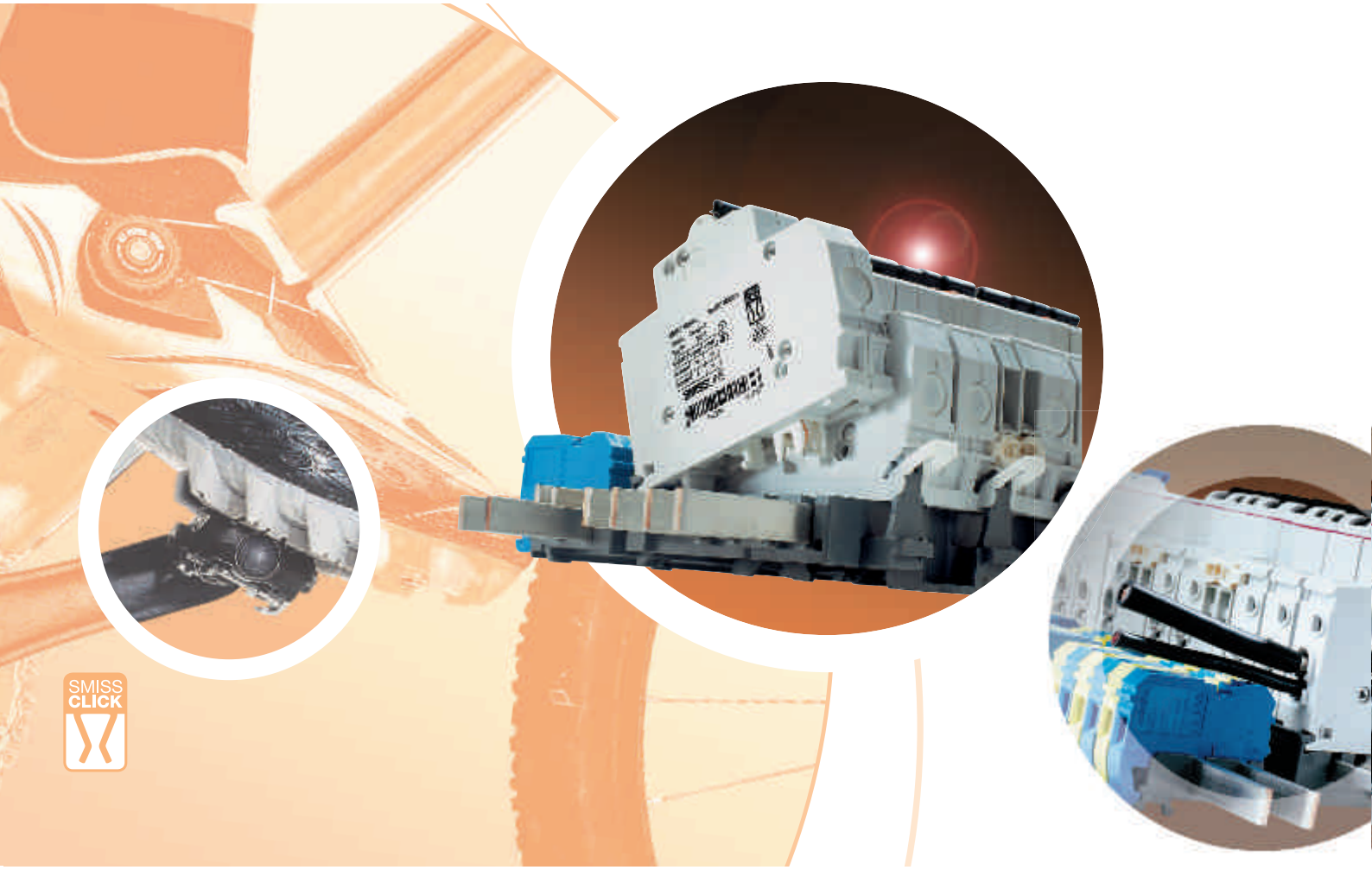
Technical catalogue

SMISSLINE

The original

ELECTRICAL PROTECTIVE DEVICES IN A SYSTEM

ABB



The original
SHAPING THE FUTURE

The new generation of electrical protective devices in a system:

- Flexible, fast and modular
- Free choice for concept and layout
- Time-saving by planning and assembly

The new generation from SMISSLINE wins customers by offering more safety, further improved handling and connection convenience. Other key benefits are: **Compatibility:** The new protective devices are 100% compatible with the previous Smissline-S-System. An exchange of devices or expansion of already existing distributions is assured. **Line conductor indication:** The line conductor connection is displayed in a window on the device. The supply connection (L1, L2, L3, N) is therefore visible without removal of the device. **Integrated strands:** For the first time ever, the supply wiring has been fully integrated in the device. When installed, the device offers full protection against direct contact.

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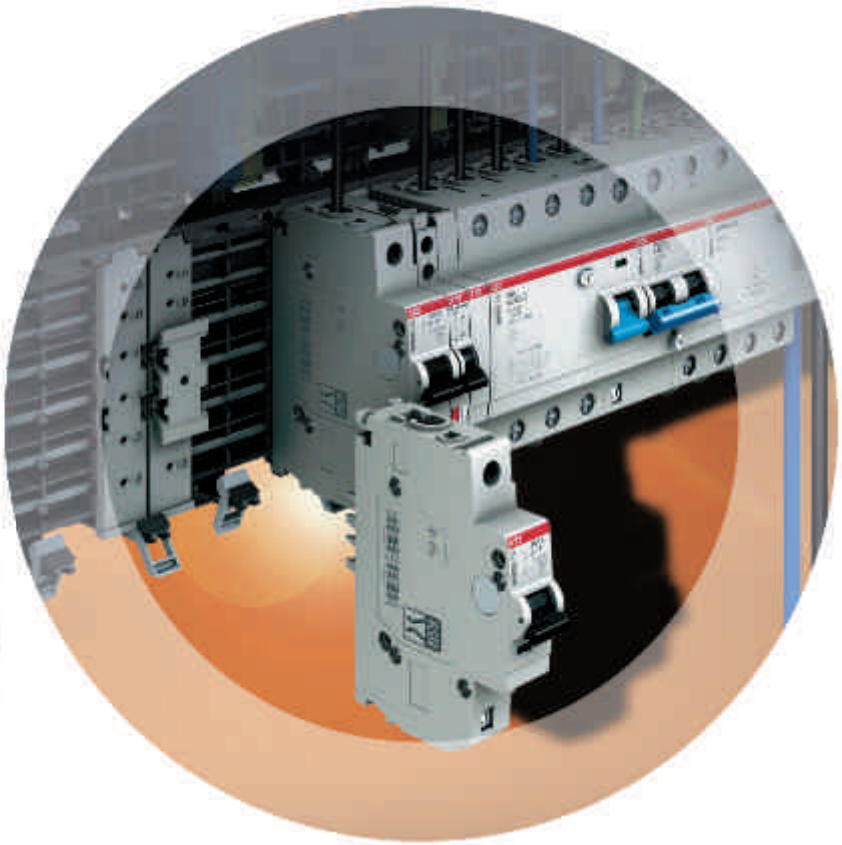


Applications

IT equipment

- Centralized equipment monitoring
- Adaptable to specific equipment requirements
- Assures optimum supply availability

Industrial buildings

- High level of power availability
- Combi module as complete motor starter unit
- Clear assignment between devices and appropriate terminals

Offices

- Flexibility for lighting and comfort control
- Extensibility
- Adaptable to changing building requirements

Shopping centres

- Easy adaptable to changing requirements
- RDC protected circuits clearly identifiable
- Single- and multipol devices can be positioned anywhere

Transport

- Short time delayed RCD's in case of long supply cables
- Protection against overvoltages
- Combi module quickly interchangeble as complete motor starter unit

Applications

Banks, insurance companies

- Quick implementation in the event of changing requirements
- Different options to supply the system
- RCD protected circuits clearly identifiable

Telecommunication

- Interchangeability of devices
- Protection against overvoltages
- Specific equipment and cable protection

Airports

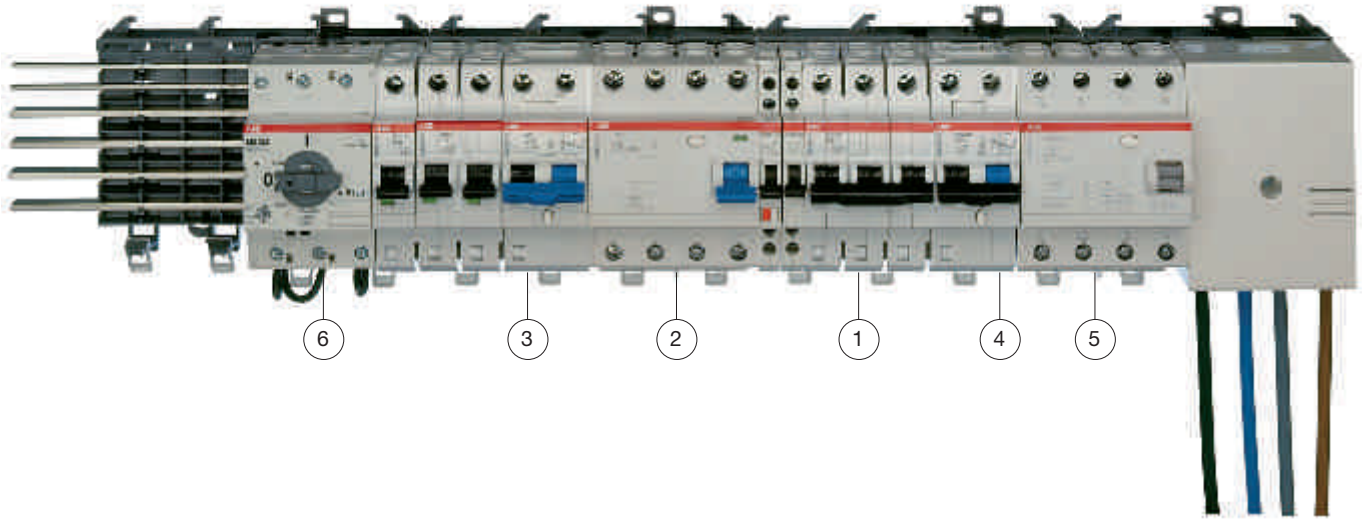
- High level of power availability
- Short implementation time
- Cost-effective adaptations

Hospitals, clinics

- High level of reliability for maintenance
- Short response time in case of incident
- High level of power availability

Radio stations, Stock Exchanges, and UPS systems

- Maintaining continuous services and operations
- Ensuring extensibility and flexibility
- Safe switching, protection and indication



Six protection devices in one system

1. Miniature circuit breaker
2. 4-pole residual current operated circuit breaker
3. 2-pole residual current operated circuit breaker
4. 2-pole residual current operated circuit breaker with over-current protection
5. Surge arrester
6. High performance manual motor starter

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SMISSLINE

Ordering details
Miniature circuit breaker (MCB)
Series S400 M-B

B

I_{cn}	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
10kA	4A	S401 M-B 4	2CCS571001R0045	761 227 010 1214	10	1	141
10kA	6A	S401 M-B 6	2CCS571001R0065	761 227 010 1221	10	1	141
10kA	8A	S401 M-B 8	2CCS571001R0085	761 227 010 8411	10	1	141
10kA	10A	S401 M-B 10	2CCS571001R0105	761 227 010 1238	10	1	141
10kA	13A	S401 M-B 13	2CCS571001R0135	761 227 010 1245	10	1	141
10kA	16A	S401 M-B 16	2CCS571001R0165	761 227 010 1252	10	1	141
10kA	20A	S401 M-B 20	2CCS571001R0205	761 227 010 1269	10	1	141
10kA	25A	S401 M-B 25	2CCS571001R0255	761 227 010 1276	10	1	141
10kA	32A	S401 M-B 32	2CCS571001R0325	761 227 010 1283	10	1	141
10kA	40A	S401 M-B 40	2CCS571001R0405	761 227 010 1290	10	1	141
10kA	50A	S401 M-B 50	2CCS571001R0505	761 227 010 1306	10	1	141
10kA	63A	S401 M-B 63	2CCS571001R0635	761 227 010 1313	10	1	141

I_{cn}	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
10kA	4A	S402 M-B 4	2CCS572001R0045	761 227 010 1986	5	2	282
10kA	6A	S402 M-B 6	2CCS572001R0065	761 227 010 1993	5	2	282
10kA	8A	S402 M-B 8	2CCS572001R0085	761 227 010 8428	5	2	282
10kA	10A	S402 M-B 10	2CCS572001R0105	761 227 010 2006	5	2	282
10kA	13A	S402 M-B 13	2CCS572001R0135	761 227 010 2013	5	2	282
10kA	16A	S402 M-B 16	2CCS572001R0165	761 227 010 2020	5	2	282
10kA	20A	S402 M-B 20	2CCS572001R0205	761 227 010 2037	5	2	282
10kA	25A	S402 M-B 25	2CCS572001R0255	761 227 010 2044	5	2	282
10kA	32A	S402 M-B 32	2CCS572001R0325	761 227 010 2051	5	2	282
10kA	40A	S402 M-B 40	2CCS572001R0405	761 227 010 2068	5	2	282
10kA	50A	S402 M-B 50	2CCS572001R0505	761 227 010 2075	5	2	282
10kA	63A	S402 M-B 63	2CCS572001R0635	761 227 010 2082	5	2	282

I_{cn}	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
10kA	4A	S403 M-B 4	2CCS573001R0045	761 227 010 2754	3	3	423
10kA	6A	S403 M-B 6	2CCS573001R0065	761 227 010 2761	3	3	423
10kA	8A	S403 M-B 8	2CCS573001R0085	761 227 010 8435	3	3	423
10kA	10A	S403 M-B 10	2CCS573001R0105	761 227 010 2778	3	3	423
10kA	13A	S403 M-B 13	2CCS573001R0135	761 227 010 2785	3	3	423
10kA	16A	S403 M-B 16	2CCS573001R0165	761 227 010 2792	3	3	423
10kA	20A	S403 M-B 20	2CCS573001R0205	761 227 010 2808	3	3	423
10kA	25A	S403 M-B 25	2CCS573001R0255	761 227 010 2815	3	3	423
10kA	32A	S403 M-B 32	2CCS573001R0325	761 227 010 2822	3	3	423
10kA	40A	S403 M-B 40	2CCS573001R0405	761 227 010 2839	3	3	423
10kA	50A	S403 M-B 50	2CCS573001R0505	761 227 010 2846	3	3	423
10kA	63A	S403 M-B 63	2CCS573001R0635	761 227 010 2853	3	3	423

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Ordering details
Miniature circuit breaker (MCB)
Series S400 M-C

SMISSLINE

C

I_{cu}	I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
50kA	10kA	0.5A	S401 M-C 0.5	2CCS571001R0984	761 227 010 1320	10	1	141
50kA	10kA	1A	S401 M-C 1	2CCS571001R0014	761 227 010 1337	10	1	141
50kA	10kA	1.6A	S401 M-C 1.6	2CCS571001R0974	761 227 010 1344	10	1	141
50kA	10kA	2A	S401 M-C 2	2CCS571001R0024	761 227 010 1351	10	1	141
25kA	10kA	3A	S401 M-C 3	2CCS571001R0034	761 227 010 1368	10	1	141
25kA	10kA	4A	S401 M-C 4	2CCS571001R0044	761 227 010 1375	10	1	141
25kA	10kA	6A	S401 M-C 6	2CCS571001R0064	761 227 010 1382	10	1	141
25kA	10kA	8A	S401 M-C 8	2CCS571001R0084	761 227 010 1399	10	1	141
25kA	10kA	10A	S401 M-C 10	2CCS571001R0104	761 227 010 1405	10	1	141
25kA	10kA	13A	S401 M-C 13	2CCS571001R0134	761 227 010 1412	10	1	141
25kA	10kA	16A	S401 M-C 16	2CCS571001R0164	761 227 010 1429	10	1	141
25kA	10kA	20A	S401 M-C 20	2CCS571001R0204	761 227 010 1436	10	1	141
10kA	10kA	25A	S401 M-C 25	2CCS571001R0254	761 227 010 1443	10	1	141
10kA	10kA	32A	S401 M-C 32	2CCS571001R0324	761 227 010 1450	10	1	141
10kA	10kA	40A	S401 M-C 40	2CCS571001R0404	761 227 010 1467	10	1	141
10kA	10kA	50A	S401 M-C 50	2CCS571001R0504	761 227 010 1474	10	1	141
10kA	10kA	63A	S401 M-C 63	2CCS571001R0634	761 227 010 1481	10	1	141

I_{cu}	I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
50kA	10kA	0.5A	S402 M-C 0.5	2CCS572001R0984	761 227 010 2099	5	2	282
50kA	10kA	1A	S402 M-C 1	2CCS572001R0014	761 227 010 2105	5	2	282
50kA	10kA	1.6A	S402 M-C 1.6	2CCS572001R0974	761 227 010 2112	5	2	282
50kA	10kA	2A	S402 M-C 2	2CCS572001R0024	761 227 010 2129	5	2	282
25kA	10kA	3A	S402 M-C 3	2CCS572001R0034	761 227 010 2136	5	2	282
25kA	10kA	4A	S402 M-C 4	2CCS572001R0044	761 227 010 2143	5	2	282
25kA	10kA	6A	S402 M-C 6	2CCS572001R0064	761 227 010 2150	5	2	282
25kA	10kA	8A	S402 M-C 8	2CCS572001R0084	761 227 010 2167	5	2	282
25kA	10kA	10A	S402 M-C 10	2CCS572001R0104	761 227 010 2174	5	2	282
25kA	10kA	13A	S402 M-C 13	2CCS572001R0134	761 227 010 2181	5	2	282
25kA	10kA	16A	S402 M-C 16	2CCS572001R0164	761 227 010 2198	5	2	282
25kA	10kA	20A	S402 M-C 20	2CCS572001R0204	761 227 010 2204	5	2	282
10kA	10kA	25A	S402 M-C 25	2CCS572001R0254	761 227 010 2211	5	2	282
10kA	10kA	32A	S402 M-C 32	2CCS572001R0324	761 227 010 2228	5	2	282
10kA	10kA	40A	S402 M-C 40	2CCS572001R0404	761 227 010 2235	5	2	282
10kA	10kA	50A	S402 M-C 50	2CCS572001R0504	761 227 010 2242	5	2	282
10kA	10kA	63A	S402 M-C 63	2CCS572001R0634	761 227 010 2259	5	2	282

I_{cu}	I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
50kA	10kA	0.5A	S403 M-C 0.5	2CCS573001R0984	761 227 010 2860	3	3	423
50kA	10kA	1A	S403 M-C 1	2CCS573001R0014	761 227 010 2877	3	3	423
50kA	10kA	1.6A	S403 M-C 1.6	2CCS573001R0974	761 227 010 2884	3	3	423
50kA	10kA	2A	S403 M-C 2	2CCS573001R0024	761 227 010 2891	3	3	423
25kA	10kA	3A	S403 M-C 3	2CCS573001R0034	761 227 010 2907	3	3	423
25kA	10kA	4A	S403 M-C 4	2CCS573001R0044	761 227 010 2914	3	3	423
25kA	10kA	6A	S403 M-C 6	2CCS573001R0064	761 227 010 2921	3	3	423
25kA	10kA	8A	S403 M-C 8	2CCS573001R0084	761 227 010 2938	3	3	423
25kA	10kA	10A	S403 M-C 10	2CCS573001R0104	761 227 010 2945	3	3	423
25kA	10kA	13A	S403 M-C 13	2CCS573001R0134	761 227 010 2952	3	3	423
25kA	10kA	16A	S403 M-C 16	2CCS573001R0164	761 227 010 2969	3	3	423
25kA	10kA	20A	S403 M-C 20	2CCS573001R0204	761 227 010 2976	3	3	423
10kA	10kA	25A	S403 M-C 25	2CCS573001R0254	761 227 010 2983	3	3	423
10kA	10kA	32A	S403 M-C 32	2CCS573001R0324	761 227 010 2990	3	3	423
10kA	10kA	40A	S403 M-C 40	2CCS573001R0404	761 227 010 3003	3	3	423
10kA	10kA	50A	S403 M-C 50	2CCS573001R0504	761 227 010 3010	3	3	423
10kA	10kA	63A	S403 M-C 63	2CCS573001R0634	761 227 010 3027	3	3	423

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SMISSLINE

Ordering details
Miniature circuit breaker (MCB)
Series S400 M-D

D

I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
10kA	6A	S401 M-D 6	2CCS571001R0061	761 227 010 1498	10	1	141
10kA	8A	S401 M-D 8	2CCS571001R0081	761 227 010 1504	10	1	141
10kA	10A	S401 M-D 10	2CCS571001R0101	761 227 010 1511	10	1	141
10kA	13A	S401 M-D 13	2CCS571001R0131	761 227 010 1528	10	1	141
10kA	16A	S401 M-D 16	2CCS571001R0161	761 227 010 1535	10	1	141
10kA	20A	S401 M-D 20	2CCS571001R0201	761 227 010 1542	10	1	141
10kA	25A	S401 M-D 25	2CCS571001R0251	761 227 010 1559	10	1	141
10kA	32A	S401 M-D 32	2CCS571001R0321	761 227 010 1566	10	1	141
10kA	40A	S401 M-D 40	2CCS571001R0401	761 227 010 1573	10	1	141
10kA	50A	S401 M-D 50	2CCS571001R0501	761 227 010 1580	10	1	141
10kA	63A	S401 M-D 63	2CCS571001R0631	761 227 010 1597	10	1	141

I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
10kA	6A	S402 M-D 6	2CCS572001R0061	761 227 010 2266	5	2	282
10kA	8A	S402 M-D 8	2CCS572001R0081	761 227 010 2273	5	2	282
10kA	10A	S402 M-D 10	2CCS572001R0101	761 227 010 2280	5	2	282
10kA	13A	S402 M-D 13	2CCS572001R0131	761 227 010 2297	5	2	282
10kA	16A	S402 M-D 16	2CCS572001R0161	761 227 010 2303	5	2	282
10kA	20A	S402 M-D 20	2CCS572001R0201	761 227 010 2310	5	2	282
10kA	25A	S402 M-D 25	2CCS572001R0251	761 227 010 2327	5	2	282
10kA	32A	S402 M-D 32	2CCS572001R0321	761 227 010 2334	5	2	282
10kA	40A	S402 M-D 40	2CCS572001R0401	761 227 010 2341	5	2	282
10kA	50A	S402 M-D 50	2CCS572001R0501	761 227 010 2358	5	2	282
10kA	63A	S402 M-D 63	2CCS572001R0631	761 227 010 2365	5	2	282

I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
10kA	6A	S403 M-D 6	2CCS573001R0061	761 227 010 3034	3	3	423
10kA	8A	S403 M-D 8	2CCS573001R0081	761 227 010 3041	3	3	423
10kA	10A	S403 M-D 10	2CCS573001R0101	761 227 010 3058	3	3	423
10kA	13A	S403 M-D 13	2CCS573001R0131	761 227 010 3065	3	3	423
10kA	16A	S403 M-D 16	2CCS573001R0161	761 227 010 3072	3	3	423
10kA	20A	S403 M-D 20	2CCS573001R0201	761 227 010 3089	3	3	423
10kA	25A	S403 M-D 25	2CCS573001R0251	761 227 010 3096	3	3	423
10kA	32A	S403 M-D 32	2CCS573001R0321	761 227 010 3102	3	3	423
10kA	40A	S403 M-D 40	2CCS573001R0401	761 227 010 3119	3	3	423
10kA	50A	S403 M-D 50	2CCS573001R0501	761 227 010 3126	3	3	423
10kA	63A	S403 M-D 63	2CCS573001R0631	761 227 010 3133	3	3	423

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Ordering details
Miniature circuit breaker (MCB)
Series S400 M-K

SMISSLINE

K

I_{cu}	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
50kA	0.5A	S401 M-K 0.5	2CCS571001R0157	761 227 010 1603	10	1	141
50kA	1A	S401 M-K 1	2CCS571001R0217	761 227 010 1610	10	1	141
50kA	1.6A	S401 M-K 1.6	2CCS571001R0257	761 227 010 1627	10	1	141
50kA	2A	S401 M-K 2	2CCS571001R0277	761 227 010 1634	10	1	141
25kA	3A	S401 M-K 3	2CCS571001R0317	761 227 010 1641	10	1	141
25kA	4A	S401 M-K 4	2CCS571001R0337	761 227 010 1658	10	1	141
25kA	6A	S401 M-K 6	2CCS571001R0377	761 227 010 1665	10	1	141
25kA	8A	S401 M-K 8	2CCS571001R0407	761 227 010 1672	10	1	141
25kA	10A	S401 M-K 10	2CCS571001R0427	761 227 010 1689	10	1	141
25kA	13A	S401 M-K 13	2CCS571001R0447	761 227 010 1696	10	1	141
25kA	16A	S401 M-K 16	2CCS571001R0467	761 227 010 1702	10	1	141
25kA	20A	S401 M-K 20	2CCS571001R0487	761 227 010 1719	10	1	141
10kA	25A	S401 M-K 25	2CCS571001R0517	761 227 010 1726	10	1	141
10kA	32A	S401 M-K 32	2CCS571001R0537	761 227 010 1733	10	1	141
10kA	40A	S401 M-K 40	2CCS571001R0557	761 227 010 1740	10	1	141
10kA	50A	S401 M-K 50	2CCS571001R0577	761 227 010 1757	10	1	141
10kA	63A	S401 M-K 63	2CCS571001R0597	761 227 010 1764	10	1	141

I_{cu}	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
50kA	0.5A	S402 M-K 0.5	2CCS572001R0157	761 227 010 2372	5	2	282
50kA	1A	S402 M-K 1	2CCS572001R0217	761 227 010 2389	5	2	282
50kA	1.6A	S402 M-K 1.6	2CCS572001R0257	761 227 010 2396	5	2	282
50kA	2A	S402 M-K 2	2CCS572001R0277	761 227 010 2402	5	2	282
25kA	3A	S402 M-K 3	2CCS572001R0317	761 227 010 2419	5	2	282
25kA	4A	S402 M-K 4	2CCS572001R0337	761 227 010 2426	5	2	282
25kA	6A	S402 M-K 6	2CCS572001R0377	761 227 010 2433	5	2	282
25kA	8A	S402 M-K 8	2CCS572001R0407	761 227 010 2440	5	2	282
25kA	10A	S402 M-K 10	2CCS572001R0427	761 227 010 2457	5	2	282
25kA	13A	S402 M-K 13	2CCS572001R0447	761 227 010 2464	5	2	282
25kA	16A	S402 M-K 16	2CCS572001R0467	761 227 010 2471	5	2	282
25kA	20A	S402 M-K 20	2CCS572001R0487	761 227 010 2488	5	2	282
10kA	25A	S402 M-K 25	2CCS572001R0517	761 227 010 2495	5	2	282
10kA	32A	S402 M-K 32	2CCS572001R0537	761 227 010 2501	5	2	282
10kA	40A	S402 M-K 40	2CCS572001R0557	761 227 010 2518	5	2	282
10kA	50A	S402 M-K 50	2CCS572001R0577	761 227 010 2525	5	2	282
10kA	63A	S402 M-K 63	2CCS572001R0597	761 227 010 2532	5	2	282

I_{cu}	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
50kA	0.5A	S403 M-K 0.5	2CCS573001R0157	761 227 010 3140	3	3	423
50kA	1A	S403 M-K 1	2CCS573001R0217	761 227 010 3157	3	3	423
50kA	1.6A	S403 M-K 1.6	2CCS573001R0257	761 227 010 3164	3	3	423
50kA	2A	S403 M-K 2	2CCS573001R0277	761 227 010 3171	3	3	423
25kA	3A	S403 M-K 3	2CCS573001R0317	761 227 010 3188	3	3	423
25kA	4A	S403 M-K 4	2CCS573001R0337	761 227 010 3195	3	3	423
25kA	6A	S403 M-K 6	2CCS573001R0377	761 227 010 3201	3	3	423
25kA	8A	S403 M-K 8	2CCS573001R0407	761 227 010 3218	3	3	423
25kA	10A	S403 M-K 10	2CCS573001R0427	761 227 010 3225	3	3	423
25kA	13A	S403 M-K 13	2CCS573001R0447	761 227 010 3232	3	3	423
25kA	16A	S403 M-K 16	2CCS573001R0467	761 227 010 3249	3	3	423
25kA	20A	S403 M-K 20	2CCS573001R0487	761 227 010 3256	3	3	423
10kA	25A	S403 M-K 25	2CCS573001R0517	761 227 010 3263	3	3	423
10kA	32A	S403 M-K 32	2CCS573001R0537	761 227 010 3270	3	3	423
10kA	40A	S403 M-K 40	2CCS573001R0557	761 227 010 3287	3	3	423
10kA	50A	S403 M-K 50	2CCS573001R0577	761 227 010 3294	3	3	423
10kA	63A	S403 M-K 63	2CCS573001R0597	761 227 010 3300	3	3	423

Ordering details for auxiliary switch and signal contacts on page 1/14

SMISSLINE

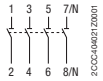
Ordering details

Miniature circuit breaker, series S400 M-B, S400 M-C (MCB) with protected neutral

The neutral is protected with 100% of the nominal value of the pole conductor

B

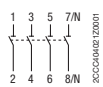
I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
10kA	6A	S401 M-B 6NP	2CCS571103R8065	761 227 010 3317	5	2	282
10kA	8A	S401 M-B 8NP	2CCS571103R8085	761 227 010 8473	5	2	282
10kA	10A	S401 M-B 10NP	2CCS571103R8105	761 227 010 3324	5	2	282
10kA	13A	S401 M-B 13NP	2CCS571103R8135	761 227 010 3331	5	2	282
10kA	16A	S401 M-B 16NP	2CCS571103R8165	761 227 010 3348	5	2	282
10kA	20A	S401 M-B 20NP	2CCS571103R8205	761 227 010 3355	5	2	282
10kA	25A	S401 M-B 25NP	2CCS571103R8255	761 227 010 3362	5	2	282
10kA	32A	S401 M-B 32NP	2CCS571103R8325	761 227 010 3379	5	2	282
10kA	40A	S401 M-B 40NP	2CCS571103R8405	761 227 010 3386	5	2	282
10kA	50A	S401 M-B 50NP	2CCS571103R8505	761 227 010 3393	5	2	282
10kA	63A	S401 M-B 63NP	2CCS571103R8635	761 227 010 3409	5	2	282



I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
10kA	6A	S403 M-B 6NP	2CCS573103R8065	761 227 010 3782	2	4	564
10kA	8A	S403 M-B 8NP	2CCS573103R8085	761 227 010 8510	2	4	564
10kA	10A	S403 M-B 10NP	2CCS573103R8105	761 227 010 3799	2	4	564
10kA	13A	S403 M-B 13NP	2CCS573103R8135	761 227 010 3805	2	4	564
10kA	16A	S403 M-B 16NP	2CCS573103R8165	761 227 010 3812	2	4	564
10kA	20A	S403 M-B 20NP	2CCS573103R8205	761 227 010 3829	2	4	564
10kA	25A	S403 M-B 25NP	2CCS573103R8255	761 227 010 3836	2	4	564
10kA	32A	S403 M-B 32NP	2CCS573103R8325	761 227 010 3843	2	4	564
10kA	40A	S403 M-B 40NP	2CCS573103R8405	761 227 010 3850	2	4	564
10kA	50A	S403 M-B 50NP	2CCS573103R8505	761 227 010 3867	2	4	564
10kA	63A	S403 M-B 63NP	2CCS573103R8635	761 227 010 3874	2	4	564

C

I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
10kA	2A	S401 M-C 2NP	2CCS571103R8024	761 227 010 8480	5	2	282
10kA	3A	S401 M-C 3NP	2CCS571103R8034	761 227 010 8497	5	2	282
10kA	4A	S401 M-C 4NP	2CCS571103R8044	761 227 010 8503	5	2	282
10kA	6A	S401 M-C 6NP	2CCS571103R8064	761 227 010 3416	5	2	282
10kA	8A	S401 M-C 8NP	2CCS571103R8084	761 227 010 3423	5	2	282
10kA	10A	S401 M-C 10NP	2CCS571103R8104	761 227 010 3430	5	2	282
10kA	13A	S401 M-C 13NP	2CCS571103R8134	761 227 010 3447	5	2	282
10kA	16A	S401 M-C 16NP	2CCS571103R8164	761 227 010 3454	5	2	282
10kA	20A	S401 M-C 20NP	2CCS571103R8204	761 227 010 3461	5	2	282
10kA	25A	S401 M-C 25NP	2CCS571103R8254	761 227 010 3478	5	2	282
10kA	32A	S401 M-C 32NP	2CCS571103R8324	761 227 010 3485	5	2	282
10kA	40A	S401 M-C 40NP	2CCS571103R8404	761 227 010 3492	5	2	282
10kA	50A	S401 M-C 50NP	2CCS571103R8504	761 227 010 3508	5	2	282
10kA	63A	S401 M-C 63NP	2CCS571103R8634	761 227 010 3515	5	2	282



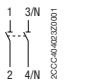
I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
10kA	2A	S403 M-C 2NP	2CCS573103R8024	761 227 010 8527	2	4	564
10kA	3A	S403 M-C 3NP	2CCS573103R8034	761 227 010 8534	2	4	564
10kA	4A	S403 M-C 4NP	2CCS573103R8044	761 227 010 8541	2	4	564
10kA	6A	S403 M-C 6NP	2CCS573103R8064	761 227 010 3881	2	4	564
10kA	8A	S403 M-C 8NP	2CCS573103R8084	761 227 010 3898	2	4	564
10kA	10A	S403 M-C 10NP	2CCS573103R8104	761 227 010 3904	2	4	564
10kA	13A	S403 M-C 13NP	2CCS573103R8134	761 227 010 3911	2	4	564
10kA	16A	S403 M-C 16NP	2CCS573103R8164	761 227 010 3928	2	4	564
10kA	20A	S403 M-C 20NP	2CCS573103R8204	761 227 010 3935	2	4	564
10kA	25A	S403 M-C 25NP	2CCS573103R8254	761 227 010 3942	2	4	564
10kA	32A	S403 M-C 32NP	2CCS573103R8324	761 227 010 3959	2	4	564
10kA	40A	S403 M-C 40NP	2CCS573103R8404	761 227 010 3966	2	4	564
10kA	50A	S403 M-C 50NP	2CCS573103R8504	761 227 010 3973	2	4	564
10kA	63A	S403 M-C 63NP	2CCS573103R8634	761 227 010 3980	2	4	564

Ordering details for auxiliary switch and signal contacts on page 1/14

Ordering details

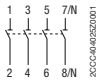
Miniature circuit breaker, series S400 M-D, S400 M-K (MCB) with protected neutral

The neutral is protected with 100% of the nominal value of the pole conductor



D

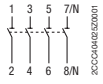
I_{cn}	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
10kA	10A	S401 M-D 10NP	2CCS571103R8101	761 227 010 3522	5	2	282
10kA	13A	S401 M-D 13NP	2CCS571103R8131	761 227 010 3539	5	2	282
10kA	16A	S401 M-D 16NP	2CCS571103R8161	761 227 010 3546	5	2	282
10kA	20A	S401 M-D 20NP	2CCS571103R8201	761 227 010 3553	5	2	282
10kA	25A	S401 M-D 25NP	2CCS571103R8251	761 227 010 3560	5	2	282
10kA	32A	S401 M-D 32NP	2CCS571103R8321	761 227 010 3577	5	2	282
10kA	40A	S401 M-D 40NP	2CCS571103R8401	761 227 010 3584	5	2	282
10kA	50A	S401 M-D 50NP	2CCS571103R8501	761 227 010 3591	5	2	282
10kA	63A	S401 M-D 63NP	2CCS571103R8631	761 227 010 3607	5	2	282



I_{cn}	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
10kA	10A	S403 M-D 10NP	2CCS573103R8101	761 227 010 3997	2	4	564
10kA	13A	S403 M-D 13NP	2CCS573103R8131	761 227 010 4000	2	4	564
10kA	16A	S403 M-D 16NP	2CCS573103R8161	761 227 010 4017	2	4	564
10kA	20A	S403 M-D 20NP	2CCS573103R8201	761 227 010 4024	2	4	564
10kA	25A	S403 M-D 25NP	2CCS573103R8251	761 227 010 4031	2	4	564
10kA	32A	S403 M-D 32NP	2CCS573103R8321	761 227 010 4048	2	4	564
10kA	40A	S403 M-D 40NP	2CCS573103R8401	761 227 010 4055	2	4	564
10kA	50A	S403 M-D 50NP	2CCS573103R8501	761 227 010 4062	2	4	564
10kA	63A	S403 M-D 63NP	2CCS573103R8631	761 227 010 4079	2	4	564

K

I_{cu}	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
50kA	0.5A	S401 M-K 0.5NP	2CCS571103R8157	761 227 010 3614	5	2	282
50kA	1A	S401 M-K 1NP	2CCS571103R8217	761 227 010 3621	5	2	282
50kA	1.6A	S401 M-K 1.6NP	2CCS571103R8257	761 227 010 3638	5	2	282
50kA	2A	S401 M-K 2NP	2CCS571103R8277	761 227 010 3645	5	2	282
25kA	3A	S401 M-K 3NP	2CCS571103R8317	761 227 010 3652	5	2	282
25kA	4A	S401 M-K 4NP	2CCS571103R8337	761 227 010 3669	5	2	282
25kA	6A	S401 M-K 6NP	2CCS571103R8377	761 227 010 3676	5	2	282
25kA	8A	S401 M-K 8NP	2CCS571103R8407	761 227 010 3683	5	2	282
25kA	10A	S401 M-K 10NP	2CCS571103R8427	761 227 010 3690	5	2	282
25kA	13A	S401 M-K 13NP	2CCS571103R8447	761 227 010 3706	5	2	282
25kA	16A	S401 M-K 16NP	2CCS571103R8467	761 227 010 3713	5	2	282
25kA	20A	S401 M-K 20NP	2CCS571103R8487	761 227 010 3720	5	2	282
10kA	25A	S401 M-K 25NP	2CCS571103R8517	761 227 010 3737	5	2	282
10kA	32A	S401 M-K 32NP	2CCS571103R8537	761 227 010 3744	5	2	282
10kA	40A	S401 M-K 40NP	2CCS571103R8557	761 227 010 3751	5	2	282
10kA	50A	S401 M-K 50NP	2CCS571103R8577	761 227 010 3768	5	2	282
10kA	63A	S401 M-K 63NP	2CCS571103R8597	761 227 010 3775	5	2	282



I_{cu}	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
50kA	0.5A	S403 M-K 0.5NP	2CCS573103R8157	761 227 010 4086	2	4	564
50kA	1A	S403 M-K 1NP	2CCS573103R8217	761 227 010 4093	2	4	564
50kA	1.6A	S403 M-K 1.6NP	2CCS573103R8257	761 227 010 4109	2	4	564
50kA	2A	S403 M-K 2NP	2CCS573103R8277	761 227 010 4116	2	4	564
25kA	3A	S403 M-K 3NP	2CCS573103R8317	761 227 010 4123	2	4	564
25kA	4A	S403 M-K 4NP	2CCS573103R8337	761 227 010 4130	2	4	564
25kA	6A	S403 M-K 6NP	2CCS573103R8377	761 227 010 4147	2	4	564
25kA	8A	S403 M-K 8NP	2CCS573103R8407	761 227 010 4154	2	4	564
25kA	10A	S403 M-K 10NP	2CCS573103R8427	761 227 010 4161	2	4	564
25kA	13A	S403 M-K 13NP	2CCS573103R8447	761 227 010 4178	2	4	564
25kA	16A	S403 M-K 16NP	2CCS573103R8467	761 227 010 4185	2	4	564
25kA	20A	S403 M-K 20NP	2CCS573103R8487	761 227 010 4192	2	4	564
10kA	25A	S403 M-K 25NP	2CCS573103R8517	761 227 010 4208	2	4	564
10kA	32A	S403 M-K 32NP	2CCS573103R8537	761 227 010 4215	2	4	564
10kA	40A	S403 M-K 40NP	2CCS573103R8557	761 227 010 4222	2	4	564
10kA	50A	S403 M-K 50NP	2CCS573103R8577	761 227 010 4239	2	4	564
10kA	63A	S403 M-K 63NP	2CCS573103R8597	761 227 010 4246	2	4	564

Ordering details for auxiliary switch and signal contacts on page 1/14

Ordering details
Miniature circuit breaker (MCB)
Series LPUC-C, DC application

C

1 P 125 V=

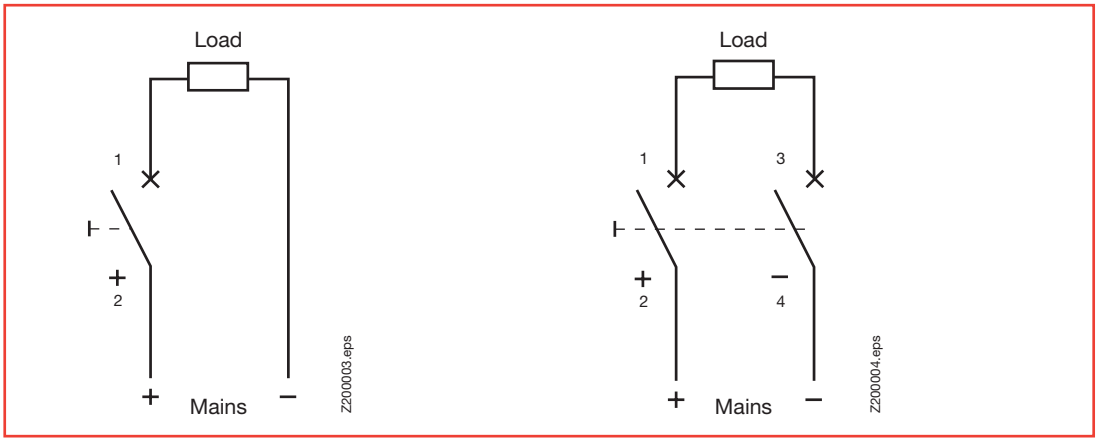
I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
50kA	0.5A	LPUC1C0.5-S	2CCF014349R0001	761 227 004 9202	10	1	145
50kA	1A	LPUC1C1-S	2CCF014385R0001	761 227 004 4214	10	1	145
50kA	1.6A	LPUC1C1.6-S	2CCF014351R0001	761 227 004 9226	10	1	145
50kA	2A	LPUC1C2-S	2CCF014387R0001	761 227 004 4238	10	1	145
6kA	3A	LPUC1C3-S	2CCF014388R0001	761 227 004 4245	10	1	145
6kA	4A	LPUC1C4-S	2CCF014389R0001	761 227 004 4252	10	1	145
6kA	6A	LPUC1C6-S	2CCF014390R0001	761 227 004 4269	10	1	145
6kA	8A	LPUC1C8-S	2CCF014391R0001	761 227 004 4276	10	1	145
6kA	10A	LPUC1C10-S	2CCF014392R0001	761 227 004 4283	10	1	145
6kA	13A	LPUC1C13-S	2CCF014393R0001	761 227 004 4290	10	1	145
6kA	16A	LPUC1C16-S	2CCF014394R0001	761 227 004 4306	10	1	145
6kA	20A	LPUC1C20-S	2CCF014395R0001	761 227 004 4313	10	1	145
6kA	25A	LPUC1C25-S	2CCF014396R0001	761 227 004 4320	10	1	145
6kA	32A	LPUC1C32-S	2CCF014397R0001	761 227 004 4337	10	1	145
6kA	40A	LPUC1C40-S	2CCF014398R0001	761 227 004 4344	10	1	145
6kA	50A	LPUC1C50-S	2CCF014399R0001	761 227 004 4351	10	1	145
6kA	63A	LPUC1C63-S	2CCF014400R0001	761 227 004 4368	10	1	145

2 P 250 V=

I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
50kA	0.5A	LPUC2C0.5-S	2CCF014366R0001	761 227 005 0208	5	2	285
50kA	1A	LPUC2C1-S	2CCF014402R0001	761 227 004 5211	5	2	285
50kA	1.6A	LPUC2C1.6-S	2CCF014368R0001	761 227 005 0222	5	2	285
50kA	2A	LPUC2C2-S	2CCF014404R0001	761 227 004 5235	5	2	285
6kA	3A	LPUC2C3-S	2CCF014405R0001	761 227 004 5242	5	2	285
6kA	4A	LPUC2C4-S	2CCF014406R0001	761 227 004 5259	5	2	285
6kA	6A	LPUC2C6-S	2CCF014407R0001	761 227 004 5266	5	2	285
6kA	8A	LPUC2C8-S	2CCF014408R0001	761 227 004 5273	5	2	285
6kA	10A	LPUC2C10-S	2CCF014409R0001	761 227 004 5280	5	2	285
6kA	13A	LPUC2C13-S	2CCF014410R0001	761 227 004 5297	5	2	285
6kA	16A	LPUC2C16-S	2CCF014411R0001	761 227 004 5303	5	2	285
6kA	20A	LPUC2C20-S	2CCF014412R0001	761 227 004 5310	5	2	285
6kA	25A	LPUC2C25-S	2CCF014413R0001	761 227 004 5327	5	2	285
6kA	32A	LPUC2C32-S	2CCF014414R0001	761 227 004 5334	5	2	285
6kA	40A	LPUC2C40-S	2CCF014415R0001	761 227 004 5341	5	2	285
6kA	50A	LPUC2C50-S	2CCF014416R0001	761 227 004 5358	5	2	285
6kA	63A	LPUC2C63-S	2CCF014417R0001	761 227 004 5365	5	2	285

Ordering details for auxiliary switch and signal contacts on page 1/15

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



Ordering details
Miniature circuit breaker (MCB)
Series LPUC-Z, DC application

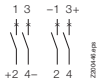
SMISSLINE

Z

1 P 125 V=

I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
50kA	0.5A	LPUC1Z0.5-S	2CCF014061R0001	761 227 004 9004	10	1	145
50kA	1A	LPUC1Z1-S	2CCF014028R0001	761 227 004 4016	10	1	145
50kA	1.6A	LPUC1Z1.6-S	2CCF014063R0001	761 227 004 9028	10	1	145
50kA	2A	LPUC1Z2-S	2CCF014030R0001	761 227 004 4030	10	1	145
6kA	3A	LPUC1Z3-S	2CCF014031R0001	761 227 004 4047	10	1	145
6kA	4A	LPUC1Z4-S	2CCF014032R0001	761 227 004 4054	10	1	145
6kA	6A	LPUC1Z6-S	2CCF014033R0001	761 227 004 4061	10	1	145
6kA	8A	LPUC1Z8-S	2CCF014034R0001	761 227 004 4078	10	1	145
6kA	10A	LPUC1Z10-S	2CCF014433R0001	761 227 004 4085	10	1	145
6kA	13A	LPUC1Z13-S	2CCF014434R0001	761 227 004 4092	10	1	145
6kA	16A	LPUC1Z16-S	2CCF014435R0001	761 227 004 4108	10	1	145
6kA	20A	LPUC1Z20-S	2CCF014436R0001	761 227 004 4115	10	1	145
6kA	25A	LPUC1Z25-S	2CCF014437R0001	761 227 004 4122	10	1	145
6kA	32A	LPUC1Z32-S	2CCF014438R0001	761 227 004 4139	10	1	145
6kA	40A	LPUC1Z40-S	2CCF014439R0001	761 227 004 4146	10	1	145
6kA	50A	LPUC1Z50-S	2CCF014440R0001	761 227 004 4153	10	1	145
6kA	63A	LPUC1Z63-S	2CCF014441R0001	761 227 004 4160	10	1	145

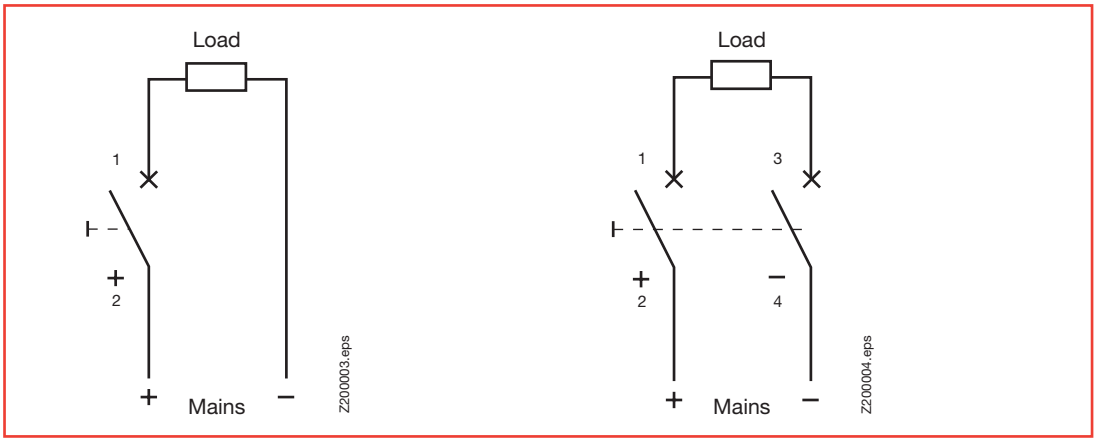
2 P 250 V=



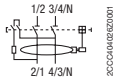
I_{cn}	I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
50kA	0.5A	LPUC2Z0.5-S	2CCF014078R0001	761 227 005 0000	5	2	285
50kA	1A	LPUC2Z1-S	2CCF014045R0001	761 227 004 5013	5	2	285
50kA	1.6A	LPUC2Z1.6-S	2CCF014080R0001	761 227 005 0024	5	2	285
50kA	2A	LPUC2Z2-S	2CCF014047R0001	761 227 004 5037	5	2	285
6kA	3A	LPUC2Z3-S	2CCF014048R0001	761 227 004 5044	5	2	285
6kA	4A	LPUC2Z4-S	2CCF014049R0001	761 227 004 5051	5	2	285
6kA	6A	LPUC2Z6-S	2CCF014050R0001	761 227 004 5068	5	2	285
6kA	8A	LPUC2Z8-S	2CCF014051R0001	761 227 004 5075	5	2	285
6kA	10A	LPUC2Z10-S	2CCF014442R0001	761 227 004 5082	5	2	285
6kA	13A	LPUC2Z13-S	2CCF014443R0001	761 227 004 5099	5	2	285
6kA	16A	LPUC2Z16-S	2CCF014444R0001	761 227 004 5105	5	2	285
6kA	20A	LPUC2Z20-S	2CCF014445R0001	761 227 004 5112	5	2	285
6kA	25A	LPUC2Z25-S	2CCF014446R0001	761 227 004 5129	5	2	285
6kA	32A	LPUC2Z32-S	2CCF014447R0001	761 227 004 5136	5	2	285
6kA	40A	LPUC2Z40-S	2CCF014448R0001	761 227 004 5143	5	2	285
6kA	50A	LPUC2Z50-S	2CCF014449R0001	761 227 004 5150	5	2	285
6kA	63A	LPUC2Z63-S	2CCF014450R0001	761 227 004 5167	5	2	285

Ordering details for auxiliary switch and signal contacts on page 1/15

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



Ordering details
2-pole residual current operated circuit breaker

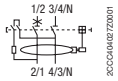


2-pole residual current operated circuit breaker, series F402 (RCCB)

$I_{\triangle n}$	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
10mA	25A	F402 A 25/0.01	2CCF552100E0250	761 227 010 4420	2	2	250
30mA	25A	F402 A 25/0.03	2CCF552110E0250	761 227 010 4437	2	2	250
30mA	40A	F402 A 40/0.03	2CCF552110E0400	761 227 010 4444	2	2	250
100mA	40A	F402 A 40/0.1	2CCF552020E0400	761 227 010 9241	2	2	250

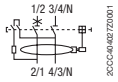
2-pole short time delayed residual current operated circuit breaker, series F402 K

$I_{\triangle n}$	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
30mA	40A	F402 A-K 40/0.03	2CCF552310E0400	761 227 010 4482	2	2	250



2-pole residual current operated circuit breaker with overcurrent protection, series FS401E. (RCBO)
Rated breaking capacity 6kA, B, C

$I_{\triangle n}$	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
30mA	13A	FS401 E-B 13/0.03	2CCL562111E0135	761 227 010 8558	2	2	250
30mA	16A	FS401 E-B 16/0.03	2CCL562111E0165	761 227 010 8565	2	2	250
30mA	20A	FS401 E-B 20/0.03	2CCL562111E0205	761 227 010 9692	2	2	250
30mA	25A	FS401 E-B 25/0.03	2CCL562111E0255	761 227 010 9708	2	2	250
30mA	32A	FS401 E-C 32/0.03	2CCL562111E0325	761 227 010 9715	2	2	250
30mA	13A	FS401 E-C 13/0.03	2CCL562111E0134	761 227 010 8572	2	2	250
30mA	16A	FS401 E-C 16/0.03	2CCL562111E0164	761 227 010 8589	2	2	250
30mA	20A	FS401 E-C 20/0.03	2CCL562110E0204	761 227 010 4574	2	2	250
30mA	25A	FS401 E-C 25/0.03	2CCL562110E0254	761 227 010 4581	2	2	250
30mA	32A	FS401 E-C 32/0.03	2CCL562110E0324	761 227 010 4598	2	2	250



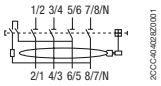
2-pole residual current operated circuit breaker with overcurrent protection, series FS401M. (RCBO)
Rated breaking capacity 10kA, B, C

$I_{\triangle n}$	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
30mA	10A	FS401 M-B 10/0.03	2CCL462110E0105	761 227 010 9685	2	2	250
30mA	13A	FS401 M-B 13/0.03	2CCL562110E0135	761 227 010 4505	2	2	250
30mA	16A	FS401 M-B 16/0.03	2CCL562110E0165	761 227 010 4512	2	2	250
30mA	10A	FS401 M-C 10/0.03	2CCL562110E0104	761 227 010 4543	2	2	250
10mA	13A	FS401 M-C 13/0.01	2CCL562100E0134	761 227 010 4529	2	2	250
30mA	13A	FS401 M-C 13/0.03	2CCL562110E0134	761 227 010 4550	2	2	250
10mA	16A	FS401 M-C 16/0.01	2CCL562100E0164	761 227 010 4536	2	2	250
30mA	16A	FS401 M-C 16/0.03	2CCL562110E0164	761 227 010 4567	2	2	250

2-pole short time delayed residual current operated circuit breaker with overcurrent protection series FS401 M K (10kA) and FS401 E K (RCBO)
Rated breaking capacity 6kA, C

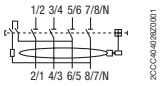
$I_{\triangle n}$	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
30mA	13A	FS401 M K-C 13/0.03	2CCL562310E0134	761 227 010 4604	2	2	250
30mA	16A	FS401 M K-C 16/0.03	2CCL562310E0164	761 227 010 4611	2	2	250
30mA	20A	FS401 E K-C 20/0.03	2CCL562310E0204	761 227 010 4628	2	2	250
30mA	25A	FS401 E K-C 25/0.03	2CCL562310E0254	761 227 010 4635	2	2	250
30mA	32A	FS401 E K-C 32/0.03	2CCL562310E0324	761 227 010 4642	2	2	250

Ordering details for auxiliary switch and signal contacts on page 1/14



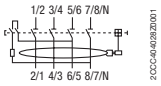
4-pole residual current operated circuit breaker, series F404 (RCCB)

$I_{\triangle n}$	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
30mA	25A	F404 A 25/0.03	2CCF544110E0250	761 227 010 4253	1	4	430
30mA	40A	F404 A 40/0.03	2CCF544110E0400	761 227 010 4260	1	4	430
100mA	40A	F404 A 40/0.1	2CCF544120E0400	761 227 010 4277	1	4	430
300mA	40A	F404 A 40/0.3	2CCF544130E0400	761 227 010 4284	1	4	430
30mA	63A	F404 A 63/0.03	2CCF544110E0630	761 227 010 4291	1	4	430
100mA	63A	F404 A 63/0.1	2CCF544120E0630	761 227 010 4307	1	4	430
300mA	63A	F404 A 63/0.3	2CCF544130E0630	761 227 010 4314	1	4	430



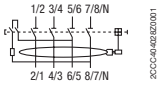
4-pole short time delayed residual current operated circuit breaker, series F404 K (RCCB)

$I_{\triangle n}$	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
30mA	40A	F404 A-K 40/0.03	2CCF544310E0400	761 227 010 4321	1	4	430
100mA	40A	F404 A-K 40/0.1	2CCF544320E0400	761 227 010 4338	1	4	430
30mA	63A	F404 A-K 63/0.03	2CCF544310E0630	761 227 010 4345	1	4	430



4-pole selective residual current operated circuit breaker, series F404 S (RCCB)

$I_{\triangle n}$	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
100mA	63A	F404 A-S 63/0.1	2CCF544220E0630	761 227 010 4352	1	4	430
300mA	63A	F404 A-S 63/0.3	2CCF544230E0630	761 227 010 4369	1	4	430

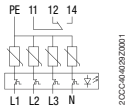


4-pole residual current operated circuit breaker, special design 16 $^2/_3$ Hz, series F404 LF (RCCB)

$I_{\triangle n}$	I_n	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
30mA	63A	F404 A-LF 63/0.03	2CCF544110E0631	761 227 010 4376	1	4	430
300mA	63A	F404 A-LF 63/0.3	2CCF544130E0631	761 227 010 4383	1	4	430

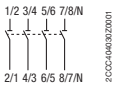
Ordering details for auxiliary swich and signal contacts on page 1/14

Ordering details
Surge arrester
Switch disconnector



Surge arrester OVR404

Isn (8/20µs)	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
15kA	OVR404 TNS	2CCF544160E0001	761 227 010 4406	1	4	430



Switch disconnector IS404

I_n	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
63A	IS404 63	2CCF544160E0630	761 227 010 4390	1	4	380

Ordering details for auxiliary switch and signal contacts on page 1/14

High performance manual motor starter MS325

Adjustment ranges in A	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
0.1 - 0.16A	MS325-0.16-S	2CCF004143R0001	761 227 002 9006	1	3	340
0.16 - 0.25A	MS325-0.25-S	2CCF004145R0001	761 227 002 9051	1	3	340
0.25 - 0.4A	MS325-0.4-S	2CCF004147R0001	761 227 002 9105	1	3	340
0.4 - 0.63A	MS325-0.63-S	2CCF004149R0001	761 227 002 9150	1	3	340
0.63 - 1A	MS325-1-S	2CCF004151R0001	761 227 002 9204	1	3	340
1 - 1.6A	MS325-1.6-S	2CCF004153R0001	761 227 002 9228	1	3	340
1.6 - 2.5A	MS325-2.5-S	2CCF004155R0001	761 227 002 9341	1	3	340
2.5 - 4A	MS325-4-S	2CCF004157R0001	761 227 002 9433	1	3	340
4 - 6.3A	MS325-6.3-S	2CCF004159R0001	761 227 002 9488	1	3	340
6.3 - 9A	MS325-9-S	2CCF004161R0001	761 227 002 9532	1	3	340
9 - 12.5A	MS325-12.5-S	2CCF004163R0001	761 227 002 9303	1	3	340
12.5 - 16A	MS325-16-S	2CCF004165R0001	761 227 002 9327	1	3	340
16 - 20A	MS325-20-S	2CCF004167R0001	761 227 002 9396	1	3	340
20 - 25A	MS325-25-S	2CCF004169R0001	761 227 002 9419	1	3	340

Ordering details for accessories, auxiliary switch and signal contacts on page 1/15

Adapter plate for contact to busbars with plug contacts

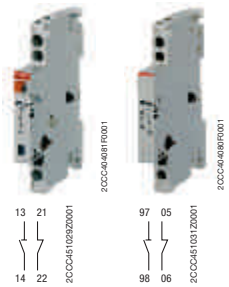
	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
- 3L	ZMS915	2CCF002817R0001	761 227 002 1215	10		30
- 3L+N (20A reduced)	ZMS923	2CCF010409R0001	761 227 002 1291	10		30
- 2L (reversible)	ZMS919	2CCF010620R0001	761 227 002 1253	10		30
- 1L+N (reversible)	ZMS920	2CCF010403R0001	761 227 002 1260	10		30

Undervoltage release (UA)

for insertion in smissline MS325

Rated voltage	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
400 V ~	SMUA400	2CCF004140R0001	761 227 001 5177	1		23
230 V ~	SMUA230	2CCA540604R0001	761 227 001 5153	1		23

Auxiliary switch and signal contacts for MS325



	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Auxiliary switch SBH						
1NO and 1 NC	SBH11	2CCF002752R0001	761 227 001 4514	10	0.5	40
Signal contact block SBS						
1NO	SBS10	2CCF002755R0001	761 227 001 4545	10	0.5	40
1NC	SBS01	2CCF002754R0001	761 227 001 4538	10	0.5	40

SMISSLINE

Ordering details

Auxiliary switch and signal contacts
MCB S400, RCCB F404, RCCB F402, RCBO FS401

The auxiliary switch and signal contacts are supplied with one contacting piece.
The signal contact collective alarm has two contacting pieces.

Auxiliary switch

for left side mounting on MCB S400, RCCB F402, RCBO FS401

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
1NO and 1 NC	HK40011-L	2CCS500900R0081	761 227 010 09	10	0.5	45
2NO	HK45020-L	2CCF201002R0001	7612270111220	10	0.5	40
2NC	HK45002-L	2CCF201004R0001	7612270111237	10	0.5	40

Auxiliary switch for right side mounting on MCB S400, RCCB F404 and IS404

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
1NO and 1 NC	HK40011-R	2CCS500900R0214	761 227 010 8619	10	0.5	45
2NO	HK45020-R	2CCF201003R0001	7612270111244	10	0.5	40
2NC	HK45002-R	2CCF201005R0001	7612270111251	10	0.5	40

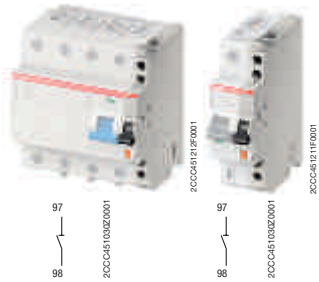
Signal contacts

for left side mounting on MCB S400, RCCB F402, RCBO FS401

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
1NO and 1 NC	SK40011-L	2CCS500900R0101	761 227 010 0934	10	0.5	45
2NO	SK45020-L	2CCF201052R0001	7612270111145	10	0.5	40
2NC	SK45002-L	2CCF201054R0001	7612270111152	10	0.5	40

Signal contacts for right side mounting on MCB S400 and RCCB F404

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
1NO and 1 NC	SK40011-R	2CCS500900R0215	761 227 010 8626	10	0.5	45
2NO	SK45020-R	2CCF201053R0001	7612270111169	10	0.5	40
2NC	SK45002-R	2CCF201055R0001	7612270111176	10	0.5	40



Signal contact collective alarm

for left side mounting

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
1NO	SK400 10-L SA	2CCS500900R0141	761 227 010 7964	10	0.5	45

for left side mounting

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
1S	SK400 10-R SA	2CCS500900R0216	761 227 010 8633	10	0.5	45

The signal and auxiliary contact with 2S and 2Ö are available from September 2007.

Ordering details
Auxiliary switch and signal contacts
MCB LPUC. Neutral disconnector

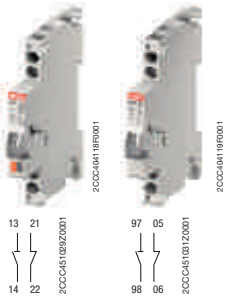
Connection support dummy housing

for left or right side mounting on MCB S400, RCCB F402, RCCB F404, RCBO FS401

Connection support	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
	AS400	2CCS500900R0151	761 227 010 0958	10	0.5	45
Dummy housing						
Compensation to 18 mm	ZLS931	2CCS500900R0161	761 227 010 0965	10	0.5	35

Contacting pieces for auxiliary switch and signal contacts

	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Contacting piece for HK/SK LA, LB	ZLS632	2CCS500900R0171	761 227 010 0972	Pack contains 100 items		200
Contacting piece for HK/SK LA, LB	ZLS 635	2CC5201307R0171	761 227 010 9265	Pack contains 10 items		20
Contact Pin	ZLS 633	2CC500900R0201	761 227 010 8640	Pack contains 10 items		

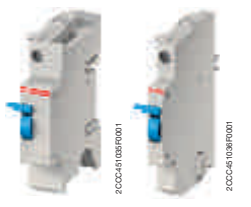


Auxiliary switch and signal contacts for LPUC

	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Auxiliary switch SDH						
1NO and 1 NC	SDH11	2CCF002757R0001	761 227 001 4620	10	0.5	
Signal contact block SDS						
1NO and 1 NC	SDS11	2CCF002760R0001	761 227 001 4651	10	0.5	

Connection support, dummy housing, contact pin for MS325 and LPUC

	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Connection support						
	ZMS400	2CCA180790R0001	761 227 002 1154	10	0.5	32
Dummy housing						
	ZLS930	2CCF002812R0001	761 227 001 9809	10	0.5	20
Contact pin, short						
for power supply via auxiliary busbars	ZLS630	2CCF002794R0001	761 227 001 9526	10	-	3

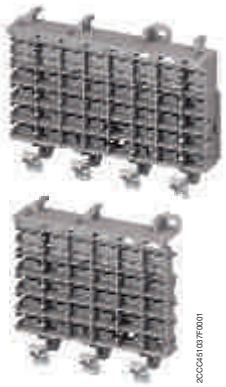


Neutral disconnector

On the load side terminal two separate conductors can be clamped

	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Neutral disconnector 9 mm	NT401 63	2CCS500900R0021	761 227 010 0859	10	0.5	45
Neutral disconnector 18 mm	NT402 63	2CCS500900R0011	761 227 010 0842	10	1	58
Compensation to 18 mm for NT401 63	ZLS728	2CCS400900R0101	761 227 010 4710	1 bag contains 5 items	0.5	15

Ordering details
Sockets, Starter pack



Socket bases

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
8-module socket Length 144 mm	ZLS808	2CCA180160R0001	761 227 002 1796	10	8	80
6-module socket Length 108 mm	ZLS806	2CCA180161R0001	761 227 002 1789	10	6	60

Starter pack

Contains socket bases with 3 or 4 main busbars already inserted as required and two end pieces.

Solutions available:	Type	ABB IT number name	EAN number	Packaging unit	Weight in grams
20 PLE 3L (1x8-module+2x6-module sockets)	ZLS782	2CCA180637R0001	7612270109104	1	542
20 PLE 3LN (1x8-module+2x6-module sockets)	ZLS783	2CCA189128R0001	7612270109128	1	618
22 PLE 3L (2x8-module+1x6-module sockets)	ZLS760	2CCF016420R0001	7612270051007	1	596
22 PLE 3LN (2x8-module+1x6-module sockets)	ZLS761	2CCF016421R0001	7612270051014	1	679
24 PLE 3L (3x8-module sockets)	ZLS750	2CCF015346R0001	7612270021574	1	650
24 PLE 3LN (3x8-module sockets)	ZLS751	2CCF015347R0001	7612270021581	1	741
26 PLE 3L (1x8-module+3x6-module sockets)	ZLS785	2CCA180639R0001	7612270109210	1	704
26 PLE 3LN (1x8-module+3x6-module sockets)	ZLS786	2CCA180642R0001	7612270109227	1	803
30 PLE 3L (3x8-module+1x6-module sockets)	ZLS762	2CCF016422R0001	7612270051021	1	813
30 PLE 3LN (3x8-module+1x6-module sockets)	ZLS763	2CCF016423R0001	7612270051038	1	926
32 PLE 3L (4x8-module sockets)	ZLS752	2CCF015348R0001	7612270021598	1	867
32 PLE 3LN (4x8-module sockets)	ZLS753	2CCF015349R0001	7612270021604	1	988
34 PLE 3L (2x8-module+3x6-module sockets)	ZLS776	2CCF017609R0001	7612270109111	1	921
34 PLE 3LN (2x8-module+3x6-module sockets)	ZLS777	2CCF017620R0001	7612270108046	1	1050
38 PLE 3L (4x8-module+1x6-module sockets)	ZLS764	2CCF016424R0001	7612270051045	1	1029
38 PLE 3LN (4x8-module+1x6-module sockets)	ZLS765	2CCF016425R0001	7612270051052	1	1173
40 PLE 3L (5x8-module sockets)	ZLS754	2CCF015350R0001	7612270021611	1	1084
40 PLE 3LN (5x8-module sockets)	ZLS755	2CCF015351R0001	7612270021628	1	1235
44 PLE 3L (4x8-module+2x6-module sockets)	ZLS778	2CCF017621R0001	7612270108053	1	1192
44 PLE 3LN (4x8-module+2x6-module sockets)	ZLS779	2CCF017622R0001	7612270108060	1	1359
48 PLE 3L (6x8-module sockets)	ZLS756	2CCF015352R0001	7612270021635	1	1300
48 PLE 3LN (6x8-module sockets)	ZLS757	2CCF015353R0001	7612270021642	1	1482
62 PLE 3L (7x8-module+1x6-module sockets)	ZLS780	2CCF180630R0001	7612270108084	1	1680
62 PLE 3LN (7x8-module+1x6-module sockets)	ZLS781	2CCF180631R0001	7612270108091	1	1914
64 PLE 3L (7x8-module+1x6-module sockets)	ZLS766	2CCF016426R0001	7612270051069	1	1734
64 PLE 3LN (7x8-module+1x6-module sockets)	ZLS767	2CCF016427R0001	7612270051076	1	1976
80 PLE 3L (10x8-module sockets)	ZLS758	2CCF015354R0001	7612270021659	1	2167
80 PLE 3LN (10x8-module sockets)	ZLS759	2CCF015355R0001	7612270021666	1	2470

Busbars for the sockets

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
100 A busbar						
plated, 10 x 3 mm, for L1, L2, L3, N and PE - Delivery length 1979 mm	ZLS200	2CCF002772R0001	761 227 001 5702	10	110	640
40 A auxiliary busbar						
plated, 5 x 2 mm, for LA and LB - Delivery length 1979 mm	ZLS202	2CCF002773R0001	761 227 001 5719	10	110	240

Socket end piece

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
Socket end piece						
To prevent displacement of sockets and busbars	ZLS730	2CCA180702R0001	761 227 052 3535	1 (2 pieces, left and right)	-	70

Incoming terminal blocks

	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Standard incoming terminal block						
complete with main terminals, construction height 50 mm						
3LN left	ZLS224	2CCF015196R0001	761 227 001 9816	1	4	180
3LN right	ZLS224R	2CCA180152R0001	761 227 051 0726	1	4	180
3LNAB (auxiliary busbars)	ZLS224LAB	2CCA180154R0001	761 227 005 4251	1	4	200
3L left	ZLS225	2CCF015197R0001	761 227 001 9823	1	4	150
3L right	ZLS225R	2CCA180153R0001	761 227 051 0733	1	4	150
3LAB (auxiliary busbars)	ZLS225LAB	2CCA180155R0001	761 227 005 4220	1	4	170

Incoming terminal block, low						
complete with main terminals, construction height 36 mm						
3LN	ZLS228	2CCF015200R0001	761 227 001 9854	1	4	180
3L	ZLS229	2CCF015201R0001	761 227 001 9861	1	4	150
Cover for standard incoming terminal block						
	ZLS235	2CCA180069R0001	761 227 002 1543	1	4	37
Additional parts for standard incoming terminal block						
Auxiliary terminal max. 2 items						
10 mm² (for auxiliary bus bars LA, LB)	ZLS233	2CCF002786R0001	761 227 001 9151	2	-	10
N terminal for incom. term. block	ZLS212	2CCF002776R0001	761 227 001 9038			30

N and PE terminals for additional socket

	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
N terminal for additional socket						
light blue, for external busbar - up to 50 mm²	ZLS813	2CCF015629R0001	761 227 002 1826	10	1	36
PE terminal for additional socket						
yellow-green, for external busbar - up to 50 mm²	ZLS816	2CCF015630R0001	761 227 002 1833	10	1	36

Incoming terminal component

Version	Type	Nominal name (A)	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Feeder component Line terminal L1	ZLS251	200	2CCV672501R0001	761 227 050 5319	1	2	120
Feeder component Line terminal L2	ZLS252	200	2CCV672502R0001	761 227 050 5326	1	2	120
Feeder component Line terminal L3	ZLS253	200	2CCV672503R0001	761 227 050 5333	1	2	120
Feeder component Neutral	ZLS250	200	2CCV672500R0001	761 227 050 5340	1	2	120
Feeder component Neutral Additional socket	ZLS254	200	2CCV672504R0001	761 227 052 3511	1	2	100
Feeder component Protective conductor Additional socket	ZLS255	200	2CCV672505R0001	761 227 052 3528	1	2	100

Ordering details
Socket accessories

Intermediate piece

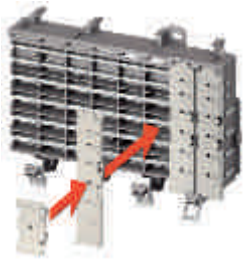
	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
Intermediate piece						
light grey, fills shock-proof empty module spaces 18 mm - bag containing 5 items	ZLS725	2CCS500900R0181	761 227 010 0989	1	1	100
Compensation piece to 18 mm for NT 9 mm - bag containing 5 items	ZLS728	2CCS400900R0101	761 227 010 4710	1	1	70

Busbar insulator

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
Busbar insulator						
dark grey, for isolation and spacing of separate busbar sections, 18 mm	ZLS238	2CCS500900R0191	761 227 010 0996	1	1	20

Busbar cover

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
Busbar cover						
electrically protected covering of main and auxiliary busbars. The 4 modules cover can be divided. Suitable to accept extension adapter ZLS 101 4x18 mm - bag containing 5 items	ZLS100	2CCF002762R0001	761 227 001 5603	1	4	95



Extension adapter

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
Add-on adapter						
18 mm wide, can be plugged on busbar cover ZLS100. To mount conventional DIN devices with 45 mm cap size. - bag containing 10 items	ZLS101	2CCF002763R0001	761 227 001 5610	10	1	2

Mounting rail adapter

	Type name	ABB IT number	EAN number	Packaging unit	Module	Weight in grams
Mounting rail adapter						
Height compensation 22.5 mm, to equalize the installation depth of standard DIN-rail mounted devices alongside the SMISSLINE plug-in system.	ZLS741	2CCA180081R0001	761 227 001 9632	10	1	3

Ordering details
Combi module, universal adapter 100A

Combi module, wire top feed

Designation	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Combi module, single L1, L2, L3 feed top	ZLS8403LWT-S	2CCA180451R0001	761 227 005 4053	1	3	85
Combi module, single L1, L2, L3, N feed top	ZLS8403LNWT-S	2CCA180452R0001	761 227 005 4077	1	3	90
Combi module, single L1, L2, L3 top feed, LA	ZLS8403LAWT-S	2CCA180470R0001	761 227 010 0699	1	3	90
Combi module, single L1, L2, L3 top feed, LA, LB	ZLS8403LABWT-S	2CCA180453R0001	761 227 005 4091	1	3	95
Combi module, single L1, L2, L3, N top feed, LA	ZLS8403LNAWT-S	2CCA180471R0001	761 227 010 0705	1	3	95
Combi module, single L1, L2, L3, N top feed, LA, LB	ZLS8403LNABWT-S	2CCA180454R0001	761 227 005 4114	1	3	100

Combi module, wire bottom feed

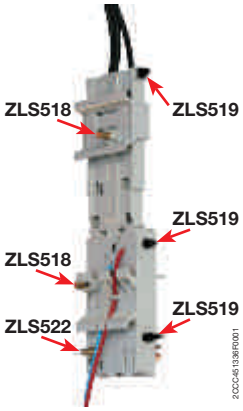
Strand at top

Strand at bottom

Designation	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Combi module, single L1, L2, L3 bottom feed	ZLS8403LWB-S	2CCA180462R0001	761 227 005 4060	1	3	85
Combi module, single L1, L2, L3, N bottom feed	ZLS8403LNWB-S	2CCA180463R0001	761 227 005 4084	1	3	90
Combi module, single L1, L2, L3 bottom feed, LA	ZLS8403LAWB-S	2CCA180472R0001	761 227 010 0712	1	3	90
Combi module, single L1, L2, L3 bottom feed, LA, LB	ZLS8403LABWB-S	2CCA180464R0001	761 227 005 4107	1	3	95
Combi module, single L1, L2, L3, N bottom feed, LA	ZLS8403LNAWB-S	2CCA180473R0001	761 227 010 0729	1	3	95
Combi module, single L1, L2, L3, N bottom feed, LA, LB	ZLS8403LNABWB-S	2CCA180465R0001	761 227 005 4121	1	3	100

Combi module without plug-in contacts

Designation	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Combi module	ZLS840	2CCA180450R0001	761 227 005 4046	-	-	45



Combi module accessories

Designation	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Connection element for combi module (3 connectors per module) Bag containing 12 items	ZLS519	2CCA017429R0001	761 227 005 4268	1	-	-
Fixing pins for contactor and manual motor starter Bag containing 10 items	ZLS518	2CCF002792R0001	761 227 001 9465	1	-	20
Fixing pins for contactor Bag containing 10 items	ZLS522	2CCF017540R0001	761 227 010 0743	1	-	30

Universal adapter 100A

Designation	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Adapter with 3 connection wires (L1, L2, L3)	ZLS240	2CCA180831R0001	761 227 052 3498	1	4	170
Adapter with 4 connection wires (L1, L2, L3, N)	ZLS241	2CCA180830R0001	761 227 052 3504	1	4	220

Ordering details
32A and 63A universal adapters

32A and 63A universal adapters

Designation	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
Single adapter 32A, bottom feed						
Adapter 32A L1 bottom feed	ZLS161	2CCA180660R0001	761 227 050 5609	1	1	18
Adapter 32A L2 bottom feed	ZLS162	2CCA180661R0001	761 227 050 5616	1	1	18
Adapter 32A L3 bottom feed	ZLS163	2CCA180662R0001	761 227 050 5623	1	1	18
Adapter 32A N bottom feed	ZLS160	2CCA180663R0001	761 227 050 5593	1	1	18
Adapter, dummy element	ZLS164	2CCA180668R0001	761 227 050 5548	1	1	12
Single adapter 63A, bottom feed						
Adapter 63A L1 bottom feed	ZLS171	2CCA180652R0001	761 227 050 5517	1	1	20
Adapter 63A L2 bottom feed	ZLS172	2CCA180653R0001	761 227 050 5524	1	1	20
Adapter 63A L3 bottom feed	ZLS173	2CCA180654R0001	761 227 050 5531	1	1	20
Adapter 63A N bottom feed	ZLS170	2CCA180655R0001	761 227 050 5500	1	1	20
Adapter, dummy element	ZLS164	2CCA180668R0001	761 227 050 5548	1	1	12
Single adapter 32A, top feed						
Adapter 32A L1 top feed	ZLS177	2CCA180664R0001	761 227 050 5562	1	1	18
Adapter 32A L2 top feed	ZLS178	2CCA180665R0001	761 227 050 5579	1	1	18
Adapter 32A L3 top feed	ZLS179	2CCA180666R0001	761 227 050 5586	1	1	18
Adapter 32A N top feed	ZLS176	2CCA180667R0001	761 227 050 5555	1	1	18
Single adapter 63A, top feed						
Adapter 63A L1 top feed	ZLS167	2CCA180656R0001	761 227 050 5647	1	1	20
Adapter 63A L2 top feed	ZLS168	2CCA180657R0001	761 227 050 5654	1	1	20
Adapter 63A L3 top feed	ZLS169	2CCA180658R0001	761 227 050 5661	1	1	20
Adapter 63A N top feed	ZLS166	2CCA180659R0001	761 227 050 5630	1	1	20
Combination 32A, bottom feed						
Adapter 32A L1, N bottom feed	ZLS180	2CCA180970R0001	761 227 052 3399	1	2	40
Adapter 32A L2, N bottom feed	ZLS181	2CCA180971R0001	761 227 052 3405	1	2	40
Adapter 32A L3, N bottom feed	ZLS182	2CCA180972R0001	761 227 052 3412	1	2	40
Adapter 32A L1, L2, L3 bottom feed	ZLS183	2CCA180973R0001	761 227 052 3429	1	3	60
Adapter 32A L1, L2, L3, N bottom feed	ZLS184	2CCA180974R0001	761 227 052 3436	1	4	80
Combination 63A, bottom feed						
Adapter 63A L1, N bottom feed	ZLS186	2CCA180975R0001	761 227 052 3443	1	2	40
Adapter 63A L2, N bottom feed	ZLS187	2CCA180976R0001	761 227 052 3450	1	2	40
Adapter 63A L3, N bottom feed	ZLS188	2CCA180977R0001	761 227 052 3467	1	2	40
Adapter 63A L1, L2, L3 bottom feed	ZLS189	2CCA180978R0001	761 227 052 3474	1	3	60
Adapter 63A L1, L2, L3, N bottom feed	ZLS190	2CCA180979R0001	761 227 052 3481	1	4	80
Combination 32A, top feed						
Adapter 32A L1, N top feed	ZLS191	2CCA181629R0001	761 227 051 0665	1	2	36
Adapter 32A L2, N top feed	ZLS192	2CCA181630R0001	761 227 051 0672	1	2	36
Adapter 32A L3, N top feed	ZLS193	2CCA181631R0001	761 227 051 0689	1	2	36
Adapter 32A L1, L2, L3 top feed	ZLS194	2CCA181632R0001	761 227 051 0696	1	3	54
Adapter 32A L1, L2, L3, N top feed	ZLS195	2CCA181633R0001	761 227 051 0702	1	4	72
Single adapter, wire length 300mm, 32A top feed						
Adapter 32A N top feed	ZLS176L300	2CCA181657R0001	761 227 010 0767	1	1	35
Adapter 32A L1 top feed	ZLS177L300	2CCA181656R0001	761 227 010 0774	1	1	35
Adapter 32A L2 top feed	ZLS178L300	2CCA181655R0001	761 227 010 0781	1	1	35
Adapter 32A L3 top feed	ZLS179L300	2CCA181654R0001	761 227 010 0798	1	1	35
Single adapter, wire length 300mm, 63A bottom feed						
Adapter 63A N bottom feed	ZLS170L300	2CCA181612R0001	761 227 051 0788	1	1	35
Adapter 63A L1 bottom feed	ZLS171L300	2CCA181613R0001	761 227 051 0795	1	1	35
Adapter 63A L2 bottom feed	ZLS172L300	2CCA181614R0001	761 227 051 0801	1	1	35
Adapter 63A L3 bottom feed	ZLS173L300	2CCA181615R0001	761 227 051 0818	1	1	35
Single adapter, wire length 300mm, 32A bottom feed						
Adapter 32A N bottom feed	ZLS160L300	2CCA181653R0001	761 227 010 0804	1	1	35
Adapter 32A L1 bottom feed	ZLS161L300	2CCA181652R0001	761 227 010 0811	1	1	35
Adapter 32A L2 bottom feed	ZLS162L300	2CCA181651R0001	761 227 010 0828	1	1	35
Adapter 32A L3 bottom feed	ZLS163L300	2CCA181650R0001	761 227 010 0835	1	1	35
Single adapter, wire length 300mm, 63A top feed						
Adapter 63A N top feed	ZLS166L300	2CCA181608R0001	761 227 051 0740	1	1	35
Adapter 63A L1 top feed	ZLS167L300	2CCA181609R0001	761 227 051 0757	1	1	35
Adapter 63A L2 top feed	ZLS168L300	2CCA181610R0001	761 227 051 0764	1	1	35
Adapter 63A L3 top feed	ZLS169L300	2CCA181611R0001	761 227 051 0771	1	1	35
Connection set for Multi-pole adapter (Bag containing 100 items for 50 adapters)	ZLS174	2CCA180671R0001	762 227 052 3382	1		-

Additional socket

The additional socket can easily be fitted onto the socket base to accomodate the external N and/or PE busbars. This enables neutral connections to be made where single-pole miniature circuit breakers are used with unswitched neutral. Neutral terminals are clipped onto the additional socket and can be used as detachable neutral connections. One N busbar and/or one PE busbar can be fitted. Each socket base can be equipped with an additional socket. Because it contains an integrated 35 mm DIN-rail snap-on feature, the external N or PE busbars can be fitted anywhere in the distribution panel, even separatly from the system.
The additional sockets can be covered to prevent accidental contact with live parts.

Additional socket for external N and PE busbars	**Type name**	**ABB IT number**	**EAN number**	**Pack-aging unit**	**Module**	**Weight in grams**
- 8-module additional socket (suitable for 8-module socket)	ZLS811	2CCF015627R0001	761 227 002 1802	10	8	34
- 6-module additional socket (suitable for 6-module socket)	ZLS810	2CCF015628R0001	761 227 002 1819	10	6	26

N and PE terminals

Corresponding N terminals (light blue) or PE terminals (yellow-green) are available for the power supply and the outgoing conduetors of the external N and PE busbars for cross sections of a wire 1 mm² until 10 mm² (max. 32 A),16 mm² (max. 63A), 50 mm² (max. 100 A) and 95 mm² (max. 200A).
The terminals are fitted with label holders whitch can be used wiht the marking adapter or the self-adhesive marking label (Phoenix Contact type SBS):

N terminal for additional socket light blue, for external busbars	**Type name**	**ABB IT number**	**EAN number**	**Pack-aging unit**	**Module**	**Weight in grams**
- up to 10 mm²	ZLS812	2CCF015631R0001	761 227 002 1840	10	0.5	15
- up to 50 mm²	ZLS813	2CCF015629R0001	761 227 002 1826	10	1	38
- up to 95 mm² Supply element 200A	ZLS254	2CCV672504R0001	761 227 052 3511	1	2	120
PE terminal for additional socket yellow-green, for external busbars						
- up to 10 mm²	ZLS815	2CCF015632R0001	761 227 002 1857	10	0.5	15
- up to 50 mm²	ZLS816	2CCF015630R0001	761 227 002 1833	10	1	38
- up to 95 mm² Supply element 200A	ZLS255	2CCV672505R0001	761 227 052 3528	1	2	120
Red/orange terminals for additional socket						
- up to 10 mm²	ZLS812/Red	2CCA181075R0001	761 227 010 7971	10	0.5	15
- up to 10 mm²	ZLS815/Orange	2CCA181076R0001	761 227 010 7995	10	0.5	15
- up to 50 mm²	ZLS813/Red	2CCA181065R0001	761 227 010 7988	10	1	38
- up to 50 mm²	ZLS816/Orange	2CCA181066R0001	761 227 010 8008	10	1	38

Insulator block

The dark grey insulator block isolates the interrupted bus bar ends from one another and simultaneously marks the disconnection point externally.

Insulator block for additional socket	**Type name**	**ABB IT number**	**EAN number**	**Pack-aging unit**	**Module**	**Weight in grams**
dark grey, for isolation and spacing of the external bus bars	ZLS831	2CCF015634R0001	761 227 002 1871	10	0.5	6

Dummy block

The light grey dummy block fills blank terminal positions. The busbars are at the same time covered against accidental.

Dummy block for additional socket	**Type name**	**ABB IT number**	**EAN number**	**Pack-aging unit**	**Module**	**Weight in grams**
light grey, fills dummy terminal spaces	ZLS830	2CCF015633R0001	761 227 002 1864	10	0.5	6

Cover with cable duct top, cover with DIN top

A cable duct top can be used to cover longer sections of the additional socket.
(Tehalit duct no. SL 18050/2)

Duct cover for additional socket	**Type name**	**ABB IT number**	**EAN number**	**Pack-aging unit**	**Module**	**Weight in grams**
Duct for covering. Length 144 mm	ZLS833	2CCF015638R0001	761 227 002 1895	10	8	20
Cover 18 mm wide with DIN top	ZLS832	2CCF015637R0001	761 227 002 1888	10	1	85

Ordering details
Miscellaneous accessories

Identification system ILS

The individual identification system for ILS inscription panels is a DIN A5 polyester film for inkjet and laser printers with resistance to high temperatures (if laser printers are used, please check whether self-adhesive films with a thickness of 250 microns can be printed). They can also be inscribed by hand using ink, biro, pencil or felt tip.

	Type name	ABB IT number	EAN number	Pack-aging unit	Module	Weight in grams
1 sheet with 126 adhesive panels (1-module: 6 x 17.2 mm)	ZLS418	2CCS400900R0211	761 227 010 4826	1 sheet	-	-
1 sheet with 210 adhesive panels ($^1/_2$-module: 6 x 8.5 mm)	ZLS419	2CCS400900R0291	761 227 010 8800	1 sheet	-	-

Locking device

Padlock adapter 3 mm Bag containing 10 items	SA 1	GJF1101903R0001	761 227 010 4833	1	-	23
Padlock	SA 2	2CCS400900R0241	761 227 010 4857	1	-	20

40A and 100A busbars / selection table for sockets

Order data busbar 100A	ABB IT number	EAN number	Number of sockets 8 module	Number of sockets 6 module	Modules	Busbar length in mm	Order data busbar 40A	ABB IT number	EAN number
ZLS201E6	2CCF800158R0001	7612270016778	-	1	6	104	ZLS203E6	2CCF800218R0001	7612270017966
ZLS201E8	2CCF800159R0001	7612270016983	1	-	8	140	ZLS203E8	2CCF800219R0001	7612270018178
ZLS201E12	2CCF800160R0001	7612270016211	-	2	12	212	ZLS203E12	2CCF800220R0001	7612270017409
ZLS201E14	2CCF800161R0001	7612270016310	1	1	14	248	ZLS203E14	2CCF800221R0001	7612270017508
ZLS201E16	2CCF800162R0001	7612270016334	2	-	16	284	ZLS203E16	2CCF800222R0001	7612270017522
ZLS201E18	2CCF800163R0001	7612270016358	-	3	18	320	ZLS203E18	2CCF800223R0001	7612270017546
ZLS201E20	2CCF800164R0001	7612270016372	1	2	20	357	ZLS203E20	2CCF800224R0001	7612270017560
ZLS201E22	2CCF800165R0001	7612270016396	2	1	22	393	ZLS203E22	2CCF800225R0001	7612270017584
ZLS201E24	2CCF800166R0001	7612270016419	3	-	24	429	ZLS203E24	2CCF800226R0001	7612270017607
ZLS201E26	2CCF800167R0001	7612270016433	1	3	26	465	ZLS203E26	2CCF800227R0001	7612270017621
ZLS201E28	2CCF800168R0001	7612270016457	2	2	28	501	ZLS203E28	2CCF800228R0001	7612270017645
ZLS201E30	2CCF800169R0001	7612270016471	3	1	30	537	ZLS203E30	2CCF800229R0001	7612270017669
ZLS201E32	2CCF800170R0001	7612270016495	4	-	32	573	ZLS203E32	2CCF800230R0001	7612270017683
ZLS201E34	2CCF800171R0001	7612270016518	2	3	34	609	ZLS203E34	2CCF800231R0001	7612270017706
ZLS201E36	2CCF800172R0001	7612270016532	3	2	36	645	ZLS203E36	2CCF800232R0001	7612270017720
ZLS201E38	2CCF800173R0001	7612270016556	4	1	38	681	ZLS203E38	2CCF800233R0001	7612270017744
ZLS201E40	2CCF800174R0001	7612270016570	5	-	40	717	ZLS203E40	2CCF800234R0001	7612270017768
ZLS201E42	2CCF800175R0001	7612270016594	3	3	42	753	ZLS203E42	2CCF800235R0001	7612270017782
ZLS201E44	2CCF800176R0001	7612270016617	4	2	44	789	ZLS203E44	2CCF800236R0001	7612270017805
ZLS201E46	2CCF800177R0001	7612270016631	5	1	46	825	ZLS203E46	2CCF800237R0001	7612270017829
ZLS201E48	2CCF800178R0001	7612270016655	6	-	48	861	ZLS203E48	2CCF800238R0001	7612270017843
ZLS201E50	2CCF800179R0001	7612270016679	4	3	50	897	ZLS203E50	2CCF800239R0001	7612270017867
ZLS201E52	2CCF800180R0001	7612270016693	5	2	52	933	ZLS203E52	2CCF800240R0001	7612270017881
ZLS201E54	2CCF800181R0001	7612270016716	6	1	54	969	ZLS203E54	2CCF800241R0001	7612270017904
ZLS201E56	2CCF800182R0001	7612270016730	7	-	56	1005	ZLS203E56	2CCF800242R0001	7612270017928
ZLS201E58	2CCF800183R0001	7612270016754	5	3	58	1041	ZLS203E58	2CCF800243R0001	7612270017942
ZLS201E60	2CCF800184R0001	7612270016785	6	2	60	1078	ZLS203E60	2CCF800244R0001	7612270017973
ZLS201E62	2CCF800185R0001	7612270016808	7	1	62	1114	ZLS203E62	2CCF800245R0001	7612270017997
ZLS201E64	2CCF800186R0001	7612270016822	8	-	64	1150	ZLS203E64	2CCF800246R0001	7612270018017
ZLS201E66	2CCF800187R0001	7612270016846	6	3	66	1186	ZLS203E66	2CCF800247R0001	7612270018031
ZLS201E68	2CCF800188R0001	7612270016860	7	2	68	1222	ZLS203E68	2CCF800248R0001	7612270018055
ZLS201E70	2CCF800189R0001	7612270016884	8	1	70	1258	ZLS203E70	2CCF800249R0001	7612270018079
ZLS201E72	2CCF800190R0001	7612270016907	9	-	72	1294	ZLS203E72	2CCF800250R0001	7612270018093
ZLS201E74	2CCF800191R0001	7612270016921	7	3	74	1330	ZLS203E74	2CCF800251R0001	7612270018116
ZLS201E76	2CCF800192R0001	7612270016945	8	2	76	1366	ZLS203E76	2CCF800252R0001	7612270018130
ZLS201E78	2CCF800193R0001	7612270016969	9	1	78	1402	ZLS203E78	2CCF800253R0001	7612270018154
ZLS201E80	2CCF800194R0001	7612270016990	10	-	80	1438	ZLS203E80	2CCF800254R0001	7612270018185
ZLS201E82	2CCF800195R0001	7612270017010	8	3	82	1474	ZLS203E82	2CCF800255R0001	7612270018208
ZLS201E84	2CCF800196R0001	7612270017034	9	2	84	1510	ZLS203E84	2CCF800256R0001	7612270018222
ZLS201E86	2CCF800197R0001	7612270017058	10	1	86	1546	ZLS203E86	2CCF800257R0001	7612270018246
ZLS201E88	2CCF800198R0001	7612270017072	11	-	88	1582	ZLS203E88	2CCF800258R0001	7612270018260
ZLS201E90	2CCF800199R0001	7612270017096	9	3	90	1618	ZLS203E90	2CCF800259R0001	7612270018284
ZLS201E92	2CCF800200R0001	7612270017119	10	2	92	1654	ZLS203E92	2CCF800260R0001	7612270018307
ZLS201E94	2CCF800201R0001	7612270017133	11	1	94	1690	ZLS203E94	2CCF800261R0001	7612270018321
ZLS201E96	2CCF800202R0001	7612270017157	12	-	96	1726	ZLS203E96	2CCF800262R0001	7612270018345
ZLS201E98	2CCF800203R0001	7612270017171	10	3	98	1762	ZLS203E98	2CCF800263R0001	7612270018369
ZLS201E100	2CCF800204R0001	7612270016006	11	2	100	1799	ZLS203E100	2CCF800264R0001	7612270017195
ZLS201E102	2CCF800205R0001	7612270016020	12	1	102	1835	ZLS203E102	2CCF800265R0001	7612270017218
ZLS201E104	2CCF800206R0001	7612270016044	13	-	104	1871	ZLS203E104	2CCF800266R0001	7612270017232
ZLS201E106	2CCF800207R0001	7612270016068	11	3	106	1907	ZLS203E106	2CCF800267R0001	7612270017256
ZLS201E108	2CCF800208R0001	7612270016082	12	2	108	1943	ZLS203E108	2CCF800268R0001	7612270017270

Planning for the incorporation of feeder block and spare places should be taken into account.
The total lengths given above were calculated taking socket spacings and tolerances into account.
For this reason, the indicated busbar length is not necessarily a multiple of 18 mm (1 Module).

Table of contents

From the plug contact straight into the device

No detours

- The incoming wiring is fully integrated in the device
- No additional terminal points on the incoming wiring
- Complete shock-hazard protection on the installed device

EVERYTHING FIRMLY UNDER CONTROL

Left and right mounting of the auxiliary and signal contact

More freedom

- The auxiliary and signal contact fit optionally to the left or right of the miniature circuit-breaker
- Space-saving arrangement possible

Connection system

Save time

- Integrated contacting of the auxiliary and signal contacts on the auxiliary busbars
- Incoming or outgoing wiring is eliminated
- New time-saving contacting system

Pole conductor indicator

At first glance

- Indication of the pole conductor contacting (L1, L2, L3) by means of inspection window and neutral conductor N with blue indicator
- The phase position can be identified without removing the devices
- Symmetrical load distribution is made easy

Simple handling

Highest priority: safety

- Improved protection of the plug contacts thanks to plastic covers
- Single-hand mechanism for easily moving the plug contacts
- Fast setting of the phase position

Worldwide application through proven system

At the leading edge

- Approval of the devices for the European market (SEV, VDE) and worldwide application thanks to CCC for China and DNV for ships
- The SMISSLINE socket system is tested to UR 508
- Available worldwide through the ABB distribution network

NICE AND EASY

THE CONCEPT

Five protective devices are simply plugged into a busbar system and already the power supply and connection work is done, which otherwise would involve a lot of work. Apart from the enormous time and cost saving, the fast and easy replacement of the devices is a further decisive benefit. If reserve slots are provided, later expansion work now consists only of plugging in the additional devices.

1

COMBINATION

11

Using a combi module, you can arrange devices in a variety of combinations. Motor circuit breakers with contactors, for example, can be assembled and plugged in as one unit.

COMPACT DESIGN

10

The compact design saves space and additionally offers protection against electric shock-hazard. A single-pole outgoing circuit L/N/PE up to 32 A with the outer N terminal as isolator requires a width of only 18 mm.

FLEXIBILITY

9

Changes in use can be implemented quickly. Spare devices are not required. If the system needs to be expanded, additional devices are simply plugged in.

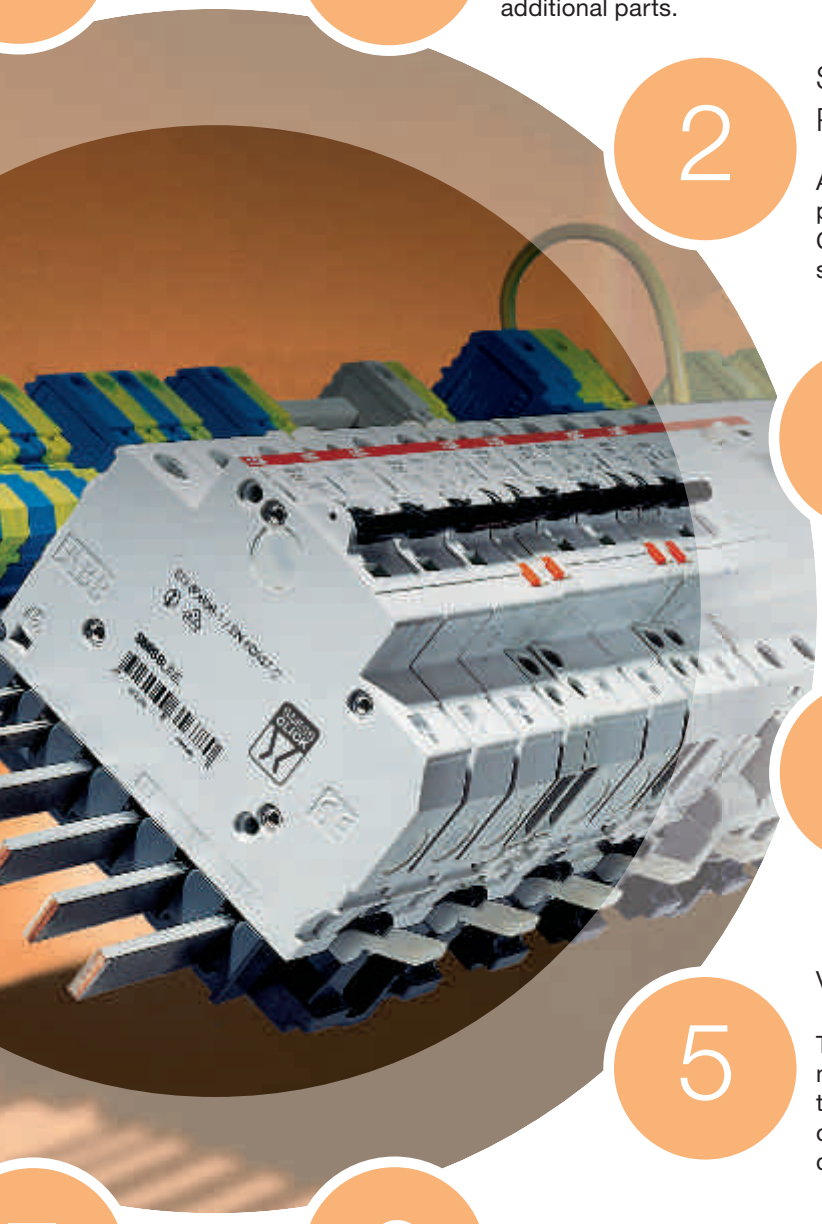
POWER SUPPLY OPTIONS

8

Various power supply options are available. The power supply can be routed through an incoming terminal block or pass directly through a protective device. Insulators can be used to subdivide the busbars. This means that fault current protected groups, for example, can be formed.

FIELD CONCEPT

By reserving a suitable number of spare slots and simply plugging in the various devices, retro-fitting can take place at any time without great effort and expense.



1 THE TRICK WITH THE CLICK

For adjustments and system expansion, the devices are simply plugged in without the need for additional parts.

2 SHOCK-HAZARD PROTECTION

All busbars can be shock-hazard protected by means of covers. Consequently, the whole system is shock-hazard protected.

3 UNIVERSAL ADAPTER

The universal adapter allows equipment from different manufacturers to be integrated simply into the system.

4 SIGNALLING

Signal and auxiliary contacts are available for all devices. These can be supplied directly in the socket through the two auxiliary busbars. The contacting for the auxiliary and signal contacts is integrated in the device.

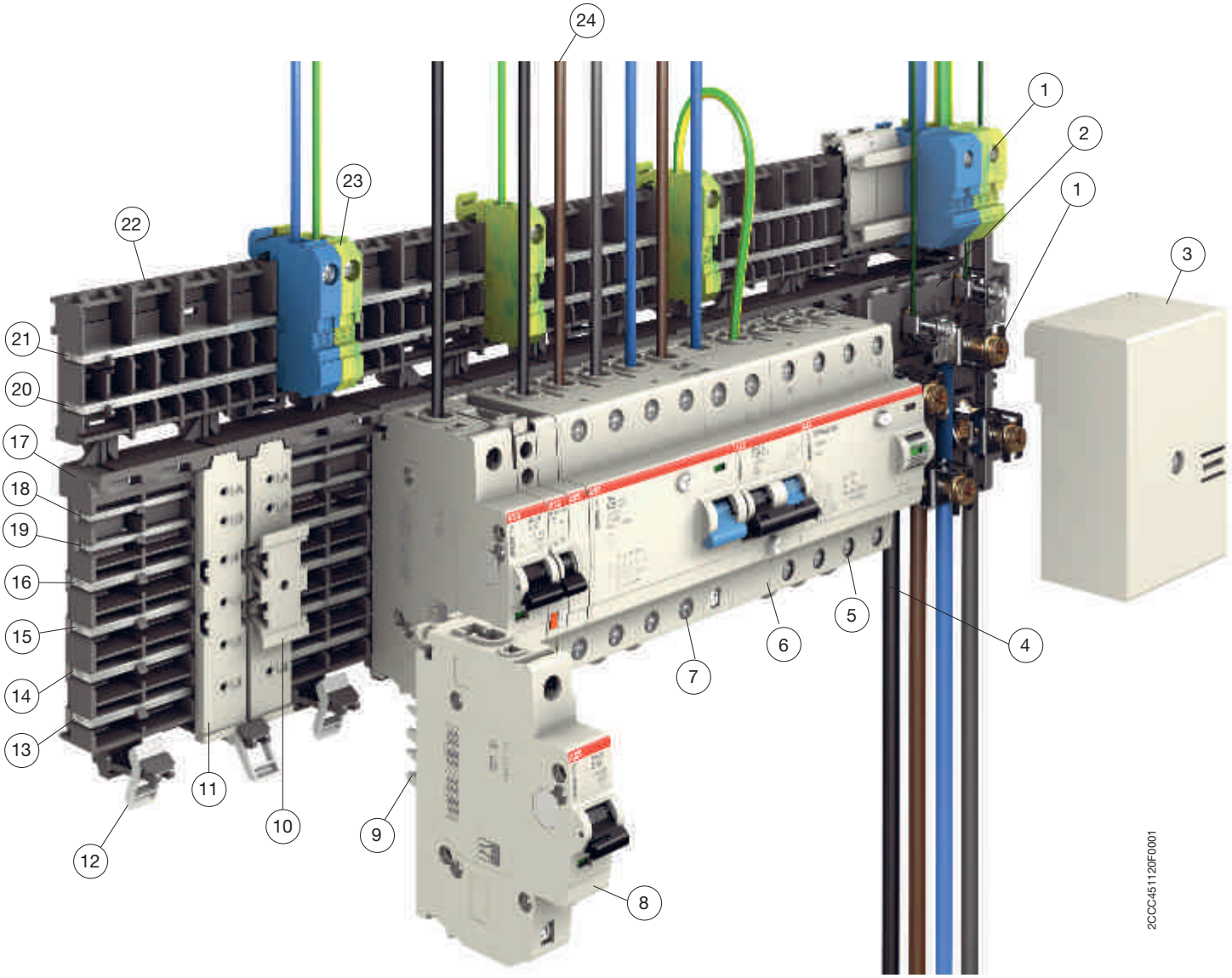
5 VERTICAL DESIGN

The vertical design enables even more space to be saved. Outgoing terminals are not needed and the outgoing cables are connected directly to the devices.

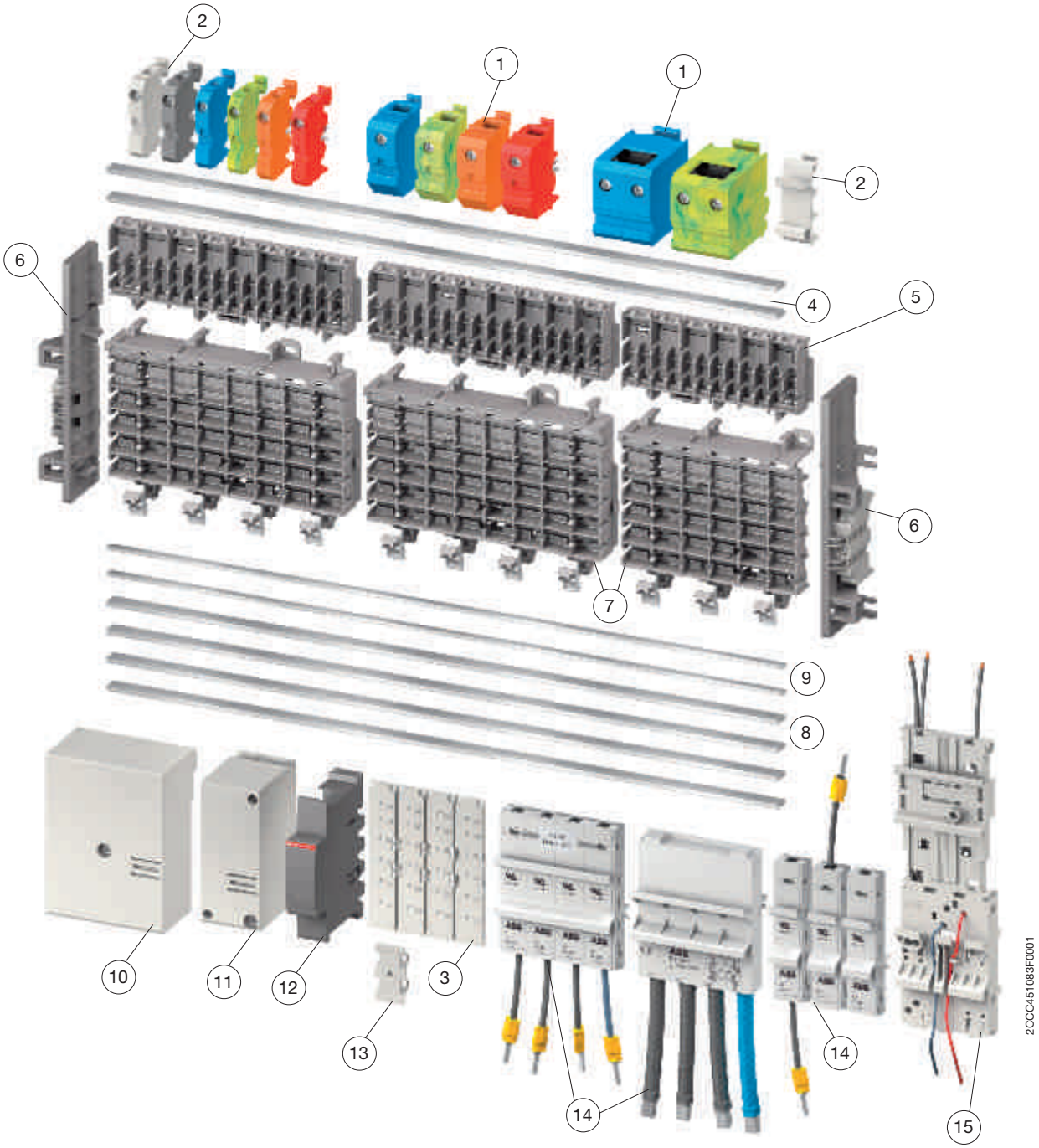
6 FREEDOM

Freedom of choice in concept and arrangement through mixed-pole positioning of all devices next to each other.

Overview
Devices with a busbar system



1. Incoming supply terminal
2. Incoming terminal block
3. Cover
4. Supply cables
5. Surge arrester OVR404
6. Residual current operated circuit breaker with integral overcurrent protection FS401
7. Residual current operated circuit breaker F404
8. Miniature circuit breaker S401 M
9. Plug contact
10. Extension adapter
11. Busbar cover
12. Latch
13. Busbar L3 or DC +, -
14. Busbar L2 or DC +, -
15. Busbar L1 or DC +, -
16. Busbar N
17. Socket base
18. Auxiliary busbar LA
19. Auxiliary busbar LB
20. Busbar N, external
21. Busbar PE, external
22. Additional socket base
23. PE conductor terminal
24. Load conductor



1 N and PE terminals 32A, 63A and 100A, red and orange terminals for DC
2 Busbar cover 9 mm dummy block and 18 mm cover with DIN top for the additional socket
3 Busbar cover for the socket
4 Busbars for N and PE
5 8-module and 6-module additional socket
6 Socket end piece on left and right
7 8-module and 6-module socket base
8 Busbars L1, L2, L3, N and PE or for DC applications
9 Auxiliary bus bars for the socket
10 Incoming terminal block, supply on left or right, maximum 100A
Supply in centre, maximum 160A, maximum 35 mm^2
11 Incoming terminal component, supply in centre 200A, maximum 95 mm^2
12 Busbar insulator
13 Extension adapter
14 Universal adapter 32A, 63A and 100A
15 Combi module 32A

Properties
Socket/additional socket/busbars

Socket bases ZLS808, ZLS806

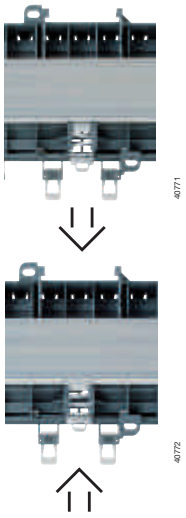
The SMISSLINE socket system is a totally new kind of assembly and connection technology for the construction of distributions. Besides the classic method of snapping the devices onto 35-mm mounting rails, the new family of devices can be directly attached to the socket bases with integrated busbars. The time-consuming process of connecting up the supply is thereby no longer needed. In addition, in the event of rearrangement 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.

6- and 8-module sockets are installed either by screwing them onto any flat surface or by snapping them onto a 35 mm DIN mounting rail. Lateral movement or detachment of the sockets again is possible before final fixing.

In order to determine the required socket length, the space necessary for
- the devices required
- the incoming terminal block and
- any reserve spaces needed must be determined.

Snap mounting

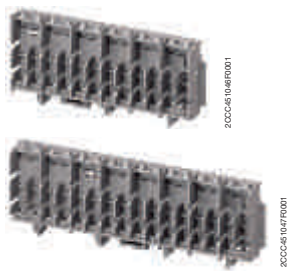
Pull down the slide with a screwdriver until it latches (socket can be moved).



Press on front of slid:
Fixed position
(Sockets fixed)

The key features

- System of any desired length (even number of poles)
- Integrated busbars
- Simple device change
- Long-term planning and problem free extension possible
- Significant time savings during assembly and connection



Additional sockets ZLS808, ZLS806

The additional socket can easily be fitted onto the socket base to accomodate the external N and/or PE busbars. This enables neutral connections to be made where single-pole miniature circuit breakers are used with unswitched neutral. Neutral terminals are clipped onto the additional socket and can be used as detachable neutral connections. One N busbar and/or one PE busbar can be fitted. Each socket base can be equipped with an additional socket. Because it contains an integrated 35 mm DIN-rail snap-on feature, the external N or PE busbars can be fitted anywhere in the distribution panel, even separatly from the system.
The additional sockets can be covered to prevent accidental contact with live parts.

Busbars for the sockets and additional socket ZLS200

The busbars of size 10 x 3 mm can be loaded with currents up to 100A. They are plated for perfect contact wiith the devices plug-in contacts. The maximum available busbar length is 1979 mm. The same busbar type is used, regardless whether it is fitted in the socket (L1, L2, L3, N) or in the additional socket (N, PE). The busbars are inserted in to the socket from the front.

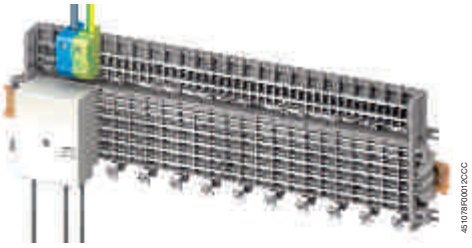
Auxiliary busbars for the socket ZLS202

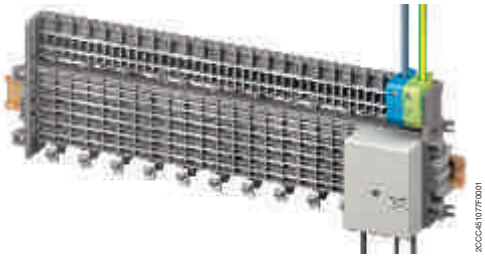
The 5 x 2 mm auxiliary busbars are intended for a common power supply of auxiliary switches and signal contacts. They are also plated and their max. delivery length is 1979 mm.
Like the main busbars, the auxiliary busbars are inserted in holders LA and LB from the front. Of course, only on auxiliary busbar can be fitted.

General

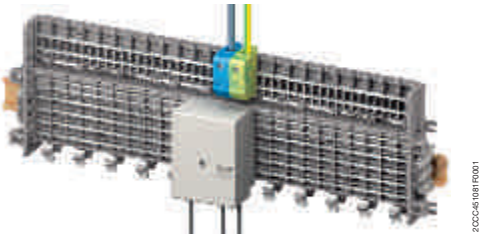
The incoming terminal block is used to connect cables directly to the busbars. The terminals act directly on the busbars and therefore fix the incoming terminal block. Removable terminal tops permit the connection of continous conductrors (risers) white horizontal or vertical cable entry is also possible. Instead of using the incoming terminal block, the power supply can also be realized via a device (e.g. residual current operated circuit breaker, miniature circuit breaker or switch disconnector).

Power supply left or right, maximum 100A.





Power supply in centre, maximum 160A.
A maximum of 100A is permitted on either side. A total of 160A must not be exceeded.



Incoming terminal blocks ZLS224, 225

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 termiinals LA and LB for the auxiliary busbars.

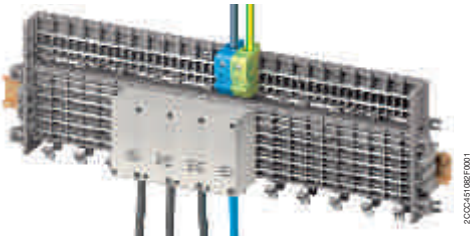
Incoming terminal blocks, low ZLS228, 229

Incoming terminal block with construction height of 36 mm. The auxiliary terminals LA and LB cannot be used.

Incoming terminal component ZLS250 to 255

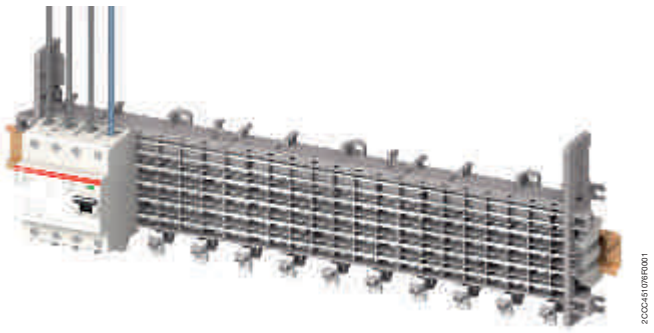
The incoming terminal component, with an installation width of 36 mm is available as a single-pole component for the line conductors L1, L2, L3 and as neutral. The terminals act directly on the busbars and thereby fix the incoming terminal component. The incoming terminal component, L1, L2, L3 and N can be combined to meet specific needs. A maximum cable cross-section of 95 mm^2 can be connected to the incoming terminal component.

Incoming terminal component, in centre, maximum 200A. But on each side not more than 100A.



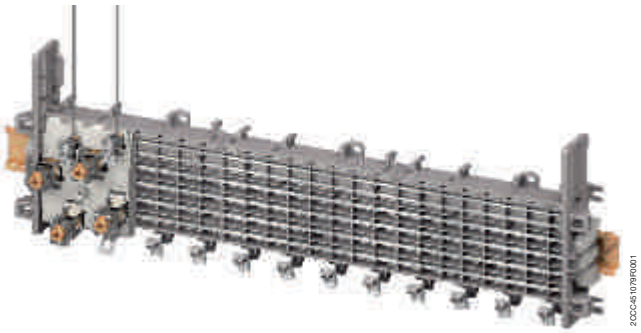
Indirect supply via residual current operated circuit breaker (RCCB) (or switch disconnector)

The supply cable is connected at the top of the RCCB. This supply variant gives the busbars and therefore all subsequent devices RCCB protection. If several RCCB groups are planned, the busbars should be separated and spaced using the dark grey busbar insulator ZLS238. 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 switch disconnector.



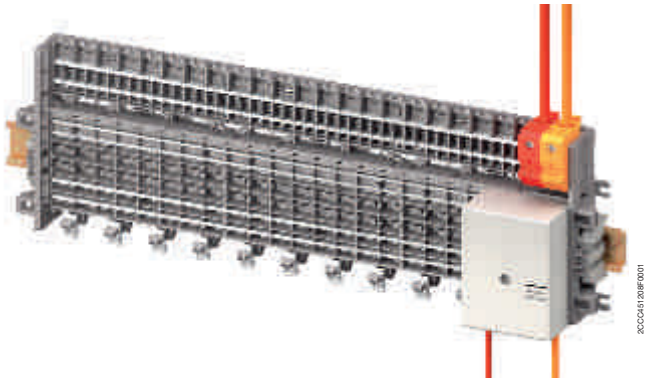
Supply of auxiliary busbars LA and LB

The two auxiliary busbars LA and LB can be supplied using the additional terminal ZLS 233 via a incoming terminal block. The maximum operating current of the auxiliary busbars is 40 A.



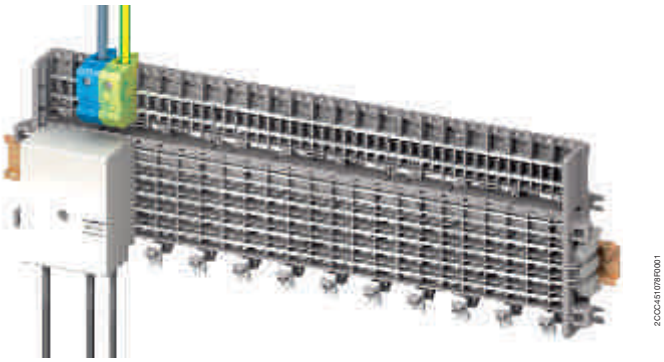
Supply of busbar system with DC voltage

The bus barsystem can be supplied using a incoming terminal block or incoming terminal component with DC voltage. The busbars can either be assigned as + or -.



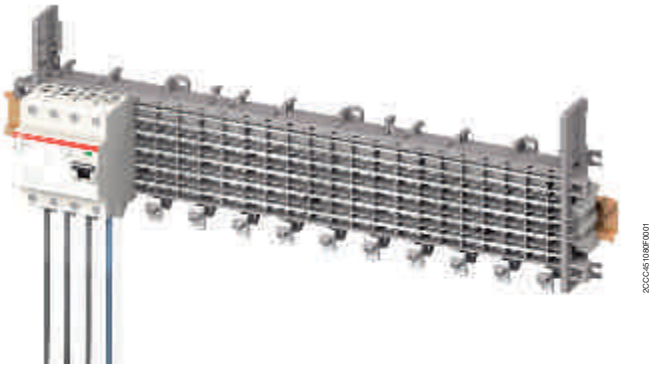
Supply of external N and PE busbars

External N busbars means, that neutral disconnectors are not needed for the circuit breakers.
When using external N and PE busbars, the neutral or PE conductor is supplied 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 operated circuit breaker groups.



Direct supply to residual current operated circuit breaker (or switch disconnector)

Instead of using the incoming terminal block, the power can also be supplied via a device.
In this case, the supply cable is connected to the lower terminal of the device. The residual current operated circuit breaker or switch disconnector can be supplied with 63A regardless of its rated current, since the plug-in connection arrangement of the device is suitable for this amount of current.
For current in excess of 63A, the incoming terminal block or the incoming terminal component should be used.



left right

Socket end piece ZLS730

To prevent displacement of sockets and busbars (particulary 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 oh the mounting rail.

Intermediate piece ZLS725

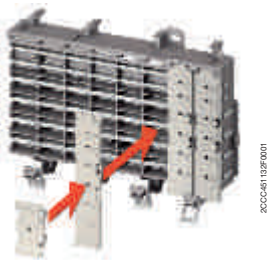
The light grey intermediate piece matches the device profile and fills empty module spaces. The busbars are safely covered, so that they cannot be touched and at the same time the corresponding openings in the cover are closed up.

Busbar insulator ZLS238

The dark grey busbar insulator electrically isolates the separated busbar ends from each other (e.g. when using several RCD protected groups) and also identifies the isolation point from outside. It conforms with the device profile and its space requirement is 1 module.

Busbar cover ZLS100

If component modules or spare modules are not requiered, 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 the cover.



Extension adapter ZLS101

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 adjusted in multiples of 7 mm.

Properties
Auxiliary switches and signal contacts

General

The auxiliary switches and signal contacts are snapped on to the left of the protective devices. On the miniature circuit breakers an optional mounting on the right is also possible.
For auxiliary switches and signal contacts supplied via SMISSLINE auxiliary busbars LA or LB a version with integrated contacting pieces is available (also see **2**/18) Conventional supply via the terminals of the auxiliary devices is possible.

Function

The auxiliary switch works in the same way as the main contacts. The signal contact only operates when the protective device trips.
This can be simulated with the white test button. Each time the signal contact is tripped, it must be reset to its starting position using the orange-coloured reset button.
Auxiliary switch and signal contacts have special contacts whitch ensure high switching reliability even in systems with low voltages or low currents (PLC, signal systems etc.).

Auxiliary switch contacts operate at the same time as the contacts of the protective device (activated manually or automatically).

Normally open contact
NO (normally open) — joint operation with protective device

Normally closed contact
NC (normally close) — opposing operation with protective device

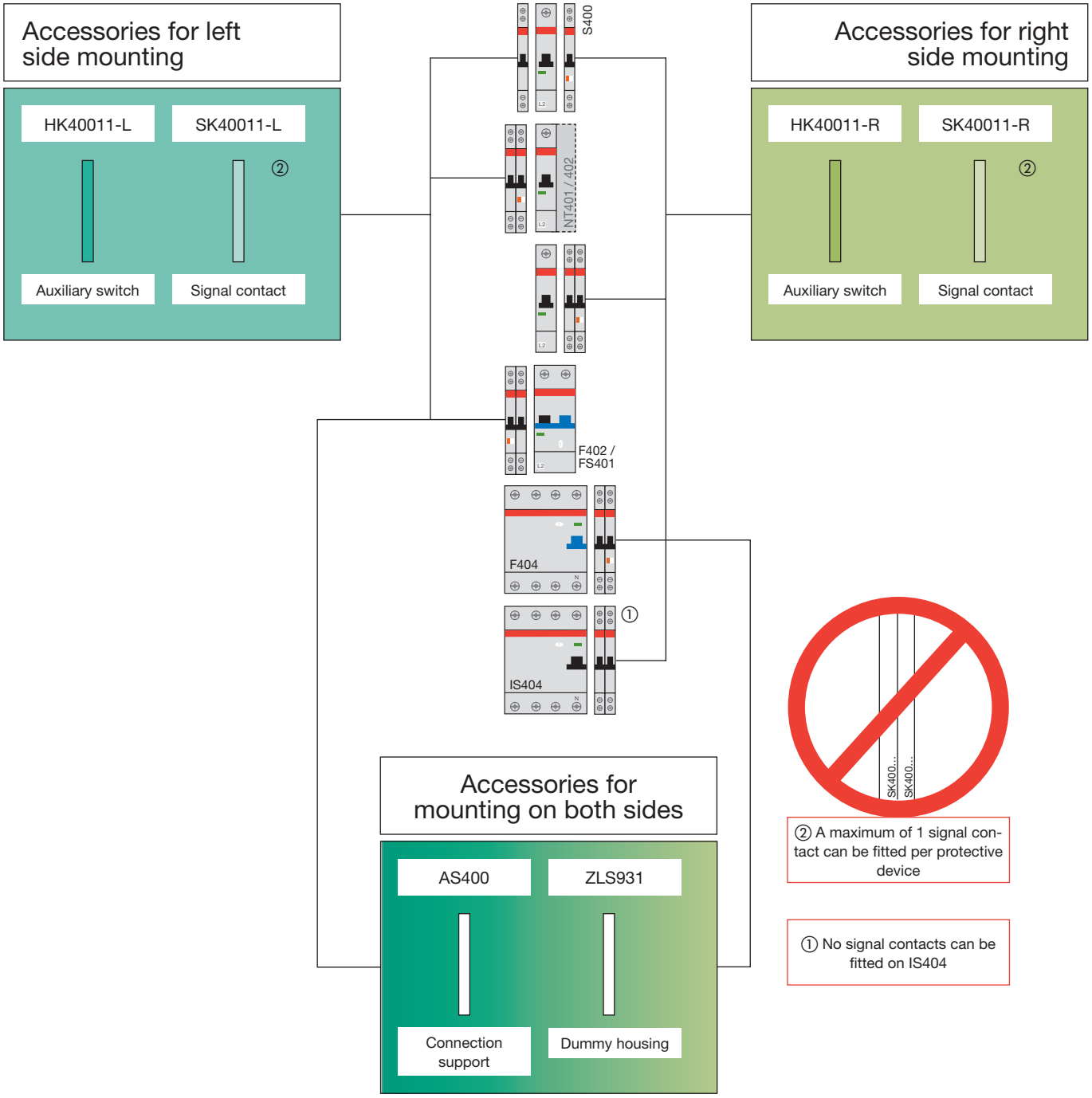
Signal contacts only operate when the protective device is tripped electrically as a result of a short-circuit, a fault current or overcurrent (undervoltage for MS325).

Normally open contact
NO (normally open) — closes during automatic trip

Normally closed contact
NC (normally close) — opens during automatic trip

On each protective device can be mounted:
1 auxiliary switch
or 1 signal contact
or 2 auxiliary contact switches
or 1 auxiliary switch and 1 signal contact

Maximum possibilities mounting

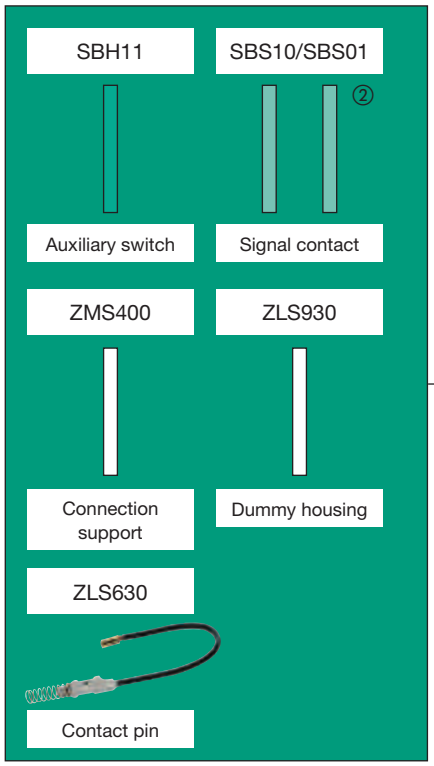


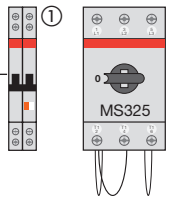
② A maximum of 1 signal contact can be fitted per protective device

① No signal contacts can be fitted on IS404

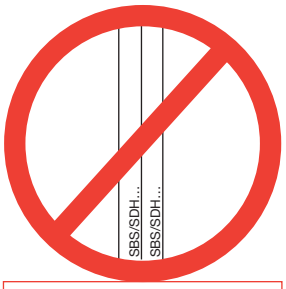
Properties
Accessory mounting options
Protective devices MS325 and LPUC

Accessories for left side mounting



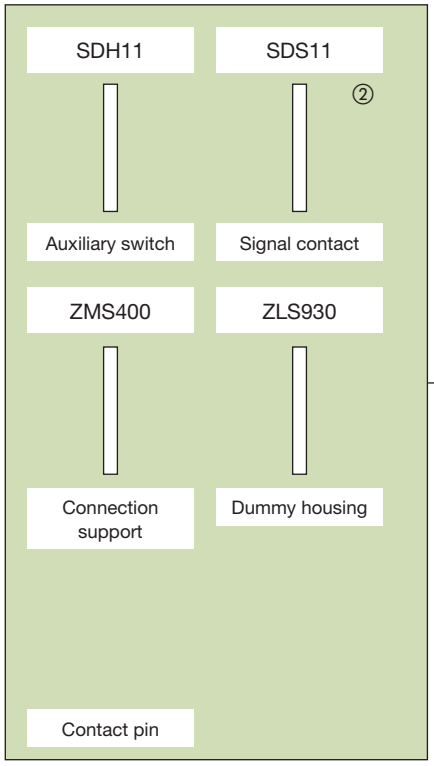


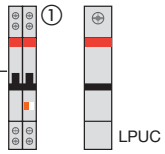
① When using auxiliary switch and signal contacts, the signal contact must be fitted first on the protective device



② A maximum of 1 signal contact per protective device can be fitted

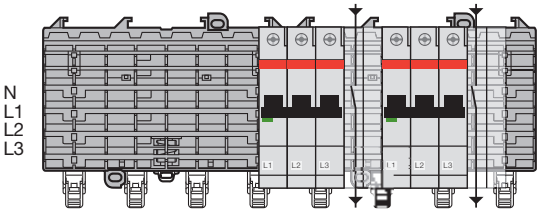
Accessories for left side mounting



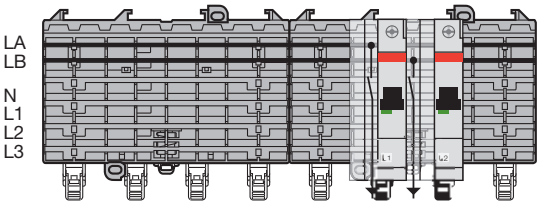


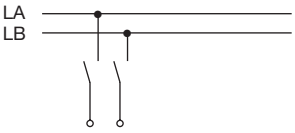
1. Wiring without auxiliary busbars LA, LB

Wiring of auxiliary switch and signal contact blocks without contact to the auxiliary busbars LA and LB.



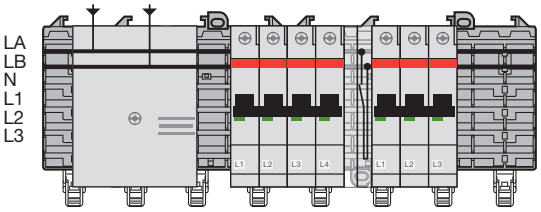
2. Input contacts the auxiliary busbars LA, LB. Standard output wiring.

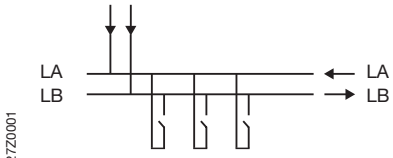




3. Collective alarm, signal contact contacts the auxiliary busbars LA, LB

A cost-effective collective alarm solution can be implemented without additional wiring by using this arrangement.





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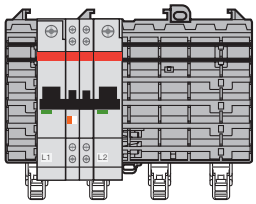
Properties
Auxiliary switches and signal contacts
Contact arrangements to auxiliary busbars

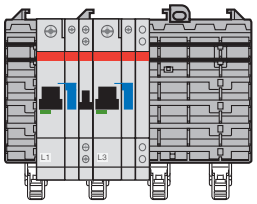
Left/right mounting of auxiliary switch/signal contact for miniature circuit breaker

Space-saving on the socket system
By mounting the auxiliary switches/signal contacts alternately on the left and right, the installation width on the SMISSLINE socket system can be reduced. A dummy housing is therefore not needed when just

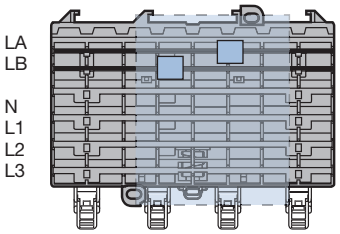
S400 miniature circuit breakers with auxiliary switches mounted on left and right:
25% space saving



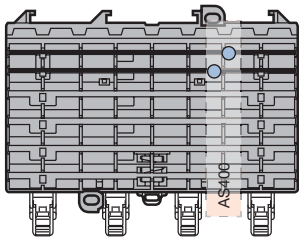
S400 miniature circuit breakers with NT40163 9 mm on the right and S400 with auxiliary switch on the left:
20% space saving



Supply options for auxiliary busbars LA and LB



Supply option for auxiliary busbars using incoming terminal block.



Supply option for auxiliary busbars using terminals of connection support.

Positioning of contacting piece ZLS632 on auxiliary switch and signal contact

The small auxiliary switch/signal contact contacting piece can be simply and quickly changed from the position of the LA to the LB auxiliary busbar by reversing it by 180 degree.

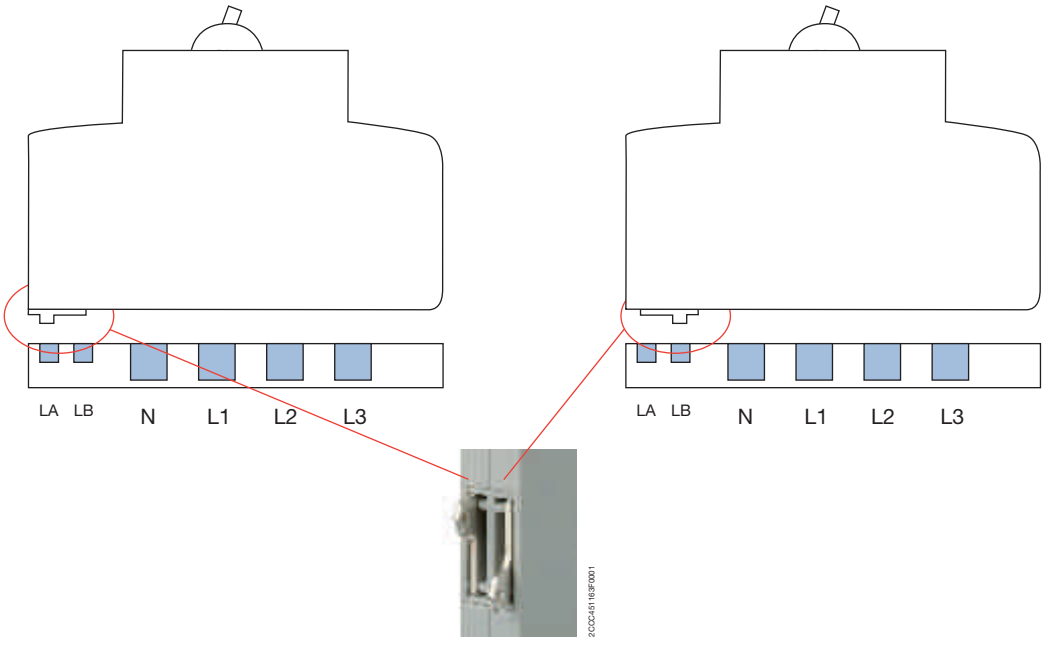


Table of contents

Technical data / Approvals according to IEC / EN 60439-2 and c UL us
Busbar system

Technical data IEC	Sockets ZLS806/808 Busbars ZLS200, 202	Incoming terminal block ZLS224/225	Incoming terminal component ZLS250-255	Universal adapters 32A	Universal adapters 63A	Combi module 32A	Terminals for add. socket ZLS812, 815	Terminals for add. socket ZLS813,816
Rated voltage U_n:	max. 400/690VAC, 600 VDC							
Rated current I_n:	100A, AC, DC (ZLS200) 40A (AC, DC) (ZLS202)	Main terminals 160A strand Auxiliary terminals 40A	200A	32A	63A	32A (L1, L2, L3, N) 6A (LA, LB)	32A	100A
Modules per element:	6 (108 mm) 8 (144 mm)	4 (72 mm)	2 (36 mm)	1 (18 mm)	1 (18 mm)	3 (54 mm)	0.5 (9 mm)	1 (18 mm)
Cable cross-section:	-	Cable 50 mm² (2x25 mm²) Main terminals Strand 10 mm² Auxiliary terminals	1 x 95 mm²	-	-	-	10 mm²	16-50 mm²
Supply cable:	-	Cable or strand	Cable or strand	-	-	-	Cable or strand	Cable or strand
Rated insulation voltage U_i:	690VAC, 600VDC							
Rated surge resistance U_{imp}:	8kV							
Rated frequency:	50/60Hz, DC							
Overvoltage category:	III							
Rated short time withstand current I_{cw}:	10kA/300ms 10kA/50ms for auxiliary terminals							
Rated conditional short-circuit current I_{cc}:	32.5kA/400V AC							
Rated peak withstand current I_{pk}:	17kA							
Rated fused short-circuit current I_{cf}:	50kA							
Rated peak withstand current (switchgear assembly) $I_{df\,peak}$:	105kA							
Back-up protection AC: ①	SACE T_{max} 200A (set current) 160A gG NH 00 with 50 mm² with incoming terminal block 200A gG NH 1 with 95 mm² with incoming terminal pomponent 40A gG D II with 10 mm² for auxiliary busbars LA, LB							
Back-up protection DC:	SACE T_{max} T3 200A (to 500V d.c.) Incoming terminal block 100A/160A: Fuse 160A gG, gL or gR Incoming terminal component 200A: Fuse 200A gG, gL or gR							
Degree of protection:	IP 2x (to be realized by installer)							
Ambient temperature:	max. 55°C							
Internal resistance R_i mΩ:		0,05	0,05				0,17	0,12
Power loss P_v W:		0,5	0,5				0,17	0,12
Plastics:	halogen-free							

① The rated breaking capacities of the devices at the installation site should also be taken into account.

Technical data c UL us File E 222110 (UL 508)

	Busbar	Incoming terminal block ZLS224/225	Incoming terminal component ZLS250/255	Universal adapter 30A	Universal adapter 60A	Combi module
Maximum nominal voltage:			600V	AC		
Maximum nominal current:	100A	150A	200A	30A	60A	30A
Nominal current for supply, left or right:	100A	100A	100A	-	-	-
Nominal current for supply, centre:	150A	150A	200A	-	-	-
Resistance to short circuits:			50kA	with 150A back-up fuse (all types)		
Supply cable size:		10AWG to 1/0AWG	8AWG to 3/0AWG	-	-	-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General

The SMISSLINE miniature circuit breaker is an energy-limiting protection device with high performance values. It is particularly well suited for industrial and commercial applications as well as for domestic installations.
In case of short-circuits, it guarantees excellent selectivity to upstream circuit breakers while downstream connected equipment is only stressed to a minimum amount.
The high nominal breaking capacity of the SMISSLINE miniature circuit breaker (10 kA) makes it particularly suited to applications as an overcurrent protection device in fuseless distribution systems.

The key features

- High nominal breaking capacity of 10 kA
- Energy-limiting (current limitation class 3)
- Snap-on neutral disconnector
- Snap-on auxiliary switches and signal contacts (left + right)
- Optimum installation and wiring comfort
- Line conductor protected against accidental contact
- Trip characteristics B, C, D, K, UCZ/UCC
- Double level load side terminal
- SMISSLINE line conductor display

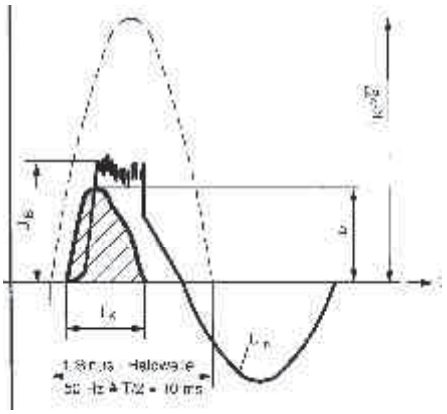
Brief description of tripping

The SMISSLINE miniature circuit breakers have a current-limiting operation. They have two different, releases acting on the mechanism.

1. Thermal release, operating with a time delay, for overload protection
2. Electro-magnetic release plunger operated for short-circuit protection.

They offer:
- high short-circuit breaking capacity
- high selectivity to the back-up fuse
- In the event of short-circuits, low electrodynamic and heating effects on the cable and the point of fault location due to the drastically limited let through energy $\int i^2 dt$.

Oscillogram of a short circuit current interruption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$I_K \cdot \sqrt{2}$ = peak value of prospective short-circuit current
i_D = Max. peak let through current of circuit breaker S 400
U_n = Supply voltage
U_B = Arc voltage of circuit breaker
t_K = Total interruption time

Technical data
Miniature circuit breaker
Power losses, internal resistances

	Series: S400 M	**Series: S400 M**	**Series: LPUC...**
Standard	EN 60898-1	IEC/EN 60947-2	
Rated voltage U_n~:	230/400 V~	max. 254/440 V~	230/400 V~
Rated voltage U_n=:	60 V=/1-pole 125 V=/2-pole	60 V=/1-pole 125 V=/2-pole	125 V=1-pole 250 V=2-pole Polarity-dependent
Max. operating voltage U_{Bmax}:	AC U_n + 10% DC 1-pole 60 V - 2-pole 125 V -	AC U_n + 10% DC 1-pole 60 V - 2-pole 125 V -	
Min. operating voltage U_{Bmin}:	12 V~, 12 V-	12 V~, 12 V-	
Rated current I_n:	6...63 A (B, D) 0.5...63 A (K, C)	0.5...63 A	
Trip characteristics:	B, C, D	C, K	C Z (Semi-conductor protection)
Number of poles:	1...4	1...4	1+2
Rated frequency f_n:	50/60 Hz	50/60 Hz	6...50 kA
Rated breaking capacity I_{cn}:	10 kA		50 kA ≤ 2A 6 kA > 2A
Limit breaking capacity I_{cu}: at 230/400 V~		50 kA ≤ 2A 25 kA > 2A… ≤ 20A 10 kA ≥ 25A	
Ultimate breaking capacity I_{cu}: at 254/440 V~		15 kA < 2A 10 kA > 2A… < 10A 6 kA > 10A	
Service breaking capacity I_{cs}: at 230/400 V~		50 kA ≤ 2A 15 kA > 2A… ≤ 20A 7.5 kA ≥ 25A	
Service breaking capacity I_{cs}: at 254/440 V~		15 kA ≤ 2A 6 kA > 2A… ≤ 10A 3 kA > 10A	
Energy limiting class:	3 (B, C up to and including 40 A)		
Terminal at load side S400:	Opposing action stroke clamp on cylinder finger-proof suitable to clamp single-, multi- and fine-wired conductors of up to 25 mm²	Opposing action stroke clamp on cylinder finger-proof suitable to clamp single-, multi- and fine-wired conductors of up to 25 mm²	Cable/strand max. 25/16 mm² SMISSLINE max. 16/10 mm² SMISSLINE CLASSIC
Tightening torque:	2.8 Nm	2.8 Nm	2.5 Nm
Degree of protection:	IP20	IP20	IP20
Endurance:	I_n < 32 A: 20.000 operating cycles I_n ≥ 32 A: 10 000 operating cycles	I_n < 32 A: 20 000 operating cycles I_n ≥ 32 A: 10 000 operating cycles	Mechanical operating 20 000 cycles Electrical operating 4000 cycles
Climatic resistance: DIN IEC 60068-2-30	Constant climate 23/83, 40/93 55/20 [°C/RF] Alternating climate 25/95 - 40/93 [°C/RF]	Constant climate 23/83, 40/93 55/20 [°C/RF] Alternating climate 25/95 - 40/93 [°C/RF]	DIN 50016
Mounting position:	any	any	any
Storage temperature:	T_{max} +70 °C, T_{min} -40 °C	T_{max} +70 °C, T_{min} -40 °C	T_{max} +70 °C, T_{min} -40 °C
Ambient temperature:	T_{max} +55 °C, T_{min} -25 °C	T_{max} +55 °C, T_{min} -25 °C	-25 °C...+55 °C
from Shock protection:	30 g, at least 2 impacts, shock lasting 13 ms	30 g, at least 2 impacts, shock lasting 13 ms	-
Vibration resistance acc. to DIN EN 60 068-2-6:	5 g, 20 frequency cycles 5…150…5 Hz at 0.8 I_n	5 g, 20 frequency cycles 5…150…5 Hz at 0.8 I_n	-
Plastic:	halogen-free	halogen-free	halogen-free
Contacts:	cadmium-free	cadmium-free	cadmium-free

Internal resistances at rated voltage and power losses

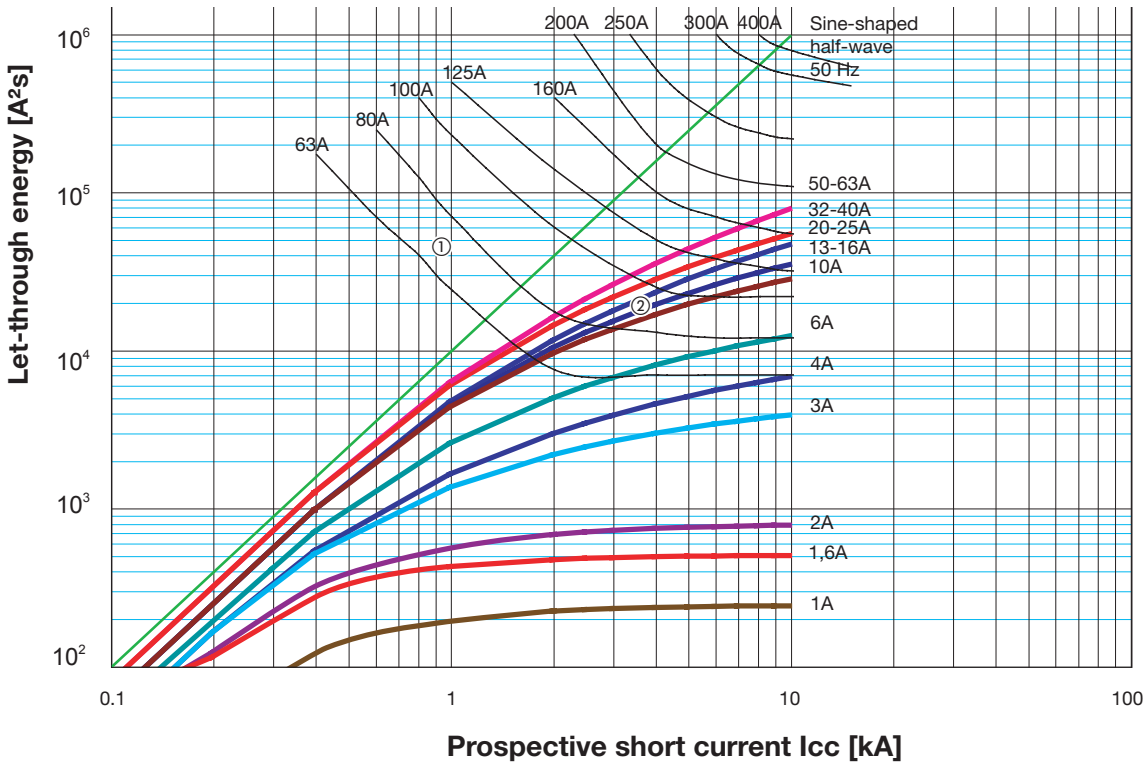
Internal resistances and power loss per pole (cold resistance at room temperature)

Rated current I_n A	**S 400 M B, C, D** ① R_i Ω	P_v W	**K** R_i Ω	P_v W	**LPUC C** R_i Ω	P_v W	**LPUC Z** R_i Ω	P_v W
0,5	5,5	1,4	4,906	1,2	6,34	1,59	10,45	2,61
1	1,44	1,5	1,505	1,5	1,55	1,55	3,5	3,50
1,6	0,63	1,6	0,594	1,5	0,695	1,78	1,15	2,94
2	0,460	1,8	0,415	1,7	0,46	1,84	0,98	3,92
3	0,150	1,4	0,181	1,6	0,165	1,49	0,495	4,46
4	0,123	1,9	0,150	2,4	0,12	1,92	0,149	2,38
6	0,051	1,8	0,080	2,9	0,052	1,87	0,097	3,49
8	0,029	1,9	0,043	2,7	0,038	2,43	0,054	3,46
10	0,012	1,2	0,0165	1,7	0,0126	1,26	0,013	1,30
13	0,0112	1,9	0,0153	2,6	0,0101	1,71	0,013	2,20
16	0,0074	1,9	0,0095	2,4	0,0077	1,79	0,007	1,79
20	0,004	1,6	0,0073	2,9	0,0067	2,68	0,0063	2,52
25	0,0032	2	0,0053	3,3	0,0046	2,88	0,005	3,13
32	0,0026	2,7	0,0034	3,4	0,0025	3,58	0,0036	3,69
40	0,0026	4,2	0,0028	4,5	0,0028	4,48	0,003	4,80
50	0,0017	4,3	0,0021	5,3	0,0012	3,00	0,0012	3,00
63	0,0014	5,6	0,0015	5,9	0,0007	2,78	0,0009	3,57

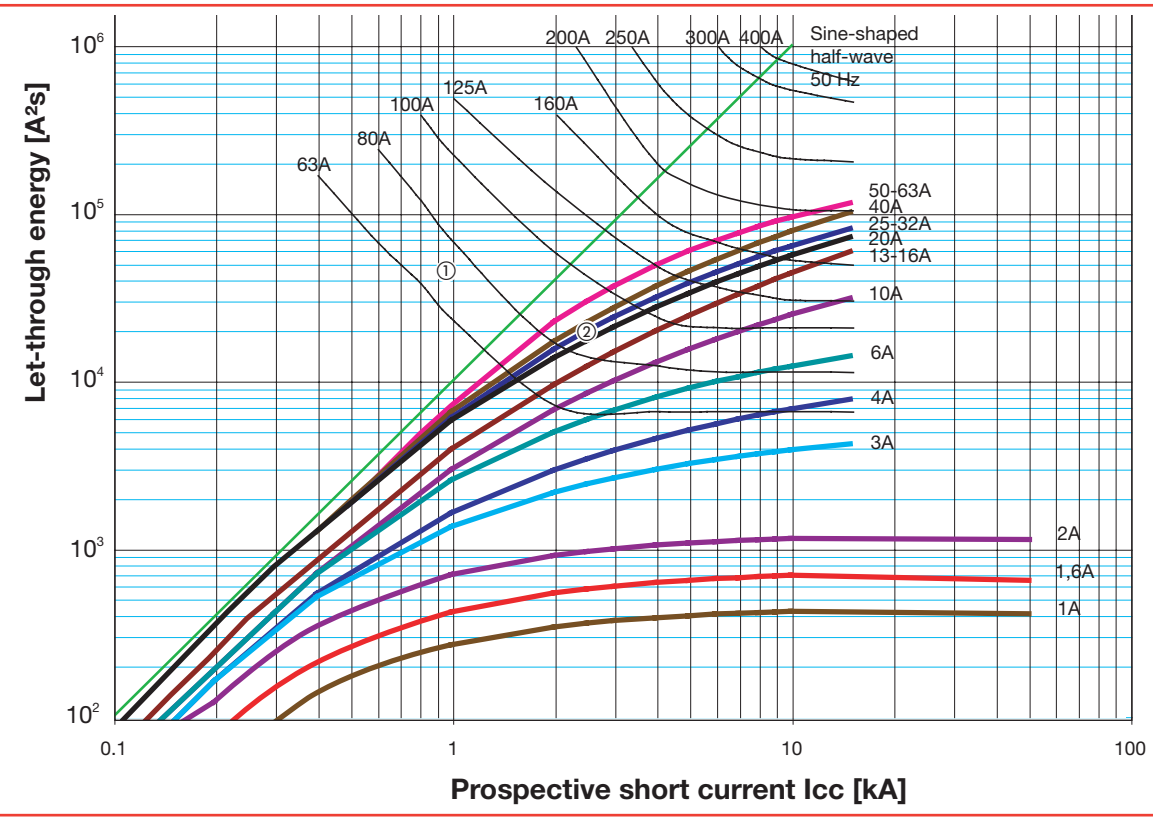
① Currents 0.5 – 4 A only apply to C and K characteristics.

Technical data
Let through energies I^2t at 230/400VAC

Miniature circuit breaker S400 B and D characteristics



Miniature circuit breaker S400 C and K characteristics

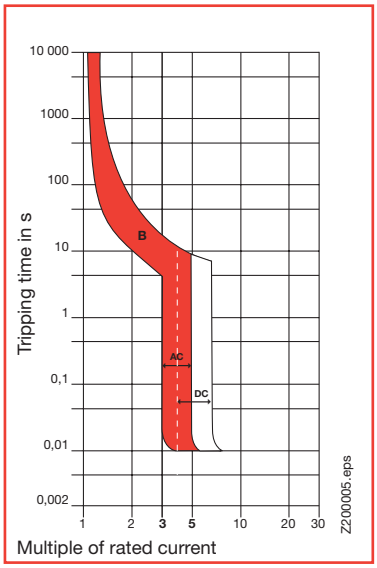


① min melting I^2t, e.g. I_n = 80 A gL
② max. I^2t let through energy of miniature circuit breaker, e.g. B20 A

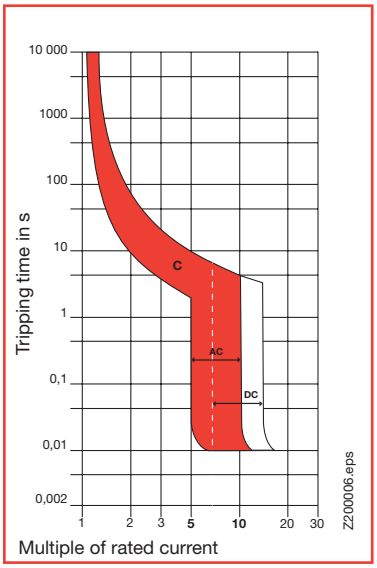
Example:
- MCB, selectivity to the upstream fuse up to the point of intersection curve ① and ②, e.g. S400 C20 to fuse 80 A:
Selectivity up to at least 2.2 kA

- Let through energy values I^2t can be reduced for:
127 V ~ by a factor of 2.5
110 V ~ by a factor of 3

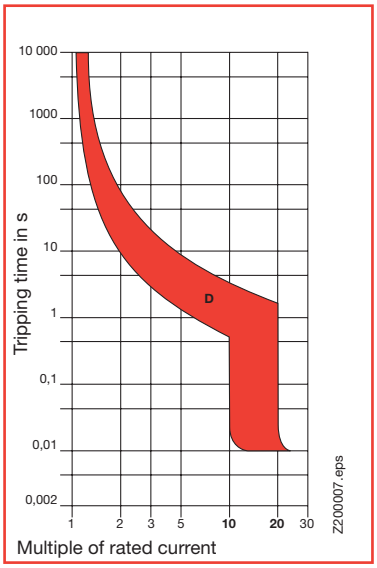
Technical data
Miniature circuit breaker
Trip characteristics



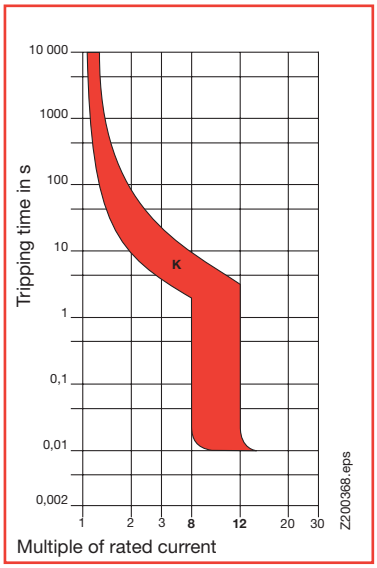
Trip characteristics: B
Thermal trip 1.13...1.45xI_n
Electromagnetic trip
3...5xI_nAC
4...7xI_nDC
Calibration temperature 30 °C
Application
Miniature circuit breaker for circuits supplying loads generating no or only minor inrush currents (boilers, electric heaters, cookers).



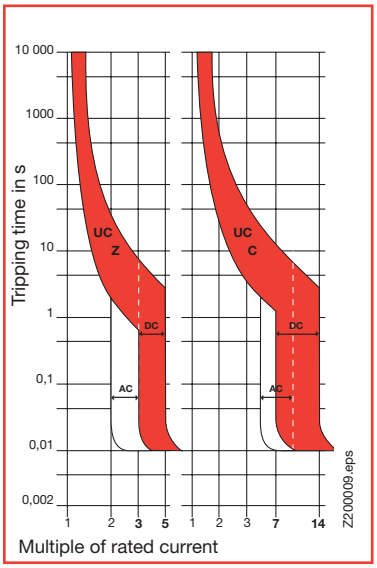
Trip characteristics: C
Thermal trip 1.13...1.45xI_n acc. to EN60898-1
Thermal trip 1.05...1.3xI_n acc. to EN60947-2
Electromagnetic trip
5...10xI_nAC
7...14xI_nDC
Calibration temperature 30 °C
Application
The 'standard' miniature circuit breaker for circuits supplying loads producing inrush currents particular to inductive loads (TV sets, fluorescent and discharge lamps) and for socket outlets.



Trip characteristics: D
Thermal trip 1.13...1.45xI_n
Electromagnetic trip
10...20xI_n AC
10...21xI_n DC
Calibration temperature 30 °C
Application
Miniature circuit breaker for circuits supplying loads producing very high inrush currents (transformers, capacitor banks).
Main circuit breaker for the back-up protection of downstream connected circuit breakers.



Trip characteristics: K
Thermal trip 1.05...1.2xI_n
Electromagnetic trip 8...12xI_n AC
8...18xI_n DC
Calibration temperature 40 °C
Application
Circuit breaker fpr equipment:
The characteristics of these types enable the close protection requirements for equipment to be met.

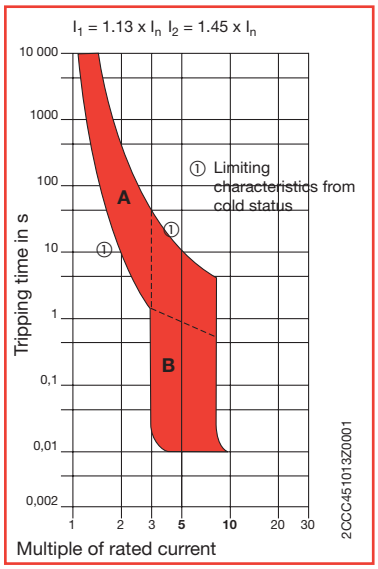


Trip characteristics: UC

Z	C
1.05...1.35xI_n	1.13...1.45xI_n
3...5xI_nDC	7...14xI_nDC
2...3xI_nAC	5...10xI_nAC

Calibration temperature 30 °C
Application
Device protection in DC systems of up to 250 V = with a time constant of ≤15 ms (emergency networks, electroplating, etc.) dependent on polarity.

Trip characteristics example of trip curve interpretation of B-characteristics



A **Thermal trip characteristics:**
Lower test current I_1 = defined as non-tripping current.
The circuit breaker withstands 1.13 times the rated current for at least 60 minutes.
Upper test current I_2 = defined as trip current.
The circuit breaker trips at 1.45 times the rated current within 60 minutes.

B **Electro-magnetic trip characteristics AC:**
The circuit breaker withstands 3 times the rated current for more than 0.1 sec. (in this example, up to around 2 sec.).
The circuit breaker trips in less than 0.1 sec. at 5 times the rated current.

Trip behaviour of different trip characteristics

Trip characteristics and current ratings		Thermal release Test currents: lower test current I_1	upper test current I_2	Trip time	Electromagnetic release Test currents: lower test current	upper test current	Trip time
B	4 to 63 A	1.13 · I_n		> 1 h	3 · I_n		> 0.1 s
			1.45 · I_n	< 1 h		5 · I_n	< 0.1 s
C	0.5 to 63 A	1.13 · I_n		> 1 h	5 · I_n		> 0.1 s
			1.45 · I_n	< 1 h		10 · I_n	< 0.1 s
D	6 to 63 A	1.13 · I_n		> 1 h	10 · I_n		> 0.1 s
			1.4 · I_n	< 1 h		20 · I_n	< 0.1 s
K	0.5 to 63 A	1,05 · I_n		> 2 h	8 · I_n		> 0.2 s
			1.2 · I_n	< 2 h		12 · I_n	< 0.2 s
			1.5 · I_n	< 2 min.			
			6.0 · I_n	> 2 s			

Technical data
Miniature circuit breaker
Back-up protection with fuses, S800 and Tmax

a) If the short-circuit current at the point of installation of the circuit breaker is not greater than the nominal breaking capacity of the MCB, an upstream fuse is not needed. If a fuse is fitted upstream for installation reasons, any nominal current may be selected for the fuse.

b) If the short-circuit current at the point of installation of the circuit breaker is greater than its nominal breaking capacity, the nominal currents of the upstream fuses must not exceed the values specified in the table (back-up protection of the circuit breaker).

Upstream: Fuse NH..gL/gG

		I.	NH gL/gG							
L.		I_{cu} [kA]								
		I_n [A]	125	160						
S400M		I_{cn} [kA] 10	all types	50	35					

S800S - S400M (SMISSLINE) @ 230/400V

		I.	S800S							
			B, C, D, K							
L.		I_{cu} [kA]	50							
		I_n [A]	25	32	40	50	63	80	100	125
S400M	B, D	I_{cn} [kA] 10	4*…16	50	50	50	50	50	50	50	50
			20		50	50	50	50	50	50	50
			25			50	50	50	50	50	50
			32				50	50	50	50	50
			40					50	50	50	50
			50						50	50	50
			63							50	50

* only applies to IEC/EN 60947-2 characteristics C and K

		I.	S800S							
			B, C, D, K							
L.		I_{cu} [kA]	50							
		I_n [A]	25	32	40	50	63	80	100	125
S400M	C, K	50	0.5…2	50	50	50	50	50	50	50	50
		25	3...20	50	50	50	50	50	50	50	50
		15	25			50	50	50	50	50	50
			32				50	50	50	50	50
			40					50	50	50	50
			50						50	50	50
			63							50	50

S800N - S400M (SMISSLINE) @ 230/400V

		I.	S800N							
			B, C, D							
L.		I_{cu} [kA]	36							
		I_n [A]	25	32	40	50	63	80	100	125
S400M	B, D	I_{cn} [kA] 10	4*…16	36	36	36	36	36	36	36	36
			20		36	36	36	36	36	36	36
			25			36	36	36	36	36	36
			32				36	36	36	36	36
			40					36	36	36	36
			50						36	36	36
			63							36	36

* only applies to IEC/EN 60947-2 characteristics C and K

		I.	S800N							
			B, C, D							
L.		I_{cn} [kA]	36							
		I_n [A]	25	32	40	50	63	80	100	125
S400M	C, K	50	0.5...2	36	36	36	36	36	36	36	36
		25	3...20	36	36	36	36	36	36	36	36
		15	25			36	36	36	36	36	36
			32				36	36	36	36	36
			40					36	36	36	36
			50						36	36	36
			63							36	36

I. = Upstream L. = Downstream
T = total selectivity up to breaking capacity of downstream miniature circuit breaker
Selectivity limits are specified in kA

Sace Tmax – S400 @ 230/400V

			Up-Stream	T1	T1	T1	T2	T3	T4	T2	T3	T4	T2	T4	T2	T4	T4
	Version		Version	B	C	N	N	N	N	S	S	S	H	H	L		V
Downstream		I_n [A]	I_{cu} [kA]	16	25	36	36	36	36	50	50	50	70	70	85	120	200
S400 M	C, K	0.5…10	10	16	25	30	36	36	36	40	40	40	40	40	40	40	40
		13…63						25	36		25	40	25	40	25	40	40
S400 M	B, D	6…10	10	16	25	30	36	36	36	40	40	40	40	40	40	40	40
		13…63						25	36		25	40	25	40	25	40	40

Consulting the back-up table

This table provides the value (in kA) for which the back-up protection is ensured between a given combination of circuit breakers. The table covers possible combinations between the S800 or SACE series Tmax and between SMISSLINE miniature circuit breakers 400 M.

Technical data
Miniature circuit breaker
Selectivity to fuses gL/gG

In a low voltage distribution system service continuity is much desired. This means, that two or more in series connected overcurrent protection devices should operate selective in case of an overload or a short circuit. Selectivity is achieved, if only the protective device closest to the fault location operates. Selectivity between fuse and circuit breaker is assured, if the let through energy of the downstream installed circuit breaker does not reach the value of the melting energy of the upstream connected fuse. In case of a short circuit a selective interruption of the fault current by the SMISSLINE miniature circuit breaker is assured up to the values indicated in the tables. The information is based on the average operating curves of the upstream connected fuses.

Fuse gL/gG - S400 M @ 230/400V

		Upstream	Fuse gL/gG									
Downstream	Char.	I_n [A]	16	20	25	35	50	63	80	100	125	160
S400 M	B,C	≤ 2	1	1.2	4	>15 *	>15 *	>15 *	>15 *	>15 *	>15 *	>15 *
		3	0.3	0.7	1.2	4.6	6	6	6	6	6	6
		4	0.3	0.6	0.9	2.8	6	6	6	6	6	6
		6	0.2	0.5	0.8	2	3.3	5.5	6	6	6	6
		8	0.2	0.4	0.7	1.7	2.8	4.5	6	6	6	6
		10	0.2	0.4	0.7	1.5	2.5	3.5	5	6	6	6
		13			0.7	1.5	2.5	3.5	5	6	6	6
		16				1.3	2	2.9	4.1	6	6	6
		20					1.8	2.6	3.5	5	6	6
		25					1.8	2.6	3.5	5	6	6
		32						2.2	3	4	6	6
		40							2.5	4	6	6
		50/63								3.5	5	6

Fuse gL/gG - S400 M @ 230/400V

		Upstream	Fuse gL/gG									
Downstream	Char.	I_n [A]	16	20	25	35	50	63	80	100	125	160
S400 M	D, K	≤ 2	0.3	1.2	4	>15 *	>15 *	>15 *	>15 *	>15 *	>15 *	>15 *
		3	0.3	0.7	1.2	4.6	6	6	6	6	6	6
		4	0.3	0.6	0.9	2.8	6	6	6	6	6	6
		6			0.7	1.7	3	5.9	6	6	6	6
		8				1.3	2.2	3.6	6	6	6	6
		10					1.7	2.5	4	6	6	6
		13						2.2	3.1	4.6	6	6
		16							3.1	4.6	6	6
		20							2.6	3.5	6	6
		25								3.5	6	6
		32									5.5	6
		40										6
		50/63										

I. = Upstream L. = Downstream
T = total selectivity up to breaking capacity of downstream miniature circuit breaker
Selectivity limits are specified in kA

* only applies to IEC/EN 60947-2 characteristics C and K

Technical data
Miniature circuit breaker S400 M
Selectivity to S800 S

S800S - S400M (SMISSLINE) @ 230/400V

L.	Char.	E.	S800S B							
	Icu [kA]		50							
	In [A]		25	32	40	50	63	80	100	125
S400M	B	Icn [kA] 10	6			0.4	0.5	0.6	0.9	1.4	2.4
			10				0.4	0.5	0.7	0.9	1.3
			13					0.5	0.7	0.9	1.2
			16						0.7	0.9	1.2
			20							0.9	1.2
			25							0.9	1.2
			32							0.7	1
			40							0.7	1
			50								0.9
			63								0.9

L.	Char.	E.	S800S B							
	Icu [kA]		50							
	In [A]		25	32	40	50	63	80	100	125
S400M	C	50	0.5	T	T	T	T	T	T	T	T
			1	3	T	T	T	T	T	T	T
			1.6	1	1	T	T	T	T	T	T
			2	0	1	1.2	T	T	T	T	T
		25	3		0	0.6	0.7	1	2.4	T	T
			4		0	0.5	0.6	0.9	1.5	2.8	T
			6			0.4	0.5	0.6	0.9	1.4	2.4
			8				0.4	0.5	0.7	0.9	1.3
			10				0.4	0.5	0.7	0.9	1.3
			13					0.5	0.7	0.9	1.2
			16						0.7	0.9	1.2
			20							0.9	1.2
		15	25							0.9	1.2
			32							0.7	1
			40							0.7	1
			50								0.9
			63								0.9

L.	Char.	E.	S800S B							
	Icu [kA]		50							
	In [A]		25	32	40	50	63	80	100	125
S400M	D	Icn [kA] 10	6				0.5	0.7	1.1	1.8	3.3
			8					0.6	0.9	1.2	1.8
			10						0.9	1.2	1.8
			13							1	1.4
			16								1.4
			20								
			25								
			32								
			40								
			50								
			63								

L.	Char.	E.	S800S B							
	Icu [kA]		50							
	In [A]		25	32	40	50	63	80	100	125
S400M	K	50	0.5	T	T	T	T	T	T	T	T
			1	1	5	T	T	T	T	T	T
			1.6	0	1	2.1	T	T	T	T	T
			2	0	1	0.7	2.1	T	T	T	T
		25	3		0	0.4	0.7	1.1	2.3	7.8	T
			4		0	0.4	0.6	0.9	1.5	2.8	7
			6				0.5	0.7	1.1	1.8	3.3
			8					0.6	0.9	1.2	1.8
			10						0.9	1.2	1.8
			13							1	1.4
			16								1.4
			20								
		10	25								
			32								
			40								
			50								
			63								

S800S - S400M (SMISSLINE) @ 230/400V

L.	Char.	E.	S800S C							
	Icu [kA]		50							
	In [A]		25	32	40	50	63	80	100	125
S400M	B	Icn [kA] 10	6		0.4	0.5	0.6	0.9	1.3	2.2	4.4
			10		0.3	0.4	0.5	0.6	0.8	1.2	1.8
			13		0.3	0.4	0.5	0.6	0.8	1.2	1.7
			16		0.3	0.4	0.5	0.6	0.8	1.2	1.7
			20			0.4	0.5	0.6	0.8	1.1	1.6
			25			0.4	0.5	0.6	0.8	1.1	1.6
			32				0.4	0.5	0.7	0.9	1.3
			40					0.5	0.7	0.9	1.3
			50						0.7	0.9	1.2
			63							0.8	1.1

L.	Char.	E.	S800S C							
	Icu [kA]		50							
	In [A]		25	32	40	50	63	80	100	125
S400M	C	50	0.5	T	T	T	T	T	T	T	T
			1	T	T	T	T	T	T	T	T
			1.6	1	T	T	T	T	T	T	T
			2	0	0.9	T	T	T	T	T	T
		25	3	0	0.4	0.7	1.1	1.9	5.8	T	T
			4	0	0.4	0.6	0.9	1.3	2.4	5.5	T
			6		0.4	0.5	0.6	0.9	1.3	2.2	4.4
			8		0.3	0.4	0.5	0.6	0.8	1.2	1.8
			10		0.3	0.4	0.5	0.6	0.8	1.2	1.8
			13		0.3	0.4	0.5	0.6	0.8	1.2	1.7
			16		0.3	0.4	0.5	0.6	0.8	1.2	1.7
			20			0.4	0.5	0.6	0.8	1.1	1.6
		15	25			0.4	0.5	0.6	0.8	1.1	1.6
			32				0.4	0.5	0.7	0.9	1.3
			40					0.5	0.7	0.9	1.3
			50						0.7	0.9	1.2
			63							0.8	1.1

L.	Char.	E.	S800S C							
	Icu [kA]		50							
	In [A]		25	32	40	50	63	80	100	125
S400M	D	Icn [kA] 10	6		0.4	0.5	0.7	1	1.6	2.9	5.8
			8			0.5	0.6	0.8	1.1	1.6	2.5
			10				0.6	0.8	1.1	1.6	2.5
			13					0.7	0.9	1.3	1.8
			16						0.9	1.3	1.8
			20							0.9	1.3
			25								1.3
			32								
			40								
			50								
			63								

L.	Char.	E.	S800S C							
	Icu [kA]		50							
	In [A]		25	32	40	50	63	80	100	125
S400M	K	50	0.5	T	T	T	T	T	T	T	T
			1	2	T	T	T	T	T	T	T
			1.6	1	2.1	T	T	T	T	T	T
			2	0	0.7	2.1	T	T	T	T	T
		25	3	0	0.4	0.7	1.1	2	5.8	T	T
			4	0	0.4	0.6	0.9	1.3	2.4	5.6	T
			6		0.4	0.5	0.7	1	1.6	2.9	5.8
			8			0.5	0.6	0.8	1.1	1.6	2.5
			10				0.6	0.8	1.1	1.6	2.5
			13					0.7	0.9	1.3	1.8
			16						0.9	1.3	1.8
			20							0.9	1.3
		10	25								1.3
			32								
			40								
			50								
			63								

I. = Upstream L. = Downstream
T = total selectivity up to breaking capacity of downstream miniature circuit breaker
Selectivity limits are specified in kA

Technical data
Miniature circuit breaker S400 M
Selectivity to S800 S and S800 N

S800S - S400M (SMISSLINE) @ 230/400V

L.	Char.	Icu [kA]	E.	S800S D 50							
			In [A]	25	32	40	50	63	80	100	125
S400M	B	Icn [kA] 10	6	0.5	0.9	1.1	1.8	2.5	9	T	T
			10	0.4	0.5	0.8	1	1.3	2.5	3.5	6.7
			13	0.4	0.5	0.8	1	1.3	2.3	3	5.1
			16		0.5	0.8	1	1.3	2.3	3	5.1
			20			0.7	1	1.2	2.1	2.7	4.3
			25			0.7	1	1.2	2.1	2.7	4.3
			32				0.9	1	1.7	2.2	3.4
			40					1	1.7	2.2	3.4
			50						1.4	1.7	2.1
			63							1.6	2.1

L.	Char.	Icu [kA]	E.	S800S D 50							
			In [A]	25	32	40	50	63	80	100	125
S400M	C	50	0.5	T	T	T	T	T	T	T	T
			1	T	T	T	T	T	T	T	T
			1.6	T	T	T	T	T	T	T	T
			2	T	T	T	T	T	T	T	T
		25	3	0.7	2	4	T	T	T	T	T
			4	0.6	1.2	2	4	7	T	T	T
			6	0.5	0.9	1.1	1.8	2.5	9	T	T
			8	0.4	0.5	0.8	1	1.3	2.5	3.5	6.7
			10	0.4	0.5	0.8	1	1.3	2.5	3.5	6.7
			13	0.4	0.5	0.8	1	1.3	2.3	3	5.1
			16		0.5	0.8	1	1.3	2.3	3	5.1
			20			0.7	1	1.2	2.1	2.7	4.3
		15	25			0.7	1	1.2	2.1	2.7	4.3
			32				0.9	1	1.7	2.2	3.4
			40					1	1.7	2.2	3.4
			50						1.4	1.7	2.1
			63							1.6	2.1

L.	Char.	Icu [kA]	E.	S800S D 50							
			In [A]	25	32	40	50	63	80	100	125
S400M	D	Icn [kA] 10	6	0.5	0.8	1.4	2.3	3.3	T	T	T
			8	0.5	0.6	1	1.4	1.8	3.6	5	9
			10	0.5	0.6	1	1.4	1.8	3.6	5	9
			13		0.5	0.8	1.1	1.4	2.4	3.1	4.7
			16			0.8	1.1	1.4	2.4	3.1	4.7
			20				0.8	1	1.6	2	2.9
			25					1	1.6	2	2.9
			32						1.5	1.8	2.6
			40							1.7	2.4
			50								2
			63								

L.	Char.	Icu [kA]	E.	S800S D 50							
			In [A]	25	32	40	50	63	80	100	125
S400M	K	50	0.5	T	T	T	T	T	T	T	T
			1	T	T	T	T	T	T	T	T
			1.6	T	T	T	T	T	T	T	T
			2	2.1	T	T	T	T	T	T	T
		25	3	0.7	1.2	4	T	T	T	T	T
			4	0.6	0.9	2	4	7	T	T	T
			6	0.5	0.8	1.4	2.3	3.3	T	T	T
			8	0.5	0.6	1	1.4	1.8	3.6	5	T
			10	0.5	0.6	1	1.4	1.8	3.6	5	T
			13		0.5	0.8	1.1	1.4	2.4	3.1	4.7
			16			0.8	1.1	1.4	2.4	3.1	4.7
			20				0.8	1	1.6	2	2.9
		10	25					1	1.6	2	2.9
			32						1.5	1.8	2.6
			40							1.7	2.4
			50								2
			63								

I. = Upstream L. = Downstream
T = total selectivity up to breaking capacity of downstream miniature circuit breaker
Selectivity limits are specified in kA

Technical data
Miniature circuit breaker S400 M
Selectivity to S800 N

S800N - S400M (SMISSLINE) @ 230/400V

L.	Char.	E.	S800N B							
		Icu [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	B	Icn [kA] 10								
		6			0.4	0.5	0.6	0.9	1.4	2.4
		10				0.4	0.5	0.7	0.9	1.3
		13					0.5	0.7	0.9	1.2
		16						0.7	0.9	1.2
		20							0.9	1.2
		25							0.9	1.2
		32							0.7	1
		40							0.7	1
		50								0.9
		63								0.9

L.	Char.	E.	S800N B							
		Icn [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	C	50								
		0.5	T	T	T	T	T	T	T	T
		1	3	T	T	T	T	T	T	T
		1.6	1	1	T	T	T	T	T	T
		2	0	1	1.2	T	T	T	T	T
		25								
		3		0	0.6	0.7	1	2.4	T	T
		4		0	0.5	0.6	0.9	1.5	2.8	T
		6			0.4	0.5	0.6	0.9	1.4	2.4
		8				0.4	0.5	0.7	0.9	1.3
		10				0.4	0.5	0.7	0.9	1.3
		13					0.5	0.7	0.9	1.2
		16						0.7	0.9	1.2
		20							0.9	1.2
		15								
		25							0.9	1.2
		32							0.7	1
		40							0.7	1
		50								0.9
		63								0.9

L.	Char.	E.	S800N B							
		Icu [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	D	Icn [kA] 10								
		6				0.5	0.7	1.1	1.8	3.3
		8					0.6	0.9	1.2	1.8
		10						0.9	1.2	1.8
		13							1	1.4
		16								1.4
		20								
		25								
		32								
		40								
		50								
		63								

L.	Char.	E.	S800N B							
		Icu [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	K	50								
		0.5	T	T	T	T	T	T	T	T
		1	1	5	T	T	T	T	T	T
		1.6	0	1	2.1	T	T	T	T	T
		2	0	1	0.7	2.1	T	T	T	T
		25								
		3		0	0.4	0.7	1.1	2.3	7.8	T
		4		0	0.4	0.6	0.9	1.5	2.8	7
		6				0.5	0.7	1.1	1.8	3.3
		8					0.6	0.9	1.2	1.8
		10						0.9	1.2	1.8
		13							1	1.4
		16								1.4
		20								
		10								
		25								
		32								
		40								
		50								
		63								

S800N - S400M (SMISSLINE) @ 230/400V

L.	Char.	E.	S800N C							
		Icu [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	B	Icn [kA] 10								
		6		0.4	0.5	0.6	0.9	1.3	2.2	4.4
		10		0.3	0.4	0.5	0.6	0.8	1.2	1.8
		13		0.3	0.4	0.5	0.6	0.8	1.2	1.7
		16		0.3	0.4	0.5	0.6	0.8	1.2	1.7
		20			0.4	0.5	0.6	0.8	1.1	1.6
		25			0.4	0.5	0.6	0.8	1.1	1.6
		32				0.4	0.5	0.7	0.9	1.3
		40					0.5	0.7	0.9	1.3
		50						0.7	0.9	1.2
		63							0.8	1.1

L.	Char.	E.	S800N C							
		Icn [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	C	50								
		0.5	T	T	T	T	T	T	T	T
		1	T	T	T	T	T	T	T	T
		1.6	1	T	T	T	T	T	T	T
		2	0	0.9	T	T	T	T	T	T
		25								
		3	0	0.4	0.7	1.1	1.9	5.8	T	T
		4	0	0.4	0.6	0.9	1.3	2.4	5.5	T
		6		0.4	0.5	0.6	0.9	1.3	2.2	4.4
		8		0.3	0.4	0.5	0.6	0.8	1.2	1.8
		10		0.3	0.4	0.5	0.6	0.8	1.2	1.8
		13		0.3	0.4	0.5	0.6	0.8	1.2	1.7
		16		0.3	0.4	0.5	0.6	0.8	1.2	1.7
		20			0.4	0.5	0.6	0.8	1.1	1.6
		15								
		25			0.4	0.5	0.6	0.8	1.1	1.6
		32				0.4	0.5	0.7	0.9	1.3
		40					0.5	0.7	0.9	1.3
		50						0.7	0.9	1.2
		63							0.8	1.1

L.	Char.	E.	S800N C							
		Icn [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	D	Icn [kA] 10								
		6		0.4	0.5	0.7	1	1.6	2.9	5.8
		8			0.5	0.6	0.8	1.1	1.6	2.5
		10				0.6	0.8	1.1	1.6	2.5
		13					0.7	0.9	1.3	1.8
		16						0.9	1.3	1.8
		20							0.9	1.3
		25								1.3
		32								
		40								
		50								
		63								

L.	Char.	E.	S800N C							
		Icu [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	K	50								
		0.5	T	T	T	T	T	T	T	T
		1	2	T	T	T	T	T	T	T
		1.6	1	2.1	T	T	T	T	T	T
		2	0	0.7	2.1	T	T	T	T	T
		25								
		3	0	0.4	0.7	1.1	2	5.8	T	T
		4	0	0.4	0.6	0.9	1.3	2.4	5.6	T
		6		0.4	0.5	0.7	1	1.6	2.9	5.8
		8			0.5	0.6	0.8	1.1	1.6	2.5
		10				0.6	0.8	1.1	1.6	2.5
		13					0.7	0.9	1.3	1.8
		16						0.9	1.3	1.8
		20							0.9	1.3
		10								
		25								1.3
		32								
		40								
		50								
		63								

I. = Upstream L. = Downstream
T = total selectivity up to breaking capacity of downstream miniature circuit breaker
Selectivity limits are specified in kA

Technical data
Miniature circuit breaker S400 M
Selectivity to S800 N

S800N - S400M (SMISSLINE) @ 230/400V

L.		E.	S800N							
			D							
		Icu [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	B	Icn [kA] 10	6	0.5	0.9	1.1	1.8	2.5	9	T	T
			10	0.4	0.5	0.8	1	1.3	2.5	3.5	6.7
			13	0.4	0.5	0.8	1	1.3	2.3	3	5.1
			16		0.5	0.8	1	1.3	2.3	3	5.1
			20			0.7	1	1.2	2.1	2.7	4.3
			25			0.7	1	1.2	2.1	2.7	4.3
			32				0.9	1	1.7	2.2	3.4
			40					1	1.7	2.2	3.4
			50						1.4	1.7	2.1
			63							1.6	2.1

L.		E.	S800N							
			D							
		Icu [kA]	36							
		In [A]	25	32	40	36	63	80	100	125
S400M	C	50	0.5	T	T	T	T	T	T	T	T
			1	T	T	T	T	T	T	T	T
			1.6	T	T	T	T	T	T	T	T
			2	T	T	T	T	T	T	T	T
		25	3	0.7	2	4	T	T	T	T	T
			4	0.6	1.2	2	4	7	T	T	T
			6	0.5	0.9	1.1	1.8	2.5	9	T	T
			8	0.4	0.5	0.8	1	1.3	2.5	3.5	6.7
			10	0.4	0.5	0.8	1	1.3	2.5	3.5	6.7
			13	0.4	0.5	0.8	1	1.3	2.3	3	5.1
			16		0.5	0.8	1	1.3	2.3	3	5.1
			20			0.7	1	1.2	2.1	2.7	4.3
		15	25			0.7	1	1.2	2.1	2.7	4.3
			32				0.9	1	1.7	2.2	3.4
			40					1	1.7	2.2	3.4
			50						1.4	1.7	2.1
			63							1.6	2.1

L.		E.	S800N							
			D							
		Icu [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	D	Icn [kA] 10	6	0.5	0.8	1.4	2.3	3.3	T	T	T
			8	0.5	0.6	1	1.4	1.8	3.6	5	9
			10	0.5	0.6	1	1.4	1.8	3.6	5	9
			13		0.5	0.8	1.1	1.4	2.4	3.1	4.7
			16			0.8	1.1	1.4	2.4	3.1	4.7
			20				0.8	1	1.6	2	2.9
			25					1	1.6	2	2.9
			32						1.5	1.8	2.6
			40							1.7	2.4
			50								2
			63								

L.		E.	S800N							
			D							
		Icu [kA]	36							
		In [A]	25	32	40	50	63	80	100	125
S400M	K	50	0.5	T	T	T	T	T	T	T	T
			1	T	T	T	T	T	T	T	T
			1.6	T	T	T	T	T	T	T	T
			2	2.1	T	T	T	T	T	T	T
		25	3	0.7	1.2	4	T	T	T	T	T
			4	0.6	0.9	2	4	7	T	T	T
			6	0.5	0.8	1.4	2.3	3.3	T	T	T
			8	0.5	0.6	1	1.4	1.8	3.6	5	T
			10	0.5	0.6	1	1.4	1.8	3.6	5	T
			13		0.5	0.8	1.1	1.4	2.4	3.1	4.7
			16			0.8	1.1	1.4	2.4	3.1	4.7
			20				0.8	1	1.6	2	2.9
		10	25					1	1.6	2	2.9
			32						1.5	1.8	2.6
			40							1.7	2.4
			50								2
			63								

I. = Upstream L. = Downstream
T = total selectivity up to breaking capacity of downstream miniature circuit breaker
Selectivity limits are specified in kA

Technical data
Miniature circuit breaker S400 M
Selectivity to Sace Tmax T1

Tmax T1 - @ 230/400V

		I.	T1										
		Version	B, C, N										
		Release	TM										
		I_u [A]	160										
L.	Char.	I_n [A]	16	20	25	32	40	50	63	80	100	125	160
S400 M	C	≤ 2	10	10	10	10	10	10	10	10	10	10	10
		3	10	10	10	10	10	10	10	10	10	10	10
		4	10	10	10	10	10	10	10	10	10	10	10
	B,C	6	5.5	5.5	5.5	5.5	5.5	5.5	10	10	10	10	10
		8		5.5	5.5	5.5	5.5	5.5	10	10	10	10	10
		10			3	3	3	4.5	7.5	8.5	10	10	10
		13				3	3	4.5	7.5	8.5	10	10	10
		16					3	4.5	5	7.5	10	10	10
		20						3	5	6	10	10	10
		25							5	6	10	10	10
		32								6	7.5	10	10
		40									7.5	10	10
		50										7.5	10
		63											10

Tmax T1 - @ 230/400V

		I.	T1										
		Version	B, C, N										
		Release	TM										
		I_u [A]	160										
L.	Char.	I_n [A]	16	20	25	32	40	50	63	80	100	125	160
S400 M	D	6	5.5	5.5	5.5	5.5	5.5	5.5	10	10	10	10	10
		8		5.5	5.5	5.5	5.5	5.5	10	10	10	10	10
		10			3	3	3	3	5	8.5	10	10	10
		13				2	2	2	3	7.5	10	10	10
		16					2	2	3	4.5	8	10	10
		20						2	2.5	4	6.5	11	10
		25							2	4	6	9.5	10
		32								3	6	9.5	10
		40									5	8	10
		50										5	9.5
		63											9.5

Tmax T1 - @ 230/400V

		I.	T1										
		Version	B, C, N										
		Release	TM										
		I_u [A]	160										
L.	Char.	I_n [A]	16	20	25	32	40	50	63	80	100	125	160
S400 M	K	≤ 2	10	10	10	10	10	10	10	10	10	10	10
		3	10	10	10	10	10	10	10	10	10	10	10
		4	10	10	10	10	10	10	10	10	10	10	10
		6	5.5	5.5	5.5	5.5	5.5	5.5	10	10	10	10	10
		8		5.5	5.5	5.5	5.5	5.5	10	12	10	10	10
		10			3	3	3	3	6	8.5	10	10	10
		13				3	3	3	4.5	7.5	10	10	10
		16					2	3	3.5	5.5	10	10	10
		20						2	3.5	5.5	6.5	11	10
		25							2	4.5	6	9.5	10
		32								4	6	9.5	10
		40									5	8	10
		50										6	9.5
		63											9.5

I. = Upstream L. = Downstream
T = total selectivity up to breaking capacity of downstream miniature circuit breaker
Selectivity limits are specified in kA

Technical data
Miniature circuit breaker S400 M
Selectivity to Sace Tmax T2

Tmax T2 - S400 M @ 230/400V

		I.	T2																
		Version	N, S, H, L																
		Release	TM, M												EL				
		I_u [A]	160																
L.	Char.	I_n [A]	12.5	16	20	25	32	40	50	63	80	100	125	160	10	25	63	100	160
S400 M	C	≤ 2	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		4	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	B,C	6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	10	10	10	10	10		10	10	10	10
		8			5.5	5.5	5.5	5.5	5.5	10	10	10	10	10		10	10	10	10
		10			3	3	3	3	4.5	7.5	8.5	10	10	10		10	10	10	10
		13			3		3	3	4.5	7.5	7.5	10	10	10		10	10	10	10
		16					3	3	4.5	5	7.5	10	10	10			10	10	10
		20					3		3	5	6	10	10	10			10	10	10
		25							3	5	6	10	10	10			10	10	10
		32							3		6	7.5	10	10			10	10	10
		40									5.5	7.5	10	10				10	10
		50									3	5	7.5	10				10	10
		63										5		10					10

Tmax T2 - S400 M @ 230/400V

		I.	T2																
		Version	N, S, H, L																
		Release	TM, M												EL				
		I_u [A]	160																
L.	Char.	I_n [A]	12.5	16	20	25	32	40	50	63	80	100	125	160	10	25	63	100	160
S400 M	D	6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	10	10	10	10	10		10	10	10	10
		8			5.5	5.5	5.5	5.5	5.5	10	10	10	10	10		10	10	10	10
		10			3	3	3	3	3	5	8.5	10	10	10		10	10	10	10
		16					2	2	2	3	5	8	10	10			10	10	10
		20					2		2	3	4.5	6.5	10	10			10	10	10
		25							2	2.5	4	6	9.5	10			10	10	10
		32									4	6	9.5	10			10	10	10
		40									3	5	8	10				10	10
		50									2	3	5	9.5				9.5	9.5
		63										3		9.5					9.5

Tmax T2 - S400 M @ 230/400V

		I.	T2																
		Version	N, S, H, L																
		Release	TM, M												EL				
		I_u [A]	160																
L.	Char.	I_n [A]	12.5	16	20	25	32	40	50	63	80	100	125	160	10	25	63	100	160
S400 M	K	≤ 2	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		4	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		6	5.5	5.5	5.5	5.5	5.5	5.5	5.5	10	10	10	10	10		10	10	10	10
		8			5.5	5.5	5.5	5.5	5.5	10	10	10	10	10		10	10	10	10
		10			3	3	3	3	3	10	8.5	10	10	10		10	10	10	10
		16					2	3	3	4.5	7.5	10	10	10			10	10	10
		20					2		3	3.5	5.5	6.5	10	10			10	10	10
		25							2	3.5	5.5	6	9.5	10			10	10	10
		32									4.5	6	9.5	10			10	10	10
		40									3	5	8	10				10	10
		50									2	3	6	9.5				9.5	9.5
		63										3		9.5					9.5

I. = Upstream L. = Downstream

T = total selectivity up to breaking capacity of downstream miniature circuit breaker. Selectivity limits are specified in kA

Technical data
Miniature circuit breaker S400 M
Selectivity to Sace Tmax T3

Tmax T3 - S400 M, 230/400V

		I.	T3						
		Version	N, S						
		Release	TM, M						
		I_u [A]	250						
L.	Char.	I_n [A]	63	80	100	125	160	200	250
S400 M	C	≤ 2	10	10	10	10	10	10	10
		3	10	10	10	10	10	10	10
		4	10	10	10	10	10	10	10
	B,C	6	10	10	10	10	10	10	10
		8	10	10	10	10	10	10	10
		10	7.5	8.5	10	10	10	10	10
		13	7.5	7.5	10	10	10	10	10
		16	5	7.5	10	10	10	10	10
		20	5	6	10	10	10	10	10
		25	5	6	10	10	10	10	10
		32		6	7.5	10	10	10	10
		40			7.5	10	10	10	10
		50			5	7.5	10	10	10
		63			5	6	10	10	10

Tmax T3 - S400 M, 230/400V

		I.	T3						
		Version	N, S						
		Release	TM, M						
		I_u [A]	250						
L.	Char.	I_n [A]	63	80	100	125	160	200	250
S400 M	D	6	10	10	10	10	10	10	10
		8	10	10	10	10	10	10	10
		10	5	8.5	10	10	10	10	10
		16	3	5	8	10	10	10	10
		20	3	4.5	6.5	10	10	10	10
		25	2.5	4	6	9.5	10	10	10
		32		4	6	9.5	10	10	10
		40			5	8	10	10	10
		50			3	5	9.5	10	10
		63			3	5	9.5	10	10

Tmax T3 - S400 M, 230/400V

		I.	T3						
		Version	N, S						
		Release	TM, M						
		I_u [A]	250						
L.	Char.	I_n [A]	63	80	100	125	160	200	250
S400 M	K	≤ 2	10	10	10	10	10	10	10
		3	10	10	10	10	10	10	10
		4	10	10	10	10	10	10	10
		6	10	10	10	10	10	10	10
		8	10	10	10	10	10	10	10
		10	10	8.5	10	10	10	10	10
		16	4.5	7.5	10	10	10	10	10
		20	4.5	5.5	6.5	10	10	10	10
		25	3.5	5.5	6	9.5	10	10	10
		32		4.5	6	9.5	10	10	10
		40			5	8	10	10	10
		50			3	6	9.5	10	10
		63			3	5.5	9.5	10	10

I. = Upstream L. = Downstream
T = total selectivity up to breaking capacity of downstream miniature circuit breaker
Selectivity limits are specified in kA

Technical data
Miniature circuit breaker 10 kA S400 M
Selectivity to Sace Tmax T4

Tmax T4 - S400 M, 400/415V

		I.	T4													
		Version	N, S, H, L, V													
		Release	TM, M										EL			
		I_u [A]	250										250			320
L.	Char.	I_n [A]	20	25	32	50	80	100	125	160	200	250	100	160	250	320
S400 M	C	≤ 2	50	50	50	50	50	50	50	50	50	50	50	50	50	50
		3	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		4	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	B,C	6	7.5	7.5	7.5	7.5	10	10	10	10	10	10	10	10	10	10
		8	7.5	7.5	7.5	7.5	10	10	10	10	10	10	10	10	10	10
		10	5	5	5	6.5	9	10	10	10	10	10	10	10	10	10
		13		5	5	6.5	8	10	10	10	10	10	10	10	10	10
		16		5	5	6.5	8	10	10	10	10	10	10	10	10	10
		20				5	7.5	10	10	10	10	10	10	10	10	10
		25				5	7.5	10	10	10	10	10	10	10	10	10
		32				5	7.5	10	10	10	10	10	10	10	10	10
		40					6.5	10	10	10	10	10	10	10	10	10
		50					5	10	10	10	10	10	10	10	10	10
		63						10	10	10	10	10	10	10	10	10
S400 M	D	≤ 2	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		3	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		4	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		6	7.5	7.5	7.5	7.5	10	10	10	10	10	10	10	10	10	10
		8	7.5	7.5	7.5	7.5	10	10	10	10	10	10	10	10	10	10
		10	5	5	5	5	9	10	10	10	10	10	10	10	10	10
		16				4	5.5	10	10	10	10	10	10	10	10	10
		20				4	5	10	10	10	10	10	10	10	10	10
		25				4	4.5	10	10	10	10	10	10	10	10	10
		32					4.5	10	10	10	10	10	10	10	10	10
		40					4.5	10	10	10	10	10	10	10	10	10
		50						10	10	10	10	10	10	10	10	10
		63							10	10	10	10	10	10	10	10
S400 M	K	≤ 2	50	50	50	50	50	50	50	50	50	50	50	50	50	50
		3	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		4	10	10	10	10	10	10	10	10	10	10	10	10	10	10
		6	7.5	7.5	7.5	7.5	10	10	10	10	10	10	10	10	10	10
		8	7.5	7.5	7.5	7.5	10	10	10	10	10	10	10	10	10	10
		10		5	5	5	9	10	10	10	10	10	10	10	10	10
		16		5		5	8	10	10	10	10	10	10	10	10	10
		20				5	6	10	10	10	10	10	10	10	10	10
		25				5	6	10	10	10	10	10	10	10	10	10
		32				5	6	10	10	10	10	10	10	10	10	10
		40					5.5	10	10	10	10	10	10	10	10	10
		50					5	10	10	10	10	10	10	10	10	10
		63						10	10	10	10	10	10	10	10	10

I. = Upstream L. = Downstream
T = total selectivity up to breaking capacity of downstream miniature circuit breaker
Selectivity limits are specified in kA

Technical data
Miniature circuit breaker
Influence of ambient temperature

Allowable current of miniature circuit breakers depending on ambient temperature and max. load current for row mounted miniature circuit breakers.

Practical procedure Conditions often arise which allow for simple consideration of the ambient temperature and thermal influences of row mounted circuit breakers according to EN 60898 and EN 60947-2. The following procedure has proven to be effective:

1. Selection of circuit breaker according to the rated current of the equipment or the current carrying capacity of the cable depending on whitch of these is the lower value.
2. Consideration of thermal factors
   – for an ambient temperature of 40 °C: $I_B \leq 0.9 \cdot I_n$
   – for thermal influence of row mounted circuit breakers subject to the same loads: $I_B \leq 0.75 \cdot I_n$
3. This results in the rated current of the circuit breaker to be selected for $I_n \geqslant 1.5$ times the relevant current according to point 1.

This procedure considers all thermal influence factors and results in an optimum choice of the rated current for the circuit breaker.
Example: Current carrying capacity required of the cable: 4A. Selected rated current of circuit breaker taking thermal influence into consideration: $I_n \geqslant 1.5 \cdot 4A \geq 6A$.

Basis for the simplified procedure
1. Different ambient temperature
The thermal releases are set to a reference ambient temperature. For trip characteristic K, this is 40 °C, for trip characteristics B, C and D, this is 30 °C. At different ambient temperatures, the specified current values change by around **6% per 10 °C difference in temperature**.
For more accurate calculations and very high or very low ambient temperatures, the following tables apply:

2. Influence of row mounted devices at continuous load
If the circuit breakers are lined up close to one another and have equally high load levels, a correction factor must be taken into account: 2 and 3 circuit breakers with a factor of 0.9; 4 and 5 circuit breakers with a factor of 0.8; 6 and more circuit breakers with a factor of 0.75. **This influence can be reduced if fillers and/or spacers (9 mm wide) are used.**

Max. operating currents depending on ambient temperature for S400 miniature circuit breakers of tip characteristics B, C and D

	I_n(A) ambient temperature T (°C)										
	0	10	15	20	25	**30**	35	40	45	50	55
0.5*	0.58	0.55	0.53	0.52	0.51	**0.50**	0.48	0.47	0.46	0.44	0.43
1.0*	1.15	1.09	1.07	1.04	1.02	**1.0**	0.97	0.94	0.91	0.89	0.86
1.6*	1.85	1.75	1.71	1.67	1.63	**1.6**	1.55	1.50	1.46	1.42	1.38
2.0*	2.31	2.19	2.13	2.08	2.03	**2.0**	1.93	1.88	1.83	1.77	1.72
3.0*	3.5	3.32	3.24	3.16	3.09	**3.0**	2.93	2.85	2.77	2.69	2.61
4.0*	4.6	4.37	4.27	4.17	4.07	**4.0**	3.86	3.76	3.66	3.56	3.45
6.0	6.9	6.59	6.44	6.29	6.14	**6.0**	5.83	5.68	5.53	5.37	5.22
8.0	9.2	8.84	8.63	8.42	8.22	**8.0**	7.81	7.6	7.39	7.19	6.98
10.0	11.5	10.9	10.7	10.4	10.2	**10.0**	9.65	9.39	9.14	8.88	8.63
13.0	15.0	14.4	14.0	13.7	13.3	**13.0**	12.7	12.3	12.0	11.6	11.3
16.0	18.5	17.6	17.2	16.8	16.4	**16.0**	15.6	15.2	14.7	14.3	13.9
20.0	23.1	22.1	21.6	21.0	20.5	**20.0**	19.5	19.0	18.5	18.0	17.5
25.0	28.9	27.5	26.9	26.3	25.6	**25.0**	24.3	23.7	23.0	22.4	21.8
32.0	37.0	35.3	34.5	33.7	32.8	**32.0**	31.2	30.4	29.5	28.7	27.9
40.0	46.2	44.1	43.0	42.0	41.0	**40.0**	39.0	37.9	36.9	35.9	34.9
50.0	57.7	55	53.7	52.4	51.1	**50.0**	48.6	47.3	46.0	44.7	43.4
63.0	72.7	69.3	67.7	66.1	64.5	**63.0**	61.3	59.7	58.1	56.4	54.8

* only applies to C

Max. operating currents depending on ambient temperature for S400 miniature circuit breakers of trip characteristic K

	I_n(A) ambient temperature T (°C)									
	10	15	20	25	30	35	**40**	45	50	55
0.5	0.54	0.52	0.51	0.50	0.49	0.47	**0.5**	0.45	0.43	0.42
1.0	1.14	1.12	1.09	1.07	1.0	1.02	**1.0**	0.96	0.94	0.91
1.6	1.85	1.81	1.77	1.73	1.7	1.65	**1.6**	1.56	1.52	1.48
2.0	2.29	2.23	2.18	2.13	2.1	2.03	**2.0**	1.93	1.87	1.82
3.0	3.48	3.40	3.32	3.25	3.2	3.09	**3.0**	2.93	2.85	2.77
4.0	4.58	4.48	4.38	4.28	4.2	4.07	**4.0**	3.87	3.77	3.66
6.0	6.91	6.76	6.61	6.46	6.3	6.15	**6.0**	5.85	5.69	5.54
8.0	9.24	9.03	8.82	8.62	8.4	8.21	**8.0**	7.79	7.59	7.38
10.0	11.5	11.2	11.0	10.7	10.5	10.2	**10.0**	9.69	9.43	9.18
13.0	15.1	14.7	14.4	14.0	13.7	13.4	**13.0**	12.7	12.3	12.0
16.0	18.4	18.0	17.6	17.2	16.8	16.4	**16.0**	15.6	15.2	14.8
20.0	23.0	22.5	22.0	21.5	20.9	20.4	**20.0**	19.4	18.9	18.4
25.0	28.9	28.3	27.6	27.0	26.3	25.7	**25.0**	24.4	23.8	23.1
32.0	36.9	36.1	35.3	34.4	33.6	32.8	**32.0**	31.1	30.3	29.5
40.0	46.2	45.1	44.1	43.1	42.1	41.1	**40.0**	39.0	38.0	37.0
50.0	57.7	56.4	55.1	53.8	52.5	51.3	**50.0**	48.7	47.4	46.1
63.0	72.5	70.9	69.3	67.7	66.1	64.5	**63.0**	61.3	59.6	58.0

Protection of circuits with fluorescent lamps

The following table gives the maximum permissible number of fluorescent lamps which can be protected by a single-pole circuit breaker of characteristic. The figure for multi-pole circuit breakers is reduced by 20%.

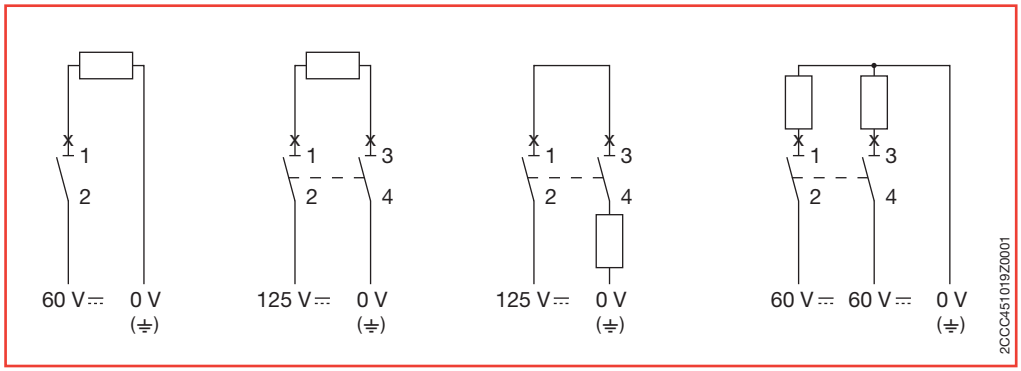
Rated current	FL not compensated			FL compensated in parallel			FL with electronic ballast		
	KVG[2]			KVG[2]			EVG[1]		
	18/20 W	36/40 W	58/65 W	18/20 W	36/40 W	58/65 W	18/20 W	36/40 W	58/65 W
13	35	30	19	41	41	27	21	21	10
16	43	37	24	51	51	33	26	26	12
20	53	46	30	64	64	41	33	33	15
25	66	58	37	82	82	53	42	42	19

[1] EVG: Two-lamp version, lamps switched together, electronic ballast
[2] KVG: Conventional ballast

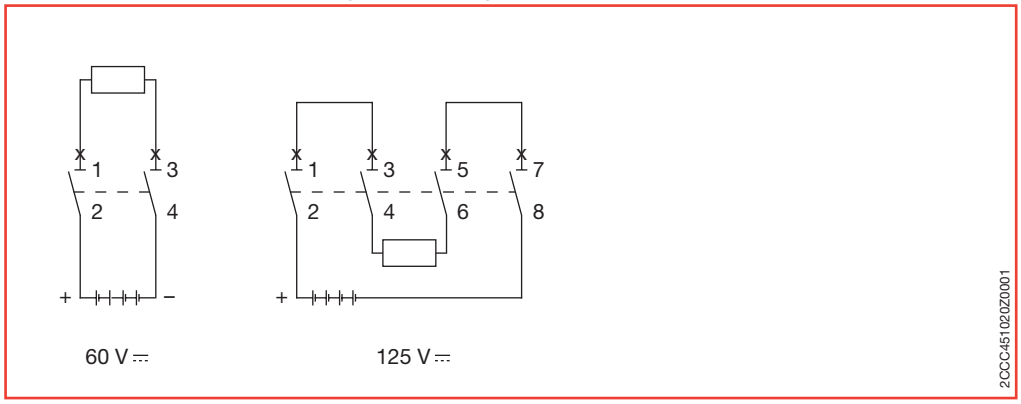
Use of miniature circuit breakers S400 M for DC systems

A standard miniature circuit breaker type S400 M and S400 E can be used in a DC system by observing the following conditions: Single pole miniature circuit breaker max. 60 V DC.
2-pole miniature circuit breaker with 2-poles in series max. 125 V DC. The polarity needs not to be taken into account. Load connection can either be at the top or at the bottom of the MCB.

Example of permissible DC voltages depending on the number of poles and the circuit configeration in earthed DC systems:



Example of permissable DC voltages depending on the number of poles in unearthed DC systems



Properties
Residual current operated circuit breaker

2CCC451025F0001

General information about residual current operated circuit breakers

The residual current operated circuit breaker prevents personal injury and damage to property caused by electric current. Use of this circuit breaker is required in various national and international standards for electrical installations.
Modern residual current operated circuit breakers respond to small residual currents. Interruption occurs in a fraction of a second even before a hazardous situation for people, animals and property can arise.
The principle of magnetic tripping independable of the supply voltage ensures perfect and safe operation even in the event of undervoltage and neutral interruptions.

The key features

- High short-circuit resistance 10 kA
- Sensitive for alternating and pulsating DC residual currents
- 2- and 4-pole types
- Nominal residual trip currents 10, 30, 100 and 300 mA
- Snap-on auxiliary switches and signal contacts
- Nominal currents 25, 40, 63 A
- Double terminals

Properties
Residual current operated circuit breaker

Short time delayed residual current operated circuit breaker


2CCC451026F0001

The short time delayed residual current operated circuit breaker is a version particularly suited to unfavourable distribution and load situations. Without limiting the person protection function in any way, the electronic delay prevents nuisance tripping which may arise as a result of capacitive discharge currents.

Capacitive discharge currents to ground can be caused by:

- Capacities of long cables
- Large number of fluorescent lamps (especially when using electronic ballast)
- Electronic devices and components (PC terminals, PCs, voltage converters etc.)

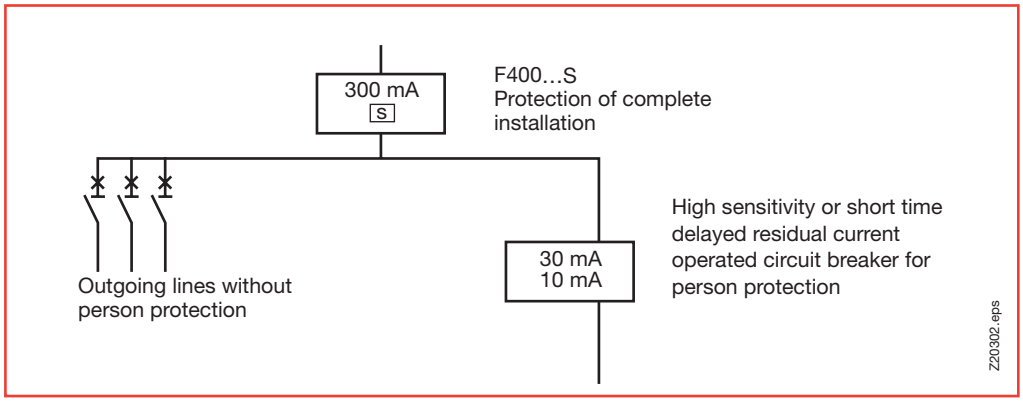
Switching operations may also cause very short transient currents to ground. A short time delayed residual current operated circuit breaker will not trip in such conditions.

The short time delayed residual current operated circuit breakers differ from the selective type by the fact that they have shorter delay times. Short time delayed residual current operated circuit breakers are also suited for person protection.
The F402 K and F404 K should therefore be used to prevent unwanted tripping.

Selective residual current operated circuit breaker

Selective residual current operated circuit breakers F404 S guarantee selectivity to the downstream high sensitivity (10 & 30 mA) residual current operated circuit breakers.
F400 S is used for fire protection and is therefore only available in the 100 or 300 mA version. Downstream short time delayed residual current operated circuit breakers F404 K also behave selective if a selective residual current operated circuit breaker is installed upstream.

Example of application for a selective residual current operated circuit breaker



Residual current operated circuit breakers with overcurrent protection (RCB0)


2CCC451023F0002

The SMISSLINE residual current operated circuit breakers with overcurrent protection (RCBO) are ideal for protecting people and property in all new and existing distribution systems.
The combination of standby current and cable protection in one single device greatly simplifies planning and offers cost benefits. Using a RCBO can e.g. satisfy the minimum level of protection required by regulations in an apartment or in a particular distribution system.
Should a residual current arise, only the circuit directly affected is switched off while all other circuits remain in operation.

The new short time-delayed residual current operated circuit breaker with overcurrent protection FS 401_K is a version particularly suited to unfavourable distribution and load situations. Without limiting the personal protection function in any way, the electronic short time delay prevents nuisance tripping which may arise as a result of capacitive discharge currents.

Technical data
Residual current operated circuit breaker
Short time delayed and selective type

	F402	F404
Rated voltage U_n:	230 V	230/400 V
Number of poles:	2	4
Rated frequency f_n:	50/60 Hz	50/60 Hz
Total trip time (average value)		
- at $I_{\Delta n}$	≤ 300 ms	≤ 300 ms
- at 5 $I_{\Delta n}$	≤ 40ms	≤ 40ms
Delay time at 5 $I_{\Delta n}$:		
Resistance to short circuits (kA):	10 kA in conjunction with an upstream fuse gL / gG 100A or a high performance MCB S800, 100A	10 kA in conjunction with an upstream fuse gL / gG 100A or a high performance MCB S800, 100A
Connection load side terminal	Double lift terminal touch finger-proof, suitable for connecting single-, multi- and fine-wire conductors of up to 25 mm^2	
Degree of protection:	IP20 inside panel IP40	IP20 inside panel IP40
Endurance:	> 5000 operating cycles	> 5000 operating cycles
Resistance to climate acc. to:	EN 61008	EN 61008
Mounting position:	any	any
Ambient temperature:	-25 °C… +40 °C	-25 °C… +55 °C acc. to EN 61009
Vibration resistance:	5 g 5… 150… 5 Hz	5 g 5… 150… 5 Hz
Plastic parts:	halogen-free	halogen-free
Contacts:	cadmium-free	cadmium-free

	F402…K	F404…K	F404…S
Rated voltage U_n:	230 V	230/400 V	230/400 V
Number of poles:	2	4	4
Rated frequency f_n:	45… 60 Hz	45… 60 Hz	45… 60 Hz
Resistance to surge current:	3 kA 8/20 µs	3 kA 8/20 µs	5 kA 8/20 µs
Total trip time (average value)			
- at $I_{\Delta n}$	240 ms	120…300 ms	150…500 ms
- at 5 $I_{\Delta n}$	≤ 40 ms		40…150 ms
Delay time at 5 $I_{\Delta n}$:	10 ms	10 ms	90 ms
Resistance to short circuits (kA):	10 kA in conjunction with an upstream fuse gL / gG 100A or or a high performance MCB S800 100A	10 kA	10 kA
Connection load side terminal	Double lift terminal touch finger-proof, suitable for connecting single-, multi- and fine-wire conductors of up to 25 mm^2		
Degree of protection:	IP20 in panel IP40	IP20 in panel IP40	IP20 in panel IP40
Endurance:	> 5000 operating cycles	> 5000 operating cycles	> 5000 operating cycles
Resistance to climate acc. to:	EN 61008	EN 61008	EN 61008
Mounting position:	any	any	any
Ambient temperature:	-25 °C… +40 °C	-25 °C… +55 °C	-25 °C… +40 °C
Vibration resistance:	5g 5… 150… 5 Hz	5g 5… 150… 5 Hz	5g 5… 150… 5 Hz
Plastic parts:	halogen-free	halogen-free	halogen-free
Contacts:	cadmium-free	cadmium-free	cadmium-free

Technical data

Residual current operated circuit breaker with overcurrent protection (RCBO), power losses at rated current Internal resistances of RCCBs and RCBOs

	FS401	FS401K
Rated voltage U_n:	230 V ~	230 V ~
Upstream fuses and Selectivity limits:	For backup and selectivity, the details for the miniature circuit breakers S400 E and S400 M Page 3/9 to 3/25	
Number of poles:	2-pole (1PN)	2-pole (1PN)
Rated frequency f_n:	50/60 Hz	50/60 Hz
Rated breaking capacity I_{cn}:	10 kA - 230 V ~ (10 - 16A nominal current) 6 kA - 230 V ~ (20 - 32A nominal current)	10 kA - 230 V ~ (10 - 16A nominal current) 6 kA - 230 V ~ (20A nominal current)
Current limitation class:	3	3
Total cut-off time (average value) acc. to	EN 61009	EN 61009
- at $I_{\Delta n}$	40 ms	240 ms
- at 5 $I_{\Delta n}$	25 ms	35 ms
Delay time at 5 $I_{\Delta n}$:	-	10 ms
Connection cross-sections Terminal at load end	Opposing action stroke clamp on cylinder, touch finger-proof. Suitable for connecting single, multi- and fine-wire conductors of up to 25 mm^2	
Degree of protection:	IP20 inside panel IP40	IP20 inside panel IP40
Endurance:	> 5000 operating cycles	> 5000 operating cycles
Resistance to climate, acc. to:	EN 61009	EN 61009
Mounting position:	any	any
Ambient temperature:	-25 °C...+40 °C	-25 °C...+40 °C
Vibration resistance:	5g 5...150...5 Hz	5g 5...150...5 Hz
Plastic parts:	halogen-free	halogen-free
Contacts:	cadmium-free	cadmium-free

Internal resistances and power losses of RCCBs and RCBOs

Internal resistances and power losses per pole (cold resistance at room temperature)

4-pole RCCB

Rated current in A	R_i Ω	P_v W
25		1
40		2.4
63		3.2

2-pole RCCB

Type	R_i Ω	P_v W
25A/10mA	0.0088	5.47
25A/30mA	0.0061	3.8
40A/30mA	0.0058	9.33

2-pole RCBO

Type	R_i Ω	P_v W
C10/0.03	0.0170	1.71
C13/0.01	0.0210	3.58
C13/0.03	0.0150	2.55
C16/0.01	0.0130	3.33
C16/0.03	0.0104	2.67
B16/0.03	0.0109	2.45
B13/0.03	0.0150	3.33
C20/0.03	0.0080	3.20
C25/0.03	0.0070	4.38
C32/0.03	0.0054	5.53

Properties
High performance manual motor starter MS325


2CCC451121F0001

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 termal overload protection and short-circuit protection for other sectors of installation technology.

Major features

- Compact design
- Very high rated breaking capacity
- Clear indication of switching position
- Phase failure protection
- Temperature compensation
- Test relase possibility
- Internal, slide-in undervoltage release
- Snap-on auxiliary and signal contact blocks
- Other accessories

Technical data
High performance manual motor starter MS325
Undervoltage release

	Manual motor starter 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 at short-circuit (50 kA/25 A range):	1.5 ms
Cable cross-section Cu cable or strand - at top: - at bottom:	 1 x 10 mm² / 2 x 4 mm² max. 4 mm²
Degree of protection:	IP20
Endurance: - Electrical operations: (25 A, AC-3) - Mechanical operations:	 100‘000 100‘000
Resistance to climate:	IEC/CEI 60068-2-30
Mounting position:	any
Ambient temperature:	-25 °C...+50 °C
Temperature compensation:	-25 °C...+50 °C
Vibration resistance:	5g (50 m/s²) 5...150...5 Hz
Specifications:	60947-2, 60497-4-1
Plastic parts:	halogen-free
Contacts:	cadmium-free

Internal resistances and power losses of high performance manual motor starter at rated current

Internal resistances and power loss per pole (cold resistance at room temperature)

Adjustment range in A			R_i Ω	P_v W
0.1	-	0.16	71.1	1.82
0.16	-	0.25	27.1	1.69
0.25	-	0.4	12.3	1.97
0.4	-	0.63	5.17	0.83
0.63	-	1	2.09	2.09
1	-	1.6	0.805	0.87
1.6	-	2.5	0.34	2.13
2.5	-	4	0.141	2.26
4	-	6.3	0.051	2.04
6.3	-	9	0.0224	1.82
9	-	12.5	0.0122	1.91
12.5	-	16	0.0081	2.07
16	-	20	0.0048	1.92
20	-	25	0.0035	2.19

Undervoltage release

Rated voltage U_n - Voltage supplied via MS325:	 400 V~ or 230 V~
Rated frequency:	50/60 Hz
Rated power:	0.8 W
Operating voltage values (acc. to IEC 60947) - trip voltage: - manual closing of MS325 possible:	 0.1...0.75 U_n $\geq$ 0.85 U_n
Duty cycle:	100%
Dimensions W x H x L:	20.4 x 15 x 50.6 mm
Weight:	20 g
Plastic parts:	halogen-free
Contacts:	cadmium-free

Technical data
High performance manual motor starter MS325
Rated-breaking capacity, back-up protection

Thermal release, Adjustment ranges			Magnetic release, Activation current (average value) regardless of thermal setting	Operating breaking capacity I_{cs}			
A			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 the manual motor starter MS325 is no higher than the specified service breaking capacity, a back-up fuse 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 the manual motor starter MS325 is higher than its service breaking capacity, the rated current of the back-up fuse must not exceed the value given in the following table.

Thermal release, Adjustment ranges			Magnetic release, Activation current (average value) regardless of thermal setting	Maximum rated tripping current of upstream back-up fuse gL/gG		
A			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		Short-circuit proof: No back-up fuses needed		
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	

Technical data
High performance manual motor starter MS325
DC operating voltages and rated breaking capacities, Coordination according to IEC 60947-4-1

The high performance manual motor starter MS325 is suitable for DC applications, DC1-DC5 switching duty.
On DC, the electro-magnetic release responds at 1.35 times greater values than at 50 Hz. The polarity is immaterial when connecting.
The MS325 can be used with the following voltages:

Thermal release, Adjustment ranges A			Magnetic release, Activation current [1] (average value) regardless of thermal setting A	Max. voltage U_e 3 poles in series V=	Rated breaking capacity 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

* can be supplied as special version for 450V=

[1] values for resistive and inductive loads, T = 15 ms

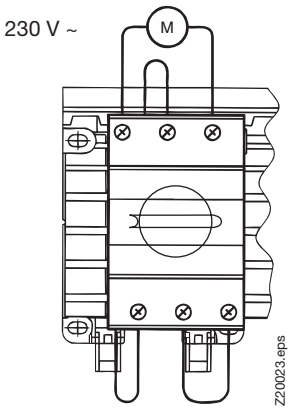
Direct on-line starter, coordination according to IEC 60947-4-1
Normal start - 400 V - 50 Hz, ambient temperature ≤ 40 °C

50 kA type 1 / type 2

Motor Power kW	I_e A	Manual motor starter Type	Adjustment range A	Contactor size Type 1 coordination	Contactor size Type 2 coordination	Minimum cable cross-section in mm² with copper	Max. permissible currents for this combination 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 at 230 V~



for:
- oil-burner motors
- small fans
- flap motors
- delivery pumps
- special drives
- Batching systems etc.

Manual motor starter ready for installation fitted with special base plate and the corresponding plug-in contacts (L1 and N), in accordance with ordering details, page **1**/15.

2CCC451016Z0001

Properties
Surge arrester OVR


2CCC451030F0001

Description of product

The ‘OVR’ surge protector is a 4-pole type II surge arrester meeting the requirements of IEC 61643-11.
The OVR is used to protect low voltage distribution systems and devices from overvoltages (DIN VDE 100) caused by remote lightning strikes or switching operations.
Typical sites of use are main and sub-distribution for low voltage systems where the arrester is plugged in directly on to the SMISSLINE busbar system.

Display and maintenance

The protective elements (high-performance varistors) are monitored thermally. In the event of a defect, this monitor automatically disconnects the overloaded high-performance varistors from the power supply and the operating indication changes from green to red. This status is also indicated by the signalling contact. In such cases, the arrester should be replaced immediately because the downstream devices are no longer protected against overvoltages.
If the operating indication is neither green nor red, you should check whether the connections are correct. You must also check whether there is any supply voltage.
If the device is connected correctly, the operating display (LED) lights up green.

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

Warning: When taking insulation resistance measurements on the electrical system, the arrester should be disconnected from the power supply since otherwise the measurement may be affected by the arrester characteristics. The enclosed sticker with the corresponding note should be placed in a clear position on the distribution board.

Assembly

Site of installation and electrical connection
The ‘OVR’ surge arrester installed at the input supply of the system to be protected.
The OVR404 is plugged in directly on to the SMISSLINE busbar system.

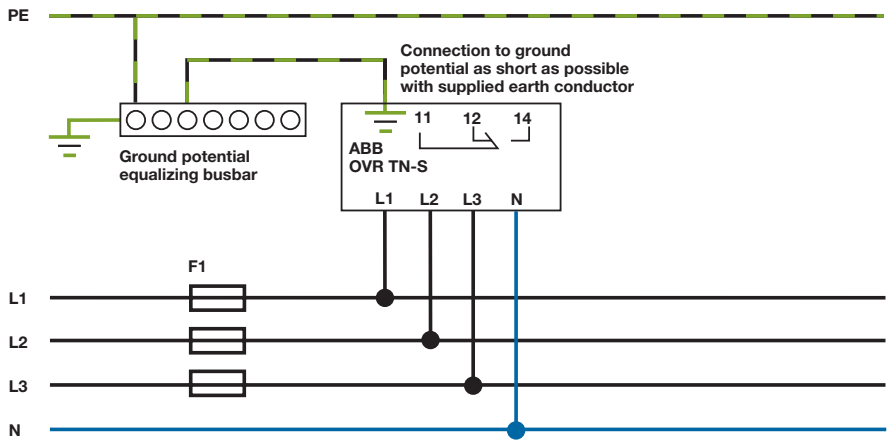
Earth conductor rating
The OVR should be linked to ground potential using the shortest route possible.
The earth conductor supplied with the device can be used for this purpose. The connection must be as short as possible. The minimum cross-section is 6 mm^2.

Running cables
Protected and unprotected cables (also including the earth conductor) must not be routed directly parallel to one another. They should be separated such that surge interference from unprotected to protected cables cannot occur. Cables should cross one another at right angles.

Technical data
Surge arrester OVR

Rated voltage	U_N:	230 / 400 V AC
Max. Continuous voltage	U_C:	275 V AC
Number of poles:		3 (TN-C system) 4 (TN-S system)
Power consumption at U_N:		1.2 W per device
Requirement class according to IEC 61643-1:		Type 2
Rated leakage surge current	I_n (8/20 µs):	15 kA
Max. leakage surge current	I_{smax} (8/20 µs):	30 kA
Protection level	U_p at I_{sn}: U_p at I_s = 5 kV:	≤ 1.5 kV ≤ 1 kV
Max. leakage surge current	I_{sg} (8/20 µs):	75 kA 3-pole 100 kA 4-pole
Response time	t_a:	≤ 25 µs
Connection cross-sections	PE / L1/L2/L3/N:	Opposing action stroke clamp on cylinder, touch finger-proof. Suitable for connecting up single-, multi- and fine-wire conductors up to 25 mm²
Max. Back-up fuse:		160 A gL/gG / 25 kA
Short-circuit withstandability with max. Back-up fuse:		25 kA
Signal contact	max. operating voltage: max. load current: 1 changeover contact:	250 V AC 2 A 11/12 normally closed contact, 11/14 normally open contact
Temperature range:		-25 ... +60 °C
Degree of protection:		IP 20
Plastic parts:		halogen-free
Contacts:		cadmium-free

Surge protection TN-S system



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Technical data
Switch disconnector,
auxiliary switch and signal contact

General switch disconnector

When used in a SMISSLINE socket system, the switch disconnector can be used instead of the incoming terminal block for up to 63 A.

With the SMISSLINE IS404 switch disconnector, individual loads, groups of loads or entire system parts can be separated or connected to the input supply.

The key features of the switch disconnector

- Input supply switch
- On-Off function
- Clear indication of switching position
- Snap-on auxiliary switch available
- Uniform SMISSLINE design

Technical data for switch disconnector IS404

Rated voltage U_n:	230/400 V~
Rated current I_n:	63 A
Rated frequency f_n:	50 Hz
Number of poles:	4
Rated impulse withstand voltage:	6 kV
Connection cross-sections Cu:	At top, touch finger-proof. Suitable for connecting up single-, multi- and fine-wire conductors of up to 25 mm^2
Degree of protection:	IP40
Endurance, mechanical/electrical:	5000 operating cycles
Mounting position:	any
Ambient temperature:	-25 °C...+40 °C
Specifications:	EN/IEC 60947-3
Approvals:	SEV
Weight (approx.):	250 g
Switching duty:	AC-22A
Plastic parts:	halogen-free
Contacts:	cadmium-free

Technical data for auxiliary switch

	Signal contact SK400	**Auxiliary switch HK400**
Rated voltage U_n:	400 V	400 V
Rated impulse withstand voltage:	4 kV	4 kV
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	0.55 A/125 V=	0.55 A/125 V=
Minimum current/voltage (to ensure reliable electrical operation)	10 mA 12 V=	10 mA 12 V=
Connection cross-sections:	2 x 1.5 mm^2 strand with sleeve	2 x 1.5 mm^2 strand with sleeve
Plastic parts:	Free of halogen und cadmium	Free of halogen and cadmium
Internal resistance R_i:	0.0065 Ω	0.0065 Ω
Power loss at rated current P_v:	0.24 W	0.24 W

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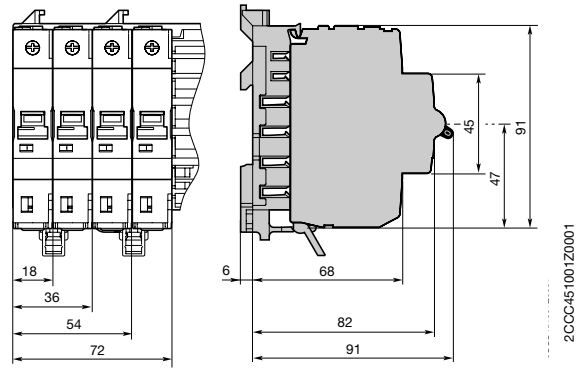
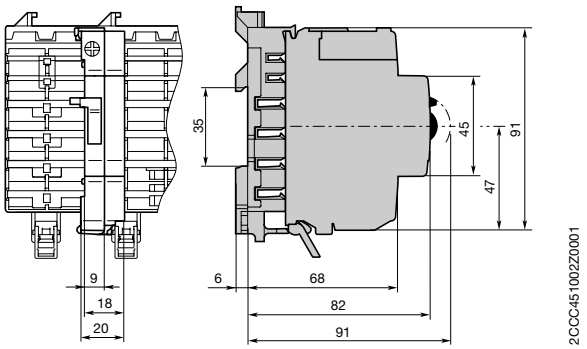
SMISSLINE dimensions (in mm)

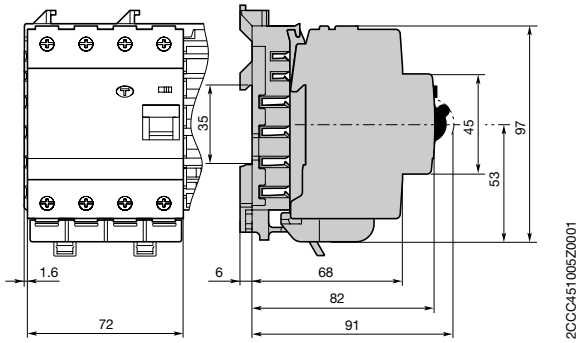
1-, 2-, 3- and 4-pole miniature circuit breakers



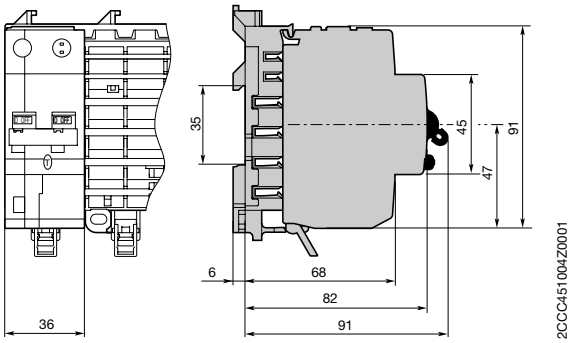
Neutral disconnector



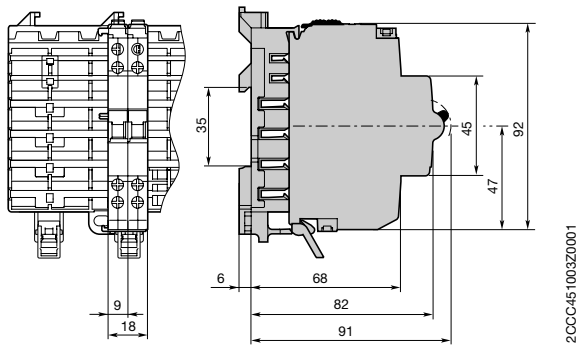
4-pole residual current operated circuit breaker, switch disconnector and surge arrester



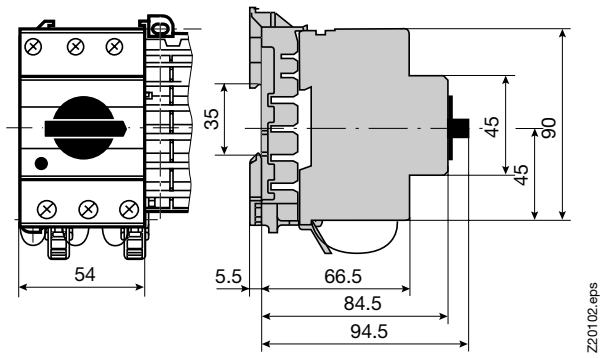
2-pole residual current operated circuit breaker



Auxiliary switch and signal contact

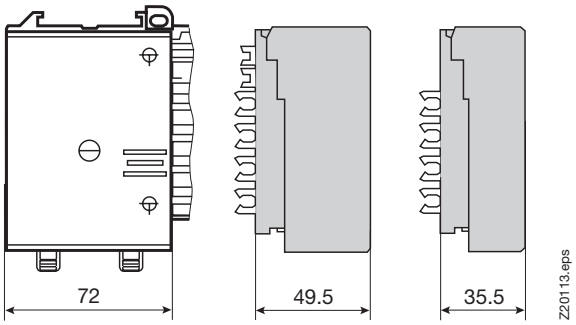


High performance manual motor starter MS325



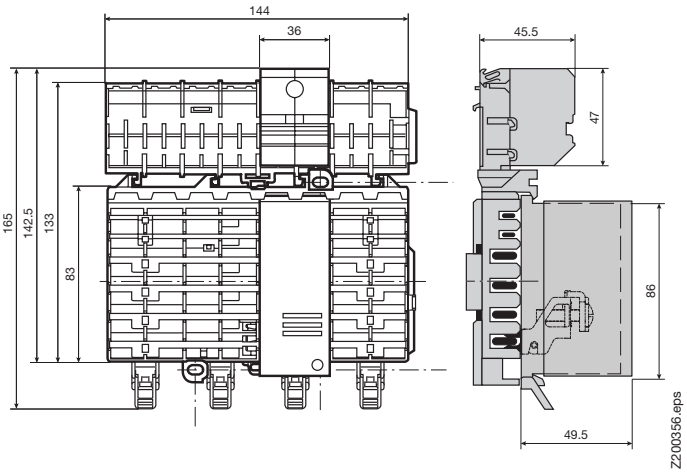
SMISSLINE dimensions (in mm)

Incoming terminal blocks

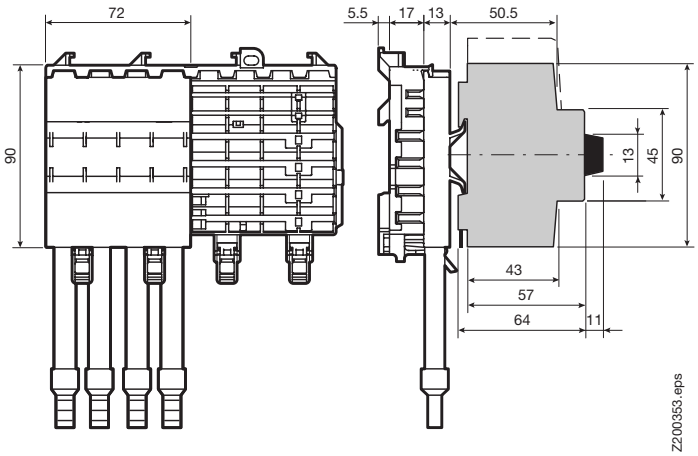


ZLS 224, 225 ZLS 228, 229

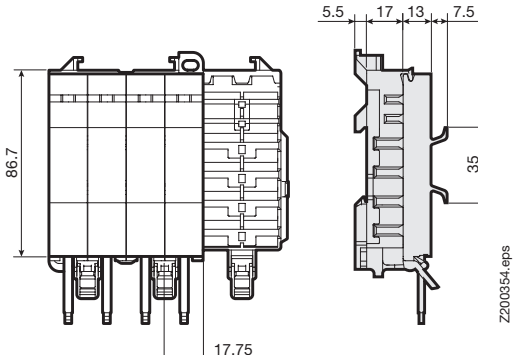
Incoming terminal component



Universal adapter 100 A

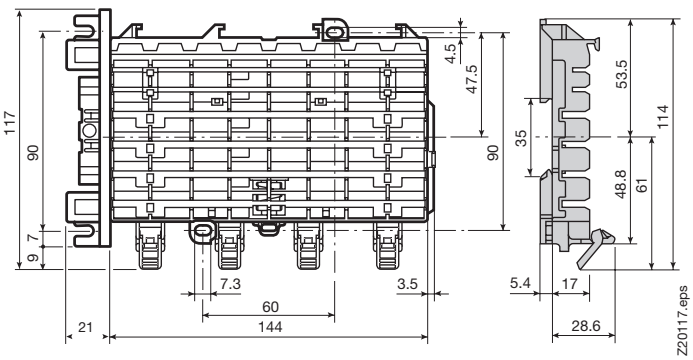


32A and 63A universal adapter



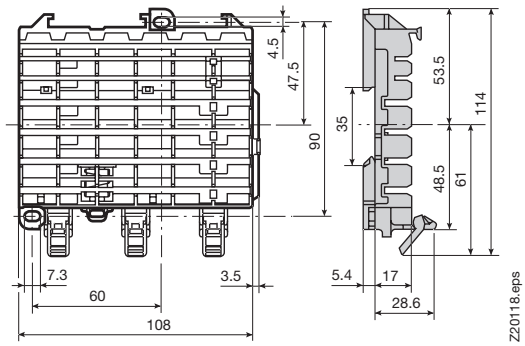
Socket base ZLS808

Receptacle
- 8 dimensional units



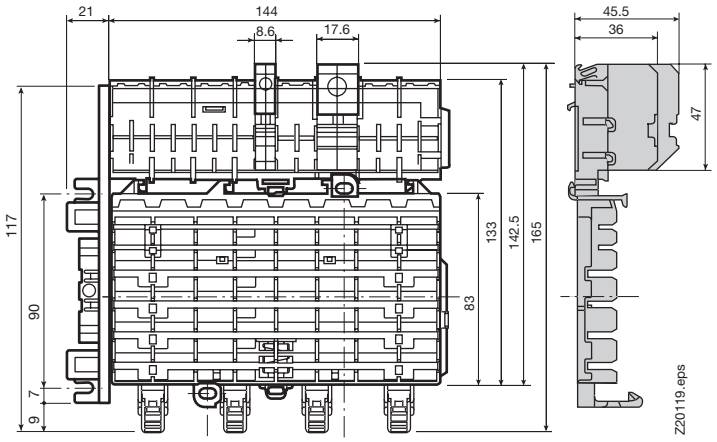
Socket base ZLS806

Receptacle
- 6 dimensional units

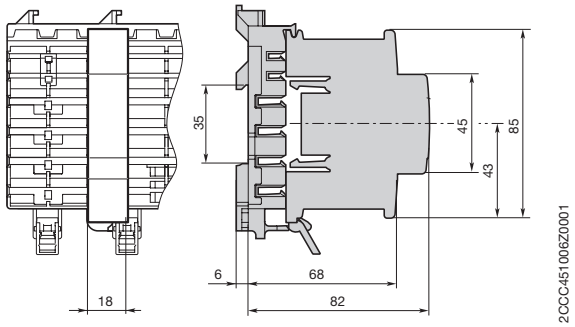


SMISSLINE dimensions (in mm)

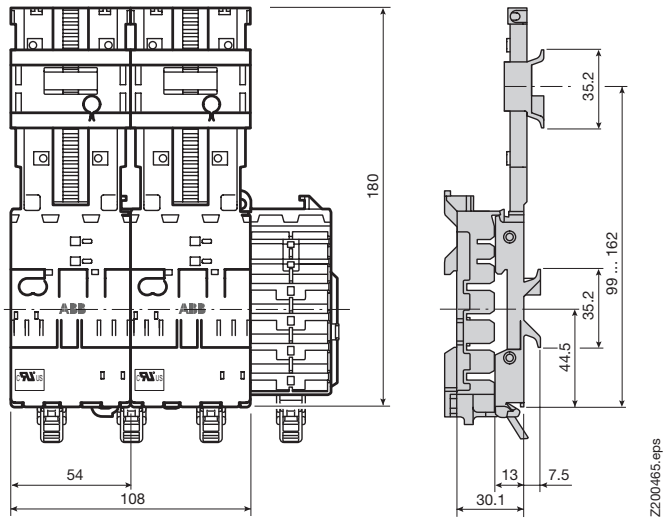
Additional socket with N and PE terminals



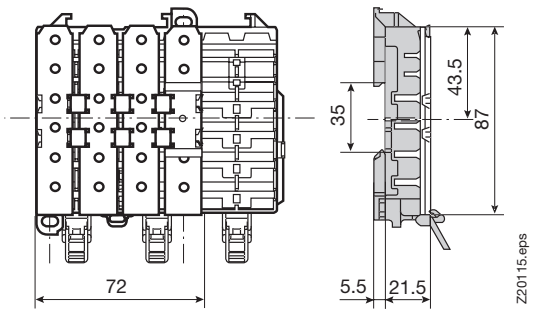
Intermediate piece ZLS 725



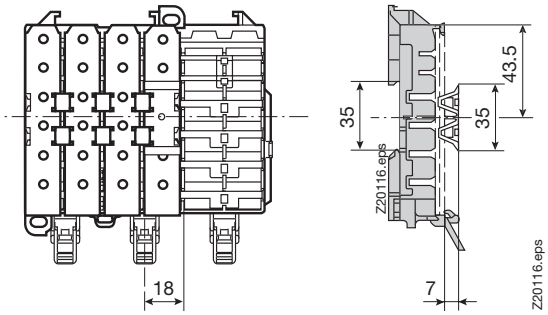
Combi module ZLS 840, 842



Busbar cover ZLS100



Extension adapter ZLS101



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Approvals and standards

	Switzer-land	DE	US Canada	NL	Maritime classification society		China	EN60947-2	EN60898-1	EN61008-1	EN61009-1	EN61643-11	EN60947-3	EN60439-1	EN60439-2	EN60898-2	EN62019
	SEV	VDE	c UL us	KEMA	DNV	GL	CCC										
Miniature circuit breaker 10kA B S400 M	■	■						■									
Miniature circuit breaker 10kA C S400 M	■	■			■	■	■	■	■								
Miniature circuit breaker 10kA D S400 M	■	■							■								
Miniature circuit breaker 10kA K S400 M	■				■	■	■	■									
Miniature circuit breaker 10kA LPU C, Z																■	
2-pole residual current operated circuit breaker F402	■	■					■			■							
2-pole short time delayed residual current operated circuit breaker F402 K	■	■					□			■							
2-pole residual current operated circuit breaker with overcurrent protection FS401	■	■					□				■						
2-pole short time delayed residual current operated circuit breaker with overcurrent protection FS401 K	■	■					□				■						
4-pole residual current operated circuit breaker F404	■	■					□			■							
4-pole short time delayed residual current operated circuit breaker F404 K	■	■					□			■							
4-pole selective residual current operated circuit breaker F404 S	■	■					□			■							
4-pole residual current operated circuit breaker, special design 16 $^{2}/_{3}$ Hz F404 LF										■							
High performance manual motor starter MS325			■	■				■									
Switch disconnector IS404	■												■				
Surge arrester OVR 404												■					
Auxiliary switch and signal contacts (1NO, 1NC)	■				■	■	■										■
Socket bases ZLS806/808	■		■		■	■								■	■		
Incoming terminal blocks ZLS224/225	■		■		■	■								■	■		
Incoming terminal component ZLS250-255	■		■		■	■								■	■		
Universal adapter 32A (UR 30A)	■		■		■	■								■	■		
Universal adapter 63A (UR 60A)	■		■		■	■								■	■		
Universal adapter 100A ZLS240, 241					■	■								■	■		
Terminals for additional socket ZLS812, ZLS815					■	■								■	■		
Terminals for additional socket ZLS813, ZLS816					■	■								■	■		
Combi module			■		■	■								■	■		

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