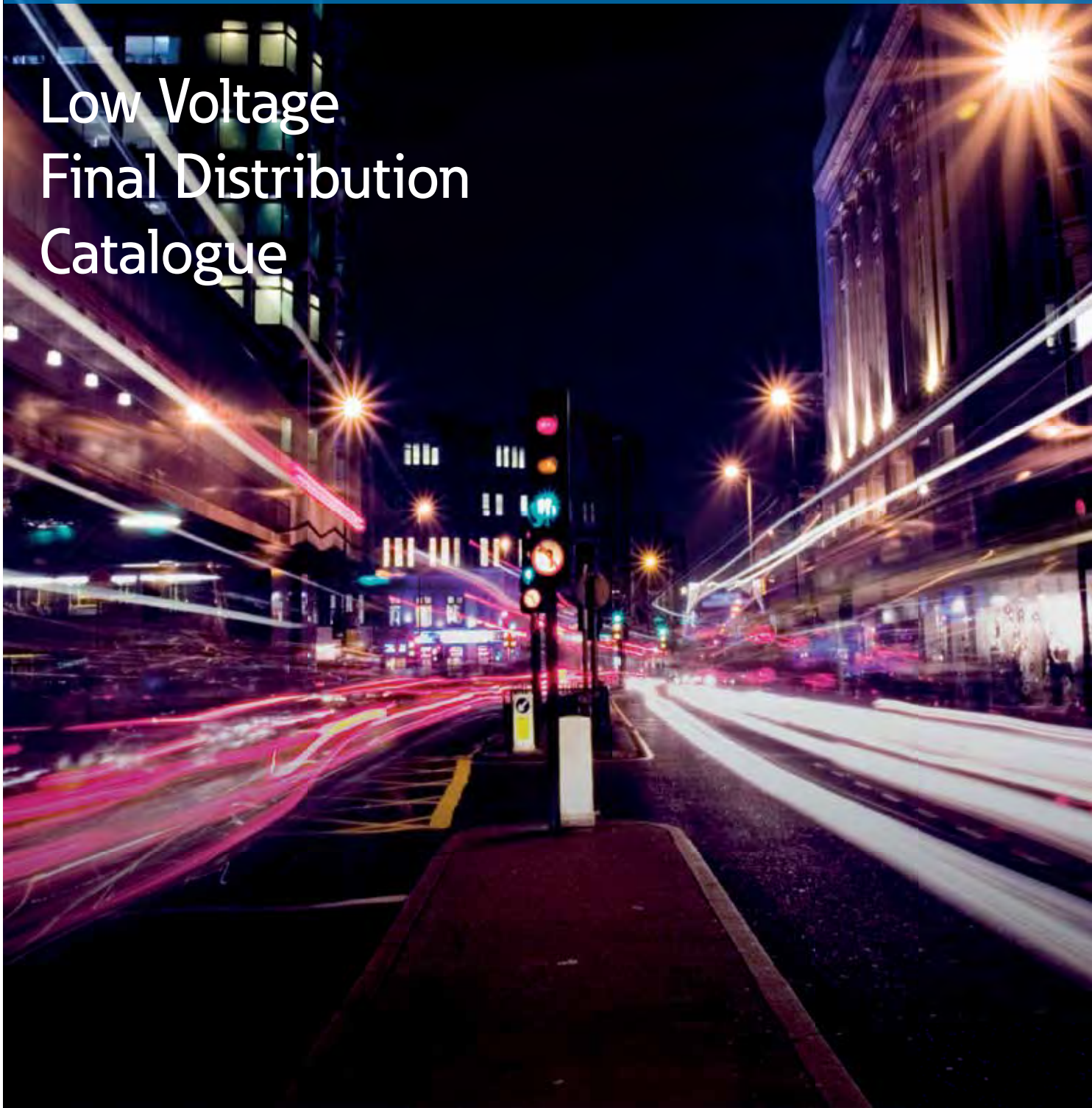


MCB, RCD, SPD and Accessories

Low Voltage Final Distribution Catalogue





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As a global power management company, we help customers worldwide manage the power needed for buildings, aircraft, trucks, cars, machinery and businesses.

Eaton's innovative technologies help customers manage electrical, hydraulic and mechanical power more reliably, efficiently, safely and sustainably.



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We deliver:

- **Electrical solutions** that use less energy, improve power reliability and make the places we live and work safer and more comfortable
- **Hydraulic and electrical solutions** that enable machines to deliver more productivity without wasting power
- **Aerospace solutions** that make aircraft lighter, safer and less costly to operate, and help airports operate more efficiently
- **Vehicle drivetrain and powertrain solutions** that deliver more power to cars, trucks and buses, while reducing fuel consumption and emissions

We provide integrated solutions that help make energy, in all its forms, more practical and accessible.

With 2014 sales of \$22.6 billion, Eaton has approximately 100,000 employees around the world and sells products in more than 175 countries.



Eaton's electrical business

Eaton is a global leader with expertise in:

- Power distribution and circuit protection
- Backup power protection
- Solutions for harsh and hazardous environments
- Lighting and security
- Structural solutions and wiring devices
- Control and automation
- Engineering services

Eaton is positioned through its global solutions to answer today's most critical electrical power management challenges. With 100 years of electrical experience behind us, we're energized by the challenge of powering up a world that demands twice as much energy as today. We're anticipating needs, engineering products and creating solutions to energize our markets today and in the future.

We are dedicated to ensuring that reliable, efficient and safe power is available when it's needed most.

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Miniature Circuit Breakers FAZ

SG55812



Product Description

- Globally applied miniature circuit breaker FAZ with high breaking capacity is widely applied in high-end industry, providing overload and short circuit protections, control, power isolation for device and circuit.
- Meets the latest international and national standards: IEC/EN 60947-2.
- Positive indication of contact position via a clear, easy to identify “red-green” indicator, ensures the safety.
- Dual terminal design allows to install busbar or cables reducing wiring time and increasing flexibility.
- Wiring terminals are constructed to prevent miswiring while reduce the risk of electrical fire, make wiring more efficiency.
- 3-position DIN rail clip, permits removal from existing busbar system, protect the system from power off due to a switch fault.
- Extremely high breaking capacity and superior current limiting characteristics, increasing safety of electrical system with reduced system impulse due to faults.
- Unique arc eliminating system design ensures rapid release during fault conditions, reducing heat and improving service life.
- Meets and exceeds the latest standards and the certificate. No significant modify needed when upgrade.
- Comprehensive range of accessories: auxiliary contact, alarm contact, shunt trip, under-voltage trip...
- Undergo extreme ambient cycling tests: wind power application, electric vehicle charge station, etc. And carry a robust operating temperature range.
- 1P, 2P, 3P, 4P are available.
- Instantaneous tripping characteristics: B, C, D, K, S, Z.
- Rated breaking capacity: 15kA (according to IEC/EN 60947-2).
- Product certification: CCC, CE, CCS, UL, VDE, DNV, LR and etc.

Miniature Circuit Breakers FAZ

15 kA, IEC60947-2, Characteristic B

SG53112



	Rated current I_n (A)	Rated voltage (V)	Breaking capacity acc. to IEC/EN 60947-2 (kA)	Rated voltage UL1077 (V)	Breaking capacity acc. to UL1077 (kA)	Type Designation	Article No.	Units per package
1-pole								
1	240/415	15	277	10		FAZ-B1/1	182114	12
2	240/415	15	277	10		FAZ-B2/1	182117	12
3	240/415	15	277	10		FAZ-B3/1	182119	12
4	240/415	15	277	10		FAZ-B4/1	182121	12
6	240/415	15	277	10		FAZ-B6/1	182123	12
10	240/415	15	277	10		FAZ-B10/1	182125	12
13	240/415	15	277	10		FAZ-B13/1	182127	12
16	240/415	15	277	10		FAZ-B16/1	182129	12
20	240/415	15	277	10		FAZ-B20/1	182130	12
25	240/415	15	277	10		FAZ-B25/1	182131	12
32	240/415	15	277	10		FAZ-B32/1	182132	12
40	240/415	15	277	5		FAZ-B40/1	182133	12
50	240/415	15	277	5		FAZ-B50/1	182134	12
63	240/415	15	277	5		FAZ-B63/1	182135	12

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2-pole								
1	415	15	480Y/277	10		FAZ-B1/2	182158	6
2	415	15	480Y/277	10		FAZ-B2/2	182161	6
3	415	15	480Y/277	10		FAZ-B3/2	182112	6
4	415	15	480Y/277	10		FAZ-B4/2	182175	6
6	415	15	480Y/277	10		FAZ-B6/2	182177	6
10	415	15	480Y/277	10		FAZ-B10/2	182180	6
13	415	15	480Y/277	10		FAZ-B13/2	182182	6
16	415	15	480Y/277	10		FAZ-B16/2	182184	6
20	415	15	480Y/277	10		FAZ-B20/2	182185	6
25	415	15	480Y/277	10		FAZ-B25/2	182186	6
32	415	15	480Y/277	10		FAZ-B32/2	182188	6
40	415	15	480Y/277	5		FAZ-B40/2	182189	6
50	415	15	480Y/277	5		FAZ-B50/2	182190	6
63	415	15	480Y/277	5		FAZ-B63/2	182191	6

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3-pole								
1	415	15	480Y/277	10		FAZ-B1/3	182192	4
2	415	15	480Y/277	10		FAZ-B2/3	182195	4
3	415	15	480Y/277	10		FAZ-B3/3	182197	4
4	415	15	480Y/277	10		FAZ-B4/3	182199	4
6	415	15	480Y/277	10		FAZ-B6/3	182201	4
10	415	15	480Y/277	10		FAZ-B10/3	182204	4
13	415	15	480Y/277	10		FAZ-B13/3	182206	4
16	415	15	480Y/277	10		FAZ-B16/3	182208	4
20	415	15	480Y/277	10		FAZ-B20/3	182209	4
25	415	15	480Y/277	10		FAZ-B25/3	182210	4
32	415	15	480Y/277	10		FAZ-B32/3	182212	4
40	415	15	480Y/277	5		FAZ-B40/3	182213	4
50	415	15	480Y/277	5		FAZ-B50/3	182214	4
63	415	15	480Y/277	5		FAZ-B63/3	182215	4

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4-pole								
1	415	15	480Y/277	10		FAZ-B1/4	182238	3
2	415	15	480Y/277	10		FAZ-B2/4	182241	3
3	415	15	480Y/277	10		FAZ-B3/4	182243	3
4	415	15	480Y/277	10		FAZ-B4/4	182245	3
6	415	15	480Y/277	10		FAZ-B6/4	182247	3
10	415	15	480Y/277	10		FAZ-B10/4	182250	3
13	415	15	480Y/277	10		FAZ-B13/4	182252	3
16	415	15	480Y/277	10		FAZ-B16/4	182254	3
20	415	15	480Y/277	10		FAZ-B20/4	182255	3
25	415	15	480Y/277	10		FAZ-B25/4	182256	3
32	415	15	480Y/277	10		FAZ-B32/4	182257	3
40	415	15	480Y/277	5		FAZ-B40/4	182258	3
50	415	15	480Y/277	5		FAZ-B50/4	182259	3
63	415	15	480Y/277	5		FAZ-B63/4	182260	3

Miniature Circuit Breakers FAZ

15 kA, IEC60947-2, Characteristic C

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Rated current I_n (A)	Rated voltage (V)	Breaking capacity acc. to IEC/EN 60947-2 (kA)	Rated voltage UL1077 (V)	Breaking capacity acc. to UL1077 (kA)	Type Designation	Article No.	Units per package
1-pole							
1	240/415	15	277	10	FAZ-C1/1	182265	12
2	240/415	15	277	10	FAZ-C2/1	182268	12
3	240/415	15	277	10	FAZ-C3/1	182270	12
4	240/415	15	277	10	FAZ-C4/1	182272	12
6	240/415	15	277	10	FAZ-C6/1	182274	12
10	240/415	15	277	10	FAZ-C10/1	182276	12
13	240/415	15	277	10	FAZ-C13/1	182278	12
16	240/415	15	277	10	FAZ-C16/1	182280	12
20	240/415	15	277	10	FAZ-C20/1	182281	12
25	240/415	15	277	10	FAZ-C25/1	182282	12
32	240/415	15	277	10	FAZ-C32/1	182283	12
40	240/415	15	277	5	FAZ-C40/1	182284	12
50	240/415	15	277	5	FAZ-C50/1	182285	12
63	240/415	15	277	5	FAZ-C63/1	182286	12

2-pole							
1	415	15	480Y/277	10	FAZ-C1/2	182317	6
2	415	15	480Y/277	10	FAZ-C2/2	182320	6
3	415	15	480Y/277	10	FAZ-C3/2	182322	6
4	415	15	480Y/277	10	FAZ-C4/2	182324	6
6	415	15	480Y/277	10	FAZ-C6/2	182326	6
10	415	15	480Y/277	10	FAZ-C10/2	182329	6
13	415	15	480Y/277	10	FAZ-C13/2	182331	6
16	415	15	480Y/277	10	FAZ-C16/2	182333	6
20	415	15	480Y/277	10	FAZ-C20/2	182334	6
25	415	15	480Y/277	10	FAZ-C25/2	182335	6
32	415	15	480Y/277	10	FAZ-C32/2	182337	6
40	415	15	480Y/277	5	FAZ-C40/2	182338	6
50	415	15	480Y/277	5	FAZ-C50/2	182339	6
63	415	15	480Y/277	5	FAZ-C63/2	182340	6

3-pole							
1	415	15	480Y/277	10	FAZ-C1/3	182165	4
2	415	15	480Y/277	10	FAZ-C2/3	182168	4
3	415	15	480Y/277	10	FAZ-C3/3	182170	4
4	415	15	480Y/277	10	FAZ-C4/3	182172	4
6	415	15	480Y/277	10	FAZ-C6/3	182174	4
10	415	15	480Y/277	10	FAZ-C10/3	181653	4
13	415	15	480Y/277	10	FAZ-C13/3	181655	4
16	415	15	480Y/277	10	FAZ-C16/3	181657	4
20	415	15	480Y/277	10	FAZ-C20/3	181658	4
25	415	15	480Y/277	10	FAZ-C25/3	181659	4
32	415	15	480Y/277	10	FAZ-C32/3	181661	4
40	415	15	480Y/277	5	FAZ-C40/3	181662	4
50	415	15	480Y/277	5	FAZ-C50/3	181663	4
63	415	15	480Y/277	5	FAZ-C63/3	181664	4

4-pole							
1	415	15	480Y/277	10	FAZ-C1/4	181695	3
2	415	15	480Y/277	10	FAZ-C2/4	181698	3
3	415	15	480Y/277	10	FAZ-C3/4	181700	3
4	415	15	480Y/277	10	FAZ-C4/4	181702	3
6	415	15	480Y/277	10	FAZ-C6/4	181704	3
10	415	15	480Y/277	10	FAZ-C10/4	181707	3
13	415	15	480Y/277	10	FAZ-C13/4	181709	3
16	415	15	480Y/277	10	FAZ-C16/4	181711	3
20	415	15	480Y/277	10	FAZ-C20/4	181712	3
25	415	15	480Y/277	10	FAZ-C25/4	181713	3
32	415	15	480Y/277	10	FAZ-C32/4	181714	3
40	415	15	480Y/277	5	FAZ-C40/4	181715	3
50	415	15	480Y/277	5	FAZ-C50/4	181716	3
63	415	15	480Y/277	5	FAZ-C63/4	181717	3

Miniature Circuit Breakers FAZ

15 kA, IEC60947-2, Characteristic D

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	Rated current I_n (A)	Rated voltage (V)	Breaking capacity acc. to IEC/EN 60947-2 (kA)	Rated voltage UL1077 (V)	Breaking capacity acc. to UL1077 (kA)	Type Designation	Article No.	Units per package
1-pole								
1	240/415	15	277	5		FAZ-D1/1	181719	12
2	240/415	15	277	5		FAZ-D2/1	181722	12
3	240/415	15	277	5		FAZ-D3/1	181724	12
4	240/415	15	277	5		FAZ-D4/1	181726	12
6	240/415	15	277	5		FAZ-D6/1	181728	12
10	240/415	15	277	5		FAZ-D10/1	181730	12
13	240/415	15	277	5		FAZ-D13/1	181732	12
16	240/415	15	277	5		FAZ-D16/1	181734	12
20	240/415	15	277	5		FAZ-D20/1	181735	12
25	240/415	15	277	5		FAZ-D25/1	181736	12
32	240/415	15	277	5		FAZ-D32/1	181737	12
40	240/415	15	277	5		FAZ-D40/1	181738	12
50	240/415	10	-	-		FAZ-D50/1	181739	12
63	240/415	10	-	-		FAZ-D63/1	181740	12

2-pole								
1	415	15	480Y/277	5		FAZ-D1/2	181765	6
2	415	15	480Y/277	5		FAZ-D2/2	181768	6
3	415	15	480Y/277	5		FAZ-D3/2	181770	6
4	415	15	480Y/277	5		FAZ-D4/2	181772	6
6	415	15	480Y/277	5		FAZ-D6/2	181774	6
10	415	15	480Y/277	5		FAZ-D10/2	181777	6
13	415	15	480Y/277	5		FAZ-D13/2	181779	6
16	415	15	480Y/277	5		FAZ-D16/2	181781	6
20	415	15	480Y/277	5		FAZ-D20/2	181782	6
25	415	15	480Y/277	5		FAZ-D25/2	181783	6
32	415	15	480Y/277	5		FAZ-D32/2	181785	6
40	415	15	480Y/277	5		FAZ-D40/2	181786	6
50	415	10	-	-		FAZ-D50/2	181787	6
63	415	10	-	-		FAZ-D63/2	181788	6

3-pole								
1	415	15	480Y/277	5		FAZ-D1/3	181790	4
2	415	15	480Y/277	5		FAZ-D2/3	181793	4
3	415	15	480Y/277	5		FAZ-D3/3	181795	4
4	415	15	480Y/277	5		FAZ-D4/3	181797	4
6	415	15	480Y/277	5		FAZ-D6/3	181799	4
10	415	15	480Y/277	5		FAZ-D10/3	181802	4
13	415	15	480Y/277	5		FAZ-D13/3	181804	4
16	415	15	480Y/277	5		FAZ-D16/3	181806	4
20	415	15	480Y/277	5		FAZ-D20/3	181807	4
25	415	15	480Y/277	5		FAZ-D25/3	181808	4
32	415	15	480Y/277	5		FAZ-D32/3	181810	4
40	415	15	480Y/277	5		FAZ-D40/3	181811	4
50	415	10	-	-		FAZ-D50/3	181812	4
63	415	10	-	-		FAZ-D63/3	181813	4

4-pole								
1	415	15	480Y/277	5		FAZ-D1/4	181646	3
2	415	15	480Y/277	5		FAZ-D2/4	181649	3
3	415	15	480Y/277	5		FAZ-D3/4	181843	3
4	415	15	480Y/277	5		FAZ-D4/4	181845	3
6	415	15	480Y/277	5		FAZ-D6/4	181847	3
10	415	15	480Y/277	5		FAZ-D10/4	181850	3
13	415	15	480Y/277	5		FAZ-D13/4	181852	3
16	415	15	480Y/277	5		FAZ-D16/4	181854	3
20	415	15	480Y/277	5		FAZ-D20/4	181855	3
25	415	15	480Y/277	5		FAZ-D25/4	181856	3
32	415	15	480Y/277	5		FAZ-D32/4	181857	3
40	415	15	480Y/277	5		FAZ-D40/4	181858	3
50	415	10	-	-		FAZ-D50/4	181859	3
63	415	10	-	-		FAZ-D63/4	181860	3

Miniature Circuit Breakers FAZ

15 kA, IEC60947-2, Characteristic K

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Rated current I_n (A)	Rated voltage (V)	Breaking capacity acc. to IEC/EN 60947-2 (kA)	Rated voltage UL1077 (V)	Breaking capacity acc. to UL1077 (kA)	Type Designation	Article No.	Units per package
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1-pole							
1	240/415	15	277	5	FAZ-K1/1	278590	12/120
2	240/415	15	277	5	FAZ-K2/1	278592	12/120
3	240/415	15	277	5	FAZ-K3/1	278593	12/120
4	240/415	15	277	5	FAZ-K4/1	278594	12/120
6	240/415	15	277	5	FAZ-K6/1	278595	12/120
10	240/415	15	277	5	FAZ-K10/1	278597	12/120
13	240/415	15	277	5	FAZ-K13/1	278598	12/120
16	240/415	15	277	5	FAZ-K16/1	278599	12/120
20	240/415	15	277	5	FAZ-K20/1	278600	12/120
25	240/415	15	277	5	FAZ-K25/1	278601	12/120
32	240/415	15	277	5	FAZ-K32/1	278602	12/120
40	240/415	15	277	5	FAZ-K40/1	278603	12/120
50	240/415	15	277	5	FAZ-K50/1	278604	12/120
63	240/415	15	277	5	FAZ-K63/1	278605	12/120

2-pole							
1	415	15	480Y/277	5	FAZ-K1/2	278789	1/60
2	415	15	480Y/277	5	FAZ-K2/2	278791	1/60
3	415	15	480Y/277	5	FAZ-K3/2	278792	1/60
4	415	15	480Y/277	5	FAZ-K4/2	278793	1/60
6	415	15	480Y/277	5	FAZ-K6/2	278794	1/60
10	415	15	480Y/277	5	FAZ-K10/2	278796	1/60
13	415	15	480Y/277	5	FAZ-K13/2	278797	1/60
16	415	15	480Y/277	5	FAZ-K16/2	278798	1/60
20	415	15	480Y/277	5	FAZ-K20/2	278799	1/60
25	415	15	480Y/277	5	FAZ-K25/2	278800	1/60
32	415	15	480Y/277	5	FAZ-K32/2	278801	1/60
40	415	15	480Y/277	5	FAZ-K40/2	278802	1/60
50	415	15	480Y/277	5	FAZ-K50/2	278803	1/60
63	415	15	480Y/277	5	FAZ-K63/2	278804	1/60

3-pole							
1	415	15	480Y/277	5	FAZ-K1/3	278902	1/40
2	415	15	480Y/277	5	FAZ-K2/3	278904	1/40
3	415	15	480Y/277	5	FAZ-K3/3	278905	1/40
4	415	15	480Y/277	5	FAZ-K4/3	278906	1/40
6	415	15	480Y/277	5	FAZ-K6/3	278907	1/40
10	415	15	480Y/277	5	FAZ-K10/3	278909	1/40
13	415	15	480Y/277	5	FAZ-K13/3	278910	1/40
16	415	15	480Y/277	5	FAZ-K16/3	278911	1/40
20	415	15	480Y/277	5	FAZ-K20/3	278912	1/40
25	415	15	480Y/277	5	FAZ-K25/3	278913	1/40
32	415	15	480Y/277	5	FAZ-K32/3	278914	1/40
40	415	15	480Y/277	5	FAZ-K40/3	278915	1/40
50	415	15	480Y/277	5	FAZ-K50/3	278916	1/40
63	415	15	480Y/277	5	FAZ-K63/3	278917	1/40

4-pole							
1	415	15	480Y/277	5	FAZ-K1/4	279090	1/30
2	415	15	480Y/277	5	FAZ-K2/4	279092	1/30
3	415	15	480Y/277	5	FAZ-K3/4	279093	1/30
4	415	15	480Y/277	5	FAZ-K4/4	279094	1/30
6	415	15	480Y/277	5	FAZ-K6/4	279095	1/30
10	415	15	480Y/277	5	FAZ-K10/4	279097	1/30
13	415	15	480Y/277	5	FAZ-K13/4	279098	1/30
16	415	15	480Y/277	5	FAZ-K16/4	279099	1/30
20	415	15	480Y/277	5	FAZ-K20/4	279100	1/30
25	415	15	480Y/277	5	FAZ-K25/4	279101	1/30
32	415	15	480Y/277	5	FAZ-K32/4	279102	1/30
40	415	15	480Y/277	5	FAZ-K40/4	279103	1/30
50	415	15	480Y/277	5	FAZ-K50/4	279104	1/30
63	415	15	480Y/277	5	FAZ-K63/4	279105	1/30

Miniature Circuit Breakers FAZ

15 kA, IEC60947-2, Characteristic S

SG53112



Rated current I_n (A)	Rated voltage (V)	Breaking capacity acc. to IEC/EN 60947-2 (kA)	Rated voltage UL1077 (V)	Breaking capacity acc. to UL1077 (kA)	Type Designation	Article No.	Units per package
1-pole							
1	240/415	10	277	5	FAZ-S1/1	181861	12
2	240/415	10	277	5	FAZ-S2/1	181862	12
3	240/415	10	277	5	FAZ-S3/1	181863	12
4	240/415	10	277	5	FAZ-S4/1	181864	12
6	240/415	10	277	5	FAZ-S6/1	181865	12
10	240/415	10	277	5	FAZ-S10/1	181866	12
16	240/415	10	277	5	FAZ-S16/1	181867	12
20	240/415	10	277	5	FAZ-S20/1	181868	12
25	240/415	10	277	5	FAZ-S25/1	181869	12
32	240/415	10	277	5	FAZ-S32/1	181870	12
40	240/415	10	277	5	FAZ-S40/1	181871	12

SG55112



2-pole							
1	415	15	480Y/277	5	FAZ-S1/2	181872	6
2	415	15	480Y/277	5	FAZ-S2/2	181873	6
3	415	15	480Y/277	5	FAZ-S3/2	181874	6
4	415	15	480Y/277	5	FAZ-S4/2	181875	6
6	415	15	480Y/277	5	FAZ-S6/2	181876	6
10	415	15	480Y/277	5	FAZ-S10/2	181877	6
16	415	15	480Y/277	5	FAZ-S16/2	181878	6
20	415	15	480Y/277	5	FAZ-S20/2	181879	6
25	415	15	480Y/277	5	FAZ-S25/2	181880	6
32	415	15	480Y/277	5	FAZ-S32/2	181881	6
40	415	15	480Y/277	5	FAZ-S40/2	181882	6

Miniature Circuit Breakers FAZ

15 kA, IEC60947-2, Characteristic Z

SG53112



Rated current I_n (A)	Rated voltage (V)	Breaking capacity acc. to IEC/EN 60947-2 (kA)	Rated voltage UL1077 (V)	Breaking capacity acc. to UL1077 (kA)	Type Designation	Article No.	Units per package
1-pole							
1	240/415	15	277	5	FAZ-Z1/1	278618	12/120
2	240/415	15	277	5	FAZ-Z2/1	278620	12/120
3	240/415	15	277	5	FAZ-Z3/1	278621	12/120
4	240/415	15	277	5	FAZ-Z4/1	278622	12/120
6	240/415	15	277	5	FAZ-Z6/1	278623	12/120
10	240/415	15	277	5	FAZ-Z10/1	278625	12/120
13	240/415	15	277	5	FAZ-Z13/1	106020	12/120
16	240/415	15	277	5	FAZ-Z16/1	278626	12/120
20	240/415	15	277	5	FAZ-Z20/1	278627	12/120
25	240/415	15	277	5	FAZ-Z25/1	278628	12/120
32	240/415	15	277	5	FAZ-Z32/1	278629	12/120
40	240/415	15	277	5	FAZ-Z40/1	278630	12/120
50	240/415	15	277	5	FAZ-Z50/1	278631	12/120
63	240/415	15	277	5	FAZ-Z63/1	278632	12/120

SG55112



2-pole							
1	415	15	480Y/277	5	FAZ-Z1/2	278817	1/60
2	415	15	480Y/277	5	FAZ-Z2/2	278819	1/60
3	415	15	480Y/277	5	FAZ-Z3/2	278820	1/60
4	415	15	480Y/277	5	FAZ-Z4/2	278821	1/60
6	415	15	480Y/277	5	FAZ-Z6/2	278822	1/60
10	415	15	480Y/277	5	FAZ-Z10/2	278824	1/60
13	415	15	480Y/277	5	FAZ-Z13/2	106021	1/60
16	415	15	480Y/277	5	FAZ-Z16/2	278825	1/60
20	415	15	480Y/277	5	FAZ-Z20/2	278826	1/60
25	415	15	480Y/277	5	FAZ-Z25/2	278827	1/60
32	415	15	480Y/277	5	FAZ-Z32/2	278828	1/60
40	415	15	480Y/277	5	FAZ-Z40/2	278829	1/60
50	415	15	480Y/277	5	FAZ-Z50/2	278830	1/60
63	415	15	480Y/277	5	FAZ-Z63/2	278831	1/60

SG53412



3-pole							
1	415	15	480Y/277	5	FAZ-Z1/3	278919	1/40
2	415	15	480Y/277	5	FAZ-Z2/3	278921	1/40
3	415	15	480Y/277	5	FAZ-Z3/3	278922	1/40
4	415	15	480Y/277	5	FAZ-Z4/3	278923	1/40
6	415	15	480Y/277	5	FAZ-Z6/3	278924	1/40
10	415	15	480Y/277	5	FAZ-Z10/3	278926	1/40
13	415	15	480Y/277	5	FAZ-Z13/3	106022	1/40
16	415	15	480Y/277	5	FAZ-Z16/3	278927	1/40
20	415	15	480Y/277	5	FAZ-Z20/3	278928	1/40
25	415	15	480Y/277	5	FAZ-Z25/3	278929	1/40
32	415	15	480Y/277	5	FAZ-Z32/3	278930	1/40
40	415	15	480Y/277	5	FAZ-Z40/3	278931	1/40
50	415	15	480Y/277	5	FAZ-Z50/3	278932	1/40
63	415	15	480Y/277	5	FAZ-Z63/3	278933	1/40

SG55812



4-pole							
1	415	15	480Y/277	5	FAZ-Z1/4	279107	1/60
2	415	15	480Y/277	5	FAZ-Z2/4	279109	1/60
3	415	15	480Y/277	5	FAZ-Z3/4	279110	1/60
4	415	15	480Y/277	5	FAZ-Z4/4	279111	1/60
6	415	15	480Y/277	5	FAZ-Z6/4	279112	1/60
10	415	15	480Y/277	5	FAZ-Z10/4	279114	1/60
13	415	15	480Y/277	5	FAZ-Z13/4	106023	1/60
16	415	15	480Y/277	5	FAZ-Z16/4	279115	1/60
20	415	15	480Y/277	5	FAZ-Z20/4	279116	1/60
25	415	15	480Y/277	5	FAZ-Z25/4	279117	1/60
32	415	15	480Y/277	5	FAZ-Z32/4	279118	1/60
40	415	15	480Y/277	5	FAZ-Z40/4	279119	1/60
50	415	15	480Y/277	5	FAZ-Z50/4	279120	1/60
63	415	15	480Y/277	5	FAZ-Z63/4	279121	1/60

Miniature Circuit Breakers PLSM

SG67811



Miniature circuit breaker PLSM (10kA, IEC60898-1)

Product Description

- Rated breaking capacity breaker PLSM series are the choice preferred by high end markets and customers due to its extremely high short circuit capacity of 10kA. It is widely used in high-end constructions and MOEM industry as overload and short circuit protection, control, power supply isolation for equipment and circuit.
- Powerful isolation function, especially applicable for use in the main switch of indoor switchgear, no need of additional disconnect switch, saving about 8% cost.
- Positive indication of contact position via a clear, easy to identify “red-green” indicator, ensure the safety.
- Dual terminal design allows to install busbar or cables reducing wiring time and increasing flexibility.
- Color coded toggle gives visual indication of the current rating to reduce confusion for assemblers.
- Wiring terminals are constructed to prevent miswiring while reduce the risk of electrical fire, make wiring more efficiency.
- 3 position DIN rail connector, easy to release and replace, ensure the continuously power supply when meet switch fault.
- Extremely high breaking capacity and superior current limiting characteristics, increasing safety of electrical system with reduced system impulse due to faults.
- Unique arc eliminating system design ensures rapid release during fault conditions, reducing heat and improving service life.
- Meets and exceeds the latest standards and the certificate. No significant modify needed when upgrade.
- 1P, 2P, 3P, 4P are available.
- Instantaneous tripping characteristics: B, C, D.
- Rated breaking capacity: 10kA.
- Comprehensive range of accessories: auxiliary contact, alarm contact, shunt trip, under-voltage trip...
- Undergo extreme ambient cycling tests: wind power application, electric vehicle charge station, etc. And carry a robust operating temperature range.
- Meet the latest international and national standards: IEC/EN 60898 and GB 10963.
- Product certification: CCC, CE, CCS.

Miniature Circuit Breakers PLSM

10 kA, IEC60898-1, Characteristic B

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Rated current I_n (A)

Type Designation

Article No.

Units per package

1-pole

1	PLSM-B1/1	282404	12/120
2	PLSM-B2/1	282407	12/120
3	PLSM-B3/1	282409	12/120
4	PLSM-B4/1	282411	12/120
6	PLSM-B6/1	282413	12/120
10	PLSM-B10/1	282415	12/120
13	PLSM-B13/1	282417	12/120
16	PLSM-B16/1	282419	12/120
20	PLSM-B20/1	282420	12/120
25	PLSM-B25/1	282421	12/120
32	PLSM-B32/1	282422	12/120
40	PLSM-B40/1	282423	12/120
50	PLSM-B50/1	282424	12/120
63	PLSM-B63/1	282425	12/120

2-pole

1	PLSM-B1/2	282542	1/60
2	PLSM-B2/2	282545	1/60
3	PLSM-B3/2	282547	1/60
4	PLSM-B4/2	282549	1/60
6	PLSM-B6/2	282551	1/60
10	PLSM-B10/2	282553	1/60
13	PLSM-B13/2	282555	1/60
16	PLSM-B16/2	282557	1/60
20	PLSM-B20/2	282558	1/60
25	PLSM-B25/2	282559	1/60
32	PLSM-B32/2	282560	1/60
40	PLSM-B40/2	282561	1/60
50	PLSM-B50/2	282562	1/60
63	PLSM-B63/2	282563	1/60

3-pole

1	PLSM-B1/3	282611	1/40
2	PLSM-B2/3	282614	1/40
3	PLSM-B3/3	282616	1/40
4	PLSM-B4/3	282618	1/40
6	PLSM-B6/3	282620	1/40
10	PLSM-B10/3	282622	1/40
13	PLSM-B13/3	282624	1/40
16	PLSM-B16/3	282626	1/40
20	PLSM-B20/3	282627	1/40
25	PLSM-B25/3	282628	1/40
32	PLSM-B32/3	282629	1/40
40	PLSM-B40/3	282630	1/40
50	PLSM-B50/3	282631	1/40
63	PLSM-B63/3	282632	1/40

4-pole

1	PLSM-B1/4	282749	1/30
2	PLSM-B2/4	282752	1/30
3	PLSM-B3/4	282754	1/30
4	PLSM-B4/4	282756	1/30
6	PLSM-B6/4	282758	1/30
10	PLSM-B10/4	282760	1/30
13	PLSM-B13/4	282762	1/30
16	PLSM-B16/4	282764	1/30
20	PLSM-B20/4	282765	1/30
25	PLSM-B25/4	282766	1/30
32	PLSM-B32/4	282767	1/30
40	PLSM-B40/4	282768	1/30
50	PLSM-B50/4	282769	1/30
63	PLSM-B63/4	282770	1/30

Miniature Circuit Breakers PLSM

10 kA, IEC60898-1, Characteristic C

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Rated current I _n (A)	Type Designation	Article No.	Units per package
1-pole			
1	PLSM-C1/1	282430	12/120
2	PLSM-C2/1	282433	12/120
3	PLSM-C3/1	282435	12/120
4	PLSM-C4/1	282437	12/120
6	PLSM-C6/1	282439	12/120
10	PLSM-C10/1	282441	12/120
13	PLSM-C13/1	282443	12/120
16	PLSM-C16/1	282445	12/120
20	PLSM-C20/1	282446	12/120
25	PLSM-C25/1	282447	12/120
32	PLSM-C32/1	282448	12/120
40	PLSM-C40/1	282449	12/120
50	PLSM-C50/1	282450	12/120
63	PLSM-C63/1	282451	12/120

2-pole			
1	PLSM-C1/2	282568	1/60
2	PLSM-C2/2	282571	1/60
3	PLSM-C3/2	282573	1/60
4	PLSM-C4/2	282575	1/60
6	PLSM-C6/2	282577	1/60
10	PLSM-C10/2	282579	1/60
13	PLSM-C13/2	282581	1/60
16	PLSM-C16/2	282583	1/60
20	PLSM-C20/2	282584	1/60
25	PLSM-C25/2	282585	1/60
32	PLSM-C32/2	282586	1/60
40	PLSM-C40/2	282587	1/60
50	PLSM-C50/2	282588	1/60
63	PLSM-C63/2	282589	1/60

3-pole			
1	PLSM-C1/3	282637	1/40
2	PLSM-C2/3	282640	1/40
3	PLSM-C3/3	282642	1/40
4	PLSM-C4/3	282644	1/40
6	PLSM-C6/3	282646	1/40
10	PLSM-C10/3	282648	1/40
13	PLSM-C13/3	282650	1/40
16	PLSM-C16/3	282652	1/40
20	PLSM-C20/3	282653	1/40
25	PLSM-C25/3	282654	1/40
32	PLSM-C32/3	282655	1/40
40	PLSM-C40/3	282656	1/40
50	PLSM-C50/3	282657	1/40
63	PLSM-C63/3	282658	1/40

4-pole			
1	PLSM-C1/4	282775	1/30
2	PLSM-C2/4	282778	1/30
3	PLSM-C3/4	282780	1/30
4	PLSM-C4/4	282782	1/30
6	PLSM-C6/4	282784	1/30
10	PLSM-C10/4	282786	1/30
13	PLSM-C13/4	282788	1/30
16	PLSM-C16/4	282790	1/30
20	PLSM-C20/4	282791	1/30
25	PLSM-C25/4	282792	1/30
32	PLSM-C32/4	282793	1/30
40	PLSM-C40/4	282794	1/30
50	PLSM-C50/4	282795	1/30
63	PLSM-C63/4	282796	1/30

Miniature Circuit Breakers PLSM

10 kA, IEC60898-1, Characteristic D

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Rated current I _n (A)	Type Designation	Article No.	Units per package
1-pole			
1	PLSM-D1/1	282453	12/120
2	PLSM-D2/1	282456	12/120
3	PLSM-D3/1	282458	12/120
4	PLSM-D4/1	282460	12/120
6	PLSM-D6/1	282462	12/120
10	PLSM-D10/1	282464	12/120
13	PLSM-D13/1	282466	12/120
16	PLSM-D16/1	282468	12/120
20	PLSM-D20/1	282469	12/120
25	PLSM-D25/1	282470	12/120
32	PLSM-D32/1	282471	12/120
40	PLSM-D40/1	282472	12/120

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2-pole			
1	PLSM-D1/2	282591	1/60
2	PLSM-D2/2	282594	1/60
3	PLSM-D3/2	282596	1/60
4	PLSM-D4/2	282598	1/60
6	PLSM-D6/2	282600	1/60
10	PLSM-D10/2	282602	1/60
13	PLSM-D13/2	282604	1/60
16	PLSM-D16/2	282606	1/60
20	PLSM-D20/2	282607	1/60
25	PLSM-D25/2	282608	1/60
32	PLSM-D32/2	282609	1/60
40	PLSM-D40/2	282610	1/60

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3-pole			
1	PLSM-D1/3	282660	1/40
2	PLSM-D2/3	282663	1/40
3	PLSM-D3/3	282665	1/40
4	PLSM-D4/3	282667	1/40
6	PLSM-D6/3	282669	1/40
10	PLSM-D10/3	282671	1/40
13	PLSM-D13/3	282673	1/40
16	PLSM-D16/3	282675	1/40
20	PLSM-D20/3	282676	1/40
25	PLSM-D25/3	282677	1/40
32	PLSM-D32/3	282678	1/40
40	PLSM-D40/3	282679	1/40

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4-pole			
1	PLSM-D1/4	282798	1/30
2	PLSM-D2/4	282801	1/30
3	PLSM-D3/4	282803	1/30
4	PLSM-D4/4	282805	1/30
6	PLSM-D6/4	282807	1/30
10	PLSM-D10/4	282809	1/30
13	PLSM-D13/4	282811	1/30
16	PLSM-D16/4	282813	1/30
20	PLSM-D20/4	282814	1/30
25	PLSM-D25/4	282815	1/30
32	PLSM-D32/4	282816	1/30
40	PLSM-D40/4	282817	1/30

Miniature Circuit Breakers PLS6

SG72911



Miniature circuit breaker PLS6 (6kA)

Product Description

- Compared to 10kA tripping capacity PLSM, PLS6 is more suitable for mainstream markets, due to its superior cost effective feature. It is widely applied in commercial / residential construction and electrical equipment, providing overload and short circuit protection for devices and circuits, additional fire and electric shock protection provide further application segment.
- Powerful isolation function, especially applicable for use in the main switch of indoor switchgear, no need of additional disconnect switch, saving about 8% cost.
- Positive indication of contact position via a clear, easy to identify "red-green" indicator, ensure the safety.
- Dual terminal design allows to install busbar or cables reducing wiring time and increasing flexibility.
- Different handle colors are used to indicate different current ratings, with added current marks besides printings on the device, allowing the marks to last longer and with improved artistic appearance.
- Wiring terminals are constructed to prevent miswiring while reduce the risk of electrical fire, make wiring more efficiency, prevent huge risks of electrical fire due to miswiring, and improve wiring efficiency.
- 3 position DIN rail connector, easy to release and replace, ensure the continuously power supply when meet switch fault.
- Extremely high breaking capacity and superior current limiting characteristics, increasing safety of electrical system with reduced system impulse due to faults.
- Unique arc eliminating system design ensures rapid release during fault conditions, reducing heat and improving service life.
- Meets and exceeds the latest standards and the certificate. No significant modify needed when upgrade.
- 1P, 2P, 3P, 4P are available.
- Instantaneous tripping characteristics: B, C, D.
- Rated breaking capacity: 6kA.
- Comprehensive range of accessories: auxiliary contact, alarm contact, shunt trip, under-voltage trip.
- Undergo extreme ambient cycling tests: wind power application, electric vehicle charge station, etc. And carry a robust operating temperature range.
- Meet the latest international and national standards: IEC/EN 60898 and GB 10963.
- Product certification: CCC, CE, CCS.

Miniature Circuit Breakers PLS6

6 kA, IEC60898-1, Characteristic B

SG26911



SG55411



SG74311



SG72911



Rated current I _n (A)	Type Designation	Article No.	Units per package
1-pole			
1	PLS6-B1/1	242640	12/120
2	PLS6-B2/1	242643	12/120
3	PLS6-B3/1	242645	12/120
4	PLS6-B4/1	242647	12/120
6	PLS6-B6/1	282842	12/120
10	PLS6-B10/1	282843	12/120
13	PLS6-B13/1	282844	12/120
16	PLS6-B16/1	282845	12/120
20	PLS6-B20/1	282846	12/120
25	PLS6-B25/1	282847	12/120
32	PLS6-B32/1	282848	12/120
40	PLS6-B40/1	282849	12/120
50	PLS6-B50/1	282850	12/120
63	PLS6-B63/1	282851	12/120

2-pole			
1	PLS6-B1/2	242839	1/60
2	PLS6-B2/2	242842	1/60
3	PLS6-B3/2	242844	1/60
4	PLS6-B4/2	242846	1/60
6	PLS6-B6/2	282904	1/60
10	PLS6-B10/2	282905	1/60
13	PLS6-B13/2	282906	1/60
16	PLS6-B16/2	282907	1/60
20	PLS6-B20/2	282908	1/60
25	PLS6-B25/2	282909	1/60
32	PLS6-B32/2	282910	1/60
40	PLS6-B40/2	282911	1/60
50	PLS6-B50/2	282912	1/60
63	PLS6-B63/2	282913	1/60

3-pole			
1	PLS6-B1/3	242908	1/40
2	PLS6-B2/3	242911	1/40
3	PLS6-B3/3	242913	1/40
4	PLS6-B4/3	242915	1/40
6	PLS6-B6/3	282941	1/40
10	PLS6-B10/3	282942	1/40
13	PLS6-B13/3	282943	1/40
16	PLS6-B16/3	282944	1/40
20	PLS6-B20/3	282945	1/40
25	PLS6-B25/3	282946	1/40
32	PLS6-B32/3	282947	1/40
40	PLS6-B40/3	282948	1/40
50	PLS6-B50/3	282949	1/40
63	PLS6-B63/3	282950	1/40

4-pole			
1	PLS6-B1/4	243046	1/30
2	PLS6-B2/4	243049	1/30
3	PLS6-B3/4	243051	1/30
4	PLS6-B4/4	243053	1/30
6	PLS6-B6/4	282989	1/30
10	PLS6-B10/4	282990	1/30
13	PLS6-B13/4	282991	1/30
16	PLS6-B16/4	282992	1/30
20	PLS6-B20/4	282993	1/30
25	PLS6-B25/4	282994	1/30
32	PLS6-B32/4	282995	1/30
40	PLS6-B40/4	282996	1/30
50	PLS6-B50/4	282997	1/30
63	PLS6-B63/4	282998	1/30

Miniature Circuit Breakers PLS6

6 kA, IEC60898-1, Characteristic C

SG26911



Rated current I _n (A)	Type Designation	Article No.	Units per package
1-pole			
1	PLS6-C1/1	282852	12/120
2	PLS6-C2/1	282853	12/120
3	PLS6-C3/1	282854	12/120
4	PLS6-C4/1	282855	12/120
6	PLS6-C6/1	282856	12/120
10	PLS6-C10/1	282857	12/120
13	PLS6-C13/1	282858	12/120
16	PLS6-C16/1	282859	12/120
20	PLS6-C20/1	282860	12/120
25	PLS6-C25/1	282861	12/120
32	PLS6-C32/1	282862	12/120
40	PLS6-C40/1	282863	12/120
50	PLS6-C50/1	282864	12/120
63	PLS6-C63/1	282865	12/120

SG55411



2-pole			
1	PLS6-C1/2	282914	1/60
2	PLS6-C2/2	282915	1/60
3	PLS6-C3/2	282916	1/60
4	PLS6-C4/2	282917	1/60
6	PLS6-C6/2	282918	1/60
10	PLS6-C10/2	282919	1/60
13	PLS6-C13/2	282920	1/60
16	PLS6-C16/2	282921	1/60
20	PLS6-C20/2	282922	1/60
25	PLS6-C25/2	282923	1/60
32	PLS6-C32/2	282924	1/60
40	PLS6-C40/2	282925	1/60
50	PLS6-C50/2	282926	1/60
63	PLS6-C63/2	282927	1/60

SG74311



3-pole			
1	PLS6-C1/3	282951	1/40
2	PLS6-C2/3	282952	1/40
3	PLS6-C3/3	282953	1/40
4	PLS6-C4/3	282954	1/40
6	PLS6-C6/3	282955	1/40
10	PLS6-C10/3	282956	1/40
13	PLS6-C13/3	282957	1/40
16	PLS6-C16/3	282958	1/40
20	PLS6-C20/3	282959	1/40
25	PLS6-C25/3	282960	1/40
32	PLS6-C32/3	282961	1/40
40	PLS6-C40/3	282962	1/40
50	PLS6-C50/3	282963	1/40
63	PLS6-C63/3	282964	1/40

SG72911



4-pole			
1	PLS6-C1/4	282999	1/30
2	PLS6-C2/4	283000	1/30
3	PLS6-C3/4	283001	1/30
4	PLS6-C4/4	283002	1/30
6	PLS6-C6/4	283003	1/30
10	PLS6-C10/4	283004	1/30
13	PLS6-C13/4	283005	1/30
16	PLS6-C16/4	283006	1/30
20	PLS6-C20/4	283007	1/30
25	PLS6-C25/4	283008	1/30
32	PLS6-C32/4	283009	1/30
40	PLS6-C40/4	283010	1/30
50	PLS6-C50/4	283011	1/30
63	PLS6-C63/4	283012	1/30

Miniature Circuit Breakers PLS6

6 kA, IEC60898-1, Characteristic D

SG26911



Rated current I _n (A)	Type Designation	Article No.	Units per package
1-pole			
1	PLS6-D1/1	242689	12/120
2	PLS6-D2/1	242692	12/120
3	PLS6-D3/1	242694	12/120
4	PLS6-D4/1	242696	12/120
6	PLS6-D6/1	242698	12/120
10	PLS6-D10/1	242700	12/120
13	PLS6-D13/1	242702	12/120
16	PLS6-D16/1	242704	12/120
20	PLS6-D20/1	242705	12/120
25	PLS6-D25/1	242706	12/120
32	PLS6-D32/1	242707	12/120
40	PLS6-D40/1	242708	12/120

SG55411



2-pole			
1	PLS6-D1/2	242888	1/60
2	PLS6-D2/2	242891	1/60
3	PLS6-D3/2	242893	1/60
4	PLS6-D4/2	242895	1/60
6	PLS6-D6/2	242897	1/60
10	PLS6-D10/2	242899	1/60
13	PLS6-D13/2	242901	1/60
16	PLS6-D16/2	242903	1/60
20	PLS6-D20/2	242904	1/60
25	PLS6-D25/2	242905	1/60
32	PLS6-D32/2	242906	1/60
40	PLS6-D40/2	242907	1/60

SG74311



3-pole			
1	PLS6-D1/3	242957	1/40
2	PLS6-D2/3	242960	1/40
3	PLS6-D3/3	242962	1/40
4	PLS6-D4/3	242964	1/40
6	PLS6-D6/3	242966	1/40
10	PLS6-D10/3	242968	1/40
13	PLS6-D13/3	242970	1/40
16	PLS6-D16/3	242972	1/40
20	PLS6-D20/3	242973	1/40
25	PLS6-D25/3	242974	1/40
32	PLS6-D32/3	242975	1/40
40	PLS6-D40/3	242976	1/40

SG72911



4-pole			
1	PLS6-D1/4	243095	1/30
2	PLS6-D2/4	243098	1/30
3	PLS6-D3/4	243100	1/30
4	PLS6-D4/4	243102	1/30
6	PLS6-D6/4	243104	1/30
10	PLS6-D10/4	243106	1/30
13	PLS6-D13/4	243108	1/30
16	PLS6-D16/4	243110	1/30
20	PLS6-D20/4	243111	1/30
25	PLS6-D25/4	243112	1/30
32	PLS6-D32/4	243113	1/30
40	PLS6-D40/4	243114	1/30

Miniature Circuit Breakers FAZ-T

SG56012



FAZ-T

- High-quality miniature circuit breakers for industrial and commercial applications
- Contact position indicator red- green
- Accessories suitable for subsequent installation
- Rated currents up to 40 A
- Tripping characteristics B, C, D
- Rated breaking capacity up to 15 kA according to IEC/EN 60898-1, 25 kA according to IEC/EN 60947-2

Miniature Circuit Breakers FAZ-T

15 kA (IEC60898-1), 25 kA (IEC60947-2), Characteristic B

SG53212



Rated current I_n (A)	Rated voltage IEC/EN 60898-1 (V)	Breaking capacity acc. to IEC/EN 60898-1 (kA)	Rated voltage IEC/EN 60947-2 (V)	Breaking capacity acc. to IEC/EN 60947-2 (kA)	Type Designation	Article No.	Units per package
1-pole							
1	240/415	15	240	25	FAZT-B1/1	240770	12/120
2	240/415	15	240	25	FAZT-B2/1	240771	12/120
3	240/415	15	240	25	FAZT-B3/1	240772	12/120
4	240/415	15	240	25	FAZT-B4/1	240777	12/120
6	240/415	15	240	25	FAZT-B6/1	240782	12/120
10	240/415	15	240	25	FAZT-B10/1	240787	12/120
13	240/415	15	240	25	FAZT-B13/1	240793	12/120
16	240/415	15	240	25	FAZT-B16/1	240795	12/120
20	240/415	15	240	25	FAZT-B20/1	240796	12/120
25	240/415	15	240	25	FAZT-B25/1	240797	12/120
32	240/415	10	240	20	FAZT-B32/1	141907	12/120
40	240/415	10	240	20	FAZT-B40/1	141908	12/120

SG55212



2-pole							
1	415	15	240/415	25	FAZT-B1/2	240820	1/60
2	415	15	240/415	25	FAZT-B2/2	240821	1/60
3	415	15	240/415	25	FAZT-B3/2	240822	1/60
4	415	15	240/415	25	FAZT-B4/2	240823	1/60
6	415	15	240/415	25	FAZT-B6/2	240824	1/60
10	415	15	240/415	25	FAZT-B10/2	240825	1/60
13	415	15	240/415	25	FAZT-B13/2	240827	1/60
16	415	15	240/415	25	FAZT-B16/2	240829	1/60
20	415	15	240/415	25	FAZT-B20/2	240830	1/60
25	415	15	240/415	25	FAZT-B25/2	240831	1/60
32	415	10	240/415	20	FAZT-B32/2	142485	1/60
40	415	10	240/415	20	FAZT-B40/2	142486	1/60

SG53512



3-pole							
1	415	15	240/415	25	FAZT-B1/3	240874	1/40
2	415	15	240/415	25	FAZT-B2/3	240875	1/40
3	415	15	240/415	25	FAZT-B3/3	240876	1/40
4	415	15	240/415	25	FAZT-B4/3	240877	1/40
6	415	15	240/415	25	FAZT-B6/3	240878	1/40
10	415	15	240/415	25	FAZT-B10/3	240879	1/40
13	415	15	240/415	25	FAZT-B13/3	240881	1/40
16	415	15	240/415	25	FAZT-B16/3	240883	1/40
20	415	15	240/415	25	FAZT-B20/3	240884	1/40
25	415	15	240/415	25	FAZT-B25/3	240885	1/40
32	415	10	240/415	20	FAZT-B32/3	142493	1/40
40	415	10	240/415	20	FAZT-B40/3	142494	1/40

SG56012



4-pole							
1	415	15	240/415	25	FAZT-B1/4	240922	1/30
2	415	15	240/415	25	FAZT-B2/4	240927	1/30
3	415	15	240/415	25	FAZT-B3/4	240930	1/30
4	415	15	240/415	25	FAZT-B4/4	240931	1/30
6	415	15	240/415	25	FAZT-B6/4	240932	1/30
10	415	15	240/415	25	FAZT-B10/4	240933	1/30
13	415	15	240/415	25	FAZT-B13/4	240935	1/30
16	415	15	240/415	25	FAZT-B16/4	240937	1/30
20	415	15	240/415	25	FAZT-B20/4	240938	1/30
25	415	15	240/415	25	FAZT-B25/4	240939	1/30
32	415	10	240/415	20	FAZT-B32/4	142501	1/30
40	415	10	240/415	20	FAZT-B40/4	142502	1/30

Miniature Circuit Breakers FAZ-T

15 kA (IEC60898-1), 25 kA (IEC60947-2), Characteristic C

SG53212



SG55212



SG53512



SG56012



Rated current I_n (A)	Rated voltage IEC/EN 60898-1 (V)	Breaking capacity acc. to IEC/EN 60898-1 (kA)	Rated voltage IEC/EN 60947-2 (V)	Breaking capacity acc. to IEC/EN 60947-2 (kA)	Type Designation	Article No.	Units per package
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1-pole

1	240/415	15	240	25	FAZT-C1/1	240798	12/120
2	240/415	15	240	25	FAZT-C2/1	240799	12/120
3	240/415	15	240	25	FAZT-C3/1	240800	12/120
4	240/415	15	240	25	FAZT-C4/1	240801	12/120
6	240/415	15	240	25	FAZT-C6/1	240802	12/120
10	240/415	15	240	25	FAZT-C10/1	240803	12/120
13	240/415	15	240	25	FAZT-C13/1	240805	12/120
16	240/415	15	240	25	FAZT-C16/1	240807	12/120
20	240/415	15	240	25	FAZT-C20/1	240808	12/120
25	240/415	15	240	25	FAZT-C25/1	240809	12/120
32	240/415	10	240	20	FAZT-C32/1	141909	12/120
40	240/415	10	240	20	FAZT-C40/1	142480	12/120

2-pole

1	415	15	240/415	25	FAZT-C1/2	240832	1/60
2	415	15	240/415	25	FAZT-C2/2	240833	1/60
3	415	15	240/415	25	FAZT-C3/2	240838	1/60
4	415	15	240/415	25	FAZT-C4/2	240843	1/60
6	415	15	240/415	25	FAZT-C6/2	240850	1/60
10	415	15	240/415	25	FAZT-C10/2	240855	1/60
13	415	15	240/415	25	FAZT-C13/2	240859	1/60
16	415	15	240/415	25	FAZT-C16/2	240861	1/60
20	415	15	240/415	25	FAZT-C20/2	240862	1/60
25	415	15	240/415	25	FAZT-C25/2	240863	1/60
32	415	10	240/415	20	FAZT-C32/2	142487	1/60
40	415	10	240/415	20	FAZT-C40/2	142488	1/60

3-pole

1	415	15	240/415	25	FAZT-C1/3	240886	1/40
2	415	15	240/415	25	FAZT-C2/3	240887	1/40
3	415	15	240/415	25	FAZT-C3/3	240888	1/40
4	415	15	240/415	25	FAZT-C4/3	240889	1/40
6	415	15	240/415	25	FAZT-C6/3	240890	1/40
10	415	15	240/415	25	FAZT-C10/3	240891	1/40
13	415	15	240/415	25	FAZT-C13/3	240893	1/40
16	415	15	240/415	25	FAZT-C16/3	240895	1/40
20	415	15	240/415	25	FAZT-C20/3	240896	1/40
25	415	15	240/415	25	FAZT-C25/3	240897	1/40
32	415	10	240/415	20	FAZT-C32/3	142495	1/40
40	415	10	240/415	20	FAZT-C40/3	142496	1/40

4-pole

1	415	15	240/415	25	FAZT-C1/4	240940	1/30
2	415	15	240/415	25	FAZT-C2/4	240941	1/30
3	415	15	240/415	25	FAZT-C3/4	240945	1/30
4	415	15	240/415	25	FAZT-C4/4	240949	1/30
6	415	15	240/415	25	FAZT-C6/4	240955	1/30
10	415	15	240/415	25	FAZT-C10/4	240959	1/30
13	415	15	240/415	25	FAZT-C13/4	240963	1/30
16	415	15	240/415	25	FAZT-C16/4	240965	1/30
20	415	15	240/415	25	FAZT-C20/4	240966	1/30
25	415	15	240/415	25	FAZT-C25/4	240967	1/30
32	415	10	240/415	20	FAZT-C32/4	142503	1/30
40	415	10	240/415	20	FAZT-C40/4	142504	1/30

Miniature Circuit Breakers FAZ-T

15 kA (IEC60898-1), 25 kA (IEC60947-2), Characteristic D

SG53212



SG55212



SG53512



SG56012



Rated current I_n (A)	Rated voltage IEC/EN 60898-1 (V)	Breaking capacity acc. to IEC/EN 60898-1 (kA)	Rated voltage IEC/EN 60947-2 (V)	Breaking capacity acc. to IEC/EN 60947-2 (kA)	Type Designation	Article No.	Units per package
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1-pole							
1	240/415	15	240	25	FAZT-D1/1	240810	12/120
2	240/415	15	240	25	FAZT-D2/1	240811	12/120
3	240/415	15	240	25	FAZT-D3/1	240812	12/120
4	240/415	15	240	25	FAZT-D4/1	240813	12/120
6	240/415	15	240	25	FAZT-D6/1	240814	12/120
10	240/415	15	240	25	FAZT-D10/1	240815	12/120
13	240/415	15	240	25	FAZT-D13/1	240817	12/120
16	240/415	15	240	20	FAZT-D16/1	240819	12/120
20	240/415	10	240	20	FAZT-D20/1	142481	12/120
25	240/415	10	240	15	FAZT-D25/1	142482	12/120
32	240/415	10	240	15	FAZT-D32/1	142483	12/120
40	240/415	10	240	15	FAZT-D40/1	142484	12/120

2-pole							
1	415	15	240/415	25	FAZT-D1/2	240864	1/60
2	415	15	240/415	25	FAZT-D2/2	240865	1/60
3	415	15	240/415	25	FAZT-D3/2	240866	1/60
4	415	15	240/415	25	FAZT-D4/2	240867	1/60
6	415	15	240/415	25	FAZT-D6/2	240868	1/60
10	415	15	240/415	25	FAZT-D10/2	240869	1/60
13	415	15	240/415	25	FAZT-D13/2	240871	1/60
16	415	15	240/415	20	FAZT-D16/2	240873	1/60
20	415	10	240/415	20	FAZT-D20/2	142489	1/60
25	415	10	240/415	15	FAZT-D25/2	142490	1/60
32	415	10	240/415	15	FAZT-D32/2	142491	1/60
40	415	10	240/415	15	FAZT-D40/2	142492	1/60

3-pole							
1	415	15	240/415	25	FAZT-D1/3	240898	1/40
2	415	15	240/415	25	FAZT-D2/3	240899	1/40
3	415	15	240/415	25	FAZT-D3/3	240900	1/40
4	415	15	240/415	25	FAZT-D4/3	240901	1/40
6	415	15	240/415	25	FAZT-D6/3	240902	1/40
10	415	15	240/415	25	FAZT-D10/3	240903	1/40
13	415	15	240/415	25	FAZT-D13/3	240905	1/40
16	415	15	240/415	25	FAZT-D16/3	240915	1/40
20	415	10	240/415	20	FAZT-D20/3	142497	1/40
25	415	10	240/415	15	FAZT-D25/3	142498	1/40
32	415	10	240/415	15	FAZT-D32/3	142499	1/40
40	415	10	240/415	15	FAZT-D40/3	142500	1/40

4-pole							
1	415	15	240/415	25	FAZT-D1/4	240968	1/30
2	415	15	240/415	25	FAZT-D2/4	240969	1/30
3	415	15	240/415	25	FAZT-D3/4	240970	1/30
4	415	15	240/415	25	FAZT-D4/4	240971	1/30
6	415	15	240/415	25	FAZT-D6/4	240975	1/30
10	415	15	240/415	25	FAZT-D10/4	240979	1/30
13	415	15	240/415	25	FAZT-D13/4	240989	1/30
16	415	15	240/415	25	FAZT-D16/4	240993	1/30
20	415	10	240/415	20	FAZT-D20/4	142505	1/30
25	415	10	240/415	15	FAZT-D25/4	142506	1/30
32	415	10	240/415	15	FAZT-D32/4	142507	1/30
40	415	10	240/415	15	FAZT-D40/4	142508	1/30

Miniature Circuit Breakers PLHT

Miniature circuit breaker PLHT (up to 25kA)



Miniature circuit breaker PLHT (up to 25kA)

Product Description

- With an high breaking capacity up to 25kA and maximum rated operating current up to 125 A, Miniature circuit breaker PLHT could typically applied in non-standard enclosures of buildings as well as in mechanical equipment of larger power, to provide overload and short circuit protections, control, and power supply isolation for equipment and lines.
- Extremely high breaking capacity and current specifications, ensure good superior-subordinate-selectivity coordination relations.
- Positive indication of contact position via a clear, easy to identify “red-green” indicator, ensures the safety.
- Color coded toggle gives visual indication of the current rating to reduce confusion for assemblers.
- Extremely high breaking capacity and superior current limiting characteristics, increasing safety of electrical system with reduced system impulse due to faults.
- Unique arc eliminating system design ensures rapid release during fault conditions, reducing heat and improving service life.
- Meets and exceeds the latest standards and the certificate. No significant modify needed when upgrade.
- 1P, 2P, 3P, 4P are available.
- Instantaneous tripping characteristics: C, D.
- Rated breaking capacity: 15-25 kA.
- Comprehensive range of accessories: auxiliary contact, alarm contact, shunt trip.
- Undergo extreme ambient cycling tests: wind power application, electric vehicle charge station, etc. And carry a robust operating temperature range.
- Meet the latest international and national standards: IEC/EN 60947-2 and GB 14048-2.
- Product certification: CCC, CE, OVE and CCS.

Miniature Circuit Breakers PLHT

15-25kA, IEC60947-2, Characteristics C



Rated current I_n (A)	Switching Capacity I_{cu} (kA)	Type designation	Article No.	Units per package
1P				
63	25	PLHT-C63/1	273366	4
80	20	PLHT-C80/1	273367	4
100	20	PLHT-C100/1	273368	4
125	15	PLHT-C125/1	273369	4



2P				
63	25	PLHT-C63/2	273392	2
80	20	PLHT-C80/2	273393	2
100	20	PLHT-C100/2	273394	2
125	15	PLHT-C125/2	273395	2



3P				
63	25	PLHT-C63/3	273418	1
80	20	PLHT-C80/3	273419	1
100	20	PLHT-C100/3	273420	1
125	15	PLHT-C125/3	273421	1



4P				
63	25	PLHT-C63/4	273470	1
80	20	PLHT-C80/4	273471	1
100	20	PLHT-C100/4	273472	1
125	15	PLHT-C125/4	273473	1

Miniature Circuit Breakers PLHT

15-25kA, IEC60947-2, Characteristics D



Rated current I_n (A)	Switching Capacity I_{cu} (kA)	Type designation	Article No.	Units per package
1P				
50	25	PLHT-D50/1	273374	4
63	20	PLHT-D63/1	273375	4
80	20	PLHT-D80/1	273376	4
100	15	PLHT-D100/1	273377	4



2P				
50	25	PLHT-D50/2	273400	2
63	20	PLHT-D63/2	273401	2
80	20	PLHT-D80/2	273402	2
100	15	PLHT-D100/2	273403	2



3P				
50	25	PLHT-D50/3	273426	1
63	20	PLHT-D63/3	273427	1
80	20	PLHT-D80/3	273428	1
100	15	PLHT-D100/3	273429	1



4P				
50	25	PLHT-D50/4	273478	1
63	20	PLHT-D63/4	273479	1
80	20	PLHT-D80/4	273480	1
100	15	PLHT-D100/4	273481	1

Miniature Circuit Breakers FAZ-DC

SG56012



FAZ-DC

- High-quality miniature circuit breakers for DC-applications
- Contact position indicator red- green
- Guide for secure terminal connection (not for FAZ-NA)
- 3-position DIN rail clip, permits removal from existing busbar system
- Comprehensive range of accessories suitable for subsequent installation
- Rated currents up to 50 A
- Tripping characteristic C
- Rated breaking capacity 10 kA according to IEC/EN 60947-2
- Up to 250 V DC pro pole

Characteristic C

Rated current I_n (A)	Rated voltage IEC/EN 60947-2 (V DC)	Breaking capacity acc. to IEC/EN 60947-2 (kA)	Type Designation	Article No.	Units per package
1-pole					
2	220	10	FAZ-C2/1-DC	279122	12/120
3	250	10	FAZ-C3/1-DC	279123	12/120
4	250	10	FAZ-C4/1-DC	279124	12/120
6	250	10	FAZ-C6/1-DC	279125	12/120
10	250	10	FAZ-C10/1-DC	279126	12/120
13	250	10	FAZ-C13/1-DC	279127	12/120
16	250	10	FAZ-C16/1-DC	279128	12/120
20	250	10	FAZ-C20/1-DC	279129	12/120
25	250	10	FAZ-C25/1-DC	279130	12/120
32	250	10	FAZ-C32/1-DC	279131	12/120
40	250	10	FAZ-C40/1-DC	279132	12/120
50	250	10	FAZ-C50/1-DC	279133	12/120

SG54512



SG53312



2-pole					
2	440	10	FAZ-C2/2-DC	279134	1/60
3	500	10	FAZ-C3/2-DC	279135	1/60
4	500	10	FAZ-C4/2-DC	279136	1/60
6	500	10	FAZ-C6/2-DC	279137	1/60
10	500	10	FAZ-C10/2-DC	279138	1/60
13	500	10	FAZ-C13/2-DC	279139	1/60
16	500	10	FAZ-C16/2-DC	279140	1/60
20	500	10	FAZ-C20/2-DC	279141	1/60
25	500	10	FAZ-C25/2-DC	279142	1/60
32	500	10	FAZ-C32/2-DC	279143	1/60
40	500	10	FAZ-C40/2-DC	279144	1/60
50	500	10	FAZ-C50/2-DC	279145	1/60

Miniature Circuit Breakers PLS6-DC

SG45311



PLS6-DC

- High-quality miniature circuit breakers for DC-applications
- Contact position indicator red- green
- Guide for secure terminal connection
- 3-position DIN rail clip, permits removal from existing busbar system
- Comprehensive range of accessories suitable for subsequent installation
- Rated currents up to 50 A
- Tripping characteristic C
- Rated breaking capacity 6 kA according to IEC/EN 60898
- Up to 250 V DC per pole

6 kA, Characteristic C

SG45311



Rated current I _n (A)	Type Designation	Article No.	Units per package
1-pole			
2	PLS6-C2/1-DC	282866	12/120
3	PLS6-C3/1-DC	282867	12/120
4	PLS6-C4/1-DC	282868	12/120
6	PLS6-C6/1-DC	282869	12/120
10	PLS6-C10/1-DC	282870	12/120
13	PLS6-C13/1-DC	282871	12/120
16	PLS6-C16/1-DC	282872	12/120
20	PLS6-C20/1-DC	282873	12/120
25	PLS6-C25/1-DC	282874	12/120
32	PLS6-C32/1-DC	282875	12/120
40	PLS6-C40/1-DC	282876	12/120
50	PLS6-C50/1-DC	282877	12/120

SG55411



2-pole			
2	PLS6-C2/2-DC	282928	1/60
3	PLS6-C3/2-DC	282929	1/60
4	PLS6-C4/2-DC	282930	1/60
6	PLS6-C6/2-DC	282931	1/60
10	PLS6-C10/2-DC	282932	1/60
13	PLS6-C13/2-DC	282933	1/60
16	PLS6-C16/2-DC	282934	1/60
20	PLS6-C20/2-DC	282935	1/60
25	PLS6-C25/2-DC	282936	1/60
32	PLS6-C32/2-DC	282937	1/60
40	PLS6-C40/2-DC	282938	1/60
50	PLS6-C50/2-DC	282939	1/60

Main Load Disconnecter Switch (Isolator) IS

SG10911



(Isolator) IS

- Load circuit breaker with isolating function
- Highly wear resistant contacts
- Quick make
- Terminal capacity 50 mm2
- Compatible busbars
- 1-, 2-, 3-, 4-pole

SG10611



SG10711



SG10811



SG10911



Rated Current (A)	Poles	Type Designation	Article No.	Units per
16	1	IS-16/1	276254	12/120
16	2	IS-16/2	276255	1/60
16	3	IS-16/3	276256	1/40
16	4	IS-16/4	276257	1/30
20	1	IS-20/1	276258	12/120
20	2	IS-20/2	276259	1/60
20	3	IS-20/3	276260	1/40
20	4	IS-20/4	276261	1/30
25	1	IS-25/1	276262	12/120
25	2	IS-25/2	276263	1/60
25	3	IS-25/3	276264	1/40
25	4	IS-25/4	276265	1/30
32	1	IS-32/1	276266	12/120
32	2	IS-32/2	276267	1/60
32	3	IS-32/3	276268	1/40
32	4	IS-32/4	276269	1/30
40	1	IS-40/1	276270	12/120
40	2	IS-40/2	276271	1/60
40	3	IS-40/3	276272	1/40
40	4	IS-40/4	276273	1/30
63	1	IS-63/1	276274	12/120
63	2	IS-63/2	276275	1/60
63	3	IS-63/3	276276	1/40
63	4	IS-63/4	276277	1/30
80	1	IS-80/1	276278	12/120
80	2	IS-80/2	276279	1/60
80	3	IS-80/3	276280	1/40
80	4	IS-80/4	276281	1/30
100	1	IS-100/1	276282	12/120
100	2	IS-100/2	276283	1/60
100	3	IS-100/3	276284	1/40
100	4	IS-100/4	276285	1/30
125	1	IS-125/1	276286	12/120
125	2	IS-125/2	276287	1/60
125	3	IS-125/3	276288	1/40
125	4	IS-125/4	276289	1/30

Residual current circuit breaker PFIM

Residual current circuit breaker PFIM (ELM)



Product Description

- Electromagnetic residual current circuit breaker PFIM series are widely applied in commercial / residential construction and electrical equipment, to protect persons and animals against electric shock and ensuring reliable protections to your circuits and loads.
- Direct and indirect contact protections, as well as accessory protection, with powerful isolation function.
- Tripping is line voltage independent, make sure it's still effective when system voltage drops.
- Compact design and small size, with rated current up to 100A.
- 4 types of rated residual currents: 10, 30, 100, 300mA for different applications.
- Wide variety of nominal currents: 16, 25, 40, 63, 80, 100A.
- Unique design for anti-surge current, prevent the system from fault tripping when lightning stroke or surge current impulse, ensure the system continuous operating.
- 2 pole / 4 pole available .
- Visible contact position indicator, indicating the status for safety operation.
- Auxiliary switch Z-HK can be mounted subsequently.
- Undergo extreme ambient cycling tests: wind power application, electric vehicle charge station, etc. And carry a robust operating temperature range.
- Meet the latest international and national standards: IEC/EN 61008 and GB 16916.
- Certification: CCC, CE, OVE, and CCS.

Residual current circuit breaker PFIM



Conditional surge current-proof 250A, Type AC , instantaneous

$I_n/I_{\Delta n}(A)$	Type designation	Article No.	Units per package
2P			
16/001	PFIM-16/2/001	294241	1
25/003	PFIM-25/2/003	294242	1
25/01	PFIM-25/2/01	294243	1
25/03	PFIM-25/2/003	294244	1
40/003	PFIM-40/2/003	294245	1
40/01	PFIM-40/2/01	294246	1
40/03	PFIM-40/2/03	294247	1
63/003	PFIM-63/2/003	294248	1
63/01	PFIM-63/2/01	294249	1
63/03	PFIM-63/2/03	294250	1
80/003	PFIM-80/2/003	294251	1
80/01	PFIM-80/2/01	294252	1
80/03	PFIM-80/2/03	294253	1
100/003	PFIM-100/2/003	102910	1
100/01	PFIM-100/2/01	102911	1
100/03	PFIM-100/2/03	102912	1

4P			
25/003	PFIM-25/4/003	294270	1
25/01	PFIM-25/4/01	294271	1
25/03	PFIM-25/4/003	294272	1
40/003	PFIM-40/4/003	294273	1
40/01	PFIM-40/4/01	294274	1
40/03	PFIM-40/4/03	294275	1
63/003	PFIM-63/4/003	294276	1
63/01	PFIM-63/4/01	294277	1
63/03	PFIM-63/4/03	294278	1
80/003	PFIM-80/4/003	294279	1
80/01	PFIM-80/4/01	294280	1
80/03	PFIM-80/4/03	294281	1
100/003	PFIM-100/4/003	102915	1
100/01	PFIM-100/4/01	102916	1
100/03	PFIM-100/4/03	102917	1

Conditional surge current-proof 250A, sensitive to residual pulsating DC, Type A , instantaneous

$I_n/I_{\Delta n}(A)$	Type designation	Article No.	Units per package
2P			
16/001	PFIM-16/2/001-A	294254	1
25/003	PFIM-25/2/003-A	294255	1
25/01	PFIM-25/2/01-A	294256	1
25/03	PFIM-25/2/003-A	294257	1
40/003	PFIM-40/2/003-A	294258	1
40/01	PFIM-40/2/01-A	294259	1
40/03	PFIM-40/2/03-A	294260	1
63/003	PFIM-63/2/003-A	294261	1
63/01	PFIM-63/2/01-A	294262	1
63/03	PFIM-63/2/03-A	294263	1

4P			
25/003	PFIM-25/4/003-A	294282	1
25/01	PFIM-25/4/01-A	294283	1
25/03	PFIM-25/4/003-A	294284	1
40/003	PFIM-40/4/003-A	294285	1
40/01	PFIM-40/4/01-A	294286	1
40/03	PFIM-40/4/03-A	294287	1
63/003	PFIM-63/4/003-A	294288	1
63/01	PFIM-63/4/01-A	294289	1
63/03	PFIM-63/4/03-A	294290	1
80/003	PFIM-80/4/003-A	294291	1
80/01	PFIM-80/4/01-A	294292	1
80/03	PFIM-80/4/03-A	294293	1
100/003	PFIM-100/4/003-A	102919	1
100/01	PFIM-100/4/01-A	102920	1
100/03	PFIM-100/4/03-A	102921	1

Residual current circuit breaker PFIM



Surge current-proof 3kA, Type AC , Type G

$I_n/I_{\Delta n}$ (A)	Type designation	Article No.	Units per package
2P			
25/003	PFIM-25/2/003-G	294264	1
25/01	PFIM-25/2/01-G	294265	1
40/003	PFIM-40/2/003-G	294266	1
40/01	PFIM-40/2/01-G	294267	1

4P

40/003	PFIM-40/4/003-G	294294	1
40/01	PFIM-40/4/01-G	294295	1
63/003	PFIM-63/4/003-G	294296	1
63/01	PFIM-63/4/01-G	294297	1

Surge current-proof 5kA, sensitive to residual pulsating DC, TYPE S/A , selective

$I_n/I_{\Delta n}$ (A)	Type designation	Article No.	Units per package
2P			
40/01	PFIM-40/2/01-G	294268	1
40/03	PFIM-40/2/03-G	294269	1

4P

25/01	PFIM-25/4/01-S/A	294298	1
40/01	PFIM-40/4/01-S/A	294299	1
40/03	PFIM-40/4/03-S/A	294301	1
63/01	PFIM-63/4/01-S/A	294302	1
63/03	PFIM-63/4/03-S/A	294303	1
80/03	PFIM-80/4/03-S/A	294304	1
100/03	PFIM-100/4/03-S/A	102924	1

Residual Current Devices PFIM-U

SG62111



SG62111



Selective + surge current-proof 5 kA, frequency converter-proof, type U

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
40/0.10	PFIM-40/4/01-U	235744	1/30
40/0.30	PFIM-40/4/03-U	235745	1/30
63/0.10	PFIM-63/4/01-U	235746	1/30
63/0.30	PFIM-63/4/03-U	235747	1/30
80/0.30	PFIM-80/4/03-U	290221	1/30
100/0.30	PFIM-100/4/03-U	290222	1/30

Short-time delayed + surge current-proof 3 kA, frequency converter-proof, type U

$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
63/0.03	PFIM-63/4/003-U	285465	1/30

Residual current protection accessory PBSM

Residual current protection accessory PBSM, used with MCB PLSM and PLS6



Product Description

- Electromagnetic residual current protection accessory PBSM, in combination with MCB PLSM and PLS6, forms a complete residual current breaker device with overload protection, widely applied in commercial / residential construction and electrical equipment, providing overload and short circuit protection for devices and circuits, additional fire and electric shock protection provide further application segment.
- Integrated 3 functions of overload, short circuit, and residual current protection, the insulation co-ordination function allows the application as main switch of indoor switchgear.
- Tripping is line voltage independent, make sure it's still effective when system voltage drops.
- Rated residual currents: 30, 100, 300, 500, 1000mA, suitable for different applications.
- Different residual current operating time, meeting your requests for different protection- instantaneous, general and selective.
- Only two rated currents for all MCB combinations of 63A and below, which could significantly reduce your inventory and cost.
- Unique design for anti-surge current, prevent the system from fault tripping when lightning stroke or surge current impulse, ensure the system continuous operating.
- Unique removable design provide convenient, accurate, reliable operation and safety when combining with MCBs; Conversion terminals use copper bars with large contact surface, which allows lower heat loss, avoiding over heating safety hazards due to round conductors.
- Poles: 2P, 3P and 4P.
- Rated breaking capacity: depends on matched MCB.
- Comprehensive range of accessories: auxiliary contact, alarm contact, shunt trip, under-voltage trip...
- Undergo extreme ambient cycling tests: wind power application, electric vehicle charge station, etc. And carry a robust operating temperature range.
- Meet the latest international and national standards: IEC/EN 61009 and GB 16917.

Residual current protection accessory PBSM



Conditional surge current-proof 250A, TYPE AC , instantaneous

PL10/9: Max. Rated Current $I_n/I_{\Delta n}$ (A)	Type designation	Article No.	Units per package
2P			
40/003	PBSM-402/003	294164	1
40/01	PBSM-402/01	294165	1
40/03	PBSM-402/03	294166	1
63/003	PBSM-632/003	294167	1
63/01	PBSM-632/01	294168	1
63/03	PBSM-632/03	214169	1

3P			
40/003	PBSM-403/003	294198	1
40/01	PBSM-403/01	294199	1
40/03	PBSM-403/03	294200	1
40/1	PBSM-403/01	294201	1
63/003	PBSM-633/003	294202	1
63/01	PBSM-633/01	294203	1
63/03	PBSM-633/03	294204	1
63/1	PBSM-633/1	294205	1

4P			
40/003	PBSM-404/03	294219	1
40/01	PBSM-404/01	294220	1
40/03	PBSM-404/03	294221	1
40/1	PBSM-404/1	294222	1
63/003	PBSM-634/003	294223	1
63/01	PBSM-634/01	294224	1
63/03	PBSM-634/03	294225	1
63/1	PBSM-634/1	294226	1

Conditional surge current-proof up to 3kA, TYPE AC , Type G (Time Delay)

PL10/9: Max. Rated Current $I_n/I_{\Delta n}$ (A)	Type designation	Article No.	Units per package
2/3/4P			
40/003	PBSM-402/003-G	294197	1
40/003	PBSM-403/003-G	294214	1
40/003	PBSM-404/003-G	294235	1

Residual current protection accessory PBSM

Conditional surge current-proof 250A, sensitive to residual pulsating DC TYPE A , instantaneous

PL10/9: Max. Rated Current

$I_n/I_{\Delta n}$ (A)

Type designation

Article No.

Units per
package

2P

40/003	PBSM-402/003-A	294190	1
40/01	PBSM-402/01-A	214191	1
40/03	PBSM-402/03-A	214192	1
40/1	PBSM-402/1-A	214193	1
63/003	PBSM-632/003-A	214194	1
63/01	PBSM-632/01-A	214195	1
63/03	PBSM-632/03-A	214196	1

3P

40/003	PBSM-403/003-A	294206	1
40/01	PBSM-403/01-A	294207	1
40/03	PBSM-403/03-A	294208	1
40/1	PBSM-403/1-A	294209	1
63/003	PBSM-633/003-A	294210	1
63/01	PBSM-633/01-A	294211	1
63/03	PBSM-633/03-A	294212	1
63/1	PBSM-633/1-A	294213	1

4P

40/003	PBSM-404/003-A	294227	1
40/01	PBSM-404/01-A	294228	1
40/03	PBSM-404/03-A	294229	1
40/1	PBSM-404/1-A	294230	1
63/003	PBSM-634/003-A	294231	1
63/01	PBSM-634/01-A	294232	1
63/03	PBSM-634/03-A	294233	1
63/1	PBSM-634/1-A	294234	1

Conditional surge current-proof up to 5kA, TYPE AC , Type S (Selective)

PL10/9: Max. Rated Current

$I_n/I_{\Delta n}$ (A)

Type designation

Article No.

Units per
package

3P

40/01	PBSM-403/01-S	294215	1
40/03	PBSM-403/03-S	294216	1
63/01	PBSM-633/01-S	294217	1
63/03	PBSM-633/03-S	294218	1

4P

40/01	PBSM-404/01-S	294236	1
40/03	PBSM-404/03-S	294237	1
63/01	PBSM-634/01-S	294238	1
63/03	PBSM-634/03-S	294239	1
63/1	PBSM-634/1-S	294240	1

Residual current circuit breaker with overload protection PFL10

Residual current circuit breaker with overload protection PFL10 (10kA) (ELM)



Product Description

- Electromagnetic residual current breaker PF10 with overload protection, is widely used in commercial / residential construction and electrical equipment, providing overload and short circuit protection for devices and circuits, additional fire and electric shock protection provide further application segment.
- Integrated functions of overload, short circuit and residual current protection, the insulation co-ordination function allows the application as main switch of indoor switchgear.
- Tripping is line voltage independent, make sure it's still effective when system voltage drops.
- Compact design, and only 35mm wide (2 modules).
- Several rated residual currents: 10, 30, 300mA for different applications.
- Rated currents: 6-40A.
- Unique design for anti-surge current, prevent the system from fault tripping when lightning stroke or surge current impulse, ensure the system continuous operating.
- Poles: 1P+N.
- Instantaneous tripping characteristics: C.
- Rated breaking capacity: 10kA.
- Visible contact position indicator, indicating the status for safety operation.
- Comprehensive range of accessories: auxiliary contact, alarm contact, shunt trip, under-voltage trip.
- Undergo extreme ambient cycling tests: wind power application, electric vehicle charge station, etc. And carry a robust operating temperature range.
- Meet the latest international and national standards: IEC/EN 61009 and GB 16917.

Residual current circuit breaker with overload protection PFL10

1-pole +N



Conditional surge current-proof 250A, Type AC  , Instantaneous

I_n/I_n (A)	Type designation	Article No.	Units per package
Curve C			
6/001	PFL10-6/1N/C/001	294784	6
10/001	PFL10-10/1N/C/001	294785	6
13/001	PFL10-13/1N/C/001	294786	6
16/001	PFL10-16/1N/C/001	294787	6
6/03	PFL10-6/1N/C/03	294796	6
10/03	PFL10-10/1N/C/03	294797	6
13/03	PFL10-13/1N/C/03	294798	6
16/03	PFL10-16/1N/C/03	294799	6
20/03	PFL10-20/1N/C/03	294800	6
25/03	PFL10-25/1N/C/03	294801	6
32/03	PFL10-32/1N/C/03	294802	6
40/03	PFL10-40/1N/C/03	294803	6
6/003	PFL10-6/1N/C/003	294788	6
10/003	PFL10-10/1N/C/003	294789	6
13/003	PFL10-13/1N/C/003	294790	6
16/003	PFL10-16/1N/C/003	294791	6
20/003	PFL10-20/1N/C/003	294792	6
25/003	PFL10-25/1N/C/003	294793	6
32/003	PFL10-32/1N/C/003	294794	6
40/003	PFL10-40/1N/C/003	294795	6

1-pole +N



Conditional surge current-proof 250A, sensitive to residual pulsating DC, Type A  , instantaneous

I_n/I_n (A)	Type designation	Article No.	Units per package
Curve C			
6/001	PFL10-6/1N/C/001-A	294804	6
10/001	PFL10-10/1N/C/001-A	294805	6
13/001	PFL10-13/1N/C/001-A	294806	6
16/001	PFL10-16/1N/C/001-A	294807	6
6/03	PFL10-6/1N/C/03-A	294816	6
10/03	PFL10-10/1N/C/03-A	294817	6
13/03	PFL10-13/1N/C/03-A	294818	6
16/03	PFL10-16/1N/C/03-A	294819	6
20/03	PFL10-20/1N/C/03-A	294820	6
25/03	PFL10-25/1N/C/03-A	294821	6
32/03	PFL10-32/1N/C/03-A	294822	6
40/03	PFL10-40/1N/C/03-A	294823	6
6/003	PFL10-6/1N/C/003-A	294808	6
10/003	PFL10-10/1N/C/003-A	294809	6
13/003	PFL10-13/1N/C/003-A	294810	6
16/003	PFL10-16/1N/C/003-A	294811	6
20/003	PFL10-20/1N/C/003-A	294812	6
25/003	PFL10-25/1N/C/003-A	294813	6
32/003	PFL10-32/1N/C/003-A	294814	6
40/003	PFL10-40/1N/C/003-A	294815	6

Residual current circuit breaker with overload protection PFL9

Residual current circuit breaker with overload protection PFL9 (6kA) (ELM)



Product Description

- Electro-magnetic residual current breaker PF9 with overload protection, is widely applied in commercial / residential construction and electrical equipment, providing overload and short circuit protection for devices and circuits, additional fire and electric shock protection provide further application segment.
- Integrated functions of overload, short circuit and residual current protection, the insulation co-ordination function allows the application as main switch of indoor switchgear.
- Tripping is line voltage independent, make sure it's still effective when system voltage drops.
- Compact design, and only 35mm wide (2 modules).
- Several rated residual currents: 10, 30, 300mA for different applications.
- Rated currents: 6-40A.
- Unique design for anti-surge current, prevent the system from fault tripping when lightning stroke or surge current impulse, ensure the system continuous operating.
- Poles: 1P+N.
- Instantaneous tripping characteristics: C.
- Rated breaking capacity: 6kA.
- Visible contact position indicator, indicating the status for safety operation.
- Comprehensive range of accessories: auxiliary contact, alarm contact, shunt trip, under-voltage trip...
- Undergo extreme ambient cycling tests: wind power application, electric vehicle charge station, etc. And carry a robust operating temperature range.
- Meet the latest international and national standards: IEC/EN 61009 and GB 16917.

1-pole +N



Conditional surge current-proof 250A, Type AC , Instantaneous

$I_n/I_{\Delta n}$ (A)	Type designation	Article No.	Units per package
Curve C			
6/001	PFL9-6/1N/C/001	294824	6
10/001	PFL9-10/1N/C/001	294825	6
13/001	PFL9-13/1N/C/001	294826	6
16/001	PFL9-16/1N/C/001	294827	6
6/03	PFL9-6/1N/C/03	294836	6
10/03	PFL9-10/1N/C/03	294837	6
13/03	PFL9-13/1N/C/03	294838	6
16/03	PFL9-16/1N/C/03	294839	6
20/03	PFL9-20/1N/C/03	294840	6
25/03	PFL9-25/1N/C/03	294841	6
32/03	PFL9-32/1N/C/03	294842	6
40/03	PFL9-40/1N/C/03	294843	6
6/003	PFL9-6/1N/C/003	294828	6
10/003	PFL9-10/1N/C/003	294829	6
13/003	PFL9-13/1N/C/003	294830	6
16/003	PFL9-16/1N/C/003	294831	6
20/003	PFL9-20/1N/C/003	294832	6
25/003	PFL9-25/1N/C/003	294833	6
32/003	PFL9-32/1N/C/003	294834	6
40/003	PFL9-40/1N/C/003	294835	6

NSP Series High-performance Lightning and Surge Protection Products

NSP Series High-performance Lightning and Surge Protection Products



Product Description

The NSP series of surge protection devices is a new optimized series from Eaton, covering corresponding protection levels B and C (i.e., I and II). It protects your expensive and sensitive electronic and electrical equipment, such as large computing centers, digital and IT system equipment and precision electronic equipment, against lightning or surge voltage impulses due to opening and closing of large switches in circuits.

- High surge discharge capacity based on heavy zinc oxide varistor and spark gap technology conforming to IEC61643-1 and Chinese standard GB18802.1-2011.
- The series is classified into four sub-series: IEC, wind turbine, photovoltaic, and signal protection. NSP surge protection devices have been optimized for different industries and can cover most application environments.
- A new series of signal protection SPD is added to protect SCADA system, field bus, network and videos signal transmission systems.
- Equipotential bonding spark gap is developed to ensure a reliable grounding connection in case of lightning or surge and can cover applications in petrochemicals and other industries.
- In addition to our AC SPD series, we also provide dedicated 1000VDC products which are especially applicable to solar power systems or other DC loads.
- Most of the products in the NSP series (except signal protection SPD and equipotential bonding devices) are equipped with remote signalling (auxiliary contact) indication that transmits surge product status signals to your monitoring and controlling room so that you can know your product's status without on-site inspection.
- IEC surge protection devices provide maximum discharge current I_{max} (120, 80, 60, and 40) (8/20) μs to meet the protection needs of various buildings.
- Two parameter options are offered for Level I SPD protection devices: (10/350) μs and (8/20) μs .
- All NSP series products are among the most cost-effective products available, and multipolar products are equipped with standard bus bars, making installation quick and easy, and avoiding the need to use long cable connections with excessive residue voltage due to too.
- Compact: The 80 or 120kA single-pole devices in the IEC SPD series are only 36mm wide, and single-pole devices of less than 60kA are only 18mm wide, which greatly saves space in the electrical cabinet.
- Clear aging indication window provides reliable status indication so that you can see the product status without special testing, which greatly facilitates maintenance and replacement.
- High-performance flameretardant casing materials ensure safe and reliable uses
- IEC series products have authoritative third-party test reports, which are on file at the Meteorological Bureaus of major provinces (municipalities) in China, for use in building projects.

NSP Series High-performance Lightning and Surge Protection Products

IEC surge protection devices (SPD)

	Number of Poles	IEC Level	Maximum Continuous Operating Voltage U_c	Nominal Discharge Current I_n (8/20) μ s	Maximum Discharge Current I_{max} (8/20) μ s	Type Designation	Article no.	Spare plug-in modules
20kA Series								
	1-pole	T2	385Vac	20kA	40kA	NSP20M1385IECR	90000025000400	NSP20M385MOD
	1+N-pole	T2	385Vac	20kA+20kA	40kA+40kA	NSP20H2385TTR	90000025000401	NSP20M385MOD, NSP20G260MOD
	2-pole	T2	385Vac	2 x 20kA	2 x 40kA	NSP20M2385TNR	90000025000402	NSP20M385MOD
	3-pole	T2	385Vac	3 x 20kA	3 x 40kA	NSP20M3385TNCR	90000025000403	NSP20M385MOD
	3+N-pole	T2	385Vac	3 x 20kA+20kA	3 x 40kA+40kA	NSP20H4385TTR	90000025000404	NSP20M385MOD, NSP20G260MOD
	4-pole	T2	385Vac	4 x 20kA	4 x 40kA	NSP20M4385TNSR	90000025000405	NSP20M385MOD

IEC surge protection devices (SPD)

	Number of Poles	IEC Level	Maximum Continuous Operating Voltage U_c	Nominal Discharge Current I_n (8/20) μ s	Maximum Discharge Current I_{max} (8/20) μ s	Impulse Discharge Current I_{imp} (10/350) μ s	Type Designation	Article no.	Spare plug-in modules
30kA Series									
	1-pole	T1+T2	385Vac	30kA	60kA	3kA	NSP30M1385IECR	90000025000408	NSP30M385MOD
	1+N-pole	T1+T2	385Vac	30kA+30kA	60kA+60kA	3kA+12kA	NSP30H2385TTR	90000025000409	NSP30M385MOD, NSP30G260MOD
	2-pole	T1+T2	385Vac	2 x 30kA	2 x 60kA	2 x 3kA	NSP30M2385TNR	90000025000410	NSP30M385MOD
	3-pole	T1+T2	385Vac	3 x 30kA	3 x 60kA	3 x 3kA	NSP30M3385TNCR	90000025000411	NSP30M385MOD
	3+N-pole	T1+T2	385Vac	3 x 30kA+30kA	3 x 60kA+60kA	3 x 3kA+12kA	NSP30H4385TTR	90000025000412	NSP30M385MOD, NSP30G260MOD
	4-pole	T1+T2	385Vac	4 x 30kA	4 x 60kA	4 x 3kA	NSP30M4385TNSR	90000025000413	NSP30M385MOD

IEC surge protection devices (SPD)

	Number of Poles	IEC Level	Maximum Continuous Operating Voltage U_c	Nominal Discharge Current I_n (8/20) μ s	Maximum Discharge Current I_{max} (8/20) μ s	Type Designation	Article no.	Spare plug-in modules
40kA Series								
	1-pole	T2	385Vac	40kA	80kA	NSP40S1385IECR	90000025000416	NSP40S385MOD
	1+N-pole	T2	385Vac	40kA+40kA	80kA+80kA	NSP40H2385TTR	90000025000417	NSP40S385MOD, NSP40G260MOD
	2-pole	T2	385Vac	2 x 40kA	2 x 80kA	NSP40S2385TNR	90000025000418	NSP40S385MOD
	3-pole	T2	385Vac	3 x 40kA	3 x 80kA	NSP40S3385TNCR	90000025000419	NSP40S385MOD
	3+N-pole	T2	385Vac	3 x 40kA+40kA	3 x 80kA+80kA	NSP40H4385TTR	90000025000420	NSP40S385MOD, NSP40G260MOD
	4-pole	T2	385Vac	4 x 40kA	4 x 80kA	NSP40S4385TNSR	90000025000421	NSP40S385MOD

IEC surge protection devices (SPD)

	Number of Poles	IEC Level	Maximum Continuous Operating Voltage U_c	Nominal Discharge Current I_n (8/20) μ s	Maximum Discharge Current I_{max} (8/20) μ s	Type Designation	Article no.	Spare plug-in modules
60kA Series								
	1-pole	T2	385Vac	60kA	120kA	NSP60S1385IECR	90000025000424	NSP60S385MOD
	1+N-pole	T2	385Vac	60kA+80kA	120kA+120kA	NSP60H2385TTR	90000025000425	NSP60S385MOD, NSP60G260MOD
	2-pole	T2	385Vac	2 x 60kA	2 x 120kA	NSP60S2385TNR	90000025000426	NSP60S385MOD
	3-pole	T2	385Vac	3 x 60kA	3 x 120kA	NSP60S3385TNCR	90000025000427	NSP60S385MOD
	3+N-pole	T2	385Vac	3 x 60kA+80kA	3 x 120kA+120kA	NSP60H4385TTR	90000025000428	NSP60S385MOD, NSP60G260MOD
	4-pole	T2	385Vac	4 x 60kA	4 x 120kA	NSP60S4385TNSR	90000025000429	NSP60S385MOD

Spare Plug-in Modules

Description	IEC Level	Maximum Continuous Operating Voltage U_c	Nominal Discharge Current I_n (8/20) μ s	Maximum Discharge Current I_{max} (8/20) μ s	Type Designation	Article no.
Plug-in	T2	260Vac	20kA	40kA	NSP20G260MOD	90000025000406
Plug-in	T2	385Vac	20kA	40kA	NSP20M385MOD	90000025000407
Plug-in	T1+T2	260Vac	30kA	60kA	NSP30G260MOD	90000025000414
Plug-in	T1+T2	385Vac	30kA	60kA	NSP30M385MOD	90000025000415
Plug-in	T2	255Vac	40kA	80kA	NSP40G260MOD	90000025000422
Plug-in	T2	385Vac	40kA	80kA	NSP40S385MOD	90000025000423
Plug-in	T2	255Vac	80kA	120kA	NSP60G260MOD	90000025000430
Plug-in	T2	385Vac	60kA	120kA	NSP60S385MOD	90000025000431

Wind turbine surge protection device (SPD)

Number of Poles	IEC Level	Maximum Continuous Operating Voltage U_c	Nominal Discharge Current I_n (8/20) μ s	Maximum Discharge Current I_{max} (8/20) μ s	Impulse Discharge Current I_{imp} (10/350) μ s	Type Designation	Article no.
3-pole	T1+T2	440Vac	3 x 50kA	3 x 100kA	3 x 50kA	NSP50S440TNCR	90000025000432
3+N-pole	T1+T2	440Vac	3 x 50kA+100kA	3 x 100kA+100kA	3 x 50kA+100kA	NSP50S440TTR	90000025000433
4-pole	T1+T2	440Vac	4 x 50kA	4 x 100kA	4 x 50kA	NSP50S440TNSR	90000025000434
3-pole	T2	600Vac	3 x 15kA	3 x 30kA	NA	NSP15M3690WER	90000025000435
1-pole	T2	1000Vac	20kA	40kA	NA	NSP20M11000WER	90000025000436
1-pole	T2	600Vac	100kA	150kA	NA	NSP100G12200WE	90000025000437
3+N-pole	T2	1000Vac	3 x 20kA+100kA	3 x 40kA+150kA	NA	NSP20H41000WER	90000025000438

Photovoltaic surge protection device (SPD)

Number of Poles	IEC Level	Maximum Continuous Operating Voltage U_c	Nominal Discharge Current I_n (8/20) μ s	Maximum Discharge Current I_{max} (8/20) μ s	Type Designation	Article no.	Spare plug-in modules
3-pole	T2	1300Vdc	20kA	40kA	NSP20M31000YPVR	90000025000439	NSP20M625MOD
Plug-in	T2	650Vdc	20kA	40kA	NSP20M625MOD	90000025000440	

Signal protection surge protection device (SPD)

Interface Type	Operating Voltage	Transmission Rate	Impulse Discharge Voltage 1kV/ μ s V	Nominal Discharge Current 8/20 μ s kA	Clamping Voltage 10/700 μ s V	Type Designation	Article no.
Wiring terminal	5V	2M	<600V	5kA	<30V	NSP5GS1005HSTB	90000025000441
Wiring terminal	12V	2M	<600V	5kA	<40V	NSP5GS1012HSTB	90000025000442
Wiring terminal	24V	2M	<600V	5kA	<60V	NSP5GS1024HSTB	90000025000443
RJ45	48V	100M	<600V	2.5kA(L-PE) 5kA(SE-PE)	<90V	NSP5GS1048RJ45	90000025000444
BNC	5V	10M	<600V	10kA	<30V	NSP10GS1005BNC	90000025000445

Equipotential Bonding Device

Number of Poles	Ignition Voltage (1.2/50 μ s) (kV)	Nominal Discharge Current I_n (8/20) μ s	Maximum Discharge Current I_{max} (8/20) μ s	Degree of protection	Type Designation	Article no.
1-pole	1.5kV	50kA	100kA	IP54	NSP50S1255ESP	90000025000446
1-pole	1.5kV	100kA	200kA	IP54	NSP100S1255ESP	90000025000447

Accessories for Protective Devices

Auxiliary Switch Z-HK, Z-AHK, Z-HD; Tripping Signal Switch Z-NHK

Design: for screwing

SG60911



Z-AHK

For Protective Device / Function	Type Designation	Article No.	Units per package	
PFIM	1NO+1NC	Z-HK	248432	4 / 120
FAZ, PLS, PFL	1NO+1NC	Z-AHK	248433	4 / 120
FAZ, PLS, FFL, PFIM				
	2CO	Z-NHK	248434	4 / 120
PLHT	1NO+1NC	Z-LHK	248440	10

Auxiliary Switch ZP-AHK, ZP-IHK, ZP-WHK; Tripping Signal Switch ZP-NHK

Design: for snapping

SG60811



ZP-IHK

For Protective Device / Function	Type Designation	Article No.	Units per package
FAZ, PLS, PFL 1NO+1NC	ZP-IHK	286052	4 / 120
FAZ, PLS, PFL 1CO	ZP-WHK	286053	4 / 120
FAZ, PLS, PFL 2CO	ZP-NHK	248437	4 / 120

RCD-Tripping Module Z-AM

SG16011



Z-FAM

SG16211



Z-KAM

For Protective Device	Type Designation	Article No.	Units per package
PFIM	Z-FAM	248293	1 / 60
PFL	Z-KAM	248294	1 / 60

Shunt Trip Release Z-ASA, ZP-ASA, Z-LHASA

SG00712



Z-ASA

SG00212



ZP-ASA

Operational voltage range (V~)	Type Designation	Article No.	Units per package
to be glued on (FAZ, PLS)			
12-110	Z-ASA/24	248286	1 / 60
110-415	Z-ASA/230	248287	1 / 60
to be snapped on (FAZ, PLS)			
12-110	ZP-ASA/24	248438	1 / 60
110-415	ZP-ASA/230	248439	1 / 60
12-60 (PLHT)	ZP-LHASA/24	248439	8
110-415 (PLHT)	ZP-LHASA/230	248439	8

Undervoltage Release Z-USA, Z-USD

• For FAZ, PLS

SG78811



Op. voltage range (V~)/Function	Type Designation	Article No.	Units per package
to be screwed on			
115 undelayed	Z-USA/115	248288	1 / 60
230 undelayed	Z-USA/230	248289	1 / 60
400 undelayed	Z-USA/400	248290	1 / 60
115 delayed 0.4s	Z-USD/115	248292	1 / 60
230 delayed 0.4s	Z-USD/230	248291	1 / 60

Switching interlocks IS/SPE-1TE, Z-IS/SPE-1TE

SG47812



Description	Type Designation	Article No.	Units per package
Switching interlock without lock for IS, PFIM	IS/SPE-1TE	101911	5 / 30
Switching interlock without lock for FAZ, PLS	Z-IS/SPE-1TE	274418	5 / 30

Sealing Cover Set Z-RC/AK • For PFIM RCCB

SG16611



SG17211



Description	Type Designation	Article No.	Units per package
2-pole	Z-RC/AK-2TE	285385	10 / 30
4-pole	Z-RC/AK-4TE	101062	10 / 600

Terminal Cover • For FAZ, PLS

Description	Type Designatio	
1-pole	Z7-AK-1TE	750754200
2-pole	Z-CV/SD-2P	221954800
3-pole	Z-CV/SD-3P	221954900
4-pole	Z-CV/SD-4P	221953900

Handwriting practice lines consisting of 28 horizontal dotted lines.

Technical Data

Miniature Circuit Breakers FAZ

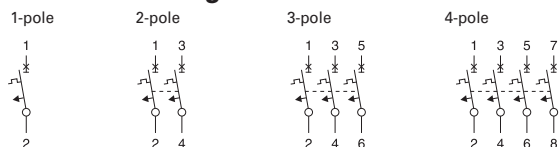
Technical specifications

	B Curve	C Curve	D Curve
Electrical			
Approvals	UR (UL 1077), CSA (CSA 22.2 No. 235), CE, VDE		
Standards	IEC/EN 60947-2		
Short-circuit trip response	3–5 I_n	5–10 I_n	10–20 I_n
Supplementary Protectors—UL/CSA			
Current range	1–63A	0.5–63A	0.5–40A
Maximum voltage ratings—UL/CSA			
Single-pole	277 Vac 48 Vdc	277 Vac 48 Vdc	277 Vac 48 Vdc
Two-, three-pole	480Y/277 Vac	480Y/277 Vac	480Y/277 Vac
Two poles in series	96 Vdc	96 Vdc	96 Vdc
Thermal tripping characteristics			
Single-pole	< 1 hour @ 1.35 x I_n @ 40°C	< 1 hour @ 1.35 x I_n @ 40°C	< 1 hour @ 1.35 x I_n @ 40°C
Multi-pole	< 1 hour @ 1.45 x I_n @ 40°C	< 1 hour @ 1.45 x I_n @ 40°C	< 1 hour @ 1.45 x I_n @ 40°C
Short-circuit ratings (at max. voltage)			
Single-pole	10 kA (5 kA for 40–63A device)	10 kA (5 kA for 40–63A device)	5 kA
Two-, three-pole	10 kA (5 kA for 40–63A device)	10 kA (5 kA for 40–63A device)	5 kA
Single-pole	10 kA @ 48 Vdc	10 kA @ 48 Vdc	10 kA @ 48 Vdc
Two poles in series	10 kA @ 96 Vdc	10 kA @ 96 Vdc	10 kA @ 96 Vdc
Miniature Circuit Breaker—IEC			
Current range	1–63A	0.5–63A	0.5–63A
Maximum voltage ratings—IEC 60947-2			
Single-pole	230 Vac 60 Vdc	230 Vac 60 Vdc	230 Vac 60 Vdc
Two-, three-pole	230/400 Vac	230/400 Vac	230/400 Vac
Maximum Voltage Ratings—IEC 60898			
Single-pole	240 Vac	240 Vac	240 Vac
Two-, three-pole	240/415 Vac	240/415 Vac	240/415 Vac
Thermal tripping characteristics			
	> 1 hour @ 1.05 x I_n @ 40°C < 1 hour @ 1.3 x I_n @ 40°C	> 1 hour @ 1.05 x I_n @ 40°C < 1 hour @ 1.3 x I_n @ 40°C	> 1 hour @ 1.05 x I_n @ 40°C < 1 hour @ 1.3 x I_n @ 40°C
Interrupt ratings (at max. voltage)			
IEC 60947-2	15 kA	15 kA	15 kA (type D50 and D63: 10kA)
IEC 60898	10 kA	10 kA	10 kA (type D50 and D63: 6kA)
Operational switching capacity	7.5 kA	7.5 kA	7.5 kA (type D50 and D63: 6kA)
Max. back-up fuse [gL/gG]	125A	125A	125A
Rated impulse withstand— U_{imp}	4000 Vac	4000 Vac	4000 Vac
Rated insulation voltage— U_i	440 Vac	440 Vac	440 Vac
Environmental/General			
Selectivity class	3	3	3
Lifespan (operations)	> 10000 (1 operation = ON/OFF)	> 10000 (1 operation = ON/OFF)	> 10000 (1 operation = ON/OFF)
Shock (IEC 68-2-22)	10g–120 ms	10g–120 ms	10g–120 ms
Operating temperature range	-40 to +75°C	-40 to +75°C	-40 to +75°C
Mechanical			
Standard front dimension			
Device height	80 mm	80 mm	80 mm
Terminal protection	Finger and back-of-hand proof	Finger and back-of-hand proof	Finger and back-of-hand proof
Mounting width per pole	17.5 mm	17.5 mm	17.5 mm
Mounting	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail
Degree of protection	IP20	IP20	IP20
Terminals top and bottom	Twin-purpose terminals	Twin-purpose terminals	Twin-purpose terminals
Supply connection	Line or load side	Line or load side	Line or load side
Terminal capacity [mm ²]	1 x 25 / 2 x 10	1 x 25 / 2 x 10	1 x 25 / 2 x 10
Torque	2.4 Nm	2.4 Nm	2.4 Nm
Thickness of busbar material	0.8–2 mm	0.8–2 mm	0.8–2 mm
Mounting position	As required	As required	As required

Technical specifications

	K Curve	S Curve	Z Curve
Electrical			
Approvals	UR (UL 1077), CE	UR (UL 1077), CSA (CSA 22.2 No. 235) for 1-16 A, CE	UR (UL 1077), CE
Standards	IEC/EN 60947-2		
Short-circuit trip response	8–12 I_n	13–17 I_n	2–3 I_n
Supplementary Protectors—UL/CSA			
Current range	0.5–63A	0.5–40A	1–63A
Maximum voltage ratings—UL/CSA			
Single-pole, single-pole + neutral	277 Vac 48 Vdc	277 Vac 48 Vdc	277 Vac 48 Vdc
Two-, three-, four-pole and three-pole + neutral	480Y/277 Vac	480Y/277 Vac	480Y/277 Vac
Two poles in series	96 Vdc	96 Vdc	96 Vdc
Thermal tripping characteristics			
Single-pole	< 1 hour @ 1.35 x I_n @ 40°C	< 1 hour @ 1.35 x I_n @ 40°C	< 1 hour @ 1.35 x I_n @ 40°C
Multi-pole	< 1 hour @ 1.45 x I_n @ 40°C	< 1 hour @ 1.45 x I_n @ 40°C	< 1 hour @ 1.45 x I_n @ 40°C
Short-circuit ratings (at max. voltage)			
Single-pole	5 kA @ 277 Vac	5 kA @ 277 Vac	5 kA @ 277 Vac
Single-pole + neutral	5 kA @ 277 Vac	5 kA @ 277 Vac	5 kA @ 277 Vac
Two-, three-, four-pole	5 kA @ 480Y/277 Vac	5 kA @ 480Y/277 Vac	5 kA @ 480Y/277 Vac
Miniature Circuit Breaker—IEC			
Current range	0.5–63A	0.5–40A	1–63A
Maximum voltage ratings—IEC 60947-2			
Single-pole, single-pole + neutral	240 Vac	240 Vac	240 Vac
Single-pole	60 Vdc	60 Vdc	60 Vdc
Two-, three-, four-pole, three-pole + neutral	240/415 Vac	240/415 Vac	240/415 Vac
Thermal tripping characteristics			
	> 1 hour @ 1.05 x I_n @ 30°C < 1 hour @ 1.3 x I_n @ 30°C	> 1 hour @ 1.05 x I_n @ 30°C < 1 hour @ 1.3 x I_n @ 30°C	> 1 hour @ 1.05 x I_n @ 30°C < 1 hour @ 1.3 x I_n @ 30°C
Interrupt ratings (at max. voltage)			
IEC 60947-2	15 kA	10 kA	10 kA
Operational switching capacity	7.5 kA	7.5 kA	7.5 kA
Max. back-up fuse [gL/gG]	125A	125A	125A
Rated impulse withstand— U_{imp}	4000 Vac	4000 Vac	4000 Vac
Rated insulation voltage— U_i	440 Vac	440 Vac	440 Vac
Environmental/General			
Selectivity class	3	3	3
Lifespan (operations)	> 10000 (1 operation = ON/OFF)	> 10000 (1 operation = ON/OFF)	> 10000 (1 operation = ON/OFF)
Shock (IEC 68-2-22)	10g–120 ms	10g–120 ms	10g–120 ms
Operating temperature range	-40°C to +75°C	-40°C to +75°C	-40°C to +75°C
Mechanical			
Standard front dimension			
Device height	80 mm	80 mm	80 mm
Terminal protection	Finger and back-of-hand proof	Finger and back-of-hand proof	Finger and back-of-hand proof
Mounting width per pole	17.5 mm	17.5 mm	17.5 mm
Mounting	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail	IEC/EN 60715 top-hat rail
Degree of protection	IP20	IP20	IP20
Terminals top and bottom	Twin-purpose terminals	Twin-purpose terminals	Twin-purpose terminals
Supply connection	Line or load side	Line or load side	Line or load side
Terminal capacity [mm ²]	1 x 25 / 2 x 10	1 x 25 / 2 x 10	1 x 25 / 2 x 10
Torque	2.4 Nm	2.4 Nm	2.4 Nm
Thickness of busbar material	0.8–2 mm	0.8–2 mm	0.8–2 mm
Mounting position	As required	As required	As required

Connection diagram

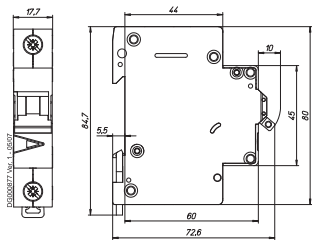


Technical Data

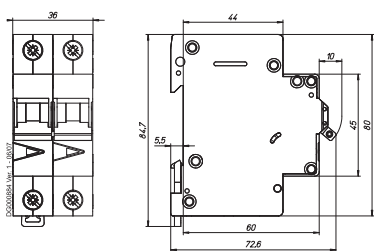
Miniature Circuit Breakers FAZ

Dimensions (mm) FAZ

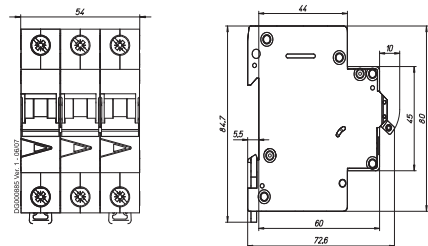
1-pole



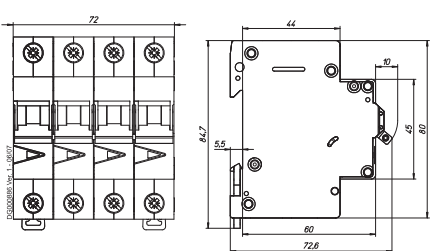
1+N-pole, 2-pole



3-pole

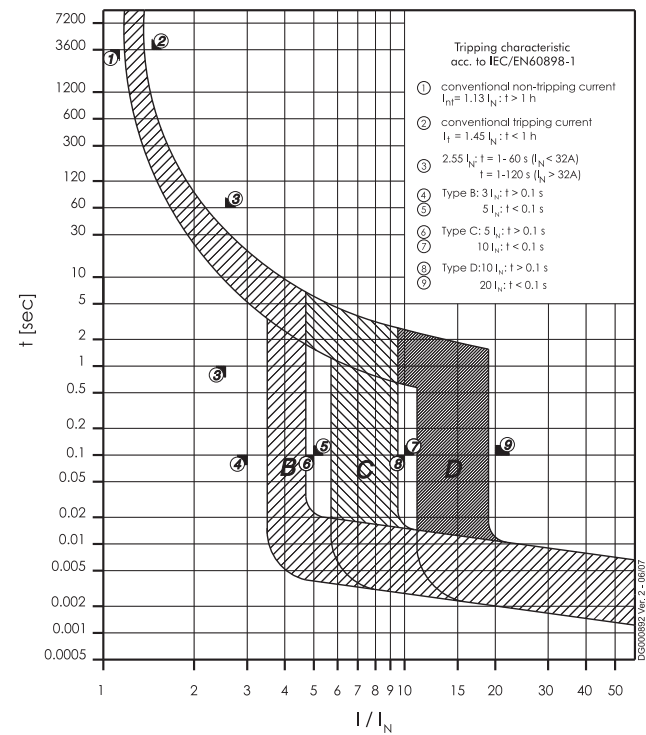


3+N-pole, 4-pole

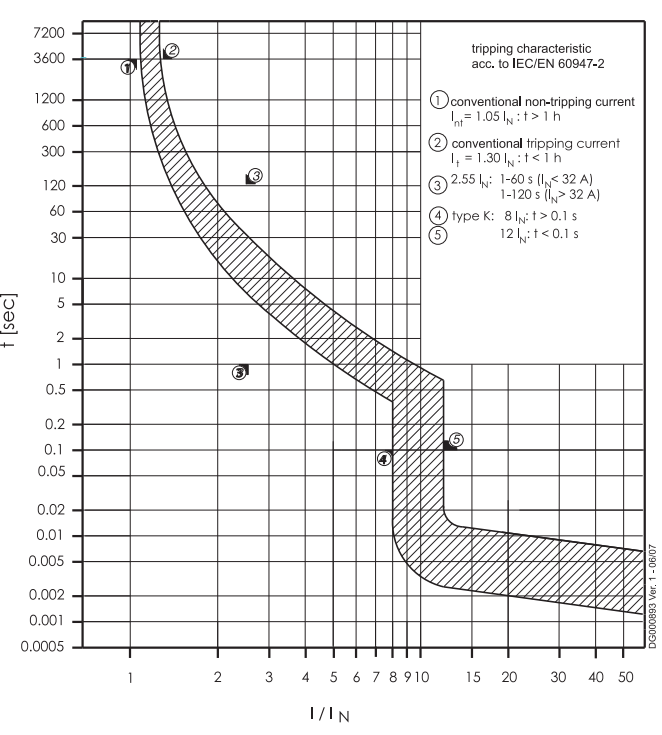


Tripping Characteristic FAZ

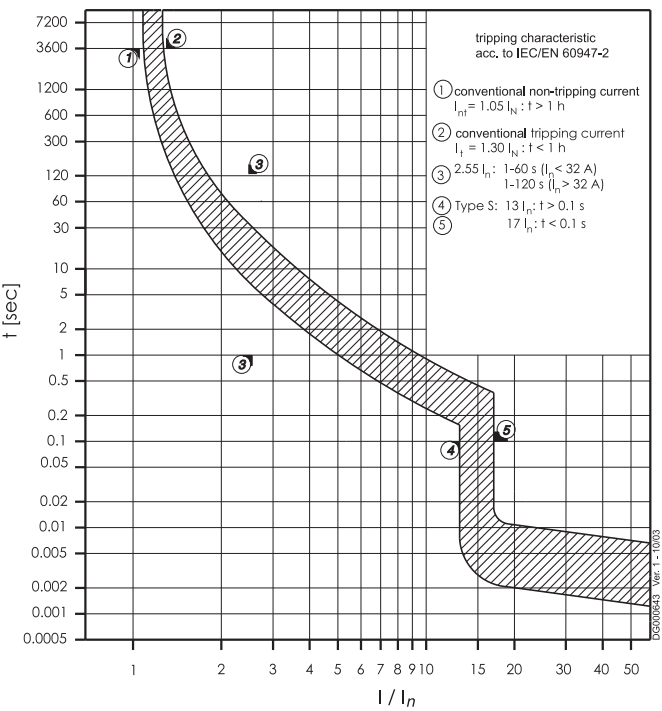
Characteristics B, C and D - IEC/EN60898-1



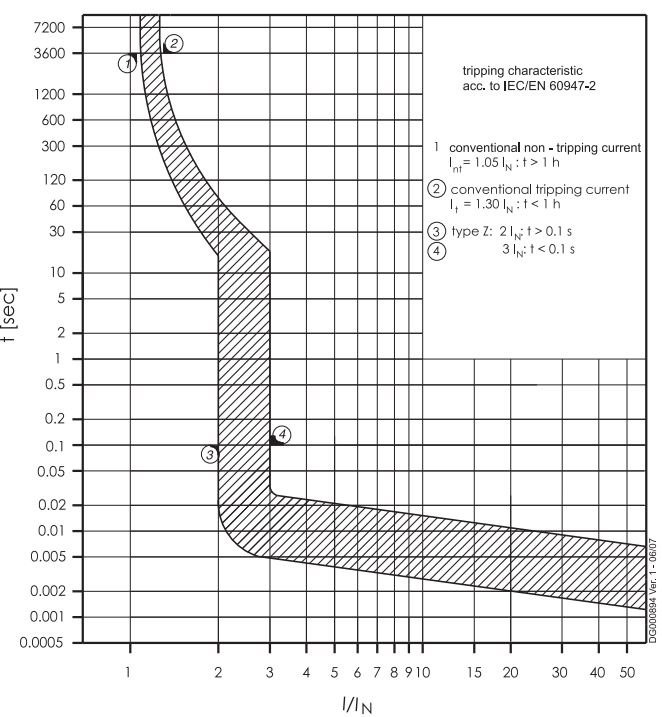
Characteristic K - IEC/EN 60947-2



Characteristic S - IEC/EN 60947-2



Characteristic Z - IEC/EN 60947-2



Technical Data

Miniature Circuit Breakers FAZ

Internal Resistance FAZ

Type B

At room temperature (single pole)

In [A]	Z* [mΩ]	R [mΩ]
1	1120	1102
2	335	333
3	211	208
4	87.7	87.2
6	46.8	46.3
10	17.5	17.4
13	13.4	13.3
16	8.0	7.9
20	7.2	7.1
25	5.0	4.9
32	3.7	3.7
40	2.6	2.5
50	2.1	2.1
63	2.0	2.0

* 50Hz

Type C

At room temperature (single pole)

In [A]	Z* [mΩ]	R [mΩ]
1	1120	1100
2	335	333
3	131	130
4	87.7	87.2
6	39.3	39.1
10	14.1	14.0
13	13.4	13.3
16	8.0	7.9
20	7.2	7.1
25	5.0	4.9
32	3.7	3.7
40	2.6	2.5
50	2.1	2.1
63	2.0	2.0

* 50Hz

Type D

At room temperature (single pole)

In [A]	Z* [mΩ]	R [mΩ]
1	772	770
2	250	249
3	131	130
4	87.7	87.2
6	39.3	39.1
10	14.1	14.0
13	10.1	10.1
16	8.0	7.9
20	4.9	4.9
25	3.9	3.8
32	3.5	3.4
40	2.7	2.6

* 50Hz

Technical Data

Miniature Circuit Breakers FAZ

Power Loss at I_n FAZ

Type B					
I _N [A]	1p	1pN	2p	3p	3pN*
	P [W]	P [W]	P [W]	P [W]	P [W]
1	1.6	1.7	3.1	4.7	4.8
2	1.4	1.5	2.8	4.1	4.3
3	2.5	2.7	5.0	7.6	7.8
4	1.4	1.6	2.9	4.4	4.5
6	1.8	2.0	3.6	5.5	5.6
10	1.9	2.1	3.9	5.9	6.1
13	2.5	2.9	5.3	7.8	8.1
16	2.2	2.6	4.7	6.9	7.2
20	3.2	3.6	6.6	9.8	10.1
25	3.0	3.5	6.4	9.4	9.7
32	3.7	4.4	8.1	12.1	12.5
40	3.4	4.1	7.5	11.2	11.5
50	4.5	5.4	9.9	14.9	15.3
63	5.2	6.3	11.5	17.2	17.7

*symmetrical load

Type C					
I _N [A]	1p	1pN	2p	3p	3pN*
	P [W]	P [W]	P [W]	P [W]	P [W]
1	1.6	1.7	3.1	4.7	4.8
2	1.4	1.5	2.8	4.1	4.3
3	1.2	1.3	2.4	3.6	3.7
4	1.4	1.6	2.9	4.4	4.5
6	1.5	1.6	2.9	4.4	4.6
10	1.5	1.7	3.0	4.6	4.7
13	2.5	2.9	5.3	7.8	8.1
16	2.2	2.6	4.7	6.9	7.2
20	3.2	3.6	6.6	9.8	10.1
25	3.0	3.5	6.4	9.4	9.7
32	3.7	4.4	8.1	12.1	12.5
40	3.4	4.1	7.5	11.2	11.5
50	4.5	5.4	9.9	14.9	15.3
63	5.2	6.3	11.5	17.2	17.7

*symmetrical load

Type D					
I _N [A]	1p	1pN	2p	3p	3pN*
	P [W]	P [W]	P [W]	P [W]	P [W]
1	0.8	0.9	1.6	2.4	2.5
2	1.0	1.1	2.0	3.0	3.1
3	1.2	1.3	2.4	3.6	3.7
4	1.4	1.6	2.9	4.4	4.5
6	1.5	1.6	2.9	4.4	4.6
10	1.5	1.7	3.0	4.6	4.7
13	1.9	2.2	4.0	5.9	6.1
16	2.2	2.6	4.7	6.9	7.2
20	2.0	2.2	4.1	6.1	6.2
25	2.5	2.9	5.2	7.7	7.9
32	3.4	4.0	7.4	11.1	11.4
40	3.2	3.8	7.0	10.4	10.7

*symmetrical load

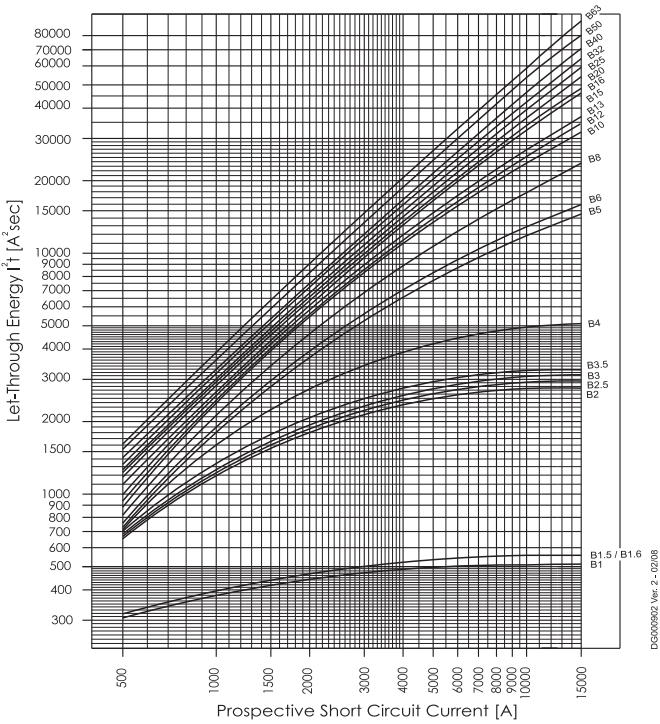
Influence of Ambient Temperature FAZ

On Load Carrying Capacity (temperature derating)

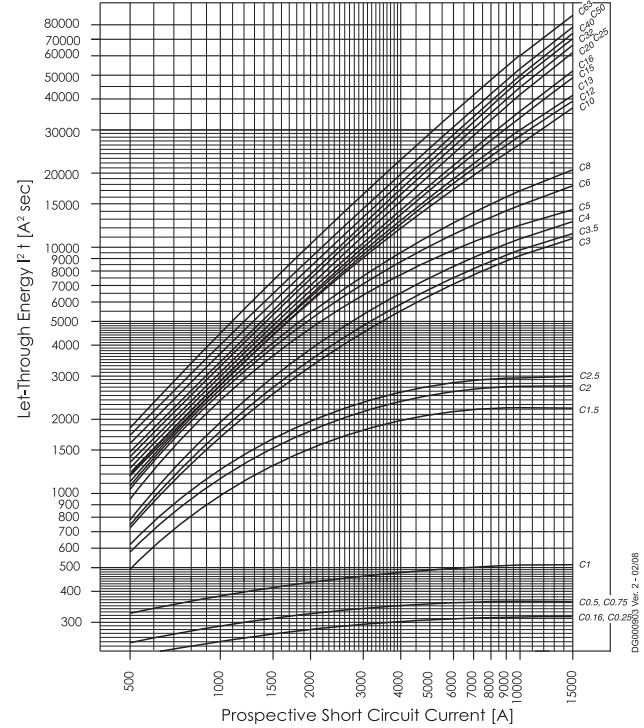
I _N [A]	Ambient temperature T [°C]																
	-40	-30	-20	-10	0	10	20	30	35	40	45	50	55	60	65	70	75
1	1.3	1.2	1.2	1.2	1.1	1.1	1	1	0.99	0.97	0.95	0.93	0.9	0.89	0.87	0.85	0.83
2	2.6	2.5	2.4	2.3	2.2	2.2	2.1	2	2	1.9	1.9	1.9	1.8	1.8	1.7	1.7	1.7
3	3.8	3.7	3.6	3.5	3.4	3.3	3.1	3	3	2.9	2.8	2.8	2.7	2.7	2.6	2.5	2.5
4	5.1	5	4.8	4.7	4.5	4.3	4.2	4	3.9	3.9	3.8	3.7	3.6	3.5	3.5	3.4	3.3
6	7.7	7.5	7.2	7	6.7	6.5	6.3	6	5.9	5.8	5.7	5.6	5.4	5.3	5.2	5.1	5
10	13	12	12	12	11	11	10	10	9.9	9.7	9.5	9.3	9	8.9	8.7	8.5	8.3
13	17	16	16	15	15	14	14	13	13	13	12	12	12	12	11	11	11
16	20	20	19	19	18	17	17	16	16	15	15	15	14	14	14	14	13
20	26	25	24	23	22	22	21	20	20	19	19	19	18	18	17	17	17
25	32	31	30	29	28	27	26	25	25	24	24	23	23	22	22	21	21
32	41	40	38	37	36	35	33	32	32	31	30	30	29	28	28	27	26
40	51	50	48	47	45	43	42	40	39	39	38	37	36	35	35	34	33
50	64	62	60	58	56	54	52	50	49	48	47	46	45	44	43	42	41
63	81	78	76	73	71	68	66	63	62	61	60	58	57	56	55	53	52

Maximum Let-Through Energy FAZ

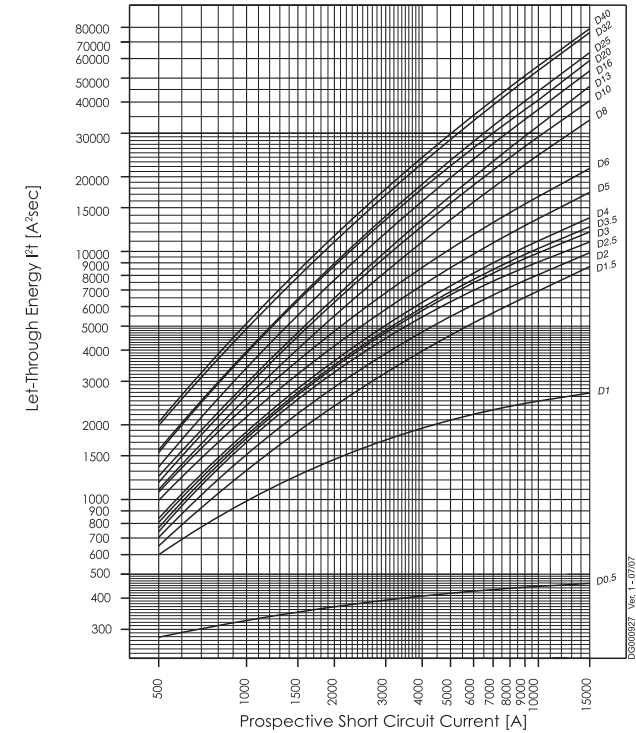
Type B (IEC/EN60947-2)



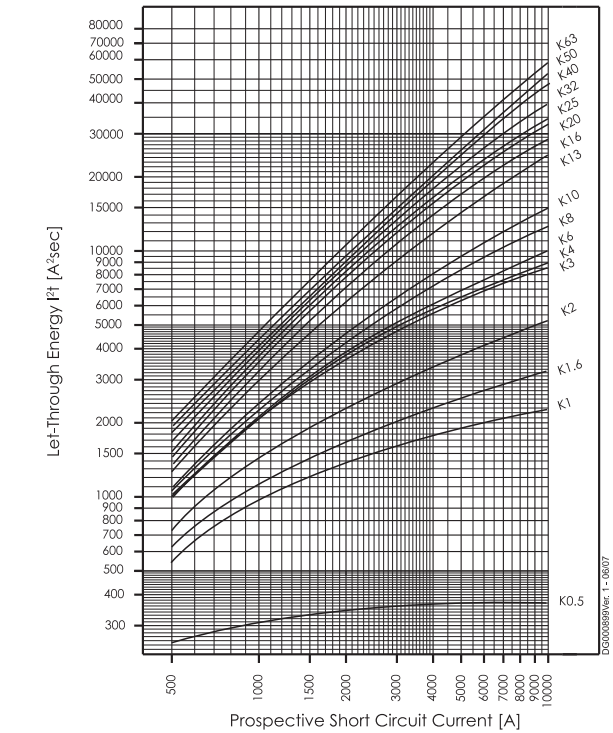
Type C (IEC/EN60947-2)



Type D (IEC/EN60947-2)

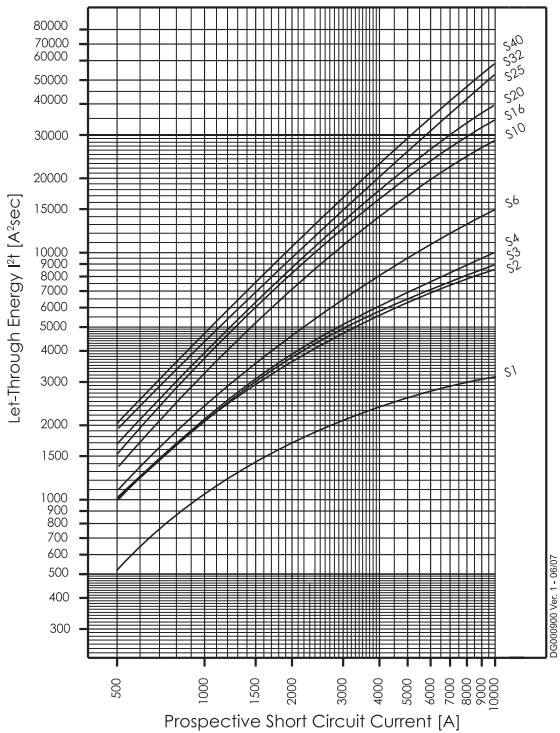


Type K

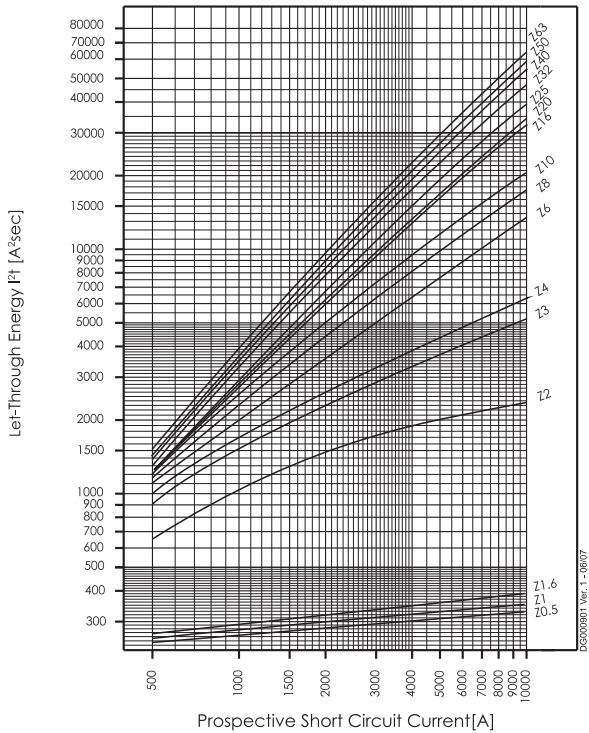


Maximum Let-Through Energy FAZ

Type S

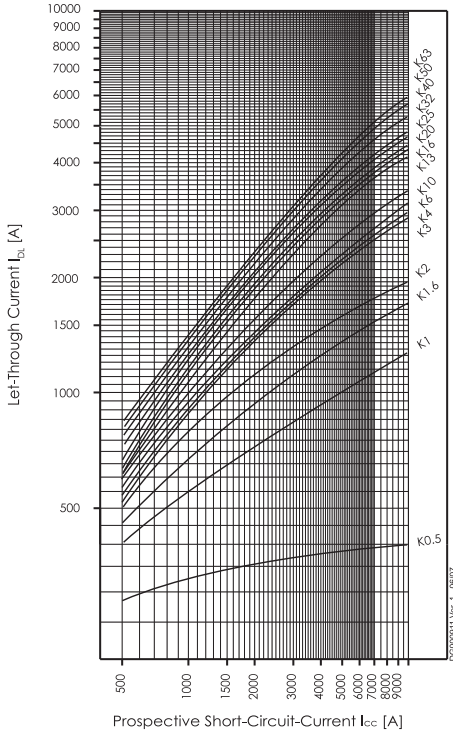


Type Z

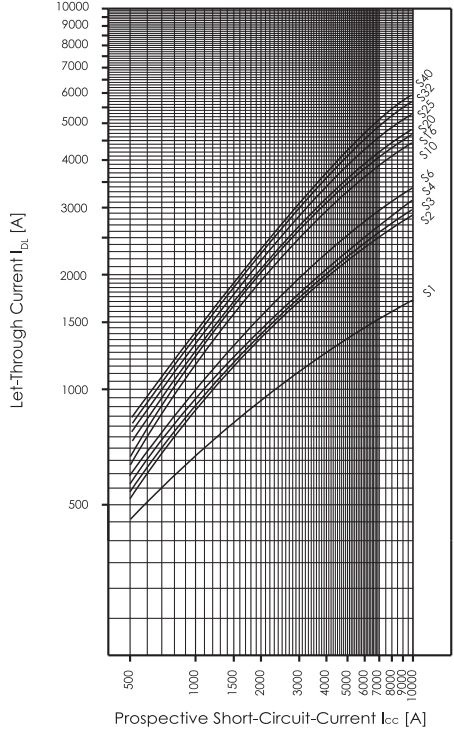


Maximum Let-Through Current FAZ

Type K

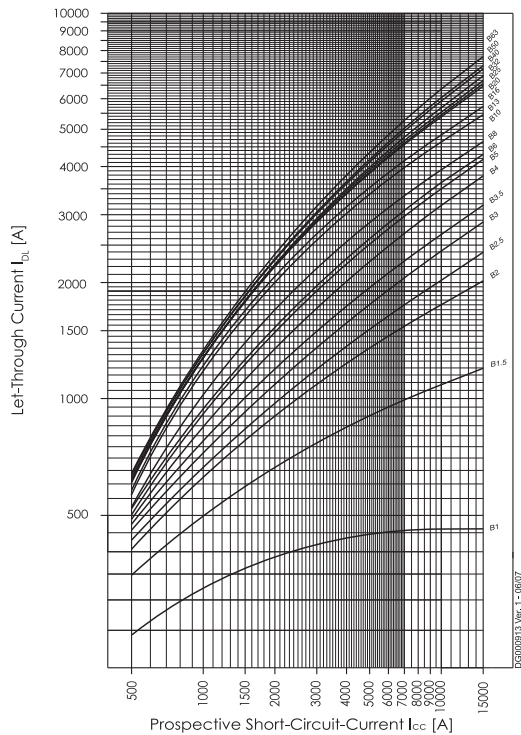


Type S

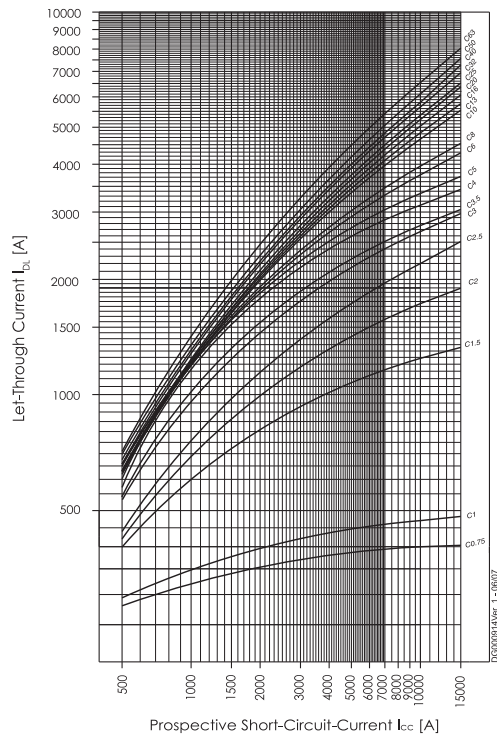


Maximum Let-Through Current FAZ

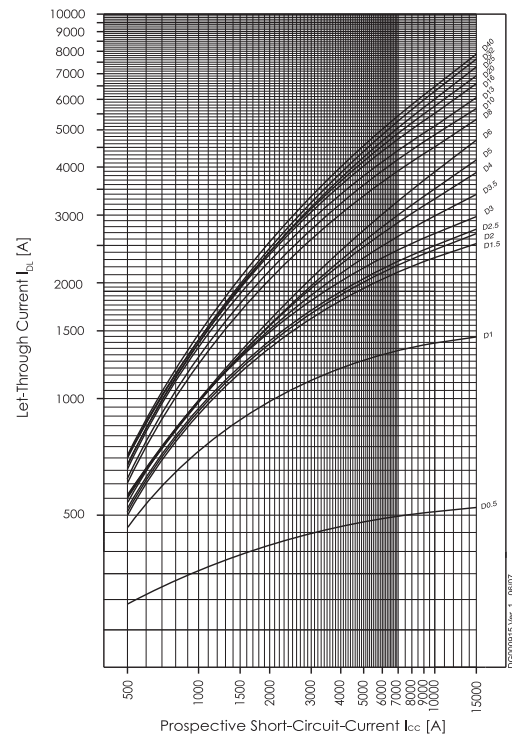
Type B (IEC/EN60947-2)



Type C (IEC/EN60947-2)



Type D (IEC/EN60947-2)



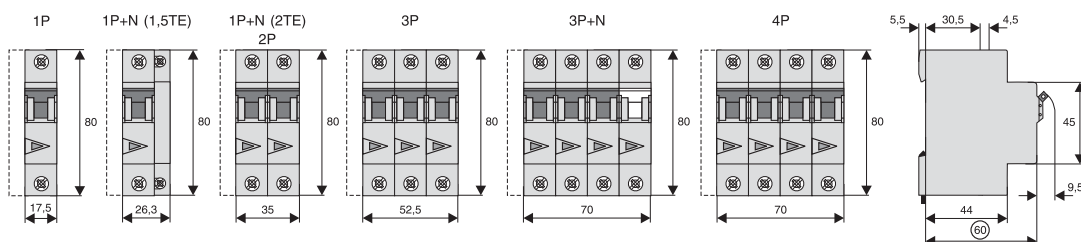
Technical Data

Miniature Circuit Breakers PLS

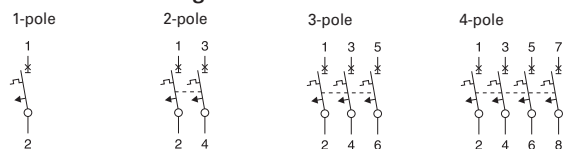
Technical specifications

Electrical		Mechanical	
Design according to	IEC/EN 60898-1	Frame size	45 mm
Current test marks as printed onto the device		Device height	80 mm
Rated voltage	AC: 230/400V DC: 48V (per pole, max. 2 poles)	Device width	17.5 mm per pole (1MU) 26.3 mm: device 1P+N (1.5MU)
Rated frequency	50/60 Hz	Mounting	quick fastening with 3 lock-in positions on DIN rail IEC/EN 60715
Rated breaking capacity according to IEC/EN 60898-1		Degree of protection	IP20
PLSM, PLZM	10 kA	Upper and lower terminals	open mouthed/lift terminals
PLS6, PLZ6	6 kA	Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
PLS4, PLZ4	4.5 kA	Terminal capacity	1-25 mm ² 1-25 mm ² / 1-2x10 mm ² (N)
Characteristic	B, C, D	Terminal fastening torque	2-2.4 Nm 2-2.4 Nm / 1,2-1,5 Nm (N)
Back-up fuse		Busbar thickness	0.8 - 2 mm (except N 0.5 MU)
PLSM	max. 125 A gL	Mounting	independent of position
PLS6	max. 100 A gL		
PLS4	max. 80 A gL		
Selectivity class	3		
Rated peak withstand voltage U _{imp}	4 kV (1.2/50µs)		
Endurance electrical comp.	≥ 4,000 operating cycles		
mechanical comp.	≥ 20,000 operating cycles		
Line voltage connection	optional (above/below)		

Dimensions (mm)



Connection diagrams

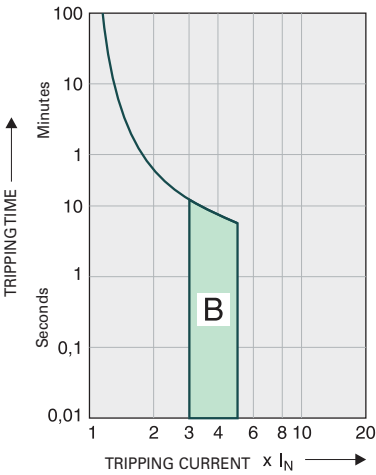


Technical Data

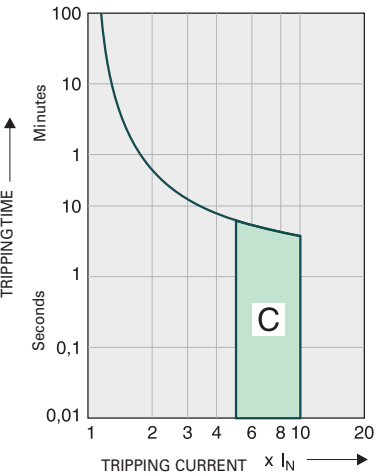
Miniature Circuit Breakers PLS

Tripping Characteristics (IEC/EN 60898-1)

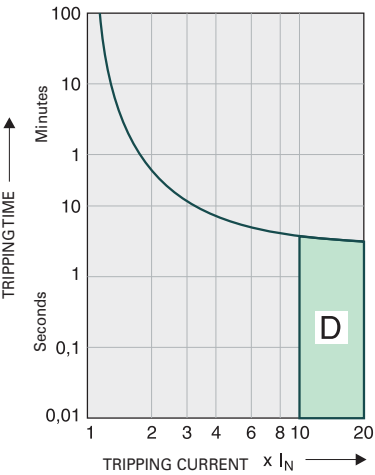
Tripping characteristic B



Tripping characteristic C



Tripping characteristic D



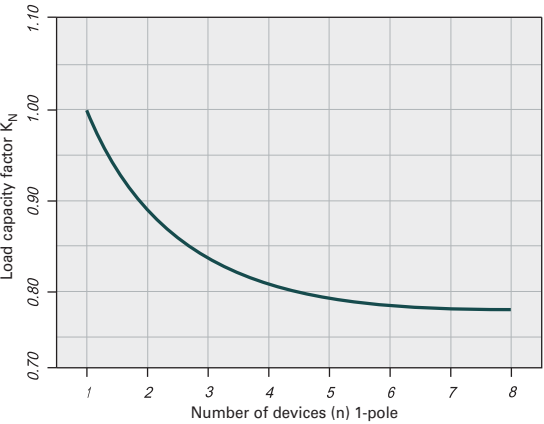
Quick-acting (B), slow (C), very slow (D)

Effect of the Ambient Temperature on Thermal Tripping Behaviour

Adjusted rated current values according to the ambient temperature

I_n [A]	Ambient temperature T [°C]															
	-25	-20	-10	0	10	20	30	35	40	45	50	55	60	65	70	75
1	1.2	1.2	1.2	1.1	1.1	1.0	1.0	0.99	0.97	0.95	0.93	0.90	0.89	0.87	0.85	0.83
2	2.4	2.4	2.3	2.2	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.7	1.7	1.7
3	3.7	3.6	3.5	3.4	3.3	3.1	3.0	3.0	2.9	2.8	2.8	2.7	2.7	2.6	2.5	2.5
4	4.9	4.8	4.7	4.5	4.3	4.2	4.0	3.9	3.9	3.8	3.7	3.6	3.5	3.5	3.4	3.3
6	7.3	7.2	7.0	6.7	6.5	6.3	6.0	5.9	5.8	5.7	5.6	5.4	5.3	5.2	5.1	5.0
10	12	12	12	11	11	10	10	9.9	9.7	9.5	9.3	9.0	8.9	8.7	8.5	8.3
13	16	16	15	15	14	14	13	13	13	12	12	12	12	11	11	11
16	20	19	19	18	17	17	16	16	15	15	15	14	14	14	14	13
20	24	24	23	22	22	21	20	20	19	19	19	18	18	17	17	17
25	31	30	29	28	27	26	25	25	24	24	23	23	22	22	21	21
32	39	38	37	36	35	33	32	32	31	30	30	29	28	28	27	26
40	49	48	47	45	43	42	40	39	39	38	37	36	35	35	34	33
50	61	60	58	56	54	52	50	49	48	47	46	45	44	43	42	41
63	77	76	73	71	68	66	63	62	61	60	58	57	56	55	53	52

Load Capacity of Series Connected Miniature Circuit Breakers



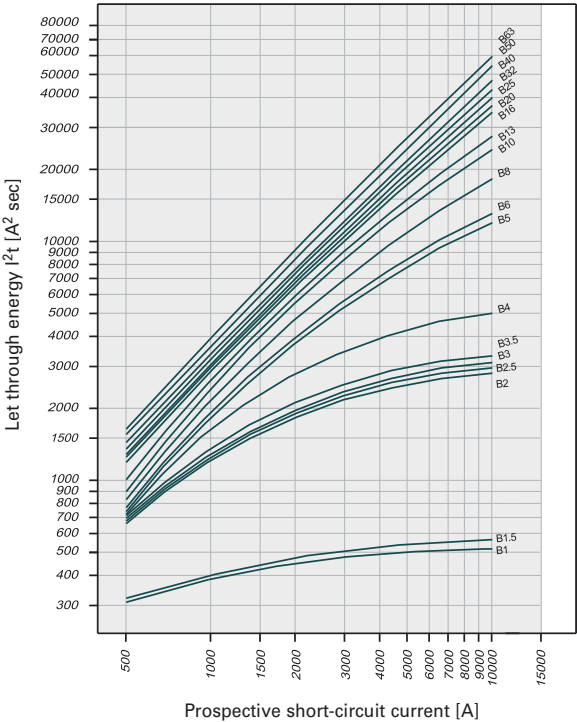
Effect of Power Frequency

Effect of power frequency on the tripping behaviour I_{MA} of the quick release

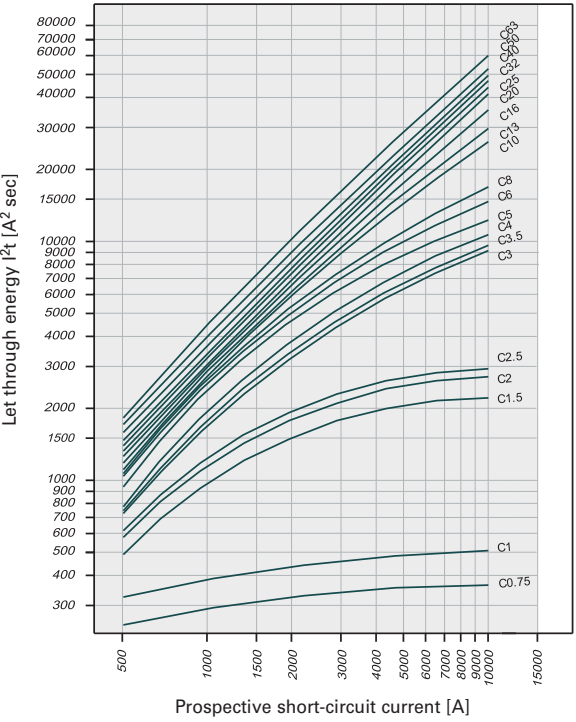
	Power frequency f [Hz]						
	$16\frac{2}{3}$	50	60	100	200	300	400
$I_{MA}(f)/I_{MA}(50\text{Hz})$ [%]	91	100	101	106	115	134	141

Let-through Energy PLSM

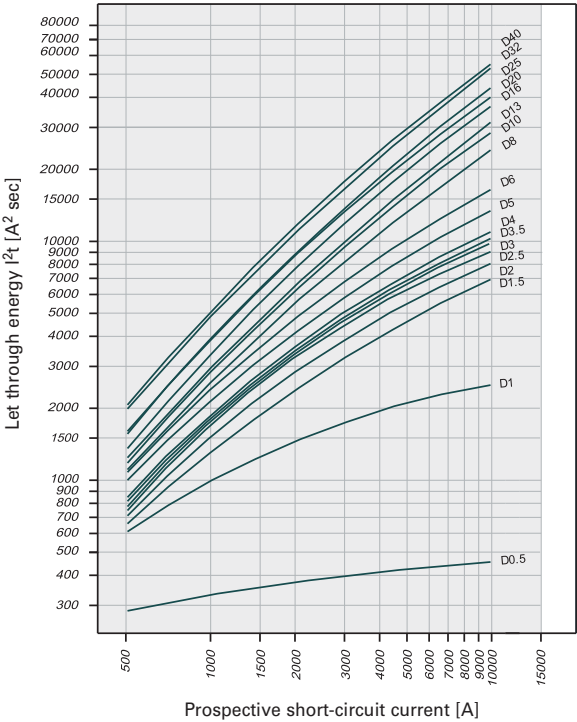
Let-through energy PLSM, characteristic B, 1-pole



Let-through energy PLSM, characteristic C, 1-pole

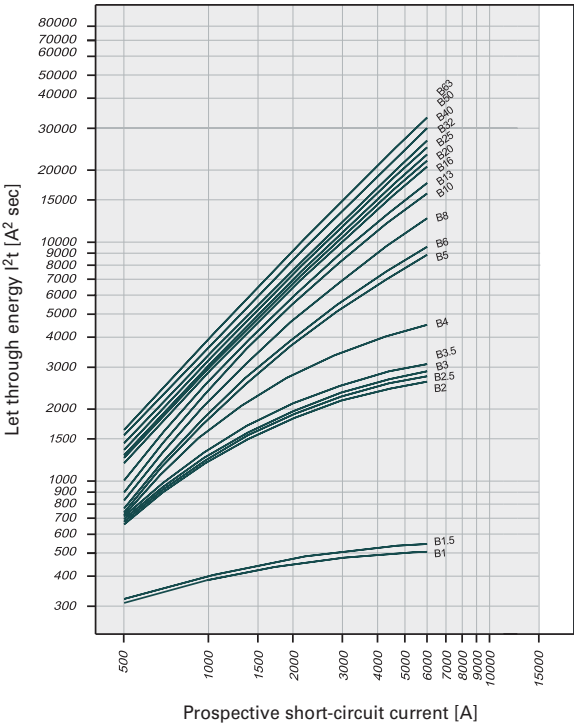


Let-through energy PLSM, characteristic D, 1-pole

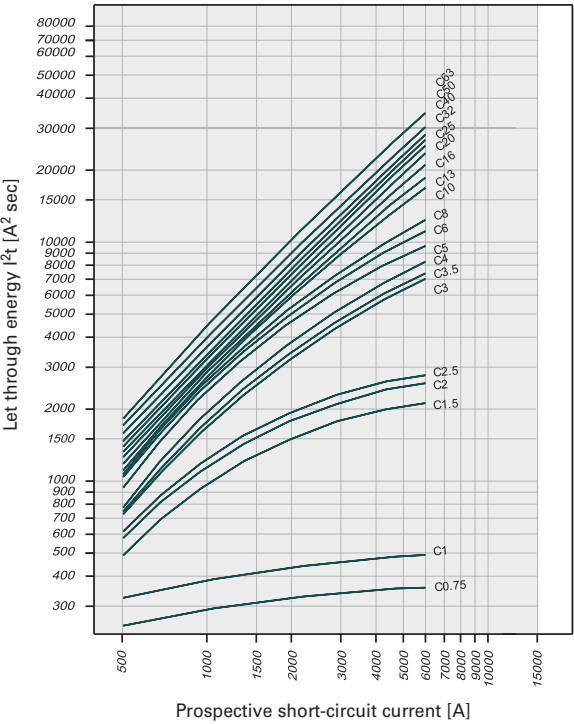


Let-through Energy PLS6

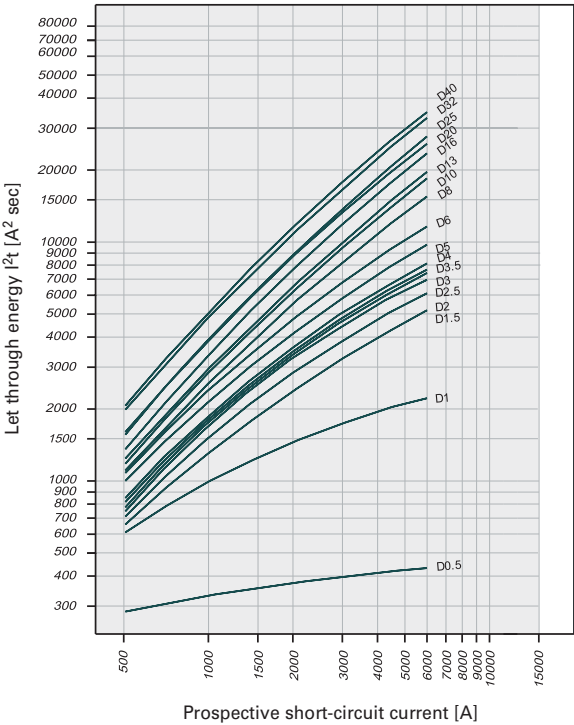
Let-through energy PLS6, characteristic B, 1-pole



Let-through energy PLS6, characteristic C, 1-pole



Let-through energy PLS6, characteristic D, 1-pole



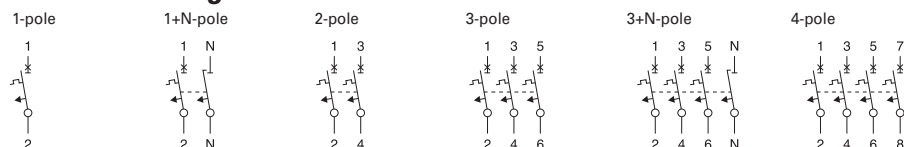
Technical Data

Miniature Circuit Breakers FAZ-T

Technical specifications

		FAZ-T
Productstandard		IEC/EN 60947-2 IEC/EN 60898-1
Number of poles		1, 1p+N, 2, 3, 3p+N, 4
Mechanical specifications		
Device width		17.7 mm (1p), 27 mm (1p+N), 36 mm (2p), 54 mm (3p), 72mm (3p+N), 72 mm (4p)
Frame size		45 mm
Socket size		80 mm
Device depth		60 mm
Terminals		lift terminal
Terminal capacity rigid solid/stranded wire		1-25 mm ²
Terminal screw		M5 (with slotted screw acc. to EN ISO 4757-Z2, PZ2)
Terminal torque		max. 2.4 Nm
Snap on fixing		tristable (on DIN rail acc. to EN 50022)
Finger proof		acc. to VBG4, ÖVE EN-6
Degree of Protection (DIN VDE 0470)		
Surface mounted		IP 20
Built-in behind panel		IP 40
Contact position indicator		red / green
Electrical specifications		
Rated voltage	U_n	240/415Vac 60Vdc per pole
Rated current	I_n	Type B, C, D: 1, 2, 3, 4, 6, 10, 12, 13, 15, 16, 20, 25, 32, 40 A
Rated insulation voltage	U_i	440 V
Rated impulse withstand voltage	U_{imp}	4 kV (1.2/50)µsec
Tripping characteristic		
Conventional non-tripping current		$I_{nt}=1.13 I_n$
Conventional tripping current		$I_t=1.45 I_n$
Reference temperature		30 °C
Temperature factor		0.4% /K
Instantaneous tripping current	I_{mt}	type B: $3 I_n < I_{mt} = 5 I_n$; $t(I_{mt}) < 0.1$ sec type C: $5 I_n < I_{mt} = 10 I_n$; $t(I_{mt}) < 0.1$ sec type D: $10 I_n < I_{mt} = 20 I_n$; $t(I_{mt}) < 0.1$ sec
Rated ultimate short-circuit braking capacity	I_{cu} (IEC/EN 60947-2)	
	type B	1-25 A: 25 kA, 32-40 A: 20 kA
	type C	1-25 A: 25 kA, 32-40 A: 20 kA
	type D	1p/1p+N/2p - 1-13 A: 25 kA, 15-20 A: 20 kA, 25-40 A: 15 kA 3p/3p+N/4p - 1-16 A: 25 kA, 20 A: 20 kA, 25-40 A: 15 kA
Rated service short-circuit braking capacity	I_{cs} (IEC/EN 60947-2)	for $I_{cu} = 25$ kA → $I_{cs} = 12.5$ kA for $I_{cu} = 20$ kA → $I_{cs} = 10$ kA for $I_{cu} = 15$ kA → $I_{cs} = 7.5$ kA
Rated short-circuit braking capacity	I_{cn} (IEC/EN 60898-1)	
	type B	1-25 A: 15 kA, 32-40 A: 10 kA
	type C	1-25 A: 15 kA, 32-40 A: 10 kA
	type D	1-16 A: 15 kA, 20-40 A: 10 kA
Selectivity class		3 (acc. to EN 60898)
Number of electrical operations		> 4000 (IEC/EN 60898)
Number of mechanical operations		> 10000 (IEC/EN 60947)
Climatic conditions		acc. to IEC 68-2 (25..55°C / 90..95% RH)
Operating temperature range		-40°C to +75°C

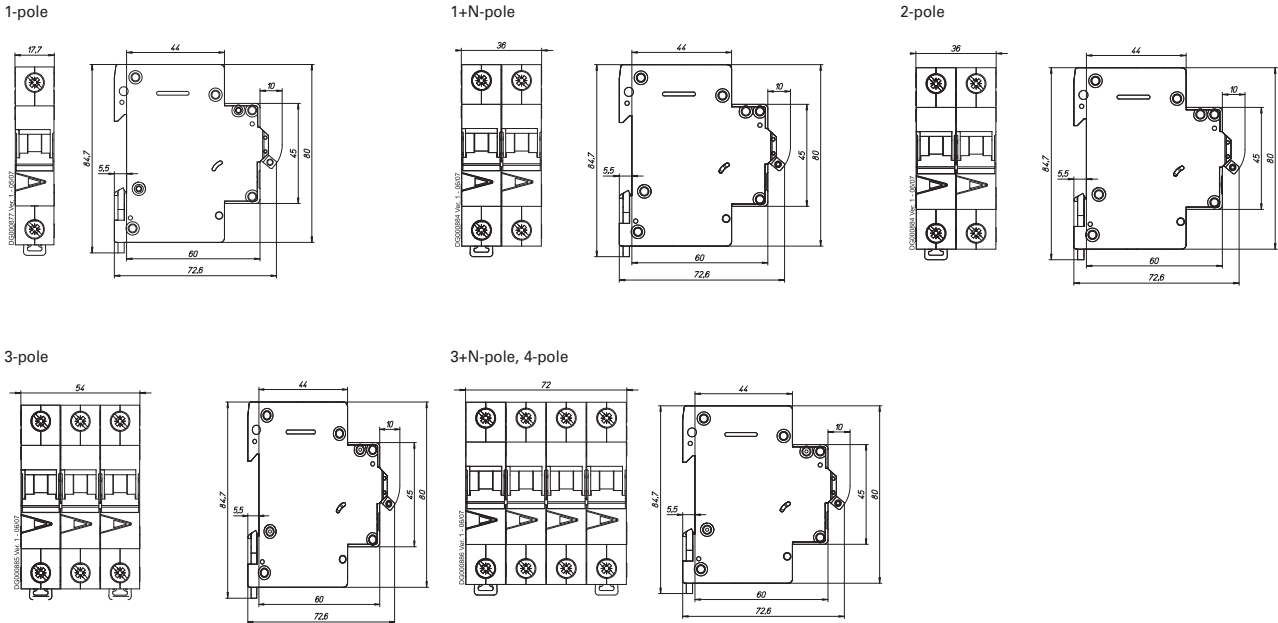
Connection diagram



Technical Data

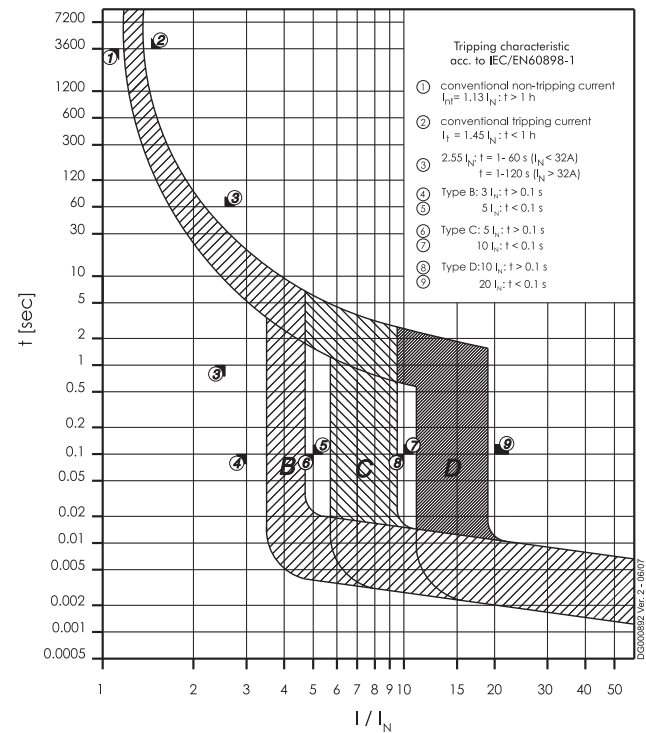
Miniature Circuit Breakers FAZ-T

Dimensions (mm) FAZ-T



Tripping Characteristic FAZ-T

Characteristics B, C and D - EN60898



Technical Data

Miniature Circuit Breakers FAZ-T

Power Loss at I_n FAZ-T

Type B						
	1p	1pN	2p	3p	3pN*	4p
I _n [A]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]
1	1.6	1.7	3.1	4.7	4.8	6.3
2	1.4	1.5	2.8	4.1	4.3	5.5
3	2.5	2.7	5.0	7.6	7.8	10.1
4	1.4	1.6	2.9	4.4	4.5	5.8
6	1.8	2.0	3.6	5.5	5.6	7.3
10	1.9	2.1	3.9	5.9	6.1	7.8
13	2.5	2.9	5.3	7.8	8.1	10.3
16	2.2	2.6	4.7	6.9	7.2	9.1
20	3.2	3.6	6.6	9.8	10.1	13.0
25	3.0	3.5	6.4	9.4	9.7	12.4
32	3.7	4.4	8.1	12.1	12.5	15.8
40	3.4	4.1	7.5	11.2	11.5	14.6

*symmetrical load

Type C						
	1p	1pN	2p	3p	3pN*	4p
I _n [A]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]
1	1.6	1.7	3.1	4.7	4.8	6.3
2	1.4	1.5	2.8	4.1	4.3	5.5
3	1.2	1.3	2.4	3.6	3.7	4.8
4	1.4	1.6	2.9	4.4	4.5	5.8
6	1.5	1.6	2.9	4.4	4.6	5.9
10	1.5	1.7	3.0	4.6	4.7	6.1
13	2.5	2.9	5.3	7.8	8.1	10.3
16	2.2	2.6	4.7	6.9	7.2	9.1
20	3.2	3.6	6.6	9.8	10.1	13.0
25	3.0	3.5	6.4	9.4	9.7	12.4
32	3.7	4.4	8.1	12.1	12.5	15.8
40	3.4	4.1	7.5	11.2	11.5	14.6

*symmetrical load

Type D						
	1p	1pN	2p	3p	3pN*	4p
I _n [A]	P [W]	P [W]	P [W]	P [W]	P [W]	P [W]
1	0.8	0.9	1.6	2.4	2.5	3.2
2	1.0	1.1	2.0	3.0	3.1	4.0
3	1.2	1.3	2.4	3.6	3.7	4.8
4	1.4	1.6	2.9	4.4	4.5	5.8
6	1.5	1.6	2.9	4.4	4.6	5.9
10	1.5	1.7	3.0	4.6	4.7	6.1
13	1.9	2.2	4.0	5.9	6.1	7.8
16	2.2	2.6	4.7	6.9	7.2	9.1
20	2.0	2.2	4.1	6.1	6.2	8.1
25	2.5	2.9	5.2	7.7	7.9	10.2
32	3.4	4.0	7.4	11.1	11.4	14.5
40	3.2	3.8	7.0	10.4	10.7	13.6

*symmetrical load

Influence of Ambient Temperature FAZ-T

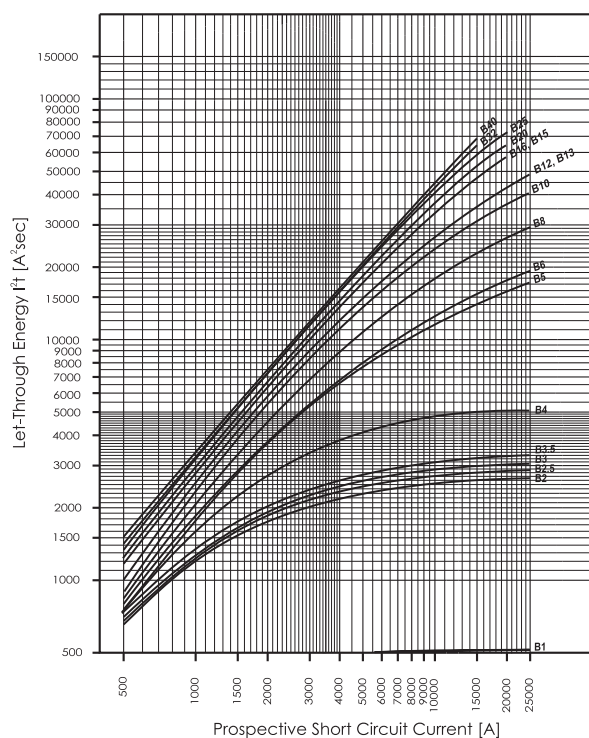
On Load Carrying Capacity (temperature derating)

	Ambient temperature T [°C]																
I _N [A]	-40	-30	-20	-10	0	10	20	30	35	40	45	50	55	60	65	70	75
1	1.3	1.2	1.2	1.2	1.1	1.1	1	1	0.99	0.97	0.95	0.93	0.9	0.89	0.87	0.85	0.83
2	2.6	2.5	2.4	2.3	2.2	2.2	2.1	2	2	1.9	1.9	1.9	1.8	1.8	1.7	1.7	1.7
3	3.8	3.7	3.6	3.5	3.4	3.3	3.1	3	3	2.9	2.8	2.8	2.7	2.7	2.6	2.5	2.5
4	5.1	5	4.8	4.7	4.5	4.3	4.2	4	3.9	3.9	3.8	3.7	3.6	3.5	3.5	3.4	3.3
6	7.7	7.5	7.2	7	6.7	6.5	6.3	6	5.9	5.8	5.7	5.6	5.4	5.3	5.2	5.1	5
10	13	12	12	12	11	11	10	10	9.9	9.7	9.5	9.3	9	8.9	8.7	8.5	8.3
13	17	16	16	15	15	14	14	13	13	13	12	12	12	12	11	11	11
16	20	20	19	19	18	17	17	16	16	15	15	15	14	14	14	14	13
20	26	25	24	23	22	22	21	20	20	19	19	19	18	18	17	17	17
25	32	31	30	29	28	27	26	25	25	24	24	23	23	22	22	21	21
32	41	40	38	37	36	35	33	32	32	31	30	30	29	28	28	27	26
40	51	50	48	47	45	43	42	40	39	39	38	37	36	35	35	34	33

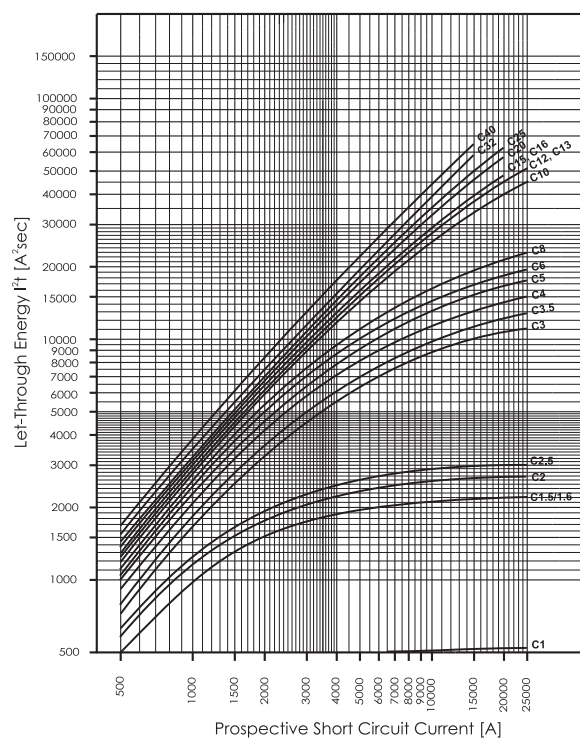
Miniature Circuit Breakers FAZ-T

Maximum Let-Through Energy FAZ-T

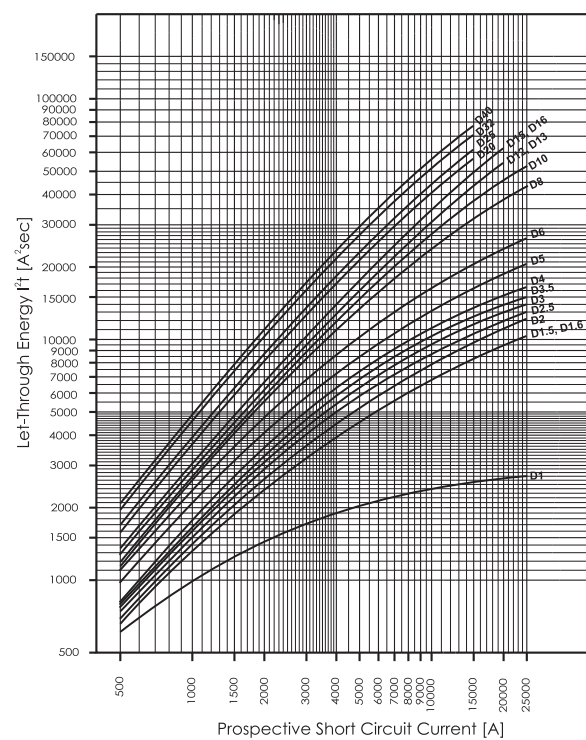
Type B



Type C

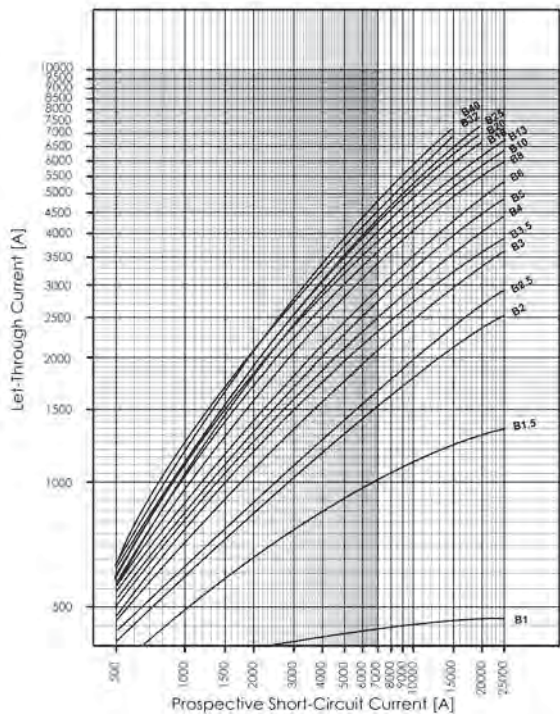


Type D

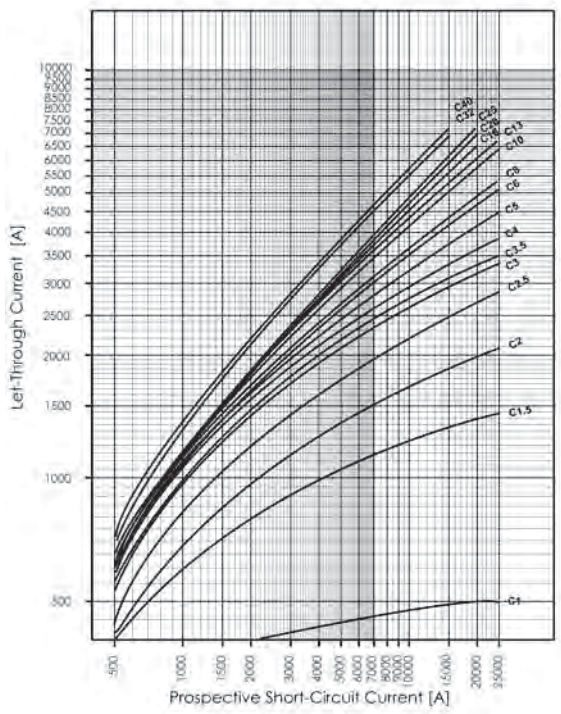


Maximum Let-Through Current FAZ-T

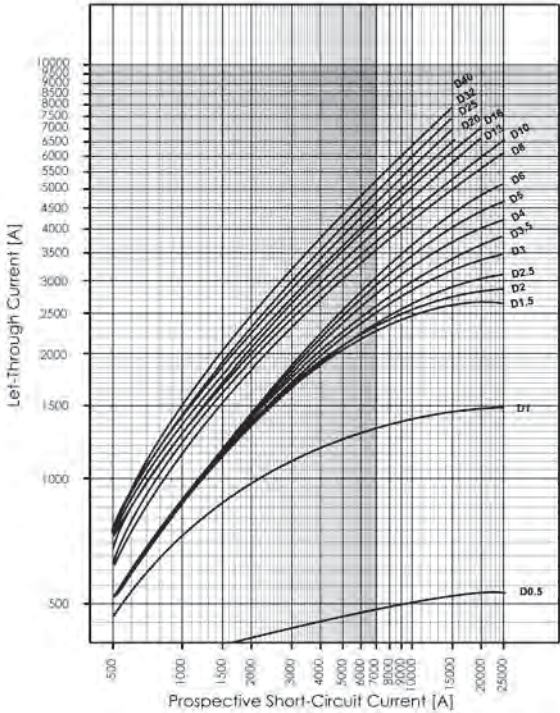
Type B



Type C



Type D



Technical Data

Miniature circuit breaker (MCB) PLHT

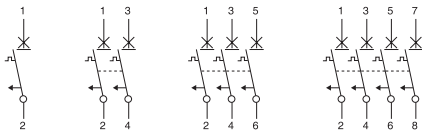
Miniature circuit breaker (MCB) PLHT

- Extremely high breaking capacity and current limiting characteristics
- Isolation function is offered, meets the insulation coordination requirement
- Contact position indicator

Accessory

Auxiliary contact	
Subsequent mounting	ZP-LHK
Shunt trip	
Subsequent mounting	ZP-LHASA/230...
	ZP-LHUSA/24...

Connection diagrams



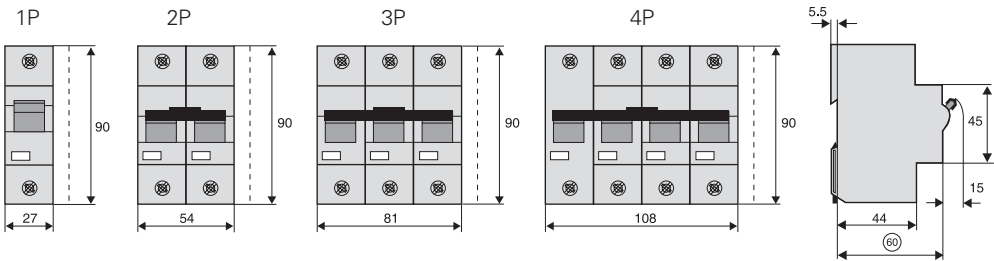
Technical data

Electrical		
Design according to	IEC60947-2, GB14048.2	
Rated voltage U_e		
AC	230 V/ 400C	
DC	60 V (each pole)	
Rated breaking capacity I_{cs}		
Characteristics C	$I_n=63A$	25kA
	$I_n=80-100A$	20kA
	$I_n=125A$	15kA
Characteristics D	$I_n=50-63A$	25kA
	$I_n=80A$	20kA
	$I_n=100A$	15kA
Instantaneous tripping characteristics	C, D	
Allowable backup fuse	Max. 200 A gL	
Rated insulation voltage	440 V	
Impulse withstand voltage U_{imp}	4 kV	
Selective protection level	Level 3	
Electrical comp.	≥ 20000 breaking operating cycles	
Allowable ambient temperature range	$-40^{\circ}C$ to $+70^{\circ}C$	

Mechanical

Mounting	IEC standard DIN rail 35 mm
Housing protection degree	IP20
Terminal type	Lift terminals
Terminal protection	Finger and hand touch safe
Terminal capacity	2.5-50 mm ²

Dimension (mm)



Technical Data

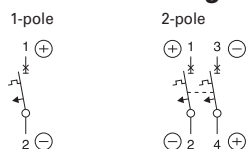
Miniature Circuit Breakers FAZ-DC

Technical specifications

FAZ-DC *)	
Productstandard	IEC/EN 60947-2
Number of poles	1, 2
Mechanical specifications	
Device width	17.7 mm (1p), 36 mm (2p)
Frame size	45 mm
Socket size	80 mm
Device depth	60 mm
Terminals	lift terminal
Terminal capacity rigid solid/stranded wire	1-25 mm ²
Terminal screw	M5 (with slotted screw acc. to EN ISO 4757-Z2, PZ2)
Terminal torque	max. 2.4 Nm
Snap on fixing	tristable (on DIN rail acc. to EN 50022)
Finger proof	acc. to VBG4, ÖVE EN-6
Degree of Protection (DIN VDE 0470)	
Surface mounted	IP 20
Built-in behind panel	IP 40
Contact position indicator	red / green
Electrical specifications	
Rated voltage DC	U_n 2 A type: 220V (per pole) 3-50 A types: 250V (per pole)
Rated current	I_n Type C: 2, 3, 4, 6, 10, 13, 16, 20, 25, 32, 40, 50 A
Rated insulation voltage	U_i 440 V
Rated impulse withstand voltage	U_{imp} 4 kV (1.2/50)µsec
Tripping characteristic	
Conventional non-tripping current	$I_{nt}=1.13 I_n$
Conventional tripping current	$I_t=1.45 I_n$
Reference temperature	30 °C
Temperature factor	0.4% /K
Instantaneous tripping current	I_{mt} type C: $7 I_n < I_{mt} = 15 I_n$; $t(I_{mt}) < 0.1 \text{ sec}$
Rated short-circuit braking capacity	I_{cu} 10 kA
Selectivity class	3
Number of electrical operations	> 4000
Number of mechanical operations	> 20000
Climatic conditions	acc. to IEC 68-2 (25..55°C / 90..95% RH)
Operating temperature range	-40°C to +75°C

*) not for PV string protection!

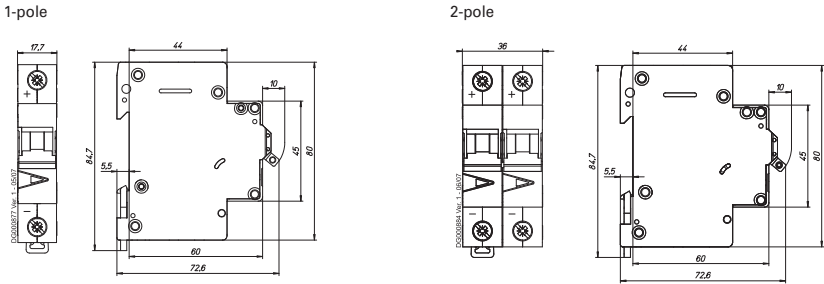
Connection diagram



Technical Data

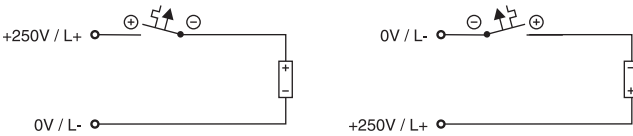
Miniature Circuit Breakers FAZ-DC

Dimensions (mm) FAZ-...-DC

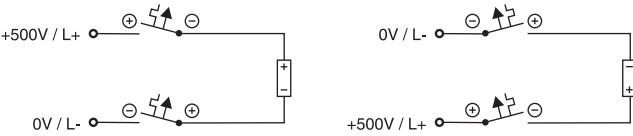


Connection examples FAZ-...-DC

Connection example at 250V=, 1-pole

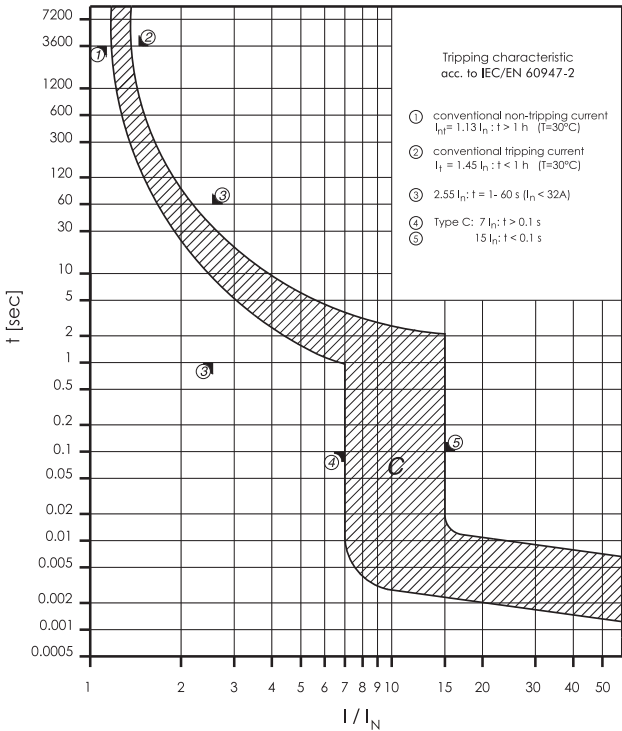


Connection example at 500V=, 2-pole



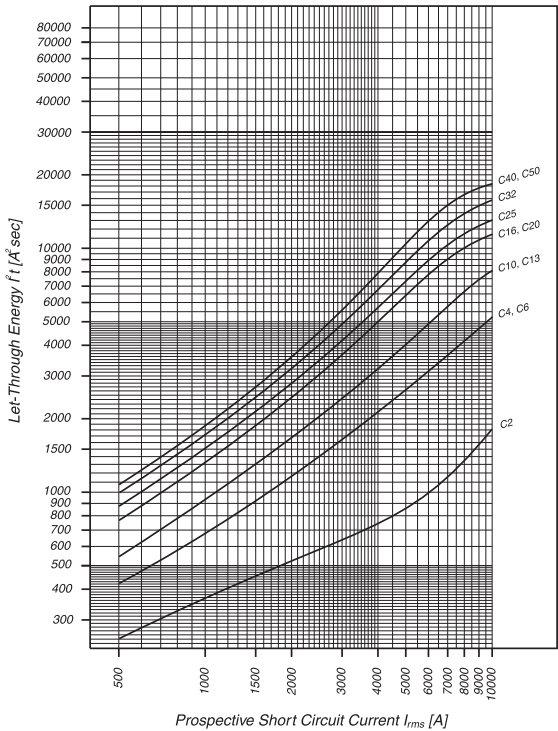
Tripping Characteristic FAZ-...-DC

Characteristics C - IEC/EN 60947-2



Maximum Let-Through Energy FAZ-...-DC

Type C



Technical Data

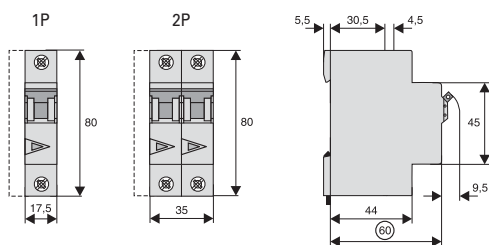
Miniature Circuit Breakers PLS6-DC

Technical specifications

Electrical		Mechanical	
Design according to	IEC/EN 60898	Frame size	45 mm
Current test marks as printed onto the device		Device height	80 mm
Rated voltage		Device width	17.5 mm per pole (1MU)
DC	1-2 A type: 220V (per pole) 3-50 A types: 250V (per pole)	Mounting	quick fastening with 3 lock-in positions on DIN rail IEC/EN 60715
Rated breaking capacity according to IEC/EN 60947-2	6 kA	Degree of protection	IP20
Characteristic	C	Upper and lower terminals	open mouthed/lift terminals
Back-up fuse	max. 100 A gL	Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Selectivity class	3	Terminal capacity	1-25 mm ²
Rated peak withstand voltage U_{imp}	4 kV (1.2/50µs)	Terminal fastening torque	2-2.4 Nm
Endurance electrical comp.	≥ 4,000 operating cycles	Busbar thickness	0.8 - 2 mm
mechanical comp.	≥ 20,000 operating cycles	Mounting	independent of position
Line voltage connection	optional (above/below)		

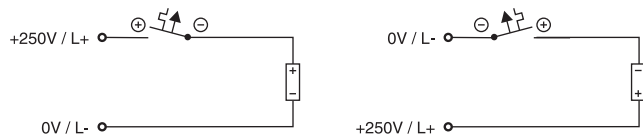
Note: not for PV string protection!

Dimensions (mm)

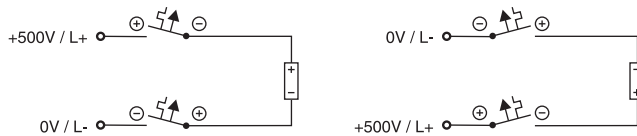


Connection examples

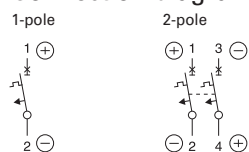
Connection example at 250V=, 1-pole



Connection example at 500V=, 2-pole



Connection diagrams

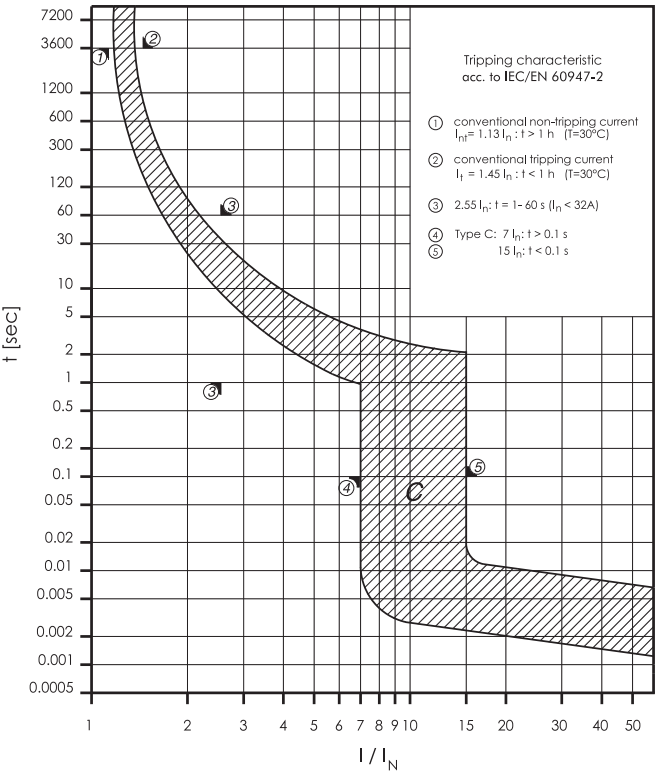


Technical Data

Miniature Circuit Breakers PLS6-DC

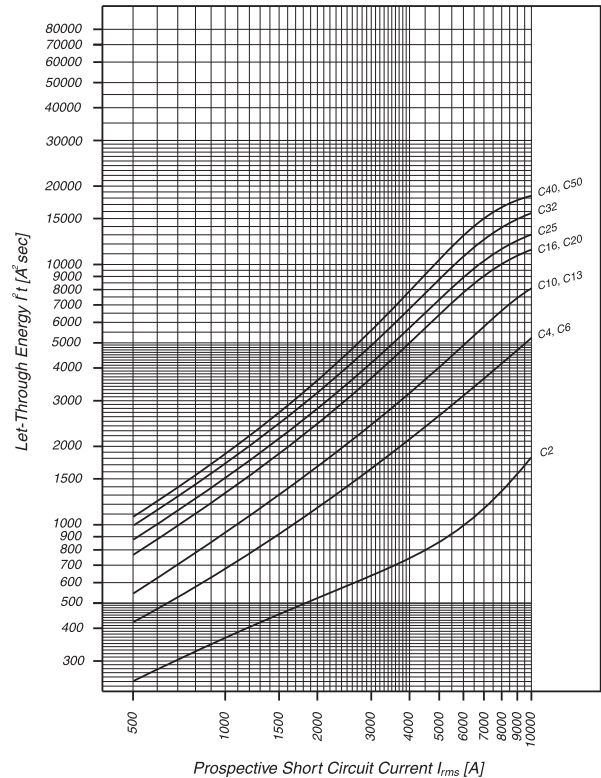
Tripping characteristic PLS6-DC

Type C



Let-through Energy PLS6-DC

Type C, 250 V d.c., $\tau = 5\text{ ms}$ (acc. to IEC/EN 60947-2)



Technical Data

Main Load Disconnecter Switch (Isolator) IS

Technical specifications

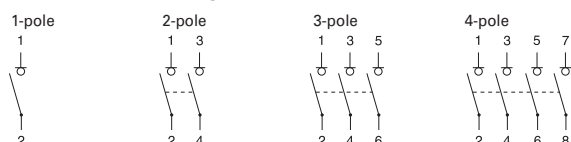
Description

- Load circuit breaker with isolating function
- Design according to IEC/EN 60947-3
- Highly wear resistant contacts
- Quick make, black toggle
- Terminal capacity 50 mm²
- Compatible busbars with switchgear series Xpole by use of the mouth terminal in combination with standard fork busbar

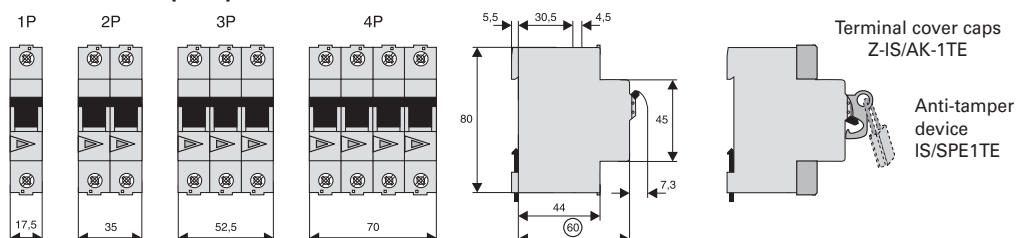
Technical Data

	IS-16	IS-20	IS-25	IS-32	IS-40	IS-63	IS-80	IS-100	IS-125
Electrical									
Design	according to IEC/EN 60947-3								
Rated voltage	240/415 V								
Frequency	50/60 Hz								
Rated insulation voltage	U _i	690 V~							
Rated peak withstand voltage	U _{imp}	6 kV							
Pollution degree	3								
Rated short-time withstand current	I _{cw}	2 kA							
Rated short-circuit making capacity	I _{cm}	2.8 kA							
Rated current									
240/415V, AC23A	16 A	20 A	25 A	32 A	40 A	63 A	80 A	100 A	125 A
Number of poles	1-, 2-, 3-, 4-pole								
Maximum back-up fuse	125 A gG								
Short circuit strength - with back-up fuse acc. to the applicable rules									
IEC/EN 60947-3	12.5 kA	12.5 kA	12.5 kA	12.5 kA	12.5 kA	12.5 kA	12.5 kA	10 kA	10 kA
Endurance									
electrical components operation cycles	≥ 3.000	≥ 3.000	≥ 3.000	≥ 3.000	≥ 3.000	≥ 3.000	≥ 3.000	≥ 3.000	≥ 2.000
mechanical components operation cycles	≥ 16.000	≥ 16.000	≥ 16.000	≥ 16.000	≥ 16.000	≥ 16.000	≥ 16.000	≥ 16.000	≥ 14.000
Mechanical									
Frame size	45 mm								
Device height	80 mm								
Device width	17.5mm/pole								
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715								
Degree of protection, built-in	IP40								
Terminal protection	finger and hand touch safe according to BGV A3								
Terminals	open mouthed/lift terminals								
Terminal capacity	2.5 - 50 mm ²								
Busbar thickness	0.8 - 2 mm								
Fastening torque of terminal screws	2.5 - 5 Nm								
Function	irrespective of the position of installation								

Connection diagram



Dimensions (mm)



Technical Data

Residual Current Devices - General Data

Short description of the most important RCD types:

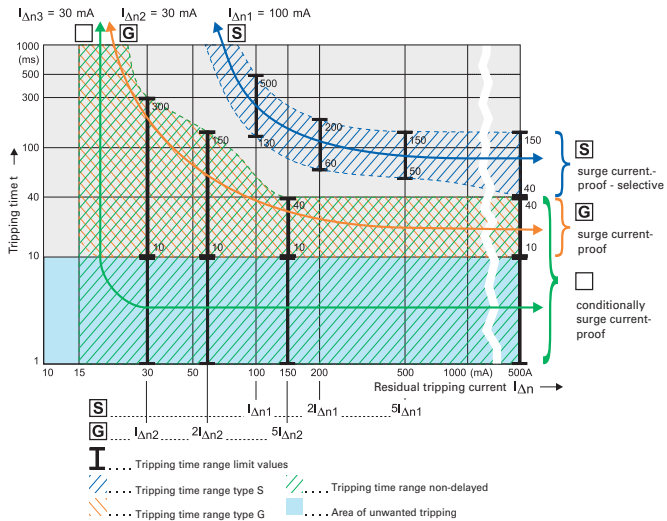
Symbol	Description
	Eaton/Moeller standard. Suitable for outdoor installation (distribution boxes for outdoor installation and building sites) up to -25° C.
	Conditionally surge-current proof (>250 A, 8/20 µs) for general application.
	RCD sensitive to pulsating DC for application where residual pulsating DC may occur. Non-selective, instantaneous. Protects only against special forms of residual pulsating DC which have not been smoothed.
	Type B: All-current sensitive RCD switchgear for applications where DC fault currents may occur. Non-selective, non-delayed. Protection against all kinds of fault currents.
	Type B+: All-current sensitive RCD switchgear for applications where DC fault currents may occur. Non-selective, non-delayed. Protection against all kinds of fault currents. Also meets the requirements of the VDE 0664-400 standard (formerly known as VDE V 0664-110) and therefore provides enhanced fire safety.
	RCD of type G (min 10 ms time delay) surge current-proof up to 3 kA. For system components where protection against unwanted tripping is compulsory to avoid personal injury and damage to property (§ 12.1.6 of ÖVE/ÖNORM E 8001-1). Also for systems involving long lines and high line capacity. Some versions are sensitive to pulsating DC. Some versions are available in all-current sensitive design.
	RCD of type S (selective, min 40 ms time delay) surge current-proof up to 5 kA. Mainly used as main switch according to ÖVE/ÖNORM E 8001-1 § 12.1.5, as well as in combination with surge arresters. This is the only RCD suitable for series connection with other types if the rated tripping current of the downstream RCD does not exceed one third of the rated tripping current of the device of type S. Some versions are sensitive to pulsating DC. Some versions are available in all-current sensitive design.
"röntgenfest"	"X-ray-proof", for avoiding unwanted tripping caused by x-ray devices.
"umrichterfest"	"Frequency converter-proof", for avoiding unwanted tripping caused by frequency converters, speed-controlled drives, etc.
max. 63A gG/gL ÜL/OL+KS/SC	Integrated overload protection. Calculating and rating of the back-up temperature fuse to avoid overload on the RCD is not required. Overload fuse = short circuit back-up fuse.
SERVICE T	Press service key when putting the device into operation, and subsequently approximately once per year. Pressing the key once per month is not required any more and can be omitted unless shorter testing intervals are required under any applicable regulations (e.g. on building sites).

Technical Data

Residual Current Devices - General Data

Tripping Characteristics (IEC/EN 61008)

Tripping characteristics, tripping time range and selectivity of instantaneous, surge current-proof "G" and surge current-proof - selective "S" residual current devices.



§ 6.1.1 of ÖVE/ÖNORM E 8001-1/A1 deals with **additional protection** and provides essentially the following:

In circuits with **sockets up to 16 A** with fault current/residual current protection by protective earthing, protective multiple earthing or residual current devices (RCDs), additional residual current protection devices with a rated tripping current of **0.03 A** must be installed. **This means when using RCDs for fault current/residual current protection two RCDs must be connected in series.**

Testing:

RCDs with tripping time delay (Types -G and -S) may be function tested with conventional testing equipment which must be set according to the instructions for operation of the testing device. Due to reasons inherent in the measuring process, the tripping time determined in this way may be longer than expected in accordance with the specifications of the manufacturer of the measuring instrument.

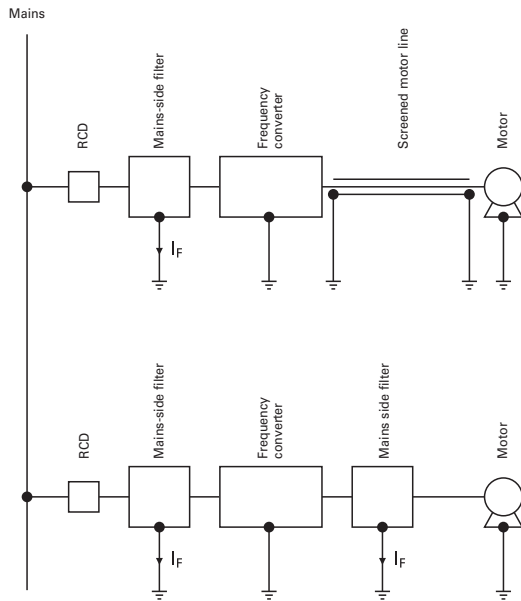
However, the device is ok if the result of measurement is within the time range specified by the manufacturer of the measuring instrument.

Technical Data

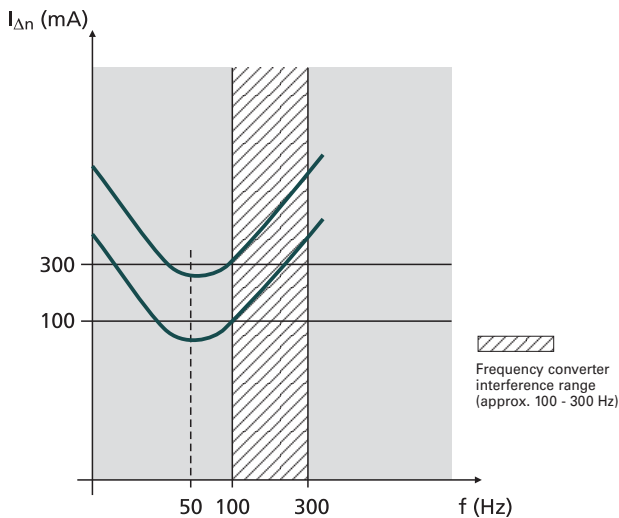
Residual Current Devices - General Data

Hints for the application of our frequency converter-proof RCDs:

Due to the currents flowing off through the filters (designated I_F), the sum of currents through the RCD is not exactly zero, which causes unwanted tripping.



Tripping characteristic



Frequency converters are used in a wide variety of systems and equipment requiring variable speed, such as lifts, escalators, conveyor belts, and large washing machines. Using them for such purposes in circuits with conventional residual current devices causes frequent problems with unwanted tripping.

The technical root cause of this phenomenon is the following: Fast switching operations involving high voltages cause high interference levels which propagate through the lines on the one hand, and in the form of interfering radiation on the other. In order to eliminate this problem, a mains-side filter (also referred to as input filter or EMC-filter) is connected between the RCD and frequency converter. The anti-interference capacitors in the filters produce discharge currents against earth which may cause unwanted tripping of the RCD due to the apparent residual currents. Connecting a filter on the output side between frequency converter and 3-phase AC motor results in the same behaviour.

This sample tripping characteristic of a 100 mA RCD and a 300 mA RCD shows the following: In the frequency range around 50 Hz, the RCDs trip as required (50 - 100 % of the indicated $I_{\Delta n}$). In the range shown hatched in the diagram, i. e. from approx. 100 to 300 Hz, unwanted tripping occurs frequently due to the use of frequency converters. Frequency converter-proof residual current devices are much less sensitive in this frequency range than in the 50 - 60 Hz range, which leads to an enormous increase in the reliability of systems.

Therefore, we recommend to use frequency converter-proof RCDs!

These special residual current devices can be recognised by an extension of the type designation ("U"). They meet the requirements of compatibility between RCDs and frequency converters with respect to unwanted tripping.

These are **NOT AC/DC-sensitive** RCDs of type B !!!

Our RCDs of type "U" are characterised by **SENSITIVITY TO RESIDUAL PULSATING DC** and **SELECTIVITY** or **SHORT-TIME DELAY** .

Protective Measures

The following rules for the application of RCDs of type "U" are only applicable in those cases where an RCD of type "B" is not explicitly demanded in the instructions of the manufacturer of the frequency converter.

How can you make sure that the required protective measures are in place when using RCDs type "U" and frequency converters in one system?

In Austria, the ÖVE Decision EN 219 is applicable.

In Germany, VDE 0100 is applicable, in Switzerland SEV 1000.

Under this standard

In case of application in any **other country** than those mentioned take into account national rules and recommendations.

- frequency converters must be equipped with current limiting devices in order to ensure disconnection in cause of faults or overload, and
- the installer of a system is obliged to make sure that additional equipotential bonding is provided (additional inclusion of all metal components, such as frequency converters, mains filters, motor filters, etc. into the existing equipotential bonding), in order to ensure that the permissible touch voltage of 50 V AC or 120 V DC is not exceeded. (In ÖVE/ÖNORM E 8001-1 the term "touch voltage" has been omitted. There is only a fault voltage limit of 65 V AC or 120 V DC which must not be exceeded).

Technical Data

Residual Current Devices - General Data

Residual Current Devices PFIM

- Residual current devices
- Shape compatible with and suitable for standard busbar connection to other devices of the P-series
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Free terminal space despite installed busbar
- Universal tripping signal switch, also suitable for PLS., PKN., Z-A. can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Contact position indicator red - green
- Delayed types suitable for being used with standard fluorescent tubes with or without electronical ballast (30mA-RCD: 30 units per phase conductor, 100mA-RCD: 90 units per phase conductor)
Notes: Depending of the fluorescent lamp ballast manufacturer partly more possible. Symmetrical allocation of the fluorescent lamp ballasts on all phases favourably. Shifting references of the fluorescent lamp ballast manufacturer consider.
- The device functions irrespective of the position of installation
- Tripping is line voltage-independent. Consequently, the RCD is suitable for "fault current/residual current protection" and "additional protection" within the meaning of the applicable installation rules
- Mains connection at either side
- The 4-pole device can also be used for 3-pole connection.
For this purpose use terminals 1-2, 3-4, and 5-6 (+ cable link).
- The 4-pole device can also be used for 2-pole connection.
For this purpose use terminals 5-6 and N-N.
- The test key "T" must be pressed every month. The system operator must be informed of this obligation and his responsibility in a way that can be proven (self-adhesive RCD-label enclosed)
- Pressing the test key "T" serves the only purpose of function testing the residual current device (RCD). This test does not make earthing resistance measurement (R_E), or proper checking of the earth conductor condition redundant, which must be performed separately.
- Type -A:** Protects against special forms of residual pulsating DC which have not been smoothed
- Type -G:** High reliability against unwanted tripping. Compulsory for any circuit where personal injury or damage to property may occur in case of unwanted tripping (ÖVE/ÖNORM E 8001-1 § 12.1.6).

Technical Data

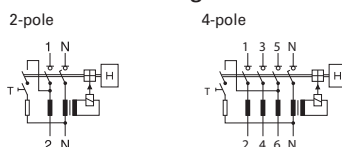
Electrical	
Design according to	IEC/EN 61008 Type G acc. to ÖVE E 8601
Current test marks as printed onto the device	
Tripping	instantaneous
Type G, R	10 ms delay
Type S	40 ms delay - with selective disconnecting function
Type U (only 30 mA)	10 ms delay
Type U (without 30 mA)	40 ms delay - with selective disconnecting function
Rated voltage U_n	230/400 V, 50 Hz
Rated tripping current $I_{\Delta n}$	10, 30, 100, 300, 500 mA
Sensitivity	AC and pulsating DC
Rated insulation voltage U_i	440 V
Rated impulse withstand voltage U_{imp}	4 kV
Rated short circuit strength I_{nc}	10 kA
Maximum back-up fuse	Short circuit
$I_n = 16-63$ A	63 A gG/gL
$I_n = 80$ A	80 A gG/gL
$I_n = 100$ A	100 A gG/gL
Type PFIM-X:	
$I_n = 40$ A	63 A gG/gL
$I_n = 63$ A	63 A gG/gL
Rated breaking capacity I_m or Rated fault breaking capacity $I_{\Delta m}$	
$I_n = 16-40$ A	500 A
$I_n = 63$ A	630 A
$I_n = 80$ A	800 A
$I_n = 100$ A	1,000 A
Voltage range of test button	2-pole 184 - 250 V~ 4-pole 184 - 440 V~
Endurance	
electrical comp.	≥ 4,000 operating cycles
mechanical comp.	≥ 20,000 operating cycles

- Type -G/A:** Additionally protects against special forms of residual pulsating DC which have not been smoothed.
Special types for X-ray application PFIM-...-R
- Type -R:** To avoid unwanted tripping due to X-ray devices.
- Type -S:** Selective residual current device sensitive to AC, type -S. Compulsory for systems with surge arresters downstream of the RCD (ÖVE/ÖNORM E 8001-1 § 12.1.5).
- Type -S/A:** Additionally protects against special forms of residual pulsating pulsating DC which have not been smoothed.
- Type -U:** Suitable for speed-controlled drives with frequency converters in household, trade, and industry.
Unwanted tripping is avoided thanks to a tripping characteristic designed particularly for frequency converters.
See also explanation "Frequency Converter-Proof RCDs - What for?"
Application according to ÖVE/ÖNORM E 8001-1 and Decision EN 219 (1989), VDE 0100, SEV 1000.

Accessories:

Auxiliary switch for subsequent installation to the left	Z-HK	248432
Tripping signal contact for subsequent installation to the right	Z-NHK	248434
Remote control and automatic switching device	Z-FW/LP	248296
Compact enclosure	KLV-TC-2	276240
	KLV-TC-4	276241
Sealing cover set	Z-RC/AK-2TE	285385
	Z-RC/AK-4TE	101062
Switching interlock	IS/SPE-1TE	101911

Connection diagrams

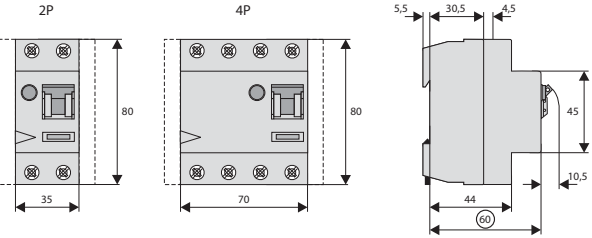


Mechanical	
Frame size	45 mm
Device height	80 mm
Device width	35 mm (2MU), 70 mm (4MU)
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Deg. of prot. in moisture-proof encl.	IP54
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1.5 - 35 mm ² single wire 2 x 16 mm ² multi wire
Busbar thickness	0.8 - 2 mm
Tripping temperature	-25°C to +40°C
Storage- and transport temperature	-35°C to +60°C
Resistance to climatic conditions	25-55°C/90-95% relative humidity acc. to IEC 60068-2

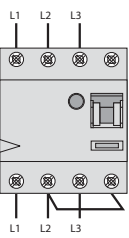
Technical Data

Residual Current Devices - General Data

Dimensions (mm)



RCD PFIM in a Three-Phase AC Network without Neutral Conductor



The N-terminal must be connected by a cable link with the phase L2 (or L1), so that the test loop is supplied with current and the RCD is tested correctly.

Influence of the ambient temperature to the maximum continuous current (A)

Ambient temperature	16A		25A		40A		63A		80A		100A	
	2p	4p	2p	4p	2p	4p	2p	4p	2p	4p	2p	4p
40°	16	16	25	25	40	40	63	63	80	80	100	100
45°	14	14	21	22	37	37	59	59	76	76	95	95
50°	11	11	18	19	33	34	55	55	72	72	90	90
55°	9	9	14	16	30	31	50	50	68	68	85	85
60°	— *)	—	—	—	26	27	45	45	64	64	80	80

Annotation: It has to be ensured that the values in the table are not exceeded and the back-up fuse/thermal protection works properly

*) not applicable

Technical Data

Residual current protection accessory PBSM

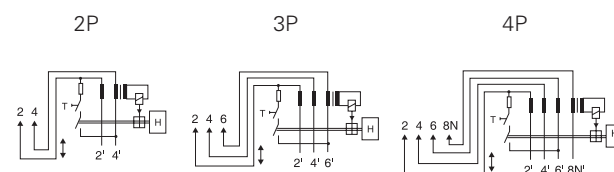
(for use with PLS, FAZ MCB)

- Tripping function is independent from power voltage
- Form with high performance MCB PL10/9 and FAZ to work as RCBO units (RCD/MCB switch)
- **Type -A:** Protects against special forms of residual pulsating DC which have not been smoothed
- **Type -G:** High reliability against unwanted tripping. Compulsory for any circuit where personal injury or damage to property may occur in case of unwanted tripping.
- **Type -S:** Selective residual current device sensitive to AC, type -S. Compulsory for systems with surge arresters downstream of the RCD. Additionally protects against special forms of residual pulsating DC which have not been smoothed.

Accessories (on PL10/9.)

Auxiliary contact	
Subsequent mounting	ZP-IHK
Tripping signal contact	
Subsequent mounting	ZP-NHK
Shunt trip	ZP-ASA/...
Undervoltage trip	ZP-USA/...
Overvoltage trip	POP-270

Connection diagrams



Technical data

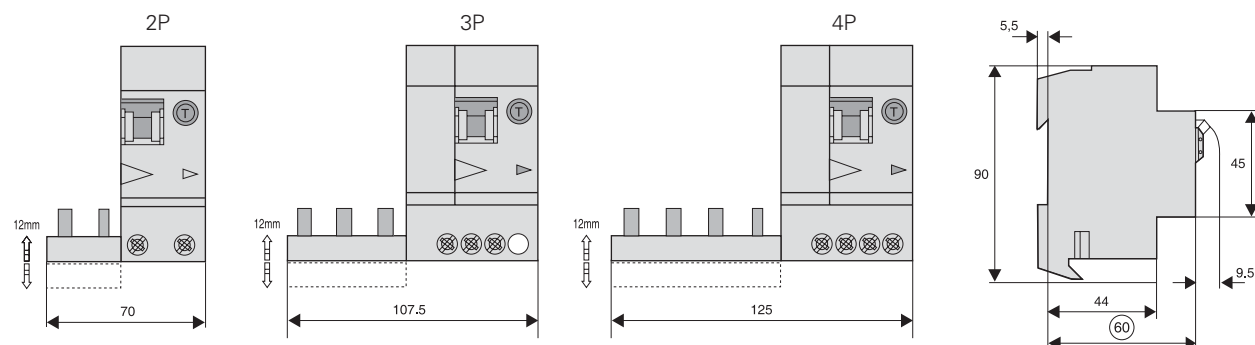
Electrical

Design according to	IEC/EN 61009, GB16917.1
Tripping time	Instantaneous type Type G 10ms delay – time delay type Type S 40ms delay – selective type
Rated voltage U_n	230/400 V, 50Hz
Rated voltage range	196-440V
Rated frequency	50Hz
Rated current I_n	$\leq 40A$, $\leq 63A$
Rated tripping current $I_{\Delta n}$	30, 100, 300, 500, 1000mA
Rated non-tripping current I_{no}	$0.5 I_{\Delta n}$
Sensitivity	☒ AC, pulse DC ☒
Rated breaking capacity I_{cn}	Same as connected MCB
Rated fault breaking capacity $I_{\Delta m}$	6kA ($U_n=230V$) 3kA ($U_n=400V$)

Mechanical

Mounting	Side mounting onto MCB
Housing protection degree	IP20
Tightening screw	M2,5 (slotted single direction round head screw)
Screw head failing moment	>0.6 Nm
Upper and lower terminals	Lift terminal
Terminal protection	Finger and hand touch safe
Terminal capacity	Rigid conductor: 1 x (1-25) mm ² Flexible conductor 1 x (0.75-16) mm ²
Busbar thickness	0.8-2 mm
Allowable ambient temperature range	-25°C to 55°C
Resistance to climate condition	According to IEC/EN 60068-2 (25...55°C/90...95% relative humidity)

Dimension (mm)



Technical Data

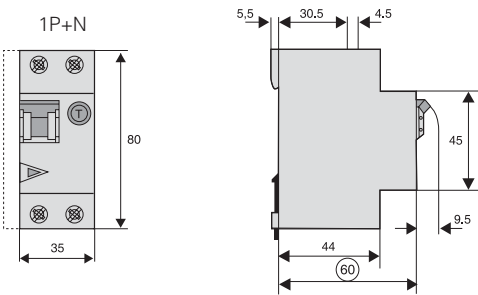
Residual current circuit breaker with overload protection PFL10, PFL9, 1P+N

- For overload, short circuit and residual current protections
- Tripping is line voltage-independent.
- Free terminal space despite installed busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- To ensure reliable leading structures for terminal wiring
- Handles of different colors (of MCB components) indicate different rated currents
- Red-green contact position indicator.
- A full range of accessories can be mounted in adjacent to basic devices
- Type -A: Protects against special forms of residual pulsating DC which have not been smoothed
- Type G: 10ms time delay to prevent unwanted tripping (eg. thunder storming weather)

Technical data

Electrical	
Design according to	IEC/EN 61009, GB16917.1
Tripping	Instantaneous G type 10ms delay
Rated voltage U_n	230 V, 50Hz
Rated current I_n	6-40A
Rated voltage range	196-253V
Operational voltage U_e Rated	240V
Tripping current $I_{\Delta n}$ Rated	10,30,300mA
Non-tripping current I_{no}	$0.5 I_{\Delta n}$
Sensitivity	☒ AC, pulsating ☒ DC
Selective protection degree	3 level
Rated breaking capacity I_{cn}	PFL10: 10kA PFL9: 6kA
Rated impulse withstand voltage U_{imp}	6 kV(1.2/50μs)
Tripping characteristics	C
Max backup fuse (short circuit)	100 A gL (>10kA)
Lifetime: Electrical comp.	≥4000 operating cycles
Mechanical comp.	≥20000 operating cycles

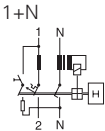
Dimension (mm)



Accessory

Auxiliary contact	
Subsequent mounting	ZP-IHK
Tripping signal contact	
Subsequent mounting	ZP-NHK
Shunt trip	ZP-ASA/...

Connection diagrams



Mechanical

Mounting	Quick fastening with 2 lock-in positions on DIN rail; 35mm standard rail
Upper and lower terminals	Open-mounted/lift terminals
Terminal protection	Finger and hand touch safe
Terminal capacity	1-25 mm²
Busbar thickness	0.8-2 mm
Housing protection degree	IP20
Tripping temperature	-25°C to 55°C
Resistance to climate condition	According to IEC/EN 61009

Technical Data

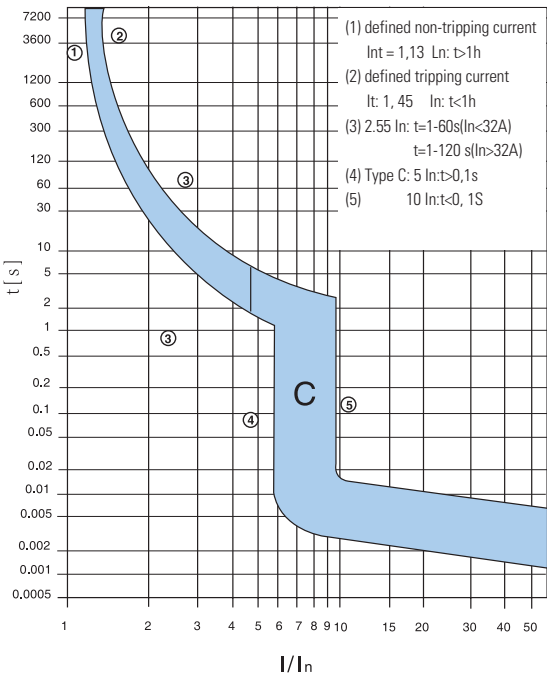
Residual current circuit breaker with overload protection PFL10, PFL9, 1P+N

Load capacity of PFL10/9-.../1N/

Ambient temperature impact (MCB component)

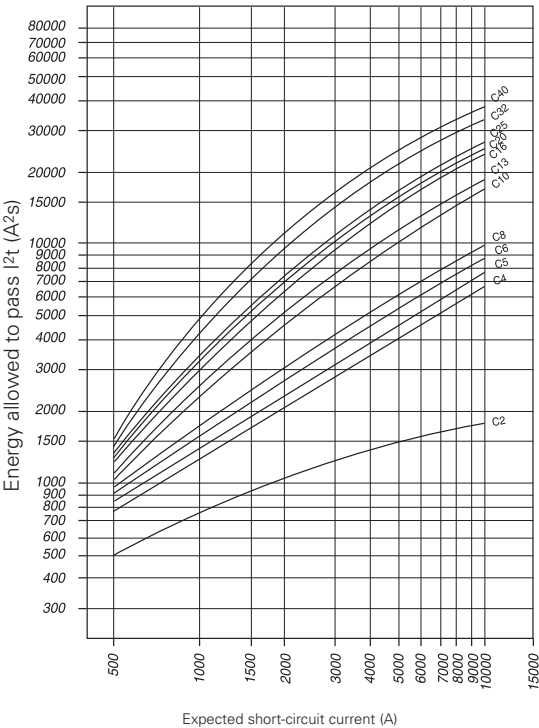
	Ambient temperature T[°C]												
I _n [A]	-25	-20	-10	0	10	20	30	35	40	45	50	55	
2	2.5	2.4	2.3	2.2	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.8	
4	4.9	4.8	4.7	4.5	4.3	4.2	4.0	3.9	3.9	3.8	3.7	3.6	
6	7.4	7.2	7.0	6.7	6.5	6.3	6.0	5.9	5.8	5.7	5.6	5.4	
10	12	12	12	11	11	10	10	9.9	9.7	9.5	9.3	9.0	
13	16	16	15	15	14	14	13	13	13	12	12	12	
16	20	19	19	18	17	17	16	16	15	15	15	14	
20	25	24	23	22	22	21	20	20	19	19	19	18	
25	31	30	29	28	27	26	25	25	24	24	23	23	
32	40	38	37	36	35	33	32	32	31	30	30	29	
40	49	48	47	45	43	42	40	39	39	38	37	36	

Tripping characteristics of PFL10/9-.../1N/, Characteristics C

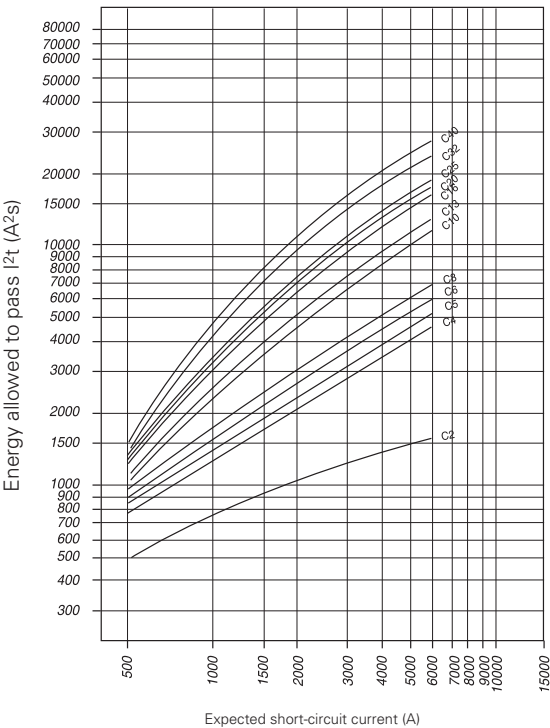


Energy Capacity PFL10/PFL9

Energy consumption of PFL10, Characteristics C, 1P+N



Energy consumption of PFL9, Characteristics C, 1P+N



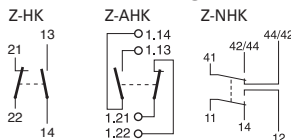
Technical Data

Accessories for Protective Devices

Auxiliary Switch Z-HK, Z-AHK; Tripping Signal Switch Z-NHK

- Design according to IEC/EN 60947-5-1, IEC/EN 62019
- Can be mounted subsequently (screws)
- The specified minimum voltages are per contact
Take into account particularly in case of series connection!
- **Z-AHK, Z-NHK:** Contact function with relative movement (self-cleaning contacts)
- Contact material and design particularly suitable for extra low voltage
- **Z-NHK:** The function of one of the two change-over contacts can be switched from "auxiliary switch" to "tripping signal switch"
- Tripping signal contact transmits message of electric tripping, not mechanical switch-off
- Test key for contact function "electrical tripping"

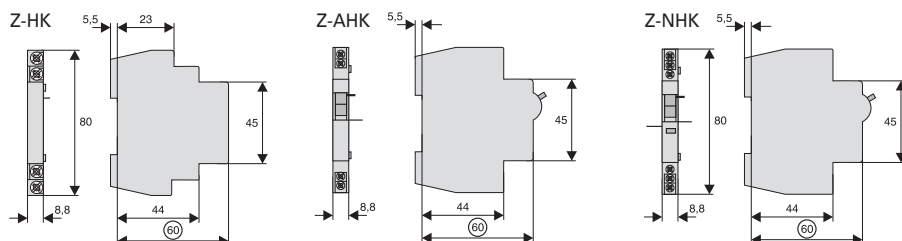
Connection diagrams



Technical specifications

	Z-HK	Z-AHK	Z-NHK
Electrical			
Can be mounted from the left onto	PFIM	FAZ, PLS, E6X, PFL	FAZ, PLS, E6X, PFL
Can be mounted from the right onto	–	–	PFIM
Contact function	1NO + 1NC	1NO + 1NC	2CO
Rated voltage	250 V	250 V	250 V
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Rated current	8 A	4 A	4 A
Rated thermal current I_{th}	8 A	4 A	4 A
Utilisation category AC13			
Rated operational current I_e	6A/250V AC 2A/440V AC	3A/250V AC –	3A/250V AC –
Utilisation category AC15			
Rated operational current I_e	–	2A/250V AC	2A/250V AC
Utilisation category DC12			
Rated operational current I_e	–	0.5A/110V DC	0.5A/110V DC
Utilisation category DC13			
Rated operational current I_e	0.5A/230V DC 2A/110V DC 4A/60V DC	– – –	– – –
Rated insulation voltage U_i	250 V AC	250 V AC	250 V AC
Minimum operational voltage per contact U_{min}	24 V AC/DC	5 V DC	5 V DC
Minimum operational current I_{min}	50 mA AC/DC	10 mA DC	10 mA DC
Rated peak withstand voltage U_{imp} (1.2/50 μ)	2.5 kV	2.5 kV	2.5 kV
Conditional short circuit current I_k with back-up fuse 6A or PLSM-B4-HS	–	1 kA	1 kA
Max. back-up fuse, overload and short circuit	8 A gL / CLS6-4/.../B-HS	6 A gL / CLS6-4/.../B-HS	6 A gL / CLS6-4/.../B-HS
Mechanical			
Tripping indicator "electrical tripping"	–	–	blue/white
Frame size	45 mm	45 mm	45 mm
Device height	80 mm	80 mm	80 mm
Device width	8.8 mm (0.5MU)	8.8 mm (0.5MU)	8.8 mm (0.5MU)
Mounting	onto switching dev.	onto switching dev.	onto switching dev.
Degree of protection, built-in	IP40	IP40	IP40
Terminal protection	finger and hand touch safe according to BGV A3, ÖVE-EN 6		
Terminals	lift terminals	lift terminals	lift terminals
Terminal capacity	0.5-2.5 mm ²	0.5-2.5 mm ²	0.5-2.5 mm ²
Terminal screws	M3 (Pozidrive Z0)	M3 (Pozidrive Z0)	M3 (Pozidrive Z0)
Fastening torque of terminal screws	max. 0.8-1.0 Nm	max. 0.8-1.0 Nm	max. 0.8-1.0 Nm

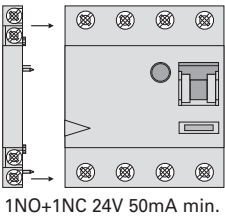
Dimensions (mm)



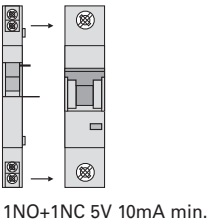
Technical Data

Accessories for Protective Devices

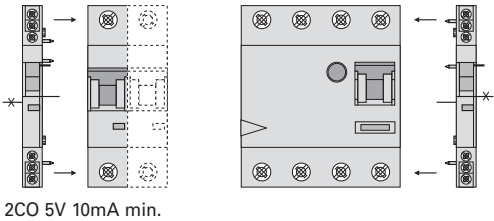
Example: Z-HK+PFIM



Example: Z-AHK+CLS6



Example: Z-NHK+CLS6 PFIM+Z-NHK



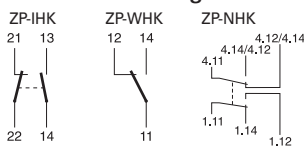
Technical Data

Accessories for Protective Devices

Auxiliary Switch ZP-IHK, ZP-WHK; Tripping Signal Switch ZP-NHK

- Design according to IEC/EN 62019
- No screws required. Can be **snapped onto** PLS and PKNM subsequently
- ZP-IHK, ZP-WHK:** can be snapped on additionally 1 time onto itself
- The specified minimum voltages are per contact. Take into account particularly in case of series connection!
- Contact material and design particularly suitable for extra low voltage. Contact function with relative movement (self-cleaning contacts)e)
- ZP-NHK:** The function of one of the two change-over contacts can be switched from "auxiliary switch" to "tripping signal switch"
- Tripping signal contact transmits message of electric tripping, not mechanical switch-off
- Test key for contact function "electrical tripping"

Connection diagrams

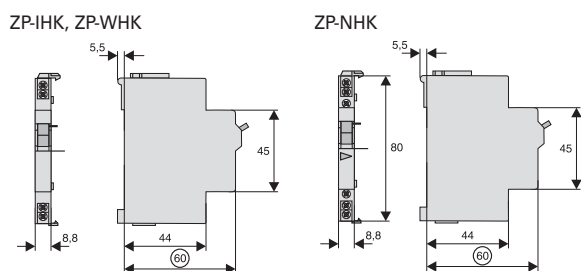


- ZP-NHK:** The "Service button" is used to check whether or not the auxiliary switch is correctly wired in the tripping-signal-switch position. Activating the "service button" will mechanically simulate an electrical switch-off, so the mechanism for the electrical switch-off will disengage and can be checked. The main switchgear (MCB, combined MCB/RCD or RCD ...) connected to the ZP-NHK auxiliary switch does not need to trip as well during an inspection through the service button.

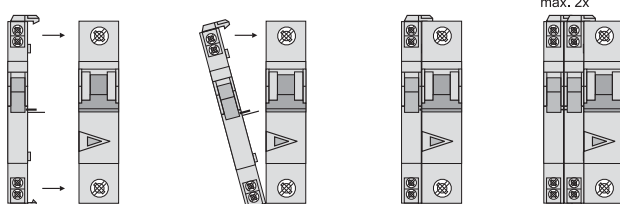
Technical specifications

	ZP-IHK	ZP-WHK	ZP-NHK	
Electrical				
Can be mounted from the left onto	MCB: RCD/MCB: Accessories:	FAZ, PLS PFL ZP-A40, ZP-ASA, Z-MS 1xZP-IHK, 1xZP-WHK	FAZ, PLS PFL ZP-A40, ZP-ASA, Z-MS 1xZP-IHK, 1xZP-WHK	FAZ, PLS PFL ZP-A40, ZP-ASA, Z-MS –
Contact function		1NO + 1NC	1CO	2CO
Rated voltage		250 V	250 V	250 V
Frequency		50/60 Hz	50/60 Hz	50/60 Hz
Rated current		6 A	6 A	4 A
Rated thermal current I_{th}		6 A	6 A	4 A
Utilisation category AC13				
Rated operational current I_e		3A/250V AC	3A/250V AC	3A/250V AC
Utilisation category AC15				
Rated operational current I_e		2A/250V AC	2A/250V AC	2A/250V AC
Utilisation category DC12				
Rated operational current I_e		0.5A/110V DC	0.5A/110V DC	0.5A/110V DC
Rated insulation voltage U_i		250 V AC	250 V AC	250 V AC
Minimum operational voltage per contact U_{min}		5 V DC	5 V DC	5 V DC
Minimum operational current I_{min}		10 mA DC	10 mA DC	10 mA DC
Rated peak withstand voltage U_{imp} (1.2/50µ)		2.5 kV	2.5 kV	2.5 kV
Conditional short circuit current I_k with back-up fuse 6A or PLSM-B4-HS		1 kA	1 kA	1 kA
Max. back-up fuse, overload and short circuit		6 A gL / PLSM-B4-HS	6 A gL / PLSM-B4-HS	6 A gL / PLSM-B4-HS
Mechanical				
Tripping indicator “electrical tripping”		–	–	blue/white
Frame size		45 mm	45 mm	45 mm
Device height		80 mm	80 mm	80 mm
Device width		8.8 mm (0.5MU)	8.8 mm (0.5MU)	8.8 mm (0.5MU)
Degree of protection, built-in		IP40	IP40	IP40
Terminal protection		finger and hand touch safe according to BGV A3, ÖVE-EN 6		
Terminals		lift terminals	lift terminals	lift terminals
Terminal capacity		0.5-2.5 mm ²	0.5-2.5 mm ²	0.5-2.5 mm ²
Terminal screws		M4 (Pozidrive Z2)	M4 (Pozidrive Z2)	M3 (Pozidrive Z0)
Fastening torque of terminal screws		max. 1.2 Nm	max. 1.2 Nm	max. 0.8-1.0 Nm

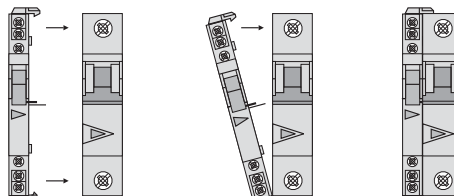
Dimensions (mm)



Example: ZP-IHK (ZP-WHK) + PLS



Example: ZP-NHK + PLS



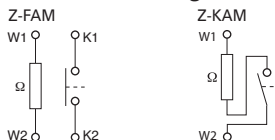
Technical Data

Accessories for Protective Devices

RCD Tripping Module Z-FAM (PFIM, PFHM-4p), Z-KAM (PKNM, PKDM, PFHM-2p)

- For remote switch-off of RCDs, standard and electronic combined RCD/MCB devices
- Remote switch-off by one or several parallel potential-free contacts, e.g. pushbutton max. rated current 3 A at 250 V, take into account maximum pushbutton voltage
- Remote tripping test by means of remote testing module Z-FW
- Can be mounted subsequently, to be wired according to connection diagram with the respective terminals of the RCD
- Tripping module for PFIM 0.5A upon enquiry
- No undesired voltage rise in the consumer system during remote switch-off thanks to integrated breaker contact K1-K2

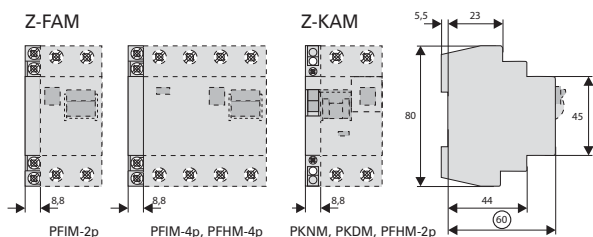
Connection diagram



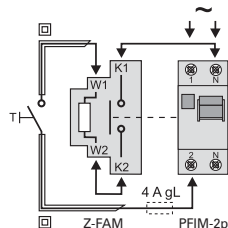
Technical specifications

	Z-FAM	Z-KAM
Electrical		
Tripping module for	PFIM, PFHM-4p, dRCM	PKNM, PKDM, PFHM-2p
Rated voltage	230(400) V AC	230(400) V AC
Frequency	50-60 Hz	50-60 Hz
Rated tripping current $I_{\Delta n}$	0.01 - 0.3 A	0.01 - 0.3 A
Function	1NO	1NO
Mechanical		
Frame size	45 mm	45 mm
Device height	80 mm	80 mm
Device width	8.8 mm (0.5MU)	8.8 mm (0.5MU)
Degree of protection, built-in	IP40	IP40
Terminal capacity	1 - 2x2.5 mm ²	1 - 2x2.5 mm ²
Terminal protection	finger and hand touch safe, according to BGV A3, ÖVE-EN 6	

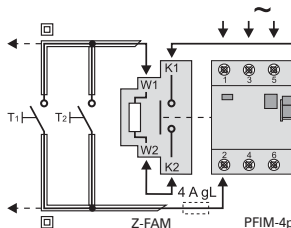
Dimensions (mm)



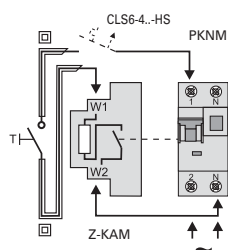
Connection examples Lay lines to the switching devices with double insulation **and** overload protection, e.g. 4A gL or CLS6-4..-HS



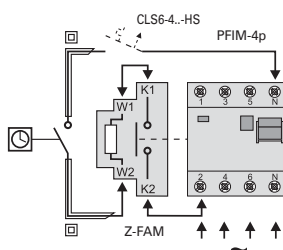
Connection diagram:
PFIM-2p, RCD feed above



Connection diagram:
PFIM-4p, RCD feed above



Connection diagram:
PKNM, RCBO feed below



Connection diagram:
PFIM-4p, RCD feed below

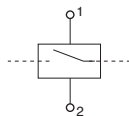
Technical Data

Accessories for Protective Devices

Shunt Trip Release Z-ASA, ZP-ASA

- Remote release for subsequent mounting onto FAZ, PLS
- Module width 1MU
- Additional installation of standard auxiliary switch is possible
- Position indicator red - green
- Type ZP-ASA for snap-on mounting

Connection diagram

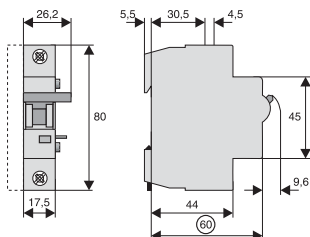


Technical specifications

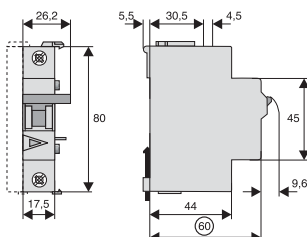
	Z-ASA24	Z-ASA230	ZP-ASA24	ZP-ASA230
Electrical				
Can be mounted onto RCDs, combined RCD/MCBs:	FAZ, PLS, E6X	FAZ, PLS, E6X	FAZ, PLS	FAZ, PLS
Operational voltage range	12-110V AC 12-60V DC	110-415V AC 110-220V DC	12-110V AC 12-60V DC	110-415V AC 110-220V DC
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Possible standard auxiliary switch	Z-NHK	Z-NHK	ZP-NHK	ZP-NHK
Mechanical				
Frame size	45 mm	45 mm	45 mm	45 mm
Device height	80 mm	80 mm	80 mm	80 mm
Device width	17.5 mm (1MU)	17.5 mm (1MU)	17.5 mm (1MU)	17.5 mm (1MU)
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715			
Degree of protection, built-in	IP40	IP40	IP40	IP40
Terminal protection	finger and hand touch safe according to BGV A3, ÖVE-EN 6			
Terminals	open mouthed/lift	open mouthed/lift	open mouthed/lift + guide	open mouthed/lift + guide
Terminal capacity	1-25 mm ²	1-25 mm ²	1-25 mm ²	1-25 mm ²

Dimensions (mm)

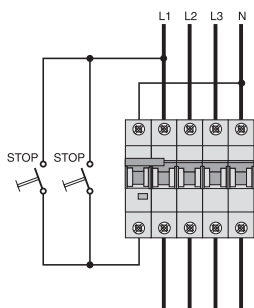
Z-ASA



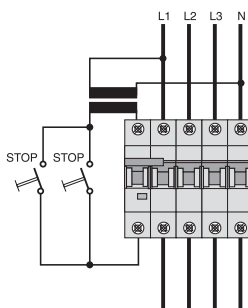
ZP-ASA



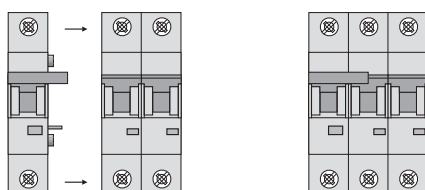
Connection Example 230 V



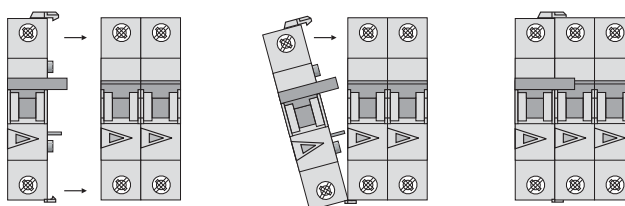
Connection Example 24 V



Example: Z-ASA + PLS



Example: ZP-ASA + PLS



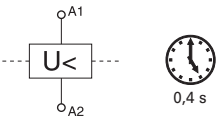
Technical Data

Accessories for Protective Devices

Undervoltage Release Z-USA, Z-USD

- Tripping:
 - Instantaneous Z-USA
 - Delayed Z-USD, typ. 0,4 s
- Voltage control indicator blue/white
- Service key for zero voltage switch-on for testing purposes
- Can be used with FAZ, PLS, E6X

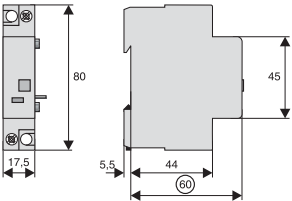
Connection diagram



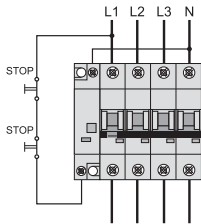
Technical specifications

	Z-US./115	Z-US./230	Z-US./400
Electrical			
Rated voltage U_n	115 V AC	230 V AC	400 V AC
Frequency	50-60 Hz	50-60 Hz	50-60 Hz
Making threshold	80% of U_n	80% of U_n	80% of U_n
Tripping threshold	50% of U_n	50% of U_n	50% of U_n
Mechanical			
Frame size	45 mm	45 mm	45 mm
Device height	80 mm	80 mm	80 mm
Device width	17.5 mm (1MU)	17.5 mm (1MU)	17.5 mm (1MU)
Mounting	quick fastening on DIN rail IEC/EN 60715		
Degree of protection, built-in	IP40	IP40	IP40
Terminals	open mouthed/lift	open mouthed/lift	open mouthed/lift
Terminal capacity	1 - 2x2.5 mm ²	1 - 2x2.5 mm ²	1 - 2x2.5 mm ²
Terminal protection	finger and hand touch safe, according to BGV A3, ÖVE-EN 6		

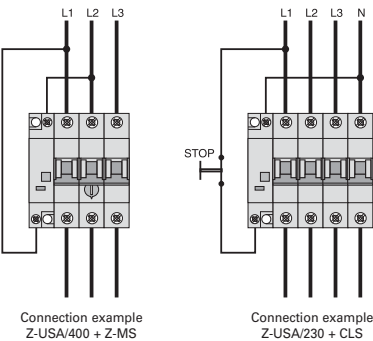
Dimensions (mm)



Connection Example Release



Connection Examples 400V and 230V



Notes

Handwriting practice lines consisting of 28 horizontal dotted lines.

Handwriting practice lines consisting of 28 horizontal dotted lines.

Notes

Handwriting practice lines consisting of 28 horizontal dotted lines.

Notes

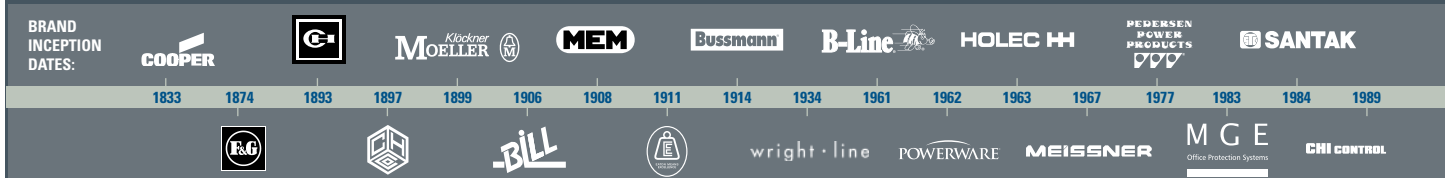
Handwriting practice lines consisting of 28 horizontal dotted lines.

Notes

Handwriting practice lines consisting of 28 horizontal dotted lines.

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