT

Joysticks
IP67 and IP69K

MJS7-60B

How to order:

Operator (holder included) + contact blocks

Joystick

Description	Factory code	Order code
2-position maintained	1SFA611701R6006	MJS1-60B
2-position momentary	1SFA611702R6006	MJS2-60B
4-position maintained	1SFA611705R6006	MJS5-60B
4-position momentary	1SFA611706R6006	MJS6-60B

Joystick with latching function

Description	Factory code	Order code
2-position maintained	1SFA611707R6006	MJS7-60B
2-position momentary	1SFA611708R6006	MJS8-60B
4-position maintained	1SFA611711R6006	MJS11-60B
4-position momentary	1SFA611712R6006	MJS12-60B

Accessories

Description	Factory code	Order code
Legend plates		
2-position (1) (up - down)	1SFA611930R1240	MA6-1240
2-position (2) (right - left)	1SFA611930R1241	MA6-1241
4-position (3) (up - down - right - left)	1SFA611930R1242	MA6-1242
Legend plates holder		
4-position	1SFA611920R8137	MA1-8137
2-position	1SFA611920R3138	MA1-3138
Insert with symbol		
↑	1SFA611930R1065	MA6-1065

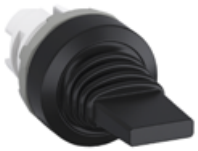
MA1-3138

MA1-8137

9

STOCK INDENT

Toggle switches
2 and 3-positions


MTS2-10B

How to order:

Alt.1 operator + holder + contact block(s)
Alt.2 operator + holder with contact block(s)

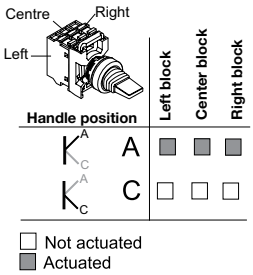
2-positions

Description	Bezel	Factory code	Order code
Maintained			
	Black plastic	1SFA611300R1006	MTS1-10B
	Chrome metal	1SFA611300R3006	MTS1-30B

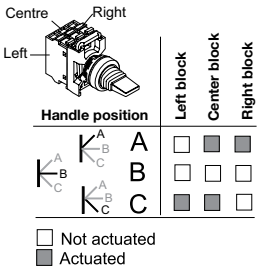
3-positions

Description	Bezel	Factory code	Order code
Momentary, spring return from A to B and from C to B			
	Black plastic	1SFA611301R1006	MTS2-10B
	Chrome metal	1SFA611301R3006	MTS2-30B
Maintained			
	Black plastic	1SFA611302R1006	MTS3-10B
	Chrome metal	1SFA611302R3006	MTS3-30B

Contacts actuated



Contacts actuated



9

STOCK INDENT

Accessories for modular range
LED blocks, front mounting

Colours	● Red	● Green	● Yellow	● Blue	○ White
Replace ■ in Order code with	R	G	Y	L	W
Replace ☐ in Factory code with	1	2	3	4	5

MLBL-00W

Description	Factory code	Order code
Rated voltage 12 V DC	1SFA611621R100☐	MLBL-00■
Rated voltage 24 V AC/DC	1SFA611621R101☐	MLBL-01■
Rated voltage 48 V AC/DC	1SFA611621R102☐	MLBL-02■
Rated voltage 60 V AC/DC	1SFA611621R103☐	MLBL-03■
Rated voltage 110 – 130 V AC	1SFA611621R104☐	MLBL-04■
Rated voltage 110 – 130 V DC	1SFA611621R105☐	MLBL-05■
Rated voltage 220 V DC	1SFA611621R106☐	MLBL-06■
Rated voltage 230 V AC	1SFA611621R107☐	MLBL-07■
Rated voltage 380 V AC/DC	1SFA611621R108☐	MLBL-08■
Rated voltage 415 V AC	1SFA611621R109☐	MLBL-09■

Note: Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product. For information on rated current, wavelength and luminance – please refer to the technical catalogue. Flashing LED bulbs also available in the technical catalogue.

9

STOCK INDENT

Accessories for modular range
Contact blocks and holder

MCBH-00

MCBH5-00

Holder

Description	Factory code	Order code
3-positions	1SFA611605R1100	MCBH-00
5-positions*	1SFA611601R1100	MCBH5-00

*** Note:** Double contact blocks are required on side positions

MCB-01

MCB-10

Single contact blocks for front mounting

Description	Factory code	Order code
1 NO	1SFA611610R1001	MCB-10
1 NC	1SFA611610R1010	MCB-01
1 NO with gold plated contacts	1SFA611610R1101	MCB-10G
1 NC with gold plated contacts	1SFA611610R1110	MCB-01G

MCBL-01

MCBL-10

Micro switch blocks

Description	Factory code	Order code
1 NO	1SFA611612R1010	MCBL-10
1 NC	1SFA611612R1001	MCBL-01

MCB-02

MCB-20

Double contact block for front mounting

Description	Factory code	Order code
2 NO	1SFA611610R1002	MCB-20
2 NC	1SFA611610R1020	MCB-02
1 NO + 1 NC	1SFA611610R1011	MCB-11

Note: To be used together with MCBH5-00 when contact blocks in position 4- and 5- are needed. Also when using MCBH-00 together with selector switch and contact block in position 3 is needed

Contact blocks with holder for front mounting, for non-illuminated operators

Description	Factory code	Order code
1 NC	1SFA611605R1110	MCBH-01
1 NO	1SFA611605R1101	MCBH-10
2 NC	1SFA611605R1120	MCBH-02
2 NO	1SFA611605R1102	MCBH-20
1 NO + 1 NC	1SFA611605R1111	MCBH-11

Accessories for modular range

MA1-8131

DIN-rail adaptor

Description	Factory code	Order code
DIN-rail adaptor	1SFA611920R8131	MA1-8131
DIN-rail (adaptor) kit with one dummy block	1SFA611920R8001	MA1-8001

Note: DIN-rail adaptor should be used with back mounted contactblocks

MDB-2

Dummy block

Description	Factory code	Order code
Dummy block	1SFA611630R1002	MDB-2

Note: Dummy blocks are used when only one contact block or a compact device is used together with the DIN-rail adaptor

KA1

30 mm adaptors for 22 mm operator (1.5–4 mm panels)

Description	Factory code	Order code
For emergency stop pushbutton		
Black plastic	1SFA616920R8027	KA1-8027
Chrome metal	1SFA616920R8028	KA1-8028
For pushbuttons, selector switches, pilot lights, potentiometers and buzzers		
Black plastic	1SFA616920R8029	KA1-8029
Chrome metal	1SFA616920R8030	KA1-8030
Flush mounted adaptors (metal)		
For pushbuttons	1SFA616920R8073	KA1-8073
For selector switches	1SFA611920R8074	MA1-8074

KA1-8072

Lamp changing tool

Description	Factory code	Order code
For LED and filament bulbs	1SFA616920R8072	KA1-8072

MA1-8015

MA1-8149

Mounting tool for operator

Description	Factory code	Order code
Mounting tool for tightening the locking nut	1SFA611920R8015	MA1-8015
Mounting tool for power tool	1SFA611920R8149	MA1-8149

MA1-8019

Locking nut

Description	Factory code	Order code
Locking nut	1SFA611920R8019	MA1-8019

Note: The locking nut can also be used with compact devices

Extra key

Description	Factory code	Order code
Ronis 455 (key code 71)	–	SK616021-71
Ronis 421 (key code 72)	–	SK616021-72
Ronis 3433-E (key code 73)	–	SK616021-73

STOCK INDENT

Accessories for modular range

MA1-8126

Protective membrane

Description	Factory code	Order code
For flush button	1SFA611920R8052	MA1-8052
For extended button	1SFA616920R8002	MA1-8002
For double pushbutton	1SFA611920R8126	MA1-8126

Protective ring

Description	Factory code	Order code
Operator for protective ring	–	SK615512-1

Note: For flush and extended pushbuttons. To prevent accidental operation. Cannot be used together with Legend plate holder

KA1-8010

Protective cover

Description	Factory code	Order code
Protective cover	1SFA616920R8010	KA1-8010

Note: For flush pushbutton. To prevent accidental operation. Cannot be used together with Legend plate holder

Bezel

Bezel

Description	Factory code	Order code
For pushbuttons		
Grey plastic	1SFA616920R8079	KA1-8079
Black plastic	1SFA616920R8022	KA1-8022
Chrome metal	1SFA616920R8021	KA1-8021
For selector switches		
Grey plastic	1SFA616920R8077	KA1-8077
Black plastic	1SFA616920R8080	KA1-8080
Chrome metal	1SFA616920R8024	KA1-8024

MA1-81..

Blanking plug

Description	Factory code	Order code
Grey	1SFA611920R8129	MA1-8129
Black	1SFA611920R8130	MA1-8130
Light grey	1SFA611920R8136	MA1-8136

MA1-8124

Square bezel

Description	Factory code	Order code
Black plastic	–	SK616016-2
Grey plastic	1SFA611920R8124	MA1-8124

MA1-8153

MA1-8152

Shroud for pushbuttons

Description	Factory code	Order code
Lockable shroud	1SFC611920R8153	MA1-8153
Touch guard	1SFC611920R8152	MA1-8152

Note: Touch guard for modular and compact pushbutton
Lockable shroud for modular and compact pushbuttons and selector switches

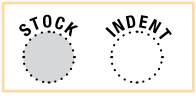
MA1-8053

MA1-8128

Shroud for emergency stop and machine stop

Description	Factory code	Order code
Yellow	1SFA611920R8053	MA1-8053
Grey	1SFA611920R8128	MA1-8128

Note: For 40 mm emergency stop pushbuttons and machine stop pushbuttons. To prevent accidental operation. With anti rotation tabs and slot for pad-lock and with water drainage.



Accessories for modular range

KA1-8083

KA1-8084

KA1-8091

KA1-8092

KA1-8102

KA1-8108

KA1-8111

KA1-8114

Colours	● Red	● Green	● Yellow	● Blue	○ White	● Black	● Grey	○ Clear
Replace ■ in Order code with	R	G	Y	L	W	B	U	C
Replace ☐ in Factory code with	1	2	3	4	5	6	7	8

Lenses

Description	Factory code	Order code
Lenses for pilot lights (Available in: red, green, yellow, blue, white, clear)		
Lenses for pilot lights	1SFA616920R803☐	KA1-803■
Lenses for non-illuminated pushbuttons (Available in: red, green, yellow, blue, white, black, grey, clear)		
Flush	1SFA616920R808☐	KA1-808■
Extended	1SFA616920R809☐	KA1-809■
Lenses for illuminated pushbuttons (Available in: red, green, yellow, blue, white, clear)		
Flush	1SFA616920R810☐	KA1-810■
Extended	1SFA616920R811☐	KA1-811■

STOCK INDENT

Enclosures and assembled stations

Large plastic enclosure (modular and compact)

This enclosure can fit both modular and compact operators with the unique possibility to mount up to 5 contact blocks assigned to one operator.

Degree of protection: IP66 UL/NEMA type 1, 3R, 4, 4X, 12, 13

Compact plastic enclosure

The compact enclosure is one of the smallest on the market intended for compact operators.

Degree of protection: IP66, 67, 69K UL/NEMA type 1, 3R, 4, 4X, 12, 13

Metallic enclosure

Our metallic line is made in addition to our plastic lines when plastic is not accepted. Featuring a high protection degree and large installation space.

Degree of protection: IP66, 67, 69K

Assembled stations

We can also offer some of the most common assembled stations as a standard in combination with both modular and compact range.

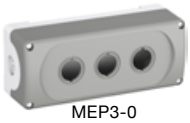
Plastic enclosures
For modular and compact range

When ordering

- Select operators
- Select contact blocks and lamp blocks for rear mounting
- For accessories, please note that one spacer per operator has to be ordered if legend plate is not used (for rear mounted pilot devices)
- Holes for cable glands 1-seat to 3-seat enclosures: M20 and Pg 13.5/Pg16 and (M20) 4-seat and 6-seat enclosures: M25/Pg 16 and (M20)

MEPY1-0

MEP2-0


MEP3-0

Empty plastic enclosures with stainless steel screws

Description		Factory code	Order code
1-seat	Dark grey / light grey	1SFA611811R1000	MEP1-0
1-seat	Yellow / light grey	1SFA611821R1000	MEPY1-0
2-seat	Dark grey / light grey	1SFA611812R1000	MEP2-0
3-seat	Dark grey / light grey	1SFA611813R1000	MEP3-0
4-seat	Dark grey / light grey	1SFA611814R1000	MEP4-0
6-seat	Dark grey / light grey	1SFA611816R1000	MEP6-0

CEPY1-0

CA1-8053

Compact enclosure for emergency stop pushbutton

Description	Factory code	Order code
Yellow / light grey	1SFA619821R1000	CEPY1-0
Shroud		
Yellow	1SFA619920R8053	CA1-8053

CEP1-0

CA1-8054

Compact enclosure for machine stop pushbutton

Description	Factory code	Order code
Dark grey / light grey	1SFA619811R1000	CEP1-0
Shroud		
Grey	1SFA619920R8054	CA1-8054

STOCK INDENT

LED blocks
For rear mounting

Colours	● Red	● Green	● Yellow	● Blue	○ White
Replace ■ in Order code with	R	G	Y	L	W
Replace □ in Factory code with	1	2	3	4	5

MLBL-00BW

Description	Factory code	Order code
Rated voltage 12 V DC[1]	1SFA611621R200□	MLBL-00B■
Rated voltage 24 V AC/DC[1]	1SFA611621R201□	MLBL-01B■
Rated voltage 48 V AC/DC[1]	1SFA611621R202□	MLBL-02B■
Rated voltage 60 V AC/DC	1SFA611621R203□	MLBL-03B■
Rated voltage 110 – 130 V AC	1SFA611621R204□	MLBL-04B■
Rated voltage 110 – 130 V DC[1]	1SFA611621R205□	MLBL-05B■
Rated voltage 220 V DC[1]	1SFA611621R206□	MLBL-06B■
Rated voltage 230 V AC	1SFA611621R207□	MLBL-07B■
Rated voltage 380 V AC	1SFA611621R208□	MLBL-08B■
Rated voltage 415 V AC	1SFA611621R209□	MLBL-09B■

Note:

1) Care should be taken for DC supply where + and - must be correctly connected. This is marked X1 (+) and X2 (-) on the product. For information on rated current, wavelength and luminance – please refer to the technical catalogue.

9

STOCK INDENT

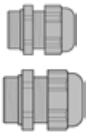
Accessories for plastic enclosures

MCB-01B

MCB-11B

Contact block for rear mounting

Description	Factory code	Order code
1NO	1SFA611610R2001	MCB-10B
1NC	1SFA611610R2010	MCB-01B
Double contact block		
2NO	1SFA611610R2002	MCB-20B
2NC	1SFA611610R2020	MCB-02B
1NO+1NC	1SFA611610R2011	MCB-11B
Contact block with gold plated contacts		
1NO	1SFA611610R2101	MCB-10BG
1NC	1SFA611610R2110	MCB-01BG



MA5-300

Cable gland

Description	Factory code	Order code
M25	1SFA611925R3001	MA5-3001
M20	1SFA611925R3002	MA5-3002
PG 13.5	1SFA611925R3006	MA5-3006
PG 16	1SFA611925R3007	MA5-3007

Note: Grey plastic, threaded outer sleeve sealing ring included.

MA1...

Nut

Description	Factory code	Order code
Grey plastic, for cable gland above		
M25	1SFA611925R3003	MA5-3003
M20	1SFA611925R3004	MA5-3004
PG 13.5	1SFA611925R3008	MA5-3008
PG 16	1SFA611925R3009	MA5-3009

Earthing terminal

Description	Factory code	Order code
For plastic enclosure	1SFA611925R3005	MA5-3005

MA1-8150

Sealing ring

Description	Factory code	Order code
For plastic enclosure	1SFA611920H8150	MA1-8150

Spacer

Description	Factory code	Order code
Spacer	–	SK615516-1
Spacer for modular emergency stop	1SFA616920R8045	KA1-8045

Note: 1 mm thick. Needed when legend plates are not used in plastic enclosures.

Blanking plug

Description	Factory code	Order code
Grey	1SFA611920R8129	MA1-8129
Black	1SFA611920R8130	MA1-8130
Light grey	1SFA611920R8136	MA1-8136

Adaptor

Description	Factory code	Order code
PG 16/M20	1SFA611925R3010	MA5-3010

STOCK INDENT

Metallic enclosures and accessories
Degree of protection IP66, IP67 and IP69K

KEM...

Empty metallic enclosures for front mounted pilot devices

Description	Factory code	Order code
1-seat Grey	SK616701-AA	KEM1-0
2-seat Grey	SK616702-AA	KEM2-0
3-seat Grey	SK616703-AA	KEM3-0
4-seat Grey	SK616704-AA	KEM4-0
6-seat Grey	SK616706-AA	KEM6-0

Note: Blanking plates not included

Blanking plate

Blanking plates without holes, metal, black, for 4- and 6-seat enclosures

Description		Factory code	Order code
For flange opening	**Suitable flange gasket**		
FL 13	SK 170 4536	–	SK172105-AA

Blanking plates with holes, metal, black for 4- and 6-seat enclosures

Description		Factory code	Order code
For flange opening	**Suitable flange gasket**		
Two holes Hole centre distance 50 mm FL 13	Pr 22.5 (Pg 16) SK 170 4536	–	SK172105-AD
Three holes Hole centre distance 38 mm FL 13	Pr 22.5 (Pg 16) SK 170 4536	–	SK172105-AE
Four holes Hole centre distance 30 mm FL 13	Pr 22.5 (Pg 16) SK 170 4536	–	SK172105-AF

Note: Gasket not included

9

Flange gasket

Description	Factory code	Order code
FL 13	–	SK1704536

MA1-81...

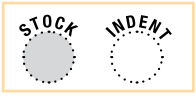
Blanking plug

Description	Factory code	Order code
Grey	1SFA611920R8129	MA1-8129
Black	1SFA611920R8130	MA1-8130
Light grey	1SFA611920R8136	MA1-8136

Note: Applicable to cover a 22 mm hole in an enclosure instead of an operator. Gasket and nut included

Sealing plug, black plastic

Description	Factory code	Order code
Pr 22.5 Pg 16	–	SK175919-3



Assembled stations

1-seat plastic enclosure – compact range

Description		Factory code	Order code
Yellow / light grey	Twist release, emergency stop 2 NC	1SFA619821R1001	CEPY1-1001
Yellow / light grey	Pull release, emergency stop 2 NC	1SFA619821R1002	CEPY1-1002
Yellow / light grey	Key release, emergency stop 1NC + 1NO	1SFA619821R1006	CEPY1-1006

CEPY1-2001

1-seat plastic enclosure with shroud – compact range

Description		Factory code	Order code
Yellow / light grey	Twist release, emergency stop 2 NC	1SFA619821R2001	CEPY1-2001
Yellow / light grey	Pull release, emergency stop 2 NC	1SFA619821R2002	CEPY1-2002

1-seat plastic enclosure with black mushroom pushbutton – compact range

Description		Factory code	Order code
Dark grey / light grey	Twist release, machine stop 1 NO + 1 NC	1SFA619811R1001	CEP1-1001
Dark grey / light grey	Pull release, machine stop 1 NO + 1 NC	1SFA619811R1002	CEP1-1002

1-seat plastic enclosure with black mushroom pushbutton and shroud – compact range

Description		Factory code	Order code
Dark grey / light grey	Twist release, machine stop 1 NO + 1 NC	1SFA619811R2001	CEP1-2001
Dark grey / light grey	Pull release, machine stop 1 NO + 1 NC	1SFA619811R2002	CEP1-2002

9

MEPY1-1026

1-seat plastic enclosures – modular range

Description			Factory code	Order code
Emergency stop, 40 mm. Twist release. Legend plate: 'Emergency stop' Yellow top / light grey bottom				
●	Red	2 NC	1SFA611821R1026	MEPY1-1026

MEP2-1001

2-seat plastic enclosure – modular range

Description		Factory code	Order code
Dark grey top / light grey bottom. Two flush pushbuttons, momentary.			
● Green	● Red	1SFA611812R1001	MEP2-1001
1 NO	1 NC		
I	O		

STOCK INDENT

Legend plate holder
With inserts for plastic enclosures and pilot devices

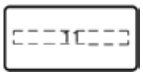
Legend plate holder and inserts

Legend plate holder for plastic enclosures

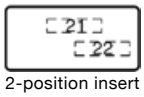
Description	Factory code	Order code
Grey	1SFA611930R1060	MA6-1060

Inserts: Packing

Description	Factory code	Order code
Without text or symbol	1SFA611930R1061	MA6-1061
Inserts with text/symbol engraved with L-mark		
0	1SFA611930R1062	MA6-1062
I	1SFA611930R1063	MA6-1063
II	1SFA611930R1064	MA6-1064
→	1SFA611930R1130	MA6-1130
→→	1SFA611930R1131	MA6-1131
Close	1SFA611930R1132	MA6-1132
Open	1SFA611930R1133	MA6-1133
On	1SFA611930R1134	MA6-1134
Off	1SFA611930R1135	MA6-1135
Fast	1SFA611930R1136	MA6-1136
Slow	1SFA611930R1137	MA6-1137
Down	1SFA611930R1138	MA6-1138
Up	1SFA611930R1139	MA6-1139
Start	1SFA611930R1140	MA6-1140
Stop	1SFA611930R1141	MA6-1141
Forward	1SFA611930R1152	MA6-1152
Reverse	1SFA611930R1153	MA6-1153



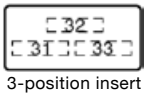
Insert



2-position insert

Inserts for 2-position selector switches

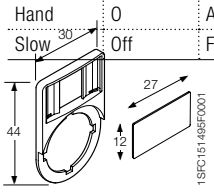
Description		Factory code	Order code
With text or symbol:			
Pos. 21	Pos. 22		
0	I	1SFA611930R1170	MA6-1170
I	II	1SFA611930R1171	MA6-1171
→	→→	1SFA611930R1172	MA6-1172
Off	On	1SFA611930R1173	MA6-1173
Stop	Start	1SFA611930R1174	MA6-1174
Low	High	1SFA611930R1175	MA6-1175
Slow	Fast	1SFA611930R1176	MA6-1176
Close	Open	1SFA611930R1177	MA6-1177
Jog	Run	1SFA611930R1178	MA6-1178
Hand	Auto	1SFA611930R1179	MA6-1179



3-position insert

Inserts for 3-position selector switches

Description			Factory code	Order code
With text or symbol:				
Pos. 31	Pos. 32	Pos. 33		
←	0	→	1SFA611930R1190	MA6-1190
→	0	→→	1SFA611930R1191	MA6-1191
I	0	II	1SFA611930R1192	MA6-1192
Hand	0	Auto	1SFA611930R1193	MA6-1193
Slow	Off	Fast	1SFA611930R1194	MA6-1194



Dimensions

Legend plates
For emergency stop pushbuttons

CA6-1026

Emergency stop legend plates 70mm

Description	Factory code	Order code
Black text on a yellow plastic plate. Can be used as yellow background		
Emergency stop	1SFA616915R1005	KTC15-1005
Without text	1SFA616915R1038	KTC15-1038
With customer marking	1SFA616915L1038	KTC15-1038-L
Black text on a yellow aluminum plate		
Emergency stop	–	SK615546-2
Without text	–	SK615546-8

MA6-1024

Emergency stop legend plates for plastic enclosures

Description	Factory code	Order code
For horizontally mounted enclosures. Yellow plastic with black text		
Emergency stop	1SFA611930R1026	MA6-1026
For vertically mounted enclosures. Yellow plastic with black text		
Emergency stop	1SFA611930R1101	MA6-1101
Yellow plastic		
Without text	1SFA611930R1024	MA6-1024
With customer marking	1SFA611930L1024	MA6-1024-L

Emergency stop legend plates for compact enclosure

Description	Factory code	Order code
Black text on yellow aluminum plate 59mm		
Emergency stop	1SFA619930R1026	CA6-1026

9

STOCK INDENT

Signal towers and signal beacons

Signal towers and signal beacons offer customers a wide range of signal elements in all voltages and a solution for every signalling field

Signal towers

- Fast mounting of signal elements using bayonet fixing
- Easy changing of bulbs for each module without tools
- Flexibility of signal element combination
- Up to 5 elements possible/up to 10 elements with bracket for 2-sided mounting
- High protection rating optical and audible signal elements with IP54
- LED elements for long life

Signal beacons

- Design withstands every mechanical and natural challenge both indoors and outdoors.
- High protection rating IP65
- Cap consists of high impact polycarbonate (up to 20 J)
- Bulb change via inside of control box

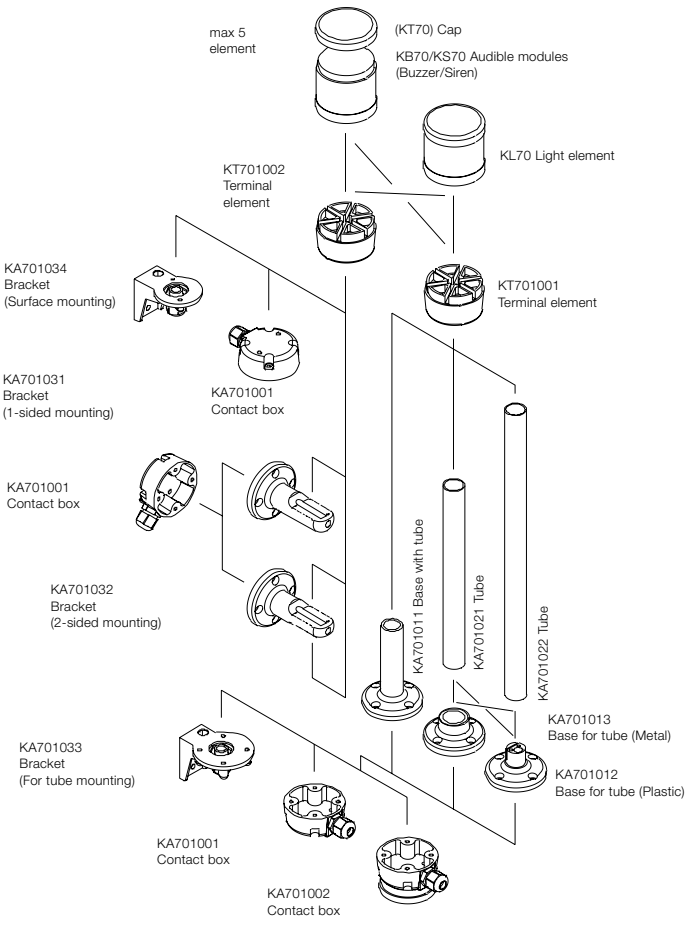
Simple fitting with quick fix system

Each signal tower module is equipped with a bayonet fixing with integral contact system. The modules are fastened together by aligning the corresponding white marks then with a gentle twist they are locked into place (see the figures).

Signal towers and beacons

- Permanent light
- Blinking light
- Flashing light
- Audible
- LED permanent light
- LED blinking light
- LED rotating light

Combination possibilities



Signal towers

Colours	● Red	● Green	● Yellow	● Blue	○ Clear
Replace ■ in Order code with	R	G	Y	L	C
Replace □ in Factory code with	1	2	3	4	8

KL70401Y

KL70401B

Light element

Description	Factory code	Order code
Available in red, green, yellow, blue and clear		
Permanent light, 12 – 240 V AC/DC For bulb BA 15d. Bulb not included	1SFA616070R401□	KL70401■
Blinking light, 24 V AC/DC with integrated LED	1SFA616070R306□	KL70306■
Flashing light, 24 V AC/DC with integrated xenon tube	1SFA616070R203□	KL70203■
Blinking light, 115 V AC with integrated LED	1SFA616070R342□	KL70342■
Flashing light, 115 V AC with integrated xenon tube	1SFA616070R113□	KL70113■
Blinking light, 230 V AC with integrated LED	1SFA616070R352□	KL70352■
Flashing light, 230 V AC with integrated xenon tube	1SFA616070R123□	KL70123■
LED permanent light, 24 V AC/DC with integrated LED	1SFA616070R305□	KL70305■
LED rotating light, 24 V AC/DC with integrated LED	1SFA616070R307□	KL70307■

KA4-102...

Bulbs

Bulb Ba 15d, 42mm, max 7 W for permanent or blinking light

Description	Factory code	Order code
24 V, 5 W, AC/DC	1SFA616923R1028	KA4-1028
115 V, 5 W, AC/DC	1SFA616923R1118	KA4-1118
230 V, 5 W, AC/DC	1SFA616923R1148	KA4-1148

LED bulbs

Ba 15d, 40mA

Description	Factory code	Order code
Available in red, green, yellow, blue and white		
24 V AC/DC	1SFA616924R102□	KA4-102■

Audible modules buzzer element

85 dB, continuous or pulsating tone, adjustable

Description	Factory code	Order code
24 V AC/DC	1SFA616071R3001	KB703001
115 V AC	1SFA616071R3101	KB703101
230 V AC	1SFA616071R1201	KB701201

STOCK INDENT

Signal towers

Siren element

Description	Factory code	Order code
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB, 115 V AC	1SFA616073R1104	KS701104
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB, 230 V AC	1SFA616073R1204	KS701204
Multi function, 7 diff. Tones adjustable, volume adjustable, 100 dB, 24 V DC	1SFA616073R2004	KS702004
Multi function, 8 diff. Tones adjustable, volume adjustable 100 dB, 24 V AC/DC	1SFA616073R3004	KS703004
Continuous tone alternating 108 dB, 24 V DC	1SFA616073R2002	KS702002

KT7010...

Terminal elements

Description	Factory code	Order code
For tube mounting, including cap	1SFA616075R1001	KT701001
For bracket or base, including cap	1SFA616075R1002	KT701002

Special parts

Description	Factory code	Order code
Contact box		
Cable exit at side	1SFA616077R1001	KA701001
Magnetic base	1SFA616077R1002	KA701002
Base with tube		
D=25 mm L=110 mm	1SFA616077R1011	KA701011
Base for tube		
D=25 mm, plastic	1SFA616077R1012	KA701012
D=25 mm, metal	1SFA616077R1013	KA701013
Tube, anodized aluminum		
D=25 mm L=250 mm	1SFA616077R1021	KA701021
D=25 mm L=400 mm	1SFA616077R1022	KA701022
D=25 mm L=800 mm	1SFA616077R1023	KA701023
Bracket		
1-sided mounting	1SFA616077R1031	KA701031
2-sided mounting	1SFA616077R1032	KA701032
For tube mounting	1SFA616077R1033	KA701033
For surface mounting	1SFA616077R1034	KA701034

KA701001

KA701031

Signal beacons

Colours	● Red	● Green	● Yellow	● Blue	○ Clear
Replace ■ in Order code with	R	G	Y	L	C
Replace □ in Factory code with	1	2	3	4	8

KSB-401G

Light element: Available in red, green, yellow, blue and clear

Description	Factory code	Order code
Permanent light, 12 – 240 V AC/DC. For Bulb BA 15d. (Bulb not included)	1SFA616080R401□	KSB-401■
Flashing light, 24 V DC. With integrated xenon tube	1SFA616080R203□	KSB-203■
Flashing light, 115 V AC. With integrated xenon tube	1SFA616080R113□	KSB-113■
Flashing light, 230 V AC. With integrated xenon tube	1SFA616080R123□	KSB-123■

Light element LED: Available in red, green and yellow

Description	Factory code	Order code
LED permanent light, 24 V AC/DC. With integrated LED	1SFA616080R305□	KSB-305■
LED blinking light, 24 V AC/DC. With integrated LED	1SFA616080R306□	KSB-306■
LED rotation light, 24 V AC/DC. With integrated LED	1SFA616080R307□	KSB-307■

KASB100

Special parts

Description	Factory code	Order code
Anti-twist device	1SFA616087R1000	KASB100

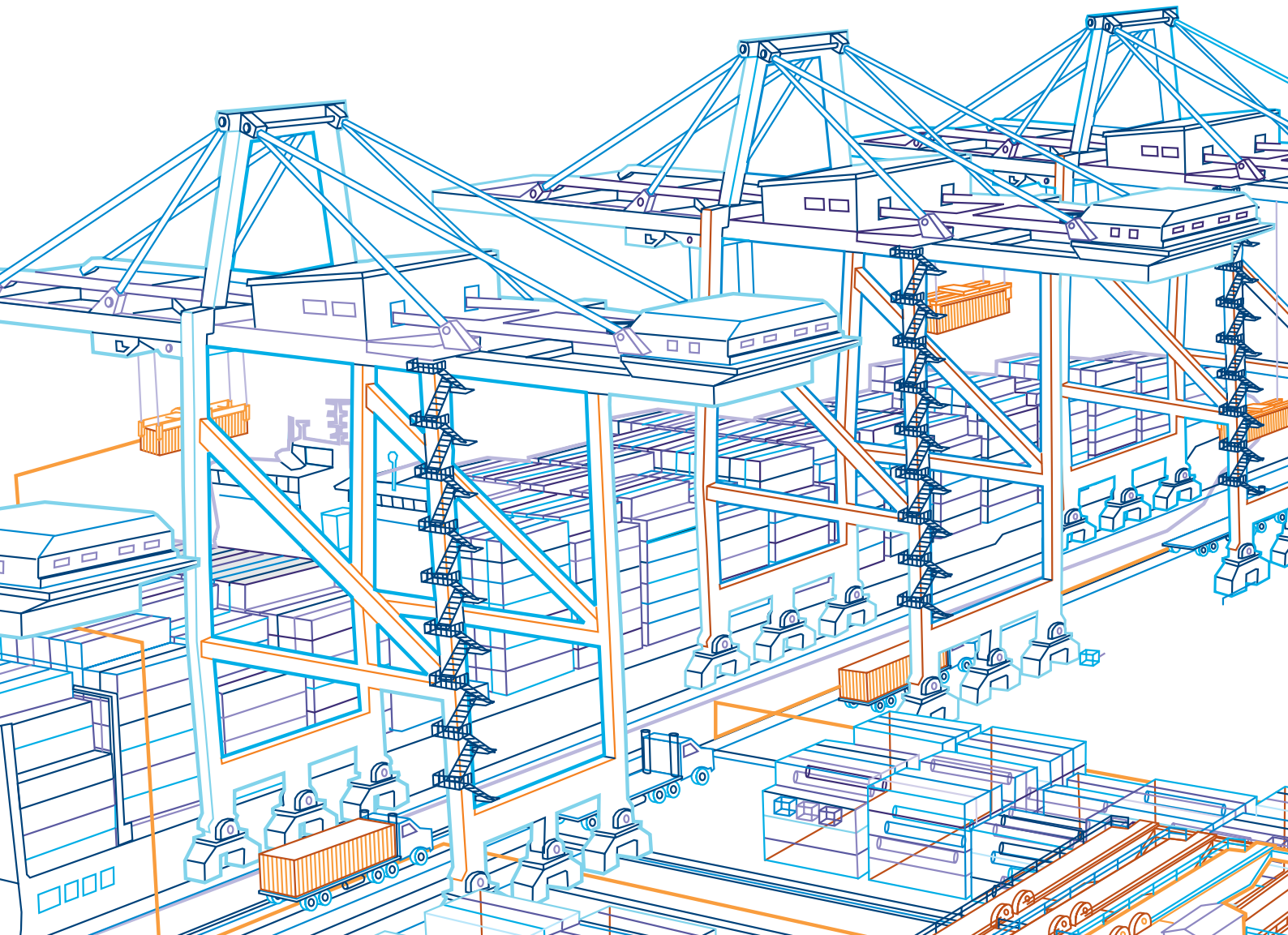
9

Bulbs for signal beacons max 10 W. For permanent light Bulb Ba 15d, 52mm

Description	Factory code	Order code
12 V, 7 W, AC/DC	1SFA616922R1018	KA3-1018
24 V, 7 W, AC/DC	1SFA616922R1028	KA3-1028
115 V, 7 W, AC/DC	1SFA616922R1118	KA3-1118
220-260 V, 7-10 W, AC/DC	1SFA616922R1148	KA3-1148

STOCK INDENT

For your notes



Electronic Products and Relays

Electronic timers 558
Overview 558
Ordering details 559

Primary switch mode power supplies 562
Ordering details 562

Monitoring relays 563
Single-phase 563
Three-phase 564

Grid feeding monitoring relays 565
Benefits and advantages 565
Ordering details 565

Insulation monitoring relays for unearthed supply systems 566
Ordering details 566

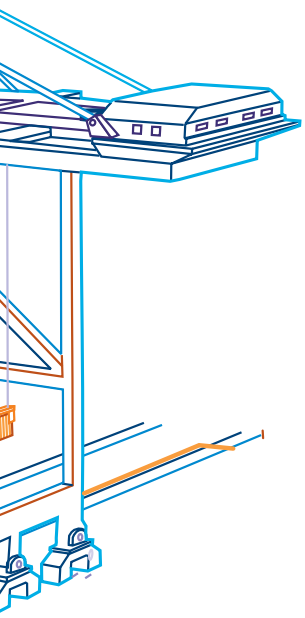
Thermistor motor protection relays 567
Ordering details 567

Temperature monitoring relays 568
Selection 568
Ordering details 569

Liquid level monitors and controls 570
Ordering details 570
Accessories 571

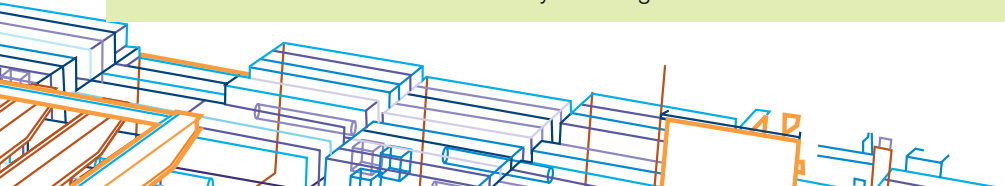
Pluggable interface relays 572
Ordering details 572

Logic relays 574
Overview 574
Ordering details 574



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

– Electronic Products and Relays catalogue – 2CDC110004C0210



Electronic timers
Overview

		CT-D range		CT-E range		CT-S range	
Timing function		**multifunctional**	**single-functional**	**multifunctional**	**single-functional**	**multifunctional**	**single-functional**
A	ON-delay	CT-MFD	CT-ERD	CT-MFE, CT-MKE	CT-ERE, CT-EKE	CT-MVS, CT-MFS, CT-MBS, CT-WBS	CT-ERS
B	OFF-delay	CT-MFD	CT-AHD	CT-MFE	CT-AHE, CT-ARE, CT-AKE	CT-MVS, CT-MFS, CT-MBS	CT-APS, CT-AHS, CT-ARS
AB	ON- and OFF-delay					CT-MVS, CT-MXS, CT-MFS, CT-MBS	
CA	Impulse-ON	CT-MFD	CT-VWD	CT-MFE, CT-MKE	CT-VWE	CT-MVS, CT-MFS, CT-MBS, CT-WBS	
CB	Impulse-OFF	CT-MFD			CT-AWE	CT-MVS, CT-MFS, CT-MBS	
CE	Impulse-ON and OFF					CT-MXS	
DA	Flasher starting with ON	CT-MFD	CT-EBD	CT-MFE, CT-MKE		CT-MFS, CT-MBS, CT-WBS	
DB	Flasher staring with OFF	CT-MFD		CT-MFE, CT-MKE	CT-EBE	CT-MFS, CT-MBS, CT-WBS	
DE	Flasher starting with ON or OFF					CT-MVS	
ED	Pulse generator starting with ON or OFF		CT-TGD			CT-MXS	
H	Pulse former	CT-MFD		CT-MFE		CT-MVS, CT-MFS, CT-MBS	
F	Star-delta change-over		CT-SDD, CT-SAD				CT-SDS
FC	Star-delta change-over with impulse				CT-SDE	CT-MVS.2x, CT-MFS, CT-MBS	
FA	Star-delta change-over twice ON-delayed				CT-YDE		
A+ AC BC G	further functions (depending on device)					CT-MVS, CT-MXS, CT-MFS, CT-MBS, CT-WBS	

Technical data (extract)

Time ranges	7 (0.05 s – 100 h) CT-SDD, CT-SAD: 4 (0.05 s – 10 min)	Multifunction devices: 8 (0.05 s – 100 h) Single-function devices: 5 single ranges (0.05 – 1 s, 0.1 – 10 s, 0.3 – 30 s, 3 – 300 s, 0.3 – 300 min)		10 (0.05 s – 300 h) CT-ARS, CT-SDS: 7 (0.05 s – 10 min)
Control supply voltage	Wide and multi ranges	Wide ranges	Single and dual ranges	Wide, multi and single ranges
Type and number of contacts	1 or 2 c/o contacts CT-SDD, CT-SAD: 2 n/o contacts	1 c/ o contact CT-SDE: 1 n/o contact and 1 n/c contact CT-MKE, CT-EKE, CT-AKE: 1 thyristor		1 or 2 c/o contacts CT-MVS.21, CT-MFS, CT-MBS: 2nd c/o contact selectable as inst. contact CT-SDS: 2 n/o contacts
Control inputs	voltage-related triggering, polarized, capable of switching a parallel load	voltage-related triggering, polarized CT-MFE, CT-AHE, CT-AWE: with auxiliary voltage		voltage-related triggering, non-polarized, capable of switching a parallel load CT-MFS, CT-MBS, CT-AHS: volt-free triggering

CT-D range
Ordering details

CT-MFD.12

CT-ERD.22

Description

The CT-D range in MDRC design with a width of only 17.5 mm fits into all domestic installation and distribution panels.
The CT-D range represents a link between industry and the installation types. For maximum flexibility in operation, 10 single-function as well as 2 multifunction devices with 7 timing functions are available. The devices offer 4 or 7 time ranges from 0.05 seconds up to 100 hours. Their wide input range allows the use in applications worldwide.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Factory code	Order code
Multifunctional[1)]	24 – 240 V AC 24 – 48 V DC	7 (0.05 s – 100 h)	■	1 c/o	1SVR500020R0000	CT-MFD.12
Multifunctional[1)]	12 – 240 V AC/DC	7 (0.05 s – 100 h)	■	2 c/o	1SVR500020R1100	CT-MFD.21
ON-delay	24 – 240 V AC 24 – 48 V DC	7 (0.05 s – 100 h)	–	1 c/o	1SVR500100R0000	CT-ERD.12
			–	2 c/o	1SVR500100R0100	CT-ERD.22
OFF-delay			■	1 c/o	1SVR500110R0000	CT-AHD.12
			■	2 c/o	1SVR500110R0100	CT-AHD.22
Star-delta change-over [2)]		4 (0.05 s – 10 min)	–	2 c/o	1SVR500211R0100	CT-SDD.22

1) Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Impulse-OFF with auxiliary voltage, Flasher starting with ON, Flasher starting with OFF, Pulse former
2) Transition time 50 ms fixed

■ Control input with voltage-related triggering
– no triggering

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

Terminology

used expression	alternative expression(s)
1 c/o contact	SPDT
2 c/o contacts	DPDT
voltage-related	wet / non-floating
volt-free	dry / floating

10

STOCK INDENT

CT-E range
Ordering details

CT-MFE

Description

The CT-E range with its excellent price/performance ratio offers an ideal solution for serial applications. 56 single-function devices with 5 different time ranges as well as 2 multifunction timers with 6 functions and 8 time ranges offer the highest possible flexibility for almost every application. For high operating cycles, contact-free CT-E timers with solid-state output are available.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control Input	Output	Factory code	Order code
Multifunctional [1]	24 – 240 V AC/DC	8 (0.05 s – 100 h)	■	1 c/o	1SVR550029R8100	CT-MFE
ON-delay	24 V AC/DC, 220 – 240 V AC	0.1 – 10 s	–	1 c/o	1SVR550107R1100	CT-ERE.10S
		3 – 300 s			1SVR550107R2100	CT-ERE.300S
		0.3 – 30 min			1SVR550107R5100	CT-ERE.30M
OFF-delay	110 – 130 V AC	0.1 – 10 s		1 c/o	1SVR550120R4100	CT-ARE.30S.110
Multifunctional [2] [3]	24 – 240V AC/DC	0.1 – 10 s, 3 – 300 s	–	solid-state	1SVR550019R0000	CT-MKE

1) Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Flasher starting with ON, Flasher starting with OFF, Pulse former
2) solid-state output, functions and time range selection via external jumpers
3) Functions: ON-delay (AC/DC), Impuls-ON (AC only), Flasher starting with OFF (AC only)

■ Control input with voltage-related triggering
– no triggering

Note:
CT-...KE are solid-state timers with thyristor output for 2-wire applications. They are connected directly in series with the control coil of contactors or relays. Voltage should not be applied without a load connected, because there is no current limiting in the unit. For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

STOCK INDENT

CT-S range
Ordering details

CT-MVS.21S

CT-ERS.21S

CT-SDS.23S

Description

The highly sophisticated CT-S range in ABB's new S-range housing offers two different types of connection terminals and is ideally suited for universal use. Two different connection technologies are available:

– Double-chamber cage connection terminals
– Easy Connect Technology

Accessories

The CT-S range offers the possibility of using accessories such as a remote potentiometer to adjust the time delay or a sealable, transparent cover to protect against unauthorized changes. of time and threshold values.

Ordering details

Timing function	Rated control supply voltage	Time ranges	Control input	Output	Factory code	Order code
Multifunctional [4]	24 – 240 V AC/DC	10 (0.05 s – 300 h)	■	2 c/o	1SVR730020R0200	CT-MVS.21S [1) 2) 3)]
	24 – 48 V DC, 24 – 240 V AC				1SVR730020R3300	CT-MVS.22S
	380 – 440 V AC				1SVR730021R2300	CT-MVS.23S
Multifunctional [5]	24 – 240 V AC/DC	10 (0.05 s – 300 h)	□ / □	2 c/o	1SVR730010R0200	CT-MFS.21S
ON-delay Accumulative	24 – 48 V DC, 24 – 240 V AC	10 (0.05 s – 300 h)	–	2 c/o	1SVR730100R3300	CT-ERS.22S
OFF-delay	24 – 48 V DC, 24 – 240 V AC	10 (0.05 s – 300 h)	■	2 c/o	1SVR730180R3300	CT-APS.22S
OFF-delay [6]	24 – 48 V DC, 24 – 240 V AC	7 (0.05 s – 10 min)	–	2 c/o	1SVR730120R3300	CT-ARS.21S
Star-delta change-over [7]	24 – 48 V DC, 24 – 240 V AC	7 (0.05 s – 10 min)	■	2 c/o	1SVR730210R3300	CT-SDS.22S
	380 – 440 V AC				1SVR730211R2300	CT-SDS.23S

1) Extended temperature range -40 °C
2) Remote potentiometer connection
3) 2nd c/o contact selectable as instantaneous contact
4) Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Impulse-OFF with auxiliary voltage, Symmetrical ON- and OFF-delay, Flasher starting with ON or OFF, Star-delta change-over with impulse, Pulse former, Accumulative ON-delay, ON/OFF-function
5) Functions: ON-delay, OFF-delay with auxiliary voltage, Impulse-ON, Impulse-OFF with auxiliary voltage, Symmetrical ON- and OFF-delay, Flasher starting with ON, Flasher starting with OFF, Star-delta change-over with impulse, Pulse former, ON/OFF-function
6) Without auxiliary voltage
7) 50 ms transition time

■ Control input with voltage-related triggering
– no triggering
□ / □ two control input with volt-free triggering

S screw connection
P push-in / easy connect

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

Primary switch mode power supplies

CPD12/0.83, CPD24/0.42

CPD12/2.1, CPD24/1.3

CPD24/2.5

CP-D range

The CP-D range of modular power supply units in MDRC design (modular DIN rail components) is ideally suited for installation in distribution panels. This range offers devices with output voltages of 12 V DC and 24 V DC at output currents of 0.42 A to 4.2 A. Thanks to a high thermal efficiency corresponding to low power and heat dissipation, the devices can be operated without forced cooling. All devices feature the U/I output characteristic (fold forward behaviour). All power supply units in the CP-D range are approved according to all relevant international standards.

Input voltage range	Rated output voltage / current	Factory code	Order code
90 – 264 V AC/ 120 – 375 V DC	24 V DC / 0.42 A	1SVR427041R0000	CPD24/0.42
90 – 264 V AC/ 120 – 375 V DC	24 V DC / 1.3 A	1SVR427043R0100	CPD24/1.3
90 – 264 V AC/ 120 – 375 V DC	24 V DC / 2.5 A	1SVR427044R0200	CPD24/2.5
90 – 264 V AC/ 120 – 375 V DC	24 V DC / 4.2 A	1SVR427045R0400	CPD24/4.2

CP-E range

This range offers types with output voltages from 5 V DC to 48 V DC at output currents of 0.625 A to 20 A. The high thermal efficiency of up to 90 %, corresponding to very low power and heat dissipation, allows operation without forced cooling. The functionality has been enhanced while the number of different types has been considerably reduced.
Of course all power supplies of the CP-E range are approved in accordance with all relevant international standards.

CPE24/0.75

CPE12/2.5

CPE48/5.0

Input voltage range	Rated output voltage / current	Factory code	Order code
CP – E < 100 W			
90 – 264 V AC / 120 – 375 V DC	5 V DC / 3 A	1SVR427033R3000	CPE5/3
85 – 264 V AC / 90 – 375 V DC	12 V DC / 2.5 A	1SVR427032R1000	CPE12/2.5
90 – 264 V AC / 120 – 375 V DC	24 V DC / 0.75 A	1SVR427030R0000	CPE24/0.75
85 – 264 V AC / 90 – 375 V DC	24 V DC / 1.25 A	1SVR427031R0000	CPE24/1.25
85 – 264 V AC / 90 – 375 V DC	24 V DC / 2.5 A	1SVR427032R0000	CPE24/2.5
CP – E M 120 W			
90 – 132 V AC, 180 – 264 V AC / 210 – 375 V DC	24 V DC / 5 A	1SVR427034R0000	CPE24/5
90 – 132 V AC, 180 – 264 V AC / 210 – 375 V DC	24 V DC / 10 A	1SVR427035R0000	CPE24/10
90 – 264 V AC / 120 – 375 V DC	24 V DC / 20 A	1SVR427036R0000	CPE24/20
85 – 264 V AC / 90 – 375 V DC	48 V DC / 1.25 A	1SVR427031R2000	CPE48/1.25
90 – 264 V AC / 120 – 375 V DC	48 V DC / 10 A	1SVR427035R2000	CPE48/10

CPARU + CPACM

CPARU

Redundancy units

Description	Suitable for decoupling of two CP-24 V DC power supply units or suitable for decoupling of CP-E power supply units	Factory code	Order code
2 inputs each up to 20 A and 1 output up to 40 A	m 40 V and M 5 A	1SVR427071R0000	CPARU
Control module for CP-A RU redundancy units	—	1SVR427075R0000	CPACM
2 inputs each up to 2.5 A and 1 output up to 5 A	m 35 V and < 5 A	1SVR423418R9000	CPRUD

CPRUD

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

STOCK INDENT

Single-phase monitoring relays
Ordering details

CM-SRS.22S

CM-SFS.22S

Current monitoring relays

The CM range current monitoring relays protect single-phase mains (DC or AC) from over- and undercurrent from 3 mA to 15 A. Two different terminal versions are available. You can choose between the proven screw connection technology (double-chamber cage connecting terminals) and the completely tool-free Easy Connect Technology (push-in terminals).

Rated control supply voltage	Function	Tripping delay T_v	Measuring range	Factory code	Order code
24 – 240 V AC/DC		adjustable 0 or 0.1-30 s	3 – 30 mA, 10 – 100 mA, 0.1 – 1 A	1SVR730840R0400	CM-SRS.21**S**
		adjustable 0 or 0.1-30 s	3 – 30 mA, 10 – 100 mA, 0.1 – 1 A	1SVR730840R0600	CM-SRS.M1**S**
			0.3 – 1.5 A, 1 – 5 A, 3 – 15 A	1SVR730840R0700	CM-SRS.M2**S**

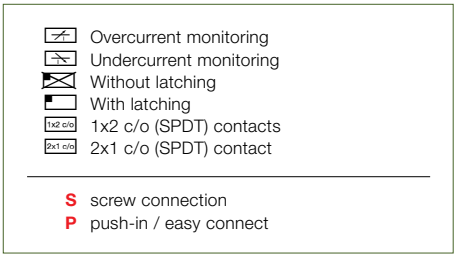
Voltage monitoring relays

The CM range voltage monitoring relays provide reliable monitoring of voltages as well as detection of phase loss in single-phase mains. All devices are available with two different terminal versions. You can choose between the proven screw connection technology (double-chamber cage connecting terminals) and the completely tool-free Easy Connect Technology (push-in terminals).

CM-ESS.MS

Rated control supply voltage	Function	Tripping delay T_v	Measuring range	Factory code	Order code
24 – 240 V AC/DC		adjustable 0 or 0.1 – 30 s	3 – 30 V, 6 – 60 V, 30 – 300 V, 60 – 600 V	1SVR730830R0400	CM-ESS.2**S**
		adjustable 0 or 0.1 – 30 s	3 – 30 V, 6 – 60 V, 30 – 300 V, 60 – 600 V	1SVR730830R0500	CM-ESS.M**S**

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.



10

Three-phase monitoring relays
Ordering details

CM-PBE

Single-functional

Only reliable and continuous monitoring of a three-phase network guarantees the trouble-free and economic operation of machines and installations.

Rated control supply voltage = measuring voltage	Monitoring function	Neutral monitoring	Factory code	Order code
3 x 380 – 440 V AC, [1] 220 – 240 V C	Phase failure detection (Single- and three-phase)	■	1SVR550881R9400	CM-PBE.N
3 x 380 – 440 V AC			1SVR550882R9500	CM-PBE
3 x 208 – 440 V AC [2]	Phase sequence monitoring and phase failure detection (Three-phase)		1SVR550824R9100	CM-PFE
3 x 200 – 500 V AC	Phase sequence monitoring and phase failure detection (Three-phase)		1SVR730824R9300	CM-PFS.**S**
3 x 300 – 500 V AC	Over- and undervoltage with adjustable threshold values (Three-phase)		1SVR730794R3300	CM-PVS.41**S**

1) The version with neutral monitoring is also suitable for monitoring single-phase mains. For this, all three external conductors (L1,L2,L3) have to be jumpered and connected as one single conductor.
2) For applications where a reverse fed voltage >60% is expected, we recommend to use our three-phase monitoring relays for unbalance CM-PAS.xx

CM-MPS.21S

Multifunctional

Rated control supply voltage = measuring voltage	DIP switch	Monitoring function	Neutral monitoring	Factory code	Order code
180 – 280 V AC	⊠ ■ ⊡ ⊘	Multifunctional (Three-phase phase failure detection, Phase sequence monitoring, overvoltage, undervoltage, Phase unbalance)	■	1SVR730885R3300	CM-MPS.21**S**
3 x 300 – 500 V AC				1SVR730884R3300	CM-MPS.41**S**

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

■ Control input with voltage-related triggering

⊠ ON-delayed
■ OFF-delayed
⊡ Phase sequence monitoring activated
⊘ Phase sequence monitoring deactivated

S screw connection
P push-in / easy connect

10

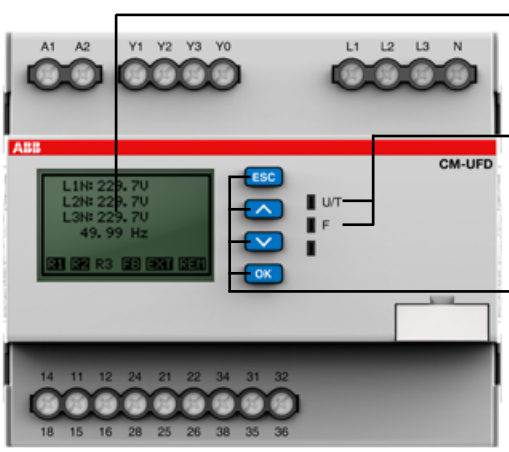
STOCK INDENT

Grid feeding monitoring relays - Voltage and frequency monitoring functions
Benefits and advantages

Characteristics for all CM-UFD devices

- Monitoring of voltage and frequency in single- and three-phase mains 2-wire, 3-wire or 4-wire
- Over- and undervoltage, 10 minutes average value as well as over- and underfrequency monitoring
- Two-level threshold settings for over-/undervoltage and frequency
- Multiline, backlit LCD display
- All threshold values adjustable as absolute values
- True RMS measuring principle
- High measurement accuracy
- 3 control inputs for remote trip, feedback signal, and external signal
- Interrupted neutral detection
- Error memory for up to 99 entries (incl. cause of error, measured value, relative timestamp)
- Test function
- Password setting protection
- 3 c/o (SPDT) contacts
- LEDs for the indication of operational states

CM-UFD.Mxx



1 Display
R1 R2 R3 - relay status; in this case R3 is de-energized
FB - status feedback loop Y0-Y1; in this case FB is closed
EXT – status input external signal; in this case input is closed
REM – status remote trip input; in this case input is closed

2 Indication of operational states
U/T: green LED – supply voltage applied / flashing = timing active
F: red LED - failure

3 Keypad
ESC: escape / return to previous menu
⋀: up / value increase
⋁: down / value decrease
OK: enter / confirm selection

10

CM-UFD.M33

Description

Only reliable and continuous monitoring of a three-phase network guarantees the trouble-free and economic operation of machines and installations.

Ordering details

Rated control supply voltage = measuring voltage	Factory code	Order code
24 – 240 V AC/DC	1SVR560730R3402	CM-UFD.M33

Insulation monitoring relays for unearthed supply systems
Ordering details

CM-IWS.1S

CM-IWS.2S

CM-IWN.1S

Description

The high reliability of an IT system is guaranteed thanks to continuous insulation monitoring. An insulation monitoring device recognizes insulation faults as they develop, and immediately reports that the value has fallen below the minimum. This prevents operational interruption caused by a second, more severe insulation fault.
ABB developed a totally new range of insulation monitors for AC, DC or mixed AC/DC IT Systems up to 690 V AC or 1000 V DC. With only 4 devices most standard applications can be served. Additionally a version for solar applications with increased earth leakage capacitance has been added.

Ordering details

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	System leakage capacitance, max.	Adjustment range of the specified response value R_{an} (threshold)	Factory code	Order code
24 – 240 V AC/DC	0 – 250 V AC / 0 – 300 V DC	10 µF	1 – 100 kΩ	1SVR730660R0100	CM-IWS.1**S**
24 – 240 V AC/DC	0 – 400 V AC	10 µF	1 – 100 kΩ	1SVR730670R0200	CM-IWS.2**S**
24 – 240 V AC/DC	0 – 400 V AC / 0 – 600 V DC	20 µF	1 – 100 kΩ 2 – 200 kΩ (activated / de-activated by DIP-switch)	1SVR750660R0200	CM-IWN.1**S**

CM-IVN.S

Ordering details – Coupling unit

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	Factory code	Order code
Passive device, no control supply voltage needed	0 – 690 V AC / 0 – 1000 V DC	1SVR750669R9400	CM-IVN.**S**

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

S screw connection
P push-in / easy connect

STOCK INDENT

Thermistor motor protection relays
Ordering details

CM-MSS.51S

Description

The thermistor motor protection relays CM-MSx are used to control motors equipped with PTC temperature sensors. The PTC temperature sensors are incorporated in the motor windings to measure the motor heating. This enables direct control and evaluation of various operating conditions. Depending on the products also ATEX approvals for use in hazardous areas are availabe. ABB also offers PTC temperature sensors C011 (according to DIN 44081) which are suitable for embedding in motor windings.

Ordering details CM-MSx

Rated control supply voltage	Output	Function	Factory code	Order code
24 V AC/DC	2 c/o (SPDT)	Auto, manual or remote reset	1SVR730700R0200	CM-MSS.22**S**
110 – 130 V AC, 220 – 240 V AC	2 c/o (SPDT)	Auto, manual or remote reset	1SVR730700R2200	CM-MSS.23**S**
24 – 240 V AC/DC	1 n/c, 1 n/o	Auto, manual or remote reset, dynamic interrupted wire detection, non-volatile fault storage, short-circuit detection, ATEX approval	1SVR730712R1400	CM-MSS.31**S**
24 V AC/DC	2 c/o (SPDT)	Auto, manual or remote reset, dynamic interrupted wire detection, short-circuit detection, ATEX approval	1SVR730712R0200	CM-MSS.32**S**
110 – 130 V AC, 220 – 240 V AC	2 c/o (SPDT)		1SVR730712R2200	CM-MSS.33**S**
24 – 240 V AC/DC	2 c/o (SPDT)	Auto, manual or remote reset, dynamic interrupted wire detection, non-volatile fault storage, short-circuit detection, ATEX approval	1SVR730712R1200	CM-MSS.41**S**
	2 x 1 c/o or, 1 x 2 c/o	Auto, manual or remote reset, dynamic interrupted wire detection, non-volatile fault storage, short-circuit detection, accumulative evaluation, ATEX approval	1SVR730712R1300	CM-MSS.51**S**

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

S screw connection
P push-in / easy connect

10

STOCK INDENT

Temperature monitoring relays
Selection

Order code	CM-TCS.21S	CM-TCS.21P	CM-TCS.11S	CM-TCS.11P	CM-TCS.22S	CM-TCS.22P	CM-TCS.12S	CM-TCS.12P	CM-TCS.23S	CM-TCS.23P	CM-TCS.13S	CM-TCS.13P	C512-24	C512-W	C513-W
Factory code	1SVR 730 740 R9100	1SVR 740 740 R9100	1SVR 730 740 R0100	1SVR 740 740 R0100	1SVR 730 740 R9200	1SVR 740 740 R9200	1SVR 730 740 R0200	1SVR 740 740 R0200	1SVR 730 740 R9300	1SVR 740 740 R9300	1SVR 730 740 R0300	1SVR 740 740 R0300	1SAR 700 100 R0005	1SAR 700 100 R0010	1SAR 700 110 R0010
Rated control supply voltage U_s															
24 V AC/DC	■	■			■	■			■	■			■		
24 – 240 V AC/DC			■	■			■	■			■	■		■	■
Technology															
analogue	■	■	■	■	■	■	■	■	■	■	■	■			
digital													■	■	■
Sensor circuits (2 or 3 wire)															
number of temperature sensors	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3
number of thresholds	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
Sensor type															
PT100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
PT100, KTY83, KTY84, NTC, PT1000													■	■	■
Measuring temperature range															
-50...+50 °C	■	■	■	■											
0...+100 °C					■	■	■	■							
0...+200 °C									■	■	■	■			
-50...+500 °C													■	■	■
Monitoring function															
overtemperature	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
undertemperature	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
window temperature	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Operating principle															
open or closed principle	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Output contacts															
n/o													1	1	1
c/o	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Temperature monitoring relays
Ordering details

CM-TCS

Description
Acquisition, messaging and regulation of temperatures of solid, liquid and gaseous media in processes and machines via PT100, PT1000, KTY83, KTY84 or NTC sensors.
ABB offers different temperature monitoring relays to meet the needs of your application.

Ordering details – Temperature monitoring relays PT100 sensors, 2 or 3 wire connection, 2 thresholds adjustable

Rated control supply voltage	Measuring range	Factory code	Order code
24 – 240 V AC/DC	0...+200 °C	1SVR730740R0300	CM-TCS.13S

C512, C513

Ordering details – Temperature monitoring relays C51x range with display and digital setup

Rated control supply voltage	Measuring range	Factory code	Order code [1]
24 – 240 V AC/DC	-50...+500 °C [1]	1SAR700100R0010	C512-W
24 – 240 V AC/DC		1SAR700110R0010	C513-W

1) The measuring range depends on the used sensor type:
PT100: -50...+500 °C
PT1000: -50...+500 °C
NTC: +80...+160 °C
(Typ Siemens Matsushita B57272-A333-A1 - 100 °C: 1.8 kΩ, 25 °C: 32.762 kΩ)
KTY84: -40...+300 °C
KTY83: -50...+175 °C

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

10

STOCK INDENT

Liquid level monitors and controls
Ordering details

CM-ENE.MIN.24

CM-ENS.11S

Description

ABB's liquid level monitoring relays for regulation and control of liquid levels and ratios of mixtures of conductive fluids.
The assortment includes single function and multifunction monitoring relays which can be used for overflow and dry-running protection, for filling and draining applications, for max and min alarm or any combination of such functions. Furthermore a wide range of accessories is available

Ordering details

Rated control supply voltage	Factory code	Order code
24 V AC	1SVR550855R9500	CM-ENE.MIN.24
110 – 130 V AC	1SVR550850R9500	CM-ENE.MIN.110
220 – 240 V AC	1SVR550851R9500	CM-ENE.MIN.230
24 V AC	1SVR730850R0100	CM-ENS.11S
220 – 240 V AC	1SVR730850R2100	CM-ENS.13S
24 – 240 V AC/DC	1SVR730850R0300	CM-ENS.31S

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

Liquid level monitors are

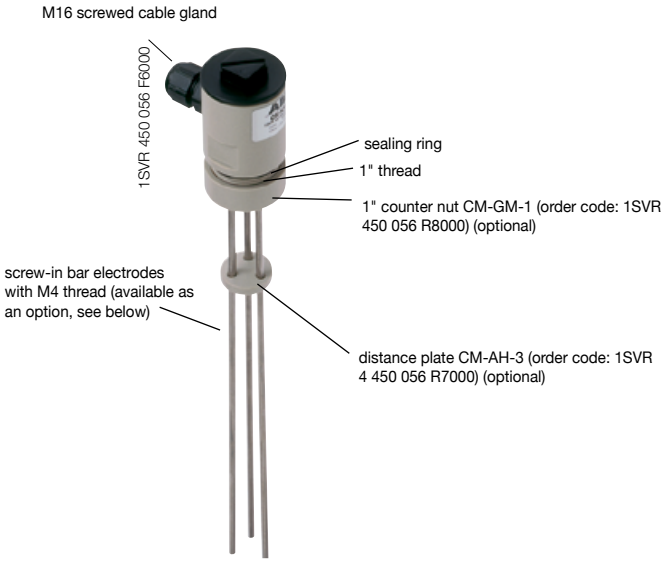
Suitable for	Not suitable for
spring water	chemically pure water
drinking water	fuel
sea water	oils
sewage	explosive areas (liquid gas)
acids, bases	ethylene glycol
liquid fertilizers	concentrated alcohol
milk, beer, coffee	paraffin
non-concentrated alcohol	lacquers

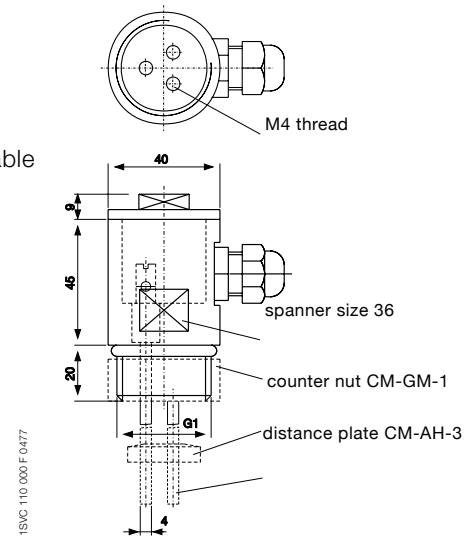
STOCK INDENT

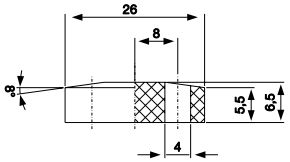
Liquid level monitors and controls
Ordering details – Accessories

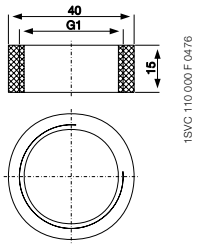
Compact support CM-KH-3 for 3 bar electrodes

- Ideally suited for use with liquid level relays CM-ENS and CM-ENN
- Wire connection by screw terminals
- Pull relief by M16 screwed cable glands
- Temperature range up to 90 °C
- Food safe material (PPH)
- Screw-in electrodes (M4 thread)
- Distance plate (CM-AH-3) and locking nut (CM-GM-1) optionally available as an accessory







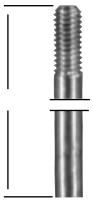


Technical data compact support

Type of mounting:	G 1" thread
Mounting position:	any
Enclosure material:	PPH
Sealing:	NBR 70
Temperature range:	90 °C max.
Pressure:	10 bar max. (60 °C)

Description	Factory code	Order code
Compact support for 3 bar electrodes	1SVR450056R6000	CM-KH-3
Distance plate for 3 bar electrodes	1SVR450056R7000	CM-AH-3
Counter nut for 1“ thread	1SVR450056R8000	CM-GM-1

Screw-in bar electrodes for compact support CM-KH-3

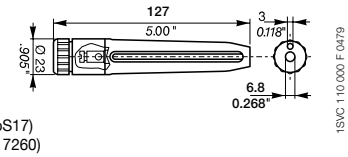


Thread M4

Material: stainless steel 304, high-grade steel 14301

Suspension electrode CM-HE

Steel electrode (X14CrMoS17) with sleeve (Hostalen GC 7260) suitable up to 60°C max.



During project engineering the compatibility of the electrode material with the medium to be supervised is to be examined!

Length	Factory code	Order code
300 mm	1SVR450056R0000	CM-SE-300
600 mm	1SVR450056R0100	CM-SE-600
1000 mm	1SVR450056R0200	CM-SE-1000
CM-HE	1SVR402902R0000	CM-HE

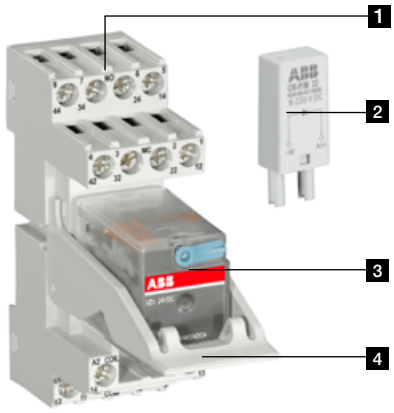
STOCK INDENT

Pluggable interface relays

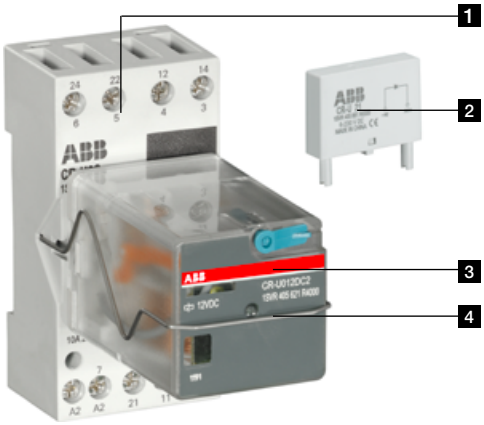
Benefits and advantages

Pluggable miniature relays CR-M

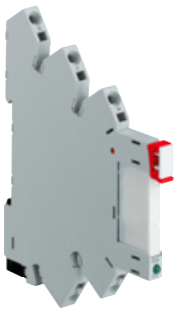
- 2 different coil voltages
  - DC versions: 12 V, 24 V, 48 V, 60 V, 110 V, 125 V, 220 V
  - AC versions: 24 V, 48 V, 110 V, 120 V, 230 V
- Output contacts
  - 2 c/o contacts (12 A) or
  - 3 c/o contacts (10 A) or
  - 4 c/o contacts (6 A)
    optionally equipped with gold contacts, LED and free wheeling diode
- Integrated test button for manual actuation and locking of the output contacts (blue = DC, orange = AC) that can be removed if necessary
- With or without integrated LED
- Logical or standard sockets
- Cadmium-free contact material
- Width on socket: 27 mm
- Pluggable function modules
  - Reverse polarity protection/Free wheeling diode
  - LED indication
  - RC elements
  - Overvoltage protection



1 Socket
2 Pluggable function module
3 Interface relay
4 Holder



1 Socket
2 Pluggable function module
3 Interface relay
4 Holder



CR-S

CR-S range

The pluggable interface relays of the CR-S Range are used for electrical isolation, amplification and signal matching between the electronic controlling, e.g. PLC, iPC or field bus systems and the sensor / actuator level. The CR-S Range combines the flexibility of a modular system and the ability of switching high currents on a small footprint thus can be used in applications where space saving is essential.

Ordering details – CR-S range complete interface relays (relay + socket)

Rated control supply voltage	Outputs	Contact ratings	Factory code	Order code
24 V AC/DC	1 c/o (SPDT) standard contacts	250 V, 6 A	1SVR405541R3110	CR-S024VADC1C**RS**
110 V AC/DC			1SVR405541R6110	CR-S110VADC1C**RS**
230 V AC/DC			1SVR405541R7110	CR-S230VADC1C**RS**

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

RS, SS screw connection type
RZ, SZ spring connection type

STOCK INDENT

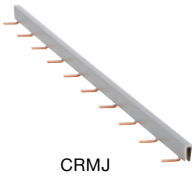
Pluggable interface relays
CR-M range

CR-M

Ordering details – CR-M range with LED

Rated control supply voltage	Outputs	Contact ratings	Factory code	Order code
12 V DC	2 c/o (SPDT)	250 V, 12 A	1SVR405611R4100	CRM012DC2L
24 V DC			1SVR405611R1100	CRM024DC2L
24 V AC			1SVR405611R0100	CRM024AC2L
110 V AC			1SVR405611R7100	CRM110AC2L
230 V AC			1SVR405611R3100	CRM230AC2L
24 V DC	3 c/o (SPDT)	250 V, 10 A	1SVR405612R1100	CRM024DC3L
24 V AC			1SVR405612R0100	CRM024AC3L
110 V AC			1SVR405612R7100	CRM110AC3L
230 V AC			1SVR405612R3100	CRM230AC3L
12 V DC	4 c/o (SPDT)	250 V, 6 A	1SVR405613R4100	CRM012DC4L
24 V DC			1SVR405613R1100	CRM024DC4L
48 V DC			1SVR405613R6100	CRM048DC4L
110 V DC			1SVR405613R8100	CRM110DC4L
125 V DC			1SVR405613R8300	CRM125DC4L
24 V AC			1SVR405613R0100	CRM024AC4L
110 V AC			1SVR405613R7100	CRM110AC4L
230 V AC			1SVR405613R3100	CRM230AC4L

CR-M4SS



CRMJ

Ordering details – Accessories

Version	Connection terminal	Factory code	Order code
Logical socket for 2 c/o	screw	1SVR405651R1100	CRM2LS
Logical socket for 3 c/o		1SVR405651R2100	CRM3LS
Logical socket for 2/4 c/o		1SVR405651R3100	CRM4LS
Logical socket for 2 c/o	spring	1SVR405651R1200	CRM2LC
Logical socket for 2/4 c/o		1SVR405651R3200	CRM4LC
Standard socket for 2 c/o	screw	1SVR405651R1000	CRM2SS
Standard socket for 3 c/o		1SVR405651R2000	CRM3SS
Standard socket for 2/4 c/o		1SVR405651R3000	CRM4SS
Plastic holder		1SVR405659R1000	CRMH
Metal holder		1SVR405659R1100	CRMH1
jumper bar for sockets with screw connection		1SVR405658R6000	CRMJ

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

Logic relays
Overview and Stand alone logic relays

System overview

Concept

CL range logic relays are suitable for small and medium-sized control tasks and are able to substitute logic wiring in a quick and simple manner.
They can be used for applications in control as well as for timing functions, e.g.

- in buildings, lighting systems, air-conditioning systems, general control functions,
- in small machines and systems or
- as stand-alone control module for small applications.

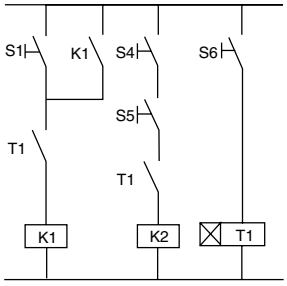
Steps to the application of CL range

- CL range can be used easily, rapidly and comfortably without any time-consuming planning and programming.
- The user can discover the advantages and the benefit of these logic relays in no time at all.
- CL range provides for the control statements according to a simple circuit diagram.
- Setup, storage, simulation and documentation are performed using the compact and user-friendly CL-SOFT software (CL-LAS.PS002).

Software characteristics (CL-SOFT)

- Display on a PC monitor according to IEC, ANSI
- Different languages to choose from
- Easy installation on all Microsoft Windows™ operating systems

Logic links instead of wiring



Documentation (download from the internet)

Logic relay manual: 1SVC440795M0100
Remote display manual: 1SVC440795M2100
Display system manual: 1SVC440795M1100

CL-LSR.C12AC2

Ordering details - Logic relays stand alone

Rated operational voltage	Display + Keypad	Timer	Input / Output	Factory code	Order code
24 V AC	■	■	8 inputs / 4 relay outputs	1SVR440712R0300	CL-LSR.C12AC1
100 – 240 V AC	■	■		1SVR440713R0300	CL-LSR.C12AC2
24 V DC	■	■		1SVR440711R0300	CL-LSR.C12DC2
		■		1SVR440711R0200	CL-LSR.CX12DC2

CL-LDD.K

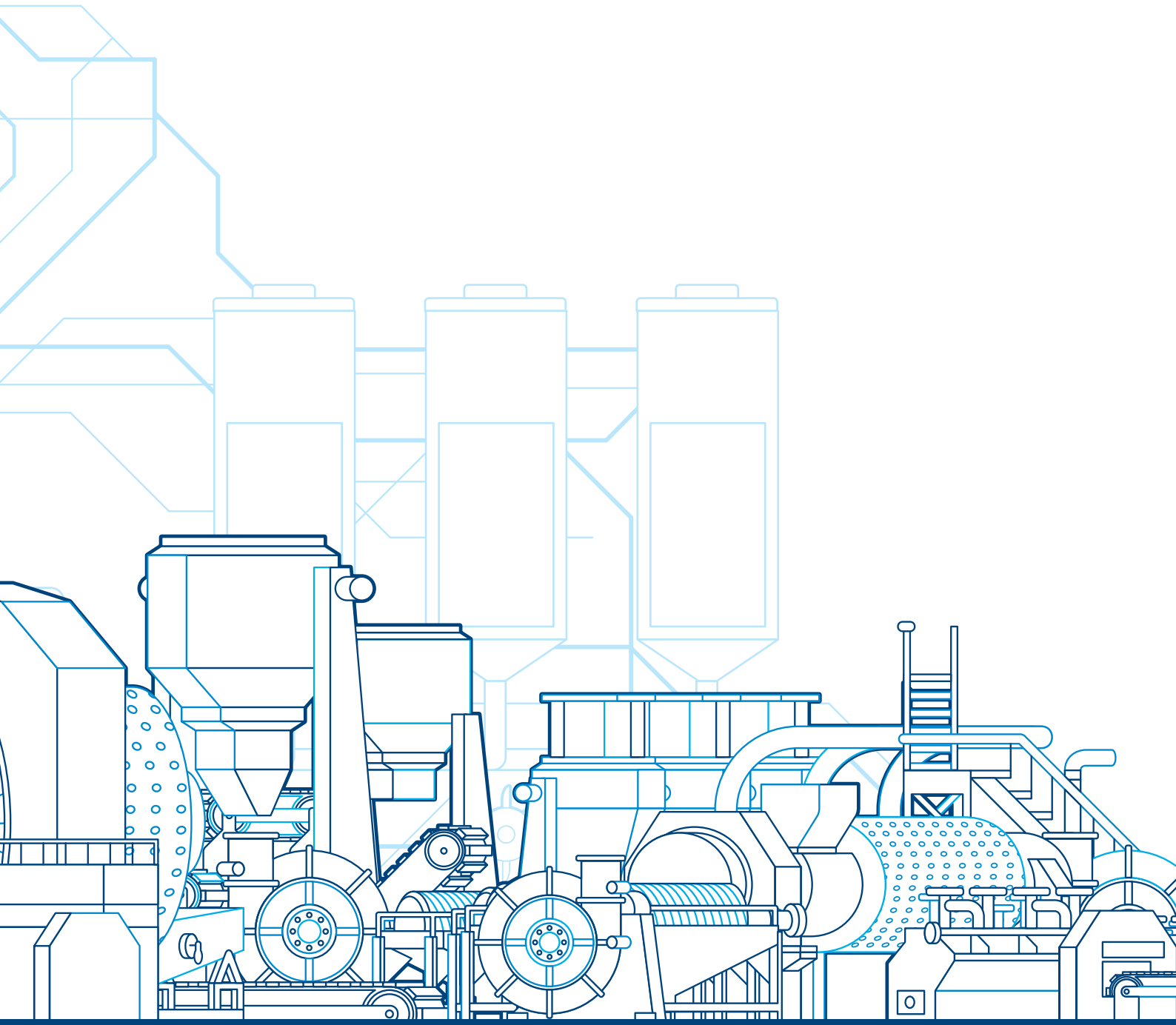
CL-LDC.S..

Ordering details - Display modules

Rated operational voltage	Description	Factory code	Order code
–	Graphic display 132 x 64 pixel	1SVR440839R4500	CL-LDD.XK
–	Graphic display 132 x 64 pixel, with keypad	1SVR440839R4400	CL-LDD.K
24 V DC	Module to displace the display from the logic relay, incl. connecting cable CL-LAD.TK007, 5m, length adaptable	1SVR440841R0000	CL-LDC.SDC2
100 – 240 V AC		1SVR440843R0000	CL-LDC.SAC2

STOCK INDENT

For your notes



Arc Guard System™

Functionality 578

Ordering details 579

11

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

– Arc Guard System™ – 1SFC170001C0201

Functionality

Arc Monitor

With its modular concept, the Arc Monitor is designed to fit all types and sizes of low and medium voltage switchgears. It is designed according to Functional Safety, and is SIL 2- certified according to IEC 61508 and IEC 62061 which puts full focus on reliability. This corresponds to performance level d according to EN ISO 13849-1. Safety functions are exclu- sively handled by hardware. In addition, the system, trip logs and user-interface are all microprocessor-monitored.

The system can be configured to trip selected breakers, depending on which sensor detects light. The dip-switches that take care of this function also handle settings like auto-reset and Current Sensing Units (see pages 12-13 for more details).

Energy is stored in the unit for operation up to 0.2 s if the supply voltage fails. This is sufficient to close the tripping circuit even if voltage disappears at a short-circuit fault.

Note: The circuit breaker still needs a back-up energy source for its tripping circuit.

Connections

All connections can be accessed from the front of the arc monitor. Pluggable terminal blocks allow electrical wiring before mounting TVOC-2 into the cabinet.
The solid state tripping contacts are type IGBT, which guarantees fast and reliable tripping.

HMI (Human Machine Interface)

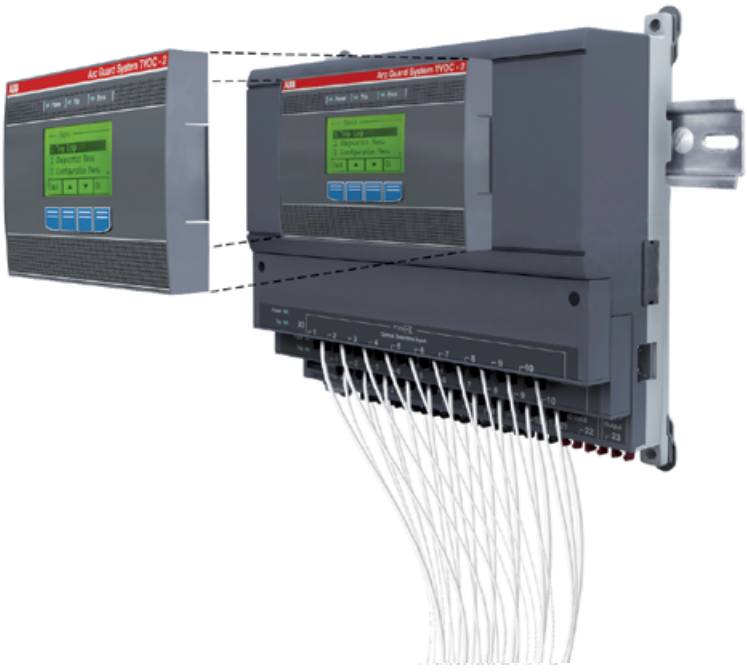
- Handles settings with key-pad and full text display.
- Holds error log and trip information after power loss.
- Error log and trip log include time/date stamp from a real-time clock.
- TVOC-2 can handle two separate HMI:s (cabinet door and on product).
- Three-meter cable included.

Sensor & Sensor modules

- Fibre-optic sensors not affected by electrical noise
- Pre-calibrated sensors remove need for manual configuration
- Up to 30 detectors can be connected

Current Sensing Unit (optional)

The Current Sensing Unit is an accessory needed only in those few specific applications where strong light is expected on a regular basis.
Current sensing units (CSUs) are connected with an optical fibre using light as signal for normal current. If this was removed by accident, the system would treat it as an over-current and trip if an arc flash is seen of reliability reasons.



Arc Monitor connections

- 3 IGBT solid state tripping contacts
- 2 change-over trip signal relays
- 1 change-over self supervision alarm relay
- 2 current sensing unit inputs
- 1 current sensing unit output

Mounting alternatives

- DIN-rail
- Wall mounting

Optical detector inputs

- 1-10 Main unit X1
- 1-10 Extension module X2
- 1-10 Extension module X3

HMI

- Can be mounted on door
- IP 54
- Additional HMI possible
- User-friendly start up menu

Ordering details

Arc monitor

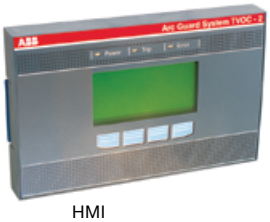
Arc Monitor

Description	Factory code	Order code
including one HMI and door mounting accessories 100 – 240V AC/DC	1SFA664001R1001	TVOC-2-240
including one HMI and door mounting accessories 24 – 48V AC/DC	1SFA664001R1002	TVOC-2-48

Extension unit

Extension

Description	Factory code	Order code
10 optical inputs	1SFA664002R1001	TVOC-2-E1
10 optical inputs for 60 meter detector cable	1SFA664002R3001	TVOC-2-E3



HMI

HMI (Human machine interface)

Description	Factory code	Order code
additional	1SFA664002R1005	TVOC-2-H1

Detector cable

Detectors

Cable length	Factory code	Order code
1 m	1SFA664003R1010	TVOC-2-DP1
2 m	1SFA664003R1020	TVOC-2-DP2
4 m	1SFA664003R1040	TVOC-2-DP4
6 m	1SFA664003R1060	TVOC-2-DP6
8 m	1SFA664003R1080	TVOC-2-DP8
10 m	1SFA664003R1100	TVOC-2-DP10
15 m	1SFA664003R1150	TVOC-2-DP15
20 m	1SFA664003R1200	TVOC-2-DP20
25 m	1SFA664003R1250	TVOC-2-DP25
30 m	1SFA664003R1300	TVOC-2-DP30
60 m *	1SFA664003R3600	TVOC-2-DP60

* Only to be used with TVOC-2-E3

Ordering details

CSU

Current sensing unit

Description	Factory code	Order code
Current sensing unit	1SFA663002-A	TVOC-CSU

Optical cable TVOC-2 – CSU

Optical cable between TVOC-2 Arc monitor and Current sensing unit

Cable length	Factory code	Order code
0.5 m	1SFA664004R2005	TVOC-1TO2-OP05
1 m	1SFA664004R2010	TVOC-1TO2-OP1
2 m	1SFA664004R2020	TVOC-1TO2-OP2
4 m	1SFA664004R2040	TVOC-1TO2-OP4
6 m	1SFA664004R2060	TVOC-1TO2-OP6
8 m	1SFA664004R2080	TVOC-1TO2-OP8
10 m	1SFA664004R2100	TVOC-1TO2-OP10
15 m	1SFA664004R2150	TVOC-1TO2-OP15
20 m	1SFA664004R2200	TVOC-1TO2-OP20
25 m	1SFA664004R2250	TVOC-1TO2-OP25
30 m	1SFA664004R2300	TVOC-1TO2-OP30

Optical cable TVOC-2 – TVOC-2

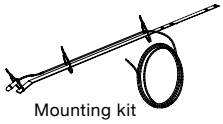
Optical cable between two TVOC-2 – Arc monitors (transfering CSU signal)

Cable length	Factory code	Order code
0.5 m	1SFA664004R1005	TVOC-2-OP05
1 m	1SFA664004R1010	TVOC-2-OP1
2 m	1SFA664004R1020	TVOC-2-OP2
4 m	1SFA664004R1040	TVOC-2-OP4
6 m	1SFA664004R1060	TVOC-2-OP6
8 m	1SFA664004R1080	TVOC-2-OP8
10 m	1SFA664004R1100	TVOC-2-OP10
15 m	1SFA664004R1150	TVOC-2-OP15
20 m	1SFA664004R1200	TVOC-2-OP20
25 m	1SFA664004R1250	TVOC-2-OP25
30 m	1SFA664004R1300	TVOC-2-OP30

Cable strap

Cable straps

Description	Factory code	Order code
1 set incl. 50 pcs	1SFA664006R1001	TVOC-2-MK1



Mounting kit

Mounting kit

Description	Factory code	Order code
600 mm	1SFA663006R1001	TVOC-2-MTGK600
800/1000 mm	1SFA663006R1002	TVOC-2-MTGK1000

Label

Label

Description	Factory code	Order code
1 set incl.10 pcs	1SFA663005R1001	TVOC-2-LABEL

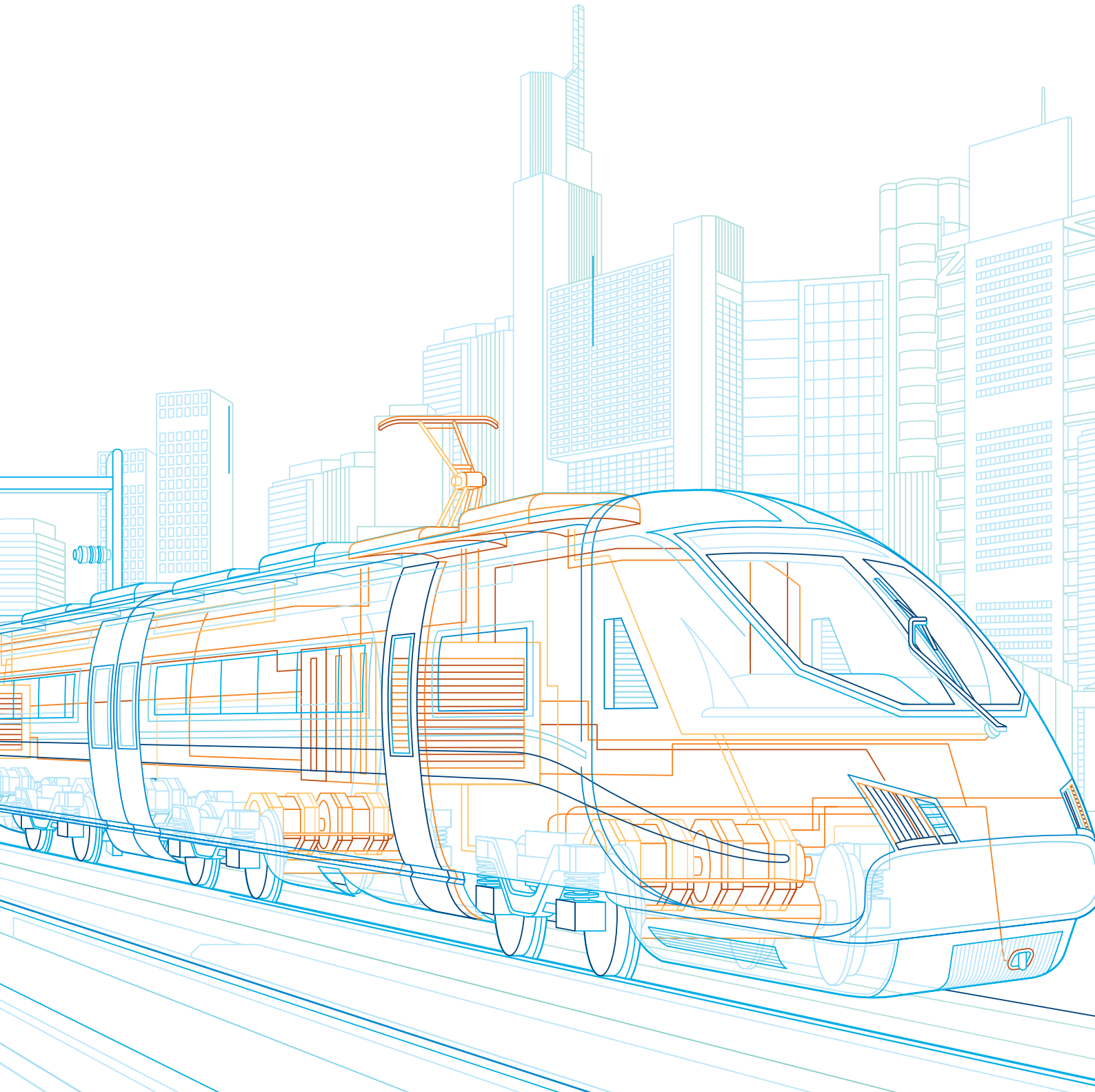
Mounting bracket

Mounting bracket

Description	Factory code	Order code
1 set incl. 5 bracket pcs and 10 cable strap pcs	1SFA663006R1010	TVOC-2-MTGB

STOCK INDENT

For your notes



Terminal Blocks – SNK Series

PI-Spring and Screw clamp technologies – Overview 584

PI-Spring technology 586
Feed-through and ground 588
Double deck 590
Disconnect 590
Fuse holder 591

Screw clamp technology 592
Feed-through and ground 592
Double deck 594
Triple deck 595
Disconnect 595
Fuse holder 597
Test and measurement 597

Accessories 598
Common accessories 598
PI-Spring terminal block accessories 599
Screw clamp terminal block accessories 599

Common markers and marking systems 600
Markers for SNK series terminal blocks 600
Universal marker holders for wire markers 600
Labels for end stops 600

Marking systems 601
For high volume terminal blocks applications 601
For versatile applications 601
For basic marking applications 601

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

– SNK series: Terminal blocks – 1SNK160027C0204

SNK series, terminal blocks
PI-Spring and Screw clamp technologies – Overview

Smart
Connections

PI-Spring, the benefits of 2 technologies in 1 connection

50% faster connection time with Push-In mode

Our connection technology allows a direct one step insertion with rigid and prepared flexible conductors.

Reduced effort and conductor preparation time with spring mode

Our connection requires minimal effort to insert wires with the screwdriver. Flexible conductors preparation is not necessary.

Screw clamp, the benchmark for many years

100% proven

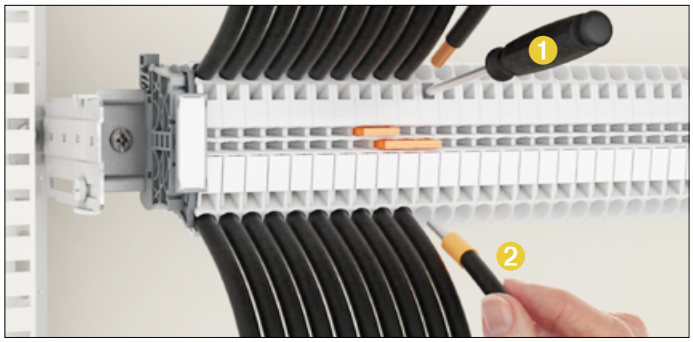
ABB Screw clamp technology benefits from 50 years of experience. Billions of our screw clamps have been manufactured and are used worldwide every day.

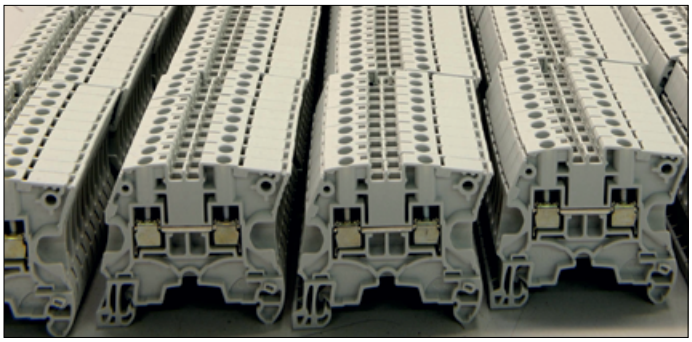
Zero re-tightening

The ABB exclusive anti-release system locks the screw in total safety and avoids retightening campaigns.

12

❶ Spring mode with a screwdriver ❷ Push-In mode for a direct insertion





Smart Logistics

Selection is simplified, stocking is significantly reduced

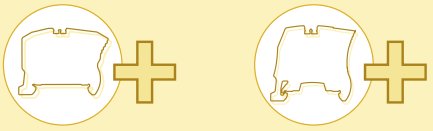
Significant reduction of part numbers to manage

Stock only one screwless range, get two connection modes (Push-in and Spring).
The user selects one range which has global certifications and access to markets and applications worldwide.

Reduce your accessories inventory by up to 50%

SNK PI-Spring and Screw ranges share the same accessories.
All end sections and circuit separators fit several types and sizes of blocks.

Smart Design



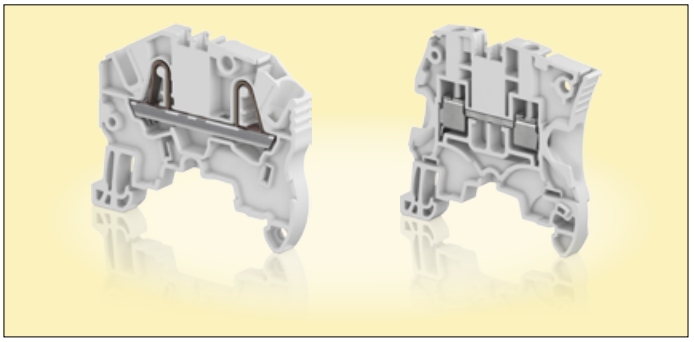
Installation is optimized and secured

Avoid mounting and wiring errors

Asymmetrical design allows immediate visual check in case of reversed terminal blocks.
Circuit identification is improved thanks to the 20% larger marking area.

Speed up your projects

Pre-mark by hand or with label on our flat marking surface and start immediately the wiring, before the final markers mounting.
Spare markers re-printing as well in case of modifications.
Convenient jumpering system thanks to cuttable screwless jumper bars, up to 50 poles.



SNK series, terminal blocks
PI-Spring technology

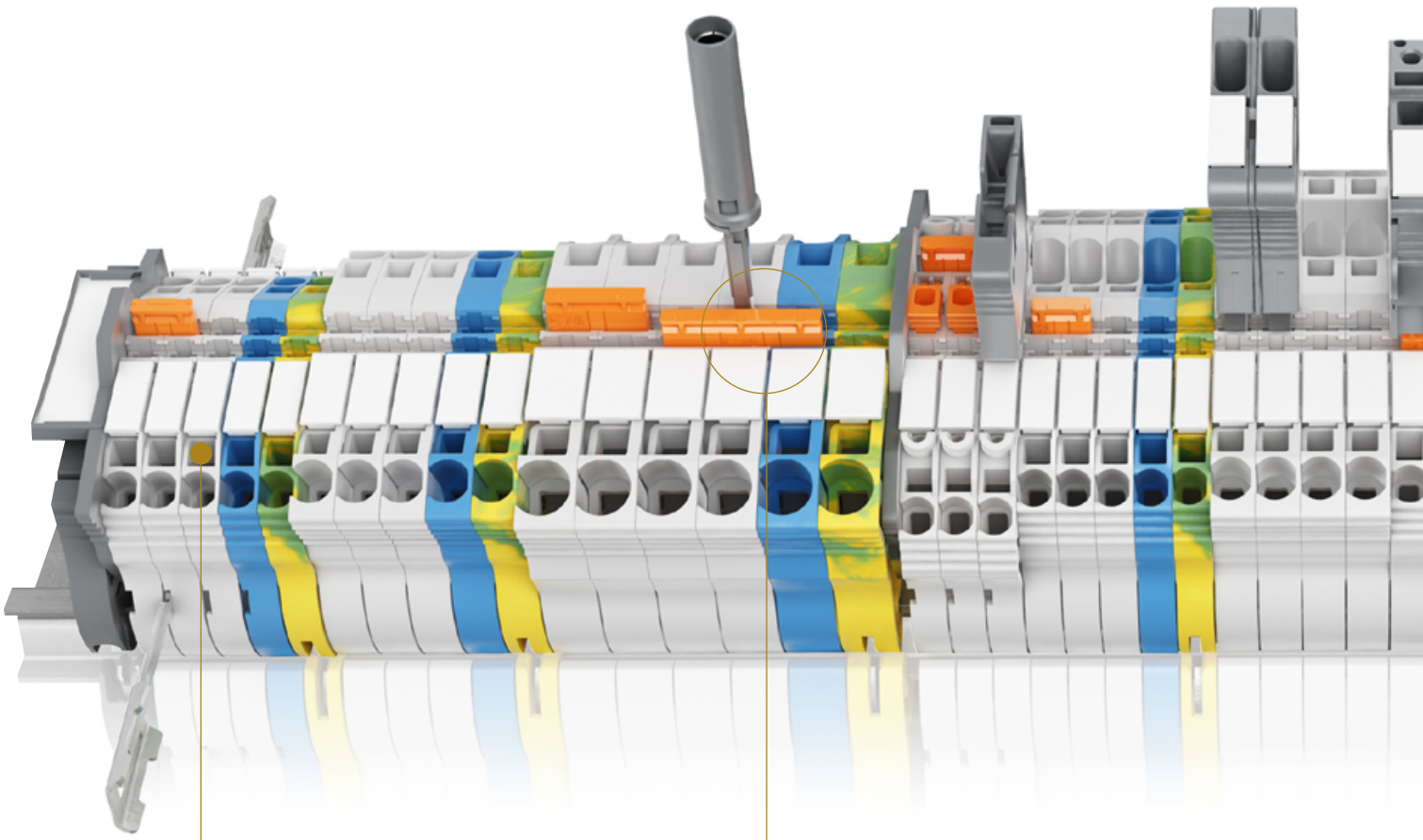
Range overview from 2.5 to 16 mm²

2 Connections

Single deck
Feed-through
Ground
Disconnect
Fuse

3 Connections

Single deck
Feed-through
Ground



Voltage test
screwdriver entry point
accepts Category II probes

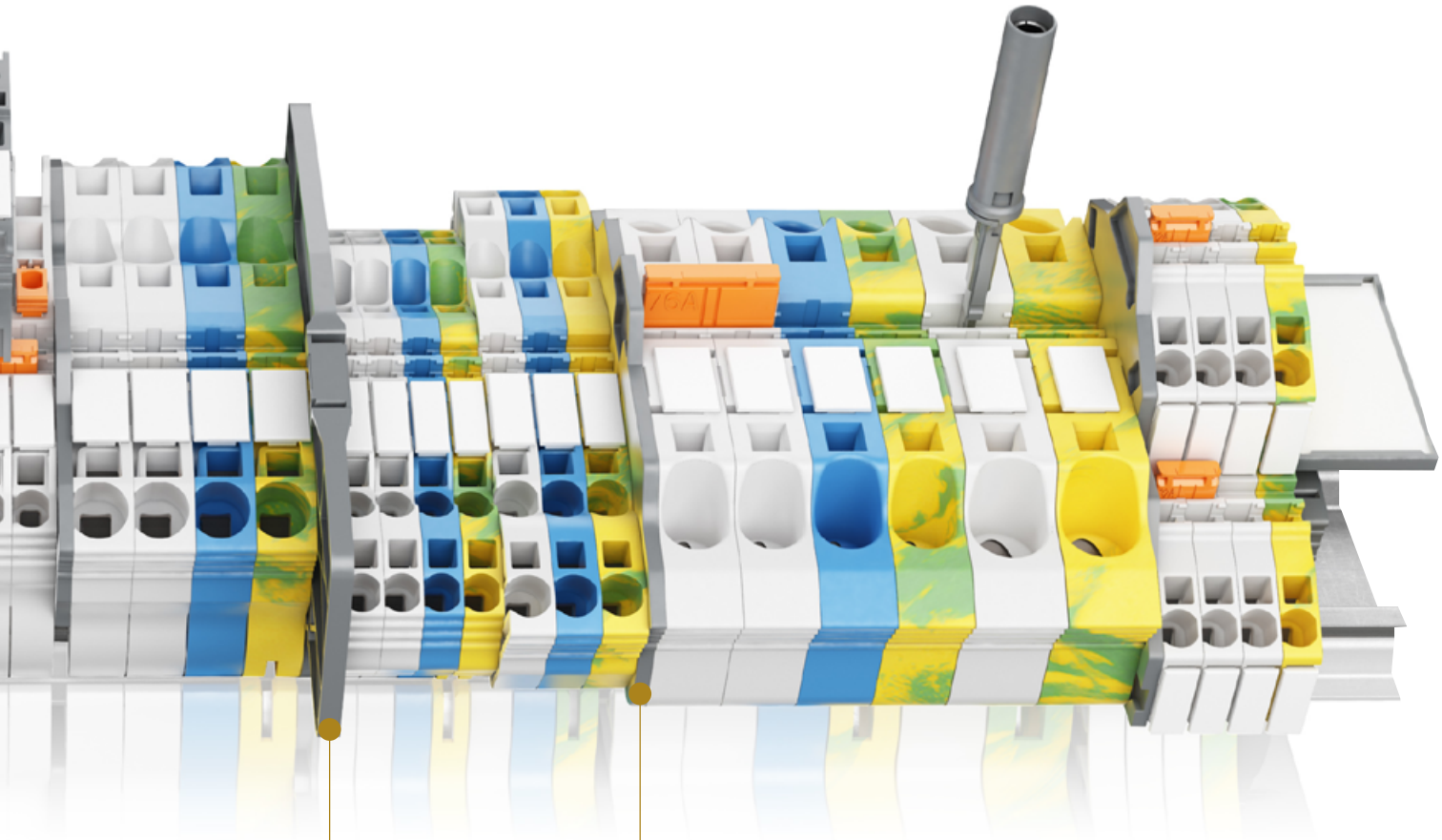
Double central channels
allows multiconfigurations
(jumpering, testing and measuring)

Connections

Single deck
Feed-through
Ground

Connections

Double deck
Feed-through
Ground



Two circuit separators
for the entire range

End section
can be used as circuit separator

SNK series, terminal blocks
PI-Spring technology

						Terminal blocks		End sections	Jumper bars			Marking
Type	Function	Cross section IEC	Spacing	Rated current	Colour	Factory code	Order code	Factory code Order code	No. of poles	Factory code	Order code	
Feed-through and ground terminal blocks – 2 PI-Spring												
ZK2.5		2.5 mm²	5.2 mm	24 A	Grey	1SNK705010R0000	ZK2.5	1SNK705910R0000 EK2.5				MC512 MC512PA MG-CPM-13
		2.5 mm²			Blue	1SNK705020R0000	ZK2.5-BL		2	1SNK905302R0000	JB5-2	
		4 mm²			Orange	1SNK705030R0000	ZK2.5-OR		3	1SNK905303R0000	JB5-3	
					Yellow	1SNK705060R0000	ZK2.5-YL		4	1SNK905304R0000	JB5-4	
					Green	1SNK705061R0000	ZK2.5-GN		5	1SNK905305R0000	JB5-5	
					Red	1SNK705062R0000	ZK2.5-RD		10	1SNK905310R0000	JB5-10	
					White	1SNK705065R0000	ZK2.5-WH		50	1SNK905350R0000	JB5-50	
					Black	1SNK705066R0000	ZK2.5-BK					
ZK2.5-PE		2.5 mm²	5.2 mm	300 A/1s	Green-yellow	1SNK705150R0000	ZK2.5-PE					
		2.5 mm²										
		4 mm²										
ZK4		4 mm²	6 mm	32 A					2	1SNK906302R0000	JB6-2	MC612 MC612PA MG-CPM-13
		4 mm²			Grey	1SNK706010R0000	ZK4		3	1SNK906303R0000	JB6-3	
		6 mm²			Blue	1SNK706020R0000	ZK4-BL		4	1SNK906304R0000	JB6-4	
					Orange	1SNK706030R0000	ZK4-OR		5	1SNK906305R0000	JB6-5	
									10	1SNK906310R0000	JB6-10	
									50	1SNK906350R0000	JB6-50	
ZK4-PE		4 mm²	6 mm	480 A/1s	Green-yellow	1SNK706150R0000	ZK4-PE					
		4 mm²										
		6 mm²										
ZK6		6 mm²	8 mm	41 A					2	1SNK908302R0000	JB8-2	MC812 MC812PA MG-CPM-13
		6 mm²			Grey	1SNK708010R0000	ZK6		3	1SNK908303R0000	JB8-3	
		10 mm²			Blue	1SNK708020R0000	ZK6-BL		4	1SNK908304R0000	JB8-4	
					Orange	1SNK708030R0000	ZK6-OR		5	1SNK908305R0000	JB8-5	
									10	1SNK908310R0000	JB8-10	
ZK6-PE		6 mm²	8 mm	720 A/1s	Green-yellow	1SNK708150R0000	ZK6-PE					
		6 mm²										
		10 mm²										
ZK10		10 mm²	10 mm	57 A				1SNK710910R0000 EK10	2	1SNK910302R0000	JB10-2	
		10 mm²			Grey	1SNK710010R0000	ZK10		3	1SNK910303R0000	JB10-3	
		16 mm²			Blue	1SNK710020R0000	ZK10-BL		4	1SNK910304R0000	JB10-4	
					Orange	1SNK710030R0000	ZK10-OR		5	1SNK910305R0000	JB10-5	
									10	1SNK910310R0000	JB10-10	
ZK10-PE		10 mm²	10 mm	1200 A/1s	Green-yellow	1SNK710150R0000	ZK10-PE					
		10 mm²										
		16 mm²										
ZK16		16 mm²	12 mm	76 A					2	1SNK912302R0000	JB12-2	
		16 mm²			Grey	1SNK712010R0000	ZK16		3	1SNK912303R0000	JB12-3	
		25 mm²			Blue	1SNK712020R0000	ZK16-BL		5	1SNK912305R0000	JB12-5	
ZK16-PE		16 mm²	12 mm	1960 A/1s	Green-yellow	1SNK712150R0000	ZK16-PE					
		16 mm²										
		25 mm²										

Flexible (IEC) stranded conductor Flexible with insulated ferrule Rigid conductor

STOCK INDENT

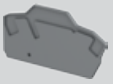
SNK series, terminal blocks
PI-Spring technology

Type	Function	Cross section IEC	Spacing	Rated current	Colour	Terminal blocks: Factory code	Terminal blocks: Order code	End sections: Factory code / Order code	Jumper bars: No. of poles	Jumper bars: Factory code	Jumper bars: Order code	Marking
Feed-through and ground terminal blocks – 3 PI-Spring												
ZK2.5-3P		2.5 mm²	5.2 mm	24 A	Grey	1SNK705011R0000	ZK2.5-3P	1SNK705911R0000 **EK2.5-3P**				MC512 MC512PA MG-CPM-13
		2.5 mm²			Blue	1SNK705021R0000	ZK2.5-3P-BL		2	1SNK905302R0000	JB5-2	
					Orange	1SNK705031R0000	ZK2.5-3P-OR		3	1SNK905303R0000	JB5-3	
					Yellow	1SNK705067R0000	ZK2.5-3P-YL		4	1SNK905304R0000	JB5-4	
					Green	1SNK705068R0000	ZK2.5-3P-GN		5	1SNK905305R0000	JB5-5	
		4 mm²			Red	1SNK705069R0000	ZK2.5-3P-RD		10	1SNK905310R0000	JB5-10	
					White	1SNK705072R0000	ZK2.5-3P-WH		50	1SNK905350R0000	JB5-50	
					Black	1SNK705073R0000	ZK2.5-3P-BK					
ZK2.5-PE-3P		2.5 mm²	5.2 mm	300 A/1s	Green-yellow	1SNK705151R0000	ZK2.5-PE-3P					
		2.5 mm²										
		4 mm²										
ZK4-3P		4 mm²	6 mm	32 A	Grey	1SNK706011R0000	ZK4-3P		2	1SNK906302R0000	JB6-2	MC612 MC612PA MG-CPM-13
		4 mm²			Blue	1SNK706021R0000	ZK4-3P-BL		3	1SNK906303R0000	JB6-3	
					Orange	1SNK706031R0000	ZK4-3P-OR		4	1SNK906304R0000	JB6-4	
		6 mm²							5	1SNK906305R0000	JB6-5	
									10	1SNK906310R0000	JB6-10	
									50	1SNK906350R0000	JB6-50	
ZK4-PE-3P		4 mm²	6 mm	480 A/1s	Green-yellow	1SNK706151R0000	ZK4-PE-3P					
		4 mm²										
		6 mm²										
ZK6-3P		6 mm²	8 mm	41 A	Grey	1SNK708011R0000	ZK6-3P	1SNK708911R0000 **EK6-3P**	2	1SNK908302R0000	JB8-2	MC812 MC812PA MG-CPM-13
		6 mm²			Blue	1SNK708021R0000	ZK6-3P-BL		3	1SNK908303R0000	JB8-3	
					Orange	1SNK708031R0000	ZK6-3P-OR		4	1SNK908304R0000	JB8-4	
		10 mm²							5	1SNK908305R0000	JB8-5	
									10	1SNK908310R0000	JB8-10	
ZK6-PE-3P		6 mm²	8 mm	720 A/1s	Green-yellow	1SNK708151R0000	ZK6-PE-3P					
		6 mm²										
		10 mm²										
Feed-through and ground terminal blocks – 4 PI-Spring												
ZK2.5-4P		2.5 mm²	5.2 mm	24 A	Grey	1SNK705012R0000	ZK2.5-4P	1SNK705912R0000 **EK2.5-4P**				MC512 MC512PA MG-CPM-13
		2.5 mm²			Blue	1SNK705022R0000	ZK2.5-4P-BL		2	1SNK905302R0000	JB5-2	
					Orange	1SNK705032R0000	ZK2.5-4P-OR		3	1SNK905303R0000	JB5-3	
					Yellow	1SNK705074R0000	ZK2.5-4P-YL		4	1SNK905304R0000	JB5-4	
					Green	1SNK705075R0000	ZK2.5-4P-GN		5	1SNK905305R0000	JB5-5	
		4 mm²			Red	1SNK705076R0000	ZK2.5-4P-RD		10	1SNK905310R0000	JB5-10	
					White	1SNK705079R0000	ZK2.5-4P-WH		50	1SNK905350R0000	JB5-50	
					Black	1SNK705080R0000	ZK2.5-4P-BK					
ZK2.5-PE-4P		2.5 mm²	5.2 mm	300 A/1s	Green-yellow	1SNK705152R0000	ZK2.5-PE-4P					
		2.5 mm²										
		4 mm²										
ZK4-4P		4 mm²	6 mm	32 A	Grey	1SNK706012R0000	ZK4-4P		2	1SNK906302R0000	JB6-2	MC612 MC612PA MG-CPM-13
		4 mm²			Blue	1SNK706022R0000	ZK4-4P-BL		3	1SNK906303R0000	JB6-3	
					Orange	1SNK706032R0000	ZK4-4P-OR		4	1SNK906304R0000	JB6-4	
		6 mm²							5	1SNK906305R0000	JB6-6	
									10	1SNK906310R0000	JB6-10	
									50	1SNK906350R0000	JB6-50	
ZK4-PE-4P		4 mm²	6 mm	480 A/1s	Green-yellow	1SNK706152R0000	ZK4-PE-4P					
		4 mm²										
		6 mm²										

Flexible (IEC) stranded conductor Flexible with insulated ferrule Rigid conductor

STOCK INDENT

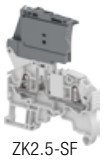
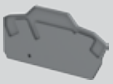
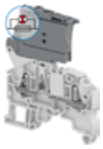
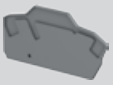
SNK series, terminal blocks
PI-Spring technology

Type	Function	Cross section IEC	Spacing	Rated current	Colour	Terminal blocks: Factory code	Terminal blocks: Order code	End sections: Factory code Order code	Jumper bars: No. of poles	Jumper bars: Factory code	Jumper bars: Order code	Marking
Double deck terminal blocks												
ZK2.5-D2		2.5 mm²	5.2 mm	24 A				1SNK705960R0000 **EK2.5-D2**				MC512 MC512PA MG-CPM-13
		2.5 mm²			Grey	1SNK705210R0000	ZK2.5-D2					
		2.5 mm²			Blue	1SNK705220R0000	ZK2.5-D2-BL					
		4 mm²										
ZK2.5-D1		2.5 mm²	5.2 mm	24 A					2	1SNK905302R0000	JB5-2	
		2.5 mm²							3	1SNK905303R0000	JB5-3	
		2.5 mm²							4	1SNK905304R0000	JB5-4	
		4 mm²			Grey	1SNK705211R0000	ZK2.5-D1		5	1SNK905305R0000	JB5-5	
									10	1SNK905310R0000	JB5-10	
									50	1SNK905350R0000	JB5-50	
ZK2.5-D2-PE		2.5 mm²	5.2 mm	24/300 A/1s								
		2.5 mm²			Grey and Green-yellow	1SNK705212R0000	ZK2.5-D2-PE					
		4 mm²										
ZK2.5-D1-PE		2.5 mm²	5.2 mm	300 A/1s								
		2.5 mm²			Green-yellow	1SNK705250R0000	ZK2.5-D1-PE					
		4 mm²										
Disconnect terminal blocks												
ZK2.5-S		2.5 mm²	5.2 mm	20 A				 1SNK705911R0000 **EK2.5-3P**				MC512 MC512PA MG-CPM-13
		2.5 mm²			Grey	1SNK705310R0000	ZK2.5-S					
		2.5 mm²			Blue	1SNK705320R0000	ZK2.5-S-BL		2	1SNK905302R0000	JB5-2	
		4 mm²			Orange	1SNK705330R0000	ZK2.5-S-OR		3	1SNK905303R0000	JB5-3	
									4	1SNK905304R0000	JB5-4	
ZK2.5-SP		2.5 mm²	5.2 mm	16 A					5	1SNK905305R0000	JB5-5	
		2.5 mm²			Grey	1SNK705311R0000	ZK2.5-SP		10	1SNK905310R0000	JB5-10	
		4 mm²							50	1SNK905350R0000	JB5-50	
Component plugs for ZK2.5-SP												
PG5...	Component insertion in series with circuit	5.2 mm			Dark grey	1SNK900401R0000	PG5					MC512 MC512PA MG-CPM-13
	Equipped with linking bar	5.2 mm			Orange	1SNK900402R0000	PG5-R1					

Flexible (IEC) stranded conductor Flexible with insulated ferrule Rigid conductor

STOCK INDENT

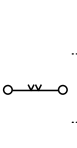
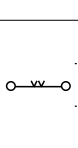
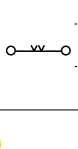
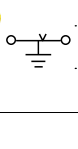
SNK series, terminal blocks
PI-Spring technology

						Terminal blocks		End sections	Jumper bars			Marking
Type	Function	Cross section IEC	Spacing	Rated current	Colour	Factory code	Order code	Factory code Order code	No. of poles	Factory code	Order code	
Fuse holder terminal blocks 5 x 20 mm fuses												
 ZK2.5-SF		2.5 mm²	6 mm	6.3 A	Grey	1SNK706410R0000	ZK2.5-SF	 1SNK705911R0000 **EK2.5-3P**	2	1SNK906302R0000	JB6-2	MC612 MC612PA MG-CPM-13
		2.5 mm²							3	1SNK906303R0000	JB6-3	
		4 mm²							4	1SNK906304R0000	JB6-4	
 ZK2.5-SF-R...		2.5 mm²	6 mm	6.3 A	Grey	**24 – 110 V AC/DC** 1SNK706411R0000	ZK2.5-SF-R1		5	1SNK906305R0000	JB6-5	
		2.5 mm²							10	1SNK906310R0000	JB6-10	
		4 mm²				**115 – 250 V AC/DC** 1SNK706412R0000	ZK2.5-SF-R3		50	1SNK906350R0000	JB6-50	
Disconnect terminal block aligned with ZK4-3P and ZK2.5-SF												
ZK2.5-S-R1		2.5 mm²	6 mm	20 A	Grey	1SNK706310R0000	ZK2.5-S-R1	 1SNK705911R0000 **EK2.5-3P**	2	1SNK906302R0000	JB6-2	MC612 MC612PA MG-CPM-13
		2.5 mm²							3	1SNK906303R0000	JB6-3	
		4 mm²							4	1SNK906304R0000	JB6-4	
									5	1SNK906305R0000	JB6-5	
									10	1SNK906310R0000	JB6-10	
									50	1SNK906350R0000	JB6-50	

Flexible (IEC) stranded conductor Flexible with insulated ferrule Rigid conductor

STOCK INDENT

SNK series, terminal blocks
Screw clamp technology

Type	Function	Cross section IEC	Spacing	Rated current	Colour	Terminal blocks: Factory code	Terminal blocks: Order code	End sections: Factory code / Order code	Jumper bars: No. of poles	Jumper bars: Factory code	Jumper bars: Order code	Marking
Feed-through and ground terminal blocks												
ZS4		4 mm²	5.2 mm	32 A	Grey	1SNK505010R0000	ZS4	1SNK505910R0000 **ES4**				MC512 MC512PA MG-CPM-13
		2.5 mm²			Blue	1SNK505020R0000	ZS4-BL		2	1SNK905302R0000	JB5-2	
					Orange	1SNK505030R0000	ZS4-OR		3	1SNK905303R0000	JB5-3	
					Yellow	1SNK505060R0000	ZS4-YL		4	1SNK905304R0000	JB5-4	
					Green	1SNK505061R0000	ZS4-GN		5	1SNK905305R0000	JB5-5	
		4 mm²			Red	1SNK505062R0000	ZS4-RD		10	1SNK905310R0000	JB5-10	
					White	1SNK505065R0000	ZS4-WH		50	1SNK905350R0000	JB5-50	
					Black	1SNK505066R0000	ZS4-BK					
ZS4-PE		4 mm²	5.2 mm	480 A / 1s	Green-yellow	1SNK505150R0000	ZS4-PE					
		2.5 mm²										
		4 mm²										
ZS6		6 mm²	6 mm	41 A	Grey	1SNK506010R0000	ZS6					MC612 MC612PA MG-CPM-13
		4 mm²			Blue	1SNK506020R0000	ZS6-BL		2	1SNK906302R0000	JB6-2	
					Orange	1SNK506030R0000	ZS6-OR		3	1SNK906303R0000	JB6-3	
					Yellow	1SNK506060R0000	ZS6-YL		4	1SNK906304R0000	JB6-4	
					Green	1SNK506061R0000	ZS6-GN		5	1SNK906305R0000	JB6-5	
		6 mm²			Red	1SNK506062R0000	ZS6-RD		10	1SNK906310R0000	JB6-10	
					White	1SNK506065R0000	ZS6-WH		50	1SNK906350R0000	JB6-50	
					Black	1SNK506066R0000	ZS6-BK					
ZS6-PE		6 mm²	6 mm	720 A / 1s	Green-yellow	1SNK506150R0000	ZS6-PE					
		4 mm²										
		6 mm²										
ZS10		10 mm²	8 mm	57 A	Grey	1SNK508010R0000	ZS10					MC812 MC812PA MG-CPM-13
		6 mm²			Blue	1SNK508020R0000	ZS10-BL		2	1SNK908302R0000	JB8-2	
					Orange	1SNK508030R0000	ZS10-OR		3	1SNK908303R0000	JB8-3	
					Yellow	1SNK508060R0000	ZS10-YL		4	1SNK908304R0000	JB8-4	
					Green	1SNK508061R0000	ZS10-GN		5	1SNK908305R0000	JB8-5	
		10 mm²			Red	1SNK508062R0000	ZS10-RD		10	1SNK908310R0000	JB8-10	
					White	1SNK508065R0000	ZS10-WH					
					Black	1SNK508066R0000	ZS10-BK					
ZS10-PE		10 mm²	8 mm	1200 A / 1s	Green-yellow	1SNK508150R0000	ZS10-PE					
		6 mm²										
		10 mm²										
ZS16		16 mm²	10 mm	76 A					2	1SNK910302R0000	JB10-2	
		10 mm²			Grey	1SNK510010R0000	ZS16		3	1SNK910303R0000	JB10-3	
					Blue	1SNK510020R0000	ZS16-BL		4	1SNK910304R0000	JB10-4	
					Orange	1SNK510030R0000	ZS16-OR		5	1SNK910305R0000	JB10-5	
		16 mm²							10	1SNK910310R0000	JB10-10	
ZS16-PE		16 mm²	10 mm	1920 A / 1s	Green-yellow	1SNK510150R0000	ZS16-PE					
		10 mm²										
		16 mm²										
ZS25		25 mm²	12 mm	101 A	Grey	1SNK512010R0000	ZS25		2	1SNK912302R0000	JB12-2	
		16 mm²			Blue	1SNK512020R0000	ZS25-BL		3	1SNK912303R0000	JB12-3	
					Yellow	1SNK512060R0000	ZS25-YL		5	1SNK912305R0000	JB12-5	
		25 mm²										
ZS25-PE		25 mm²	12 mm	1920 A / 1s	Green-yellow	1SNK512150R0000	ZS25-PE					
		16 mm²										
		25 mm²										

Flexible (IEC) stranded conductor Flexible with insulated ferrule Rigid conductor

STOCK INDENT

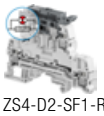
SNK series, terminal blocks
Screw clamp technology

Type	Function	Cross section IEC	Spacing	Rated current	Colour	Terminal blocks Factory code	Terminal blocks Order code	End sections Factory code Order code	Jumper bars No. of poles	Jumper bars Factory code	Jumper bars Order code	Marking
Feed-through and ground terminal blocks, closed												
ZS35		35 mm² / 35 mm² / 35 mm²	16 mm	125 A	Grey	1SNK516010R0000	ZS35	Closed	2	1SNK916302R0000	JB16-2	MC812 MC812PA MG-CPM-13
									3	1SNK916303R0000	JB16-3	
					Blue	1SNK516020R0000	ZS35-BL		4	1SNK916304R0000	JB16-4	
					Orange	1SNK516030R0000	ZS35-OR		5	1SNK916305R0000	JB16-5	
									10	1SNK916310R0000	JB16-10	
ZS35-PE		35 mm² / 35 mm² / 35 mm²	16 mm	4200 A / 1s	Green-yellow	1SNK516150R0000	ZS35-PE					
ZS50		50 mm² / 50 mm² / 50 mm²	16 mm	150 A	Grey	1SNK516011R0000	ZS50		2	1SNK916302R0000	JB16-2	
									3	1SNK916303R0000	JB16-3	
					Blue	1SNK516021R0000	ZS50-BL		4	1SNK916304R0000	JB16-4	
					Yellow	1SNK516060R0000	ZS50-YL		5	1SNK916305R0000	JB16-5	
									10	1SNK916310R0000	JB16-10	
ZS50-PE		50 mm² / 50 mm² / 50 mm²	16 mm	6000 A / 1s	Green-yellow	1SNK516151R0000	ZS50-PE					
ZS70		70 mm² / 50 mm² / 95 mm²	22 mm	192 A	Grey	1SNK522010R0000	ZS70		2	1SNK922302R0000	JB22-2	
									3	1SNK922303R0000	JB22-3	
					Blue	1SNK522020R0000	ZS70-BL					
					Yellow	1SNK522060R0000	ZS70-YL		5	1SNK922305R0000	JB22-5	
									10	1SNK922310R0000	JB22-10	
ZS70-PE		70 mm² / 50 mm² / 95 mm²	22 mm	8400 A / 1s	Green-yellow	1SNK522150R0000	ZS70-PE					
ZS95		95 mm² / 50 mm² / 120 mm²	26 mm	232 A	Grey	1SNK526010R0000	ZS95		2	1SNK926302R0000	JB26-2	
									3	1SNK926303R0000	JB26-3	
					Blue	1SNK526020R0000	ZS95-BL					
					Yellow	1SNK526060R0000	ZS95-YL		5	1SNK926305R0000	JB26-5	
									10	1SNK926310R0000	JB26-10	
ZS95-PE		95 mm² / 50 mm² / 120 mm²	26 mm	11400 A / 1s	Green-yellow	1SNK526150R0000	ZS95-PE					
Feed-through and ground terminal blocks – 3 and 4 connections												
ZS6-3S		6 mm² / 4 mm² / 6 mm²	6 mm	39 A	Grey	1SNK506011R0000	ZS6-3S	1SNK505912R0000 **ES6-3S**	2	1SNK906302R0000	JB6-2	MC612 MC612PA MG-CPM-1
									3	1SNK906303R0000	JB6-3	
					Blue	1SNK506021R0000	ZS6-3S-BL		4	1SNK906304R0000	JB6-4	
					Yellow	1SNK506067R0000	ZS6-3S-YL		5	1SNK906305R0000	JB6-5	
									10	1SNK906310R0000	JB6-10	
									50	1SNK906350R0000	JB6-50	
ZS6-3S-PE		6 mm² / 4 mm² / 6 mm²	6 mm	480 A / 1s	Green-yellow	1SNK506151R0000	ZS6-3S-PE					
ZS6-4S		6 mm² / 4 mm² / 6 mm²	6 mm	39 A	Grey	1SNK506012R0000	ZS6-4S	1SNK505911R0000 **ES6-4S**	2	1SNK906302R0000	JB6-2	
									3	1SNK906303R0000	JB6-3	
					Blue	1SNK506022R0000	ZS6-4S-BL		4	1SNK906304R0000	JB6-4	
					Yellow	1SNK506068R0000	ZS6-4S-YL		5	1SNK906305R0000	JB6-5	
									10	1SNK906310R0000	JB6-10	
									50	1SNK906350R0000	JB6-50	
ZS6-4S-PE		6 mm² / 4 mm² / 6 mm²	6 mm	480 A / 1s	Green-yellow	1SNK506152R0000	ZS6-4S-PE					

Flexible (IEC) stranded conductor Flexible with insulated ferrule Rigid conductor

STOCK INDENT

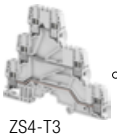
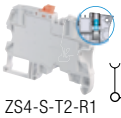
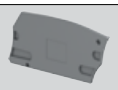
SNK series, terminal blocks
Screw clamp technology

Type	Function	Cross section IEC	Spacing	Rated current	Colour	Terminal blocks: Factory code	Terminal blocks: Order code	End sections: Factory code / Order code	Jumper bars: No. of poles	Jumper bars: Factory code	Jumper bars: Order code	Marking
Double deck terminal blocks												
ZS4-D2		4 mm²	5.2 mm	29 A	Grey	1SNK505210R0000	ZS4-D2	1SNK505960R0000 **ES4-D2**	2	1SNK905302R0000	JB5-2	MC512 MC512PA MG-CPM-13
		2.5 mm²			Blue	1SNK505220R0000	ZS4-D2-BL		3	1SNK905303R0000	JB5-3	
		4 mm²			Orange	1SNK505230R0000	ZS4-D2-OR		4	1SNK905304R0000	JB5-4	
ZS4-D1		4 mm²							5	1SNK905305R0000	JB5-5	
		2.5 mm²			Grey	1SNK505211R0000	ZS4-D1		10	1SNK905310R0000	JB5-10	
		4 mm²							50	1SNK905350R0000	JB5-50	
ZS6-D2		6 mm²	6 mm	40 A	Grey	1SNK506210R0000	ZS6-D2		2	1SNK906302R0000	JB6-2	MC612 MC612PA MG-CPM-13
		4 mm²			Blue	1SNK506220R0000	ZS6-D2-BL		3	1SNK906303R0000	JB6-3	
		6 mm²			Orange	1SNK506230R0000	ZS6-D2-OR		4	1SNK906304R0000	JB6-4	
ZS6-D1		6 mm²							5	1SNK906305R0000	JB6-5	
		4 mm²			Grey	1SNK506211R0000	ZS6-D1		10	1SNK906310R0000	JB6-10	
		6 mm²							50	1SNK906350R0000	JB6-50	
ZS6-D2-PE		6 mm²		41 A								
		4 mm²			Grey	1SNK506212R0000	ZS6-D2-PE					
		6 mm²										
ZS6-D1-PE		6 mm²		720 A / 1s								
		4 mm²			Green-yellow	1SNK506250R0000	ZS6-D1-PE					
		6 mm²										
ZS4-D2-S		4 mm²	5.2 mm	25 / 29 A								
		2.5 mm²			Grey	1SNK505315R0000	ZS4-D2-S		2	1SNK905302R0000	JB5-2	MC512 MC512PA MG-CPM-13
		4 mm²							3	1SNK905303R0000	JB5-3	
ZS4-D2-S-T2		4 mm²							4	1SNK905304R0000	JB5-4	
		2.5 mm²			Grey	1SNK505316R0000	ZS4-D2-S-T2		5	1SNK905305R0000	JB5-5	
		4 mm²							10	1SNK905310R0000	JB5-10	
									50	1SNK905350R0000	JB5-50	
ZS4-D2-SF1		4 mm²	8 mm	6.3 / 32 A				1SNK508911R0000 **ES4-D2-SF1**				
		4 mm²			Grey, Dark grey	1SNK508425R0000	ZS4-D2-SF1		2	1SNK908302R0000	JB8-2	MC812 MC812PA MG-CPM-13
		6 mm²							3	1SNK908303R0000	JB8-3	
 ZS4-D2-SF1-R		4 mm²							4	1SNK908304R0000	JB8-4	
						24 – 110 V AC/DC 1SNK508423R0000	ZS4-D2-SF1-R1		5	1SNK908305R0000	JB8-5	
		4 mm²			Grey, Dark grey				10	1SNK908310R0000	JB8-10	
						115 – 250 V AC/DC 1SNK508424R0000	ZS4-D2-SF1-R3					
		6 mm²										

Flexible (IEC) stranded conductor Flexible with insulated ferrule Rigid conductor

STOCK INDENT

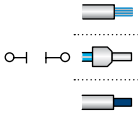
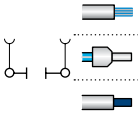
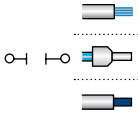
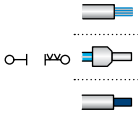
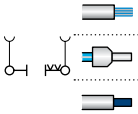
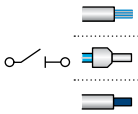
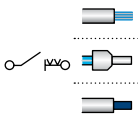
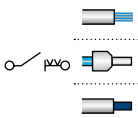
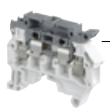
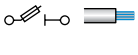
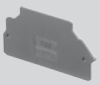
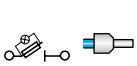
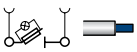
SNK series, terminal blocks
Screw clamp technology

Type	Function	Cross section IEC	Spacing	Rated current	Colour	Terminal blocks: Factory code	Terminal blocks: Order code	End sections: Factory code Order code	Jumper bars: No. of poles	Jumper bars: Factory code	Jumper bars: Order code	Marking
Triple deck terminal blocks												
 ZS4-T3		4 mm²	5.2 mm	32 A	Grey	1SNK505212R0000	ZS4-T3	1SNK505961R0000 **ES4-T3**	2	1SNK905302R0000	JB5-2	MC512 MC512PA MG-CPM-13
		2.5 mm²							3	1SNK905303R0000	JB5-3	
		4 mm²							4	1SNK905304R0000	JB5-4	
									5	1SNK905305R0000	JB5-5	
									10	1SNK905310R0000	JB5-10	
									50	1SNK905350R0000	JB5-50	
ZS4-T3-R1		4 mm²	6 mm	32 A	Grey	1SNK506213R0000	ZS4-T3-R1	**Closed**	2	1SNK906302R0000	JB6-2	
		4 mm²							3	1SNK906303R0000	JB6-3	
		4 mm²							4	1SNK906304R0000	JB6-4	
									5	1SNK906305R0000	JB6-5	
									10	1SNK906310R0000	JB6-10	
Disconnect terminal blocks, with orange blade												
ZS4-S		4 mm²	5.2 mm	25 A	Grey	1SNK505310R0000	ZS4-S	1SNK505910R0000 **ES4**				MC512 MC512PA MG-CPM-13
		2.5 mm²			Blue	1SNK505320R0000	ZS4-S-BL					
		4 mm²			Orange	1SNK505330R0000	ZS4-S-OR					
ZS4-S-T		4 mm²			With 2 test socket screws DIA 2 mm							
					Grey	1SNK505311R0000	ZS4-S-T2					
					Blue	1SNK505321R0000	ZS4-S-T2-BL					
		2.5 mm²			Orange	1SNK505331R0000	ZS4-S-T2-OR					
					With 2 test socket screws DIA 2.3 mm							
		4 mm²			Grey	1SNK505312R0000	ZS4-S-T2.3					
ZS6-S		6 mm²	6 mm	30 A	Grey	1SNK506315R0000	ZS6-S					MC612 MC612PA MG-CPM-13
		4 mm²			Blue	1SNK506322R0000	ZS6-S-BL					
		6 mm²										
ZS10-S		6 mm²	8 mm	42 A	Grey	1SNK508315R0000	ZS10-S					MC812 MC812PA MG-CPM-13
		4 mm²			Blue	1SNK508320R0000	ZS10-S-BL					
		6 mm²										
ZS4-S-R1...		4 mm²	6 mm	26 A	Grey	1SNK506310R0000	ZS4-S-R1	**Closed**				MC612 MC612PA MG-CPM-13
		4 mm²			Blue	1SNK506320R0000	ZS4-S-R1-BL					
		4 mm²			Orange	1SNK506330R0000	ZS4-S-R1-OR					
 ZS4-S-T2-R1		4 mm²			With 2 test socket screws DIA 2 mm				2	1SNK906302R0000	JB6-2	
									3	1SNK906303R0000	JB6-3	
					Grey	1SNK506311R0000	ZS4-S-T2-R1		4	1SNK906304R0000	JB6-4	
					Blue	1SNK506321R0000	ZS4-S-T2-R1-BL		5	1SNK906305R0000	JB6-5	
		4 mm²			Orange	1SNK506331R0000	ZS4-S-T2-R1-OR		10	1SNK906310R0000	JB6-10	
					With 2 test socket screws DIA 2.3 mm							
		4 mm²			Grey	1SNK506312R0000	ZS4-S-T2.3-R1					
ZS6-S-4S-T2		6 mm²	6 mm	27 A				 1SNK505911R0000 **ES6-4S**	2	1SNK906302R0000	JB6-2	
		4 mm²			Grey	1SNK506316R0000	ZS6-S-4S-T2		3	1SNK906303R0000	JB6-3	
		6 mm²							4	1SNK906304R0000	JB6-4	
									5	1SNK906305R0000	JB6-5	
									10	1SNK906310R0000	JB6-10	

Flexible (IEC) stranded conductor Flexible with insulated ferrule Rigid conductor

STOCK INDENT

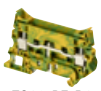
SNK series, terminal blocks
Screw clamp technology

Type	Function	Cross section IEC	Spacing	Rated current	Colour	Terminal blocks: Factory code	Terminal blocks: Order code	End sections: Factory code Order code	Jumper bars: No. of poles	Jumper bars: Factory code	Jumper bars: Order code	Marking
Disconnect terminal blocks, with plug												
ZS4-SP		4 mm²	5.2 mm	18 A	Grey	1SNK505313R0000	ZS4-SP	1SNK505910R0000 **ES4**				MC512 MC512PA MG-CPM-13
		2.5 mm²										
		4 mm²										
ZS4-SP-T2		4 mm²										
		2.5 mm²				1SNK505314R0000	ZS4-SP-T2					
		4 mm²										
ZS10-SP		10 mm²	8 mm	18 A	Grey	1SNK508316R0000	ZS10-SP					MC812 MC812PA MG-CPM-13
		6 mm²										
		10 mm²										
ZS4-SP-R1		4 mm²	6 mm	18 A	Grey			Closed				MC612 MC612PA MG-CPM-13
		4 mm²				1SNK506313R0000	ZS4-SP-R1					
		4 mm²							2	1SNK906302R0000	JB6-2	
ZS4-SP-T2-R1		4 mm²							3	1SNK906303R0000	JB6-3	
		4 mm²							4	1SNK906304R0000	JB6-4	
		4 mm²							5	1SNK906305R0000	JB6-5	
		4 mm²				1SNK506314R0000	ZS4-SP-T2-R1		10	1SNK906310R0000	JB6-10	
PG5...	Component insertion in series with circuit		5.2 mm		Dark grey	1SNK900401R0000	PG5					MC512 MC512PA MG-CPM-13
	Equipped with linking bar				Orange	1SNK900402R0000	PG5-1					
Disconnect terminal blocks, with orange lever												
ZS4-S-R3		4 mm²	8 mm	18 A	Grey, orange	1SNK508416R0000	ZS4-S-R3	1SNK508960R0000 **ES4-SF**				MC812 MC812PA MG-CPM-13
		4 mm²										
		4 mm²										
ZS4-S-R2		4 mm²	6 mm	18 A	Grey, orange	1SNK506414R0000	ZS4-S-R2	Closed	2	1SNK906302R0000	JB6-2	MC612 MC612PA MG-CPM-13
		4 mm²							3	1SNK906303R0000	JB6-3	
		4 mm²							4	1SNK906304R0000	JB6-4	
									5	1SNK906305R0000	JB6-5	
									10	1SNK906310R0000	JB6-10	
ZS10-S-R2		10 mm²	8 mm	10 A	Grey, orange	1SNK508417R0000	ZS10-S-R2		2	1SNK908302R0000	JB8-2	MC812 MC812PA MG-CPM-13
		6 mm²							3	1SNK908303R0000	JB8-3	
		10 mm²							4	1SNK908304R0000	JB8-4	
									5	1SNK908305R0000	JB8-5	
									10	1SNK908310R0000	JB8-10	
 ZS4-SF1...		4 mm²	8 mm	6.3 A	Grey, dark grey	1SNK508410R0000	ZS4-SF1	 1SNK508960R0000 **ES4-SF**				MC812 MC812PA MG-CPM-13
						Fuse indicator						
						24 – 110 V AC/DC						
						1SNK508412R0000	ZS4-SF1-R1					
		4 mm²				**115 – 250 V AC/DC**						
						1SNK508414R0000	ZS4-SF1-R3					
						Fuse indicator and test						
						24 – 110 V AC/DC						
		4 mm²				1SNK508413R0000	ZS4-SF1-R2					
						115 – 250 V AC/DC						
						1SNK508414R0000	ZS4-SF1-R4					

Flexible (IEC) stranded conductor — Flexible with insulated ferrule — Rigid conductor

STOCK INDENT

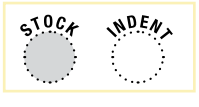
SNK series, terminal blocks
Screw clamp technology

Type	Function	Cross section IEC	Spacing	Rated current	Colour	Terminal blocks: Factory code	Terminal blocks: Order code	End sections: Factory code / Order code	Jumper bars: No. of poles	Jumper bars: Factory code	Jumper bars: Order code	Marking
Fuse holder terminal blocks - For 5 x 20 mm fuses and marshalling cabinets applications												
ZS4-SF...		4 mm²	6 mm	6.3 A		1SNK506410R0000	ZS4-SF	**Closed**				MC612 MC612PA MG-CPM-13
						Fuse indicator						
						24 – 110 V AC/DC						
		4 mm²				1SNK506412R0000	ZS4-SF-R1					
						115 – 250 V AC/DC			2	1SNK906302R0000	JB6-2	
					Grey, dark grey	1SNK506415R0000	ZS4-SF-R3		3	1SNK906303R0000	JB6-3	
									4	1SNK906304R0000	JB6-4	
						Fuse indicator and test			5	1SNK906305R0000	JB6-5	
						24 – 110 V AC/DC			10	1SNK906310R0000	JB6-10	
		4 mm²				1SNK506413R0000	ZS4-SF-R2					
						115 – 250 V AC/DC						
						1SNK506416R0000	ZS4-SF-R4					
ZS4-R2		4 mm²		32 A								
		4 mm²			Grey	1SNK506013R0000	ZS4-R2					
		4 mm²										
ZS4-PE-R2		4 mm²		480 A / 1s				1SNK505911R0000 **ES6-4S**				
		4 mm²			Green-yellow	1SNK506153R0000	ZS4-PE-R2					
		4 mm²										
Fuse holder terminal blocks - For 6.3 x 32 mm fuses												
ZS10-SF		10 mm²	8 mm	10 A				**Closed**				MC812 MC812PA MG-CPM-13
		6 mm²				1SNK508418R0000	ZS10-SF		2	1SNK908302R0000	JB8-2	
		10 mm²			Grey, dark grey				3	1SNK908303R0000	JB8-3	
ZS10-SF-R		10 mm²				**24-110 V AC/DC**			4	1SNK908304R0000	JB8-4	
		6 mm²				1SNK508421R0000	ZS10-SF-R1		5	1SNK908305R0000	JB8-5	
		10 mm²				**115-250 V AC/DC**			10	1SNK908310R0000	JB8-10	
						1SNK508422R0000	ZS10-SF-R3					
Test and measurement terminal blocks												
ZS10-ST		8 mm		50 A					2	1SNK908902R0000	JB8-2	MC812 MC812PA MG-CPM-13
									3	1SNK908903R0000	JB8-3	
						1SNK508310R0000	ZS10-ST		4	1SNK908904R0000	JB8-4	
									5	1SNK908905R0000	JB8-5	
									10	1SNK908910R0000	JB8-10	
ZS10-ST-1				50 A		1SNK508312R0000	ZS10-ST-1					
					Grey							
ZS10-ST-T4				50 A		1SNK508311R0000	ZS10-ST-T4	1SNK508910R0000 **ES10-ST**				
ZS10-R1				57 A		1SNK508011R0000	ZS10-R1					
 ZS10-PE-R1				1200 A / 1s	Green-yellow	1SNK508151R0000	ZS10-PE-R1					

Flexible (IEC) stranded conductor

Flexible with insulated ferrule

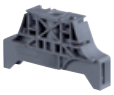
Rigid conductor



12

SNK series, terminal blocks
Accessories

Common accessories

Type	Rail	Description	Spacing	Rated current	Colour	Factory code	Order code	Colour	Factory code Order code
End stops								**Label holders**	
 BAM3	TH 35-7.5							Dark grey	10 mm width 1SNK900605R0000 **LH**
	TH 35-15	Screw end stop			Dark grey	1SNK900001R0000	BAM3		
BAZ1	TH 35-7.5								
	TH 35-15	Screwless end stop			Dark grey	1SNK900002R0000	BAZ1		19.5 mm width
BAZH1	TH 35-7.5	High end stop for double deck or power terminal blocks			Dark grey	1SNK900102R0000	BAZH1		1SNK900607R0000 **LH-R1**
	TH 35-15								
Jumper bars									
JB...		Screwless jumper bars			Orange	See product pages 588 – 597			
Test adapters									
	TP2	Test adaptor for test plug Ø 2 or 2.3 mm			Dark grey	1SNK900203R0000	TP2		
	TP4	Test adaptor for test plug Ø 4 mm			Dark grey	1SNK900205R0000	TP4		
Test connectors									
	TC5	Test connector	5.2 mm	1.5 mm²	Dark grey	1SNK900200R0000	TC5		
	TC5-R1	End module for test connector	5.2 mm	1.5 mm²	Dark grey	1SNK900201R0000	TC5-R1		
Component plugs									
	PG5-R2	Component plug-in (between 2 blocks with 5.2 mm in spacing)	2 x 5.2mm	2 x 5.2 mm	Dark grey	1SNK900403R0000	PG5-R2		
Shield connectors									
SHB	Compatible with double deck terminal blocks					1SNK900602R0000	SHB		

12

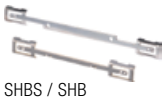
STOCK INDENT

SNK series, terminal blocks
Accessories

PI-Spring terminal block accessories

Type	Rail	Description	Spacing	Colour	Factory code	Order code
End sections						
EK...				Dark grey	See product pages 588 – 591	
Circuit separators						
CS-R2	TH 35-7.5 TH 35-15	Compatible with PI-Spring terminal blocks ZK2.5, ZK4, ZK6	3 mm	Dark grey	1SNK900106R0000	CS-R2
CS-R3	H 35-7.5 TH 35-15	Compatible with all single deck PI-Spring terminal blocks	3 mm	Dark grey	1SNK900107R0000	CS-R3
Shield connectors						
SHBP	Compatible with ZK2.5 and ZK2.5-S terminal blocks				1SNK900601R0000	SHBP

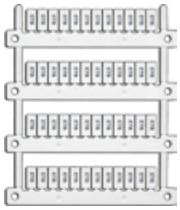
Screw clamp terminal block accessories

Type	Rail	Description	Colour	Factory code	Order code
End sections					
ES...			Dark grey	See product pages 592 – 597	
Circuit separators					
CS	TH 35-7.5 TH 35-15	Compatible with feed-through terminal blocks up to 16 mm²	Dark grey	1SNK900101R0000	CS
CS-R1	TH 35-7.5 TH 35-15	Compatible with feed-through terminal blocks up to 35 mm²	Dark grey	1SNK900103R0000	CS-R1
Shield connectors					
 SHBS / SHB		Compatible with ZS feed-through and double deck terminal blocks		1SNK900600R0000 1SNK900602R0000	SHBS SHB
Protecting covers					
CO		1 m length	Transparent	1SNK900604R0000	CO
PL		5.2 mm spacing	Transparent	1SNK900618R0000	PL5
		6 mm spacing		1SNK900619R0000	PL6
		8 mm spacing		1SNK900620R0000	PL8
		10 mm spacing		1SNK900621R0000	PL10
		16 mm spacing		1SNK900622R0000	PL16

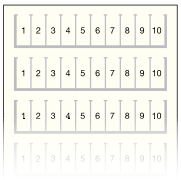
12

SNK series, terminal blocks
Common markers and marking systems

MC512



MG-CPM-13 ...



MC812PA

UMH is compatible with most of the wire markers available on the market.

MG2-TDMO...

LH + MCLH

LH-R1 + MCLH-R1

Markers for SNK series terminal blocks

Type	No. of markers per card	Terminal block spacing				Marking systems			Order code	Package quantity	
		5.2 mm	6 mm	8 mm	>8 mm	HTP500-V2	MG3	AMS 250 AMS 500		Cards	Markers
Blank markers (white)											
MC512	45	●	○	○	○	●			1SNK140000R0000	22	
MC512PA	100	●	○	○	○			●	1SNK149999R0000	20	
MG-CPM-13 41790	56	●	○	○	○		●		1SNB041790R0512		1960
MC612	39		●	○	○	●			1SNK150000R0000	22	
MC612PA	100		●	○	○			●	1SNK159999R0000	20	
MG-CPM-13 41791	48		●	○	○		●		1SNB041791R0612		1680
MC812	30			●	○	●			1SNK160000R0000	22	
MC812PA	100			●	○			●	1SNK169999R0000	20	
Pre-printed markers (white) – Horizontal mounting						**Marking type***					
MC512PA	100	●	○	○	○	1->10 (x10)			1SNK140011R0000	1	
						1->100			1SNK145011R0000	1	
MC612PA	100		●	○	○	1->10 (x10)			1SNK150011R0000	1	
						1->100			1SNK155011R0000	1	
MC812PA	100			●	○	1->10 (x10)			1SNK160011R0000	1	
						1->100			1SNK165011R0000	1	

● Recommended ○ Compatible (marker width < marking's area size)
* Other pre-printed marker variants available in the Technical Catalogue

Universal marker holders for wire markers

Type	No. of markers per card	Wire external diameter (mm)	Wire section (mm²)	Spacing (mm)	Order code	Package quantity	
						Strips	Markers
UMH	Strip of 10 universal wire marker holders for terminal blocks			5.2 mm	1SNK900611R0000	10	
4 x 12 mm wire marker							
MG2-TDMO-01 40390	40	2…2.9	0.5…1.5		1SNB040390R0412		880
MG2-TDMO-02 40490	40	2.9…3.5	1.5…2.5		1SNB040490R0412		640
MG2-TDMO-03 40590	40	4…4.6	4…6		1SNB040590R0412		560
4 x 16 mm wire marker							
MG2-TDMO-01 40391	40	2…2.9	0.5…1.5		1SNB040391R0416		880
MG2-TDMO-02 40491	40	2.9…3.5	1.5…2.5		1SNB040491R0416		640
MG2-TDMO-03 40591	40	4…4.6	4…6		1SNB040591R0416		560

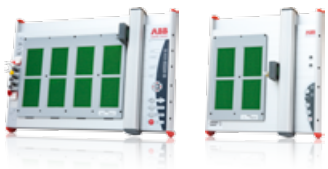
Labels for end stops

Type	No. of markers per card	Colour	Compatible with label holder		Marking systems			Order code	Package quantity	
			LH	LH-R1	HTP500-V2	MG3	AMS 250 AMS 500		Cards	Markers
Blank marker cards (white)										
MCLH	36	White	●		●		●	1SNK900630R0000	25	
MCLH-R1	15			●	●		●	1SNK900631R0000	25	
MG-TAA 49198	18			●		●		1SNB049198R1735		450
MG-TAA 49498	33		●			●		1SNB049498R8530		825

● Recommended ○ Compatible (marker width < marking's area size)

STOCK INDENT

Marking systems
Selection guide

	For high volume terminal blocks applications	For versatile applications	For basic marking applications	
				
Marking systems	**HTP500**	**MG3**	**AMS 500**	**AMS 250**
Ordering details				
Order code	HTP500-V2_KIT	MG3_KIT	AMS500_KIT	AMS250_KIT
Factory code	1SNA235700R1500	1SNB419001R0000	1SNA360000R2400	1SNA360000R2500
Technology	Thermal transfer	Thermal transfer	Plotter	
Printing mode	Manual / Auto (up to 64 cards)	Manual	Manual	
Printing speed	High	Medium	Low	
Printing quality	300 x 600 dpi	300 x 600 dpi	300 x 300 dpi	
1 ribbon or ink cartridge printing capacity	~ 60 000, RC510 markers (5 x 10 mm markers)	~ 160 000, MG-CPM (5 x 10 mm markers)	~ 230 000 markers (with 3 characters per markers)	
Printing color available (monochrome)	Black / Red	Black / Red / Blue / Green / White	Black	
Terminal block markers material	Polycarbonate	Polycarbonate	Polyamide	
Terminal block markers				
SNK series terminal blocks blank markers polyamide	–	–	MC…PA	
SNK series terminal blocks blank markers polycarbonate	MC	MG-CPM	–	
SNK series terminal blocks blank markers PVC	–	MG-CPMF	–	
End stop markers	2 marker types	2 marker types	4 marker types	
Other terminal blocks manufacturers blank markers	3 manufacturers	15 manufacturers	5 manufacturers	
Wires and cables markers	2 marker types	4 marker types	1 marker type	
Components and equipment markers	4 marker types	9 marker types	9 marker types	

12

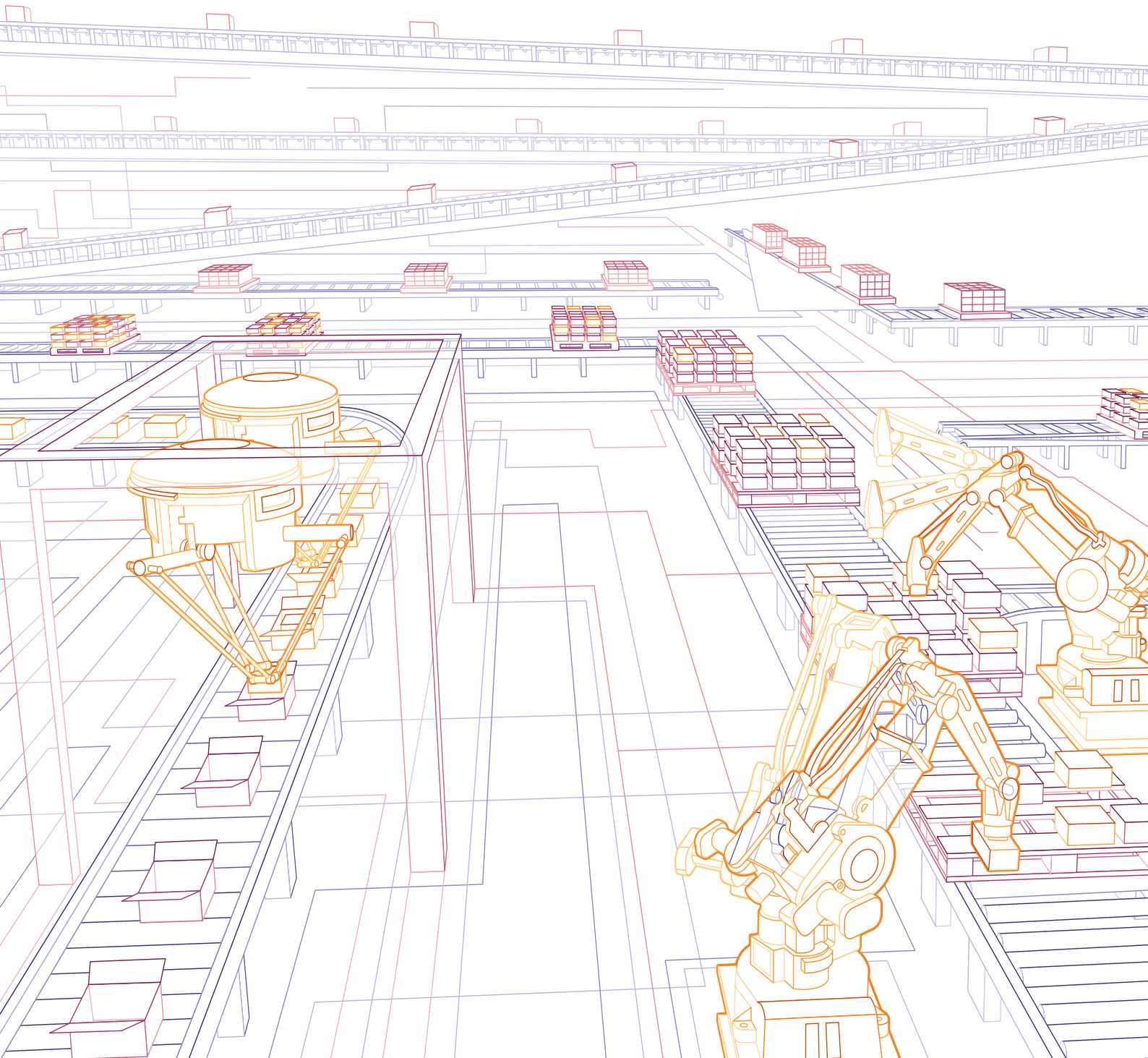
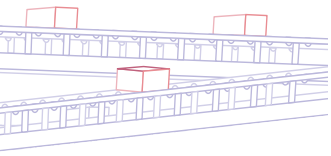
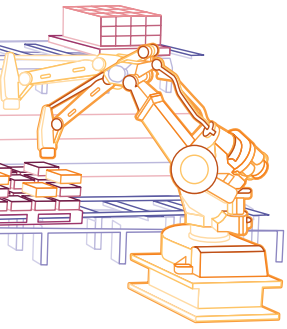
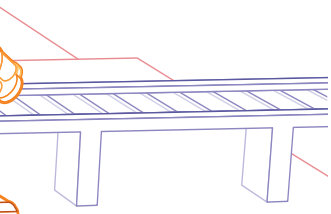


ABB Jokab Safety







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

– ABB Safety Handbook

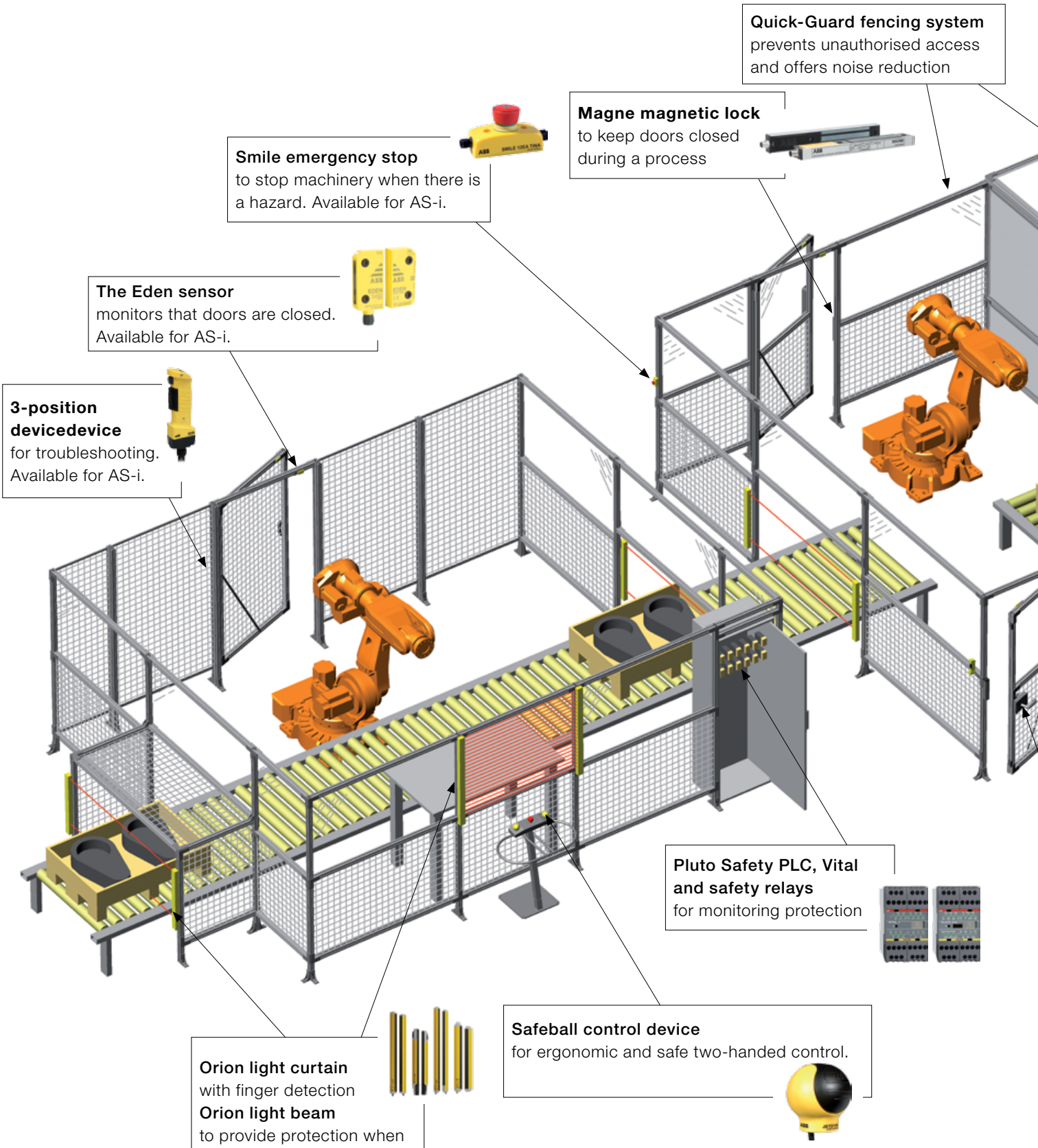
ABB
ABB
ABB
ABB
ABB

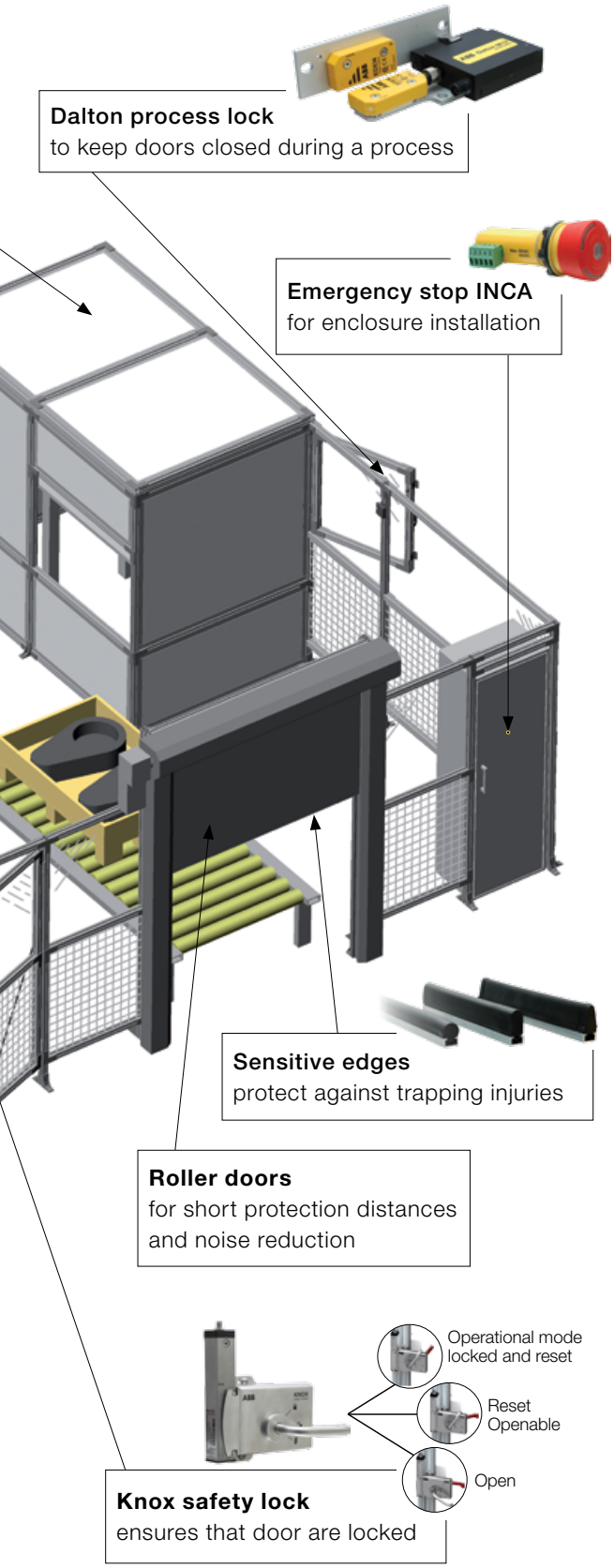
ABB Jokab Safety

We make it simple to build safety systems. Developing innovative products and solutions for machine safety has been our business idea since the company Jokab Safety, now ABB, was founded in Sweden in 1988. Our vision is to become 'Your partner for machine safety – globally and locally'. We deliver everything from a safety solution to complete safety systems for single machines or entire production lines.

For more information or to speak to one of our Safety Solution Partners, please visit the link below:
http://new.abb.com/low-voltage/products/safety-products

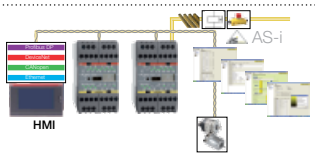
Production-friendly safety systems from ABB Jokab Safety





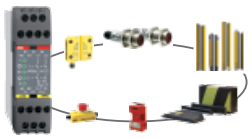
Product family Jokab Safety

Training and advice
Practical application of standards and regulations, along with CE-labelling.



Pluto Safety PLC
A unique All-Master safety PLC for dynamic and static safety circuits.

Pluto AS-i
Programmable safety system AS-i where all units are connected to the same bus cable and the function of the unit is determined in the PLC program.



Vital safety controller
Dynamic safety circuit for multiple protection according to the highest safety category.

Tina adapter units
Transformation of static signals to dynamic safety signals, etc.

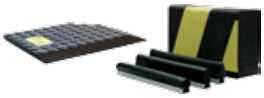
Safety relays
The market's most flexible safety relays for different protection purposes and categories.

Light curtain/light beam/scanner
Complete range of light beams, light curtains and scanners.

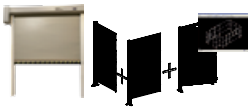
Sensors/switches/locks
Dynamic non-contact sensors, safety switches, magnetic switches and locks.

Control devices
Ergonomic three-position control units, two-hand control units and foot pedals.

Emergency stop devices
Emergency stops, Safety Stops and Reset buttons for dynamic and static safety circuits.

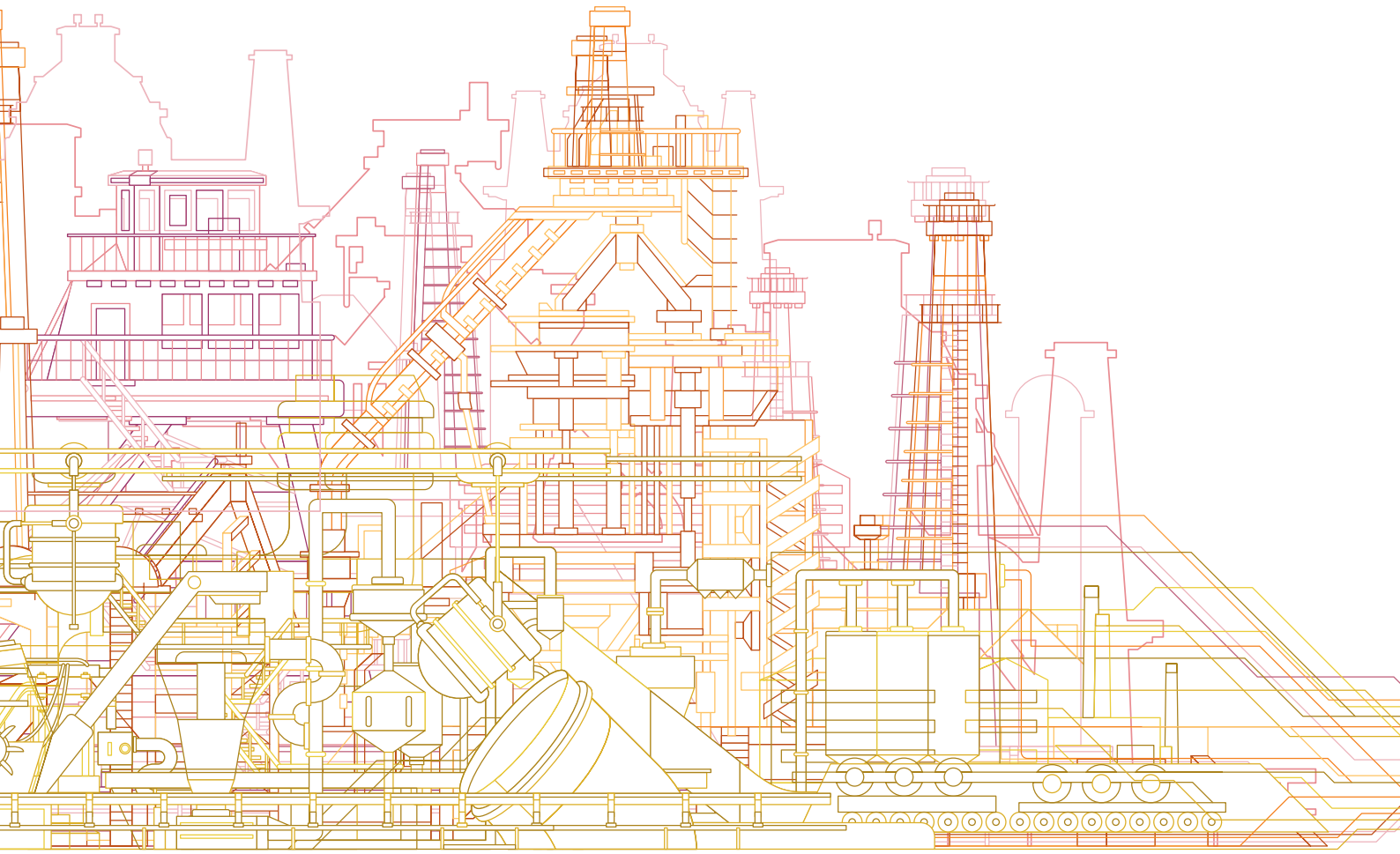


Contact strips/Bumpers/Safety mats
Sensitive edges, bumpers and safetys mats.



Fencing systems/SafeCAD/Roller doors
A stable and flexible fencing system that is easy to install.

13



Mining

Air Circuit Breakers (ACB) 610

Moulded Case Circuit Breakers (MCCB) 611

1000V MCB – 27mm pole width 614
S800HV 614

Motor management system – UMC100.3 615
Ordering details 615

Insulation monitoring relays for unearthed supply systems 616
Ordering details 616

Three-phase monitoring relays 617
Ordering details 617

Arc Guard System™ 618
Functionality 618
Ordering details 619

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

- Tmax T – 1SDC210015D0206
- Emax – 1SDC200006D0208
- Isomax – ITSCE-604050012
- S800HV 1000 V MCB – 2CCC413010L0201
- UMC100.3 – 2CDC190022C0206
- Electronic Products and Relays – 2CDC110004C0210
- Arc Guard System™ – 1SFC170001C0201

Air Circuit Breakers (ACB)
For applications up to 1150 V AC

Fixed version, 3 Poles

E2N/E can also perform 30kA up to 1150 V AC.

In 1000V AC A	Icu 1000V AC kA	Trip unit	Tmax type	Order code 3 poles
1250	30	PR121/P LSI	E2N/E	1SDA076322R1

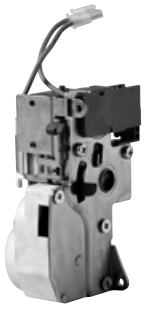
Note: Higher current ratings available on request

Withdrawable version, 3 Poles

Withdrawable ACB consists of Fixed Part and Moving Part, both part numbers need to be ordered.
E2N/E can also perform 30kA up to 1150V AC.

In 1000V AC A	Icu 1000V AC kA	Trip unit	Tmax type	Order code 3 poles
1250	30	PR121/P LSI	E2N/E	1SDA076323R1
+				
E2N/E Fixed part for the Withdrawable version				1SDA059667R1

Note: Higher current ratings available on request



Accessories for ACBs up to 1000 V AC

Suitable size	Type	Order code
Shunt Opening Release – YO		
E2N/E	24V DC	1SDA038286R1
	110…120V AC/ DC	1SDA038290R1
Shunt Closing Release – YC		
E2N/E	24V DC	1SDA038296R1
	110…120V AC/DC	1SDA038300R1
Undervoltage Release – YU		
E2N/E	24V DC	1SDA038306R1
	110…120V AC/DC	1SDA038310R1
Motor – M The motor is always supplied with a limit switch contact S33 M/2 which signals the status of the springs.		
E2N/E	24V DC	1SDA038321R1
	110…120V AC/DC	1SDA038323R1

Note: Other voltages are available on request

STOCK INDENT

Moulded Case Circuit Breakers (MCCB)
For applications up to 1150 V AC

Electronic Trip Units up to 1000V AC
3 Poles

Fixed versions supplied with Front terminals (F) as standard.
T4…T5: PR222DS/P LSI trip unit version.
S4…S6: PR212/P LSI trip unit version.
T4V-T5V can also perform 12kA up to 1150V AC.

In 1000V AC A	Icu 1000V AC kA	Tmax type	Order code 3 poles
100	20	T4V	1SDA064211R1
250	8	S4L	1SDA050461R1
	20	T4V	1SDA064213R1
	30	S4X	1SDA050464R1
400	8	S5L	1SDA050583R1
	12	T5L	1SDA064215R1
	20	T5V	1SDA064219R1
630	12	S6L	1SDA050470R1
	20	T5V	1SDA064221R1
	30	S6X	1SDA050473R1
800	12	S6L	1SDA050535R1

Thermomagnetic Trip Units up to 1000V AC
3 Poles

Fixed versions supplied with Front terminals (F) as standard.
T4V can also perform 12kA up to 1150V AC.
S3L can also perform 40kA up to 1000V DC.

In 1000V AC A	Icu 1000V AC kA	Tmax type	Order code 3 poles
32	6	S3L	1SDA050436R1
	20	T4V	1SDA064205R1
	30	S3X	1SDA050451R1
50	6	S3L	1SDA050437R1
	20	T4V	1SDA064206R1
	30	S3X	1SDA050452R1
80	6	S3L	1SDA050438R1
	20	T4V	1SDA064207R1
	30	S3X	1SDA050453R1
100	6	S3L	1SDA050439R1
	20	T4V	1SDA064208R1
	30	S3X	1SDA050454R1
125	6	S3L	1SDA050441R1
	20	T4V	1SDA064209R1
	30	S3X	1SDA050455R1
160	6	S3L	1SDA050442R1
	20	T4V	1SDA064210R1
	30	S3X	1SDA053215R1
200	20	T4V	1SDA066086R1
250	20	T4V	1SDA066087R1

Moulded Case Circuit Breakers (MCCB)
Accessories for MCCBs up to 1000V AC

Suitable size	Description	Order code
Shunt Open Release – SOR		
T4…T5	24...30V AC/DC	1SDA054863R1
	110...120V AC/DC	1SDA054865R1
	220…240V AC – 220…250V DC	1SDA054866R1
S3…S5	24V AC/DC	1SDA013781R1
	110...120V AC/DC	1SDA013783R1
	220…240V AC - 220…250V DC	1SDA013785R1
S6	24V AC/DC	1SDA014136R1
	110...120V AC/DC	1SDA014138R1
	220…240V AC - 220…250V DC	1SDA014140R1
Undervoltage Release - UVR		
T4…T5	24...30V AC/DC	1SDA054880R1
	110...120V AC/DC	1SDA054883R1
	220…240V AC – 220…250V DC	1SDA054884R1
S3…S5	24V AC	1SDA013842R1
	24V DC	1SDA013833R1
	110...127V AC	1SDA013844R1
	220...250V AC	1SDA013846R1
S6	24V AC	1SDA014188R1
	24V DC	1SDA014179R1
	110...127V AC	1SDA014190R1
	220…250V AC	1SDA014192R1
Connectors for Service Releases (SOR and UVR)		
S3…S6	for Fixed versions, L=1m	1SDA013865R1
	for Fixed versions, L=2m	1SDA037523R1
	for Plug-in or Withdrawable versions, L=1m	1SDA013866R1

Auxiliary contacts - AUX
Q, open/closed: indication of the position of the circuit-breaker power contacts.
SY, trip: signalling CB opening due to current release tripping (owing to overload or short-circuit), residual current device, the opening or undervoltage releases, the emergency pushbutton of the motor, or owing to use of the test button. Uncabled versions.

T4…T5	1Q+1SY 250V AC/DC	1SDA051368R1
	3Q+1SY 250V AC/DC	1SDA051369R1
	3Q+1SY 24V DC	1SDA054914R1
S3…S5	2Q	1SDA013856R1
	1Q + 1 SY	1SDA013575R1
S6	2Q	1SDA023366R1
	1Q + 1 SY	1SDA023332R1
Connectors for auxiliary contacts (AUX)		
S3…S6	for Fixed versions, L=1m	1SDA013863R1
	for Fixed versions, L=2m	1SDA037522R1

Motor Operator

T4…T5	24V DC	1SDA054894R1
	110…125V AC/DC	1SDA054896R1
	220…250V AC/DC	1SDA054897R1
S3…S5	220…240V AC – 220…250V DC	1SDA013876R1
S6	110V AC/DC	1SDA023349R1
	220…250V AC/DC	1SDA014032R1
Connectors for Motor Operating mechanism and auxiliary contacts		
S3…S6	for Fixed versions, L=1m	1SDA013857R1

STOCK INDENT

Moulded Case Circuit Breakers (MCCB)
Accessories for MCCBs up to 1000V AC

Handle Operating Mechanism with Transmission Rod

Direct rotary handle

IP54

Front terminals

Front terminals for Copper cables

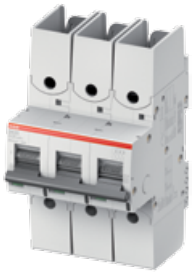
Front terminals for Copper/ Aluminum cables

Rear terminals

Suitable size	Description	Order code
Rotary Handle Operating Mechanism with Transmission Rod		
T4…T5	Normal	1SDA054929R1
	Emergency	1SDA054930R1
S3…S5	Normal	1SDA013869R1
S6	Normal	1SDA014028R1
Rotary Direct Handle Operating Mechanism		
T4…T5	Normal	1SDA054926R1
IP54 Protection for transmitted rotary handle		
T4…T5		1SDA054938R1
S3…S6		1SDA013891R1
Front Flange for Fixed or Plug-in versions		
S3…S5		1SDA013889R1
S6		1SDA014035R1
Connection terminals 3-piece kit.		
Front terminals	T4	1SDA054976R1
	T5	1SDA055012R1
	S3	1SDA043341R1
	S4	1SDA043461R1
	S5 (max. 400A)	1SDA043464R1
	S5 (max. 630A)	1SDA052941R1
	S6	1SDA044748R1
Extended front terminals	T4	1SDA055000R1
	T5	1SDA055036R1
	S6 (max. 630)	1SDA023379R1
	S6 (max. 800)	1SDA023383R1
Spreaded extended front terminals	T4	1SDA055004R1
	T5	1SDA055040R1
	S6 upper kit	1SDA050692R1
	S6 lower kit	1SDA050704R1
Front terminals for Copper cables	T4	1SDA054980R1
	T5	1SDA055016R1
	S3-S4	1SDA023354R1
	S3-S4, four pieces	1SDA023360R1
Front terminals for Copper/Aluminum cables	S6 (2x240mm^2)	1SDA023380R1
Rear terminals	S6	1SDA023382R1

1000V MCB – 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.

Standard AS/NZS60947, IEC/EN60947
I_{cu} 4kA (6 – 63A)
3kA (80 – 100A)
Voltage range 580/1000 V

I_{cu} (kA)	K-Curve Rating (A)	Description	Order code 1 Pole	2 Pole	3 Pole
4	6	MCB, 4kA, 6A for 1000 V AC	S801HVK6	S802HVK6	S803HVK6
4	8	MCB, 4kA, 8A for 1000 V AC	S801HVK8	S802HVK8	S803HVK8
4	10	MCB, 4kA, 10A for 1000 V AC	S801HVK10	S802HVK10	S803HVK10
4	13	MCB, 4kA, 13A for 1000 V AC	S801HVK13	S802HVK13	S803HVK13
4	16	MCB, 4kA, 16A for 1000 V AC	S801HVK16	S802HVK16	S803HVK16
4	20	MCB, 4kA, 20A for 1000 V AC	S801HVK20	S802HVK20	S803HVK20
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 (Icu) can be increased to 15kA
– S803HV-SCL-SR can be used either for line or group protection

Poles	Current Rating (A)		Order code
3	32	Short circuit current limiter 100kA 3P 32A	S803S-SCL32-SR
3	63	Short circuit current limiter 100kA 3P 63A	S803S-SCL63-SR
3	125	Short circuit current limiter 100kA 3P 100A	S803S-SCL100-SR

STOCK INDENT

Motor management system – UMC100.3
Ordering details

UMC100.3DC

UMC100.3UC

Universal Motor Controller UMC100.3

Intelligent motor management system for single and three-phase motors with Ie = 0.24 - 63 A in one single device. Compact housing with integrated current transformer for cable cross section up to 25 mm² (max. Ø with Insulation 11 mm). Higher currents with additional external current transformer. Thermal overload protection according to EN/IEC 60947-4-1, selectable trip classes 5E, 10E, 20E, 30E, 40E. Some functions require an additional expansion module.

Motor protection functions:

- Over-/underload, over-/undercurrent, over-/undervoltage, rotor blocking, phase failure / imbalance / sequence
- Earth fault detection integrated or with external sensor CEM11
- Hot motor protection with thermistor or temperature measurement

Motor control functions:

- Easily configurable motor control functions: direct, reverse, star-delta starter, pole-changing, overload relay, actuator mode, softstarter mode. Additionally 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), active power, apparent power, energy, total harmonic distortion (THD).

Integrated I/Os:

- 6 digital inputs, 1 PTC input, 4 digital outputs.

Expansion modules (maximum allowed):

- 14 digital inputs, 1 PTC input, 9 digital outputs, 6 analogue inputs, 1 analogue output.

Communication interfaces:

- 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 and with ATEX approval.

Ordering details

Description	Supply voltage	Factory code	Order code
Universal Motor Controller	24 V DC	1SAJ530000R0100	UMC100.3DC
Universal Motor Controller	110-240 V AC/DC	1SAJ530000R1100	UMC100.3UC
Universal Motor Controller, ATEX	24 V DC	1SAJ530000R0200	UMC100.3DCEX
Universal Motor Controller, ATEX	110-240 V AC/DC	1SAJ530000R1200	UMC100.3UCEX

Note:
Please see *Motor starting solutions* chapter, on page 387 for full product selection, accessories and ordering details.

STOCK INDENT

Insulation monitoring relays for unearthed supply systems
Ordering details

CM-IWS.2S

CM-IWS.1S

CM-IWN.1S

Description

The high reliability of an IT system is guaranteed thanks to continuous insulation monitoring. An insulation monitoring device recognizes insulation faults as they develop, and immediately reports that the value has fallen below the minimum. This prevents operational interruption caused by a second, more severe insulation fault.
ABB developed a totally new range of insulation monitors for AC, DC or mixed AC/DC IT Systems up to 690 V AC or 1000 V DC. With only 4 devices most standard applications can be served. Additionally a version for solar applications with increased earth leakage capacitance has been added.

Ordering details

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	System leakage capacitance, max.	Adjustment range of the specified response value R_{an} (threshold)	Factory code	Order code
24-240 V AC/DC	0-250 V AC / 0-300 V DC	10 µF	1-100 kΩ	1SVR730660R0100	CM-IWS.1**S**
24-240 V AC/DC	0-400 V AC	10 µF	1-100 kΩ	1SVR730670R0200	CM-IWS.2**S**
24-240 V AC/DC	0-400 V AC / 0-600 V DC	20 µF	1-100 kΩ 2-200 kΩ (activated / de-activated by DIP-switch)	1SVR750660R0200	CM-IWN.1**S**

CM-IVN.S

Ordering details - Coupling unit

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	Factory code	Order code
Passive device, no control supply voltage needed	0-690 V AC / 0-1000 V DC	1SVR750669R9400	CM-IVN.**S**

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

S screw connection
P push-in / easy connect

STOCK INDENT

Three-phase monitoring relays
Ordering details

CM-PBE

CM-MPS.21S

Single-functional

Only reliable and continuous monitoring of a three-phase network guarantees the trouble-free and economic operation of machines and installations.

Rated control supply voltage = measuring voltage	Monitoring function	Neutral monitoring	Factory code	Order code
3x380-440 V AC, [1] 220-240 V C	Phase failure detection (Single- and three-phase)	■	1SVR550881R9400	CM-PBE.N
3x380-440 V AC			1SVR550882R9500	CM-PBE
3x208-440 V AC [2]	Phase sequence monitoring and phase failure detection (Three-phase)		1SVR550824R9100	CM-PFE
3x200-500 V AC	Phase sequence monitoring and phase failure detection (Three-phase)		1SVR730824R9300	CM-PFS.**S**
3x300-500 V AC	Over- and undervoltage with adjustable threshold values (Three-phase)		1SVR730794R3300	CM-PVS.41**S**

1) The version with neutral monitoring is also suitable for monitoring single-phase mains. For this, all three external conductors (L1,L2,L3) have to be jumpered and connected as one single conductor.
2) For applications where a reverse fed voltage >60% is expected, we recommend to use our three-phase monitoring relays for unbalance CM-PAS.xx

Multifunctional

Rated control supply voltage = measuring voltage	DIP switch	Monitoring function	Neutral monitoring	Factory code	Order code
180-280 V AC	⊠ ■	Multifunctional (Three-phase phase failure detection, Phase sequence monitoring, overvoltage, undervoltage, Phase unbalance)	■	1SVR730885R3300	CM-MPS.21**S**
3x300-500 V AC	⊂ ⊄			1SVR730884R3300	CM-MPS.41**S**

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

■ Control input with voltage-related triggering

⊠ ON-delayed
■ OFF-delayed
⊂ Phase sequence monitoring activated
⊄ Phase sequence monitoring deactivated

S screw connection
P push-in / easy connect

STOCK INDENT

Arc Guard System™
Functionality

Arc Monitor

With its modular concept, the Arc Monitor is designed to fit all types and sizes of low and medium voltage switchgears. It is designed according to Functional Safety, and is SIL 2- certified according to IEC 61508 and IEC 62061 which puts full focus on reliability. This corresponds to performance level d according to EN ISO 13849-1. Safety functions are exclu- sively handled by hardware. In addition, the system, trip logs and user-interface are all microprocessor-monitored.

The system can be configured to trip selected breakers, depending on which sensor detects light. The dip-switches that take care of this function also handle settings like auto-reset and Current Sensing Units (see pages 12-13 for more details).

Energy is stored in the unit for operation up to 0.2 s if the supply voltage fails. This is sufficient to close the tripping circuit even if voltage disappears at a short-circuit fault.

Note: The circuit breaker still needs a back-up energy source for its tripping circuit.

Connections

All connections can be accessed from the front of the arc monitor. Pluggable terminal blocks allow electrical wiring before mounting TVOC-2 into the cabinet.
The solid state tripping contacts are type IGBT, which guarantees fast and reliable tripping.

HMI (Human Machine Interface)

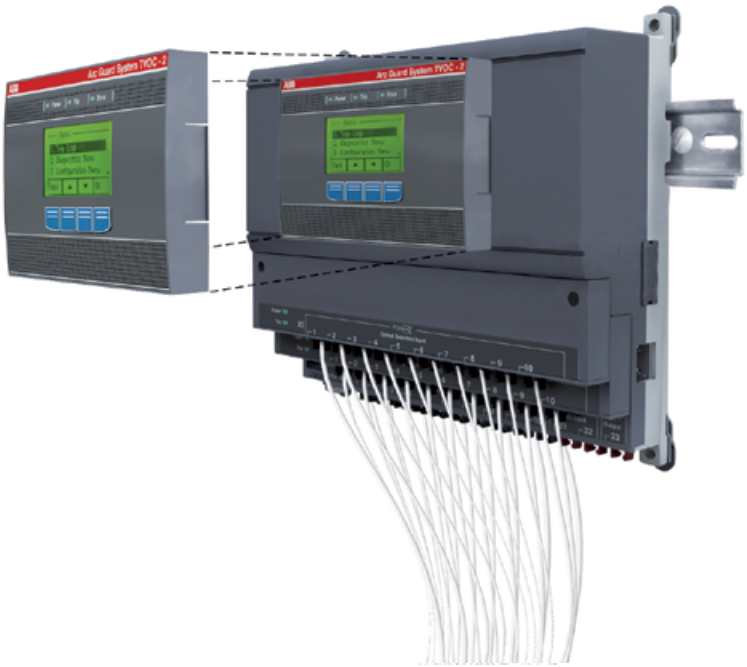
- Handles settings with key-pad and full text display.
- Holds error log and trip information after power loss.
- Error log and trip log include time/date stamp from a real-time clock.
- TVOC-2 can handle two separate HMI:s (cabinet door and on product).
- Three-meter cable included.

Sensor & Sensor modules

- Fibre-optic sensors not affected by electrical noise
- Pre-calibrated sensors remove need for manual configuration
- Up to 30 detectors can be connected

Current Sensing Unit (optional)

The Current Sensing Unit is an accessory needed only in those few specific applications where strong light is expected on a regular basis.
Current sensing units (CSUs) are connected with an optical fibre using light as signal for normal current. If this was removed by accident, the system would treat it as an over-current and trip if an arc flash is seen of reliability reasons.



Arc Monitor connections

- 3 IGBT solid state tripping contacts
- 2 change-over trip signal relays
- 1 change-over self supervision alarm relay
- 2 current sensing unit inputs
- 1 current sensing unit output

Mounting alternatives

- DIN-rail
- Wall mounting

Optical detector inputs

- 1-10 Main unit X1
- 1-10 Extension module X2
- 1-10 Extension module X3

HMI

- Can be mounted on door
- IP 54
- Additional HMI possible
- User-friendly start up menu

STOCK INDENT

Ordering details

Arc monitor

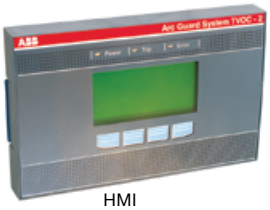
Arc Monitor

Description	Factory code	Order code
including one HMI and door mounting accessories 100 – 240V AC/DC	1SFA664001R1001	TVOC-2-240
including one HMI and door mounting accessories 24 – 48V AC/DC	1SFA664001R1002	TVOC-2-48

Extension unit

Extension

Description	Factory code	Order code
10 optical inputs	1SFA664002R1001	TVOC-2-E1
10 optical inputs for 60 meter detector cable	1SFA664002R3001	TVOC-2-E3



HMI

HMI (Human machine interface)

Description	Factory code	Order code
additional	1SFA664002R1005	TVOC-2-H1

Detector cable

Detectors

Cable length	Factory code	Order code
1 m	1SFA664003R1010	TVOC-2-DP1
2 m	1SFA664003R1020	TVOC-2-DP2
4 m	1SFA664003R1040	TVOC-2-DP4
6 m	1SFA664003R1060	TVOC-2-DP6
8 m	1SFA664003R1080	TVOC-2-DP8
10 m	1SFA664003R1100	TVOC-2-DP10
15 m	1SFA664003R1150	TVOC-2-DP15
20 m	1SFA664003R1200	TVOC-2-DP20
25 m	1SFA664003R1250	TVOC-2-DP25
30 m	1SFA664003R1300	TVOC-2-DP30
60 m *	1SFA664003R3600	TVOC-2-DP60

* Only to be used with TVOC-2-E3

Ordering details

CSU

Current sensing unit

Description	Factory code	Order code
Current sensing unit	1SFA663002-A	TVOC-CSU

Optical cable TVOC-2 – CSU

Optical cable between TVOC-2 Arc monitor and Current sensing unit

Cable length	Factory code	Order code
0.5 m	1SFA664004R2005	TVOC-1TO2-OP05
1 m	1SFA664004R2010	TVOC-1TO2-OP1
2 m	1SFA664004R2020	TVOC-1TO2-OP2
4 m	1SFA664004R2040	TVOC-1TO2-OP4
6 m	1SFA664004R2060	TVOC-1TO2-OP6
8 m	1SFA664004R2080	TVOC-1TO2-OP8
10 m	1SFA664004R2100	TVOC-1TO2-OP10
15 m	1SFA664004R2150	TVOC-1TO2-OP15
20 m	1SFA664004R2200	TVOC-1TO2-OP20
25 m	1SFA664004R2250	TVOC-1TO2-OP25
30 m	1SFA664004R2300	TVOC-1TO2-OP30

Optical cable TVOC-2 – TVOC-2

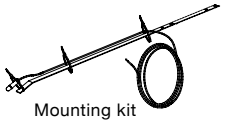
Optical cable between two TVOC-2 – Arc monitors (transfering CSU signal)

Cable length	Factory code	Order code
0.5 m	1SFA664004R1005	TVOC-2-OP05
1 m	1SFA664004R1010	TVOC-2-OP1
2 m	1SFA664004R1020	TVOC-2-OP2
4 m	1SFA664004R1040	TVOC-2-OP4
6 m	1SFA664004R1060	TVOC-2-OP6
8 m	1SFA664004R1080	TVOC-2-OP8
10 m	1SFA664004R1100	TVOC-2-OP10
15 m	1SFA664004R1150	TVOC-2-OP15
20 m	1SFA664004R1200	TVOC-2-OP20
25 m	1SFA664004R1250	TVOC-2-OP25
30 m	1SFA664004R1300	TVOC-2-OP30

Cable strap

Cable straps

Description	Factory code	Order code
1 set incl. 50 pcs	1SFA664006R1001	TVOC-2-MK1



Mounting kit

Mounting kit

Description	Factory code	Order code
600 mm	1SFA663006R1001	TVOC-2-MTGK600
800/1000 mm	1SFA663006R1002	TVOC-2-MTGK1000

Label

Label

Description	Factory code	Order code
1 set incl.10 pcs	1SFA663005R1001	TVOC-2-LABEL

Mounting bracket

Mounting bracket

Description	Factory code	Order code
1 set incl. 5 bracket pcs and 10 cable strap pcs	1SFA663006R1010	TVOC-2-MTGB

STOCK INDENT

Can we provide fresh air?

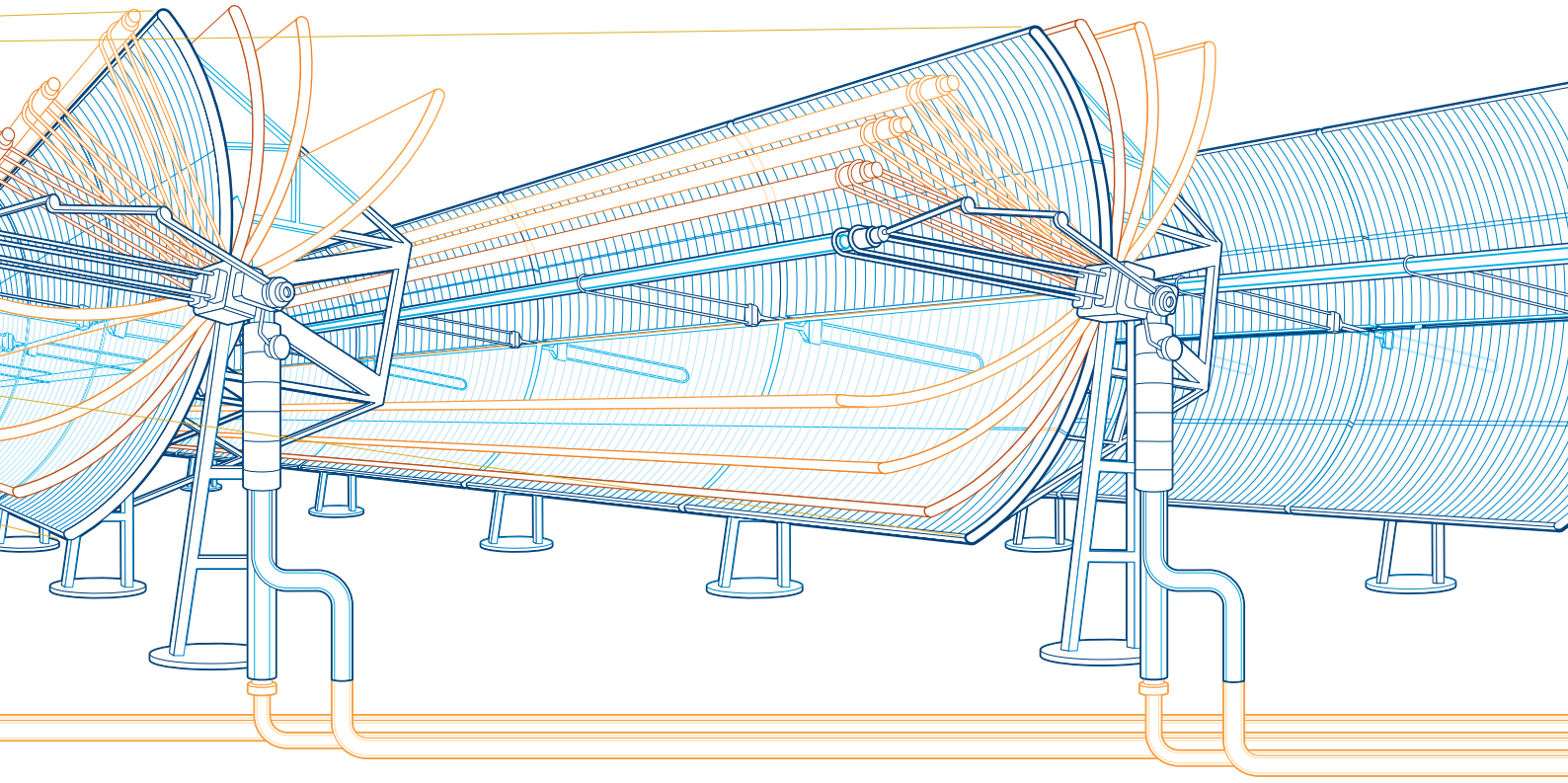
Certainly.

Mining at 400 metres below the surface, good working conditions are crucial and effective ventilation essential. After a number of ventilation stoppages at its iron ore mines in northern Sweden were traced to contactor failures, LKAB turned to ABB for help. Switching to AF contactors, featuring ABB's unique electronically-controlled coil technology, solved the problem. To ventilate effectively, you need Control.

Connect to Control. **www.abb.com/connecttocontrol**

Power and productivity
for a better world™

ABB



Solar

Switches for photovoltaic applications 624
Switch-disconnectors OTDC and
enclosed solar switch-disconnectors OTDCP 624

Solar photovoltaic string protection MCB – 27mm pole width 625
S800PVS 625

Modular DIN rail components 626
Selection of surge protective devices and 626
E90 fuse switch disconnectors 626

Meter and Measurement 627
EQ electricity meters 627
CMS – Current Measurement System 629

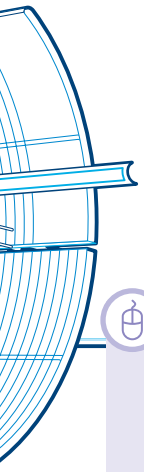
Enclosures 631
IP66 Gemini weatherproof range 631

GAF185 ... GAF2050 1000 V DC switching contactors 633

Grid feeding monitoring relays 634

Insulation monitoring relays for unearthed supply systems 635

Primary switch mode power supplies 636



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

- Switches for PV applications – 1SCC301021C0201
- System pro *M* compact© – 2CSC400002D0211
- Current measuring system – 2CCC481002C0201
- Gemini enclosures – 1STC804013D0204
- 1000 V DC switching contactors – 1SFC101004B0201
- Grid feeding monitoring relays – 2CDC110004C0210
- Insulation monitoring relays for unearthed supply systems – 2CDC110004C0210
- Primary switch mode power supplies – 2CDC110004C0210

Switches for photovoltaic applications
Switch-disconnectors OTDC and OTDCP

OTDC32F22

OTDC100...250E22

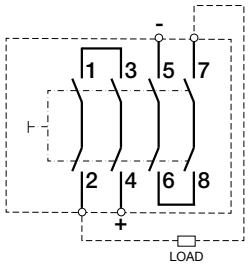
OTDC400...500E22

Solar Switch-disconnector up to 1000V

OTDC32_: Includes protected terminal clamps, IP20 and connection links. Direct knob handle provided as standard.
OTDC100...500_: Extension shaft and pistol handle available as an accessory. Terminal bolts included as standard.
All the suitable accessories for 6 and 12 mm shafts available in the Load Break Switches chapter.
One OTDC_ device can isolate the complete system by connecting 2 poles in series for positive voltage and 2 poles in series for negative voltage.
This range is not polarity sensitive.

PV array max. voltage V DC-21B	In A	Shaft mm	Number of poles	Order code
2 x 660	32	6	4	OTDC32F22
2 x 1000	20	6	4	OTDC32F22
	100	6	4	OTDC100E22
	160	6	4	OTDC160E22
	250	6	4	OTDC250E22
	400	12	4	OTDC400E22
	500	12	4	OTDC500E22

Standard supplied connection diagram



OTDC32F22 and OTDCP_

Note: Links supplied as standard

OTDCP_SA_

Enclosed solar switch up to 1000 V

Includes selector type red-yellow handle (I-0 and ON-OFF indication).
M20 threaded knock-outs, compression glands have to be ordered separately.
Adaptor up to D25mm available, please contact ABB.
One OTDC_ device can isolate the complete system by connecting 2 poles in series for positive voltage and 2 poles in series for negative voltage.
This range is not polarity sensitive.

PV array max. voltage V DC-21B	In A	Shaft mm	Number of poles	Order code
2 x 660	25	6	4	OTDCP25SA22M
	32	6	4	OTDCP32SA22M
2 x 1000	16	6	4	OTDCP25SA22M
	20	6	4	OTDCP32SA22M

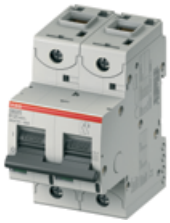
XT1 circuit breaker

MCCBs for DC protection

All the standard Tmax with thermomagnetic trip unit (TM_) can perform at 660 V DC.
For voltages up to 1100 V DC please contact to ABB.

STOCK INDENT

Solar photovoltaic string protection MCB – 27mm pole width
S800PVS



S802PV

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

The ABB S800PVS range of high performance miniature circuit breakers are designed to provide protection and control of photovoltaic strings against overloads, short circuits and reverse currents. The S800PVS can be an ideal replacement for fuses due to simple string failure identification and signalisation. These MCB's are not polarity sensitive.

Standard AS/NZS60947, IEC/EN60947
Icu 36 kA
Voltage range 2P up to 80 A – 800 V DC , 2P 100 A to 125 A – 600 V DC
4P 10 A to 125 A – 1200 V DC

C-Curve		Order code	
Rating (A)	Description	2 Pole	4 Pole
10	MCB 10 A for solar PV strings	S802PVS10	S804PVS10
13	MCB 13 A for solar PV strings	S802PVS13	S804PVS13
16	MCB 16 A for solar PV strings	S802PVS16	S804PVS16
20	MCB 20 A for solar PV strings	S802PVS20	S804PVS20
25	MCB 25 A for solar PV strings	S802PVS25	S804PVS25
32	MCB 32 A for solar PV strings	S802PVS32	S804PVS32
40	MCB 40 A for solar PV strings	S802PVS40	S804PVS40
50	MCB 50 A for solar PV strings	S802PVS50	S804PVS50
63	MCB 63 A for solar PV strings	S802PVS63	S804PVS63
80	MCB 80 A for solar PV strings	S802PVS80	S804PVS80
100	MCB 100 A for solar PV strings	S802PVS100	S804PVS100
125	MCB 125 A for solar PV strings	S802PVS125	S804PVS125

3 pole available on request

Modular DIN rail components
Selection of surge protective devices and E90 fuse switch disconnectors

OVR PV T1 6.25-600 P TS

OVR PV 40-1000 P TS

Photovoltaic application surge protection devices

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

Type 1 PV

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

Type 2 PV

Protected poles	Impulse current I_{imp}	Max disharge current I_{max}	Voltage protection level U_p	Max. cont operating voltage U_{cpv}	Backup fuse/MCB	Modules	Order code
2	–	40	1.4	670	–	3	OVRPV40-600PTS
2	–	40	3.8	1100	–	9	OVRPV40-1000PTS

Surge protective devices technical data can be found on page 165.

OVR TC 200FR P

Base OVR TC RJ 45

Dataline protection

- Reliable surge protection for dataline networks for datacentres, water treatment installations or wind turbine installations
- RJ11 and RJ45 bases provides flexible and easy installation

Dataline protection module – Pluggable

Protected poles	Max disharge current I_{max}	Nominal rated current kA/mA	Voltage protection level U_p	Max. cont operating voltage U_{cpv}	Backup fuse/MCB	Modules	Order code
1 pair	10	5/140	15	7	–	12	OVRTC6P
1 pair	10	5/140	20	14	–	12	OVRTC12P
1 pair	10	5/140	35	27	–	12	OVRTC24P
1 pair	10	5/140	70	53	–	12	OVRTC48P
1 pair	10	5/ –	700	220	–	12	OVRTC200P
1 pair	10	5/140	400	220	–	12	OVRTC200FRP
Bases							
–	–	–	–	–	–	24	BASEOVRTCRJ45

E90PV fuse disconnector

- Rated 1000VDC for photovoltaic applications
- Padlockable in open position
- DC-20B

Standard: IEC 60947-3

E 92

E90PV fuse switch disconnector for 8.5 x 31.5 mm fuses

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

STOCK INDENT

Meter and Measurement
EQ electricity meters

A41

A42

A43

A44

DIN Rail mount A-Series

- Accuracy Class 1 (direct connect) Class 0.55 (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 phase 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

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	Order code
80A Direct connect									
57.7 … 288 VAC	■	■					■		A41-111-100
57.7 … 288 VAC	■	■		■	■		■	■	A41-212-100
57.7 … 288 VAC	■	■	■	■	■	■	■	■	A41-412-100
5A CT/VT connect									
57.7 … 288 VAC	■	■					■		A42-111-100
57.7 … 288 VAC	■	■		■	■		■	■	A42-212-100
57.7 … 288 VAC	■	■	■	■	■	■	■	■	A42-412-100

Three phase A-Series electricity meters (7 DIN modules)

80A Direct connect									
57.7 … 288 VAC	■	■					■		A43-111-100
57.7 … 288 VAC	■	■		■	■		■	■	A43-212-100
57.7 … 288 VAC	■	■	■	■	■	■	■	■	A43-412-100
5A CT/VT connect									
57.7 … 288 VAC	■	■					■		A44-111-100
57.7 … 288 VAC	■	■		■	■		■	■	A44-212-100
57.7 … 288 VAC	■	■	■	■	■	■	■	■	A44-452-100

Meter and Measurement
EQ electricity meters

B21

B23

B24

DIN Rail mount B-Series- Accuracy Class 1

- Accuracy Class 1 (direct connect) Class 0.55 (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 phase power
  - Pulse output
- Automatic detection of CT's current flow direction

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	Order code
65A Direct connect									
220 … 240 V AC	■	■					■		B21-111-100
220 … 240 V AC	■	■		■	■		■	■	B21-212-100
220 … 240 V AC	■	■	■	■	■		■	■	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	Order code
65A Direct connect									
220 … 240 V AC	■	■					■		B23-111-100
220 … 240 V AC	■	■		■	■		■	■	B23-212-100
220 … 240 V AC	■	■	■	■	■		■	■	B23-312-100
5A CT connect									
220 … 240 V AC	■	■					■		B24-111-100
220 … 240 V AC	■	■		■	■		■	■	B24-212-100
220 … 240 V AC	■	■	■	■	■		■	■	B24-352-100

DIN Rail mount C-Series

- Accuracy Class 1
- Accurate measurement of main electrical parameters
  - Voltage
  - Current
  - Power factor
  - Active energy
  - Active power
  - Pulse output

C11

C13

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 V AC	Configurable pulse/alarm output	■		C11-110-300
Three phase C-Series electricity meters (3 DIN modules)				
230 V AC	Configurable pulse/alarm output	■		C13-110-300

STOCK INDENT

Meter and Measurement
CMS – Current Measurement System

CMS-600

CMS-600 Control Unit, current sensor with Modbus

- Auxiliary supply voltage 24 V DC
- up to 64 current sensors
- Current measurement up to 125 A, AC or DC
- Modbus RTU protocol
- RS-485 2-wire interface
- DIN rail mounting

Description	Modules width	Order code
CMS-600 Control unit, Modbus RTU	4	CMS600

CMS-770 Control Unit, energy monitor

- Auxiliary supply voltage 230 V AC
- Three phase measurement device for power and energy
- Captures various electrical parameter for up to 8 circuits
  - voltage
  - current
  - frequency
  - power factor
  - active power
  - reactive power
  - apparent power
  - Suitable for LAN or WLAN network
  - DIN rail mounting

Description	Modules width	Order code
CMS-770 Control unit, Energy monitor	4	CMS770

Meter and Measurement
CMS – Current Measurement System

CMS-10xPS

CMS-10xS8

CMS-10xDR

CMS-10xDR

CMS-20xS8

CMS-20xDR

CMS-20xCA

CMS Current sensors

- Up to 160A
- Measures TRMS AC or DC
- LED staus indication

Sensor width	Maximum current (A)	Suitable for	Cable window size diameter	Order code
18mm	80	S200, F200, DS201 with bi-cylinder lift terminal	10 mm	CMS100PS
	40	S200, F200, DS201 with bi-cylinder lift terminal	10 mm	CMS101PS
	20	S200, F200, DS201 with bi-cylinder lift terminal	10 mm	CMS102PS
	80	S800 MCB with cage terminal	10 mm	CMS100S8
	40	S800 MCB with cage terminal	10 mm	CMS101S8
	20	S800 MCB with cage terminal	10 mm	CMS102S8
	80	DIN rail mounting (Universal use)	10 mm	CMS100DR
	40	DIN rail mounting (Universal use)	10 mm	CMS101DR
	20	DIN rail mounting (Universal use)	10 mm	CMS102DR
	80	Cable mounting (Universal use)	10 mm	CMS100CA
	40	Cable mounting (Universal use)	10 mm	CMS101CA
	20	Cable mounting (Universal use)	10 mm	CMS102CA
25mm	160	S800 MCB with cage terminal	15 mm	CMS200S8
	80	S800 MCB with cage terminal	15 mm	CMS201S8
	40	S800 MCB with cage terminal	15 mm	CMS202S8
	160	DIN rail mounting (Universal use)	15 mm	CMS200DR
	80	DIN rail mounting (Universal use)	15 mm	CMS201DR
	40	DIN rail mounting (Universal use)	15 mm	CMS202DR
	160	Cable mounting (Universal use)	15 mm	CMS200CA
	80	Cable mounting (Universal use)	15 mm	CMS201CA
	40	Cable mounting (Universal use)	15 mm	CMS202CA

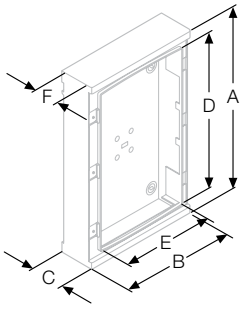
Accessories

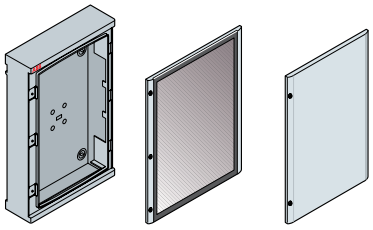
Description	Order code
Flat cable 2m length	CMS800
Flat cable 3m length	CMS801
Connector set (35pcs per packet)	CMS820
WLAN antenna for CMS-770	CMS870

STOCK INDENT

Enclosures
IP66 Gemini weatherproof range

Basic configuration

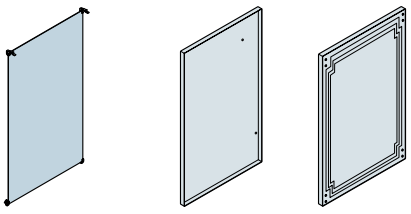




Size	Number of installable DIN modules	Number of vertical modules	External dimensions			Internal dimensions			Box	Door	
	(mod. x row)	H=150 mm	A	B	C	D	E	F		Transparent	Opaque
1	24 (12x2)	2	400	335	210	300	250	180	1SL0221A00	1SL0241A00	1SL0231A00
2	54 (18x3)	3	550	460	260	450	375	230	1SL0222A00	1SL0242A00	1SL0232A00
3	72 (18x4)	4	700	460	260	600	375	230	1SL0223A00	1SL0243A00	1SL0233A00
4	96 (24x4)	4	700	590	260	600	500	230	1SL0224A00	1SL0244A00	1SL0234A00
5	120 (24x5)	5	855	590	360	750	500	330	1SL0225A00	1SL0245A00	1SL0235A00
6	216 (36x6)	6	1005	840	360	900	750	330	1SL0226A00	1SL0246A00	1SL0236A00

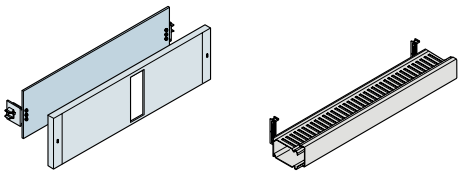
Note: Upright are required to fit DIN rail panels and modular plate

Components for automation



Size	Base plate	Inner door
	Blank	
1	1SL0259A00	1SL0251A00
2	1SL0260A00	1SL0252A00
3	1SL0261A00	1SL0253A00
4	1SL0262A00	1SL0254A00
5	1SL0263A00	1SL0255A00
6	1SL0264A00	1SL0256A00

Accessories for distribution

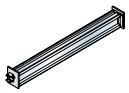
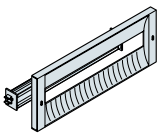
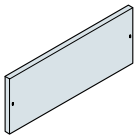
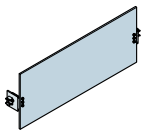


Size	Kit for Tmax XT		x-O-Rapid kit with wiring duct	
	H. 150 mm	H. 300 mm	25x60 mm	40x60 mm
1	–	–	1SL0353A00	1SL0360A00
2	1SL0373A00	1SL0376A00	1SL0354A00	1SL0361A00
3	1SL0373A00	1SL0376A00	1SL0354A00	1SL0361A00
4	1SL0374A00	1SL0377A00	1SL0355A00	1SL0362A00
5	1SL0374A00	1SL0377A00	1SL0355A00	1SL0362A00
6	1SL0375A00	1SL0378A00	1SL0356A00	1SL0363A00

STOCK INDENT

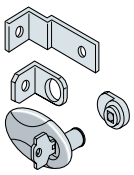
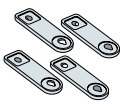
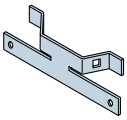
Enclosures
IP66 Gemini weatherproof range

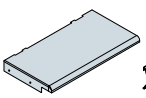
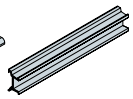
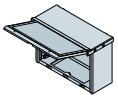
Components for automation

Size	Uprights	DIN rail	DIN panel kit Panel + DIN rail		Blank panel			Modular plate	
			H=150 mm	H=225 mm	H=75 mm	H=150mm	H=300 mm	H=150 mm	H=300 mm
1	1SL0283A00	1SL0290A00	1SL0307A00	–	1SL0318A00	1SL0324A00	1SL0330A00	1SL0296A00	–
2	1SL0284A00	1SL0291A00	1SL0308A00	1SL0313A00	1SL0319A00	1SL0325A00	1SL0331A00	1SL0297A00	1SL0302A00
3	1SL0285A00	1SL0291A00	1SL0308A00	1SL0313A00	1SL0319A00	1SL0325A00	1SL0331A00	1SL0297A00	1SL0302A00
4	1SL0285A00	1SL0292A00	1SL0309A00	1SL0314A00	1SL0320A00	1SL0326A00	1SL0332A00	1SL0298A00	1SL0303A00
5	1SL0286A00	1SL0292A00	1SL0309A00	1SL0314A00	1SL0320A00	1SL0326A00	1SL0332A00	1SL0298A00	1SL0303A00
6	1SL0287A00	1SL0293A00	1SL0310A00	1SL0315A00	1SL0321A00	1SL0327A00	1SL0333A00	1SL0299A00	1SL0304A00

Accessories common to the whole range

Size	Lock with handle	Lock with triangular impression	Lock with square impression	Anti tampering locking kit	Bounting brackets	Pole installation kit	Anti condensation kit	Integral cover	Depth adapter	Horizontal kit
1	1SL0340A00	1SL0341A00	1SL0339A00	1SL0458A00	1SL0342A00	1SL0343A00	1SL0351A00	1SL0451A00	AP6000	–
2						1SL0344A00		1SL0452A00		1SL0470A00
3						1SL0344A00		1SL0452A00		1SL0471A00
4						1SL0345A00		1SL0454A00		
5						1SL0345A00		1SL0455A00		1SL0472A00
6						1SL0346A00		1SL0456A00		1SL0473A00

STOCK INDENT

GAF185 … GAF2050 1000 V DC switching contactors
250 to 1750 A DC-1
AC / DC operated with 1 N.O. + 1 N.C. auxiliary contact

GAF185-10-11

GAF300-10-11

GAF460-10-11

GAF750-10-11

GAF1650-10-11

Description

GAF185 ... GAF300 contactors are designed for controlling resistive or slightly inductive loads up to 1000 V DC.

These contactors are of the block type design with 3 main poles for connection in series by the user according

to conductor cross-sectional area or by using LP connection bars to be ordered separately.

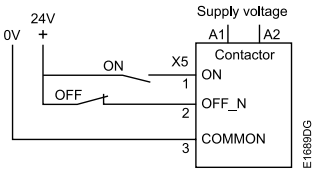
- main poles arc chutes fitted with permanent magnets specially designed for DC breaking. The connection polarities must be respected.
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 3 coils to cover control voltages between 48...250 V 50/60 Hz and 20...250 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated	Rated control voltage U_c		Auxiliary contacts fitted		Factory code	Order code
Current $\theta \leq 55$ °C 1000 V DC-1	50/60 Hz					
A	V AC	V DC				
200	–	20…60	1	1	1SFL497025R7211	GAF185101172 (1)
	48…130	48…130	1	1	1SFL497025R6911	GAF185101169
	100…250	100…250	1	1	1SFL497025R7011	GAF185101170
400	–	20…60	1	1	1SFL557025R7211	GAF300101172 (1)
	48…130	48…130	1	1	1SFL557025R6911	GAF300101169
	100…250	100…250	1	1	1SFL557025R7011	GAF300101170
600	–	24…60	1	1	1SFL597025R6811	GAF460101168 (1)
	48…130	48…130	1	1	1SFL597025R6911	GAF460101169
	100…250	100…250	1	1	1SFL597025R7011	GAF460101170
	250…500	250…500	1	1	1SFL597025R7111	GAF460101171
875	–	24…60	1	1	1SFL637025R6811	GAF750101168 (1)
	48…130	48…130	1	1	1SFL637025R6911	GAF750101169
	100…250	100…250	1	1	1SFL637025R7011	GAF750101170
	250…500	250…500	1	1	1SFL637025R7111	GAF750101171
1040	–	24…60	1	1	1SFL647025R6811	GAF1250101168
	48…130	48…130	1	1	1SFL647025R6911	GAF1250101169
	100…250	100…250	1	1	1SFL647025R7011	GAF1250101170
	250…500	250…500	1	1	1SFL647025R7111	GAF1250101171
1450	100…250	100…250	1	1	1SFL677025R7011	GAF1650101170
1750	100…250	100…250	1	1	1SFL707025R7011	GAF2050101170

1) The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.

GAF460 ... GAF750 are equipped with low voltage inputs for control, for example by a PLC.
GAF1250 ... GAF2050 are equipped with low voltage inputs for control, for example by a PLC.
For more detailed product information, please refer to the Technical Catalogue: 1SBC100192C0202

Control inputs

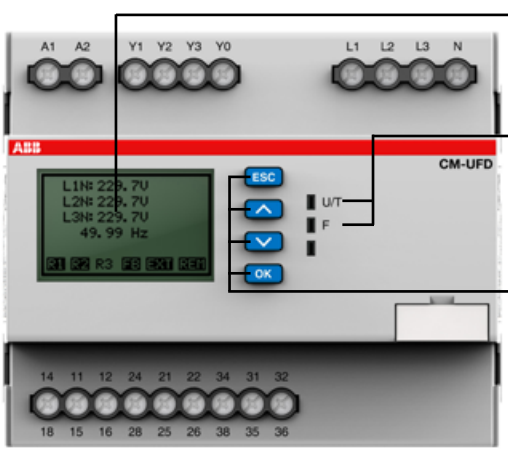


Grid feeding monitoring relays - Voltage and frequency monitoring functions
Benefits and advantages

Characteristics for all CM-UFD devices

- Monitoring of voltage and frequency in single- and three-phase mains 2-wire, 3-wire or 4-wire
- Over- and undervoltage, 10 minutes average value as well as over- and underfrequency monitoring
- Two-level threshold settings for over-/undervoltage and frequency
- Multiline, backlit LCD display
- All threshold values adjustable as absolute values
- True RMS measuring principle
- High measurement accuracy
- 3 control inputs for remote trip, feedback signal, and external signal
- Interrupted neutral detection
- Error memory for up to 99 entries (incl. cause of error, measured value, relative timestamp)
- Test function
- Password setting protection
- 3 c/o (SPDT) contacts
- LEDs for the indication of operational states

CM-UFD.Mxx



1 Display
R1 R2 R3 - relay status; in this case R3 is de-energized
FB - status feedback loop Y0-Y1; in this case FB is closed
EXT – status input external signal; in this case input is closed
REM – status remote trip input; in this case input is closed

2 Indication of operational states
U/T: green LED – supply voltage applied / flashing = timing active
F: red LED - failure

3 Keypad
ESC: escape / return to previous menu
⋀: up / value increase
⋁: down / value decrease
OK: enter / confirm selection

CM-UFD.M33

Description

Only reliable and continuous monitoring of a three-phase network guarantees the trouble-free and economic operation of machines and installations.

Ordering details

Rated control supply voltage = measuring voltage	Factory code	Order code
24-240 V AC/DC	1SVR560730R3402	CM-UFD.M33

STOCK INDENT

Insulation monitoring relays for unearthed supply systems
Ordering details

CM-IWS.2S

CM-IWS.1S

CM-IWN.1S

Description

The high reliability of an IT system is guaranteed thanks to continuous insulation monitoring. An insulation monitoring device recognizes insulation faults as they develop, and immediately reports that the value has fallen below the minimum. This prevents operational interruption caused by a second, more severe insulation fault.
ABB developed a totally new range of insulation monitors for AC, DC or mixed AC/DC IT Systems up to 690 V AC or 1000 V DC. With only 4 devices most standard applications can be served. Additionally a version for solar applications with increased earth leakage capacitance has been added.

Ordering details

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	System leakage capacitance, max.	Adjustment range of the specified response value R_{an} (threshold)	Factory code	Order code
24-240 V AC/DC	0-250 V AC / 0-300 V DC	10 µF	1-100 kΩ	1SVR730660R0100	CM-IWS.1**S**
24-240 V AC/DC	0-400 V AC	10 µF	1-100 kΩ	1SVR730670R0200	CM-IWS.2**S**
24-240 V AC/DC	0-400 V AC / 0-600 V DC	20 µF	1-100 kΩ 2-200 kΩ (activated / de-activated by DIP-switch)	1SVR750660R0200	CM-IWN.1**S**

CM-IVN.S

Ordering details - Coupling unit

Rated control supply voltage = measuring voltage	Nominal voltage U_n of the distribution system to be monitored	Factory code	Order code
Passive device, no control supply voltage needed	0-690 V AC / 0-1000 V DC	1SVR750669R9400	CM-IVN.**S**

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

S screw connection
P push-in / easy connect

Primary switch mode power supplies

CP-E 24/0.75

CP-E 12/2.5

CP-E 48/5.0

CP-A RU + CP-A CM

CP-A RU

CP-RUD

CP-E range

This range offers types with output voltages from 5 V DC to 48 V DC at output currents of 0.625 A to 20 A. The high thermal efficiency of up to 90 %, corresponding to very low power and heat dissipation, allows operation without forced cooling. The functionality has been enhanced while the number of different types has been considerably reduced.
Of course all power supplies of the CP-E range are approved in accordance with all relevant international standards.

Input voltage range	Rated output voltage / current	Factory code	Order code
CP-E < 100 W			
90-264 V AC / 120-375 V DC	5 V DC / 3 A	1SVR427033R3000	CPE5/3
85-264 V AC / 90-375 V DC	12 V DC / 2.5 A	1SVR427032R1000	CPE12/2.5
90-264 V AC / 120-375 V DC	24 V DC / 0.75 A	1SVR427030R0000	CPE24/0.75
85-264 V AC / 90-375 V DC	24 V DC / 1.25 A	1SVR427031R0000	CPE24/1.25
85-264 V AC / 90-375 V DC	24 V DC / 2.5 A	1SVR427032R0000	CPE24/2.5
CP-E M 120 W			
90-132 V AC, 180-264 V AC / 210-375 V DC	24 V DC / 5 A	1SVR427034R0000	CPE24/5
90-132 V AC, 180-264 V AC / 210-375 V DC	24 V DC / 10 A	1SVR427035R0000	CPE24/10
90-264 V AC / 120-375 V DC	24 V DC / 20 A	1SVR427036R0000	CPE24/20
85-264 V AC / 90-375 V DC	48 V DC / 1.25 A	1SVR427031R2000	CPE48/1.25
90-264 V AC / 120-375 V DC	48 V DC / 10 A	1SVR427035R2000	CPE48/10

Redundancy units

Description	Suitable for decoupling of two CP-24 V DC power supply units or suitable for decoupling of CP-E power supply units	Factory code	Order code
2 inputs each up to 20 A and 1 output up to 40 A	m 40 V and M 5 A	1SVR427071R0000	CPARU
Control module for CP-A RU redundancy units	-	1SVR427075R0000	CPACM
2 inputs each up to 2.5 A and 1 output up to 5 A	m 35 V and < 5 A	1SVR423418R9000	CPRUD

For full selection and technical details, please refer to EPR catalogue 2CDC110004C0210.

STOCK INDENT

For your notes

Index

Order code	Page
3050	49
1038F1	169
1038F10	169
1038F16	169
1038F2	169
1038F20	169
1038F25	169
1038F32	169
1038F4	169
1038F6	169
1038F8	169
1721-181K	49
1721-183K	49
1721-184K	49
1722-181K	49
1722-183K	49
1722-184K	49
1723-181K	49
1723-183K	49
1723-184K	49
1724-181K	49
1724-183K	49
1724-184K	49
1725-181K	49
1725-183K	49
1725-184K	49
1SDA013575R1	612
1SDA013781R1	612
1SDA013783R1	612
1SDA013785R1	612
1SDA013833R1	612
1SDA013842R1	612
1SDA013844R1	612
1SDA013846R1	612
1SDA013856R1	612
1SDA013857R1	612
1SDA013863R1	612
1SDA013865R1	612
1SDA013866R1	612
1SDA013869R1	613
1SDA013876R1	612
1SDA013889R1	613
1SDA013891R1	613
1SDA013922R1	499
1SDA013956R1	499
1SDA014028R1	613
1SDA014032R1	612
1SDA014035R1	613
1SDA014038R1	225
1SDA014039R1	225
1SDA014040R1	225
1SDA014041R1	225
1SDA014136R1	612
1SDA014138R1	612
1SDA014140R1	612
1SDA014179R1	612
1SDA014188R1	612
1SDA014190R1	612
1SDA014192R1	612
1SDA023332R1	612
1SDA023349R1	612
1SDA023354R1	613
1SDA023360R1	613
1SDA023366R1	612
1SDA023379R1	224
1SDA023379R1	613
1SDA023380R1	224
1SDA023380R1	499
1SDA023380R1	613
1SDA023382R1	613
1SDA023383R1	224
1SDA023383R1	613
1SDA023389R1	224
1SDA023393R1	224
1SDA037522R1	612
1SDA037523R1	612
1SDA038286R1	610
1SDA038290R1	610
1SDA038296R1	610
1SDA038300R1	610
1SDA038306R1	610
1SDA038310R1	610
1SDA038321R1	610
1SDA038323R1	610
1SDA043341R1	613
1SDA043461R1	613
1SDA043464R1	613
1SDA044748R1	613
1SDA050436R1	611
1SDA050437R1	611
1SDA050438R1	611
1SDA050439R1	611
1SDA050441R1	611
1SDA050442R1	611
1SDA050451R1	611
1SDA050452R1	611
1SDA050453R1	611
1SDA050454R1	611
1SDA050455R1	611
1SDA050461R1	611
1SDA050464R1	611
1SDA050470R1	611
1SDA050473R1	611
1SDA050535R1	611
1SDA050583R1	611
1SDA050692R1	224
1SDA050692R1	613
1SDA050693R1	224
1SDA050696R1	225
1SDA050697R1	225
1SDA050704R1	224
1SDA050704R1	613
1SDA051368R1	220
1SDA051368R1	612
1SDA051369R1	220
1SDA051369R1	612
1SDA052941R1	613
1SDA053215R1	611
1SDA054117R1	212
1SDA054121R1	212
1SDA054125R1	213
1SDA054129R1	213
1SDA054133R1	214
1SDA054134R1	215
1SDA054135R1	214
1SDA054137R1	214
1SDA054139R1	214
1SDA054317R1	212
1SDA054325R1	212
1SDA054333R1	213
1SDA054337R1	213
1SDA054341R1	213
1SDA054345R1	213
1SDA054349R1	214
1SDA054351R1	215
1SDA054353R1	214
1SDA054356R1	214
1SDA054360R1	214
1SDA054396R1	212
1SDA054400R1	212
1SDA054404R1	213
1SDA054406R1	213
1SDA054408R1	213
1SDA054410R1	213
1SDA054412R1	214
1SDA054414R1	214
1SDA054416R1	214
1SDA054418R1	214
1SDA054436R1	212
1SDA054437R1	212
1SDA054441R1	213
1SDA054444R1	214
1SDA054445R1	214
1SDA054456R1	212
1SDA054477R1	212
1SDA054478R1	212
1SDA054479R1	213
1SDA054481R1	214
1SDA054482R1	214
1SDA054487R1	212
1SDA054597R1	215
1SDA054598R1	215
1SDA054599R1	215
1SDA054600R1	215
1SDA054601R1	215
1SDA054602R1	215
1SDA054755R1	217
1SDA054758R1	217
1SDA054762R1	216
1SDA054845R1	217
1SDA054846R1	217
1SDA054847R1	216
1SDA054863R1	219
1SDA054863R1	612
1SDA054865R1	219
1SDA054865R1	612
1SDA054866R1	219
1SDA054866R1	612
1SDA054880R1	220
1SDA054880R1	612
1SDA054883R1	220
1SDA054883R1	612
1SDA054884R1	220
1SDA054884R1	612
1SDA054894R1	221
1SDA054894R1	612
1SDA054896R1	221
1SDA054896R1	612
1SDA054897R1	221
1SDA054897R1	612
1SDA054914R1	220
1SDA054914R1	612
1SDA054926R1	221
1SDA054926R1	613
1SDA054927R1	221
1SDA054929R1	222
1SDA054929R1	613
1SDA054930R1	222
1SDA054930R1	613
1SDA054938R1	222
1SDA054938R1	613
1SDA054939R1	223
1SDA054940R1	223
1SDA054944R1	223
1SDA054945R1	223
1SDA054955R1	219
1SDA054958R1	225
1SDA054959R1	225
1SDA054960R1	225
1SDA054961R1	225
1SDA054966R1	225
1SDA054967R1	225
1SDA054968R1	225
1SDA054969R1	225
1SDA054970R1	225
1SDA054971R1	225
1SDA054972R1	225
1SDA054973R1	225
1SDA054976R1	224
1SDA054976R1	613
1SDA054977R1	224
1SDA054980R1	224
1SDA054980R1	613
1SDA054988R1	493
1SDA054988R1	499
1SDA055000R1	224
1SDA055000R1	613
1SDA055001R1	224
1SDA055004R1	224
1SDA055004R1	613
1SDA055005R1	224
1SDA055008R1	224
1SDA055009R1	224
1SDA055012R1	224
1SDA055012R1	613
1SDA055013R1	224
1SDA055016R1	224
1SDA055016R1	493
1SDA055016R1	499
1SDA055016R1	613
1SDA055020R1	493
1SDA055020R1	499
1SDA055036R1	224
1SDA055036R1	613
1SDA055037R1	224
1SDA055040R1	224
1SDA055040R1	613
1SDA055041R1	224
1SDA055044R1	224
1SDA055045R1	224
1SDA055050R1	220
1SDA055059R1	226
1SDA055060R1	226
1SDA055061R1	226
1SDA055062R1	226
1SDA059602R1	226
1SDA059667R1	610
1SDA060202R1	212
1SDA060204R1	213
1SDA060206R1	214

Order code	Page
1SDA060210R1	212
1SDA060211R1	213
1SDA060212R1	214
1SDA060216R1	213
1SDA060218R1	214
1SDA060223R1	213
1SDA060224R1	214
1SDA060238R1	213
1SDA060243R1	213
1SDA060268R1	212
1SDA060273R1	212
1SDA060278R1	213
1SDA060280R1	213
1SDA060283R1	213
1SDA060285R1	213
1SDA060289R1	214
1SDA060291R1	214
1SDA060294R1	214
1SDA060296R1	214
1SDA060345R1	215
1SDA060346R1	215
1SDA060384R1	217
1SDA060387R1	217
1SDA060390R1	217
1SDA060391R1	217
1SDA060395R1	221
1SDA060397R1	221
1SDA060398R1	221
1SDA060405R1	221
1SDA060406R1	221
1SDA060409R1	222
1SDA060410R1	222
1SDA060417R1	223
1SDA060418R1	223
1SDA060421R1	224
1SDA060422R1	224
1SDA060425R1	224
1SDA060426R1	224
1SDA060658R1	223
1SDA060659R1	223
1SDA062032R1	215
1SDA062033R1	215
1SDA062034R1	215
1SDA062035R1	215
1SDA062036R1	215
1SDA062037R1	215
1SDA062038R1	215
1SDA062039R1	215
1SDA062040R1	215
1SDA062041R1	215
1SDA062042R1	215
1SDA062043R1	215
1SDA062044R1	218
1SDA062048R1	218
1SDA062065R1	219
1SDA062069R1	219
1SDA062076R1	219
1SDA062080R1	219

Order code	Page
1SDA062087R1	220
1SDA062091R1	220
1SDA062102R1	220
1SDA062104R1	220
1SDA062105R1	220
1SDA062113R1	221
1SDA062115R1	221
1SDA062116R1	221
1SDA062120R1	221
1SDA062121R1	221
1SDA062122R1	222
1SDA062123R1	222
1SDA062127R1	223
1SDA062129R1	223
1SDA062131R1	223
1SDA062132R1	222
1SDA062133R1	222
1SDA062150R1	222
1SDA062161R1	222
1SDA062162R1	218
1SDA062163R1	218
1SDA062164R1	218
1SDA062165R1	218
1SDA062166R1	218
1SDA062167R1	218
1SDA062168R1	218
1SDA062169R1	218
1SDA062738R1	213
1SDA062739R1	213
1SDA062746R1	213
1SDA062747R1	213
1SDA062754R1	213
1SDA062755R1	213
1SDA062762R1	213
1SDA062763R1	213
1SDA062770R1	214
1SDA062771R1	214
1SDA062778R1	214
1SDA062779R1	214
1SDA062786R1	214
1SDA062787R1	214
1SDA062794R1	214
1SDA062795R1	214
1SDA062866R1	213
1SDA062867R1	213
1SDA062874R1	213
1SDA062875R1	213
1SDA062882R1	213
1SDA062883R1	213
1SDA062890R1	213
1SDA062891R1	213
1SDA062898R1	214
1SDA062899R1	214
1SDA062906R1	214
1SDA062907R1	214
1SDA062914R1	214
1SDA062915R1	214
1SDA062922R1	214

Order code	Page
1SDA062923R1	214
1SDA062994R1	213
1SDA062995R1	213
1SDA063002R1	213
1SDA063003R1	213
1SDA063010R1	213
1SDA063011R1	213
1SDA063018R1	213
1SDA063019R1	213
1SDA063026R1	214
1SDA063027R1	214
1SDA063034R1	214
1SDA063035R1	214
1SDA063042R1	214
1SDA063043R1	214
1SDA063050R1	214
1SDA063051R1	214
1SDA063091R1	225
1SDA063092R1	225
1SDA063093R1	225
1SDA063094R1	225
1SDA063099R1	224
1SDA063100R1	224
1SDA063103R1	224
1SDA063104R1	224
1SDA063107R1	224
1SDA063108R1	224
1SDA063109R1	224
1SDA063116R1	224
1SDA063117R1	224
1SDA063120R1	224
1SDA063143R1	226
1SDA063548R1	219
1SDA063550R1	219
1SDA063552R1	220
1SDA063553R1	220
1SDA063555R1	223
1SDA063556R1	223
1SDA063572R1	218
1SDA064205R1	611
1SDA064206R1	611
1SDA064207R1	611
1SDA064208R1	611
1SDA064209R1	611
1SDA064210R1	611
1SDA064211R1	611
1SDA064213R1	611
1SDA064215R1	611
1SDA064219R1	611
1SDA064221R1	611
1SDA065524R1	204
1SDA065524R1	227
1SDA065723R1	214
1SDA065729R1	214
1SDA065752R1	215
1SDA065753R1	215
1SDA065754R1	215
1SDA065755R1	215

Order code	Page
1SDA065756R1	215
1SDA065757R1	215
1SDA065758R1	214
1SDA065764R1	214
1SDA066086R1	611
1SDA066087R1	611
1SDA066276R1	216
1SDA066278R1	216
1SDA066280R1	216
1SDA066282R1	216
1SDA066284R1	217
1SDA066285R1	217
1SDA066286R1	217
1SDA066287R1	217
1SDA066314R1	219
1SDA066316R1	219
1SDA066317R1	219
1SDA066389R1	220
1SDA066391R1	220
1SDA066392R1	220
1SDA066419R1	225
1SDA066420R1	225
1SDA066421R1	225
1SDA066422R1	220
1SDA066423R1	220
1SDA066424R1	220
1SDA066431R1	220
1SDA066446R1	220
1SDA066457R1	221
1SDA066459R1	221
1SDA066460R1	221
1SDA066463R1	221
1SDA066465R1	221
1SDA066466R1	221
1SDA066475R1	221
1SDA066477R1	221
1SDA066479R1	222
1SDA066481R1	222
1SDA066587R1	222
1SDA066588R1	222
1SDA066591R1	222
1SDA066592R1	222
1SDA066617R1	223
1SDA066618R1	223
1SDA066634R1	223
1SDA066635R1	223
1SDA066636R1	223
1SDA066652R1	225
1SDA066653R1	225
1SDA066655R1	225
1SDA066656R1	225
1SDA066657R1	225
1SDA066659R1	225
1SDA066660R1	225
1SDA066661R1	225
1SDA066662R1	225
1SDA066663R1	225
1SDA066664R1	225

Order code	Page
1SDA066665R1	225
1SDA066666R1	225
1SDA066667R1	225
1SDA066668R1	225
1SDA066669R1	225
1SDA066670R1	225
1SDA066671R1	225
1SDA066675R1	225
1SDA066676R1	225
1SDA066680R1	225
1SDA066681R1	225
1SDA066799R1	212
1SDA066800R1	212
1SDA066810R1	212
1SDA066811R1	212
1SDA066849R1	224
1SDA066850R1	224
1SDA066853R1	224
1SDA066854R1	224
1SDA066857R1	224
1SDA066858R1	224
1SDA066861R1	224
1SDA066862R1	224
1SDA066865R1	224
1SDA066866R1	224
1SDA066869R1	224
1SDA066870R1	224
1SDA066873R1	224
1SDA066874R1	224
1SDA066877R1	224
1SDA066878R1	224
1SDA066889R1	224
1SDA066890R1	224
1SDA066893R1	224
1SDA066894R1	224
1SDA066897R1	224
1SDA066898R1	224
1SDA066901R1	224
1SDA066902R1	224
1SDA066913R1	493
1SDA066917R1	499
1SDA066937R1	224
1SDA066938R1	224
1SDA066941R1	224
1SDA066942R1	224
1SDA066945R1	224
1SDA066946R1	224
1SDA066949R1	224
1SDA066950R1	224
1SDA066989R1	202
1SDA066989R1	226
1SDA067056R1	212
1SDA067057R1	212
1SDA067058R1	212
1SDA067069R1	212
1SDA067070R1	212
1SDA067071R1	212
1SDA067092R1	212

Order code	Page	Order code	Page	Order code	Page	Order code	Page	Order code	Page
1SDA067093R1	212	1SDA067604R1	214	1SDA068220R1	213	1SDA072566R1	196	1SDA073760R1	200
1SDA067095R1	212	1SDA067618R1	214	1SDA068221R1	213	1SDA072616R1	196	1SDA073762R1	200
1SDA067104R1	212	1SDA067621R1	214	1SDA068222R1	213	1SDA072646R1	196	1SDA073764R1	200
1SDA067105R1	212	1SDA067623R1	214	1SDA068223R1	213	1SDA072866R1	196	1SDA073780R1	201
1SDA067107R1	212	1SDA067626R1	214	1SDA068224R1	213	1SDA073016R1	196	1SDA073781R1	201
1SDA067122R1	219	1SDA067627R1	214	1SDA068229R1	213	1SDA073046R1	196	1SDA073782R1	201
1SDA067124R1	219	1SDA067765R1	215	1SDA068230R1	213	1SDA073126R1	196	1SDA073783R1	201
1SDA067125R1	219	1SDA067766R1	215	1SDA068231R1	213	1SDA073196R1	196	1SDA073788R1	201
1SDA067126R1	219	1SDA067767R1	215	1SDA068232R1	213	1SDA073246R1	196	1SDA073790R1	201
1SDA067127R1	219	1SDA067768R1	215	1SDA068282R1	215	1SDA073276R1	196	1SDA073791R1	201
1SDA067129R1	219	1SDA067769R1	215	1SDA068343R1	214	1SDA073401R1	197	1SDA073792R1	201
1SDA067131R1	219	1SDA067859R1	214	1SDA068345R1	214	1SDA073414R1	197	1SDA073797R1	201
1SDA067391R1	212	1SDA067860R1	214	1SDA068362R1	214	1SDA073418R1	197	1SDA073799R1	201
1SDA067400R1	212	1SDA067861R1	214	1SDA068364R1	214	1SDA073422R1	197	1SDA073800R1	201
1SDA067411R1	212	1SDA067876R1	214	1SDA068480R1	215	1SDA073426R1	197	1SDA073802R1	201
1SDA067412R1	212	1SDA067892R1	214	1SDA068514R1	214	1SDA073428R1	197	1SDA073803R1	201
1SDA067413R1	212	1SDA067893R1	214	1SDA068515R1	214	1SDA073440R1	197	1SDA073805R1	201
1SDA067414R1	212	1SDA067895R1	214	1SDA068530R1	214	1SDA073453R1	197	1SDA073806R1	201
1SDA067415R1	212	1SDA067913R1	214	1SDA068534R1	214	1SDA073457R1	197	1SDA073822R1	201
1SDA067416R1	212	1SDA068053R1	212	1SDA068535R1	214	1SDA073461R1	197	1SDA073840R1	201
1SDA067417R1	212	1SDA068054R1	212	1SDA068550R1	214	1SDA073465R1	197	1SDA073841R1	201
1SDA067418R1	212	1SDA068055R1	212	1SDA068659R1	225	1SDA073467R1	197	1SDA073854R1	202
1SDA067419R1	212	1SDA068056R1	212	1SDA068660R1	225	1SDA073485R1	197	1SDA073858R1	202
1SDA067420R1	212	1SDA068057R1	212	1SDA068661R1	225	1SDA073498R1	197	1SDA073862R1	202
1SDA067421R1	212	1SDA068058R1	212	1SDA068662R1	225	1SDA073502R1	197	1SDA073863R1	202
1SDA067422R1	212	1SDA068059R1	212	1SDA069053R1	221	1SDA073506R1	197	1SDA073864R1	202
1SDA067423R1	212	1SDA068060R1	212	1SDA069054R1	221	1SDA073510R1	197	1SDA073865R1	202
1SDA067424R1	212	1SDA068061R1	212	1SDA069055R1	222	1SDA073512R1	197	1SDA073868R1	202
1SDA067427R1	212	1SDA068062R1	212	1SDA069056R1	222	1SDA073524R1	197	1SDA073869R1	202
1SDA067428R1	212	1SDA068067R1	212	1SDA069601R1	215	1SDA073537R1	197	1SDA073870R1	202
1SDA067431R1	213	1SDA068068R1	212	1SDA069602R1	215	1SDA073541R1	197	1SDA073871R1	202
1SDA067432R1	213	1SDA068069R1	212	1SDA069603R1	215	1SDA073545R1	197	1SDA073881R1	204
1SDA067433R1	213	1SDA068070R1	212	1SDA069604R1	215	1SDA073549R1	197	1SDA073885R1	204
1SDA067434R1	213	1SDA068090R1	212	1SDA069605R1	215	1SDA073551R1	197	1SDA073889R1	204
1SDA067435R1	213	1SDA068092R1	212	1SDA069621R1	215	1SDA073668R1	199	1SDA073890R1	204
1SDA067436R1	213	1SDA068109R1	212	1SDA069622R1	215	1SDA073672R1	199	1SDA073891R1	204
1SDA067439R1	213	1SDA068111R1	212	1SDA069623R1	215	1SDA073675R1	199	1SDA073892R1	204
1SDA067440R1	213	1SDA068125R1	212	1SDA069624R1	215	1SDA073681R1	199	1SDA073893R1	204
1SDA067441R1	213	1SDA068126R1	212	1SDA069625R1	215	1SDA073685R1	199	1SDA073895R1	204
1SDA067442R1	213	1SDA068146R1	212	1SDA069656R1	222	1SDA073688R1	199	1SDA073896R1	204
1SDA067445R1	213	1SDA068147R1	212	1SDA070886R1	196	1SDA073694R1	199	1SDA073907R1	196
1SDA067446R1	213	1SDA068183R1	216	1SDA071036R1	196	1SDA073698R1	199	1SDA073907R1	197
1SDA067449R1	214	1SDA068187R1	216	1SDA071066R1	196	1SDA073701R1	199	1SDA073908R1	196
1SDA067450R1	214	1SDA068192R1	216	1SDA071146R1	196	1SDA073708R1	199	1SDA073908R1	197
1SDA067451R1	214	1SDA068196R1	216	1SDA071216R1	196	1SDA073710R1	199	1SDA073909R1	196
1SDA067452R1	214	1SDA068200R1	217	1SDA071266R1	196	1SDA073711R1	199	1SDA073910R1	196
1SDA067453R1	214	1SDA068202R1	217	1SDA071296R1	196	1SDA073722R1	199	1SDA073911R1	196
1SDA067454R1	214	1SDA068204R1	217	1SDA071516R1	196	1SDA073724R1	199	1SDA073911R1	197
1SDA067457R1	214	1SDA068206R1	217	1SDA071666R1	196	1SDA073725R1	199	1SDA073912R1	196
1SDA067458R1	214	1SDA068208R1	215	1SDA071696R1	196	1SDA073736R1	200	1SDA073912R1	197
1SDA067459R1	214	1SDA068209R1	215	1SDA071776R1	196	1SDA073737R1	200	1SDA073913R1	196
1SDA067460R1	214	1SDA068210R1	215	1SDA071846R1	196	1SDA073738R1	200	1SDA073913R1	197
1SDA067463R1	214	1SDA068211R1	215	1SDA071896R1	196	1SDA073744R1	199	1SDA073914R1	196
1SDA067464R1	214	1SDA068215R1	213	1SDA071926R1	196	1SDA073747R1	199	1SDA073914R1	197
1SDA067597R1	214	1SDA068216R1	213	1SDA072236R1	196	1SDA073750R1	200	1SDA073915R1	196
1SDA067600R1	214	1SDA068217R1	213	1SDA072386R1	196	1SDA073753R1	200	1SDA073915R1	197
1SDA067602R1	214	1SDA068218R1	213	1SDA072416R1	196	1SDA073756R1	200	1SDA073916R1	196
1SDA067603R1	214	1SDA068219R1	213	1SDA072496R1	196	1SDA073758R1	200	1SDA073916R1	197

Order code	Page
1SDA073917R1	196
1SDA073917R1	197
1SDA073918R1	196
1SDA073918R1	197
1SDA073920R1	196
1SDA073920R1	197
1SDA073921R1	196
1SDA073921R1	197
1SDA074150R1	203
1SDA074151R1	203
1SDA074155R1	203
1SDA074166R1	203
1SDA074167R1	203
1SDA074170R1	203
1SDA074172R1	203
1SDA074173R1	203
1SDA074184R1	203
1SDA074185R1	203
1SDA074186R1	203
1SDA074187R1	203
1SDA074188R1	203
1SDA074189R1	203
1SDA074222R1	203
1SDA074223R1	203
1SDA074224R1	203
1SDA074225R1	203
1SDA074227R1	203
1SDA074229R1	203
1SDA076322R1	610
1SDA076323R1	610
1SDAA99059A1	228
1SDAA99060A1	228
1SDAA99061A1	228
1SDAA99065A1	228
1SDAA99066A1	228
1SDAA99067A1	228
1SDAA99071A1	228
1SDAA99072A1	228
1SDAA99073A1	228
1SDAA99074A1	228
1SDAA99075A1	228
1SDAA99076A1	228
1SDAA99077A1	228
1SDAA99078A1	228
1SDAA99079A1	228
1SDAA99080A1	228
1SDAA99081A1	228
1SDAA99082A1	228
1SDAA99083A1	228
1SDAA99084A1	228
1SDAA99085A1	228
1SDAA99086A1	228
1SDAA99087A1	228
1SDAA99088A1	228
1SDAA99089A1	228
1SDAA99090A1	228
1SDAA99091A1	228
1SDAA99092A1	228
1SDAA99094A1	228
1SDAA99095A1	228
1SDAA99096A1	228
1SDAA99108A1	228
1SDAA99109A1	228
1SDAA99110A1	228
1SDAA99140A1	228
1SDAA99141A1	228
1SDAA99142A1	228
1SDAA99150A1	228
1SDAA99151A1	228
1SDAA99152A1	228
1SDAA99160A1	228
1SDAA99161A1	228
1SDAA99162A1	228
1SDAA99170A1	228
1SDAA99171A1	228
1SDAA99172A1	228
1SDAA99203A1	204
1SDAA99203A1	227
1SDAA99205A1	227
1SDAA99301A1	228
1SDAA99302A1	228
1SDAA99303A1	228
1SDAA99304A1	228
1SDAA99305A1	228
1SDAA99306A1	228
1SDAA99307A1	228
1SDAA99308A1	228
1SDAA99309A1	228
1SDAA99331A1	228
1SDAA99332A1	228
1SDAA99333A1	228
1SDAA99334A1	228
1SDAA99335A1	228
1SDAA99336A1	228
1SDAA99337A1	228
1SDAA99338A1	228
1SDAA99339A1	228
1SDAA99361A1	228
1SDAA99362A1	228
1SDAA99363A1	228
1SDAA99364A1	228
1SDAA99365A1	228
1SDAA99366A1	228
1SDAA99367A1	228
1SDAA99368A1	228
1SDAA99369A1	228
1SDAA99402A1	228
1SDAA99403A1	228
1SDAA99404A1	228
1SDAA99405A1	228
1SDAA99406A1	228
1SDAA99407A1	228
1SDAA99408A1	228
1SDAA99409A1	228
1SDAA99411A1	228
1SDAA99412A1	228
1SDAA99413A1	228
1SDAA99414A1	228
1SDAA99415A1	228
1SDAA99416A1	228
1SDAA99417A1	228
1SDAA99418A1	228
1SDAA99431A1	228
1SDAA99432A1	228
1SDAA99433A1	228
1SDAA99434A1	228
1SDAA99435A1	228
1SDAA99436A1	228
1SDAA99437A1	228
1SDAA99438A1	228
1SDAA99439A1	228
1SDAA99440A1	228
1SDAA99441A1	228
1SDAA99442A1	228
1SDAA99443A1	228
1SDAA99444A1	228
1SDAA99445A1	228
1SDAA99446A1	228
1SDAA99447A1	228
1SDAA99448A1	228
1SDAA99461A1	228
1SDAA99462A1	228
1SDAA99463A1	228
1SDAA99464A1	228
1SDAA99465A1	228
1SDAA99466A1	228
1SDAA99467A1	228
1SDAA99468A1	228
1SDAA99469A1	228
1SDAA99470A1	228
1SDAA99471A1	228
1SDAA99472A1	228
1SDAA99473A1	228
1SDAA99474A1	228
1SDAA99476A1	228
1SDAA99477A1	228
1SDAA99478A1	228
1SDAA99501A1	228
1SDAA99502A1	228
1SDAA99503A1	228
1SDAA99504A1	228
1SDAA99505A1	228
1SDAA99506A1	228
1SDAA99507A1	228
1SDAA99508A1	228
1SDAA99509A1	228
1SDAA99510A1	228
1SDAA99531A1	228
1SDAA99532A1	228
1SDAA99533A1	228
1SDAA99534A1	228
1SDAA99535A1	228
1SDAA99536A1	228
1SDAA99561A1	228
1SDAA99562A1	228
1SDAA99563A1	228
1SDAA99564A1	228
1SDAA99565A1	228
1SDAA99566A1	228
1SDAA99601A1	228
1SDAA99602A1	228
1SDAA99603A1	228
1SDAA99604A1	228
1SDAA99605A1	228
1SDAA99606A1	228
1SDAA99631A1	228
1SDAA99632A1	228
1SDAA99633A1	228
1SDAA99634A1	228
1SDAA99635A1	228
1SDAA99636A1	228
1SDAA99661A1	228
1SDAA99662A1	228
1SDAA99663A1	228
1SDAA99664A1	228
1SDAA99665A1	228
1SDAA99666A1	228
1SDAA99820A1	228
1SDAA99821A1	228
1SDAA99822A1	228
1SDAA99823A1	228
1SDAA99824A1	228
1SDAA99825A1	228
1SDAA99826A1	228
1SDAA99827A1	228
1SDAA99828A1	228
1SDAA99829A1	228
1SDAA99830A1	228
1SDAA99831A1	228
1SDAA99832A1	228
1SDAA99833A1	228
1SDAA99834A1	228
1SDAA99835A1	228
1SDAA99836A1	228
1SDAA99837A1	228
1SDAA99838A1	228
1SDAA99839A1	228
1SDAA99852A1	228
1SDAA99853A1	228
1SDAA99854A1	228
1SDAA99855A1	228
1SDAA99856A1	228
1SDAA99857A1	228
1SDAA99858A1	228
1SDAA99859A1	228
1SDAA99860A1	228
1SDAA99861A1	228
1SDAA99862A1	228
1SDAA99863A1	228
1SDAA99864A1	228
1SDAA99865A1	228
1SDAA99866A1	228
1SDAA99867A1	228
1SDAA99868A1	228
1SDAA99869A1	228
1SDAA99870A1	228
1SDAA99871A1	228
1SDAA99872A1	228
1SDAA99873A1	228
1SDAA99886A1	228
1SDAA99887A1	228
1SDAA99888A1	228
1SDAA99889A1	228
1SDAA99890A1	228
1SDAA99891A1	228
1SDAA99892A1	228
1SEP101890R0004	282
1SEP101891R0004	282
1SEP101892R0002	282
1SEP101975R0002	282
1SEP201428R0001	282
1SEP407742R0001	282
1SEP407793R0001	282
1SEP407793R0002	282
1SEP407952R0001	282
1SFA611930R1252	534
1SL0221A00	333
1SL0221A00	631
1SL0222A00	333
1SL0222A00	631
1SL0223A00	333
1SL0223A00	631
1SL0224A00	333
1SL0224A00	631
1SL0225A00	333
1SL0225A00	631
1SL0226A00	333
1SL0226A00	631
1SL0231A00	333
1SL0231A00	631
1SL0232A00	333
1SL0232A00	631
1SL0233A00	333
1SL0233A00	631
1SL0234A00	333
1SL0234A00	631
1SL0235A00	333
1SL0235A00	631
1SL0236A00	333
1SL0236A00	631
1SL0241A00	333
1SL0241A00	631
1SL0242A00	333
1SL0242A00	631
1SL0243A00	333
1SL0243A00	631
1SL0244A00	333
1SL0244A00	631
1SL0245A00	333
1SL0245A00	631

Order code	Page
1SL0246A00	333
1SL0246A00	631
1SL0251A00	333
1SL0251A00	631
1SL0252A00	333
1SL0252A00	631
1SL0253A00	333
1SL0253A00	631
1SL0254A00	333
1SL0254A00	631
1SL0255A00	333
1SL0255A00	631
1SL0256A00	333
1SL0256A00	631
1SL0259A00	333
1SL0259A00	631
1SL0260A00	333
1SL0260A00	631
1SL0261A00	333
1SL0261A00	631
1SL0262A00	333
1SL0262A00	631
1SL0263A00	333
1SL0263A00	631
1SL0264A00	333
1SL0264A00	631
1SL0283A00	334
1SL0283A00	632
1SL0284A00	334
1SL0284A00	632
1SL0285A00	334
1SL0285A00	632
1SL0286A00	334
1SL0286A00	632
1SL0287A00	334
1SL0287A00	632
1SL0290A00	334
1SL0290A00	632
1SL0291A00	334
1SL0291A00	632
1SL0292A00	334
1SL0292A00	632
1SL0293A00	334
1SL0293A00	632
1SL0296A00	334
1SL0296A00	632
1SL0297A00	334
1SL0297A00	632
1SL0298A00	334
1SL0298A00	632
1SL0299A00	334
1SL0299A00	632
1SL0302A00	334
1SL0302A00	632
1SL0303A00	334
1SL0303A00	632
1SL0304A00	334
1SL0304A00	632

Order code	Page
1SL0307A00	334
1SL0307A00	632
1SL0308A00	334
1SL0308A00	632
1SL0309A00	334
1SL0309A00	632
1SL0310A00	334
1SL0310A00	632
1SL0313A00	334
1SL0313A00	632
1SL0314A00	334
1SL0314A00	632
1SL0315A00	334
1SL0315A00	632
1SL0318A00	334
1SL0318A00	632
1SL0319A00	334
1SL0319A00	632
1SL0320A00	334
1SL0320A00	632
1SL0321A00	334
1SL0321A00	632
1SL0324A00	334
1SL0324A00	632
1SL0325A00	334
1SL0325A00	632
1SL0326A00	334
1SL0326A00	632
1SL0327A00	334
1SL0327A00	632
1SL0330A00	334
1SL0330A00	632
1SL0331A00	334
1SL0331A00	632
1SL0332A00	334
1SL0332A00	632
1SL0333A00	334
1SL0333A00	632
1SL0339A00	334
1SL0339A00	632
1SL0340A00	334
1SL0340A00	632
1SL0341A00	334
1SL0341A00	632
1SL0342A00	334
1SL0342A00	632
1SL0343A00	334
1SL0343A00	632
1SL0344A00	334
1SL0344A00	632
1SL0345A00	334
1SL0345A00	632
1SL0346A00	334
1SL0346A00	632
1SL0351A00	334
1SL0351A00	632
1SL0353A00	333
1SL0353A00	631

Order code	Page
1SL0354A00	333
1SL0354A00	631
1SL0355A00	333
1SL0355A00	631
1SL0356A00	333
1SL0356A00	631
1SL0360A00	333
1SL0360A00	631
1SL0361A00	333
1SL0361A00	631
1SL0362A00	333
1SL0362A00	631
1SL0363A00	333
1SL0363A00	631
1SL0373A00	333
1SL0373A00	631
1SL0374A00	333
1SL0374A00	631
1SL0375A00	333
1SL0375A00	631
1SL0376A00	333
1SL0376A00	631
1SL0377A00	333
1SL0377A00	631
1SL0378A00	333
1SL0378A00	631
1SL0451A00	334
1SL0451A00	632
1SL0452A00	334
1SL0452A00	632
1SL0454A00	334
1SL0454A00	632
1SL0455A00	334
1SL0455A00	632
1SL0456A00	334
1SL0456A00	632
1SL0458A00	334
1SL0458A00	632
1SL0470A00	334
1SL0470A00	632
1SL0471A00	334
1SL0471A00	632
1SL0472A00	334
1SL0472A00	632
1SL0473A00	334
1SL0473A00	632
1SL1927A00	312
1SL1927A00	316
1SL1927A00	98
1SL1931A00	312
1SL1931A00	316
1SL1931A00	98
1SNB040390R0412	600
1SNB040391R0416	600
1SNB040490R0412	600
1SNB040491R0416	600
1SNB040590R0412	600
1SNB040591R0416	600

Order code	Page
1SNB041790R0512	600
1SNB041791R0612	600
1SNB049198R1735	600
1SNB049498R8530	600
1SNK140000R0000	600
1SNK140011R0000	600
1SNK145011R0000	600
1SNK149999R0000	600
1SNK150000R0000	600
1SNK150011R0000	600
1SNK155011R0000	600
1SNK159999R0000	600
1SNK160000R0000	600
1SNK160011R0000	600
1SNK165011R0000	600
1SNK169999R0000	600
1SNK505911R0000	0
1SNK900605R0000	0
1SNK900607R0000	0
1SNK900611R0000	600
1SNK900630R0000	600
1SNK900631R0000	600
2114-212	36
2114-214-500	36
2125C6W	180
2125P6W	180
2125RS6W	180
2125RU6W	181
216C6	179
216C6W	180
216P6	179
216P6W	180
216RAM6	179
216RAU6W	181
216RS6	179
216RS6W	180
232C6	179
232C6W	180
232P6	179
232P6W	180
232RAM6	179
232RAU6W	181
232RS6	179
232RS6W	180
263C6	179
263C6W	180
263P6	179
263P6W	180
263RAU6W	181
263RS6	179
263RS6W	180
2CTB803871R1700	164
2CTB803871R1700	165
2CTB803871R1700	92
2CTB803871R2400	164
2CTB803871R2400	165
2CTB803871R2400	92
2CTB803953R5700	164

Order code	Page
2CTB803953R5700	166
2CTB803953R5700	626
2CTB803953R6700	164
2CTB803953R6700	166
2CTB803953R6700	626
2CTB815101R0100	164
2CTB815101R0100	165
2CTB815101R0600	164
2CTB815101R0600	165
2CTB815704R0800	164
2CTB815704R0800	165
2CTB815708R0000	164
2CTB815708R0000	165
2CTB815708R0800	164
2CTB815708R0800	165
2CTB815710R0000	164
2CTB815710R0000	165
2CTB815710R0600	164
2CTB815710R0600	165
2xPFCF6090	342
3125C6W	180
3125P6W	180
3125RS6W	180
3125RU6W	181
316C6	179
316C6W	180
316P6	179
316P6W	180
316RAM6	179
316RAU6W	181
316RS6	179
316RS6W	180
332C6	179
332C6W	180
332P6	179
332P6W	180
332RAM6	179
332RAU6W	181
332RS6	179
332RS6W	180
363C6	179
363C6W	180
363P6	179
363P6W	180
363RAU6W	181
363RS6	179
363RS6W	180
41021F	63
41022F	63
41023F	63
41024F	63
41025F	64
41026F	64
41028F	63
41029F	64
4125C6W	180
4125P6W	180
4125RS6W	180

Order code	Page
4125RU6W	181
416C6	179
416C6W	180
416P6	179
416P6W	180
416RAM6	179
416RAU6W	181
416RS6	179
416RS6W	180
42311D	72
42311F	72
432C6	179
432C6W	180
432P6	179
432P6W	180
432RAM6	179
432RAU6W	181
432RS6	179
432RS6W	180
463C6	179
463C6W	180
463P6	179
463P6W	180
463RAU6W	181
463RS6	179
463RS6W	180
51021CF-A	61
51021CF-W	61
51021DN	60
51021EP-A	62
51021EP-W	62
51021J	64
51021L	66
51021P3	58
51021P4	59
51021RH	65
51022CF-A	61
51022CF-W	61
51022EP-A	62
51022EP-W	62
51022L	66
51022RH	65
51023CF-A	61
51023CF-W	61
51023L	66
51023RH	65
51024CF-A	61
51024CF-W	61
51024RH	65
51025CF-A	62
51025CF-W	62
51025RH	66
51026CF-A	62
51026CF-W	62
51026RH	66
51027RH	66
51028CF-A	61
51028RH	65
51029CF-A	62
51029RH	66
52001J	72
52301J	72
52303HS-W	72
52311FC-B	72
52311FC-G	72
52311FC-L	72
52311FC-S	72
52311FC-W	72
52313FC-B	72
52313FC-G	72
52313FC-L	72
52313FC-S	72
52313FC-W	72
6010-25-500	34
6108/01-500	36
6108/02-500	36
6108/03-500	36
6108/04-500	36
6108/05-500	36
6120/12-101-500	31
6120/13-500	31
6122/20-981-500	37
6122/98-509	38
6123/20-500	37
6123/20-500	39
6123/21-500	37
6123/21-500	39
6123/22-500	37
6123/22-500	39
6123/23-500	37
6123/23-500	39
6123/24-500	37
6123/24-500	39
6123/26-500	37
6123/26-500	39
6124/20-981-500	37
6124/98-509	38
6125/20-981-500	37
6125/98-509	38
6126/20-981-500	37
6126/98-509	38
6129/20-981-500	37
6129/21-981-500	37
6129/96-509	38
6129/98-509	38
6131/20-183-500	26
6131/20-24-500	26
6131/21-183-500	26
6131/21-24-500	26
6131/29-183-500	26
6131/29-24-500	26
6131/30-183-500	26
6131/30-24-500	26
6131/31-183-500	26
6131/31-24-500	26
6131/39-183-500	26
6131/39-24-500	26
6131/40-24-500	26
6136/100C-102-500	30
6136/100CB-102	30
6136/10-500	30
6136/11-500	30
6136/15-500	30
6138/11-83-500	27
6138/11-84-500	27
6149/21-500	33
6151/11U-500	20
6152/11U-500	20
6164/11U-500	20
6173/11U-500	20
6179/01-204-500	26
6179/01-208-500	26
6179/02-204-500	26
6179/02-208-500	26
6179-500	26
6186/01UP-500	30
6197/12-101-500	25
6197/13-101-500	25
6197/14-101-500	25
6197/15-101-500	25
6197/52-101-500	25
6197/53-101-500	25
6320/10-20-500	34
6320/10-24G-500	34
6320/10-260-500	34
6320/10-79-500	34
6320/10-83-500	34
6320/30-20-500	34
6320/30-24G-500	34
6320/30-260-500	34
6320/30-79-500	34
6320/30-83-500	34
6320/38-20-500	34
6320/38-24G-500	34
6320/38-260-500	34
6320/38-79-500	34
6320/38-83-500	34
6320/50-20-500	34
6320/50-24G-500	34
6320/50-260-500	34
6320/50-79-500	34
6320/50-83-500	34
6320/58-20-500	34
6320/58-24G-500	34
6320/58-260-500	34
6320/58-79-500	34
6320/58-83-500	34
6340-24G-101-500	31
6340-811-101-500	31
6340-825-101-500	31
6340-866-101-500	31
6341-24G-101-500	31
6341-811-101-500	31
6341-825-101-500	31
6341-866-101-500	31
6342-24G-101-500	31
6342-811-101-500	31
6342-825-101-500	31
6342-866-101-500	31
6344-24G-101-500	32
6344-811-101-500	32
6344-825-101-500	32
6344-866-101-500	32
6345-24G-101-500	32
6345-811-101-500	32
6345-825-101-500	32
6345-866-101-500	32
6346/10-101-500	31
6346/11-101-500	31
6346/12-101-500	31
6348-24G-101-500	32
6348-811-101-500	32
6348-825-101-500	32
6348-866-101-500	32
6349-24G-101-500	32
6349-811-101-500	32
6349-825-101-500	32
6349-860-101-500	32
6350-825-101-500	32
6351-825-101-500	33
6352-24G-101-500	33
6352-811-101-500	33
6352-825-101-500	33
6352-860-101-500	33
6353/20-860-500	33
6353/30-860-500	33
6353/40-860-500	33
6353/50-860-500	33
6541-20	36
6541-21	36
6541-22G	36
6541-24	36
6541-24G	36
6541-260	36
6541-266	36
6541-72	36
6541-74	36
6541-774	36
6541-775	36
6541-777	36
6541-783	36
6541-79	36
6541-803	36
6541-81	36
6541-815	36
6541-82	36
6541-83	36
6541-84	36
6541-866	36
6541-884	36
6541-885	36
6541-896	36
8136/01UP-500	30
8136/09-811-500	30
8136/09-825-500	30
8136/12-811-500	30
8136/12-825-500	30
8186/03-500	15
8186/04-500	15
83325/2-500	73
A41-111-100	292
A41-111-100	627
A41-212-100	292
A41-212-100	627
A41-412-100	292
A41-412-100	627
A42-111-100	292
A42-111-100	627
A42-212-100	292
A42-212-100	627
A42-412-100	292
A42-412-100	627
A43-111-100	292
A43-111-100	627
A43-212-100	292
A43-212-100	627
A43-412-100	292
A43-412-100	627
A44-111-100	292
A44-111-100	627
A44-212-100	292
A44-212-100	627
A44-452-100	292
A44-452-100	627
AA/S4.1	22
AA1-110	413
AA1206	335
AA1-230	413
AA1-24	413
AA1-400	413
AA4-110	419
AA4-230	419
AA4-24	419
AA4-400	419
AA5600	335
AA6200	346
AA8001	335
AA8002	335
AAM/S4.1	22
ABB12WPP	306
ABB12WPP	96
ABB18WPP	306
ABB18WPP	96
ABB24WPP	306
ABB24WPP	96
ABBLB12	316
ABBLB12	99
ABBLB12DSN63	316
ABBLB12DSN63	99
ABBLB12M63	316

Order code	Page
ABBLB12M63	99
ABBM12DC	317
ABBM12FMESC	317
ABBM12SM	317
ABBM18DC	317
ABBM18FMESC	317
ABBM18SM	317
ABBM24DC	317
ABBM24FMESC	317
ABBM24SM	317
AB-DEVICENET-1	500
AB-ETHERNET-IP-1	500
AB-ETHERNET-IP-2	500
ABL/S2.1	29
AB-MODBUS-RTU-1	500
AB-MODBUS-TCP-1	500
AB-MODBUS-TCP-2	500
AB-PROFIBUS-1	500
AB-PROFINET-2	500
ABZ/S2.1	29
AD1009	362
AD1056	375
AD1064	375
AD1071	375
AD1072	375
AD1077	375
AD1600	363
AD1800	363
AD3301	363
AD3302	363
AD3303	363
AD3304	363
AD3305	363
AD3306	363
AD3307	363
AD3308	363
AE/A2.1	21
AE/S4.1.1.3	21
AF09220011	446
AF09220012	446
AF09220013	446
AF09220014	446
AF09300111	434
AF09300112	434
AF09300113	434
AF09300114	434
AF09301011	434
AF09301012	434
AF09301013	434
AF09301014	434
AF09400011	446
AF09400012	446
AF09400013	446
AF09400014	446
AF09Z302221	461
AF09Z302223	461
AF116301111	438
AF116301112	438
AF116301113	438
AF116301114	438
AF116400011	450
AF116400012	450
AF116400013	450
AF116400014	450
AF12300111	434
AF12300112	434
AF12300113	434
AF12300114	434
AF12301011	434
AF12301012	434
AF12301013	434
AF12301014	434
AF1250301170	441
AF12Z302221	461
AF12Z302223	461
AF1350301170	441
AF140301111	438
AF140301112	438
AF140301113	438
AF140301114	438
AF140400011	450
AF140400012	450
AF140400013	450
AF140400014	450
AF146301111	438
AF146301112	438
AF146301113	438
AF146301114	438
AF16220011	446
AF16220012	446
AF16220013	446
AF16220014	446
AF16300111	434
AF16300112	434
AF16300113	434
AF16300114	434
AF16301011	434
AF16301012	434
AF16301013	434
AF16301014	434
AF16400011	446
AF16400012	446
AF16400013	446
AF16400014	446
AF1650301170	441
AF16Z302221	461
AF16Z302223	461
AF190301111	438
AF190301112	438
AF190301113	438
AF190301114	438
AF190400011	450
AF190400012	450
AF190400013	450
AF190400014	450
AF2050301170	441
AF205301111	438
AF205301112	438
AF205301113	438
AF205301114	438
AF205400011	450
AF205400012	450
AF205400013	450
AF205400014	450
AF26220011	446
AF26220012	446
AF26220013	446
AF26220014	446
AF26300011	434
AF26300012	434
AF26300013	434
AF26300014	434
AF26400011	446
AF26400012	446
AF26400013	446
AF26400014	446
AF2650301170	441
AF265301111	438
AF265301112	438
AF265301113	438
AF265301114	438
AF265400011	450
AF265400012	450
AF265400013	450
AF265400014	450
AF26Z302221	461
AF26Z302223	461
AF30300011	434
AF30300012	434
AF30300013	434
AF30300014	434
AF305301111	438
AF305301112	438
AF305301113	438
AF305301114	438
AF305400011	450
AF305400012	450
AF305400013	450
AF305400014	450
AF30Z302221	461
AF30Z302223	461
AF370301111	438
AF370301112	438
AF370301113	438
AF370301114	438
AF370400011	450
AF370400012	450
AF370400013	450
AF370400014	450
AF38220011	446
AF38220012	446
AF38220013	446
AF38220014	446
AF38300011	434
AF38300012	434
AF38300013	434
AF38300014	434
AF38400011	446
AF38400012	446
AF38400013	446
AF38400014	446
AF38Z302221	461
AF38Z302223	461
AF400301170	441
AF40220011	447
AF40220012	447
AF40220013	447
AF40220014	447
AF40300011	435
AF40300012	435
AF40300013	435
AF40300014	435
AF40302211	461
AF40302213	461
AF40400011	447
AF40400012	447
AF40400013	447
AF40400014	447
AF460301170	441
AF52300011	435
AF52300012	435
AF52300013	435
AF52300014	435
AF52302211	461
AF52302213	461
AF52400011	447
AF52400012	447
AF52400013	447
AF52400014	447
AF580301170	441
AF65300011	435
AF65300012	435
AF65300013	435
AF65300014	435
AF65302211	461
AF65302213	461
AF750301170	441
AF80220011	447
AF80220012	447
AF80220013	447
AF80220014	447
AF80300011	435
AF80300012	435
AF80300013	435
AF80300014	435
AF80302211	461
AF80302213	461
AF80400011	447
AF80400012	447
AF80400013	447
AF80400014	447
AF96300011	435
AF96300012	435
AF96300013	435
AF96300014	435
AF96302211	461
AF96302213	461
AI111	396
AM/S12.1	12
AMD5053	37
AMD5153-AG	37
AMD5153-MG	37
AMD5153-SB	37
AMD5153-ST	37
AMD5253-AG	37
AMD5253-MG	37
AMD5253-SB	37
AMD5253-ST	37
ANR96-230	290
ANR96-24	290
ANR96P-230	290
ANR96P-24	290
AP6000	362
AP6000	632
AP6000	334
AST50/15	156
AST50/15Q	156
AST50/32Q	156
AT1R	172
AT1R	93
AT3	172
AT3	93
AT3R	172
AT3R	93
B21-111-100	293
B21-111-100	628
B21-212-100	293
B21-212-100	628
B21-312-100	293
B21-312-100	628
B23-111-100	293
B23-111-100	628
B23-212-100	293
B23-212-100	628
B23-312-100	293
B23-312-100	628
B24-111-100	293
B24-111-100	628
B24-212-100	293
B24-212-100	628
B24-352-100	293
B24-352-100	628
B593/57	156
B6220001	428
B6300101	426
B6300180	426
B6301001	426
B6301080	426
B6400001	428
B7220001	428

Order code	Page
B7300101	426
B7300180	426
B7301001	426
B7301080	426
B7400001	428
BA-M-0.4.1	51
BAM3	598
BASEOVRTCRJ45	166
BASEOVRTCRJ45	626
BAZ1	598
BAZH1	598
BC6220001	428
BC6300101	426
BC6301001	426
BC6400001	428
BC7220001	428
BC7300101	426
BC7301001	426
BC7400001	428
BDB/S 1.1	41
BE/M4.12.1	18
BE/M4.230.1	18
BE/M4.24.1	18
BE/S4.20.2.1	20
BE/S4.230.2.1	20
BE/S8.20.2.1	20
BE/S8.230.2.1	20
BEA164	437
BEA264	437
BEA384	437
BER164	437
BER384	437
BER654	437
BER964	437
BEY164	437
BEY384	437
BEY654	437
BEY964	437
BI-F-2.0.1	51
BI-F-4.0.1	51
BI-M-4.0.1	51
BS1-3	415
BS91/12	156
BS91/12NA	156
BS91/56	156
BS93/12	156
BS9-END3P	156
BSM630	429
BUSKLEMME	16
BX4	456
BX4CA	456
BX4CA	461
C11-110-300	293
C11-110-300	628
C13-110-300	293
C13-110-300	628
C512-W	569
C513-W	569
CA1-8053	544
CA1-8054	544
CA1-8077	522
CA1-8078	522
CA1-8080	521
CA401	437
CA401	449
CA401	456
CA404E	449
CA404N	456
CA410	437
CA410	449
CA410	456
CA413N	456
CA422E	437
CA422E	449
CA422M	437
CA422N	456
CA422U	437
CA431E	449
CA431N	456
CA440E	449
CA440N	456
CA6-1026	550
CA611E	429
CA611K	429
CA611M	429
CA611N	429
CAF602E	429
CAF602K	429
CAF602M	429
CAF602N	429
CAF611E	429
CAF611K	429
CAF611M	429
CAF611N	429
CAF620E	429
CAF620K	429
CAF620M	429
CAF620N	429
CAL1611B	453
CAL1611C	453
CAL1611D	453
CAL1811	443
CAL1811B	443
CAL19-11	440
CAL19-11	452
CAL19-11B	440
CAL19-11B	452
CAL411	437
CAL411	449
CAL411	456
CAL411T	456
CAT411E	437
CAT411E	449
CAT411M	437
CAT411U	437
CB1-600G	520
CB1-601G	520
CB1-602G	520
CB1-603G	520
CB1-610R	520
CB1-610Y	520
CB1-611R	520
CB1-611Y	520
CB1-612R	520
CB1-612Y	520
CB1-613R	520
CB1-613Y	520
CB1-620B	520
CB1-621B	520
CB1-622B	520
CB1-623B	520
CB1-630B	520
CB1-631B	520
CB1-632B	520
CB1-633B	520
CC401	437
CC401	456
CC410	437
CC410	449
CC410	456
CCL1611E	453
CDB1100AG	320
CDB1100AOR	320
CDB1100DING	320
CDB1100DINOR	320
CDB1100FSG	320
CDB1100FSOR	320
CDB1300AG	320
CDB1300AOR	320
CDB1300DING	320
CDB1300DINOR	320
CDB1300FSG	320
CDB1300FSOR	320
CDB1500AG	320
CDB1500AOR	320
CDB1500FSG	320
CDB1500FSOR	320
CDB1800AG	320
CDB1800AOR	320
CDB1800FSG	320
CDB1800FSOR	320
CDB24ESC	320
CDB24M250G	319
CDB24M250OR	319
CDB36ESC	320
CDB36M250G	319
CDB36M250OR	319
CDB400MAG	320
CDB400MAOR	320
CDB48ESC	320
CDB48M250G	319
CDB48M250OR	319
CDB600MAG	320
CDB600MAOR	320
CDB60ESC	320
CDB60M250G	319
CDB60M250OR	319
CDB700AG	320
CDB700AOR	320
CDB700DING	320
CDB700DINOR	320
CDB700FSG	320
CDB700FSOR	320
CDB72ESC	320
CDB72M250G	319
CDB72M250OR	319
CDB84ESC	320
CDB84M250G	319
CDB84M250OR	319
CDB900AG	320
CDB900AOR	320
CDB900DING	320
CDB900DINOR	320
CDB900FSG	320
CDB900FSOR	320
CDB96ESC	320
CDB96M250G	319
CDB96M250OR	319
CDBDIN	320
CDBDK42	320
CDBELOCK	320
CDBHANGA	320
CDBHANGA	322
CDBPLINTHBL	320
CDBPLINTHGAL	320
CDBSEG	320
CDBSWTOPHAT	320
CDBW1100AG	322
CDBW1100AOR	322
CDBW1300AG	322
CDBW1300AOR	322
CDBW1500AG	322
CDBW1500AOR	322
CDBW1800AG	322
CDBW1800AOR	322
CDBW24ESC	322
CDBW24M250G	321
CDBW24M250OR	321
CDBW36ESC	322
CDBW36M250G	321
CDBW36M250OR	321
CDBW400MAG	322
CDBW400MAOR	322
CDBW48ESC	322
CDBW48M250G	321
CDBW48M250OR	321
CDBW600MAG	322
CDBW600MAOR	322
CDBW60ESC	322
CDBW60M250G	321
CDBW60M250OR	321
CDBW72ESC	322
CDBW72M250G	321
CDBW72M250OR	321
CDBW84ESC	322
CDBW84M250G	321
CDBW84M250OR	321
CDBW900AG	322
CDBW900AOR	322
CDBW96ESC	322
CDBW96M250G	321
CDBW96M250OR	321
CDBWDIN	322
CDBWPLINTHBL	322
CDBWPLINTHGAL	322
CDBWSEG	322
CDBWSWTOPHAT	322
CDBWZBRKT	322
CDBZBRKT	320
CDP18.150	397
CDP18.150	399
CDP23.150	399
CDP23.300	399
CDP24.150	397
CE3K1-10B-11	519
CE3K1-10R-02	519
CE3K1-10R-11	519
CE3P-10B-11	519
CE3P-10R-02	519
CE3P-10R-11	519
CE3T-10B-11	519
CE3T-10R-02	519
CE3T-10R-11	519
CE4K1-10B-11	519
CE4K1-10R-02	519
CE4K1-10R-11	519
CE4P-10B-11	519
CE4P-10R-02	519
CE4P-10R-11	519
CE4T-10B-11	519
CE4T-10R-02	519
CE4T-10R-11	519
CEM11-FBP.120	400
CEM11-FBP.20	400
CEM11-FBP.35	400
CEM11-FBP.60	400
CEP1-0	544
CEP1-1001	548
CEP1-1002	548
CEP1-2001	548
CEP1-2002	548
CEPY1-0	544
CEPY1-1001	548
CEPY1-1002	548
CEPY1-1006	548
CEPY1-2001	548
CEPY1-2002	548
CK1-02	412
CK1-11	412
CK1-20	412

Order code	Page
CLF16-125	181
CL-LDC.SAC2	574
CL-LDC.SDC2	574
CL-LDD.K	574
CL-LDD.XK	574
CL-LSR.C12AC1	574
CL-LSR.C12AC2	574
CL-LSR.C12DC2	574
CL-LSR.CX12DC2	574
CM25012TF	323
CM25012U	323
CM25018TF	323
CM25018U	323
CM25024TF	323
CM25024U	323
CM25030TF	323
CM25030U	323
CM25036TF	323
CM25036U	323
CM25042TF	323
CM25042U	323
CM25048TF	323
CM25048U	323
CM25060TF	323
CM25060U	323
CM25072TF	323
CM25072U	323
CM25084TF	323
CM25084U	323
CM25096TF	323
CM25096U	323
CM40012TF	323
CM40012U	323
CM40018TF	323
CM40018U	323
CM40024TF	323
CM40024U	323
CM40030TF	323
CM40030U	323
CM40036TF	323
CM40036U	323
CM40042TF	323
CM40042U	323
CM40048TF	323
CM40048U	323
CM40060TF	323
CM40060U	323
CM40072TF	323
CM40072U	323
CM40084TF	323
CM40084U	323
CM40096TF	323
CM40096U	323
CM-AH-3	571
CM-ENE.MIN.110	570
CM-ENE.MIN.230	570
CM-ENE.MIN.24	570
CM-ENS.11S	570
CM-ENS.13S	570
CM-ENS.31S	570
CM-ESS.2S	563
CM-ESS.MS	563
CM-GM-1	571
CM-HE	571
CM-IVN.S	566
CM-IVN.S	616
CM-IVN.S	635
CM-IWN.1S	566
CM-IWN.1S	616
CM-IWN.1S	635
CM-IWS.1S	566
CM-IWS.1S	616
CM-IWS.1S	635
CM-IWS.2S	566
CM-IWS.2S	616
CM-IWS.2S	635
CM-KH-3	571
CM-MPS.21S	564
CM-MPS.21S	617
CM-MPS.41S	564
CM-MPS.41S	617
CM-MSS.22S	567
CM-MSS.23S	567
CM-MSS.31S	567
CM-MSS.32S	567
CM-MSS.33S	567
CM-MSS.41S	567
CM-MSS.51S	567
CMP25012TF	324
CMP25018TF	324
CMP2506H12TF	324
CMP2506H18TF	324
CMP2506H30TF	324
CMP2506H42TF	324
CMP40012TF	324
CMP40018TF	324
CMP4006H12TF	324
CMP4006H18TF	324
CMP4006H30TF	324
CMP4006H42TF	324
CM-PBE	564
CM-PBE	617
CM-PBE.N	564
CM-PBE.N	617
CM-PFE	564
CM-PFE	617
CM-PFS.S	564
CM-PFS.S	617
CM-PVS.41S	564
CM-PVS.41S	617
CMS100CA	301
CMS100CA	630
CMS100DR	301
CMS100DR	630
CMS100PS	301
CMS100PS	630
CMS100S8	301
CMS100S8	630
CMS101CA	301
CMS101CA	630
CMS101DR	301
CMS101DR	630
CMS101PS	301
CMS101PS	630
CMS101S8	301
CMS101S8	630
CMS102CA	301
CMS102CA	630
CMS102DR	301
CMS102DR	630
CMS102PS	301
CMS102PS	630
CMS102S8	301
CMS102S8	630
CMS200CA	301
CMS200CA	630
CMS200DR	301
CMS200DR	630
CMS200S8	301
CMS200S8	630
CMS201CA	301
CMS201CA	630
CMS201DR	301
CMS201DR	630
CMS201S8	301
CMS201S8	630
CMS202CA	301
CMS202CA	630
CMS202DR	301
CMS202DR	630
CMS202S8	301
CMS202S8	630
CMS600	300
CMS600	629
CMS770	300
CMS770	629
CMS800	301
CMS800	630
CMS801	301
CMS801	630
CMS820	301
CMS820	630
CMS870	301
CMS870	630
CM-SE-1000	571
CM-SE-300	571
CM-SE-600	571
CM-SRS.21S	563
CM-SRS.M1S	563
CM-SRS.M2S	563
CM-TCS.13S	569
CM-UFD.M33	565
CM-UFD.M33	634
CO	599
CPACM	562
CPACM	636
CPARU	562
CPARU	636
CP-D24/2.5	33
CPE12/2.5	562
CPE12/2.5	636
CPE24/0.75	562
CPE24/0.75	636
CPE24/1.25	562
CPE24/1.25	636
CPE24/10	562
CPE24/10	636
CPE24/2.5	562
CPE24/2.5	636
CPE24/20	562
CPE24/20	636
CPE24/5	562
CPE24/5	636
CPE48/1.25	562
CPE48/1.25	636
CPE48/10	562
CPE48/10	636
CPE5/3	562
CPE5/3	636
CPM3-10B-11	515
CPM3-10G-11	515
CPM3-10L-11	515
CPM3-10R-11	515
CPM3-10Y-11	515
CP-MD-N2AN	46
CP-MD-N2BL	46
CP-MD-N2CV	46
CP-MD-N2PL	46
CP-RTC-81	48
CP-RTC-83	48
CP-RTC-84	48
CP-RTC-N2AN	46
CP-RTC-N2BL	46
CP-RTC-N2CV	46
CP-RTC-N2PL	46
CPRUD	562
CPRUD	636
CRM012DC2L	573
CRM012DC4L	573
CRM024AC2L	573
CRM024AC3L	573
CRM024AC4L	573
CRM024DC2L	573
CRM024DC3L	573
CRM024DC4L	573
CRM048DC4L	573
CRM110AC2L	573
CRM110AC3L	573
CRM110AC4L	573
CRM110DC4L	573
CRM125DC4L	573
CRM230AC2L	573
CRM230AC3L	573
CRM230AC4L	573
CRM2LC	573
CRM2LS	573
CRM2SS	573
CRM3LS	573
CRM3SS	573
CRM4LC	573
CRM4LS	573
CRM4SS	573
CRMH	573
CRMH1	573
CRMJ	573
CR-S024VADC1CRS	572
CR-S110VADC1CRS	572
CR-S230VADC1CRS	572
CS	599
CS-R1	599
CS-R2	599
CS-R3	599
CT12/2000	295
CT12/2500	295
CT12/3000	295
CT12/4000	295
CT120/1000	296
CT120/1200	296
CT120/1500	296
CT120/800	296
CT30/250	296
CT30/400	296
CT4L185R/4	400
CT4L310R/4	400
CT5L500R/4	400
CT5L850R/4	400
CT6/1200	295
CT6/600	295
CT6/800	295
CT8/1200	295
CT8/2000	295
CT8/2500	295
CT8/3000	295
CT80/1000	296
CT80/2000	296
CT80/2500	296
CT80/600	296
CT80/800	296
CT-AHD.12	559
CT-AHD.22	559
CT-APS.22S	561
CT-ARE.30S.110	560
CT-ARS.21S	561
CT-ERD.12	559
CT-ERD.22	559
CT-ERE.10S	560
CT-ERE.300S	560
CT-ERE.30M	560
CT-ERS.22S	561
CTMAX1000	294

Order code	Page
CTMAX300	294
CTMAX400	294
CTMAX500	294
CTMAX600	294
CTMAX800	294
CT-MFD.12	171
CT-MFD.12	559
CT-MFD.21	559
CT-MFE	560
CT-MFS.21S	561
CT-MKE	560
CT-MVS.21S	561
CT-MVS.22S	561
CT-MVS.23S	561
CTPROXT100	294
CTPROXT150	294
CTPROXT200	294
CTPROXT250	294
CTPROXT400	294
CT-SDD.22	559
CT-SDS.22S	561
CT-SDS.23S	561
CUB12X1	230
CUB12X1	231
CUB12X2	230
CUB12X2	232
CUB12X3	230
CUB12X3	233
CUB12X4	230
CUB12X4	234
CUB16X1	230
CUB16X1	231
CUB16X2	230
CUB16X2	232
CUB16X3	230
CUB16X3	233
CUB16X4	230
CUB16X4	234
CUB20X1	230
CUB20X1	231
CUB20X2	230
CUB20X2	232
CUB20X3	230
CUB20X3	233
CUB20X4	230
CUB20X4	234
CUB24X1	231
CUB24X2	232
CUB24X3	233
CUB24X4	234
CUB4X1	230
CUB4X1	231
CUB4X2	230
CUB4X2	232
CUB4X3	230
CUB4X3	233
CUB4X4	230
CUB4X4	234

Order code	Page
CUB6X1	230
CUB6X1	231
CUB6X2	230
CUB6X2	232
CUB6X3	230
CUB6X3	233
CUB6X4	230
CUB6X4	234
CUB8X1	230
CUB8X1	231
CUB8X2	230
CUB8X2	232
CUB8X3	230
CUB8X3	233
CUB8X4	230
CUB8X4	234
CUC10X4	230
CUC10X4	235
CUC12X4	230
CUC12X4	235
CUC16X4	230
CUC16X4	235
CUC4X4	230
CUC4X4	235
CUC6X4	230
CUC6X4	235
CUC8X4	230
CUC8X4	235
D1	172
D1	93
D2	172
D2	93
D365	172
D365CE	172
DA-M-0.4.1	51
DB16	470
DB19EF	477
DB200	475
DB200	476
DB42	471
DB45EF	477
DDA20225	135
DDA20225/0.1	135
DDA20225/0.3	135
DDA20240	135
DDA20240/0.1	135
DDA20240/0.3	135
DDA20263	135
DDA20263/0.1	135
DDA20263/0.3	135
DDA20325	135
DDA20325/0.1	135
DDA20325/0.3	135
DDA20340	135
DDA20340/0.1	135
DDA20340/0.3	135
DDA20363	135
DDA20363/0.1	135

Order code	Page
DDA20363/0.3	135
DDA20425	135
DDA20425/0.1	135
DDA20425/0.3	135
DDA20440	135
DDA20440/0.1	135
DDA20440/0.3	135
DDA20463	135
DDA20463/0.1	135
DDA20463/0.3	135
DG/S1.1	24
DG/S1.16.1	24
DG/S8.1	24
DGN/S1.16.1	24
DLR/A4.8.1.1	24
DLR/S8.16.1M	24
DMS132-G	416
DMS132-Y	416
DMTME	291
DMTME-96	291
DMTME-I-485-96	291
DNP31.0	397
DP7-S-611	44
DP7-S-625	44
DR/S4.1	13
DR12849	330
DR12849	331
DRAF09-11S	390
DRAF09-13N	390
DRAF09-14P	390
DRAF12-11S	390
DRAF12-13N	390
DRAF12-14P	390
DRAF16-11S	390
DRAF16-13N	390
DRAF16-14P	390
DS201BSC10	91
DS201BS-C10	139
DS201BSC16	91
DS201BS-C16	139
DS201BSC20	91
DS201BS-C20	139
DS201BSC25	91
DS201BS-C25	139
DS201BSC32	91
DS201BS-C32	139
DS201BSC40	91
DS201BS-C40	139
DS201BSC6	91
DS201BS-C6	139
DS201C10	139
DS201C10A10	140
DS201C10A10	91
DS201C10A30	140
DS201C10A30	91
DS201C16	139
DS201C16A10	140
DS201C16A10	91

Order code	Page
DS201C16A30	140
DS201C16A30	91
DS201C20	139
DS201C20A30	140
DS201C20A30	91
DS201C25	139
DS201C25A30	140
DS201C25A30	91
DS201C32	139
DS201C32A30	140
DS201C32A30	91
DS201C40	139
DS201C40A30	140
DS201C40A30	91
DS201C6	139
DS201C6A30	140
DS201C6A30	91
DS201MC10	139
DS201MC10A10	140
DS201MC10A10	91
DS201MC10A30	140
DS201MC10A30	91
DS201MC16	139
DS201MC16A10	140
DS201MC16A10	91
DS201MC16A30	140
DS201MC16A30	91
DS201MC20	139
DS201MC20A30	140
DS201MC20A30	91
DS201MC25	139
DS201MC25A30	140
DS201MC25A30	91
DS201MC32	139
DS201MC32A30	140
DS201MC32A30	91
DS201MC40	139
DS201MC40A30	140
DS201MC40A30	91
DS201MC6	139
DS201MC6A30	140
DS201MC6A30	91
DS202CC10A30	141
DS202CC16A30	141
DS202CC20A30	141
DS202CC25A30	141
DS202CC32A30	141
DS202CC6A30	141
DS202CMC10A30	141
DS202CMC16A30	141
DS202CMC20A30	141
DS202CMC25A30	141
DS202CMC32A30	141
DS202CMC6A30	141
DS27110	144
DS27110/0.01	144
DS27116	144
DS27116/0.01	144

Order code	Page
DS27120	144
DS27120/0.01	144
DS27125	144
DS27125/0.01	144
DS27132	144
DS27132/0.01	144
DS27140	144
DS2716	144
DS2716/0.01	144
DSA/S2.16.1	24
DSE201C10A30	143
DSE201C10AC30	143
DSE201C16A30	143
DSE201C16AC30	143
DSE201C20A30	143
DSE201C20AC30	143
DSE201C25A30	143
DSE201C25AC30	143
DSE201C32A30	143
DSE201C32AC30	143
DSE201C6A30	143
DSE201C6AC30	143
DSM/S1.1	16
DSN201C10	137
DSN201C10	90
DSN201C10A10	137
DSN201C10A10	90
DSN201C10A30	137
DSN201C10A30	90
DSN201C16	137
DSN201C16	90
DSN201C16A10	137
DSN201C16A10	90
DSN201C16A30	137
DSN201C16A30	90
DSN201C20	137
DSN201C20	90
DSN201C20A10	137
DSN201C20A10	90
DSN201C20A30	137
DSN201C20A30	90
DSN201C25	137
DSN201C25	90
DSN201C25A10	90
DSN201C25A30	137
DSN201C25A30	90
DSN201C6	137
DSN201C6	90
DSN201C6A10	137
DSN201C6A10	90
DSN201C6A30	137
DSN201C6A30	90
DTMTE-I-485	291
DX111	396
DX111	499
DX122	396
E1250DU-1250	481
E16DU-0.32	476

Order code	Page
E16DU-1.0	476
E16DU-18.9	476
E16DU-2.7	476
E16DU-6.3	476
E201100RD	167
E201100RD	92
E201125RD	167
E201125RD	92
E20180RD	167
E20180RD	92
E202100RD	167
E202100RD	92
E202125RD	167
E202125RD	92
E20280RD	167
E20280RD	92
E203100RD	167
E203100RD	92
E203125RD	167
E203125RD	92
E20380RD	167
E20380RD	92
E204100RD	167
E204100RD	92
E20480RD	167
E20480RD	92
E213-16-001	167
E213-16-001	93
E213-16-002	167
E213-16-002	93
E213-25-001	167
E213-25-001	93
E213-25-002	167
E213-25-002	93
E214-16-101	167
E214-16-101	93
E214-16-102	93
E214-16-202	167
E214-25-101	167
E214-25-101	93
E214-25-102	93
E214-25-202	167
E215-16-11B	168
E215-16-11C	168
E215-16-11D	168
E215-16-11F	168
E219-2CD	168
E219-3C	168
E219-3CDE	168
E219-3D	168
E219C	168
E219D	168
E219E	168
E219G	168
E233-230	174
E251-230	171
E91/20	169
E91/32	169

Order code	Page
E91/32PV	169
E91/32PV	626
E91N/32	169
E92/20	169
E92/32	169
E92/32PV	169
E92/32PV	626
E93/20	169
E93/32	169
E931/50	169
E932/50	169
E933/50	169
EF146-150	478
EF19-0.32	477
EF19-1.0	477
EF19-18.9	477
EF19-2.7	477
EF19-6.3	477
EF205	479
EF370	479
EF45-30	477
EF45-45	477
EF460-500	480
EF65-56	478
EF65-70	478
EF750-800	480
EF96-100	478
EH0411	430
EH04111	170
EH0420	430
EH04201	170
EK10	588
EK2.5	588
EK2.5-3P	589
EK2.5-3P	590
EK2.5-3P	591
EK2.5-4P	589
EK2.5-D2	590
EK6-3P	589
ELR48P	146
ELR48V24P	146
ELR72	146
ELR72P	146
ELR72V24	146
ELR72V24P	146
ELR96	146
ELR96P	146
ELR96PD	146
ELR96PF	146
ELR96V24	146
ELR96V24P	146
ELTU4	325
ELTU4DIN	325
EM/S 3.16.1	40
EN12	324
EN18	324
EN24	324
EN36	324

Order code	Page
EN42	324
EN48	324
EN60	324
EN72	324
EN84	324
EN96	324
ES/M2.230.1	18
ES/M2.24.1	18
ES/S4.1.2.1	27
ES/S8.1.2.1	27
ES10-ST	297
ES10-ST	597
ES4	592
ES4	595
ES4	596
ES4-D2	594
ES4-D2-SF1	594
ES4-SF	596
ES4-T3	595
ES6-3S	593
ES6-4S	595
ES6-4S	597
ESB2002230	170
ESB2002230	430
ESB200224	170
ESB200224	430
ESB2002240	170
ESB2002240	430
ESB2011230	170
ESB2011230	430
ESB201124	170
ESB201124	430
ESB2011240	170
ESB2011240	430
ESB2020230	170
ESB2020230	430
ESB202024	170
ESB202024	430
ESB2020240	170
ESB2020240	430
ESB2404230	170
ESB2404230	430
ESB240424	170
ESB240424	430
ESB2420230	170
ESB2420230	430
ESB242024	170
ESB242024	430
ESB2422230	170
ESB2422230	430
ESB242224	170
ESB242224	430
ESB2431230	170
ESB2431230	430
ESB243124	170
ESB243124	430
ESB2440230	170
ESB2440230	430

Order code	Page
ESB244024	170
ESB244024	430
ESB4020230	170
ESB4020230	430
ESB402024	170
ESB402024	430
ESB4022230	170
ESB4022230	430
ESB402224	170
ESB402224	430
ESB4030230	170
ESB4030230	430
ESB403024	170
ESB403024	430
ESB4031230	170
ESB4031230	430
ESB403124	170
ESB403124	430
ESB4040230	170
ESB4040230	430
ESB404024	170
ESB404024	430
ESB4040240	170
ESB4040240	430
ESB6331230	170
ESB6331230	430
ESB6340230	170
ESB6340230	430
ESB634024	170
ESB634024	430
ESB6340240	170
ESB6340240	430
ESBDIS	170
ESBDIS	430
ESBPLK24	170
ESBPLK24	430
ESBPLK40/63	170
ESBPLK40/63	430
ETHTB-FBP.4	399
EUB/S 1.1	41
EV0036	362
EV0037	362
EV0042	362
EV0114	345
EV0116	345
EV0117	345
EV0119	345
EV0121	345
EV0123	345
EV0124	345
EV0125	345
EV0126	345
EV0127	345
EV1036	346
EV1075K	346
EV1111	362
EV1136	363
EV2110	362

Order code	Page
EV2112	362
F200LINK	157
F202100	132
F20225	132
F20240	132
F20263	132
F20280	132
F202A16/0.01	132
F202A25/0.03	132
F202A25AP-R	133
F202A40/0.03	132
F202A40AP-R	133
F202A63/0.03	132
F202A63AP-R	133
F204100	132
F20425	132
F20440	132
F20463	132
F20480	132
F204A25/0.03	132
F204A25AP-R	133
F204A40/0.03	132
F204A40AP-R	133
F204A63/0.03	132
F204A63AP-R	133
F204B40	133
F204B63	133
F2CA1	154
F2CA2	154
FC/S1.1	28
FCA/S1.1M	28
FCA/S1.2.2.1	28
FCL/S1.6.1.1	27
FCL/S2.6.1.1	27
FEED-IN25/151P	156
FEED-IN25/303P	156
FH20225	131
FH20225	89
FH20225/0.1	131
FH20225/0.3	131
FH20240	131
FH20240	89
FH20240/0.1	131
FH20240/0.3	131
FH20263	131
FH20263	89
FH20263/0.1	131
FH20263/0.3	131
FH202A40	131
FH202A40	89
FH202A63	131
FH202A63	89
FH20425	131
FH20425	89
FH20425/0.1	131
FH20425/0.3	131
FH20440	131
FH20440	89

Order code	Page
FH20440/0.1	131
FH20440/0.3	131
FH20463	131
FH20463	89
FH20463/0.1	131
FH20463/0.3	131
FH204A40	131
FH204A40	89
FH204A63	131
FH204A63	89
FS116	415
FW/S8.2.1	29
GAF1250101168	633
GAF1250101169	633
GAF1250101170	633
GAF1250101171	633
GAF1650101170	633
GAF185101169	633
GAF185101170	633
GAF185101172	633
GAF2050101170	633
GAF300101169	633
GAF300101170	633
GAF300101172	633
GAF460101168	633
GAF460101169	633
GAF460101170	633
GAF460101171	633
GAF750101168	633
GAF750101169	633
GAF750101170	633
GAF750101171	633
GJF1707110P0011	306
GJF1707110P0011	311
GJF1707110P0011	312
GJF1707110P0011	316
GJF1707110P0012	306
GJF1707110P0012	311
GJF1707110P0012	312
GJF1707110P0012	316
GJF1707P0011	98
GJF1707P0012	98
GP125	181
GP216	181
GP232/332	181
GP316	181
GP416	181
GP432	181
GP63	181
HA-M-0.12.1	51
HA-M-0.6.1	51
HK1-02	412
HK1-11	412
HK1-20	412
HK1-20L	412
HK4-11	419
HK4-W	419
HKF1-11	412
HKF1-20	412
HKS4-02	419
HKS4-11	419
HKS4-20	419
HMT1-230	174
HS/S4.2.1	25
IB132-G	416
IB132-Y	416
IO/S4.6.1.1	22
IO/S8.6.1.1	22
IOIO-CAB.030	396
IPM/S1.1	15
IPR/S2.1	14
IPR/S3.1.1	14
IPS/S2.1	14
IPS/S3.1.1	14
ISM/S5.1	14
ISS/S5.1	14
JA/M2.230.1	18
JA/M2.24.1	18
JA/S4.SMI.1M	23
JB10-10	588
JB10-10	592
JB10-2	588
JB10-2	592
JB10-3	588
JB10-3	592
JB10-4	588
JB10-4	592
JB10-5	588
JB10-5	592
JB12-2	588
JB12-2	592
JB12-3	588
JB12-3	592
JB12-5	588
JB12-5	592
JB16-10	593
JB16-2	593
JB16-3	593
JB16-4	593
JB16-5	593
JB22-10	593
JB22-2	593
JB22-3	593
JB22-5	593
JB26-10	593
JB26-2	593
JB26-3	593
JB26-5	593
JB5-10	588
JB5-10	589
JB5-10	590
JB5-10	592
JB5-10	594
JB5-10	595
JB5-2	588
JB5-2	589
JB5-2	590
JB5-2	592
JB5-2	594
JB5-2	595
JB5-3	588
JB5-3	589
JB5-3	590
JB5-3	592
JB5-3	594
JB5-3	595
JB5-4	588
JB5-4	589
JB5-4	590
JB5-4	592
JB5-4	594
JB5-4	595
JB5-5	588
JB5-5	589
JB5-5	590
JB5-5	592
JB5-5	594
JB5-5	595
JB5-50	588
JB5-50	589
JB5-50	590
JB5-50	592
JB5-50	594
JB5-50	595
JB6-10	588
JB6-10	589
JB6-10	591
JB6-10	592
JB6-10	593
JB6-10	594
JB6-10	595
JB6-10	596
JB6-10	597
JB6-2	588
JB6-2	589
JB6-2	591
JB6-2	592
JB6-2	593
JB6-2	594
JB6-2	595
JB6-2	596
JB6-2	597
JB6-3	297
JB6-3	588
JB6-3	589
JB6-3	591
JB6-3	592
JB6-3	593
JB6-3	594
JB6-3	595
JB6-3	596
JB6-3	597
JB6-4	297
JB6-4	588
JB6-4	589
JB6-4	591
JB6-4	592
JB6-4	593
JB6-4	594
JB6-4	595
JB6-4	596
JB6-4	597
JB6-5	588
JB6-5	589
JB6-5	591
JB6-5	592
JB6-5	593
JB6-5	594
JB6-5	595
JB6-5	596
JB6-5	597
JB6-50	588
JB6-50	589
JB6-50	591
JB6-50	592
JB6-50	593
JB6-50	594
JB6-6	589
JB8-10	588
JB8-10	589
JB8-10	592
JB8-10	594
JB8-10	596
JB8-10	597
JB8-2	588
JB8-2	589
JB8-2	592
JB8-2	594
JB8-2	596
JB8-2	597
JB8-3	588
JB8-3	589
JB8-3	592
JB8-3	594
JB8-3	596
JB8-3	597
JB8-4	588
JB8-4	589
JB8-4	592
JB8-4	594
JB8-4	596
JB8-4	597
JB8-5	588
JB8-5	589
JB8-5	592
JB8-5	594
JB8-5	596
JB8-5	597
JRA/S2.230.1.1	23
JRA/S2.230.2.1	23
JRA/S2.230.5.1	23
JRA/S4.230.1.1	23
JRA/S4.230.2.1	23
JRA/S4.230.5.1	23
JRA/S4.24.5.1	23
JRA/S8.230.1.1	23
JRA/S8.230.2.1	23
JRA/S8.230.5.1	23
JSB/S1.1	23
K622Z80	428
K631Z80	428
K640E80	428
KA1-8005	521
KA1-8005	528
KA1-8010	522
KA1-8010	541
KA1-8021	522
KA1-8021	541
KA1-8022	522
KA1-8022	541
KA1-8024	541
KA1-8027	540
KA1-8028	540
KA1-8029	521
KA1-8029	540
KA1-8030	521
KA1-8030	540
KA1-8045	546
KA1-8046	535
KA1-8047	535
KA1-8072	540
KA1-8073	540
KA1-8077	541
KA1-8079	541
KA1-8080	541
KA1-8087	522
KA1-8097	522
KA3-1018	554
KA3-1028	554
KA3-1118	554
KA3-1148	554
KA4-1028	552
KA4-1118	552
KA4-1148	552
KA701001	553
KA701002	553
KA701011	553
KA701012	553
KA701013	553
KA701021	553
KA701022	553
KA701023	553
KA701031	553
KA701032	553
KA701033	553
KA701034	553
KASB100	554
KB701201	552
KB703001	552
KB703101	552

Order code	Page
KC622Z01	428
KC622Z04	428
KC631Z01	428
KC631Z04	428
KC640E01	428
KC640E04	428
KEM1-0	547
KEM2-0	547
KEM3-0	547
KEM4-0	547
KEM6-0	547
KLEMME	16
knxcable(100m)	16
knxcable(500m)	16
KPR3-101L	470
KPR3-101L	471
KPR3-101L	472
KPR3-101L	473
KPR3-101L	474
KPR3-101L	475
KPR3-101L	476
KPR3-101L	477
KPR3-101L	478
KPR3-101L	479
KPR3-101L	480
KS/K2.1	12
KS/K4.1	12
KS701104	553
KS701204	553
KS702002	553
KS702004	553
KS703004	553
KT-100B	534
KT-300B	534
KT701001	553
KT701002	553
KTC15-1005	550
KTC15-1038	550
KTC15-1038-L	550
LA12858	331
LA12859	306
LA12859	311
LA12859	312
LA12859	316
LA12859	317
LA12859	320
LA12859	322
LA12859	96
LA12859	98
LC12FMT	306
LC12FMT	96
LC12FMW	306
LC12FMW	96
LC12ST	306
LC12ST	96
LC12SW	306
LC12SW	96
LC18FMT	306

Order code	Page
LC18FMT	96
LC18FMW	306
LC18FMW	96
LC18ST	306
LC18ST	96
LC18SW	306
LC18SW	96
LC24FMT	306
LC24FMT	96
LC24FMW	306
LC24FMW	96
LC24ST	306
LC24ST	96
LC24SW	306
LC24SW	96
LDC4	456
LE00846	330
LE00850	330
LE00851	330
LE00852	330
LE00854	330
LE00856	330
LE00858	330
LE00860	330
LE00862	330
LE00864	330
LE00872	330
LE00874	330
LE00876	330
LE00878	330
LE00880	330
LE00882	330
LE00884	330
LE12804	331
LE12808	331
LE12812	331
LE12814	331
LE12816	331
LE12818	331
LE185	493
LE300	493
LF/U2.1	25
LFO/A1.1	25
LGS/A1.1	28
LH	598
LH-R1	598
LK/S4.2	14
LL/S1.1	15
LL205-30	499
LL370-30	499
LM/S1.1	29
LP00900	330
LP00902	330
LP00904	330
LP12842	331
LP12844	331
LP12845	331
LP12846	331

Order code	Page
LP12847	331
LP12848	331
LP6	429
LR/M1.6.2	18
LR/S2.16.1	25
LR/S4.16.1	25
LS-D	173
LS-D	94
LT14030L	440
LT14040L	452
LT185AC	493
LT185AL	493
LT200/A	475
LT20530C	440
LT20530C	499
LT20530L	440
LT20530L	499
LT20530Y	440
LT20540C	452
LT20540L	452
LT300AC	493
LT300AL	493
LT37030C	440
LT37030C	499
LT37030D	440
LT37030D	499
LT37030L	440
LT37030L	499
LT37030Y	440
LT37040C	452
LT37040L	452
LT460AC	443
LT460AC	499
LT460AL	443
LT460AL	499
LT750AC	443
LT750AC	499
LT750AL	443
LT750AL	499
LW110	493
LW110	499
LW1250	443
LW140	440
LW185	493
LW205	440
LW205	452
LW205	499
LW300	493
LW370	440
LW370	452
LW370	499
LW460	443
LW460	499
LW750	443
LW750	499
LX205	499
LX370	499
LX460	443

Order code	Page
LX460	499
LX750	443
LX750	499
LZ185-2C/120	493
LZ185-2C/120	499
M20003	54
M20313	55
M20323	55
M21021P1-A	56
M21351K-A	56
M21351P1-A	56
M21352K-A	56
M22001-W	71
M22003-W	71
M22302-W	70
M22313-W	70
M22331-B	70
M22331-W	70
M2300	73
M2301	73
M2302	73
M2303	74
M2304	74
M2305	74
M251021A-A	57
M251021A-W	57
M251021C	57
M251021CR	60
M251021K-A	59
M251021K-W	59
M251021P3	58
M251021P4	59
M251022A-A	57
M251022A-W	57
M251022CR	60
M251022K-A	59
M251022K-W	59
M251023A-A	58
M251023A-W	58
M251024A-A	58
M251024A-W	58
M2M	289
M2M ALARM	289
M2M ETHERNET	289
M2M I/O	289
M2M LV	289
M2M LV MODBUS	289
M2M MODBUS	289
M2M PROFIBUS	289
M41F04T	310
M41F04T	97
M41F04W	310
M41F06T	310
M41F06T	97
M41F06W	310
M41F08T	310
M41F08TEN	315
M41F08TEN	97

Order code	Page
M41F08W	310
M41F12T	310
M41F12TEN	315
M41F12TEN	97
M41F12W	310
M41F12WPP	311
M41F12WPP	98
M41F18T	310
M41F18TEN	315
M41F18TEN	97
M41F18W	310
M41F18WPP	311
M41F18WPP	98
M41F24T	310
M41F24TEN	315
M41F24TEN	97
M41F24W	310
M41F24WPP	311
M41F24WPP	98
M41F36T	310
M41F36TEN	315
M41F36TEN	97
M41F36W	310
M41F36WPP	311
M41F36WPP	98
M41F48T	310
M41F48TEN	315
M41F48W	310
M41F54T	310
M41F54TEN	315
M41F54W	310
M41F72T	310
M41F72TEN	315
M41F72W	310
M41W02	309
M41W02	97
M41W04	309
M41W04	97
M41W04T	309
M41W04T	97
M41W04W	309
M41W08	309
M41W08	97
M41W08T	309
M41W08TEN	315
M41W08TEN	97
M41W08W	309
M41W12	309
M41W12	97
M41W12T	309
M41W12TEN	315
M41W12TEN	97
M41W12W	309
M41W12WPP	316
M41W18T	309
M41W18TEN	315
M41W18TEN	97
M41W18W	309

Order code	Page
M41W18WPP	316
M41W24T	309
M41W24TEN	315
M41W24TEN	97
M41W24W	309
M41W24WPP	316
M41W36T	309
M41W36TEN	315
M41W36TEN	97
M41W36W	309
M41W36WPP	316
M41W48T	309
M41W48TEN	315
M41W48W	309
M41W54T	309
M41W54TEN	315
M41W54W	309
M41W72T	309
M41W72TEN	315
M41W72W	309
M65W04T	312
M65W04T	97
M65W04W	312
M65W08T	312
M65W08TEN	315
M65W08TEN	97
M65W08W	312
M65W12T	312
M65W12TEN	315
M65W12TEN	97
M65W12W	312
M65W18T	312
M65W18TEN	315
M65W18TEN	97
M65W18W	312
M65W24T	312
M65W24TEN	315
M65W24TEN	97
M65W24W	312
M65W36T	312
M65W36TEN	315
M65W36TEN	97
M65W36W	312
M65W48T	312
M65W48TEN	315
M65W48W	312
M65W54T	312
M65W54TEN	315
M65W54W	312
M65W72T	312
M65W72TEN	315
M65W72W	312
M910520000	331
M911020000	331
M912880000	331
M912890000	331
M952310000	331
MA1-3138	536
MA1-8001	540
MA1-8002	521
MA1-8002	541
MA1-8015	521
MA1-8015	540
MA1-8019	540
MA1-8052	521
MA1-8052	541
MA1-8053	541
MA1-8074	540
MA1-8124	522
MA1-8124	541
MA1-8126	541
MA1-8128	541
MA1-8129	522
MA1-8129	541
MA1-8129	546
MA1-8129	547
MA1-8130	522
MA1-8130	541
MA1-8130	546
MA1-8130	547
MA1-8131	540
MA1-8136	522
MA1-8136	541
MA1-8136	546
MA1-8136	547
MA1-8137	536
MA1-8138	525
MA1-8138	526
MA1-8138	527
MA1-8149	521
MA1-8149	540
MA1-8150	546
MA1-8152	522
MA1-8152	541
MA1-8153	522
MA1-8153	541
MA5-3001	546
MA5-3002	546
MA5-3003	546
MA5-3004	546
MA5-3005	546
MA5-3006	546
MA5-3007	546
MA5-3008	546
MA5-3009	546
MA5-3010	546
MA6-1024	550
MA6-1024-L	550
MA6-1026	550
MA6-1060	549
MA6-1061	549
MA6-1062	549
MA6-1063	549
MA6-1064	549
MA6-1065	536
MA6-1101	550
MA6-1130	549
MA6-1131	549
MA6-1132	549
MA6-1133	549
MA6-1134	549
MA6-1135	549
MA6-1136	549
MA6-1137	549
MA6-1138	549
MA6-1139	549
MA6-1140	549
MA6-1141	549
MA6-1152	549
MA6-1153	549
MA6-1170	549
MA6-1171	549
MA6-1172	549
MA6-1173	549
MA6-1174	549
MA6-1175	549
MA6-1176	549
MA6-1177	549
MA6-1178	549
MA6-1179	549
MA6-1190	549
MA6-1191	549
MA6-1192	549
MA6-1193	549
MA6-1194	549
MA6-1240	536
MA6-1241	536
MA6-1242	536
MCB-01	539
MCB-01B	546
MCB-01BG	546
MCB-01G	539
MCB-02	539
MCB-02B	546
MCB-10	539
MCB-10B	546
MCB-10BG	546
MCB-10G	539
MCB-11	539
MCB-11B	546
MCB-20	539
MCB-20B	546
MCBH-00	539
MCBH-01	539
MCBH-02	539
MCBH-10	539
MCBH-11	539
MCBH-20	539
MCBH5-00	539
MCBL-01	539
MCBL-10	539
MDB-2	521
MDB-2	540
MDCPFWB-1.0-W	45
MDCPFWB-1.1-W	45
MD-F-1.0.1-81	50
MD-F-1.0.1-83	50
MD-F-1.0.1-84	50
MD-F-1.0.PB.1	47
MEP1-0	544
MEP2-0	544
MEP2-1001	548
MEP3-0	544
MEP4-0	544
MEP6-0	544
MEPY1-0	544
MEPY1-1026	548
MJS11-60B	536
MJS12-60B	536
MJS1-60B	536
MJS2-60B	536
MJS5-60B	536
MJS6-60B	536
MJS7-60B	536
MJS8-60B	536
MPD1-11B	525
MPD1-11C	526
MPD1-11G	526
MPD1-11R	526
MPD1-11Y	526
MPD12-11B	525
MPD12-11C	527
MPD12-11G	527
MPD12-11R	527
MPD12-11Y	527
MPD13-11B	525
MPD13-11C	527
MPD13-11G	527
MPD13-11R	527
MPD13-11Y	527
MPD14-11B	525
MPD14-11C	527
MPD14-11G	527
MPD14-11R	527
MPD14-11Y	527
MPD15-11B	525
MPD15-11C	527
MPD15-11G	527
MPD15-11R	527
MPD15-11Y	527
MPD16-11B	525
MPD16-11B-L	525
MPD16-11C	527
MPD16-11C-L	527
MPD16-11G	527
MPD16-11G-L	527
MPD16-11R	527
MPD16-11R-L	527
MPD16-11Y	527
MPD16-11Y-L	527
MPD2-11B	525
MPD2-11C	526
MPD2-11G	526
MPD2-11R	526
MPD2-11Y	526
MPD3-11B	525
MPD3-11C	526
MPD3-11G	526
MPD3-11R	526
MPD3-11Y	526
MPD4-11B	525
MPD4-11C	526
MPD4-11G	526
MPD4-11R	526
MPD4-11Y	526
MPD5-11B	525
MPD5-11B-L	525
MPD5-11C	526
MPD5-11C-L	526
MPD5-11G	526
MPD5-11G-L	526
MPD5-11R	526
MPD5-11R-L	526
MPD5-11Y	526
MPD5-11Y-L	526
MPEK3-11R	529
MPEK3-12R	529
MPEK3-13R	529
MPEK4-11R	529
MPEK4-12R	529
MPEK4-13R	529
MPEP3-10R	529
MPEP4-10R	529
MPET3-10R	529
MPET4-10R	529
MPMP3-11R	529
MPMP4-10R	529
MPMP4-11R	529
MPMT3-11R	529
MPMT4-10R	529
MPMT4-11R	529
MRP31.0	397
MS116-0.16	408
MS116-0.25	408
MS116-0.4	408
MS116-0.63	408
MS116-1.0	408
MS116-1.6	408
MS116-10	408
MS116-12	408
MS116-16	408
MS116-2.5	408
MS116-20	408
MS116-25	408
MS116-32	408
MS116-4.0	408
MS116-6.3	408
MS132-0.16	409
MS132-0.25	409
MS132-0.4	409

Order code	Page
MS132-0.63	409
MS132-1.0	409
MS132-1.6	409
MS132-10	409
MS132-12	409
MS132-16	409
MS132-2.5	409
MS132-20	409
MS132-25	409
MS132-32	409
MS132-4.0	409
MS132-6.3	409
MS165-16	410
MS165-20	410
MS165-25	410
MS165-32	410
MS165-42	410
MS165-54	410
MS165-65	410
MS495-100	417
MS495-63	417
MS495-75	417
MS495-90	417
MS497-100	417
MS497-32	417
MS497-40	417
MS497-50	417
MS497-63	417
MS497-75	417
MS497-90	417
MSA-F-1.1.1-81	50
MSA-F-1.1.1-83	50
MSA-F-1.1.1-84	50
MSA-F-1.1.PB.1	47
MSAH1	420
MSH-AR	420
MSHD-LB	420
MSHD-LTB	420
MSHD-LTY	420
MSHD-LY	420
MSMN	420
MSMNO	420
MT-105B	534
MT-110B	534
MT-150B	534
MT-305B	534
MT-310B	534
MT-350B	534
MTQ22.0	398
MTS1-10B	537
MTS1-30B	537
MTS2-10B	537
MTS2-30B	537
MTS3-10B	537
MTS3-30B	537
N2221.2 AN	38
N2221.2 BL	38
N2221.2 PL	38

Order code	Page
N2221.4 AN	38
N2221.4 BL	38
N2221.4 PL	38
N2221.6 AN	38
N2221.6 BL	38
N2221.6 PL	38
N2221.7 AN	38
N2221.7 BL	38
N2221.7 PL	38
N2240.4 AN	38
N2240.4 BL	38
N2240.4 PL	38
N2241.4 AN	38
N2241.4 BL	38
N2241.4 PL	38
N2271 XX	39
N2271.1 XX	39
N2271.9	39
N2272 XX	39
N2272.1 XX	39
N2273 XX	39
N2273.1 XX	39
N2274 XX	39
N2274.1 XX	39
N2371.9V	39
N2371.9V	47
N2372.1 XX	39
N2372.1AN	46
N2372.1BL	46
N2372.1CB	46
N2372.1CN	46
N2372.1CV	46
N2372.1OX	46
N2372.1PL	46
N2372.1PZ	46
N2372.1WG	46
N2373.9	47
NB6S	324
NF22E11	454
NF22E13	454
NF31E11	454
NF31E13	454
NF33/1111	455
NF33/1112	455
NF33/1113	455
NF33/1114	455
NF40E11	454
NF40E13	454
NF44E11	455
NF44E13	455
NF51/1111	455
NF51/1112	455
NF51/1113	455
NF51/1114	455
NF53E11	455
NF53E13	455
NF62E11	455
NF62E13	455

Order code	Page
NF71E11	455
NF71E13	455
NF80E11	455
NF80E13	455
NHP400940R0006	282
NHP403625R0001	282
NHP403626R0001	282
NKS06	313
NKS06	314
NKS11	313
NKS16	313
NKS21	313
NKS26	313
NKS26	314
No.2 PPNL3010	339
No.2 PPNL3060	339
No.2 PPNL3080	339
No.2 PPNL4010	339
No.2 PPNL4060	339
No.2 PPNL4080	339
NT/S12.1600	13
NT/S24.800	13
NTI/Z28.30.1	13
NTU/S12.2000.1	13
OA1G01	246
OA1G01	262
OA1G10	246
OA1G10	250
OA1G10	262
OA1G10	264
OA1G10	279
OA2G11	246
OA2G11	262
OA3G01	250
OA3G01	264
OA3G01	279
OA7G10	262
OA8G01	262
ODPSE230C	270
OEA28	250
OEA28	279
OESAZW2	252
OESAZW2	280
OESAZX167	246
OESAZX167	250
OESAZX167	279
OETLZK19	250
OETLZK19	279
OETLZW14	252
OETLZW15	252
OETLZW15	281
OETLZW16	252
OETLZW16	262
OETLZW16	265
OETLZW16	280
OETLZW3	252
OETLZW5	252
OETLZW5	265

Order code	Page
OETLZW5	280
OETLZW9	252
OETLZW9	280
OETLZX95	250
OETLZX95	279
OFAF000H10	283
OFAF000H100	283
OFAF000H16	283
OFAF000H20	283
OFAF000H25	283
OFAF000H32	283
OFAF000H35	283
OFAF000H40	283
OFAF000H50	283
OFAF000H6	283
OFAF000H63	283
OFAF000H80	283
OFAF00H125	283
OFAF00H160	283
OFAF0H125	283
OFAF0H160	283
OFAF0H200	283
OFAF1H100	283
OFAF1H160	283
OFAF1H200	283
OFAF1H224	283
OFAF1H250	283
OFAF1H50	283
OFAF1H80	283
OFAF2H100	283
OFAF2H200	283
OFAF2H250	283
OFAF2H315	283
OFAF2H400	283
OFAF2H80	283
OFAF3H315	283
OFAF3H425	283
OFAF3H450	283
OFAF3H500	283
OFAF3H630	283
OFAF3H800	283
OFAF4AH1000	283
OFAF4AH1250	283
OHB125J12	249
OHB125J12	278
OHB125J12E011	264
OHB200J12PE011	264
OHB274J12	249
OHB274J12	278
OHB45J6	245
OHB45J6	278
OHB45J6E011	261
OHB45J6E311	261
OHB65J6	249
OHB65J6	278
OHB65J6E011	261
OHB65J6E011	264
OHB95J12	249

Order code	Page
OHB95J12	278
OHB95J12E011	264
OHBS1	245
OHBS2	245
OHBS2	261
OHBS2AJ	157
OHBS2AJ	245
OHBS2AJE011	261
OHBS2PJ	245
OHBS2RJ	245
OHBS3	245
OHBS3	261
OHBS3AH1	245
OHBS9	261
OHM125L12	249
OHM125L12	278
OHM175L12	249
OHM175L12	278
OHM275L12	249
OHM275L12	278
OHM65L6	245
OHM65L6	249
OHM65L6	278
OHRS2	261
OHRS3	245
OHRS3	261
OHRS9	261
OHY125J12	249
OHY125J12	278
OHY65J6	249
OHY65J6	278
OHY95J12	249
OHY95J12	278
OHYS2AJ	157
OHYS2AJ	245
OHYS2PJ	245
OHYS2RJ	245
OHYS3AH1	245
OMD800E480C-A1	270
OMZB18	270
OMZB28	270
OMZB38	270
OMZB48	270
OMZC03	270
OMZC04	270
OS100GB03P	277
OS100GB12P	277
OS1250B03P	277
OS1250B12P	277
OS1250D03P	276
OS1250D12P	276
OS125GB03P	277
OS125GB12P	277
OS125GD03P	276
OS125GD12P	276
OS160GB03P	277
OS160GB12P	277
OS160GD03P	276

Order code	Page
OS160GD12P	276
OS200B03P	277
OS200B12P	277
OS200D03P	276
OS200D12P	276
OS250B03P	277
OS250B12P	277
OS250D03P	276
OS250D12P	276
OS315B03P	277
OS315B12P	277
OS32GB03P	277
OS32GB12P	277
OS32GD03P	276
OS32GD12P	276
OS400B03P	277
OS400B12P	277
OS400D03P	276
OS400D12P	276
OS630B03P	277
OS630B12P	277
OS630D03P	276
OS630D12P	276
OS63GB03P	277
OS63GB12P	277
OS63GD03P	276
OS63GD12P	276
OS800B03P	277
OS800B12P	277
OS800D03P	276
OS800D12P	276
OSS1250G1L/3	280
OSS1250G1S/3	280
OSS160GG1L/3	280
OSS160GG1S/3	280
OSS200G1L/3	280
OSS200G1S/3	280
OSS250G1L/3	280
OSS250G1S/3	280
OSS400G1L/3	280
OSS400G1S/3	280
OSS800G1L/3	280
OSS800G1S/3	280
OSV1250DK	278
OSV200BK	278
OSV250DK	278
OSV400DK	278
OSV800DK	278
OT1000E03CP	263
OT1000E03P	248
OT1000E04CP	263
OT1000E12P	248
OT100F3	244
OT100F3C	260
OT100F4C	260
OT100FT3	244
OT1250E03CP	263
OT1250E03P	248
OT1250E04CP	263
OT1250E12P	248
OT125F3	244
OT125F3C	260
OT125F4C	260
OT125FT3	244
OT1600E03CP	263
OT1600E03P	248
OT1600E04CP	263
OT1600E12P	248
OT160E03CP	263
OT160E04CP	263
OT160EV03P	248
OT160EV12P	248
OT16F3	244
OT16F3C	260
OT16F4C	260
OT16FT3	244
OT2000E03CP	263
OT2000E03P	248
OT2000E04CP	263
OT2000E12P	248
OT200E03CP	263
OT200E03P	248
OT200E04CP	263
OT200E12P	248
OT2500E03CP	263
OT2500E03P	248
OT2500E04CP	263
OT2500E12P	248
OT250E03CP	263
OT250E03P	248
OT250E04CP	263
OT250E12P	248
OT25F3	244
OT25F3C	260
OT25F4C	260
OT25FT3	244
OT315E03CP	263
OT315E03P	248
OT315E04CP	263
OT315E12P	248
OT3200E03CP	263
OT3200E03P	248
OT3200E04CP	263
OT4000E03P	248
OT400E03CP	263
OT400E03P	248
OT400E04CP	263
OT400E12P	248
OT40F3	244
OT40F3C	260
OT40F4C	260
OT40FT3	244
OT630E03CP	263
OT630E03P	248
OT630E04CP	263
OT630E12P	248
OT63F3	244
OT63F3C	260
OT63F4C	260
OT63FT3	244
OT800E03CP	263
OT800E03P	248
OT800E04CP	263
OT800E12P	248
OT80F3	244
OT80F3C	260
OT80F4C	260
OT80FT3	244
OTB1600/6	251
OTB800/6	251
OTDC100E22	624
OTDC160E22	624
OTDC250E22	624
OTDC32F22	624
OTDC400E22	624
OTDC500E22	624
OTDCP25SA22M	624
OTDCP32SA22M	624
OTM1000E3CM230C	268
OTM1000E4CM230C	268
OTM100F3CMA230V	268
OTM100F4CMA230V	268
OTM1250E3CM230C	268
OTM1250E4CM230C	268
OTM125F3CMA230V	268
OTM125F4CMA230V	268
OTM1600E3CM230C	268
OTM1600E4CM230C	268
OTM160E3C8D230C	269
OTM160E3CM230C	268
OTM160E4C8D230C	269
OTM160E4CM230C	268
OTM2000E3CM230C	268
OTM2000E4CM230C	268
OTM200E3C8D230C	269
OTM200E3CM230C	268
OTM200E4C8D230C	269
OTM200E4CM230C	268
OTM2500E3CM230C	268
OTM2500E4CM230C	268
OTM250E3C8D230C	269
OTM250E3CM230C	268
OTM250E4C8D230C	269
OTM250E4CM230C	268
OTM315E3C8D230C	269
OTM315E4C8D230C	269
OTM400E3C8D230C	269
OTM400E3CM230C	268
OTM400E4C8D230C	269
OTM400E4CM230C	268
OTM40F3CMA230V	268
OTM40F4CMA230V	268
OTM630E3C8D230C	269
OTM630E3CM230C	268
OTM630E4C8D230C	269
OTM630E4CM230C	268
OTM63F3CMA230V	268
OTM63F4CMA230V	268
OTM800E3CM230C	268
OTM800E4CM230C	268
OTPS125FD	246
OTPS125FP	246
OTPS125FP	262
OTPS40FDN1	246
OTPS40FPN1	262
OTPS40FPN1	246
OTPS80FD	246
OTPS80FP	246
OTPS80FP	262
OTS125T1	247
OTS125T1	262
OTS125T3	247
OTS125T3	262
OTS1600G1L/3	251
OTS1600G1L/3	265
OTS1600G1L/4	265
OTS1600G1S/3	251
OTS1600G1S/3	265
OTS1600G1S/4	265
OTS250G1L/3	251
OTS250G1L/3	265
OTS250G1L/4	265
OTS250G1S/3	251
OTS250G1S/3	265
OTS250G1S/4	265
OTS400G1L/3	251
OTS400G1L/3	265
OTS400G1L/4	265
OTS400G1S/3	251
OTS400G1S/3	265
OTS400G1S/4	265
OTS40T1	247
OTS40T1	262
OTS40T3	247
OTS40T3	262
OTS63T1	247
OTS63T1	262
OTS63T3	247
OTS63T3	262
OTS800G1L/3	251
OTS800G1L/3	265
OTS800G1L/4	265
OTS800G1S/3	251
OTS800G1S/3	265
OTS800G1S/4	265
OTV1000EK	249
OTV250EK	249
OTV400EK	249
OTV800EK	249
OTVS0	270
OTZ1250E	251
OTZ1600E	251
OTZ2500E	251
OTZ250E	251
OTZ4000E	251
OTZ400E	251
OTZ800E	251
OTZC13	265
OTZC13	270
OTZC14	265
OTZC14	270
OTZC23	265
OTZC23	270
OTZC24	265
OTZC24	270
OTZC33	265
OTZC33	270
OTZC34	265
OTZC34	270
OTZC43	265
OTZC44	265
OTZC53	265
OTZC54	265
OTZC63	265
OTZC64	265
OTZC73	265
OTZC74	265
OTZW10	252
OTZW10	281
OTZW24	247
OTZW8	247
OVRHL15-440SPTS	164
OVRHL15-440SPTS	165
OVRPV40-1000PTS	164
OVRPV40-1000PTS	166
OVRPV40-1000PTS	626
OVRPV40-600PTS	164
OVRPV40-600PTS	166
OVRPV40-600PTS	626
OVRTC12P	164
OVRTC12P	166
OVRTC12P	626
OVRTC200FRP	164
OVRTC200FRP	166
OVRTC200FRP	626
OVRTC200P	164
OVRTC200P	166
OVRTC200P	626
OVRTC24P	164
OVRTC24P	166
OVRTC24P	626
OVRTC48P	164
OVRTC48P	166
OVRTC48P	626
OVRTC6P	164
OVRTC6P	166
OVRTC6P	626
OWP6D125	247
OWP6D40	247
OWP6D80	247

Order code	Page
0XN1250S	280
0XN1250T	251
0XN250	251
0XN250	280
0XN400	251
0XN400	280
0XN800S	280
0XN800T	251
0XP12X166	250
0XP12X166	264
0XP12X166	279
0XP12X185	250
0XP12X185	264
0XP12X185	279
0XP12X250	250
0XP12X250	264
0XP12X250	279
0XP12X280	250
0XP12X280	264
0XP12X280	279
0XP12X325	250
0XP12X325	264
0XP12X325	279
0XP12X395	250
0XP12X395	264
0XP12X395	279
0XP12X465	250
0XP12X465	264
0XP12X465	279
0XP12X535	250
0XP12X535	264
0XP12X535	279
0XP6X150	246
0XP6X150	250
0XP6X150	261
0XP6X150	264
0XP6X150	279
0XP6X210	246
0XP6X210	250
0XP6X210	261
0XP6X210	264
0XP6X210	279
0XP6X265	246
0XP6X265	250
0XP6X265	261
0XP6X265	264
0XP6X265	279
0XP6X290	246
0XP6X290	250
0XP6X290	261
0XP6X290	264
0XP6X290	279
0XP6X360	246
0XP6X360	250
0XP6X360	261
0XP6X360	264
0XP6X360	279
0XP6X430	246
0XP6X430	250
0XP6X430	261
0XP6X430	264
0XP6X430	279
0XS6X105	157
0XS6X105	420
0XS6X120	246
0XS6X120	261
0XS6X130	420
0XS6X180	246
0XS6X180	261
0XS6X180	420
0XS6X250	246
0XS6X250	261
0XS6X330	246
0XS6X330	261
0XS6X85	420
0ZXB4	499
PB1-1-32	415
PBBH0004	366
PBBT0008	366
PBBV0008	366
PBDTM-FBP	401
PBHB1125	369
PBHB1125	370
PBHB2145	369
PBHB2145	370
PBHB3121	369
PBMC0002	366
PBMC0002	375
PBRB0004	341
PBRL0002	347
PBRN0002	366
PBRP0002	366
PBRP1040	361
PBRP2040	361
PBRP3040	361
PBRP6040	361
PBSC0400	370
PBSC0630	370
PBSC0800	370
PBSC1000	370
PBSC1250	370
PBSC1600	370
PBSC2000	370
PBSC2500	370
PBWF0002	347
PBWP1050	339
PBWP1050	342
PBWP1070	339
PBWP1070	342
PBWP1090	339
PBWP1090	342
PBWP1290	339
PBWP3050	339
PBWP3050	342
PBWP3070	339
PBWP3070	342
PBWP3090	339
PBWP3090	342
PBWP4050	339
PBWP4050	342
PBWP4070	339
PBWP4070	342
PBWP4090	339
PBWP4090	342
PBWP6050	339
PBWP6050	342
PBWP6070	339
PBWP6070	342
PBWP6090	339
PBWP6090	342
PBWP8050	339
PBWP8050	342
PBWP8070	339
PBWP8070	342
PBWP8090	339
PBWP8090	342
PCCM0400	340
PCCM0500	340
PCCM0500	360
PCCM0600	340
PCCM0700	340
PCCM0700	360
PCCM0800	340
PCCM0900	340
PCCM0900	360
PCCM1000	340
PCFM0300	339
PCFM0400	339
PCFM0500	339
PCFM0600	339
PCFM0700	339
PCFM0800	339
PCFM0900	339
PCFM1000	339
PCFM1250	339
PCKI0300	365
PCKI0400	365
PCKI0600	365
PCKI0800	365
PCKI1000	365
PCKI1250	365
PCNL0050	364
PCNL0100	364
PCPA0004	341
PCRM0188	365
PCRM0188	367
PCRM0188	369
PCRM0188	370
PCRM0238	365
PCRM0238	367
PCRM0238	369
PCRM0238	370
PCRM0288	365
PCRM0288	367
PCRM0288	369
PCRM0288	370
PCRM0338	365
PCRM0338	369
PCRM0338	370
PCRM0388	365
PCRM0388	367
PCRM0438	365
PCRM0438	367
PCRM0438	369
PCRM0488	365
PCRM0488	367
PCRM0538	365
PCRM0588	365
PCRM0588	367
PCRM0638	365
PCRM0638	367
PCRM0688	365
PCRM0688	367
PCRM0738	365
PCRM0788	365
PCRM0788	367
PCRM0888	365
PCRM0888	367
PCRM0988	365
PCRM0988	367
PCRM1238	365
PCRM2013	365
PCRS0338	369
PCRS0438	369
PCSS0024	347
PCSS0024	363
PCVS0204	377
PCVS0206	377
PCVS0208	377
PCVS0254	377
PCVS0256	377
PCVS0258	377
PCVS0304	377
PCVS0306	377
PCVS0308	377
PCVS0354	377
PCVS0356	377
PCVS0358	377
PCVS0404	377
PCVS0406	377
PCVS0408	377
PCVS0504	377
PCVS0506	377
PCVS0508	377
PCVS0604	377
PCVS0606	377
PCVS0608	377
PCVS1204	377
PCVS1206	377
PCVS1208	377
PCVS1254	377
PCVS1256	377
PCVS1258	377
PCVS1304	377
PCVS1306	377
PCVS1308	377
PCVS1354	377
PCVS1356	377
PCVS1358	377
PCVS1404	377
PCVS1406	377
PCVS1408	377
PCVS1504	377
PCVS1506	377
PCVS1508	377
PCVS1604	377
PCVS1606	377
PCVS1608	377
PCVS2204	377
PCVS2206	377
PCVS2208	377
PCVS2254	377
PCVS2256	377
PCVS2258	377
PCVS2304	377
PCVS2306	377
PCVS2308	377
PCVS2354	377
PCVS2356	377
PCVS2358	377
PCVS2404	377
PCVS2406	377
PCVS2408	377
PCVS2504	377
PCVS2506	377
PCVS2508	377
PCVS2604	377
PCVS2606	377
PCVS2608	377
PCVS5060	380
PCVS5080	380
PDCB2020	344
PDCB2030	344
PDCB2040	344
PDCB2044	344
PDLG2016	339
PDLG2042	339
PDLG2044	339
PDLG2046	339
PDLG2062	339
PDLG2064	339
PDLG2066	339
PDLG2082	339
PDLG2086	339
PDP32.0	397
PDR31.0	397
PDRP0500	360
PDRP0700	360
PDRP0900	360
PDRS0400	355

Order code	Page	Order code	Page	Order code	Page	Order code	Page	Order code	Page
PDRS0400	361	PG5-R2	598	PHCT4406	350	PHCX2423	349	PHDT7430	350
PDRS0600	355	PHBT4301	350	PHCT4406	351	PHCX2424	349	PHDT7430	351
PDRS0800	355	PHBT4402	351	PHCT4423	351	PHCX2425	349	PHDX1423	349
PEBL0004	347	PHBT4404	351	PHCT5304	351	PHCX3301	348	PHDX2401	348
PEKS06	313	PHBT4406	350	PHCT5306	350	PHCX3401	348	PHDX2404	349
PEKS11	313	PHBT4406	351	PHCT5306	351	PHCX3404	349	PHDX2423	349
PEKS16	313	PHBT5304	351	PHCT5310	350	PHCX3405	349	PHDX3423	349
PEKS16	314	PHBT5306	350	PHCT5312	351	PHCX3422	349	PHDX4401	348
PEKS21	313	PHBT5306	351	PHCT5314	350	PHCX3424	349	PHDX4404	349
PEKS26	313	PHBT5312	351	PHCT5314	351	PHCX4400	349	PHDX4423	349
PEKS26	314	PHBT5314	350	PHCT5402	351	PHCX4401	348	PHFP0020	363
PFCF1050	342	PHBT5314	351	PHCT5403	351	PHCX4402	349	PHFR4180	347
PFCF1070	342	PHBT5404	351	PHCT5404	351	PHCX4404	349	PHLL0020	346
PFCF1090	342	PHBT5406	350	PHCT5406	350	PHCX4405	349	PHLS0010	346
PFCF2051	343	PHBT5406	351	PHCT5406	351	PHCX4410	348	PITE7120	374
PFCF2071	343	PHBT5412	351	PHCT5411	351	PHCX4412	349	PITH1234	374
PFCF2091	343	PHBT5414	350	PHCT5412	351	PHCX4417	349	PITH5000	374
PFCF3050	342	PHBT5414	351	PHCT5414	350	PHCX4423	349	PITH6000	374
PFCF3070	342	PHBX1101	348	PHCT5414	351	PHCX4424	349	PITV6000	374
PFCF3090	342	PHBX1105	349	PHCT5423	351	PHCX4425	349	PK/E2.1	29
PFCF4050	342	PHBX1323	349	PHCT5425	351	PHDE1240	354	PKNL1210	339
PFCF4051	343	PHBX1404	349	PHCT6301	350	PHDE1240	354	PKNL1210	364
PFCF4070	342	PHBX1422	349	PHCT6304	351	PHDE1241	354	PKNL1260	339
PFCF4071	343	PHBX1423	349	PHCT6305	351	PHDR0004	347	PKNL1260	364
PFCF4090	342	PHBX1424	349	PHCT6312	351	PHDT4402	351	PKNL1280	339
PFCF4091	343	PHBX2300	349	PHCT6314	350	PHDT4403	351	PKNL1280	364
PFCF6050	342	PHBX2310	348	PHCT6314	351	PHDT5304	351	PKOH1060	356
PFCF6070	342	PHBX2312	349	PHCT6400	351	PHDT5306	350	PKOH1080	356
PFCF6090	342	PHBX2401	348	PHCT6401	350	PHDT5306	351	PKOH1660	356
PFCF8050	342	PHBX2402	349	PHCT6402	351	PHDT5312	351	PKOH1680	356
PFCF8070	342	PHBX2404	349	PHCT6403	351	PHDT5314	350	PKOH3160	356
PFCF8090	342	PHBX2405	349	PHCT6404	351	PHDT5314	351	PKOH3180	356
PFFA2010	355	PHBX2423	349	PHCT6405	351	PHDT5404	351	PKOH6360	356
PFFA2025	355	PHBX2424	349	PHCT6410	350	PHDT5406	350	PKOH6380	356
PFFA2040	355	PHBX2425	349	PHCT6411	351	PHDT5406	351	PKOV1060	356
PFFA2060	355	PHBX3301	348	PHCT6412	351	PHDT5411	351	PKOV1080	356
PFFA2080	355	PHBX3401	348	PHCT6425	351	PHDT5412	351	PKOV1660	356
PFNL1810	339	PHBX3404	349	PHCT7329	350	PHDT5414	350	PKOV1680	356
PFNL1860	339	PHBX3405	349	PHCT7329	351	PHDT5414	351	PKOV3160	356
PFNL1880	339	PHBX3422	349	PHCT7418	351	PHDT5423	351	PKOV3180	356
PFNL2010	339	PHBX3424	349	PHCT7420	350	PHDT5425	351	PKOV6360	356
PFNL2010	364	PHBX4400	349	PHCT7420	351	PHDT6301	350	PKOV6380	356
PFNL2060	339	PHBX4401	348	PHCT7430	350	PHDT6304	351	PL10	599
PFNL2060	364	PHBX4402	349	PHCT7430	351	PHDT6305	351	PL16	599
PFNL2080	339	PHBX4404	349	PHCX1101	348	PHDT6312	351	PL5	599
PFNL2080	364	PHBX4405	349	PHCX1105	349	PHDT6314	350	PL6	599
PFRF2040	361	PHBX4410	348	PHCX1323	349	PHDT6314	351	PL8	599
PFVS2040	383	PHBX4412	349	PHCX1404	349	PHDT6401	350	PLVS1752	379
PFVS2060	383	PHBX4423	349	PHCX1422	349	PHDT6404	351	PLVS1772	379
PFVS2080	383	PHBX4424	349	PHCX1423	349	PHDT6405	351	PLVS1792	379
PFVS2130	383	PHBX4425	349	PHCX1424	349	PHDT6412	351	PLVS2052	377
PFVS2140	383	PHCE1240	354	PHCX2300	349	PHDT6414	350	PLVS2052	379
PFVS2220	383	PHCE1240	354	PHCX2310	348	PHDT6414	351	PLVS2072	377
PFVS2240	383	PHCE1241	354	PHCX2312	349	PHDT7329	350	PLVS2072	379
PG5	590	PHCT4301	350	PHCX2401	348	PHDT7329	351	PLVS2092	377
PG5	596	PHCT4402	351	PHCX2402	349	PHDT7418	351	PLVS2092	379
PG5-1	596	PHCT4403	351	PHCX2404	349	PHDT7420	350	PLVS2252	379
PG5-R1	590	PHCT4404	351	PHCX2405	349	PHDT7420	351	PLVS2272	379

Order code	Page
PLVS2292	379
PLVS2552	377
PLVS2552	379
PLVS2552	381
PLVS2572	377
PLVS2572	379
PLVS2572	381
PLVS2592	377
PLVS2592	379
PLVS2592	381
PLVS3052	377
PLVS3052	379
PLVS3052	381
PLVS3072	377
PLVS3072	379
PLVS3072	381
PLVS3092	377
PLVS3092	379
PLVS3092	381
PLVS3552	377
PLVS3552	381
PLVS3572	377
PLVS3572	381
PLVS3592	377
PLVS3592	381
PLVS4052	377
PLVS4072	377
PLVS4092	377
PLVS5052	377
PLVS5072	377
PLVS5092	377
PLVS6052	377
PLVS6072	377
PLVS6092	377
PLVS7052	382
PLVS7072	382
PLVS7092	382
PMCS1757	375
PMCS1759	375
PMCS2050	375
PMCS2070	375
PMCS2090	375
PMCS2255	375
PMCS2257	375
PMCS2259	375
PMCS2550	375
PMCS2570	375
PMCS2590	375
PMCS3050	375
PMCS3070	375
PMCS3090	375
PMRP2040	361
PNQ22.0	398
PPAM0100	341
PPAM0100	339
PPAM0100	339
PPBR2040	359
PPBR2060	359

Order code	Page
PPBR2080	359
PPBR4040	359
PPBR4060	359
PPBR4080	359
PPBR6040	359
PPBR6060	359
PPBR6080	359
PPCV2000	344
PPEB2016	339
PPEB2036	339
PPEB2046	339
PPEB2056	339
PPEB2066	339
PPEB2076	339
PPEB2086	339
PPEB2096	339
PPFA1010	359
PPFA1040	359
PPFA1060	359
PPFA1080	359
PPFA2010	359
PPFA2040	359
PPFA2060	359
PPFA2080	359
PPFB1010	358
PPFB1040	358
PPFB1060	358
PPFB1080	358
PPFB1540	358
PPFB1560	358
PPFB1580	358
PPFB1840	358
PPFB1860	358
PPFB1880	358
PPFB2004	358
PPFB2006	358
PPFB2008	358
PPFB2010	358
PPFB2012	358
PPFB2040	358
PPFB2060	358
PPFB2080	358
PPFB2512	358
PPFB2540	358
PPFB2560	358
PPFB2580	358
PPFB3010	358
PPFB3012	358
PPFB3040	358
PPFB3060	358
PPFB3080	358
PPFB3512	358
PPFB4010	358
PPFB4040	358
PPFB4060	358
PPFB4080	358
PPFB5001	358
PPFB5004	358

Order code	Page
PPFB5006	358
PPFB5008	358
PPFB5040	358
PPFB5060	358
PPFB5080	358
PPFB6010	358
PPFB6040	358
PPFB6060	358
PPFB6080	358
PPFB8010	358
PPFB8040	358
PPFB8060	358
PPFB8080	358
PPFH0300	344
PPFH0400	344
PPFH0600	344
PPFH0800	344
PPFH1000	344
PPFI2966	359
PPFI2968	359
PPFI4968	359
PPFM1000	339
PPFM1010	341
PPFM1030	339
PPFM1030	341
PPFM1040	339
PPFM1040	341
PPFM1050	339
PPFM1050	341
PPFM1060	339
PPFM1060	341
PPFM1070	339
PPFM1070	341
PPFM1080	339
PPFM1080	341
PPFM1090	339
PPFM1090	341
PPFM1250	339
PPFV2000	344
PPMB1540	357
PPMB1560	357
PPMB1580	357
PPMB2010	357
PPMB2040	357
PPMB2060	357
PPMB2080	357
PPMB2540	357
PPMB2560	357
PPMB2580	357
PPMB3010	357
PPMB3040	357
PPMB3060	357
PPMB3080	357
PPMB4010	357
PPMB4040	357
PPMB4060	357
PPMB4080	357
PPMB5001	357

Order code	Page
PPMB5004	357
PPMB5006	357
PPMB5008	357
PPMB6010	357
PPMB6040	357
PPMB6060	357
PPMB6080	357
PPMF1540	355
PPMF1560	355
PPMF1580	355
PPMF2040	355
PPMF2060	355
PPMF2080	355
PPMF3040	355
PPMF3060	355
PPMF3080	355
PPNL3010	364
PPNL3060	364
PPNL3080	364
PPNL4010	364
PPNL4060	364
PPNL4080	364
PPVS2200	377
PPVS2200	379
PPVS2250	377
PPVS2300	377
PPVS2300	379
PPVS2350	377
PPVS2350	379
PPVS2400	377
PPVS2400	379
PPVS2450	379
PPVS2500	377
PPVS2500	379
PPVS2600	377
PPVS2600	379
PPVS2700	377
PR221DS-LS/I	228
PR222DS/P-LSI	228
PR231/P-LS/I	228
PR232/P-LSI	228
PR232DS/P-LSI	228
PRBE1243	361
PRBE2232	361
PRBE2233	361
PRVS1710	379
PRVS1740	379
PRVS1741	379
PRVS1760	379
PRVS1761	379
PRVS1780	379
PRVS1781	379
PRVS2010	379
PRVS2040	379
PRVS2041	377
PRVS2041	379
PRVS2061	377
PRVS2080	379

Order code	Page
PRVS2081	377
PRVS2081	379
PRVS2210	379
PRVS2240	379
PRVS2241	379
PRVS2251	379
PRVS2280	379
PRVS2510	379
PRVS2510	381
PRVS2512	381
PRVS2541	377
PRVS2541	379
PRVS2560	379
PRVS2560	381
PRVS2561	377
PRVS2561	379
PRVS2561	381
PRVS2562	381
PRVS2580	379
PRVS2580	381
PRVS2581	377
PRVS2581	379
PRVS2581	381
PRVS2582	381
PRVS3010	379
PRVS3010	381
PRVS3040	379
PRVS3041	377
PRVS3041	379
PRVS3060	379
PRVS3060	381
PRVS3061	377
PRVS3061	379
PRVS3061	381
PRVS3062	381
PRVS3080	379
PRVS3080	381
PRVS3081	377
PRVS3081	379
PRVS3081	381
PRVS3082	381
PRVS3125	379
PRVS3125	381
PRVS3501	381
PRVS3510	381
PRVS3541	377
PRVS3561	377
PRVS3581	377
PRVS4041	377
PRVS4061	377
PRVS4081	377
PRVS5041	377
PRVS5061	377
PRVS5081	377
PRVS6041	377
PRVS6061	377
PRVS6081	377
PS/E2.1	29

Order code	Page
PS1/12	156
PS1/12	317
PS1/12N	156
PS1/4	156
PS1/4/6-KNX	16
PS1/60	156
PS1/60/16	156
PS1/60/6-KNX	16
PS1-2-0-65	415
PS1-2-1-65	415
PS1-2-2-65	415
PS1-3-0-100	415
PS1-3-0-65	415
PS1-3-1-100	415
PS1-3-1-65	415
PS1-3-2-100	415
PS1-3-2-65	415
PS1-4-0-100	415
PS1-4-0-65	415
PS1-4-1-100	415
PS1-4-1-65	415
PS1-4-2-65	415
PS1-5-0-100	415
PS1-5-0-65	415
PS1-5-1-100	415
PS1-5-1-65	415
PS1-5-2-65	415
PS2/12	156
PS2/58	156
PS2/58/16	156
PS3/12	156
PS3/12	317
PS3/6	156
PS3/60	156
PS3/60/16	156
PSAF0016	347
PSBS0065	346
PSCP0024	347
PSE105-600-70	492
PSE142-600-70	492
PSE170-600-70	492
PSE18-600-70	492
PSE210-600-70	492
PSE250-600-70	492
PSE25-600-70	492
PSE300-600-70	492
PSE30-600-70	492
PSE370-600-70	492
PSE37-600-70	492
PSE45-600-70	492
PSE60-600-70	492
PSE72-600-70	492
PSE85-600-70	492
PSECA	493
PSEEK	493
PS-END	156
PS-END0	156
PS-END1-S	16
PS-FBPA	488
PS-FBPA	493
PS-FBPA	499
PSHF1096	381
PSHF1296	381
PSHF6072	381
PSHF6092	381
PSHF8072	381
PSHF8092	381
PSHS1901	377
PSHS1901	379
PSHS1904	377
PSHS1904	379
PSHS1906	377
PSHS1906	379
PSHS1908	377
PSHS1908	379
PSHS4050	379
PSHS4070	379
PSHS4090	379
PSHS6050	379
PSHS6070	379
PSHS6090	379
PSHS8050	379
PSHS8070	379
PSHS8090	379
PSHW1096	381
PSHW1296	381
PSHW5061	380
PSHW5081	380
PSHW6051	381
PSHW6071	381
PSHW6072	381
PSHW6074	381
PSHW6091	381
PSHW6092	381
PSHW6094	381
PSHW8051	381
PSHW8071	381
PSHW8072	381
PSHW8074	381
PSHW8091	381
PSHW8092	381
PSHW8094	381
PSLE300	499
PSLE460	499
PSLE750	499
PSLW-72	488
PS-M-64.1.1	51
PSR105-600-70	487
PSR105-MS495	488
PSR12-600-70	487
PSR16-600-70	487
PSR16-MS116	488
PSR25-600-70	487
PSR30-600-70	487
PSR30-MS132	488
PSR3-600-70	487
PSR37-600-70	487
PSR45-600-70	487
PSR45-MS450	488
PSR60-600-70	487
PSR6-600-70	487
PSR72-600-70	487
PSR85-600-70	487
PSR9-600-70	487
PSR-FAN3-45A	488
PSR-FAN60-105A	488
PSTX1050-600-70	498
PSTX105-600-70	498
PSTX1250-600-70	498
PSTX142-600-70	498
PSTX170-600-70	498
PSTX210-600-70	498
PSTX250-600-70	498
PSTX300-600-70	498
PSTX30-600-70	498
PSTX370-600-70	498
PSTX37-600-70	498
PSTX45-600-70	498
PSTX470-600-70	498
PSTX570-600-70	498
PSTX60-600-70	498
PSTX720-600-70	498
PSTX72-600-70	498
PSTX840-600-70	498
PSTX85-600-70	498
PSVF6062	381
PSVF6064	381
PSVF6082	381
PSVF6084	381
PSVF7016	381
PSVF7126	381
PSVS0055	380
PSVS0057	380
PSVS2050	377
PSVS2070	377
PSVS2090	377
PSVS2550	377
PSVS2570	377
PSVS2590	377
PSVS3050	377
PSVS3070	377
PSVS3090	377
PSVS3550	377
PSVS3570	377
PSVS3590	377
PSVS4050	377
PSVS4070	377
PSVS4090	377
PSVS5050	377
PSVS5070	377
PSVS5090	377
PSVS6050	377
PSVS6070	377
PSVS6090	377
PSVW5061	381
PSVW5081	381
PSVW6062	381
PSVW6064	381
PSVW6082	381
PSVW6084	381
PSVW7016	381
PSVW7126	381
PTBB1056	339
PTBB1076	339
PTBB1096	339
PTBB3056	339
PTBB3076	339
PTBB3096	339
PTBB4056	339
PTBB4076	339
PTBB4096	339
PTBB6056	339
PTBB6076	339
PTBB6096	339
PTBB8056	339
PTBB8076	339
PTBB8096	339
PTBO1050	339
PTBO1070	339
PTBO1090	339
PTBO1251	343
PTBO1271	343
PTBO1290	339
PTBO1291	343
PTBO1451	343
PTBO1471	343
PTBO1491	343
PTBO3050	339
PTBO3070	339
PTBO3090	339
PTBO4050	339
PTBO4070	339
PTBO4090	339
PTBO6050	339
PTBO6070	339
PTBO6090	339
PTBO8050	339
PTBO8070	339
PTBO8090	339
PTBO8251	343
PTBO8271	343
PTBO8291	343
PTBS1001	382
PTBS1050	382
PTBS1052	382
PTBS1070	382
PTBS1072	382
PTBS8001	382
PTBS8050	382
PTBS8052	382
PTBS8070	382
PTBS8072	382
PTBS8091	382
PTHS2050	383
PTHS2070	383
PTHS2090	383
PTHS3050	383
PTHS3070	383
PTHS3090	383
PTHS4030	383
PTHS4050	383
PTHS4070	383
PTHS4190	383
PTHS4250	383
PTHS4270	383
PTHS4290	383
PTHS6030	383
PTHS6050	383
PTHS6070	383
PTHS8030	383
PTHS8050	383
PTHS8070	383
PTRN1951	369
PTRN1951	370
PTRS1201	369
PTRS1601	369
PTRS2001	369
PTVB1091	382
PTVS1001	382
PTVS1050	382
PTVS1052	382
PTVS1070	382
PTVS1072	382
PTVS1091	382
PTVS8001	382
PTVS8050	382
PTVS8052	382
PTVS8070	382
PTVS8072	382
PTVS8091	382
PUCM2000	340
PUKI1800	365
PUKI2000	365
PUPM2000	339
PVBE1241	354
PVBT6312	353
PVBT6314	352
PVBT6314	353
PVBT6401	352
PVBT6404	353
PVBT6405	353
PVCE1240	354
PVCE1241	354
PVCE2441	354
PVCE2442	354
PVCE2450	354
PVCE4350	354
PVCT6401	352
PVCT6404	353
PVCT6405	353

Order code	Page
PVCT6412	353
PVCT6414	352
PVCT6414	353
PVCT7413	352
PVCT7413	353
PVCT7419	352
PVCT7419	353
PVDE1240	354
PVDE1241	354
PVDE1262	354
PVDE2440	354
PVDE2441	354
PVDT6401	352
PVDT6404	353
PVDT6405	353
PVDT6412	353
PVDT6414	352
PVDT6414	353
PVDT7413	352
PVDT7413	353
PVDT7419	352
PVDT7419	353
PVFE1263	354
PVFE6230	354
PVFE6231	354
PVFT6610	352
PVFT6612	353
PVFT7633	352
PVFT7633	353
PVGE6230	354
PVGE6231	354
PWRP1840	360
PWRP1860	360
PWRP1880	360
PWRP2040	360
PWRP2060	360
PWRP2080	360
RC/A4.2	17
RC/A8.2	17
RD2	145
RD2-48	145
RD3	145
RD3-48	145
RD3M	145
RD3M-48	145
RD3P	145
RD3P-48	145
RM/S1.1	19
RM/S2.1	19
RM/S3.1	19
RM/S4.1	19
RM1230	174
RTC-F-1	50
RTC-F-1.PB	47
RTCPFWB-1.0-W	45
S1-M1-25	415
S1-M2-25	415
S1-M3-25	415
S1-M3-35	415
S1-PB1-25	415
S201C0.5	112
S201C1	112
S201C1.6	112
S201C10	112
S201C100	112
S201C13	112
S201C16	112
S201C2	112
S201C20	112
S201C25	112
S201C3	112
S201C32	112
S201C4	112
S201C40	112
S201C50	112
S201C6	112
S201C63	112
S201C8	112
S201C80	112
S201D0.5	112
S201D1	112
S201D1.6	112
S201D10	112
S201D13	112
S201D16	112
S201D2	112
S201D20	112
S201D25	112
S201D3	112
S201D32	112
S201D4	112
S201D40	112
S201D50	112
S201D6	112
S201D63	112
S201D8	112
S201MC0.5	113
S201MC1	113
S201MC1.6	113
S201MC10	113
S201MC13	113
S201MC16	113
S201MC2	113
S201MC20	113
S201MC25	113
S201MC3	113
S201MC32	113
S201MC4	113
S201MC40	113
S201MC50	113
S201MC6	113
S201MC63	113
S201MC8	113
S201MD0.5	113
S201MD1	113
S201MD1.6	113
S201MD10	113
S201MD13	113
S201MD16	113
S201MD2	113
S201MD20	113
S201MD25	113
S201MD3	113
S201MD32	113
S201MD4	113
S201MD40	113
S201MD50	113
S201MD6	113
S201MD63	113
S201MD8	113
S201MK0.5UC	114
S201MK1.6UC	114
S201MK10UC	114
S201MK13UC	114
S201MK16UC	114
S201MK1UC	114
S201MK20UC	114
S201MK25UC	114
S201MK2UC	114
S201MK32UC	114
S201MK3UC	114
S201MK40UC	114
S201MK4UC	114
S201MK50UC	114
S201MK63UC	114
S201MK6UC	114
S201MK8UC	114
S201PC0.5	114
S201PC1	114
S201PC1.6	114
S201PC10	114
S201PC13	114
S201PC16	114
S201PC2	114
S201PC20	114
S201PC25	114
S201PC3	114
S201PC32	114
S201PC4	114
S201PC40	114
S201PC50	114
S201PC6	114
S201PC63	114
S201PC8	114
S202C0.5	112
S202C1	112
S202C1.6	112
S202C10	112
S202C100	112
S202C13	112
S202C16	112
S202C2	112
S202C20	112
S202C25	112
S202C3	112
S202C32	112
S202C4	112
S202C40	112
S202C50	112
S202C6	112
S202C63	112
S202C8	112
S202C80	112
S202D0.5	112
S202D1	112
S202D1.6	112
S202D10	112
S202D13	112
S202D16	112
S202D2	112
S202D20	112
S202D25	112
S202D3	112
S202D32	112
S202D4	112
S202D40	112
S202D50	112
S202D6	112
S202D63	112
S202D8	112
S202MC0.5	113
S202MC1	113
S202MC1.6	113
S202MC10	113
S202MC13	113
S202MC16	113
S202MC2	113
S202MC20	113
S202MC25	113
S202MC3	113
S202MC32	113
S202MC4	113
S202MC40	113
S202MC50	113
S202MC6	113
S202MC63	113
S202MC8	113
S202MD0.5	113
S202MD1	113
S202MD1.6	113
S202MD10	113
S202MD13	113
S202MD16	113
S202MD2	113
S202MD20	113
S202MD25	113
S202MD3	113
S202MD32	113
S202MD4	113
S202MD40	113
S202MD50	113
S202MD6	113
S202MD63	113
S202MD8	113
S202MK0.5UC	114
S202MK1.6UC	114
S202MK10UC	114
S202MK13UC	114
S202MK16UC	114
S202MK1UC	114
S202MK20UC	114
S202MK25UC	114
S202MK2UC	114
S202MK32UC	114
S202MK3UC	114
S202MK40UC	114
S202MK4UC	114
S202MK50UC	114
S202MK63UC	114
S202MK6UC	114
S202MK8UC	114
S202PC0.5	114
S202PC1	114
S202PC1.6	114
S202PC10	114
S202PC13	114
S202PC16	114
S202PC2	114
S202PC20	114
S202PC25	114
S202PC3	114
S202PC32	114
S202PC4	114
S202PC40	114
S202PC50	114
S202PC6	114
S202PC63	114
S202PC8	114
S203C0.5	112
S203C1	112
S203C1.6	112
S203C10	112
S203C100	112
S203C13	112
S203C16	112
S203C2	112
S203C20	112
S203C25	112
S203C3	112
S203C32	112
S203C4	112
S203C40	112
S203C50	112
S203C6	112
S203C63	112
S203C8	112
S203C80	112
S203D0.5	112
S203D1	112
S203D1.6	112

Order code	Page
S203D10	112
S203D13	112
S203D16	112
S203D2	112
S203D20	112
S203D25	112
S203D3	112
S203D32	112
S203D4	112
S203D40	112
S203D50	112
S203D6	112
S203D63	112
S203D8	112
S203MC0.5	113
S203MC1	113
S203MC1.6	113
S203MC10	113
S203MC13	113
S203MC16	113
S203MC2	113
S203MC20	113
S203MC25	113
S203MC3	113
S203MC32	113
S203MC4	113
S203MC40	113
S203MC50	113
S203MC6	113
S203MC63	113
S203MC8	113
S203MD0.5	113
S203MD1	113
S203MD1.6	113
S203MD10	113
S203MD13	113
S203MD16	113
S203MD2	113
S203MD20	113
S203MD25	113
S203MD3	113
S203MD32	113
S203MD4	113
S203MD40	113
S203MD50	113
S203MD6	113
S203MD63	113
S203MD8	113
S203MK0.5UC	114
S203MK1.6UC	114
S203MK10UC	114
S203MK13UC	114
S203MK16UC	114
S203MK1UC	114
S203MK20UC	114
S203MK25UC	114
S203MK2UC	114
S203MK32UC	114
S203MK3UC	114
S203MK40UC	114
S203MK4UC	114
S203MK50UC	114
S203MK63UC	114
S203MK6UC	114
S203MK8UC	114
S203PC0.5	114
S203PC1	114
S203PC1.6	114
S203PC10	114
S203PC13	114
S203PC16	114
S203PC2	114
S203PC20	114
S203PC25	114
S203PC3	114
S203PC32	114
S203PC4	114
S203PC40	114
S203PC50	114
S203PC6	114
S203PC63	114
S203PC8	114
S204C0.5	112
S204C1	112
S204C1.6	112
S204C10	112
S204C100	112
S204C13	112
S204C16	112
S204C2	112
S204C20	112
S204C25	112
S204C3	112
S204C32	112
S204C4	112
S204C40	112
S204C50	112
S204C6	112
S204C63	112
S204C8	112
S204C80	112
S204D0.5	112
S204D1	112
S204D1.6	112
S204D10	112
S204D13	112
S204D16	112
S204D2	112
S204D20	112
S204D25	112
S204D3	112
S204D32	112
S204D4	112
S204D40	112
S204D50	112
S204D6	112
S204D63	112
S204D8	112
S204MC0.5	113
S204MC1	113
S204MC1.6	113
S204MC10	113
S204MC13	113
S204MC16	113
S204MC2	113
S204MC20	113
S204MC25	113
S204MC3	113
S204MC32	113
S204MC4	113
S204MC40	113
S204MC50	113
S204MC6	113
S204MC63	113
S204MC8	113
S204MD0.5	113
S204MD1	113
S204MD1.6	113
S204MD10	113
S204MD13	113
S204MD16	113
S204MD2	113
S204MD20	113
S204MD25	113
S204MD3	113
S204MD32	113
S204MD4	113
S204MD40	113
S204MD50	113
S204MD6	113
S204MD63	113
S204MD8	113
S204MK0.5UC	114
S204MK1.6UC	114
S204MK10UC	114
S204MK13UC	114
S204MK16UC	114
S204MK1UC	114
S204MK20UC	114
S204MK25UC	114
S204MK2UC	114
S204MK32UC	114
S204MK3UC	114
S204MK40UC	114
S204MK4UC	114
S204MK50UC	114
S204MK63UC	114
S204MK6UC	114
S204MK8UC	114
S204PC0.5	114
S204PC1	114
S204PC1.6	114
S204PC10	114
S204PC13	114
S204PC16	114
S204PC2	114
S204PC20	114
S204PC25	114
S204PC3	114
S204PC32	114
S204PC4	114
S204PC40	114
S204PC50	114
S204PC6	114
S204PC63	114
S204PC8	114
S2CA1	154
S2CA2	154
S2CDH	157
S2CH01	153
S2CH02L	153
S2CH10	153
S2CH11L	153
S2CH20L	153
S2CH6R	153
S2C-PD-DS201	157
S2C-PD-S200	157
S2CSH6R	153
S2CUA110AC	154
S2CUA110DC	154
S2CUA12DC	154
S2CUA230AC	154
S2CUA230DC	154
S2CUA24AC	154
S2CUA24DC	154
S2CUA400AC	154
S2CUA48AC	154
S2CUA48DC	154
S800AUX	153
S800AUX/ALT	153
S800PLL	157
S800RD	157
S800RHEEM	157
S800RHEH	157
S800RHES	157
S800SOR24	154
S800SOR250	154
S800UVR250	154
S800UVR36	154
S801BC100	120
S801BC125	120
S801BC32	120
S801BC40	120
S801BC50	120
S801BC63	120
S801BC80	120
S801CC10	120
S801CC100	120
S801CC125	120
S801CC13	120
S801CC16	120
S801CC20	120
S801CC25	120
S801CC32	120
S801CC40	120
S801CC50	120
S801CC63	120
S801CC80	120
S801HVK10	123
S801HVK10	614
S801HVK100	123
S801HVK100	614
S801HVK125	123
S801HVK125	614
S801HVK13	123
S801HVK13	614
S801HVK16	123
S801HVK16	614
S801HVK20	123
S801HVK20	614
S801HVK25	123
S801HVK25	614
S801HVK32	123
S801HVK32	614
S801HVK40	123
S801HVK40	614
S801HVK50	123
S801HVK50	614
S801HVK6	123
S801HVK6	614
S801HVK63	123
S801HVK63	614
S801HVK8	123
S801HVK8	614
S801HVK80	123
S801HVK80	614
S801NC10	121
S801NC100	121
S801NC125	121
S801NC13	121
S801NC16	121
S801NC20	121
S801NC25	121
S801NC32	121
S801NC40	121
S801NC50	121
S801NC63	121
S801NC80	121
S801SC10	121
S801SC100	121
S801SC125	121
S801SC13	121
S801SC16	121
S801SC20	121
S801SC25	121
S801SC32	121
S801SC40	121
S801SC50	121
S801SC63	121
S801SC80	121

Order code	Page
S801S-SCL100-SR	158
S801S-SCL32-SR	158
S801S-SCL63-SR	158
S802BC100	120
S802BC125	120
S802BC32	120
S802BC40	120
S802BC50	120
S802BC63	120
S802BC80	120
S802CC10	120
S802CC100	120
S802CC125	120
S802CC13	120
S802CC16	120
S802CC20	120
S802CC25	120
S802CC32	120
S802CC40	120
S802CC50	120
S802CC63	120
S802CC80	120
S802HVK10	123
S802HVK10	614
S802HVK100	123
S802HVK100	614
S802HVK125	123
S802HVK125	614
S802HVK13	123
S802HVK13	614
S802HVK16	123
S802HVK16	614
S802HVK20	123
S802HVK20	614
S802HVK25	123
S802HVK25	614
S802HVK32	123
S802HVK32	614
S802HVK40	123
S802HVK40	614
S802HVK50	123
S802HVK50	614
S802HVK6	123
S802HVK6	614
S802HVK63	123
S802HVK63	614
S802HVK8	123
S802HVK8	614
S802HVK80	123
S802HVK80	614
S802NC10	121
S802NC100	121
S802NC125	121
S802NC13	121
S802NC16	121
S802NC20	121
S802NC25	121
S802NC32	121

Order code	Page
S802NC40	121
S802NC50	121
S802NC63	121
S802NC80	121
S802PVS10	122
S802PVS10	625
S802PVS100	122
S802PVS100	625
S802PVS125	122
S802PVS125	625
S802PVS13	122
S802PVS13	625
S802PVS16	122
S802PVS16	625
S802PVS20	122
S802PVS20	625
S802PVS25	122
S802PVS25	625
S802PVS32	122
S802PVS32	625
S802PVS40	122
S802PVS40	625
S802PVS50	122
S802PVS50	625
S802PVS63	122
S802PVS63	625
S802PVS80	122
S802PVS80	625
S802SC10	121
S802SC100	121
S802SC125	121
S802SC13	121
S802SC16	121
S802SC20	121
S802SC25	121
S802SC32	121
S802SC40	121
S802SC50	121
S802SC63	121
S802SC80	121
S802S-SCL100-SR	158
S802S-SCL32-SR	158
S802S-SCL63-SR	158
S803BC100	120
S803BC125	120
S803BC32	120
S803BC40	120
S803BC50	120
S803BC63	120
S803BC80	120
S803CC10	120
S803CC100	120
S803CC125	120
S803CC13	120
S803CC16	120
S803CC20	120
S803CC25	120
S803CC32	120

Order code	Page
S803CC40	120
S803CC50	120
S803CC63	120
S803CC80	120
S803HVK10	123
S803HVK10	614
S803HVK100	123
S803HVK100	614
S803HVK125	123
S803HVK125	614
S803HVK13	123
S803HVK13	614
S803HVK16	123
S803HVK16	614
S803HVK20	123
S803HVK20	614
S803HVK25	123
S803HVK25	614
S803HVK32	123
S803HVK32	614
S803HVK40	123
S803HVK40	614
S803HVK50	123
S803HVK50	614
S803HVK6	123
S803HVK6	614
S803HVK63	123
S803HVK63	614
S803HVK8	123
S803HVK8	614
S803HVK80	123
S803HVK80	614
S803HV-SCL100-SR	123
S803HV-SCL32-SR	123
S803HV-SCL63-SR	123
S803NC10	121
S803NC100	121
S803NC125	121
S803NC13	121
S803NC16	121
S803NC20	121
S803NC25	121
S803NC32	121
S803NC40	121
S803NC50	121
S803NC63	121
S803NC80	121
S803SC10	121
S803SC100	121
S803SC125	121
S803SC13	121
S803SC16	121
S803SC20	121
S803SC25	121
S803SC32	121
S803SC40	121
S803SC50	121
S803SC63	121

Order code	Page
S803SC80	121
S803S-SCL100-SR	158
S803S-SCL100-SR	614
S803S-SCL125	158
S803S-SCL32	158
S803S-SCL32-SR	158
S803S-SCL32-SR	614
S803S-SCL63	158
S803S-SCL63-SR	158
S803S-SCL63-SR	614
S804BC100	120
S804BC125	120
S804BC32	120
S804BC40	120
S804BC50	120
S804BC63	120
S804BC80	120
S804CC10	120
S804CC100	120
S804CC125	120
S804CC13	120
S804CC16	120
S804CC20	120
S804CC25	120
S804CC32	120
S804CC40	120
S804CC50	120
S804CC63	120
S804CC80	120
S804NC10	121
S804NC100	121
S804NC125	121
S804NC13	121
S804NC16	121
S804NC20	121
S804NC25	121
S804NC32	121
S804NC40	121
S804NC50	121
S804NC63	121
S804NC80	121
S804PVS10	122
S804PVS10	625
S804PVS100	122
S804PVS100	625
S804PVS125	122
S804PVS125	625
S804PVS13	122
S804PVS13	625
S804PVS16	122
S804PVS16	625
S804PVS20	122
S804PVS20	625
S804PVS25	122
S804PVS25	625
S804PVS32	122
S804PVS32	625
S804PVS40	122

Order code	Page
S804PVS40	625
S804PVS50	122
S804PVS50	625
S804PVS63	122
S804PVS63	625
S804PVS80	122
S804PVS80	625
S804SC10	121
S804SC100	121
S804SC125	121
S804SC13	121
S804SC16	121
S804SC20	121
S804SC25	121
S804SC32	121
S804SC40	121
S804SC50	121
S804SC63	121
S804SC80	121
S91-C10	110
S91-C10	88
S91-C16	110
S91-C16	88
S91-C20	110
S91-C20	88
S91-C25	110
S91-C25	88
S91-C32	110
S91-C32	88
S91-C6	110
S91-C6	88
SA/M2.16.1	18
SA/M2.6.1	18
SA/S12.10.2.1	22
SA/S12.16.2.1	22
SA/S12.16.5.1	22
SA/S12.16.6.1	22
SA/S12.6.1.1	22
SA/S12.6.2.1	22
SA/S2.10.2.1	22
SA/S2.16.2.1	22
SA/S2.16.5.1	22
SA/S2.16.6.1	22
SA/S2.6.2.1	22
SA/S4.10.2.1	22
SA/S4.16.2.1	22
SA/S4.16.5.1	22
SA/S4.16.6.1	22
SA/S4.6.1.1	22
SA/S4.6.2.1	22
SA/S8.10.2.1	22
SA/S8.16.2.1	22
SA/S8.16.5.1	22
SA/S8.16.6.1	22
SA/S8.6.1.1	22
SA/S8.6.2.1	22
SA1	157
SA1	415

Order code	Page
SA1-E	157
SA2	157
SA2	415
SA3	157
SA3	415
SAK12	13
SAK17	13
SAK7	13
SA-M-0.4.1	51
SA-M-8.8.1	51
SAP-S-1-84	44
SBA-F-1.1.1	49
SBA-F-1.1.PB.1	47
SBA-F-2.1.1	49
SBA-F-2.1.PB.1	47
SBB-N2BL	46
SBB-N2GR	46
SBCPFWB-2.1-W	45
SBCPFWB-4.1-W	45
SBD-N2BL	46
SBD-N2GR	46
SBL-N2BL	46
SBL-N2GR	46
SBS-N2BL	46
SBS-N2GR	46
SD/M2.6.2	18
SD/S2.16.1	25
SD/S4.16.1	25
SD/S8.16.1	25
SDA-F-1.1.1	49
SDA-F-1.1.PB.1	47
SDA-F-2.1.1	49
SDA-F-2.1.PB.1	47
SDCPFWB-2.1-W	45
SDCPFWB-4.1-W	45
SE/S 3.16.1	40
SH201C10	110
SH201C10	88
SH201C13	110
SH201C13	88
SH201C16	110
SH201C16	88
SH201C20	110
SH201C20	88
SH201C25	110
SH201C25	88
SH201C32	110
SH201C32	88
SH201C40	110
SH201C40	88
SH201C50	110
SH201C50	88
SH201C6	110
SH201C6	88
SH201C63	110
SH201C63	88
SH201C8	110
SH201C8	88
SH203C10	110
SH203C10	88
SH203C13	110
SH203C13	88
SH203C16	110
SH203C16	88
SH203C20	110
SH203C20	88
SH203C25	110
SH203C25	88
SH203C32	110
SH203C32	88
SH203C40	110
SH203C40	88
SH203C50	110
SH203C50	88
SH203C6	110
SH203C6	88
SH203C63	110
SH203C63	88
SH203C8	110
SH203C8	88
SHB	598
SHB	599
SHBP	599
SHBS	599
SHD20125	167
SHD20125	92
SHD20132	167
SHD20132	92
SHD20140	167
SHD20140	92
SHD20163	167
SHD20163	92
SHD20225	167
SHD20225	92
SHD20232	167
SHD20232	92
SHD20240	167
SHD20240	92
SHD20263	167
SHD20263	92
SHD20325	167
SHD20325	92
SHD20332	167
SHD20332	92
SHD20340	167
SHD20340	92
SHD20363	167
SHD20363	92
SHD20425	167
SHD20425	92
SHD20432	167
SHD20432	92
SHD20440	167
SHD20440	92
SHD20463	167
SHD20463	92
SJR/S4.24.2.1	23
SK1-02	412
SK1-11	412
SK1-20	412
SK1704536	547
SK172105-AD	547
SK172105-AE	547
SK172105-AF	547
SK175919-3	547
SK4-11	419
SK615512-1	521
SK615512-1	541
SK615516-1	546
SK615546-2	550
SK615546-8	550
SK615562-87	534
SK615562-88	534
SK616016-2	522
SK616016-2	541
SK616021-71	522
SK616021-71	540
SK616021-72	540
SK616021-73	540
SK827041-AM	453
SK827041-DB	453
SK827044-AM	453
SK827044-DB	453
SK829007-C	453
SK829007-D	453
SK829070-F	453
SK829090-E	453
SK829090-H	453
SMB/S 1.1	41
SMK3.0	397
SN201C10	111
SN201C13	111
SN201C16	111
SN201C2	111
SN201C20	111
SN201C25	111
SN201C32	111
SN201C4	111
SN201C40	111
SN201C6	111
SN201-IH	153
SN201S	153
SR-1-81	48
SR-1-83	48
SR-1-84	48
SR-2-81	48
SR-2-83	48
SR-2-84	48
SR-2-N2AN	46
SR-2-N2BL	46
SR-2-N2CV	46
SR-2-N2PL	46
SR-4-N2AN	46
SR-4-N2BL	46
SR-4-N2CV	46
SR-4-N2PL	46
SRB-1-81	48
SRB-1-83	48
SRB-1-84	48
SRB-2-81	48
SRB-2-83	48
SRB-2-84	48
SRCPFWB-2.1-W	45
SRCPFWB-4.1-W	45
SRCPFWB-4.2-W	45
SRD-1-81	48
SRD-1-83	48
SRD-1-84	48
SRD-2-L-81	48
SRD-2-L-83	48
SRD-2-L-84	48
SRD-2-R-81	48
SRD-2-R-83	48
SRD-2-R-84	48
SRL-1-81	48
SRL-1-83	48
SRL-1-84	48
SRL-2-L-81	48
SRL-2-L-83	48
SRL-2-L-84	48
SRL-2-R-81	48
SRL-2-R-83	48
SRL-2-R-84	48
SRN10630K	335
SRN10830K	335
SRN12830K	335
SRN3215K	335
SRN3315K	335
SRN4315K	335
SRN4320K	335
SRN4420K	335
SRN5420K	335
SRN5425K	335
SRN6420K	335
SRN6425K	335
SRN6625K	335
SRN7525K	335
SRN8630K	335
SRS-1-81	48
SRS-1-83	48
SRS-1-84	48
SRS-2-L-81	48
SRS-2-L-83	48
SRS-2-L-84	48
SRS-2-R-81	48
SRS-2-R-83	48
SRS-2-R-84	48
SSA-F-1.1.1	49
SSA-F-1.1.PB.1	47
SSA-F-2.1.1	49
SSA-F-2.1.PB.1	47
SSA-F-2.2.1	49
SSA-F-2.2.PB.1	47
ST/K1.1	28
SU/S30.640.1	12
SUCPFWB-2.0-W	45
SUCPFWB-4.0-W	45
SU-F-1.0.1	49
SU-F-1.0.PB.1	47
SU-F-2.0.1	49
SU-F-2.0.PB.1	47
SV/S30.160.1.1	12
SV/S30.320.1.1	12
SV/S30.320.2.1	12
SV/S30.640.3.1	12
SV/S30.640.5.1	12
SZBP12	306
SZBP12	311
SZBP12	312
SZBP12	316
SZBP12	317
SZBP12	320
SZBP12	322
SZBP12	96
SZBP12	98
SZBSK5	157
SZESK2	156
SZESK3	156
T1	173
T1	94
T16-0.13	470
T16-0.17	470
T16-0.23	470
T16-0.31	470
T16-0.41	470
T16-0.55	470
T16-0.74	470
T16-1.0	470
T16-1.3	470
T16-1.7	470
T16-10	470
T16-13	470
T16-16	470
T16-2.3	470
T16-3.1	470
T16-4.2	470
T16-5.7	470
T16-7.6	470
T1PLUS	173
T1PLUS	94
T1POLE	173
T1POLE	94
TA200DU-110	475
TA200DU-135	475
TA200DU-150	475
TA200DU-175	475
TA200DU-200	475
TA200DU-90	475
TB08	313
TB12	313

Order code	Page
TB12	314
TB18	313
TC5	598
TC5-R1	598
TEF4-OFF	437
TEF4-OFF	449
TEF4-OFF	456
TEF4-ON	437
TEF4-ON	449
TEF4-ON	456
TF140DU-110	474
TF140DU-135	474
TF140DU-142	474
TF140DU-90	474
TF42-0.13	471
TF42-0.17	471
TF42-0.23	471
TF42-0.31	471
TF42-0.41	471
TF42-0.55	471
TF42-0.74	471
TF42-1.0	471
TF42-1.3	471
TF42-1.7	471
TF42-10	471
TF42-13	471
TF42-16	471
TF42-2.3	471
TF42-20	471
TF42-24	471
TF42-29	471
TF42-3.1	471
TF42-35	471
TF42-38	471
TF42-4.2	471
TF42-5.7	471
TF42-7.6	471
TF65-28	472
TF65-33	472
TF65-40	472
TF65-47	472
TF65-53	472
TF65-60	472
TF65-67	472
TF96-51	473
TF96-60	473
TF96-68	473
TF96-78	473
TF96-87	473
TF96-96	473
TM15/24	174
TM30/24	174
TP2	598
TP4	598
TR1	146
TR160	146
TR160A	146
TR2	146
TR3	146
TR4	146
TR4A	146
TR5	146
TR5A	146
TRFM-100	294
TRFM-150	294
TRFM-250	294
TRFM-400	294
TRM	146
TS/K1.1	28
TSA/K230.1	28
TSA/K24.1	28
TVOC-1T02-OP05	580
TVOC-1T02-OP05	620
TVOC-1T02-OP1	580
TVOC-1T02-OP1	620
TVOC-1T02-OP10	580
TVOC-1T02-OP10	620
TVOC-1T02-OP15	580
TVOC-1T02-OP15	620
TVOC-1T02-OP2	580
TVOC-1T02-OP2	620
TVOC-1T02-OP20	580
TVOC-1T02-OP20	620
TVOC-1T02-OP25	580
TVOC-1T02-OP25	620
TVOC-1T02-OP30	580
TVOC-1T02-OP30	620
TVOC-1T02-OP4	580
TVOC-1T02-OP4	620
TVOC-1T02-OP6	580
TVOC-1T02-OP6	620
TVOC-1T02-OP8	580
TVOC-1T02-OP8	620
TVOC-2-240	579
TVOC-2-240	619
TVOC-2-48	579
TVOC-2-48	619
TVOC-2-DP1	579
TVOC-2-DP1	619
TVOC-2-DP10	579
TVOC-2-DP10	619
TVOC-2-DP15	579
TVOC-2-DP15	619
TVOC-2-DP2	579
TVOC-2-DP2	619
TVOC-2-DP20	579
TVOC-2-DP20	619
TVOC-2-DP25	579
TVOC-2-DP25	619
TVOC-2-DP30	579
TVOC-2-DP30	619
TVOC-2-DP4	579
TVOC-2-DP4	619
TVOC-2-DP6	579
TVOC-2-DP6	619
TVOC-2-DP60	579
TVOC-2-DP60	619
TVOC-2-DP8	579
TVOC-2-DP8	619
TVOC-2-E1	579
TVOC-2-E1	619
TVOC-2-E3	579
TVOC-2-E3	619
TVOC-2-H1	579
TVOC-2-H1	619
TVOC-2-LABEL	580
TVOC-2-LABEL	620
TVOC-2-MK1	580
TVOC-2-MK1	620
TVOC-2-MTGB	580
TVOC-2-MTGB	620
TVOC-2-MTGK1000	580
TVOC-2-MTGK1000	620
TVOC-2-MTGK600	580
TVOC-2-MTGK600	620
TVOC-2-OP05	580
TVOC-2-OP05	620
TVOC-2-OP1	580
TVOC-2-OP1	620
TVOC-2-OP10	580
TVOC-2-OP10	620
TVOC-2-OP15	580
TVOC-2-OP15	620
TVOC-2-OP2	580
TVOC-2-OP2	620
TVOC-2-OP20	580
TVOC-2-OP20	620
TVOC-2-OP25	580
TVOC-2-OP25	620
TVOC-2-OP30	580
TVOC-2-OP30	620
TVOC-2-OP4	580
TVOC-2-OP4	620
TVOC-2-OP6	580
TVOC-2-OP6	620
TVOC-2-OP8	580
TVOC-2-OP8	620
TVOC-CSU	580
TVOC-CSU	620
TWA1	173
TWA1	94
TWA2	173
TWA2	94
UA1-110	413
UA1-20	413
UA1-208	413
UA1-230	413
UA1-24	413
UA1-400	413
UA1-415	413
UA1-48	413
UA1-575	413
UA1-60	413
UA4-110	419
UA4-230	419
UA4-24	419
UA4-400	419
UA4-HK-230	419
UA4-HK-400	419
UD/S2.300.2	25
UK/S32.2	29
UMC100.3DC	395
UMC100.3DC	615
UMC100.3DCEX	395
UMC100.3DCEX	615
UMC100.3-PAN	396
UMC100.3UC	395
UMC100.3UC	615
UMC100.3UCEX	395
UMC100.3UCEX	615
UMCIO-CAB.030	396
UMCPAN-CAB.070	396
UMCPAN-CAB.150	396
UMCPAN-CAB.300	396
US/E1	16
US/U12.2	20
US/U2.2	20
US/U4.2	20
USB/S1.1	15
UTF21-FBP	401
UTP22-FBP	401
VA/Z10.1	28
VA/Z50.1	28
VA/Z78.1	28
VA/Z80.1	28
VAA/A6.24.1	27
VAA/S12.230.2.1	27
VAA/S6.230.2.1	27
VB/K100.1	16
VB/K200.1	16
VB/K270.1	16
VB/K360.1	16
VB6300101	427
VB6300180	427
VB6301001	427
VB6301080	427
VB7012	347
VB7035	347
VB7300101	427
VB7300180	427
VB7301001	427
VB7301080	427
VBC6300101	427
VBC6301001	427
VBC7300101	427
VBC7301001	427
VD/M1.300.1	18
VEM4	437
VEM4	449
VI150	396
VI155	396
VM140/190	440
VM140/190	452
VM1650H	443
VM19	440
VM19	452
VM205/265	440
VM205/265	452
VM4	437
VM4	449
VM750H	443
VM96-4	437
VM96-4	449
WES/A3.1	21
WS/S4.1.1.2	21
WSD220	95
WSD232	95
WSD245	95
WSD263	95
WSD420	95
WSD432	95
WSD445	95
WSD463	95
WSO110	95
WSO210	95
WSW211	95
WSW221	95
WZ/S1.3.1.2	21
ZK10	588
ZK10-BL	588
ZK10-OR	588
ZK10-PE	588
ZK16	588
ZK16-BL	588
ZK16-PE	588
ZK2.5	588
ZK2.5-3P	589
ZK2.5-3P-BK	589
ZK2.5-3P-BL	589
ZK2.5-3P-GN	589
ZK2.5-3P-OR	589
ZK2.5-3P-RD	589
ZK2.5-3P-WH	589
ZK2.5-3P-YL	589
ZK2.5-4P	589
ZK2.5-4P-BK	589
ZK2.5-4P-BL	589
ZK2.5-4P-GN	589
ZK2.5-4P-OR	589
ZK2.5-4P-RD	589
ZK2.5-4P-WH	589
ZK2.5-4P-YL	589
ZK2.5-BK	588
ZK2.5-BL	588
ZK2.5-D1	590
ZK2.5-D1-PE	590
ZK2.5-D2	590
ZK2.5-D2-BL	590
ZK2.5-D2-PE	590
ZK2.5-GN	588

Order code	Page
ZK2.5-OR	588
ZK2.5-PE	588
ZK2.5-PE-3P	589
ZK2.5-PE-4P	589
ZK2.5-RD	588
ZK2.5-S	590
ZK2.5-S-BL	590
ZK2.5-SF	591
ZK2.5-SF-R1	591
ZK2.5-SF-R3	591
ZK2.5-S-OR	590
ZK2.5-SP	590
ZK2.5-S-R1	591
ZK2.5-WH	588
ZK2.5-YL	588
ZK4	588
ZK4-3P	589
ZK4-3P-BL	589
ZK4-3P-OR	589
ZK4-4P	589
ZK4-4P-BL	589
ZK4-4P-OR	589
ZK4-BL	588
ZK4-OR	588
ZK4-PE	588
ZK4-PE-3P	589
ZK4-PE-4P	589
ZK6	588
ZK6-3P	589
ZK6-3P-BL	589
ZK6-3P-OR	589
ZK6-BL	588
ZK6-OR	588
ZK6-PE	588
ZK6-PE-3P	589
ZN1041	341
ZS/S 1.1	40
ZS10	592
ZS10-BK	592
ZS10-BL	592
ZS10-GN	592
ZS10-OR	592
ZS10-PE	592
ZS10-PE-R1	597
ZS10-R1	597
ZS10-RD	592
ZS10-S	595
ZS10-S-BL	595
ZS10-SF	597
ZS10-SF-R1	597
ZS10-SF-R3	597
ZS10-SP	596
ZS10-S-R2	596
ZS10-ST	597
ZS10-ST-1	597
ZS10-ST-T4	297
ZS10-ST-T4	597
ZS10-WH	592
ZS10-YL	592
ZS16	592
ZS16-BL	592
ZS16-OR	592
ZS16-PE	592
ZS25	592
ZS25-BL	592
ZS25-PE	592
ZS25-YL	592
ZS35	593
ZS35-BL	593
ZS35-OR	593
ZS35-PE	593
ZS4	592
ZS4-BK	592
ZS4-BL	592
ZS4-D1	594
ZS4-D2	594
ZS4-D2-BL	594
ZS4-D2-OR	594
ZS4-D2-S	594
ZS4-D2-SF1	594
ZS4-D2-SF1-R1	594
ZS4-D2-SF1-R3	594
ZS4-D2-S-T2	594
ZS4-GN	592
ZS4-OR	592
ZS4-PE	592
ZS4-PE-R2	597
ZS4-R2	597
ZS4-RD	592
ZS4-S	595
ZS4-S-BL	595
ZS4-SF	597
ZS4-SF1	596
ZS4-SF1-R1	596
ZS4-SF1-R2	596
ZS4-SF1-R3	596
ZS4-SF1-R4	596
ZS4-SF-R1	597
ZS4-SF-R2	597
ZS4-SF-R3	597
ZS4-SF-R4	597
ZS4-S-OR	595
ZS4-SP	596
ZS4-SP-R1	596
ZS4-SP-T2	596
ZS4-SP-T2-R1	596
ZS4-S-R1	595
ZS4-S-R1-BL	595
ZS4-S-R1-OR	595
ZS4-S-R2	596
ZS4-S-R3	596
ZS4-S-T2	595
ZS4-S-T2.3	595
ZS4-S-T2.3-R1	595
ZS4-S-T2-BL	595
ZS4-S-T2-OR	595
ZS4-S-T2-R1	595
ZS4-S-T2-R1-BL	595
ZS4-S-T2-R1-OR	595
ZS4-T3	595
ZS4-WH	592
ZS4-YL	592
ZS50	593
ZS50-BL	593
ZS50-PE	593
ZS50-YL	593
ZS6	592
ZS6-3S	593
ZS6-3S-BL	593
ZS6-3S-PE	593
ZS6-3S-YL	593
ZS6-4S	593
ZS6-4S-BL	593
ZS6-4S-PE	593
ZS6-4S-YL	593
ZS6-BK	592
ZS6-BL	592
ZS6-D1	594
ZS6-D1-PE	594
ZS6-D2	594
ZS6-D2-BL	594
ZS6-D2-OR	594
ZS6-D2-PE	594
ZS6-GN	592
ZS6-OR	592
ZS6-PE	592
ZS6-RD	592
ZS6-S	595
ZS6-S-4S-T2	595
ZS6-S-BL	595
ZS6-WH	592
ZS6-YL	592
ZS70	593
ZS70-BL	593
ZS70-PE	593
ZS70-YL	593
ZS95	593
ZS95-BL	593
ZS95-PE	593
ZS95-YL	593

For your notes

For your notes

For your notes

For your notes

For your notes

For your notes

For your notes

For your notes

For your notes

For your notes

For your notes

For your notes

For your notes

Contact us

ABB Australia Pty Limited
601 Blackburn Road
Notting Hill, Melbourne
VIC 3168

For enquiries
Phone: 1800 602 020
E-mail: abb.lvp.sales@au.abb.com

www.abbaustralia.com.au/lowvoltage

Note: We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilisation of its contents – in whole or in parts – is forbidden without prior written consent of ABB.

Copyright © 2016 ABB
All rights reserved

9AKK101103A4862

ABB New Zealand Limited
570 Mt Wellington Highway
Mt Wellington
Auckland 1062

For enquiries
Phone: 0800 464 222
E-mail: abb.lvp.sales@au.abb.com

www.abb.co.nz/lowvoltage

Power and productivity
for a better world™