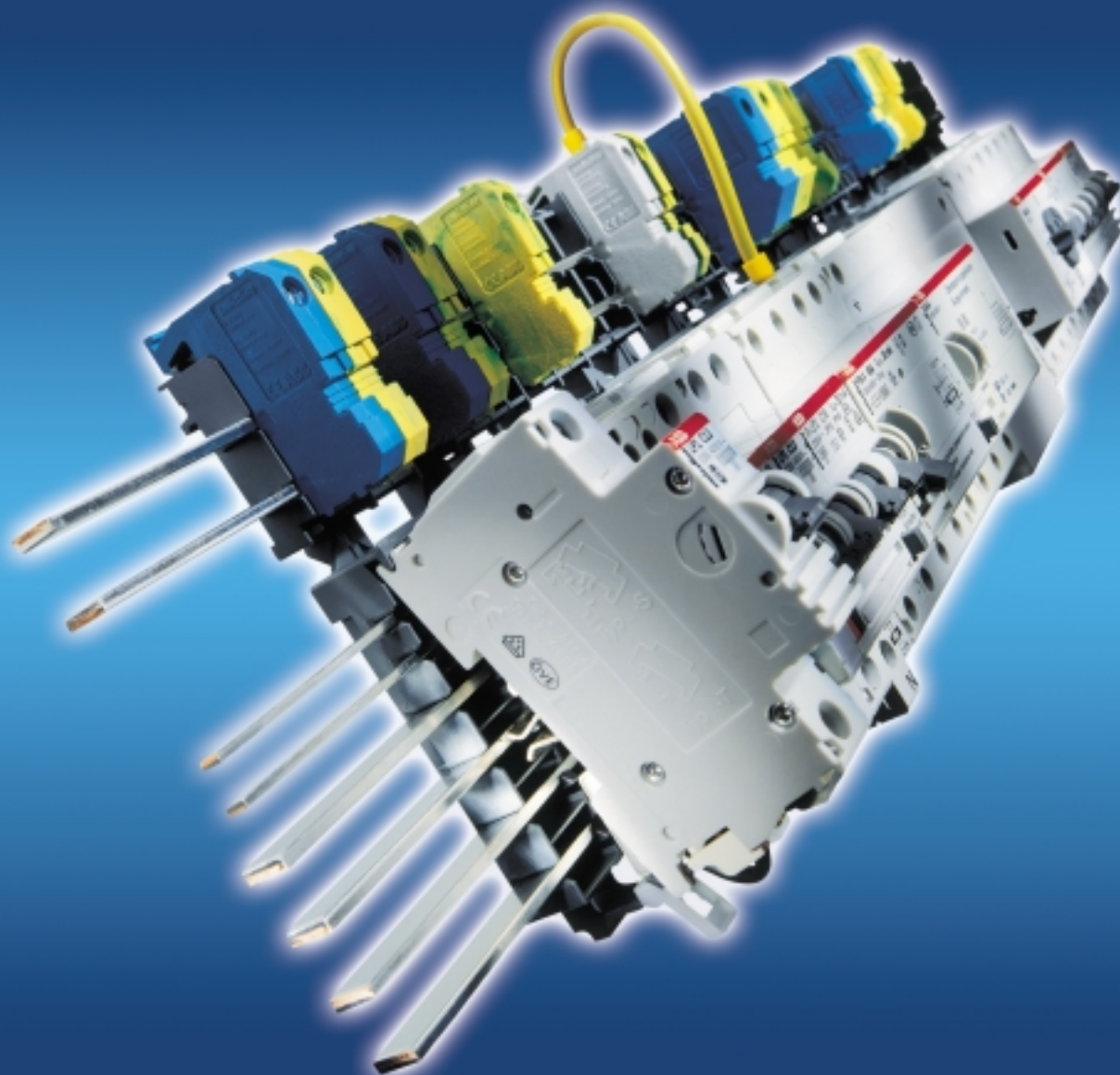
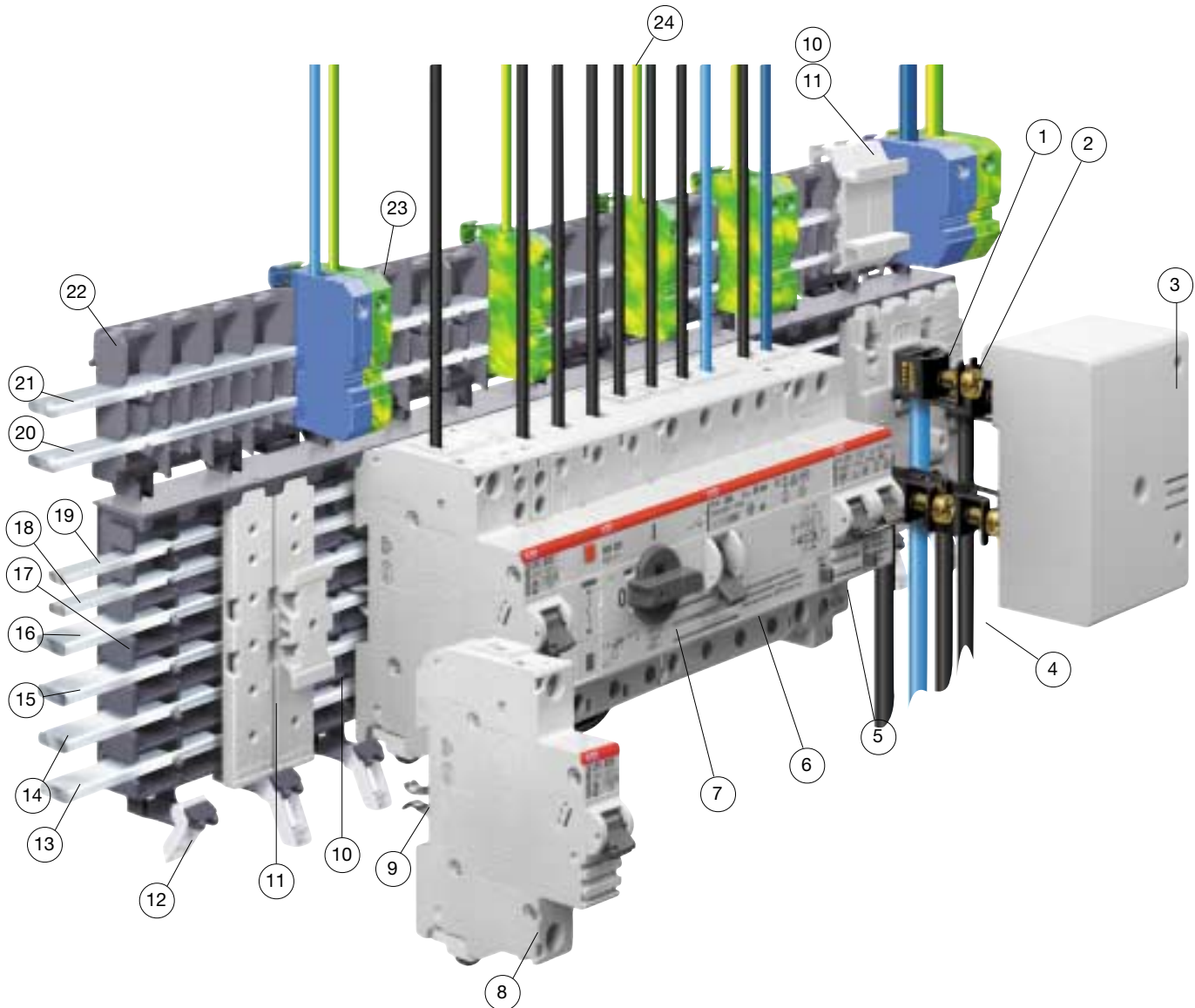




Miniature circuit-breakers	The family 2–3 - General, technical data 6–9 - Order data 10–19
Residual current operated circuit-breakers	- Residual current operated circuit-breaker FIP2/FI4 - General, technical data 20 - Order data 21 - Delayed residual current operated circuit-breaker and selective type FIKP2, FIK4 and FIS4 - General, technical data 22, 23 - Order data 23 - Residual current operated circuit-breaker with integral overcurrent protection FI-LP2 and delayed type FIK-LP2 - General, technical data 24, 25 - Order data 26 - Residual current monitor FISG - General, technical data 27 - Order data 27 - Residual current operated circuit-breakers for 16²/₃ Hz and 400 Hz - General, technical data 28 - Order data 29
Manual motor starters MS325	- General, technical data 30–32 - Order data 33
Surge arresters SA4 SC/SA4	- General, technical data 34, 35 - Order data 36
Disconnectors IS463	- General, technical data 37 - Order data 37
Auxiliary switches and signal contacts	- General, function 38 - Assembly directives 39 - Technical data 40 - Order data 41
Combi-modules	- General 42 - Order data 43
smisline accessories	- Sockets 44 - Accessories, socket 45, 46 - Starter pack 46 - Feeder element for external units 47, 48 - Incoming terminal block and component 49–51 - Accessories, additional socket 52, 53 - UL Recognizer 54 - Power supplies 55–56
	Dimensions 57–60

Products in this catalogue comply with the relevant standards as stated, and should always be installed in accordance with the requirements of relevant regulations, standards and legislation

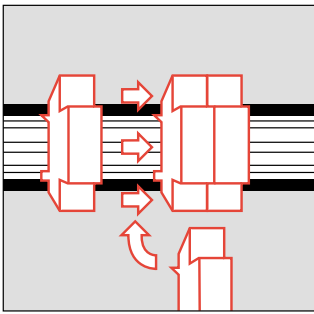
Overview



- | | |
|--|--------------------------|
| ① Incoming supply terminal | ⑬ Busbar L3 |
| ② Incoming terminal block | ⑭ Busbar L2 |
| ③ Cover | ⑮ Busbar L1 |
| ④ Supply cables | ⑯ Busbar N |
| ⑤ Residual current operated circuit-breaker with integral overcurrent protection | ⑰ Socket base |
| ⑥ Residual current operated circuit-breaker | ⑱ Auxiliary busbars LA |
| ⑦ Manual motor starter | ⑲ Auxiliary busbars LB |
| ⑧ Miniature circuit-breaker | ⑳ Busbar N, external |
| ⑨ Plug contacts | ㉑ Busbar PE, external |
| ⑩ Extension adaptor | ㉒ Additional socket base |
| ⑪ Busbar cover | ㉓ PE conductor terminal |
| ⑫ Latch | ㉔ Load conductor |

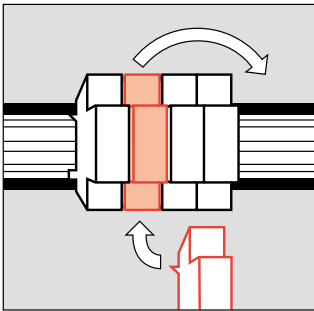
Advantages of a socket system

Arguments and advantages



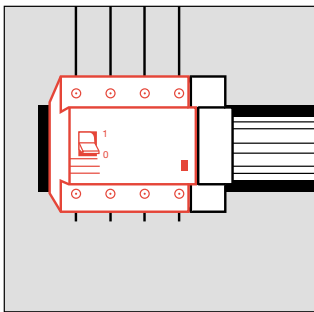
Z20152.eps

Free positioning of units.
Extremely simple re-positioning.



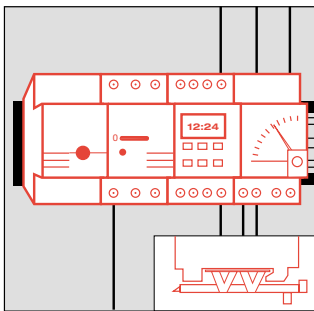
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Exchange of units within seconds.



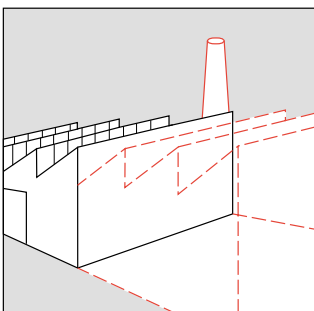
Z20153.eps

Direct power supply via units,
e.g. LS- or FI-circuit-breaker.



Z20155.eps

Straightforward combination with
other modular installation units.



Z20154.eps



40411

Time-saving

The consistent use of the smissline provides decisive advantages for planning engineers, switchgear designers and operators at all project stages:

- Considerably simplified planning
- Rapid construction and time-saving assembly by the innovative assembly.
- Simple and rapid installation of units with the required numbers of poles – also with auxiliary switches.
- Component replacement in seconds.
- Straightforward extension possibilities.

Cost-reducing

The socket system also enables significant savings to be achieved in labour costs:

- All units can be plugged-in quickly by hand.
- The KEMA tested plug-in technique automatically ensures safe and reliable connection to the busbar.
- This new technique enables assembly and wiring time to be reduced by up to 50%: no input wiring is necessary.
- The units can be transferred simply and easily to any desired position over the entire length of the busbar system. No special new connections are required.

Full flexibility right up to the last minute

With the socket system and free positioning possibility for the units, smissline offers everyone participating in a project a flexibility never before achieved. This includes:

- Long-term planning even without an exact knowledge of the final arrangement.
- Rapid, simple conversion of the installation, e.g. for last minute extensions or modified performance requirements.
- Straightforward re-assignment of loads.

Ample latitude for future requirements

With its unequalled versatility and forward-looking system technology, smissline complies with all future requirements. Subsequent modifications for use, additions to units or system extensions are therefore possible without difficulty.

- The new plug-in technology considerably simplifies the exchange of units, e.g. for different rating requirements.
- Both, the smissline system and the proven pro M system as well as other DIN rail components may be combined in the same switchboard cabinet.
- Even a subsequent complete change in application of an overall installation can be performed quickly and with surprisingly little work.

Tested and proven for worldwide application

smissline was developed by ABB Switzerland AG CMC Low Voltage Products and has been proven in numerous installations.

Power loss / internal resistance per pole

Miniature circuit-breaker Power loss / internal resistance per pole

Typ	LE B LP B		LE C LP C		LP D		LP G, K LPUC C		LPUC Z	
in A	R _i Ω	P _v W	R _i Ω	P _v W	R _i Ω	P _v W	R _i Ω	P _v W	R _i Ω	P _v W
0.5							6.34	1.59	10.45	2.61
1							1.55	1.55	3.5	3.50
1.6							0.695	1.78	1.15	2.94
2							0.46	1.84	0.98	3.92
3							0.165	1.49	0.495	4.46
4							0.12	1.92	0.149	2.38
6			0.055	2.00			0.052	1.87	0.097	3.49
8			0.038	2.43			0.038	2.43	0.054	3.46
10	0.013	1.30	0.013	1.30	0.013	1.30	0.0126	1.26	0.013	1.30
13	0.013	2.20	0.013	2.20	0.013	2.20	0.0101	1.71	0.013	2.20
16	0.007	1.79	0.007	1.79	0.007	1.79	0.0077	1.79	0.007	1.79
20	0.0063	2.52	0.0063	2.52	0.0063	2.52	0.0067	2.68	0.0063	2.52
25	0.005	3.13	0.005	3.13	0.005	3.13	0.0046	2.88	0.005	3.13
32	0.0036	3.69	0.0036	3.69	0.0036	3.69	0.0025	3.58	0.0036	3.69
40	0.0003	4.80	0.003	4.80	0.003	4.80	0.0028	4.48	0.003	4.80
50	0.0012	3.00	0.0012	3.00	0.0012	3.00	0.0012	3.00	0.0012	3.00
63	0.0009	3.57	0.0009	3.57	0.0009	3.57	0.0007	2.78	0.0009	3.57

4-pole residual current circuit-breaker

2-pole residual current circuit-breaker

Combined FI-LS switches

Typ in A	R _i Ω	P _v W	Typ in A	R _i Ω	P _v W	Typ in A	R _i Ω	P _v W
25	0.0002	5	FIP 16/10	0.0155	4	13/10	0.027	4.5
40	0.0024	6.5	FIP 25/30	0.0083	5.2	13/30	0.02	3.4
63	0.003	8.5	FIP 40/30	0.005	8	16/10	0.02	4.9
						16/30	0.013	3.2
						20/30	0.0137	5.5

Motor protection circuit-breaker MS 325

Typ		R _i Ω
0.1	–	0.16
0.16	–	0.25
0.25	–	0.4
0.4	–	0.63
0.63	–	1
1	–	1.6
1.6	–	2.5
2.5	–	4
4	–	6.3
6.3	–	9
9	–	12.5
12.5	–	16
16	–	20
20	–	25

Surge arrester SA4 / SA4 SC

Power consumption at rated voltage 1.2 W

Accessories

	Resistance per line terminal R _i Ω	Power loss per line terminal P _v W
Auxiliary switch and signal contact SDH, SDS, SBH, SBS	0.0065	0.24
Feeder block	0.00005	0.5
External terminal 100 A N	0.00005	0.5
External terminal 100 A PE	0.00004	0.4
External terminal 32 A N	0.00017	0.17
External terminal 32 A PE	0.00012	0.12

Miniature circuit-breaker MCB



40125

General

The smissline miniature circuit-breaker LP is an energy limiting circuit-breaker with a high performance, equally suitable for industrial or domestic applications.

In the event of a short-circuit it ensures excellent selectivity with upstream circuit-breakers, while the stresses imposed on the following switchgear is limited to a minimum.

The high short-circuit rating of 10 kA of the smissline miniature circuit-breakers makes them ideal for the use in fuseless distribution systems.

Major features

- High rated short-circuit capacity of 10 kA (LP)
- Energy-limiting (current limiting class 3)
- Snap-on neutral disconnect
- Snap-on auxiliary switch and signal contact
- Optimum ease of assembly and connection
- Line terminals protected against accidental contact
- Trip characteristic B, C, D, K, UCZ/UCC

Technical data

	Series: LP...	Series: LPUC...
Rated voltage U_n :	230/400 V~	–
Rated voltage U_n : (Connection diagram LPDC see page 9)	60 V~/1pole	125 V=1pole 250 V=2pole polarity-dependent
Rated current I_n :	6...63 A (C) 10...63 A (B, D) 0.5...63 A (K)	
Trip characteristic:	B, C, D, K, G	C Z (semiconductor protection)
Number of poles:	1...3	1+2
Rated frequency:	16 ² / ₃ ...60 Hz	–
Rated short-circuit capacity I_{cn} :	10 kA	6...50 kA
Energy limiting class:	3	–
Conductor cross-section C_u :	stranded/flexible	stranded/flexible
– stranded/flexible, top terminal	25/16 mm ²	25/16 mm ²
– stranded/flexible, bottom terminal	16/10 mm ²	16/10 mm ²
Degree of protection:	IP20	IP20
Endurance:		
– mechanical	20,000	20,000
– electrical	4,000	4,000
Climatic resistance:	DIN 50016	DIN 50016
Position of use:	any	any
Ambient temperature:	–25 °C...+55 °C	–25 °C...+55 °C
Resistance to vibrations:	5 g 5...150...5 Hz	5 g 5...150...5 Hz
Standards:	BSEN 60898	–
Approvals:	SEV, VDE, ÖVE	–
Weight per pole:	120 g	150 g
Plastic components:	Free of halogens and cadmium	Free of halogens and cadmium

Miniature circuit-breaker

Back-up protection

Back-up protection

- a) If the short-circuit current at the place of installation of a miniature circuit-breaker is not higher than the specified rated breaking capacity of the MCB, no back-up fuse link is necessary. If a back-up fuse is connected for installation reasons, its rated current may be selected as high as required.
- b) If the short-circuit current at the place of installation of the miniature circuit-breaker is higher than its breaking capacity, the rated currents of the back-up fuse link must not exceed the values in the following table.

Maximum fuse ratings for back-up protection

Characteristic	B, C, D						K, G					
Rated current of miniature circuit-breaker	6 A	8 A	10 A 13 A	16... 40 A	50... 63 A	0.5... 2 A	3 A	4 A	6 A	8... 13 A	16... 40 A	50... 63 A
Rated breaking capacity LP	10 kA	10 kA	10 kA	10 kA	10 kA	50 kA	10 kA	10 kA	10 kA	10kA	10kA	10kA
Max. rated current of back-up fuse link gG (A)	40	63	100	125	160	any	50	63	80	100	125	160

Back-up protection with ABB SACE Tmax

Downstr.	Version	In [A]	Upstr.	T1	T1	T1	T2	T3	T2	T3	T2	T2
			Ics [kA]	16	B 25	C 25	N 36	N 36	S 50	S 50	H 70	L 85
LP	B, C, D	6..10 13..63	10	13	20	20	31	31 20	44	35 20	60 50	78 50

Using the back-up table

These tables provide the value (in kA) for which back-up protection is ensured between a given combination of circuit-breakers. The tables cover possible combinations between ABB SACE moulded-case circuit-breakers in Tmax ranges and between the above mentioned circuit-breakers and the ABB range of miniature circuit-breakers. The values given in the table refer to a rated voltage V_n of 415 V AC for combinations between moulded-case circuit-breakers and to a rated voltage V_n of 400 V AC for combinations between moulded-case and miniature circuit-breakers.

Release with different characteristics

Trip characteristic and rated current		Thermal release		Release time	Electromagnetic release		Release time
		Test current: small I_1	Test current: large I_2		Test current: hold Impact current from	Test current: switch Impact current by	
B	6 to 63 A	$1,13 \cdot I_n$	$1,45 \cdot I_n$	> 1 h < 1 h	$3 \cdot I_n$	$5 \cdot I_n$	> 0,1 s < 0,1 s
C	8 to 63 A	$1,13 \cdot I_n$	$1,45 \cdot I_n$	> 1 h < 1 h	$5 \cdot I_n$	$10 \cdot I_n$	> 0,1 s < 0,1 s
D	10 to 63 A	$1,13 \cdot I_n$	$1,4 \cdot I_n$	> 1 h < 1 h	$10 \cdot I_n$	$20 \cdot I_n$	> 0,1 s < 0,1 s
K	0,5 to 63 A	$1,05 \cdot I_n$	$1,2 \cdot I_n$ $1,5 \cdot I_n$ $6,0 \cdot I_n$	> 2 h < 2 h < 2 min. > 2 s (T1)	$8 \cdot I_n$ up to 32A $10 \cdot I_n$ up to 40A	$12 \cdot I_n$ up to 32A $14 \cdot I_n$ up to 40A	> 0,2 s < 0,2 s
Z	0,5 to 63 A	$1,05 \cdot I_n$	$1,2 \cdot I_n$ $1,5 \cdot I_n$ $6,0 \cdot I_n$	> 2 h < 2 h < 2 min. > 2 s (T1)	$2 \cdot I_n$	$3 \cdot I_n$	> 0,2 s < 0,2 s

Miniature circuit-breaker

Trip characteristic

Characteristic

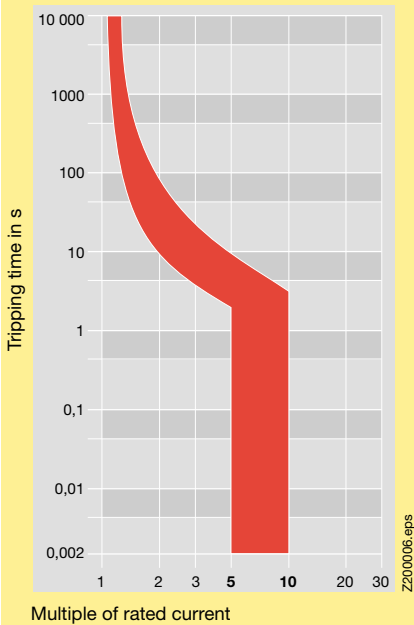
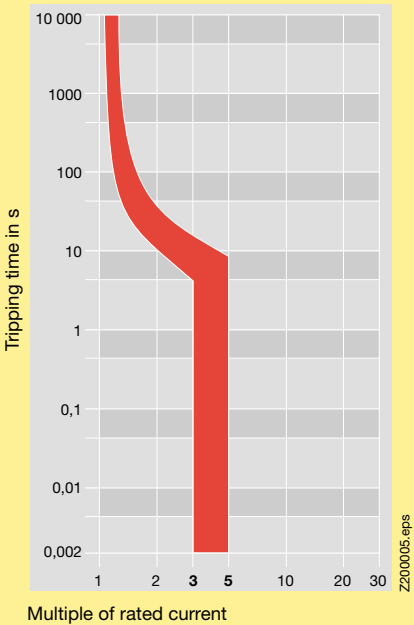
B

Miniature circuit-breaker for circuits supplying loads generating no or only minor inrush currents (boilers, electric heaters, cookers).

C

The «Standard» miniature circuit-breaker for circuits supplying loads producing inrush currents particular to inductive loads (TV sets, fluorescent and discharge lamps) and for socket outlets.

Trip diagram



Trip characteristic

B

C

Thermal release

1.13...1.45xI_n

1.13...1.45xI_n

Electromagnetic release

3...5xI_n

5...10xI_n

Reference temperature

30 °C

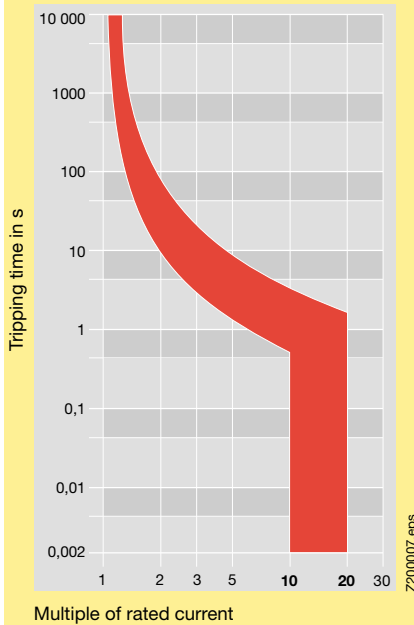
30 °C

Miniature circuit-breaker

Trip characteristic

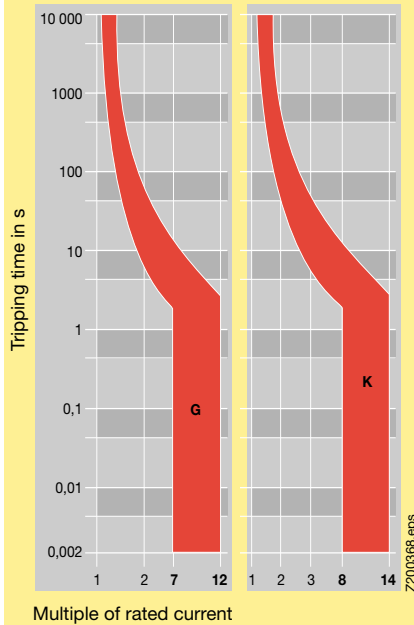
D

Miniature circuit-breaker for circuits supplying loads producing very high inrush currents (transformers, capacitor banks). Main circuit-breaker for the protection of circuit-breakers connected downstream.



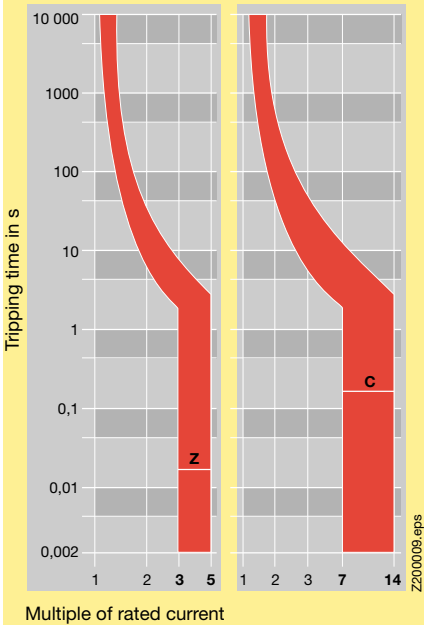
G, K

Circuit-breaker for equipment: The characteristics of these types enable the close protection requirements for equipment to be met.



UC

Circuit breaker for equipment supplied with either direct or alternating current.



D

1.13...1.45xI_n

10...20xI_n

30 °C

G

1.05...1.35xI_n

7...12xI_n

20 °C

K

1.05...1.2xI_n

8...14xI_n

40 °C

Z

1.05...1.35xI_n

3...5xI_nDC
2...3xI_nAC

UC

C

1.13...1.45xI_n

7...14xI_nDC
5...10xI_nAC

30 °C

Miniature circuit-breaker

Selectivity

Discrimination

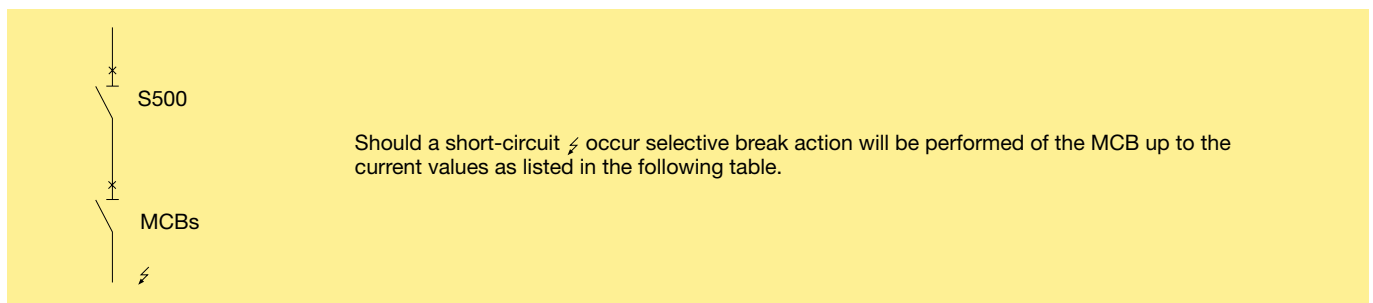
Short circuit discrimination is provided by the smissline miniature circuit-breaker up to limits given in the following table. The values refer to the **mean trip characteristic** of the back-up fuse link.

Limits of discrimination

Rated current of miniature circuit-breaker Trip characteristic	B, C, D, K, G	6 A	8 A	10/13 A	16 A	20 A	25 A	32 A	40 A	50 A	63 A
Back-up fuse link gG (VDE 0636)	20 A	600 A	560 A	520 A	–	–	–	–	–	–	–
	25 A	850 A	800 A	750 A	720 A	–	–	–	–	–	–
	40 A	1200 A	1100 A	960 A	900 A	900 A	–	–	–	–	–
	50 A	1600 A	1400 A	1200 A	1100 A	1100 A	1000 A	1000 A	–	–	–
	63 A	2400 A	2200 A	1700 A	1600 A	1500 A	1400 A	1400 A	–	–	–
	80 A	8000 A	6000 A	2500 A	2300 A	2100 A	2000 A	2000 A	1700 A	1600 A	1500 A
	100 A	10000 A	10000 A	3200 A	3000 A	2800 A	2600 A	2600 A	2300 A	2200 A	2000 A
	125 A	¹⁾	¹⁾	¹⁾	9000 A	8000 A	7000 A	6000 A	5000 A	5000 A	4000 A
	160 A	¹⁾	¹⁾	¹⁾	¹⁾	¹⁾	¹⁾	¹⁾	¹⁾	8400 A	8000 A

¹⁾ not permissible if the short-circuit current produced is higher than the rated breaking capacity.

S500 circuit-breaker upstream Circuit-breakers (MCBs) downstream



Upstream		S500-C, D					
Rated current (A)		C40	D40	C50	D50	C63	D63
Downstream	Rated current (A)	Max. short-circuit current (A)					
B6 / C6	6	600	1200	800	1400	950	1800
B10 / C10	10	550	1100	700	1300	850	1700
B13 / C13	13	550	1100	700	1300	850	1700
B16 / C16	16	550	1100	700	1300	850	1700
B20 / C20	20	500	1000	600	1200	800	1550
B25 / C25	25	450	900	550	1100	750	1400
B32 / C32	32	–	900	550	1100	700	1400
B40 / C40	40	–	–	–	–	700	1400
B50 / C50	50	–	–	–	–	700	1400

On request

S500 Selectivity & Back-up protection, No. 10109/A

Miniature circuit-breaker

Series LP...B

Order data

Circuit protection

Characteristic **B**

I _{cn} kA	Rated current	Order data	Module	Packaging unit
6	6 A	LP1B6-S	1	10
10	10 A	LP1B10-S	1	10
10	13 A	LP1B13-S	1	10
10	16 A	LP1B16-S	1	10
10	20 A	LP1B20-S	1	10
10	25 A	LP1B25-S	1	10
10	32 A	LP1B32-S	1	10
10	40 A	LP1B40-S	1	10
10	50 A	LP1B50-S	1	10
10	63 A	LP1B63-S	1	10
6	6 A	LP2B6-S	2	5
10	10 A	LP2B10-S	2	5
10	13 A	LP2B13-S	2	5
10	16 A	LP2B16-S	2	5
10	20 A	LP2B20-S	2	5
10	25 A	LP2B25-S	2	5
10	32 A	LP2B32-S	2	5
10	40 A	LP2B40-S	2	5
10	50 A	LP2B50-S	2	5
10	63 A	LP2B63-S	2	5
6	6 A	LP3B6-S	3	3
10	10 A	LP3B10-S	3	3
10	13 A	LP3B13-S	3	3
10	16 A	LP3B16-S	3	3
10	20 A	LP3B20-S	3	3
10	25 A	LP3B25-S	3	3
10	32 A	LP3B32-S	3	3
10	40 A	LP3B40-S	3	3
10	50 A	LP3B50-S	3	3
10	63 A	LP3B63-S	3	3

Neutral disconnect
snaps onto the right side of the breaker

63 A	LPN63-S	1	5
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Detachable neutral conductor terminals
for additional socket
Order data see page 52

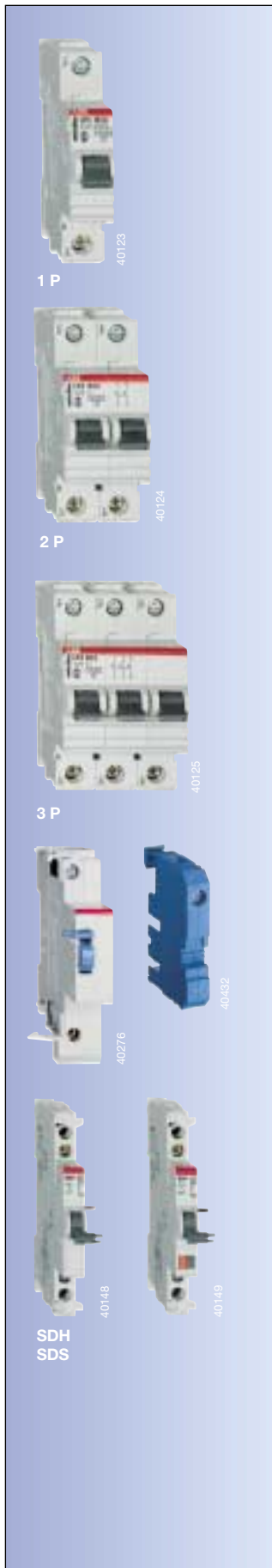
Auxiliary switch and signal contacts

SDH and SDS

Order data see page 41

Accessories

Order data from page 42



Miniature circuit-breaker

Series LP...C

Order data

Circuit protection

Characteristic **C**

I _{cn} kA	Rated current	Order data	Module	Packaging unit
10	6 A	LP1C6-S	1	10
10	8 A	LP1C8-S	1	10
10	10 A	LP1C10-S	1	10
10	13 A	LP1C13-S	1	10
10	16 A	LP1C16-S	1	10
10	20 A	LP1C20-S	1	10
10	25 A	LP1C25-S	1	10
10	32 A	LP1C32-S	1	10
10	40 A	LP1C40-S	1	10
10	50 A	LP1C50-S	1	10
10	63 A	LP1C63-S	1	10
10	6 A	LP2C6-S	2	5
10	8 A	LP2C8-S	2	5
10	10 A	LP2C10-S	2	5
10	13 A	LP2C13-S	2	5
10	16 A	LP2C16-S	2	5
10	20 A	LP2C20-S	2	5
10	25 A	LP2C25-S	2	5
10	32 A	LP2C32-S	2	5
10	40 A	LP2C40-S	2	5
10	50 A	LP2C50-S	2	5
10	63 A	LP2C63-S	2	5
10	6 A	LP3C6-S	3	3
10	8 A	LP3C8-S	3	3
10	10 A	LP3C10-S	3	3
10	13 A	LP3C13-S	3	3
10	16 A	LP3C16-S	3	3
10	20 A	LP3C20-S	3	3
10	25 A	LP3C25-S	3	3
10	32 A	LP3C32-S	3	3
10	40 A	LP3C40-S	3	3
10	50 A	LP3C50-S	3	3
10	63 A	LP3C63-S	3	3

Neutral disconnect
snaps onto the right side of the breaker

63 A	LPN63-S	1	5
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Detachable neutral terminals
for additional socket
Order data see page 52

Auxiliary switch and signal contacts
SDH and SDS
Order data see page 41

Accessories
Order data from page 42



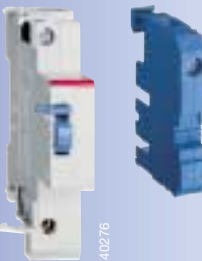
1 P



2 P



3 P



SDH
SDS

Miniature circuit-breaker

Series LP...D

Order data

Circuit protection

Characteristic **D**

I_{cn} kA	Rated current	Order data	Module	Packaging unit
10	10 A	LP1D10-S	1	10
10	13 A	LP1D13-S	1	10
10	16 A	LP1D16-S	1	10
10	20 A	LP1D20-S	1	10
10	25 A	LP1D25-S	1	10
10	32 A	LP1D32-S	1	10
10	40 A	LP1D40-S	1	10
10	50 A	LP1D50-S	1	10
10	63 A	LP1D63-S	1	10
10	10 A	LP2D10-S	2	5
10	13 A	LP2D13-S	2	5
10	16 A	LP2D16-S	2	5
10	20 A	LP2D20-S	2	5
10	25 A	LP2D25-S	2	5
10	32 A	LP2D32-S	2	5
10	40 A	LP2D40-S	2	5
10	50 A	LP2D50-S	2	5
10	63 A	LP2D63-S	2	5
10	10 A	LP3D10-S	3	3
10	13 A	LP3D13-S	3	3
10	16 A	LP3D16-S	3	3
10	20 A	LP3D20-S	3	3
10	25 A	LP3D25-S	3	3
10	32 A	LP3D32-S	3	3
10	40 A	LP3D40-S	3	3
10	50 A	LP3D50-S	3	3
10	63 A	LP3D63-S	3	3

Neutral disconnect

snaps onto the right side of the breaker

63 A	LPN63-S	1	5
------	---------	---	---

Detachable neutral terminals

for additional socket

Order data see page 52

Auxiliary switch and signal contacts

SDH and SDS

Order data see page 41

Accessories

Order data from page 42



1 P

40131



2 P

40132



3 P

40133



40276



40132



SDH
SDS

40146



40149

Miniature circuit-breaker Series LP...G

Order data

Equipment/circuit protection

Characteristic **G**

I _{en} kA	Rated current	Order data	Module	Packaging unit
50	0.5 A	LP1G0.5-S	1	10
50	1 A	LP1G1-S	1	10
50	1.6 A	LP1G1.6-S	1	10
50	2 A	LP1G2-S	1	10
10	3 A	LP1G3-S	1	10
10	4 A	LP1G4-S	1	10
10	6 A	LP1G6-S	1	10
10	8 A	LP1G8-S	1	10
10	10 A	LP1G10-S	1	10
10	13 A	LP1G13-S	1	10
10	16 A	LP1G16-S	1	10
10	20 A	LP1G20-S	1	10
10	25 A	LP1G25-S	1	10
10	32 A	LP1G32-S	1	10
10	40 A	LP1G40-S	1	10
10	50 A	LP1G50-S	1	10
10	63 A	LP1G63-S	1	10
50	0.5 A	LP2G0.5-S	2	5
50	1 A	LP2G1-S	2	5
50	1.6 A	LP2G1.6-S	2	5
50	2 A	LP2G2-S	2	5
10	3 A	LP2G3-S	2	5
10	4 A	LP2G4-S	2	5
10	6 A	LP2G6-S	2	5
10	8 A	LP2G8-S	2	5
10	10 A	LP2G10-S	2	5
10	13 A	LP2G13-S	2	5
10	16 A	LP2G16-S	2	5
10	20 A	LP2G20-S	2	5
10	25 A	LP2G25-S	2	5
10	32 A	LP2G32-S	2	5
10	40 A	LP2G40-S	2	5
10	50 A	LP2G50-S	2	5
10	63 A	LP2G63-S	2	5
50	0.5 A	LP3G0.5-S	3	3
50	1 A	LP3G1-S	3	3
50	1.6 A	LP3G1.6-S	3	3
50	2 A	LP3G2-S	3	3
10	3 A	LP3G3-S	3	3
10	4 A	LP3G4-S	3	3
10	6 A	LP3G6-S	3	3
10	8 A	LP3G8-S	3	3
10	10 A	LP3G10-S	3	3
10	13 A	LP3G13-S	3	3
10	16 A	LP3G16-S	3	3
10	20 A	LP3G20-S	3	3
10	25 A	LP3G25-S	3	3
10	32 A	LP3G32-S	3	3
10	40 A	LP3G40-S	3	3
10	50 A	LP3G50-S	3	3
10	63 A	LP3G63-S	3	3

Auxiliary switch and signal contacts

SDH and SDS

Order data see page 41



1 P

40135



2 P

40136



3 P

40137



SDH
SDS

40148



40149

Miniature circuit-breaker Series LP...K

Order data

Equipment/circuit protection

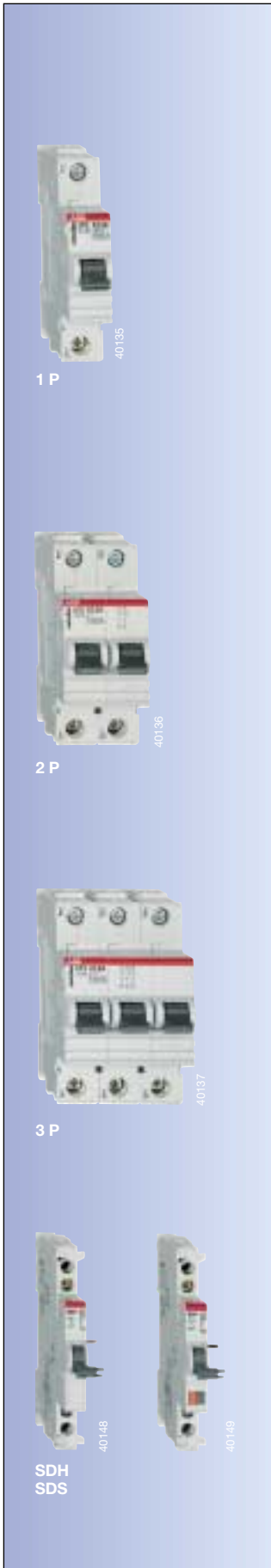
Characteristic **K**

I_{cn} kA	Rated current	Order data	Module	Packaging unit
50	0.5 A	LP1K0.5-S	1	10
50	1 A	LP1K1-S	1	10
50	1.6 A	LP1K1.6-S	1	10
50	2 A	LP1K2-S	1	10
10	3 A	LP1K3-S	1	10
10	4 A	LP1K4-S	1	10
10	6 A	LP1K6-S	1	10
10	8 A	LP1K8-S	1	10
10	10 A	LP1K10-S	1	10
10	13 A	LP1K13-S	1	10
10	16 A	LP1K16-S	1	10
10	20 A	LP1K20-S	1	10
10	25 A	LP1K25-S	1	10
10	32 A	LP1K32-S	1	10
10	40 A	LP1K40-S	1	10
10	50 A	LP1K50-S	1	10
10	63 A	LP1K63-S	1	10
50	0.5 A	LP2K0.5-S	2	5
50	1 A	LP2K1-S	2	5
50	1.6 A	LP2K1.6-S	2	5
50	2 A	LP2K2-S	2	5
10	3 A	LP2K3-S	2	5
10	4 A	LP2K4-S	2	5
10	6 A	LP2K6-S	2	5
10	8 A	LP2K8-S	2	5
10	10 A	LP2K10-S	2	5
10	13 A	LP2K13-S	2	5
10	16 A	LP2K16-S	2	5
10	20 A	LP2K20-S	2	5
10	25 A	LP2K25-S	2	5
10	32 A	LP2K32-S	2	5
10	40 A	LP2K40-S	2	5
10	50 A	LP2K50-S	2	5
10	63 A	LP2K63-S	2	5
50	0.5 A	LP3K0.5-S	3	3
50	1 A	LP3K1-S	3	3
50	1.6 A	LP3K1.6-S	3	3
50	2 A	LP3K2-S	3	3
10	3 A	LP3K3-S	3	3
10	4 A	LP3K4-S	3	3
10	6 A	LP3K6-S	3	3
10	8 A	LP3K8-S	3	3
10	10 A	LP3K10-S	3	3
10	13 A	LP3K13-S	3	3
10	16 A	LP3K16-S	3	3
10	20 A	LP3K20-S	3	3
10	25 A	LP3K25-S	3	3
10	32 A	LP3K32-S	3	3
10	40 A	LP3K40-S	3	3
10	50 A	LP3K50-S	3	3
10	63 A	LP3K63-S	3	3

Auxiliary switch and signal contacts

SDH and SDS

Order data see page 41



Miniature circuit-breaker

Series LPUC direct current application



1 P 125 V=



2 P 250 V=



SDH
SDS

Order data

Equipment/circuit protection

Characteristic **Z**

I _{cn} kA	Rated current	Order data	Module	Packaging unit
50	0.5 A	LPUC1Z0.5-S	1	10
50	1 A	LPUC1Z1-S	1	10
50	1.6 A	LPUC1Z1.6-S	1	10
50	2 A	LPUC1Z2-S	1	10
6	3 A	LPUC1Z3-S	1	10
6	4 A	LPUC1Z4-S	1	10
6	6 A	LPUC1Z6-S	1	10
6	8 A	LPUC1Z8-S	1	10
6	10 A	LPUC1Z10-S	1	10
6	13 A	LPUC1Z13-S	1	10
6	16 A	LPUC1Z16-S	1	10
6	20 A	LPUC1Z20-S	1	10
6	25 A	LPUC1Z25-S	1	10
6	32 A	LPUC1Z32-S	1	10
6	40 A	LPUC1Z40-S	1	10
6	50 A	LPUC1Z50-S	1	10
6	63 A	LPUC1Z63-S	1	10
50	0.5 A	LPUC2Z0.5-S	2	5
50	1 A	LPUC2Z1-S	2	5
50	1.6 A	LPUC2Z1.6-S	2	5
50	2 A	LPUC2Z2-S	2	5
6	3 A	LPUC2Z3-S	2	5
6	4 A	LPUC2Z4-S	2	5
6	6 A	LPUC2Z6-S	2	5
6	8 A	LPUC2Z8-S	2	5
6	10 A	LPUC2Z10-S	2	5
6	13 A	LPUC2Z13-S	2	5
6	16 A	LPUC2Z16-S	2	5
6	20 A	LPUC2Z20-S	2	5
6	25 A	LPUC2Z25-S	2	5
6	32 A	LPUC2Z32-S	2	5
6	40 A	LPUC2Z40-S	2	5
6	50 A	LPUC2Z50-S	2	5
6	63 A	LPUC2Z63-S	2	5

Auxiliary switch and signal contacts

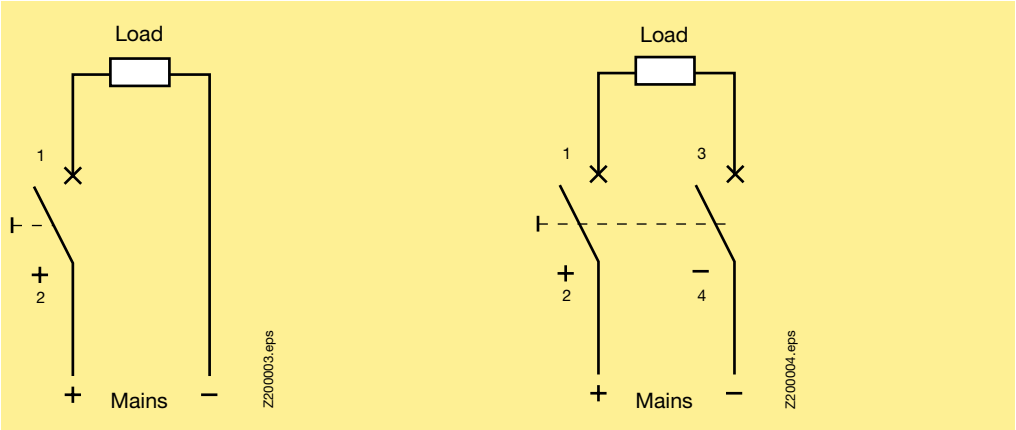
SDH and SDS

Order data see page 41

Accessories

Order data from page 42

Connection diagram single-pole (max. 125 V=) LPUC1 Connection diagram double-pole (max. 250 V=) LPUC2



Miniature circuit-breaker

Series LPUC direct current application

Order data

Circuit protection

Characteristic **C**

I_{cn} kA	Rated current	Order data	Module	Packaging unit
50	0.5 A	LPUC1C0.5-S	1	10
50	1 A	LPUC1C1-S	1	10
50	1.6 A	LPUC1C1.6-S	1	10
50	2 A	LPUC1C2-S	1	10
6	3 A	LPUC1C3-S	1	10
6	4 A	LPUC1C4-S	1	10
6	6 A	LPUC1C6-S	1	10
6	8 A	LPUC1C8-S	1	10
6	10 A	LPUC1C10-S	1	10
6	13 A	LPUC1C13-S	1	10
6	16 A	LPUC1C16-S	1	10
6	20 A	LPUC1C20-S	1	10
6	25 A	LPUC1C25-S	1	10
6	32 A	LPUC1C32-S	1	10
6	40 A	LPUC1C40-S	1	10
6	50 A	LPUC1C50-S	1	10
6	63 A	LPUC1C63-S	1	10
50	0.5 A	LPUC2C0.5-S	2	5
50	1 A	LPUC2C1-S	2	5
50	1.6 A	LPUC2C1.6-S	2	5
50	2 A	LPUC2C2-S	2	5
6	3 A	LPUC2C3-S	2	5
6	4 A	LPUC2C4-S	2	5
6	6 A	LPUC2C6-S	2	5
6	8 A	LPUC2C8-S	2	5
6	10 A	LPUC2C10-S	2	5
6	13 A	LPUC2C13-S	2	5
6	16 A	LPUC2C16-S	2	5
6	20 A	LPUC2C20-S	2	5
6	25 A	LPUC2C25-S	2	5
6	32 A	LPUC2C32-S	2	5
6	40 A	LPUC2C40-S	2	5
6	50 A	LPUC2C50-S	2	5
6	63 A	LPUC2C63-S	2	5

Auxiliary switch and signal contacts

SDH and SDS

Order data see page 41

Accessories

Order data from page 42



40141

1 P 125 V=



40142

2 P 250 V=



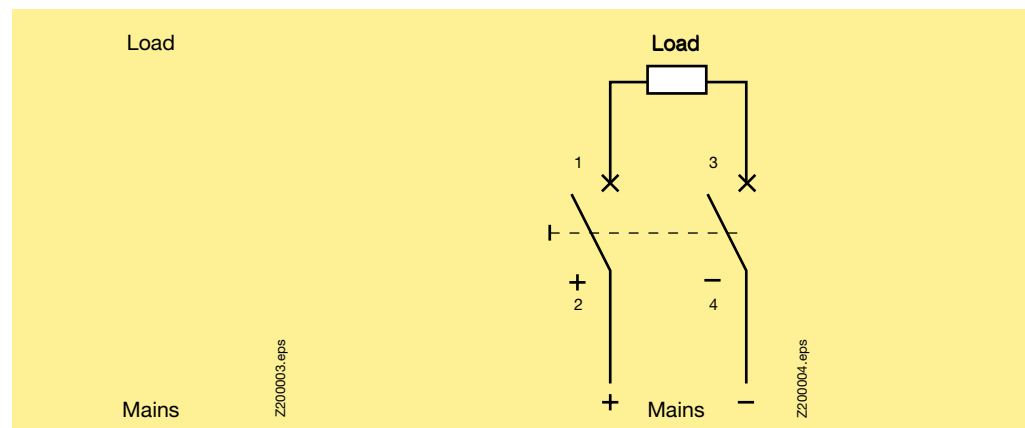
40148

SDH
SDS



40149

Connection diagram single-pole (max. 125 V=) LPUC1 Connection diagram double-pole (max. 250 V=) LPUC2



Miniature circuit-breaker with switched neutral Series LP...NAB, NAC

Order data

Circuit protection

Characteristic **B**

I_{cn} kA	Rated current	Order data	Module	Packaging unit
10	10 A	LP1NAB10-S	2	5
10	13 A	LP1NAB13-S	2	5
10	16 A	LP1NAB16-S	2	5
10	20 A	LP1NAB20-S	2	5
10	25 A	LP1NAB25-S	2	5
10	32 A	LP1NAB32-S	2	5
10	40 A	LP1NAB40-S	2	5
10	50 A	LP1NAB50-S	2	5
10	63 A	LP1NAB63-S	2	5
10	10 A	LP3NAB10-S	4	2
10	13 A	LP3NAB13-S	4	2
10	16 A	LP3NAB16-S	4	2
10	20 A	LP3NAB20-S	4	2
10	25 A	LP3NAB25-S	4	2
10	32 A	LP3NAB32-S	4	2
10	40 A	LP3NAB40-S	4	2
10	50 A	LP3NAB50-S	4	2
10	63 A	LP3NAB63-S	4	2

Characteristic **C**

10	6 A	LP1NAC6-S	2	5
10	8 A	LP1NAC8-S	2	5
10	10 A	LP1NAC10-S	2	5
10	13 A	LP1NAC13-S	2	5
10	16 A	LP1NAC16-S	2	5
10	20 A	LP1NAC20-S	2	5
10	25 A	LP1NAC25-S	2	5
10	32 A	LP1NAC32-S	2	5
10	40 A	LP1NAC40-S	2	5
10	50 A	LP1NAC50-S	2	5
10	63 A	LP1NAC63-S	2	5
10	6 A	LP3NAC6-S	4	2
10	8 A	LP3NAC8-S	4	2
10	10 A	LP3NAC10-S	4	2
10	13 A	LP3NAC13-S	4	2
10	16 A	LP3NAC16-S	4	2
10	20 A	LP3NAC20-S	4	2
10	25 A	LP3NAC25-S	4	2
10	32 A	LP3NAC32-S	4	2
10	40 A	LP3NAC40-S	4	2
10	50 A	LP3NAC50-S	4	2
10	63 A	LP3NAC63-S	4	2

Auxiliary switch and signal contacts

SDH and SDS

Order data see page 41

Accessories

Order data from page 42



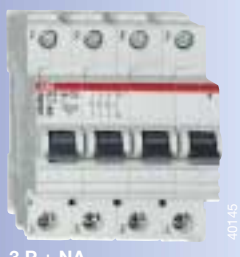
1 P + NA



3 P + NA



1 P + NA



3 P + NA



SDH
SDS



40149

Miniature circuit-breaker with switched neutral Series LP...NAD / LP...NAK

Order data

Circuit protection

Characteristic **D**

I_{cn} kA	Rated current	Order data	Module	Packaging unit
10	10 A	LP1NAD10-S	2	5
10	13 A	LP1NAD13-S	2	5
10	16 A	LP1NAD16-S	2	5
10	20 A	LP1NAD20-S	2	5
10	25 A	LP1NAD25-S	2	5
10	32 A	LP1NAD32-S	2	5
10	40 A	LP1NAD40-S	2	5
10	50 A	LP1NAD50-S	2	5
10	63 A	LP1NAD63-S	2	5

10	10 A	LP3NAD10-S	4	2
10	13 A	LP3NAD13-S	4	2
10	16 A	LP3NAD16-S	4	2
10	20 A	LP3NAD20-S	4	2
10	25 A	LP3NAD25-S	4	2
10	32 A	LP3NAD32-S	4	2
10	40 A	LP3NAD40-S	4	2
10	50 A	LP3NAD50-S	4	2
10	63 A	LP3NAD63-S	4	2

Characteristic **K**

I_{cn} kAA	Rated current	Order data	Module	Packaging unit
50	0.5 A	LP1NAK0.5-S	2	5
50	1 A	LP1NAK1-S	2	5
50	1.6 A	LP1NAK1.6-S	2	5
50	2 A	LP1NAK2-S	2	5
10	3 A	LP1NAK3-S	2	5
10	4 A	LP1NAK4-S	2	5
10	6 A	LP1NAK6-S	2	5
10	8 A	LP1NAK8-S	2	5
10	10 A	LP1NAK10-S	2	5
10	13 A	LP1NAK13-S	2	5
10	16 A	LP1NAK16-S	2	5
10	20 A	LP1NAK20-S	2	5
10	25 A	LP1NAK25-S	2	5
10	32 A	LP1NAK32-S	2	5
10	40 A	LP1NAK40-S	2	5
10	50 A	LP1NAK50-S	2	5
10	63 A	LP1NAK63-S	2	5

50	0.5 A	LP3NAK0.5-S	4	2
50	1 A	LP3NAK1-S	4	2
50	1.6 A	LP3NAK1.6-S	4	2
50	2 A	LP3NAK2-S	4	2
10	3 A	LP3NAK3-S	4	2
10	4 A	LP3NAK4-S	4	2
10	6 A	LP3NAK6-S	4	2
10	8 A	LP3NAK8-S	4	2
10	10 A	LP3NAK10-S	4	2
10	13 A	LP3NAK13-S	4	2
10	16 A	LP3NAK16-S	4	2
10	20 A	LP3NAK20-S	4	2
10	25 A	LP3NAK25-S	4	2
10	32 A	LP3NAK32-S	4	2
10	40 A	LP3NAK40-S	4	2
10	50 A	LP3NAK50-S	4	2
10	63 A	LP3NAK63-S	4	2

Auxiliary switch and signal contacts

SDH and SDS

Order data see page 41

Accessories

Order data from page 42



1 P + NA



3 P + NA



1 P + NA



3 P + NA



SDH
SDS

Miniature circuit-breaker with full protect neutral Series LP...NPC / LP...NPK



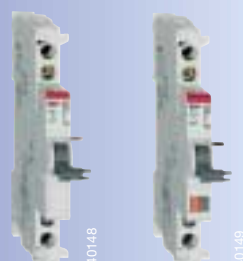
1 P + NA protect



2 P + NA protect



3 P + NA protect



SDH
SDS

Order data

Circuit protection

Characteristic **C**

I _{cn} kA	Rated current	Order data	Module	Packaging unit
10	10 A	LP1NPC10-S	2	10
10	13 A	LP1NPC13-S	2	10
10	16 A	LP1NPC16-S	2	10
10	20 A	LP1NPC20-S	2	10
10	25 A	LP1NPC25-S	2	10
10	32 A	LP1NPC32-S	2	10
10	40 A	LP1NPC40-S	2	10
10	50 A	LP1NPC50-S	2	10
10	63 A	LP1NPC63-S	2	10

10	10 A	LP2NPC10-S	3	5
10	13 A	LP2NPC13-S	3	5
10	16 A	LP2NPC16-S	3	5
10	20 A	LP2NPC20-S	3	5
10	25 A	LP2NPC25-S	3	5
10	32 A	LP2NPC32-S	3	5
10	40 A	LP2NPC40-S	3	5
10	50 A	LP2NPC50-S	3	5
10	63 A	LP2NPC63-S	3	5

10	10 A	LP3NPC10-S	4	3
10	13 A	LP3NPC13-S	4	3
10	16 A	LP3NPC16-S	4	3
10	20 A	LP3NPC20-S	4	3
10	25 A	LP3NPC25-S	4	3
10	32 A	LP3NPC32-S	4	3
10	40 A	LP3NPC40-S	4	3
10	50 A	LP3NPC50-S	4	3
10	63 A	LP3NPC63-S	4	3

Characteristic **K**

50	0.5 A	LP1NPK0.5-S	2	10
50	1 A	LP1NPK1-S	2	10
50	1.6 A	LP1NPK1.6-S	2	10
50	2 A	LP1NPK2-S	2	10
10	3 A	LP1NPK3-S	2	10
10	4 A	LP1NPK4-S	2	10
10	6 A	LP1NPK6-S	2	10
10	8 A	LP1NPK8-S	2	10

50	0.5 A	LP2NPK0.5-S	3	5
50	1 A	LP2NPK1-S	3	5
50	1.6 A	LP2NPK1.6-S	3	5
50	2 A	LP2NPK2-S	3	5
10	3 A	LP2NPK3-S	3	5
10	4 A	LP2NPK4-S	3	5
10	6 A	LP2NPK6-S	3	5
10	8 A	LP2NPK8-S	3	5

50	0.5 A	LP3NPK0.5-S	4	3
50	1 A	LP3NPK1-S	4	3
50	1.6 A	LP3NPK1.6-S	4	3
50	2 A	LP3NPK2-S	4	3
10	3 A	LP3NPK3-S	4	3
10	4 A	LP3NPK4-S	4	3
10	6 A	LP3NPK6-S	4	3
10	8 A	LP3NPK8-S	4	3

Auxiliary switch and signal contacts

SDH and SDS

Order data see page 41

Accessories

Order data from page 42

Residual current circuit-breaker

Series FIP2, FI4

General

The residual current circuit-breaker makes a decisive contribution to the prevention of injury to persons and damage to material caused by electric currents. It is specified in national and international standards. Modern residual current circuit-breakers already respond to the smallest currents. Disconnection takes place within fractions of a second before danger can arise for persons, animals or material. The principle of permanent magnetic release ensures an optimum, reliable action, even with undervoltage and neutral disconnection.

Major features

- High short-circuit capacity 10 kA
- Sensitive to AC and pulsating DC fault currents
- 2- and 4-pole versions
- Rated tripping currents 10, 30, 100 and 300 mA
- Snap-on auxiliary switch and signal contacts
- Rated currents 16, 25, 40, 63 A

Technical data

	FIP2	FI4
Rated voltage U_n :	230 V	230/400 V
Rated current I_n (A):	16 25 40	16 25 40 63
Rated tripping current $I_{\Delta n}$ (mA):		
10	●	●
30	●	● ● ● ●
100	●	● ● ● ●
300	●	● ● ● ●
Number of poles:	2	4
Frequency f_n :	45... 60 Hz	45... 60 Hz
Surge current withstand capability:	250 A 8/20 μ s	250 A 8/20 μ s
Total breaking time (mean value)		
– for $I_{\Delta n}$	40 ms	40 ms
– for 5 $I_{\Delta n}$	25 ms	25 ms
Delay time for 5 $I_{\Delta n}$:	–	–
Short-circuit capacity(kA):	10 kA	10 kA
Cable cross-section C_u :	Cable/strand	Cable/strand
– Type-S, top	25/16 mm ²	25/16 mm ²
– Type-S, bottom	16/10 mm ²	16/10 mm ²
Protection class:	IP 40	IP 40
Life endurance to	BSEN 61008	BSEN 61008
– Mechanical operations	4,000	4,000
– Electrical operations	2,000	2,000
Climatic resistance to:	EN 61008	EN 61008
Mounting position:	any	any
Ambient temperature:	–25 °C... +40 °C	–25 °C... +40 °C
Resistance to vibrations:	5 g 5... 150... 5 Hz	5 g 5... 150... 5 Hz
Standards:	BSEN 61008	BSEN 61008
Approvals:	SEV, VDE, ÖVE	SEV, VDE, ÖVE, SEMKO, NEMKO
Weights (approx.):	250 g	380 g
Plastic components:	Free of halogens and cadmium	Free of halogens and cadmium

Residual current circuit-breaker

Series FIP2, FI4

Order data

Rated tripping current	Rated current	Order data	Module	Packaging unit
FIP 2				
10 mA	16 A	FIP216/10-S	2	2
30 mA	25 A	FIP225/30-S	2	2
30 mA	40 A	FIP240/30-S	2	2
100 mA	40 A	FIP240/100-S	2	2

Auxiliary switch and signal contacts
SDH and SDS
 Order data see page 43

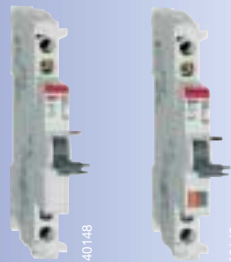
FI 4				
10 mA	16 A	FI416/10-S	4	1
30 mA	25 A	FI425/30-S	4	1
30 mA	40 A	FI440/30-S	4	1
30 mA	63 A	FI463/30-S	4	1
100 mA	40 A	FI440/100-S	4	1
100 mA	63 A	FI463/100-S	4	1
300 mA	40 A	FI440/300-S	4	1
300 mA	63 A	FI463/300-S	4	1

Auxiliary switch and signal contacts
SBH and SBS
 Order data see page 41

Accessories
 Order data from page 42



FIP2 230 V~, PN



SDH
SDS



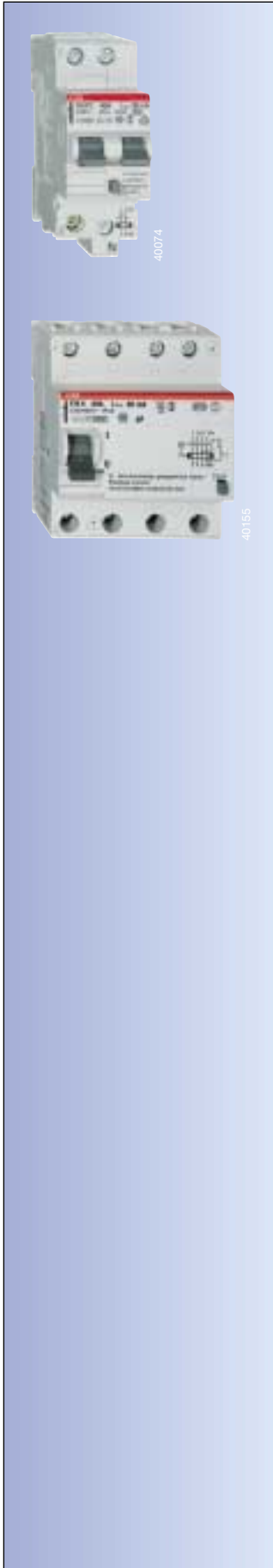
FI4 230 V~, 3PN



SBH
SBS

Delayed residual current circuit-breaker

Series FIKP2, FIK4, FIS4



Short time-delay Residual current circuit-breaker

The short time-delayed RCCB is especially suitable for unfavourable operating and mains conditions. Without influencing the personal protection function, the electronic delay suppresses unwanted or nuisance tripping, which can occur as a result of capacitive discharge currents.

Capacitive discharge currents accompanied by high current peaks can be caused by:

- Long line capacitances
- Large numbers of fluorescent lamps (particularly when using electronic ballast units)
- Electronic equipment and components (PC terminals, PLCs, voltage converters, etc.)
- Transient line overvoltages

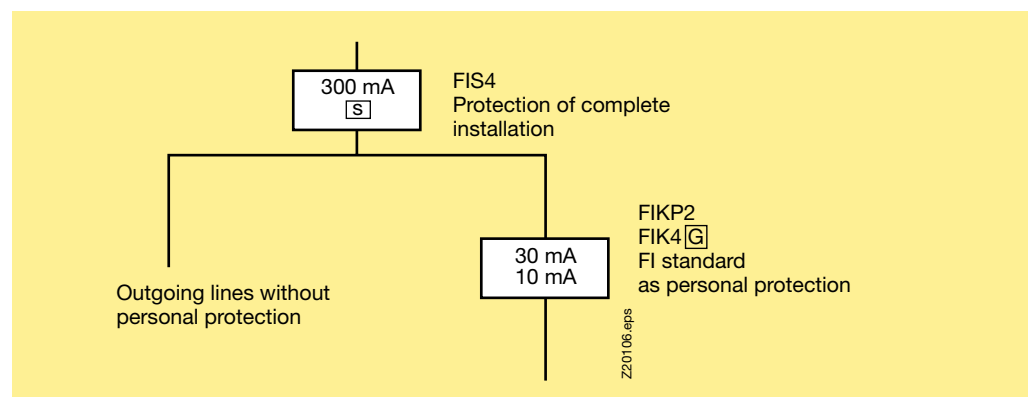
The short time-delay residual current circuit-breakers FIKP2 and FIK4 differ from the selective standard type FIS4 by their significantly lower delay times. The FIKP2 and FIK4 [G] should therefore be used to prevent unwanted or nuisance tripping. With a preceding series connected FIS4 [S] the FIKP2 and FIK4 [G] behave in a similar, selective way to the standard FI.

Selective residual current circuit-breaker

Selective residual current circuit-breakers FIS4 [S] ensure selectivity with respect to following sensitive FI protective switches.

FIS4 [S] are only used for material protection and are therefore only available in a 300 mA version. Following FIKP2 and FIK4 likewise behave selectively if connected after an FIS4 [S] .

Application example for selective residual current circuit-breaker



Delayed residual current circuit-breaker Series FIKP2, FIK4, FIS4

Technical data

	FIKP2	FIK4	FIS4
Rated voltage U_n :	230 V	230/400 V	230/400 V
Rated current I_n (A):	40	16 40 63	25 63
Rated tripping current $I_{\Delta n}$ (mA):	10 30 100 300 • • • •		
Number of poles:	2	4	4
Frequency f_n :	45... 60 Hz	45... 60 Hz	45... 60 Hz
Surge current withstand capability:	3 kA 8/20 μ s	3 kA 8/20 μ s	5 kA 8/20 μ s
Total breaking time (mean value)			
– for $I_{\Delta n}$	240 ms	240 ms	300 ms
– for 5 $I_{\Delta n}$	35 ms	35 ms	115 ms
Delay for 5 $I_{\Delta n}$:	10 ms	10 ms	90 ms
Short-circuit capacity (kA):	10 kA	10 kA	10 kA
Cable cross-section Cu:	Cable/strand	Cable/strand	Cable/strand
– Type-S, top	25/16 mm ²	25/16 mm ²	25/16 mm ²
– Type-S, bottom	16/10 mm ²	16/10 mm ²	16/10 mm ²
Protection class:	IP 40	IP 40	IP 40
Life endurance to	BSEN 610008	BSEN 610008	BSEN 610008
– Mechanical operations	4,000	4,000	4,000
– Electrical operations	2,000	2,000	2,000
Climatic resistance to:	BSEN 61008	BSEN 61008	BSEN 61008
Mounting position:	any	any	any
Ambient temperature:	–25 °C... +40 °C	–25 °C... +40 °C	–25 °C... +40 °C
Resistance to vibrations:	5g 5... 150... 5 Hz	5g 5... 150... 5 Hz	5g 5... 150... 5 Hz
Standards:	BSEN 61008	BSEN 61008	BSEN 61008
Approvals:	SEV, VDE, ÖVE	SEV, ÖVE, SEMKO	SEV, ÖVE, SEMKO
Weights (approx.):	250 g	400 g	400 g
Plastic components:	Free of halogens and cadmium	Free of halogens and cadmium	

Order data

Rated tripping current	Rated current	Order data	Module	Packaging unit
FIKP2 short time-delay				
30 mA	40 A	FIKP240/30-S	2	2

Auxiliary switch and signal contacts **SDH and SDS**
Order data see page 43

FIK4 short time-delay				
10 mA	16 A	FIK416/10-S	4	1
30 mA	40 A	FIK440/30-S	4	1
100 mA	40 A	FIK440/100-S	4	1
30 mA	63 A	FIK463/30-S	4	1

FIS4 selective				
100 mA	25 A	FIS425/100-S	4	1
300 mA	63 A	FIS463/300-S	4	1

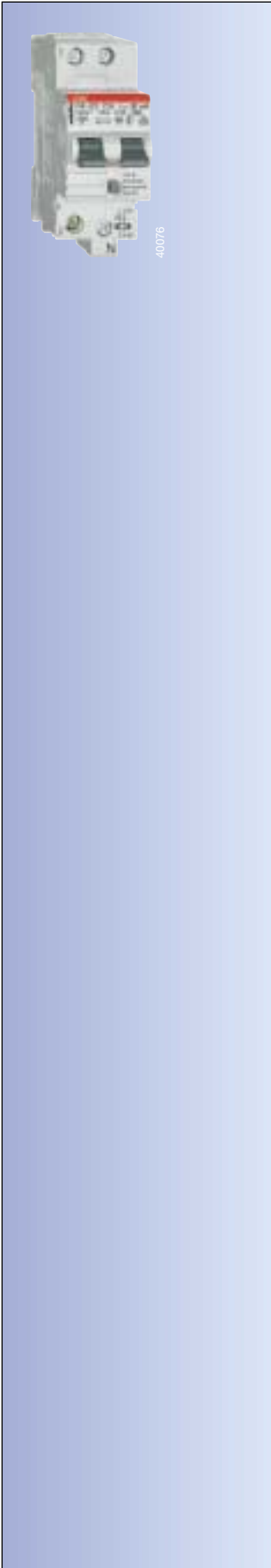
Auxiliary switch and signal contacts **SBH and SBS**
Order data see page 41

Accessories
Order data from page 42



Residual current circuit-breakers with overcurrent protection

Series FI-LP2, FIK-LP2



General

smisline residual current miniature circuit-breakers provide ideal protection for personnel and material in all new and existing systems.

The combination of residual current and overcurrent protection in one unit makes planning simpler and also provides economic advantages. For example, the use of a combined smisline RCBO, FI-LP2, FIK-LP2 can satisfy the minimum standard protection regulations in a home or in a specific circuit. In this case in the event of a fault current only the circuit immediately concerned is disconnected, while all other circuits remain unaffected.

The new, short time-delay residual current circuit-breaker FIK-LP2  is specially suitable for unfavourable operating and mains conditions. Without influencing the personal protection function, the electronic delay suppresses faulty tripping, which can occur as a result of capacitive discharge currents. Capacitive discharge currents accompanied by high current peaks can be caused by:

- Long line capacitances
- A large number of fluorescent lamps (particularly when using electronic ballast units)
- Electronic equipment and components (PC terminals, PLCs, voltage converters, etc.)
- Transient line overvoltages

Major features

- Sensitive to AC and DC-pulsating fault currents
- Combined overcurrent and residual-current protection in one unit
- High rated breaking capacity of 10 kA
- Rated residual tripping currents 10 and 30 mA
- Snap-on auxiliary switch and signal contacts blocks
- Short time-delay version FIK-LP2 

Residual current circuit-breakers with overcurrent protection

Series FI-LP2, FIK-LP2

Technical data

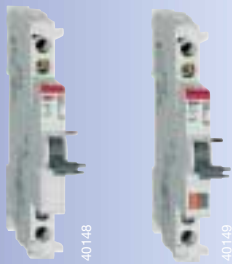
	FI-LP2	FIK-LP2
Rated voltage U_n :	230 V ~	230 V ~
Rated current I_n (A):	10 13 16 20	13 16 20
Trip characteristic:	B, C (Page 6)	C (Page 6)
Rated tripping current $I_{\Delta n}$ (mA)  :	10 10 10 — 30 30 30 30	30 30 30
Back-up fuse link:	Page 8 (LP)	Page 8 (LP)
Selectivity limits:	Page 8 (LP)	Page 8 (LP)
Number of poles:	2-pole (1PN)	2-pole (1PN)
Rated frequency f_n :	45... 60 Hz	45... 60 Hz
Rated breaking capacity I_{cn} :	10 kA – 230 V ~ (10–16 A) 6 kA – 230 V ~ (20–32 A)	10 kA – 230 V ~ (10–16 A) 6 kA – 230 V ~ (20–32 A)
Current limiting class:	3	3
Surge current withstand capability:	250 A-8/20ms	3 kA-8/20ms
Total disconnection time (mean value) to – for $I_{\Delta n}$ – for 5 $I_{\Delta n}$	BSEN 61009 40 ms 25 ms	BSEN 61009 240 ms 35 ms
Time delay for 5 $I_{\Delta n}$:	–	10 ms
Cable cross-section C_u : – Type-S, top – Type-S, bottom	Cable/strand L = 25/16 mm ² L = 16/10 mm ²	Cable/strand L = 25/16 mm ² L = 16/10 mm ²
Protection class:	IP40	IP40
Life endurance – Mechanical operations – Electrical operations	BSEN 61009 4,000 2,000	BSEN 61009 4,000 2,000
Climatic resistance, to:	BSEN 61009	BSEN 61009
Mounting position:	any	any
Ambient temperature:	–25 °C...+40 °C	–25 °C...+40 °C
Resistance to vibrations:	5g 5...150...5 Hz	5g 5...150...5 Hz
Standards:	BSEN 61009	BSEN 61009
Approvals:	SEV, ÖVE, VDE	SEV, ÖVE, VDE
Weights (approx.):	250 g	250 g
Plastic components:	Free of halogens and cadmium	Free of halogens and cadmium

Residual current circuit-breakers with overcurrent protection

Series FI-LP2, FIK-LP2



FI-LP2 230 V~, PN



SDH
SDS

Order data

Circuit protection

Characteristic **B**

Rated tripping current	Rated current	Order data	Module	Packaging unit
FI-LP2				
30 mA	13 A	FI-LP2B13/30-S	2	2
10 mA	16 A	FI-LP2B16/10-S	2	2
30 mA	16 A	FI-LP2B16/30-S	2	2

Characteristic **C**

FI-LP2				
10 mA	10 A	FI-LP2C10/10-S	2	2
30 mA	10 A	FI-LP2C10/30-S	2	2
10 mA	13 A	FI-LP2C13/10-S	2	2
30 mA	13 A	FI-LP2C13/30-S	2	2
10 mA	16 A	FI-LP2C16/10-S	2	2
30 mA	16 A	FI-LP2C16/30-S	2	2
30 mA	20 A	FI-LP2C20/30-S	2	2
30 mA	25 A	FI-LP2C25/30-S	2	2
30 mA	32 A	FI-LP2C32/30-S	2	2
FIK-LP2 short time-delay				
30 mA	13 A	FIK-LP2C13/30-S	2	2
30 mA	16 A	FIK-LP2C16/30-S	2	2
30 mA	20 A	FIK-LP2C20/30-S	2	2

Auxiliary switch and signal contacts

SDH and SDS

Order data see page 41

Accessories

Order data from page 42

Residual current sensor

RC sensor FISG



General

The FISG is specifically prescribed or at least recommended for many applications. In some systems, however, there could be a danger to persons, animals or material by the tripping of a residual current circuit-breaker with the associated interruption of circuits. The RC-sensor is ideal for systems of this kind. It has a permanent auxiliary contact on the left-hand side, and the main circuits are not switched for the reasons mentioned. This contact is used to operate an optical or acoustic signalling device if residual currents with dangerous magnitudes flow to earth.

Important note

The FISG is **not** a protective device in the sense of the regulations, but it is able to detect and signal residual currents immediately. The FISG can be recognised by the **red operating lever** which distinguishes it clearly from current circuit-breakers.

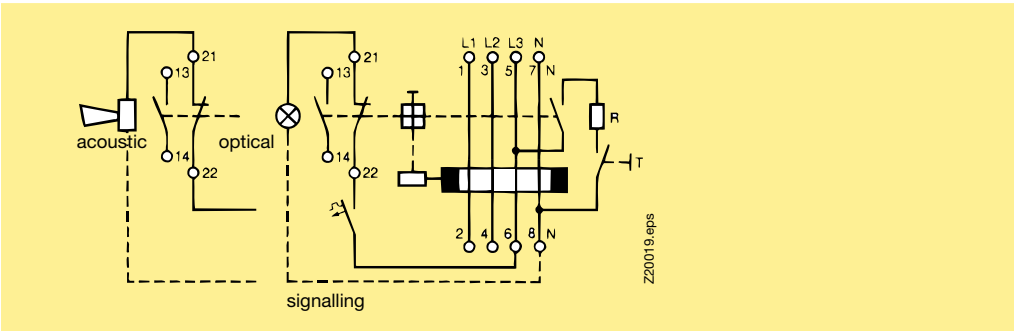
Technical data

FISG	
Rated voltage U_n :	230/400 V
Rated current I_n :	40, 63 A
Rated tripping current $I_{\Delta n}$  :	30 mA, 300 mA 
Auxiliary contact rated current:	1 SBH11 permanently fitted at side incl.. ZLS 930
– I_{th} :	6 A
– AC15:	2 A/230 V~ 0.5 A/400 V~

Application

- Medical devices and equipment (hospitals, etc.)
- Heating, air-conditioning and ventilating systems
- Cooling systems
- Pump systems with important functions
- Street and building site lighting
- Chemical companies
- Electroplating companies
- Dairy plants
- Joinery and wood-working
- Traffic control systems

Connection example



Order data

Rated tripping current	Rated current	Order data	Module	Packaging unit
30 mA	40 A	FISG440/30-S	5	1
30 mA	63 A	FISG463/30-S	5	1
300 mA 	63 A	FISG463S/300-S	5	1

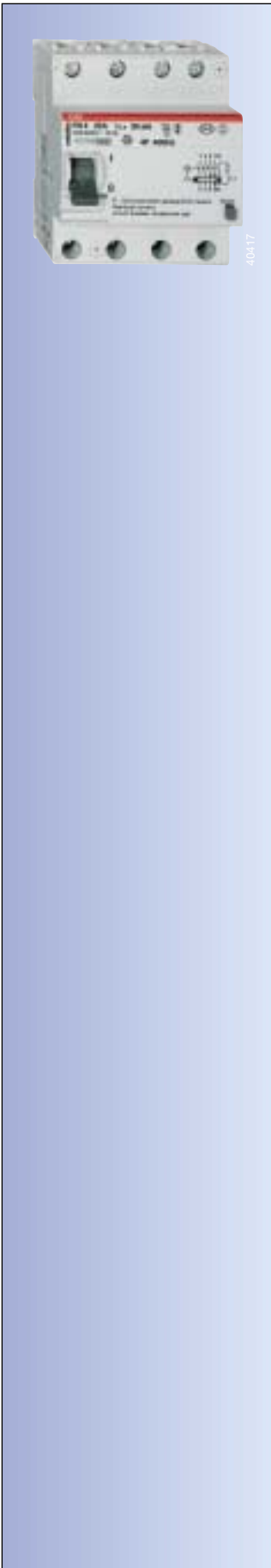
One auxiliary contact SBH11 is already fitted on the unit.
Further auxiliary contacts can be snapped-on.
Order data see page 41

Accessories

Order data from page 42

Residual current circuit-breaker FI4

Special designs 16⅔ Hz and 400 Hz



General

For special applications, where the mains frequency is other than 50 Hz, corresponding residual current circuit-breakers are required. CMC offers a suitable range of special designs for these cases.

Major features

- Sensitive to AC and pulsating-DC current
- 4-pole breaker types
- Rated tripping currents 30 and 300 mA
- Snap-on auxiliary and signal contacts
- Rated currents 25, 63 A

Technical data

	FI4 16⅔ Hz	FI4 400 Hz
Rated voltage U_n :	230/400 V	230/400 V
Rated current I_n (A):	25 63	25 63
Rated tripping current $I_{\Delta n}$ (mA):		
30 	• •	• •
50 	• •	• •
300 	• •	• •
Number of poles:	4	4
Frequency f_n :	15...18 Hz	360...440 Hz
Surge current withstand capability:	250 A 8/20 μ s	250 A 8/20 μ s
Total disconnection time (mean value)		
– for $I_{\Delta n}$	40 ms	40 ms
– for 5 $I_{\Delta n}$	25 ms	25 ms
Delay time for 5 $I_{\Delta n}$:	–	–
Short-circuit capacity (kA):	6 kA	6 kA
Cable cross-section C_u :		
– Type-S, top	Cable/strand 25/16 mm ²	Cable/strand 25/16 mm ²
– Type-S, bottom	16/10 mm ²	16/10 mm ²
Protection class:	IP 40	IP 40
Life endurance to	BSEN 61008	BSEN 61008
– Mechanical operations	4,000	4,000
– Electrical operations	2,000	2,000
Climatic resistance to:	BSEN 61008	BSEN 61008
Mounting position:	any	any
Ambient temperature:	–25 °C... +40 °C	–25 °C... +40 °C
Resistance to vibrations:	5 g 5... 150... 5 Hz	5 g 5... 150... 5 Hz
Standards:	BSEN 61008	BSEN 61008
Approvals:	SEV	SEV
Plastic components:	Free of halogens and cadmium	Free of halogens and cadmium

Residual current circuit-breaker FI4

Special designs 16²/₃ Hz and 400 Hz



Order data

Rated tripping current	Rated current	Order data	Frequency	Module	Packaging unit
16²/₃ Hz					
30 mA	25 A	FI4-LF25/30-S	16 ² / ₃ Hz	4	5
300 mA	25 A	FI4-LF25/300-S	16 ² / ₃ Hz	4	5
30 mA	63 A	FI4-LF63/30-S	16 ² / ₃ Hz	4	5
300 mA	63 A	FI4-LF63/300-S	16 ² / ₃ Hz	4	5
400 Hz					
50 mA	25 A	FI4-HF25/50-S	400 Hz	4	5
300 mA	25 A	FI4-HF25/300-S	400 Hz	4	5
50 mA	63 A	FI4-HF63/50-S	400 Hz	4	5
300 mA	63 A	FI4-HF63/300-S	400 Hz	4	5

Auxiliary and signal contact
SBH and SBS
 Order data see page 41



SBH
SBS



40291

Motor protection circuit-breaker MS325

Series MS 325



40073

General

The MS325 is a circuit-breaker with a motor protection characteristic. It is intended above all for industrial applications (MCC) or in distribution systems without a back-up fuse. It also fulfils its traditional function to provide thermal overload protection and short-circuit protection for other sectors of installation technology.

Major features

- Compact construction
- Very high rated breaking capacity
- Clear indication of switching position
- Phase failure protection
- Temperature compensation
- Test release possibility
- Provision for snap-on undervoltage release
- Snap-on auxiliary and signal contact blocks
- Further accessories

Technical data

MS325	
Rated voltage U_n :	690 V~
Rated current I_n (A): (14 adjustment ranges 0,1...25 A):	25
Number of poles:	3
Rated frequency f_n :	50...60 Hz
Rated breaking capacity I_{cs} :	100/50 kA
Total disconnection time with short-circuit (50 kA/25 A range):	1.5 ms
Cable cross-section Cu cable or strand	
– Type-S, top:	1 x 10 mm ² / 2 x 4 mm ²
– Type-S, bottom:	max. 4 mm ²
Protection class:	IP20
Life endurance	
– Electrical operations: (25 A, AC-3)	100,000
– Mechanical operations:	100,000
Climatic resistance:	IEC/CEI 68-2-30
Mounting position:	any
Ambient temperature:	–25 °C...+50 °C
Temperature compensation:	–25 °C...+50 °C
Resistance to vibrations:	5g (50 m/s ²) 5...150...5 Hz
Standards:	IEC 157-1, 292-1, 337-1 VDE 0660, IEC 947-2, 947-4-1 947-5-1 VDE 0106 Part 100 SEV 1090-1, 1092-1, 1093-1
Approvals:	SEV, KEMA, UL CSA
Weights (approx.):	340 g
Plastic components:	Free of halogens and cadmium

Motor protection circuit-breaker MS325

Rated breaking capacity

Rated breaking capacity tests to IEC 947-2

Test sequence	Service short circuit breaking capacity I_{cs}	Ultimate short circuit breaking capacity I_{cu}
1. Overload release check	–	$2 \times I_n$
2. Short circuit test sequence	O-CO-CO	O-CO
3. Insulation strength	$2 \times U_n^*$	$2 \times U_n^*$
4. Temperature Rise	Terminals, $\leq 80K$, Operating means $\leq 35K$	–
5. Calibration check current	$1.45 \times I_n$	$2 \times I_n$

* or 1000 V, whichever is the greater.

Rated breaking capacity to IEC 947-2

Thermal release, Adjustment ranges			Magnetic release, Response current (mean value) independent of thermal setting (A)	Service breaking capacity I_{cs}			
(A)				230 V~ (kA)	400 V~ (kA)	500 V~ (kA)	690 V~ (kA)
0.1	–	0.16	1.6	100	100	100	100
0.16	–	0.25	2.5	100	100	100	100
0.25	–	0.4	4	100	100	100	100
0.4	–	0.63	6.3	100	100	100	100
0.63	–	1	12	100	100	100	100
1	–	1.6	19	100	100	100	100
1.6	–	2.5	30	100	100	100	40
2.5	–	4	48	100	100	60	10
4	–	6.3	75	100	100	40	7
6.3	–	9	108	100	100	30	5
9	–	12.5	150	100	75	27	4,5
12.5	–	16	192	100	60	25	4
16	–	20	240	100	55	22	3,5
20	–	25	300	100	50	20	3

Back-up protection

Maximum rated tripping currents

a) If the short-circuit current at the place of installation of a motor protection circuit-breaker MS325 is not higher than the specified service breaking capacity, a back-up fuse link can be omitted. If a back-up fuse is fitted for installation reasons, its rated current may be selected as high as required.

b) If the short-circuit current at the place of installation of a motor protection circuit-breaker MS325 is higher than its service breaking capacity, the rated current of the back-up fuse link must not exceed that given in the following table.

Thermal release, Adjusting ranges			Magnetic release, Response current (mean value) independent of thermal setting (A)	Maximum rated tripping current of preceding back-up fuse gG			
(A)				690 V~ (kA)	500 V~ (kA)	400 V~ (kA)	230 V~ (kA)
0.1	–	0.16	1.6				
0.16	–	0.25	2.5				
0.25	–	0.4	4				
0.4	–	0.63	6.3				
0.63	–	1	12				
1	–	1.6	19				
1.6	–	2.5	30	25			
2.5	–	4	48	40			
4	–	6.3	75	40			
6.3	–	9	108	50	50		
9	–	12.5	150	50	80	80	
12.5	–	16	192	50	80	100	
16	–	20	240	50	100	100	
20	–	25	300	50	125	125	

Short-circuit-proof: no preliminary fuses necessary

Motor protection circuit-breaker MS325

DC operating voltages and rated breaking capacities

The motor protection circuit-breaker MS325 is suitable for DC applications, DC1-DC5 operation.
On DC the electromagnetic release responds to values 1.35 times higher than at 50 Hz. The polarity is immaterial when connecting.
The MS325 can be used with the following voltages:

Thermal release, Adjustment ranges	Magnetic release, Response current ¹⁾ (mean value) independent of the thermal setting	Max. voltage U _e 3 poles in series	Rated breaking capacity
(A)	(A)	(V=)	(kA)
0.1 – 0.16	2.2	450	100
0.16 – 0.25	3.4	420*	100
0.25 – 0.4	5.4	330*	100
0.4 – 0.63	8.5	270*	100
0.63 – 1	16	450	100
1 – 1.6	26	450	100
1.6 – 2.5	40.5	450	50
2.5 – 4	65	450	50
4 – 6.3	101	450	30
6.3 – 9	146	450	20
9 – 12.5	202.5	450	20
12.5 – 16	260	450	10
16 – 20	325	450	10
20 – 25	405	450	10

* a special design for 450V= is available

¹⁾ Values for resistive and inductive loads, T = 15 ms

Direct starter, co-ordination to IEC 947-4-1

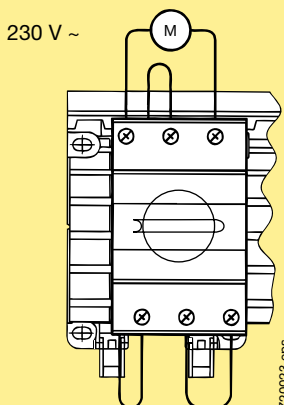
Normal start – 400 V – 50 Hz, ambient temperatures ≤ 40 °C

50 kA type 1/type 2

Motor	Motor protection			Contactor	Contactor	Copper cable	Max. permissible current for this combination
Power kW	I _e A	Type	Range of adjustment A	Type 1	Type 2	Minimum cable cross-section in mm ²	A
0.37	1.2	MS 325 – 1.6	1.0 – 1.6	A 9	A 9	1.5	1.6
0.55	1.5	MS 325 – 1.6	1.0 – 1.6	A 9	A 9	1.5	1.6
0.75	2	MS 325 – 2.5	1.6 – 2.5	A 9	A 9	1.5	2.5
1.1	2.6	MS 325 – 4.0	2.5 – 4.0	A 9	A 12	1.5	4.0
1.5	3.5	MS 325 – 4.0	2.5 – 4.0	A 9	A 26	1.5	4.0
2.2	5	MS 325 – 6.3	4.0 – 6.3	A 9	A 26	1.5	6.3
3	6.6	MS 325 – 9.0	6.3 – 9.0	A 9	A 26	1.5	9.0
4	8.5	MS 325 – 9.0	6.3 – 9.0	A 9	A 26	1.5	9.0
5.5	11.5	MS 325 – 12.5	9.0 – 12.5	A 12	A 26	1.5	12.0
7.5	15.2	MS 325 – 16.0	12.5 – 16.0	A 16	A 26	2.5	16.0
11	22	MS 325 – 25.0	20.0 – 25.0	A 26	A 26	2.5	25.0

Ambient temperature ≤ 30 °C

Connection of single-phase motors for 230 V~



for:

- Oil burner motors
- Small fans
- Valve motors
- Conveyor pumps
- Special drives
- Batching systems, etc.

smisline-S

Circuit-breakers ready for fitting with special base-plate and the corresponding plug contacts (L1 and N), according to order data page 35.

Motor protection circuit-breaker MS325



400 V~ 3P

40073



40160



SBH
SBS

40289



40291



40156



40150



40151

Order data

Adjustment ranges in A	Order data	Module	Packaging unit
0.1 – 0.16	MS325-0.16-S	3	1
0.16 – 0.25	MS325-0.25-S	3	1
0.25 – 0.4	MS325-0.4-S	3	1
0.4 – 0.63	MS325-0.63-S	3	1
0.63 – 1	MS325-1-S	3	1
1 – 1.6	MS325-1.6-S	3	1
1.6 – 2.5	MS325-2.5-S	3	1
2.5 – 4	MS325-4-S	3	1
4 – 6.3	MS325-6.3-S	3	1
6.3 – 9	MS325-9-S	3	1
9 – 12.5	MS325-12.5-S	3	1
12.5 – 16	MS325-16-S	3	1
16 – 20	MS325-20-S	3	1
20 – 25	MS325-25-S	3	1

Adapter plate for contact to busbars with plug contacts	Order data	Packaging unit
– 3L	ZMS915	10
– 3L+N (20A reduced)	ZMS923	10
– 2L (reversible)	ZMS919	10
– 1L+N (reversible)	ZMS920	10

Auxiliary switch and signal contact

SBH and SBS

Order data see page 41

Accessories

Order data from page 42

Technical data

Rated voltage U_n	
– Voltage tap in MS325:	400 V~ or 230 V~
– With connection leads 200 mm long (external voltage):	AC voltage
Rated frequency:	50...60 Hz
Power consumption:	0,8 W
Actuation voltage (to IEC 292-1)	
– dropout:	0.1...0.75 U_n
– pickup:	$\geq 0.85 U_n$
Duty cycle:	100%
Dimensions B x H x L:	20.4 x 15 x 50.6 mm
Weight:	20 g

Undervoltage release (UA)

for insertion in smissline MS325

– 400 V~	SMUA400	1
– 230 V~	SMUA230	1

Connection support

snap-on to smissline MS325

Width 9 mm

– for undervoltage release with external voltage	AS	10
--	-----------	----

Dummy housing

Side attachment on left to bring up to 18 mm	ZLS930	10
--	---------------	----

Surge arrester SA4 SC/SA4

General



Product description

The surge arrester «SA4/SA4 SC» is a 4-pole arrester meeting the requirements of class C to DIN VDE 0675 Part 6, Part 6/A1 and Part 6/A2. It also complies with requirement class II of the international standard IEC 61643-1 (1998-02).

The SA4 SC is used for the protection of low voltage consumer systems and equipment from overvoltages (DIN VDE 100) caused by remote lightning strikes or switching operations.

A typical place of application is the low voltage main and subsidiary distributor, where the arrester is attached directly to the smissline busbar system.

If the unit is connected correctly, the green operating lamp (LED) lights. The protection elements are provided with thermal monitoring according to the current guidelines. In the event of an overvoltage the protective element is disconnected from the mains and the operating lamp changes from green to red. Actuation of the mechanism can be indicated remotely via the integrated telemetry contact.

This remote display is only available with the SA4 SC.

Display and maintenance

The protective elements (high power varistors) are monitored thermally. In the event of a fault this monitor disconnects the overloaded high power varistors automatically from the power supply and the operating indication changes from green to red. This status is also indicated by the telemetry contact. In this case the arrester should be exchanged immediately, since the following units are no longer protected against overvoltage.

If the operating indication is neither green nor red, then the connections must be checked for the presence of the supply voltage should also be tested for.

The surge arrester requires no maintenance. A regular visual check is recommended.

Caution: For measurements of insulation in the electrical system the arrester should be disconnected from the power supply, since otherwise the result can be affected by the arrester characteristics. The sticker enclosed with the corresponding note should be placed in a clear position on the distribution board.

Dimensioning of earth conductor

The SA4/SA4 SC should be connected by the shortest possible route to the potential equalization. The earth conductor supplied with the unit can be used for this purpose. The connection must be as short as possible. The minimum cross-section is 6 mm².

Line routing

Protected and unprotected lines (including outgoing conductors for potential equalizing) must not be laid closely parallel. They must be separated in space or by screening, so that no overvoltage coupling from unprotected to protected lines is possible. Line junctions must be made at right angles.

Assembly

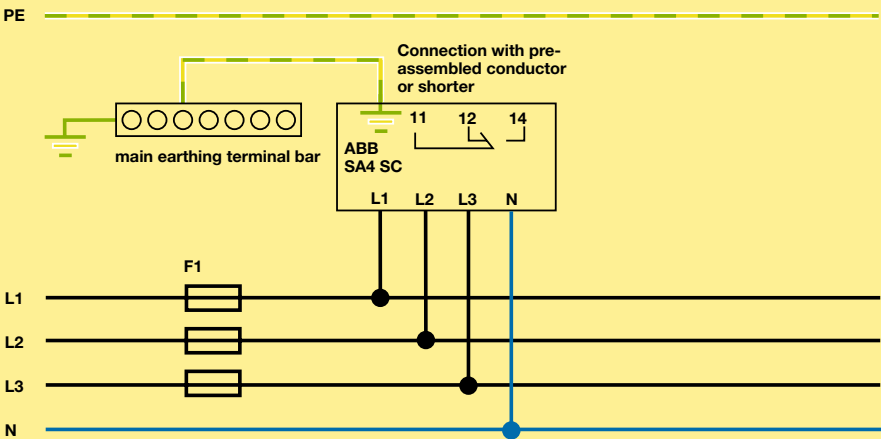
Installation and electrical connection

The surge arrester «SA4/SA4 SC» is installed at the input of the distribution board supplying the installation to be protected. It is snapped directly onto the smissline busbars immediately following the incoming power supply unit. The earth terminal of the arrester must be connected to the installation main earthing terminal by the shortest possible route, as close as possible to the earthing conductor of the installation, using a conductor (as supplied) of cross section no less than 6 mm². The operating lamp will only show green if the connection is correct and the arrester is fully serviceable.

Surge arrester SA4 SC/SA4

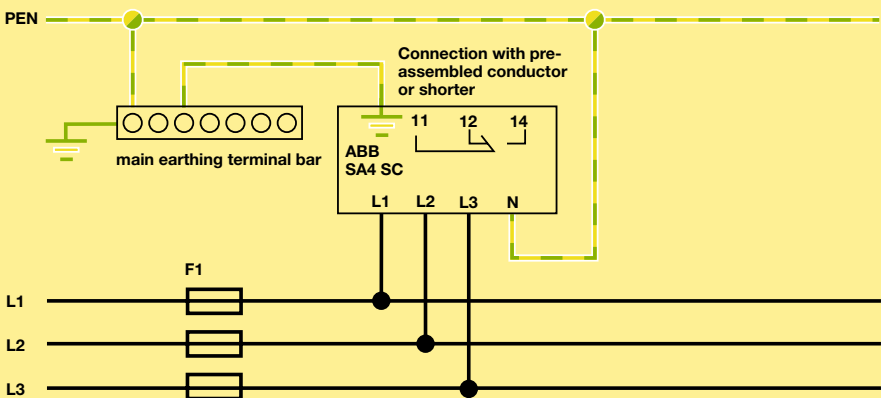
Technical data

Surge arrester TN-S network



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Surge arrester TN-C network



Z20012.eps

Surge arrester SA4 SC/SA4

Technical data

Rated voltage: U_N	230 / 400 V AC
Rated voltage: U_C	275 V AC
Requirement class: to VDE 0675, Part 6	C
Requirement class: to IEC 61643-1 (1998-2)	II
Rated surge arrester current: I_{sn} (8/20) multi shot	15 kA
Max. surge arrester current: I_{smax} (8/20) single shot	30 kA
Protection level:	U_p for I_{sn} ≤ 1.5 kV U_p for $I_s = 5$ kV ≤ 1 kV
Response time: t_a	≤ 25 ns
Leakage current to PE (3 phase):	≤ 1 mA
Cable cross-section:	L1/L2/L3 N 16 mm ² cable / 10 mm ² litz wire PE/11/12/14 25 mm ² cable / 16 mm ² litz wire
max. pre-fusing:	125 A gL/gG / 25 kA
Telemetry contact:	max. operating voltage 250 V AC max. switching current 2 A 1 changeover S11/S12 N/C, S11/S14 N/O
Temperature range:	-25 ... + 60 °C
Protection class:	IP 20
Limit surge arrester current per unit:	I_{sg} (8/20 μ s) 90 kA
Plastic components:	Free of halogens and cadmium

Order data

Type	Order data	Modules	Packaging unit
With integrated telemetry contact	SA4 SC-S	4	1
Without integrated telemetry contact	SA4	4	1

Accessories

Order data from page 45



SA4
without integrated
telemetry contact



SA4-SC
with integrated
telemetry contact

Load switch IS463



40157

General

The load switch can be used instead of an incoming terminal block up to 63 A in the smissline socket system.
The external shape and dimensions correspond with the 4-pole residual-current circuit-breaker.
The smissline IS463 load switch can be used to disconnect or connect individual loads, groups of loads or complete sections of the system to the power supply.

Major features

- As power supply switch
- On-Off switch function
- Clear switch position indication
- Snap-on auxiliary contact possible
- Uniform smissline design

Technical data

Load switch IS463	
Rated voltage U_n :	230/400 V~
Rated current I_n :	63 A
Number of poles:	4
Cable cross-section Cu:	Cable/strand
– Type-S, top:	25 / 16 mm ²
– Type-S, bottom:	16 / 10 mm ²
Protection class:	IP40
Life endurance mechanical/electrical:	5000 switching cycles
Mounting position:	any
Ambient temperature:	–25 °C...+40 °C
Standards:	EN 60947
Approvals:	SEV/ASE/ÖVE
Weight (approx.):	250 g
User category:	AC22-A
Plastic components:	Free of halogens and cadmium

Order data

Order data	Modules	Packaging unit
IS463-S	4	1



40289

SBH

Auxiliary switch and signal contact
SBH
Order data see page 41

Accessories
Order data from page 42

Auxiliary switch and signal contacts

General

The auxiliary switch and signal contacts are snapped onto the left of the protective device in each case. For auxiliary and signal contacts powered via smissline auxiliary busbars LA or LB, the desired number of contact pins must be ordered at the same time as the device. In addition, a low current power supply may be taken via these switches.

Function

The auxiliary contact works similarly to the main contacts. The signal contact only operates when the protective device trips.

This can be simulated with the grey test button. After each trip, the signal contact should be returned to the starting position with the orange reset button. Auxiliary and signal contacts have contacts which ensure high switching reliability, even in systems with low voltages or low currents (PLC, signal systems, etc.).

Auxiliary contacts SDH and SBH switch at the same time as the contacts of the protective device (operated manually or automatically).

Closing contact
NO  joint-switching

Opening contact
NC  counter-switching

Signal contacts SDS and SBS switch only when the protective device is electrically tripped due to short-circuit, fault current or overcurrent (undervoltage for MS325).

Closing contact
NO  closes on automatic trip

Opening contact
NC  opens on automatic trip



Auxiliary switch and signal contacts

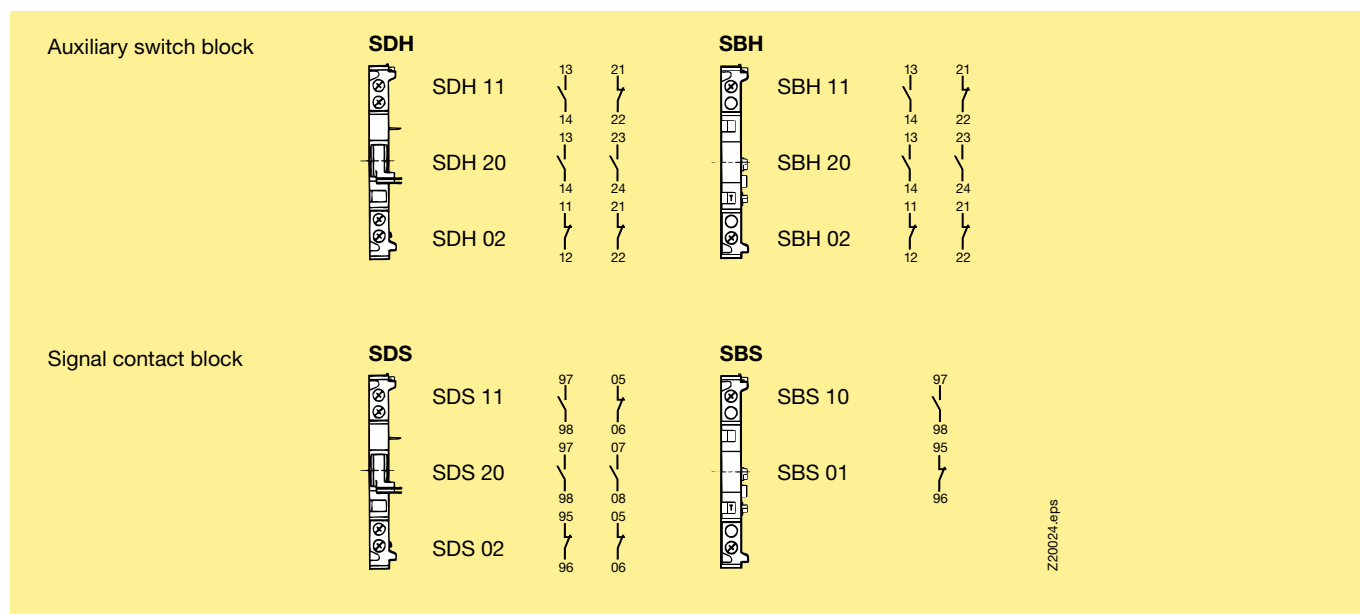
Mounting possibilities

Unit type	Auxiliary contacts	Signal contacts	Unit switch position when assembled
Miniature circuit-breaker – LP...	SDH...	SDS...	OFF
Residual-current circuit-breaker – FIP2 / FIKP2 / FI-LP2 / FIK-LP2	SDH...	SDS...	OFF
Residual-current circuit-breaker – FI4 / FIK4 / FIS4 – FISG	SBH... SBH...	SBS... at factory integrated	OFF
Load switch – IS463	SBH...	not possible	OFF
Motor-protection switch – MS325	SBH...	SBS...	OFF

- All additional contacts are always fitted on the **left** of the protective device.
- When an auxiliary switch and a signal contact block are used, the signal contact block must be first, snapped **directly** onto the circuit-breaker.
- It is not possible to mount two signal contact blocks on the same circuit-breaker.
- Additional contacts of series SDH..., SDS... and SBH..., SBS... are mounted onto circuit-breakers in the «off» position.

The following can be mounted on each circuit-breaker:

- 1 auxiliary switch block
- or 1 signal contact block
- or 2 auxiliary contact blocks
- or 1 auxiliary switch and 1 signal contact block



Auxiliary switch and signal contacts

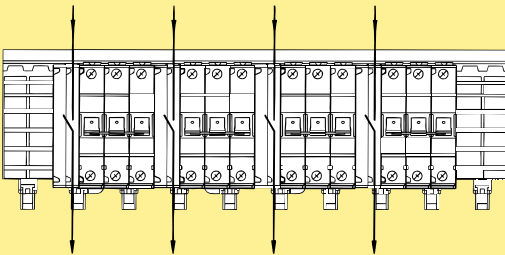
Technical data

	SDS /SBS	SDH /SBH
Rated voltage U_n :	400 V	400 V
Rated current:		
– I_{th} :	6 A	6 A
– AC15	2 A/230 V / 1 A/400 V	2 A/230 V / 0,5 A/400 V
– DC13	0.5 A/125 V=	0.5 A/125 V=
Minimum value (contact security):	10 mA 12 V=	10 mA 12 V=
Cable cross-section:	2 x 2.5 mm ² strand with end ferrule	2 x 2.5 mm ² strand with end ferrule
Plastic components:	Free of halogens and cadmium	Free of halogens and cadmium

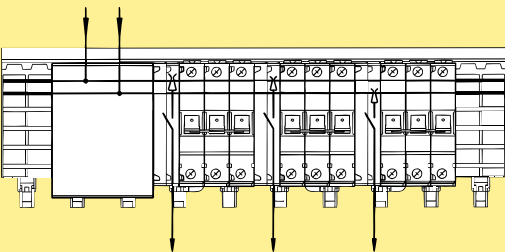
Power supply variants in socket system

Power can be supplied to the auxiliary switch and signal contact blocks in various ways:

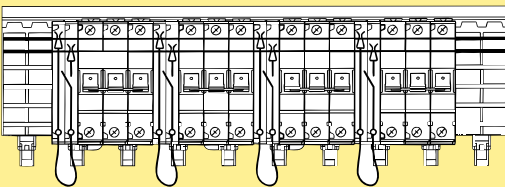
1. Conventional power supply by single wire or stranded wire



2. Power supply to the auxiliary busbars LA or LB via the auxiliary terminals in the power supply block



3. Connection support and auxiliary or signal contact block with power supply via auxiliary busbars LA and return via LB

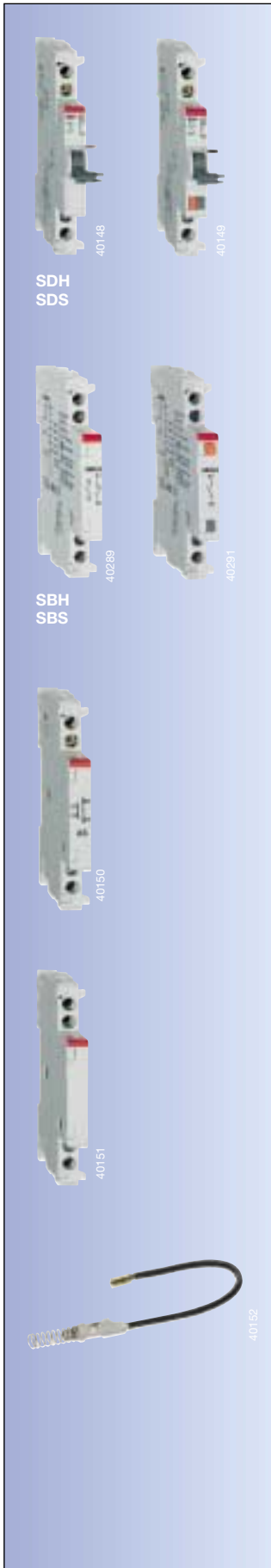


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Auxiliary switch and signal contacts

Order data

Mounted on:	Order data	Module	Packaging unit
Miniature circuit-breaker LP			
Auxiliary switch contact block SDH			
1S and 1 Ö	SDH11	0.5	10
2S	SDH20	0.5	10
2Ö	SDH02	0.5	10
Signal contact block SDS			
1S and 1 Ö	SDS11	0.5	10
2S	SDS20	0.5	10
2Ö	SDS02	0.5	10
MS325, FI4, FIK4, FIS4, IS463, FISG			
Auxiliary switch contact block SBH			
1S and 1 Ö	SBH11	0.5	10
2S	SBH20	0.5	10
2Ö	SBH02	0.5	10
MS325, FI4, FIK4, FIS4			
Signal contact block SBS			
1S	SBS10	0.5	10
1Ö	SBS01	0.5	10
Auxiliary switch and signal contacts			
Connection support			
	ZMS400	0.5	10
Auxiliary switch and signal contacts, connection support			
Dummy housing			
Equalization to 18 mm	ZLS930	0.5	10
Auxiliary switch and signal contacts, connection support			
Contact pin, short			
for power supply via auxiliary busbars	ZLS630		10



Combi-modules

General

The advantage of the Combi modules is that any desired combinations of smissline units can be formed into a unit with conventional devices. These can be replaced very quickly and keeps the downtime of systems to a minimum.

The Combi module is a mounting plate of 4 or 8 modules (PLE). The lower part is snapped directly onto the smissline socket. The upper part is supported by a snap fastening on an additional DIN profile rail. The rail separation is fully variable between 125 and 150 mm.

The power supply is taken directly from the busbars at the back of the Combi module by means of an adapter plate, rated current 32 A, and fed by stranded wires to the input terminal of the unit. Auxiliary and signal contacts can also be contacted on the auxiliary rails LA and LB.

Two versions of Combi modules are available. If more space is required, two modules can be permanently connected side by side (Combi module Duo).

Selection table for mounting accessories required

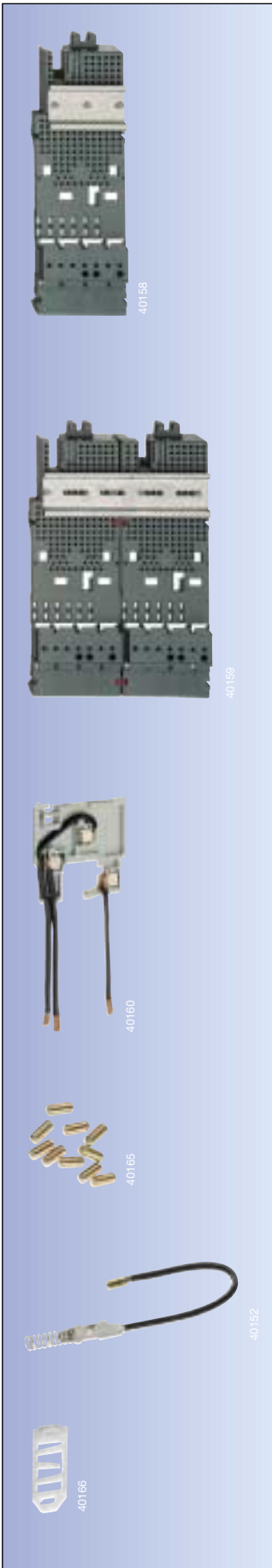
smissline-T equipment	MS325 3L	MS325 3L+N
Adapter plate	ZMS915	ZMS923
Fastening	ZLS518	ZLS518

Application examples from practice:



The modules are snapped directly onto the socket.

Combi-module



Order data

	Order data	Module	Packaging unit
Combi module single containing:			
- Combi module	ZLS802	4	6
- DIN-profile 60 mm			
Combi module DUO containing:			
- Combi module	ZLS805	8	3
- DIN-profile 133 mm			
Adapter plate			
for contacts with busbars with plug contacts			
3L	ZMS915		10
3L+N (20A reduced)	ZMS923		10
L1, N (In max. 20A)	ZMS916		10
L2, N (In max. 20A)	ZMS917		10
L3, N (In max. 20A)	ZMS918		10
L1 (In max. 32A, L1 reversible to L2, L3)	ZMS920		10
3L+N	ZMS926		10
Fixierung			
The fastener is required to attach the units to the combi-module.			
for MCBs	ZLS517		1
Bag of 10			
Stop-piece for 1-pole LP	ZLS516		1
for MS or MCB	ZLS518		1
Bag of 10			
Auxiliary switch and signal contact, connection support			
Contact pin, long			
for use with Combi module	ZLS520		10
Rafix for LP			
This is required when fitting a miniature circuit-breaker smissline on to DIN rail.			
Bag of 10	ZLS923		1

Sockets Accessories

Socket bases

The smissline-S socket system brings a completely new mounting and connection technique to distribution construction. Besides the classical method of snapping units onto a 35 mm Din rail, this new family of devices can be snapped directly onto socket bases containing busbars. This eliminates the time consuming process of making cable or bolted connections to the power supply. In addition, in the event of re-arrangement or expansion, the replacement of devices in existing systems is made significantly easier. The socket sections and the wide range of accessories make it possible to plan with the capability for expansion and to construct distribution systems of any desired size in a short period of time.

The 6- or 8-module sockets are installed either by screwing them onto any flat surface or by snapping them onto a 35 mm DIN rail.

Lateral movement or detachment of the sockets again is possible before final fixing.

To determine the required socket length the space required for

- the required components
 - the feeder block and
 - spare positions must be determined.
- (table pages 55 and 56)

Snap mounting

Pull down the slide with a screwdriver until it latches (socket can be moved)

Press on front:
Fixed position
(Sockets fixed)

Major features

- Expansion to any desired length (even number of poles)
- Integral busbars
- Simple exchange of units
- Long-term planning and problem-free extension possible
- Significant time savings for mounting and connection

Technical data

Sockets	
Rated voltage U_n :	690 V~
Rated current I_n :	
– Busbars:	100 A
– Auxiliary busbars:	40 A
Socket length (modules)	
– 6-module socket length 108 mm:	6
– 8-module socket length 144 mm:	8
Fastening:	Snapped onto 35-mm mounting rails and screw fixing
Plastic components:	Free of halogens and cadmium

Order data

	Order data	Module	Packaging unit
Socket base			
(Socket selection table see pages 55 and 56)			
– 8-module socket length 144 mm	ZLS 808	8	10
– 6-module socket length 108 mm	ZLS 806	6	10

Sockets Accessories

Socket end-piece

To prevent displacement of sockets and busbars (particularly when installed vertically) end-pieces can be fitted at the start and finish of each row of sockets. These simultaneously ensure electrically protected covering of the busbar end faces and mechanical fixing of the sockets on the mounting rail.

	Order data	Module	Packaging unit
Socket end-piece for lateral, electrically-protected closure and mech. fixing of a row of sockets on the supporting rail. Width: 20 mm	ZLS730	–	2 pieces (left, right)

Intermediate piece

The light-grey intermediate piece matches the unit profile and fills empty module spaces. The busbars are safely covered, so that they cannot be touched and at the same time the corresponding holes in the cover is filled up.

	Order data	Module	Packaging unit
Intermediate piece light-grey for electrically-protected filling of spare socket position, 18 mm – Bag of 5	ZLS722	1	1

Busbar insulator

The dark grey busbar insulator electrically isolates the interrupted busbar ends from each other, (e.g. in the case of several residual-current circuit-breaker groups) and simultaneously identifies the isolation point. It conforms with the unit profile and its space requirement is 1 module.

	Order data	Module	Packaging unit
Busbar insulator dark grey, for isolation and spacing of the busbar interruption at the isolation point, 18 mm	ZLS239	1	10

Busbar cover

If component modules or spare modules are not required, the busbar cover ensures electrically-protected covering of the main and auxiliary busbars. The cover (4 modules) can be divided anywhere. The openings allow voltage measurements on the busbars without removing cover.

	Order data	Module	Packaging unit
Busbar cover electrically-protected covering of busbars, 4-module, can be divided. Suitable to accept extension adapter ZLS101 4 x 18 mm – Bag of 5	ZLS100	1	1

Extension adapter

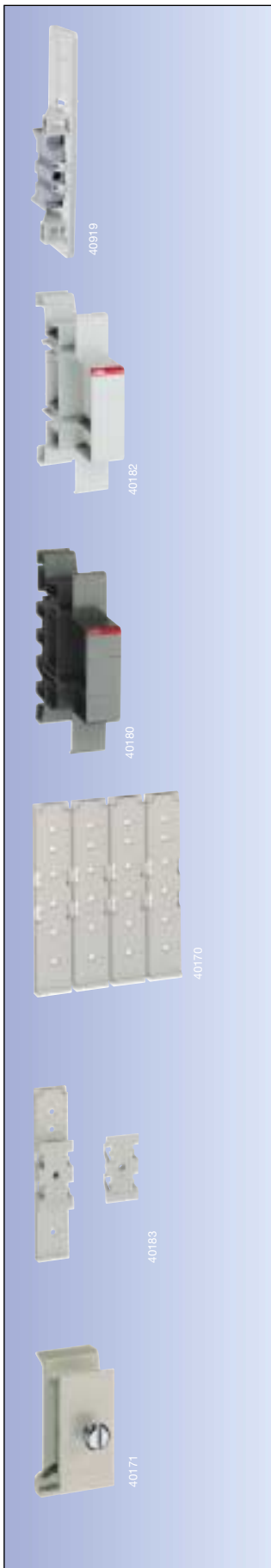
The extension adapter, single or several side by side, can be plugged into the busbar cover via the built-in holding device. This enables conventional DIN devices with 45 mm cap size to be snapped onto the smissline socket. By plugging in several extension adapters one on top of the other, heights can be equalized in multiples of 7 mm.

	Order data	Module	Packaging unit
Extension adapter 18 mm wide, for plugging into busbar cover ZLS100. For fixing REG units	ZLS101	1	10

Mounting rail adapter

Height equalization of 22.5 mm to equalize the insertion depth of mounting rail devices alongside smissline devices. (With the mounting rail adapters, a DIN mounting rail can be built up higher adjacent to smissline sockets; in this way smissline and conventional devices can be combined without difficulty).

	Order data	Module	Packaging unit
Mounting rail adapter Height equalization 22.5 mm, for equalizing insertion depth of mounting rail devices alongside smissline units	ZLS741	1	10



Starter pack

Accessories

Starter pack General

Starter packs are available comprising socket bases with 3 or 4 main busbars already inserted as required. Two end pieces are also included.

Order data

Solutions available:			Order data	Module	Packaging unit
Starter pack with 22 modules	393 mm	3P	ZLS760		1
Starter pack with 22 modules	393 mm	3 P + N	ZLS761		1
Starter pack with 24 modules	429 mm	3P	ZLS750		1
Starter pack with 24 modules	429 mm	3 P + N	ZLS751		1
Starter pack with 30 modules	537 mm	3 P	ZLS762		1
Starter pack with 30 modules	537 mm	3 P + N	ZLS763		1
Starter pack with 32 modules	573 mm	3P	ZLS752		1
Starter pack with 32 modules	573 mm	3 P + N	ZLS753		1
Starter pack with 38 modules	681 mm	3P	ZLS764		1
Starter pack with 38 modules	681 mm	3 P + N	ZLS765		1
Starter pack with 40 modules	717 mm	3P	ZLS754		1
Starter pack with 40 modules	717 mm	3 P + N	ZLS755		1
Starter pack with 48 modules	861 mm	3P	ZLS756		1
Starter pack with 48 modules	861 mm	3 P + N	ZLS757		1
Starter pack with 64 modules	1150 mm	3P	ZLS766		1
Starter pack with 64 modules	1150 mm	3 P + N	ZLS767		1
Starter pack with 80 modules	1438 mm	3P	ZLS758		1
Starter pack with 80 modules	1438 mm	3 P + N	ZLS759		1

Busbars for the sockets and additional socket

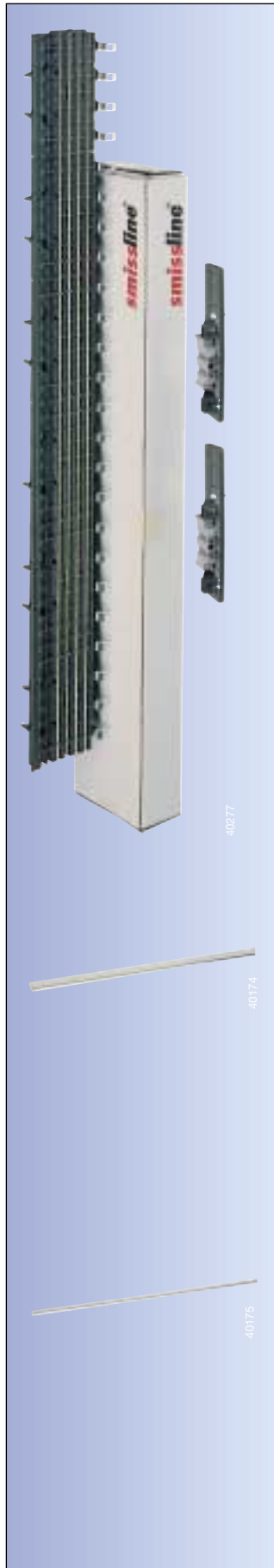
The busbars of size 10 x 3 mm can be loaded with currents up to 100 A. They are electroplated for perfect contact with unit plug contacts. The maximum available busbar length is 1983 mm. The same busbar type is used regardless of whether it is internally in the socket (L1, L2, L3, N) or externally in the additional socket (N, PE). The busbars are inserted in to the socket from the front.

	Order data	Module	Packaging unit
Busbars 100 A			
electroplated, 10 x 3 mm, for L1, L2, L3, N and PE	ZLS200	110	10
– Delivery length 1979 mm			

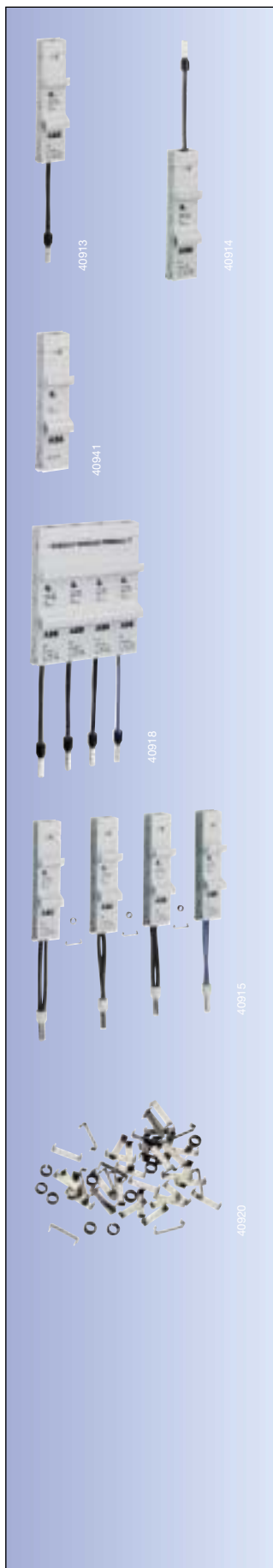
Auxiliary busbars for the sockets

The 5 x 2 mm auxiliary busbars are intended for a common power supply to auxiliary switches and signal contacts. They are also electroplated and are supplied in a maximum length of 1983 mm. Like the main busbars, the auxiliary busbars are inserted in holders LA and LB from the front. Naturally only one auxiliary busbar can be fitted.

	Order data	Module	Packaging unit
Auxiliary busbars 40 A			
electroplated, 5 x 2 mm, for LA and LB	ZLS202	110	10
– Delivery length 1979 mm			



Adapter 32A and 63A Accessories



General

The incoming terminal component for non smissline devices has an installation width of one module of (18 mm). This adapter can be combined to multiple pole versions to meet specific needs (L1, L2, L3, N, dummy). The connecting wires can carry a maximum of 63A (I_n).

Order data of Adapter 32A and 63A

Description	Order data	Module	Packaging unit
Single Adapter 32A bottom feed			
Adapter 32A L1 bottom feed	ZLS161	1	1
Adapter 32A L2 bottom feed	ZLS162	1	1
Adapter 32A L3 bottom feed	ZLS163	1	1
Adapter 32A N bottom feed	ZLS160	1	1
Adapter dummy element	ZLS164	1	1
Single Adapter 32A top feed			
Adapter 32A L1 top feed	ZLS177	1	1
Adapter 32A L2 top feed	ZLS178	1	1
Adapter 32A L3 top feed	ZLS179	1	1
Adapter 32A N top feed	ZLS176	1	1
Combination 32A bottom feed			
Adapter 32A L1, N bottom feed	ZLS180	1	1
Adapter 32A L2, N bottom feed	ZLS181	1	1
Adapter 32A L3, N bottom feed	ZLS182	1	1
Adapter 32A L1, L2, L3 bottom feed	ZLS183	1	1
Adapter 32A L1, L2, L3, N bottom feed	ZLS184	1	1
Single Adapter 63A bottom feed			
Adapter 63A L1 bottom feed	ZLS171	1	1
Adapter 63A L2 bottom feed	ZLS172	1	1
Adapter 63A L3 bottom feed	ZLS173	1	1
Adapter 63A N bottom feed	ZLS170	1	1
Adapter dummy element	ZLS164	1	1
Single Adapter 63A top feed			
Adapter 63A L1 top feed	ZLS167	1	1
Adapter 63A L2 top feed	ZLS168	1	1
Adapter 63A L3 top feed	ZLS169	1	1
Adapter 63A N top feed	ZLS166	1	1
Combination 63A bottom feed			
Adapter 63A L1, N bottom feed	ZLS186	1	1
Adapter 63A L2, N bottom feed	ZLS187	1	1
Adapter 63A L3, N bottom feed	ZLS188	1	1
Adapter 63A L1, L2, L3 bottom feed	ZLS189	1	1
Adapter 63A L1, L2, L3, N bottom feed	ZLS190	1	1
Combination set for multiple pole adapter (Packets with 100 pieces for 50 adapters)	ZLS174	1	1

Adapter Accessories

General

The adapter is designed for a rated current of 100A and is a plug-in module used to supply power directly to the smissline system. The adapter can accommodate an ABB OT-M load switch with a rated current of 80A or 100A. Power supply to the smissline system is therefore possible via a load switch. The construction height of the adapter is 13 mm, which means that devices on the adapter have a 13-mm higher shoulder than smissline devices plugged-in directly.

Major features

- Plug-in adapter solution for rated currents up to 100A
- Power supply to the smissline-S system via ABB load switch OT-M
- Same construction height as 32A and 63A adapters for smissline-S

Technical data

Rated voltage U_n :	400/690 V
Rated short-time current withstand capability I_{cw} :	6kA
Rated current I_n :	100A
Space required (module):	4 (72 mm)
Rated insulation voltage U_i :	2500 V
Rated withstand voltage strength U_{imp} :	8000 V
Ambient temperature:	30 °C

Order data

Type	Order data	Modules	Packaging unit
Adapter with 3 connector leads (L1, L2, L3)	ZLS240	4	1
Adapter with 4 connector leads (L1, L2, L3, N)	ZLS241	4	1

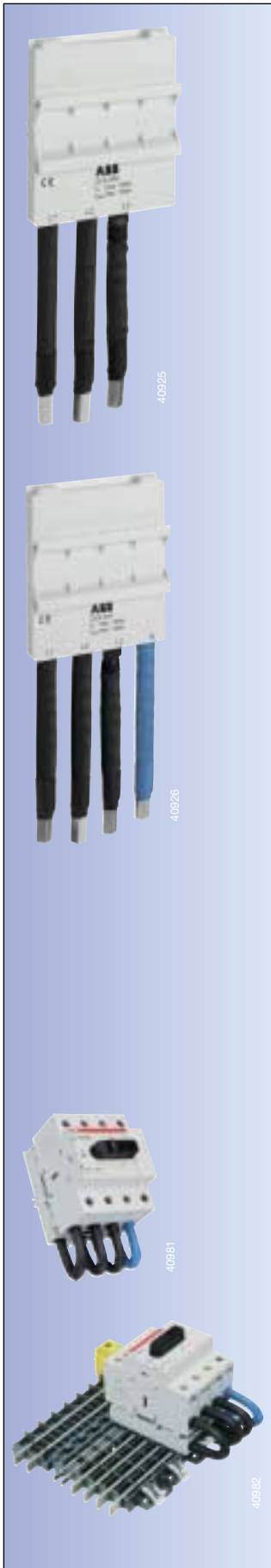
SwitchLine load break switch OT-M

General

ABB SwitchLine OT-M load break switches are suitable for installation on smissline 100A external adapters.

Order data

Type	Number of poles	I_e Th 400V A	Rated current AC22/400V A	Rated current AC23/400V A	Connection mm ²
OT80M3	3	80	80	45	2.5...50
OT100M3	3	100	100	55	2.5...50
OT80M4	4	80	80	45	2.5...50
OT100M4	4	100	100	55	2.5...50



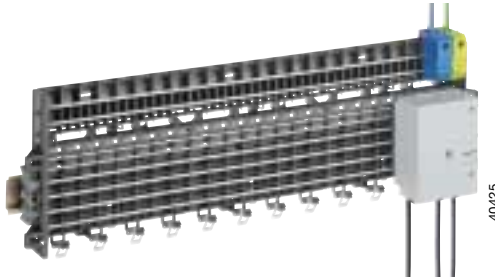
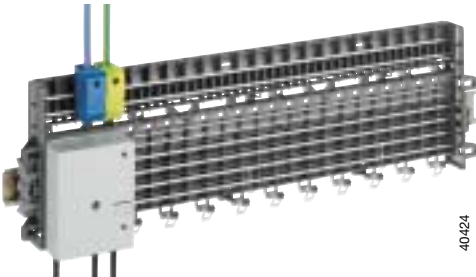
Incoming terminal block

Accessories

General

This incoming terminal block is used to connect cables directly to the busbars. The base-plate can be fitted with a maximum of 4 main terminals L1, L2, L3 and N for the busbars, and 2 auxiliary terminals LA and LB for the auxiliary busbars. The terminals act directly on the busbars and therefore fix the incoming terminal block. Removable terminal tops permit the connection of continuous conductors (risers) while horizontal or vertical cable entry is also possible. The cover can be labelled. Instead of the incoming terminal block, the power supply can also be made via a unit (e.g. residual current circuit-breaker, miniature circuit-breaker or load switch).

Power supply left or right max. 100A.



**Power supply center max. 160A.
But on each side max. 100A.**



Major features

- Horizontal or vertical connection
- Connection of continuous conductors possible
- Labelled cover
- Power supply also possible via a unit

Standard incoming terminal block

A standard incoming terminal block whose cover provides protection against accidental contact. Construction height 50 mm. The base-plate can be fitted with a maximum of 4 main terminals L1, L2, L3 and N for the busbars, and 2 auxiliary terminals LA and LB for the auxiliary busbars.

Incoming terminal block, low

Feeder block of construction height 36 mm. Auxiliary terminals LA and LB cannot be used.

Technical data

Incoming terminal block		
Rated voltage U_n :	400/690 V~	
Rated current I_n :		
– Main terminals:	160A	
– Auxiliary terminals:	40A	
Space required (modules):	4	
Main terminals Cu:	Cable 50 (2 x 25) (160A)	Strand 35 mm ² (125A)
Auxiliary terminals Cu:	10	6 mm ²
Plastic components:	Free of halogens and cadmium	

Incoming terminal component

Accessories

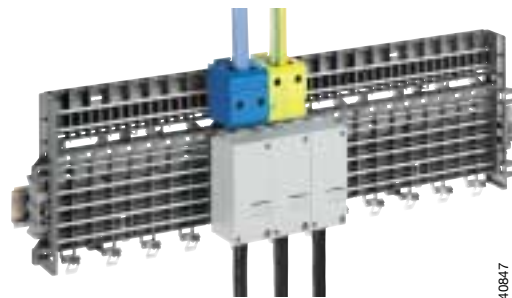
General

The incoming terminal component is used to connect the feeder cable to the busbars. The incoming terminal component with an installation width of 36 mm is available as a single-pole component for line terminals L1, L2 and L3, as well as for the neutral disconnect. The terminals act directly on the busbars and thus fix the incoming terminal component. The incoming terminal component L1, L2, L3 and N can be combined to meet specific needs. The incoming terminal component can accommodate a maximum cable cross-section of 95 mm² or 2 x 35 mm².

The cover can be labeled.

Instead of the feeder component, the power can also be supplied via a unit (e.g. residual-current circuit-breaker, miniature circuit-breaker or load switch).

**Power supply center max. 200A.
But on each side not more than 100A.**



Important features

- Modular solution, individual configuration
- The maximum connection cross-section per component is 95 mm² or 2 x 35 mm²
- Full electrical protection

Technical data

	Sockets
Rated voltage U _n :	400/690 V~
Rated current I _n :	200A
Space required (modules) per component:	2
Terminals:	Flexible 95 mm ² , 2 x 35 mm ² (200A)
Plastic components:	Free of halogens and cadmium

Incoming terminal block and component Accessories

Order data

	Order data	Module	Packaging unit
Standard incoming terminal block			
complete with main terminals, construction height 50 mm			
3LN	ZLS224	4	1
3L	ZLS225	4	1

Incoming terminal block, low			
complete with main terminals, construction height 36 mm			
3LN	ZLS228	4	1
3L	ZLS229	4	1

Cover for standard incoming terminal	ZLS235	4	1
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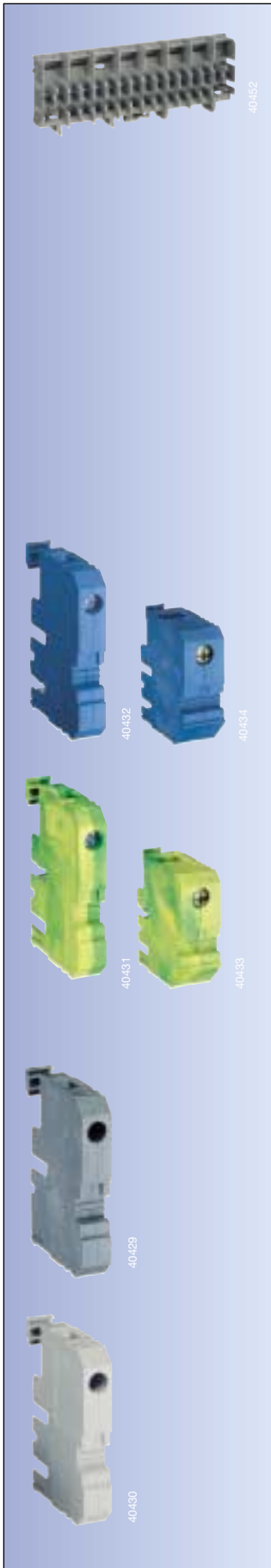
Additional section for standard incoming terminal block			
Auxiliary terminals max. 2			
10 mm ² (for auxiliary busbars LA, LB)	ZLS233	–	2
N-terminal for feeder block	ZLS212		

Order data

	Order data	Module	Packaging unit
unit			
- Feeder component			
- Feeder component, line terminal L1	ZLS251	2	1
- Feeder component, line terminal L2	ZLS252	2	1
- Feeder component, line terminal L3	ZLS253	2	1
- Feeder component, neutral disconnecter N	ZLS250	2	1
- Feeder component, neutral disconnecter N, Additional socket	ZLS254	2	1
- Feeder component PE, Additional socket	ZLS255	2	1



Additional socket Accessories



Additional socket

An additional socket base can easily be fitted into the system to accommodate the external N and/or PE busbars. This enables neutral connections to be made where single pole miniature circuit-breakers are used and their neutral conductors are unswitched. Neutral terminals are clipped onto the additional socket and can be used as detachable neutral links. Only one N busbar and/or one PE busbar can be fitted. Each socket can be fitted with an additional socket. Because of the integral snap fastening for 35 mm Din rails, the external N or PE busbars can be fitted anywhere on the distribution panel or even separately from the system.

Additional sockets can be covered to prevent accidental contact with live parts.

	Order data	Module	Packaging unit
Additional socket base for external N- and PE-busbars			
– 8-module additional socket (suitable for 8-module sockets)	ZLS811	8	10
– 6-module additional socket (suitable for 6-module sockets)	ZLS810	6	10

N and PE terminals

Corresponding N terminals (light blue) or PE terminals (yellow-green) are available for the power supply and the outgoing conductors of the external N and PE busbars for cross-sections up to 10 mm² and from 16 mm² to 50 mm². The terminals are fitted with label holders which can be used with the marking adapter or the self-adhesive marking label (Phoenix Contact Typ SBS).

	Order data	Module	Packaging unit
N-terminal for additional socket light blue, for external rail			
– up to 10 mm ²	ZLS812		10
– up to 50 mm ²	ZLS813		10
PE-terminal for additional socket yellow-green, for external rail			
– up to 10 mm ²	ZLS815		10
– up to 50 mm ²	ZLS816		10

Insulator block

The dark grey insulator block isolates the interrupted busbar ends and simultaneously marks the disconnection point externally.

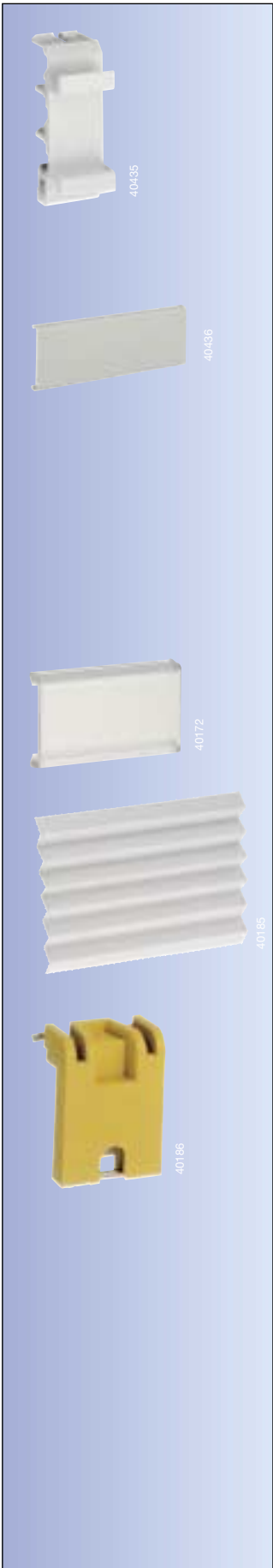
	Order data	Module	Packaging unit
Insulator block for additional socket dark grey, for isolation and spacing of external busbars			
	ZLS831	0.5	10

Dummy block

The light grey dummy block fills blank terminal positions. The busbars are simultaneously protected against contact.

	Order data	Module	Packaging unit
Dummy block for additional socket light grey, fills empty terminal positions			
	ZLS830	0.5	10

Additional socket Accessories



Cover with DIN top

The cover can be plugged into the additional socket singly or several side by side. This permits conventional DIN units to be snapped on. The busbars are covered and protected.

	Order data	Module	Packaging unit
Cover with DIN top for additional socket			
Cover 18 mm wide with DIN top	ZLS832	1	10

Cover with cable duct top

A cable duct cover can also be used to cover longer sections.
(Tehalit duct no. SL 18050/2)

	Order data	Module	Packaging unit
Duct cover for additional socket			
Duct for covering, length 144 mm	ZLS833	8	10

Marking adapter
for all smissline units for 5 plug-in characters (made by Woertz)
Bag of 100

	ZLS823		1
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Marking labels
self-adhesive, 6 x 17 mm
Sheet of 420

	ZLS825		1
--	--------	--	---

Cover
transparent, for designation of all smissline units and sockets
Bag of 100

	ZLS820		1
--	--------	--	---

plus:
paper labels
Sheet of 160

	ZLS821		1
--	--------	--	---

Locking device
for all smissline protective units

	ZLS800	10	
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UL Approbation for smissline material

UL Recognizer File E 222110A

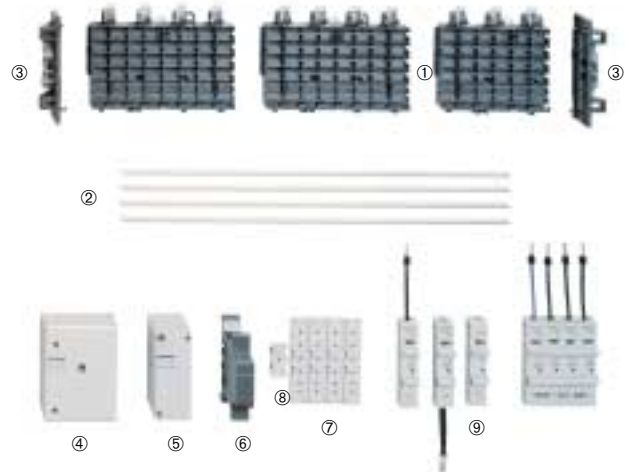
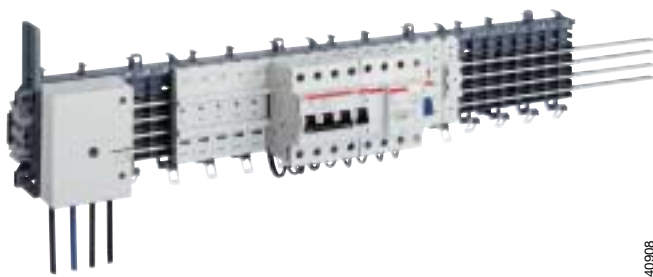
General

Several directives for the approval of electrical controls apply in the United States of America and Canada. They enable controls to be manufactured according to US regulations.

The smissline plug-in system with adapters for external devices has been approved for the USA according to Underwriters Laboratories C  USA. Proper selection of export devices not only includes the relevant certification and compliance with the applicable regulations; the term «approved for export» also means that the devices and systems have been designed for this purpose.

smissline sortiment with Approbation:

- ① Socket ZLS 808, 806
- ② Busbar ZLS 200
- ③ End-piece ZLS 730
- ④ Incoming terminal block ZLS 224, 225
- ⑤ Incoming terminal element ZLS 250-253
- ⑥ Busbar isolator ZLS 239
- ⑦ Busbar cover ZLS 100
- ⑧ Extensiv adapter ZLS 101
- ⑨ Adapter from page 47



Technical data

Rated voltage:	600V AC
Rated current (end feed):	100A
Rated current (center feed):	150A
Short circuit rating:	50kA with fuse 150A ggl/Gg

Incoming terminal block, standard:

Maximum rated voltage:	600V AC
Maximum rated current:	150A
Main terminal:	10 AWG to 1/0 AWG

Incoming terminal element:

Maximum rated voltage:	600V AC
Maximum rated current:	150A
Main terminal:	8 AWG to 3/0 AWG

Adapter 30A:

Rated voltage:	600V AC
Rated current:	30A
Short circuit rating:	50kA with fuse 150A ggl/Gg

Adapter 60A:

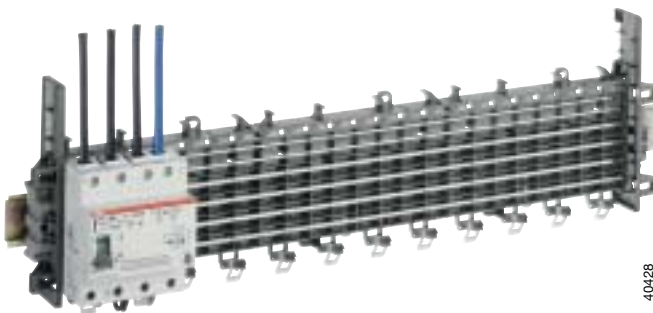
Rated voltage:	600V AC
Rated current:	60A
Short circuit rating:	50kA with fuse 150A ggl/Gg

Power supplies Accessories

Power supply to busbars via a residual current circuit-breaker (or load switch IS463) Top series:

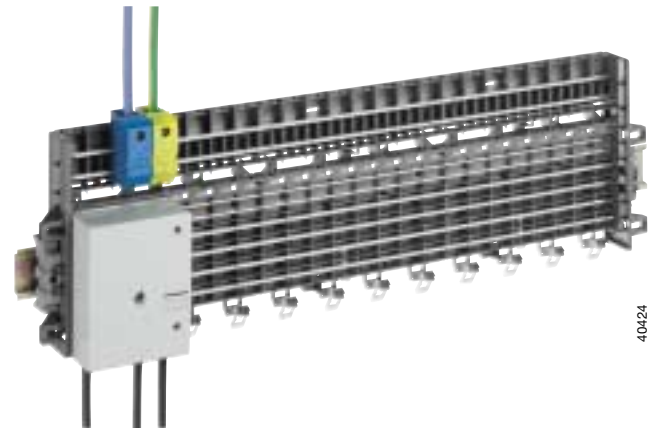
The power supply in this case is connected to the opposite end of a residual current circuit breaker to which its plug-in contacts are connected. When using this type of feed, the busbars and therefore all subsequent units have residual-current protection. If several residual current circuit-breaker groups are present, the busbars must be separated with the dark grey busbar insulator. Attention must then be paid to the regulations governing protection of the residual-current circuit-breaker by subsequent miniature circuit-breakers.

The supply can also be fed in through the 4 pole 63 A load switch.



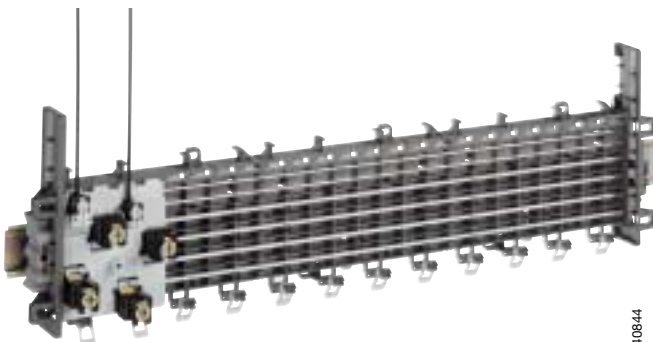
Power supply to the external N and PE busbars

External N busbars enable neutral connections to be available where single pole circuit-breakers are used. Where external N and PE busbars are used, the neutral or PE conductor is taken directly to the busbar using a suitable connection terminal. Attention must be paid to appropriate insulation of the N busbar when installing several residual-current circuit-breaker groups.



Power supply of auxiliary busbars L_A and L_B

Power can be supplied to both auxiliary busbars via the feeder block. The two auxiliary terminals are plugged into the feeder block as required by simply inserting them in the openings provided. The two auxiliary busbars are rated up to maximum 40A. In this way, auxiliary and signal contacts can be powered via the auxiliary busbars L_A and L_B .



Power supply via **smisline** units

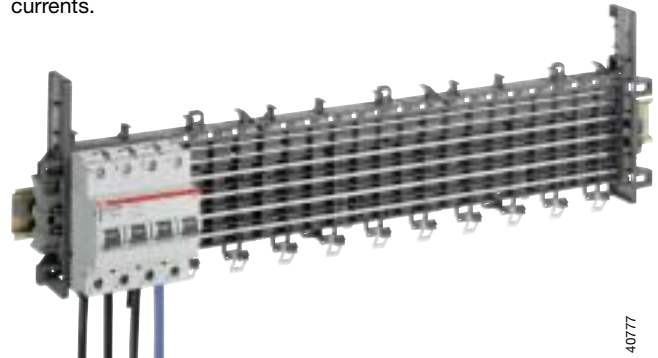
The power supply can also be made via a unit instead of the feeder block.

Power supply direct to busbars using miniature or residual current circuit-breaker terminals

Parallel below:

In this case the power supply cable is connected to the same end of the breaker to which its plug-in contacts are connected. It should be ensured that the operating current of all subsequently connected loads does not exceed the rated current of the plug contacts (32A for breakers up to and including 32A, 63A for breakers above 32A and up to 63A).

For best possible use of the plug contacts rated current it is best to connect the power supply cable to the unit with the highest rated current. A feeder block should be used for higher operating currents.



Accessories

Order data

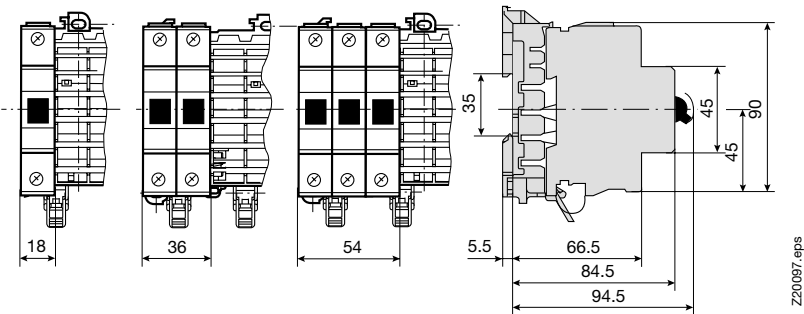
100A / 40A busbars / socket selection table

Modules	Busbar length in mm	Order data busbar 100A	Order data busbar 40A	Number of sockets		Modules	Busbar length in mm	Order data busbar 100A	Order data busbar 40A	Number of sockets	
				8-piece	6-piece					8-piece	6-piece
6	104	ZLS201E6	ZLS203E6	–	1	60	1078	ZLS201E60	ZLS203E60	6	2
8	140	ZLS201E8	ZLS203E8	1	–	61	1096	ZLS201E61	ZLS203E61		
11	194	ZLS201E11	ZLS203E11			62	1114	ZLS201E62	ZLS203E62	7	1
12	212	ZLS201E12	ZLS203E12	–	2	63	1132	ZLS201E63	ZLS203E63		
13	230	ZLS201E13	ZLS203E13			64	1150	ZLS201E64	ZLS203E64	8	–
14	248	ZLS201E14	ZLS203E14	1	1	65	1168	ZLS201E65	ZLS203E65		
15	266	ZLS201E15	ZLS203E15			66	1186	ZLS201E66	ZLS203E66	6	3
16	284	ZLS201E16	ZLS203E16	2	–	67	1204	ZLS201E67	ZLS203E67		
17	302	ZLS201E17	ZLS203E17			68	1222	ZLS201E68	ZLS203E68	7	2
18	320	ZLS201E18	ZLS203E18	–	3	69	1240	ZLS201E69	ZLS203E69		
19	338	ZLS201E19	ZLS203E19			70	1258	ZLS201E70	ZLS203E70	8	1
20	357	ZLS201E20	ZLS203E20	1	2	71	1276	ZLS201E71	ZLS203E71		
21	375	ZLS201E21	ZLS203E21			72	1294	ZLS201E72	ZLS203E72	9	–
22	393	ZLS201E22	ZLS203E22	2	1	73	1312	ZLS201E73	ZLS203E73		
23	411	ZLS201E23	ZLS203E23			74	1330	ZLS201E74	ZLS203E74	7	3
24	429	ZLS201E24	ZLS203E24	3	–	75	1348	ZLS201E75	ZLS203E75		
25	447	ZLS201E25	ZLS203E25			76	1366	ZLS201E76	ZLS203E76	8	2
26	465	ZLS201E26	ZLS203E26	1	3	77	1384	ZLS201E77	ZLS203E77		
27	483	ZLS201E27	ZLS203E27			78	1402	ZLS201E78	ZLS203E78	9	1
28	501	ZLS201E28	ZLS203E28	2	2	79	1420	ZLS201E79	ZLS203E79		
29	519	ZLS201E29	ZLS203E29			80	1438	ZLS201E80	ZLS203E80	10	–
30	537	ZLS201E30	ZLS203E30	3	1	81	1456	ZLS201E81	ZLS203E81		
31	555	ZLS201E31	ZLS203E31			82	1474	ZLS201E82	ZLS203E82	8	3
32	573	ZLS201E32	ZLS203E32	4	–	83	1492	ZLS201E83	ZLS203E83		
33	591	ZLS201E33	ZLS203E33			84	1510	ZLS201E84	ZLS203E84	9	2
34	609	ZLS201E34	ZLS203E34	2	3	85	1528	ZLS201E85	ZLS203E85		
35	627	ZLS201E35	ZLS203E35			86	1546	ZLS201E86	ZLS203E86	10	1
36	645	ZLS201E36	ZLS203E36	3	2	87	1564	ZLS201E87	ZLS203E87		
37	663	ZLS201E37	ZLS203E37			88	1582	ZLS201E88	ZLS203E88	11	–
38	681	ZLS201E38	ZLS203E38	4	1	89	1600	ZLS201E89	ZLS203E89		
39	699	ZLS201E39	ZLS203E39			90	1618	ZLS201E90	ZLS203E90	9	3
40	717	ZLS201E40	ZLS203E40	5	–	91	1636	ZLS201E91	ZLS203E91		
41	735	ZLS201E41	ZLS203E41			92	1654	ZLS201E92	ZLS203E92	10	2
42	753	ZLS201E42	ZLS203E42	3	3	93	1672	ZLS201E93	ZLS203E93		
43	771	ZLS201E43	ZLS203E43			94	1690	ZLS201E94	ZLS203E94	11	1
44	789	ZLS201E44	ZLS203E44	4	2	95	1708	ZLS201E95	ZLS203E95		
45	807	ZLS201E45	ZLS203E45			96	1726	ZLS201E96	ZLS203E96	12	–
46	825	ZLS201E46	ZLS203E46	5	1	97	1744	ZLS201E97	ZLS203E97		
47	843	ZLS201E47	ZLS203E47			98	1762	ZLS201E98	ZLS203E98	10	3
48	861	ZLS201E48	ZLS203E48	6	–	99	1780	ZLS201E99	ZLS203E99		
49	879	ZLS201E49	ZLS203E49			100	1799	ZLS201E100	ZLS203E100	11	2
50	897	ZLS201E50	ZLS203E50	4	3	101	1817	ZLS201E101	ZLS203E101		
51	915	ZLS201E51	ZLS203E51			102	1835	ZLS201E102	ZLS203E102	12	1
52	933	ZLS201E52	ZLS203E52	5	2	103	1853	ZLS201E103	ZLS203E103		
53	951	ZLS201E53	ZLS203E53			104	1871	ZLS201E104	ZLS203E104	13	–
54	969	ZLS201E54	ZLS203E54	6	1	105	1889	ZLS201E105	ZLS203E105		
55	987	ZLS201E55	ZLS203E55			106	1907	ZLS201E106	ZLS203E106	11	3
56	1005	ZLS201E56	ZLS203E56	7	–	107	1925	ZLS201E107	ZLS203E107		
57	1023	ZLS201E57	ZLS203E57			108	1943	ZLS201E108	ZLS203E108	12	2
58	1041	ZLS201E58	ZLS203E58	5	3	109	1961	ZLS201E109	ZLS203E109		
59	1059	ZLS201E59	ZLS203E59								

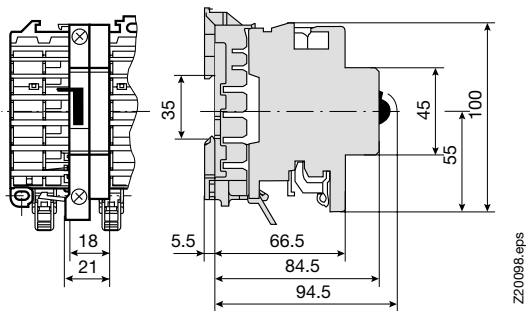
Planning for the incorporation of feeder block and spare places should be taken into account
The total lengths given above were determined taking account of socket spacings and tolerances.
They are not therefore necessarily a multiple of 18 mm (1 position unit).

Dimensions (in mm)

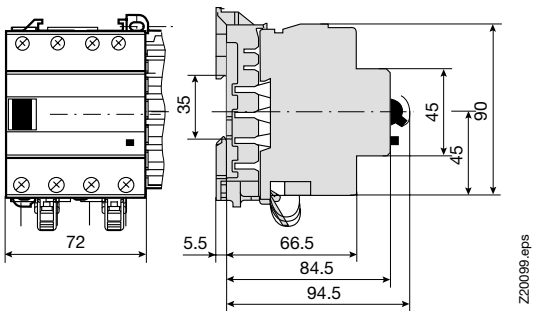
Miniature circuit-breaker 1-, 2-, 3-pole



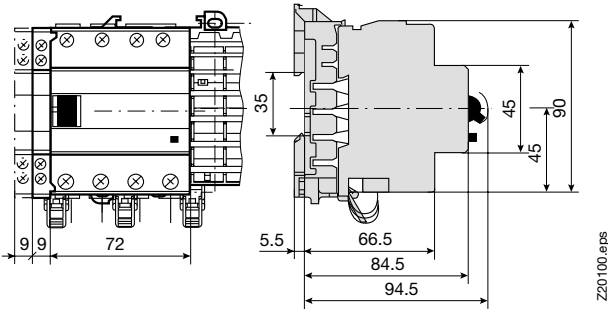
Neutral disconnecter



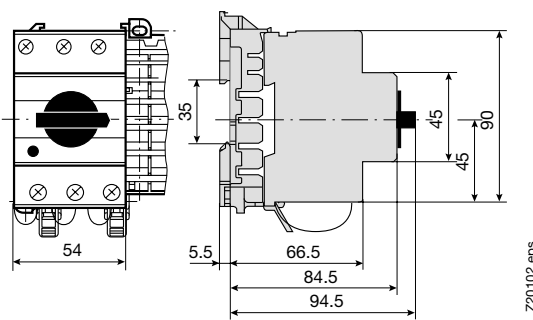
3LN (FI, FIK, FIS) and load switch IS463



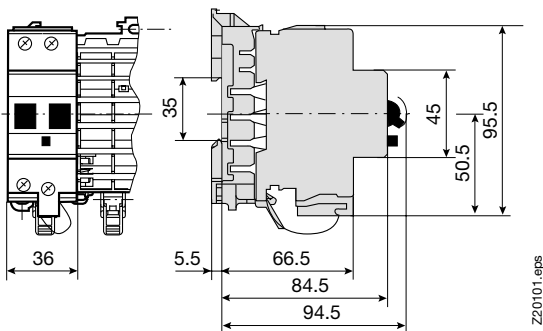
3LN (FISG)



Motor protection circuit-breaker MS 325



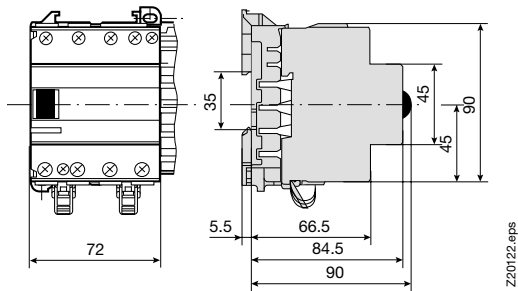
Residual current circuit-breaker 1LN



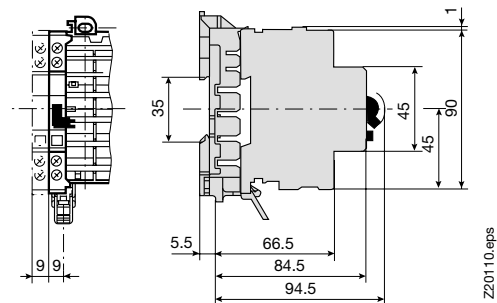
Combined residual current/miniature circuit-breaker

Dimensions (in mm)

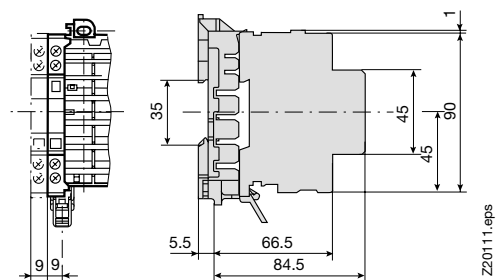
Surge arrester SA4 SC



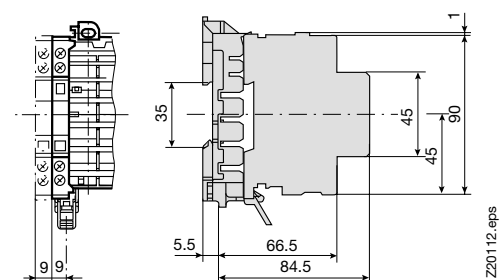
Auxiliary contact block SDH... Signal contact block SDS...



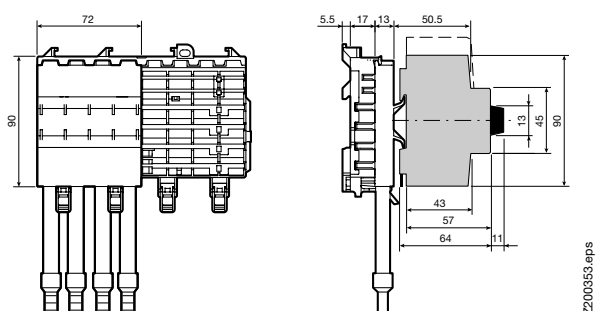
Auxiliary contact block SBH... Signal contact block SBS...



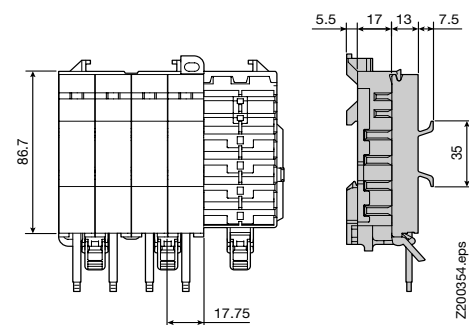
Connection support AS Dummy housing ZLS930



Adapter 100A



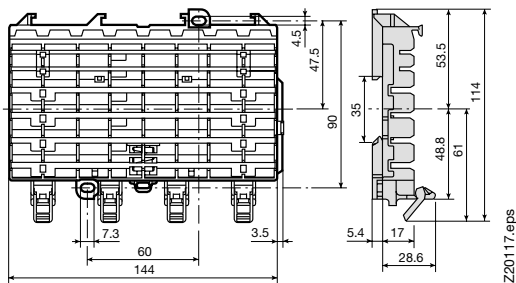
Adapter 32A, 63A



Dimensions (in mm)

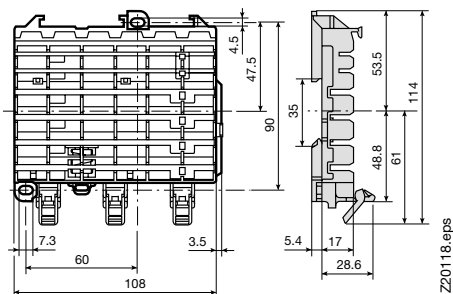
smissline sockets ZLS808

Sockets
– 8 modules

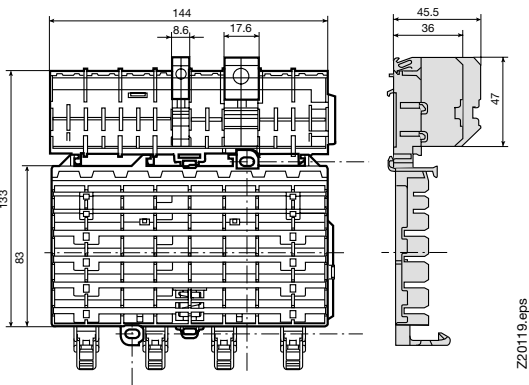


smissline sockets ZLS806

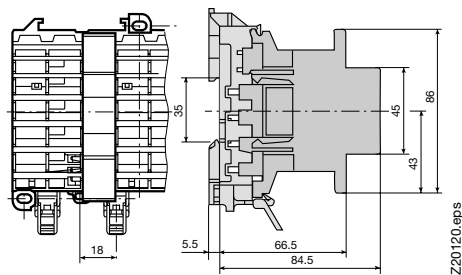
Sockets
– 6 modules



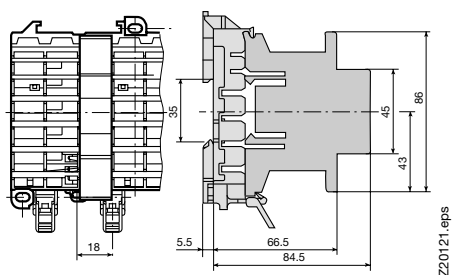
Additional socket with external terminals



Busbar isolator ZLS239



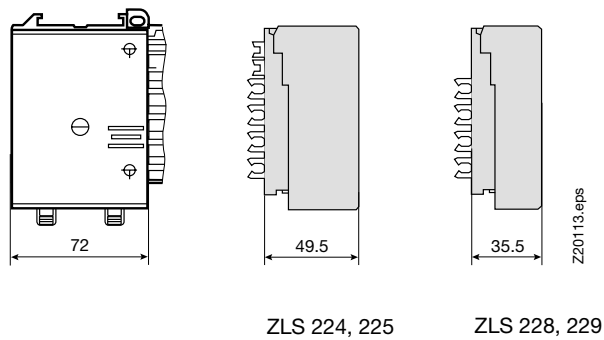
Intermediate piece ZLS722



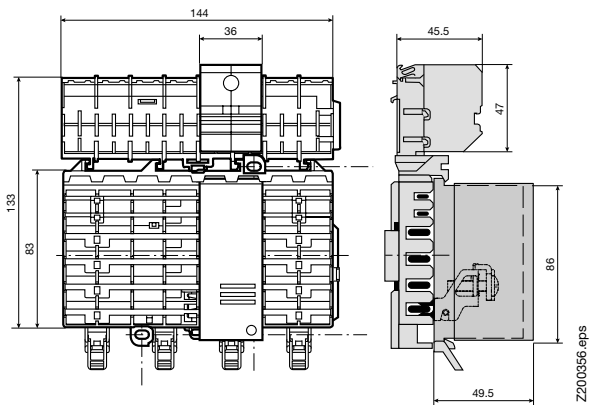
Dimensions (in mm)

smisline power supply

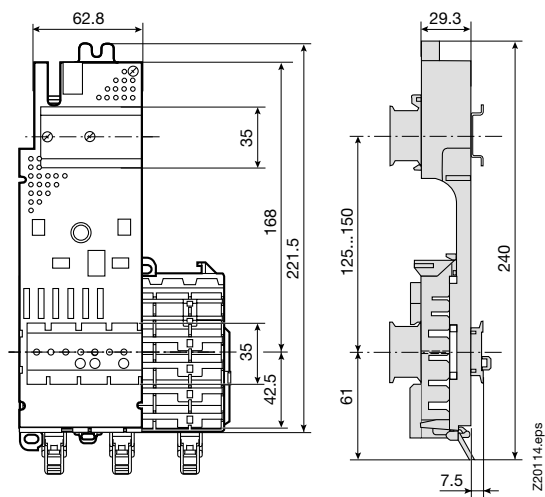
Feeder blocks



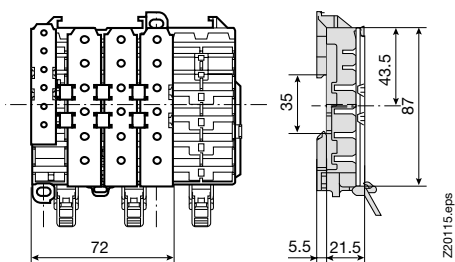
Incoming terminal component



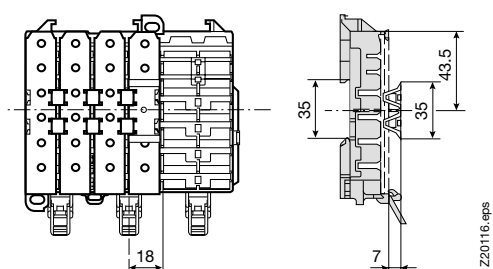
Combi module with ZLS802



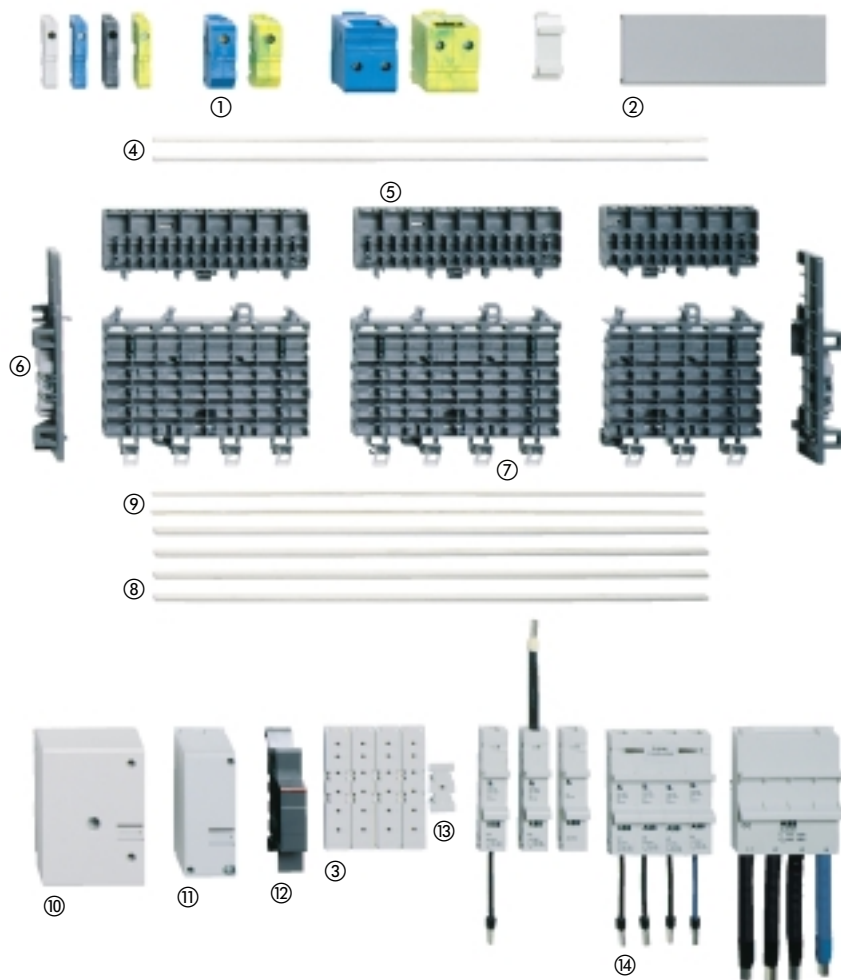
Busbar cover ZLS100



Extension adapter ZLS101



smissline Plug-in System



- 1 N and PE conductor terminals 32A, 100A and 200A
- 2 Busbar cover 9, 18 and 144 mm for additional socket
- 3 Busbar cover for the socket
- 4 Busbar for N and PE
- 5 6-module and 8-module Additional socket base
- 6 Socket end-piece
- 7 6-module and 8-module socket
- 8 Busbar for L1, L2, L3, N and PE
- 9 Busbar for auxiliary contacts
(only when use smissline components)
- 10 Incoming terminal block, Standard 100A left or right
on the system
160A on Center Power supply of the system
maximum 50 mm²
- 11 Incoming terminal oversize, Standard 200A on Center
Power supply of the system maximum 95 mm²
- 12 Busbar isolator for isolate the interrupted busbars
from each other
- 13 DIN Rail for cover for using on the busbar cover
- 14 Adapter for 32A, 63A and 100A single or
Combination bottom or top feed



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