

Electrical installation with unlimited possibilities



Catalogue
Installation 2011
Valid from xx



Powering Business Worldwide

Table of Contents

Protective Devices / Components

Protective Devices

Miniature Circuit Breakers (MCBs)	Page 2
Residual Current Devices (RCDs)	Page 33
Residual Current Devices Digital (RCDs)	Page 44
Add-on Residual Current Protection Unit	Page 48
Main Protective Device	Page 55
Leakage Current Monitor	Page 57
Combined RCD/MCB Devices	Page 59
Electronic Combined RCD/MCB Devices	Page 70

Accessories for Protective Devices Page 79

Auxiliary Switch, RCD-Tripping Module, Shunt Trip Release,
Undervoltage Release, Remote Control and Automatic Switching Device

Surge Protection Page 82

Controlling & Switching Page 92

Main Load Disconnecter Switch, Installation Contactor, Relay,
Signalling Devices, Transformer

Busbar Systems Page 110

Plug-in Busbar System, Busbar block (fork and pin)
SASY Busbar System

Fuse Devices (Protective Devices) Page 128

Measuring Devices Page 161

Other Accessories Page 165

Technical Data Page 177





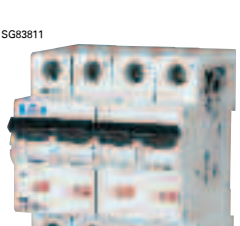
Miniature Circuit Breakers CLS4 DE

- High-quality miniature circuit breakers for residential applications
- Contact position indicator red - green
- Comprehensive range of accessories suitable for subsequent installation
- Rated currents up to 63 A
- Tripping characteristics B, C
- Rated breaking capacity 4.5 kA according to IEC/EN 60898-1

SG83711

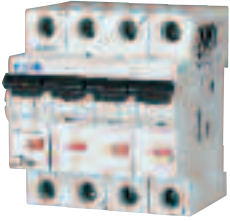


Protective Devices

		Miniature Circuit Breakers CLS4			DE
		Characteristic B			
		Rated Current I_n (A)	Type Designation	Article No.	Units per package
 SG83011	1-pole				
	2	CLS4-B2	247824	12 / 120	
	4	CLS4-B4	247825	12 / 120	
	6	CLS4-B6	247826	12 / 120	
	10	CLS4-B10	247827	12 / 120	
	13	CLS4-B13	247828	12 / 120	
	16	CLS4-B16	247829	12 / 120	
	20	CLS4-B20	247830	12 / 120	
	25	CLS4-B25	247831	12 / 120	
	32	CLS4-B32	247832	12 / 120	
	40	CLS4-B40	247833	12 / 120	
50	CLS4-B50	247834	12 / 120		
63	CLS4-B63	247835	12 / 120		
 SG82811	1+N-pole				
	2	CLS4-B2/1N	247848	1 / 60	
	4	CLS4-B4/1N	247849	1 / 60	
	6	CLS4-B6/1N	247850	1 / 60	
	10	CLS4-B10/1N	247851	1 / 60	
	13	CLS4-B13/1N	247852	1 / 60	
	16	CLS4-B16/1N	247853	1 / 60	
	20	CLS4-B20/1N	247854	1 / 60	
	25	CLS4-B25/1N	247855	1 / 60	
	32	CLS4-B32/1N	247856	1 / 60	
	40	CLS4-B40/1N	247857	1 / 60	
50	CLS4-B50/1N	247858	1 / 60		
63	CLS4-B63/1N	247859	1 / 60		
 SG82711	2-pole				
	2	CLS4-B2/2	247872	1 / 60	
	4	CLS4-B4/2	247873	1 / 60	
	6	CLS4-B6/2	247874	1 / 60	
	10	CLS4-B10/2	247875	1 / 60	
	13	CLS4-B13/2	247876	1 / 60	
	16	CLS4-B16/2	247877	1 / 60	
	20	CLS4-B20/2	247878	1 / 60	
	25	CLS4-B25/2	247879	1 / 60	
	32	CLS4-B32/2	247880	1 / 60	
	40	CLS4-B40/2	247881	1 / 60	
50	CLS4-B50/2	247882	1 / 60		
63	CLS4-B63/2	247883	1 / 60		
 SG83611	3-pole				
	2	CLS4-B2/3	247896	1 / 40	
	4	CLS4-B4/3	247897	1 / 40	
	6	CLS4-B6/3	247898	1 / 40	
	10	CLS4-B10/3	247899	1 / 40	
	13	CLS4-B13/3	247900	1 / 40	
	16	CLS4-B16/3	247901	1 / 40	
	20	CLS4-B20/3	247902	1 / 40	
	25	CLS4-B25/3	247903	1 / 40	
	32	CLS4-B32/3	247904	1 / 40	
	40	CLS4-B40/3	247905	1 / 40	
50	CLS4-B50/3	247906	1 / 40		
63	CLS4-B63/3	247907	1 / 40		
 SG83811	3+N-pole				
	2	CLS4-B2/3N	247920	1 / 30	
	4	CLS4-B4/3N	247921	1 / 30	
	6	CLS4-B6/3N	247922	1 / 30	
	10	CLS4-B10/3N	247923	1 / 30	
	13	CLS4-B13/3N	247924	1 / 30	
	16	CLS4-B16/3N	247925	1 / 30	
	20	CLS4-B20/3N	247926	1 / 30	
	25	CLS4-B25/3N	247927	1 / 30	
	32	CLS4-B32/3N	247928	1 / 30	
	40	CLS4-B40/3N	247929	1 / 30	
50	CLS4-B50/3N	247930	1 / 30		
63	CLS4-B63/3N	247931	1 / 30		






Protective Devices

SG83711



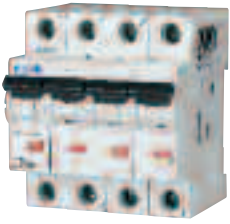
Rated Current I_n (A)	Type Designation	Article No.	Units per package
4-pole			
2	CLS4-B2/4	247944	1 / 30
4	CLS4-B4/4	247945	1 / 30
6	CLS4-B6/4	247946	1 / 30
10	CLS4-B10/4	247947	1 / 30
13	CLS4-B13/4	247948	1 / 30
16	CLS4-B16/4	247949	1 / 30
20	CLS4-B20/4	247950	1 / 30
25	CLS4-B25/4	247951	1 / 30
32	CLS4-B32/4	247952	1 / 30
40	CLS4-B40/4	247953	1 / 30
50	CLS4-B50/4	247955	1 / 30
63	CLS4-B63/4	247956	1 / 30

Protective Devices

		Miniature Circuit Breakers CLS4			DE
		Characteristic C			
		Rated Current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG83011</p>	1-pole				
	2	CLS4-C2	247836	12 / 120	
	4	CLS4-C4	247837	12 / 120	
	6	CLS4-C6	247838	12 / 120	
	10	CLS4-C10	247839	12 / 120	
	13	CLS4-C13	247840	12 / 120	
	16	CLS4-C16	247841	12 / 120	
	20	CLS4-C20	247842	12 / 120	
	25	CLS4-C25	247843	12 / 120	
	32	CLS4-C32	247844	12 / 120	
	40	CLS4-C40	247845	12 / 120	
50	CLS4-C50	247846	12 / 120		
63	CLS4-C63	247847	12 / 120		
 <p>SG82811</p>	1+N-pole				
	2	CLS4-C2/1N	247860	1 / 60	
	4	CLS4-C4/1N	247861	1 / 60	
	6	CLS4-C6/1N	247862	1 / 60	
	10	CLS4-C10/1N	247863	1 / 60	
	13	CLS4-C13/1N	247864	1 / 60	
	16	CLS4-C16/1N	247865	1 / 60	
	20	CLS4-C20/1N	247866	1 / 60	
	25	CLS4-C25/1N	247867	1 / 60	
	32	CLS4-C32/1N	247868	1 / 60	
	40	CLS4-C40/1N	247869	1 / 60	
50	CLS4-C50/1N	247870	1 / 60		
63	CLS4-C63/1N	247871	1 / 60		
 <p>SG82711</p>	2-pole				
	2	CLS4-C2/2	247884	1 / 60	
	4	CLS4-C4/2	247885	1 / 60	
	6	CLS4-C6/2	247886	1 / 60	
	10	CLS4-C10/2	247887	1 / 60	
	13	CLS4-C13/2	247888	1 / 60	
	16	CLS4-C16/2	247889	1 / 60	
	20	CLS4-C20/2	247890	1 / 60	
	25	CLS4-C25/2	247891	1 / 60	
	32	CLS4-C32/2	247892	1 / 60	
	40	CLS4-C40/2	247893	1 / 60	
50	CLS4-C50/2	247894	1 / 60		
63	CLS4-C63/2	247895	1 / 60		
 <p>SG83611</p>	3-pole				
	2	CLS4-C2/3	247908	1 / 40	
	4	CLS4-C4/3	247909	1 / 40	
	6	CLS4-C6/3	247910	1 / 40	
	10	CLS4-C10/3	247911	1 / 40	
	13	CLS4-C13/3	247912	1 / 40	
	16	CLS4-C16/3	247913	1 / 40	
	20	CLS4-C20/3	247914	1 / 40	
	25	CLS4-C25/3	247915	1 / 40	
	32	CLS4-C32/3	247916	1 / 40	
	40	CLS4-C40/3	247917	1 / 40	
50	CLS4-C50/3	247918	1 / 40		
63	CLS4-C63/3	247919	1 / 40		
 <p>SG83811</p>	3+N-pole				
	2	CLS4-C2/3N	247932	1 / 30	
	4	CLS4-C4/3N	247933	1 / 30	
	6	CLS4-C6/3N	247934	1 / 30	
	10	CLS4-C10/3N	247935	1 / 30	
	13	CLS4-C13/3N	247936	1 / 30	
	16	CLS4-C16/3N	247937	1 / 30	
	20	CLS4-C20/3N	247938	1 / 30	
	25	CLS4-C25/3N	247939	1 / 30	
	32	CLS4-C32/3N	247940	1 / 30	
	40	CLS4-C40/3N	247941	1 / 30	
50	CLS4-C50/3N	247942	1 / 30		
63	CLS4-C63/3N	247943	1 / 30		

Protective Devices

SG83711



Rated Current I_n (A)	Type Designation	Article No.	Units per package
4-pole			
2	CLS4-C2/4	247957	1 / 30
4	CLS4-C4/4	247958	1 / 30
6	CLS4-C6/4	247959	1 / 30
10	CLS4-C10/4	247960	1 / 30
13	CLS4-C13/4	247961	1 / 30
16	CLS4-C16/4	247962	1 / 30
20	CLS4-C20/4	247963	1 / 30
25	CLS4-C25/4	247964	1 / 30
32	CLS4-C32/4	247965	1 / 30
40	CLS4-C40/4	247966	1 / 30
50	CLS4-C50/4	247967	1 / 30
63	CLS4-C63/4	247968	1 / 30






Miniature Circuit Breakers CLS6 DE

- High-quality miniature circuit breakers for commercial and residential applications
- Contact position indicator red - green
- Comprehensive range of accessories suitable for subsequent installation
- Rated currents up to 63 A
- Tripping characteristics B, C, D
- Rated breaking capacity 6 kA according to IEC/EN 60898-1





SG10411








Protective Devices

		Miniature Circuit Breakers CLS6			DE
		Characteristic B			
		Rated Current I_n (A)	Type Designation	Article No.	Units per package
 SG10011	1-pole				
	2	CLS6-B2	247596	12 / 120	
	4	CLS6-B4	247597	12 / 120	
	6	CLS6-B6	247598	12 / 120	
	10	CLS6-B10	247599	12 / 120	
	13	CLS6-B13	247600	12 / 120	
	16	CLS6-B16	247601	12 / 120	
	20	CLS6-B20	247602	12 / 120	
	25	CLS6-B25	247603	12 / 120	
	32	CLS6-B32	247604	12 / 120	
	40	CLS6-B40	247605	12 / 120	
50	CLS6-B50	247606	12 / 120		
63	CLS6-B63	247607	12 / 120		
 SG10111	1+N-pole				
	2	CLS6-B2/1N	247630	1 / 60	
	4	CLS6-B4/1N	247631	1 / 60	
	6	CLS6-B6/1N	247632	1 / 60	
	10	CLS6-B10/1N	247633	1 / 60	
	13	CLS6-B13/1N	247634	1 / 60	
	16	CLS6-B16/1N	247635	1 / 60	
	20	CLS6-B20/1N	247636	1 / 60	
	25	CLS6-B25/1N	247637	1 / 60	
	32	CLS6-B32/1N	247638	1 / 60	
	40	CLS6-B40/1N	247639	1 / 60	
50	CLS6-B50/1N	247640	1 / 60		
63	CLS6-B63/1N	247641	1 / 60		
 SG10211	2-pole				
	2	CLS6-B2/2	247664	1 / 60	
	4	CLS6-B4/2	247665	1 / 60	
	6	CLS6-B6/2	247666	1 / 60	
	10	CLS6-B10/2	247667	1 / 60	
	13	CLS6-B13/2	247668	1 / 60	
	16	CLS6-B16/2	247669	1 / 60	
	20	CLS6-B20/2	247670	1 / 60	
	25	CLS6-B25/2	247671	1 / 60	
	32	CLS6-B32/2	247672	1 / 60	
	40	CLS6-B40/2	247673	1 / 60	
50	CLS6-B50/2	247674	1 / 60		
63	CLS6-B63/2	247675	1 / 60		
 SG10311	3-pole				
	2	CLS6-B2/3	247698	1 / 40	
	4	CLS6-B4/3	247699	1 / 40	
	6	CLS6-B6/3	247700	1 / 40	
	10	CLS6-B10/3	247701	1 / 40	
	13	CLS6-B13/3	247702	1 / 40	
	16	CLS6-B16/3	247703	1 / 40	
	20	CLS6-B20/3	247704	1 / 40	
	25	CLS6-B25/3	247705	1 / 40	
	32	CLS6-B32/3	247706	1 / 40	
	40	CLS6-B40/3	247707	1 / 40	
50	CLS6-B50/3	247708	1 / 40		
63	CLS6-B63/3	247709	1 / 40		
 SG10511	3+N-pole				
	2	CLS6-B2/3N	247732	1 / 30	
	4	CLS6-B4/3N	247733	1 / 30	
	6	CLS6-B6/3N	247734	1 / 30	
	10	CLS6-B10/3N	247735	1 / 30	
	13	CLS6-B13/3N	247736	1 / 30	
	16	CLS6-B16/3N	247737	1 / 30	
	20	CLS6-B20/3N	247738	1 / 30	
	25	CLS6-B25/3N	247739	1 / 30	
	32	CLS6-B32/3N	247740	1 / 30	
	40	CLS6-B40/3N	247741	1 / 30	
50	CLS6-B50/3N	247742	1 / 30		
63	CLS6-B63/3N	247743	1 / 30		





Protective Devices

	Rated Current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG10411</p>	4-pole			
	2	CLS6-B2/4	247766	1 / 30
	4	CLS6-B4/4	247767	1 / 30
	6	CLS6-B6/4	247768	1 / 30
	10	CLS6-B10/4	247769	1 / 30
	13	CLS6-B13/4	247770	1 / 30
	16	CLS6-B16/4	247771	1 / 30
	20	CLS6-B20/4	247772	1 / 30
	25	CLS6-B25/4	247773	1 / 30
	32	CLS6-B32/4	247774	1 / 30
	40	CLS6-B40/4	247775	1 / 30
	50	CLS6-B50/4	247776	1 / 30
	63	CLS6-B63/4	247777	1 / 30
Miniature Circuit Breakers CLS6			DE	
Characteristic C				
	Rated Current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG10011</p>	1-pole			
	2	CLS6-C2	247608	12 / 120
	4	CLS6-C4	247609	12 / 120
	6	CLS6-C6	247610	12 / 120
	10	CLS6-C10	247611	12 / 120
	13	CLS6-C13	247612	12 / 120
	16	CLS6-C16	247613	12 / 120
	20	CLS6-C20	247614	12 / 120
	25	CLS6-C25	247615	12 / 120
	32	CLS6-C32	247616	12 / 120
	40	CLS6-C40	247617	12 / 120
	50	CLS6-C50	247618	12 / 120
	63	CLS6-C63	247619	12 / 120
 <p>SG10111</p>	1+N-pole			
	2	CLS6-C2/1N	247642	1 / 60
	4	CLS6-C4/1N	247643	1 / 60
	6	CLS6-C6/1N	247644	1 / 60
	10	CLS6-C10/1N	247645	1 / 60
	13	CLS6-C13/1N	247646	1 / 60
	16	CLS6-C16/1N	247647	1 / 60
	20	CLS6-C20/1N	247648	1 / 60
	25	CLS6-C25/1N	247649	1 / 60
	32	CLS6-C32/1N	247650	1 / 60
	40	CLS6-C40/1N	247651	1 / 60
	50	CLS6-C50/1N	247652	1 / 60
	63	CLS6-C63/1N	247653	1 / 60
 <p>SG10211</p>	2-pole			
	2	CLS6-C2/2	247676	1 / 60
	4	CLS6-C4/2	247677	1 / 60
	6	CLS6-C6/2	247678	1 / 60
	10	CLS6-C10/2	247679	1 / 60
	13	CLS6-C13/2	247680	1 / 60
	16	CLS6-C16/2	247681	1 / 60
	20	CLS6-C20/2	247682	1 / 60
	25	CLS6-C25/2	247683	1 / 60
	32	CLS6-C32/2	247684	1 / 60
	40	CLS6-C40/2	247685	1 / 60
	50	CLS6-C50/2	247686	1 / 60
	63	CLS6-C63/2	247687	1 / 60

Protective Devices

	Rated Current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG10311</p>	3-pole			
	2	CLS6-C2/3	247710	1 / 40
	4	CLS6-C4/3	247711	1 / 40
	6	CLS6-C6/3	247712	1 / 40
	10	CLS6-C10/3	247713	1 / 40
	13	CLS6-C13/3	247714	1 / 40
	16	CLS6-C16/3	247715	1 / 40
	20	CLS6-C20/3	247716	1 / 40
	25	CLS6-C25/3	247717	1 / 40
	32	CLS6-C32/3	247718	1 / 40
	40	CLS6-C40/3	247719	1 / 40
	50	CLS6-C50/3	247720	1 / 40
	63	CLS6-C63/3	247721	1 / 40
 <p>SG10511</p>	3+N-pole			
	2	CLS6-C2/3N	247744	1 / 30
	4	CLS6-C4/3N	247745	1 / 30
	6	CLS6-C6/3N	247746	1 / 30
	10	CLS6-C10/3N	247747	1 / 30
	13	CLS6-C13/3N	247748	1 / 30
	16	CLS6-C16/3N	247749	1 / 30
	20	CLS6-C20/3N	247750	1 / 30
	25	CLS6-C25/3N	247751	1 / 30
	32	CLS6-C32/3N	247752	1 / 30
	40	CLS6-C40/3N	247753	1 / 30
	50	CLS6-C50/3N	247754	1 / 30
	63	CLS6-C63/3N	247755	1 / 30
 <p>SG10411</p>	4-pole			
	2	CLS6-C2/4	247778	1 / 30
	4	CLS6-C4/4	247779	1 / 30
	6	CLS6-C6/4	247780	1 / 30
	10	CLS6-C10/4	247781	1 / 30
	13	CLS6-C13/4	247782	1 / 30
	16	CLS6-C16/4	247783	1 / 30
	20	CLS6-C20/4	247784	1 / 30
	25	CLS6-C25/4	247785	1 / 30
	32	CLS6-C32/4	247786	1 / 30
	40	CLS6-C40/4	247787	1 / 30
	50	CLS6-C50/4	247788	1 / 30
	63	CLS6-C63/4	247789	1 / 30
Miniature Circuit Breakers CLS6				DE
Characteristic D				
	Rated Current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG10011</p>	1-pole			
	2	CLS6-D2	247620	12 / 120
	4	CLS6-D4	247621	12 / 120
	6	CLS6-D6	247622	12 / 120
	10	CLS6-D10	247623	12 / 120
	13	CLS6-D13	247624	12 / 120
	16	CLS6-D16	247625	12 / 120
	20	CLS6-D20	247626	12 / 120
	25	CLS6-D25	247627	12 / 120
	32	CLS6-D32	247628	12 / 120
 <p>SG10111</p>	1+N-pole			
	2	CLS6-D2/1N	247654	1 / 60
	4	CLS6-D4/1N	247655	1 / 60
	6	CLS6-D6/1N	247656	1 / 60
	10	CLS6-D10/1N	247657	1 / 60
	13	CLS6-D13/1N	247658	1 / 60
	16	CLS6-D16/1N	247659	1 / 60
	20	CLS6-D20/1N	247660	1 / 60
	25	CLS6-D25/1N	247661	1 / 60
	32	CLS6-D32/1N	247662	1 / 60
40	CLS6-D40/1N	247663	1 / 60	

Protective Devices

	Rated Current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG10211</p>	2-pole			
	2	CLS6-D2/2	247688	1 / 60
	4	CLS6-D4/2	247689	1 / 60
	6	CLS6-D6/2	247690	1 / 60
	10	CLS6-D10/2	247691	1 / 60
	13	CLS6-D13/2	247692	1 / 60
	16	CLS6-D16/2	247693	1 / 60
	20	CLS6-D20/2	247694	1 / 60
	25	CLS6-D25/2	247695	1 / 60
	32	CLS6-D32/2	247696	1 / 60
40	CLS6-D40/2	247697	1 / 60	
 <p>SG10311</p>	3-pole			
	2	CLS6-D2/3	247722	1 / 40
	4	CLS6-D4/3	247723	1 / 40
	6	CLS6-D6/3	247724	1 / 40
	10	CLS6-D10/3	247725	1 / 40
	13	CLS6-D13/3	247726	1 / 40
	16	CLS6-D16/3	247727	1 / 40
	20	CLS6-D20/3	247728	1 / 40
	25	CLS6-D25/3	247729	1 / 40
	32	CLS6-D32/3	247730	1 / 40
40	CLS6-D40/3	247731	1 / 40	
 <p>SG10511</p>	3+N-pole			
	2	CLS6-D2/3N	247756	1 / 30
	4	CLS6-D4/3N	247757	1 / 30
	6	CLS6-D6/3N	247758	1 / 30
	10	CLS6-D10/3N	247759	1 / 30
	13	CLS6-D13/3N	247760	1 / 30
	16	CLS6-D16/3N	247761	1 / 30
	20	CLS6-D20/3N	247762	1 / 30
	25	CLS6-D25/3N	247763	1 / 30
	32	CLS6-D32/3N	247764	1 / 30
40	CLS6-D40/3N	247765	1 / 30	
 <p>SG10411</p>	4-pole			
	2	CLS6-D2/4	247790	1 / 30
	4	CLS6-D4/4	247791	1 / 30
	6	CLS6-D6/4	247792	1 / 30
	10	CLS6-D10/4	247793	1 / 30
	13	CLS6-D13/4	247794	1 / 30
	16	CLS6-D16/4	247795	1 / 30
	20	CLS6-D20/4	247796	1 / 30
	25	CLS6-D25/4	247797	1 / 30
	32	CLS6-D32/4	247798	1 / 30
40	CLS6-D40/4	247799	1 / 30	

Miniature Circuit Breakers CLS6-DC

- High-quality miniature circuit breakers for DC-applications
- Contact position indicator red - green
- 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 660898-1
- Up to 250 V DC per pole

SG83111



Protective Devices

Miniature Circuit Breakers CLS6-DC for AC/DC

DE

Characteristic C

SG83111



Rated Current I_n (A)	Type Designation	Article No.	Units per package
-------------------------	------------------	-------------	-------------------

1-pole

2	CLS6-C2-DC	247800	12 / 120
3	CLS6-C3-DC	247801	12 / 120
4	CLS6-C4-DC	247802	12 / 120
6	CLS6-C6-DC	247803	12 / 120
10	CLS6-C10-DC	247804	12 / 120
13	CLS6-C13-DC	247805	12 / 120
16	CLS6-C16-DC	247806	12 / 120
20	CLS6-C20-DC	247807	12 / 120
25	CLS6-C25-DC	247808	12 / 120
32	CLS6-C32-DC	247809	12 / 120
40	CLS6-C40-DC	247810	12 / 120
50	CLS6-C50-DC	247811	12 / 120

SG82611



2-pole

2	CLS6-C2/2-DC	247812	1 / 60
3	CLS6-C3/2-DC	247813	1 / 60
4	CLS6-C4/2-DC	247814	1 / 60
6	CLS6-C6/2-DC	247815	1 / 60
10	CLS6-C10/2-DC	247816	1 / 60
13	CLS6-C13/2-DC	247817	1 / 60
16	CLS6-C16/2-DC	247818	1 / 60
20	CLS6-C20/2-DC	247819	1 / 60
25	CLS6-C25/2-DC	247820	1 / 60
32	CLS6-C32/2-DC	247821	1 / 60
40	CLS6-C40/2-DC	247822	1 / 60
50	CLS6-C50/2-DC	247823	1 / 60

Miniature Circuit Breakers PL7

- High-quality miniature circuit breakers for commercial and residential 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 63 A
- Tripping characteristics B, C, D
- Rated breaking capacity 10 kA according to IEC/EN 60898-1

SG06511



Protective Devices

Miniature Circuit Breakers PL7

10 kA, Characteristic B

SG06211



Rated Current I_n (A)	Type Designation	Article No.	Units per package
1-pole			
1	PL7-B1/1	165052	12/120
1.5	PL7-B1,5/1	165048	12/120
1.6	PL7-B1,6/1	165049	12/120
2	PL7-B2/1	264839	12/120
2.5	PL7-B2,5/1	165053	12/120
3	PL7-B3/1	165055	12/120
3.5	PL7-B3,5/1	165054	12/120
4	PL7-B4/1	264850	12/120
5	PL7-B5/1	165056	12/120
6	PL7-B6/1	262673	12/120
8	PL7-B8/1	165057	12/120
10	PL7-B10/1	262674	12/120
12	PL7-B12/1	165050	12/120
13	PL7-B13/1	262675	12/120
15	PL7-B15/1	165051	12/120
16	PL7-B16/1	262676	12/120
20	PL7-B20/1	262677	12/120
25	PL7-B25/1	262678	12/120
32	PL7-B32/1	262679	12/120
40	PL7-B40/1	262690	12/120
50	PL7-B50/1	262691	12/120
63	PL7-B63/1	262692	12/120

SG06311



1+N-pole			
1	PL7-B1/1N	165214	8/80
1.5	PL7-B1,5/1N	165212	8/80
1.6	PL7-B1,6/1N	165213	8/80
2	PL7-B2/1N	165218	8/80
2.5	PL7-B2,5/1N	165217	8/80
3	PL7-B3/1N	165220	8/80
3.5	PL7-B3,5/1N	165219	8/80
4	PL7-B4/1N	165221	8/80
5	PL7-B5/1N	165222	8/80
6	PL7-B6/1N	262727	8/80
8	PL7-B8/1N	165223	8/80
10	PL7-B10/1N	262728	8/80
12	PL7-B12/1N	165215	8/80
13	PL7-B13/1N	262729	8/80
15	PL7-B15/1N	165216	8/80
16	PL7-B16/1N	262740	8/80
20	PL7-B20/1N	262741	8/80
25	PL7-B25/1N	262742	8/80
32	PL7-B32/1N	262743	8/80

SG06411



2-pole			
1	PL7-B1/2	165079	6/60
1.5	PL7-B1,5/2	165077	6/60
1.6	PL7-B1,6/2	165078	6/60
2	PL7-B2/2	165083	6/60
2.5	PL7-B2,5/2	165082	6/60
3	PL7-B3/2	165085	6/60
3.5	PL7-B3,5/2	165084	6/60
4	PL7-B4/2	165086	6/60
5	PL7-B5/2	165087	6/60
6	PL7-B6/2	262761	6/60
8	PL7-B8/2	165088	6/60
10	PL7-B10/2	262762	6/60
12	PL7-B12/2	165080	6/60
13	PL7-B13/2	262764	6/60
15	PL7-B15/2	165081	6/60
16	PL7-B16/2	262765	6/60
20	PL7-B20/2	262766	6/60
25	PL7-B25/2	262767	6/60
32	PL7-B32/2	262768	6/60
40	PL7-B40/2	262769	6/60
50	PL7-B50/2	263350	6/60
63	PL7-B63/2	263351	6/60

Protective Devices

SG06511



Rated Current I_n (A)	Type Designation	Article No.	Units per package
3-pole			
1	PL7-B1/3	165112	4/40
1.5	PL7-B1,5/3	165110	4/40
1.6	PL7-B1,6/3	165111	4/40
2	PL7-B2/3	165116	4/40
2.5	PL7-B2,5/3	165115	4/40
3	PL7-B3/3	165118	4/40
3.5	PL7-B3,5/3	165117	4/40
4	PL7-B4/3	116709	4/40
5	PL7-B5/3	165119	4/40
6	PL7-B6/3	263386	4/40
8	PL7-B8/3	165120	4/40
10	PL7-B10/3	263387	4/40
12	PL7-B12/3	165113	4/40
13	PL7-B13/3	263388	4/40
15	PL7-B15/3	165114	4/40
16	PL7-B16/3	263389	4/40
20	PL7-B20/3	263390	4/40
25	PL7-B25/3	263391	4/40
32	PL7-B32/3	263392	4/40
40	PL7-B40/3	263393	4/40
50	PL7-B50/3	263400	4/40
63	PL7-B63/3	263401	4/40

SG06711



3+N-pole			
1	PL7-B1/3N	165251	3/30
1.5	PL7-B1,5/3N	165249	3/30
1.6	PL7-B1,6/3N	165250	3/30
2	PL7-B2/3N	165255	3/30
2.5	PL7-B2,5/3N	165254	3/30
3	PL7-B3/3N	165257	3/30
3.5	PL7-B3,5/3N	165256	3/30
4	PL7-B4/3N	165258	3/30
5	PL7-B5/3N	165259	3/30
6	PL7-B6/3N	263982	3/30
8	PL7-B8/3N	165260	3/30
10	PL7-B10/3N	263983	3/30
12	PL7-B12/3N	165252	3/30
13	PL7-B13/3N	263984	3/30
15	PL7-B15/3N	165253	3/30
16	PL7-B16/3N	263985	3/30
20	PL7-B20/3N	263986	3/30
25	PL7-B25/3N	263987	3/30
32	PL7-B32/3N	263988	3/30
40	PL7-B40/3N	263989	3/30
50	PL7-B50/3N	263990	3/30
63	PL7-B63/3N	263991	3/30

SG06611



4-pole			
1	PL7-B1/4	165146	3/30
1.5	PL7-B1,5/4	165144	3/30
1.6	PL7-B1,6/4	165145	3/30
2	PL7-B2/4	165153	3/30
2.5	PL7-B2,5/4	165152	3/30
3	PL7-B3/4	165157	3/30
3.5	PL7-B3,5/4	165156	3/30
4	PL7-B4/4	165159	3/30
5	PL7-B5/4	165161	3/30
6	PL7-B6/4	165163	3/30
8	PL7-B8/4	165165	3/30
10	PL7-B10/4	165147	3/30
12	PL7-B12/4	165148	3/30
13	PL7-B13/4	165149	3/30
15	PL7-B15/4	165150	3/30
16	PL7-B16/4	165151	3/30
20	PL7-B20/4	165154	3/30
25	PL7-B25/4	165155	3/30
32	PL7-B32/4	165158	3/30
40	PL7-B40/4	165160	3/30
50	PL7-B50/4	165162	3/30
63	PL7-B63/4	165164	3/30

Protective Devices

Miniature Circuit Breakers PL7

10 kA, Characteristic C

SG06211



Rated Current I_n (A)	Type Designation	Article No.	Units per package
-------------------------	------------------	-------------	-------------------

1-pole

0.16	PL7-C0,16/1	262693	12/120
0.25	PL7-C0,25/1	262694	12/120
0.5	PL7-C0,5/1	262695	12/120
0.75	PL7-C0,75/1	262696	12/120
1	PL7-C1/1	262697	12/120
1.5	PL7-C1,5/1	165058	12/120
1.6	PL7-C1,6/1	262698	12/120
2	PL7-C2/1	262699	12/120
2.5	PL7-C2,5/1	165061	12/120
3	PL7-C3/1	165063	12/120
3.5	PL7-C3,5/1	165062	12/120
4	PL7-C4/1	262700	12/120
5	PL7-C5/1	165064	12/120
6	PL7-C6/1	262701	12/120
8	PL7-C8/1	165065	12/120
10	PL7-C10/1	262702	12/120
12	PL7-C12/1	165059	12/120
13	PL7-C13/1	262703	12/120
15	PL7-C15/1	165060	12/120
16	PL7-C16/1	262704	12/120
20	PL7-C20/1	262705	12/120
25	PL7-C25/1	262706	12/120
32	PL7-C32/1	262707	12/120
40	PL7-C40/1	262708	12/120
50	PL7-C50/1	262709	12/120
63	PL7-C63/1	262710	12/120

SG06311



1+N-pole

0.16	PL7-C0,16/1N	165224	8/80
0.25	PL7-C0,25/1N	165225	8/80
0.5	PL7-C0,5/1N	165226	8/80
0.75	PL7-C0,75/1N	165227	8/80
1	PL7-C1/1N	165230	8/80
1,5	PL7-C1,5/1N	165228	8/80
1.6	PL7-C1,6/1N	165229	8/80
2	PL7-C2/1N	262744	8/80
2.5	PL7-C2,5/1N	165233	8/80
3	PL7-C3/1N	165235	8/80
3.5	PL7-C3,5/1N	165234	8/80
4	PL7-C4/1N	262745	8/80
5	PL7-C5/1N	165236	8/80
6	PL7-C6/1N	262746	8/80
8	PL7-C8/1N	165237	8/80
10	PL7-C10/1N	262747	8/80
12	PL7-C12/1N	165231	8/80
13	PL7-C13/1N	262748	8/80
15	PL7-C15/1N	165232	8/80
16	PL7-C16/1N	262749	8/80
20	PL7-C20/1N	262750	8/80
25	PL7-C25/1N	262751	8/80
32	PL7-C32/1N	262752	8/80

Protective Devices

SG06411



Rated Current I_n (A)	Type Designation	Article No.	Units per package
2-pole			
0.16	PL7-C0,16/2	165089	6/60
0.25	PL7-C0,25/2	165090	6/60
0.5	PL7-C0,5/2	263352	6/60
0.75	PL7-C0,75/2	165091	6/60
1	PL7-C1/2	263353	6/60
1.5	PL7-C1,5/2	165092	6/60
1.6	PL7-C1,6/2	165093	6/60
2	PL7-C2/2	263354	6/60
2.5	PL7-C2,5/2	165096	6/60
3	PL7-C3/2	165098	6/60
3.5	PL7-C3,5/2	165097	6/60
4	PL7-C4/2	263355	6/60
5	PL7-C5/2	165099	6/60
6	PL7-C6/2	263356	6/60
8	PL7-C8/2	165100	6/60
10	PL7-C10/2	263357	6/60
12	PL7-C12/2	165094	6/60
13	PL7-C13/2	263358	6/60
15	PL7-C15/2	165095	6/60
16	PL7-C16/2	263359	6/60
20	PL7-C20/2	263360	6/60
25	PL7-C25/2	263361	6/60
32	PL7-C32/2	263362	6/60
40	PL7-C40/2	263363	6/60
50	PL7-C50/2	263364	6/60
63	PL7-C63/2	263365	6/60

SG06511



3-pole			
0.16	PL7-C0,16/3	165121	4/40
0.25	PL7-C0,25/3	165122	4/40
0.5	PL7-C0,5/3	263402	4/40
0.75	PL7-C0,75/3	165123	4/40
1	PL7-C1/3	263403	4/40
1.5	PL7-C1,5/3	165124	4/40
1.6	PL7-C1,6/3	165125	4/40
2	PL7-C2/3	263404	4/40
2.5	PL7-C2,5/3	165128	4/40
3	PL7-C3/3	165130	4/40
3.5	PL7-C3,5/3	165129	4/40
4	PL7-C4/3	263405	4/40
5	PL7-C5/3	165131	4/40
6	PL7-C6/3	263406	4/40
8	PL7-C8/3	165132	4/40
10	PL7-C10/3	263407	4/40
12	PL7-C12/3	165126	4/40
13	PL7-C13/3	263408	4/40
15	PL7-C15/3	165127	4/40
16	PL7-C16/3	263409	4/40
20	PL7-C20/3	263410	4/40
25	PL7-C25/3	263411	4/40
32	PL7-C32/3	263412	4/40
40	PL7-C40/3	263413	4/40
50	PL7-C50/3	263414	4/40
63	PL7-C63/3	263415	4/40

Protective Devices

SG06711



Rated Current I_n (A)	Type Designation	Article No.	Units per package
3+N-pole			
0.16	PL7-C0,16/3N	165261	3/30
0.25	PL7-C0,25/3N	165262	3/30
0.5	PL7-C0,5/3N	165263	3/30
0.75	PL7-C0,75/3N	165264	3/30
1	PL7-C1/3N	165267	3/30
1.5	PL7-C1,5/3N	165265	3/30
1.6	PL7-C1,6/3N	165266	3/30
2	PL7-C2/3N	165271	3/30
2.5	PL7-C2,5/3N	165270	3/30
3	PL7-C3/3N	165273	3/30
3.5	PL7-C3,5/3N	165272	3/30
4	PL7-C4/3N	165274	3/30
5	PL7-C5/3N	165275	3/30
6	PL7-C6/3N	263992	3/30
8	PL7-C8/3N	165276	3/30
10	PL7-C10/3N	263993	3/30
12	PL7-C12/3N	165268	3/30
13	PL7-C13/3N	263994	3/30
15	PL7-C15/3N	165269	3/30
16	PL7-C16/3N	263995	3/30
20	PL7-C20/3N	263996	3/30
25	PL7-C25/3N	263997	3/30
32	PL7-C32/3N	263998	3/30
40	PL7-C40/3N	263999	3/30
50	PL7-C50/3N	264000	3/30
63	PL7-C63/3N	264001	3/30

SG06611



4-pole			
0.16	PL7-C0,16/4	165166	3/30
0.25	PL7-C0,25/4	165167	3/30
0.5	PL7-C0,5/4	165168	3/30
0.75	PL7-C0,75/4	165169	3/30
1	PL7-C1/4	165172	3/30
1.5	PL7-C1,5/4	165170	3/30
1.6	PL7-C1,6/4	165171	3/30
2	PL7-C2/4	165178	3/30
2.5	PL7-C2,5/4	165177	3/30
3	PL7-C3/4	165182	3/30
3.5	PL7-C3,5/4	165181	3/30
4	PL7-C4/4	165184	3/30
5	PL7-C5/4	165186	3/30
6	PL7-C6/4	165188	3/30
8	PL7-C8/4	165190	3/30
10	PL7-C10/4	165173	3/30
12	PL7-C12/4	165174	3/30
13	PL7-C13/4	165175	3/30
15	PL7-C15/4	165176	3/30
16	PL7-C16/4	107329	3/30
20	PL7-C20/4	165179	3/30
25	PL7-C25/4	165180	3/30
32	PL7-C32/4	165183	3/30
40	PL7-C40/4	165185	3/30
50	PL7-C50/4	165187	3/30
63	PL7-C63/4	165189	3/30

Protective Devices

Miniature Circuit Breakers PL7

10 kA, Characteristic D

SG06211



Rated Current I_n (A)	Type Designation	Article No.	Units per package
1-pole			
0.5	PL7-D0,5/1	165066	12/120
1	PL7-D1/1	165071	12/120
1.5	PL7-D1,5/1	165067	12/120
1.6	PL7-D1,6/1	165068	12/120
2	PL7-D2/1	262711	12/120
2.5	PL7-D2,5/1	165072	12/120
3	PL7-D3/1	165074	12/120
3.5	PL7-D3,5/1	165073	12/120
4	PL7-D4/1	262712	12/120
5	PL7-D5/1	165075	12/120
6	PL7-D6/1	262713	12/120
8	PL7-D8/1	165076	12/120
10	PL7-D10/1	262714	12/120
12	PL7-D12/1	165069	12/120
13	PL7-D13/1	262715	12/120
15	PL7-D15/1	165070	12/120
16	PL7-D16/1	262716	12/120
20	PL7-D20/1	262717	12/120
25	PL7-D25/1	262718	12/120
32	PL7-D32/1	262719	12/120
40	PL7-D40/1	262720	12/120

SG06311



Rated Current I_n (A)	Type Designation	Article No.	Units per package
1+N-pole			
0.5	PL7-D0,5/1N	165238	8/80
1	PL7-D1/1N	165241	8/80
1.5	PL7-D1,5/1N	165239	8/80
1.6	PL7-D1,6/1N	165240	8/80
2	PL7-D2/1N	262753	8/80
2.5	PL7-D2,5/1N	165244	8/80
3	PL7-D3/1N	165246	8/80
3.5	PL7-D3,5/1N	165245	8/80
4	PL7-D4/1N	262754	8/80
5	PL7-D5/1N	165247	8/80
6	PL7-D6/1N	262755	8/80
8	PL7-D8/1N	165248	8/80
10	PL7-D10/1N	262756	8/80
12	PL7-D12/1N	165242	8/80
13	PL7-D13/1N	262757	8/80
15	PL7-D15/1N	165243	8/80
16	PL7-D16/1N	262758	8/80
20	PL7-D20/1N	262759	8/80
25	PL7-D25/1N	262760	8/80

SG06411



Rated Current I_n (A)	Type Designation	Article No.	Units per package
2-pole			
0.5	PL7-D0,5/2	165101	6/60
1	PL7-D1/2	108184	6/60
1.5	PL7-D1,5/2	165102	6/60
1.6	PL7-D1,6/2	165103	6/60
2	PL7-D2/2	263366	6/60
2.5	PL7-D2,5/2	165106	6/60
3	PL7-D3/2	108185	6/60
3.5	PL7-D3,5/2	165107	6/60
4	PL7-D4/2	263367	6/60
5	PL7-D5/2	165108	6/60
6	PL7-D6/2	263368	6/60
8	PL7-D8/2	165109	6/60
10	PL7-D10/2	263369	6/60
12	PL7-D12/2	165104	6/60
13	PL7-D13/2	263380	6/60
15	PL7-D15/2	165105	6/60
16	PL7-D16/2	263381	6/60
20	PL7-D20/2	263382	6/60
25	PL7-D25/2	263383	6/60
32	PL7-D32/2	263384	6/60
40	PL7-D40/2	263385	6/60

Protective Devices

SG06511



Rated Current I_n (A)	Type Designation	Article No.	Units per package
3-pole			
0.5	PL7-D0,5/3	165133	4/40
1	PL7-D1/3	165136	4/40
1.5	PL7-D1,5/3	165134	4/40
1.6	PL7-D1,6/3	165135	4/40
2	PL7-D2/3	263416	4/40
2.5	PL7-D2,5/3	165139	4/40
3	PL7-D3/3	165141	4/40
3.5	PL7-D3,5/3	165140	4/40
4	PL7-D4/3	263417	4/40
5	PL7-D5/3	165142	4/40
6	PL7-D6/3	263418	4/40
8	PL7-D8/3	165143	4/40
10	PL7-D10/3	263419	4/40
12	PL7-D12/3	165137	4/40
13	PL7-D13/3	263420	4/40
15	PL7-D15/3	165138	4/40
16	PL7-D16/3	263421	4/40
20	PL7-D20/3	263422	4/40
25	PL7-D25/3	263423	4/40
32	PL7-D32/3	263424	4/40
40	PL7-D40/3	263425	4/40

SG06711



Rated Current I_n (A)	Type Designation	Article No.	Units per package
3+N-pole			
0.5	PL7-D0,5/3N	165277	3/30
1	PL7-D1/3N	165280	3/30
1.5	PL7-D1,5/3N	165278	3/30
1.6	PL7-D1,6/3N	165279	3/30
2	PL7-D2/3N	165284	3/30
2.5	PL7-D2,5/3N	165283	3/30
3	PL7-D3/3N	165286	3/30
3.5	PL7-D3,5/3N	165285	3/30
4	PL7-D4/3N	165287	3/30
5	PL7-D5/3N	165288	3/30
6	PL7-D6/3N	264002	3/30
8	PL7-D8/3N	165289	3/30
10	PL7-D10/3N	264003	3/30
12	PL7-D12/3N	165281	3/30
13	PL7-D13/3N	264004	3/30
15	PL7-D15/3N	165282	3/30
16	PL7-D16/3N	264005	3/30
20	PL7-D20/3N	264006	3/30
25	PL7-D25/3N	264007	3/30
32	PL7-D32/3N	264008	3/30
40	PL7-D40/3N	264009	3/30

SG06611



Rated Current I_n (A)	Type Designation	Article No.	Units per package
4-pole			
0.5	PL7-D0,5/4	165191	3/30
1	PL7-D1/4	165194	3/30
1.5	PL7-D1,5/4	165192	3/30
1.6	PL7-D1,6/4	165193	3/30
2	PL7-D2/4	165201	3/30
2.5	PL7-D2,5/4	165200	3/30
3	PL7-D3/4	165205	3/30
3.5	PL7-D3,5/4	165204	3/30
4	PL7-D4/4	165207	3/30
5	PL7-D5/4	165209	3/30
6	PL7-D6/4	165210	3/30
8	PL7-D8/4	165211	3/30
10	PL7-D10/4	165195	3/30
12	PL7-D12/4	165196	3/30
13	PL7-D13/4	165197	3/30
15	PL7-D15/4	165198	3/30
16	PL7-D16/4	165199	3/30
20	PL7-D20/4	165202	3/30
25	PL7-D25/4	165203	3/30
32	PL7-D32/4	165206	3/30
40	PL7-D40/4	165208	3/30

Miniature Circuit Breakers PL7-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 10 kA according to IEC/EN 60947-2
- Up to 250 V DC per pole

SG06211



Protective Devices

Miniature Circuit Breakers PL7-DC for AC/DC

10 kA, Characteristic C

SG06211



Rated Current I_n (A)	Type Designation	Article No.	Units per package
-------------------------	------------------	-------------	-------------------

1-pole

1	PL7-C1/1-DC	264851	12/120
2	PL7-C2/1-DC	264883	12/120
3	PL7-C3/1-DC	264884	12/120
4	PL7-C4/1-DC	264885	12/120
6	PL7-C6/1-DC	264886	12/120
10	PL7-C10/1-DC	264887	12/120
13	PL7-C13/1-DC	264888	12/120
16	PL7-C16/1-DC	264889	12/120
20	PL7-C20/1-DC	264890	12/120
25	PL7-C25/1-DC	264891	12/120
32	PL7-C32/1-DC	264892	12/120
40	PL7-C40/1-DC	264893	12/120
50	PL7-C50/1-DC	264894	12/120

SG06411



2-pole

1	PL7-C1/2-DC	264895	6/60
2	PL7-C2/2-DC	264896	6/60
3	PL7-C3/2-DC	264897	6/60
4	PL7-C4/2-DC	264898	6/60
6	PL7-C6/2-DC	264899	6/60
10	PL7-C10/2-DC	264900	6/60
13	PL7-C13/2-DC	264901	6/60
16	PL7-C16/2-DC	264902	6/60
20	PL7-C20/2-DC	264903	6/60
25	PL7-C25/2-DC	264904	6/60
32	PL7-C32/2-DC	264905	6/60
40	PL7-C40/2-DC	264906	6/60
50	PL7-C50/2-DC	264907	6/60

Miniature Circuit Breakers with Plug-in Terminals PLI







- Contact position indicator red - green
- Two plug-in terminals at the output side
- Single-wire lines can be connected without tools
- Plug-in terminals can be opened conveniently by means of a screwdriver
- Guide for secure terminal connection below
- 3-position DIN rail clip, permits removal from existing busbar system
- Comprehensive range of accessories suitable for subsequent installation
- Rated currents up to 16 A
- Tripping characteristics B, C, D
- Rated breaking capacity 10 kA according to IEC/EN 60898-1

SG33911









Protective Devices

Miniature Circuit Breakers with Plug-in Terminals at the output side PLI 10 kA, Characteristic B

	Rated current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG11511</p>	1-pole			
	2	PLI-B2/1	101245	12 / 120
	4	PLI-B4/1	101246	12 / 120
	6	PLI-B6/1	101247	12 / 120
	8	PLI-B8/1	101248	12 / 120
	10	PLI-B10/1	101249	12 / 120
	13	PLI-B13/1	101250	12 / 120
16	PLI-B16/1	101251	12 / 120	
 <p>SG20011</p>	1+N-pole, 2 Module Units (MU)			
	2	PLI-B2/1N	101266	1 / 60
	4	PLI-B4/1N	101267	1 / 60
	6	PLI-B6/1N	101268	1 / 60
	8	PLI-B8/1N	101269	1 / 60
	10	PLI-B10/1N	101270	1 / 60
	13	PLI-B13/1N	101271	1 / 60
16	PLI-B16/1N	101272	1 / 60	
 <p>SG19511</p>	2-pole			
	2	PLI-B2/2	101287	1 / 60
	4	PLI-B4/2	101288	1 / 60
	6	PLI-B6/2	101289	1 / 60
	8	PLI-B8/2	101290	1 / 60
	10	PLI-B10/2	101291	1 / 60
	13	PLI-B13/2	101292	1 / 60
16	PLI-B16/2	101293	1 / 60	
 <p>SG33911</p>	3-pole			
	2	PLI-B2/3	101308	1 / 40
	4	PLI-B4/3	101309	1 / 40
	6	PLI-B6/3	101310	1 / 40
	8	PLI-B8/3	101311	1 / 40
	10	PLI-B10/3	101312	1 / 40
	13	PLI-B13/3	101313	1 / 40
16	PLI-B16/3	101314	1 / 40	
 <p>SG19211</p>	3+N-pole			
	2	PLI-B2/3N	101329	1 / 30
	4	PLI-B4/3N	101330	1 / 30
	6	PLI-B6/3N	101331	1 / 30
	8	PLI-B8/3N	101332	1 / 30
	10	PLI-B10/3N	101333	1 / 30
	13	PLI-B13/3N	101334	1 / 30
16	PLI-B16/3N	101335	1 / 30	
 <p>SG39011</p>	4-pole			
	2	PLI-B2/4	101350	1 / 30
	4	PLI-B4/4	101351	1 / 30
	6	PLI-B6/4	101352	1 / 30
	8	PLI-B8/4	101353	1 / 30
	10	PLI-B10/4	101354	1 / 30
	13	PLI-B13/4	101355	1 / 30
16	PLI-B16/4	101356	1 / 30	







Protective Devices

Miniature Circuit Breakers with Plug-in Terminals at the output side PLI 10 kA, Characteristic C

	Rated current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG11511</p>	1-pole			
	2	PLI-C2/1	101252	12 / 120
	4	PLI-C4/1	101253	12 / 120
	6	PLI-C6/1	101254	12 / 120
	8	PLI-C8/1	101255	12 / 120
	10	PLI-C10/1	101256	12 / 120
	13	PLI-C13/1	101257	12 / 120
16	PLI-C16/1	101258	12 / 120	
 <p>SG20011</p>	1+N-pole, 2 Module Units (MU)			
	2	PLI-C2/1N	101273	1 / 60
	4	PLI-C4/1N	101274	1 / 60
	6	PLI-C6/1N	101275	1 / 60
	8	PLI-C8/1N	101276	1 / 60
	10	PLI-C10/1N	101277	1 / 60
	13	PLI-C13/1N	101278	1 / 60
16	PLI-C16/1N	101279	1 / 60	
 <p>SG19511</p>	2-pole			
	2	PLI-C2/2	101294	1 / 60
	4	PLI-C4/2	101295	1 / 60
	6	PLI-C6/2	101296	1 / 60
	8	PLI-C8/2	101297	1 / 60
	10	PLI-C10/2	101298	1 / 60
	13	PLI-C13/2	101299	1 / 60
16	PLI-C16/2	101300	1 / 60	
 <p>SG33911</p>	3-pole			
	2	PLI-C2/3	101315	1 / 40
	4	PLI-C4/3	101316	1 / 40
	6	PLI-C6/3	101317	1 / 40
	8	PLI-C8/3	101318	1 / 40
	10	PLI-C10/3	101319	1 / 40
	13	PLI-C13/3	101320	1 / 40
16	PLI-C16/3	101321	1 / 40	
 <p>SG19211</p>	3+N-pole			
	2	PLI-C2/3N	101336	1 / 30
	4	PLI-C4/3N	101337	1 / 30
	6	PLI-C6/3N	101338	1 / 30
	8	PLI-C8/3N	101339	1 / 30
	10	PLI-C10/3N	101340	1 / 30
	13	PLI-C13/3N	101341	1 / 30
16	PLI-C16/3N	101342	1 / 30	
 <p>SG39011</p>	4-pole			
	2	PLI-C2/4	101357	1 / 30
	4	PLI-C4/4	101358	1 / 30
	6	PLI-C6/4	101359	1 / 30
	8	PLI-C8/4	101360	1 / 30
	10	PLI-C10/4	101361	1 / 30
	13	PLI-C13/4	101362	1 / 30
16	PLI-C16/4	101363	1 / 30	

Protective Devices

Miniature Circuit Breakers with Plug-in Terminals at the output side PLI 10 kA, Characteristic D

	Rated current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG11511</p>	1-pole			
	2	PLI-D2/1	101259	12 / 120
	4	PLI-D4/1	101260	12 / 120
	6	PLI-D6/1	101261	12 / 120
	8	PLI-D8/1	101262	12 / 120
	10	PLI-D10/1	101263	12 / 120
	13	PLI-D13/1	101264	12 / 120
16	PLI-D16/1	101265	12 / 120	
 <p>SG20011</p>	1+N-pole, 2 Module Units (MU)			
	2	PLI-D2/1N	101280	1 / 60
	4	PLI-D4/1N	101281	1 / 60
	6	PLI-D6/1N	101282	1 / 60
	8	PLI-D8/1N	101283	1 / 60
	10	PLI-D10/1N	101284	1 / 60
	13	PLI-D13/1N	101285	1 / 60
16	PLI-D16/1N	101286	1 / 60	
 <p>SG19511</p>	2-pole			
	2	PLI-D2/2	101301	1 / 60
	4	PLI-D4/2	101302	1 / 60
	6	PLI-D6/2	101303	1 / 60
	8	PLI-D8/2	101304	1 / 60
	10	PLI-D10/2	101305	1 / 60
	13	PLI-D13/2	101306	1 / 60
16	PLI-D16/2	101307	1 / 60	
 <p>SG33911</p>	3-pole			
	2	PLI-D2/3	101322	1 / 40
	4	PLI-D4/3	101323	1 / 40
	6	PLI-D6/3	101324	1 / 40
	8	PLI-D8/3	101325	1 / 40
	10	PLI-D10/3	101326	1 / 40
	13	PLI-D13/3	101327	1 / 40
16	PLI-D16/3	101328	1 / 40	
 <p>SG19211</p>	3+N-pole			
	2	PLI-D2/3N	101343	1 / 30
	4	PLI-D4/3N	101344	1 / 30
	6	PLI-D6/3N	101345	1 / 30
	8	PLI-D8/3N	101346	1 / 30
	10	PLI-D10/3N	101347	1 / 30
	13	PLI-D13/3N	101348	1 / 30
16	PLI-D16/3N	101349	1 / 30	
 <p>SG39011</p>	4-pole			
	2	PLI-D2/4	101364	1 / 30
	4	PLI-D4/4	101365	1 / 30
	6	PLI-D6/4	101366	1 / 30
	8	PLI-D8/4	101367	1 / 30
	10	PLI-D10/4	101368	1 / 30
	13	PLI-D13/4	101369	1 / 30
16	PLI-D16/4	101370	1 / 30	

Miniature Circuit Breakers PLHT

- High-quality miniature circuit breakers for commercial and industrial applications
- Contact position indicator red - green
- Accessories suitable for subsequent installation
- Rated currents up to 125 A
- Tripping characteristics B, C, D
- Rated breaking capacity up to 25 kA according to EN 60947-2






SG43611



Protective Devices

Miniature Circuit Breakers PLHT






Characteristic B

	Rated Current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG41311</p>	1-pole			
	20	PLHT-B20	247972	12
	25	PLHT-B25	247973	12
	32	PLHT-B32	247974	12
	40	PLHT-B40	247975	12
	50	PLHT-B50	247976	12
	63	PLHT-B63	247977	12
	80	PLHT-B80	247978	12
	100	PLHT-B100	247979	12
125	PLHT-B125	247980	12	
 <p>SG42111</p>	2-pole			
	20	PLHT-B20/2	247998	6
	25	PLHT-B25/2	247999	6
	32	PLHT-B32/2	248000	6
	40	PLHT-B40/2	248001	6
	50	PLHT-B50/2	248002	6
	63	PLHT-B63/2	248003	6
	80	PLHT-B80/2	248004	6
	100	PLHT-B100/2	248005	6
125	PLHT-B125/2	248006	6	
 <p>SG42911</p>	3-pole			
	20	PLHT-B20/3	248024	4
	25	PLHT-B25/3	248025	4
	32	PLHT-B32/3	248026	4
	40	PLHT-B40/3	248027	4
	50	PLHT-B50/3	248028	4
	63	PLHT-B63/3	248029	4
	80	PLHT-B80/3	248030	4
	100	PLHT-B100/3	248031	4
125	PLHT-B125/3	248032	4	
 <p>SG45111</p>	3+N-pole			
	20	PLHT-B20/3N	248050	3
	25	PLHT-B25/3N	248051	3
	32	PLHT-B32/3N	248052	3
	40	PLHT-B40/3N	248053	3
	50	PLHT-B50/3N	248054	3
	63	PLHT-B63/3N	248055	3
	80	PLHT-B80/3N	248056	3
	100	PLHT-B100/3N	248057	3
125	PLHT-B125/3N	248058	3	
 <p>SG44811</p>	4-pole			
	20	PLHT-B20/4	248076	3
	25	PLHT-B25/4	248077	3
	32	PLHT-B32/4	248078	3
	40	PLHT-B40/4	248079	3
	50	PLHT-B50/4	248080	3
	63	PLHT-B63/4	248081	3
	80	PLHT-B80/4	248082	3
	100	PLHT-B100/4	248083	3
125	PLHT-B125/4	248084	3	






Protective Devices

Miniature Circuit Breakers PLHT




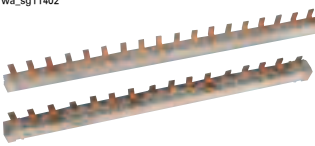

Characteristic C

	Rated Current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG41311</p>	1-pole			
	20	PLHT-C20	247981	12
	25	PLHT-C25	247982	12
	32	PLHT-C32	247983	12
	40	PLHT-C40	247984	12
	50	PLHT-C50	247985	12
	63	PLHT-C63	247986	12
	80	PLHT-C80	247987	12
	100	PLHT-C100	247988	12
125	PLHT-C125	247989	12	
 <p>SG42111</p>	2-pole			
	20	PLHT-C20/2	248007	6
	25	PLHT-C25/2	248008	6
	32	PLHT-C32/2	248009	6
	40	PLHT-C40/2	248010	6
	50	PLHT-C50/2	248011	6
	63	PLHT-C63/2	248012	6
	80	PLHT-C80/2	248013	6
	100	PLHT-C100/2	248014	6
125	PLHT-C125/2	248015	6	
 <p>SG42911</p>	3-pole			
	20	PLHT-C20/3	248033	4
	25	PLHT-C25/3	248034	4
	32	PLHT-C32/3	248035	4
	40	PLHT-C40/3	248036	4
	50	PLHT-C50/3	248037	4
	63	PLHT-C63/3	248038	4
	80	PLHT-C80/3	248039	4
	100	PLHT-C100/3	248040	4
125	PLHT-C125/3	248041	4	
 <p>SG45111</p>	3+N-pole			
	20	PLHT-C20/3N	248059	3
	25	PLHT-C25/3N	248060	3
	32	PLHT-C32/3N	248061	3
	40	PLHT-C40/3N	248062	3
	50	PLHT-C50/3N	248063	3
	63	PLHT-C63/3N	248064	3
	80	PLHT-C80/3N	248065	3
	100	PLHT-C100/3N	248066	3
125	PLHT-C125/3N	248067	3	
 <p>SG44811</p>	4-pole			
	20	PLHT-C20/4	248085	3
	25	PLHT-C25/4	248086	3
	32	PLHT-C32/4	248087	3
	40	PLHT-C40/4	248088	3
	50	PLHT-C50/4	248089	3
	63	PLHT-C63/4	248090	3
	80	PLHT-C80/4	248091	3
	100	PLHT-C100/4	248092	3
125	PLHT-C125/4	248093	3	

Protective Devices

Miniature Circuit Breakers PLHT				
Characteristic D				
	Rated Current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG41311</p>	1-pole			
	20	PLHT-D20	247990	12
	25	PLHT-D25	247991	12
	32	PLHT-D32	247992	12
	40	PLHT-D40	247993	12
	50	PLHT-D50	247994	12
	63	PLHT-D63	247995	12
	80	PLHT-D80	247996	12
100	PLHT-D100	247997	12	
 <p>SG42111</p>	2-pole			
	20	PLHT-D20/2	248016	6
	25	PLHT-D25/2	248017	6
	32	PLHT-D32/2	248018	6
	40	PLHT-D40/2	248019	6
	50	PLHT-D50/2	248020	6
	63	PLHT-D63/2	248021	6
	80	PLHT-D80/2	248022	6
100	PLHT-D100/2	248023	6	
 <p>SG42911</p>	3-pole			
	20	PLHT-D20/3	248042	4
	25	PLHT-D25/3	248043	4
	32	PLHT-D32/3	248044	4
	40	PLHT-D40/3	248045	4
	50	PLHT-D50/3	248046	4
	63	PLHT-D63/3	248047	4
	80	PLHT-D80/3	248048	4
100	PLHT-D100/3	248049	4	
 <p>SG45111</p>	3+N-pole			
	20	PLHT-D20/3N	248068	3
	25	PLHT-D25/3N	248069	3
	32	PLHT-D32/3N	248070	3
	40	PLHT-D40/3N	248071	3
	50	PLHT-D50/3N	248072	3
	63	PLHT-D63/3N	248073	3
	80	PLHT-D80/3N	248074	3
100	PLHT-D100/3N	248075	3	
 <p>SG44811</p>	4-pole			
	20	PLHT-D20/4	248094	3
	25	PLHT-D25/4	248095	3
	32	PLHT-D32/4	248096	3
	40	PLHT-D40/4	248097	3
	50	PLHT-D50/4	248098	3
	63	PLHT-D63/4	248099	3
	80	PLHT-D80/4	248100	3
100	PLHT-D100/4	248101	3	

Protective Devices

Miniature Circuit Breakers PLHT-V similar to characteristic D				
	Rated Current I_n (A)	Type Designation	Article No.	Units per package
 <p>SG09611</p>	1-pole			
	20	PLHT-20-V	248102	12
	25	PLHT-25-V	248103	12
	32	PLHT-32-V	248104	12
	40	PLHT-40-V	248105	12
	50	PLHT-50-V	248106	12
	63	PLHT-63-V	248107	12
Accessories for Miniature Circuit Breakers PLHT, PLHT-V				
	Operational voltage range V~	Type Designation	Article No.	Units per package
 <p>SG09311</p>	Shunt Trip Release, Shunt Trip Release Kit			
	110-415/Shunt trip release	Z-LHASA/230	248442	8
	12-60/Shunt trip release	Z-LHASA/24	248441	8
	110-415/Shunt trip release kit	Z-BHASA/230	248445	8
	12-60/Shunt trip release kit	Z-BHASA/24	248444	8
 <p>SG16111</p>	Auxiliary Switch			
	Function 1NO+1NC	Z-LHK	248440	10 / 100
Accessories for Miniature Circuit Breakers PLHT-V				
		Type Designation	Article No.	Units per package
 <p>wa_sg11402</p>	Tripping interlock	LH-SPL	285752	1
	Tripping interlock	LH-SPE	215999	1
	Switchoff interlock	LH-SPA	216000	1
	Busbar block 35 mm ²	Z-SV-35/PLHT-V	264939	4
 <p>SG15911</p>	Neutral disconnect			
		Z-NTS	248443	1





Residual Current Devices CFI6 DE

- A large spectrum of compact residual current devices for a wide range of applications
- For fault current/residual current protection and additional protection
- Wide variety of nominal currents
- Comprehensive range of accessories
- Real contact position indicator (4-pole)

SG79911



Protective Devices

		Residual Current Devices CFI6			DE
		Conditionally surge current-proof 250 A, type AC			
		$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
 SG79711	2-pole				
	25/0.03	CFI6-25/2/003	235753	1 / 60	
	25/0.10	CFI6-25/2/01	235754	1 / 60	
	25/0.30	CFI6-25/2/03	235755	1 / 60	
	25/0.50	CFI6-25/2/05	235756	1 / 60	
	40/0.03	CFI6-40/2/003	235760	1 / 60	
	40/0.10	CFI6-40/2/01	235761	1 / 60	
	40/0.30	CFI6-40/2/03	235762	1 / 60	
	40/0.50	CFI6-40/2/05	235763	1 / 60	
	63/0.03	CFI6-63/2/003	235768	1 / 60	
	63/0.10	CFI6-63/2/01	235769	1 / 60	
	63/0.30	CFI6-63/2/03	235770	1 / 60	
	63/0.50	CFI6-63/2/05	235771	1 / 60	
 SG79911	4-pole				
	25/0.03	CFI6-25/4/003	235776	1 / 30	
	25/0.10	CFI6-25/4/01	235777	1 / 30	
	25/0.30	CFI6-25/4/03	235778	1 / 30	
	25/0.50	CFI6-25/4/05	235779	1 / 30	
	40/0.03	CFI6-40/4/003	235784	1 / 30	
	40/0.10	CFI6-40/4/01	235785	1 / 30	
	40/0.30	CFI6-40/4/03	235786	1 / 30	
	40/0.50	CFI6-40/4/05	235787	1 / 30	
	63/0.03	CFI6-63/4/003	235792	1 / 30	
	63/0.10	CFI6-63/4/01	235793	1 / 30	
	63/0.30	CFI6-63/4/03	235794	1 / 30	
	63/0.50	CFI6-63/4/05	235795	1 / 30	
		Residual Current Devices CFI6			DE
		Conditionally surge current-proof 250 A, sensitive to residual pulsating DC, type A			
		$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
 SG79711	2-pole				
	25/0.03	CFI6-25/2/003-A	235757	1 / 60	
	25/0.10	CFI6-25/2/01-A	235758	1 / 60	
	25/0.30	CFI6-25/2/03-A	235759	1 / 60	
	40/0.03	CFI6-40/2/003-A	235764	1 / 60	
	40/0.10	CFI6-40/2/01-A	235765	1 / 60	
	40/0.30	CFI6-40/2/03-A	235766	1 / 60	
	40/0.50	CFI6-40/2/05-A	235767	1 / 60	
	63/0.03	CFI6-63/2/003-A	235772	1 / 60	
	63/0.10	CFI6-63/2/01-A	235773	1 / 60	
63/0.30	CFI6-63/2/03-A	235774	1 / 60		
63/0.50	CFI6-63/2/05-A	235775	1 / 60		
 SG79911	4-pole				
	25/0.03	CFI6-25/4/003-A	235780	1 / 30	
	25/0.10	CFI6-25/4/01-A	235781	1 / 30	
	25/0.30	CFI6-25/4/03-A	235782	1 / 30	
	25/0.50	CFI6-25/4/05-A	235783	1 / 30	
	40/0.03	CFI6-40/4/003-A	235788	1 / 30	
	40/0.10	CFI6-40/4/01-A	235789	1 / 30	
	40/0.30	CFI6-40/4/03-A	235790	1 / 30	
	40/0.50	CFI6-40/4/05-A	235791	1 / 30	
	63/0.03	CFI6-63/4/003-A	235796	1 / 30	
	63/0.10	CFI6-63/4/01-A	235797	1 / 30	
	63/0.30	CFI6-63/4/03-A	235798	1 / 30	
	63/0.50	CFI6-63/4/05-A	235799	1 / 30	

Residual Current Devices PF7

- A complete spectrum of compact residual current devices up to 100 A
- Rated short circuit strength 10 kA
- Especially for protection against accidents caused by current and property protection
- Wide variety of types (G, S, A, G/A, S/A, R, U, ...)
- Special type U for frequency converter applications with high surge current proof
- Accessories suitable for subsequent installation
- Frost resistance

SG08211



Protective Devices

Residual Current Devices PF7

Conditionally surge current-proof 250 A, type AC

SG07411



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
2-pole			
25/0.03	PF7-25/2/003	263577	1/60
25/0.10	PF7-25/2/01	263578	1/60
40/0.03	PF7-40/2/003	263579	1/60
40/0.10	PF7-40/2/01	263580	1/60
63/0.03	PF7-63/2/003	263581	1/60
63/0.10	PF7-63/2/01	263582	1/60
63/0.30	PF7-63/2/03	263583	1/60
100/0.03	PF7-100/2/003	166797	1/60
100/0.10	PF7-100/2/01	166799	1/60
100/0.30	PF7-100/2/03	166822	1/60

SG08211



4-pole			
25/0.03	PF7-25/4/003	263584	1/30
25/0.10	PF7-25/4/01	263585	1/30
40/0.03	PF7-40/4/003	263586	1/30
40/0.10	PF7-40/4/01	263587	1/30
40/0.30	PF7-40/4/03	263588	1/30
40/0.50	PF7-40/4/05	263589	1/30
63/0.03	PF7-63/4/003	263590	1/30
63/0.10	PF7-63/4/01	263591	1/30
63/0.30	PF7-63/4/03	263592	1/30
63/0.50	PF7-63/4/05	263593	1/30
80/0.03	PF7-80/4/003	263594	1/30
80/0.10	PF7-80/4/01	263595	1/30
80/0.30	PF7-80/4/03	263596	1/30
80/0.50	PF7-80/4/05	263597	1/30
100/0.03	PF7-100/4/003	102925	1/30
100/0.10	PF7-100/4/01	102926	1/30
100/0.30	PF7-100/4/03	102927	1/30
100/0.50	PF7-100/4/05	102928	1/30

Residual Current Devices PF7





Conditionally surge current-proof 250 A, sensitive to residual pulsating DC, type A

SG07411



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
2-pole			
16/0.01	PF7-16/2/001-A	263598	1/60
25/0.03	PF7-25/2/003-A	263599	1/60
25/0.10	PF7-25/2/01-A	263600	1/60
25/0.30	PF7-25/2/03-A	263601	1/60
40/0.03	PF7-40/2/003-A	263602	1/60
40/0.10	PF7-40/2/01-A	263603	1/60
40/0.30	PF7-40/2/03-A	263604	1/60
63/0.03	PF7-63/2/003-A	263605	1/60
63/0.10	PF7-63/2/01-A	263606	1/60
63/0.30	PF7-63/2/03-A	263607	1/60
100/0.10	PF7-100/2/01-A	166820	1/60
100/0.30	PF7-100/2/03-A	166823	1/60

Protective Devices

	$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
SG08211 	4-pole			
	25/0.03	PF7-25/4/003-A	263608	1/30
	25/0.10	PF7-25/4/01-A	263609	1/30
	25/0.30	PF7-25/4/03-A	263610	1/30
	40/0.03	PF7-40/4/003-A	263611	1/30
	40/0.10	PF7-40/4/01-A	263612	1/30
	40/0.30	PF7-40/4/03-A	263613	1/30
	63/0.03	PF7-63/4/003-A	263614	1/30
	63/0.10	PF7-63/4/01-A	263615	1/30
	63/0.30	PF7-63/4/03-A	263616	1/30
	80/0.03	PF7-80/4/003-A	263617	1/30
	80/0.30	PF7-80/4/03-A	263618	1/30
	100/0.03	PF7-100/4/003-A	102929	1/30
	100/0.10	PF7-100/4/01-A	102930	1/30
	100/0.30	PF7-100/4/03-A	102931	1/30
	100/0.50	PF7-100/4/05-A	102932	1/30
Residual Current Devices PF7				
Surge current-proof 3 kA, type G (ÖVE E 8601), type G , type G/A				
SG07411 	$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
	2-pole			
	25/0.03	PF7-25/2/003-G	263619	1/60
	25/0.10	PF7-25/2/01-G	263620	1/60
	40/0.03	PF7-40/2/003-G	263621	1/60
	40/0.10	PF7-40/2/01-G	263622	1/60
	40/0.03	PF7-40/2/003-G/A	166826	1/60
	63/0.03	PF7-63/2/003-G/A	166827	1/60
	80/0.03	PF7-80/2/003-G/A	166828	1/60
	100/0.03	PF7-100/2/003-G/A	166798	1/60
SG08211 	4-pole			
	40/0.03	PF7-40/4/003-G	263623	1/30
	40/0.10	PF7-40/4/01-G	263624	1/30
	63/0.03	PF7-63/4/003-G	263625	1/30
	63/0.10	PF7-63/4/01-G	263627	1/30
	80/0.03	PF7-80/4/003-G/A	166824	1/30
	100/0.03	PF7-100/4/003-G/A	166829	1/30
	100/0.3	PF7-100/4/03-G/A	166825	1/30
Residual Current Devices PF7				
Surge current-proof 3 kA, X-ray application, type R				
SG08211 	$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
	4-pole			
	63/0.03	PF7-63/4/003-R	263628	1/30
100/0.03	PF7-100/4/003-R	102935	1/30	

Protective Devices

Residual Current Devices PF7

Selective + surge current-proof 5 kA, type S

SG07411



SG08211



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
2-pole			
40/0.10	PF7-40/2/01-S	263629	1/60
40/0.30	PF7-40/2/03-S	263630	1/60
4-pole			
80/0.10	PF7-80/4/01-S	263636	1/30

Residual Current Devices PF7

Selective + surge current-proof 5 kA, sensitive to residual pulsating DC, type S/A

SG08211



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
25/0.10	PF7-25/4/01-S/A	263631	1/30
40/0.10	PF7-40/4/01-S/A	263632	1/30
40/0.30	PF7-40/4/03-S/A	263633	1/30
63/0.10	PF7-63/4/01-S/A	263634	1/30
63/0.30	PF7-63/4/03-S/A	263635	1/30
80/0.30	PF7-80/4/03-S/A	263637	1/30
100/0.30	PF7-100/4/03-S/A	292494	1/30

Residual Current Devices PF7-U

- Special residual current devices
 - for frequency converter applications
- For fault current/residual current protection and additional protection
- Comprehensive range of accessories
- Real contact position indicator
- Selective
- Frost resistance

SG08211



Protective Devices

Residual Current Devices PF7-U

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

SG08211



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
40/0.10	PF7-40/4/01-U	263638	1/30
40/0.30	PF7-40/4/03-U	263639	1/30
63/0.10	PF7-63/4/01-U	263640	1/30
63/0.30	PF7-63/4/03-U	263641	1/30
80/0.30	PF7-80/4/03-U	292495	1/30
100/0.30	PF7-100/4/03-U	292496	1/30

Residual Current Devices PFDM

- Advanced residual current devices for the 125 A nominal current range
- For fault current/residual current protection and additional protection
- Auxiliary switch
- Selective types

SG31011



Protective Devices

Residual Current Devices PFDM

Conditionally surge current-proof (0.5µs/100kHz ring-wave test) type AC

SG30611



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
2-pole			
125/0.03	PFDM-125/2/003	249031	1 / 60
125/0.30	PFDM-125/2/03	249033	1 / 60

SG31011



4-pole			
125/0.03	PFDM-125/4/003	235916	1 / 30
125/0.10	PFDM-125/4/01	235917	1 / 30
125/0.30	PFDM-125/4/03	235918	1 / 30
125/0.50	PFDM-125/4/05	235919	1 / 30

Residual Current Devices PFDM

Conditionally surge current-proof (0.5µs/100kHz ring-wave test) type A

SG30611



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
2-pole			
125/0.03	PFDM-125/2/003-A	249035	1/60
125/0.30	PFDM-125/2/03-A	249037	1/60

SG31011



4-pole			
125/0.03	PFDM-125/4/003-A	235920	1 / 30
125/0.10	PFDM-125/4/01-A	235921	1 / 30
125/0.30	PFDM-125/4/03-A	235922	1 / 30
125/0.50	PFDM-125/4/05-A	235923	1 / 30

Residual Current Devices PFDM

Selective + surge current-proof (0.5µs/100kHz ring-wave test) type S/A

SG31011



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
125/0.30	PFDM-125/4/03-S/A	285639	1 / 30

Protective Devices

SG34412



Description	Type Designation	Article No.	Units per package
Auxiliary switch 6 A, 230 V AC	Z-HD	265620	1

Residual Current Devices dRCM Digital

- Line voltage independent RCCB for fault or additional protection with additional digital features.
- System Monitoring: Preventive information / warning before the RCD trips in case of leakage currents.
 - Integrated auxiliary contact(s)
 - Local Indication
- New level of accuracy -> Reduced unwanted tripping
- Local status indication of residual current through 3 LEDs
- No monthly test required
- Comprehensive range of accessories
- Real contact position indicator
- Fault current tripping indicator
- Automatic re-setting possible
- Transparent designation plate

SG08310



Protective Devices

Residual Current Devices dRCM

Surge current-proof 3 kA, sensitive to residual pulsating DC, type G/A (ÖVE E 8601)

SG08310



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
25/0.03	dRCM-25/4/003-G/A+	120834	1 / 30
25/0.3	dRCM-25/4/03-G/A+	120835	1 / 30
40/0.03	dRCM-40/4/003-G/A+	120836	1 / 30
40/0.3	dRCM-40/4/03-G/A+	120837	1 / 30
63/0.03	dRCM-63/4/003-G/A+	120838	1 / 30
63/0.3	dRCM-63/4/03-G/A+	120839	1 / 30
80/0.03	dRCM-80/4/003-G/A+	120840	1 / 30
80/0.3	dRCM-80/4/03-G/A+	120841	1 / 30

Residual Current Devices dRCM

Surge current-proof 3 kA, X-ray application, type R

SG08310



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
63/0.03	dRCM-63/4/003-R+	120842	1 / 30

Residual Current Devices dRCM

Selective + surge current-proof typ. 5 kA, sensitive to residual pulsating DC, type S/A

SG08310



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
40/0.30	dRCM-40/4/03-S/A+	120843	1 / 30
63/0.30	dRCM-63/4/03-S/A+	120844	1 / 30
80/0.30	dRCM-80/4/03-S/A+	120845	1 / 30

Residual Current Devices dRCM

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

SG08310



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
40/0.03 *)	dRCM-40/4/003-U+	120850	1 / 30
40/0.30	dRCM-40/4/03-U+	120851	1 / 30
63/0.03 *)	dRCM-63/4/003-U+	120846	1 / 30
63/0.30	dRCM-63/4/03-U+	120847	1 / 30
80/0.30	dRCM-80/4/03-U+	120848	1 / 30

*) Short time delayed + surge current-proof 3 kA

Residual Current Devices dRCM Typ B and B+ Digital

- Line-voltage independent, all-current sensitive RCCB for fault or additional protection with additional digital features.
- System Monitoring: Preventive information / warning before the RCD trips in case of leakage currents
 - Integrated auxiliary contact
 - Local Indication through 3 LEDs
- B+ types also meet the requirements of superior fire-protection systems according to VDE 0664-400 (formerly known as VDE V 0664-110)
- 4-pole types can also be used as 2-pole devices for photovoltaic applications
- New level of accuracy -> Reduced unwanted tripping
- No monthly test required
- Comprehensive range of accessories
- Real contact position indicator
- Fault current tripping indicator
- Transparent designation plate
- Automatic re-setting possible

wa_sg03712



Protective Devices

Residual Current Devices dRCM Typ G/B

Surge current-proof 3 kA, AC-DC sensitive, type G/B (ÖVE E 8601)



wa_sg03712



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
25/0,03	dRCM-25/4/003-G/B	167868	1/30
40/0,03	dRCM-40/4/003-G/B	167869	1/30
63/0,03	dRCM-63/4/003-G/B	167870	1/30
80/0,03	dRCM-80/4/003-G/B	167871	1/30
25/0,3	dRCM-25/4/03-G/B	167872	1/30
40/0,3	dRCM-40/4/03-G/B	167873	1/30
63/0,3	dRCM-63/4/03-G/B	167874	1/30
80/0,3	dRCM-80/4/03-G/B	167875	1/30

Residual Current Devices dRCM Typ S/B

Selective + surge current-proof 5 kA, type S/B



wa_sg03712



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
25/0,3	dRCM-25/4/03-S/B	167876	1/30
40/0,3	dRCM-40/4/03-S/B	167877	1/30
63/0,3	dRCM-63/4/03-S/B	167878	1/30
80/0,3	dRCM-80/4/03-S/B	167879	1/30

Residual Current Devices dRCM Typ G/B+

Surge current-proof 3 kA, type G/B+ (ÖVE E 8601)



wa_sg03712



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
25/0,03	dRCM-25/4/003-G/B+	167856	1/30
40/0,03	dRCM-40/4/003-G/B+	167857	1/30
63/0,03	dRCM-63/4/003-G/B+	167858	1/30
80/0,03	dRCM-80/4/003-G/B+	167859	1/30
25/0,3	dRCM-25/4/03-G/B+	167860	1/30
40/0,3	dRCM-40/4/03-G/B+	167861	1/30
63/0,3	dRCM-63/4/03-G/B+	167862	1/30
80/0,3	dRCM-80/4/03-G/B+	167863	1/30

Residual Current Devices dRCM Typ S/B+

Selective + surge current-proof 5 kA, type S/B



wa_sg03712



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
25/0,3	dRCM-25/4/03-S/B+	167864	1/30
40/0,3	dRCM-40/4/03-S/B+	167865	1/30
63/0,3	dRCM-63/4/03-S/B+	167866	1/30
80/0,3	dRCM-80/4/03-S/B+	167867	1/30







Add-on Residual Current Protection PBSM MW

- Combining this device with a top-quality miniature circuit breaker of type PLS. (except PLSN) will form a top-quality RCBO unit (combined RCD/MCB device)
- Draw-out connection bar locked in installation position
- For subsequent mounting onto 2-, 3-, 3+N- and 4-pole miniature circuit breakers PLS.
- Rated current 40 and 63 A







SG18211



Protective Devices

		Add-on Residual Current Protection Unit PBSM		MW			
		conditionally surge-current-proof 250 A, type AC					
		Max. nominal current of PLS./ $I_{\Delta n}$ (A)	Type designation	Article-No.	Units per package		
	2-pole	40/0,03	PBSM-402/003	262323	1 / 20		
		40/0,10	PBSM-402/01	262324	1 / 20		
		40/0,30	PBSM-402/03	262325	1 / 20		
		40/0,50	PBSM-402/05	262326	1 / 20		
		40/1,00	PBSM-402/1	262327	1 / 20		
		63/0,03	PBSM-632/003	262426	1 / 20		
		63/0,10	PBSM-632/01	262427	1 / 20		
		63/0,30	PBSM-632/03	262428	1 / 20		
		63/0,5	PBSM-632/05	262429	1 / 20		
		63/1,00	PBSM-632/1	262431	1 / 20		
	3-pole	40/0,03	PBSM-403/003	262537	1 / 20		
		40/0,10	PBSM-403/01	262538	1 / 20		
		40/0,30	PBSM-403/03	262539	1 / 20		
		40/0,50	PBSM-403/05	262541	1 / 20		
		40/1,00	PBSM-403/1	262542	1 / 20		
		63/0,03	PBSM-633/003	262556	1 / 20		
		63/0,10	PBSM-633/01	262557	1 / 20		
		63/0,30	PBSM-633/03	262558	1 / 20		
		63/0,5	PBSM-633/05	262559	1 / 20		
		63/1,00	PBSM-633/1	262560	1 / 20		
	4-pole	40/0,03	PBSM-404/003	262568	1 / 13		
		40/0,10	PBSM-404/01	262569	1 / 13		
		40/0,30	PBSM-404/03	262570	1 / 13		
		40/0,50	PBSM-404/05	262571	1 / 13		
		40/1,00	PBSM-404/1	262572	1 / 13		
		63/0,03	PBSM-634/003	262590	1 / 13		
		63/0,10	PBSM-634/01	262591	1 / 13		
		63/0,30	PBSM-634/03	262592	1 / 13		
		63/0,5	PBSM-634/05	262595	1 / 13		
		63/1,00	PBSM-634/1	262596	1 / 13		
		Add-on Residual Current Protection Unit PBSM		MW			
		conditionally surge-current-proof, 250 A, sensitive to residual pulsating DC, type A					
	2-pole	40/0,03	PBSM-402/003-A	262328	1 / 20		
		40/0,10	PBSM-402/01-A	262329	1 / 20		
		40/0,30	PBSM-402/03-A	262420	1 / 20		
		40/1,00	PBSM-402/1-A	262421	1 / 20		
		63/0,03	PBSM-632/003-A	262530	1 / 20		
		63/0,10	PBSM-632/01-A	262531	1 / 20		
		63/0,30	PBSM-632/03-A	262532	1 / 20		
		63/1,00	PBSM-632/1-A	262533	1 / 20		
			3-pole	40/0,03	PBSM-403/003-A	262543	1 / 20
				40/0,10	PBSM-403/01-A	262544	1 / 20
40/0,30	PBSM-403/03-A			262545	1 / 20		
40/1,00	PBSM-403/1-A			262546	1 / 20		
63/0,03	PBSM-633/003-A			262561	1 / 20		
63/0,10	PBSM-633/01-A			262562	1 / 20		
63/0,30	PBSM-633/03-A			262563	1 / 20		
63/1,00	PBSM-633/1-A			262564	1 / 20		
	4-pole			40/0,03	PBSM-404/003-A	262573	1 / 13
				40/0,10	PBSM-404/01-A	262574	1 / 13
		40/0,30	PBSM-404/03-A	262575	1 / 13		
		40/1,00	PBSM-404/1-A	262576	1 / 13		
		63/0,03	PBSM-634/003-A	262597	1 / 13		
		63/0,10	PBSM-634/01-A	262598	1 / 13		
		63/0,30	PBSM-634/03-A	262600	1 / 13		
		63/1,00	PBSM-634/1-A	262602	1 / 13		

Protective Devices

		Add-on Residual Current Protection Unit PBSM			MW
		surge current-proof 3 kA, type G (ÖVE E 8601)			
		Max. nominal current of PLS./ $I_{\Delta n}$ (A)	Type designation	Article-No.	Units per package
SG17811		2-pole			
		40/0,03	PBSM-402/003-G	262422	1 / 20
SG18111		3-pole			
		40/0,03	PBSM-403/003-G	262552	1 / 20
SG18211		4-pole			
		40/0,03	PBSM-404/003-G	262577	1 / 13
		Add-on Residual Current Protection Unit PBSM			MW
		selective and surge current-proof 5 kA, type S			
		Max. nominal current of PLS./ $I_{\Delta n}$ (A)	Type designation	Article-No.	Units per package
SG17811		2-pole			
		40/0,10	PBSM-402/01-S	262423	1 / 20
		40/0,30	PBSM-402/03-S	262424	1 / 20
		40/1,00	PBSM-402/1-S	262425	1 / 20
		63/0,10	PBSM-632/01-S	262534	1 / 20
		63/0,30	PBSM-632/03-S	262535	1 / 20
		63/1,00	PBSM-632/1-S	262536	1 / 20
SG18111		3-pole			
		40/0,10	PBSM-403/01-S	262553	1 / 20
		40/0,30	PBSM-403/03-S	262554	1 / 20
		40/1,00	PBSM-403/1-S	262555	1 / 20
		63/0,10	PBSM-633/01-S	262565	1 / 20
		63/0,30	PBSM-633/03-S	262566	1 / 20
SG18211		4-pole			
		40/0,10	PBSM-404/01-S	262586	1 / 13
		40/0,30	PBSM-404/03-S	262587	1 / 13
		40/1,00	PBSM-404/1-S	262588	1 / 13
		63/0,10	PBSM-634/01-S	262603	1 / 13
63/0,30	PBSM-634/03-S	262605	1 / 13		
63/1,00	PBSM-634/1-S	262607	1 / 13		

Protective Devices

		Add-on Residual Current Protection Unit PBSM	MW		
		Selective + surge current-proof typ. 5 kA, sensitive to residual pulsating DC, type S/A			
		Max. nominal current of PLS, $I_{\Delta n}$ (A)	Type designation	Article-No.	Units per package
SG17811 	2-pole				
	40/0,10	PBSM-402/01-S/A	167015	1/20	
	40/0,30	PBSM-402/03-S/A	167016	1/20	
	63/0,30	PBSM-632/03-S/A	167017	1/20	
SG18111 	3-pole				
	40/0,10	PBSM-403/01-S/A	167018	1/20	
	40/0,30	PBSM-403/03-S/A	167019	1/20	
	63/0,30	PBSM-633/03-S/A	167020	1/20	
SG18211 	4-pole				
	40/0,10	PBSM-404/01-S/A	167021	1/13	
	40/0,30	PBSM-404/03-S/A	167022	1/13	
	63/0,30	PBSM-634/03-S/A	167023	1/13	

Add-on Residual Current Protection Unit PBHT

- By combining this device with a top-quality miniature circuit breaker of type PLHT a top-quality RCBO unit (combined RCD/MCB device) is formed.
- Add-on residual current unit (screw connection) for 80 or 125 A (2-pole and 4-pole)
- High flexibility and ease of installation thanks to variable wiring
- Free selection of main power supply
- Auxiliary switch 1 make contact included as standard in all PBHT versions
- Permits combinations with a variety of characteristics thanks to the different rated currents and characteristics of the miniature circuit breakers PLHT which can be connected
- For commercial and industry applications
- For subsequent mounting onto 2, 3, 3+N and 4-pole-miniature circuit breakers PLHT
- The screw connection to the PLHT-device can be unscrewed at any time. Consequently, in case of modifications of the systems to be protected, the installation can be adapted to new requirements at any time.

SG17711



Protective Devices

Add-on Residual Current Protection Unit PBHT

AC-sensitive, conditionally surge-current-proof 250 A

SG17611



SG17711



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
2-pole			
80/0.03	PBHT-80/2/003	248818	1 / 4
80/0.30	PBHT-80/2/03	248820	1 / 4
80/0.50	PBHT-80/2/05	248822	1 / 4
80/1.00	PBHT-80/2/1	248824	1 / 4
125/0.03	PBHT-125/2/003	248799	1 / 4
125/0.30	PBHT-125/2/03	248801	1 / 4
125/0.50	PBHT-125/2/05	248803	1 / 4
125/1.00	PBHT-125/2/1	248805	1 / 4
4-pole			
80/0.03	PBHT-80/4/003	248826	1 / 4
80/0.30	PBHT-80/4/03	248828	1 / 4
80/0.50	PBHT-80/4/05	248831	1 / 4
80/1.00	PBHT-80/4/1	248834	1 / 4
125/0.03	PBHT-125/4/003	248807	1 / 4
125/0.30	PBHT-125/4/03	248809	1 / 4
125/0.50	PBHT-125/4/05	248812	1 / 4
125/1.00	PBHT-125/4/1	248815	1 / 4

Add-on Residual Current Protection Unit PBHT

Sensitive to residual pulsating DC, conditionally surge current-proof 250 A

SG17611



SG17711



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
2-pole			
80/0.03	PBHT-80/2/003-A	248819	1 / 4
80/0.30	PBHT-80/2/03-A	248821	1 / 4
80/0.50	PBHT-80/2/05-A	248823	1 / 4
80/1.00	PBHT-80/2/1-A	248825	1 / 4
125/0.03	PBHT-125/2/003-A	248800	1 / 4
125/0.30	PBHT-125/2/03-A	248802	1 / 4
125/0.50	PBHT-125/2/05-A	248804	1 / 4
125/1.00	PBHT-125/2/1-A	248806	1 / 4
4-pole			
80/0.03	PBHT-80/4/003-A	248827	1 / 4
80/0.30	PBHT-80/4/03-A	248829	1 / 4
80/0.50	PBHT-80/4/05-A	248832	1 / 4
80/1.00	PBHT-80/4/1-A	248835	1 / 4
125/0.03	PBHT-125/4/003-A	248808	1 / 4
125/0.30	PBHT-125/4/03-A	248810	1 / 4
125/0.50	PBHT-125/4/05-A	248813	1 / 4
125/1.00	PBHT-125/4/1-A	248816	1 / 4

Protective Devices

Add-on Residual Current Protection Unit PBHT

Selective + surge current-proof 5 kA, type S/A

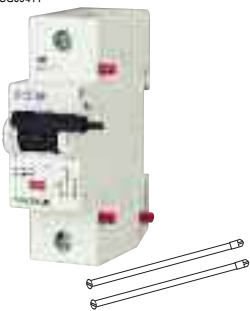
SG17711



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
80/0.30	PBHT-80/4/03-S/A	248830	1 / 4
80/0.50	PBHT-80/4/05-S/A	248833	1 / 4
80/1.00	PBHT-80/4/1-S/A	248836	1 / 4
125/0.30	PBHT-125/4/03-S/A	248811	1 / 4
125/0.50	PBHT-125/4/05-S/A	248814	1 / 4
125/1.00	PBHT-125/4/1-S/A	248817	1 / 4

Accessories for residual current protection unit PBHT

SG09411



Operational voltage range V~	Type Designation	Article No.	Units per package
Shunt trip release			
110-415	Z-BHASA/230	248445	8
12-60	Z-BHASA/24	248444	8

PBR Main Protective Device

- Reliable fire protection for earthed networks
- Selective with regard to downstream protective devices
- Maximum protection against unwanted tripping
- Integrated overload protection
- No monthly checking required
- Comprehensive range of accessories
- Real contact position indicator

ATTENTION:

The main protective device does not replace a residual current device (RCD)

SG79811



Protective Devices

PBR Main Protective Device

Surge current-proof 10 kA

SG79811



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
4-pole			
40/0.3	PBR-40/4/03	109259	1 / 24
63/0.3	PBR-63/4/03	109258	1 / 24

PDIM Leakage Current Monitor



- Reliable, universal monitoring of residual current
- RCD characteristic and sensitivity are freely selectable
- Compact design, with integrated transformer
- DIN mounting, compatible with shapes and standard busbar connections of other Xpole devices
- Local status indication of residual current through 3 LEDs
- 2 potential-free signalling contacts

SG31211



Protective Devices

PDIM Leakage Current Monitor

 +  , instantaneous, **G**, **S** => adjustable

SG31211



$I_n / I_{\Delta n}$ (A)	Type Designation	Article No.	Units per Package
4-pole			
40/0,03; 0,1; 0,3; 0,5; 1	PDIM-40/4	111760	1 / 30
100/0,03; 0,1; 0,3; 0,5; 1	PDIM-100/4	111761	1 / 30

Combined RCD/MCB Devices CKN6, 1+N-pole DE

- High-quality residual current device / miniature circuit breaker combination, line voltage-independent
- Contact position indicator red - green
- Comprehensive range of accessories suitable for subsequent installation
- Wide variety of rated tripping currents
- Rated currents up to 40A
- Tripping characteristics B, C
- Rated breaking capacity 6 kA

SG30511



Protective Devices

Combined RCD/MCB Devices CKN6

DE

6 kA, 1+N-pole

Conditionally surge current-proof 250 A, type AC

SG30511



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Characteristic B			
2/0.01	CKN6-2/1N/B/001	241063	1 / 60
4/0.01	CKN6-4/1N/B/001	241073	1 / 60
6/0.01	CKN6-6/1N/B/001	241083	1 / 60
10/0.01	CKN6-10/1N/B/001	241093	1 / 60
13/0.01	CKN6-13/1N/B/001	241103	1 / 60
16/0.01	CKN6-16/1N/B/001	241113	1 / 60
2/0.03	CKN6-2/1N/B/003	241064	1 / 60
4/0.03	CKN6-4/1N/B/003	241074	1 / 60
6/0.03	CKN6-6/1N/B/003	241084	1 / 60
10/0.03	CKN6-10/1N/B/003	241094	1 / 60
13/0.03	CKN6-13/1N/B/003	241104	1 / 60
16/0.03	CKN6-16/1N/B/003	241114	1 / 60
20/0.03	CKN6-20/1N/B/003	241429	1 / 60
25/0.03	CKN6-25/1N/B/003	241453	1 / 60
32/0.03	CKN6-32/1N/B/003	241477	1 / 60
40/0.03	CKN6-40/1N/B/003	241501	1 / 60
2/0.1	CKN6-2/1N/B/01	241061	1 / 60
4/0.1	CKN6-4/1N/B/01	241071	1 / 60
6/0.1	CKN6-6/1N/B/01	241081	1 / 60
10/0.1	CKN6-10/1N/B/01	241091	1 / 60
13/0.1	CKN6-13/1N/B/01	241101	1 / 60
16/0.1	CKN6-16/1N/B/01	241111	1 / 60
20/0.1	CKN6-20/1N/B/01	241430	1 / 60
25/0.1	CKN6-25/1N/B/01	241454	1 / 60
32/0.1	CKN6-32/1N/B/01	241478	1 / 60
40/0.1	CKN6-40/1N/B/01	241502	1 / 60
2/0.3	CKN6-2/1N/B/03	241062	1 / 60
4/0.3	CKN6-4/1N/B/03	241072	1 / 60
6/0.3	CKN6-6/1N/B/03	241082	1 / 60
10/0.3	CKN6-10/1N/B/03	241092	1 / 60
13/0.3	CKN6-13/1N/B/03	241102	1 / 60
16/0.3	CKN6-16/1N/B/03	241112	1 / 60
20/0.3	CKN6-20/1N/B/03	241431	1 / 60
25/0.3	CKN6-25/1N/B/03	241455	1 / 60
32/0.3	CKN6-32/1N/B/03	241479	1 / 60
40/0.3	CKN6-40/1N/B/03	241503	1 / 60

Protective Devices

SG30511



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Characteristic C			
2/0.01	CKN6-2/1N/C/001	241123	1 / 60
4/0.01	CKN6-4/1N/C/001	241133	1 / 60
6/0.01	CKN6-6/1N/C/001	241143	1 / 60
10/0.01	CKN6-10/1N/C/001	241153	1 / 60
13/0.01	CKN6-13/1N/C/001	241163	1 / 60
16/0.01	CKN6-16/1N/C/001	241173	1 / 60
2/0.03	CKN6-2/1N/C/003	241124	1 / 60
4/0.03	CKN6-4/1N/C/003	241134	1 / 60
6/0.03	CKN6-6/1N/C/003	241144	1 / 60
10/0.03	CKN6-10/1N/C/003	241154	1 / 60
13/0.03	CKN6-13/1N/C/003	241164	1 / 60
16/0.03	CKN6-16/1N/C/003	241174	1 / 60
20/0.03	CKN6-20/1N/C/003	241425	1 / 60
25/0.03	CKN6-25/1N/C/003	241449	1 / 60
32/0.03	CKN6-32/1N/C/003	241473	1 / 60
40/0.03	CKN6-40/1N/C/003	241497	1 / 60
2/0.1	CKN6-2/1N/C/01	241121	1 / 60
4/0.1	CKN6-4/1N/C/01	241131	1 / 60
6/0.1	CKN6-6/1N/C/01	241141	1 / 60
10/0.1	CKN6-10/1N/C/01	241151	1 / 60
13/0.1	CKN6-13/1N/C/01	241161	1 / 60
16/0.1	CKN6-16/1N/C/01	241171	1 / 60
20/0.1	CKN6-20/1N/C/01	241426	1 / 60
25/0.1	CKN6-25/1N/C/01	241450	1 / 60
32/0.1	CKN6-32/1N/C/01	241474	1 / 60
40/0.1	CKN6-40/1N/C/01	241498	1 / 60
2/0.3	CKN6-2/1N/C/03	241122	1 / 60
4/0.3	CKN6-4/1N/C/03	241132	1 / 60
6/0.3	CKN6-6/1N/C/03	241142	1 / 60
10/0.3	CKN6-10/1N/C/03	241152	1 / 60
13/0.3	CKN6-13/1N/C/03	241162	1 / 60
16/0.3	CKN6-16/1N/C/03	241172	1 / 60
20/0.3	CKN6-20/1N/C/03	241427	1 / 60
25/0.3	CKN6-25/1N/C/03	241451	1 / 60
32/0.3	CKN6-32/1N/C/03	241475	1 / 60
40/0.3	CKN6-40/1N/C/03	241499	1 / 60

Protective Devices

Combined RCD/MCB Devices CKN6

DE

6 kA, 1+N-pole

Conditionally surge current-proof 250 A, sensitive to residual pulsating DC, type A

SG30511



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Characteristic B			
2/0.01	CKN6-2/1N/B/001-A	241243	1 / 60
4/0.01	CKN6-4/1N/B/001-A	241253	1 / 60
6/0.01	CKN6-6/1N/B/001-A	241263	1 / 60
10/0.01	CKN6-10/1N/B/001-A	241273	1 / 60
13/0.01	CKN6-13/1N/B/001-A	241283	1 / 60
16/0.01	CKN6-16/1N/B/001-A	241293	1 / 60
2/0.03	CKN6-2/1N/B/003-A	241244	1 / 60
4/0.03	CKN6-4/1N/B/003-A	241254	1 / 60
6/0.03	CKN6-6/1N/B/003-A	241264	1 / 60
10/0.03	CKN6-10/1N/B/003-A	241274	1 / 60
13/0.03	CKN6-13/1N/B/003-A	241284	1 / 60
16/0.03	CKN6-16/1N/B/003-A	241294	1 / 60
20/0.03	CKN6-20/1N/B/003-A	241525	1 / 60
25/0.03	CKN6-25/1N/B/003-A	241549	1 / 60
32/0.03	CKN6-32/1N/B/003-A	241573	1 / 60
40/0.03	CKN6-40/1N/B/003-A	241597	1 / 60
2/0.1	CKN6-2/1N/B/01-A	241241	1 / 60
4/0.1	CKN6-4/1N/B/01-A	241251	1 / 60
6/0.1	CKN6-6/1N/B/01-A	241261	1 / 60
10/0.1	CKN6-10/1N/B/01-A	241271	1 / 60
13/0.1	CKN6-13/1N/B/01-A	241281	1 / 60
16/0.1	CKN6-16/1N/B/01-A	241291	1 / 60
20/0.1	CKN6-20/1N/B/01-A	241526	1 / 60
25/0.1	CKN6-25/1N/B/01-A	241550	1 / 60
32/0.1	CKN6-32/1N/B/01-A	241574	1 / 60
40/0.1	CKN6-40/1N/B/01-A	241598	1 / 60
2/0.3	CKN6-2/1N/B/03-A	241242	1 / 60
4/0.3	CKN6-4/1N/B/03-A	241252	1 / 60
6/0.3	CKN6-6/1N/B/03-A	241262	1 / 60
10/0.3	CKN6-10/1N/B/03-A	241272	1 / 60
13/0.3	CKN6-13/1N/B/03-A	241282	1 / 60
16/0.3	CKN6-16/1N/B/03-A	241292	1 / 60
20/0.3	CKN6-20/1N/B/03-A	241527	1 / 60
25/0.3	CKN6-25/1N/B/03-A	241551	1 / 60
32/0.3	CKN6-32/1N/B/03-A	241575	1 / 60
40/0.3	CKN6-40/1N/B/03-A	241599	1 / 60


Protective Devices

SG30511



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Characteristic C			
2/0.01	CKN6-2/1N/C/001-A	241303	1 / 60
4/0.01	CKN6-4/1N/C/001-A	241313	1 / 60
6/0.01	CKN6-6/1N/C/001-A	241323	1 / 60
10/0.01	CKN6-10/1N/C/001-A	241333	1 / 60
13/0.01	CKN6-13/1N/C/001-A	241343	1 / 60
16/0.01	CKN6-16/1N/C/001-A	241353	1 / 60
2/0.03	CKN6-2/1N/C/003-A	241304	1 / 60
4/0.03	CKN6-4/1N/C/003-A	241314	1 / 60
6/0.03	CKN6-6/1N/C/003-A	241324	1 / 60
10/0.03	CKN6-10/1N/C/003-A	241334	1 / 60
13/0.03	CKN6-13/1N/C/003-A	241344	1 / 60
16/0.03	CKN6-16/1N/C/003-A	241354	1 / 60
20/0.03	CKN6-20/1N/C/003-A	241521	1 / 60
25/0.03	CKN6-25/1N/C/003-A	241545	1 / 60
32/0.03	CKN6-32/1N/C/003-A	241569	1 / 60
40/0.03	CKN6-40/1N/C/003-A	241593	1 / 60
2/0.1	CKN6-2/1N/C/01-A	241301	1 / 60
4/0.1	CKN6-4/1N/C/01-A	241311	1 / 60
6/0.1	CKN6-6/1N/C/01-A	241321	1 / 60
10/0.1	CKN6-10/1N/C/01-A	241331	1 / 60
13/0.1	CKN6-13/1N/C/01-A	241341	1 / 60
16/0.1	CKN6-16/1N/C/01-A	241351	1 / 60
20/0.1	CKN6-20/1N/C/01-A	241522	1 / 60
25/0.1	CKN6-25/1N/C/01-A	241546	1 / 60
32/0.1	CKN6-32/1N/C/01-A	241570	1 / 60
40/0.1	CKN6-40/1N/C/01-A	241594	1 / 60
2/0.3	CKN6-2/1N/C/03-A	241302	1 / 60
4/0.3	CKN6-4/1N/C/03-A	241312	1 / 60
6/0.3	CKN6-6/1N/C/03-A	241322	1 / 60
10/0.3	CKN6-10/1N/C/03-A	241332	1 / 60
13/0.3	CKN6-13/1N/C/03-A	241342	1 / 60
16/0.3	CKN6-16/1N/C/03-A	241352	1 / 60
20/0.3	CKN6-20/1N/C/03-A	241523	1 / 60
25/0.3	CKN6-25/1N/C/03-A	241547	1 / 60
32/0.3	CKN6-32/1N/C/03-A	241571	1 / 60
40/0.3	CKN6-40/1N/C/03-A	241595	1 / 60

Combined RCD/MCB Devices PFL7, 1+N-pole

- Residual current device / miniature circuit breaker combination, line voltage-independent
- 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 40 A
- Tripping characteristics B, C
- Rated breaking capacity 10 kA
- Frost resistance 

SG61711



Protective Devices

Combined RCD/MCB Devices PFL7

10 kA, 1+N-pole

Conditionally surge current-proof 250 A, type AC

SG61711



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Characteristic B			
2/0.01	PFL7-2/1N/B/001	165634	1/60
4/0.01	PFL7-4/1N/B/001	165675	1/60
6/0.01	PFL7-6/1N/B/001	165701	1/60
10/0.01	PFL7-10/1N/B/001	165588	1/60
13/0.01	PFL7-13/1N/B/001	165600	1/60
16/0.01	PFL7-16/1N/B/001	165614	1/60
2/0.03	PFL7-2/1N/B/003	165636	1/60
4/0.03	PFL7-4/1N/B/003	165677	1/60
6/0.03	PFL7-6/1N/B/003	263430	1/60
10/0.03	PFL7-10/1N/B/003	263434	1/60
13/0.03	PFL7-13/1N/B/003	263518	1/60
16/0.03	PFL7-16/1N/B/003	263534	1/60
20/0.03	PFL7-20/1N/B/003	263540	1/60
25/0.03	PFL7-25/1N/B/003	263546	1/60
32/0.03	PFL7-32/1N/B/003	263552	1/60
40/0.03	PFL7-40/1N/B/003	263558	1/60
2/0.1	PFL7-2/1N/B/01	165638	1/60
4/0.1	PFL7-4/1N/B/01	165679	1/60
6/0.1	PFL7-6/1N/B/01	165703	1/60
10/0.1	PFL7-10/1N/B/01	165590	1/60
13/0.1	PFL7-13/1N/B/01	165602	1/60
16/0.1	PFL7-16/1N/B/01	165616	1/60
20/0.1	PFL7-20/1N/B/01	165644	1/60
25/0.1	PFL7-25/1N/B/01	165654	1/60
32/0.1	PFL7-32/1N/B/01	165665	1/60
40/0.1	PFL7-40/1N/B/01	165690	1/60
2/0.3	PFL7-2/1N/B/03	165640	1/60
4/0.3	PFL7-4/1N/B/03	165681	1/60
6/0.3	PFL7-6/1N/B/03	165705	1/60
10/0.3	PFL7-10/1N/B/03	165592	1/60
13/0.3	PFL7-13/1N/B/03	165605	1/60
16/0.3	PFL7-16/1N/B/03	165619	1/60
20/0.3	PFL7-20/1N/B/03	165647	1/60
25/0.3	PFL7-25/1N/B/03	165657	1/60
32/0.3	PFL7-32/1N/B/03	165668	1/60
40/0.3	PFL7-40/1N/B/03	165693	1/60
2/0.5	PFL7-2/1N/B/05	165641	1/60

Protective Devices

SG61711



Characteristic C

2/0.01	PFL7-2/1N/C/001	165642	1/60
4/0.01	PFL7-4/1N/C/001	165683	1/60
6/0.01	PFL7-6/1N/C/001	165707	1/60
10/0.01	PFL7-10/1N/C/001	165594	1/60
13/0.01	PFL7-13/1N/C/001	165607	1/60
16/0.01	PFL7-16/1N/C/001	165621	1/60
2/0.03	PFL7-2/1N/C/003	263428	1/60
4/0.03	PFL7-4/1N/C/003	263429	1/60
6/0.03	PFL7-6/1N/C/003	263432	1/60
10/0.03	PFL7-10/1N/C/003	263516	1/60
13/0.03	PFL7-13/1N/C/003	263531	1/60
16/0.03	PFL7-16/1N/C/003	263537	1/60
20/0.03	PFL7-20/1N/C/003	263543	1/60
25/0.03	PFL7-25/1N/C/003	263549	1/60
32/0.03	PFL7-32/1N/C/003	263555	1/60
40/0.03	PFL7-40/1N/C/003	263561	1/60
2/0.1	PFL7-2/1N/C/01	165630	1/60
4/0.1	PFL7-4/1N/C/01	165686	1/60
6/0.1	PFL7-6/1N/C/01	165709	1/60
10/0.1	PFL7-10/1N/C/01	165596	1/60
13/0.1	PFL7-13/1N/C/01	165609	1/60
16/0.1	PFL7-16/1N/C/01	165623	1/60
20/0.1	PFL7-20/1N/C/01	165649	1/60
25/0.1	PFL7-25/1N/C/01	165659	1/60
32/0.1	PFL7-32/1N/C/01	165670	1/60
40/0.1	PFL7-40/1N/C/01	165695	1/60
1/0.3	PFL7-1/1N/C/03	165586	1/60
2/0.3	PFL7-2/1N/C/03	165632	1/60
3/0.3	PFL7-3/1N/C/03	165663	1/60
4/0.3	PFL7-4/1N/C/03	165688	1/60
5/0.3	PFL7-5/1N/C/03	165699	1/60
6/0.3	PFL7-6/1N/C/03	165711	1/60
10/0.3	PFL7-10/1N/C/03	165598	1/60
13/0.3	PFL7-13/1N/C/03	165612	1/60
16/0.3	PFL7-16/1N/C/03	165626	1/60
20/0.3	PFL7-20/1N/C/03	165652	1/60
25/0.3	PFL7-25/1N/C/03	165662	1/60
32/0.3	PFL7-32/1N/C/03	165673	1/60
40/0.3	PFL7-40/1N/C/03	165698	1/60

Protective Devices

Combined RCD/MCB Devices PFL7

10 kA, 1+N-pole

Conditionally surge current-proof 250 A, sensitive to residual pulsating DC, type A

SG61711



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Characteristic B			
2/0.01	PFL7-2/1N/B/001-A	165633	1/60
4/0.01	PFL7-4/1N/B/001-A	165674	1/60
6/0.01	PFL7-6/1N/B/001-A	165700	1/60
10/0.01	PFL7-10/1N/B/001-A	165587	1/60
13/0.01	PFL7-13/1N/B/001-A	165599	1/60
16/0.01	PFL7-16/1N/B/001-A	165613	1/60
2/0.03	PFL7-2/1N/B/003-A	165635	1/60
4/0.03	PFL7-4/1N/B/003-A	165676	1/60
6/0.03	PFL7-6/1N/B/003-A	263431	1/60
10/0.03	PFL7-10/1N/B/003-A	263435	1/60
13/0.03	PFL7-13/1N/B/003-A	263519	1/60
16/0.03	PFL7-16/1N/B/003-A	263535	1/60
20/0.03	PFL7-20/1N/B/003-A	263541	1/60
25/0.03	PFL7-25/1N/B/003-A	263547	1/60
32/0.03	PFL7-32/1N/B/003-A	263553	1/60
40/0.03	PFL7-40/1N/B/003-A	263559	1/60
2/0.1	PFL7-2/1N/B/01-A	165637	1/60
4/0.1	PFL7-4/1N/B/01-A	165678	1/60
6/0.1	PFL7-6/1N/B/01-A	165702	1/60
10/0.1	PFL7-10/1N/B/01-A	165589	1/60
13/0.1	PFL7-13/1N/B/01-A	165601	1/60
16/0.1	PFL7-16/1N/B/01-A	165615	1/60
20/0.1	PFL7-20/1N/B/01-A	165643	1/60
25/0.1	PFL7-25/1N/B/01-A	165653	1/60
32/0.1	PFL7-32/1N/B/01-A	165664	1/60
40/0.1	PFL7-40/1N/B/01-A	165689	1/60
2/0.3	PFL7-2/1N/B/03-A	165639	1/60
4/0.3	PFL7-4/1N/B/03-A	165680	1/60
6/0.3	PFL7-6/1N/B/03-A	165704	1/60
10/0.3	PFL7-10/1N/B/03-A	165591	1/60
13/0.3	PFL7-13/1N/B/03-A	165603	1/60
16/0.3	PFL7-16/1N/B/03-A	165617	1/60
20/0.3	PFL7-20/1N/B/03-A	165645	1/60
25/0.3	PFL7-25/1N/B/03-A	165655	1/60
32/0.3	PFL7-32/1N/B/03-A	165666	1/60
40/0.3	PFL7-40/1N/B/03-A	165691	1/60

Protective Devices

SG61711



Characteristic C

2/0.01	PFL7-2/1N/C/001-A	165627	1/60
4/0.01	PFL7-4/1N/C/001-A	165682	1/60
6/0.01	PFL7-6/1N/C/001-A	165706	1/60
10/0.01	PFL7-10/1N/C/001-A	165593	1/60
13/0.01	PFL7-13/1N/C/001-A	165606	1/60
16/0.01	PFL7-16/1N/C/001-A	165620	1/60
2/0.03	PFL7-2/1N/C/003-A	165628	1/60
4/0.03	PFL7-4/1N/C/003-A	165684	1/60
6/0.03	PFL7-6/1N/C/003-A	263515	1/60
10/0.03	PFL7-10/1N/C/003-A	263517	1/60
13/0.03	PFL7-13/1N/C/003-A	263532	1/60
16/0.03	PFL7-16/1N/C/003-A	263538	1/60
20/0.03	PFL7-20/1N/C/003-A	263544	1/60
25/0.03	PFL7-25/1N/C/003-A	263550	1/60
32/0.03	PFL7-32/1N/C/003-A	263556	1/60
40/0.03	PFL7-40/1N/C/003-A	263562	1/60
2/0.1	PFL7-2/1N/C/01-A	165629	1/60
4/0.1	PFL7-4/1N/C/01-A	165685	1/60
6/0.1	PFL7-6/1N/C/01-A	165708	1/60
10/0.1	PFL7-10/1N/C/01-A	165595	1/60
13/0.1	PFL7-13/1N/C/01-A	165608	1/60
16/0.1	PFL7-16/1N/C/01-A	165622	1/60
20/0.1	PFL7-20/1N/C/01-A	165648	1/60
25/0.1	PFL7-25/1N/C/01-A	165658	1/60
32/0.1	PFL7-32/1N/C/01-A	165669	1/60
40/0.1	PFL7-40/1N/C/01-A	165694	1/60
2/0.3	PFL7-2/1N/C/03-A	165631	1/60
4/0.3	PFL7-4/1N/C/03-A	165687	1/60
6/0.3	PFL7-6/1N/C/03-A	165710	1/60
10/0.3	PFL7-10/1N/C/03-A	165597	1/60
13/0.3	PFL7-13/1N/C/03-A	165610	1/60
16/0.3	PFL7-16/1N/C/03-A	165624	1/60
20/0.3	PFL7-20/1N/C/03-A	165650	1/60
25/0.3	PFL7-25/1N/C/03-A	165660	1/60
32/0.3	PFL7-32/1N/C/03-A	165671	1/60
40/0.3	PFL7-40/1N/C/03-A	165696	1/60

Protective Devices

Combined RCD/MCB Devices PFL7

10 kA, 1+N-pole

Surge current-proof 3 kA, type G (ÖVE E 8601)

SG61711



SG61711



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Characteristic B			
13/0.03	PFL7-13/1N/B/003-G	263530	1/60
16/0.03	PFL7-16/1N/B/003-G	263536	1/60
20/0.03	PFL7-20/1N/B/003-G	263542	1/60
25/0.03	PFL7-25/1N/B/003-G	263548	1/60
32/0.03	PFL7-32/1N/B/003-G	263554	1/60
40/0.03	PFL7-40/1N/B/003-G	263560	1/60
13/0.3	PFL7-13/1N/B/03-G	165604	1/60
16/0.3	PFL7-16/1N/B/03-G	165618	1/60
20/0.3	PFL7-20/1N/B/03-G	165646	1/60
25/0.3	PFL7-25/1N/B/03-G	165656	1/60
32/0.3	PFL7-32/1N/B/03-G	165667	1/60
40/0.3	PFL7-40/1N/B/03-G	165692	1/60
Characteristic C			
13/0.03	PFL7-13/1N/C/003-G	263533	1/60
16/0.03	PFL7-16/1N/C/003-G	263539	1/60
20/0.03	PFL7-20/1N/C/003-G	263545	1/60
25/0.03	PFL7-25/1N/C/003-G	263551	1/60
32/0.03	PFL7-32/1N/C/003-G	263557	1/60
40/0.03	PFL7-40/1N/C/003-G	263563	1/60
13/0.3	PFL7-13/1N/C/03-G	165611	1/60
16/0.3	PFL7-16/1N/C/03-G	165625	1/60
20/0.3	PFL7-20/1N/C/03-G	165651	1/60
25/0.3	PFL7-25/1N/C/03-G	165661	1/60
32/0.3	PFL7-32/1N/C/03-G	165672	1/60
40/0.3	PFL7-40/1N/C/03-G	165697	1/60

Electronic Combined RCD/MCB Devices PKDM, 1+N-pole, 2 Module Units

- High-quality residual current device / miniature circuit breaker combination, line voltage-dependent
- Contact position indicator red - green
- Colour code for rated tripping currents
- Comprehensive range of accessories suitable for subsequent installation
- Wide variety of rated tripping currents
- Rated currents up to 40A
- Tripping characteristics B, C, D
- Rated breaking capacity 10 kA

SG16411



Protective Devices

Electronic Combined RCD/MCB Devices PKDM, 2 Module Units

1+N-pole

Conditionally surge current-proof 250 A, sensitive to residual pulsating DC, type A

SG16411



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Characteristic B			
2/0.01	PKDM-2/1N/B/001-A	248718	1 / 60
4/0.01	PKDM-4/1N/B/001-A	248719	1 / 60
6/0.01	PKDM-6/1N/B/001-A	248720	1 / 60
10/0.01	PKDM-10/1N/B/001-A	248721	1 / 60
13/0.01	PKDM-13/1N/B/001-A	248722	1 / 60
16/0.01	PKDM-16/1N/B/001-A	248723	1 / 60
20/0.01	PKDM-20/1N/B/001-A	248724	1 / 60
25/0.01	PKDM-25/1N/B/001-A	248725	1 / 60
32/0.01	PKDM-32/1N/B/001-A	248726	1 / 60
40/0.01	PKDM-40/1N/B/001-A	248727	1 / 60
2/0.03	PKDM-2/1N/B/003-A	248745	1 / 60
4/0.03	PKDM-4/1N/B/003-A	248746	1 / 60
6/0.03	PKDM-6/1N/B/003-A	248747	1 / 60
10/0.03	PKDM-10/1N/B/003-A	248748	1 / 60
13/0.03	PKDM-13/1N/B/003-A	248749	1 / 60
16/0.03	PKDM-16/1N/B/003-A	248750	1 / 60
20/0.03	PKDM-20/1N/B/003-A	248751	1 / 60
25/0.03	PKDM-25/1N/B/003-A	248752	1 / 60
32/0.03	PKDM-32/1N/B/003-A	248753	1 / 60
40/0.03	PKDM-40/1N/B/003-A	248754	1 / 60
2/0.3	PKDM-2/1N/B/03-A	248772	1 / 60
4/0.3	PKDM-4/1N/B/03-A	248773	1 / 60
6/0.3	PKDM-6/1N/B/03-A	248774	1 / 60
10/0.3	PKDM-10/1N/B/03-A	248775	1 / 60
13/0.3	PKDM-13/1N/B/03-A	248776	1 / 60
16/0.3	PKDM-16/1N/B/03-A	248777	1 / 60
20/0.3	PKDM-20/1N/B/03-A	248778	1 / 60
25/0.3	PKDM-25/1N/B/03-A	248779	1 / 60
32/0.3	PKDM-32/1N/B/03-A	248780	1 / 60
40/0.3	PKDM-40/1N/B/03-A	248781	1 / 60

SG16411



Characteristic C			
2/0.01	PKDM-2/1N/C/001-A	248735	1 / 60
4/0.01	PKDM-4/1N/C/001-A	248736	1 / 60
6/0.01	PKDM-6/1N/C/001-A	248737	1 / 60
10/0.01	PKDM-10/1N/C/001-A	248738	1 / 60
13/0.01	PKDM-13/1N/C/001-A	248739	1 / 60
16/0.01	PKDM-16/1N/C/001-A	248740	1 / 60
20/0.01	PKDM-20/1N/C/001-A	248741	1 / 60
25/0.01	PKDM-25/1N/C/001-A	248742	1 / 60
32/0.01	PKDM-32/1N/C/001-A	248743	1 / 60
40/0.01	PKDM-40/1N/C/001-A	248744	1 / 60
2/0.03	PKDM-2/1N/C/003-A	248762	1 / 60
4/0.03	PKDM-4/1N/C/003-A	248763	1 / 60
6/0.03	PKDM-6/1N/C/003-A	248764	1 / 60
10/0.03	PKDM-10/1N/C/003-A	248765	1 / 60
13/0.03	PKDM-13/1N/C/003-A	248766	1 / 60
16/0.03	PKDM-16/1N/C/003-A	248767	1 / 60
20/0.03	PKDM-20/1N/C/003-A	248768	1 / 60
25/0.03	PKDM-25/1N/C/003-A	248769	1 / 60
32/0.03	PKDM-32/1N/C/003-A	248770	1 / 60
40/0.03	PKDM-40/1N/C/003-A	248771	1 / 60
2/0.3	PKDM-2/1N/C/03-A	248789	1 / 60
4/0.3	PKDM-4/1N/C/03-A	248790	1 / 60
6/0.3	PKDM-6/1N/C/03-A	248791	1 / 60
10/0.3	PKDM-10/1N/C/03-A	248792	1 / 60
13/0.3	PKDM-13/1N/C/03-A	248793	1 / 60
16/0.3	PKDM-16/1N/C/03-A	248794	1 / 60
20/0.3	PKDM-20/1N/C/03-A	248795	1 / 60
25/0.3	PKDM-25/1N/C/03-A	248796	1 / 60
32/0.3	PKDM-32/1N/C/03-A	248797	1 / 60
40/0.3	PKDM-40/1N/C/03-A	248798	1 / 60

Protective Devices

SG16411



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Characteristic D			
2/0.01	PKDM-2/1N/D/001-A	248728	1 / 60
4/0.01	PKDM-4/1N/D/001-A	248729	1 / 60
6/0.01	PKDM-6/1N/D/001-A	248730	1 / 60
10/0.01	PKDM-10/1N/D/001-A	248731	1 / 60
13/0.01	PKDM-13/1N/D/001-A	248732	1 / 60
16/0.01	PKDM-16/1N/D/001-A	248733	1 / 60
20/0.01	PKDM-20/1N/D/001-A	248734	1 / 60
2/0.03	PKDM-2/1N/D/003-A	248755	1 / 60
4/0.03	PKDM-4/1N/D/003-A	248756	1 / 60
6/0.03	PKDM-6/1N/D/003-A	248757	1 / 60
10/0.03	PKDM-10/1N/D/003-A	248758	1 / 60
13/0.03	PKDM-13/1N/D/003-A	248759	1 / 60
16/0.03	PKDM-16/1N/D/003-A	248760	1 / 60
20/0.03	PKDM-20/1N/D/003-A	248761	1 / 60
2/0.3	PKDM-2/1N/D/03-A	248782	1 / 60
4/0.3	PKDM-4/1N/D/03-A	248783	1 / 60
6/0.3	PKDM-6/1N/D/03-A	248784	1 / 60
10/0.3	PKDM-10/1N/D/03-A	248785	1 / 60
13/0.3	PKDM-13/1N/D/03-A	248786	1 / 60
16/0.3	PKDM-16/1N/D/03-A	248787	1 / 60
20/0.3	PKDM-20/1N/D/03-A	248788	1 / 60

Combined RCD/MCB Devices PKNM-PT, 1+N-pole

- High-quality residual current device / miniature circuit breaker combination, line voltage-independent
- Version -PT specific for applications in the BS-distribution systems, permanently connected neutral conductors
- 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
- Wide variety of rated tripping currents
- Rated currents up to 40 A
- Tripping characteristics B, C
- Rated breaking capacity 10 kA

SG13711



Protective Devices

Combined RCD/MCB Devices PKNM-PT

10 kA, 1+N-pole (permanently connected neutral conductor, 550 mm long)
Conditionally surge current-proof 250 A, type AC

SG13711



SG13711



$I_n/I_{\Delta n}$ (A)	Type Designation	Article No.	Units per package
Characteristic B			
6/0.03	PKNM-6/1N/B/003-PT	235980	1 / 40
10/0.03	PKNM-10/1N/B/003-PT	235981	1 / 40
13/0.03	PKNM-13/1N/B/003-PT	235982	1 / 40
16/0.03	PKNM-16/1N/B/003-PT	235983	1 / 40
20/0.03	PKNM-20/1N/B/003-PT	235984	1 / 40
25/0.03	PKNM-25/1N/B/003-PT	235985	1 / 40
32/0.03	PKNM-32/1N/B/003-PT	235986	1 / 40
40/0.03	PKNM-40/1N/B/003-PT	235987	1 / 40
Characteristic C			
6/0.03	PKNM-6/1N/C/003-PT	235960	1 / 40
10/0.03	PKNM-10/1N/C/003-PT	235965	1 / 40
13/0.03	PKNM-13/1N/C/003-PT	235970	1 / 40
16/0.03	PKNM-16/1N/C/003-PT	235975	1 / 40
20/0.03	PKNM-20/1N/C/003-PT	235976	1 / 40
25/0.03	PKNM-25/1N/C/003-PT	235977	1 / 40
32/0.03	PKNM-32/1N/C/003-PT	235978	1 / 40
40/0.03	PKNM-40/1N/C/003-PT	235979	1 / 40

Accessories for Protective Devices

Accessories for RCDs, MCBs, Combined RCD/MCB Devices, Motor Starters and Power Limiters

- Auxiliary Switch
- RCD-Tripping Module
- Shunt Trip Release
- Undervoltage Release
- Remote Control and Automatic Switching Device
- Switching Interlocks

SG60811







SG83911







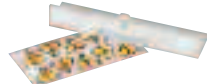
SG30811



Accessories for Protective Devices

		Auxiliary Switch Z-HK, Z-AHK, Z-HD; Tripping Signal Switch Z-NHK				
		Design: for screwing				
		For Protective Device / Function	Type Designation	Article No.	Units per package	
 <p>SG60911</p> <p>Z-AHK</p>		PFIM, PFHM-4p, dRCM 1NO+1NC	Z-HK	248432	4 / 120	
		PLS., PKD., PFHM-2p 1NO+1NC	Z-AHK	248433	4 / 120	
		PLS., PKD., PFIM, PFHM dRCM				
		2CO	Z-NHK	248434	4 / 120	
		PFDM 1CO+1NC	Z-HD	265620	1	
		Auxiliary Switch ZP-AHK, ZP-IHK, ZP-WHK; Tripping Signal Switch ZP-NHK				
		Design: for snapping				
		For Protective Device / Function	Type Designation	Article No.	Units per package	
 <p>SG60811</p> <p>ZP-IHK</p>		PLS., PKN. 1NO+1NC	ZP-AHK Phase out type	248436	4 / 120	
		PLS., PKN. 1NO+1NC	ZP-IHK	286052	4 / 120	
		PLS., PKN. 1CO	ZP-WHK	286053	4 / 120	
		PLS., PKN. 2CO	ZP-NHK	248437	4 / 120	
		RCD-Tripping Module Z-AM				
		For Protective Device	Type Designation	Article No.	Units per package	
 <p>SG16011</p> <p>Z-FAM</p>	 <p>SG16211</p> <p>Z-KAM</p>	PFIM, PFHM-4p, dRCM	Z-FAM	248293	1 / 60	
		PKNM, PKDM, PFHM-2p	Z-KAM	248294	1 / 60	
		Shunt Trip Release Z-ASA, ZP-ASA				
		Operational voltage range (V~)	Type Designation	Article No.	Units per package	
 <p>SG00712</p> <p>Z-ASA</p>	 <p>SG00212</p> <p>ZP-ASA</p>	to be glued on				
		12-110	Z-ASA/24	248286	1 / 60	
		110-415	Z-ASA/230	248287	1 / 60	
		to be snapped on				
		12-110	ZP-ASA/24	248438	1 / 60	
110-415	ZP-ASA/230	248439	1 / 60			
		Undervoltage Release Z-USA, Z-USD				
		Op. voltage range (V~)/Function	Type Designation	Article No.	Units per package	
 <p>SG78811</p>	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		

Accessories for Protective Devices

Remote Control and Automatic Switching Device Z-FW				
	Function	Type Designation	Article No.	Units per package
SG30811 	Automatic restarting 230VAC	Z-FW-LP	248296	1 / 20
	Automatic restarting 24-48VDC	Z-FW-LPD	265244	1 / 20
	+ Remote control ON/OFF/TEST	Z-FW-MO	284730	1
	(only in connection with Z-FW-LP, -LPD from delivery date 2006!)			
Pre-mounted sets Z-FW				
• Set consisting of automatic switching device Z-FW-LP. and switching module Z-FW-MO				
SG31311 	230 VAC	Z-FW-LP/MO	290171	1 / 12
	24-48 VDC	Z-FW-LPD/MO	290172	1 / 12
Remote Testing Module Z-FW (for Z-FW-LP./MO set use only)				
SG12111 	0,01 A	Z-FW/001	248297	4 / 120
	0,03 A	Z-FW/003	248298	4 / 120
	0,1 A	Z-FW/010	248299	4 / 120
	0,3 A	Z-FW/030	248300	4 / 120
	0,5 A	Z-FW/050	248301	4 / 120
Switching interlocks IS/SPE-1TE, Z-IS/SPE-1TE				
	Description	Type Designation	Article No.	Units per package
SG47812 	Switching interlock without lock for Isolators, RCDs, combined RCD/MCBs, ...	IS/SPE-1TE	101911	5 / 30
	Switching interlock without lock for MCBs and Circuit Breaker ZP-A	Z-IS/SPE-1TE	274418	5 / 30
Sealing Cover Set Z-RC/AK				
• for PFIM, PFR, PF6, PF7, CFI6, dRCM (not to use for PFDM)				
		Type Designation	Article No.	Units per package
SG2011 	2-pole	Z-RC/AK-2TE	285385	10 / 30
	4-pole	Z-RC/AK-4TE	101062	10 / 600

Surge Protection

Surge Protection

SG13309



SG11309



Surge Protection

SPD Class B

SG50312



SPI-35/440

Impulse Current I_{imp} (10/350) μ s	Type Designation	Article No.	Units per package
Lightning current arresters SPI			
• No decoupling necessary, if arrester class C with $U_c = 460$ V are used for combination			
35kA	L - (PE)N	SPI-35/440	263137 6 / 120
50kA	N - PE	SPI-50/NPE	263138 2 / 120
100kA	N - PE	SPI-100/NPE	263139 1 / 60

Lightning current arrester Sets, Lightning protection classes I, II, III, IV

SG50212



SPI-3+1

Description	Type Designation	Article No.	Units per package
TN-C-Set 3-pole	SPI-35/440/3	267487	1 / 40
TN-S/TT-Set 3+1-pole	SPI-3+1	267488	1 / 20

Lead-through terminal for SPI

SPB-D-125	248145	2 / 120
-----------	--------	---------

SPD Class B+C

SG27112



SPBT12-280/1

Impulse Current I_{imp} (10/350) μ s	Type Designation	Article No.	Units per package
Lightning current arrester - surge arrester SPBT12			
Complete			
12.5kA	L - (PE) N	SPBT12-280/1	158306 12 / 120
100kA	N-PE	SPBT12-NPE100	158307 1 / 60

Lightning current arrester - surge arrester SPBT12

Insert

12.5kA	Insert	SPBT12-280	167341 4 / 120
--------	--------	------------	----------------

Surge Protection

SG29612



SPBT12-280/3

Lightning current arrester - surge arrester Sets, Lightning protection classes III, IV

Description	Type Designation	Article No.	Units per package
Without remote indication			
TN-S/TT-Set 1+1-pole	SPBT12-280-1+NPE	158308	1 / 40
TN-S-Set 2-pole	SPBT12-280/2	158309	1 / 60
TN-C-Set 3-pole	SPBT12-280/3	158330	1 / 40
TN-S-Set 4-pole	SPBT12-280/4	158331	1 / 30
TN-S/TT-Set 3+1-pole	SPBT12-280-3+NPE	158332	1 / 20
TN-S/TT-Set 3+1-pole	SPBT12-280-3+NPE/BB	158333	1
With remote indication			
TN-S/TT-Set 1+1-pole	SPBT12-280-1+NPE-AX	158334	1 / 30
TN-S/TT-Set 3+1-pole	SPBT12-280-3+NPE-AX	158335	1
Accessories			
Auxiliary switch for SPBT12-280 Busbar	ASAUXSC-SPM ZV-KSBI...	131785	4 / 120

Lightning current arrester - surge arrester Sets, Lightning protection classes I, II, III, IV

SG53712



SP-B+C/3+1

Description	Type Designation	Article No.	Units per package
SPD Class B+C, SP-B+C/			
TN-C-Set 3-pole	SP-B+C/3	267489	1
TN-S/TT-Set 3+1-pole	SP-B+C/3+1	267510	1
Accessories			
Auxiliary switch for SP-B+C	ASAUXSC-SPM	131785	8 / 80

Surge Protection

SPD Class C

U1302



SPC-E-280

PHASE OUT TYPE

Max. Cont. Op. Volt. U_c I_n (8/20) μ s Type Designation Article No. Units per package

Surge arrester SPC-E

75VAC	15kA	SPC-E-75	248148	12 / 120
130VAC	20kA	SPC-E-130	248149	12 / 120
175VAC	20kA	SPC-E-175	118920	12 / 120
280VAC	20kA	SPC-E-280	248150	12 / 120
335VAC	20kA	SPC-E-335	248151	12 / 120
385VAC	20kA	SPC-E-385	248152	12 / 120
460VAC	20kA	SPC-E-460	248153	12 / 120
580VAC	20kA	SPC-E-580	248154	12 / 120
N-PE 260VAC	30kA	SPC-E-N/PE	248157	12 / 120

PHASE OUT TYPE

Plug-in surge arrester SPC-S

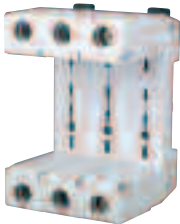
Insert 1-pole

Insert 75VAC	15kA	SPC-S-15/75	248158	4 / 120
Insert 130VAC	20kA	SPC-S-20/130	248159	4 / 120
Insert 175VAC	20kA	SPC-S-20/175	248160	4 / 120
Insert 280VAC	20kA	SPC-S-20/280	248161	4 / 120
Insert 335VAC	20kA	SPC-S-20/335	248162	4 / 120
Insert 385VAC	20kA	SPC-S-20/385	248163	4 / 120
Insert 460VAC	20kA	SPC-S-20/460	248164	4 / 120
Insert 580VAC	20kA	SPC-S-20/580	248165	4 / 120
Insert N-PE 260VAC	30kA	SPC-S-N/PE	248166	4 / 120

Base 1- to 4-pole

Base 1-pole		SPC-S-S1	248167	12 / 120
Base 1+1 2-pole		SPC-S-S2-1+1	248201	6 / 60
Base 2-pole		SPC-S-S2	248168	6 / 60
Base 3-pole		SPC-S-S3	248169	4 / 40
Base 4-pole		SPC-S-S4	248170	3 / 30
Base 3+1 4-pole		SPC-S-S4-3+1	248171	3 / 30

SG14802



SPC-S-S4-3+1

PHASE OUT TYPE

Plug-in surge arrester SPC-S, 1- to 4-pole

Complete (2- and multi-pole surge arresters are supplied with busbar)

1-pole	130VAC	1x20kA	SPC-S-20/130/1	248188	12 / 120
1-pole	175VAC	1x20kA	SPC-S-20/175/1	248189	12 / 120
2-pole	175VAC	2x20kA	SPC-S-20/175/2	248190	1 / 60
1-pole	280VAC	1x20kA	SPC-S-20/280/1	248172	12 / 120
2-pole	280VAC	2x20kA	SPC-S-20/280/2	248173	1 / 60
3-pole	280VAC	3x20kA	SPC-S-20/280/3	248174	1 / 40
4-pole	280VAC	4x20kA	SPC-S-20/280/4	248175	1 / 30
1-pole	335VAC	1x20kA	SPC-S-20/335/1	248176	12 / 120
2-pole	335VAC	2x20kA	SPC-S-20/335/2	248177	1 / 60
3-pole	335VAC	3x20kA	SPC-S-20/335/3	248178	1 / 40
4-pole	335VAC	4x20kA	SPC-S-20/335/4	248179	1 / 30
1-pole	385VAC	1x20kA	SPC-S-20/385/1	248180	12 / 120
2-pole	385VAC	2x20kA	SPC-S-20/385/2	248181	1 / 60
3-pole	385VAC	3x20kA	SPC-S-20/385/3	248182	1 / 40
4-pole	385VAC	4x20kA	SPC-S-20/385/4	248183	1 / 30
1-pole	460VAC	1x20kA	SPC-S-20/460/1	248184	12 / 120
2-pole	460VAC	2x20kA	SPC-S-20/460/2	248185	1 / 60
3-pole	460VAC	3x20kA	SPC-S-20/460/3	248186	1 / 40
4-pole	460VAC	4x20kA	SPC-S-20/460/4	248187	1 / 30
1-pole	580VAC	1x20kA	SPC-S-20/580/1	248191	12 / 120
1+1p	-	-	SPC-S-1+1	248192	1 / 60
3+1p	-	-	SPC-S-3+1	248193	1 / 30
3+1p	-	-	SPC-S-3+N/PE	115795	1 / 30

U1202



SPC-S-20/280/3

Surge Protection

SG13109



SPCT2-280

NEW

Plug-in surge arrester SPCT2

Insert 1-pole

Insert 75VAC	20kA	SPCT2-075	167577	4/120
Insert 130VAC	20kA	SPCT2-130	167582	4/120
Insert 175VAC	20kA	SPCT2-175	167587	4/120
Insert 280VAC	20kA	SPCT2-280	167592	4/120
Insert 335VAC	20kA	SPCT2-335	167597	4/120
Insert 385VAC	20kA	SPCT2-385	167602	4/120
Insert 460VAC	20kA	SPCT2-460	167607	4/120
Insert 580VAC	20kA	SPCT2-580	167612	4/120
Insert 260VAC	30kA	SPCT2-NPE60	167617	4/120

SG50112



SPCT2-280/3

NEW

Plug-in surge arrester SPCT2, 1- to 4-pole

Complete (2- and multi-pole surge arresters are supplied with busbar)

1-pole	75VAC	20kA	SPCT2-075/1	167578	12/120
1-pole	130VAC	20kA	SPCT2-130/1	167583	12/120
1-pole	175VAC	20kA	SPCT2-175/1	167588	12/120
1-pole	280VAC	20kA	SPCT2-280/1	167593	12/120
1-pole	335VAC	20kA	SPCT2-335/1	167598	12/120
1-pole	385VAC	20kA	SPCT2-385/1	167603	12/120
1-pole	460VAC	20kA	SPCT2-460/1	167608	12/120
1-pole	580VAC	20kA	SPCT2-580/1	167613	12/120
1+N	260VAC	30kA	SPCT2-NPE60/1	167618	12/120
2-pole	75VAC	2x20kA	SPCT2-075/2	167579	1/60
2-pole	130VAC	2x20kA	SPCT2-130/2	167584	1/60
2-pole	175VAC	2x20kA	SPCT2-175/2	167589	1/60
2-pole	280VAC	2x20kA	SPCT2-280/2	167594	1/60
2-pole	335VAC	2x20kA	SPCT2-335/2	167599	1/60
2-pole	385VAC	2x20kA	SPCT2-385/2	167604	1/60
2-pole	460VAC	2x20kA	SPCT2-460/2	167609	1/60
2-pole	580VAC	2x20kA	SPCT2-580/2	167614	1/60
3-pole	75VAC	3x20kA	SPCT2-075/3	167580	1/40
3-pole	130VAC	3x20kA	SPCT2-130/3	167585	1/40
3-pole	175VAC	3x20kA	SPCT2-175/3	167590	1/40
3-pole	280VAC	3x20kA	SPCT2-280/3	167595	1/40
3-pole	335VAC	3x20kA	SPCT2-335/3	167600	1/40
3-pole	385VAC	3x20kA	SPCT2-385/3	167605	1/40
3-pole	460VAC	3x20kA	SPCT2-460/3	167610	1/40
3-pole	580VAC	3x20kA	SPCT2-580/3	167615	1/40
4-pole	75VAC	4x20kA	SPCT2-075/4	167581	1/30
4-pole	130VAC	4x20kA	SPCT2-130/4	167586	1/30
4-pole	175VAC	4x20kA	SPCT2-175/4	167591	1/30
4-pole	280VAC	4x20kA	SPCT2-280/4	167596	1/30
4-pole	335VAC	4x20kA	SPCT2-335/4	167601	1/30
4-pole	385VAC	4x20kA	SPCT2-385/4	167606	1/30
4-pole	460VAC	4x20kA	SPCT2-460/4	167611	1/30
4-pole	580VAC	4x20kA	SPCT2-580/4	167616	1/30
1+N	280VAC	20kA	SPCT2-280-1+NPE	167619	1/60
1+N	335VAC	20kA	SPCT2-335-1+NPE	167621	1/60
1+N	385VAC	20kA	SPCT2-385-1+NPE	167623	1/60
1+N	460VAC	20kA	SPCT2-460-1+NPE	167625	1/60
1+N	580VAC	20kA	SPCT2-580-1+NPE	167627	1/60
3+N	280VAC	20kA	SPCT2-280-3+NPE	167620	1/30
3+N	335VAC	20kA	SPCT2-335-3+NPE	167622	1/30
3+N	385VAC	20kA	SPCT2-385-3+NPE	167624	1/30
3+N	460VAC	20kA	SPCT2-460-3+NPE	167626	1/30
3+N	580VAC	20kA	SPCT2-580-3+NPE	167628	1/30
3+N/BB	280VAC	3x20kA	SPCT2-280-3+NPE/BB	167629	1
3+N/BB	335VAC	3x20kA	SPCT2-335-3+NPE/BB	167630	1
3+N/BB	385VAC	3x20kA	SPCT2-385-3+NPE/BB	167631	1
3+N/BB	460VAC	3x20kA	SPCT2-460-3+NPE/BB	167632	1

Surge Protection

Surge arrester Set				
Description	Type Designation	Article No.	Units per package	
SG14805  PHASE OUT TYPE SPC-S-3+1-SET SG83311	SPD Class C, SPC			
	Surge arrester set	SPC-S-3+1-SET	248194	1
SG83311  NEW	Auxiliary Switch			
	for SPCT2	ASAXSC-SPM	131785	8 / 80
Description	Type Designation	Article No.	Units per package	
SG59511 	Lead-through terminal for SPB, ASLTT-63			
		ASLTT-63	131784	12 / 120



SPD-type T2 (Class C)

Max. Cont. Op. Volt. U_c I_n (Type Designation Article No. Units per package

Plug-in Surge Arrester SPPT2PA for Photovoltaic application

For earthed systems

600 V DC	SPPT2PA-600-2PE	132663	1 / 60
1000 V DC	SPPT2PA-1000-2PE	132664	1 / 60
with auxiliary switch 1000 V DC	SPPT2PA-1000-2PE-AX	132666	1 / 60

For unearthed systems

600 V DC	SPPT2PA-600-2+1PE	132661	1 / 40
1000 V DC	SPPT2PA-1000-2+1PE	132662	1 / 40
with auxiliary switch 1000 V DC	SPPT2PA-1000-2+1PE-AX	132665	1 / 40

Inserts for replacement

600 V DC	①	SPPT2PA-600	132667	1
1000 V DC	①	SPPT2PA-1000	132668	1
1100 V DC	②	SPPT2PA-1100	132669	1

$V_{oc} \leq U_c$: Open circuit voltage of PV-Generator shall be equal or less than maximum continuous operating voltage of Surge Protective Device (SPD) to prevent its damage.

V_{oc} Open circuit voltage of PV-Generator.

U_c Maximum continuous operating voltage of SPD.

⚡ Attention: Even at switched off DC-Disconnector system stays under high voltage!
Before mounting ensure de-energizing and check zero-potential.

SG11009



SG11309

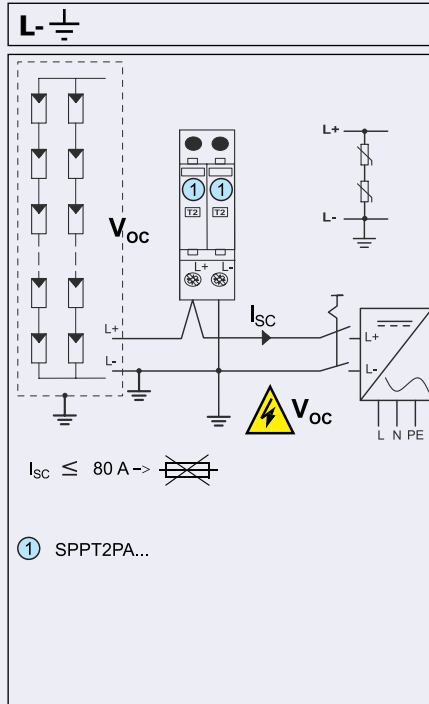


SG62612



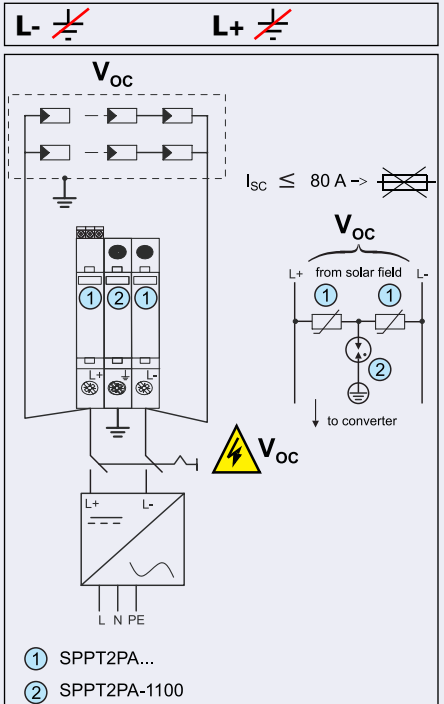
Earthed system

SPPT2PA-600-2PE
SPPT2PA-1000-2PE(-AX)



Unearthed system

SPPT2PA-600-2+1PE
SPPT2PA-1000-2+1PE(-AX)

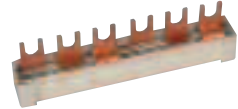


Surge Protection



Z-GV-U/9

WA_SG11202



ZV-KSBI-2TE

ZV-KSBI-3TE

ZV-KSBI-3TE/S

ZV-KSBI-3TE+HI

ZV-KSBI-4TE

ZV-KSBI-5TE

ZV-KSBI-5TE/N

ZV-KSBI-5TE+HI

ZV-KSBI-6TE

ZV-KSBI-7TE

ZV-KSBI-7TE/S

ZV-KSBI-7TE/N

ZV-KSBI-9TE/N

ZV-KSBI-11TE

1 2 3 4 5 6 7 8 9 10 11

Poles	Type Designation	Article No.	Units per package
Busbars Z-GV-U/ for SPI, SP-B+C			
2	Z-GV-U/2	272588	20 / 1200
3	Z-GV-U/3	272589	20 / 1200
4	Z-GV-U/4	274080	20 / 1200
5	Z-GV-U/5	274081	20 / 1200
6	Z-GV-U/6	274082	20 / 400
8	Z-GV-U/8	274083	20 / 200
9	Z-GV-U/9	274084	20 / 200

Busbar Z-GV-16/3P-3TE/6			
for SPI and SPC	Z-GV-16/3P-3TE/6	267511	12 / 240

Busbars ZV-KSBI for SPC			
2MU	ZV-KSBI-2TE	263961	10 / 600
3MU	ZV-KSBI-3TE	263962	10 / 600
3MU	ZV-KSBI-3TE/S	263963	10 / 600
2MU+1.5MU	ZV-KSBI-3TE+HI	112370	50 / 150
4MU	ZV-KSBI-4TE	263964	10 / 600
5MU	ZV-KSBI-5TE	263965	10 / 200
5MU	ZV-KSBI-5TE/N	263966	10 / 200
2MU+3x1.5MU	ZV-KSBI-5TE+HI	112371	50 / 150
6MU	ZV-KSBI-6TE	113118	50 / 500
7MU	ZV-KSBI-7TE	263967	50 / 500
7MU	ZV-KSBI-7TE/S	263968	10 / 100
7MU	ZV-KSBI-7TE/N	263969	10 / 100
9MU	ZV-KSBI-9TE/N	266874	50 / 500
11MU	ZV-KSBI-11TE	263970	50 / 500

Surge Protection

SPD Class D



SPD-S-1+1

PHASE OUT TYPE

Description	Type Designation	Article No.	Units per package
Surge protective device SPD-S-1+1 for TN-, TT-systems (3-phase 4-wire)			
Complete device	SPD-S-1+1	248202	1 / 60
Insert N-PE	SPD-S-N/PE	248199	4 / 120
Insert L-N	SPD-S-L/N	248200	4 / 120
Base 1+1 2-pole	SPC-S-S2-1+1	248201	6 / 60
Auxiliary switch	SPC-S-HK	248203	8 / 80

N00411



Description	Type Designation	Article No.	Units per package
Surge protective device SPD-S-280/2 for IT-, TT-systems (3-phase 3-wire)			
Complete device	SPD-S-280/2	269088	1 / 60
Insert	SPD-S-280	269087	4 / 120
Base	SPC-S-S2	248168	6 / 60
Auxiliary switch	SPC-S-HK	248203	8 / 80

19" Multiple Outlet Strips NWS-STL/19/7F

7 outlets, DIN	NWS-STL/19/7F	255398	1
7 outlets, plus switch, DIN	NWS-STL/19/7F/S/BL	255399	1
7 outlets, UTE	NWS-STL/19/7F/UTE	290031	1

N00511



19" Surge Protection - Multiple Outlet Strips with Switch SPD-STL/19/7F-S/BL

7 outlets, plus switch, DIN	SPD-STL/19/7F-S/BL	283449	1
7 outlets, UTE	SPD-STL/19/7F-S/BL/UTE	290032	1

N04011



Surge Protection Multiple Outlet Strips with High-Range Filter and Energy Absorption for full Equipment Protection SPD-STL/6F-S

6 outlets, plus switch, DIN	SPD-STL/6F-S (68583)	130000	1
6 outlets, plus switch, DIN+ISDN	SPD-STL/6F-S/ISDN (68585)	147795	1
19" fixing bracket for SPD-STL/6F-S (1U)	NWS-HW/19/SPD-STL/6F-S	166364	1

Surge Protection

Earthing/Equipotential Bonding

	Description	Type Designation	Article No.	Units per package
	Equipotential Bonding Bar PAS-7x16			
	<ul style="list-style-type: none"> • For main equipotential bonding • Earthing strip up to 30 x 3.5 / Round conductor 7 - 10 mm 			
				
SG07306	7 x 2.5 - 16 mm ²	PAS-7x16	107945	10 / 50
				
	Earthing Bar for Antenna Lines PAS-HF-6			
	<ul style="list-style-type: none"> • Earthing conductor 6 - 25 mm² 			
				
SG07206	6 x HF-Cable shields	PAS-HF-6	107946	10 / 100
				
	Earth Clips EBS			
	<ul style="list-style-type: none"> • For copper and galvanized steel/stainless steel tubes • Cross-section for connection 1 x 2.5 mm² to 2 x 16 mm² 			
				
SG07406	Tube Ø 1/8" - 1½"	EBS-210mm	107947	20 / 80
	Tube Ø 1/8" - 4"	EBS-430mm	107948	20 / 80
				

Controlling & Switching

- Switches
- Installation Contactors
- Relays
- Signalling Devices
- Transformers

SG10611



SG59411



SG83911



SG82911








SG84611








wa_sg04311



Controlling & Switching

Main Load Disconnecter Switch (Isolator) IS							
	Rated Current (A)	Poles	Type Designation	Article No.	Units per package		
 SG10611	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		
	 SG10711	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		
 SG10811		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		
	 SG10911	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		
 SG47812		Accessories					
		Switching interlock without lock for Isolators, RCDs, combined RCD/MCBs, ...			IS/SPE-1TE	101911	5 / 30
		Terminal cover			Z-IS/AK-1TE	276290	10 / 600

Controlling & Switching

Circuit Breaker ZP-A						
		Number of Poles/Rated Operational Current	Type Designation	Article No.	Units per package	
 SG00912	1	40A	ZP-A40/1	248263	12 / 120	
	2	40A	ZP-A40/2	248264	1 / 60	
	3	40A	ZP-A40/3	248265	1 / 40	
	3+N	40A	ZP-A40/3N	248266	1 / 30	
	1	63A	ZP-A63/1	284906	12 / 120	
	2	63A	ZP-A63/2	284907	1 / 60	
	3	63A	ZP-A63/3	284908	1 / 40	
	3+N	63A	ZP-A63/3N	284909	1 / 30	
	Miniature Circuit Breakers (MCBs) for Auxiliary Circuits PLSM-B4/..-HS, CLS6-B4/..-HS					
			Poles / Rated Breaking Capacity	Type Designation	Article No.	Units per package
 SG54312	1	10kA	PLSM-B4-HS	247221	2 / 120	
	2	10kA	PLSM-B4/2-HS	247222	1 / 60	
	1	6kA	CLS6-B4-HS	247969	2 / 120	
	1+N	6kA	CLS6-B4/1N-HS	247970	2 / 80	
	2	6kA	CLS6-B4/2-HS	247971	1 / 60	
	Pushbutton Z-T/					
		Colour of Button/Function	Type Designation	Article No.	Units per package	
 SG37112	green	4NO	Z-T/4S-G	248328	12 / 120	
	black	3NO+1NC	Z-T/3S10	248330	12 / 120	
Control Switch Z-S./						
		Rated Current (A)/Function	Type Designation	Article No.	Units per package	
 SG38912	16	3NO	Z-S/3S	248334	12 / 120	
	16	4NO	Z-S/4S	248335	12 / 120	
	16	2NO+2NC	Z-S/SSOO	248337	12 / 120	
	16	3NO+1NC	Z-S/3S10	248338	12 / 120	
	Changeover Switch Z-S/W					
		Function	Type Designation	Article No.	Units per package	
 SG38012	1CO	I-0-II	Z-S/WM	248345	12 / 120	
	2CO	I-0-II	Z-S/2WM	248346	12 / 120	
	1CO	DAY-0-NIGHT	Z-S/WTN	248347	12 / 120	
	2CO	DAY-0-NIGHT	Z-S/2WTN	248348	12 / 120	

Controlling & Switching

Switch Z-SW, Z-SWL

- Z-SWL: with LED
- 16 A 250 VAC

SG58911



Rated voltage LED	Function	Type Designation	Article No.	Units per package
–	1NO	Z-SW/S	276300	2 / 120
–	2NO	Z-SW/SS	276301	2 / 120
–	1NO+1NC	Z-SW/SO	276302	2 / 120
–	1CO	Z-SW/W	276303	2 / 120
24 V AC/DC	2NO	Z-SWL24/SS	276304	2 / 120
24 V AC/DC	1NO+1NC	Z-SWL24/SO	276305	2 / 120
230 V AC/DC	1NO	Z-SWL230/S	292300	2 / 120
230 V AC/DC	2NO	Z-SWL230/SS	276306	2 / 120
230 V AC/DC	1NO+1NC	Z-SWL230/SO	276307	2 / 120

Additional LED colours, voltages and contact functions upon enquiry.

wa_sg02512



Z-EK/25

Busbar block

1-pole straight grey 10mm ²	Z-SV-10/1P-F/13	264918	10
1-pole straight blue 10mm ²	Z-SV-10/N-F/13	264919	10
1-pole straight grey 16mm ²	Z-SV-16/1P-1TE/F	269523	25
1-pole straight blue 16mm ²	Z-SV-16/N-1TE/F	269524	25
Extension terminal 25mm ² long, straight	Z-EK/25	264935	10 / 600
Extension terminal 25mm ² short, straight	Z-EK/25/K	269525	10 / 600
Extension terminal 25mm ² long, crosswise	Z-EK/25/QL	264937	10 / 600
Extension terminal 25mm ² short, crosswise	Z-EK/25/Q	264936	10 / 600

Controlling & Switching

Signal Lamps

SG59211



Z-BEL/R230

Rated voltage	LED colour	Type Designation	Article No.	Units per package
Single Lamp Z-EL				
24 V AC/DC	orange	Z-EL/OR24	275444	2 / 120
24 V AC/DC	white	Z-EL/WH24	107493	2 / 120
230 V AC/DC	red	Z-EL/R230	284921	2 / 120
230 V AC/DC	green	Z-EL/G230	284922	2 / 120
230 V AC/DC	orange	Z-EL/OR230	275865	2 / 120
230 V AC/DC	blue	Z-EL/BL230	103131	2 / 120
230 V AC/DC	white	Z-EL/WH230	107494	2 / 120
Twin Lamp Z-DLD				
2 x 24 V AC/DC	red + green	Z-DLD/2/24	284926	2 / 120
2 x 230 V AC/DC	red + green	Z-DLD/2/230	284925	2 / 120
2 x 24 V AC/DC	white + white	Z-DLD/WH24	108897	2 / 120
2 x 230 V AC/DC	white + white	Z-DLD/WH230	108898	2 / 120
Universal Single Lamp - changeover function Z-UEL				
24 V AC/DC	red/green	Z-UEL24	284924	2 / 120
230 V AC/DC	red/green	Z-UEL230	284923	2 / 120
Universal Twin Lamp - changeover function Z-UDL				
2 x 24 V AC/DC	red/green	Z-UDL24	284928	2 / 120
2 x 230 V AC/DC	red/green	Z-UDL230	284927	2 / 120
Signal Lamp - with integrated flash function Z-BEL				
24 V AC/DC	red	Z-BEL/R24	284931	2 / 120
24 V AC/DC	green	Z-BEL/G24	284932	2 / 120
230 V AC/DC	red	Z-BEL/R230	284929	2 / 120
230 V AC/DC	green	Z-BEL/G230	284930	2 / 120

Pushbutton Unit Z-PU, Z-PUL

- Z-PUL: with LED
- 16 A 250 VAC

SG59811



Rated voltage LED	Function	Type Designation	Article No.	Units per package
–	1NO	Z-PU/S	276291	2 / 120
–	2NO	Z-PU/SS	276292	2 / 120
–	1NO+1NC	Z-PU/SO	276293	2 / 120
–	2NC	Z-PU/OO	276294	2 / 120
24 V AC/DC	2NO	Z-PUL24/SS	276295	2 / 120
24 V AC/DC	1NO+1NC	Z-PUL24/SO	276296	2 / 120
230 V AC/DC	2NO	Z-PUL230/SS	276297	2 / 120
230 V AC/DC	1NO+1NC	Z-PUL230/SO	276298	2 / 120
230 V AC/DC	2NC	Z-PUL230/OO	276299	2 / 120

Controlling & Switching

Rotary Switch Z-DS

SG85211



Z-DSU1-102

SG85311



Z-DSA2-01-SL

Function/Switching Position	Type Designation	Article No.	Units per package
1pole OFF 0 - 1	Z-DSA1-01	248868	1 / 40
1pole CHANGE 1 - 0 - 2	Z-DSU1-102	248869	1 / 40
1pole CHANGE HA - 0 - AU	Z-DSU1-H0A	248870	1 / 40
1pole CHANGE TA - 0 - NA	Z-DSU1-T0N	248871	1 / 40
2pole OFF 0 - 1	Z-DSA2-01	248872	1 / 40
2pole OFF 0 - 1	Z-DSA2-01-SL	248873	1 / 40
2pole CHANGE 1 - 2	Z-DSU2-12	248874	1 / 40
2pole CHANGE 1 - 0 - 2	Z-DSU2-102	248875	1 / 40
2pole CHANGE HA - 0 - AU	Z-DSU2-H0A	248876	1 / 40
3pole CHANGE 1 - 0 - 2	Z-DSU3-102	248877	1 / 40
Voltmeter L-N L1 - N...	Z-DSV-LN	248878	1 / 40
Voltmeter L-L L1 - L2...	Z-DSV-LL	248879	1 / 40
Voltmeter L+N L1 - N3...	Z-DSV-LLN	248880	1 / 40
Amperemeter 0-1-2-3	Z-DSAM-0123	129712	1 / 40

Relay for low-level signals RE

- electronic relay
- 2 relays for separate energizing with one changeover contact each relay per frame

SG83411



Control Voltage	Function	MU	Type Designation	Article No.	Units per package
24-230V AC/DC	1CO+1CO	1	RELLVA	120854	1 / 40
24-230V AC/DC	1CO+1CO	1	REHLVA	120855	1 / 40
24-230V AC/DC	1CO+1CO	1	REMLVA	120856	1 / 40

Controlling & Switching

Installation Relays Z-R., Z-TN

SG12211




Z-R12/S

SG60411



Z-R230/2S2O

Control Voltage/Function/MU	Type Designation	Article No.	Units per package
Type Z-R			
• with manual operation			
• 20 A 250 VAC  AC1			
240 V 50Hz 2NO	1 Z-R240/SS	285525	2 / 120
240 V 60Hz 2NO	1 Z-R241/SS	265166	2 / 120
240 V 60Hz 2NC	1 Z-R241/SO	265179	2 / 120
230 V 50Hz 1NO	1 Z-R230/S	265149	2 / 120
230 V 50Hz 2NO	1 Z-R230/SS	265168	2 / 120
230 V 50Hz 4NO	2 Z-R230/4S	265226	1 / 60
230 V 50Hz 1NO+1NC	1 Z-R230/SO	265181	2 / 120
230 V 50Hz 2NO+2NC	2 Z-R230/2S2O	265215	1 / 60
230 V 50Hz 3NO+1NC	2 Z-R230/3S1O	265221	1 / 60
230 V 50Hz 2NC	1 Z-R230/OO	265188	2 / 120
230 V 50Hz 4NC	2 Z-R230/4O	265228	1 / 60
230 V 60Hz 2NO	1 Z-R231/SS	265167	2 / 120
230 V 60Hz 1NO+1NC	1 Z-R231/SO	265180	2 / 120
110 V 50Hz 2NO	1 Z-R110/SS	265170	2 / 120
110 V 50Hz 2NO+2NC	2 Z-R110/2S2O	265216	1 / 60
110 V 50Hz 3NO+1NC	2 Z-R110/3S1O	265222	1 / 60
110 V 60Hz 2NO	1 Z-R111/SS	265169	2 / 120
110 V DC 2NO	1 Z-R109/SS	265171	2 / 120
110 V DC 1NO+1NC	1 Z-R109/SO	265182	2 / 120
110 V DC 2NO+2NC	2 Z-R109/2S2O	265217	1 / 60
110 V DC 3NO+1NC	2 Z-R109/3S1O	265223	1 / 60
48 V 50Hz 2NO	1 Z-R48/SS	265172	2 / 120
24 V 50Hz 1NO	1 Z-R24/S	265160	2 / 120
24 V 50Hz 2NO	1 Z-R24/SS	265173	2 / 120
24 V 50Hz 4NO	2 Z-R24/4S	265227	1 / 60
24 V 50Hz 1NO+1NC	1 Z-R24/SO	265183	2 / 120
24 V 50Hz 2NO+2NC	2 Z-R24/2S2O	265218	1 / 60
24 V 50Hz 3NO+1NC	2 Z-R24/3S1O	265224	1 / 60
24 V 50Hz 2NC	1 Z-R24/OO	265189	2 / 120
24 V 50Hz 4NC	2 Z-R24/4O	265229	1 / 60
24 V 60Hz 2NO	1 Z-R25/SS	248368	2 / 120
24 V DC 1NO	1 Z-R23/S	265161	2 / 120
24 V DC 2NO	1 Z-R23/SS	265174	2 / 120
24 V DC 1NO+1NC	1 Z-R23/SO	265184	2 / 120
24 V DC 2NO+2NC	2 Z-R23/2S2O	265219	1 / 60
24 V DC 4NC	2 Z-R23/4O	101910	1 / 60
12 V 50Hz 1NO	1 Z-R12/S	265162	2 / 120
12 V 50Hz 2NO	1 Z-R12/SS	265175	2 / 120
12 V 50Hz 1NO+1NC	1 Z-R12/SO	265185	2 / 120
12 V 50Hz 2NO+2NC	2 Z-R12/2S2O	265220	1 / 60
12 V 50Hz 3NO+1NC	2 Z-R12/3S1O	265225	1 / 60
12 V DC 1NO	1 Z-R11/S	265163	2 / 120
12 V DC 2NO	1 Z-R11/SS	265176	2 / 120
12 V DC 1NO+1NC	1 Z-R11/SO	265186	2 / 120
12 V DC 2NC	1 Z-R11/OO	290198	2 / 120
8 V 50Hz 1NO	1 Z-R8/S	265164	2 / 120
8 V 50Hz 2NO	1 Z-R8/SS	265177	2 / 120
8 V 50Hz 1NO+1NC	1 Z-R8/SO	265187	2 / 120
8 V DC 1NO	1 Z-R7/S	265165	2 / 120
8 V DC 2NO	1 Z-R7/SS	265178	2 / 120

Controlling & Switching

SG59411



Z-RE24/S

SG59111



Z-RK230/SS

SG59711



Z-TN230/SO

SG60111



Z-TN230/3S

Control Voltage/Function/MU	Type Designation	Article No.	Units per package
Type Z-RE			
• with LED, without manual operation			
• 20 A 250 VAC $\text{—} \text{—}$			
230 V 50Hz	1NO	1 Z-RE230/S	265190 2 / 120
230 V 50Hz	2NO	1 Z-RE230/SS	265193 2 / 120
230 V 50Hz	1NO+1NC	1 Z-RE230/SO	265197 2 / 120
230 V 50Hz	2NO+2NC	2 Z-RE230/2S2O	265230 1 / 60
230 V 50Hz	3NO+1NC	2 Z-RE230/3S1O	265235 1 / 60
24 V 50Hz	1NO	1 Z-RE24/S	265191 2 / 120
24 V 50Hz	2NO	1 Z-RE24/SS	265194 2 / 120
24 V 50Hz	1NO+1NC	1 Z-RE24/SO	265198 2 / 120
24 V 50Hz	2NO+2NC	2 Z-RE24/2S2O	265231 1 / 60
24 V 50Hz	3NO+1NC	2 Z-RE24/3S1O	265236 1 / 60
24 V DC	1NO	1 Z-RE23/S	265192 2 / 120
24 V DC	2NO	1 Z-RE23/SS	265195 2 / 120
24 V DC	1NO+1NC	1 Z-RE23/SO	265199 2 / 120
24 V DC	2NO+2NC	2 Z-RE23/2S2O	265232 1 / 60
12 V 50Hz	2NO+2NC	2 Z-RE12/2S2O	265233 1 / 60
12 V 50Hz	3NO+1NC	2 Z-RE12/3S1O	265237 1 / 60
12 V DC	2NO+2NC	2 Z-RE11/2S2O	265234 1 / 60
8 V 50Hz	2NO	1 Z-RE8/SS	265196 2 / 120
Type Z-RK			
• with manual operation and LED			
• 20 A 250 VAC $\text{—} \text{—}$ AC1			
230 V 60Hz	2NO	1 Z-RK241/SS	265202 2 / 120
230 V 60Hz	2NC	1 Z-RK241/SO	265207 2 / 120
230 V 50Hz	1NO	1 Z-RK230/S	265200 2 / 120
230 V 50Hz	2NO	1 Z-RK230/SS	265203 2 / 120
230 V 50Hz	1NO+1NC	1 Z-RK230/SO	265208 2 / 120
230 V 50Hz	2NO+2NC	2 Z-RK230/2S2O	265238 1 / 60
230 V 50Hz	3NO+1NC	2 Z-RK230/3S1O	265241 1 / 60
230 V 50Hz	2NC	1 Z-RK230/OO	265213 2 / 120
110 V DC	2NO	1 Z-RK109/SS	265204 2 / 120
24 V 50Hz	1NO	1 Z-RK24/S	265201 2 / 120
24 V 50Hz	2NO	1 Z-RK24/SS	265205 2 / 120
24 V 50Hz	1NO+1NC	1 Z-RK24/SO	265209 2 / 120
24 V 50Hz	2NO+2NC	2 Z-RK24/2S2O	265239 1 / 60
24 V 50Hz	3NO+1NC	2 Z-RK24/3S1O	265242 1 / 60
24 V 50Hz	2NC	1 Z-RK24/OO	265214 2 / 120
24 V DC	2NO	1 Z-RK23/SS	265206 2 / 120
24 V DC	1NO+1NC	1 Z-RK23/SO	265210 2 / 120
24 V DC	2NO+2NC	2 Z-RK23/2S2O	271464 1 / 60
12 V 50Hz	1NO+1NC	1 Z-RK12/SO	265211 2 / 120
12 V 50Hz	2NO+2NC	2 Z-RK12/2S2O	265240 1 / 60
12 V 50Hz	3NO+1NC	2 Z-RK12/3S1O	265243 1 / 60
8 V 50Hz	1NO+1NC	1 Z-RK8/SO	265212 2 / 120
Other control voltages, frequencies, and contact functions upon enquiry.			
Type Z-TN			
• with manual pre-selection of functions - permanently ON / AUTOM / OFF			
• 20 A 250 VAC $\text{—} \text{—}$			
230 V 50Hz	2NO	1 Z-TN230/SS	265574 2 / 120
230 V 50Hz	3NO	2 Z-TN230/3S	265576 1 / 60
230 V 50Hz	4NO	2 Z-TN230/4S	265579 1 / 60
230 V 50Hz	1NO+1NC	1 Z-TN230/1S1O	267975 2 / 120
230 V 50Hz	2NO+2NC	2 Z-TN230/2S2O	103168 1 / 60
24 V 50Hz	2NO	1 Z-TN24/SS	267976 2 / 120
24 V 50Hz	3NO	2 Z-TN24/3S	267977 1 / 60
24 V 50Hz	4NO	2 Z-TN24/4S	267978 1 / 60
24 V 50Hz	1NO+1NC	1 Z-TN24/1S1O	267979 2 / 120

Controlling & Switching

wa_sg02512



Z-EK/25

Accessories

Spacer 0.5 MU	Z-DST	248949	10
---------------	-------	--------	----

Busbar block for Impulse Relays, Relays, Control and Switching Devices (Series Z-PU, Z-SW)

1-pole straight grey 10mm ²	Z-SV-10/1P-F/13	264918	10
1-pole straight blue 10mm ²	Z-SV-10/N-F/13	264919	10
1-pole straight grey 16mm ²	Z-SV-16/1P-1TE/F	269523	25
1-pole straight blue 16mm ²	Z-SV-16/N-1TE/F	269524	25
Extension terminal 25mm ² long, straight	Z-EK/25	264935	10 / 600
Extension terminal 25mm ² short, straight	Z-EK/25/K	269525	10 / 600
Extension terminal 25mm ² long, crosswise	Z-EK/25/QL	264937	10 / 600
Extension terminal 25mm ² short, crosswise	Z-EK/25/Q	264936	10 / 600

Controlling & Switching

Installation Contactors Z-SCH/CMUC

Installation Contactors Z-SCH

SG84611



Z-SCH230/25-40

SG84711



Z-SCH230/63-40

U _s / I _n AC1 / Function	Type Designation	Article No.	Units per package
230VAC 25A 2NO	Z-SCH230/1/25-20	120853	2 / 120
230VAC 25A 4NO	Z-SCH230/25-40	248847	1 / 60
230VAC 25A 4NC	Z-SCH230/25-04	248848	1 / 60
230VAC 25A 3NO+1NC	Z-SCH230/25-31	248846	1 / 60
230VAC 25A 2NO+2NC	Z-SCH230/25-22	248849	1 / 60
24VAC 25A 4NO	Z-SCH24/25-40	248851	1 / 60
24VAC 25A 2NO+2NC	Z-SCH24/25-22	248850	1 / 60
230VAC 40A 4NO	Z-SCH230/40-40	248852	1 / 40
230VAC 40A 3NO+1NC	Z-SCH230/40-31	248854	1 / 40
230VAC 40A 2NO+2NC	Z-SCH230/40-22	248853	1 / 40
230VAC 40A 2NO	Z-SCH230/40-20	248855	1 / 40
230VAC 63A 4NO	Z-SCH230/63-40	248856	1 / 40
230VAC 63A 4NC	Z-SCH230/63-04	285735	1 / 40
230VAC 63A 3NO+1NC	Z-SCH230/63-31	248858	1 / 40
230VAC 63A 2NO+2NC	Z-SCH230/63-22	248857	1 / 40
230VAC 63A 2NO	Z-SCH230/63-20	248859	1 / 40

Installation Contactors CMUC

• Universal Control Voltage U_c AC/DC

SG28812



CMUC230/25-40

U _c / I _n AC1 / Function	Type Designation	Article No.	Units per package
230V AC/DC25A 4NO	CMUC230/25-40	137309	1 / 60
230V AC/DC25A 4NC	CMUC230/25-04	137405	1 / 60
230V AC/DC25A 3NO+1NC	CMUC230/25-31	137401	1 / 60
230V AC/DC25A 2NO+2NC	CMUC230/25-22	137403	1 / 60
24V AC/DC 25A 4NO	CMUC24/25-40	137308	1 / 60
24V AC/DC 25A 4NC	CMUC24/25-04	137404	1 / 60
24V AC/DC 25A 3NO+1NC	CMUC24/25-31	137400	1 / 60
24V AC/DC 25A 2NO+2NC	CMUC24/25-22	137402	1 / 60

Accessories suitable for Z-SCH / CMUC

SG84311



Z-SC

Sealing cover (25A)	Z-SCHAK-2TE	248860	10
Sealing cover (40, 63A)	Z-SCHAK-3TE	248861	10
Auxiliary switch (1NO+1NC *)	Z-SC	248862	3
Spacer (0.5 MU)	Z-DST	248949	10
Suppressor RC-Combination 12-250 VAC	Z-RC/230	101428	2 / 120

*) NOT suitable for Z-SCH230/1/25-20 (120853)

Controlling & Switching

Impulse Relays Z-S

• 16 A 250 VAC

SG58611










Z-S230/SO

Control Voltage/Function/MU	Type Designation	Article No.	Units per package
240 V 50Hz 1NO 1	Z-S240/S	265261	2 / 120
240 V 50Hz 2NO 1	Z-S240/SS	265269	2 / 120
240 V 50Hz 1NO+1NC 1	Z-S240/SO	265282	2 / 120
240 V 50Hz 2NO+2NC 2	Z-S240/2S2O	265304	1 / 60
240 V 50Hz 1CO 1	Z-S240/W	265289	2 / 120
240 V 50Hz 2CO 2	Z-S240/WW	265311	1 / 60
240 V 60Hz 2NO 1	Z-S241/SS	265268	2 / 120
230 V 50Hz 1NO 1	Z-S230/S	265262	2 / 120
230 V 50Hz 2NO 1	Z-S230/SS	265271	2 / 120
230 V 50Hz 4NO 2	Z-S230/4S	270335	1 / 60
230 V 50Hz 1NO+1NC 1	Z-S230/SO	265283	2 / 120
230 V 50Hz 2NO+2NC 2	Z-S230/2S2O	265305	1 / 60
230 V 50Hz 1CO 1	Z-S230/W	265290	2 / 120
230 V 50Hz 2CO 2	Z-S230/WW	265312	1 / 60
230 V 60Hz 2NO 1	Z-S231/SS	265270	2 / 120
110 V 50Hz 1NO 1	Z-S110/S	265263	2 / 120
110 V 50Hz 2NO 1	Z-S110/SS	265273	2 / 120
110 V 50Hz 1NO+1NC 1	Z-S110/SO	265284	2 / 120
110 V 50Hz 2NO+2NC 2	Z-S110/2S2O	265306	1 / 60
110 V 50Hz 1CO 1	Z-S110/W	265291	2 / 120
110 V 50Hz 2CO 2	Z-S110/WW	265313	1 / 60
110 V 60Hz 2NO 1	Z-S111/SS	265272	2 / 120
110 V DC 2NO 1	Z-S109/SS	265274	2 / 120
110 V DC 1CO 1	Z-S109/W	265292	2 / 120
110 V DC 2CO 2	Z-S109/WW	265314	1 / 60
48VAC/24VDC*) 1NO 1	Z-S48/S	265534	2 / 120
48VAC/24VDC*) 2NO 1	Z-S48/SS	265536	2 / 120
48VAC/24VDC*) 4NO 2	Z-S48/4S	100665	1 / 60
48VAC/24VDC*) 1NO+1NC 1	Z-S48/SO	265538	2 / 120
48VAC/24VDC*) 2NO+2NC 2	Z-S48/2S2O	265540	1 / 60
48VAC/24VDC*) 1CO 1	Z-S48/W	265544	2 / 120
48VAC/24VDC*) 2CO 2	Z-S48/WW	265542	1 / 60
24VAC/12VDC*) 1NO 1	Z-S24/S	265535	2 / 120
24VAC/12VDC*) 2NO 1	Z-S24/SS	265537	2 / 120
24VAC/12VDC*) 1NO+1NC 1	Z-S24/SO	265539	2 / 120
24VAC/12VDC*) 2NO+2NC 2	Z-S24/2S2O	265541	1 / 60
24VAC/12VDC*) 1CO 1	Z-S24/W	265545	2 / 120
24VAC/12VDC*) 2CO 2	Z-S24/WW	265543	1 / 60
24 V 60Hz 2NO 1	Z-S25/SS	265276	2 / 120
12 V 50Hz 1NO 1	Z-S12/S	265266	2 / 120
12 V 50Hz 2NO 1	Z-S12/SS	265278	2 / 120
12 V 50Hz 1NO+1NC 1	Z-S12/SO	265287	2 / 120
12 V 50Hz 2NO+2NC 2	Z-S12/2S2O	265309	1 / 60
12 V 50Hz 1CO 1	Z-S12/W	265296	2 / 120
12 V 50Hz 2CO 2	Z-S12/WW	265317	1 / 60
8 V 50Hz 1NO 1	Z-S8/S	265267	2 / 120
8 V 50Hz 2NO 1	Z-S8/SS	265280	2 / 120
8 V 50Hz 1NO+1NC 1	Z-S8/SO	265288	2 / 120
8 V 50Hz 2NO+2NC 2	Z-S8/2S2O	265310	1 / 60
8 V 50Hz 1CO 1	Z-S8/W	265297	2 / 120
8 V 50Hz 2CO 2	Z-S8/WW	265318	1 / 60
8 V DC 2NO 1	Z-S7/SS	265281	2 / 120
8 V DC 1CO 1	Z-S7/W	265298	2 / 120
8 V DC 2CO 2	Z-S7/WW	265319	1 / 60

*) Double voltage AC/DC

Controlling & Switching

	Control Voltage/Function/MU	Type Designation	Article No.	Units per package		
 Z-SC230/S	With central control Z-SC					
	240 V AC 50/60Hz 3NO	2 Z-SC240/3S	265320	1 / 60		
	240 V AC 50/60Hz 1NO+1CO	2 Z-SC240/1S1W	265323	1 / 60		
	240 V AC 50/60Hz 2NO+1NC	2 Z-SC240/2S1O	265326	1 / 60		
	230 V AC 50/60Hz 1NO	1 Z-SC230/S	265299	2 / 120		
	230 V AC 50/60Hz 3NO	2 Z-SC230/3S	265321	1 / 60		
	230 V AC 50/60Hz 1NO+1CO	2 Z-SC230/1S1W	265324	1 / 60		
	230 V AC 50/60Hz 2NO+1NC	2 Z-SC230/2S1O	265327	1 / 60		
	110 V AC 50/60Hz 3NO	2 Z-SC110/3S	265322	1 / 60		
	110 V AC 50/60Hz 1NO+1CO	2 Z-SC110/1S1W	265325	1 / 60		
110 V AC 50/60Hz 2NO+1NC	2 Z-SC110/2S1O	265328	1 / 60			
24 V AC 50/60Hz 1NO	1 Z-SC24/S	265300	2 / 120			
 Z-SB230/SS	With switchable LED Z-SB					
	230 V 50Hz 2NO	1 Z-SB230/SS	265301	2 / 120		
	24 V 50Hz 2NO	1 Z-SB24/SS	265302	2 / 120		
	24 V DC 2NO	1 Z-SB23/SS	265303	2 / 120		
Other control voltages, frequencies, and contact arrangements upon enquiry.						
 Z-S/KO	Accessories for Z-S./					
	Compensator	1 Z-S/KO	270588	2 / 120		
	Group block	1 Z-SC/GP	270587	2 / 120		
 Z-EK/25	Busbar block					
	1-pole straight grey 10mm ²	Z-SV-10/1P-F/13	264918	10		
	1-pole straight blue 10mm ²	Z-SV-10/N-F/13	264919	10		
	1-pole straight grey 16mm ²	Z-SV-16/1P-1TE/F	269523	25		
	1-pole straight blue 16mm ²	Z-SV-16/N-1TE/F	269524	25		
	Extension terminal 25mm ² long, straight	Z-EK/25	264935	10 / 600		
	Extension terminal 25mm ² short, straight	Z-EK/25/K	269525	10 / 600		
	Extension terminal 25mm ² long, crosswise	Z-EK/25/QL	264937	10 / 600		
Extension terminal 25mm ² short, crosswise	Z-EK/25/Q	264936	10 / 600			
Staircase Switch with switch-off warning and stop function TL						
 TL	Function	Type Designation	Article No.	Units per package		
	Staircase switch with switch-off warning and stop function	TLE	101064	2 / 120		
	Staircase switch as TLE, with additional control input for central control, zero-voltage proof	TLK	101066	2 / 120		
Time-Lag Relay ZR						
 ZRMF1/W	 ZRMF2/WW	Function	Contacts	Type Designation	Article No.	Units per package
		E, R	1CO	ZRER/W	110405	2 / 120
		E, R, Ws, Wa, Es, Wu, Bp	1CO	ZRMF1/W	110406	2 / 120
		E, R, Ws, Wa, Es, Wu, Bp	2CO	ZRMF2/WW	110408	1 / 60
		Ip, Ii	1CO	ZRTAK/W	110747	2 / 120

Controlling & Switching

Undervoltage Relay REUVM

- Optical indication
Power...green LED
Fault in phases L1, L2, L3...red LED is flashing
Loss of Neutral conductor N...green Power LED is flashing
- Single phase application is possible

SG83511



Switching Voltage / U_N / Kontakte	Type Designation	Article No.	Units per package
$U_N \times 0,85$ 230/400 VAC	1CO REUVM	148598	1
$U_N \times 0,85$ 230/400 VAC	2CO REUVM2	167284	1

Voltage indication UVA

- Optical indication
Voltage of phases L1, L2, L3 is indicated with green LED's even at loss of Neutral conductor N
- Single-phase application, or even possible to use DC

SG00112



Rated operational voltage	Type Designation	Article No.	Units per package
230/400 VAC 50/60Hz	UVA	167285	1

Load Shedding (Current) Relay Z-LAR/

SG78711



Function/Op. Current Range (A)	Type Designation	Article No.	Units per package
NC 3-8	Z-LAR/8-O	248256	1 / 60
NC 10-16	Z-LAR/16-O	248257	1 / 60
NC 15-32	Z-LAR/32-O	248258	1 / 60
NO 3-8	Z-LAR/8-S	248259	1 / 60
NO 10-16	Z-LAR/16-S	248260	1 / 60
NO 15-32	Z-LAR/32-S	248261	1 / 60
CO 3-8	Z-LAR/8-W	248262	1 / 60

Bio-Switch FFS/16

SG08012



	Type Designation	Article No.	Units per package
Bio-Switch	FFS/16	107325	1 / 60

SG09708







Accessories

PHASE OUT

Base load resistor for FFS/16	Z-NKA-SCH	120890	1 / 12
-------------------------------	-----------	--------	--------

Controlling & Switching

		Timers digital TSDW...						
		Drive	Program	Channels	Type Designation	Article No.	Units per package	
 <p>SG84011</p>	<p>PHASE OUT</p>	Quartz	Week	1 chan.	TSDW1CO	167379	1	
		Quartz	Week	2 chan.	TSDW2CO	167380	1	
		DCF/GPS	Week	1 chan.	TSDW1CODG	167382	1	
		Quartz	Week	1 chan.	TSDW1COMIN	167383	1	
		Quarz	Day	1 chan.	SA-TD/1W	111450	1	
		Accessories						
		DCF antenna for timers digi- tal TSDW1CODG		TSADCF	167384	1		
		GPS antenna with power supply for TSDW1CODG		TSAGPSKIT	167385	1		
		PC Set + memory card for SRCD1CO, TSDW1CO, TSDW2CO, TSDW1COA, TSDW1CODG		TSAMEMKIT	167386	1		
		Memory card		TSAMEM	167387	1		
		Timers digital Z-SDM						
		Drive	Program	Channels	Type Designation	Article No.	Units per package	
 <p>SG2302</p>	Digital							
			Quartz	Day	1 chan.	Z-SDM/1K-TA	248210	1 / 60
			Quartz	Week	1 chan.	Z-SDM/1K-WO	248211	1 / 60
			Quartz	Week	2 chan.	Z-SDM/2K-WO	248212	1 / 60
	Accessories							
			Terminal cover 2MU		Z7-SDM/AK-2TE	850000317	6	
		Mounting plate 2MU		Z7-SDM/MP-2TE	850000318	24		
		Astronomical Timer TSDW1COA, SA-TD/1W						
		Drive	Programme	Channels	Type Designation	Article No.	Units per package	
 <p>SG84011</p>	<p>PHASE OUT</p>	Astronomical, digital						
		Quartz	Week	1 chan.	TSDW1COA	167381	1	
		Quartz	Day	1 chan.	SA-TD/1W	111450	1 / 40	
		Timers analogue TS...						
		Drive	Program	Channels	Type Designation	Article No.	Units per package	
 <p>SG83911</p>	Quarz	Day	1 chan.	TSQD1NO	167388	1		
	Synchron.	Day	1 chan.	TSSD1NO	167389	1		
	Quarz	Day	1 chan.	TSQD1CO	167390	1		
	Synchron.	Day	1 chan.	TSSD1CO	167391	1		
	Quarz	Week	1 chan.	TSQW1CO	167392	1		

Controlling & Switching

PHASE OUT TYPE

Timers analogue SU-T

SG12107



SU-TQ/1W-TA

SG12407

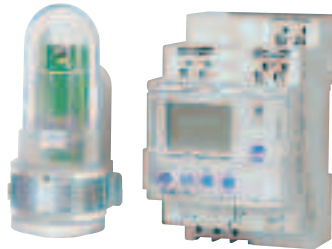


SU-TQ/TA

Drive	Programme	Channels	Type Designation	Article No.	Units per package
Analogue					
Synchron.	Day	1 chan.	SU-TS/TA	111442	1 / 120
Synchron.	Day	1 chan.	SU-TS/1W-TA	111443	1 / 40
Synchron.	Week	1 chan.	SU-TS/WO	111444	1 / 40
Quartz	Day	1 chan.	SU-TQ/TA	111445	1 / 120
Quartz	Day	1 chan.	SU-TQ/1W-TA	111446	1 / 40
Quartz	Week	1 chan.	SU-TQ/1W-WO	111447	1 / 40
Quartz	Week	2 chan.	SU-TQ/2W-TW	111448	1 / 40

Light Intensity Switch SR...

SG84111



Switching contact / Light intensity	Type Designation	Article No.	Units per package
1NO 2-100 Lux	SRSD1NO	167375	1
1NO 2-2000 Lux	SRSW1NO	167376	1
1NO with timer	SRCD1CO	167377	1
1CO 2-50000 Lux	SRSD1COW	167378	1

PHASE OUT TYPE

Light Intensity Switch for wall mounting DS-TA, DS-TD

SG11107



DS-TA/WA

SG11207



DS-TD/WA

Switching contact / Light intensity	Type Designation	Article No.	Units per package
1NO 5 - 200 Lux	DS-TA/WA	111454	1 / 40
1NO 2 - 2000 Lux	DS-TA/VWA	111455	1 / 40
1NO + watch 2 - 200 Lux	DS-TD/WA	111456	1 / 40

PHASE OUT TYPE

Light Intensity Switch for support rail assembly DS-TA, DS-TD

SG11807



DS-TA/1S

SG11607



DS-TD/1W

Switching contact / Light intensity	Type Designation	Article No.	Units per package
1NO 2 - 100 Lux	DS-TA/1S	111451	1 / 40
1CO 2 - 2000 Lux	DS-TA/1W	111452	1 / 40
1CO + watch 2 - 2000 Lux	DS-TD/1W	111453	1 / 40

Accessories

Spare Built-in Light Sensor	Z-DS/S-E	111457	1 / 40
Spare External Light Sensor	Z-DS/S-A	111458	1 / 40

SG47412



Z-DS/S-A

Controlling & Switching

PHASE OUT TYPE

Light Intensity Switch Z.-LMS

SG2402



Z-LMS

	Type Designation	Article No.	Units per package
Support rail assembly	Z-LMS	248218	1
Accessories			
Spare sensor for Z-LMS	Z7-LMS/SENSOR	850000754	1 / 6
Terminal cover 2MU	Z7-SDM/AK-2TE	850000317	2
Mounting plate 2MU	Z7-SDM/MP-2TE	850000318	24

Controlling & Switching

PHASE OUT TYPE

Communication Center Z-CC/2CO

- Universal remote monitoring and controlling via SMS based on GSM

SG42612



Description	Type Designation	Article No.	Units per package
2 Change-over contacts	Z-CC/2CO	119383	1

Accessories for Z-CC/2CO

Power supply unit (24V 0.2A)	EASYPOW200	229424	1
Temperature sensor	Z-CC/2CO-SE	119430	1
Patch cord 2.0 m	DNW-PX/0200/RJ45/RJ45/5E/CSUTP/GR/PV	237271	1

PHASE OUT TYPE

Signalling Devices: Buzzer Z-SUM, Bell Z-GLO

SG27712



Function/Rated Voltage (V~)	Type Designation	Article No.	Units per package
Buzzer 230	Z-SUM230	270584	2 / 120
Buzzer 24	Z-SUM24	270583	2 / 120
Buzzer 12	Z-SUM12	271087	2 / 120
Bell 230	Z-GLO230	270586	2 / 120
Bell 24	Z-GLO24	270585	2 / 120
Bell 12	Z-GLO12	271088	2 / 120

Signalling Devices AS

wa_sg04311



ASBELL230

Function/Rated Voltage (V~)	Type Designation	Article No.	Units per package
Bell 230V AC	ASBELL230	167393	1
Bell 12V AC	ASBELL12	167394	1
Buzzer 230V AC	ASBUZZ230	167395	1
Siren 24V AC/DC	ASSIR24	167396	1

Transformers 230V, TR-G

Bell-Transformers 230V, TR-G.

- Type -S with primary switch

SG82911



MU	Sec.-Volt. (V)	Sec.-Current (A)	Type Designation	Article No.	Units per package
2	8	1	TR-G/8	272480	1 / 28
2	4-8-12	1-1-0,67	TR-G3/8	272481	1 / 28
2	8	1	TR-G/8-S	272482	1 / 28
2	4-8-12	2-2-1,5	TR-G3/18	272483	1 / 28
3	12-24	2-1	TR-G2/24	272484	1 / 20

Controlling & Switching

Safety-Transformers 230V, TR-G./..-SF.
 • 100% ED

SG42512



MU	Sec.-Volt. (V)	Sec.-Current (A)	Type Designation	Article No.	Units per package
5	12-24	5,2-2,6	TR-G2/63-SF	272485	1 / 12

Busbar System Easyvation

Easyvation is the modular design system for busbars. Easyvation busbars are available as yard goods with 1, 2 or 3 poles. Now, there is a special feature: each bar can easily be extended by one-pole bar as you like. The additional pole can be added completely without tools by easy clamping technique. The lugs or forks in the Easyvationbars - available in 10 and 16 mm² and all common distances - can be broken out at a predetermined breaking point. There is actually no more flexibility available.

Easyvation saves time and material

The yard good can be cut with a saw of course. However, there is no need neither for deburring nor for cutting the conductor. Just cut to the required dimension and close with the fitting end cap -ready! The end caps have also breakable edges, which enable further connecting of the Easyvation. By overlapping assembly, doubling the cross section can be achieved.

Easyvation in use

Easyvation is especially well suited for solving flexible busbar applications rack-mounted models in series. Fork-pin combinations for 1+N-applications can be realized by individual combinations - for this also the one-pole version with blue isolation is available besides the one with grey isolation. Even different cross sections can be combined in this case.

Accessories, such as feeder terminals and self adhesive phase marking labels will complete the comfortable total package. Existing contact prevention caps can be used.

Easyvation at a glance:

- Yard goods can be cut
- No cutting back of copper required
- No deburring required
- Almost no waste during cutting
- End caps available with 1- to 4-poles, end caps can be broken out for further extensions
- 4-pole end cap molded in pairs (left and right)
- Overlapping rail extension possible
- Rails can be extended on demand by 1-pole rails (plug-in technology)
- All step distances
- 10 and 16 mm²
- Fork and stud
- Lugs can be broken out at any predetermined breaking point
- Self adhesive phase indication labels available
- Contact preventing caps (ZV-BS-G) can be used
- Simple, flexible handling
- All assembly requirements can be covered by Easyvation
- Low storage space requirements due to modular system
- Less time consuming (no deburring, no cutting back)
- Individual and self configurable
- Fork-pin combination for 1+N application possible, feeding through rail (terminal clamp) not possible.
- Protected technology

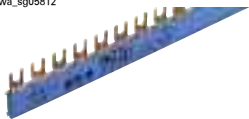
Busbar Systems

Description	Step Dis- tance (mm)	Cu-factor	Type Designation	Article No.	Units per package
Easyvation busbar 1m 10mm², 16mm² (Fork) BB-EVF					
for MCBs, RCCBs, RCBOs, SPDs					
• Delivered without end caps					
10 mm²					
• Rated current 63 A					
1-phase	17.8	0.22	BB-EVF-10/1P-1MU	168826	10
	27	0.24	BB-EVF-10/1P-2MU	168830	10
	36	0.24	BB-EVF-10/1P-3MU	168834	10
2-phase	17.8	0.31	BB-EVF-10/2P-1MU	168838	10
	27	0.36	BB-EVF-10/2P-2MU	168840	10
3-phase	17.8	0.46	BB-EVF-10/3P-1MU	168842	10
	27	0.58	BB-EVF-10/3P-2MU	168844	10
	36	0.56	BB-EVF-10/3P-3MU	168850	10
3-phase + AUX	3x17.5+1x9	0.58	BB-EVF-10/3P-1MU/AUX	168846	10
	3x17.5+2x9	0.57	BB-EVF-10/3P-1MU2AUX	168848	10
	Neutral	17.8	0.22	BB-EVF-10/N-1MU	168828
Neutral	27	0.24	BB-EVF-10/N-2MU	168832	10
	36	0.24	BB-EVF-10/N-3MU	168836	10
16 mm²					
• Rated current 80 A					
1-phase	17.8	0.33	BB-EVF-16/1P-1MU	168827	10
	27	0.36	BB-EVF-16/1P-2MU	168831	10
	36	0.32	BB-EVF-16/1P-3MU	168835	10
2-phase	17.8	0.46	BB-EVF-16/2P-1MU	168839	10
	27	0.54	BB-EVF-16/2P-2MU	168841	10
3-phase	17.8	0.69	BB-EVF-16/3P-1MU	168843	10
	27	0.87	BB-EVF-16/3P-2MU	168845	10
	36	0.84	BB-EVF-16/3P-3MU	168851	10
3-phase + AUX	3x17.5+1x9	0.87	BB-EVF-16/3P-1MU/AUX	168847	10
	3x17.5+2x9	0.86	BB-EVF-16/3P-1MU2AUX	168849	10
	Neutral	17.8	0.33	BB-EVF-16/N-1MU	168829
Neutral	27	0.36	BB-EVF-16/N-2MU	168833	10
	36	0.32	BB-EVF-16/N-3MU	168837	10

wa_sg05712



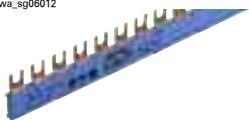
wa_sg05812




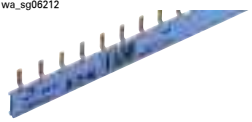

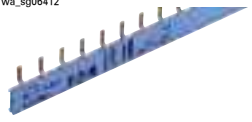




wa_sg05912



wa_sg06012



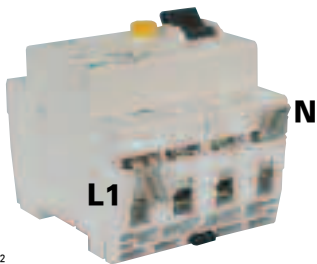
Busbar Systems

	Description	Step Dis- tance (mm)	Cu-factor	Type Designation	Article No.	Units per package	
Easyvation busbar 1m 10mm², 16mm² (Pin) BB-EVP for MCBs, RCCBs, RCBOs, SPDs • Delivered without end caps							
10 mm²							
• Rated current 63 A							
 wa_sg06112  wa_sg06212	1-phase	17.8	0.22	BB-EVP-10/1P-1MU	168852	10	
		27	0.24	BB-EVP-10/1P-2MU	168856	10	
		36	0.24	BB-EVP-10/1P-3MU	168860	10	
	2-phase	17.8	0.31	BB-EVP-10/2P-1MU	168864	10	
		27	0.36	BB-EVP-10/2P-2MU	168866	10	
	3-phase	17.8	0.46	BB-EVP-10/3P-1MU	168868	10	
		27	0.58	BB-EVP-10/3P-2MU	168870	10	
		36	0.56	BB-EVP-10/3P-3MU	168876	10	
	3-phase + AUX						
		3x17.5+1x9	0.58	BB-EVP-10/3P-1MU/AUX	168872	10	
		3x17.5+2x9	0.57	BB-EVP-10/3P-1MU2AUX	168874	10	
	Neutral	17.8	0.22	BB-EVP-10/N-1MU	168854	10	
	27	0.24	BB-EVP-10/N-2MU	168858	10		
	36	0.24	BB-EVP-10/N-3MU	168862	10		
16 mm²							
• Rated current 80 A							
 wa_sg06312  wa_sg06412	1-phase	17.8	0.33	BB-EVP-16/1P-1MU	168853	10	
		27	0.36	BB-EVP-16/1P-2MU	168857	10	
		36	0.32	BB-EVP-16/1P-3MU	168861	10	
	2-phase	17.8	0.46	BB-EVP-16/2P-1MU	168865	10	
		27	0.54	BB-EVP-16/2P-2MU	168867	10	
	3-phase	17.8	0.69	BB-EVP-16/3P-1MU	168869	10	
		27	0.87	BB-EVP-16/3P-2MU	168871	10	
		36	0.84	BB-EVP-16/3P-3MU	168877	10	
	3-phase + AUX						
		3x17.5+1x9	0.87	BB-EVP-16/3P-1MU/AUX	168873	10	
		3x17.5+2x9	0.86	BB-EVP-16/3P-1MU2AUX	168875	10	
	Neutral	17.8	0.33	BB-EVP-16/N-1MU	168855	10	
	27	0.36	BB-EVP-16/N-2MU	168859	10		
	36	0.32	BB-EVP-16/N-3MU	168863	10		
Accessories							
End caps, BB-EV-EC							
 wa_sg05612	1-phase	-	-	BB-EV-EC/1P	168878	40	
	2+3-phase	-	-	BB-EV-EC/2-3P	168823	40	
	4-phase	-	-	BB-EV-EC/4P	168824	20	
	Neutral	-	-	BB-EV-EC/N	168879	20	
Terminal BB-EV-TE/35							
 wa_sg05312			0.04	BB-EV-TE/35	168825	3	
Sticker phase sequence							
 wa_sg06512			-	KLEBBOGEN-PHASENFOLGE	169831	5	
Busbar Tag Shrouds ZV-BS-G							
 SG05705			-	ZV-BS-G	104903	10 / 600	

Busbar Systems

Busbar Systems

Example Plug-in Busbar System



WA_SG08102

Same connection angle ZV-L1/N (-80A) for L1 and N, turned by 180°



WA_SG07902

Same connection angle ZV-L2/L3 (-80A) for L2 and L3, turned by 180°



WA_SG08002

Same connection angle ZV-N-05TE (-80A) for N (CLS6 with 1.5 MU) 50 and 80 A busbar.



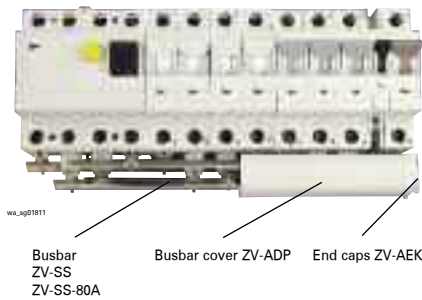
wa_sg01811

Busbar
ZV-SS
ZV-SS-80A

Busbar cover ZV-ADP

End caps ZV-AEK

Busbar Systems



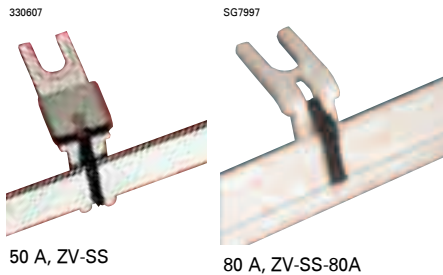
Same connection angle ZV-L1/N (-80A) for L1 and N, turned by 180°



Same connection angle ZV-L2/L3 (-80A) for L2 and L3, turned by 180°

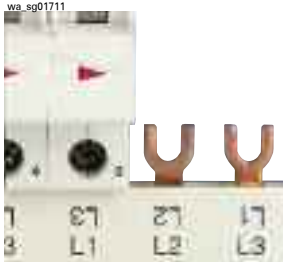


Same connection angle ZV-N-05TE (-80A) for N (CLS6 with 1.5 MU) 50 and 80 A busbar.



Description	Cu-factor	Type	Designation	Article No.	Units per package	
Plug-in Busbar System 50A, 80A ZV						
for PLS., CLS., PKN., PFIM, PFHM (with Auxiliary Switch)						
Connection Angle L1, N						
50 A	10 pcs.	0.005	ZV-L1/N-10	263941	10 / 600	
	36 pcs.	0.005	ZV-L1/N-36	263942	36 / 2160	
	100 pcs.	0.005	ZV-L1/N-100	263943	100 / 3000	
80 A	10 pcs.	0.005	ZV-L1/N-80A-10	263950	10 / 600	
	36 pcs.	0.005	ZV-L1/N-80A-36	263951	36 / 2160	
	100 pcs.	0.005	ZV-L1/N-80A-100	263952	100 / 3000	
Connection Angle L2, L3						
50 A	10 pcs.	0.007	ZV-L2/L3-10	263944	10 / 600	
	36 pcs.	0.007	ZV-L2/L3-36	263945	36 / 2160	
	100 pcs.	0.007	ZV-L2/L3-100	263946	100 / 3000	
80 A	10 pcs.	0.007	ZV-L2/L3-80A-10	263953	10 / 600	
	36 pcs.	0.007	ZV-L2/L3-80A-36	263954	36 / 2160	
	100 pcs.	0.007	ZV-L2/L3-80A-100	263955	100 / 3000	
Connection Angle N (0.5 MU) for PLSM, CLS6 with 1.5 MU						
50 A	10 pcs.	0.005	ZV-N-05TE-10	263947	10 / 600	
	36 pcs.	0.005	ZV-N-05TE-36	263948	36 / 2160	
80 A	100 pcs.	0.005	ZV-N-05TE-100	263949	100 / 3000	
Busbar 1m						
50 A	0.143		ZV-SS	263956	1 / 10	
80 A	0.230		ZV-SS-80A	263957	1 / 10	
Cover section 1 m for 50+80A				ZV-ADP	263958	1 / 10
End caps for busbar cover				ZV-AEK	263959	10 / 600
Power feed block 35/50mm ²				Z-D80	248269	12 / 120

Busbar Systems


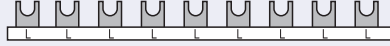
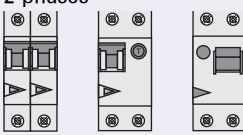
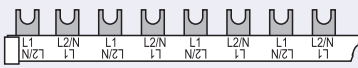

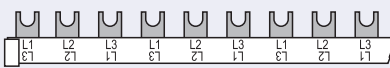
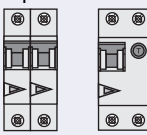
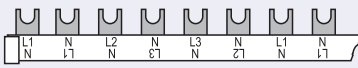

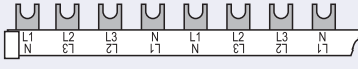

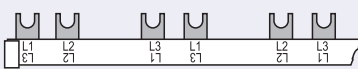

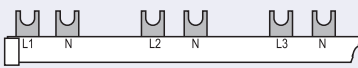

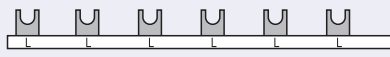
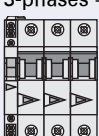
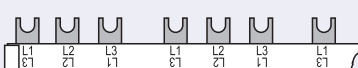


Description	Cu-factor	Type Designation	Article No.	Units per package
Busbar block (Fork) Z-GV				
for PLS., CLS., PKN., PFIM, PFHM, Z-SLS/D01				
• Delivered with end caps				
10 mm²				
• Rated current 63 A				
3-phases 6x PKN.	0.372	Z-GV-10/3P-4TE/17	271081	25
16 mm²				
• Rated current 80 A				
1-phase 16x	0.095	Z-GV-16/1P-1TE/16	271074	50
2-phases 8x	0.187	Z-GV-16/1P+N-2TE/16	271075	20
3-phases 2x	0.140	Z-GV-16/3P-3TE/8	271073	40
3-phases 5x	0.357	Z-GV-16/3P-3TE/16	271076	20
4-phases 4x	0.444	Z-GV-16/3P+N-4TE/16	271078	15
1 m Busbar block (Fork) Z-GV				
for PLS., CLS., PKN., PFIM, PFHM, Z-SLS/D01				
• Delivered without end caps				
10 mm²				
• Rated current 63 A				
1-phase	0.408	Z-GV-10/1P-1TE	270339	50
3-phases	0.739	Z-GV-10/3P-3TE	271060	20
3-phases	0.739	Z-GV-10/3P-4TE	271080	20
End cap 1-phase		Z-V-AK/1P	104905	10 / 600
End cap 2+3-phases		Z-AK-10/2+3P	271069	10 / 600
16 mm²				
• Rated current 80 A				
1-phase	0.470	Z-GV-16/1P-1TE	271061	50
1-phase+aux. switch	0.470	Z-GV-16/1P+HS	271062	50
2-phases	0.657	Z-GV-16/1P+N-2TE	271063	20
3-phases	1.042	Z-GV-16/3P-3TE	271064	20
3-phases+aux. switch	0.998	Z-GV-16/3P+HS	271065	20
4-phases	1.465	Z-GV-16/3P+N-4TE	271066	15
4-phases	1.522	Z-GV-16/3P+3N-6TE	263142	15
4-phases	1.050	Z-GV-16/PKPX/4PHAS	116882	10
End cap 1-phase		Z-V-AK/1P	104905	10 / 600
End cap 2+3-phases		Z-AK-16/2+3P	271070	10 / 600
End cap 4-phases		Z-AK-16/4P	271071	10 / 600
End cap 4-phases		Z-V-AK/4P	264931	10 / 600
Description		Type Designation	Article No.	Units per package
Busbar Tag Shrouds ZV-BS-G				
Accessories		ZV-BS-G	104903	10 / 600



Busbar Systems

Description of the Busbar Block (Fork) Z-GV

Devices to busbar	Pcs. of the devices	End caps	Type
1-phase 	x57 x57 x16	Z-V- AK/1P	 Z-GV-10/1P-1TE Z-GV-16/1P-1TE Z-GV-16/1P-1TE/16
2-phases 	x28 x8	Z-AK- 16/2+3P	 Z-GV-16/1P+N-2TE Z-GV-16/1P+N-2TE/16
3-phases 	x19 x19 x2 x5	Z-AK- 10/2+3P Z-AK- 16/2+3P	 Z-GV-10/3P-3TE Z-GV-16/3P-3TE Z-GV-16/3P-3TE/8 Z-GV-16/3P-3TE/16
4-phases 	x27	Z-AK- 16/4P	 Z-GV-16/3P+3N-6TE
	x14 x4	Z-AK- 16/4P	 Z-GV-16/3P+N-4TE Z-GV-16/3P+N-4TE/16
For 2-pole Combined RCD/MCB Device, 3-phases 	x18 x6	Z-AK- 10/2+3P	 Z-GV-10/3P-4TE Z-GV-10/3P-4TE/17
For 2-pole Combined RCD/MCB Device, 4-phases 	x18	Z-V-AK/ 4P	 Z-GV-16/PKPX/4PHAS
1-phase + Auxiliary Switch 	x38	Z-V- AK/1P	 Z-GV-16/1P+HS
3-phases + Auxiliary Switch 	x16	Z-AK- 16/2+3P	 Z-GV-16/3P+HS

Busbar Systems

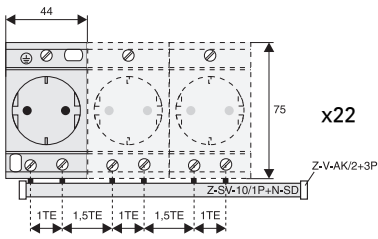
wa_sg01611



Description	Cu-factor	Type Designation	Article No.	Units per package
Busbar block (Fork and Pin) Z-GSV-16/				
for PLS.1N (1.5MU)				
• Delivered with end caps				
10 mm²				
• Rated current 63 A				
4-phases	0.208	Z-GSV-10/FI+EH+2XLS1N	113138	10
4-phases	0.277	Z-GSV-10/FI+EH+4XLS1N	113139	10
16 mm²				
• Rated current 80 A				
2-phases 9x	0.179	Z-GSV-16/1P+N/9	271077	15
4-phases 3x	0.408	Z-GSV-16/3P+3N/9	271079	15
1 m Busbar block (Fork and Pin) Z-GSV-16/				
for PLS.1N (1.5MU)				
• Delivered without end caps				
16 mm²				
• Rated current 80 A				
2-phases	0.585	Z-GSV-16/1P+N	271067	10
4-phases	1.840	Z-GSV-16/3P+3N	271068	10
4-phases	2.196	Z-GSV-16/FI+EH+KR+30XLS1N	113137	7
End cap 2+3-phases		Z-AK-16/2+3P	271070	10 / 600
End cap 4-phases		Z-AK-16/4P	271071	10 / 600
End cap 4-phases		Z-V-AK/4P	264931	10 / 600

Devices to busbar	Pcs. of the devices	End caps	Type
4-phases 		Z-V-AK/4P	Z-GSV-10/FI+EH+2XLS1N
4-phases 		Z-V-AK/4P	Z-GSV-10/FI+EH+4XLS1N
2-phases 	x37 x9	Z-AK-16/2+3P	Z-GSV-16/1P+N Z-GSV-16/1P+N/9
4-phases 	x37 x9	Z-AK-16/4P	Z-GSV-16/3P+3N Z-GSV-16/3P+3N/9
4-phases 		Z-V-AK/4P	Z-GSV-16/FI+EH+KR+30XLS1N

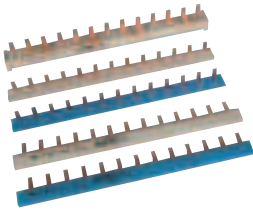
Busbar Systems



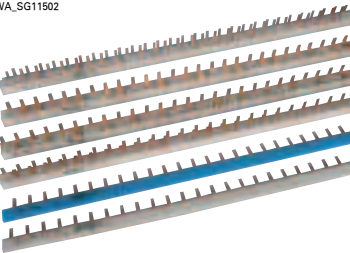
Description	Cu-factor	Type Designation	Article No.	Units per package
1 m Busbar block (Pin) Z-SV...-SD for Protected Earth Socket Z-SD230 • Delivered with end caps 10 mm² • Rated current 50 A				
2-phases	0.588	Z-SV-10/1P+N-SD	269526	10
End cap		Z-V-AK/2+3P	264930	10 / 600

Busbar Systems

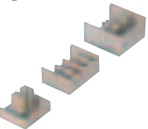
WA_SG11302



WA_SG11502



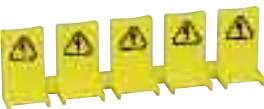
WA_SG10602



wa_sg02512



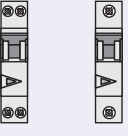




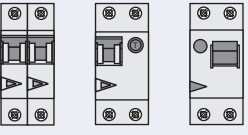


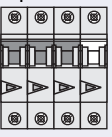

SG05705



Description	Cu-factor	Type Designation	Article No.	Units per package
Busbar block 13MU (Pin) Z-SV-10/				
for PLN. (1MU), Z-SI				
• Delivered with end caps				
10 mm²				
• Rated current 50 A				
1-phase straight grey	0.055	Z-SV-10/1P-1TE/13	264916	10
1-phase straight blue	0.055	Z-SV-10/N-1TE/13	264917	10
1-phase crosswise grey	0.055	Z-SV-10/1P-F/13	264918	10
1-phase crosswise blue	0.055	Z-SV-10/N-F/13	264919	10
2-phases	0.126	Z-SV-10/2P-2TE/13	264922	10
3-phases	0.203	Z-SV-10/3P-3TE/13	264924	10
4-phases	0.258	Z-SV-10/3P+N-4TE/12	264926	10
4-phases (for PLN.)	0.258	Z-SV-10/3P+3N-3TE/13	264927	10
1 m Busbar block (Pin) Z-SV-16/				
for PLN. (1MU), Z-SI				
• Delivered without end caps				
16 mm²				
• Rated current 63 A				
1-phase straight grey	0.385	Z-SV-16/1P-1TE	264912	25
1-phase straight blue	0.385	Z-SV-16/N-1TE	264913	25
1-phase crosswise grey	0.385	Z-SV-16/1P-1TE/F	269523	25
1-phase crosswise blue	0.385	Z-SV-16/N-1TE/F	269524	25
2-phases	0.941	Z-SV-16/2P-2TE	264923	10
3-phases (for PLN.)	1.326	Z-SV-16/2P+2N-2TE	264914	7
3-phases	1.422	Z-SV-16/3P-3TE	264925	10
4-phases	2.177	Z-SV-16/3P+N-4TE	264928	7
4-phases (for PLN.)	1.807	Z-SV-16/3P+3N-3TE	264915	7
Description	Type Designation	Article No.	Units per package	
Accessories				
End Caps, Z-V-AK/				
2+3-phases	Z-V-AK/2+3P	264930	10 / 600	
4-phases	Z-V-AK/4P	264931	10 / 600	
Extension Terminal 6 - 25 mm², Z-EK/25				
• for busbar type Z-SV				
long, straight	Z-EK/25	264935	10 / 600	
short, straight	Z-EK/25/K	269525	10 / 600	
long, crosswise	Z-EK/25/QL	264937	10 / 600	
short, crosswise	Z-EK/25/Q	264936	10 / 600	
Busbar Tag Shrouds ZV-BS-G				
	ZV-BS-G	104903	10 / 600	

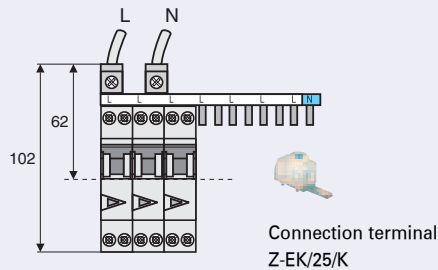
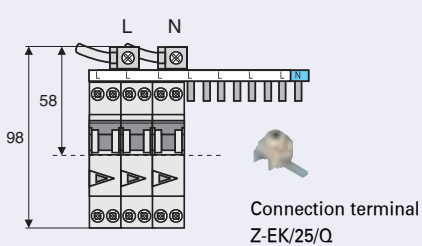
Busbar Systems

Description of the Busbar Block (Pin) Z-SV

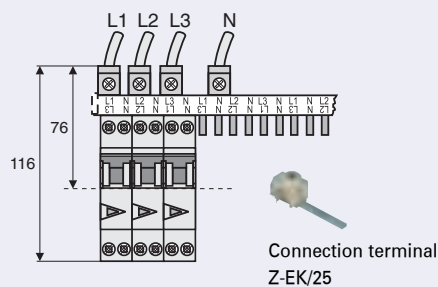
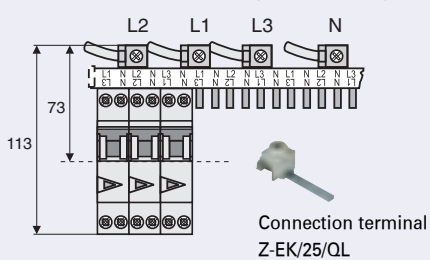
Devices to busbar	Pcs. of the devices	End caps	Type	
1-phase + 2-phases 	x13		Z-SV-10/1P-F/13	
	x56		Z-SV-16/1P-1TE/F	
	x13		Z-SV-10/N-F/13	
	x56		Z-SV-16/N-1TE/F	
2-phases 	x6	Z-V-	Z-SV-10/2P-2TE/13	
	x28	AK/2+3P	Z-SV-16/2P-2TE	
	3-phases 	x56	Z-V-	Z-SV-16/2P+2N-2TE
			AK/2+3P	
	x4	Z-V-	Z-SV-10/3P-3TE/13	
	x19	AK/2+3P	Z-SV-16/3P-3TE	
4-phases 	x3	Z-V-	Z-SV-10/3P+N-4TE/12	
	x14	AK/4P	Z-SV-16/3P+N-4TE	
	x13	Z-V-	Z-SV-10/3P+3N-3TE/13	
	x56	AK/2+3P	Z-SV-16/3P+3N-3TE	

Example

Z-SV-10/1P-F/13, Z-SV-16/1P-1TE/F
 Z-SV-10/N-F/13, Z-SV-16/N-1TE/F

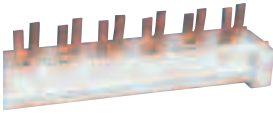


Z-SV... 2-phasig bis 4-phasig



Busbar Systems

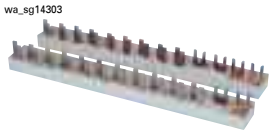
SG4700

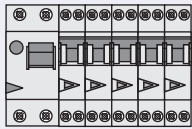

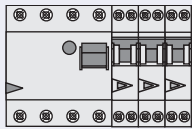



Description	Cu-factor	Type Designation	Article No.	Units per package
Busbar block 12MU (Fork + Pin) Z-GSV-10/				
for PLN. (1MU) + RCD				
• Delivered with end caps				
10 mm²				
• Rated current 63 A				
below				
2-phases, RCD-2p + 4xPLN	0.07	Z-GSV-10/1P+N-NL/6	274297	10 / 200
2-phases, RCD-2p + 10xPLN	0.131	Z-GSV-10/1P+N/12-U	274299	10 / 100
4-phases, RCD-4p + 4xPLN	0.13	Z-GSV-10/3P+N-NL/8	116858	10
4-phases, RCD-4p + 8xPLN	0.463	Z-GSV-10/3P+N/12-U	274400	10 / 100
4-phases, RCD-4p + 3xPLS.. + 5xPLN	0.463	Z-GSV-10/3P+N/12H-U	274401	10 / 100
above				
2-phases, RCD-2p + 10xPLN	0.131	Z-GSV-10/1P+N/12-O	274402	10 / 100
4-phases, RCD-4p + 8xPLN	0.463	Z-GSV-10/3P+N/12-O	274403	10 / 100


Devices to busbar	Pcs. of the devices	End caps	Type
2-phases 	4xPLN	Z-V- AK/2+3P	Z-GSV-10/1P+N-NL/6
	x10	Z-V- AK/2+3P	Z-GSV-10/1P+N/12-O
	x10	Z-V- AK/2+3P	Z-GSV-10/1P+N/12-U
4-phases 	x5	Z-V- AK/4P	Z-GSV-10/3P+N/12H-U
	x8	Z-V- AK/4P	Z-GSV-10/3P+N/12-O
	x8	Z-V- AK/4P	Z-GSV-10/3P+N/12-U
	4xPLN	Z-V- AK/4P	Z-GSV-10/3P+N-NL/8

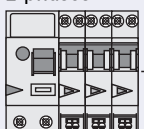



Busbar Systems

Description	Cu-factor	Type Designation	Article No.	Units per package
 Busbar block 13MU (Fork + Pin) Z-GSV-10/ for 1x RCD + PLG. (1MU)				
<ul style="list-style-type: none"> Do not cut! ❌ 				
10 mm²				
<ul style="list-style-type: none"> Rated current 63 A 				
above				
2-phases, RCD-2p + 11xPLG 0.251		Z-GSV-10/1P+N-F/13	264920	10
4-phases, RCD-4p + 9xPLG 0.439		Z-GSV-10/3P+N-F/13	264921	10

Devices to busbar	Pcs. of the devices	Type
2-phases 	x11	 Z-GSV-10/1P+N-F/13
4-phases 	x9	 Z-GSV-10/3P+N-F/13

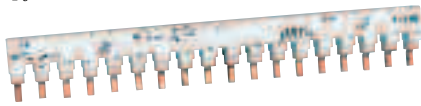
Description	Type Designation	Article No.	Units per package
Accessories			
Extension Terminal 6 - 25 mm², Z-EK/25			
long, straight	Z-EK/25	264935	10 / 600
long, crosswise	Z-EK/25/OL	264937	10 / 600
Busbar Tag Shrouds ZV-BS-G			
	ZV-BS-G	104903	10 / 600

Description	Cu-factor	Type Designation	Article No.	Units per package
 Busbar block (Pin) Z-SV-10/1P+N-F/ for 1x PFGC + PLGC. (1MU)				
<ul style="list-style-type: none"> Do not cut! ❌ 				
10 mm²				
<ul style="list-style-type: none"> Rated current 63 A 2-phases 				
PFGC + 4x PLGC	0.105	Z-SV-10/1P+N-F/6	107944	10 / 100
PFGC + 7x PLGC	0.155	Z-SV-10/1P+N-F/9	107943	10 / 100
PFGC + 11x PLGC	0.22	Z-SV-10/1P+N-F/13	107942	10 / 100

Devices to busbar	Pcs. of the devices	Type
2-phases 	x4	 Z-SV-10/1P+N-F/6
	x7	 Z-SV-10/1P+N-F/9
	x11	 Z-SV-10/1P+N-F/13
Busbar Tag Shrouds ZV-BS-G		
	ZV-BS-G	104903 10 / 600

Busbar Systems

wa_sg03511



Phases	MU	Cu-factor	Type Designation	Article No.	Units per package
--------	----	-----------	------------------	-------------	-------------------









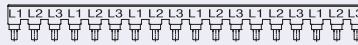
Busbar block UL489 (Pin), Z-SV/UL-16/ for FAZ-NA, FAZ-RT

• Do not cut! ❌

16 mm²

• Rated current 80 A

1-phase	6MU	0.035	Z-SV/UL-16/1P-1TE/6	104892	10 / 200
1-phase	12MU	0.070	Z-SV/UL-16/1P-1TE/12	104893	10 / 200
1-phase	18MU	0.105	Z-SV/UL-16/1P-1TE/18	104894	10 / 40
2-phases	6MU	0.070	Z-SV/UL-16/2P-2TE/6	104895	10 / 200
2-phases	12MU	0.140	Z-SV/UL-16/2P-2TE/12	104896	10 / 200
2-phases	18MU	0.210	Z-SV/UL-16/2P-2TE/18	104897	10 / 40
3-phases	6MU	0.140	Z-SV/UL-16/3P-3TE/6	104898	10 / 200
3-phases	12MU	0.221	Z-SV/UL-16/3P-3TE/12	104899	10 / 200
3-phases	18MU	0.332	Z-SV/UL-16/3P-3TE/18	104900	10 / 40

Devices to busbar	Pcs. of the devices	Type
1-phase 	x6	 Z-SV/UL-16/1P-1TE/6
	x12	 Z-SV/UL-16/1P-1TE/12
	x18	 Z-SV/UL-16/1P-1TE/18
2-phases 	x3	 Z-SV/UL-16/2P-2TE/6
	x6	 Z-SV/UL-16/2P-2TE/12
	x9	 Z-SV/UL-16/2P-2TE/18
3-phases 	x2	 Z-SV/UL-16/3P-3TE/6
	x4	 Z-SV/UL-16/3P-3TE/12
	x6	 Z-SV/UL-16/3P-3TE/18

Description	Cu-factor	Type Designation	Article No.	Units per package
-------------	-----------	------------------	-------------	-------------------

Extension Terminal 35 mm² UL489, Z-EK/35/UL

2.5-35mm ² , AWG 14-2	0.035	Z-EK/35/UL	104901	3 / 180
-------------------------------------	-------	------------	--------	---------

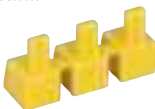
SG07506



Busbar Tag Shrouds UL489, ZV-BS-UL

for 3 pins	ZV-BS-UL	104904	10 / 600
------------	----------	--------	----------

SG07706



Busbar Systems

Description	Cu-factor	Type Designation	Article No.	Units per package
Busbar block (Pin) Z-SV-16/3P for Z-SLS, PLHT, D0.-SO/.. (1.5MU) • Delivered without end caps 16 mm² • Rated current 80 A				
3-phases	0.84	Z-SV-16/3P	271072	20
End cap		Z-AK-16/2+3P	271070	10 / 600
Extension terminal 6-50mm ²		Z-EK/50	264934	3 / 180

wa_sg03611

wa_sg10802, SG4800

wa_sg03711


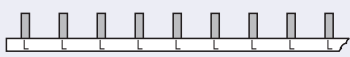
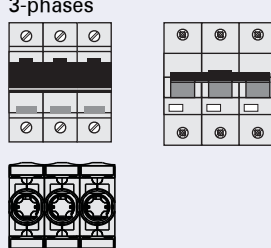
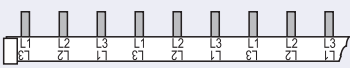
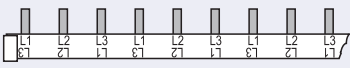
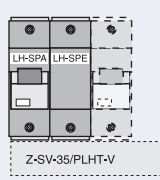
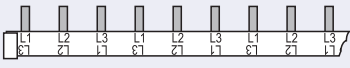

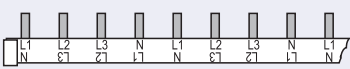
SG4800

wa_sg11002

Description	Cu-factor	Type Designation	Article No.	Units per package
Busbar block (Pin) Z-SV-35 for Z-SLS, PLHT, D0.-SO/.. (1.5MU), PLHT-V (1.5MU) • Delivered without end caps 35 mm² • Rated current 110 A				
1-phase crosswise grey	0.83	Z-SV-35/1P	113135	1
3-phases	2.74	Z-SV-35/3P	264938	4
3-phases	2.74	Z-SV-35/PLHT-V	264939	4
4-phases*	1,57	Z-SV-35/3P+N-6TE	263110	4
End cap		Z-V-35/AK/3P	264932	10 / 600

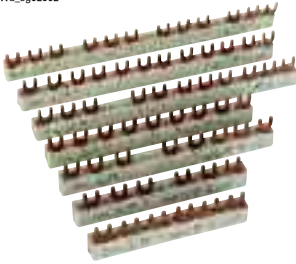
* delivered with end caps

Description	Type Designation	Article No.	Units per package
Extension Terminal Z-EK/95 • 25-95 mm ² single-/multi-wired • 16-70 mm ² fine-wired with wire end ferrule			
for Z-SV-35/1P	Z-EK/95-1	113136	3 / 90
for Z-SV-... 3-phases	Z-EK/95	264933	3 / 90
for Z-SV-35/3P+N	Z-EK/95-3N	264911	4 / 120

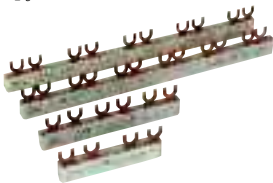
Devices to busbar	Pcs. of the devices	End caps	Type
1-phase 	x36		Z-SV-35/1P
3-phases 	x12	Z-AK-16/2+3P  Z-V-35AK/3P 	Z-SV-16/3P Z-SV-35/3P
	x33	Z-V-35AK/3P 	Z-SV-35/PLHT-V
4-phases 	x4	Z-V-35AK/3P 	Z-SV-35/3P+N-6TE

Busbar Systems

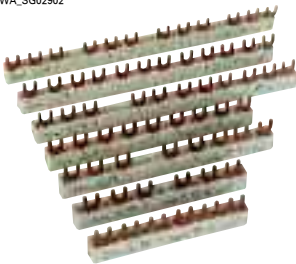
Wa_sg02902



Wa_sg01602



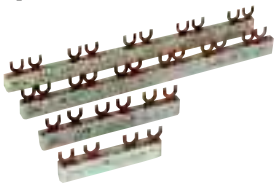
WA_SG02902



Phases	MU	Cu-factor	Type Designation	Article No.	Units per package
Euro-Vario-Busbar (Fork) EVG					
for PLS., CLS., PKN., PFIM, PFHM, PFNM					
<ul style="list-style-type: none"> No end caps necessary Do not cut! 					
10 mm²					
• Rated current 63 A					
1-phase	2	0.015	EVG-1PHAS/2MODUL	215646	40 / 800
1-phase	6	0.039	EVG-1PHAS/6MODUL	215638	40 / 800
1-phase	12	0.075	EVG-1PHAS/12MODUL	215637	40 / 400
2-phases	4	0.051	EVG-2PHAS/4MODUL	268220	20 / 400
2-phases	6	0.079	EVG-2PHAS/6MODUL	215642	20 / 400
2-phases	12	0.150	EVG-2PHAS/12MODUL	215641	20 / 200
3-phases	6	0.086	EVG-3PHAS/6MODUL	215640	20 / 400
3-phases	9	0.128	EVG-3PHAS/9MODUL	215645	20 / 200
3-phases	12	0.168	EVG-3PHAS/12MODUL	215639	20 / 200
3-phases	16	0.230	EVG-3PHAS/16MODUL	285381	20
3-phases	20	0.310	EVG-3PHAS/20MODUL	285383	20 / 180
4-phases	16	0.320	EVG-3P+3N/16MODUL	105215	20
4-phases	18	0.350	EVG-3P+3N/18MODUL	274161	20
4-phases	8	0.219	EVG-4PHAS/8MODUL	215644	10 / 100
4-phases	12	0.324	EVG-4PHAS/12MODUL	215643	10 / 100
for 2-pole Combined RCD/MCB Device with a width of 3MU					
1-phase	2-5	0.045	EVG-1PHAS/N/2-5MODUL/FILS	285384	40 / 800
for combination RCD/MCBs with RCD 4-pole					
3-phases	4+5	0.138	EVG-3PHAS/N/5MODUL/LS	215659	20 / 200
3-phases	4+8	0.188	EVG-3PHAS/N/8MODUL/LS	215660	20 / 200
for applications with Auxiliary Switch					
1-phase	2.5	0.025	EVG-1PHAS/2MODUL/HI	215655	40 / 200
1-phase	13	0.096	EVG-1PHAS/9MODUL/HI	215656	40
2-phases	4.5	0.053	EVG-2PHAS/4MODUL/HI	219573	20 / 400
2-phases	12	0.160	EVG-2PHAS/10MODUL/HI	215657	20
3-phases	6.5	0.100	EVG-3PHAS/6MODUL/HI	216411	20 / 200
3-phases	13.5	0.200	EVG-3PHAS/12MODUL/HI	215658	20
16 mm²					
• Rated current 80 A					
1-phase	2	0.023	EVG-16/1PHAS/2MODUL	291464	40 / 800
1-phase	6	0.059	EVG-16/1PHAS/6MODUL	291465	40 / 800
1-phase	12	0.113	EVG-16/1PHAS/12MODUL	291466	40 / 400
2-phases	4	0.080	EVG-16/2PHAS/4MODUL	291467	20 / 400
2-phases	6	0.120	EVG-16/2PHAS/6MODUL	291468	20 / 400
2-phases	12	0.225	EVG-16/2PHAS/12MODUL	291469	20 / 200
3-phases	6	0.112	EVG-16/3PHAS/6MODUL	291470	20 / 400
3-phases	9	0.163	EVG-16/3PHAS/9MODUL	291471	20 / 200
3-phases	12	0.218	EVG-16/3PHAS/12MODUL	291472	20 / 200
3-phases	16	0.300	EVG-16/3PHAS/16MODUL	291473	20 / 80
3-phases	20	0.363	EVG-16/3PHAS/20MODUL	291474	10 / 100
4-phases	8	0.200	EVG-16/4PHAS/8MODUL	291475	10 / 100
4-phases	12	0.284	EVG-16/4PHAS/12MODUL	291476	10 / 100
for 2-pole Combined RCD/MCB Device with a width of 3MU					
4-phases	18	0.260	EVG-16/4PHAS/L-N-X/6PC	116880	10
4-phases	24	0.360	EVG-16/4PHAS/L-N-X/8PC	116881	10
for combination RCD/MCBs with RCD 4-pole					
3-phases	4+5	0.179	EVG-16/3PHAS/N/5MODUL/LS	291477	20 / 200
3-phases	4+8	0.244	EVG-16/3PHAS/N/8MODUL/LS	291478	20 / 200

Busbar Systems

WA_SG01802



Phases	MU	Cu-factor	Type Designation	Article No.	Units per package
for applications with Auxiliary Switch					
1-phase	2.5	0.038	EVG-16/1PHAS/2MODUL/HI	291479	40 / 800
1-phase	8.5	0.105	EVG-16/1PHAS/6MODUL/HI	291480	40 / 400
1-phase	13	0.162	EVG-16/1PHAS/9MODUL/HI	291481	40 / 160
2-phases	4.5	0.080	EVG-16/2PHAS/4MODUL/HI	291482	20 / 400
2-phases	7	0.120	EVG-16/2PHAS/6MODUL/HI	291483	20 / 200
2-phases	12	0.200	EVG-16/2PHAS/10MODUL/HI	291484	20 / 200
3-phases	6.5	0.130	EVG-16/3PHAS/6MODUL/HI	291485	20 / 200
3-phases	13.5	0.260	EVG-16/3PHAS/12MODUL/HI	291486	20 / 80
3x1-phase	8.5	0.231	EVG-16/3x1PHAS/6MODUL/HI	291487	20 / 200
3x1-phase	11.5	0.300	EVG-16/3x1PHAS/8MODUL/HI	291488	20 / 200
3x1-phase	13	0.344	EVG-16/3x1PHAS/9MODUL/HI	291489	20 / 80

Busbar Systems

Description of the Euro-Vario-Busbar (Fork) EVG

Devices to busbar

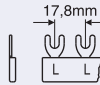
Pieces of the devices

Type

1-phase

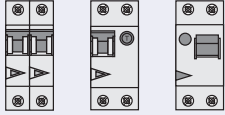


x2
x6
x12

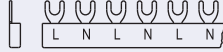


EVG-../1PHAS/2MODUL
EVG-../1PHAS/6MODUL
EVG-../1PHAS/12MODUL

2-phases



x2
x3
x6

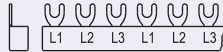


EVG-../2PHAS/4MODUL
EVG-../2PHAS/6MODUL
EVG-../2PHAS/12MODUL

3-phases

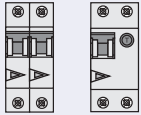


x2
x3
x4
x5
x6

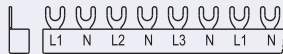


EVG-../3PHAS/6MODUL
EVG-../3PHAS/9MODUL
EVG-../3PHAS/12MODUL
EVG-../3PHAS/16MODUL
EVG-../3PHAS/20MODUL

4-phases



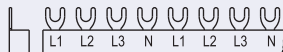
x8
x9



EVG-3P+3N/16MODUL
EVG-3P+3N/18MODUL



x2
x3

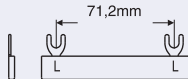


EVG-../4PHAS/8MODUL
EVG-../4PHAS/12MODUL

For 2-pole Combined RCD/MCB Device, 1-phase

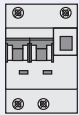


x2

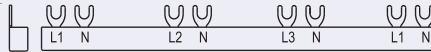


EVG-1PHAS/2-5MODUL/FILS

For 2-pole Combined RCD/MCB Device, 4-phases

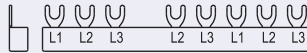
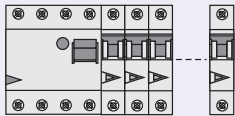


x6
x8

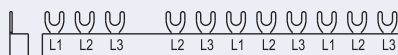


EVG-16/4PHAS/L-N-X/6PC
EVG-16/4PHAS/L-N-X/8PC

For combination RCD/MCBs with RCD 4-pole, 3-phases



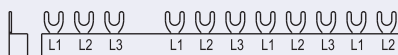
EVG-3PHAS/N/5MODUL/LS



EVG-3PHAS/N/8MODUL/LS



EVG-16/3PHAS/N/5MODUL/LS



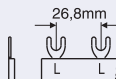
EVG-16/3PHAS/N/8MODUL/LS

1-phase + Auxiliary Switch

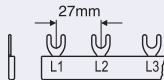


x2
x6
x9

x6
x8
x9

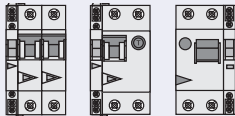


EVG-../1PHAS/2MODUL/HI
EVG-16/1PHAS/6MODUL/HI
EVG-../1PHAS/9MODUL/HI

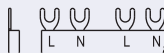


EVG-16/3x1PHAS/6MODUL/HI
EVG-16/3x1PHAS/8MODUL/HI
EVG-16/3x1PHAS/9MODUL/HI

2-phases + Auxiliary Switch

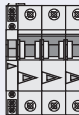


x2
x3
x5

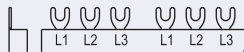


EVG-../2PHAS/4MODUL/HI
EVG-16/2PHAS/6MODUL/HI
EVG-../2PHAS/10MODUL/HI

3-phases + Auxiliary Switch



x2
x4

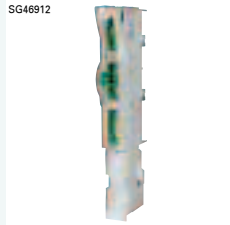
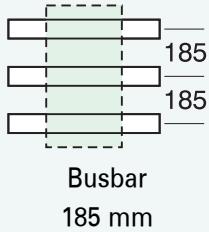
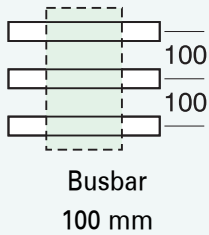
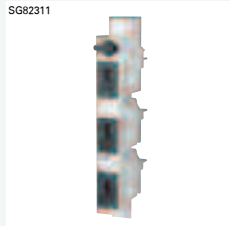
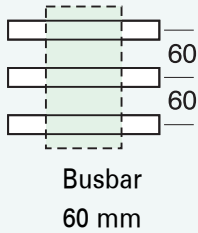


EVG-../3PHAS/6MODUL/HI
EVG-../3PHAS/12MODUL/HI

Fuse Devices

Mounting Application

DIN-rail



Mounting Plate



Design

- D0** D0 Fuse-Bases
- D0** D0 Switch-Disconnectors
- C** Cylindrical Switch-Disconnectors

- D0** D0 Fuse-Bases
- D0** D0 Switch-Disconnectors
- C** Cylindrical Switch-Disconnectors
- D** DII Fuse-Bases, DIII Fuse-Bases
- NH** NH Fuse-Switch-Disconnectors

- NH** NH Fuse-Switch-Disconnectors

- NH** NH Fuse-Switch-Disconnectors

- NH** NH Fuse-Switch-Disconnectors

Fuse-Base D01+D02

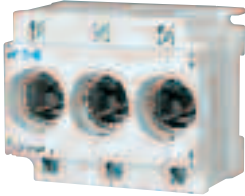
Rated Current/Poles/Width	Type Designation	Article No.	Units per package
---------------------------	------------------	-------------	-------------------

Fuse-Base FCFBD02DI

- One design for Fuse-links size D02 and D01, because adapter springs for screw caps D02 are in scope of delivery
- Only screw cap D02 for all applications necessary
- Mounting on DIN-rail or mounting plate possible
- Finger and hand touch safe according to BGV A3, ÖVE-EN 6
- Fuse-base is equipped with holes for sealing

63 A	1	27 mm	FCFBD02DI-1	148599	15/60
63 A	3	81 mm	FCFBD02DI-3	148810	5/20

SG80211



Screw Caps Z-D0./SK

D01	max. 16 A	Z-D01/SK	100650	20
D02	max. 63 A	Z-D02/SK	100651	20

SG11205



Adapter Spring Z-D02/SIKA-HF

- To apply D01-Fuse-links into the screw cap Z-D02/SK

D02-D01	Z-D02/SIKA-HF	263149	50 / 3000
---------	---------------	--------	-----------

wa_sg02612



Accessories for FCFBD02DI-

Fuse-links Z-D0./SE-...
 Cartridge-ring adapter inserts Z-D02-PE-... und Z-D02-D01-PE-...
 Adapter spring Z-D02/SIKA-HF (Scope of delivery)
 Cartridge-ring adapter insert plier Z-D0-PE-z see chapter Accessories Fuse Devices
 For busbar blocks and feed terminals refer to the technical part, fuse-switch-disconnector, and ordering part, busbar systems.

Switch-Disconnecter-Fuse D01

Poles/Rated uninterrupted current (A)	Type Designation	Article No.	Units per package
---------------------------------------	------------------	-------------	-------------------

With visual tripping indicator Z-SLS/D01 (empty)

- Rated operational voltage 230/400 VAC
1-pole 60 VDC, 2-pole 110 VDC
- Suitable for fuse-links with operating classes gG (gL) , aM
- Mechanical current coding is integrated
- Lead-sealable
- Supply side from top or bottom

1	max. 16 A	Z-SLS/D01/1	263155	18 / 180
1+N	max. 16 A	Z-SLS/D01/1+N	263158	9 / 90
2	max. 16 A	Z-SLS/D01/2	263156	9 / 90
3	max. 16 A	Z-SLS/D01/3	263157	6 / 60
3+N	max. 16 A	Z-SLS/D01/3+N	263159	4 / 40

SG80411



Accessories

Fuse-links Z-D01/SE-.. see chapter Accessories Fuse Devices

Fuse-Switch-Disconnecter D02+D01

SG80611



Poles/Rated uninterrupted current (A)	Type Designation	Article No.	Units per package
---------------------------------------	------------------	-------------	-------------------

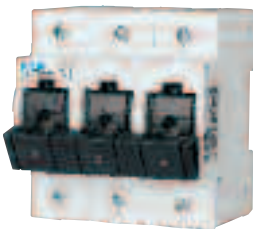
Standard Z-SLS/NEOZ (empty)

- Rated operational voltage 230/400 VAC
1-pole 110 VDC, 2-pole 220 VDC
- Suitable for fuse-links with operating classes gG (gL) , aM
- Mechanical current coding with Fuse-link set
- Lead-sealable
- Supply side from top or bottom

Poles/Rated uninterrupted current (A)	Type Designation	Article No.	Units per package
1	max. 63 A Z-SLS/NEOZ/1	248235	12 / 120
1+N	max. 63 A Z-SLS/NEOZ/1+N	248237	6 / 60
2	max. 63 A Z-SLS/NEOZ/2	248233	6 / 60
3	max. 63 A Z-SLS/NEOZ/3	248234	4 / 40
3+N	max. 63 A Z-SLS/NEOZ/3+N	248236	3 / 30

Fuse-Switch-Disconnecter D02+D01

SG80711



Poles/Rated uninterrupted current (A)	Type Designation	Article No.	Units per package
---------------------------------------	------------------	-------------	-------------------

- Rated operational voltage 1-pole 60-230 VAC / 60-110 VDC
2-pole 60-400 VAC / 60-220 VDC
1+N, 3-pole, 3+N 60-400 VAC
- Mechanical current coding with Fuse-link set
- Lead-sealable
- Supply side from top or bottom

Complete with captive current code Z-SLS/CEK

Poles/Rated uninterrupted current (A)	Type Designation	Article No.	Units per package
1-pole 10 A	Z-SLS/CEK10/1	272587	12 / 120
1-pole 16 A	Z-SLS/CEK16/1	263135	12 / 120
1-pole 25 A	Z-SLS/CEK25/1	263136	12 / 120
3-pole 16 A	Z-SLS/CEK16/3	248243	4 / 40
3-pole 25 A	Z-SLS/CEK25/3	248244	4 / 40
3-pole 35 A	Z-SLS/CEK35/3	248245	4 / 40
3-pole 40 A	Z-SLS/CEK40/3	150687	4 / 16
3-pole 50 A	Z-SLS/CEK50/3	248246	4 / 40
3-pole 63 A	Z-SLS/CEK63/3	263160	4 / 40

With fuse monitoring Z-SLK/NEOZ (empty)

- Rated operational voltage 1-pole 60-230 VAC / 60-110 VDC
2-pole 60-400 VAC / 60-220 VDC
1+N, 3-pole, 3+N 60-400 VAC
- Mechanical current coding with Fuse-link set
- Lead-sealable
- Supply side from top or bottom

SG80911



Poles/Rated uninterrupted current (A)	Type Designation	Article No.	Units per package
1+HS	max. 63 A Z-SLK/NEOZ/1	248238	6 / 60
2+HS	max. 63 A Z-SLK/NEOZ/2	248239	4 / 40
3+HS	max. 63 A Z-SLK/NEOZ/3	248240	3 / 30
3+N+HS	max. 63 A Z-SLK/NEOZ/3+N	248241	2 / 20

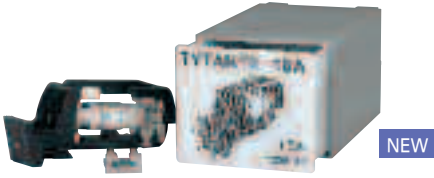
Accessories for Z-SLS/NEOZ, Z-SLS/CEK, Z-SLK/NEOZ, Z-SLK/DO

- Metal locking device f. 1-pole Z-SLZ/SC
- Plastic locking device f. 1-pole Z-SLZ/SP
- Fuse-link set with visual tripping indicator Z-SLS/B-..
- Fuse-link set without visual tripping indicator Z-SLS/E-..
- Plug-in Busbars ...

Fuse-link sets complete

- For Z-SLS/NEOZ, Z-SLS/CEK, Z-SLK/NEOZ, Z-SLK/DO
- 1 set consists of 3 fuse-links, 3 gauge-pieces, 1 plastic box in the color of the visual tripping indicator - to snap on DIN-rail

SG81211



NEW

NEW

NEW

Rated Current (A)	Type Designation	Article No.	Units per package
With visual tripping indicator Z-SLS/B, rated operational voltage 60-400 V AC			
1	Z-SLS/B-1A	268983	1 / 12 / 120
2	Z-SLS/B-2A	268984	1 / 12 / 120
4	Z-SLS/B-4A	268985	1 / 12 / 120
6	Z-SLS/B-6A	268986	1 / 12 / 120
10	Z-SLS/B-10A	268987	1 / 12 / 120
13	Z-SLS/B-13A	289972	1 / 12 / 120
16	Z-SLS/B-16A	268988	1 / 12 / 120
20	Z-SLS/B-20A	268989	1 / 12 / 120
25	Z-SLS/B-25A	268990	1 / 12 / 120
32	Z-SLS/B-32A	289973	1 / 12 / 120
35	Z-SLS/B-35A	268991	1 / 12 / 120
40	Z-SLS/B-40A	289974	1 / 12 / 120
50	Z-SLS/B-50A	268992	1 / 12 / 120
63	Z-SLS/B-63A	268993	1 / 12 / 120
With visual tripping indicator Z-SLS/B, rated operational voltage 24-60 V AC / V DC			
1	Z-SLS/B/24-1A	268994	1 / 12 / 120
2	Z-SLS/B/24-2A	268995	1 / 12 / 120
4	Z-SLS/B/24-4A	268996	1 / 12 / 120
6	Z-SLS/B/24-6A	268997	1 / 12 / 120
10	Z-SLS/B/24-10A	268998	1 / 12 / 120
13	Z-SLS/B/24-13A	289975	1 / 12 / 120
16	Z-SLS/B/24-16A	268999	1 / 12 / 120
20	Z-SLS/B/24-20A	269000	1 / 12 / 120
25	Z-SLS/B/24-25A	269001	1 / 12 / 120
32	Z-SLS/B/24-32A	289976	1 / 12 / 120
35	Z-SLS/B/24-35A	269002	1 / 12 / 120
40	Z-SLS/B/24-40A	289977	1 / 12 / 120
50	Z-SLS/B/24-50A	269003	1 / 12 / 120
63	Z-SLS/B/24-63A	269004	1 / 12 / 120
Without visual tripping indicator Z-SLS/E, rated operational voltage 400 V AC, 220 V DC			
2	Z-SLS/E-2A	263147	1 / 12 / 120
4	Z-SLS/E-4A	263148	1 / 12 / 120
6	Z-SLS/E-6A	269005	1 / 12 / 120
10	Z-SLS/E-10A	269006	1 / 12 / 120
13	Z-SLS/E-13A	289978	1 / 12 / 120
16	Z-SLS/E-16A	269007	1 / 12 / 120
20	Z-SLS/E-20A	269008	1 / 12 / 120
25	Z-SLS/E-25A	269009	1 / 12 / 120
32	Z-SLS/E-32A	289979	1 / 12 / 120
35	Z-SLS/E-35A	269010	1 / 12 / 120
40	Z-SLS/E-40A	289990	1 / 12 / 120
50	Z-SLS/E-50A	269011	1 / 12 / 120
63	Z-SLS/E-63A	269012	1 / 12 / 120

Solid-link Set complete

- For Z-SLS/NEOZ, Z-SLK/NEOZ, Z-SLS/CEK
- 1 set consists of 3 solid-link inserts, 3 gauge-pieces, 1 plastic box to be snapped onto DIN rail
- By installing this set, the fuse-switch-disconnector is converted into a switch-disconnector

SG81311

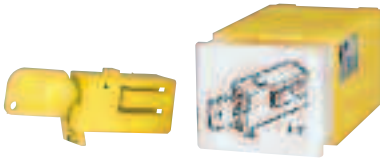


Rated Current	Type Designation	Article No.	Units per package
63 A	Z-SLS/TR-SET	100660	1 / 12 / 120

Switch-on-locking

- For Z-SLS/NEOZ, Z-SLS/CEK, Z-SLK/NEOZ, Z-SLK/D0
- Only one lock per device required

SG81011

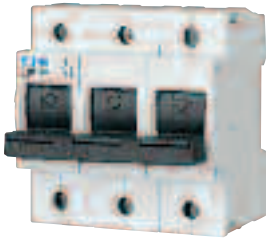


	Type Designation	Article No.	Units per package
Plastic lock	Z-SLZ/SP	268981	1 / 12 / 120

Fuse-Switch-Disconnecter D02+D01

With visual tripping indicator Z-SLS/CB - Current coding by cartridge-ring adapter inserts

SG80811



1	max. 63 A	Z-SLS/CB/1	248247	12 / 120
1+N	max. 63 A	Z-SLS/CB/1+N	167282	6 / 60
2	max. 63 A	Z-SLS/CB/2	248248	6 / 60
3	max. 63 A	Z-SLS/CB/3	248249	4 / 40
3+N	max. 63 A	Z-SLS/CB/3+N	167283	3 / 30

Accessories for Z-SLS/CB

- Fuse-links Z-D0./SE-..
- Cartridge-ring adapter inserts D01 Z-D02-D01/PE-..
- Cartridge-ring adapter inserts D02 Z-D02/PE-..
- Adapter spring D01 Z-SLS/CB-HF see chapter Accessories Fuse Devices

Adapter Spring

- For Z-SLS/CB/. for the use of fuse-links size D01

wa_sg02712



Size	Type Designation	Article No.	Units per package
D01	Z-SLS/CB-HF	263154	12 / 288

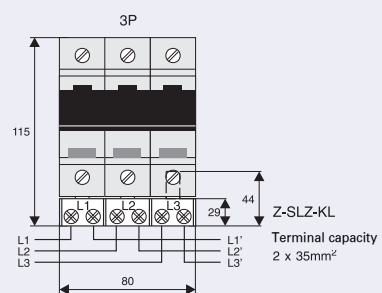
Double Terminal

- For Z-SLS/NEOZ, Z-SLS/CEK, Z-SLK/NEOZ, Z-SLK/D0

SG80212



Size	Type Designation	Article No.	Units per package
Terminal 2 x 3x35mm ²	Z-SLZ/KL	268982	15 / 150



3P

115

29

44

Z-SLZ-KL

Terminal capacity
2 x 35mm²

L1 L2 L3

L1' L2' L3'

80

Accessories for Z-SLS

For busbar blocks and feed terminals refer to the technical part, fuse-switch-disconnector, and ordering part, busbar systems.

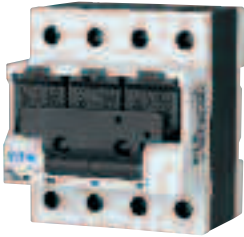
Switch-Disconnecter-Fuse D02+D01

Poles/Rated uninterrupted current (A)	Type Designation	Article No.	Units per package
---------------------------------------	------------------	-------------	-------------------

With visual tripping indicator and thermal monitoring D02-LTS

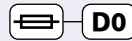
- Rated operational voltage 400 VAC
- Suitable for fuse-links with operating classes gG (gL), aM
- Only 4MU in width, busbar compatible to Xpole switchgear
- Current coding with Cartridge-ring adapter inserts
- Lead-sealable
- Supply side from top or bottom
- Version D02-LTS/63-3-HK with incorporated auxiliary switch
- Delivered with Adapter Springs for fuse-links D01 or cylindrical fuse-links 10x38

SG80511



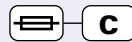
3	max. 63 A	D02-LTS/63-3	114320	3 / 30
3	max. 63 A	D02-LTS/63-3-HK	114322	3 / 30
3N	max. 63 A	D02-LTS/63-3N	114321	3 / 30

Accessories for D02-LTS/63-3..



D0

Fuse-links Z-D0./SE-...
 Cartridge-ring adapter inserts D01: Z-D02-D01/PE-...
 D02: Z-D02/PE-...
 Adadpter Spring Z-D02-LTS-HF (scope of delivery)



C

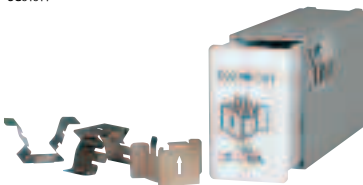
Fuse-links Z-C10/SE-...
 Adadpter Spring Z-D02-LTS-HF (scope of delivery)

See chapter Accessories Fuse Devices

Adadpter Spring

- To accomodate D01 fuse-links or cylindrical fuse-links 10x38 in the Switch-disconnector-fuse D02-LTS/63...

SG81811



Rated operational current Ie (A)	Size	Type Designation	Article No.	Units per package
----------------------------------	------	------------------	-------------	-------------------

16	D02-D01	Z-D02-LTS-HF	114323	12 / 288
32	C 10x38			

Fuse-Disconnecter (empty)

- For cylindrical fuse-links
- The visual tripping indicator indicates the tripped fuse-link
- Lead-sealable

SG00612



SG36412



Poles	Size	Type Designation	Article No.	Units per package
-------	------	------------------	-------------	-------------------

For industry Z-SH.

without visual tripping indicator

Poles	Size	Type Designation	Article No.	Units per package
1	10x38	Z-SH/1	263876	12 / 120
1+N	10x38	Z-SH/1N	263877	12 / 120
2	10x38	Z-SH/2	263878	6 / 60
3	10x38	Z-SH/3	263879	4 / 40
3+N	10x38	Z-SH/3N	263880	4 / 40

with visual tripping indicator

Poles	Size	Type Designation	Article No.	Units per package
1	10x38	Z-SHL/1	263883	12 / 120
1+N	10x38	Z-SHL/1N	263884	12 / 120
2	10x38	Z-SHL/2	263885	6 / 60
3	10x38	Z-SHL/3	263886	4 / 40
3+N	10x38	Z-SHL/3N	263887	4 / 40

Rated Current (A)	Size	Type Designation	Article No.	Units per package
-------------------	------	------------------	-------------	-------------------

For household applications Z-SI., 1-pole

without visual tripping indicator

10	8.5x23	Z-SI/10/1	263889	12 / 120
16	10.3x25.8	Z-SI/16/1	263890	12 / 120
20	8.5x31.5	Z-SI/20/1	263891	12 / 120
25	10.3x31.5	Z-SI/25/1	263892	12 / 120
32	10.3x38	Z-SI/32/1	263893	12 / 120

with visual tripping indicator

20	8.5x31.5	Z-SIL/20/1	263901	12 / 120
25	10.3x31.5	Z-SIL/25/1	263902	12 / 120
32	10.3x38	Z-SIL/32/1	263903	12 / 120

For household applications Z-SI., 1+N-pole

without visual tripping indicator

10	8.5x23	Z-SI/10/1N	263894	12 / 120
16	10.3x25.8	Z-SI/16/1N	263895	12 / 120
20	8.5x31.5	Z-SI/20/1N	263896	12 / 120
25	10.3x31.5	Z-SI/25/1N	263897	12 / 120
32	10.3x38	Z-SI/32/1N	263898	12 / 120

20	8.5x31.5	Z-SIL/20/1N	263938	12 / 120
25	10.3x31.5	Z-SIL/25/1N	263939	12 / 120
32	10.3x38	Z-SIL/32/1N	263940	12 / 120

Accessories for Z-SH., Z-SI.

Fuse-links Z-C/SE...

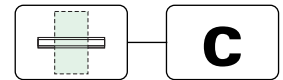
see chapter Accessories Fuse Devices

SG00412



SG53912





Fuse-Switch-Disconnecter (empty) C10-SLS, VLC

- The visual tripping indicator indicates the tripped fuse-link
- Rated operational voltage 690 VAC
- For cylindrical fuse-links with operating classes gG (gL), aM
- Lead-sealable
- Supply side from top or bottom

SG27212



Number of Poles / Size	Type Designation	Article No.	Units per package
------------------------	------------------	-------------	-------------------

Size 10x38 C10-SLS, Rated operational current 32 A without Visual Tripping Indicator

1	10x38	C10-SLS/32/1	112220	12 / 108
1+N	10x38	C10-SLS/32/1N	112221	12 / 108
2	10x38	C10-SLS/32/2	112222	6 / 54
3	10x38	C10-SLS/32/3	112223	4 / 36
3+N	10x38	C10-SLS/32/3N	112224	4 / 36

with Visual Tripping Indicator

1	10x38	C10-SLS/32/1-L	112225	12 / 108
1+N	10x38	C10-SLS/32/1N-L	112226	12 / 108
2	10x38	C10-SLS/32/2-L	112227	6 / 54
3	10x38	C10-SLS/32/3-L	112228	4 / 36
3+N	10x38	C10-SLS/32/3N-L	112229	4 / 36

SG29112



Size 14x51 VLC14, Rated operational current 50 A without Visual Tripping Indicator

1	14x51	VLC14-1P	285361	12 / 96
1+N	14x51	VLC14-1P+N	285362	6 / 48
2	14x51	VLC14-2P	285363	6 / 48
3	14x51	VLC14-3P	285364	4 / 32
3+N	14x51	VLC14-3P+N	285365	3 / 24

with Visual Tripping Indicator

1	14x51	VLC14-1P/L	285371	12 / 96
2	14x51	VLC14-2P/L	285373	6 / 48
3	14x51	VLC14-3P/L	285374	4 / 32

SG43612



Size 22x58 VLC22, Rated operational current 100 A without Visual Tripping Indicator

1	22x58	VLC22-1P	285366	3 / 105
1+N	22x58	VLC22-1P+N	285367	2 / 48
2	22x58	VLC22-2P	285368	2 / 48
3	22x58	VLC22-3P	285369	1 / 35
3+N	22x58	VLC22-3P+N	285370	1 / 24

with Visual Tripping Indicator

1	22x58	VLC22-1P/L	285376	3 / 105
2	22x58	VLC22-2P/L	285378	2 / 48
3	22x58	VLC22-3P/L	285379	1 / 35

Accessories for C10-SLS, VLC14, VLC22

Fuse-links Z-C10/SE...
Z-C14/SE...
Z-C22/SE...

see chapter Accessories Fuse Devices



Fuse-Disconnecter (empty) FCFDC10DI...-SOL

- String protection of PV generator
- The visual tripping indicator indicates the tripped fuse-link
50-400 V flashing
400-1000 V permanent light
- Rated operational voltage 1000 VDC
- For cylindrical fuse-links photovoltaic application
- Lead-sealable

wa_sg00210



Number of Poles / Size	Type Designation	Article No.	Units per package
------------------------	------------------	-------------	-------------------

Size 10x38 FCFDC10DI, Rated operational current 25 A DC without Visual Tripping Indicator

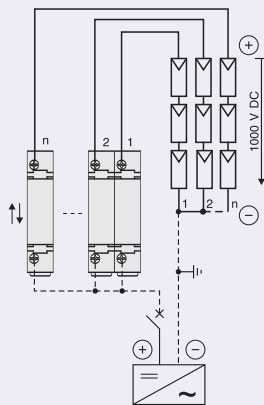
1	10x38	FCFDC10DI-1-SOL	137256	12 / 108
2	10x38	FCFDC10DI-2-SOL	137257	6 / 54

with Visual Tripping Indicator

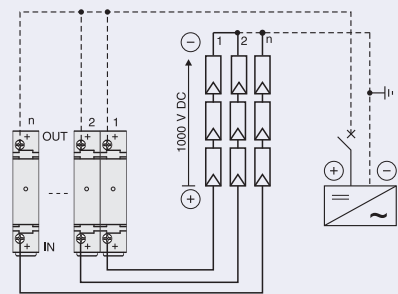
1	10x38	FCFDC10DI-1L-SOL	137258	12 / 108
2	10x38	FCFDC10DI-2L-SOL	137259	6 / 54

Application Photovoltaic Earthed System

FCFDC10DI-1-SOL

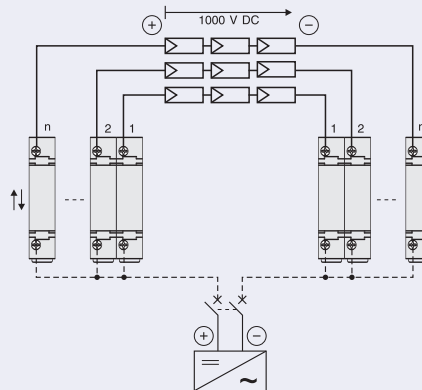


FCFDC10DI-1L-SOL

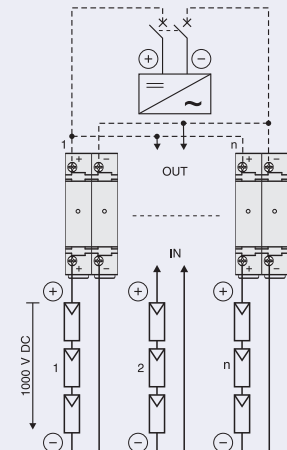






Unearthed System

FCFDC10DI-1-SOL



FCFDC10DI-2L-SOL



	Rated Operational Current I _e (A)	Rated Voltage U _e (V AC)	Size	Width	Utilisation	Designation Article No.	Notes	Units per Package
Slide Fuse-Base D02 (+D01)								
<ul style="list-style-type: none"> Incl. shock hazard protection cover with front and bottom plate and marking label Delivered empty, without screw caps 								
	max. 63	400	E18, D02	27	12 x 5/10	D02-SO/63/3-R-27 114315	Cartridge-ring adapter insert	10
					20 x 5/10			
					25 x 5/10			
				36	30 x 5/10	Z-D02/R/3-36 100663	Cartridge-ring adapter insert	10
					Double-T			
				54		Z-D02/R/3-54 100664	Cartridge-ring adapter insert	10
Cover								
	Set for covering busbar support			36	D02	Z-D02-S-AB-SET 100662	Suitable for D02-SO/63/3-R-27	10
Switch-Disconnecter-Fuse D02 (+D01)								
<ul style="list-style-type: none"> Incl. shock hazard protection cover with front and bottom plate Delivered empty, without screw caps 								
	max. 63	400	E18, D02	36	20 x 5/10	D02-S/63/3-RS 284649	Cartridge-ring adapter insert	10
					30 x 5/10			
					Double-T			
Accessories for D02-Type Slide Fuse-Base and D02-S/63/3-RS								
Fuse-links Z-D0./SE... Cartridge-ring adapter inserts D01 Z-D02-D01/PE... Cartridge-ring adapter inserts D02 Z-D02/PE... see chapter Accessories Fuse Devices Screw cap D02 Z-D02/SK Adapter Spring D01 Z-D02-SIKA/HF								
Screw Cap								
	63	400	E18, D02	-	D02-SO...	Z-D02/SK 100651	-	20/500
Adapter Spring								
<ul style="list-style-type: none"> To accommodate D01 fuse-links in Z-D02/SK screw caps 								
	16	-	D02-D01	-	-	Z-D02/SIKA-HF 263149	-	50/3000

Rated Operational Current Ie (A)	Rated Voltage Ue (V AC)	Size	Width	Utilisation	Designation Article No.	Notes	Units per Package
----------------------------------	-------------------------	------	-------	-------------	-------------------------	-------	-------------------

Switch-Disconnecter-Fuse D02 (+D01) + C

- Visual tripping indicator is flashing
- Delivered empty, without cartridge-ring adapter inserts and fuse-links
- Delivered with adapter springs for fuse-links D01 or cylindrical fuse-links 10x38
- Contact position indicator red - green
- Plug-in technique without screw caps
- All-pole and hand independent switching of load
- Version D02-LTS/63/3-R-HK with incorporated auxiliary switch
- Lead-seal- and lockable


3P


max. 63	400	E18, D02	27	12 x 5/10	D02-LTS/63/3-R	Cartridge-ring adapter insert without auxiliary switch	3
max. 32	400	C 10x38		15 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10 Double-T	114316		
					D02-LTS/63/3-R-HK	Cartridge-ring adapter insert with auxiliary switch	3
					114318		

3P+N

max. 63	400	E18, D02	27	12 x 5/10	D02-LTS/63/3N-R	Cartridge-ring adapter insert without auxiliary switch	3
max. 32	400	C 10x38		15 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10 Double-T	114317		
					D02-LTS/63/3N-R-HK	Cartridge-ring adapter insert with auxiliary switch	3
					114319		

Accessories for D02-LTS/63..

-  **D0** Fuse-links Z-D0./SE-...
Cartridge-ring adapter inserts D01: Z-D02-D01/PE-...
D02: Z-D02/PE-...
Adapter spring Z-D02-LTS-HF (scope of delivery)

-  **C** Fuse-links Z-C10/SE-...
Adapter spring Z-D02-LTS-HF (scope of delivery)

See chapter Accessories Fuse Devices

Adapter Spring

- to accommodate D01 fuse-links or cylindrical fuse-links 10x38 in the Switch-disconnector-fuse D02-LTS/63...

16	–	D02-D01	–	–	Z-D02-LTS-HF	–	12 / 288
32		C 10x38			114323		

SG82311









SG82211




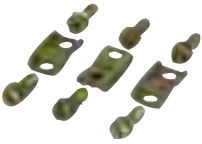



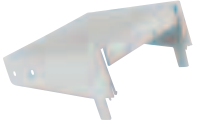
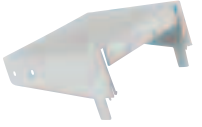



SG81811



	Rated Operational Current I _e (A)	Rated Voltage U _e (V AC)	Size	Width	Utilisation	Designation Article No.	Notes	Units per Package
Slide Fuse-Base DII and DIII								
<ul style="list-style-type: none"> Incl. shock hazard protection cover with front and bottom plate and marking label Delivered empty, without fuse carriers 								
	max. 25	500	E27, D II	45	12 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10 Double-T	DII-SO/25/3-R 107965	Gauge ring	10
						DII-SO/25/3-R-PS 110394	Screw-in gauge ring	10
	max. 63	690	E33, D III	54	12 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10 Double-T	DIII-SO/63/3-R 107966	Gauge ring	10
						DIII-SO/63/3-R-PS 110395	Screw-in gauge ring	10
Cover								
	Side cover				DII.	SBS-RS60 060541	Suitable for DII.-SO/.../3-R	10
Screw caps								
	25	500	E27, D II	–	DII-SO...	Z-DII/SK 112148	–	50/600
	63	500	E33, D III	–	DIII-SO...	Z-DIII/SK 112149	–	30/360
	63	690	E33, D III	–	DIII-SO...	Z-DIII/SK-690 118904	–	3
Accessories for DII.-SO...								
Fuse-links Z-DII./SE...								
Gauge rings Z-DII./PE-...								
Screw-in gauge rings Z-DII./PS-... see chapter Accessories Fuse Devices								

Rated Operational Current I _e (A)	Max. Fuse-link		Size	Utilisation	Designation Article No.	Notes	Units per Package	
	500V (A)	690V (A)						
NH-Fuse-Switch-Disconnecter <ul style="list-style-type: none"> Delivered with clamp straps Z-LTS-160-BK at LTS-160/00/3-R LTS-160/00/3E-R allows to overbuilt busbar supports Drill-free mounting 								
	100	100	–	000	20 x 5/10 30 x 5/10 Double-T	LTS-100/C00/3-R 284690	Width 63 mm. Connection at the bottom. Lift terminal 1.5-50mm ²	1
	160	160	100	00	12 x 5/10 15 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10 Double-T	LTS-160/00/3E-R 120603	Connection at the top or bottom. Lift terminal 2.5-70mm ²	1 / 3
						LTS-160/00/3-R 263122		
For ordering information on shock hazard protection Z-LTS-00/3-R-AB see "Accessories" protection.								
	250	250	200	1	20 x 5/10 25 x 5/10 30 x 5/10	LTS-250/1/3-R 269348	Connection at the top or bottom. Screw M10.	1 / 32
	400	400	315	2	20 x 5/10 25 x 5/10 30 x 5/10	LTS-400/2/3-R 284648	Connection at the top or bottom. Screw M10	1 / 20
Accessories for NH-Fuse-Switch-Disconnecter								
Shock Hazard Protection Set Z-LTS-00/3-R-AB								
	–	–	–	00	LTS-160/00/3-R	Z-LTS-00/3-R-AB 263124	Protection at the top/bottom.	2 / 30
For NH-fuse-links Z-NH... and solid-links Z-NH-../TR see chapter Accessories Fuse Devices.								
Terminal cover Z-LTS-00/3-KA								
	–	–	–	00	LTS-160/00/3-R	Z-LTS-00/3-KA 263126	–	4 / 80

Accessories for NH-Fuse-Switch-Disconnecter

Terminal Capacity	Utilisation	Designation Article No.	Notes	Units per Package	
Clamp Straps					
 	4-70 mm ² Cu	LTS-160/00/3-R	Z-LTS-160-BK 286812	3 Clamp Straps per device	3 / 180
	70-150 mm ² Cu/Al 18x10 mm Cu flat	LTS-250/1/3-R	Z-LTS-250-BK 286812	3 Clamp Straps per device	3 / 180
V-shaped terminal Z-LTS...-V					
<ul style="list-style-type: none"> • 70 mm² Sm (sectorial stranded) • 95 mm² Se (sectorial solid) 					
 	V-shaped terminal lug size 00	LTS-160/00/3-R	Z-LTS-00-V-LA 263130	–	3 / 180
	V-shaped terminal size 00		Z-LTS-00-V-KL 263128	–	3 / 180
	V-cover cap size 00		Z-LTS-00-V-KLA 263132	–	3 / 180
	<ul style="list-style-type: none"> • 185 mm² Sm (sectorial stranded) • 240 mm² Se (sectorial solid) 				
 	V-shaped terminal lug	LTS-250/1/3-R LTS-400/2/3-R LTS-630/3/3-R	Z-LTS-V-LA 263129	–	3 / 180
	V-shaped terminal		Z-LTS-V-KL 263127	–	3 / 180
	V-cover cap		Z-LTS-V-KLA 263131	–	3 / 180
Compensation covers for the heights balancing the NH-fuse-switch-disconnectors					
70					
	Cover level to Cu-front distance: 70 mm	LTS-160/00/3(E)-R	Z-LTS-160-AB/70 288901	2 per device	1
		LTS-250/1/3-R	Z-LTS-250-AB/70 288902	2 per device	2
		LTS-400/2/3-R	Z-LTS-400-AB/70 288903	2 per device	2
90					
	Cover level to Cu-front distance: 90 mm	LTS-160/00/3(E)-R	Z-LTS-160-AB/90 288904	2 per device	1
		LTS-250/1/3-R	Z-LTS-250-AB/90 288905	2 per device	2
		LTS-400/2/3-R	Z-LTS-400-AB/90 288906	2 per device	2
		LTS-630/3/3-R	Z-LTS-630-AB/90 288907	2 per device	2
Lateral cover for LTS, LTS-L					
 	In connection with the compensation covers they serve as support for the front plate, as well as electric shock protection	LTS-L... LTS...	Z-LTS-SAB/70-90 288908		2

Rated Operational Current I _e (A)	Max. Fuse-link 500V (A)	690V (A)	Size	Utilisation	Designation Article No.	Notes	Units per Package
--	-------------------------	----------	------	-------------	-------------------------	-------	-------------------

NH-Vertical Fuse-Switch-Disconnecter, 3-pole

- Incl. terminal cover
- Drill-free mounting
- Clamp straps included in the delivery

wa_sg02212



160	160	100	00	20 x 10 25 x 10 30 x 10	LTS-L/160/00-60-10-R 289997	Connection at the top or bottom. Clamp strap 4-70mm ² or screw M8.	1 / 100
-----	-----	-----	----	-------------------------------	---------------------------------------	---	---------

Accessories for NH-Vertical Fuse-Switch-Disconnecter

Terminal Capacity	Utilisation	Designation Article No.	Notes	Units per Package
-------------------	-------------	-------------------------	-------	-------------------

Compensation covers for combination with NH-fuse-switch-disconnectors LTS

70

Cover level to Cu-front distance: 70 mm	LTS-L/160/00-60-10-R	Z-LTS-L/160-AB/70-SET 289995	1 set	1
--	----------------------	--	-------	---

90

Cover level to Cu-front distance: 90 mm	LTS-L/160/00-60-10-R	Z-LTS-L/160-AB/90-SET 289996	1 set	1
--	----------------------	--	-------	---

Lateral cover for LTS, LTS-L

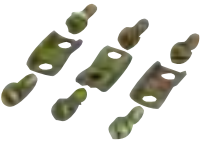
SG16005



In connection with the compensation covers they serve as support for the front plate, as well as electric shock protection	LTS-L... LTS...	Z-LTS-SAB/70-90 288908		2
--	--------------------	----------------------------------	--	---

Clamp Straps

wa_sg02312



4-70 mm ² Cu	LTS-L/160/00-60-10-R	Z-LTS-160-BK 286812	3 Clamp Straps per device	3 / 180
-------------------------	----------------------	-------------------------------	---------------------------	---------

Screws

Wa_sg02702

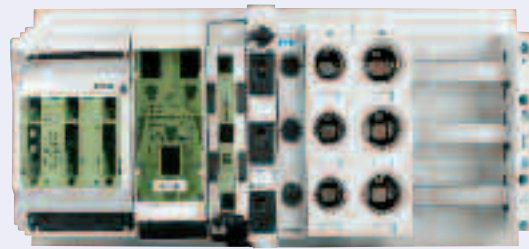
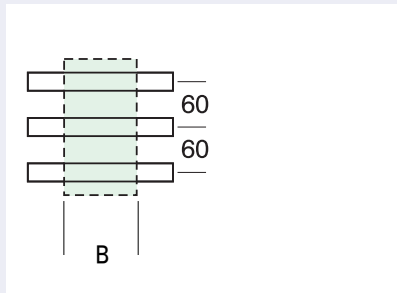


M8 16-70 mm ² Cu 16-95 mm ² Al	LTS-L/160/00-60-10-R	Z-LTS-SC 263119	3 screws per device	3 / 180
--	----------------------	---------------------------	---------------------	---------

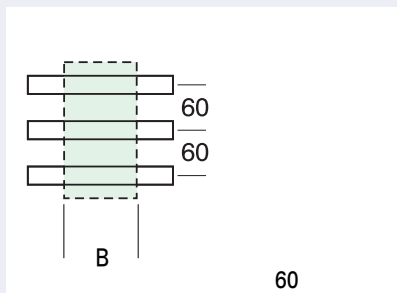
For NH-fuse-links Z-NH/00... and solid-links Z-NH-...TR see chapter Accessories Fuse Devices.

Coordination Tables

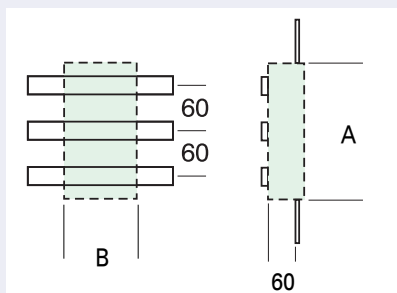
- Combinations possible without bending the copper busbar



Device	GST-00-160-40-60-AOU	LTS-100/C00/3-R	D02-S/63/3-RS	D02-LTS/63/3-R(-HK)	D02-S0/63/3-R-27 Z-D02/R/3-..	DII-S0/25/3-R(-PS)	DIII-S0/63/3-R(-PS)
Accessory	BS-SET-GST00					SBS-RS60	SBS-RS60
Cu	12x5/10			X	X	X	X
	20x5/10	X	X	X	X	X	X
	25x5/10	X	X	X	X	X	X
	30x5/10	X	X	X	X	X	X
	Double-T	X	X	X	X	X	X
B [mm]	106	63	36	27	27 36-54	45	54



Device	GST-00-160-40-60-AOU	LTS-100/C00/3-R	D02-LTS/63/3-R(-HK)
Accessory	BS-SET-GST00		
Cu	12x5/10		X
	20x5/10	X	X
	25x5/10	X	X
	30x5/10	X	X
	Double-T	X	X
B [mm]	106	63	27



Device	GST2-AO GST2-AU	GST1-AO GST1-AU	GST-00-160-40-60-AOU	LTS-100/C00/3-R	D02-LTS/63/3-R(-HK)
Accessory	Z-GST2-AB/60	Z-GST1-AB/60	Z-GST00-AB/60 BS-SET-GST00		
Cu	12x5/10				X
	20x5/10	X	X	X	X
	25x5/10	X	X	X	X
	30x5/10	X	X	X	X
	Double-T	X	X	X	X
A [mm]	278	278	195-210	195	195
B [mm]	236	205	115	63	27

Rated Operational Current I _e (A)	Max. Fuse-link		Size	Utilisation	Designation Article No.	Notes	Units per Package
	500V (A)	690V (A)					

NH-Vertical Fuse-Switch-Disconnecter, 3-pole

- Incl. terminal cover
- Drill-free mounting thanks to terminal clamps
- Scope of delivery NH-SLS-00/160(-SI): incl. clamp straps
NH-SLS sizes 1, 2, 3: no terminal clamps included, no clamp straps included
- Busbar mounting
Size 00: NH-SLS-00/160(-SI) distance 100 mm, screw-mounting / drill-free mounting optional
Sizes 1, 2, 3: distance 185 mm, screw-mounting / drill-free mounting

Without fuse monitoring

160	160	160	00	Z-NH-SLS-00- SAD...	NH-SLS-00/160 106210	Connection at the top or bottom	1 / 182
250	250	250	1	screwed 30 x 5/10 40 x 5/10 50 x 5/10	NH-SLS-1/250 106212	Connection at the top or bottom	1 / 41
400	400	400	2	60 x 5/10 80 x 5/10 100 x 5/10 120 x 5/10	NH-SLS-2/400 106213		1 / 41
630	630	630	3	terminal clamps 30 x 10 40 x 10 50 x 10 60 x 10 Double-T	NH-SLS-3/630 106214		1 / 41

SG46912



NH-SLS-00/160

With fuse monitoring

160	160	-	00	Z-NH-SLS-00- SAD...	NH-SLS-00/160-SI 106215	Connection at the top or bottom	1 / 112
250	250	-	1	screwed 30 x 5/10 40 x 5/10 50 x 5/10 60 x 5/10 80 x 5/10 100 x 5/10 120 x 5/10	NH-SLS-1/250-SI 106217	Connection at the top or bottom	1 / 38
400	400	-	2	terminal clamps 30 x 10 40 x 10 50 x 10	NH-SLS-2/400-SI 106218		1 / 38
630	630	-	3	60 x 10 Double-T	NH-SLS-3/630-SI 106219		1 / 38

wa_sg01912



For NH-fuse-links Z-NH/00... and solid-links Z-NH...TR see chapter Accessories Fuse Devices.

Accessories for NH-Vertical Fuse-Switch-Disconnecter

wa_sg06206



Z-NH-SLS-00-SAD

SG00706



wa_sg01712



wa_sg06706



wa_sg06806



wa_sg07106



Z-NH-SLS-1+2+3-GT

wa_sg05406



Z-NH-SLS-1+2+3-GTAB

Terminal Capacity	Utilisation	Designation Article No.	Units per Package
Adapters			
Single adapter 100/185	... x 5/10	Z-NH-SLS-00-SAD 1 106220	
Double adapter 100/185	... x 5/10	Z-NH-SLS-00-SADD 106221	1
Adapter for drill-free mounting			
Single adapter 100/185	... x 10	Z-NH-SLS-00-SAD-KR 106222	1
Terminals clamps			
for bottom connection	NH-SLS Size 1, 2, 3	Z-NH-SLS-KRU 106224	3
for top connection	NH-SLS Size 1, 2, 3	Z-NH-SLS-KRO 106225	3
Terminal cover/Size compensation to NH-SLS size 1, 2, 3			
	NH-SLS-00/160	Z-NH-SLS-KA 106223	2
V-Connection terminals -240mm² sm / -300 mm² se			
	NH-SLS, Size 1, 2	Z-NH-SLS-1+2-VAK 106226	3
	NH-SLS, Size 3	Z-NH-SLS-3-VAK 106227	3
Extension for connection of 2 cable lugs			
	Size 1, 2	Z-NH-SLS-1+2-AE 1 106239	
	Size 3	Z-NH-SLS-3-AE 106240	1
Supports with DIN-rail for terminals, etc. ...			
Bottom part	Size 1, 2, 3	Z-NH-SLS-1+2+3-GT 106230	1
Cover	Size 1, 2, 3	Z-NH-SLS-1+2+3-GTAB 106231	1

Accessories for NH-SLS

Current transformer

NH-SLS-00

- On Z-NH-SLS-00-SAD ... to be fixed with fastening clip Z-NH-SLS-00-BC

NH-SLS size 1, 2, 3

- To be placed in the standard vertical fuse-switch-disconnector - no additional space required
- Terminal clamp mounting is possible just the same
- Use Z-NH-SLS-1+2+3-BC fastening clips to fix the current transformer wires
- Supports for transformer terminals are available
See accessories for NH-SLS size 1, 2, 3

wa_sg06906



Ratio	Acc.-Class	Rat. apparent power	Type Designation	Article No.	Units per package
150/5 A	1	3 VA	Z-WAS-150/5A-1	106232	3
200/5 A	1	4 VA	Z-WAS-200/5A-1	106233	3
250/5 A	1	4 VA	Z-WAS-250/5A-1	106234	3
300/5 A	1	5 VA	Z-WAS-300/5A-1	106235	3
400/5 A	1	5 VA	Z-WAS-400/5A-1	106236	3
500/5 A	1	5 VA	Z-WAS-500/5A-1	106237	3
600/5 A	1	5 VA	Z-WAS-600/5A-1	106238	3

wa_sg06606



Z-NH-SLS-00-BC

wa_sg07006



Z-NH-SLS-1+2+3-BC

Description	Type Designation	Article No.	Units per package
-------------	------------------	-------------	-------------------

Fastening clips

for current transformer on the busbar adapter of the 185 mm-busbar system (size 00)

Z-NH-SLS-00-BC

106229

3

(Transformer) wires to be fixed at the back of the NH-vertical fuse-switch-disconnector size 1, 2, 3

Z-NH-SLS-1+2+3-BC

106228

100

Rated Operational Current I _e (A)	Max. Fuse-link		Size	Utilisation	Designation Article No.	Notes	Units per Package
	500V (A)	690V (A)					

NH In-line Fuse Switch Disconnectors, 3 poles, FCFSDNH

- Incl. cover for connection area
- Mounting without the need of drilling (Accessories)
- Connection either at the top or at the bottom

Center-to-center distance of 100 mm between the phases - size 00

160	160	160	00		FCFSDNH00BB100 149430	Connection at the top or at the bottom	1
-----	-----	-----	----	--	---------------------------------	--	---

Center-to-center distance of 100 mm between the phases - size 00 - for installing current transformers

- Equipped with spacer pins for retro-fitting of current transformers if ever the need should arise

160	160	160	00		FCFSDNH00BB100-CTO 149431	Connection at the top or at the bottom	1
-----	-----	-----	----	--	-------------------------------------	--	---

Center-to-center distance of 185 mm between the phases - size 1 to size 3

250	250	250	1		FCFSDNH1BB185 149436	Connection at the top or at the bottom	1
400	400	400	2		FCFSDNH2BB185 149437		1
630	630	630	3		FCFSDNH3BB185 149438		1

Center-to-center distance of 185 mm between the phases - size 1 to size 3 - for installing current transformers

- Equipped with spacer pins for retro-fitting of current transformers if ever the need should arise

250	250	250	1		FCFSDNH1BB185-CTO 149439	Connection at the top or at the bottom	1
400	400	400	2		FCFSDNH2BB185-CTO 149440		1
630	630	630	3		FCFSDNH3BB185-CTO 149441		1


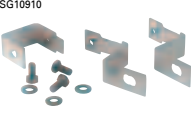


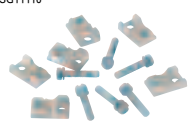
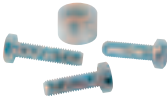

SG09310

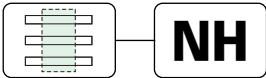


SG09410



Accessories for NH In-line Fuse Switch Disconnectors

Terminal Capacity	Utilisation	Designation Article No.	Units per Package
Double adapter to adjust the center-to-center distance between the phases from 100 to 185 mm			
	Adapter for fixing two strips of size 00 on a busbar of 185 mm	ASNH100BABB100 149454	1
Adapter clip to adjust the center-to-center distance between the phases from 100 to 185 mm			
	Clip for fixing one strip of size 00 on a busbar of 185 mm	149455 ASNH100ACBB100	1
Busbar Terminal Size 00			
	For mounting the NH in-line fuse switch disconnector without the need of drilling Size 00 for a busbar thickness of 5 - 10 mm	ASNH100CT 149457	15
Compensation Cover			
	For height adjustment of a size 00 strip to a strip of size 1 to size 3	ASNH185CP100 149458	1
Prism Terminal			
		ASPT70 149456	3
Connection Set			
	Set for 2 cable lugs suitable for a strip of 185 mm size 1-3	ASNH185 149459	1
Cover for connection areas			
	Cover for connection area, size 1-3	ASNH185CP123 170267	1



Connection Assembly Kit - consisting of 3 different items

- for parallel switching of 2 strips of size 2 or 3



Handle connection	ASNH185HCK 149460	10
Busbar kit	ASNH185RK 149461	1
Cover for connection area	ASNH185CP 149462	1

Accessories for NH In-line Fuse Switch Disconnectors

Current transformer for 100 mm center-to-center distance between the phases

SG00611



Transformation	G Class	Rated Apparent Power	Type Designation	Article No.	Units per package
100/5 A	0,5	1 VA	ASCNH100CT100-5-05	149432	3
150/5 A	0,5	1,5 VA	ASCNH100CT150-5-05	149433	3
100/5 A	1	1,5 VA	ASCNH100CT100-5-1	149434	3
150/5 A	1	2,5 VA	ASCNH100CT150-5-1	149435	3



Current transformer for 185 mm center-to-center distance between the phases

SG00611



Transformation	G Class	Rated Apparent Power	Type Designation	Article No.	Units per package
150/5 A	0,5	1,5 VA	ASCNH185CT150-5-05	149442	3
250/5 A	0,5	2,5 VA	ASCNH185CT250-5-05	149443	3
300/5 A	0,5	2,5 VA	ASCNH185CT300-5-05	149444	3
400/5 A	0,5	2,5 VA	ASCNH185CT400-5-05	149445	3
500/5 A	0,5	2,5 VA	ASCNH185CT400-5-05	149446	3
600/5 A	0,5	2,5 VA	ASCNH185CT600-5-05	149447	3
150/5 A	1	2,5 VA	ASCNH185CT150-5-1	149448	3
250/5 A	1	3,75 VA	ASCNH185CT250-5-1	149449	3
300/5 A	1	3,75 VA	ASCNH185CT300-5-1	149450	3
400/5 A	1	5 VA	ASCNH185CT400-5-1	149451	3
500/5 A	1	5 VA	ASCNH185CT500-5-1	149452	3
600/5 A	1	5 VA	ASCNH185CT600-5-1	149453	3

Accessories for NH-Vertical Fuse-Switch-Disconnecter

Terminal Capacity	Utilisation	Designation Article No.	Notes	Units per Package
Terminals clamps				
	for drill-free mounting	LTS-L/160/00... Z-LTS-LG/00-KR 263153	3 terminal clamps per device	3 / 180
		LTS-L Size 1, 2, 3 Z-LTS-L-KR 269353		3 / 90
Terminal cover/Size compensation to LTS-L size 1, 2, 3				
	LTS-L/160/00...	Z-LTS-L-KA 286817		2 / 40
Extension for connection of 2 cable lugs				
	Cable lugs 2x240 mm ²	Size 1, 2, 3 Z-NH-AE 120601	for phase L3	1
Clamp Straps				
	4-70 mm ² Cu	LTS-L/160/00 Z-LTS-160-BK 286812	3 Clamp Straps per device	3 / 180
Screws				
	M8 16-70 mm ² Cu 16-95 mm ² Al	LTS-L/160/00 Z-LTS-SC 263119	3/6 screws per device	3 / 180
	For mounting onto adapter Z-LTS-L...-SAD...	LTS-L/160/00...		

Rated Operational Current I _e (A)	Max. Fuse-link 500V (A)	690V (A)	Size	Utilisation	Designation Article No.	Notes	Units per Package
--	-------------------------	----------	------	-------------	-------------------------	-------	-------------------

NH-Vertical Fuse-Switch-Disconnecter, 3-pole

- LTS-L/160/00... drill-free mounting / optional screw-mounting
- LTS-... drill-free mounting onto Z-LTS-...SAD-KR

3P

wa_sg02212



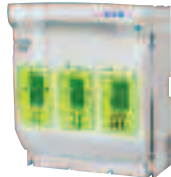
160	160	160	00	12 x 5/10 20 x 5/10 30 x 5/10 Double-T	LTS-L/160/00 269349	Connection at the top or bottom. Clamp straps 4-70 mm ² or screw M8.	1 / 100
					LTS-L/160/00/3-L 120600	Connection at the top or bottom. Lift terminal 2.5-70 mm ² .	1 / 100

SG46812



250	250	200	1	Z-LTS-250-SAD/100-KR	LTS-250/1/3 269140	Connection at the top or bottom. Screw M10.	1 / 42
-----	-----	-----	---	----------------------	------------------------------	---	--------

SG46712



400	400	315	2	Z-LTS-400-SAD/100-KR	LTS-400/2/3 284647	Connection at the top or bottom. Screw M10.	1 / 25
-----	-----	-----	---	----------------------	------------------------------	---	--------

630	630	500	3	Z-LTS-630-SAD/100-KR	LTS-630/3/3 284691	Connection at the top or bottom. Screw M12.	1 / 20
-----	-----	-----	---	----------------------	------------------------------	---	--------

Accessories for NH-Fuse-Switch-Disconnecter

Description	Utilisation	Designation Article No.	Notes	Units per Package
-------------	-------------	-------------------------	-------	-------------------

NEW

Busbar Adapter 3-pole, Z-LTS-...-SAD/100-KR


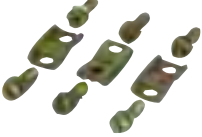








SG07808


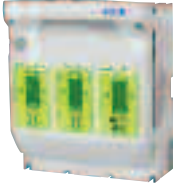



Drill-free mounting on busbar system	LTS-250/1/3	Z-LTS-250-SAD/100-KR 120604	Connection at the top or bottom.	1
100 mm	LTS-400/2/3	Z-LTS-400-SAD/100-KR 120605		1
15 x 5/10				
20 x 5/10	LTS-630/3/3	Z-LTS-630-SAD/100-KR 120606		1
25 x 5/10				
30 x 5/10				
40 x 5/10				
50 x 5/10				
60 x 5/10				


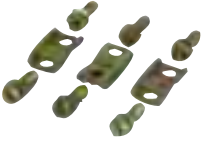





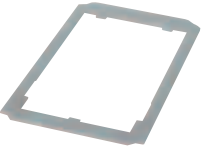



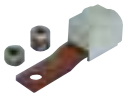
For NH-fuse-links Z-NH/00... and solid-links Z-NH-...TR see chapter Accessories Fuse Devices.

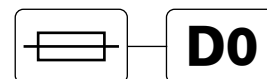
Accessories for NH-Fuse-Switch-Disconnecter

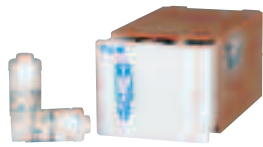






Description	Utilisation	Designation Article No.	Notes	Units per Package	
Clamp Straps					
 	4-70 mm ² Cu	LTS-L/160/00	Z-LTS-160-BK 286812	3 Clamp Straps per device	3 / 180
	70-150 mm ² Cu/Al 18x10 mm Cu flat	LTS-250/1/3	Z-LTS-250-BK 286812	3 Clamp Straps per device	3 / 180
V-shaped terminal Z-LTS...-V					
<ul style="list-style-type: none"> • 185 mm² Sm (sectorial stranded) • 240 mm² Se (sectorial solid) 					
 	V-shaped terminal lug	LTS-250/1/3 LTS-400/2/3 LTS-630/3/3	Z-LTS-V-LA 263129	–	3 / 180
	V-shaped terminal		Z-LTS-V-KL 263127	–	3 / 180
	V-cover cap		Z-LTS-V-KLA 263131	–	3 / 180
Screws					
 	M8 16-70 mm ² Cu 16-95 mm ² Al	LTS-L/160/00	Z-LTS-SC 263119	3 screws per device	3 / 180
	Compensation covers for the heights balancing the NH-fuse-switch-disconnectors				
 	70				
	Cover level to Cu-front distance: 70 mm	LTS-L/160/00...	Z-LTS-L/160-AB/70-SET 289995	1 set	1
		LTS-250/1/3	Z-LTS-250-AB/70 288902	2 per device	2
		LTS-400/2/3	Z-LTS-400-AB/70 288903	2 per device	2
90					
	Cover level to Cu-front distance: 90 mm	LTS-L/160/00...	Z-LTS-L/160-AB/90-SET 289996	1 set	1
		LTS-250/1/3	Z-LTS-250-AB/90 288905	2 per device	2
		LTS-400/2/3	Z-LTS-400-AB/90 288906	2 per device	2
LTS-630/3/3		Z-LTS-630-AB/90 288907	2 per device	2	
Lateral cover for LTS, LTS-L					
 	In connection with the compensation covers they serve as support for the front plate, as well as electric shock protection	LTS-L... LTS...	Z-LTS-SAB/70-90 288908		2

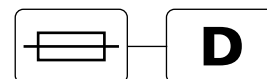
	Rated Operational Current I _e (A)	Max. Fuse-link		Size	Utilisation	Designation Article No.	Notes	Units per Package
		500V (A)	690V (A)					
NH-Fuse-Switch-Disconnecter								
•Scope of delivery LTS-160/00/1, LTS-160/00/3 clamp straps Z-LTS-160-BK included as standard connection elements								
	160	160	125	00	1-pole	LTS-1600/00/1 263120	Connection at the top or bottom. Clamp strap 4-70mm ² or screw M8.	1 / 14
	160	160	125	00	3-pole	LTS-1600/00/3E 120602	Connection at the top or bottom. Clamp strap 4-70mm ² or screw M8.	1 / 6
	250	250	200	1	3-pole	LTS-250/1/3 269140	Connection at the top or bottom. Screw M10.	1 / 42
	400	400	315	2	3-pole	LTS-400/2/3 284647	Connection at the top or bottom. Screw M10.	1 / 25
	630	630	500	3	3-pole	LTS-630/3/3 284691	Connection at the top or bottom. Screw M12.	1 / 20
Accessories for NH-Fuse-Switch-Disconnecter								
Terminal covers Z-LTS-00/-KA								
	–	–	–	00	LTS-160/00/1	Z-LTS-00/1-KA 263125	1-pole	2 / 120
	–	–	–	00	LTS-160/00/3 LTS-160/00/3E	Z-LTS-00/3-KA 263126	3-pole	4 / 80
For NH-fuse-links Z-NH/00... and solid-links Z-NH...TR see chapter Accessories Fuse Devices.								

Accessories for NH-Fuse-Switch-Disconnecter

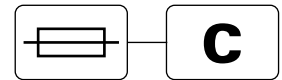
Terminal Capacity	Utilisation	Designation Article No.	Notes	Units per Package	
Clamp Straps					
 	4-70 mm ² Cu	LTS-160/00/3E LTS-160/00/3	Z-LTS-160-BK 286812	3 Clamp Straps per device	3 / 180
	70-150 mm ² Cu/Al 18x10 mm Cu flat	LTS-250/1/3	Z-LTS-250-BK 286812	3 Clamp Straps per device	3 / 180
V-shaped terminal Z-LTS...-V					
<ul style="list-style-type: none"> • 70 mm² Sm (sectorial stranded) • 95 mm² Se (sectorial solid) 					
 	V-shaped terminal lug size 00	LTS-160/00/3	Z-LTS-00-V-LA 263130	–	3 / 180
	V-shaped terminal size 00		Z-LTS-00-V-KL 263128	–	3 / 180
	V-cover cap size 00		Z-LTS-00-V-KLA 263132	–	3 / 180
<ul style="list-style-type: none"> • 185 mm² Sm (sectorial stranded) • 240 mm² Se (sectorial solid) 					
	V-shaped terminal lug	LTS-250/1/3 LTS-400/2/3 LTS-630/3/3	Z-LTS-V-LA 263129	–	3 / 180
	V-shaped terminal		Z-LTS-V-KL 263127	–	3 / 180
	V-cover cap		Z-LTS-V-KLA 263131	–	3 / 180
Screws					
 	M8 16-70 mm ² Cu 16-95 mm ² Al	LTS-160/00/3E LTS-160/00/3 LTS-160/00/1	Z-LTS-SC 263119	3/6 screws per device	3 / 180
	Front Frame				
 	–	LTS-160/00/3E LTS-160/00/3	Z-LTS-00/3-R-FR 263123	–	1 / 200
	Busbar				
 	35 mm ² Cu	LTS-160/00/3E LTS-160/00/3	Z-LTS-00/3-SV 264929	for 3 devices	4
	Extension Terminal				
 	25-95 mm ² Cu	Z-LTS-00/3-SV	Z-LTS-EK/95 269522	3 terminals per device	3 / 90



	Size / Rated current	Type Designation	Article No.	Units per package	
Fuse-Links Z-D0./SE, Operating Class gG (gL)					
• In practical plastic box in the color of the visual tripping indicator - to snap on DIN-rail					
SG8111 	D01 2 A	Z-D01/SE-2	288934	12 / 288	
	D01 4 A	Z-D01/SE-4	288935	12 / 288	
	D01 6 A	Z-D01/SE-6	288936	12 / 288	
	D01 10 A	Z-D01/SE-10	288937	12 / 288	
	NEW D01 13 A	Z-D01/SE-13	288938	12 / 288	
	D01 16 A	Z-D01/SE-16	288939	12 / 288	
	D02 20 A	Z-D02/SE-20	288940	12 / 144	
	D02 25 A	Z-D02/SE-25	288941	12 / 144	
	NEW D02 32 A	Z-D02/SE-32	288942	12 / 144	
	NEW D02 35 A	Z-D02/SE-35	288943	12 / 144	
SG81911 	D02 40 A	Z-D02/SE-40	288944	12 / 144	
	D02 50 A	Z-D02/SE-50	288945	12 / 144	
	D02 63 A	Z-D02/SE-63	288946	12 / 144	
	Cartridge-Ring Adapter Insert Z-D0./PE				
	• In practical plastic box in the color of the visual tripping indicator - to snap on DIN-rail				
	SG81611 	D01 2 A	Z-D01/PE-2	288909	12 / 288
		D01 4 A	Z-D01/PE-4	288910	12 / 288
		D01 6 A	Z-D01/PE-6	288911	12 / 288
		D01 10 A, 13 A	Z-D01/PE-10	288912	12 / 288
		D02 20 A	Z-D02/PE-20	288913	12 / 288
D02 25 A		Z-D02/PE-25	288914	12 / 288	
D02 35 A, 32 A		Z-D02/PE-35	288915	12 / 288	
D02 40 A		Z-D02/PE-40	288916	12 / 288	
D02 50 A		Z-D02/PE-50	288917	12 / 288	
Cartridge-Ring Adapter Insert Z-D02-D01/PE					
• D01 for Fuse-Base D02 and Fuse-Switch-Disconnecter D02					
• In practical plastic box in the color of the visual tripping indicator - to snap on DIN-rail					
SG81511 	D02-D01 2 A	Z-D02-D01/PE-2	263112	12 / 288	
	D02-D01 4 A	Z-D02-D01/PE-4	263113	12 / 288	
	D02-D01 6 A	Z-D02-D01/PE-6	263150	12 / 288	
	D02-D01 10 A, 13 A	Z-D02-D01/PE-10	263151	12 / 288	
	D02-D01 16 A	Z-D02-D01/PE-16	263152	12 / 288	
	Screw Caps Z-D0./SK				
SG11205 	D01 max. 16 A	Z-D01/SK	100650	20	
	D02 max. 63 A	Z-D02/SK	100651	20	
Adapter Spring Z-D02/SIKA-HF					
• To apply D01-Fuse-links into the Screw cap Z-D02/SK					
wa_sg02612 	D02-D01	Z-D02/SIKA-HF	263149	50 / 3000	
Cartridge-Ring Adapter Insert Plier Z-D0-PE-Z					
SG19707 	D01, D02	Z-D0-PE-Z	114324	1 / 10	



	Size / Rated current	Type Designation	Article No.	Units per package	
 SG19007	Fuse-Links Z-DII./SE../GG, Operating Class gG (gL)				
	• Rated voltage 500 V AC / 400 V DC				
	DII E27 2 A	Z-DII/SE-2A/GG	112125	5 / 500	
	DII E27 4 A	Z-DII/SE-4A/GG	112126	5 / 500	
	DII E27 6 A	Z-DII/SE-6A/GG	112127	5 / 500	
	DII E27 10 A	Z-DII/SE-10A/GG	112128	5 / 500	
	DII E27 16 A	Z-DII/SE-16A/GG	112129	5 / 500	
	DII E27 20 A	Z-DII/SE-20A/GG	112130	5 / 500	
	DII E27 25 A	Z-DII/SE-25A/GG	112131	5 / 500	
	DIII E33 35 A	Z-DIII/SE-35A/GG	112135	5 / 500	
DIII E33 50 A	Z-DIII/SE-50A/GG	112136	5 / 500		
DIII E33 63 A	Z-DIII/SE-63A/GG	112137	5 / 500		
 SG19107	Fuse-Links Z-DII./SE../DZ, Operating Class DZ				
	• Rated voltage 500 V AC / 400 V DC				
	DII E27 6 A	Z-DII/SE-6A/DZ	112120	5 / 500	
	DII E27 10 A	Z-DII/SE-10A/DZ	112121	5 / 500	
	DII E27 16 A	Z-DII/SE-16A/DZ	112122	5 / 500	
	DII E27 20 A	Z-DII/SE-20A/DZ	112123	5 / 500	
	DII E27 25 A	Z-DII/SE-25A/DZ	112124	5 / 500	
	DIII E33 35 A	Z-DIII/SE-35A/DZ	112132	5 / 500	
	DIII E33 50 A	Z-DIII/SE-50A/DZ	112133	5 / 500	
	DIII E33 63 A	Z-DIII/SE-63A/DZ	112134	5 / 500	
 wa_sg05908	Gauge Ring Z-DII./PE				
	DII E27 2 A	Z-DII/PE-2A	110396	50	
	DII E27 4 A	Z-DII/PE-4A	110397	50	
	DII E27 6 A	Z-DII/PE-6A	110398	50	
	DII E27 10 A	Z-DII/PE-10A	110399	50	
	DII E27 16 A	Z-DII/PE-16A	110790	50	
	DII E27 20 A	Z-DII/PE-20A	110791	50	
	DIII E33 2 A	Z-DIII/PE-2A	110792	50	
	DIII E33 4 A	Z-DIII/PE-4A	110793	50	
	DIII E33 6 A	Z-DIII/PE-6A	110794	50	
	DIII E33 10 A	Z-DIII/PE-10A	110795	50	
	DIII E33 16 A	Z-DIII/PE-16A	110796	50	
	DIII E33 20 A	Z-DIII/PE-20A	110797	50	
	DIII E33 25 A	Z-DIII/PE-25A	110798	50	
	DIII E33 35 A	Z-DIII/PE-35A	110799	50	
	DIII E33 50 A	Z-DIII/PE-50A	110800	50	
	 wa_sg03312	Screw-in Gauge Ring Z-DII./PS			
		DII E27 2 A	Z-DII/PS-2A	112138	25 / 1500
DII E27 4 A		Z-DII/PS-4A	112139	25 / 1500	
DII E27 6 A		Z-DII/PS-6A	112140	25 / 1500	
DII E27 10 A		Z-DII/PS-10A	112141	25 / 1500	
DII E27 16 A		Z-DII/PS-16A	112142	25 / 1500	
DII E27 20 A		Z-DII/PS-20A	112143	25 / 1500	
DII E27 25 A		Z-DII/PS-25A	112144	25 / 1500	
DIII E33 35 A		Z-DIII/PS-35A	112145	25 / 850	
DIII E33 50 A		Z-DIII/PS-50A	112146	25 / 850	
DIII E33 63 A	Z-DIII/PS-63A	112147	25 / 850		
 SG07608	Screw Caps Z-DII./SK				
	DII E27 500 VAC	Z-DII/SK	112148	50 / 600	
	DIII E33 500 VAC	Z-DIII/SK	112149	30 / 360	
	DIII E33 690 VAC	Z-DIII/SK-690	118904	3	



SG01010



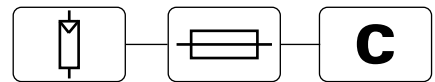
SG20507



SG20407



Size / Rated current / Rated voltage	Type Designation	Article No.	Units per package
Fuse-Links Z-C. /SE Operating Class gG (gL)			
10x38 1 A 500 V AC	Z-C10/SE-1A/GG	112156	10 / 500
10x38 2 A 500 V AC	Z-C10/SE-2A/GG	112157	10 / 500
10x38 4 A 500 V AC	Z-C10/SE-4A/GG	112158	10 / 500
10x38 6 A 500 V AC	Z-C10/SE-6A/GG	112159	10 / 500
10x38 8 A 500 V AC	Z-C10/SE-8A/GG	112160	10 / 500
10x38 10 A 500 V AC	Z-C10/SE-10A/GG	112161	10 / 500
10x38 12 A 500 V AC	Z-C10/SE-12A/GG	112162	10 / 500
10x38 16 A 500 V AC	Z-C10/SE-16A/GG	112163	10 / 500
10x38 20 A 500 V AC	Z-C10/SE-20A/GG	112164	10 / 500
10x38 25 A 500 V AC	Z-C10/SE-25A/GG	112165	10 / 500
10x38 32 A 400 V AC	Z-C10/SE-32A/GG	112166	10 / 500
14x51 2 A 690 V AC	Z-C14/SE-2A/GG	112167	10 / 200
14x51 4 A 690 V AC	Z-C14/SE-4A/GG	112168	10 / 200
14x51 6 A 690 V AC	Z-C14/SE-6A/GG	112169	10 / 200
14x51 8 A 690 V AC	Z-C14/SE-8A/GG	112170	10 / 200
14x51 10 A 690 V AC	Z-C14/SE-10A/GG	112171	10 / 200
14x51 12 A 690 V AC	Z-C14/SE-12A/GG	112172	10 / 200
14x51 16 A 690 V AC	Z-C14/SE-16A/GG	112173	10 / 200
14x51 20 A 690 V AC	Z-C14/SE-20A/GG	112174	10 / 200
14x51 25 A 690 V AC	Z-C14/SE-25A/GG	112175	10 / 200
14x51 32 A 690 V AC	Z-C14/SE-32A/GG	112176	10 / 200
14x51 40 A 500 V AC	Z-C14/SE-40A/GG	112177	10 / 200
14x51 50 A 500 V AC	Z-C14/SE-50A/GG	112178	10 / 200
22x58 16 A 690 V AC	Z-C22/SE-16A/GG	112179	10 / 480
22x58 20 A 690 V AC	Z-C22/SE-20A/GG	112180	10 / 480
22x58 25 A 690 V AC	Z-C22/SE-25A/GG	112181	10 / 480
22x58 32 A 690 V AC	Z-C22/SE-32A/GG	112182	10 / 480
22x58 40 A 690 V AC	Z-C22/SE-40A/GG	112183	10 / 480
22x58 50 A 500 V AC	Z-C22/SE-50A/GG	112184	10 / 480
22x58 63 A 500 V AC	Z-C22/SE-63A/GG	112185	10 / 480
22x58 80 A 500 V AC	Z-C22/SE-80A/GG	112186	10 / 480
22x58 100 A 500 V AC	Z-C22/SE-100A/GG	112187	10 / 480



SG11008



Size / Rated current / Rated voltage	Type Designation	Article No.	Units per package
Fuse-Links ASFLC10-..A-gPV-SOL Photovoltaic application			
10x38 2 A 1000 V DC	ASFLC10-2A-gPV-SOL	137279	10 / 500
10x38 4 A 1000 V DC	ASFLC10-4A-gPV-SOL	137280	10 / 500
10x38 6 A 1000 V DC	ASFLC10-6A-gPV-SOL	137281	10 / 500
10x38 8 A 1000 V DC	ASFLC10-8A-gPV-SOL	137282	10 / 500
10x38 10 A 1000 V DC	ASFLC10-10A-gPV-SOL	137283	10 / 500
10x38 12 A 1000 V DC	ASFLC10-12A-gPV-SOL	137284	10 / 500
10x38 16 A 1000 V DC	ASFLC10-16A-gPV-SOL	137285	10 / 500
10x38 20 A 1000 V DC	ASFLC10-20A-gPV-SOL	137286	10 / 500
10x38 25 A 900 V DC	ASFLC10-25A-gPV-SOL	137287	10 / 500

PV-fuse-link selection:

① Maximum DC Operating voltage of the fuse-link must be:

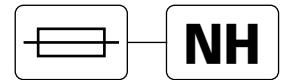
$$1,2 \times V_{oc} \text{ of string}$$

② Rated current I_n of the fuse-link must be higher or equal than:

$$1,5 \times I_{sc}$$

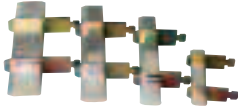
I_{sc} short circuit current of PV-module

V_{oc} open circuit voltage of string



Solid-Links Z-NH-../TR

WA_SG02402



Size	Type Designation	Article No.	Units per package
00	Z-NH-00/TR	263114	3 / 180
1	Z-NH-1/TR	263115	6 / 60
2	Z-NH-2/TR	263116	6 / 60
3	Z-NH-3/TR	263117	3 / 30

NH-Fuse-Links, 500 V AC, Z-NH

- operating class gG (gL)

wa_sg03412



Size/Rated Current	Type Designation	Article No.	Units per package
00 10 A	Z-NH-00/10	289998	3
00 16 A	Z-NH-00/16	289999	3
00 20 A	Z-NH-00/20	290000	3
00 25 A	Z-NH-00/25	290001	3
00 35 A	Z-NH-00/35	290002	3
00 40 A	Z-NH-00/40	290003	3
00 50 A	Z-NH-00/50	290004	3
00 63 A	Z-NH-00/63	290005	3
00 80 A	Z-NH-00/80	290006	3
00 100 A	Z-NH-00/100	290007	3
00 125 A	Z-NH-00/125	290008	3
00 160 A	Z-NH-00/160	290009	3
1 50 A	Z-NH-1/50	290010	3
1 63 A	Z-NH-1/63	290011	3
1 80 A	Z-NH-1/80	290012	3
1 100 A	Z-NH-1/100	290013	3
1 125 A	Z-NH-1/125	290014	3
1 160 A	Z-NH-1/160	290015	3
1 200 A	Z-NH-1/200	290016	3
1 250 A	Z-NH-1/250	290017	3
2 100 A	Z-NH-2/100	290018	3
2 125 A	Z-NH-2/125	290019	3
2 160 A	Z-NH-2/160	290020	3
2 200 A	Z-NH-2/200	290021	3
2 250 A	Z-NH-2/250	290022	3
2 315 A	Z-NH-2/315	290023	3
2 400 A	Z-NH-2/400	290024	3
3 250 A	Z-NH-3/250	290025	3
3 315 A	Z-NH-3/315	290026	3
3 400 A	Z-NH-3/400	290027	3
3 500 A	Z-NH-3/500	290028	3
3 630 A	Z-NH-3/630	290029	3

Measuring Instruments

Measuring Instruments




wa_sg05811







wa_sg04911



Measuring Instruments

		Measuring Instruments						
PHASE OUT TYPE		Power Meter KWZ						
		System	Rated Current	Type Designation	Article No.	Units per package		
 <p>SG10007</p> <p>KWZ-3PH-63</p>		1N	40 A	KWZ-230	286839	1 / 60		
		3N	5 A, CT	KWZ-3PH	110825	1 / 30		
		3N	63 A	KWZ-3PH-63	110826	1 / 30		
		Power Meter EME						
		System	Rated Current	Type Designation	Article No.	Units per package		
 <p>wa_sg05311</p> <p>EME1P125</p>		1N	32 A	EME1P32	167397	1		
		1N	32 A, MID cert.	EME1P32MID	167398	1		
		1N	40 A	EME1P40	167399	1		
		1N	40 A, MID cert.	EME1P40MID	167400	1		
		1N	80 A	EME1P80	167401	1		
		1N	80 A, MID cert.	EME1P80MID	167402	1		
		1N	125 A	EME1P125	167403	1		
		1N	125 A, MID cert.	EME1P125MID	167404	1		
		3N	80 A	EME3P80	167413	1		
		3N	80 A, MID cert.	EME3P80MID	167414	1		
		3N	5 A, CT	EME3PCT	167417	1		
		3N	5 A, CT MID cert.	EME3PCTMID	167418	1		
		3N	125 A	EME3P125	167415	1		
		3N	125 A, MID cert.	EME3P125MID	167416	1		
				Accessories Current Transformer				
				<ul style="list-style-type: none"> • Z-MG/WAK: maximum cable diameter 21 mm • Z-MG/WAS: maximum busbar cross section 30 x 10 mm, 40 x 10 mm or 50 x 12 mm, maximum cable diameter 23 mm / 30 mm - according to type, see dimension diagrams 				
		Communication modules						
		Designation	Type Designation	Article No.	Units per package			
 <p>wa_sg00312</p> <p>EMECMODB</p>		Communication module	EMECLAN	167419	1			
		Communication module MBUS	EMECMBUS	167420	1			
		Communication module with MODBUS	EMECMODB	167421	1			
		Basic Devices						
		System	Rated Current	Type Designation	Article No.	Units per package		
		3N	5 A, CT S0	EME3PCTB	167405	1		
		3N	5 A, CT S0 MID cert.	EME3PCTBMID	167406	1		
		3N	63 A, S0	EME3P63B	167407	1		
		3N	63 A, S0 MID cert.	EME3P63BMID	167408	1		
		3N	63 A, MODBUS	EME3P63BMODBUS	167409	1		
		3N	63 A, S0 MODBUS MID cert.	EME3P63BMODBUSMID	167410	1		
		3N	80 A, S0 MID cert.	EME3P80BMID	167411	1		
		3N	80 A, S0 MODBUS MID cert.	EME3P80BMODBUSMID	167412	1		

Measuring Instruments

	Function/Measuring Range	Type Designation	Article No.	Units per package
 <p>SG2802</p> <p>PHASE OUT TYPE</p>	Analogue Ammeter and Voltmeter Z-MG			
	Ammeter/0-10 A	Z-MG/AA-10	248228	1 / 30
	Ammeter/0-40 A	Z-MG/AA-40	248229	1 / 30
	Ammeter transformer/0-600A, x/5A	Z-MG/AA5-WS	248227	1 / 30
	Voltmeter/0-250 V	Z-MG/VA-250	248223	1 / 30
	Voltmeter/0-500 V	Z-MG/VA-500	248224	1 / 30
 <p>SG30012</p> <p>PHASE OUT TYPE</p>	Digital Ammeter and Voltmeter Z-MG			
	Ammeter/0-20 A	Z-MG/AD-20	248225	1 / 30
	Ammeter transformer/0-999A, x/5A	Z-MG/AD-999	248226	1 / 30
	Voltmeter/0-600 V	Z-MG/VD-600	248222	1 / 30
	Ammeter+Voltmeter/0-8kA, x/5A; 0-600V	Z-MG/VD+AD	263140	1 / 30
	Ammeter+Voltmeter/0-8kA, x/5A; 0-600V, 2 programmable contactors	Z-MG/VD+AD+S	263141	1 / 30
Accessories				
Current transformer Z-MG/WAS.., Z-MG/WAK..				
Exchangeable scale Z7-MG/WS-.. for Z-MG/AA5-WS				
 <p>wa_sg00212</p>	Digital Ammeter and Voltmeter EM			
	Description	Type Designation	Article No.	Units per package
Ammeter	EMA20	167423	1	
Voltmeter	EMV600	167422	1	
Accessories Current Transformer				
<ul style="list-style-type: none"> • Z-MG/WAK: maximum cable diameter 21 mm • Z-MG/WAS: maximum busbar cross section 30 x 10 mm, 40 x 10 mm or 50 x 12 mm, maximum cable diameter 23 mm / 30 mm - according to type, see dimension diagrams 				
 <p>SG8797</p>	Function/Ratio/Measuring Range	Type Designation	Article No.	Units per package
	Current transf. f. cable / 40/5	Z-MG/WAK-40	101619	1
	Current transf. f. cable / 50/5	Z-MG/WAK-50	101620	1
	Current transf. f. cable / 60/5	Z-MG/WAK-60	101621	1
	Current transf. f. cable / 80/5	Z-MG/WAK-80	101622	1
	Current transf. f. busbar / 100/5	Z-MG/WAS-100	101623	1
	Current transf. f. busbar / 150/5	Z-MG/WAS-150	101625	1
	Current transf. f. busbar / 200/5	Z-MG/WAS-200	101626	1
	Current transf. f. busbar / 250/5	Z-MG/WAS-250	101627	1
	Current transf. f. busbar / 300/5	Z-MG/WAS-300	101628	1
	Current transf. f. busbar / 400/5	Z-MG/WAS-400	101629	1
	Current transf. f. busbar / 500/5	Z-MG/WAS-500	101630	1
	Current transf. f. busbar / 600/5	Z-MG/WAS-600	101631	1
Current transf. f. busbar / 800/5	Z-MG/WAS-800	101632	1	
Current transf. f. busbar / 1000/5	Z-MG/WAS-1000	101624	1	
 <p>SG8897</p> <p>PHASE OUT TYPE</p>	Scale to Z-MG/AA5-WS / 0-50	Z7-MG/WS-50	850001066	1
	Scale to Z-MG/AA5-WS / 0-60	Z7-MG/WS-60	850001086	1
	Scale to Z-MG/AA5-WS / 0-80	Z7-MG/WS-80	850001087	1
	Scale to Z-MG/AA5-WS / 0-100	Z7-MG/WS-100	850001067	1
	Scale to Z-MG/AA5-WS / 0-150	Z7-MG/WS-150	850001068	1
	Scale to Z-MG/AA5-WS / 0-200	Z7-MG/WS-200	850001069	1
	Scale to Z-MG/AA5-WS / 0-250	Z7-MG/WS-250	850001070	1
	Scale to Z-MG/AA5-WS / 0-300	Z7-MG/WS-300	850001088	1
	Scale to Z-MG/AA5-WS / 0-400	Z7-MG/WS-400	850001089	1
	Scale to Z-MG/AA5-WS / 0-500	Z7-MG/WS-500	850001092	1
	Scale to Z-MG/AA5-WS / 0-600	Z7-MG/WS-600	850001093	1

Measuring Instruments

PHASE OUT TYPE

Operating Hours Counter BSZ

SG15805



Readout	Rated Voltage	Type Designation	Article No.	Units per package
5+2digit	230V 50Hz	BSZ/230	276309	1 / 60
5+2digit	24V 50Hz	BSZ/24	276308	1 / 60

Operating Hours Counter ASOHC230

wa_sg04411



Readout	Rated Voltage	Type Designation	Article No.	Units per package
5+2stellig	230V 50Hz	ASOHC230	167424	1

PHASE OUT TYPE

Pulse Counter Z-IMZ

SG2702



Readout	Rated Voltage	Type Designation	Article No.	Units per package
7digit	230V 50Hz	Z-IMZ/230	248206	1 / 60
7digit	24V 50Hz	Z-IMZ/24	248207	1 / 60

Pulse Counter ASPC230

wa_sg05011



Readout	Rated Voltage	Type Designation	Article No.	Units per package
7digit	230V 50Hz	ASPC230	167425	1

Other Accessories

Other Accessories

SG29312



VT4900



Other Accessories

Protective Earth Socket Z-SD230				
Model	Type Designation	Article No.	Units per package	
 SG29312	Standard	Z-SD230	266875	10 / 50
	Child protection device a. earth pin	Z-SD230-BS	266876	10 / 50
	Busbar block			
Busbar block	Z-SV-10/1P+N-SD	269526	10	
End cap	Z-V-AK/2+3P	264930	10 / 600	
Shaver Sockets RSD Phase out type				
Use/Sec. Voltage (V~)	Type Designation	Article No.	Units per package	
Insert for household 230	RSD-1	940100101	1	
Insert for hotels 230/120	RSD-2	940100102	1	
Flush installation box	ZRD-UD	740100600	10	
 SG3896  33345B				
	Neutral Conductor Lead-Through Terminal, Feed Terminal Z-D			
Rated Current (A) / Model	Type Designation	Article No.	Units per package	
63	Z-D63	248267	12 / 120	
63 / with test socket	Z-D63/P	248268	12 / 120	
100	Z-D80	248269	12 / 120	
 SG59511				
	Front Plate Tripping Device Z-MFPA			
	Type Designation	Article No.	Units per package	
 SG58911	Z-MFPA	248302	6 / 60	
	Compact Enclosure KLV-TC			
Module units (1MU=17,5mm)	Type Designation	Article No.	Units per package	
1+1	KLV-TC-2	276240	1	
3+1	KLV-TC-4	276241	1	
6+2	KLV-TC-8	276242	1	
3+1 with Terminal Block	KLV-TC-4-TB	276243	1	
6+2 with Terminal Block 1	KLV-TC-8-TB1	276244	1	
6+2 with Terminal Block 2	KLV-TC-8-TB2	276245	1	
Terminal Support with Terminal Block	KLV-TC-TB-4/4	276246	1	
Terminal Support with Terminal Block 1	KLV-TC-TBC-4/4	276247	1	
Terminal Support with Terminal Block 2	KLV-TC-TBC-4/4+4	276248	1	
 VT4900				

Other Accessories

Circuit Description GR

- Self-adhesive table for synoptic description of circuits, to be attached inside or on a distribution box.
- Pre-printed individual adhesive labels for device designation included

138103900



Number of Circuits / Dimensions	Type Designation	Article No.	Units per package
30 210x120mm	GR-2	138103900	1
90 210x300mm	GR-3	138104100	1

Plastic Box Z-BOX

- empty, can be snapped onto DIN rail
- for spare fuse links, small spare parts

SG81411



Colour / Dimensions	Type Designation	Article No.	Units per package
blue 45x54x75mm	Z-BOX/BLA	286062	12/120

Technical Data

Protective Devices

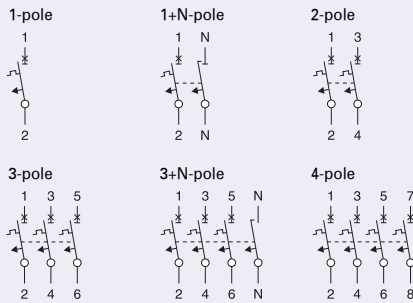
Miniature Circuit Breakers CLS.

- High selectivity between MCB and back-up fuse due to low let-through energy
- Twin-purpose terminal (lift/open-mouthed) above and below
- Compatible with standard busbar
- Meets the requirements of insulation co-ordination, distance between contacts 4 mm, for secure isolation
- Suitable for applications up to 48 V DC (use CLS6-DC for higher DC voltages)

Accessories:

Auxiliary switch for subsequent installation	Z-AHK	248433
Tripping signal contact for subsequent installation	Z-NHK	248434
Remote control and automatic switching device	Z-FW/LP	248296
Shunt trip release	ZP-ASA	248438, 248439
Undervoltage release	Z-USA/..	248288-248291
Compact enclosure	KLV-TC-2	276240
	KLV-TC-4	276241
Additional terminal 35mm ²	Z-HA-EK/35	263960
Switching interlock	Z-IS/SPE-1TE	274418

Connection diagrams



Technical Data

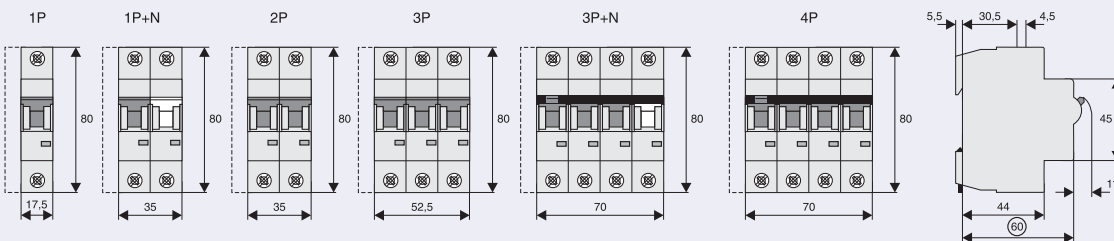
Electrical

Design according to	IEC/EN 60898-1
Current test marks as printed onto the device	
Rated voltage	AC: 230/400V DC: 48V (per pole, max. 2 Pole)
Rated frequency	50/60 Hz
Rated breaking capacity according to IEC/EN 60898-1	
CLS6	6 kA
CLS4	4.5 kA
Characteristic	B, C, D
Back-up fuse	
>6 kA	max. 100 A gL
>4.5 kA	max. 80 A gL
Selectivity class	3
Endurance	3,000 operating cycles
Line voltage connection	optional (above/below)

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	17.5 mm per pole (1MU) 26.3 mm: device 1P+N (1.5MU)
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1-25 mm ²
Terminal fastening torque	2-2.4 Nm
Busbar thickness	0.8 - 2 mm

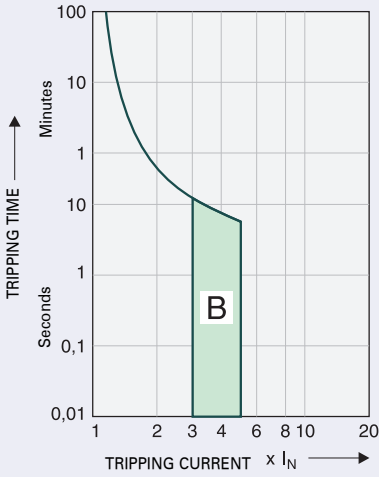
Dimensions (mm)



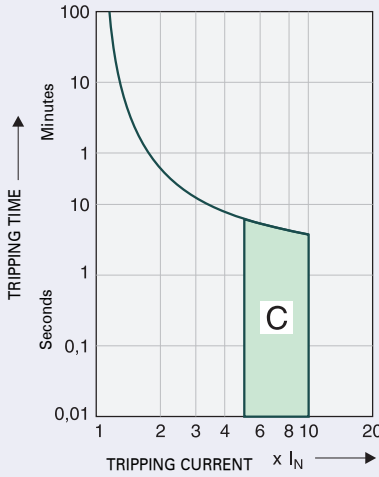
Protective Devices

Tripping Characteristics (IEC/EN 60898-1)

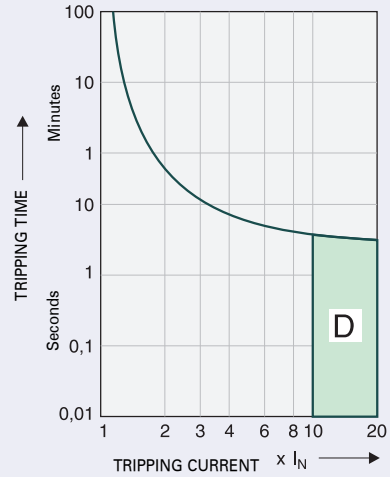
Tripping characteristic B



Tripping characteristic C



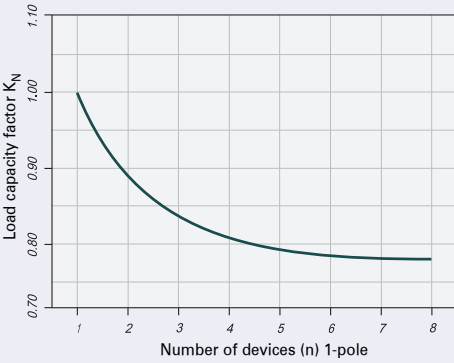
Tripping characteristic D



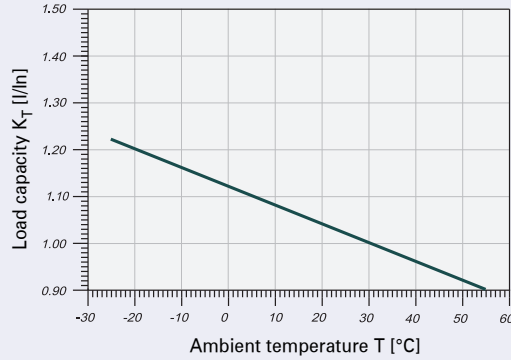
Quick-acting (B), slow (C), very slow (D)

Load Capacity

Load capacity in case of block installation (1-pole)

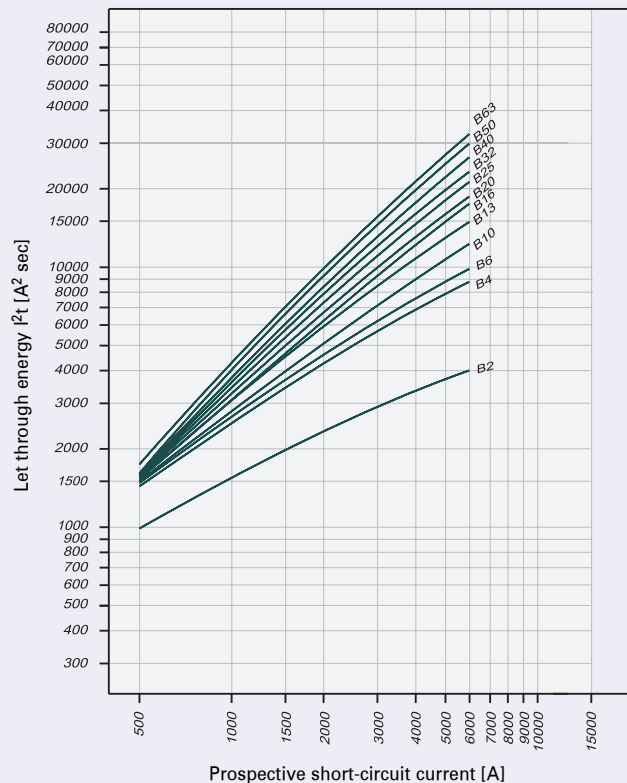


Effect of ambient temperature

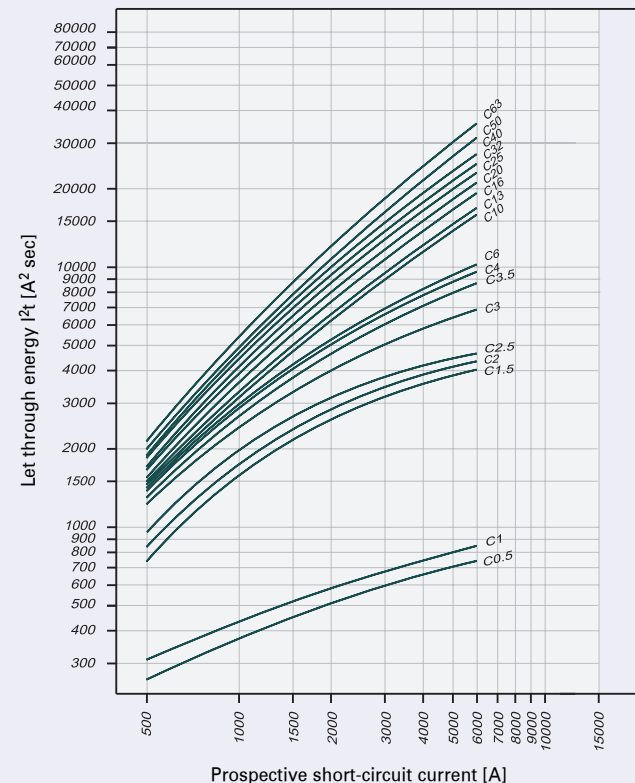


Let-through Energy CLS6

Let-through energy CLS6, characteristic B, 1-pole



Let-through energy CLS6, characteristic C, 1-pole



Determined according to EN 60898-1. Values for characteristic D upon enquiry.

Protective Devices

Short Circuit Selectivity CLS6

- Short circuit selectivity (in kA) between CLS6 and upstream fuse D0 or NH, operating class gL/gG
- 1,4 . . . selectivity up to 1.4 kA; . . . no selectivity

Selectivity towards back-up fuses D01, D02, D03

Rated current I_n of CLS6 in A	Rated current of the back-up fuse in A gL/gG									
	10	16	20	25	35	50	63	80	100	
B- Characteristic	2	<0,5	<0,5	0,5	0,8	2,2	6,0	6,0	6,0	6,0
	4	<0,5	<0,5	<0,5	0,5	1,2	3,1	5,5	6,0	6,0
	6		<0,5	<0,5	0,5	1,2	2,7	4,5	6,0	6,0
	10			<0,5	0,5	1,1	2,3	3,6	5,0	6,0
	13			<0,5	0,5	1,0	2,0	3,1	4,3	6,0
	16				0,5	1,0	1,7	2,8	3,8	6,0
	20					0,9	1,6	2,7	3,6	6,0
	25					0,9	1,6	2,5	3,3	6,0
	32						1,6	2,3	3,0	5,8
	40							2,2	2,9	5,3
	50							2,1	2,7	4,8
63									4,5	
C- Characteristic	0,5	<0,5	1,1	6,0	6,0	6,0	6,0	6,0	6,0	6,0
	1	<0,5	0,8	3,9	6,0	6,0	6,0	6,0	6,0	6,0
	2	<0,5	<0,5	0,5	0,8	1,7	6,0	6,0	6,0	6,0
	3	<0,5	<0,5	<0,5	0,6	1,3	4,3	6,0	6,0	6,0
	4	<0,5	<0,5	<0,5	0,6	1,2	2,7	4,7	6,0	6,0
	6		<0,5	<0,5	0,6	1,1	2,3	4,0	6,0	6,0
	10			<0,5	0,6	1,1	1,9	2,8	3,9	6,0
	13					1,0	1,8	2,7	3,7	6,0
	16					1,0	1,7	2,5	3,3	6,0
	20					0,9	1,6	2,3	3,1	6,3
	25						1,5	2,2	2,9	5,7
	32							2,1	2,7	5,3
	40								2,6	5,0
50									4,5	
63										

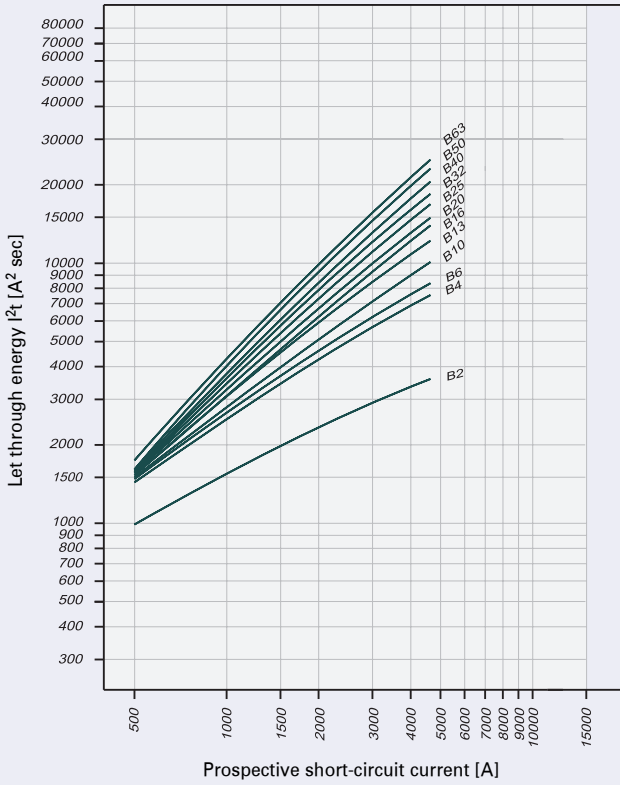
Selectivity towards back-up fuses NH Gr. 00

Rated current I_n of CLS6 in A	Rated current of the back-up fuse in A gL/gG											
	16	20	25	35	40	50	63	80	100	125	160	
B- Characteristic	2	<0,5	<0,5	0,6	3,2	6,0	6,0	6,0	6,0	6,0	6,0	6,0
	4	<0,5	<0,5	<0,5	1,2	1,8	3,0	4,8	7,2	6,0	6,0	6,0
	6	<0,5	<0,5	<0,5	1,1	1,6	2,6	4,0	5,8	6,0	6,0	6,0
	10		<0,5	<0,5	1,1	1,5	2,2	3,2	4,5	6,0	6,0	6,0
	13		<0,5	<0,5	1,0	1,4	2,0	2,9	4,0	6,0	6,0	6,0
	16			<0,5	0,9	1,3	1,8	2,6	3,5	6,0	6,0	6,0
	20				0,9	1,3	1,7	2,4	3,3	6,0	6,0	6,0
	25				0,9	1,1	1,6	2,3	3,1	5,5	6,0	6,0
	32				0,8	1,1	1,5	2,1	2,9	5,0	6,0	6,0
	40						1,5	2,0	2,8	4,6	6,0	6,0
	50							1,9	2,7	4,2	6,0	6,0
63									3,9	6,0	6,0	
C- Characteristic	0,5	0,9	2,7	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
	1	0,7	2,0	1,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
	2	<0,5	<0,5	0,6	2,2	4,2	6,0	6,0	6,0	6,0	6,0	6,0
	3	<0,5	<0,5	0,5	1,4	2,1	4,0	6,0	6,0	6,0	6,0	6,0
	4	<0,5	<0,5	<0,5	1,1	1,5	2,5	4,0	6,0	6,0	6,0	6,0
	6	<0,5	<0,5	<0,5	1,0	1,4	2,3	3,6	5,3	6,0	6,0	6,0
	10			<0,5	0,9	1,3	1,8	2,6	3,6	6,0	6,0	6,0
	13				0,9	1,3	1,7	2,5	3,5	6,0	6,0	6,0
	16				0,9	1,1	1,6	2,3	3,2	5,8	6,0	6,0
	20				0,8	1,1	1,5	2,1	3,0	5,3	6,0	6,0
	25						1,4	2,0	2,8	4,8	6,0	6,0
	32							1,9	2,6	4,5	6,0	6,0
	40								2,5	4,3	6,0	6,0
50									4,0	6,0	6,0	
63										6,0	6,0	

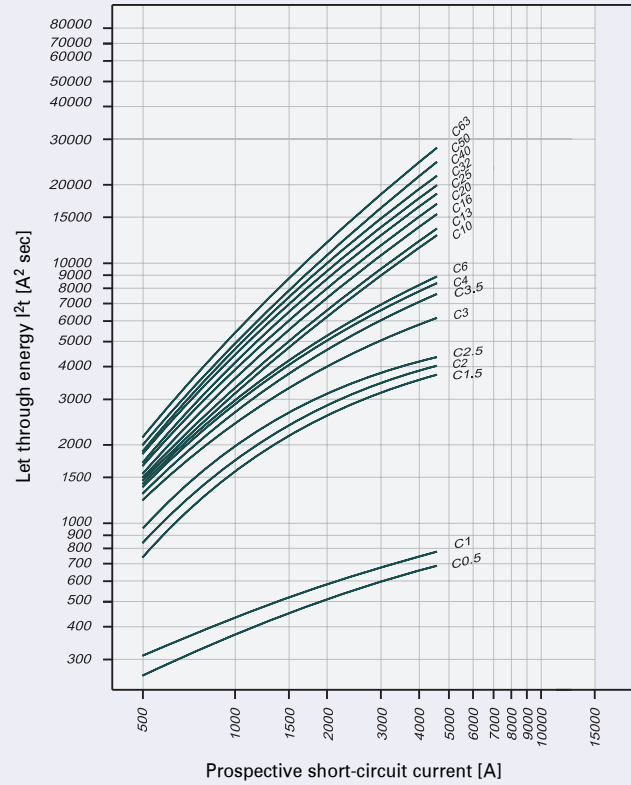
Protective Devices

Let-through Energy CLS4

Let-through energy CLS4, characteristic B, 1-pole



Let-through energy CLS4, characteristic C, 1-pole



Determined according to EN 60898-1.

Short Circuit Selectivity CLS4

- Short circuit selectivity (in kA) between CLS4 and upstream fuse D0 NH, operating class gL/gG
- **1,4** . . . selectivity up to 1.4 kA; . . . no selectivity

Selectivity towards back-up fuses D01, D02, D03

Rated current I_n of CLS4 in A	Rated current of the back-up fuse in A gL/gG									
	10	16	20	25	35	50	63	80	100	
B Characteristic	2	<0,5	<0,5	0,5	0,8	2,2	4,5	4,5	4,5	4,5
	4	<0,5	<0,5	<0,5	0,5	1,2	3,1	4,5	4,5	4,5
	6		<0,5	<0,5	0,5	1,2	2,7	4,5	4,5	4,5
	10			<0,5	0,5	1,1	2,3	3,6	4,5	4,5
	13			<0,5	0,5	1,0	2,0	3,1	4,3	4,5
	16				0,5	1,0	1,7	2,8	3,8	4,5
	20					0,9	1,6	2,7	3,6	4,5
	25					0,9	1,6	2,5	3,3	4,5
	32						1,6	2,3	3,0	4,5
	40							2,2	2,9	4,5
	50							2,1	2,7	4,5
63									4,5	
C Characteristic	0,5	<0,5	1,1	4,5	4,5	4,5	4,5	4,5	4,5	4,5
	1	<0,5	0,8	3,9	4,5	4,5	4,5	4,5	4,5	4,5
	2	<0,5	<0,5	0,5	0,8	1,7	4,5	4,5	4,5	4,5
	3	<0,5	<0,5	<0,5	0,6	1,3	4,3	4,5	4,5	4,5
	4	<0,5	<0,5	<0,5	0,6	1,2	2,7	4,5	4,5	4,5
	6		<0,5	<0,5	0,6	1,1	2,3	4,0	4,5	4,5
	10			<0,5	0,6	1,1	1,9	2,8	3,9	4,5
	13					1,0	1,8	2,7	3,7	4,5
	16					1,0	1,7	2,5	3,3	4,5
	20					0,9	1,6	2,3	3,1	4,5
	25						1,5	2,2	2,9	4,5
	32							2,1	2,7	4,5
	40								2,6	4,5
50									4,5	
63									4,5	

Protective Devices

Short Circuit Selectivity CLS4

- Short circuit selectivity (in kA) between CLS4 and upstream fuse NH, operating class gL/gG
- 1,4 . . . selectivity up to 1.4 kA; . . . no selectivity

Selectivity towards back-up fuses NH Gr. 00

Rated current I_n of CLS4 in A	Rated current of the back-up fuse in A gL/gG											
	16	20	25	35	40	50	63	80	100	125	160	
B- Characteristic	2	<0,5	<0,5	0,6	3,2	4,5	4,5	4,5	4,5	4,5	4,5	4,5
	4	<0,5	<0,5	<0,5	1,2	1,8	3,0	4,8	7,2	4,5	4,5	4,5
	6	<0,5	<0,5	<0,5	1,1	1,6	2,6	4,0	5,8	4,5	4,5	4,5
	10		<0,5	<0,5	1,1	1,5	2,2	3,2	4,5	4,5	4,5	4,5
	13		<0,5	<0,5	1,0	1,4	2,0	2,9	4,0	4,5	4,5	4,5
	16			<0,5	0,9	1,3	1,8	2,6	3,5	4,5	4,5	4,5
	20				0,9	1,3	1,7	2,4	3,3	4,5	4,5	4,5
	25				0,9	1,1	1,6	2,3	3,1	4,5	4,5	4,5
	32				0,8	1,1	1,5	2,1	2,9	4,5	4,5	4,5
	40						1,5	2,0	2,8	4,5	4,5	4,5
	50							1,9	2,7	4,2	4,5	4,5
	63									3,9	4,5	4,5
	C- Characteristic	0,5	0,9	2,7	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
1		0,7	2,0	1,0	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
2		<0,5	<0,5	0,6	2,2	4,2	4,5	4,5	4,5	4,5	4,5	4,5
3		<0,5	<0,5	0,5	1,4	2,1	4,0	4,5	4,5	4,5	4,5	4,5
4		<0,5	<0,5	<0,5	1,1	1,5	2,5	4,0	4,5	4,5	4,5	4,5
6		<0,5	<0,5	<0,5	1,0	1,4	2,3	3,6	4,5	4,5	4,5	4,5
10				<0,5	0,9	1,3	1,8	2,6	3,6	4,5	4,5	4,5
13					0,9	1,3	1,7	2,5	3,5	4,5	4,5	4,5
16					0,9	1,1	1,6	2,3	3,2	4,5	4,5	4,5
20					0,8	1,1	1,5	2,1	3,0	4,5	4,5	4,5
25							1,4	2,0	2,8	4,5	4,5	4,5
32								1,9	2,6	4,5	4,5	4,5
40									2,5	4,3	4,5	4,5
50										4,0	4,5	4,5
63											4,5	4,5

Protective Devices

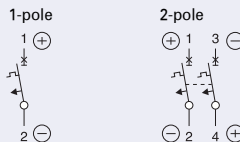
Miniature Circuit Breakers CLS6-DC

- High selectivity between MCB and back-up fuse due to low let-through energy
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Meets the requirements of insulation co-ordination, distance between contacts 4 mm, for secure isolation
- Rated breaking capacity 10 kA according to IEC/EN 60947-2
- Rated voltage up to 250 V (per pole), $\tau = 4$ ms
- Take into account polarity!

Accessories:

Auxiliary switch for subsequent installation	ZP-IHK	286052
Tripping signal contact for subsequent installation	ZP-NHK	248437
Remote control and automatic switching device	Z-FW/LP	248296
Shunt trip release	ZP-ASA/..	248438, 248439
Undervoltage release	Z-USA/..	248288-248291
Compact enclosure	KLV-TC-2	276240
	KLV-TC-4	276241
Additional terminal 35mm ²	Z-HA-EK/35	263960
Switching interlock	Z-IS/SPE-1TE	274418

Connection diagrams



Technical Data

Electrical

Design according to	IEC/EN 60947-2
Current test marks as printed onto the device	
Rated voltage DC	1-2 A type: 220V (per pole) 3-50 A types: 250V (per pole)
Rated breaking capacity according to IEC/EN 60947-2	10 kA
Characteristic	C
Back-up fuse	max. 100 A gL
Selectivity class	3
Rated peak withstand voltage U_{imp}	4 kV (1.2/50 μ s)
Endurance electrical comp.	4,000 operating cycles
mechanical comp.	20,000 operating cycles
Line voltage connection	optional (above/below)

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	17.5 mm per pole (1MU)
Mounting	quick fastening with 3 lock-in positions on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1-25 mm ²
Terminal fastening torque	2-2.4 Nm
Busbar thickness	0.8 - 2 mm
Mounting	independent of position

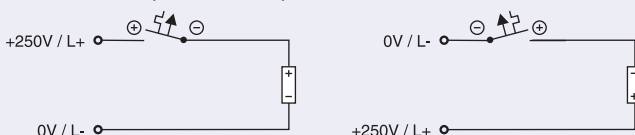
Note: not for PV string protection!

Dimensions (mm)

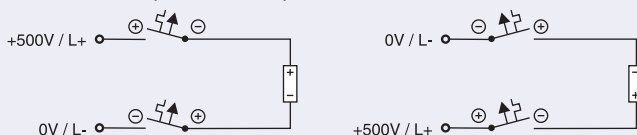
1P 2P

Connection examples

Connection example at 250V=, 1-pole



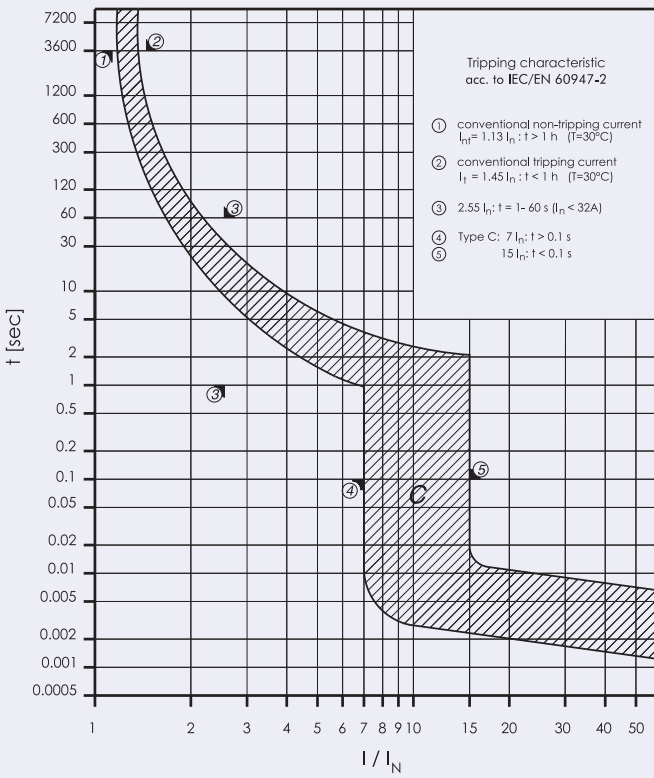
Connection example at 500V=, 2-pole



Protective Devices

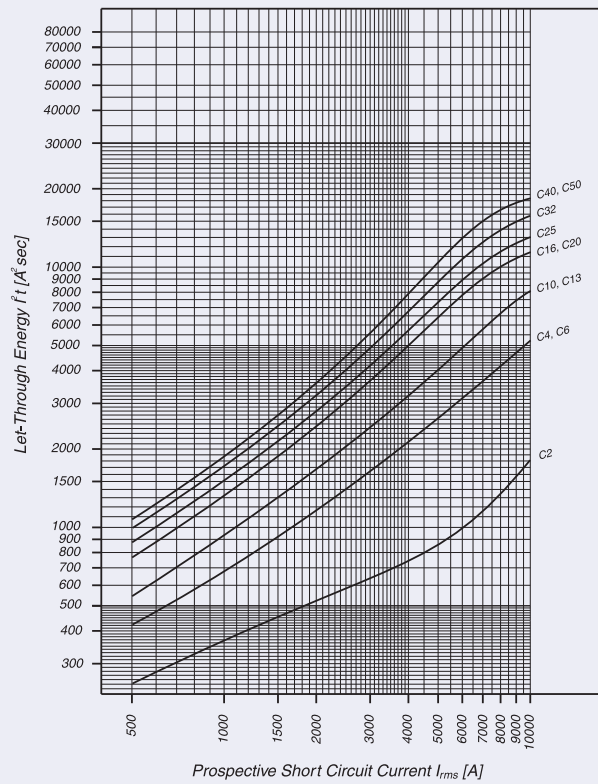
Tripping characteristic CLS6-DC

Type C



Let-through Energy CLS6-DC

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



Protective Devices

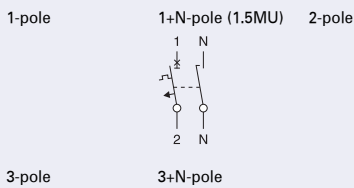
Miniature Circuit Breakers PL7

- High selectivity between MCB and back-up fuse due to low let-through energy
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Meets the requirements of insulation co-ordination, distance between contacts 4 mm, for secure isolation
- Suitable for applications up to 48 V DC (use PL7-DC for higher DC voltages)

Accessories:

Auxiliary switch for subsequent installation	ZP-IHK	286052
	ZP-WHK	286053
Tripping signal contact for subsequent installation	ZP-NHK	248437
Remote control and automatic switching device	Z-FW/LP	248296
Shunt trip release	ZP-ASA/..	248438, 248439
Undervoltage release	Z-USA/..	248288-248291
Compact enclosure	KLV-TC-2	276240
	KLV-TC-4	276241
Additional terminal 35mm ²	Z-HA-EK/35	263960
Switching interlock	Z-IS/SPE-1TE	274418

Connection diagrams



Technical Data

Electrical

Design according to	IEC/EN 60898-1
Current test marks as printed onto the device	
Rated voltage	AC: 230/400V DC: 48V (per pole, max. 2 poles)
Rated frequency	50/60 Hz
Rated breaking capacity IEC/EN 60898-1	10 kA
Characteristic	B, C, D
Back-up fuse	max. 125 A gL
Selectivity class	3
Rated peak withstand voltage U_{imp}	4 kV (1.2/50µs)
Endurance electrical comp.	7,000 operating cycles
mechanical comp.	20,000 operating cycles
Line voltage connection	optional (above/below)

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	17.5 mm per pole (1MU) 26.3 mm: device 1P+N (1.5MU)
Mounting	quick fastening with 3 lock-in positions on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity (1p+N, 1.5MU)	1-25 mm ² 1-25 mm ² / 1-2x10 mm ² (N)
Terminal fastening torque (1p+N, 1.5MU)	2-2.4 Nm 2-2.4 Nm / 1,2-1,5 Nm (N)
Busbar thickness	0.8 - 2 mm (except N 0.5 MU)
Mounting	independent of position

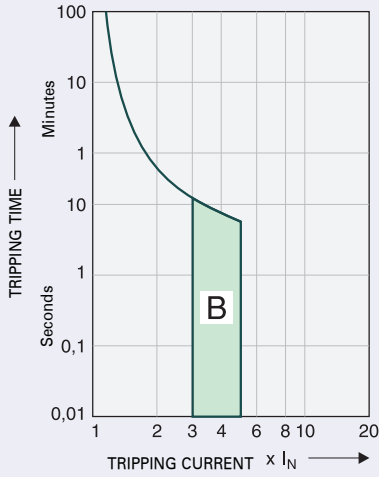
Dimensions (mm)

2P

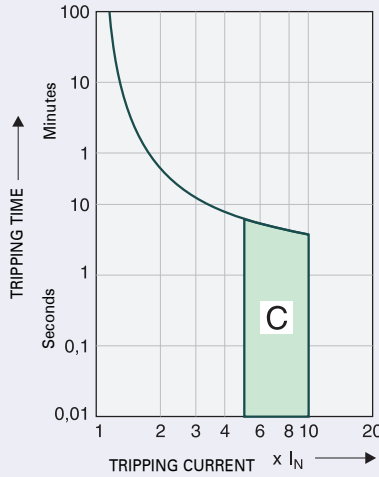
Protective Devices

Tripping Characteristics (IEC/EN 60898-1)

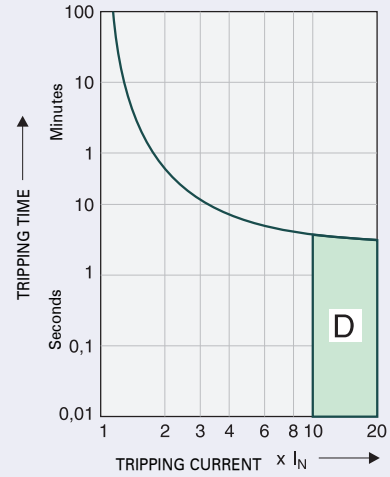
Tripping characteristic B



Tripping characteristic C



Tripping characteristic D



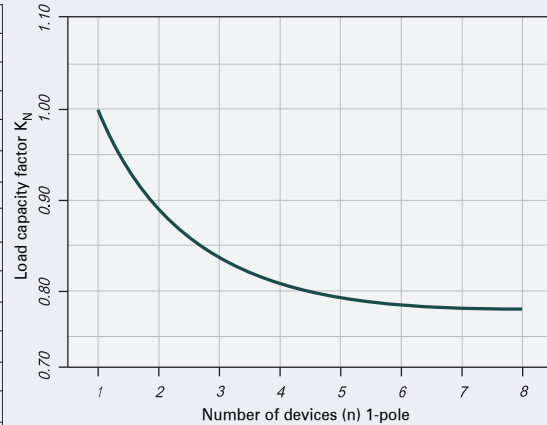
Quick-acting (B), slow (C), very slow (D)

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
0.16	0.20	0.19	0.19	0.18	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.13
0.25	0.31	0.30	0.29	0.28	0.27	0.26	0.25	0.25	0.24	0.24	0.23	0.23	0.22	0.22	0.21	0.21
0.5	0.61	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.48	0.47	0.46	0.45	0.44	0.43	0.42	0.41
0.75	0.92	0.90	0.87	0.84	0.81	0.78	0.75	0.74	0.73	0.71	0.69	0.68	0.66	0.65	0.64	0.62
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
1.5	1.8	1.8	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.2
1.6	2.0	1.9	1.9	1.8	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.3
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
2.5	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.1	2.1
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
3.5	4.3	4.2	4.1	3.9	3.8	3.7	3.5	3.4	3.4	3.3	3.2	3.2	3.1	3.0	3.0	2.9
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
5	6.1	6.0	5.8	5.6	5.4	5.2	5.0	4.9	4.8	4.7	4.6	4.5	4.4	4.3	4.2	4.1
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
8	9.8	9.6	9.3	9.0	8.7	8.4	8.0	7.9	7.7	7.6	7.4	7.2	7.1	6.9	6.8	6.6
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
12	15	14	14	13	13	13	12	12	12	11	11	11	11	10	10	10
13	16	16	15	15	14	14	13	13	13	12	12	12	12	11	11	11
15	18	18	17	17	16	16	15	15	15	14	14	14	13	13	13	12
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 ² / ₃	50	60	100	200	300	400
I _{MA} (f)/I _{MA} (50Hz) [%]	91	100	101	106	115	134	141

Protective Devices

Let-through Energy PL7

Let-through energy PL7, characteristic B, 1-pole

Let through energy I^2t [A²·sec]

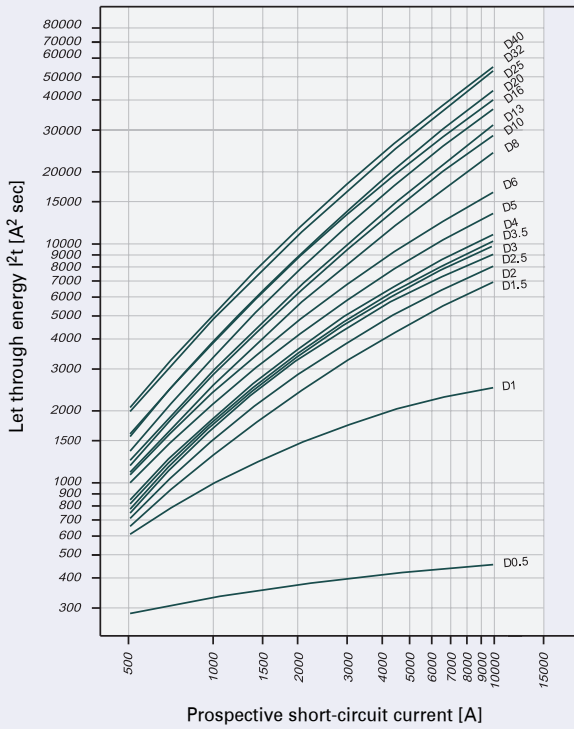
Prospective short-circuit current [A]

Let-through energy PL7, characteristic C, 1-pole

Let through energy I^2t [A²·sec]

Prospective short-circuit current [A]

Let-through energy PL7, characteristic D, 1-pole



Protective Devices

Short Circuit Selectivity PL7 towards DII-DIV fuse link

In case of short circuit, there is selectivity between the miniature circuit breakers PL7 and the upstream fuses up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond).

*) basically in accordance with EN 60898-1 D.5.2.b

Short circuit selectivity characteristic B towards fuse link DII-DIV*)

PL7	DII-DIV gL/gG									
	I_n [A]	10	16	20	25	35	50	63	80	100
2	<0.5 ¹⁾	<0.5 ¹⁾	0.8	1.6	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
4	<0.5 ¹⁾	<0.5 ¹⁾	0.6	1.0	3.6	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
5	<0.5 ¹⁾	<0.5 ¹⁾	0.6	0.9	2.0	3.5	8.5	10.0 ²⁾	10.0 ²⁾	
6		<0.5 ¹⁾	0.6	0.9	1.8	3.2	7.4	10.0 ²⁾	10.0 ²⁾	
8		<0.5 ¹⁾	0.5	0.8	1.6	2.6	5.2	8.3	10.0 ²⁾	
10			0.5	0.8	1.4	2.2	3.9	6.0	10.0 ²⁾	
13			0.5	0.7	1.3	2.0	3.6	5.4	10.0 ²⁾	
16				0.6	1.2	1.9	3.2	4.6	8.4	
20					1.2	1.8	3.1	4.4	7.8	
25					1.2	1.8	3.0	4.2	7.3	
32						1.7	2.8	3.9	6.8	
40							2.7	3.8	6.5	
50								2.5	3.5	5.7
63										5.3

Short circuit selectivity characteristic C towards fuse link DII-DIV*)

PL7	DII-DIV gL/gG									
	I_n [A]	10	16	20	25	35	50	63	80	100
0.75	1.0	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
1.0	<0.5 ¹⁾	1.2	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
1.6	<0.5 ¹⁾	<0.5 ¹⁾	1.0	2.2	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
2	<0.5 ¹⁾	<0.5 ¹⁾	0.8	1.6	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
4	<0.5 ¹⁾	<0.5 ¹⁾	0.6	0.8	1.8	3.6	9.7	10.0 ²⁾	10.0 ²⁾	
5	<0.5 ¹⁾	<0.5 ¹⁾	0.6	0.7	1.5	2.7	7.3	10.0 ²⁾	10.0 ²⁾	
6		<0.5 ¹⁾	0.5	0.6	1.4	2.4	5.5	10.0 ²⁾	10.0 ²⁾	
8		<0.5 ¹⁾	<0.5 ¹⁾	0.6	1.3	2.2	4.7	8.7	10.0 ²⁾	
10			<0.5 ¹⁾	0.6	1.3	2.0	3.6	5.4	10.0 ²⁾	
13					1.3	1.9	3.3	5.0	9.4	
16					1.2	1.8	3.2	4.4	8.0	
20					1.2	1.8	3.1	4.1	7.0	
25						1.7	2.8	3.8	6.5	
32							2.7	3.7	6.2	
40								3.5	5.9	
50									5.5	
63										

Short circuit selectivity characteristic D towards fuse link DII-DIV*)

PL7	DII-DIV gL/gG									
	I_n [A]	10	16	20	25	35	50	63	80	100
2	<0.5 ¹⁾	<0.5 ¹⁾	0.6	1.0	2.8	5.8	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
4		<0.5 ¹⁾	0.6	0.9	2.0	3.8	9.5	10.0 ²⁾	10.0 ²⁾	
5		<0.5 ¹⁾	0.5	0.7	1.7	3.1	7.0	10.0 ²⁾	10.0 ²⁾	
6			0.5	0.7	1.5	2.6	5.3	9.1	10.0 ²⁾	
8			<0.5 ¹⁾	0.7	1.4	2.2	3.9	6.0	10.0 ²⁾	
10				0.7	1.2	1.9	3.4	5.0	9.5	
13					1.2	1.8	3.2	4.6	8.6	
16						1.6	2.7	4.0	7.4	
20						1.5	2.5	3.5	6.7	
25							2.4	3.4	6.2	
32								2.8	5.0	
40									4.8	

¹⁾ Selectivity limit current I_s under 0.5 kA

²⁾ Selectivity limit current I_s = rated breaking capacity I_{cn} of the MCB

no selectivity

Protective Devices

Short Circuit Selectivity PL7 towards D01-D03 fuse link

In case of short circuit, there is selectivity between the miniature circuit breakers PL7 and the upstream fuses up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond).

*) basically in accordance with EN 60898-1 D.5.2.b

Short circuit selectivity characteristic B towards fuse link D01-D03*)

PL7	D01-D03 gL/gG									
	10	16	20	25	35	50	63	80	100	
I_n [A]	10	16	20	25	35	50	63	80	100	
2	<0.5 ¹⁾	<0.5 ¹⁾	0.6	1.0	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
4	<0.5 ¹⁾	<0.5 ¹⁾	0.5	0.9	2.5	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
5		<0.5 ¹⁾	0.5	0.8	1.7	4.0	7.0	10.0 ²⁾	10.0 ²⁾	
6		<0.5 ¹⁾	0.5	0.8	1.6	3.6	6.0	10.0 ²⁾	10.0 ²⁾	
8			0.5	0.8	1.4	2.8	4.3	8.2	10.0 ²⁾	
10			0.5	0.7	1.3	2.4	3.4	6.0	10.0 ²⁾	
13			<0.5 ¹⁾	0.7	1.2	2.3	3.2	5.3	10.0 ²⁾	
16				0.6	1.1	2.2	2.9	4.6	10.0	
20					1.1	2.1	2.8	4.4	9.3	
25					1.1	2.0	2.7	4.2	8.7	
32						2.0	2.6	4.0	8.0	
40							2.5	3.8	7.5	
50							2.3	3.4	6.7	
63									6.2	

Short circuit selectivity characteristic C towards fuse link D01-D03*)

PL7	D01-D03 gL/gG									
	10	16	20	25	35	50	63	80	100	
I_n [A]	10	16	20	25	35	50	63	80	100	
0.75	<0.5 ¹⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
1.0	<0.5 ¹⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
1.6	<0.5 ¹⁾	0.5	0.6	0.9	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
2	<0.5 ¹⁾	<0.5 ¹⁾	0.5	0.7	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
4	<0.5 ¹⁾	<0.5 ¹⁾	<0.5 ¹⁾	0.6	1.6	4.0	7.6	10.0 ²⁾	10.0 ²⁾	
5		<0.5 ¹⁾	<0.5 ¹⁾	0.5	1.3	3.1	5.7	10.0 ²⁾	10.0 ²⁾	
6		<0.5 ¹⁾	<0.5 ¹⁾	<0.5 ¹⁾	1.2	2.7	4.5	10.0 ²⁾	10.0 ²⁾	
8		<0.5 ¹⁾	<0.5 ¹⁾	<0.5 ¹⁾	1.2	2.5	4.0	8.6	10.0 ²⁾	
10			<0.5 ¹⁾	<0.5 ¹⁾	1.2	2.3	3.1	5.4	10.0 ²⁾	
13					1.1	2.2	3.0	4.9	10.0 ²⁾	
16					1.1	2.1	2.8	4.4	9.5	
20					1.0	2.0	2.6	4.0	8.3	
25						1.9	2.5	3.8	7.8	
32							2.5	3.7	7.3	
40								3.5	7.0	
50									6.5	
63										

Short circuit selectivity characteristic D towards fuse link D01-D03*)

PL7	D01-D03 gL/gG									
	10	16	20	25	35	50	63	80	100	
I_n [A]	10	16	20	25	35	50	63	80	100	
4	<0.5 ¹⁾	0.5	0.7	1.7	4.6	7.7	10.0 ²⁾	10.0 ²⁾		
5		<0.5 ¹⁾	<0.5 ¹⁾	0.6	1.5	3.5	5.8	10.0 ²⁾	10.0 ²⁾	
6			<0.5 ¹⁾	0.5	1.3	2.9	4.5	9.0	10.0 ²⁾	
8			<0.5 ¹⁾	0.5	1.2	2.4	3.5	6.0	10.0 ²⁾	
10				0.5	1.1	2.2	3.0	5.0	10.0 ²⁾	
13					1.1	2.1	2.9	4.6	10.0 ²⁾	
16						1.9	2.6	3.9	9.0	
20						1.7	2.3	3.5	8.0	
25							2.2	3.4	7.5	
32								2.9	6.0	
40									5.7	

¹⁾ Selectivity limit current I_s under 0.5 kA

²⁾ Selectivity limit current I_s = rated breaking capacity I_{cn} of the MCB

no selectivity

Protective Devices

Short Circuit Selectivity PL7 towards NH-00 Fuses

In case of short circuit, there is selectivity between the miniature circuit breakers PL7 and the upstream fuses up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond).

*) basically in accordance with EN 60898-1 D.5.2.b

Short circuit selectivity characteristic B towards fuse link NH-00 *)

PL7	NH-00 gL/gG											
I_n [A]	16	20	25	32	35	40	50	63	80	100	125	160
2	<0.5 ¹⁾	0.5	1.0	2.5	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
4	<0.5 ¹⁾	<0.5 ¹⁾	0.8	1.3	2.3	4.3	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
5	<0.5 ¹⁾	<0.5 ¹⁾	0.7	1.1	1.6	2.2	3.6	4.8	8.9	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
6	<0.5 ¹⁾	<0.5 ¹⁾	0.7	1.1	1.5	2.0	3.3	4.3	7.6	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
8	<0.5 ¹⁾	<0.5 ¹⁾	0.6	1.0	1.3	1.7	2.6	3.3	5.2	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
10	<0.5 ¹⁾	0.6	0.9	1.2	1.5	2.2	2.7	4.0	9.0	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
13	<0.5 ¹⁾	0.6	0.8	1.1	1.4	2.1	2.6	3.8	7.9	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
16		0.5	0.7	1.0	1.3	1.9	2.4	3.4	6.4	9.3	10.0 ²⁾	10.0 ²⁾
20			0.7	1.0	1.3	1.9	2.4	3.3	6.0	8.7	10.0 ²⁾	10.0 ²⁾
25			0.7	1.0	1.3	1.8	2.3	3.2	5.7	8.0	10.0 ²⁾	10.0 ²⁾
32				0.9	1.2	1.7	2.2	3.1	5.4	7.6	10.0 ²⁾	10.0 ²⁾
40								2.1	3.0	5.1	7.2	10.0 ²⁾
50								1.9	2.8	4.7	6.6	9.5
63									4.4	6.3	8.6	10.0 ²⁾

Short circuit selectivity characteristic C towards fuse link NH-00 *)

PL7	NH-00 gL/gG											
I_n [A]	16	20	25	32	35	40	50	63	80	100	125	160
0.75	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
1.0	0.9	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
1.6	<0.5 ¹⁾	0.6	1.3	4.2	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
2	<0.5 ¹⁾	0.6	1.0	2.5	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
4	<0.5 ¹⁾	<0.5 ¹⁾	0.7	1.0	1.5	2.1	3.6	5.0	10.0	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
5	<0.5 ¹⁾	<0.5 ¹⁾	0.6	0.8	1.2	1.7	2.8	3.8	8.7	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
6	<0.5 ¹⁾	<0.5 ¹⁾	0.5	0.8	1.2	1.5	2.5	3.3	5.7	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
8	<0.5 ¹⁾	<0.5 ¹⁾	0.5	0.8	1.1	1.5	2.3	2.9	4.9	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
10			0.5	0.7	1.0	1.4	2.0	2.5	3.8	8.0	10.0 ²⁾	10.0 ²⁾
13					1.0	1.3	1.9	2.4	3.6	7.0	10.0 ²⁾	10.0 ²⁾
16						1.0	1.3	1.8	2.3	3.3	6.0	8.8
20							1.0	1.2	1.7	2.2	3.2	5.5
25								1.6	2.1	3.0	5.2	7.3
32									2.1	2.9	5.0	7.0
40										2.8	4.8	6.7
50											4.5	6.3
63												5.9

Short circuit selectivity characteristic D towards fuse link NH-00 *)

PL7	NH-00 gL/gG											
I_n [A]	16	20	25	32	35	40	50	63	80	100	125	160
4	<0.5 ¹⁾	<0.5 ¹⁾	0.7	1.0	1.6	2.2	3.8	5.2	10.0	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
5		<0.5 ¹⁾	0.6	0.9	1.4	1.9	3.2	4.1	7.1	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
6		<0.5 ¹⁾	0.5	0.8	1.2	1.6	2.6	3.3	5.5	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
8			0.5	0.8	1.1	1.5	2.2	2.7	4.1	8.7	10.0 ²⁾	10.0 ²⁾
10			0.5	0.7	1.0	1.3	1.9	2.5	3.6	7.2	10.0 ²⁾	10.0 ²⁾
13					1.0	1.3	1.9	2.3	3.4	6.5	9.5	10.0 ²⁾
16						1.1	1.6	2.0	3.0	5.5	8.0	10.0 ²⁾
20							1.4	1.8	2.8	5.0	7.5	10.0 ²⁾
25								1.8	2.7	4.8	7.0	10.0 ²⁾
32									2.4	4.1	6.2	9.3
40										4.0	6.0	9.0

¹⁾ Selectivity limit current I_s under 0.5 kA

²⁾ Selectivity limit current I_s = rated breaking capacity I_{cn} of the MCB

no selectivity

Protective Devices

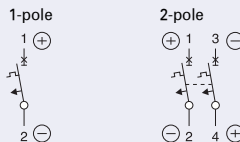
Miniature Circuit Breakers PL7-DC

- High selectivity between MCB and back-up fuse due to low let-through energy
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Meets the requirements of insulation co-ordination, distance between contacts 4 mm, for secure isolation
- Rated breaking capacity 10 kA according to IEC/EN 60947-2
- Rated voltage up to 250 V (per pole), $\tau = 4$ ms
- Take into account polarity!

Accessories:

Auxiliary switch for subsequent installation	ZP-IHK	286052
Tripping signal contact for subsequent installation	ZP-NHK	248437
Remote control and automatic switching device	Z-FW/LP	248296
Shunt trip release	ZP-ASA/..	248438, 248439
Undervoltage release	Z-USA/..	248288-248291
Compact enclosure	KLV-TC-2	276240
	KLV-TC-4	276241
Additional terminal 35mm ²	Z-HA-EK/35	263960
Switching interlock	Z-IS/SPE-1TE	274418

Connection diagrams



Technical Data

Electrical

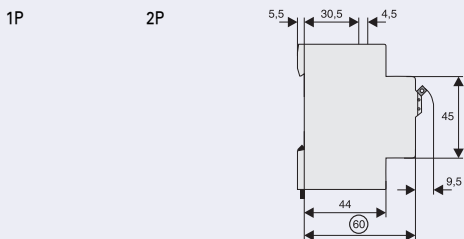
Design according to	IEC/EN 60947-2
Current test marks as printed onto the device	
Rated voltage DC	1-2 A type: 220V (per pole) 3-50 A types: 250V (per pole)
Rated breaking capacity according to IEC/EN 60947-2	10 kA
Characteristic	C
Back-up fuse	max. 100 A gL
Selectivity class	3
Rated peak withstand voltage U_{imp}	4 kV (1.2/50 μ s)
Endurance electrical comp.	4,000 operating cycles
mechanical comp.	20,000 operating cycles
Line voltage connection	optional (above/below)

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	17.5 mm per pole (1MU)
Mounting	quick fastening with 3 lock-in positions on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1-25 mm ²
Terminal fastening torque	2-2.4 Nm
Busbar thickness	0.8 - 2 mm
Mounting	independent of position

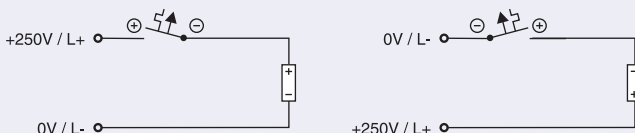
Note: not for PV string protection!

Dimensions (mm)

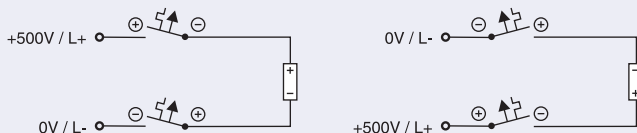


Connection examples

Connection example at 250V=, 1-pole



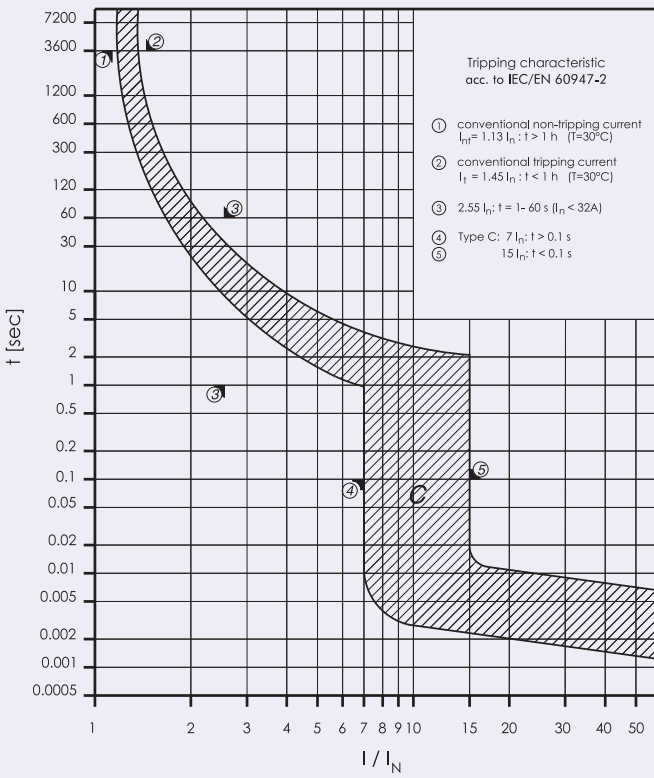
Connection example at 500V=, 2-pole



Protective Devices

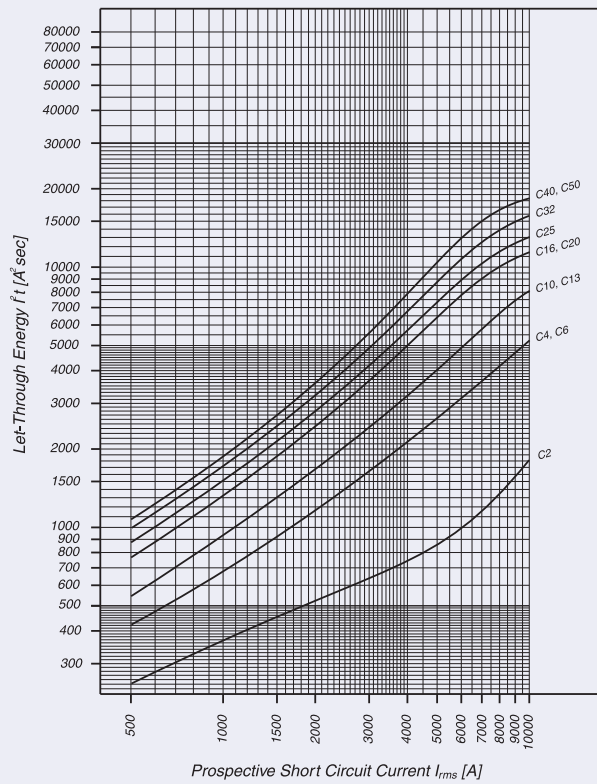
Tripping characteristic PL7-DC

Type C



Let-through Energy PL7-DC

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



Protective Devices

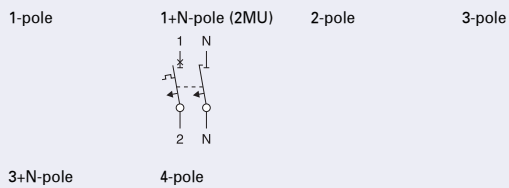
Miniature Circuit Breakers with Plug-in Terminals PLI

- High selectivity between MCB and back-up fuse due to low let-through
- Plug-in terminals above (at the output side)
- Two terminal points per pole
- Single-wire lines can be connected without tools
- The conductor can be removed from the plug-in terminal and single- or fine-wire lines can be connected by means of a screwdriver DIN 5264 Type A and Type B (maximum blade width 3 mm)
- Twin-purpose terminal (lift/open-mouthed) below
- Compatible with standard busbar below
- Meets the requirements of insulation co-ordination, distance between contacts 4 mm, for secure isolation
- Suitable for applications up to 48 V DC

Accessories:

Auxiliary switch for subsequent installation	ZP-IHK	286052
	ZP-WHK	286053
Tripping signal contact for subsequent installation	ZP-NHK	248437
Remote control and automatic switching device	Z-FW/LP	248296
Shunt trip release	ZP-ASA/..	248438, 248439
Undervoltage release	Z-USA/..	248288-248291
Compact enclosure	KLV-TC-2	276240
	KLV-TC-4	276241
Additional terminal 35mm ²	Z-HA-EK/35	263960
Anti-tamper device	Z-IS/SPE-1TE	274418

Connection diagrams



Technical Data

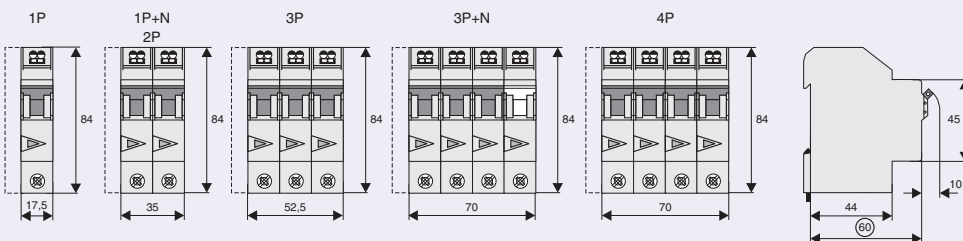
Electrical

Design according to	IEC/EN 60898-1
Current test marks as printed onto the device	
Rated voltage	AC: 230/400V DC: 48V (per pole)
Rated frequency	50/60 Hz
Rated breaking capacity according to IEC/EN 60898-1	10 kA
Characteristic	B, C, D
Back-up fuse	max. 125 A gL
Selectivity class	3
Endurance	3,000 operating cycles
Line voltage connection	below

Mechanical

Frame size	45 mm
Device height	84 mm
Device width	17.5 mm per pole (1MU)
Mounting	quick fastening with 3 lock-in positions on DIN rail EN 50022
Degree of protection	IP20
Upper terminals	twin plug-in terminals
Lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Upper terminal capacity	1-4 mm ² with wire end sleeve 1-2.5mm ²
Lower terminal capacity	1-25 mm ²
Terminal fastening torque	2-2.4 Nm
Busbar thickness	0.8 - 2 mm
Mounting	independent of position

Dimensions (mm)



Protective Devices

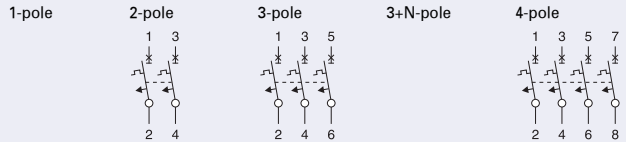
Miniature Circuit Breakers PLHT

- Independent switching contacts
- With isolator function, meets the requirements of insulation co-ordination, distance between contacts 4 mm, for secure isolation

Accessories:

Auxiliary switch for subsequent installation (0.5 MU)	Z-LHK	248440
Shunt trip release for subsequent installation (1.5 MU)	Z-LHASA/230	248442
	Z-LHASA/24	248441
Anti-tamper device	LH-SPL	850000870
Busbar see chapter busbar system		

Connection diagrams



Technical Data

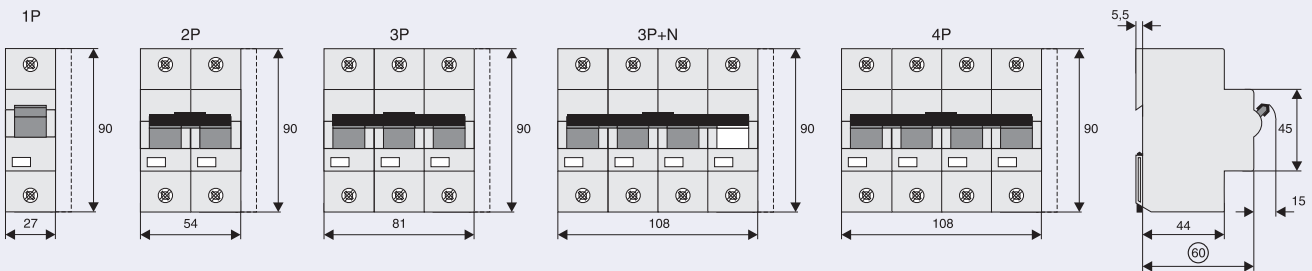
Electrical

Design according to	EN 60947-2
Current test marks as printed onto the device	
Rated voltage	
AC	230/400V
DC	60V (per pole, max. 2 poles)
Ultimate short circuit breaking capacity acc. to IEC/EN 60947-2	
Characteristics B, C	$I_n = 20-63 \text{ A}$ 25 kA $I_n = 80-100 \text{ A}$ 20 kA $I_n = 125 \text{ A}$ 15 kA
Characteristic D	$I_n = 20-63 \text{ A}$ 25 kA $I_n = 80 \text{ A}$ 20 kA $I_n = 100 \text{ A}$ 15 kA
Characteristic	in accordance with characteristics B, C, D
Back-up fuse	max. 200 A gL
Rated insulation voltage	440 V
Peak withstand voltage U_{imp}	4 kV
Selectivity class	in acc. with class 3
Endurance	20,000 operations

Mechanical

Frame size	45 mm
Device height	90 mm
Device width	27 mm (1.5MU) per pole
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Upper and lower terminals	lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	2.5-50 mm ²

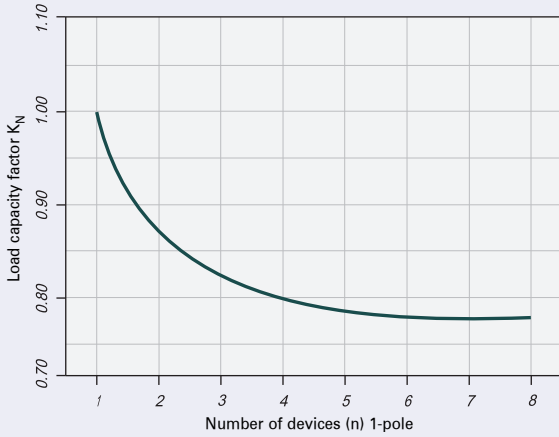
Dimensions (mm)



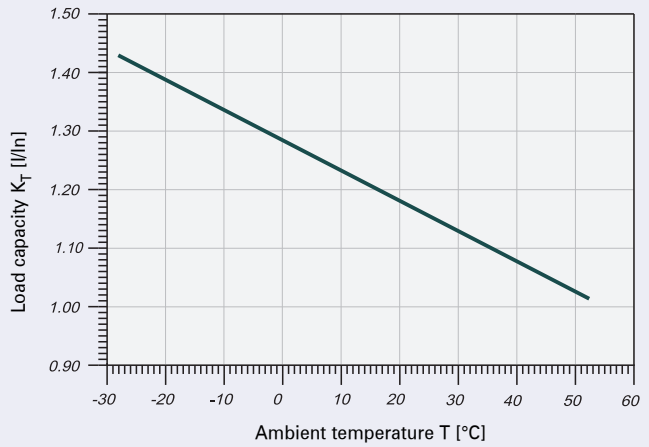
Protective Devices

Load Capacity

Load capacity in case of block installation



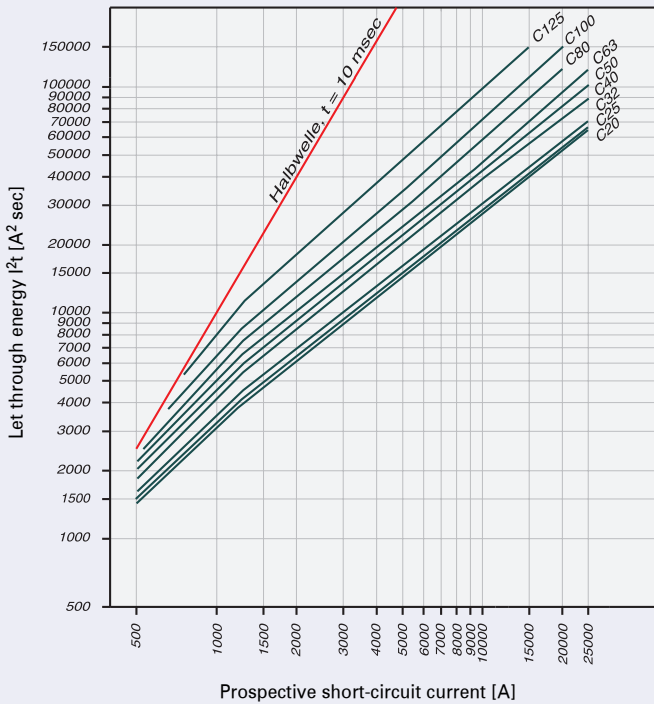
Effect of ambient temperature



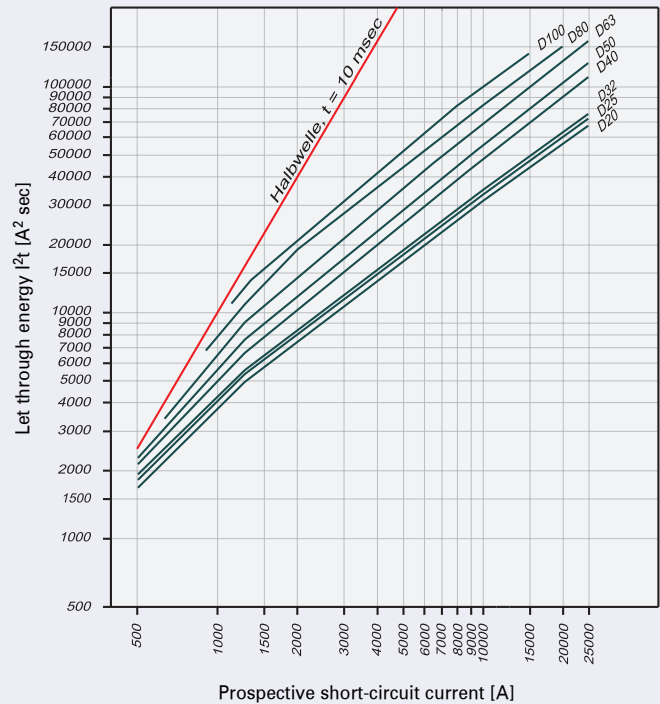
Permitted permanent load at ambient temperature T [°C] with n devices: $I_{DL} = I_n K_T(T) K_N(N)$.

Let-through Energy

Maximum let-through energy PLHT, characteristic C, 1-pole



Maximum let-through energy PLHT, characteristic D, 1-pole



Determined according to EN 60898-1.

Protective Devices

Short Circuit Selectivity

- Short circuit selectivity (in kA) between PLHT and upstream fuse D0 or NH, operating class gL/gG
- 1,4 . . . selectivity up to 1.4 kA; . . . no selectivity

Selectivity towards back-up fuses D01, D02, D03

Rated current I_n PLHT in A	Rated current of the back-up fuse in A						
	25	35	50	63	80	100	
C- Characteristic	20	0,5	1,0	2,0	2,9	3,9	7,6
	25		1,0	1,9	2,8	3,8	7,3
	32		1,0	1,8	2,7	3,6	7,0
	40			1,6	2,2	3,0	5,6
	50				2,1	2,8	5,2
	63					2,7	4,8
	80						4,3
	100						
	125						
	D- Characteristic	20	0,5	0,9	1,7	2,5	3,4
25			0,9	1,6	2,3	3,2	6,2
32			0,9	1,5	2,3	3,0	6,0
40				1,4	2,0	2,6	4,7
50					1,8	2,3	4,3
63						2,1	3,7
80							3,1
100							

Selectivity towards back-up fuses NH Gr. 00

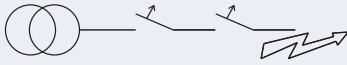
Rated current I_n PLHT in A	Rated current of the back-up fuse in A										
	25	35	40	50	63	80	100	125	160	200	
C- Characteristic	20	0,5	1,0	1,3	1,9	2,7	3,7	6,7	17,0	25,0	25,0
	25		0,9	1,3	1,8	2,6	3,5	6,5	17,0	25,0	25,0
	32		0,9	1,2	1,7	2,4	3,3	6,0	15,0	23,0	25,0
	40				1,4	2,1	2,9	4,8	12,0	18,0	25,0
	50					1,9	2,7	4,5	11,0	17,0	25,0
	63							4,2	10,0	15,0	25,0
	80							3,8	8,5	12,0	25,0
	100								7,0	10,0	25,0
	125									7,5	25,0
	D- Characteristic	20	<0,5	0,8	1,1	1,5	2,3	3,1	5,6	16,0	25,0
25			0,7	1,0	1,4	2,1	3,0	5,3	14,0	23,0	25,0
32			0,7	1,0	1,3	2,1	2,9	5,0	13,0	22,0	25,0
40					1,1	1,8	2,5	4,2	10,0	15,0	25,0
50						1,6	2,3	3,8	8,5	13,0	22,0
63							2,1	3,2	7,0	10,5	18,0
80								2,8	5,5	8,4	15,0
100									4,8	7,5	12,5

Protective Devices

Short Circuit Selectivity PLHT towards NZM 1

In case of short circuit, there is selectivity between the miniature circuit breakers PLHT and the upstream NZM up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond). Overload and short-circuit release unit NZM at max. value.

*) basically in accordance with EN 60898-1 D.5.2.b



Short circuit selectivity characteristic C towards NZM*)

PLHT	NZM...1-A gL/gG					
I_n [A]	40	50	63	80	100	125
20	0.3	0.4	0.5	0.75	0.9	1.25
25	0.3	0.4	0.5	0.7	0.9	1.2
32		0.4	0.5	0.7	0.85	1.2
40			0.5	0.6	0.85	1.1
50				0.6	0.85	1.1
63					0.8	1
80						1
100						
125						

Short circuit selectivity characteristic D towards NZM*)

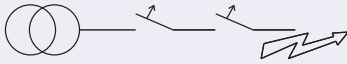
PLHT	NZM...1-A gL/gG					
I_n [A]	40	50	63	80	100	125
50						
63						
80						
100						

no selectivity

Short Circuit Selectivity PLHT towards NZM 2

In case of short circuit, there is selectivity between the miniature circuit breakers PLHT and the upstream NZM up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond). Overload and short-circuit release unit NZM at max. value.

*) basically in accordance with EN 60898-1 D.5.2.b



Short circuit selectivity characteristic C towards NZM*)

PLHT	NZM...2-A gL/gG								
I_n [A]	40	50	63	80	100	125	160	200	250
20	0.3	0.4	0.5	0.75	0.9	1.25	1.8	2.5	3.5
25	0.3	0.4	0.5	0.7	0.9	1.2	1.7	2.4	3.3
32		0.4	0.5	0.7	0.85	1.2	1.65	2.3	3.2
40			0.5	0.6	0.85	1.1	1.5	2.1	2.9
50				0.6	0.85	1.1	1.5	2	2.8
63					0.8	1	1.4	1.8	2.5
80						1	1.4	1.8	2.4
100							1.3	1.7	2.3
125								1.6	2.1

Short circuit selectivity characteristic D towards NZM*)

PLHT	NZM...2-A gL/gG								
I_n [A]	40	50	63	80	100	125	160	200	250
50							1	1.4	2.6
63							1	1.3	2.3
80									2.1
100									

no selectivity

Protective Devices

Miniature Circuit Breakers PLHT-V

- Special type of miniature circuit breaker PLHT for trade and industry applications upstream of the meter
- Independent switching contacts
- High current limit
- With isolator function, meets the requirements of insulation co-ordination, distance between contacts 7 mm, for secure isolation
- Anti-Tamper device and Switchoff interlock available

Accessories:

Auxiliary switch for subsequent installation (0.5 MU)	Z-LHK	248440
Shunt trip release for subsequent installation (1.5 MU)	Z-LHASA/230	248442
	Z-LHASA/24	248441
Busbar see capter busbar systems		

Connection diagram



Technical Data

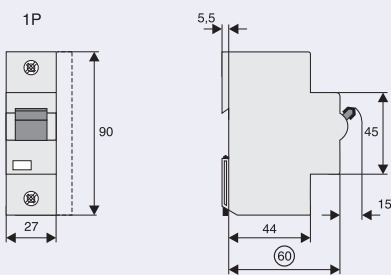
Electrical

Design according to	EN 60947-2
Current test marks as printed onto the device	
Rated voltage	
AC	230/400V
DC	60V (per pole, max. 2 poles)
Rated frequency	50/60 Hz
Ultimate short circuit breaking capacity according to IEC/EN 60947-2	25 kA
Service short circuit breaking capacity	20 kA
Rated breaking capacity	
DC	max. 60V, 1-pole
Characteristic	similar to D
Back-up fuse	max. 200 A gL (>20 kA)
Rated insulation voltage	440 V
Peak withstand voltage U _{imp}	4 kV
Selectivity class	in acc. with class 3
Endurance	20,000 operating cycles

Mechanical

Frame size	45 mm
Device height	90 mm
Device width	27 mm (1.5MU) per pole 30 mm per pole PLHT-V with interlock
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Upper and lower terminals	lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	2.5-50 mm ²

Dimensions (mm)



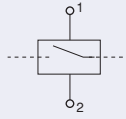
Protective Devices

Accessories for PLHT, PLHT-V

Shunt Trip Release Z-LHASA

- Can be mounted subsequently
- Contact position indicator red - green
- Marking labels can be fitted
- Wide operational voltage range
- Sufficient power of extra low voltage source must be ensured
Z-LHASA/24: min. 90 VA

Connection diagram



Technical Data

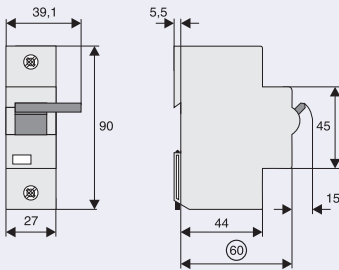
Electrical

Operational voltage range	
Z-LHASA/230:	110-415 V~
Z-LHASA/24:	12-60 V~
Operational frequency	50-60 Hz
Max. current consumption at point of switching on at U_n	
Z-LHASA/230:	2 A
Z-LHASA/24:	18 A

Mechanical

Frame size	45 mm
Device height	90 mm
Device width	27 mm
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Upper and lower terminals	lift terminals

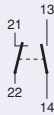
Dimensions (mm)



Auxiliary Switch Z-LHK

- Auxiliary switch according to IEC 947-5-1
- Can be mounted subsequently

Connection diagram



Technical Data

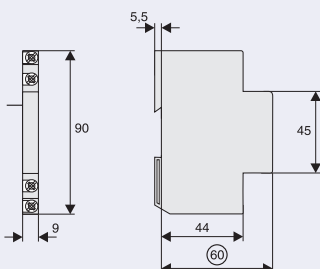
Electrical

Rated operational current	(250 V~) 6A/AC13
Minimum operational voltage	24V each line
Rated thermal current	8 A
Rated insulation voltage	440 V~
Maximum back-up fuse	6 A gL or CLS6-4./B-HS
Contacts	1NO+1NC
Utilisation category AC13	6A/250VAC 2A/440VAC
Utilisation category DC13	4A/60VDC 2A/110VDC 0.5A/230VDC

Mechanical

Frame size	45 mm
Device height	90 mm
Device width	9 mm
Mounting	mounted onto protective devices
Degree of protection, built-in	IP40
Upper and lower terminals	lift terminals
Terminal capacity	1 x 1mm ² to 2 x 2.5mm ²

Dimensions (mm)



Protective Devices

Accessories for PLHT-V

Anti-Tamper Device LH-SPE, LH-SPL

- prevents undesired switching ON or OFF

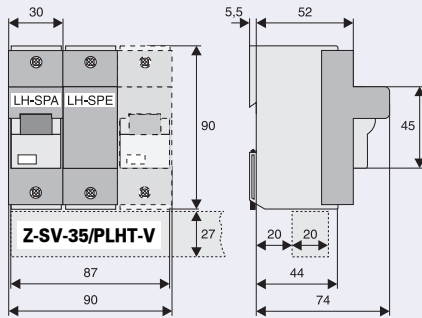
Switchoff Interlock LH-SPA

- prevents undesired switch-OFF

Busbar Block 35 mm² Z-SV-35/PLHT-V, 3-pole (see chapter busbar systems)

- 110/220 A
- Step distance 30 mm



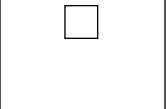
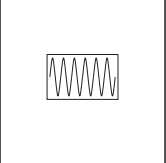
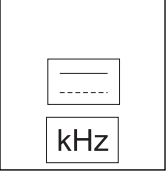
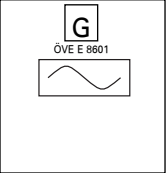
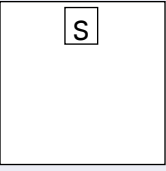
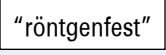



Dimensions (mm)



Protective Devices

Residual Current Devices - General Data

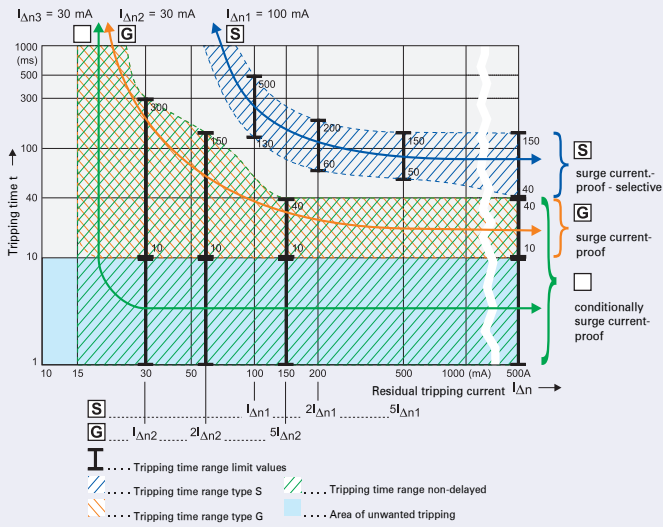
Short description of the most important RCD types:

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.
	"X-ray-proof", for avoiding unwanted tripping caused by x-ray devices.
	"Frequency converter-proof", for avoiding unwanted tripping caused by frequency converters, speed-controlled drives, etc.
	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.
	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).
	

Protective Devices

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.**

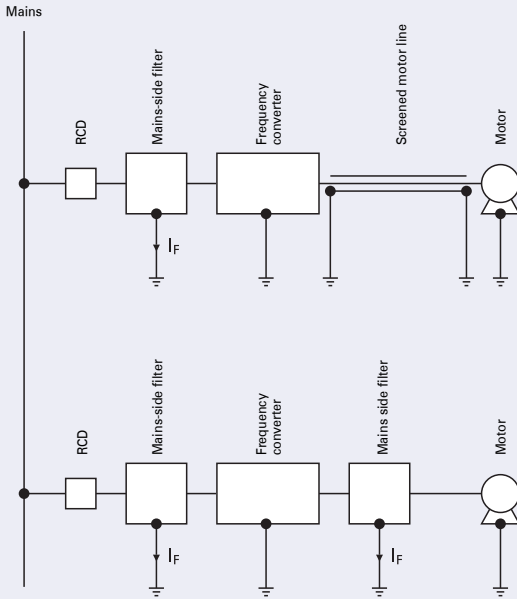
Testing:

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.

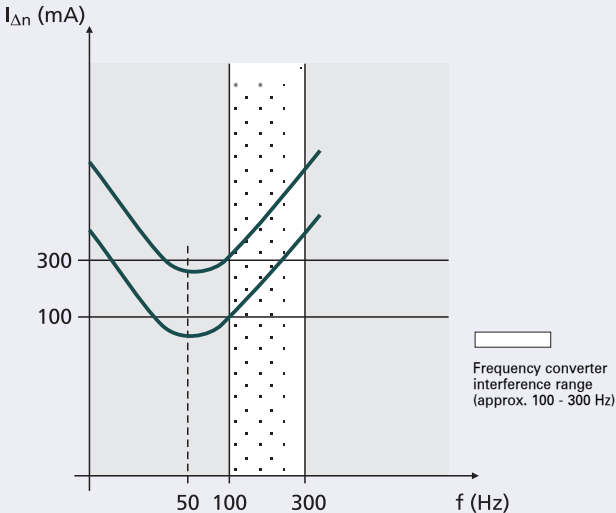
Protective Devices

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).

Protective Devices

Residual Current Devices CFI6

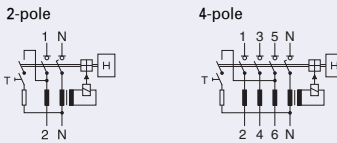
- Residual current devices
- Tripping is line voltage-independent. Consequently, the RCD is suitable for fault current/residual current protection and additional protection (ÖVE/ÖNORM E 8001-1 § 6.1.2)
- Matching with CLS6, CLS4
- Shape compatible with and suitable for standard busbar connection to other devices of the C-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 CLS., CKN., Z-A. can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Contact position indicator red - green (CFI6-4-pole)
- Suitable for being used with standard fluorescent tubes with or without electronical ballast (typically up to 20 units per phase conductor)
- 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

Accessories:

Auxiliary switch for subsequent installation to the left	Z-HK	248432
Remote tripping module	Z-FAM	248293
Switching interlock	IS/SPE-1TE	101911

Connection diagrams



Technical Data

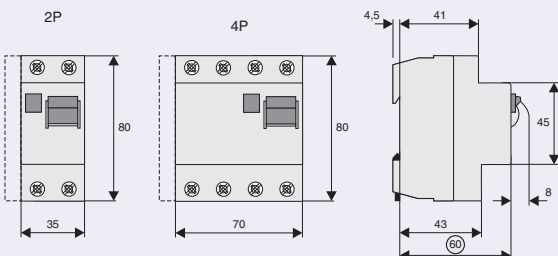
Electrical

Design according to	IEC/EN 61008
Current test marks as printed onto the device	
Tripping	instantaneous
Rated voltage U_n	230/400 V; 50 Hz
Rated tripping current $I_{\Delta n}$	30, 100, 300, 500 mA
Sensitivity	AC and pulsatory DC
Rated insulation voltage U_i	440 V
Rated peak withstand voltage U_{imp}	4 kV (1.2/50 μ s)
Rated short circuit strength I_{nc}	6 kA with back-up fuse 63 A gG/gL Short circuit 63 A gG/gL
Maximum back-up fuse	
Rated breaking capacity I_m or Rated fault breaking capacity $I_{\Delta m}$	
$I_n = 25-40A$	500 A
$I_n = 63A$	630 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

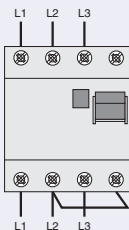
Mechanical

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
Upper terminals	lift terminals
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

Dimensions (mm)



RCD CFI6 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.

Protective Devices

Residual Current Devices PF7

- 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 PL., PFL., 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 electrical 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
- Types with 80 a 100 A permissible short-circuit back-up fuse (PF7-80, PF7-100): Take into account overload protection
- 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).
- **Type -G/A:** Additionally protects against special forms of residual pulsating DC which have not been smoothed. Special types for X-ray application PF7-...-R
- **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 DC which have not been smoothed.

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

Connection diagrams

2-pole	4-pole		
		IS/SPE-1TE	101911

Technical Data

Electrical

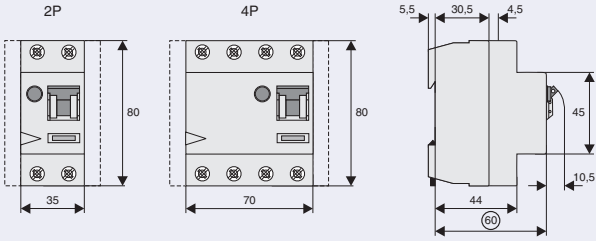
Design according to	IEC/EN 61008 Type G acc. to ÖVE E 8601	
Current test marks as printed onto the device		
Tripping	instantaneous	
Type G	10 ms delay	
Type S	40 ms delay - with selective disconnecting function	
Rated voltage U_n	230/400 V, 50 Hz	
Rated tripping current $I_{\Delta n}$	10, 30, 100, 300, 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	Overload	Short circuit
$I_n = 16-40$ A	25 A gG/gL	63 A gG/gL
$I_n = 63$ A	40 A gG/gL	63 A gG/gL
$I_n = 80$ A	50 A gG/gL	80 A gG/gL
$I_n = 100$ A	63 A gG/gL	100 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	

Mechanical

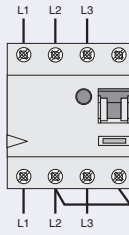
Frame size	45 mm
Device height	80 mm
Device width	35 mm (2MU), 70 mm (4MU)
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Deg. of prot. in moisture-proof encl.	IP54
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1x (1.5 - 35) mm ² single wire
	2x (1.5 - 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

Protective Devices

Dimensions (mm)



RCD PF7 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	4p	4p	4p	4p
40°	16	25	25	40	40	63	63	80	100			
45°	14	21	22	37	37	59	59	76	95			
50°	11	18	19	33	34	55	55	72	90			
55°	9	14	16	30	31	50	50	68	85			
60°	— *)	— *)	— *)	26	27	45	45	64	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

Protective Devices

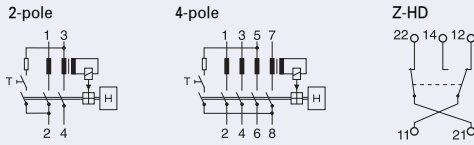
Residual Current Devices PFDM

- Residual current devices
- Tripping is line voltage-independent. Consequently, the RCD is suitable for the protection of humans and additional protection (ÖVE/ÖNORM E 8001-1 § 6.1.2)
- Twin-purpose terminal (lift/open-mouthed) above and below
- Not busbar-compatible with other devices of the P-series
- Auxiliary switch Z-HD can be mounted subsequently
- Contact position indicator red - green
- 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 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)
- **Type -A:** Additionally protects against special forms of residual pulsating DC which have not been smoothed.
- **Type -S/A:** Compulsory for systems with surge arresters downstream of the RCD (ÖVE/ÖNORM E 8001-1 § 12.1.5).

Accessories:

Auxiliary switch for subsequent installation to the left	Z-HD	265620
--	------	--------

Connection diagrams



Technical Data PFDM

Electrical

Design according to	IEC/EN 61008
Current test marks as printed onto the device	
Tripping	instantaneous
Typ S/A	40 ms delay - with selective disconnecting function
Rated voltage U_n	230/400 V; 50 Hz
Rated tripping current $I_{\Delta n}$	30, 100, 300, 500 mA
Sensitivity	AC and pulsating DC
Rated short circuit strength I_{nc}	10 kA with back-up fuse
Maximum back-up fuse	Short circuit 125 A gG/gL
Rated breaking capacity I_m or Rated fault breaking capacity $I_{\Delta m}$	1250 A
Voltage range of test button	
2-pole	100 - 250 V~
4-pole	185 - 440 V~
Endurance electrical comp.	7,000 operating cycles
mechanical comp.	20,000 operating cycles

Mechanical

Frame size	45 mm
Device height	85 mm
Device width	36 mm (2P), 72 mm (4P)
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1.5 - 50 mm ²
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 Auxiliary Switch Z-HD

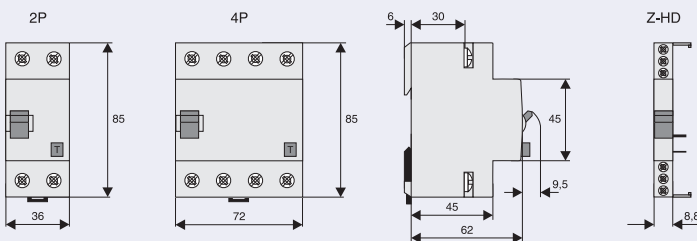
Electrical

Subsequent installation to the left onto	PFDM
Contacts	1CO + 1NC
Load rating	
AC11	6 A / 230 V AC
DC11	1 A / 230 V DC

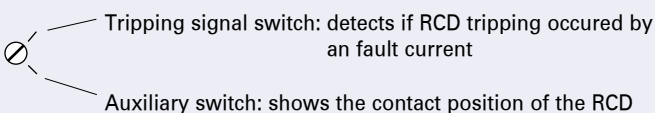
Mechanical

Terminal capacity	up to 2.5 mm ²
-------------------	---------------------------

Dimensions (mm)



Function Auxiliary Switch



Protective Devices

Residual Current Devices dRCM - digital

- 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., ZP-A. can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Contact position indicator red - green
- Tripping indicator white - blue
- Additional Safety
 - possibility to seal
 - possibility to lock in ON and OFF position
- Delayed types suitable for being used with standard fluorescent tubes with or without electronic ballast (30mA-RCD: 30 units per phase conductor, 100mA-RCD: 90 units per phase conductor)

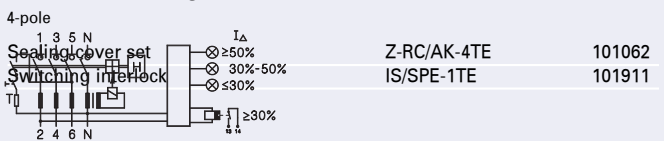
Notes: Depending of the fluorescent lamp ballast manufacturer partly more possible. Symmetrical allocation of the fluorescent lamp ballasts on all phases favourably. Shifting references of the fluorescent lamp ballast manufacturer consider.
- The device functions irrespective of the position of installation
- 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: See connection possibilities.
- The 4-pole device can also be used for 2-pole connection: See connection possibilities.
- The test key "T" must be pressed every year. The system operator must be informed of this obligation and his responsibility in a way that can be proven. The yearly test interval is only valid for residential and similar applications. Under all other conditions (e.g. damply or dusty environment), it's recommended to test in shorter intervals (e.g. monthly). A test is further needed if red and yellow LED are on together.
- 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.
- **Functioning**
 - The green LED becomes active at 0-30% $I_{\Delta n}$
 - The yellow LED becomes active at 30-50% $I_{\Delta n}$

- The red LED becomes active at >50% $I_{\Delta n}$
- Potential-free relay (NO contact, in parallel with the yellow LED, up to 1 A ohmic load / 230 V~) for external prewarning function. Bistable, means the warning stays on also when the breaker trips, until reset.
- **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).
- **Type -G/A:** Additionally protects against special forms of residual pulsating DC which have not been smoothed.
- **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 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-4	276241

Connection diagram



Technical Data

Electrical		Mechanical	
Design according to	IEC/EN 61008 Type G and G/A acc. to ÖVE E 8601	Maximum back-up fuse	Short circuit and overload protection
Current test marks as printed onto the device		$I_n = 16-63A$ $I_n = 80A$ $I_n = 100A$	63 A gG/gL 80 A gG/gL 100 A gG/gL
Tripping	instantaneous	Endurance	
Type G, R	10 ms delay	electrical comp.	4,000 operating cycles
Type S	40 ms delay - with selective disconnecting function	mechanical comp.	20,000 operating cycles
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 and 240/415 V AC, 50/60 Hz		
Operation voltage electronic	50 – 254V AC	Degree of protection, built-in	IP40
Operation voltage test circuit	184 – 440V AC	Deg. of prot. in moisture-proof encl.	IP54
Rated tripping current $I_{\Delta n}$	30, 300 mA	Upper and lower terminals	open mouthed/lift terminals
Sensitivity	AC and pulsating DC	Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Rated insulation voltage U_i	440 V	Terminal capacity	1.5 - 35 mm ² single wire 2 x 16 mm ² multi wire
Rated impulse withstand voltage U_{imp}	4 kV (1.2/50 μ s)	Terminal screw	M5 (Pozidriv PZ2)
Rated short circuit capacity I_{nc}	10 kA	Terminal capacity warning contact(s)	0.25-1.5 mm ² (plug in terminals)
Peak withstand current		Terminal torque	2 - 2.4 Nm
Type G, G/A, R, U (30mA)	3 kA (8/20 μ s) surge current proof	Busbar thickness	0.8 - 2 mm
Type S/A, U (except 30mA)	typ. 5 kA (8/20 μ s) selective + surge current proof	Tripping temperature	-25°C to +40°C
Electrical isolation	> 4 mm contact space	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
		Contact position indicator	red / green
		Tripping indicator	white / blue

Protective Devices

Local Indication RCCB

Status indication LED

Permanent light green

red / yellow / green

Normal operation

Permanent light yellow

The measured residual current is bigger than 30% of the nominal tripping value.

Permanent light red

The measured residual current is bigger than 50% of the nominal tripping value.

Remote Indication

Standard Version:

1 contact NO up to 230V AC, 2 terminals, 1 A ohmic load

Optional Version: (available upon request)

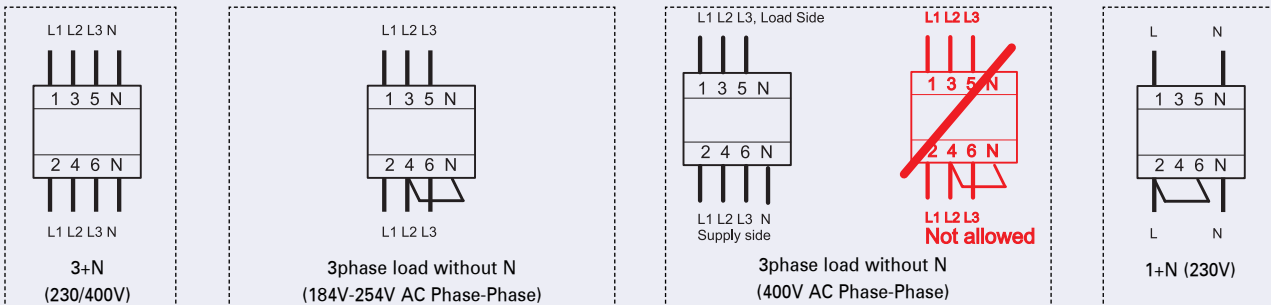
1 NO + 1 NC up to 110V AC/contact, 2x2 terminals, 1 A ohmic load

Terminal capacity of contacts:

0.25 - 1.5 mm²

Dimensions (mm)

Correct connection



Test button works within 184V – 440V AC !, Electronic works within 50-254V AC !

Protective Devices

Residual Current Devices dRCM - digital, types B and B+

- Residual current devices, all-current sensitive
- 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., ZP-A. can be mounted subsequently
- Auxiliary switch Z-HK can be mounted subsequently
- Contact position indicator red - green
- Tripping indicator white - blue
- Additional Safety
 - possibility to seal
 - possibility to lock in ON and OFF position
- Delayed types (G, S) 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
- The 4-pole device can also be used for 3-pole connection: See connection possibilities.
- The 4-pole device can also be used for 2-pole connection: See connection possibilities.
- The test key "T" must be pressed every year. The system operator must be informed of this obligation and his responsibility in a way that can be proven. The yearly test interval is only valid for residential and similar applications. Under all other conditions (e.g. damply or dusty environment), it's recommended to test in shorter intervals (e.g. monthly). A test is further needed if red and yellow LED are on together.
- 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.

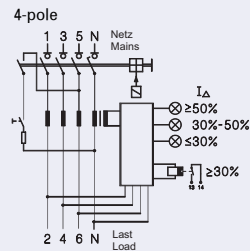
Functioning

- The green LED becomes active at 0-30% $I_{\Delta n}$
- The yellow LED becomes active at 30-50% $I_{\Delta n}$
- The red LED becomes active at >50% $I_{\Delta n}$
- Potential-free relay (NO contact, in parallel with the yellow LED, up to 1 A ohmic load / 230 V~) for external prewarning function. Bistable, means the warning stays on also when the breaker trips, until reset.
- **Type -G/B und G/B+:** 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). Protection against all types of fault currents.
- **Type -S/B und S/B+:** Selective residual current device. Protection against all types of fault currents.

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-4	276241
Sealing cover set	Z-RC/AK-4TE	101062
Switching interlock	IS/SPE-1TE	101911

Connection diagram



Technical Data

Electrical

Design according to	IEC/EN 61008 IEC/EN 62423 B+ Type acc. to VDE 0664-400 Formerly known as VDE V 0664-110 Type G/B and G/B+ acc. to ÖVE E 8601
Current test marks as printed onto the device	
Tripping	Type G 10 ms delay Type S 40 ms delay - with selective disconnecting function
Rated voltage U_n	230/400 and 240/415 V AC, 50 Hz
Operation voltage electronic	50 – 254V AC
Operation voltage test circuit	184 – 440V AC
Rated tripping current $I_{\Delta n}$	30, 300 mA
Sensitivity	Alternating, pulsed and direct currents
Rated insulation voltage U_i	440 V
Rated impulse withstand voltage U_{imp}	4 kV (1.2/50 μ s)
Rated short circuit capacity I_{nc}	10 kA
Peak withstand current	
Type G/B and G/B+	3 kA (8/20 μ s) surge current proof
Type S/B and S/B+	typ. 5 kA (8/20 μ s) selective + surge current proof
Electrical isolation	> 4 mm contact space

Maximum back-up fuse

	Short circuit and overload protection
$I_n = 16-63A$	63 A gG/gL
$I_n = 80A$	80 A gG/gL
Endurance	
electrical comp.	7,000 operating cycles
mechanical comp.	20,000 operating cycles

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	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
Terminal screw	M5 (Poqidriv PZ2)
Terminal capacity warning contact(s)	0.25-1.5 mm ² (plug in terminals)
Terminal torque	2 - 2.4 Nm
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
Contact position indicator	red / green
Tripping indicator	white / blue

Protective Devices

Local Indication RCCB

Status indication LED

Permanent light green



red / yellow / green

Normal operation

Permanent light yellow



The measured residual current is bigger than 30% of the nominal tripping value.

Permanent light red



The measured residual current is bigger than 50% of the nominal tripping value.

Remote Indication

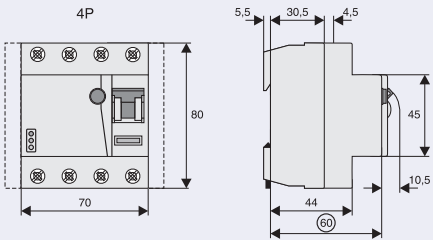
Version:

1 contact NO up to 230V AC, 2 terminals, 1 A ohmic load

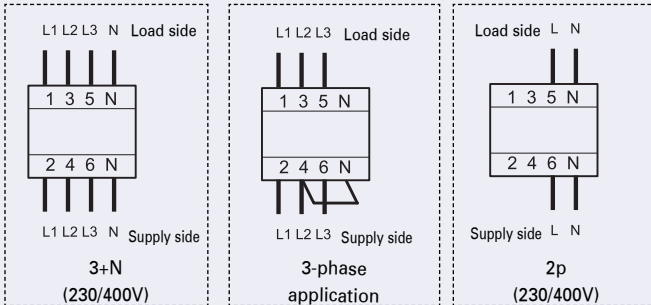
Terminal capacity of contacts:

0.25 - 1.5 mm²

Dimensions (mm)



Correct connection



Test button works within 184V – 440V AC !

Protective Devices

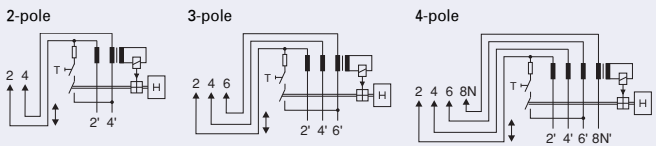
Add-on Residual Current Protection Unit PBSM

- Add-on residual current unit
- Line voltage-independent tripping
- By combining this device with a top-quality miniature circuit breaker type PLS. (except PLSN.) a top-quality RCBO unit (combined RCD/MCB device) is formed.
- Rated current 40 and 63 A
- Permits combinations with a variety of characteristics thanks to the different rated currents and characteristics of the PLS.-miniature circuit breakers which can be connected
- Comprehensive range of accessories suitable for subsequent installation onto PLS.
- **Type -A:** Protect 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-EN1, Part1, §12.14).
- **Type -S:** Selective residual current device, either sensitive to AC, type -S, or sensitive to pulsating DC, type -S/A, for protection against special forms of residual pulsating DC which have not been smoothed. Compulsory for systems with surge arresters downstream of the RCD (ÖVE-EN1, Part 1, §12.15).

Accessories (on PLS.):

Auxiliary switch for subsequent installation	ZP-IHK	286052
	ZP-WHK	286053
Tripping signal contact for subsequent installation	ZP-NHK	248437
Remote control and automatic switching device	Z-FW/LP	248296
Shunt trip release	ZP-ASA/..	248438, 248439
Undervoltage release	Z-USA/..	248288-248291
Compact enclosure	KLV-TC-2	276240
	KLV-TC-4	276241
Additional terminal 35mm ²	Z-HA-EK/35	263960
Switching interlock	IS/SPE-1TE	101911

Connection diagrams



Accessories:

Cover cap for draw-out connection bar	included
Slotted one-way cheese head screw	included

Technical Data

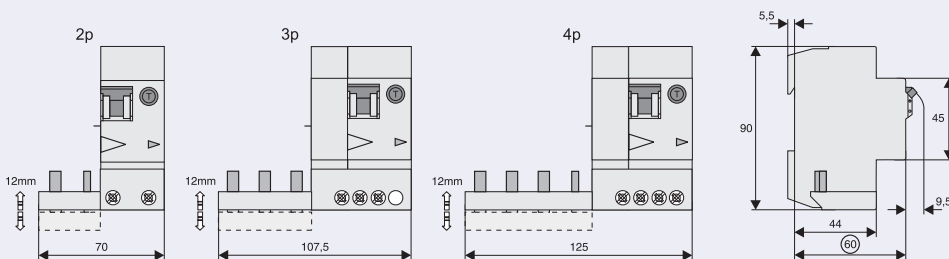
Electrical

Design according to	IEC/EN 61009
Current test marks as printed onto the device	
Tripping	instantaneous 250A (8/20µs), surge current-proof
	Type G 10 ms delay 3kA (8/20µs), surge current-proof
	Type S 40 ms delay 6kA - with selective disconnecting function
Rated voltage U_n	230/400 V AC
Operational voltage range	196 - 440 V
Rated frequency	50 Hz
Use at 16 $\frac{2}{3}$ Hz	Recesses time between the single switchings increases to 88 s, I_n max. 63 A
Use at 400 Hz	I_n max. 40 A
Rated current I_n	≤ 40 A, ≤ 63 A
Rated tripping current $I_{\Delta n}$	30, 100, 300, 500, 1000 mA
Rated non-tripping current $I_{\Delta no}$	$0.5 I_{\Delta n}$
Sensitivity	AC and pulsating DC
Service short circuit breaking capacity I_{cs}	same as connected PLS. (7.5 kA)
Rated breaking capacity I_{cn}	same as connected PLS. (10 kA)
Rated fault breaking capacity $I_{\Delta m}$	6 kA ($U_n = 230V$) 3 kA ($U_n = 400V$)

Mechanical

Frame-size	45 mm
Device height	90 mm
Device width	70 mm (2p), 107.5 mm (3p), 125 mm (4p)
Mounting	fix mounted onto PLS.
Degree of protection installed device	IP40
Fastening screw	M 2.5 (slotted one-way cheese head screw;
Screw head breaking torque	> 0.6 Nm
Upper and lower terminals	lift terminals
Terminal screws	M 5 (combined Philips/standard head screws according to DIN7962-Z2, Pozidrive)
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	
Rigid conductors	1 x (1 - 25) mm ²
Flexible conductors (with wire end sleeve)	1 x (0.75 - 16) mm ²
Busbar thickness	0.8 - 2 mm
Permitted ambient temperature range	-25°C to +40°C
Resistance to climatic conditions	acc. to IEC/EN 60068-2 (25..55°C/90..95% relative humidity)

Dimensions (mm)



Protective Devices

Add-on Residual Current Protection Unit PBHT

- By combination with miniature circuit breaker PLHT => RCBO-Unit (MCCB)
- Add-on residual current unit (screw connection) for 80 or 125 A (2-pole and 4-pole)
- High flexibility and ease of installation thanks to variable wiring (400 mm flexible connection wires 2p = 2 units, 4p = 4 units included in the set)
- Free selection of main power supply
- Auxiliary switch 1 NO included as standard in all PBHT versions
- Permits combinations with a variety of characteristics thanks to the different rated currents and characteristics of the miniature circuit breakers PLHT which can be connected
- For trade and industry applications
- For subsequent mounting onto 2, 3, 3+N and 4-pole-miniature circuit breakers PLHT
- Toggle (serves as switch position- and tripping indicator)
- The screw connection to the PLHT-device can be unscrewed at any time. Consequently, in case of modifications of the systems to be protected, the installation can be adapted to new requirements at any time.

Accessories:

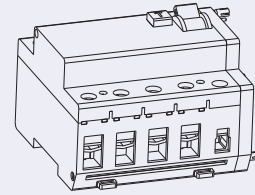
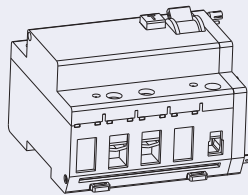
Flexible connection wires (connection to PLHT) are included in the standard set:

2-pole 80A	2 x 16mm ² (400mm each)
4-pole 80A	4 x 16mm ² (400mm each)
2-pole 125A	2 x 35mm ² (400mm each)
4-pole 125A	4 x 35mm ² (400mm each)

Connection diagrams

2-pole

4-pole



Technical Data

Electrical

Design according to IEC/EN 61009

Current test marks as printed onto the device

Current flow paths

Rated voltage U_e	230/400 V AC
Operational voltage range	196-440 V
Rated frequency	50 Hz
Rated current I_n	80 A, 125 A
Rated tripping current $I_{\Delta n}$	30, 300, 500, 1000 mA
Rated non-tripping current $I_{\Delta no}$	0.5 $I_{\Delta n}$
Sensitivity	AC and pulsating DC
Tripping characteristic	instantaneous 250A (8/20 μ s), surge current-proof;
	Type S 40 ms delay 6kA (8/20 μ s) with selective disconnecting function, surge current-proof

Rated service short circuit breaking capacity I_{cn} same as connected PLHT

Rated ultimate circuit breaking capacity I_{cu} same as connected PLHT

Rated fault short circuit breaking capacity $I_{\Delta n}$ = I_{cu}

Rated peak withstand voltage U_{imp} 4 kV (1.2/50 μ s)

Endurance mechanical comp.

PBHT-80	>10000
PBHT-125	>8000

Endurance electrical comp.

PBHT-80	>1500
PBHT-125	>1000

Auxiliary Contact

Utilisation category AC15

Rated voltage U_e 250 V AC

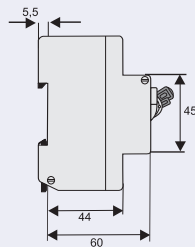
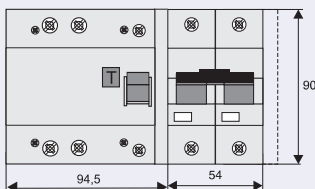
Rated operational current I_e 16 A AC

Mechanical

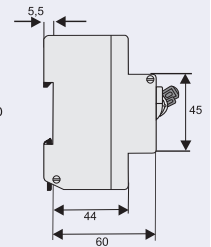
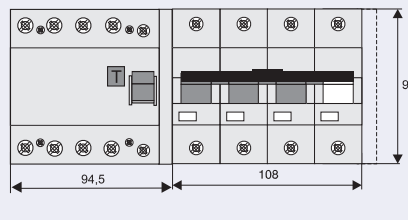
Frame size	45 mm
Device height	90 mm
Device width	95 mm (5.5MU)
Depth of central body	60 mm
Mounting	screwed onto PLHT 2-, 3-, 4-pole; PBHT-ASA
Upper and lower terminals	lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	
Main conductor	2.5 - 50 mm ²
Auxiliary switch	1 - 25 mm ²
Degree of protection, built-in	IP40
Permissible ambient temperature range	-25°C to +40°C
Resistance to climatic conditions	25-55°C/90-95% relative humidity acc. to IEC 60068-2

Dimensions (mm)

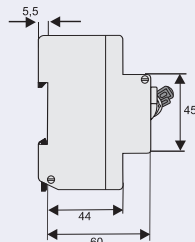
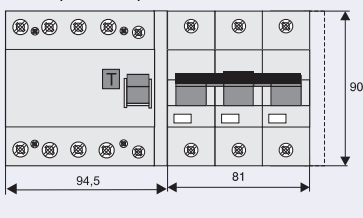
PBHT/2p + PLHT/2p



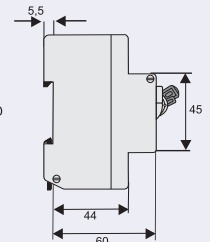
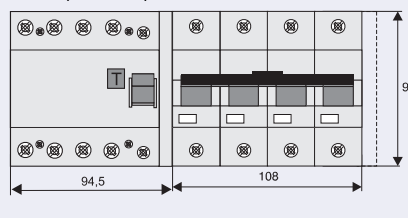
PBHT/4p + PLHT/3p+N



PBHT/4p + PLHT/3p



PBHT/4p + PLHT/4p



Protective Devices

Wiring options

SG15102

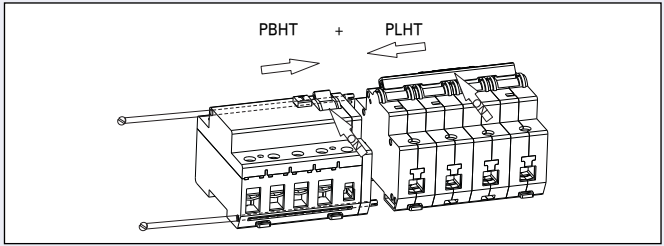
SG15402



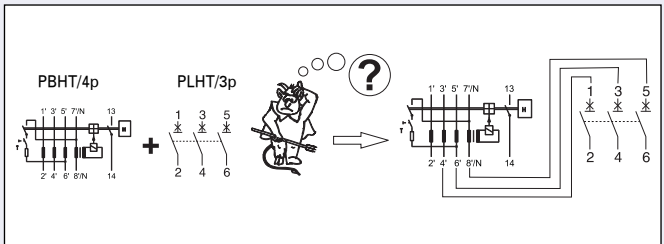
SG15202

SG15302

Mounting PBHT + PLHT

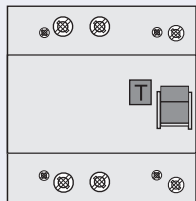
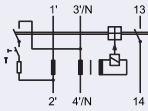


Connection PBHT/4p + PLHT/3p

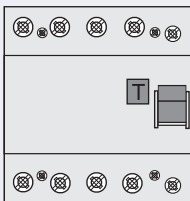
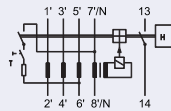


Mounting arrangement residual current protection unit - shunt trip release - miniature circuit breaker - auxiliary contact

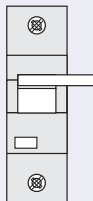
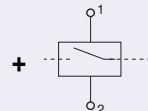
PBHT-2-pole



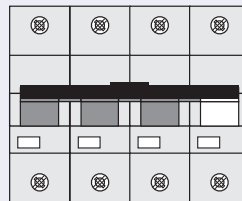
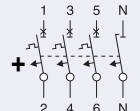
PBHT-4-pole



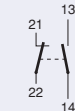
Z-PBHT-ASA



PLHT-3+N-pole



Z-LHK



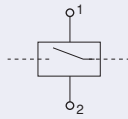
Protective Devices

Accessories for PBHT

Shunt Trip Release Z-BHASA

- Can be mounted subsequently
- Contact position indicator red - green
- Marking labels can be fitted
- Wide operational voltage range
- Sufficient power of extra low voltage source must be ensured
PBHT-ASA/24: min. 90 VA
- Screws for mounting included PBHT => BHASA => PLHT

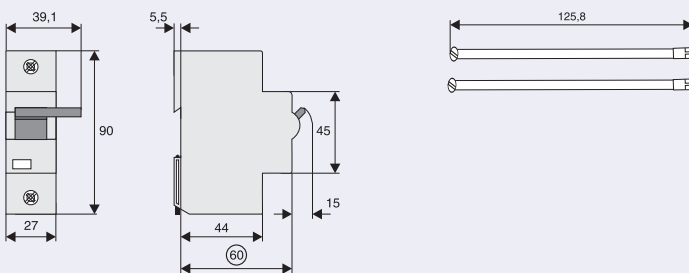
Connection diagram



Technical Data

	Z-BHASA/24	Z-BHASA/230
Electrical		
Minimum pulse duration	15 ms	10 ms
Internal resistance	2 Ω	130 Ω
Duty	100%	100%
Tripping time	< 20 ms	< 20 ms
Peak withstand voltage (1.2/50µs)	2 kV	2 kV
Endurance	>4,000 operating cycles	>4,000 operating cycles
AC voltage range:		
Responding limit	8 V	70 V
Operational voltage range	12-60 V	110-415 V
Maximum current consumption during switch-on	1.4-7 A	3.4 A (at 230V)
Current flow time at max. current consumption	4.0 ms	4.5 ms
DC voltage range:		
Responding limit	11 V	90 V
Operational voltage range	12-60 V	110-230 V
Maximum current consumption during switch-on	1.7 A typ.	1.7 A typ.
Current flow time at max. current consumption	2 ms	4 ms
Mechanical		
Frame size	45 mm	45 mm
Device height	90 mm	90 mm
Device width	27 mm	27 mm
Mounting	quick fastening on DIN rail IEC/EN 60715	
Degree of protection, built-in	IP40	IP40
Upper and lower terminal screws	lift terminals	lift terminals
Terminal capacity	2.5-30 mm ²	2.5-30 mm ²
Fastening torque of terminal screws	4 Nm	4 Nm

Dimensions (mm)



Protective Devices

PBR Main Protective Device

ATTENTION:

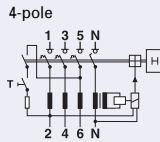
The main protective device does not replace a residual current device (RCD). For protection against residual current or additional protection you still need to install an RCD even if you use a main protective device. The objective of the PBR main protective device is preventive fire protection only.

- Tripping current identification ($I_{\Delta n}$) is independent of the line voltage
- **Integrated overload protection** [O.L.P.]
- Contour and busbar compatible with other devices of the P series
- Double-comfort terminal lift/open-mouthed at top and bottom
- Free selection of the busbar arrangement at top and bottom
- Free terminal space despite the fitted busbar
- Universal Z-NHK tripping signal switch can be retro-fitted
- Auxiliary Z-HK switch can be retro-fitted
- Contact position indicator red - green
- Suitable for use with commercially available standard fluorescent lamps with or without electronic ballast
- The function of the switch is independent of its position
- Mains connection on any side
- The 4-pole switch cannot be used as a 3-pole switch
- The 4-pole switch can also be used as a 2-pole switch
In this case use terminals 1-2 and N-N (+ wire bridge, see instructions).
- The test button "T" needs to be activated once a year. This fact and responsibility needs to be communicated to the system operator in a provable manner.
- Due to their tripping characteristics the main protective devices feature full selectivity with regard to downstream electromagnetic quick tripping relays of MCBs according to EN 60898-1 and of "general" and "S" types of RCD protective devices according to EN 61008-1.
Main protective devices are particularly important as fire protection in 3L+PEN ~400/230 V networks (TN-systems).
Main protective devices are particularly important as back-up protection against electrical shocks in 3L+N ~400/230 V networks (TT-systems)

Accessories:

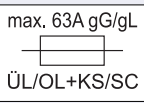
Auxiliary switch		
for retro-fitting on the left side (4p)	Z-HK	248432
Tripping signal contact		
for retro-fitting on the right side	Z-NHK	248434
Reset device	Z-FW/LP	248296
Small enclosure	KLV-TC-4	276241
Lead-seal set	Z-RC/AK-4TE	101062
Anti-tamper device	IS/SPE-1TE	101911

Connection diagram



Technical Data

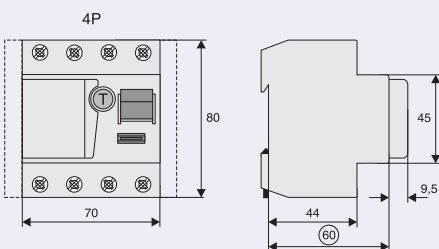
Electrical

Current test marks as printed onto the device	
Tripping	200 ms delayed selective switch-off
Rated voltage U_n	230/400 V; 50 Hz
Fire protection residual current $I_{\Delta n}$	300 mA
Sensitivity	AC
Rated insulation voltage U_i	440 V
Rated peak withstand voltage U_{imp}	4 kV
Rated short circuit strength I_{nc}	10 kA
Max. back-up fuse as overload and short-circuit protection	63 A gG/gL  max. 63A gG/gL ÜL/OL+KS/SC
Rated making and breaking capacity I_m or	
Rated residual making/breaking cap. $I_{\Delta m}$	630 A
Voltage range of test button	195.5 - 440 V~
Endurance electrical	4.000 operating cycles
mechanical	20.000 operating cycles

Mechanical

Frame size	45 mm
Device height	80 mm
Installation width	70 mm (4U)
Mounting	Quick fastening with 2 lock-in positions for DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Upper and lower terminals	Open-mouthed/lift terminals
Terminal protection	Finger and hand touch safe acc. to BGV A3, ÖVE-EN 6
Terminal capacity	1.5 - 35 mm ² single-wired 2 x 16 mm ² multi-wired
Material thickness of busbar	0.8 - 2 mm
Permitted ambient temperature range	-25°C to +40°C
Resistance to climatic conditions	25-55°C/90-95% relative humidity acc. to IEC 60068-2

Dimensions (mm)



Protective Devices

PDIM Leakage Current Monitor

- 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
- Power supply via 'OR' disjunction of the 4 conductors
- Electronic functioning (line-voltage independent)
- The device works irrespective of the position of installation
- 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.
- The 4-pole device can also be used for 2-pole connection. For this purpose use terminals 5-6 and N-N.
- 2 potential-free relays (make contact, in parallel with the yellow and red LED) (up to 10 A / 230 V~)

Functioning

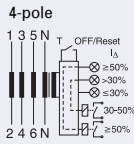
- The green LED becomes active at 0-30% of the preset $I_{\Delta n}$. The yellow LED becomes active at 30-50% of the preset $I_{\Delta n}$. The red LED becomes active at >50% of the preset $I_{\Delta n}$.
- The yellow LED turns off again when the identified residual current is <30% of the preset $I_{\Delta n}$.
- The red LED stays on even if the identified residual current is <50% of the preset $I_{\Delta n}$.
- The red LED will only turn off after pressing the reset button.
- Only one LED will be active at a time.
- An output relay will always be switched simultaneously with the yellow or red LED
- Depending on the setting of the type of RCD (instantaneous, G, S), the residual current needs to flow a sufficiently long time before an action is triggered.

Test function

- The rotary coding switch for the RCD switch function is to be set to "TEST".

The device then alternately simulates residual currents of 30% and 50% of the $I_{\Delta n}$. In this process, the yellow and red LED flash alternately (1 Hz), both output relays remain permanently energised.

Connection diagram



Technical Data

Electrical

Design similar to	DIN/EN 62020
Current test marks as printed onto the device	
Rated current I_n	40 A, 100 A
Tripping behaviour (adjustable)	instantaneous
Type G	10 ms delay
Type S	40 ms delay - selective
Rated voltage U_n	230/400 V, 50/60 Hz 240/415 V, 50/60 Hz
Rated tripping current $I_{\Delta n}$ (adjustable)	30, 100, 300, 500, 1000 mA
Sensitivity	AC and pulsating DC
Rated insulation voltage U_i	440 V
Rated short circuit resistance I_{nc}	10 kA
Max. back-up fuse admitted	Short-circuit Overload
$I_n = 40A$	63 A gG/gL 40 A gG/gL
$I_n = 100A$	100 A gG/gL 63 A gG/gL
Switching contacts	potential-free 10 A / 230 V~
Tripping behaviour of the contacts	1: 30-50% $I_{\Delta n}$ 2: >50% $I_{\Delta n}$
Endurance	electrical comp. [4,000 operating cycles mechanical comp. [20,000 operating cycles

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	70 mm (4MU)
Mounting	Quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Degree of prot. in splash-proof encl.	IP54
Upper and lower terminals	Open-mouthed/lift terminals
Terminal protection	Protection against accidental contact according to BGV A3, ÖVE-EN 6
Terminal capacity (1, 2, 3, 4, 5, 6, N, N)	1.5 - 35 mm ² single-wired 2 x 16 mm ² multi-wired
Terminal capacity of switching contacts	0.25 - 1.5 mm ²
Busbar thickness	0.8 - 2 mm
Admitted ambient temperature range	-25°C to +40°C
Resistance to climatic conditions	25-55°C/90-95% relative humidity acc. to IEC 60068-2

Dimensions (mm)



Protective Devices

Combined RCD/MCB Devices CKN6, 1+N-pole

- Combined RCD/MCB device
- Line voltage-independent tripping
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Free terminal space despite installed busbar
- Contact position indicator red - green
- Comprehensive range of accessories suitable for subsequent installation
- **Type -A:** Protects against special forms of residual pulsating DC which have not been smoothed

Accessories:

Auxiliary switch for subsequent installation	Z-AHK	248433
Tripping signal switch for subsequent installation	Z-NHK	248434
Shunt trip release	Z-ASA/..	248286, 248287
Tripping module	Z-KAM	248294
Terminal cover cap	KLV-TC-2	276240
Additional terminal 35mm ²	Z-HA-EK/35	263960
Switching interlock	IS/SPE-1TE	101911

Connection diagram

1+N-pole

Technical Data

Electrical

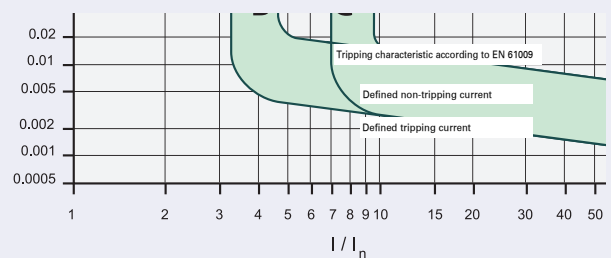
Design according to	IEC/EN 61009
Current test marks as printed onto the device	
Tripping line voltage-independent	instantaneous 250A (8/20μs) surge current-proof
Rated voltage	230 V; 50 Hz
Operational voltage range	196-253 V
Rated tripping current	10, 30, 100, 300 mA
Rated non-tripping current $I_{\Delta no}$	0.5 $I_{\Delta n}$
Sensitivity	AC and pulsating DC
Selectivity class	3
Rated breaking capacity	6 kA
Rated current	2 - 40 A
Rated peak withstand voltage U_{imp}	4 kV (1.2/50μs)
Characteristic	B, C
Maximum back-up fuse (short circuit)	100 A gL (>6 kA)
Endurance electrical comp.	4,000 operating cycles
mechanical comp.	20,000 operating cycles

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	35 mm (2MU)
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1 - 25 mm ²
Busbar thickness	0.8 - 2 mm
Degree of protection, built-in	IP40
Tripping temperature	-25°C to +40°C
Storage- and transport temperature	-35°C to +60°C
Resistance to climatic conditions	acc. to IEC/EN 61009

Dimensions (mm)

Tripping Characteristic CKN6-../1N/, Characteristics B and C



Load Capacity

Effect of ambient temperature (MCB component)

Load capacity K_T [I/I_n]

Ambient temperature T [°C]

Valid for combined RCD/MCB devices 1+N-pole

Protective Devices

Short Circuit Selectivity CKN6-../1N/ towards DII-DIV fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices CKN6-../1N/ and the upstream fuses up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond).

*) basically in accordance with EN 60898-1 D.5.2.b

Short circuit selectivity characteristic B towards fuse link DII-DIV*)

CKN6	DII-DIV gL/gG									
	I_n [A]	10	16	20	25	35	50	63	80	100
2		0.5	0.6	1.2	2.5	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
4		<0.5 ¹⁾	<0.5 ¹⁾	0.5	0.7	1.7	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
6			<0.5 ¹⁾	0.5	0.7	1.4	3.3	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
10				0.5	0.7	1.3	2.5	5.7	6.0 ²⁾	6.0 ²⁾
13				0.5	0.7	1.3	2.5	5.0	6.0 ²⁾	6.0 ²⁾
16					0.6	1.3	2.4	4.7	6.0 ²⁾	6.0 ²⁾
20						1.2	2.2	3.0	6.0 ²⁾	6.0 ²⁾
25						1.1	2.0	3.8	5.8	6.0 ²⁾
32							1.8	3.4	4.8	6.0 ²⁾
40								2.8	4.2	6.0 ²⁾

Short Circuit Selectivity CKN6-../1N/ towards D01-D03 fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices CKN6-../1N/ and the upstream fuses up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond).

*) basically in accordance with EN 60898-1 D.5.2.b

Short circuit selectivity characteristic B towards fuse link D01-D03*)

CKN6	D01-D03 gL/gG									
	I_n [A]	10	16	20	25	35	50	63	80	100
2		<0.5 ¹⁾	0.6	1.1	1.9	4.5	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
4		<0.5 ¹⁾	<0.5 ¹⁾	0.5	0.6	1.2	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
6			<0.5 ¹⁾	<0.5 ¹⁾	0.6	1.2	3.2	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
10				<0.5 ¹⁾	0.6	1.2	2.7	4.3	6.0 ²⁾	6.0 ²⁾
13				<0.5 ¹⁾	0.6	1.1	2.5	4.0	5.5	6.0 ²⁾
16					0.6	1.1	2.4	3.6	5.0	6.0 ²⁾
20						1.0	2.2	3.3	4.7	6.0 ²⁾
25						1.0	2.0	3.0	4.2	6.0 ²⁾
32							1.9	2.7	3.7	6.0 ²⁾
40								2.5	3.3	6.0 ²⁾

Short circuit selectivity characteristic C towards fuse link D01-D03*)

CKN6	D01-D03 gL/gG									
	I_n [A]	10	16	20	25	35	50	63	80	100
2		<0.5 ¹⁾	0.5	0.8	1.4	3.3	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
4		<0.5 ¹⁾	<0.5 ¹⁾	0.5	0.7	1.4	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
6			<0.5 ¹⁾	<0.5 ¹⁾	0.6	1.2	3.0	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
10					0.5	1.0	2.0	3.3	5.5	6.0 ²⁾
13						1.0	1.9	3.0	4.5	6.0 ²⁾
16						0.9	1.7	2.6	3.8	6.0 ²⁾
20						0.9	1.7	2.5	3.7	6.0 ²⁾
25							1.6	2.3	3.1	6.0 ²⁾
32								2.1	2.8	6.0 ²⁾
40									2.6	5.5

¹⁾ Selectivity limit current I_s under 0.5 kA

²⁾ Selectivity limit current I_s = rated breaking capacity I_{cn} of the RCD/MCB device

Darker areas: no selectivity

Protective Devices

Short Circuit Selectivity CKN6-../1N/ towards NH-00

In case of short circuit, there is selectivity between the combined RCD/MCB devices CKN6-../1N/ and the upstream fuses up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond).

*) basically in accordance with EN 60898-1 D.5.2.b

Short circuit selectivity characteristic B towards fuse link NH-00 *)

CKN6	NH-00 gL/gG												
	I_n [A]	16	20	25	32	35	40	50	63	80	100	125	160
2		0.5	0.8	1.5	3.1	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
4		<0.5 ¹⁾	<0.5 ¹⁾	0.5	0.9	1.7	2.6	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
6		<0.5 ¹⁾	<0.5 ¹⁾	0.5	0.8	1.3	1.8	3.1	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
10		<0.5 ¹⁾	0.5	0.8	1.2	1.8	2.5	3.9	5.6	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
13		<0.5 ¹⁾	0.5	0.8	1.2	1.6	2.4	3.6	5.0	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
16			0.5	0.8	1.2	1.6	2.4	3.3	4.5	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
20				0.8	1.1	1.4	2.1	3.1	4.2	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
25					0.7	1.0	1.4	1.9	2.7	3.8	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
32								1.8	2.5	3.4	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
40									2.3	3.2	5.5	6.0 ²⁾	6.0 ²⁾

Short circuit selectivity characteristic C towards fuse link NH-00 *)

CKN6	NH-00 gL/gG												
	I_n [A]	16	20	25	32	35	40	50	63	80	100	125	160
2		0.5	0.6	0.8	2.2	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
4		<0.5 ¹⁾	<0.5 ¹⁾	0.5	1.0	1.6	2.8	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
6		<0.5 ¹⁾	<0.5 ¹⁾	0.5	0.8	1.2	1.7	3.0	5.2	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
10				<0.5 ¹⁾	0.7	1.0	1.3	2.0	3.0	4.6	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
13						0.9	1.2	1.8	2.6	4.0	6.0 ²⁾	6.0 ²⁾	6.0 ²⁾
16							0.8	1.1	1.6	2.4	3.5	6.0 ²⁾	6.0 ²⁾
20								0.8	1.1	1.5	2.3	3.3	6.0 ²⁾
25									1.4	2.1	3.0	5.8	6.0 ²⁾
32										1.9	2.7	4.8	6.0 ²⁾
40											2.6	4.5	6.0 ²⁾

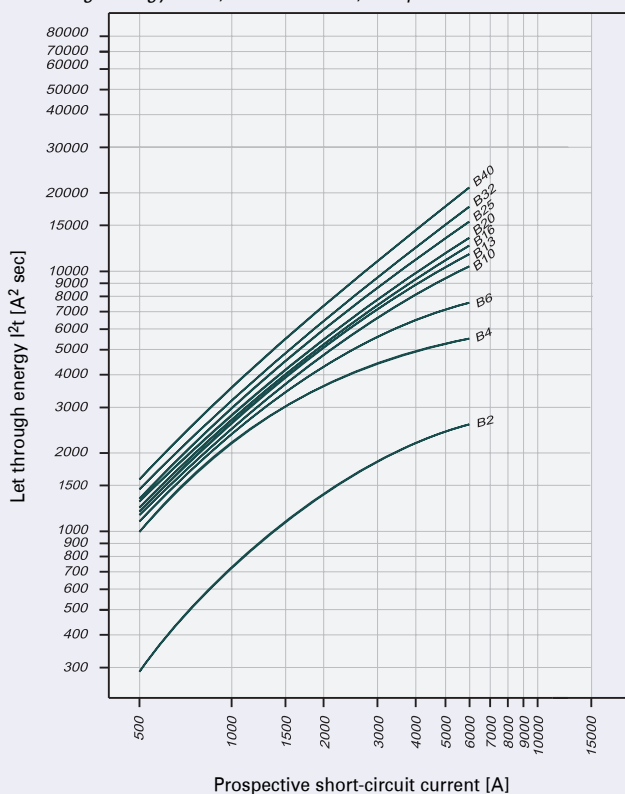
1) Selectivity limit current I_s under 0.5 kA

2) Selectivity limit current I_s = rated breaking capacity I_{cn} of the RCD/MCB device

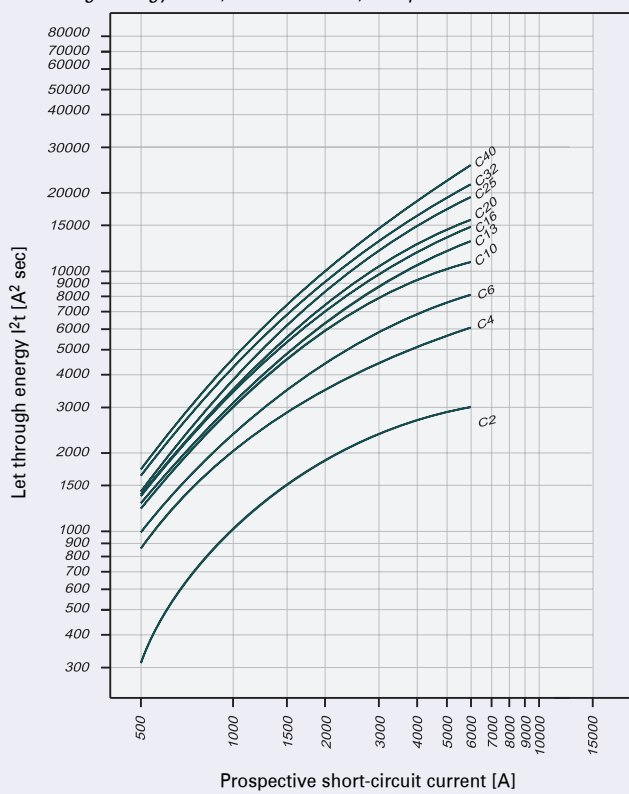
Darker areas: no selectivity

Let-through Energy CKN6-../1N/

Let-through energy CKN6, characteristic B, 1+N-pole



Let-through energy CKN6, characteristic C, 1+N-pole



Protective Devices

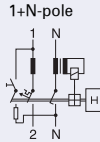
Combined RCD/MCB Devices PFL7, 1+N-pole

- Combined RCD/MCB device
- Line voltage-independent tripping
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Free terminal space despite installed busbar
- Guide for secure terminal connection
- Switching toggle (MCB component) in colour designating the rated current
- Contact position indicator red - green
- Comprehensive range of accessories suitable for subsequent installation
- **Type -A:** Protects against special forms of residual pulsating DC which have not been smoothed
- **Type -G:** 10 ms time delay in order to avoid unwanted tripping (e.g. during thunderstorms).
Compulsory in Austria for any circuit where personal injury or damage to property may occur in case of unwanted tripping (§12.1.6 ÖVE/ÖNORM E 8001-1).

Accessories:

Auxiliary switch for subsequent installation	ZP-IHK	286052
	ZP-WHK	286053
Tripping signal switch for subsequent installation	ZP-NHK	248437
Shunt trip release	ZP-ASA/..	248438, 248439
Tripping module	Z-KAM	248294
Terminal cover cap	KLV-TC-2	276240
Additional terminal 35mm ²	Z-HA-EK/35	263960
Switching interlock	IS/SPE-1TE	101911

Connection diagram



Technical Data

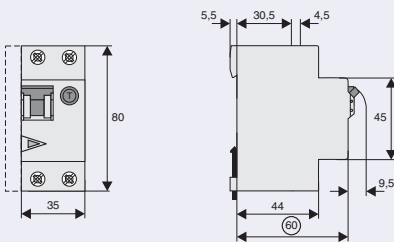
Electrical

Design according to	IEC/EN 61009
Current test marks as printed onto the device	
Tripping line voltage-independent	instantaneous 250A (8/20µs) surge current-proof; Type G 10 ms delay 3kA (8/20µs) surge current-proof
Rated voltage U_e	230 V; 50 Hz
Operational voltage range	196-253 V
Rated tripping current $I_{\Delta n}$	10, 30, 100, 300, 500 mA
Rated non-tripping current $I_{\Delta no}$	0.5 $I_{\Delta n}$
Sensitivity	AC and pulsating DC
Selectivity class	3
Rated breaking capacity	10 kA
Rated current	6 - 40 A
Rated peak withstand voltage U_{imp}	6 kV (1.2/50µs)
Characteristic	B, C
Maximum back-up fuse (short circuit)	100 A gL (>10 kA)
Endurance electrical comp.	4,000 operating cycles
mechanical comp.	20,000 operating cycles

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	35 mm (2MU)
Mounting	3-position DIN rail clip, permits removal from existing busbar system
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1 - 25 mm ²
Busbar thickness	0.8 - 2 mm
Degree of protection switch	IP20
Degree of protection, built-in	IP40
Tripping temperature	-25°C to +40°C
Storage- and transport temperature	-35°C to +60°C
Resistance to climatic conditions	acc. to IEC/EN 61009

Dimensions (mm)



Protective Devices

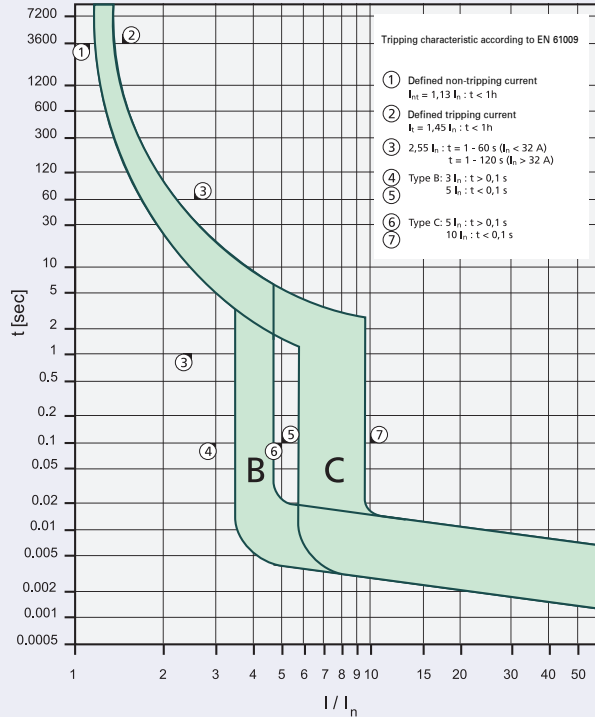
Load Capacity PFL7-../1N/

Effect of ambient temperature (MCB component)

Ambient temperature

6	7.4	7.2	7.0	6.7	6.5	6.3	6.0	5.9	5.8
8	9.9	9.6	9.3	9.0	8.7	8.4	8.0	7.9	7.7
10	12	12	12	11	11	10	10	9.9	9.7
12	15	14	14	13	13	13	12	12	12
13	16	16	15	15	14	14	13	13	13
15	19	18	17	17	16	16	15	15	15
16	20	19	19	18	17	17	16	16	15
20	25	24	23	22	22	21	20	20	19
25	31	30	29	28	27	26	25	25	24
32	40	38	37	36	35	33	32	32	31
40	49	48	47	45	43	42	40	39	39

Tripping Characteristic PFL7-../1N/, Characteristics B a. C



Short Circuit Selectivity PFL7-../1N/ towards DII-DIV fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices PFL7-../1N/ and the upstream fuses up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond).

*) basically in accordance with EN 60898-1 D.5.2.b

Short circuit selectivity characteristic B towards fuse link DII-DIV*)

PFL7	DII-DIV gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6	<0.5 ¹⁾	0.7	1.0	2.9	6.9	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
8	<0.5 ¹⁾	0.6	1.0	2.4	5.1	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
10		0.6	0.9	1.9	3.3	7.0	10.0 ²⁾	10.0 ²⁾	
13		0.5	0.7	1.6	2.8	5.7	9.0	10.0 ²⁾	
16		0.7	1.4	2.4	4.4	7.0	10.0 ²⁾		
20			1.3	2.2	4.0	6.3	10.0 ²⁾		
25			1.3	2.1	3.8	5.8	10.0 ²⁾		
32				2.0	3.5	5.2	9.5		
40					3.1	4.5	8.1		

Short circuit selectivity characteristic C towards fuse link DII-DIV*)

PFL7	DII-DIV gL/gG								
I_n [A]	10	16	20	25	35	50	63	80	100
6	<0.5 ¹⁾	0.6	1.0	2.9	5.8	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
8	<0.5 ¹⁾	<0.5	0.9	2.5	4.8	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
10		<0.5	0.7	1.5	2.6	5.3	9.0	10.0 ²⁾	
13				1.4	2.3	4.6	7.6	10.0 ²⁾	
16				1.2	1.8	3.4	5.5	10.0 ²⁾	
20				1.2	1.7	3.1	5.0	10.0 ²⁾	
25				1.6	2.9	4.6	10.0 ²⁾		
32					2.3	3.4	7.7		
40						2.9	6.2		

¹⁾ Selectivity limit current I_s under 0.5 kA

²⁾ Selectivity limit current I_s = rated breaking capacity I_{cn} of the RCD/MCB device

Darker areas: no selectivity



Protective Devices

Short Circuit Selectivity PFL7-./1N/ towards D01-D03 fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices PFL7-./1N/ and the upstream fuses up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond).

*) basically in accordance with EN 60898-1 D.5.2.b

Short circuit selectivity characteristic B towards fuse link D01-D03*)

PFL7	D01-D03 gL/gG									
	I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5 ¹⁾	0.5	0.8	2.4	8.2	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
8			0.6	0.8	2.0	6.0	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
10			0.5	0.8	1.6	3.7	6.0	10.0 ²⁾	10.0 ²⁾	
13			0.6	0.7	1.4	3.0	4.7	9.0	10.0 ²⁾	
16				0.6	1.2	2.6	3.9	7.0	10.0 ²⁾	
20					1.2	2.5	3.6	6.2	10.0 ²⁾	
25					1.2	2.3	3.3	5.7	10.0 ²⁾	
32						2.3	3.1	5.1	10.0 ²⁾	
40							2.8	4.5	9.5	

Short circuit selectivity characteristic C towards fuse link D01-D03*)

PFL7	D01-D03 gL/gG									
	I_n [A]	10	16	20	25	35	50	63	80	100
6		<0.5 ¹⁾	<0.5 ¹⁾	0.8	2.3	6.5	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	
8			<0.5	0.7	2.1	5.5	9.5	10.0 ²⁾	10.0 ²⁾	
10			<0.5	0.6	1.3	2.9	4.5	8.9	10.0 ²⁾	
13					1.2	2.5	3.9	7.6	10.0 ²⁾	
16						1.0	2.1	3.0	5.5	10.0 ²⁾
20						1.0	2.0	2.7	5.0	10.0 ²⁾
25							1.9	2.6	4.5	10.0 ²⁾
32								2.1	3.4	10.0 ²⁾
40									3.0	8.7

Short Circuit Selectivity PFL7-./1N/ towards NH-00 fuse link

In case of short circuit, there is selectivity between the combined RCD/MCB devices PFL7-./1N/ and the upstream fuses up to the specified values of the selectivity limit current I_s [kA] (i. e. in case of short-circuit currents I_{ks} under I_s , only the MCB will trip, in case of short circuit currents above this value both protective devices will respond).

*) basically in accordance with EN 60898-1 D.5.2.b

Short circuit selectivity characteristic B towards fuse link NH-00*)

PFL7	NH-00 gL/gG												
	I_n [A]	16	20	25	32	35	40	50	63	80	100	125	160
6		<0.5 ¹⁾	0.5	0.8	1.4	2.2	3.3	7.0	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
10		<0.5 ¹⁾	0.7	0.9	1.5	2.1	3.4	4.3	7.3	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
13		<0.5 ¹⁾	0.6	0.8	1.4	1.8	2.8	3.6	5.7	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
16			0.6	0.7	1.2	1.5	2.4	3.0	4.5	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
20				0.7	1.1	1.5	2.2	2.8	4.2	9.2	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
25				0.7	1.1	1.4	2.1	2.6	4.0	8.2	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
32					1.0	1.4	2.0	2.5	3.7	7.1	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
40							2.3	3.4	6.2	8.8	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾

Short circuit selectivity characteristic C towards fuse link NH-00*)

PFL7	NH-00 gL/gG												
	I_n [A]	16	20	25	32	35	40	50	63	80	100	125	160
6		<0.5 ¹⁾	<0.5 ¹⁾	0.7	1.3	2.2	3.3	5.9	8.0	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
10			0.5	0.8	1.2	1.7	2.7	3.4	5.5	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
13					1.1	1.5	2.3	2.9	4.7	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
16					1.0	1.3	1.8	2.3	3.7	8.7	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
20						0.9	1.1	1.7	2.2	3.4	8.0	10.0 ²⁾	10.0 ²⁾
25							1.6	2.1	3.2	7.2	10.0 ²⁾	10.0 ²⁾	10.0 ²⁾
32								1.7	2.6	5.3	9.0	10.0 ²⁾	10.0 ²⁾
40									2.4	4.5	7.5	10.0	10.0

¹⁾ Selectivity limit current I_s under 0.5 kA

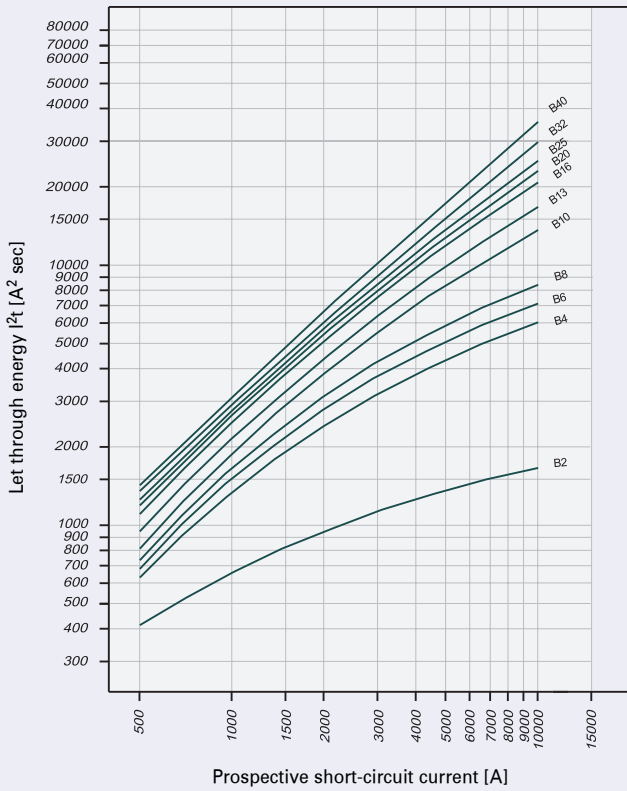
²⁾ Selectivity limit current I_s = rated breaking capacity I_{cn} of the RCD/MCB device

Darker areas: no selectivity

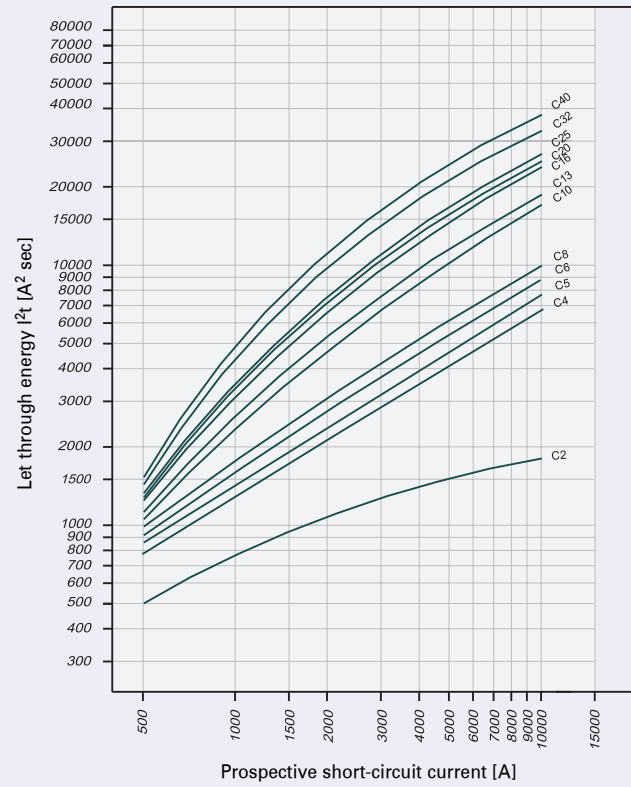
Protective Devices

Let-through Energy PFL7-../1N/

Let-through energy PFL7, characteristic B, 1+N-pole



Let-through energy PFL7, characteristic C, 1+N-pole



Protective Devices

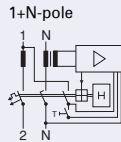
Electronic Combined RCD/MCB Devices PKDM, 1+N-pole, 2 Module Units

- Electronic residual current device / miniature circuit breaker combination
- Tripping line voltage dependent
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above and below
- Busbar positioning optionally above or below
- Free terminal space despite installed busbar
- Contact position indicator red - green
- Protects against special forms of residual pulsating DC which have not been smoothed
- Comprehensive range of accessories suitable for subsequent installation

Accessories:

Auxiliary switch for subsequent installation	Z-AHK	248433
Tripping signal switch for subsequent installation	Z-NHK	248434
Shunt trip release	Z-ASA/..	248286, 248287
Tripping module	Z-KAM	248294
Terminal cover cap	KLV-TC-2	276240
Additional terminal 35mm ²	Z-HA-EK/35	263960
Switching interlock	IS/SPE-1TE	101911

Connection diagram



Technical Data

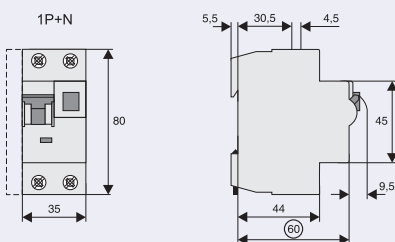
Electrical

Design according to	IEC/EN 61009
Current test marks as printed onto the device	
Tripping line voltage-dependent	instantaneous 250A (8/20μs) surge current-proof
Rated voltage	230 V; 50 Hz
Voltage range for protective function	60 - 250 V~
Rated tripping current	30, 300 mA
Rated non-tripping current $I_{\Delta no}$	$0.5 I_{\Delta n}$
Sensitivity	pulsating DC
Selectivity class	3
Rated breaking capacity	10 kA
Rated current	2 - 40 A
Characteristic	B, C, D
Maximum back-up fuse (short circuit)	100 A gL (>10 kA)
Ultimate short circuit breaking capacity I_{cn}	10 kA
Rated short circuit breaking capacity I_{cg}	7.5 kA
Rated fault breaking capacity $I_{\Delta m}$	10 kA
Endurance electrical comp.	7,000 operating cycles
mechanical comp.	20,000 operating cycles

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	35 mm (2MU)
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Upper and lower terminals	open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1 - 25 mm ²
Busbar thickness	0.8 - 2 mm
Degree of protection, built-in	IP40
Tripping temperature	-25°C to +40°C
Storage- and transport temperature	-35°C to +60°C
Resistance to climatic conditions	acc. to IEC/EN 61009

Dimensions (mm)



Protective Devices

Combined RCD/MCB Devices PKNM-PT, 1+N-pole

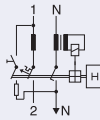
- Combined RCD/MCB device
- Line voltage-independent tripping
- Compatible with standard busbar
- Twin-purpose terminal (lift/open-mouthed) above
- Busbar positioning optionally above or below
- Contact position indicator red - green
- Comprehensive range of accessories suitable for subsequent installation
- This compact protective device is specific for applications in the BS-distributor produced. Permanently connected neutral conductors ($l = 550 \text{ mm}$, $\varnothing = 6 \text{ mm}^2$).

Accessories:

Auxiliary switch for subsequent installation	Z-AHK	248433
Tripping signal switch for subsequent installation	Z-NHK	248434
Shunt trip release	ZP-ASA	248438, 248439
Tripping module	Z-KAM	248294
Terminal cover cap	KLV-TC-2	276240
Additional terminal 35mm ²	Z-HA-EK/35	263960
Switching interlock	IS/SPE-1TE	101911

Connection diagram

1+N-pole



Technical Data

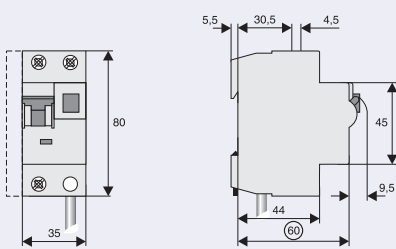
Electrical

Design according to	IEC/EN 61009
Current test marks as printed onto the device	
Tripping	
line voltage-independent	instantaneous 250A (8/20 μ s) surge current-proof
Rated voltage	230 V; 50 Hz
Operational voltage range	196-253 V
Rated tripping current	30 mA
Rated non-tripping current $I_{\Delta no}$	$0.5 I_{\Delta n}$
Sensitivity	AC
Selectivity class	3
Rated breaking capacity	10 kA
Rated current	6 - 40 A
Rated peak withstand voltage U_{imp}	4 kV (1.2/50 μ s)
Characteristic	B, C
Maximum back-up fuse (short circuit)	100 A gL (>6 kA)
Endurance electrical comp.	4,000 operating cycles
mechanical comp.	20,000 operating cycles

Mechanical

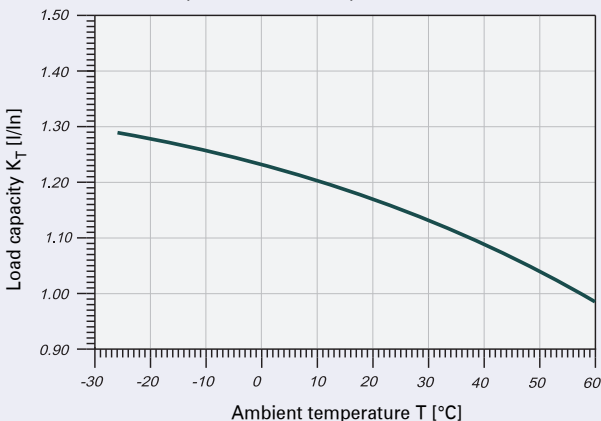
Frame size	45 mm
Device height	80 mm
Device width	35 mm (2MU)
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715
Upper terminals	2 x open mouthed/lift terminals
Lower terminals	1 x open mouthed/lift terminals
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1 - 25 mm ²
Busbar thickness above	0.8 - 2 mm
Degree of protection, built-in	IP40
Tripping temperature	-25°C to +40°C
Storage- and transport temperature	-35°C to +60°C
Resistance to climatic conditions	acc. to IEC/EN 61009

Dimensions (mm)



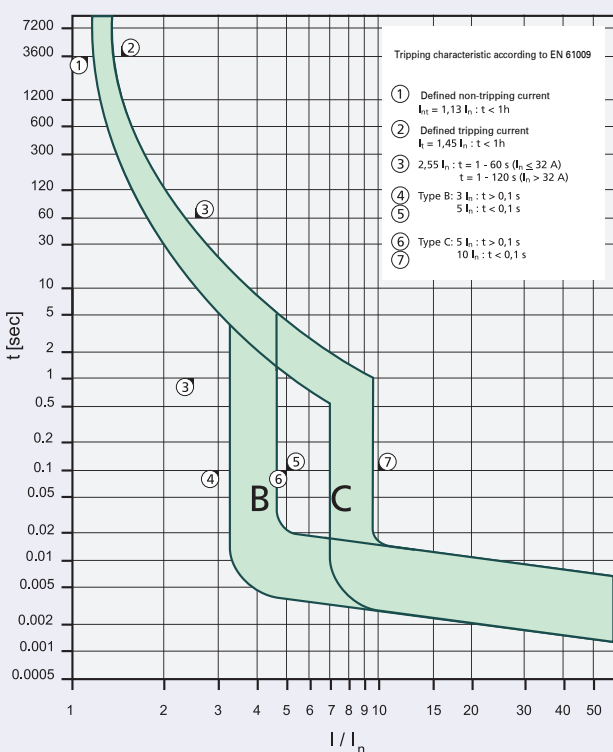
Load Capacity

Effect of ambient temperature (MCB component)



Valid for combined RCD/MCB devices 1+N-pole

Tripping Characteristic PKNM-./1N/..-PT, Characteristics B and C

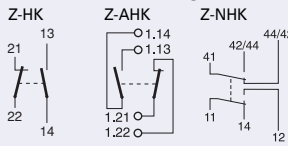


Accessories for Protective Devices

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 Data

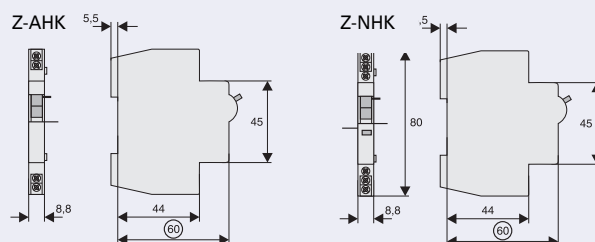
	Z-HK	Z-AHK	Z-NHK
Electrical			
Can be mounted from the left onto	PFIM, PFR, dRCM CFI6, PFHM-4p	CLS, L71, PFHM-2p CKN, PKDM	CLS, L71, CKN, PKDM
Can be mounted from the right onto	–	–	PFIM, PFR, CFI6, PFHM, dRCM
Contact function	1NO + 1NC	1NO + 1NC	2CO
Rated voltage	250 V	250 V	250 V
Frequency	50/60 Hz	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

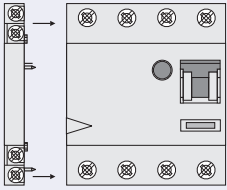
Dimensions (mm)

Z-HK



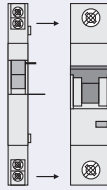
Accessories for Protective Devices

Example: Z-HK+PFIM



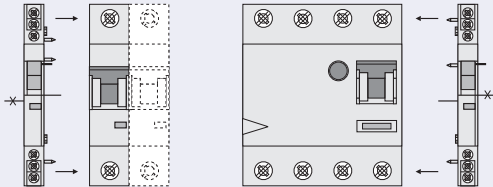
1NO+1NC 24V 50mA min.

Example: Z-AHK+CLS6



1NO+1NC 5V 10mA min.

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



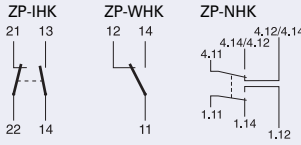
2CO 5V 10mA min.

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)
- **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

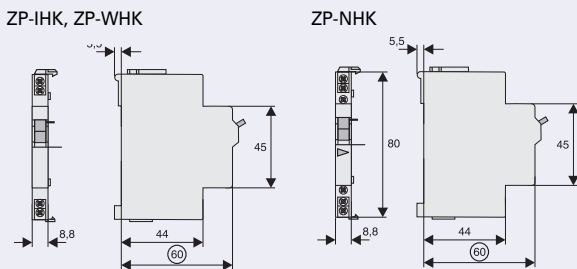


- **ZP-NHK:** The "Service button" is used to check whether or not the auxiliary switch is correctly wired in the tripping-signal-switch position. Activating the "service button" will mechanically simulate an electrical switch-off, so the mechanism for the electrical switch-off will disengage and can 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.

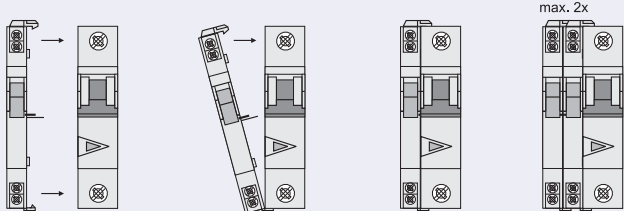
Technical Data

	ZP-IHK	ZP-WHK	ZP-NHK
Electrical			
Can be mounted from the left onto	MCB: RCD/MCB: Accessories:	PLS, PLZ PKNM ZP-A40, ZP-ASA, Z-MS 1xZP-IHK, 1xZP-WHK	PLS, PLZ PKNM ZP-A40, ZP-ASA, Z-MS 1xZP-IHK, 1xZP-WHK
Contact function		1NO + 1NC	2CO
Rated voltage		250 V	250 V
Frequency		50/60 Hz	50/60 Hz
Rated current		6 A	4 A
Rated thermal current I_{th}		6 A	4 A
Utilisation category AC13			
Rated operational current I_e		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
Rated insulation voltage U_i		250 V AC	250 V AC
Minimum operational voltage per contact U_{min}		5 V DC	5 V DC
Minimum operational current I_{min}		10 mA DC	10 mA DC
Rated peak withstand voltage U_{imp} (1.2/50 μ)		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		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
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 protection		finger and hand touch safe according to BGV A3, ÖVE-EN 6	
Terminals		lift terminals	lift terminals
Terminal capacity		0.5-2.5 mm ²	0.5-2.5 mm ²
Terminal screws		M4 (Pozidrive Z2)	M3 (Pozidrive Z0)
Fastening torque of terminal screws		max. 1.2 Nm	max. 0.8-1.0 Nm

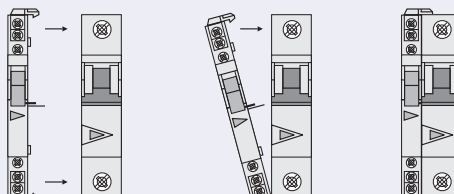
Dimensions (mm)



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



Example: ZP-NHK + PLS

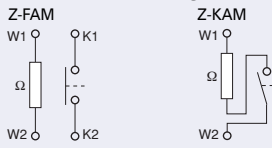


Accessories for Protective Devices

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

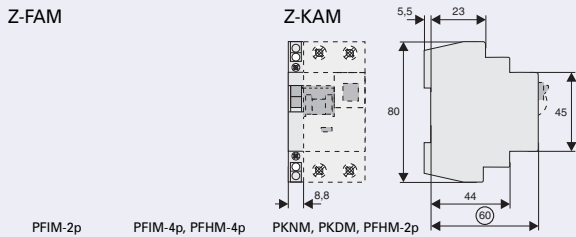
Connection diagram



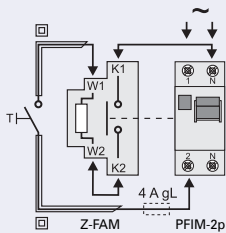
Technical Data

	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	

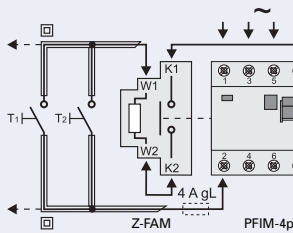
Dimensions (mm)



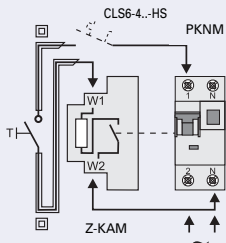
Connection examples Lay lines to the switching devices with double insulation **and** overload protection, e.g. 4A gL or CLS6-4...-HS



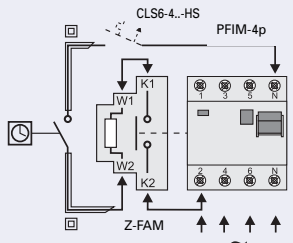
Connection diagram:
PFIM-2p, RCD feed above



Connection diagram:
PFIM-4p, RCD feed above



Connection diagram:
PKNM, RCBO feed below



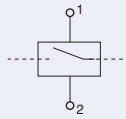
Connection diagram:
PFIM-4p, RCD feed below

Accessories for Protective Devices

Shunt Trip Release Z-ASA, ZP-ASA

- Remote release for subsequent mounting onto PLS, CLS6, PKN, PKDM, Z-A40, Z-MS
- Module width 1MU
- Additional installation of standard auxiliary switch is possible
- Position indicator red - green
- Type ZP-ASA for snap-on mounting

Connection diagram

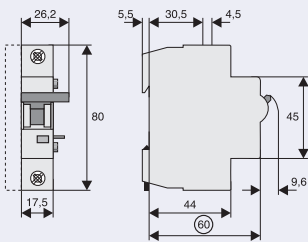


Technical Data

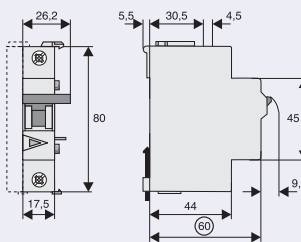
	Z-ASA24	Z-ASA230	ZP-ASA24	ZP-ASA230
Electrical				
Can be mounted onto RCDs, combined RCD/MCBs: Accessories:	CKN, PKDM	CKN, PKDM	PLS, PKN, CLS ZP-A40, Z-MS, Z-TS	PLS, PKN, CLS ZP-A40, Z-MS, Z-TS
Operational voltage range	12-110V AC 12-60V DC	110-415V AC 110-220V DC	12-110V AC 12-60V DC	110-415V AC 110-220V 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)

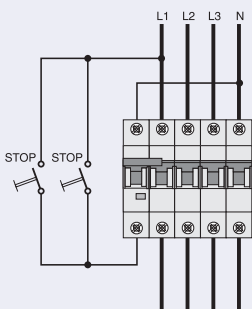
Z-ASA



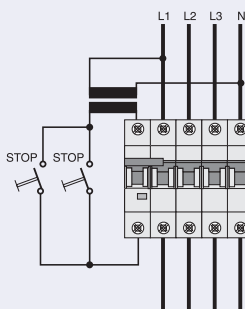
ZP-ASA



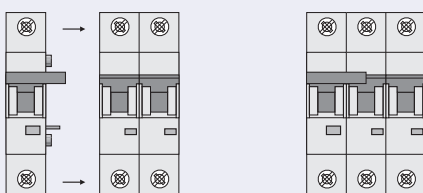
Connection Example 230 V



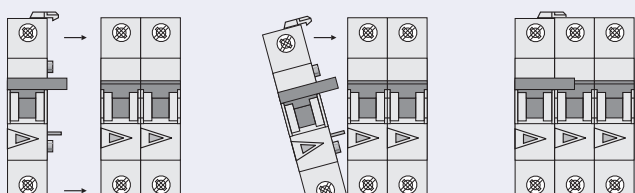
Connection Example 24 V



Example: Z-ASA + PLS



Example: ZP-ASA + PLS

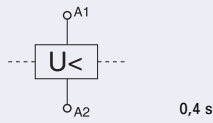


Accessories for Protective Devices

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 PLS, CLS, Z-A40 and Z-MS

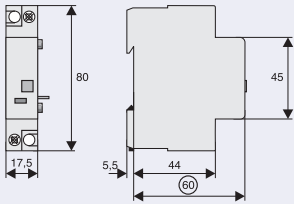
Connection diagram



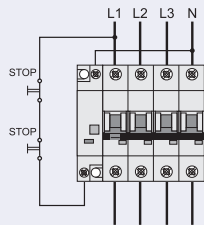
Technical Data

	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		

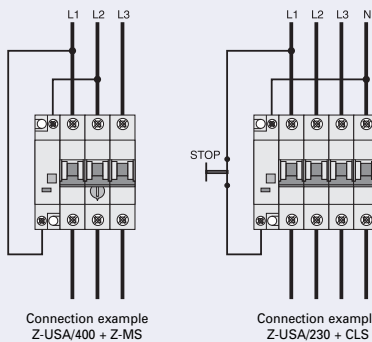
Dimensions (mm)



Connection Example Release



Connection Examples 400V and 230V

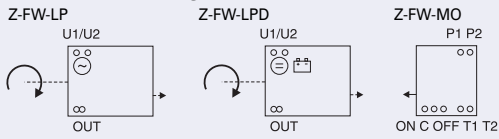


Accessories for Protective Devices

Remote Control and Automatic Switching Z-FW

- Shape compatible switching device suitable for subsequent installation for automatic re-setting and remote control of CLS6, PFIM, PFHM-4p, dRCM, Z-A40, PFR, Z-MS
- Mechanical interlock, can be sealed with leads
- Mechanical switching capability up to max. PFIM-100/4p, CLS6-100/4p
- Operating and alarm display by green and red LED
- Function extension with Switching Modul Z-FW-MO
Operating and trouble display by LED pre-assembled only with Z-FW...

Connection diagrams

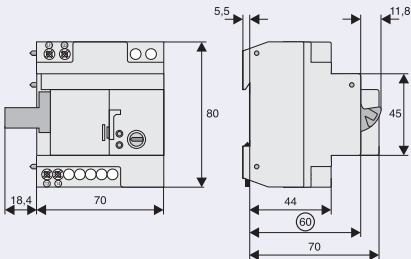


Technical Data

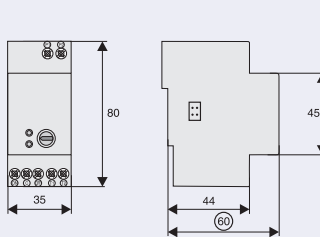
	Z-FW-LP	Z-FW-LPD	Z-FW-MO
Electrical			
Possible operating voltages	220-240 V AC	24-48 V DC	-
Frequency	50/60 Hz	-	-
Testing module (0.5MU) for remote testing of RCDs	Z-FW...	Z-FW...	-
Control voltage for remote control	-	-	24-230 V AC/DC
Relay output for tripping test with Z-FW	-	-	400 V AC max.
Relay output for alarm, potential-free	5A/250V AC	5A/250V AC	-
Functions	automatic restarting	automatic restarting	+ON/OFF/TEST
Function selector	Automatic 5x, OFF/RESET	Automatic 5x, OFF/RESET	ON, OFF/RESET
Remote control function via telephone with Telecommander	-	-	-
Mechanical			
Frame size	45 mm	45 mm	45 mm
Device height	80 mm	80 mm	80 mm
Device width	70 mm	70 mm	35 mm
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715		-
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	2 x 1.5mm ² or 1 x 2.5mm ²	2 x 1.5mm ² or 1 x 2.5mm ²	4 x 1.5mm ² or 2 x 2.5mm ²
Scope of delivery	-	-	Coupling plug

Dimensions (mm)

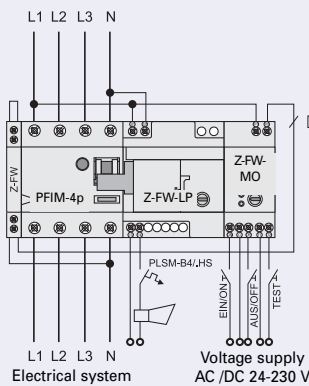
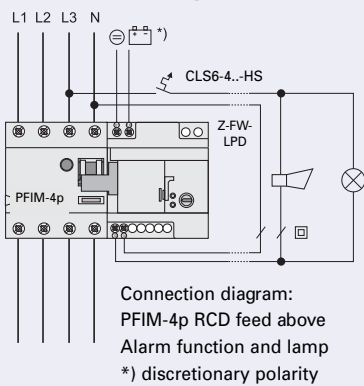
Z-FW-LP, -LPD



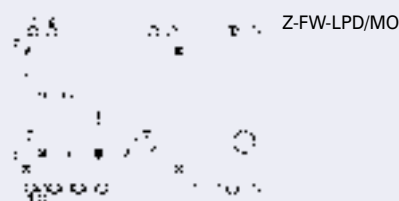
Z-FW-MO



Connection example



Pre-mounted Sets

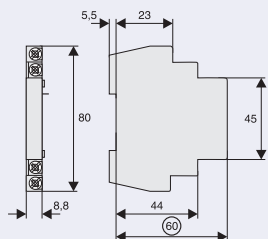


Accessories for Protective Devices

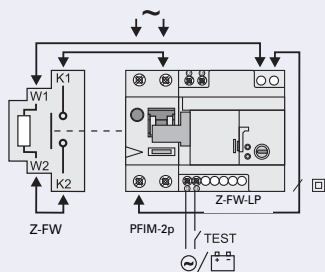
Remote Testing Module Z-FW (for Z-FW-LP)

- External testing module with testing resistor for RCDs
- Proper "external" test key function according to the applicable rules thanks to design adapted to the rated tripping current
- For remote testing with remote control and automatic switching device Z-FW-LP
- No undesired voltage rise in the consumer system during remote switch-off thanks to integrated breaker contact K1-K2
- Can also be used as a remote tripping module for PFIM, PFHM

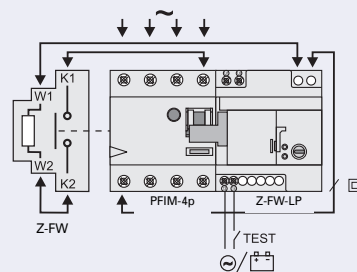
Dimensions (mm)



Connection examples



Connection diagram:
PFIM-2p, RCD feed above



Connection diagram:
PFIM-4p, RCD feed above

Accessories for Protective Devices

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

- Without lock

Type IS/SPE-1TE:

- for Isolators, RCDs, combined RCD/MCBs, ...

Type Z-IS/SPE-1TE:

- for MCBs and Circuit Breaker ZP-A

Surge Protection



SPD Class B, Lightning Current Arrester SPI

- Field of application: For the protection of low voltage distribution systems against direct lightning stroke into the overhead power supply line or external lightning protection system (IEC 62305).
- Application according to IEC 60364-5-53 Clause 534
- Test class **I** in accordance with IEC 61643-1
- SPD-type **T1** in accordance with EN 61643-1
- Capsuled version: during the discharge process, the device does not issue any hot ionised gases. Therefore, there is no need for keeping a safety distance to flammable materials.

Practical Hint

Installation of lightning current arresters upstream of the meter is subject to co-ordination with the relevant power supply company. Installation of an r.m.s.effective protection cascade (SPD classes B, C, D) requires co-ordinated application of the respective protective devices. This is ensured by a defined line length between protective devices. When using lightning current arresters of type SPI in connection with surge arresters SPC with a maximum continuous operating voltage U_c of 460 V AC, no specific line length or decoupling coils are required.

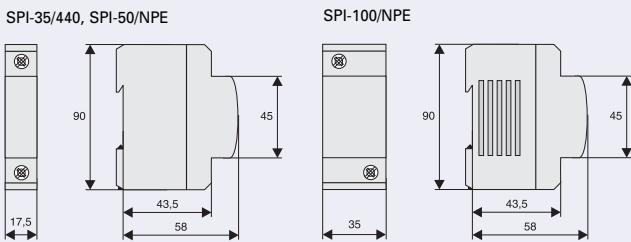
Technical Data

	SPI-35/440	SPI-50/NPE	SPI-100/NPE
Electrical			
Design	capsuled	capsuled	capsuled
Responding time t_r	< 100 ns	< 100 ns	< 100 ns
Voltage protection level U_p	1.5 kV	1.5 kV	1.5 kV
Maximum continuous operating voltage U_C	440 VAC	260 VAC	260 VA
Temporary overvoltage test value U_T (200 ms) (5 s)	–	1200 VAC	1200 VAC
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz
Discharge current (8/20) μs I_{max}/I_n	35 kA	50 kA	100 kA
Impulse current I_{imp} (10/350) μs			
Peak current	35 kA	50 kA	100 kA
Charge Q	17.5 As	25 As	50 As
Specific energy	305 kJ/ Ω	625 kJ/ Ω	2500 kJ/ Ω
Insulation resistance R_{ISO}	>10 M Ω	>10 M Ω	>10 M Ω
Follow current interrupt rating I_{fi}	3kA _{r.m.s./260V} 1.5kA _{r.m.s./440V}	500A _{r.m.s./260V}	100A _{r.m.s./260V}
Short-circuit current strength at max. back-up fuse	25kA _{r.m.s.}	–	–
Maximum back-up fuse	125 AgL	–	–
Connection diagram			

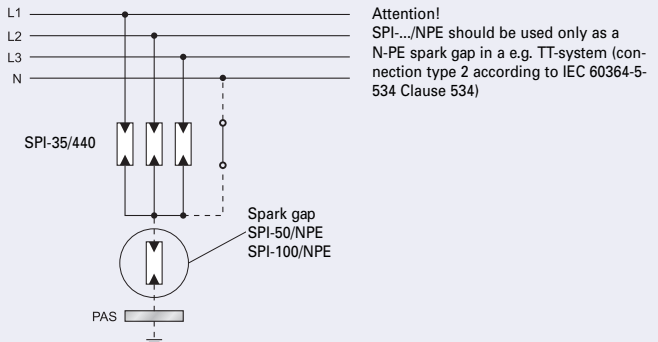
Mechanical

Frame size	45 mm	45 mm	45 mm
Device height	90 mm	90 mm	90 mm
Device width	17.5 mm	17.5 mm	35 mm
Weight	174 g	178 g	320 g
Upper and lower lift terminal capacity			
rigid	0.5 - 35 mm ²	0.5 - 35 mm ²	10 - 50 mm ²
flexible	0.5 - 25 mm ²	0.5 - 25 mm ²	16 - 35 mm ²
Tightening torque of terminal screws	4 - 4.5 Nm	4 - 4.5 Nm	6 - 8 Nm
Mounting	quick fastening on DIN rail IEC/EN 60715		
Degree of protection acc. to IEC 60529 (installed)	IP20 (IP40)		
Accessories: busbars	Z-GV-U/		
Permitted relative air humidity	< 95%		
Permitted ambient temperature	-40°C to +85°C		

Dimensions (mm)

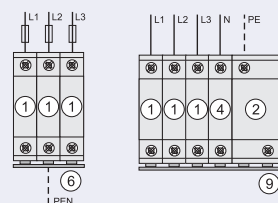


Application Example



Lightning current arrester Sets, Lightning protection classes I, II, III, IV

SPI-35/440/3 SPI-3+1



- ... SPI-35/440
- ... SPI-100/NPE
- ... SPB-D-125
- ... Z-GV-U/3
- ... Z-GV-U/6

SPI-50/NPE: for protection class III, IV according to IEC 62305
SPI-100/NPE: for protection class I, II, III, IV according to IEC 62305

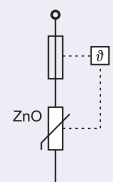

Surge Protection

SPD Class B+C, Lightning Current Arrester - Surge Arresters SPBT12

- Field of application
For the protection of low voltage distribution systems against transient overvoltage caused by direct and indirect lightning stroke and switching operations.
- Application according to IEC 60364-5-53 Clause 534
- Test class **I**, **II** in accordance with IEC 61643-1
- SPD-type **T1**, **T2** in accordance with EN 61643-11
- Lightning protection classes III and IV in accordance with IEC 62305
- Busbars ZV-KSBI are available for all customary applications

Block Diagram

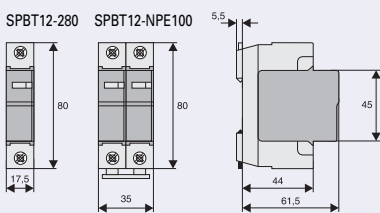
Technical Data

	SPBT12-280...	SPBT12-NPE100
Electrical	per pole	
Responding time (rate of voltage rise 5 kV/μs)	< 25 ns	< 100 ns
Voltage protection level U_p	< 1.5kV	< 1.5kV
Voltage protection level at 5 kA (8/20) μs	950 V	-
Maximum continuous operating voltage U_C	280 VAC	255 VAC
Temporary overvoltage test value U_T	370 VAC (5 s)	1200 VAC (200 ms)
Rated frequency	50/60 Hz	50/60 Hz
Open circuit voltage U_{oc}	10 kV	20 kV
Nominal discharge current (8/20) μs I_n	25 kA	100 kA
Maximum discharge current I_{max}	50 kA	100 kA
Impulse current I_{imp} (10/350) μs		
Peak current	12.5 kA	100 kA
Charge Q	6.25 As	50 As
Specific energy	39.1 kJ/Ω	2500 kJ/Ω
Follow current interrupt rating I_{fi}	-	100 $A_{r.m.s}$
Maximum back-up fuse	160 AgL/gG	-
Maximum short-circuit current	50 kA $r.m.s$	-
Connection diagram		

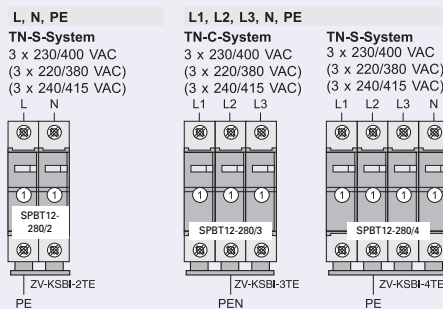
Mechanical

Frame size	45 mm	45 mm
Device height	80 mm	80 mm
Device width	17.5 mm	35 mm
Weight	121 g	250 g
Permitted ambient temperature	-40°C to +70°C	-40°C to +70°C
Degree of protection (built-in)	IP40	IP40
Upper and lower lift terminal capacity	4 - 25 mm ²	4 - 35 mm ²
Upper and lower open mouthed terminals for busbar thickness up to	1.5 mm	1.5 mm
Tightening torque of terminal screws	2.4 - 3 Nm	2.4 - 3 Nm
Quick fastening on DIN rail according to	IEC/EN 60715	IEC/EN 60715
Accessories: busbars 16 mm ²	Type ZV-KSBI ...	Type ZV-KSBI ...

Dimensions (mm)



Lightning current arrester - surge arrester Sets, Lightning protection classes III, IV



...SPBT12-280

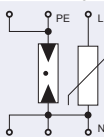
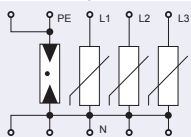
Surge Protection

SPD Class B+C, Lightning Current Arrester - Surge Arresters SPBT12-280

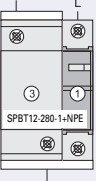
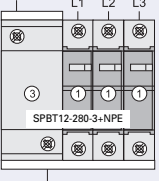
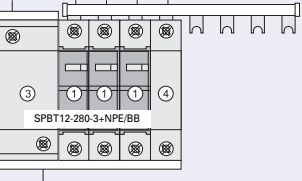
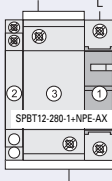
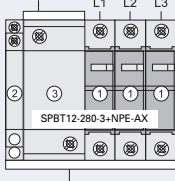
- Field of application
For the protection of low voltage distribution systems against transient overvoltage caused by direct and indirect lightning stroke and switching operations.
- Application according to IEC 60364-5-53 Clause 534
- Test class **I**, **II** in accordance with IEC 61643-1
- SPD-type **T1**, **T2** in accordance with EN 61643-11
- Lightning protection classes III and IV in accordance with IEC 62305
- Busbars ZV-KSBI are available for all customary applications

Block Diagram

Technical Data

		SPBT12-280-1+NPE	SPBT12-280-3+NPE	
Electrical		per pole		
Responding time (rate of voltage rise 5 kV/μs)	L-N / N-PE	< 25 ns / < 100 ns	< 25 ns / < 100 ns	
Voltage protection level U_p	L-N / L-PE / N-PE	< 1.5kV	< 1.5kV	
Maximum continuous operating voltage U_c	L-N / N-PE	280 VAC / 255 VAC	280 VAC / 255 VAC	
Temporary overvoltage test value U_T (5 s)	L-N / L-PE	348 VAC / 370 VAC	348 VAC / 370 VAC	
	N-PE	1200 VAC	1200 VAC	
Rated frequency		50/60 Hz	50/60 Hz	
Open circuit voltage U_{oc}		10 kV	20 kV	
Nominal discharge current (8/20) μs I_n	L-N / N-PE	25 kA / 100 kA	3x25 kA / 100 kA	
Maximum discharge current I_{max}	L-N / N-PE	50 kA / 100 kA	3x50 kA / 100 kA	
Impulse current I_{imp} (10/350) μs				
	Peak current	L-N / N-PE	12.5 kA / 100 kA	3x12.5 kA / 100 kA
	Charge Q		50 As	50 As
Specific energy		2500 kJ/Ω	2500 kJ/Ω	
Follow current interrupt rating I_{fi}	N-PE	100 A _{r.m.s}	100 A _{r.m.s}	
Maximum back-up fuse		160 AgL/gG	160 AgL/gG	
Maximum short-circuit current		50 kA _{r.m.s}	50 kA _{r.m.s}	
Connection diagram				
Mechanical				
Frame size		45 mm	45 mm	
Device height		80 mm	80 mm	
Device width		52.5 mm	87.5 mm	
Weight		375 g	626 g	
Permitted ambient temperature		-40°C to +70°C	-40°C to +70°C	
Degree of protection (built-in)		IP40	IP40	
Upper and lower lift terminal capacity	L, N	4 - 25 mm ²	4 - 25 mm ²	
	N, PE	4 - 35 mm ²	4 - 35 mm ²	
Upper and lower open mouthed terminals for busbar thickness up to		1.5 mm	1.5 mm	
Tightening torque of terminal screws		2.4 - 3 Nm	2.4 - 3 Nm	
Quick fastening on DIN rail according to		IEC/EN 60715	IEC/EN 60715	
Accessories: busbars 16 mm ²		Type ZV-KSBI ...	Type ZV-KSBI ...	

Lightning current arrester - surge arrester Sets, Lightning protection classes III, IV

<p>L, N, PE TN-S-System 3 x 230/400 VAC (3 x 220/380 VAC) (3 x 240/415 VAC)</p>  <p>SPBT12-280-1+NPE</p>	<p>L1, L2, L3, N, PE TN-S/TT-System 3 x 230/400 VAC (3 x 220/380 VAC) (3 x 240/415 VAC)</p>  <p>SPBT12-280-3+NPE</p>	<p>L1, L2, L3, N, PE TN-S/TT-System 3 x 230/400 VAC (3 x 220/380 VAC) (3 x 240/415 VAC)</p>  <p>SPBT12-280-3+NPE/BB</p>	<p>L, N, PE TN-S-System 3 x 230/400 VAC (3 x 220/380 VAC) (3 x 240/415 VAC)</p>  <p>SPBT12-280-1+NPE-AX</p>	<p>L1, L2, L3, N, PE TN-S/TT-System 3 x 230/400 VAC (3 x 220/380 VAC) (3 x 240/415 VAC)</p>  <p>SPBT12-280-3+NPE-AX</p>	<p>...SPBT12-280 ...ASAUXSC-SPM ...SPI-100/NPE ...ASLTT-63</p>
---	---	--	--	--	--

Surge Protection

Lightning current arrester - surge arrester Sets, Lightning protection classes I, II, III, IV

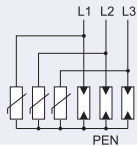
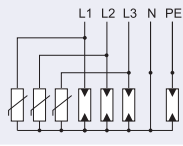
SPD Class B+C, SP-B+C/

- Field of application: For the protection of low voltage distribution systems against direct lightning stroke into the overhead power supply line or external lightning protection system (IEC 62305) and against indirect lightning stroke and switching operations.
- Application according to IEC 60364-5-53 Clause 534
- Test class **I** and **II** in accordance with IEC 61643-1
- SPD-type **T1** and **T2** in accordance with EN 61643-11
- Capsuled version: during the discharge process, the device does not issue any hot ionised gases. Therefore, there is no need for keeping a safety distance to flammable materials.

Practical Hint

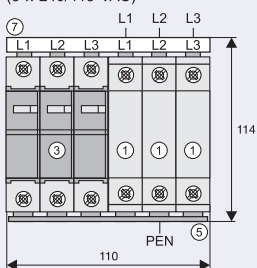
Installation of lightning current arresters upstream of the meter is subject to co-ordination with the relevant power supply company. Installation of an r.m.s.ective protection cascade (SPD classes B, C, D) requires co-ordinated application of the respective protective devices. This is ensured by a defined line length between protective devices. When using lightning current arresters of type SPI in connection with surge arresters SPC with a maximum continuous operating voltage U_c of 460 V AC, no specific line length or decoupling coils are required.

Technical Data

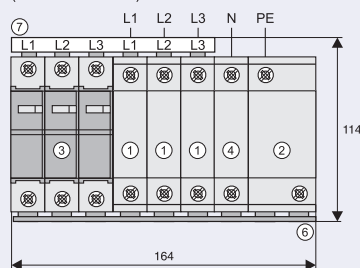
		SP-B+C/3	SP-B+C/3+1
Electrical			
Design		capsuled	capsuled
Responding time t_r		< 25 ns	< 25 ns
Voltage protection level U_p		1.5 kV	1.5 kV
Maximum continuous operating voltage U_c	L-(PE)N / N-PE	440 VAC / -	440 VAC / 260 VAC
Temporary overvoltage test value U_T	L-(PE)N N-PE	$U_T = U_c$ -	$U_T = U_c$ 1200 VAC (200 ms)
Rated frequency		50/60 Hz	50/60 Hz
Discharge current $(8/20) \mu s$ I_{max}/I_n		3x35 kA	100 kA
Impulse current I_{imp} (10/350) μs			
Peak current		100 kA	100 kA
Charge Q		50 As	50 As
Specific energy		2500 kJ/ Ω	2500 kJ/ Ω
Follow current interrupt rating I_{fi}	L-(PE)N / N-PE		
at 260 V		3kA _{rms} / -	3kA _{rms} / 100A _{rms}
at 440 V		1,5kA _{rms} / -	1,5kA _{rms} / -
Short-circuit current strength at max. back-up fuse		25kA _{rms}	25kA _{rms}
Maximum back-up fuse		125 AgL	125 AgL
Connection diagram			
Mechanical			
Frame size		45 mm	45 mm
Device height		90 mm	90 mm
Device width		110 mm	164 mm
Weight		1100 g	1420 g
Upper and lower lift terminal capacity			
rigid	L, N, PEN / PE	0.5 - 35 mm ²	0.5 - 35 mm ² / 10 - 50 mm ²
flexible	L, N, PEN / PE	0.5 - 25 mm ²	0.5 - 25 mm ² / 16 - 35 mm ²
Tightening torque of terminal screws		4 - 4.5 Nm	4 - 4.5 Nm / 6 - 8 Nm
Mounting		quick fastening on DIN rail IEC/EN 60715	
Degree of protection acc. to IEC 60529 (installed)		IP20 (IP40)	
Accessories: busbars		Z-GV-U/	
Permitted relative air humidity		< 95%	
Permitted ambient temperature		-40°C to +70°C	

Dimensions (mm)

TN-C-System
3 x 230/400 VAC
(3 x 220/380 VAC)
(3 x 240/415 VAC)



TT-, TN-S-System
3 x 230/400 VAC
(3 x 220/380 VAC)
(3 x 240/415 VAC)



Lightning current arrester - surge arrester

- ... SPI-35/440
- ... SPI-100/NPE for protection class I, II, III, IV
- ... SPC-S-20/460/3

Lead-through terminal

- ... SPB-D-125

Busbar

- ... Z-GV-U/6
- ... Z-GV-U/9
- ... Z-GV-16/3P-3TE/6

Surge Protection

Busbar Connection Examples according to IEC 60364-5-53 Clause 534

SPD Class B **SPI B**

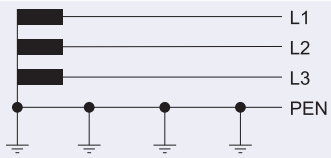
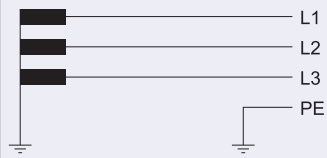
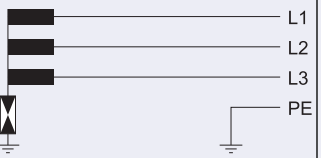
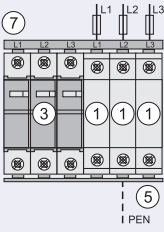
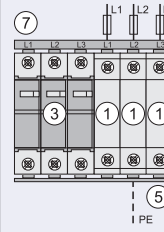
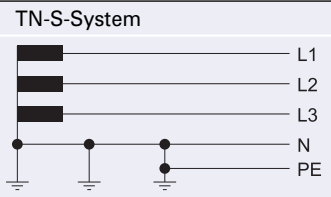
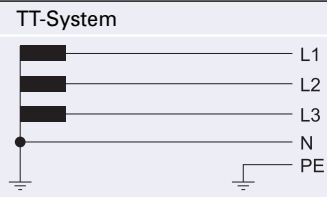
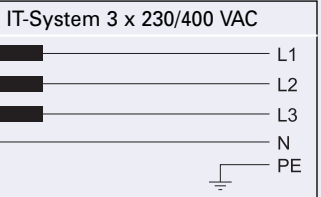
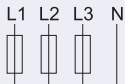
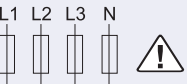
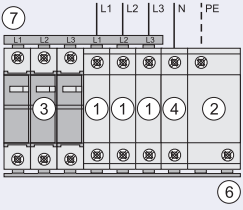
<p>TN-C-System</p> <p>3 x 240/415 V AC 3 x 230/400 V AC 3 x 220/380 V AC</p>		<p>TT-System 3 x 230 VAC</p>	<p>IT-System 3 x 230 VAC</p>
<p>SPI-35/440/3</p> <p>4 wires</p>	<p>2 wires</p>	<p>SPI-35/440/3</p> <p>4 wires</p>	<p>3 wires</p>
<p>TN-S-System</p> <p>3 x 240/415 V AC 3 x 230/400 V AC 3 x 220/380 V AC</p>		<p>TT-System</p>	<p>IT-System 3 x 230/400 VAC</p>
<p>SPI-3+1</p> <p>5 wires</p>		<p>3 wires</p>	
<p>TN-S-System</p> <p>TN-S-System</p> <p>5 wires</p>		<p>Lightning current arrester</p> <ul style="list-style-type: none"> .. SPI-35/440 .. SPI-100/NPE for protection class I, II, III, IV SPI-50/NPE for protection class III, IV <p>Lead-through terminal</p> <ul style="list-style-type: none"> .. SPB-D-125 <p>Busbar</p> <ul style="list-style-type: none"> .. Z-GV-U/2 .. Z-GV-U/3 .. Z-GV-U/4 .. Z-GV-U/4 at SPI-100/NPE Z-GV-U/3 at SPI-50/NPE ⑨ .. Z-GV-U/6 (Z-GV-U/5 at SPI-50/NPE) 	
<p>CT1</p> <p>5 wires</p>		<p>CT1</p> <p>3 wires</p>	

CT1 . .Connection type 1
CT2 . .Connection type 2

Surge Protection

Busbar Connection Examples according to IEC 60364-5-53 Clause 534

SPD Class B+C SPI B SPC C

<p>TN-C-System</p> <p>3 x 240/415 V AC 3 x 230/400 V AC 3 x 220/380 V AC</p> 	<p>TT-System 3 x 230 VAC</p> 	<p>IT-System 3 x 230 VAC</p> 
<p>SP-B+C/3</p>  <p>4 wires</p>	<p>SP-B+C/3</p>  <p>4 wires</p>	
<p>TN-S-System</p> <p>3 x 240/415 V AC 3 x 230/400 V AC 3 x 220/380 V AC</p> 	<p>TT-System</p> 	<p>IT-System 3 x 230/400 VAC</p> 
		
<p>SP-B+C/3+1</p>  <p>CT2</p> <p>5 wires</p>		

Lightning current arrester

- ...SPI-35/440
- ...SPI-100/NPE for protection class I, II, III, IV
- ...SPI-50/NPE for protection class III, IV
- ...SPCT2-460/3

Lead-through terminal

- ...SPB-D-125

Busbar

- ...Z-GV-U/6
- ...Z-GV-U/9
- ...Z-GV-16/3P-3TE/6

CT2 . . Connection type 2

Surge Protection

Application Examples according to IEC 60364-5-53 Clause 534

Lightning current arrester

- ...SPI-35/440
- ...SPI-100/NPE
- ...SPI-50/NPE

Surge arrester

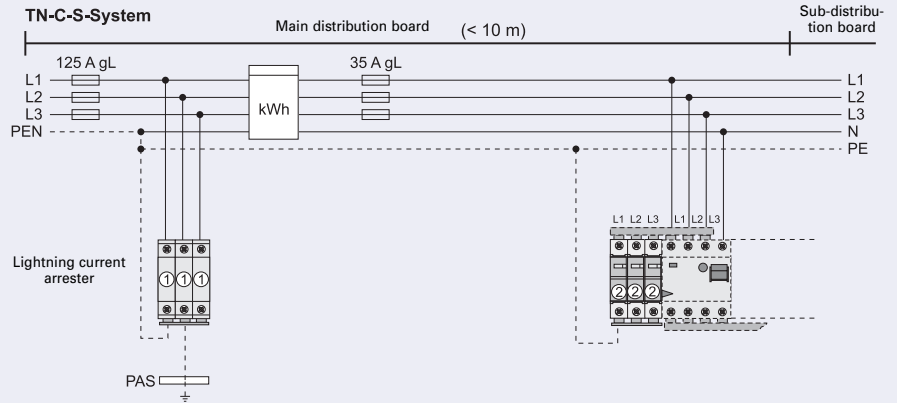
- ...SPCT2-460/3

Lead-through terminal

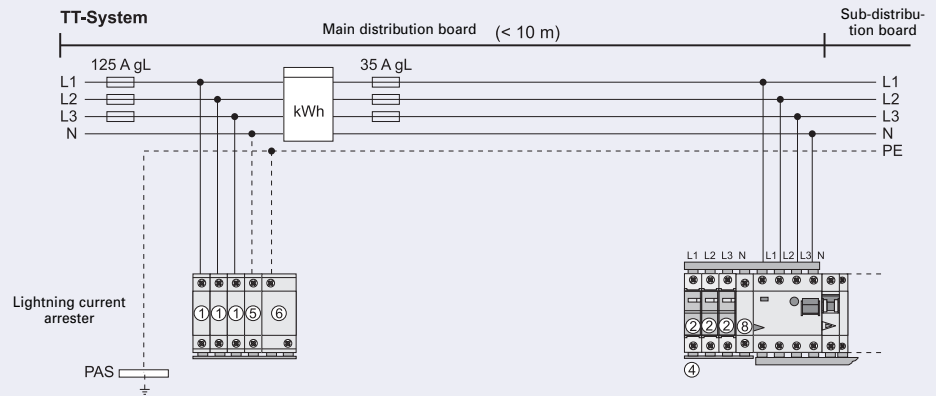
- ...SPB-D-125
- ⑧ ...ASLTT-63

Busbar

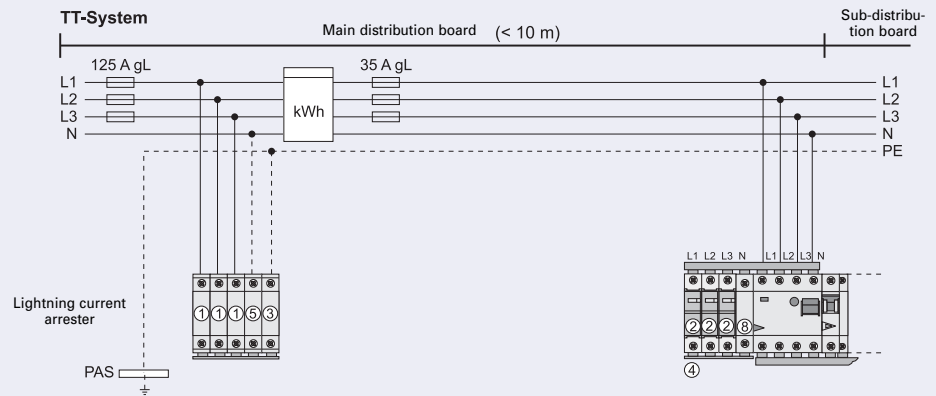
- ...ZV-KSBI-4TE



Protection Class I, II, III, IV



Protection Class III, IV



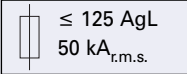
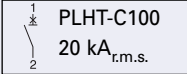
Surge Protection

SPD Class C, Surge Arresters SPC-E

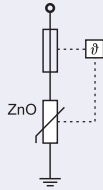
- Field of application
For the protection of low voltage distribution systems against transient overvoltage caused by indirect lightning stroke and switching operations.
- Test class **II** according to IEC 61643-1+A1
- SPD-type **T2** according to EN 61643-11
- Busbars ZV-KSBI are available for all customary applications
- Suitable for busbar connection to all Xtra Combinations switchgear

Block Diagram

Technical Data

	SPC-E-75	-130	-175	-280	-335	-385	-460	-580
Electrical								
Responding time (rate of voltage rise 5 kV/μs)	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns
Voltage protection level at nominal discharge current	< 550 V	< 800 V	< 1kV	< 1.4kV	< 1.6kV	< 1.8kV	< 2.2kV	< 2.6kV
Voltage protection level at 5 kA (8/20) μs	400 V	550 V	700 V	1000 V	1200 V	1350 V	1700 V	2000 V
Maximum continuous operating voltage U_c	75 VAC	130 VAC	175 VAC	280 VAC	335 VAC	385 VAC	460 VAC	580 VAC
Temporary overvoltage test value U_T (5 s)	$= U_c$	$= U_c$	$= U_c$	350 VAC	415 VAC	415 VAC	580 VAC	$= U_c$
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Nominal discharge current (8/20) μs I_n	15 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
Charge Q at I_n	0.43 As	0.57 As	0.57 As	0.57 As	0.57 As	0.57 As	0.57 As	0.57 As
Specific energy at I_n	3.2 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω
Maximum discharge current I_{max}	30 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA
Permissible back-up fuse								
Maximum short-circuit current	50 kA _{r.m.s.}		20 kA _{r.m.s.}					

Connection diagram



Mechanical

Frame size	45 mm
Device height	80 mm
Device width	17.5 mm
Weight	97 g
Permitted ambient temperature	-40°C to +70°C
Degree of protection (built-in)	IP40
Upper and lower lift terminal capacity	4 - 25 mm ²
Upper and lower open mouthed terminals for busbar thickness up to	1.5 mm
Tightening torque of terminal screws	2.4 - 3 Nm
Quick fastening on DIN rail according to	IEC/EN 60715
Accessories: busbars 16 mm ²	Type ZV-KSBI ...

Surge Protection

Technical Data

SPC-E-N/PE

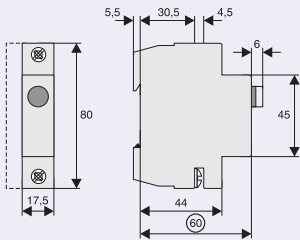
Electrical

Responding time (rate of voltage rise 5 kV/ μ s)	< 100 ns
Voltage protection level at nominal discharge current	< 1.0 kV
Maximum continuous operating voltage U_C	260 VAC
Temporary overvoltage test value U_T (200 ms)	1200 VAC
Rated frequency	50/60 Hz
Nominal discharge current (8/20) μ s I_n	20 kA
Charge Q at I_n	0.57 As
Specific energy at I_n	5.7 kJ/ Ω
Maximum discharge current I_{max}	40 kA
Follow current interrupt rating I_{fi}	100 A _{r.m.s}
Maximum back-up fuse	–
Maximum short-circuit current	–
Connection diagram	

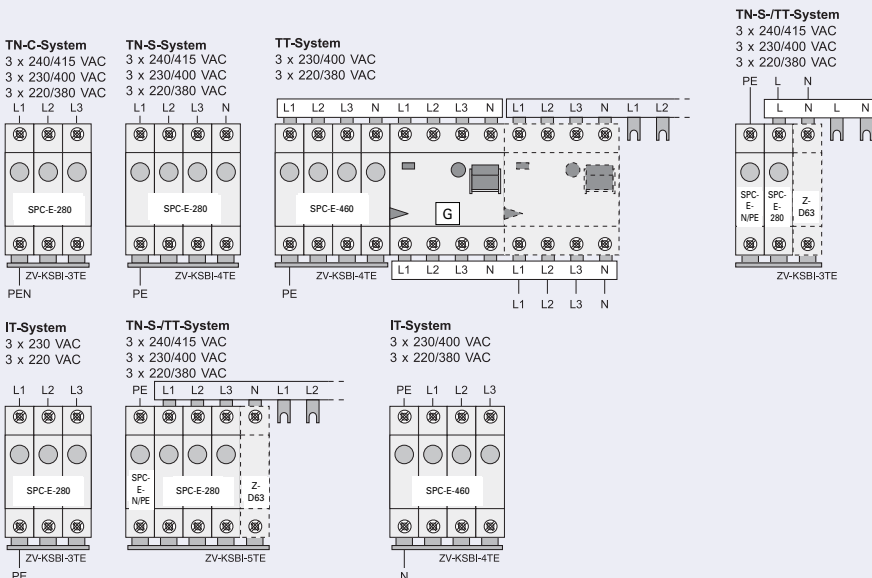
Mechanical

Frame size	45 mm
Device height	80 mm
Device width	17.5 mm
Weight	97 g
Permitted ambient temperature	-40°C to +70°C
Degree of protection (built-in)	IP40
Upper and lower lift terminal capacity	4 - 25 mm ²
Upper and lower open mouthed terminals for busbar thickness up to	1.5 mm
Tightening torque of terminal screws	2.4 - 3 Nm
Quick fastening on DIN rail according to	IEC/EN 60715
Accessories: busbars 16 mm ²	Type ZV-KSBI ...

Dimensions (mm)



Application Examples SPC-E according to IEC 60364-5-53 Clause 534







Surge Protection

SPD Class C, Plug-in Surge Arresters SPCT2

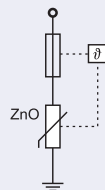
- Field of application:
For the protection of low voltage distribution systems against transient overvoltage caused by indirect lightning stroke and switching operations.
- Test class **III** according to IEC 61643-1+A1
- SPD-type **T2** according to EN 61643-11
- Auxiliary switch SPC-S-HK for remote message transmission can be mounted onto the device
- Suitable for busbar connection to all Xtra Combinations switchgear
- Busbars ZV-KSBI are available for all customary applications

Symbol

Technical Data

Inserts	SPCT2-075	SPCT2-130	SPCT2-175	SPCT2-280	SPCT2-335	SPCT2-385	SPCT2-460
Electrical							
Mechanical coding	x	x	x	x	x	x	x
Responding time (rate of voltage rise 5 kV/μs)	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns
Voltage protection level at nominal discharge current / U_{oc}	< 550 V	< 800 V	< 1.0 kV	< 1.4 kV	< 1.6 kV	< 1.8 kV	< 2.2 kV
Voltage protection level at 5 kA (8/20) μs	400 V	550 V	700 V	1000 V	1200 V	1350 V	1700 V
Maximum continuous operating voltage U_c	75 VAC	130 VAC	175 VAC	280 VAC	335 VAC	385 VAC	460 VAC
Temporary overvoltage test value U_T (5 s)	= U_c	= U_c	= U_c	350 VAC	415 VAC	415 VAC	580 VAC
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Open circuit voltage U_{oc}	–	–	–	10 kV	5 kV	–	–
Nominal discharge current (8/20) μs I_n	15 kA	20 kA	15 kA	20 kA	20 kA	20 kA	20 kA
Charge Q at I_n	0.43 As	0.57 As	0.57 As	0.57 As	0.57 As	0.57 As	0.57 As
Specific energy at I_n	3.2 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω
Maximum discharge current I_{max}	30 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA
Follow current interrupt rating I_{fi}	–	–	–	–	–	–	–
Permissible back-up fuse	 ≤ 125 AgL 50 kA _{r.m.s.}		 PLHT-C100 20 kA _{r.m.s.}				
Maximum short-circuit current	 ≤ 125 AgL 50 kA _{r.m.s.}		 PLHT-C100 20 kA _{r.m.s.}				

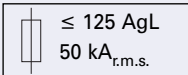
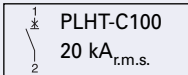
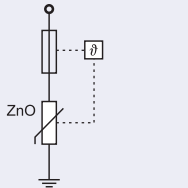
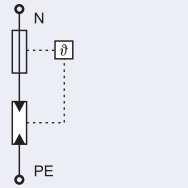
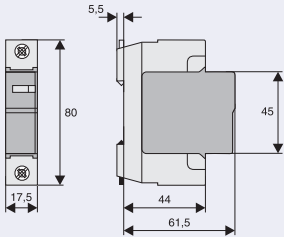
Connection diagram



Mechanical

Frame size	45 mm
Device height	80 mm
Device width	
1-pole	17.5 mm (1MU)
1+1-pole	35 mm (2MU)
2-pole	35 mm (2MU)
3-pole	52.5 mm (3MU)
3+1-pole	70 mm (4MU)
4-pole	70 mm (4MU)
Mechanical coding	
1-pole	x
1+1-pole	yx
2-pole	xx
3-pole	xxx
3+1-pole	yxxx
4-pole	xxxx
Weight Base 1P, 1+1P, 2P, 3P, 3+1P, 4P	53/120/120/180/240/240 g
Weight Complete Devices 1P, 1+1P, 2P, 3P, 3+1P, 4P	110/201/220/330/412/440 g
Permitted ambient temperature	-40°C to +70°C
Degree of protection (built-in)	IP40
Upper and lower lift terminal capacity	4 - 25 mm ²
Upper and lower open mouthed terminals for busbar thickness up to	1.5 mm
Tightening torque of terminal screws	2.4 - 3 Nm
Quick fastening on DIN rail according to	IEC/EN 60715
Accessories: busbars 16 mm ²	Type ZV-KSBI ...

Surge Protection

Technical Data		
Inserts	SPCT2-580	SPCT2-NPE
Electrical		
Mechanical coding	x	y
Responding time (rate of voltage rise 5 kV/μs)	< 25 ns	< 100 ns
Voltage protection level at nominal discharge current / U _{oc}	< 2.6 kV	< 1.0 kV
Voltage protection level at 5 kA (8/20) μs	2000 V	–
Maximum continuous operating voltage U _c	580 VAC	260 VAC
Temporary overvoltage test value U _T	= U _C (5 s)	1200 VAC (200 ms)
Rated frequency	50/60 Hz	50/60 Hz
Nominal discharge current (8/20) μs I _n	20 kA	20 kA
Charge Q at I _n	0.57 As	0.57 As
Specific energy at I _n	5.7 kJ/Ω	5.7 kJ/Ω
Maximum discharge current I _{max}	40 kA	40 kA
Follow current interrupt rating I _{fi}	–	100 A _{r.m.s}
Permissible back-up fuse	 ≤ 125 AgL 50 kA _{r.m.s.}	–
Maximum short-circuit current	 PLHT-C100 20 kA _{r.m.s.}	–
Connection diagram		
Mechanical		
Frame size	45 mm	
Device height	80 mm	
Device width		
1-pole	17.5 mm (1MU)	
1+1-pole	35 mm (2MU)	
2-pole	35 mm (2MU)	
3-pole	52.5 mm (3MU)	
3+1-pole	70 mm (4MU)	
4-pole	70 mm (4MU)	
Mechanical coding		
1-pole	x	
1+1-pole	yx	
2-pole	xx	
3-pole	xxx	
3+1-pole	yxxx	
4-pole	xxxx	
Weight Base 1P, 1+1P, 2P, 3P, 3+1P, 4P	53/120/120/180/240/240 g	
Weight Complete Devices 1P, 1+1P, 2P, 3P, 3+1P, 4P	110/201/220/330/412/440 g	
Permitted ambient temperature	-40°C to +70°C	
Degree of protection (built-in)	IP40	
Upper and lower lift terminal capacity	4 - 25 mm ²	
Upper and lower open mouthed terminals for busbar thickness up to	1.5 mm	
Tightening torque of terminal screws	2.4 - 3 Nm	
Quick fastening on DIN rail according to	IEC/EN 60715	
Accessories: busbars 16 mm ²	Type ZV-KSBI ...	
Dimensions (mm)		
		

Surge Protection

SPD Class C, Plug-in Surge Arresters SPC-S

- Field of application:
For the protection of low voltage distribution systems against transient overvoltage caused by indirect lightning stroke and switching operations.
- Test class **III** according to IEC 61643-1+A1
- SPD-type **T2** according to EN 61643-11
- Auxiliary switch SPC-S-HK for remote message transmission can be mounted onto the device
- Suitable for busbar connection to all Xtra Combinations switchgear
- Busbars ZV-KSBI are available for all customary applications

Symbol



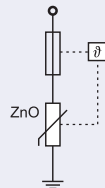
Technical Data

Inserts	SPC-S-15/75	-20/130	-20/175	-20/280	-20/335	-20/385	-20/460
Electrical							
Mechanical coding	x	x	x	x	x	x	x
Responding time (rate of voltage rise 5 kV/μs)	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns	< 25 ns
Voltage protection level at nominal discharge current / U_{oc}	< 550 V	< 800 V	< 1.0 kV	< 1.4 kV	< 1.6 kV	< 1.8 kV	< 2.2 kV
Voltage protection level at 5 kA (8/20) μs	400 V	550 V	700 V	1000 V	1200 V	1350 V	1700 V
Maximum continuous operating voltage U_c	75 VAC	130 VAC	175 VAC	280 VAC	335 VAC	385 VAC	460 VAC
Temporary overvoltage test value U_T (5 s)	= U_c	= U_c	= U_c	350 VAC	415 VAC	415 VAC	580 VAC
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Open circuit voltage U_{oc}	–	–	–	10 kV	5 kV	–	–
Nominal discharge current (8/20) μs I_n	15 kA	20 kA	15 kA	20 kA	20 kA	20 kA	20 kA
Charge Q at I_n	0.43 As	0.57 As	0.57 As	0.57 As	0.57 As	0.57 As	0.57 As
Specific energy at I_n	3.2 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω	5.7 kJ/Ω
Maximum discharge current I_{max}	30 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA
Follow current interrupt rating I_{fi}	–	–	–	–	–	–	–

Permissible back-up fuse
Maximum short-circuit current



Connection diagram

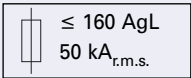
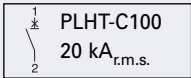


Mechanical

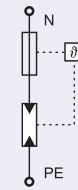
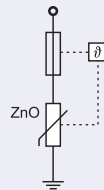
Frame size	45 mm
Device height	80 mm
Device width	
1-pole	17.5 mm (1MU)
1+1-pole	35 mm (2MU)
2-pole	35 mm (2MU)
3-pole	52.5 mm (3MU)
3+1-pole	70 mm (4MU)
4-pole	70 mm (4MU)
Mechanical coding	
1-pole	x
1+1-pole	yx
2-pole	xx
3-pole	xxx
3+1-pole	yxxx
4-pole	xxxx
Weight Base 1P, 1+1P, 2P, 3P, 3+1P, 4P	53/120/120/180/240/240 g
Weight Complete Devices 1P, 1+1P, 2P, 3P, 3+1P, 4P	110/201/220/330/412/440 g
Permitted ambient temperature	-40°C to +70°C
Degree of protection (built-in)	IP40
Upper and lower lift terminal capacity	4 - 25 mm ²
Upper and lower open mouthed terminals for busbar thickness up to	1.5 mm
Tightening torque of terminal screws	2.4 - 3 Nm
Quick fastening on DIN rail according to	IEC/EN 60715
Accessories: busbars 16 mm ²	Type ZV-KSBI ...

Surge Protection

Technical Data

Inserts	SPC-S-20/580	-N/PE
Electrical		
Mechanical coding	x	y
Responding time (rate of voltage rise 5 kV/μs)	< 25 ns	< 100 ns
Voltage protection level at nominal discharge current / U_{oc}	< 2.6 kV	< 1.0 kV
Voltage protection level at 5 kA (8/20) μs	2000 V	–
Maximum continuous operating voltage U_c	580 VAC	260 VAC
Temporary overvoltage test value U_T	= U_c (5 s)	1200 VAC (200 ms)
Rated frequency	50/60 Hz	50/60 Hz
Nominal discharge current (8/20) μs I_n	20 kA	20 kA
Charge Q at I_n	0.57 As	0.57 As
Specific energy at I_n	5.7 kJ/Ω	5.7 kJ/Ω
Maximum discharge current I_{max}	40 kA	40 kA
Follow current interrupt rating I_{fi}	–	100 A _{r.m.s.}
Permissible back-up fuse	 ≤ 160 AgL 50 kA _{r.m.s.}	–
Maximum short-circuit current	 PLHT-C100 20 kA _{r.m.s.}	–

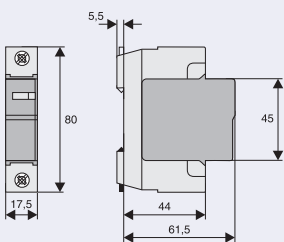
Connection diagram



Mechanical

Frame size	45 mm
Device height	80 mm
Device width	
1-pole	17.5 mm (1MU)
1+1-pole	35 mm (2MU)
2-pole	35 mm (2MU)
3-pole	52.5 mm (3MU)
3+1-pole	70 mm (4MU)
4-pole	70 mm (4MU)
Mechanical coding	
1-pole	x
1+1-pole	yx
2-pole	xx
3-pole	xxx
3+1-pole	yxxx
4-pole	xxxx
Weight Base 1P, 1+1P, 2P, 3P, 3+1P, 4P	53/120/120/180/240/240 g
Weight Complete Devices 1P, 1+1P, 2P, 3P, 3+1P, 4P	110/201/220/330/412/440 g
Permitted ambient temperature	-40°C to +70°C
Degree of protection (built-in)	IP40
Upper and lower lift terminal capacity	4 - 25 mm ²
Upper and lower open mouthed terminals for busbar thickness up to	1.5 mm
Tightening torque of terminal screws	2.4 - 3 Nm
Quick fastening on DIN rail according to	IEC/EN 60715
Accessories: busbars 16 mm ²	Type ZV-KSBI ...

Dimensions (mm)





Surge Protection

SPD Class C, Surge Arresters SPCT2-1+NPE, SPCT2-3+NPE

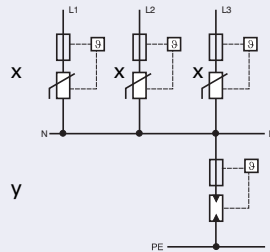
- Field of application:
For the protection of low voltage distribution systems against transient overvoltage caused by indirect lightning stroke and switching operations.
- Test class **II** according to IEC 61643-1+A1
- SPD-type **T2** according to EN 61643-11
- Auxiliary switch SPC-S-HK for remote message transmission can be mounted onto the device
- Suitable for busbar connection to all Xtra Combinations switchgear
- Type **SPC-S-3+1**:
consists of 1 base SPC-S-S4-3+1,
1 insert SPC-S-N/PE and 3 inserts SPC-S-20/335
- Type **SPC-S-1+1**:
consists of 1 base SPC-S-S2-1+1,
1 insert SPC-S-N/PE and 1 insert SPC-S-20/335

Technical Data

		SPCT2-1+NPE	SPCT2-3+NPE
Electrical			
Mechanical coding		yx	yxxx
Responding time (rate of voltage rise 5 kV/μs)	L-N/N-PE/L-PE	< 25ns/< 100ns/< 100ns	< 25ns/< 100ns/< 100ns
Maximum continuous operating voltage U_c	L-N/N-PE	335VAC/260VAC	280VAC/260VAC
Temporary overvoltage test value U_T (5 s) (200 ms)	L-N	415 VAC	350 VAC
	N-PE	1200 VAC	1200 VAC
Rated frequency		50/60 Hz	50/60 Hz
Nominal discharge current I_n	L-N/N-PE/L-PE	20 kA (8/20)μs	20 kA (8/20)μs
Voltage protection level U_p at I_n	L-N/N-PE/L-PE	≤ 1600V/≤ 1000V/≤ 1650V	≤ 1000V/≤ 1000V/≤ 1300V
Maximum discharge current I_{max}	L-N/N-PE/L-PE	40 kA (8/20)μs	40 kA (8/20)μs
Follow current interrupt rating I_{fi}	N-PE	100 A _{r.m.s.}	100 A _{r.m.s.}
Permissible back-up fuse		 ≤ 125 AgL	 PLHT-C100
Maximum short-circuit current		50 kA _{r.m.s.}	20 kA _{r.m.s.}

Connection diagram

x

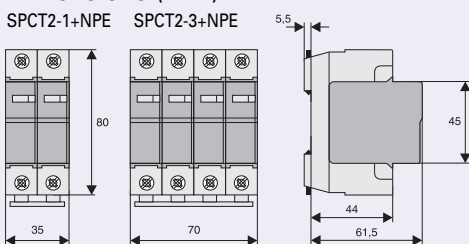


y

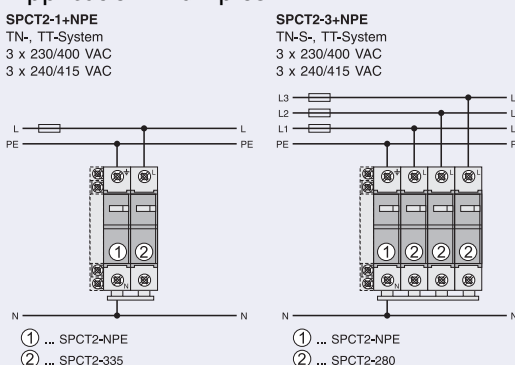
Mechanical

Mechanical coding of base		yx	yxxx
Frame size		45 mm	45 mm
Device height		80 mm	80 mm
Device width		35 mm	70 mm
Weight		201 g	412 g
Upper and lower lift terminal capacity		1 - 25 mm ²	1 - 25 mm ²
Open-mouthed terminals at both sides for busbar thickness up to		1.5 mm	1.5 mm
Tightening torque of terminal screws		2.4 - 3 Nm	2.4 - 3 Nm
Permitted ambient temperature		-40°C to +70°C	-40°C to +70°C
Mounting		quick fastening on DIN rail IEC/EN 60715	
Degree of protection (built-in)		IP40	IP40

Dimensions (mm)



Application Examples

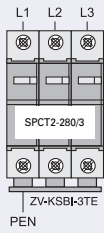


Surge Protection

Application Examples SPCT2 according to IEC 60364-5-53 Clause 534

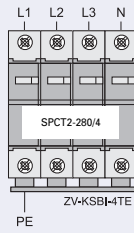
TN-C-System

3 x 240/415 VAC
3 x 230/400 VAC
3 x 220/380 VAC



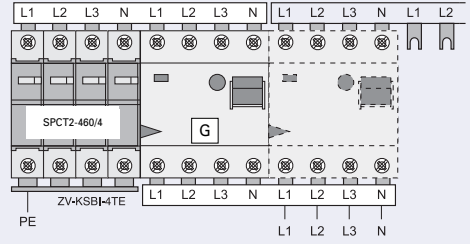
TN-S-System

3 x 240/415 VAC
3 x 230/400 VAC
3 x 220/380 VAC



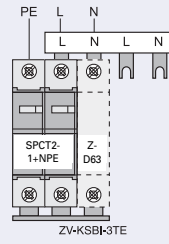
TT-System

3 x 230/400 VAC
3 x 220/380 VAC



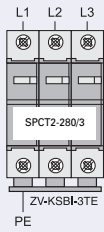
TN-S/TT-System

3 x 240/415 VAC
3 x 230/400 VAC
3 x 220/380 VAC



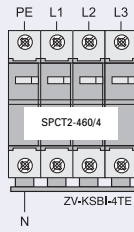
IT-System

3 x 230 VAC
3 x 220 VAC



IT-System

3 x 230/400 VAC
3 x 220/380 VAC



Surge Protection

Surge arrester Sets

SPD Class C, SPCT2

Surge Arrester Set SPCT2-335-3+NPE/BB

- The 3+1 circuit offers a universal solution for surge protection in low voltage distribution systems
- Suitable for TT- and TN-S systems according to IEC 60364-5-53 Clause 534
- Remote message transmission is possible by mounting auxiliary switch ASAXSC-SPM
- Busbar connected, minimum installation work required

Content

SPCT2-335-3+NPE/BB

- 1 unit SPC-S-3+1 surge arrester
- 1 unit ASLTT-63 lead-through terminal
- busbar included

Surge Protection

Auxiliary Switch for (Lightning Current Arrester-)Surge Arrester ASAXSC-SPM

- Field of application:
For mounting onto surge protective devices for external defect message transmission
- Design basically in accordance with IEC 60947-5-1
- Can be mounted subsequently
- Suitable for SPBT12-280/1, SPCT2

Connection diagram

ASAXSC-SPM



Technical Data

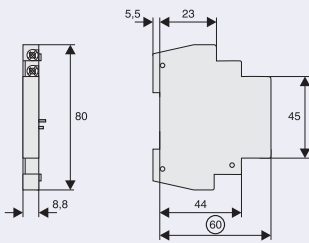
Electrical

Rated insulation voltage	250 V
Rated frequency	50/60 Hz
Switching contact	1 NC + 1 NO
Minimum voltage per contact	24 VAC
Rated operational current AC12	2A/250VAC
Maximum back-up fuse	2 A gL
Overtoltage category	IV
Pollution degree	2

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	8.8 mm
Weight	41 g
Mounting	screw-mounting
Degree of protection, built-in	IP40
Finger and hand touch safe acc. to	BGV A3, ÖVE-EN 6
Upper and lower terminals	lift terminals
Terminal capacity	2 x 2.5 mm ²
Tightening torque of terminal screws	0.8 - 1 Nm

Dimensions (mm)



Application Examples

SPCT2

SPCT2

SPCT2

Surge Protection

Lead-Through Terminal for Surge Protective Devices, Class B, SPB-D-125

- The lead-through terminal permits orderly wiring of SPDs of class B. It serves as lead-through terminal in circuits requiring vertical connections from the upper to the lower SPD connection level.

Connection diagram

Technical Data

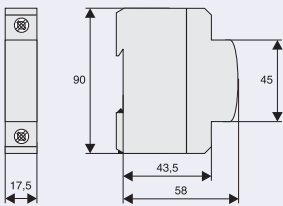
Electrical

Design basically in accordance with	IEC 61643-1: 1998-02, DIN VDE 0675 Part 6: 1989-11, IEC 61024-1: 1990-03, IEC 60947-7-1: 1989-10, DIN VDE 0110-1: 1997-04
Rated voltage U_C	500 V AC/DC
Rated current I_N	125 A / 30°C
Impulse current (10/350) μ s	
Peak current	100 kA
Charge Q	50 As
Specific energy	2,5 MJ/Q
Overvoltage category	III

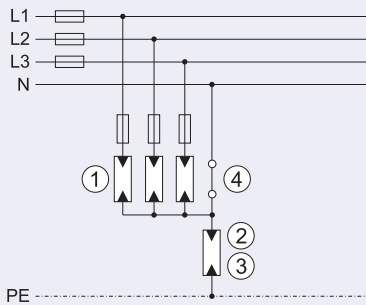
Mechanical

Frame size	45 mm
Device height	90 mm
Device width	17.5 mm
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Upper and lower terminals	lift and open-mouthed terminals
Terminal capacity	
rigid	0.5 - 35 mm ²
flexible	0.5 - 25 mm ²
Tightening torque of terminal screws	4-4.5 Nm
Permitted relative air humidity	< 95%
Pollution degree	2
Resistance to climatic conditions	F / DIN 40040
Creepage a. clearance distances acc. to	IEC 60664-1, DIN VDE 0110-1:1997-04
Temperature range	-40 to +85°C

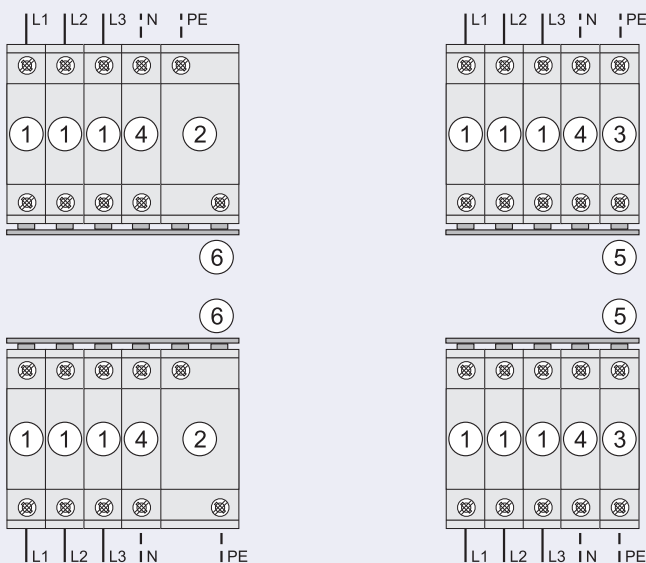
Dimensions (mm)



Connection type 2 according to IEC 60364-5-53 Clause 534



TT-System, TN-S-System, IT-System with Neutral



Lightning current arrester

- ① ... SPI-35/440
- ... SPI-100/NPE
- ③ ... SPI-50/NPE

Lead-through terminal

- ... SPB-D-125

Busbar

- ... Z-GV-U/5
- ... Z-GV-U/6

Surge Protection

Lead-Through Terminal for Surge Protective Devices, ASLTT-63

- The lead-through terminal permits orderly wiring of SPDs. It serves as lead-through terminal in circuits requiring vertical connections from the upper to the lower SPD connection level.
- 1-pole
- Suitable for standard busbar connection to all Xtra Combination switchgear

Connection diagram

Technical Data

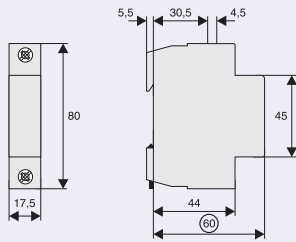
Electrical

Rated voltage	500V AC/DC
Rated current	63 A
Rated frequency	50/60 Hz

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	17.5 mm
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Finger and hand touch safe acc. to	BGV A3, ÖVE-EN 6
Upper and lower terminals	lift and open-mouthed terminals
Terminal capacity	1 - 25 mm ²
Busbar thickness	0.8 - 2 mm
Tightening torque of terminal screws	2.4 - 3 Nm

Dimensions (mm)



Application Example / Connection type 2 acc. to IEC 60364-5-53 Clause 534

SPCT2-335-
3+NPE/BB

ASLT
T-63



SPD-type T2 (Class C), Plug-in Surge Arresters SPPT2PA-...-2PE

- Field of application:
For the protection of photovoltaic systems against transient overvoltage caused by indirect lightning stroke and switching operations.
- Test class **III** according to IEC 61643-1
- SPD-type **T2** according to EN 61643-11
- Types SPPT2PA-...-AX for remote message transmission of defective inserts

Connection diagrams

SPPT2PA-...-2PE



Technical Data

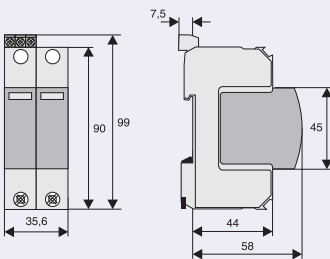
	SPPT2PA-600-2PE	SPPT2PA-1000-2PE(-AX)
Electrical		
Responding time	≤ 25 ns	≤ 25 ns
Maximum continuous operating voltage U_C	600 V DC	1000 V DC
Rated frequency	DC	DC
Nominal discharge current I_n	15 kA (8/20) μ s	15 kA (8/20) μ s
Voltage protection level U_p	≤ 3 kV	≤ 5 kV
Residual voltage at 5 kA (8/20) μ s	≤ 2.5 kV	≤ 4 kV
Maximum discharge current I_{max}	30 kA (8/20) μ s	30 kA (8/20) μ s
Permissible back-up fuse	-	-
Maximum short-circuit current I_{sc}	80 A	80 A
Residual current I_{PE}	≤ 20 μ A	≤ 20 μ A
Mechanical		
Frame size	45 mm	45 mm
Device height	90 mm	90 mm (99 mm)
Device width	35.6 mm	35.6 mm
Weight	247 g	247 g (249 g)
Upper and lower lift terminal capacity fine- / solid strand	4-25/4-35 mm ² /AWG11-2	4-25/4-35 mm ² /AWG11-2
Tightening torque of terminal screws	4.5 Nm	4.5 Nm
Permitted ambient temperature	-40°C up to +80°C	-40°C up to +80°C
Mounting	quick fastening on DIN rail IEC/EN 60715	
Degree of protection	IP20	IP20
Polution degree	2	2

Auxiliary switch

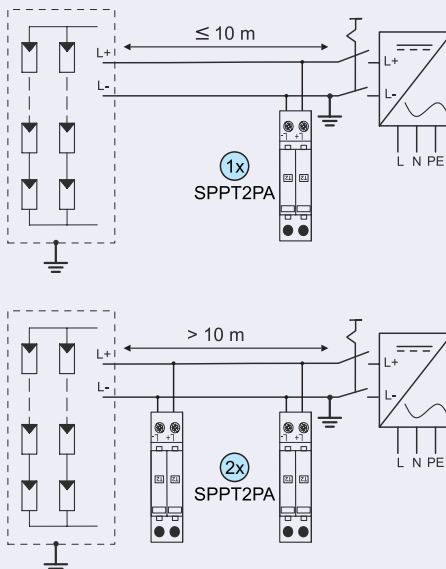
Electrical	
Rated insulation voltage	250 V
Rated frequency	50/60 Hz
Switching contact	1 CO
Minimum voltage per contact	5 V AC/DC
Rated operational current	1.5 A / 250 V AC 1.5 A / 30 V DC
Min. admissible power	5 mA / 5 V

Mechanical	
Terminal capacity fine- / solid strand	1.5/1.5 mm ² /AWG28-16
Tightening torque of terminal screws	0.25 Nm

Dimensions (mm)



Application hints according to EN 50539-12



Photovoltaic - Surge Protection

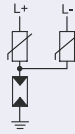


SPD-type T2 (Class C), Plug-in Surge Arresters SPPT2PA-...-2+1PE

- Field of application:
For the protection of photovoltaic systems against transient overvoltage caused by indirect lightning stroke and switching operations.
- Test class **II** according to IEC 61643-1
- SPD-type **T2** according to EN 61643-11
- Galvanic separation in unearthed systems by means of a spark gap
- Types SPPT2PA-...-AX for remote message transmission of defective inserts

Connection diagrams

SPPT2PA-...-2+1PE



Technical Data

		SPPT2PA-600-2+1PE	SPPT2PA-1000-2+1PE(-AX)
Electrical			
Responding time	L+ -> L- / L- -> PE	≤ 25 ns / ≤ 100 ns	≤ 25 ns / ≤ 100 ns
Maximum continuous operating voltage U_c		600 V DC	1000 V DC
Rated frequency		DC	DC
Nominal discharge current I_n		15 kA (8/20) μ s	15 kA (8/20) μ s
Voltage protection level U_p	L+ -> L- / L- -> PE	≤ 3 kV / ≤ 3 kV	≤ 5 kV / ≤ 3 kV
Residual voltage at 5 kA (8/20) μ s	L+ -> L- / L- -> PE	≤ 2.5 kV / ≤ 2 kV	≤ 4 kV / ≤ 2 kV
Maximum discharge current I_{max}		30 kA (8/20) μ s	30 kA (8/20) μ s
Permissible back-up fuse		-	-
Maximum short-circuit current I_{sc}		80 A	80 A
Residual current I_{PE}		≤ 20 μ A	≤ 20 μ A

Mechanical

Frame size		45 mm	45 mm
Device height		90 mm	90 mm (99 mm)
Device width		53.4 mm	53.4 mm
Weight		318 g	318 g (323 g)
Upper and lower lift terminal capacity			
fine- / solid strand		4-25/4-35 mm ² /AWG11-2	4-25/4-35 mm ² /AWG11-2
Tightening torque of terminal screws		4.5 Nm	4.5 Nm
Permitted ambient temperature		-40°C up to +80°C	-40°C up to +80°C
Mounting		quick fastening on DIN rail IEC/EN 60715	
Degree of protection		IP20	IP20
Polution degree		2	2

Auxiliary switch

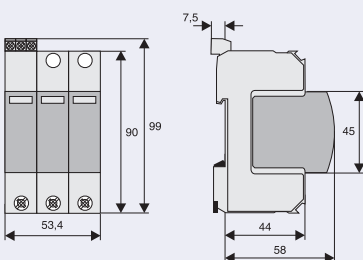
Electrical

Rated insulation voltage	250 V
Rated frequency	50/60 Hz
Switching contact	1 CO
Minimum voltage per contact	5 V AC/DC
Rated operational current	1.5 A / 250 V AC 1.5 A / 30 V DC
Min. admissible power	5 mA / 5 V

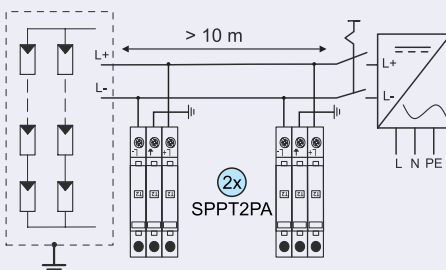
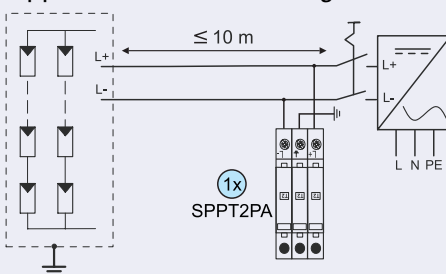
Mechanical

Terminal capacity	
fine- / solid strand	1.5/1.5 mm ² /AWG28-16
Tightening torque	
of terminal screws	0.25 Nm

Dimensions (mm)



Application hints according to EN 50539-12

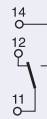




Auxiliary Switch for Surge Arresters ASAUXSC-SPM

- Field of application:
For mounting onto surge protective devices for external defect message transmission
- Design basically in accordance with IEC 60947-5-1
- Can be mounted subsequently
- Suitable for SPMT2PA

Connection diagram



Technical Data

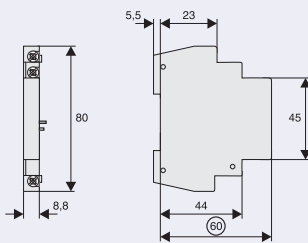
Electrical

Rated insulation voltage	250 V
Rated frequency	50/60 Hz
Switching contact	1 CO
Minimum voltage per contact	24 VAC
Rated operational current AC12	2A/250VAC
Maximum back-up fuse	2 A gL
Overvoltage category	IV
Pollution degree	2

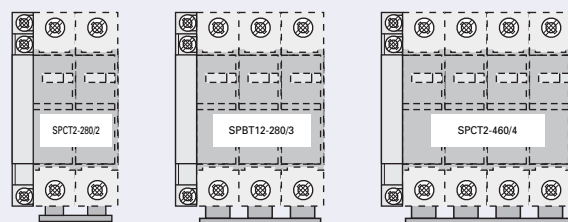
Mechanical

Frame size	45 mm
Device height	80 mm
Device width	8.8 mm
Weight	41 g
Mounting	screw-mounting
Degree of protection, built-in	IP40
Finger and hand touch safe acc. to	BGV A3, ÖVE-EN 6
Upper and lower terminals	lift terminals
Terminal capacity	2 x 2.5 mm ²
Tightening torque of terminal screws	0.8 - 1 Nm

Dimensions (mm)



Application Examples



Lead-Through Terminal for Surge Protective Devices, SPD-type 2 (Class C), ASLTT-63

- The lead-through terminal permits orderly wiring of SPDs types 2 (class C). It serves as lead-through terminal in circuits requiring vertical connections from the upper to the lower SPD connection level.
- 1-pole
- Suitable for standard busbar connection to EATON switchgear

Connection diagram



Technical Data

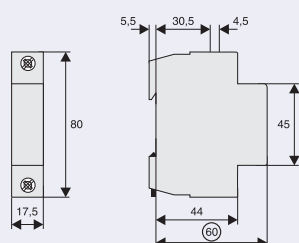
Electrical

Rated voltage	690V AC/DC
Rated current	63 A
Rated frequency	50/60 Hz

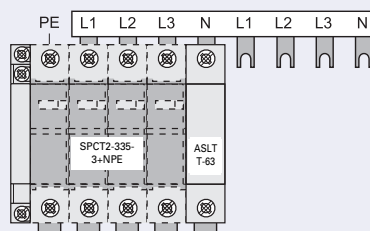
Mechanical

Frame size	45 mm
Device height	80 mm
Device width	17.5 mm
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Finger and hand touch safe acc. to	BGV A3, ÖVE-EN 6
Upper and lower terminals	lift and open-mouthed terminals
Terminal capacity	1 - 25 mm ²
Busbar thickness	0.8 - 2 mm
Tightening torque of terminal screws	2.4 - 3 Nm

Dimensions (mm)



Application Example / Connection type 2 acc. to IEC 60364-5-53 Clause 534



Surge Protection

Busbars Z-GV-U/

- Busbars Z-GV-U/ permit to implement customary SPD combinations
- Suitable for SPI-..., SPB-D-125
- The rated cross-section of Z-GV-U/ is 16 mm²
- The busbars must be cut to length in some cases

Technical Data

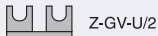
Electrical

Rated voltage	230/400 V, 50/60 Hz
Rated current	63 A

Mechanical

Busbar cross section	16 mm ² Cu
----------------------	-----------------------

Models



Z-GV-U/2



Z-GV-U/3



Z-GV-U/4



Z-GV-U/5



Z-GV-U/6



Z-GV-U/8



Z-GV-U/9

Busbars ZV-KSBI

- Busbars ZV-KSBI permit to implement customary SPD combinations
- Suitable for SPB-..., SPC-..., Z-D63
- The rated cross-section of ZV-KSBI is 16 mm²
- The busbars must be cut to length in some cases

Technical Data

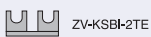
Electrical

Rated voltage	230/400 V, 50/60 Hz
Rated current	63 A

Mechanical

Busbar cross section	16 mm ² Cu
----------------------	-----------------------

Models



ZV-KSBI-2TE



ZV-KSBI-3TE



ZV-KSBI-3TE/S



ZV-KSBI-3TE+HI



ZV-KSBI-4TE



ZV-KSBI-5TE



ZV-KSBI-5TE/N



ZV-KSBI-5TE+HI



ZV-KSBI-6TE



ZV-KSBI-7TE



ZV-KSBI-7TE/S



ZV-KSBI-7TE/N



ZV-KSBI-9TE/N



ZV-KSBI-11TE

Marking Label SPI-BZS-L/N/PE



- Can be affixed to SPI-..., SPB-D-125
- Size 7 x 17mm
- Colour: white

Surge Protection

SPD Class D, Surge Protective Device SPD-S-1+1, SPD-S-280/2

- Field of application:
For fine protection of user equipment against transient overvoltage
- For mounting on DIN rails in distribution boxes for electrical installation
- No decoupling from upstream surge protection in the low voltage distribution system required
- Test class III according to IEC 61643-1+A1
- SPD-type 13 according to EN 61643-11
- Suitable for high back-up fuse 63 A gL / C 63
- Auxiliary switch SPC-S-HK for remote message transmission can be mounted onto the device

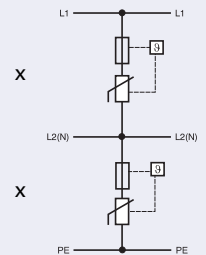
Technical Data

	SPD-S-1+1		SPD-S-280/2	
Electrical				
Mechanical coding	yx		xx	
Responding time (rate of voltage rise 5 kV/μs)	L-N/N-PE/L-PE	< 25ns/< 100ns/< 100ns	L1-L2(N)/L2(N)-PE/L1-PE	< 25ns
Maximum continuous operating voltage U_C	L-N/N-PE	335VAC/260VAC	L1-L2(N)/L2(N)-PE	280VAC
Temporary overvoltage test value U_T (5 s)	L-N/L-PE	350VAC/416VAC	L-N/L-PE	350VAC/416VAC
(200 ms)	N-PE	1200VAC	N-PE	1200VAC
Rated frequency	50/60 Hz		50/60 Hz	
Open circuit voltage U_{OC}	L-N/N-PE/L-PE	5kV	L1-L2(N)/L2(N)-PE/L1-PE	10kV
Voltage protection level U_p at U_{OC}	L-N/N-PE/L-PE	$\leq 1000V/\leq 900V/\leq 1000V$	L1-L2(N)/L2(N)-PE	$\leq 950V$
Nominal discharge current I_n	L-N/N-PE/L-PE	2,5kA (8/20)μs	L1-L2(N)/L2(N)-PE	5kA (8/20)μs
Voltage protection level U_p at I_n	L-N/N-PE/L-PE	$\leq 1000V/\leq 700V/\leq 1000V$	L1-L2(N)/L2(N)-PE	$\leq 950V$
Maximum discharge current I_{max}	L-N/N-PE/L-PE	10kA (8/20)μs	L1-L2(N)/L2(N)-PE/L1-PE	10kA (8/20)μs
Follow current interrupt rating I_{fi}	N-PE	100 A _{r.m.s.}	-	
Permissible back-up fuse	 $\leq 63 \text{ AgL}$		 $\leq C63$	
Maximum short-circuit current	50 kA _{r.m.s.}		10 kA _{r.m.s.}	

Connection diagram

x

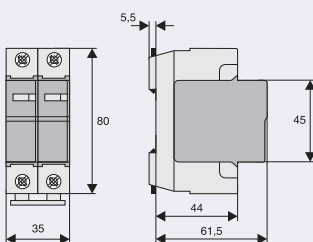
y



Mechanical

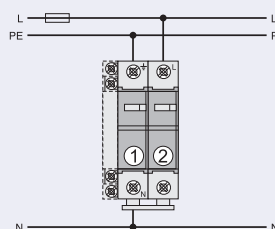
Mechanical coding of base	yx	xx
Frame size	45 mm	45 mm
Device height	80 mm	80 mm
Device width	35 mm	35 mm
Weight	220 g	220 g
Upper and lower lift terminal capacity	1 - 25 mm ²	1 - 25 mm ²
Open-mouthed terminals at both sides for busbar thickness up to	1.5 mm	1.5 mm
Tightening torque of terminal screws	2.4 - 3 Nm	2.4 - 3 Nm
Permitted ambient temperature	-40°C to +70°C	-40°C to +70°C
Mounting	quick fastening on DIN rail IEC/EN 60715	
Degree of protection (built-in)	IP40	IP40

Dimensions (mm)



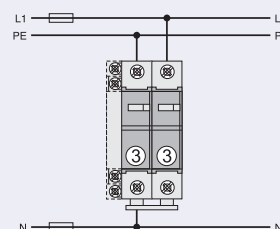
Application Examples

SPD-S-1+1
TN-, TT-System
3 x 230/400 VAC
3 x 240/415 VAC



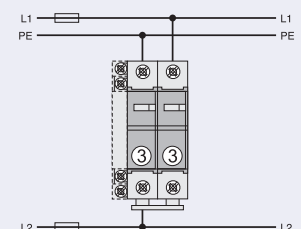
- ① ... SPD-S-N/PE
② ... SPD-S-L/N

SPD-S-280/2
IT-System
3 x 230/400 VAC



- ③ ... SPD-S-280/2

SPD-S-280/2
IT-, TT-System
3 x 133/230 VAC



- ③ ... SPD-S-280/2

Surge Protection

19" Outlet Strips NWS-STL/19/7F

- Installation onto 19" rails
- Installation height: 1U
- Diagonally arranged socket outlets with earthing contact according to DIN 49440 or NF-C61314 (UTE), 16A / 250VAC
- Connection cable of 2.5 m H05VV-F 3G1,5 mm² with an angled connector
- Max. power consumption: 3680 W
- Degree of protection: IP20
- Temperature range: -5°C to +40°C
- Dimensions: 482,6x44x44,45mm (WxDxH)
- Material: Enclosure made of aluminium, front cover made of plastic similar to RAL 7035
- Weight: approx. 0.9 kg
- Scope of delivery: 1 Outlet strip incl. 19" fixing bracket, different fixing material

19" Outlet Strips with Surge Protection SPD-STL/19/7F-S/BL

- Can be mounted on 19" rails
- Installation height: 1U
- Diagonally arranged socket outlets with earthing contact according to DIN 49440 or NF-C61314 (UTE), 16A / 250VAC
- Connection cable of 2.5 m H05VV-F 3G1,5 mm² with an angled connector
- On/Off switch, 2-pole, lit
- Max. power consumption: 3680 W
- Degree of protection: IP20
- Temperature range: -5°C up to +40°C
- Surge protection tested according to IEC 61643-1 (Class: SPD Type 3)
- Response time: < 25 ns
- Dimensions: 482,6x44x44,45mm (WxDxH)
- Material: Enclosure made of aluminium, front cover made of plastic similar to RAL 7035
- Weight: approx. 0.9 kg
- Scope of delivery: 1 Outlet strip incl. 19" fixing bracket, different fixing material

Surge Protection Outlet Strips with High-Grade Filter and Energy Absorption for full Equipment Protection SPD-STL/6F-S

- Suitable for wall-mounting in indoor areas
- A 19" fixing bracket is available as an option for mounting the strip in a cabinet
- Diagonally arranged socket outlets with earthing contact according to DIN 49440, 10A / 250VAC
- Connection cable of 1.0 m H05VV-F 3G1,0 mm² with an angled connector
- On/Off switch with MCB that can be reset
- Max. power consumption: 2500 W
- Degree of protection: IP20
- Temperature range: -15°C to +70°C
- Surge protection tested according to IEC 61643-1 (Class: SPD Type 3)
- Response time: < 1 ns
- Dimensions: 390x42x52mm (WxDxH)
- Material: Enclosure made of plastic similar to RAL 7021
- Weight: approx. 0.4 kg
- Scope of delivery: 1 Multiple outlet strip

19" Fixing Bracket for SPD-STL/6F-S

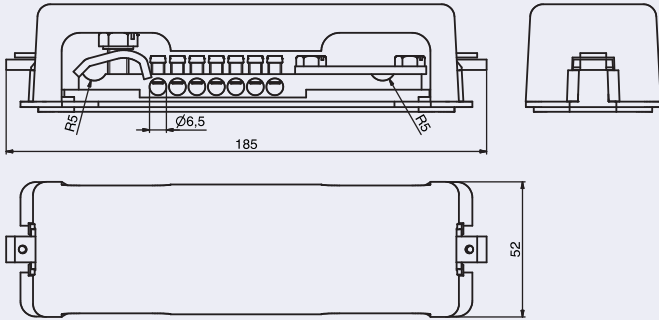
- Fixing bracket for mounting surge protection outlet strips SPD-STL/6F-S on a 19" frame
- Mounting on 19" rails
- Installation height: 1U
- Material: Steel sheet, powder-coated RAL 7035
- Weight: approx. 0.4 kg
- Scope of delivery: 1 Fixing bracket, different fixing material

Surge Protection

Earthing/Equipotential Bonding

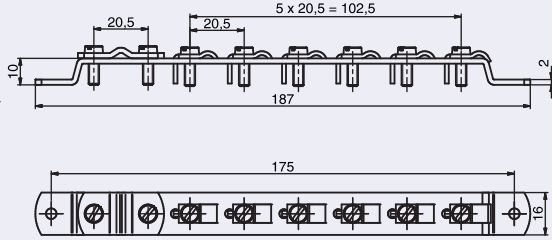
Equipotential Bonding Bar PAS-7x16

Dimensions (mm)



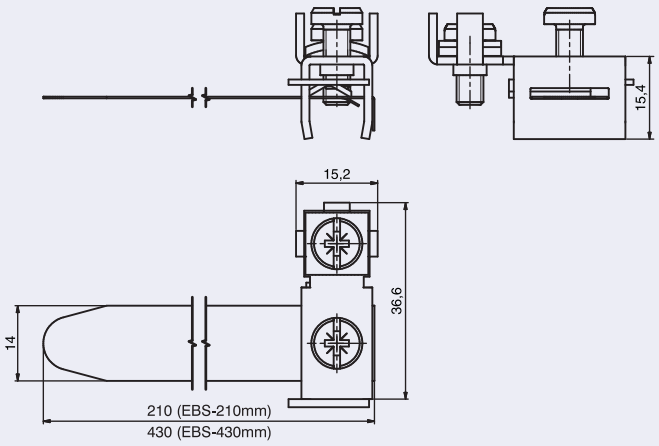
Earthing Bar for Antenna Lines PAS-HF-6

Dimensions (mm)



Earth Clip EBS

Dimensions (mm)

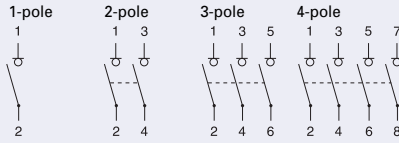


Controlling & Switching

Main Load Disconnecter Switch (Isolator) IS

- 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

Connection diagram



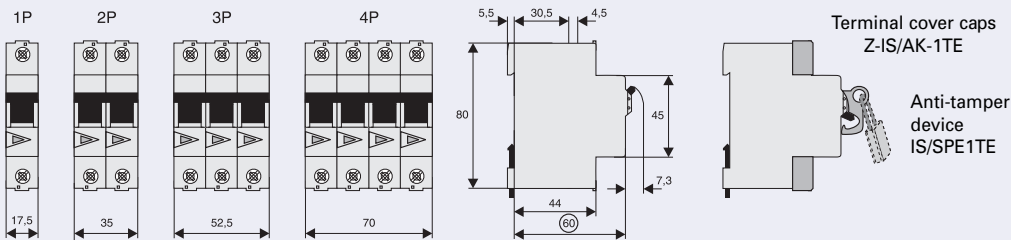
Technical Data

	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	240/415V								
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 comp. op. cycles	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	2,000
mechanical comp. op. 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	Twin-purpose terminals
Terminal capacity	2.5 - 50 mm ²
Busbar thickness	0.8-1.0 mm
Fastening torque of terminal screws	2.5 - 5 Nm
Function	irrespective of the position of installation

Dimensions (mm)



Switching interlock IS/SPE-1TE

- Without lock
- Also suitable for PFIM, CFI6, PKNM, CKN6

Terminal Cover Caps Z-IS/AK-1TE

- Can be sealed with leads
- Modular design, width 1 MU

Controlling & Switching

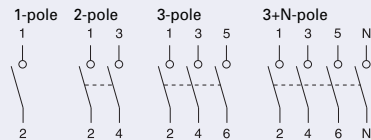
Circuit Breaker ZP-A

- Design according to IEC/EN 60947-1, -3
- Number of poles: 1, 2, 3, 3N
- Rated current: 40 A, 63 A
- Accessories for switchgear also for ZP-A usable!

Accessories:

Auxiliary switch for subsequent installation	ZP-IHK	286052
	ZP-WHK	286053
Tripping signal contact for subsequent installation	ZP-NHK	248437
Shunt trip release	ZP-ASA/..	248438, 248439
Undervoltage release	Z-USA/..	248288-248291
Compact enclosure	KLV-TC-2	276240
	KLV-TC-4	276241
Additional terminal 35mm ²	Z-HA-EK/35	263960
Switching interlock	Z-IS/SPE-1TE	274418

Connection diagrams



Technical Data

Electrical

Rated operational voltage U_e	230/400 V AC
Rated frequency	50 Hz
Rated insulation voltage U_i	440 VAC
Rated peak withstand voltage U_{imp}	4 kV (1.2/50 μ)
Conventional thermal current I_{th}	
ZP-A40	40 A
ZP-A63	63 A
Utilisation category AC22A	
Rated operational current I_e	
ZP-A40	40 A AC
ZP-A63	63 A AC
Utilisation category AC23A	
Rated operational current I_e	16 A AC
Short circuit strength with back-up fuse 40 A gG	3 kA ($U = 240V, \cos \varphi = 0.87$)

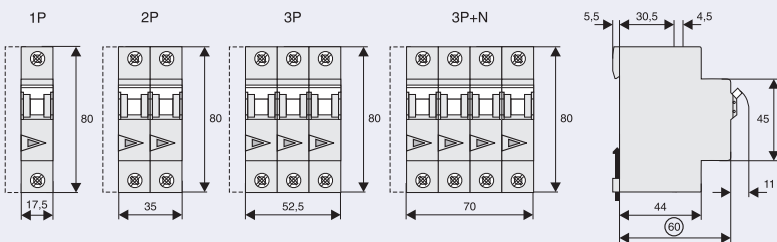
Endurance

electrical comp.	3,000 operating cycles
mechanical comp.	20,000 operating cycles

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	17.5mm/pole
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Upper and lower terminals	lift terminals + guide for secure terminal
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	1.5-25 mm ²
Terminal screws	M5 (Pozidrive) Z2
Tightening torque of terminal screws	max. 2.4 Nm

Dimensions (mm)



Controlling & Switching

Practical Hint

e.g. 16(2)A

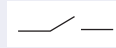


Ratings for resistive/inductive consumers

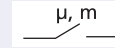
Ratings for incandescent lamp load (AC 5b IEC 60947-4)

ÖVE-SN45, § 305

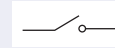
Practical Hint



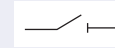
Switching contact in general



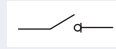
Switch with reduced air gap



Power circuit breaker



Disconnect



Load disconnect switch



Fuse power circuit breaker



Fuse disconnect



Fuse switch disconnect

ÖVE-SN45, § 207, IEC 60947-3

Controlling & Switching

MCB for Auxiliary Switch Circuits **PLSM-B4/-HS, CLS6-B4/..-HS**

- Design according to EN 60898-1, 4 A, Characteristic B
- Very low let-through energy in order to prevent contact welding in auxiliary switches of **any and all switchgear**, as well as thermostats control devices, timers, etc.
- Busbar connection to CLS6, PFIM, PKN, ...

Connection diagram

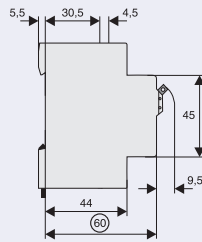


Technical Data

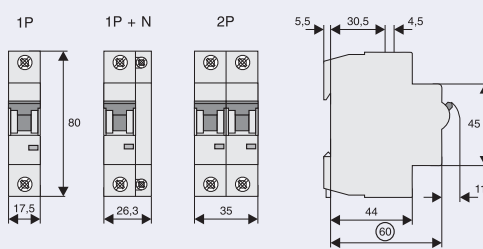
	PLSM-B4/-HS	CLS6-B4/..-HS
Electrical		
Number of poles	1-, 2-pole	1-, 1+N-, 2-pole
Rated voltage	230/400 V	230/400 V
Frequency	50/60 Hz	50/60 Hz
Rated current	4 A	4 A
Rated breaking capacity	10 kA	6 kA
Mechanical		
Frame size	45 mm	45 mm
Device height	80 mm	80 mm
Device width	17.5 mm (1MU)	17.5 mm (1MU)
Mounting	quick fastening with 2 lock-in positions	on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40	IP40
Terminal protection	finger and hand touch safe according to BGV A3, ÖVE-EN 6	
Terminals	Twin-purpose terminals	Twin-purpose terminals
Terminal capacity	1-25 mm ²	1-25 mm ²
Terminal screws	M3 (Pozidrive)	M3 (Pozidrive)
Fastening torque of terminal screws	0.8-1.0 Nm	0.8-1.0 Nm
Busbar thickness	0.8 - 2 mm	0.8 - 2 mm

Dimensions (mm)

PLSM-B4/-HS

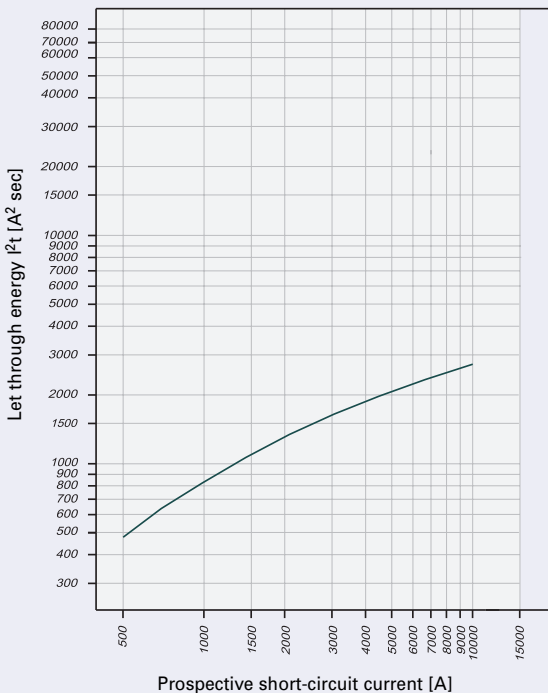


CLS6-B4/..-HS



Let-through Energy PLSM-B4-HS

Let-through energy PLS., characteristic B, 1-pole



Practical Hint

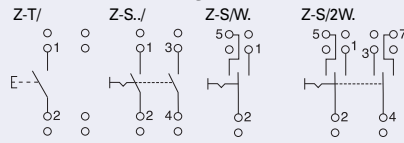
Even auxiliary switches must be protected against overload and short circuit by means of suitable back-up fuses according to manufacturer specification. According to IEC 60947-5 a maximum back-up fuse is specified for conditional short circuit prevention up to 1,000 A. Therefore, connection of the auxiliary switch to the nearest MCB is not permitted. Danger of contact welding! The MCB for auxiliary switch circuits ...-HS offers a simple solution.

Controlling & Switching

Pushbutton Z-T; Control Switch Z-S/; Changeover Switch Z-S/W

- Design according to IEC 60669, VDE 0632
- Types Z-S/WM and /2WM with central position (0-position)
- Types Z-S/WTN and -2WTN with TAG-0-NACHT (DAY-0-NIGHT) printed onto the device

Connection diagrams



Technical Data

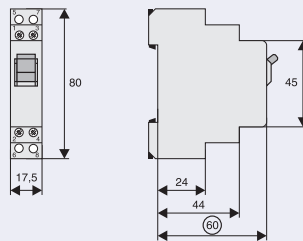
	Z-T/	Z-S./	Z-S/W
Electrical			
Rated voltage	230/400V AC	230/400V AC	230/400V AC
Frequency	50 HZ	50 HZ	50 HZ
Rated current	16A/230V~	16A/230V~	16A/230V~
Switching capacity	–	$1.25 \times I_n; 1.1 \times U_n$	$1.25 \times I_n; 1.1 \times U_n$
Short circuit strength	10 kA	10 kA	10 kA
Mechanical			
Switching toggle	–	black	black
Pushbutton colour	green - NO black - NO/NC	–	–
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 with 2 lock-in positions on DIN rail IEC/EN 60715		
Degree of protection, built-in	IP40	IP40	IP40
Upper and lower terminals	lift terminals	lift terminals	lift terminals
Terminal capacity	1-10 mm ²	1-10 mm ²	1-10 mm ²
Terminal protection	finger and hand touch safe, according to BGV A3, ÖVE-EN 6		
Resistance to climatic conditions	acc. to IEC/EN 60068	acc. to IEC/EN 60068	acc. to IEC/EN 60068

Dimensions (mm)

Z-T/

Z-S./

Z-S/W

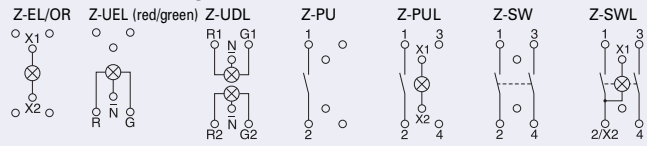


Controlling & Switching

Switches Z-SW.; Signal Lamps Z-EL, Z-DL., Z-BEL; Pushbutton Units Z-PU.

- Design according to IEC/EN 60669, VDE 0632
- Low power loss
- Long service life
- Twin lamp with separate connections
- Colour red/green, can be selected by alternative wiring
- Flash option by usage of different terminals only, changeover option, no additional relay necessary (Z-BEL)
- Terminals with guide for secure terminal connection
- Identical terminal screws for coil and contacts

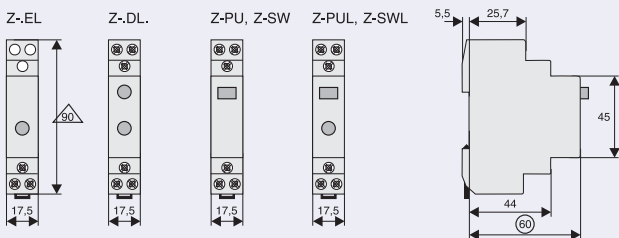
Connection diagrams



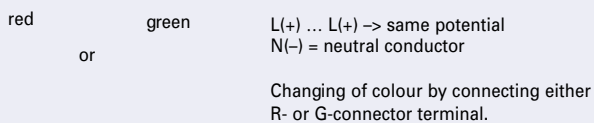
Technical Data

	Z-.EL, Z-.DL, Z-BEL	Z-PU, Z-PUL	Z-SW, Z-SWL
Electrical			
Rated voltage	–	250 V AC	250 V AC
Frequency	–	50 HZ	50 HZ
Rated current	–	16 A	16 A
LED			
Rated voltage	230 V AC/DC 24 V AC/DC	230 V AC/DC 24 V AC/DC	230 V AC/DC 24 V AC/DC
Range of operational voltage	(50 V) 110-240 V AC/DC (5 V) 12-24 V AC/DC	(50 V) 110-240 V AC/DC (5 V) 12-24 V AC/DC	(50 V) 110-240 V AC/DC (5 V) 12-24 V AC/DC
Luminosity	15 mcd	15 mcd	15 mcd
Power loss	2W per LED	2W	2W
Switching contact	–	16A/250V~	16A/250V~
Contact function	–	1NO, 2NO, 1NO+1NC, 2NC	1NO, 2NO, 1NO+1NC
Flashing frequency	typ. 2 cy (Z-BEL)	–	–
Maximum back-up fuse, short circuit	–	20 A gG	20 A gG
Mechanical			
LED colour	red, green, red + green, white + white, red/green, orange, blue, white	orange	orange
Push-button colour	–	green - NO-contact red - NC-contact black - NO/NC-contact	black
Frame size	45 mm	45 mm	45 mm
Device height	90 mm	90 mm	90 mm
Device width	17.5 mm (1TE)	17.5 mm (1TE)	17.5 mm (1TE)
Mounting	quick fastening with 2 lock-in positions on DIN rail IEC/EN 60715		
Degree of protection installed device	IP40	IP40	IP40
Upper and lower terminals	lift terminals with guides for secure connection		
Terminal capacity	1-10 mm ²	1-10 mm ²	1-10 mm ²
Terminal protection	finger and hand touch safe according to BGV A3, ÖVE-EN6		
Resistance to climatic conditions	acc. to IEC/EN 60068	acc. to IEC/EN 60068	acc. to IEC/EN 60068

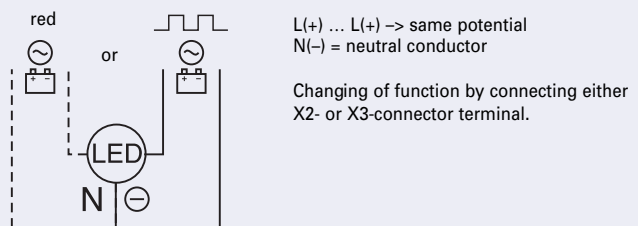
Dimensions (mm)



Connection example for LED red/green



Connection example for flashing function

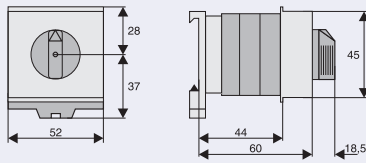


Controlling & Switching

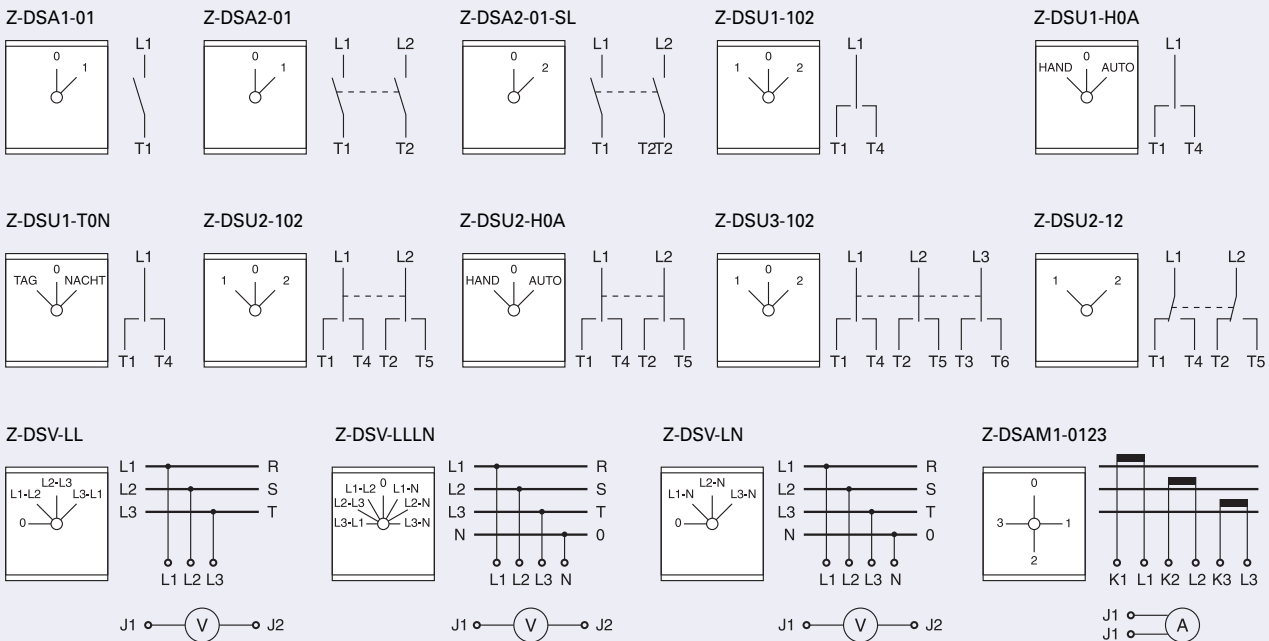
Rotary Switch Z-DS

- Rotary switches of series Z-DS are of a modular design: The switch proper consists of the engaging work and the switching package. The switching cams (for which it is also called cam switch) are driven by a stable, torsion-proof aluminium shaft. The switching package consists of one or several switching cells with one or two independent contacts. Connections of adjoining switch terminals (necessary in case of voltmeter changeover switch Z-DSV) are contained in the pressed switch component. Consequently, there is no obstacle when connecting the connection lines.
- Application: Suitable for virtually any application, e.g. motor switch, garage doors, fans, shutters, heating system control, lighting fixtures, instrument switches, different control purposes, etc.

Dimensions (mm)



Connection diagrams




Technical Data

Data acc. to IEC 60947-3, IEC 60947-5-1, VDE 0660, EN 60947-3, SEV						
Nominal thermal current I_{th} open	A	20	Utilisation category AC15 Switching of electromagnetic drives, contactors, valves, pull-type electromagnets Nominal operational current I_n up to 240V 380-440V 500V	A	6	
Nominal thermal current I_{th} hermetically enclosed	A	20		A	4	
Nominal operational voltage U_e	V	690	2-pole disconnection 500V	A	5	
$U_{imp} = 6$ kV Disconnecter conditions acc. to ÖVE, IEC met up to	V	440				
Circuit breaking capacity I_v	A	160	Utilisation category DC21A, DC21B Switching of resistive loads Time constant L/R ≤ 1 ms Nominal operational current I_n	A	20	
3 x 220-440V	A	100		30V	A	4
3 x 500 V	A	80		110V	A	0.6
Utilisation category AC21A, AC21B Switching resistive loads including low overloads Nominal operational current I_n	A	20	220V	A	0.3	
Utilisation category AC23A, AC23B Switching motors and other highly inductive loads Nominal operational current I_n	A	16	440V	A	–	
Nominal power	kW	4	Utilisation category DC3 - DC5 Switching of shunt motors and series motors Time constant L/R ≤ 15 ms Nominal operational current I_n	A	8	
3-phase, 3-pole	kW	7.5		30V	A	1
500V	kW	7.5		60V	A	0.3
660-690V	kW	7.5		110V	A	0.3
Star-delta starting switch for squirrel cage motors Nominal power	kW	3.7	Terminal capacity one or several wires fine wires fine wires with wire end sleeve terminal screw number of conductors per terminal	mm ²	1 - 2.5	
3-phase, 3-pole	kW	7.5		mm ²	0.75 - 2.5	
Utilisation category AC3 Switching of 3-phase AC motors Nominal operational current I_n	A	12	mm ²	0.75 - 1.5		
Nominal power	kW	3	M3.5	2		
3-phase, 3-pole	kW	5.5	Switching of capacitive load maximum making capacity	A	140	
500V	kW	5.5		up to 500V		
660-690V	kW	5.5				
	kW	5.5				
			Degree of protection from behind		IP20	


Controlling & Switching

Short circuit protection				Short-time load capacity			
max. fuse	gL (gG)	A	20	Load duration	3s	A	100
Rated short-time withstand current (1 second current)	3000	A	250	(values applicable to already closed contacts only)	10s	A	60
Conditional rated short circuit current		kA _{r.m.s.}	10		30s	A	35
					60s	A	25

Rotary Switch Z-DS for Lighting Systems

		Rated operational current 60°C		Z-DS...	
Utilisation category AC1		leAC1	A		20
Utilisation category AC5a	220-240V~	Rated operational power cos ϕ 0,5 kW	cos ϕ 0,9 kW		1,1
		DUO	kW		3
Utilisation category AC5b	220-240V~	Rated operational power		kW	1,4
					

Incandescent Lamps

	Power	Current	Z-DS...
Utilisation category AC5b		W	A
Incandescent lamps AC5B	60	0,27	22
	100	0,45	13
	200	0,91	7
	300	1,36	4
	500	2,27	3
	1000	4,5	1
			max. number of lamps per current path at 230V, 50 Hz
			

Fluorescent Tubes, Mercury Arc Lamps

Utilisation category AC5a	Power	Current	Capacitor	Z-DS...	
Lamp Types	W	A	μ F		
Fluorescent tubes without compensation or with series compensation	11	0,16	-	60	
	18	0,37	2,7	25	
	24	0,35	2,5	25	
	36	0,43	3,4	20	
	58	0,67	5,3	14	
	65	0,67	5,3	13	
	85	0,8	-	11	
	Fluorescent tubes lead-lag circuit	11	0,07	-	2 x 100
		18	0,11	-	2 x 50
		24	0,14	-	2 x 40
		36	0,22	-	2 x 30
		58	0,35	-	2 x 20
		65	0,35	-	2 x 15
		85	0,47	-	2 x 10
	Fluorescent tubes with parallel comp.	11	0,16	2,0	30
		18	0,37	2,0	20
		24	0,35	3,0	15
		36	0,43	4,5	10
		58	0,67	7,0	6
		65	0,67	7,0	5
		85	0,8	8,0	4
	Fluorescent tubes with electronic ballast	18	0,09	-	40
		36	0,16	-	20
		58	0,25	-	15
2 x 18		0,17	-	2 x 20	
2 x 36		0,32	-	2 x 10	
2 x 58		0,49	-	2 x 7	
Mercury arc lamps, high pressure without compensation e.g.: HQL, HPL	50	0,61	-	16	
	80	0,8	-	12	
	125	1,15	-	8	
	250	2,15	-	4	
	400	3,25	-	3	
	700	5,4	-	1	
	1000	7,5	-	1	
	Mercury arc lamps, high pressure with compensation e.g.: HQL, HPL	50	0,28	7	7
		80	0,41	8	5
		125	0,65	10	3
250		1,22	18	2	
400		1,95	25	1	
700		3,45	45	1	
1000		4,8	60	-	
				max. number of lamps per current path at 230V, 50 Hz	

Controlling & Switching

Metal Halide Lamps

Lamp Types	Power	Current	Capacitor	Z-DS...	
	W	A	µF		
Metal halide lamps without compensation e.g.. HQI, HPI	35	0,53	-	22	
	70	1	-	12	
	150	1,8	-	6	
	250	3	-	4	
	400	3,5	-	3	
	1000	9,5	-	1	
	2000	16,5	-	-	
	Metal halide lamps with compensation e.g.. HQI, HPI	35	0,25	6	8
		70	0,45	12	4
		150	0,75	20	2
250		1,5	33	1	
400		2,1	35	1	
1000		5,8	95	-	
Transformers for low-voltage halogen lamps	2000	11,5	148	-	
	20	-	-	40	
	50	-	-	20	
	75	-	-	13	
	100	-	-	10	
	150	-	-	7	
	200	-	-	5	
	300	-	-	3	
max. number of lamps per current path at 230V, 50 Hz					

Sodium Vapour Lamps

Lamp Types	Power	Current	Capacitor	Z-DS...
	W	A	µF	
Sodium vapour lamps low-pressure without compensation	35	1,5	-	7
	55	1,5	-	7
	90	2,4	-	4
	135	3,5	-	3
	150	3,3	-	3
	180	3,3	-	3
	200	3,3	-	3
	Sodium vapour lamps low-pressure with compensation	35	0,31	20
55		0,42	20	2
90		0,63	30	1
135		0,94	45	1
150		1	40	1
180		1,16	40	1
Sodium vapour lamps high-pressure without compensation	200	1,32	25	1
	150	1,8	-	5
	250	3	-	4
	330	3,7	-	3
	400	4,7	-	2
Sodium vapour lamps high pressure with compensation	1000	10,3	-	1
	150	0,83	20	2
	250	1,5	33	2
	330	2	40	1
	400	2,4	48	1
	1000	6,3	106	-
max. number of lamps per current path at 230V, 50 Hz				

Controlling & Switching

Relay for low-level signals RELLVA, REHLVA, REMLVA

The electronic relay is a universal switching device designed especially for transmitting small or low-level signals of electronic control systems.

The **RELLVA** has been designed to switch low-level signals. The relay can be energized through analogue control signals of a roller-shutter or heating control, for example. The switching contact allows to switch a binary signal for digital inputs, for example of a programmable controller, of a control relay (e.g. EASY control relay) or of a Z-CC Communication Centre.

The **REHLVA** in turn can switch higher loads of up to 5A 250V AC1. It can be energized through a binary signal of a digital output, for example. The switching contact can switch electrical consumers of up to

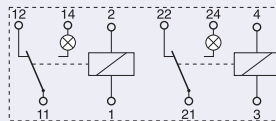
5A 250V AC1, but it can also be used for energizing contactors, for example.

The **REMLVA** is a combination of the relays mentioned above. One relay is equipped with the switching contact for low-level signals, the other one with the switching contact for higher loads up to 5A 250V AC1.

The multi-functional coil, which can be energized in a range from 24V to 250V AC and DC, covers a wide variety of applications. In addition, all types have two relays for separate energizing in one enclosure of 1 MU width.

- Electronic switching relay
- Universal control voltage range from 24 to 250V AC/DC with a minimum of power consumption
- Switching of very small signals from 10mV / 1µA
- Switching of higher loads of up to 5A 250VAC AC1
- 2 relays for separate energizing in one enclosure of 1 MU width
- 1 change-over contact for each relay with switch position indication by LED
- No switching noise, hum-free
- Railway service qualification tested

Connection diagram



Technical Data

Electrical

Standard according	IEC/EN 61810
Number of poles	2x1
EMC-Environment	EN 61000-4-2, 61000-4-4, 61000-4-5, 61810-5

Control circuit

Rated voltage U_s	24-250V AC/DC
Rated frequency	0-50Hz
Operating range	0.90-1.1 x U_s
Minimum command duration	0.1s
Operating noise	non
Rated peak withstand voltage U_{imp}	4kV (1.2/50µs)
Duty	100%
Trip coil power	
switching on	0.1/24V; 1/250V VA/W
holding	0.1/24V; 1/250V VA/W

Load Circuit, Main Contacts

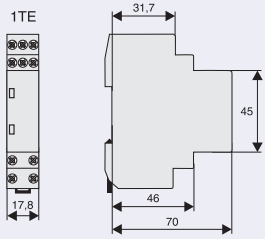
Change over	2 (to be energized separately)
Rated operational voltage U_e / Rated operational current I_e	
RELLVA	30V DC / 2A 220V DC / 0,3A
REHLVA	250V AC / 5A 30V DC / 5A 300V DC / 0,25A
REMLVA	
Switching contact 11/12/14	30V DC / 2A 220V DC / 0,3A
Switching contact 21/22/24	250V AC / 5A 30V DC / 5A 300V DC / 0,25A
Minimum operational voltage U_{min} / Minimum operational current I_{min}	
RELLVA	10mV / 10µA
REHLVA	100mV / 10mA
REMLVA	
Switching contact 11/12/14	10mV / 10µA
Switching contact 21/22/24	100mV / 10mA
Rated insulation voltage U_i	500V DC
Rated peak withstand voltage U_{imp}	1.5kV between open contacts; 2.5kV between contacts and coil

Mechanical

Frame size	45 mm
Device height	70 mm
Device width	17.8 mm (1 MU)
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection installed device	IP20
Mounting position	as required
Shock resistance	max. 750m/s ²
Terminal capacity	1x 2.5 mm ² flexible 1x 4 mm ² rigid 2x 1.5 mm ² rigid
Temperature range	-40 to +85°C

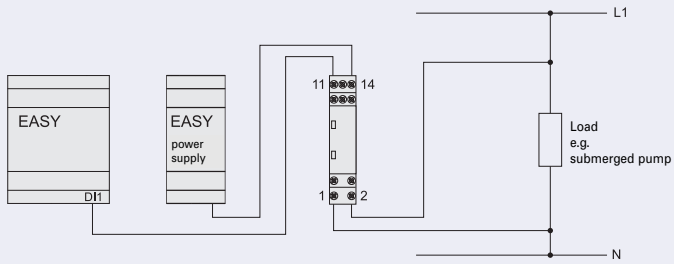
Controlling & Switching

Dimensions (mm)

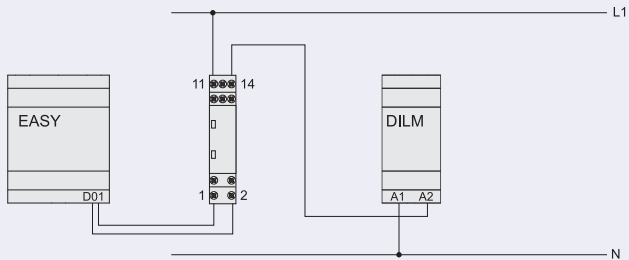


Examples

RELLVA



REHLVA



Controlling & Switching

Installation Relays Z-R, Z-TN

Installation relays Z-R are suitable for switching 1-phase or 3-phase consumers up to 20 A. These devices for universal use in building installations and systems permit implementation of the following applications and control functions:

- Switching lighting systems and electrical heating systems
- Switching ventilation and air conditioning systems, fans
- Switching heat pumps
- Switching electrically controlled roller doors/gates, and blinds
- Switching incandescent lamps and gas discharge lamps

The installation relays of series Z-R./ meet the requirements of standards EN/IEC 60947 and EN/IEC 1095.

EN/IEC 1095 deals with "Electromechanical contactors for household and similar purposes." Compliance with this standard means meeting very high demands in terms of safety for humans and property.

EN/IEC 947 deals with "Electromagnetic contactors in electrical system manufacturing".

Security:

- Manual operation for testing purposes
- Switching contacts with safe disconnection AC1 according to EN 60947-4-1 (Z-R, Z-RK)
- Optional optical operating status display by means of LED
- Switching position indicated on the front side by manual operating key
- All terminals - coil and contacts - equipped with guide for secure terminal connection. Misplacement of wires impossible.
- Main contacts can be connected to standard pin busbar
- Made of hardly flammable materials and plastics free from chlorine and halogens
- Finger and hand touch safe according to VBG4

Advantages:

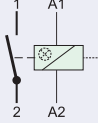
- Available in three versions (Z-R, Z-RK, Z-RE)
- Low switching noise, no humming
- Easy to connect thanks to large terminals supplied open
- Simple snap-on fastening on 35 mm DIN rail
- High degree of flexibility thanks to a variety of contact configurations
- Easy access for coil feed connection
- Version with mechanical pre-selection of functions ON/AUTO/OFF (Z-TN)
 - ON/permanently ON:* Contact permanently ON until a control pulse is switched on and OFF again. Then, the relay reverts to the AUT position.
 - AUT/AUTOMATIC:* Standard relay function by control voltage at the coil.
 - OFF/permanently OFF:* Contacts permanently OFF, independently of the control voltage at the coil.
- Type Z-TN available only in AC, other coil voltages than 24V and 230V on request

Connection diagrams

1MU Z-R

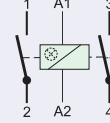
"S"

1 NO



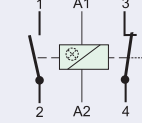
"SS"

2 NO



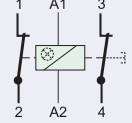
"SO"

1 NO / 1 NC



"OO"

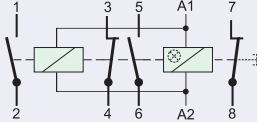
2 NC



2MU Z-R

"2S2O"

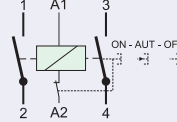
2 NO / 2 NC



1MU Z-TN (with mechanical pre-selection)

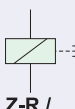
"SS"

2 NO



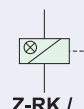
Versions

with manual operation



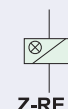
Z-R./.

with manual operation and LED



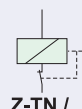
Z-RK./.

with LED



Z-RE./.

with mech. pre-selection



Z-TN./.

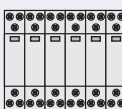
Permitted installation positions

max 30°

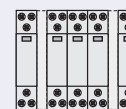


Packing density at full contact load

Z-R./
Spacers recommended! (Z-DST)



≤40°C



40-60°C

1/2 1/2

Technical Data

Electrical

Design according to	IEC/EN 60947
Rated voltage	250 V, 240/415 V AC
Rated current	20 A, 250 V AC
Rated current AC1 I _e	20 A AC1 (Z-R, Z-RK)
Rated operational power P _e	4.6 kW 415 V
Number of poles	1 to 4
Main contacts	
NO/NC	1, 2 (1MU) 3, 4 (2MU)

EMR compatibility

B

Control Circuit

Rated control feed voltage U _s	8, 12, 24, 48, 110, 230, 240 V AC 8, 12, 24, 110 V DC
Rated frequency	50 Hz
Operating range	0.85-1.1 x U _s
Maximum power of coils	
pick-up	10-13 VA, 6-8 W
retaining	3,4-4,0 VA, 2,0-2,4 W
Minimum command duration	> 50 ms
Operating noise	no humming
Rated peak withstand voltage U _{imp}	2 kV (1.2/50 μs)
Duty	100%

Load Circuit

Rated operational voltage U _e	1p, 2p: 250VAC; 3p, 4p: 240/415VAC
Minimum operational voltage U _{min}	24 V AC/DC (U _s 8-110 V)
Rated insulation voltage U _i	500 V
Rated peak withstand voltage U _{imp}	4 kV (1.2/50 μs)
Conventional thermal current I _{th}	20 A AC
Rated operational current I _e	20 A AC
Rated constant current I _u	20 A AC
Rated current DC	
24 V	I _e 16 A
48 V	I _e 12,5 A
230 V	I _e 1 A
Conditional rated short circuit current I _q	10 kA (with 20 A gL/gG)
Duration of bouncing	< 10 ms (typ. < 5 ms)

Controlling & Switching

Technical Data (continued)

UTILISATION CATEGORIES 1MU, 2MU (except 3S, 4S)

AC-1 *)	
Rated operational voltage U_e	250 V AC
Rated operational current I_e	20 A AC
Rated operational power AC-1	4000 W ($\cos \varphi = 0.8$), 5000 VA
AC-3	
Rated operational voltage U_e	250 V AC
Rated operational current I_e	8 A AC
Rated operational power AC-3	900 W ($\cos \varphi = 0.45$), 2000 VA
AC-5a	
Rated operational voltage U_e	250 V AC
Rated operational current I_e	10 A AC
Rated operational power AC-5a	1125 W ($\cos \varphi = 0.45$), 2500 VA
AC-5b	
Rated operational voltage U_e	230 V AC
Rated operational current I_e	8,8 A AC
Rated operational power AC-5b	2024 W
AC-7a (according to EN 61095)	
Rated operational voltage U_e	250 V AC
Rated operational current I_e	20 A AC
Rated operational power AC-7a	4000 W ($\cos \varphi = 0.8$), 5000 VA

UTILISATION CATEGORIES 2MU (3S, 4S)


AC-1 *)	
Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	20 A AC
Rated operational power AC-1	4000 W ($\cos \varphi = 0.8$), 5000 VA
AC-3	
Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	8 A AC
Rated operational power AC-3	900 W ($\cos \varphi = 0.45$), 2000 VA
AC-5a	
Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	10 A AC
Rated operational power AC-5a	1125 W ($\cos \varphi = 0.45$), 2500 VA

AC-5b	
Rated operational voltage U_e	230/400 V AC
Rated operational current I_e	8,8 A AC
Rated operational power AC-5b	2024 W
AC-7a (according to EN 61095)	
Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	20 A AC
Rated operational power AC-7a	4000 W ($\cos \varphi = 0.8$), 5000 VA
AC-7b (according to EN 61095)	
Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	10 A AC
Rated operational power AC-7b	1125 W ($\cos \varphi = 0.8$), 2500 VA

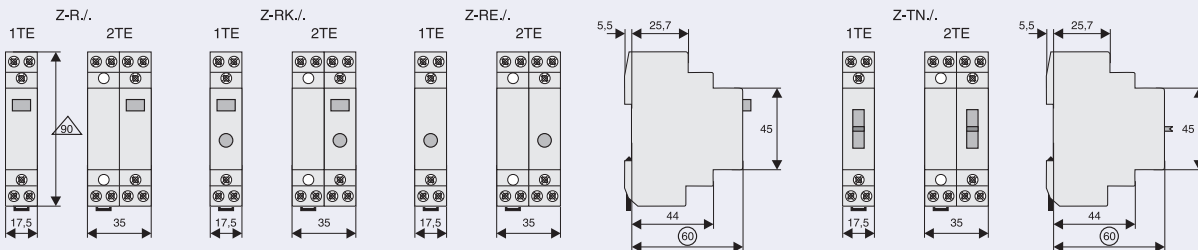
Endurance	electrical comp.	$\square 40 \times 10^3$ operating cycles
	mechanical comp.	$\square 1 \times 10^6$ operating cycles

Mechanical

Frame size	45 mm
Device height	90 mm
Device width	17.5 mm (1MU)
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection installed device	IP20
Position of device in use	works in any position, however not hanging
Upper and lower terminals	lift terminals (captive)
Terminal capacity	
Contact and coil	0,5 - 10 mm ² one- or more wire 0,5 - 6 mm ² fine-wire with wire end sleeve
Temperature range	-20°C to +45°C
Total contact gap	> 5mm / independent contacts
Contact material	does not contain cadmium

*)  suitable for insulation, tested on AC-1

Dimensions (mm)



Controlling & Switching

Lamp Types	Power	Current	Capacitor	Z-R
	W	A	µF	max. number of lamps per current path at 230V, 50 Hz
Incandescent lamps	60	0,27		33
Low-voltage halogen lamps (12 or 24 V) with transformer / electronic transformer	20	0,09		55
	50	0,22		22
	75	0,33		14
	100	0,43		11
	150	0,65		7
	200	0,87		5
	300	1,3		3
Fluorescent tubes without compensation or with series comp.	11	0,16	1,3	62
	18	0,37	2,7	27
	24	0,35	2,5	27
	36	0,43	3,4	24
	58	0,67	5,3	15
	65	0,67	5,3	14
	85	0,8	5,3	12
	Fluorescent tubes lead-lag circuit	11	0,07	-
18		0,11	-	2 x 45
24		0,14	-	2 x 35
36		0,22	-	2 x 22
58		0,35	-	2 x 14
65		0,35	-	2 x 14
85		0,47	-	2 x 10
Fluorescent tubes with parallel comp.	11	0,16	3,0	34
	18	0,37	4,0	26
	24	0,35	4,0	26
	36	0,43	4,0	26
	58	0,67	7,0	14
	65	0,67	7,0	14
	85	0,8	8,0	13
Fluorescent tubes with electronic ballast	18	0,09	-	32
	36	0,16	-	16
	58	0,25	-	12
	2 x 18	0,17	-	2 x 16
	2 x 36	0,32	-	2 x 8
2 x 58	0,49	-	2 x 6	

Controlling & Switching

Installation Contactors Z-SCH, CMUC

These Installation Contactors are design to cover all applications in residential and commercial sites as for as example:

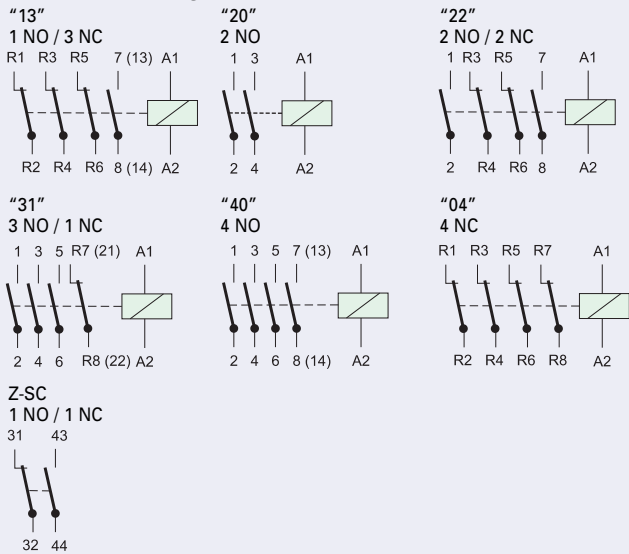
- Switching of lighting systems
- Switching of electrical heating systems
- Switching of ventilation systems
- Switching of air conditioning systems and fans
- Switching of heat pumps
- Switching of roller doors/gates and blinds
- etc. etc.

Advantages and Safety:

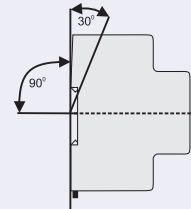
- Front-side switch position indicator
- Compact frame
- Large terminals
- Low switching noise
- No humming
- High contact force for high switching capacity
- Simple snap-on fastening of 35mm DIN rail
- Finger and hand touch safe according to VGB 4
- Hardly flammable materials and chlorine-free and halogen-free plastics are used
- Z-SCH
 - Innovative AC magnet system
- CMUC
 - Innovative AC/DC magnet system

These products meets the requirement of the standards IEC/EN 60947-4-1 and IEC/EN 61095

Connection diagrams



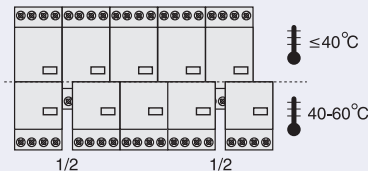
Permitted Installation Positions



Packing Density at full contact load

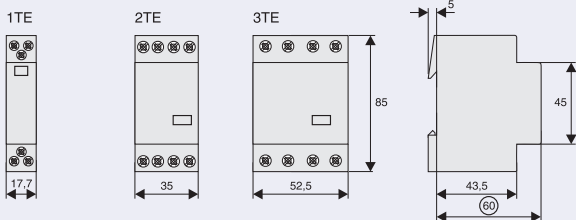
Z-SCH / CMUC

Spacers recommended!

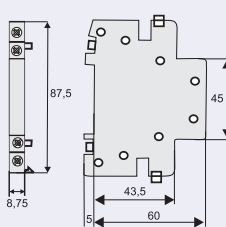


Dimensions (mm)

Z-SCH.../1/25 Z-SCH.../25 CMUC.../25 Z-SCH.../40, .../63




Z-SC



Controlling & Switching

Technical Data of Installation Contactors Z-SCH, CMUC						
Values according to IEC 61095, EN 61095, VDE 0660, IEC 60947-4-1, EN 60947-4-1, VDE			Z-SCH/25/.. CMUC.../25/	Z-SCH/40/..	Z-SCH/63/..	Z-SC
Utilisation category AC1 (e.g. heating system)						
Rated operational current $I_n (=I_{th})$ open	at 60°C	A	25	40	63	-
Service life of switching element		$S \times 10^6$	0,1	0,1	0,1	-
Rated operational power AC1	220 - 240 V	kW	9,5	16	25	-
	380 - 415 V	kW	17	27,5	43	-
Lowest switching power		V/mA	24/100	24/100	24/100	17/5
Utilisation category AC3 (Switching of 3-phase AC motors)						
Rated operational current I_n		A	9	27	30	-
Service life of switching element		$S \times 10^6$	0,15	0,15	0,15	-
Rated power of 3-phase AC motors 50-60 Hz	220 V	kW	2,2	7,5	8	-
	230-240V	kW	2,5	8	8,5	-
	380-415V	kW	4	12,5	15	-
Utilisation category DC1 (Switching of resistive loads, $L/R \leq 15ms$) values for make contacts						
1-pole	24V DC	A	25	40	63	-
	48V DC	A	22	25	26	-
	60V DC	A	18	19	21	-
	110V DC	A	5	7	8	-
	220V DC	A	0,5	0,7	0,7	-
2-pole in series	24V DC	A	25	40	63	-
	48V DC	A	25	40	44	-
	60V DC	A	25	33	36	-
	110V DC	A	16	17	18	-
	220V DC	A	4	5	6	-
3-pole in series	24V DC	A	25	40	63	-
	48V DC	A	25	40	63	-
	60V DC	A	25	40	61	-
	110V DC	A	25	31	34	-
	220V DC	A	10	15	16	-
4-pole in series	24V DC	A	25	40	63	-
	48V DC	A	25	40	63	-
	60V DC	A	25	40	63	-
	110V DC	A	25	40	63	-
	220V DC	A	15	20	21	-
Utilisation category DC3 and DC5 (Switching of inductive load, $L/R \leq 15ms$) values for make contacts						
1-pole	24V DC	A	15	23	25	-
	48V DC	A	5	10	10	-
	60V DC	A	4	5	5	-
	110V DC	A	1	1,5	1,5	-
	220V DC	A	0,1	0,3	0,3	-
2-pole in series	24V DC	A	25	40	45	-
	48V DC	A	17	23	25	-
	60V DC	A	13	15	15	-
	110V DC	A	5	5	5	-
	220V DC	A	0,5	1	1	-
3-pole in series	24V DC	A	25	40	63	-
	48V DC	A	25	40	45	-
	60V DC	A	25	30	30	-
	110V DC	A	15	15	15	-
	220V DC	A	3	4	4	-
4-pole in series	24V DC	A	25	40	63	-
	48V DC	A	25	40	63	-
	60V DC	A	25	40	63	-
	110V DC	A	25	40	45	-
	220V DC	A	8	10	10	-
Main Switching Elements ($U_{imp} = 4 kV$)						
Rated insulation voltage U_i		V AC	440	440	440	440
Rated operational voltage U_e		V AC	440	440	440	440
Permissible switching frequency z	AC1, AC3	1/h	300	600	600	600
Mechanical endurance		$S \times 10^6$	1	1	1	1
Auxiliary Switching Elements ($U_{imp} = 4 kV$)						
Rated insulation voltage U_i		V AC	440	440	440	440
Nominal thermal current $= I_{th}$	40°C	A	25	40	63	10
	60°C	A	25	40	63	6
Utilisation category AC15 (Controlling of electromagnetic load)						
Rated operational current I_e	220-240V	A	-	-	-	3
	380-415V	A	-	-	-	2
	440V	A	-	-	-	1,6
Utilisation category DC13 (Controlling of electromagnetic load at DC)						
Rated operational current I_e per pole	24-60V	A	-	-	-	2
	110V	A	-	-	-	0,4
	220V	A	-	-	-	0,1


Controlling & Switching

			Z-SCH/25/.. CMUC.../25/	Z-SCH/40/..	Z-SCH/63/..	Z-SC	
Trip Coil Power Z-SCH  CMUC Operating range of trip coils Coil voltage range (multiplication factor) Pv Power loss per current path Pvges. Power loss per device at nominal current load	Switching on	VA	14 - 18	33 - 45	33 - 45	-	
	Holding	VA	4,4 - 8,4	7	7	-	
		W	1,6 - 3,2	2,6	2,6	-	
		W	3-4				
				0,85 - 1,1	0,85 - 1,1	0,85 - 1,1	-
		W	2	3	7	0,5	
	1-pole	W	5,2	5,6	5,6	-	
	2-pole	W	7,2	8,6	16,6	-	
	3-pole	W	9,2	11,6	23,6	-	
	4-pole	W	11,2	14,6	30,6	-	
Switching noise (on and off) Typical mean values		dB	80	78	78	-	
Terminal capacity							
Main conductor	one or several wires	mm	1,5 - 10	2,5 - 25	2,5 - 25	0,5 - 2,5	
	fine wires	mm	1,5 - 6	2,5 - 16	2,5 - 16	0,5 - 2,5	
	fine wires with wire end sleeve	mm	1,5 - 6	2,5 - 16	2,5 - 16	0,5 - 1,5	
	number of conductors per terminal		1	1	1	2	
Coil	one or several wires	mm	0,75 - 2,5	0,75 - 2,5	0,75 - 2,5	-	
	fine wires	mm	0,5 - 2,5	0,5 - 2,5	0,5 - 2,5	-	
	fine wires with wire end sleeve	mm	0,5 - 1,5	0,5 - 1,5	0,5 - 1,5	-	
	number of conductors per terminal		1	1	1	-	
Weight		kg/unit	0,22	0,36	0,36	0,026	
Short circuit protection (main circuit) Maximum nominal current of fuse Co-ordination type (1)		gL (gG)	A	35	63	80	-
Short circuit protection (auxiliary circuit) Maximum nominal current of fuses Short-circuit current 1kA, without fusing of contacts		gL (gG)	A	-	-	-	10
Switching times at control voltage $U_s \pm 10\%$							
Make delay	ms		9 - 15	11 - 15	11 - 15	-	
Break delay	ms		4 - 8	6 - 13	6 - 13	-	
Arc duration	ms		10 - 15	10 - 15	10 - 15	-	

Installation Contactors Z-SCH for Lighting Systems

The decisive factors are the type, connection and current consumption of lamps during switch-on and in permanent operation. Only 90 % of the continuous current of switching devices should be used in view of higher current consumption as a result of increases of voltage. The maximum number of lamps per phase that can be operated by a switching device is dependent on

the nominal current and making current of lamps on the one hand, and on the continuous current and making capacity of the switching devices on the other. Thus, e.g. in lead-lag circuits, the continuous current of contactors can be used, while this is not possible in fluorescent tubes with separate compensation.


			Z-SCH/25/.. CMUC.../25/	Z-SCH/40/..	Z-SCH/63/..	Z-SC	
Utilisation category AC1	Rated operational current	leAC1	A	25 (60°C)	40 (60°C)	63 (60°C)	-
	Making capacity	A	200	360	480	-	
	Root mean square $I_{r.m.s.}$ Peak value I_{Spitze}	A	280	510	680	-	
Utilisation category AC5a	Rated operational power (250 V)	$\cos\varphi$ 0,45	kW	1,3	3,4	5,5	-
	220-240V~	$\cos\varphi$ 0,90	kW	1,2	3,1	5,1	-
	DUO		kW	3,7	6,3	10	-
Utilisation category AC5b 	Rated operational power 240V~		kW	3	5,7	8	-

Incandescent Lamps

The incandescent lamp filament has a very low ohmic resistance when it is cold. Therefore, when switching on, there is a high peak current

(up to $20 \times I_n$).

When switching off, only the nominal current is switched off.

	Power	Current	Z-SCH/25/.. CMUC.../25/	Z-SCH/40/..	Z-SCH/63/..	Z-SC
Utilisation category AC5b	W	A	max. number of lamps per current path at 230V, 50 Hz			
Incandescent lamps AC5B 	60	0,27	50	92	129	-
	100	0,45	30	55	77	-
	200	0,91	15	27	38	-
	300	1,36	10	19	26	-
	500	2,27	6	11	16	-
	1000	4,5	3	6	8	-
	Low voltage halogen lamps (12 ur 24V) with transformer (with electronic transformer)	20	0,09	52	110	174
50		0,22	24	50	80	-
75		0,33	16	35	54	-
100		0,43	12	27	43	-
150		0,65	9	19	29	-
200		0,87	6	14	23	-
300		1,30	4	9	14	-

Controlling & Switching

Fluorescent Tubes, Mercury Arc Lamps

High- and low pressure discharge lamps with mercury vapour, with or without fluorescent-coated glass body are perfectly identical in their electrical behaviour.

In order to limit the operational current and pre-conduction current, and to achieve the initial peak voltage, reactance coils are used as ballast.

Capacitors are used for compensation of the resulting reactive current, which

are either connected in series with the coil (lead-lag circuit) or parallel to the mains (separate compensation, very rarely used now). The high making current in case of separate compensation (max. 30 x nominal current of the capacitor) which goes down quickly is usually attenuated considerably by the feed line.

Utilisation category AC5a		
	Fluorescent lamps without comp. or with series comp.	$I = I_{eAC1} \times 0,5$
	Lead-lag circuit (2x..)	$I = I_{eAC1} \times 0,35$
	Fluorescent tubes parallelkomp.	$I = I_{Spitze} / 100$ (take into account compensation capacitor)
I / I_{Lampe} = number of connectable lamps per current path	Fluorescent tubes with electronic ballast	$I = I_{Spitze} / 50$
	Mercury arc lamps,HD without compensation	$I = I_{eAC1} \times 0,5$
	Mercury arc lamps,HD with compensation	$I = I_{Spitze} / 100$ (take into account compensation capacitor)

Utilisation category AC5a		Power	Current	Capacitor	Z-SCH/25/.. CMUC.../25/	Z-SCH/40/..	Z-SCH/63/..	Z-SC
Lamp Types		W	A	µF	max. number of lamps per current path at 230V, 50 Hz			
Fluorescent lamps without compensation or with series compensation	11	0,16	1,3	75	210	310	-	
	18	0,37	2,7	34	90	140	-	
	24	0,35	2,5	34	90	140	-	
	36	0,43	3,4	30	70	140	-	
	58	0,67	5,3	20	45	70	-	
	65	0,67	5,3	19	40	65	-	
	85	0,8	5,3	16	35	60	-	
	Fluorescent tubes lead-lag circuit	11	0,07	-	2 x 110	2 x 220	2 x 250	-
		18	0,11	-	2 x 55	2 x 130	2 x 200	-
		24	0,14	-	2 x 44	2 x 110	2 x 160	-
		36	0,22	-	2 x 33	2 x 70	2 x 100	-
		58	0,35	-	2 x 22	2 x 46	2 x 70	-
		65	0,35	-	2 x 16	2 x 40	2 x 60	-
		85	0,47	-	2 x 11	2 x 30	2 x 40	-
		Fluorescent tubes with parallel comp.	11	0,16	3,0	43	67	107
	18		0,37	4,0	32	50	80	-
	24		0,35	4,0	32	50	80	-
	36		0,43	4,0	32	50	80	-
	58		0,67	7,0	18	36	46	-
	65		0,67	7,0	18	36	46	-
	85		0,8	8,0	16	33	44	-
	Fluorescent tubes with electronic ballast		18	0,09	-	40	100	150
		36	0,16	-	20	50	75	-
		58	0,25	-	15	30	55	-
80		0,4	-	10	20	30	-	
2 x 18		0,17	-	2 x 20	2 x 50	2 x 60	-	
2 x 36		0,32	-	2 x 10	2 x 25	2 x 30	-	
2 x 58		0,49	-	2 x 7	2 x 15	2 x 20	-	
Mercury arc lamps, high pressure without compensation e.g.: HQL, HPL		50	0,61	-	21	38	55	-
	80	0,8	-	16	28	40	-	
	125	1,15	-	11	20	28	-	
	250	2,15	-	6	11	15	-	
	400	3,25	-	4	7	10	-	
	700	5,4	-	2	4	6	-	
	1000	7,5	-	1	3	4	-	
	Mercury arc lamps, high pressure with parallel comp. e.g.: HQL, HPL	50	0,28	7	18	36	50	-
		80	0,41	8	16	31	44	-
		125	0,65	10	13	25	35	-
		250	1,22	18	7	14	19	-
		400	1,95	25	5	10	14	-
		700	3,45	45	3	6	8	-
		1000	4,8	60	2	4	6	-

Controlling & Switching

Metal Halide Lamps

Metal halide lamps are a version of high-pressure mercury arc lamps with higher luminous efficiency and fidelity of colour (metalloids [halogens] added to the mercury fill up the Hg-spectrum with its many gaps). Ballast and ignition devices are necessary. Starting time 3 ... 5 minutes at 1.4 - 2 x I. After switching on, it is not possible to light the lamp again immediately (lamp extinguishes after a power cut-off of only 1/2 period). Therefore, in

many cases in important facilities ionisation of part of the lamps is maintained by switching over to 415 V, 500 Hz (e.g. to an emergency power supply). In this case, the lamp lights immediately after the mains voltage is on again. Otherwise, this would take several minutes. When using suitable ignition devices, the lamps can be lit again immediately.

I / I _{Lampe} = number of connectable lamps per current path	Metal halide lamps (HQI) without compensation	$I = I_{eAC1} \times 0,5$
	Metal halide lamps (HQI) with compensation	$I = I_{Spitze} / 100$ (take into account compensation capacitor)
	Transformer for low voltage halogen lamps	$I = I_{Spitze} / 50$

	Power	Current	Capacitor	Z-SCH/25/.. CMUC.../25/	Z-SCH/40/..	Z-SCH/63/..	Z-SC	
Lamp Types	W	A	µF	max. number of lamps per current path at 230V, 50 Hz				
Metal halide lamps without compensation e.g.. HQI, HPI	35	0,53	-	28	57	-	-	
	70	1	-	15	30	-	-	
	150	1,8	-	8	17	-	-	
	250	3	-	5	10	-	-	
	400	3,5	-	4	8	-	-	
	1000	9,5	-	1	3	-	-	
	2000	16,5	-	-	2	-	-	
	400V per Pol	2000	10,5	-	-	2	-	
		3500	18	-	-	1	-	
Metal halide lamps with electronic ballast (50-125xIn) HQI	20	0,1	i	9	18	20	-	
	35	0,2	i	6	11	13	-	
	70	0,36	i	5	12	12	-	
	150	0,7	i	4	10	10	-	
Metal halide lamps with compensation, with parallel comp. e.g.. HQI, HPI	35	0,25	6	21	42	58	-	
	70	0,45	12	11	21	29	-	
	150	0,75	20	4	13	18	-	
	250	1,5	33	4	9	11	-	
	400	2,1	35	1	9	10	-	
	1000	5,8	95	-	3	4	-	
	2000	11,5	148	-	2	2	-	
	400V per Pol	2000	6,6	58	-	3	4	-
		3500	11,6	100	-	2	3	-
Transformers for low-voltage halogen lamps	20	-	-	52	110	174	-	
	50	-	-	24	50	80	-	
	75	-	-	16	35	54	-	
	100	-	-	12	27	43	-	
	150	-	-	9	19	29	-	
	200	-	-	5	14	23	-	
	300	-	-	4	9	14	-	

Controlling & Switching

Sodium Vapour Lamps

For 200 W, 1200 mm high-pressure lamps and low-pressure lamps, reactance coils are used as ballast. For smaller lamps, stray field transformers can be used as ballast. Take into account, the long starting period.

Low pressure lamps:

Without compens.: Making curr. $1 \times X_{l_e}$, $\cos\varphi$ 0,3; starting time 5 .. 10min
Decisive for selection of device: 60% continuous current
 $I = I_{eAC1} \times 0,6$

With compensation: Making curr.: $20 \times X_{l_e}$, $\cos\varphi$ 0,45; starting time 5 .. 10min
(at $1,6 \times I_n$), $I = I_{Spitze}/200$

High pressure lamps:

Without compens.: Making curr. $1,4 \times X_{l_e}$, $\cos\varphi$ 0,5; starting time 5 .. 10min
Decisive for selection of device: 60% continuous current
 $I = I_{eAC1} \times 0,6$

With compensation: Making curr.: $20 \times X_{l_e}$, $\cos\varphi$ 0,95; starting time 5 .. 10min
(at $1,6 \times I_n$)

	Power	Current	Capacitor	Z-SCH/25/.. CMUC.../25/	Z-SCH/40/..	Z-SCH/63/..	Z-SC	
	W	A	µF	max. number of lamps per current path at 230V, 50 Hz				
Sodium vapour lamps low-pressure without compensation	35	1,5	-	9	22	30	-	
	55	1,5	-	9	22	30	-	
	90	2,4	-	6	13	19	-	
	135	3,3	-	4	10	14	-	
	150	3,3	-	4	10	14	-	
	180	3,3	-	4	10	14	-	
	200	3,3	-	4	10	14	-	
	Sodium vapour lamps low-pressure with compensation, with parallel comp.	35	0,31	20	6	15	18	-
		55	0,42	20	4	15	18	-
		90	0,63	30	4	10	12	-
		135	0,94	45	3	7	8	-
		150	1	40	3	8	9	-
		180	1,16	40	3	8	9	-
	200	1,32	30	-	10	12	-	
Sodium vapour lamps high-pressure without compensation	150	1,8	-	8	15	22	-	
	250	3	-	5	10	13	-	
	330	3,7	-	4	8	10	-	
	400	4,7	-	3	6	8	-	
	1000	10,3	-	1	3	4	-	
	Sodium vapour lamps high pressure with compensation, with parallel comp.	150	0,83	20	7	20	25	-
		250	1,5	33	4	12	15	-
		330	2	40	3	10	13	-
		400	2,4	48	2	8	12	-
		1000	6,3	106	1	4	6	-
Sodium vapour lamps high pressure with electronic ballast (50-125xln) HQI	20	0,1	i	9	18	20	-	
	35	0,2	i	6	11	13	-	
	70	0,36	i	5	12	12	-	
	150	0,7	i	4	10	10	-	

Controlling & Switching

Utilisation Categories of Contactors

Type of current	Utilisation category	Typical Applications I = Making current, I _c = Breaking current, I _e = Rated operational current, U = Voltage, U _e = Rated operational voltage U _r = Recovery voltage	Verification of electrical service life									Verification of switching capacity					
			Switching on			Switching off			Switching on			Switching off					
			I _e	I	U	cosφ	I _c	U _r	cosφ	I _e	I	U	cosφ	I _c	U _r	cosφ	
			A	A	V		A	V		A	V	V		A	V		
AC	AC-1	Non-inductive or slightly inductive load Resistance furnaces	all values	1	1	0,95	1	1	0,95	all values	1,5	1,05	0,8	1,5	1,05	0,8	
	AC-2	Slip ring motors: starting, switching off	all values	2,5	1	0,65	2,5	1	0,65	all values	4	1,05	0,65	4	1,05	0,8	
	AC-3	Squirrel cage motors: starting, switching off (running motors ⁴)	I _e ≤ 17 I _e > 17	6 6	1 1	0,65 0,35	1 1	0,17 0,17	0,65 0,35	I _e ≤ 100 I _e > 100	10 8	1,05 1,05	0,45 0,35	8 6	1,05 1,05	0,45 0,35	
	AC-4	Squirrel cage motors: starting, plugging reversing, inching	I _e ≤ 17 I _e > 17	6 6	1 1	0,65 0,35	6 6	1 1	0,65 0,35	I _e ≤ 100 I _e > 100	12 10	1,05 1,05	0,45 0,35	10 8	1,05 1,05	0,45 0,35	
	AC-5	Switching of electric discharge lamp controls									3,0	1,05	0,45	3,0	1,05	0,45	
	AC-5b	Switching of incandescent lamps									1,5 ²⁾	1,05	2)	1,05 ²⁾	1,05	2)	
	AC-6a ³⁾	Switching of transformers															
	AC-6b ³⁾	Switching of capacitor banks															
	AC-7a	Slightly inductive loads in household appliances and similar applications									1,5	1,05	0,8	1,5	1,05	0,8	
	AC-7b	Motor loads for household appliances									8,0	1,05	1)	8,0	1,05	1)	
AC-8a	Switching of hermetically enclosed refrigerant compressor motors with manual reset of overload releases ⁵⁾									6,0	1,05	1)	6,0	1,05	1)		
AC-8b	Switching of hermetically enclosed refrigerant compressor motors with automatic reset of overload releases ⁵⁾									6,0	1,05	1)	6,0	1,05	1)		
DC	DC-1	Non-inductive or slightly inductive load, Resistance furnaces	all values	1	1	1	1	1	1	all values	1,5	1,05	1	1,5	1,05	1	
	DC-3	Shunt motors: starting, plugging, reversing, inching, dynamic braking	all values	2,5	1	2	2,5	1	2	all values	4	1,05	2,5	4	1,05	2,5	
	DC-5	Series motors: starting, plugging, reversing, inching, dynamic braking	all values	2,	1	7,5	2,5	1	7,5	all values	4	1,05	2,5	4	1,05	2,5	
	DC-6	Switching of incandescent lamps									1,5 ²⁾	1,05	2)	1,5 ²⁾	1,05	2)	

according to IEC 947-4-1, EN 60 947 VDE 0660 Part 102

¹⁾ cosφ = 0,45 for I_e ≤ 100 A; cosφ = 0,35 for I_e ≤ 100 A.

²⁾ The tests must be carried out with an incandescent lamp load connected.

³⁾ In this case, the test data must be derived from the test values for AC-3 or AC-4 according to a special table.

⁴⁾ Devices for utilisation category AC-3 may be used for occasional inching or plugging during a limited period, such as for setting up a machine. However, during this limited period of time, the number of operations must not exceed five per minute or ten in a ten minute period.

⁵⁾ Hermetically enclosed refrigerant compressor motor means a combination of a compressor and a motor both of which are housed in the same enclosure with no external shaft or shaft seals, the motor running in the refrigerant.

Utilisation Categories of Auxiliary Switches

Type of current	Utilisation category	Typical Applications I = Making current, I _c = Breaking current, I _e = Rated operational current, U = Voltage, U _e = Rated operational voltage U _r = Recovery voltage t _{0,95} = the time in ms until 95% of the stationary current has been reached P = U _e × I _e = Rated power in Watts	Divergent conditions of use											
			Normal conditions of use			Switching off			Switching on			Switching off		
			I	U	cosφ	I	U	cosφ	I	U	cosφ	I	U	cosφ
			I _e	U _e		I _e	U _e		I _e	U _e		I _e	U _e	
AC	AC-12	Control of resistive and solid state loads in optocoupler input circuits	1	1	0,9	1	1	0,9	-	-	-	-	-	-
	AC-13	Control of solid state loads with transformerisolation	2	1	0,65	1	1	0,65	10	1,1	0,65	1,1	1,1	0,65
	AC-14	Control of small electromagnetic loads (max. 72 VA)	6	1	0,3	1	1	0,3	6	1,1	0,7	6	1,1	0,7
	AC-15	Control of electromagnetic loads (above 72 VA)	10	1	0,3	1	1	0,3	10	1,1	0,3	10	1,1	0,3
DC	DC-12	Control of resistive and solid state loads in optocoupler input circuits	1	1	1 ms	1	1	1 ms	-	-	-	-	-	-
	DC-13	Control of electromagnets	1	1	6xP ¹⁾	1	1	6xP ¹⁾	1,1	1,1	6xP ¹⁾	1,1	1,1	6xP ¹⁾
	DC-14	Control of electromagnetic loads with economy resistors in the circuit	10	1	15 ms	1	1	15 ms	10	1,1	15 ms	10	1,1	15 ms

according to IEC 947-4-1, EN 60 947 VDE 0660 Part 102

¹⁾ The value „6xP“ is the result of an empirical relationship which is found to represent most direct current magnetic loads up to an upper limit of P = 50W with 6 [ms]/[W] = 200 [ms]. Loads with a rated power above 50 W are composed of small loads located parallel to each other. Therefore, 300 ms is an upper limit independent of the power rating.

Controlling & Switching

Impulse Relay Z-S.

- Impulse relays according to EN/IEC 60669 for switching electrical consumers in impulse operation.
- Shape and terminal compatible with the installation relay range
- Manual operation for testing purposes is possible
- Separately switchable LED (Z-SB./SS) for signalling purposes
- Glow lamps of illuminated pushbuttons connected parallel produce reactive currents which may be compensated by a capacitor block in order to prevent excessive heating of coils in case of high numbers of glow lamps.
- Glow lamps parallel to control keys according to table
- Main contacts can be connected to standard pin busbar

Security:

- Optional optical operating status display by means of LED
- Switching position indicated on the front side by manual operating key
- All terminals - coil and contacts - equipped with guide for secure terminal connection. Misplacement of wires impossible.
- Made of hardly flammable materials and plastics free from chlorine and halogens.
- Finger and hand touch safe according to VBG4

Advantages:

- Available in two versions (Z-S., Z-SB.)
- Low switching noise and no humming
- Easy to connect thanks to large terminals which are supplied open
- Simple snap-on fastening on 35 mm DIN rail
- High degree of flexibility thanks to a variety of contact configurations
- Easy access for coil connection

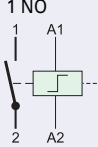
Accessories:

Capacitor block	Z-S/KO	270588
-----------------	--------	--------

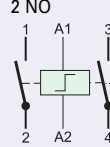
Connection diagrams

1MU Z-S./.

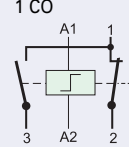
"S"
1 NO



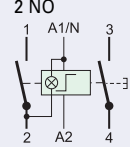
"SS"
2 NO



"W"
1 CO

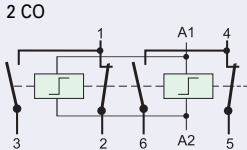


Z-SB./SS
2 NO

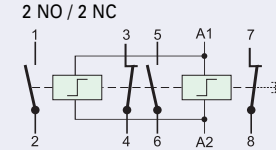


2MU Z-S./.

"WW"
2 CO



"2S2O"
2 NO / 2 NC



Technical Data

Electrical

Rated current (IEC/EN 60669-2-2)	
250 V AC	16 A
Number of poles	1 to 4
Main contacts	
NO/NC	1 and 2 (1MU); 3 and 4 (2MU)
CO	1 (1MU); 2 (2MU)

Control Circuit

Rated control feed voltage U_s	8, 12, 24, 48, 230 V AC
	8, 12, 24, 110 V DC

Alternative control voltages, frequencies, and contact arrangements upon enquiry

Rated frequency	50 Hz
Operating range	0.9-1.1 x U_s
Pickup power of coils	12 VA / 7 W typ.
Max. number of parallel pushbutton units	unlimited
Max. number of parallel illuminated pushbutton units 230 V 0.6 mA typ.	
without compensation	8 units (1MU), 15 units (2MU)
with compensation 1 x Z-SC/KO (Z-S/KO)	23 units (1MU), –
with compensation 2 x Z-SC/KO (Z-S/KO)	46 units (1MU), 43 units (2MU)
Minimum command duration	> 200 ms
Operating noise	no humming
Rated peak withstand voltage U_{imp}	2 kV (1.2/50 μ s)
Duty max.	1h, 100% with spacer

Load Circuit

Rated operational voltage U_n	1p, 2p: 250VAC; 3p, 4p: 240/415VAC
Minimum operational voltage U_{min}	24 V AC/DC (U_s 8-110 V)
Rated insulation voltage U_i	500 V
Rated peak withstand voltage U_{imp}	4 kV (1.2/50 μ s)
Conventional thermal current I_{th}	16 A AC
Rated operational current I_e	16 A AC

Rated constant current I_u	16 A AC
Rated current DC	
24 V	I_e 16 A
48 V	I_e 12.5 A
230 V	I_e 1 A
Conditional rated short circuit current I_q	10 kA (with 20 A gL/gG)
Duration of bouncing	< 10 ms (typ. < 5 ms)
Endurance electrical comp.	\square 40x10 ³ operating cycles
mechanical comp.	\square 1x10 ⁶ operating cycles

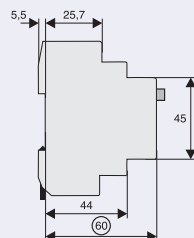
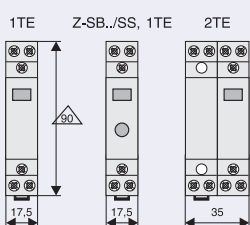
Mechanical

Frame size	45 mm
Device height	90 mm
Device width	17.5 mm per MU
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection installed device	IP20
Position of device in use	works in any position
Upper and lower terminals	lift terminals (captive)
Terminal capacity	
Contact and coil	0.5 - 10 mm ² one- or more wire 0.5 - 6 mm ² fine-wire with wire end sleeve
Temperature range	-20°C to +45°C
Total contact gap	> 5mm / independent contacts
Contact material	does not contain cadmium

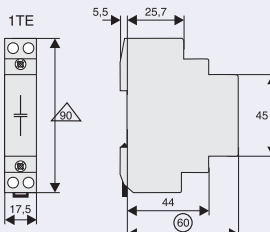
Accessories

Capacitor block	1.5 μ F, 240 V AC
-----------------	-----------------------

Dimensions (mm)



Z-S/KO



Devices for Modular Installation

Utilization Categories (acc. to IEC/EN 60947-4-1)

UTILIZATION CATEGORIES

1MU (1NO, 2NO, 1NO+1NC, 1CO), 2MU (2NO+2NC, 2CO, 3NO+1NC)

AC-1

Rated operational voltage U_e	250 V AC
Rated operational current I_e	16 A AC
Rated operational power AC-1	3200 W ($\cos \varphi = 0.8$), 4000 VA
Make-/break-current I_c (AC-1)	24 A AC

AC-3

Rated operational voltage U_e	250 V AC
Rated operational current I_e	8 A AC
Rated operational power AC-3	900 W ($\cos \varphi = 0.45$), 2000 VA
Make-/break-current I_c (AC-3)	80 A AC

AC-5a

Rated operational voltage U_e	250 V AC
Rated operational current I_e	10 A AC
Rated operational power AC-5a	1125 W ($\cos \varphi = 0.45$), 2500 VA
Make-/break-current I_c (AC-5a)	30 A AC

AC-5b

Rated operational voltage U_e	230 V AC
Rated operational current I_e	8.8 A AC
Rated operational power AC-5b	2024 W
Make-/break-current I_c (AC-5b)	13.2 A AC

AC-7a (acc. to EN 61095)

Rated operational voltage U_e	250 V AC
Rated operational current I_e	16 A AC
Rated operational power AC-7a	3200 W ($\cos \varphi = 0.8$), 4000 VA
Make-/break-current I_c (AC-7a)	24 A AC

UTILIZATION CATEGORIES

2MU (3NO, 4NO)

AC-1

Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	16 A AC
Rated operational power AC-1	3200 W ($\cos \varphi = 0.8$), 4000 VA
Make-/break-current I_c (AC-1)	24 A AC

AC-3

Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	8 A AC
Rated operational power AC-3	900 W ($\cos \varphi = 0.45$), 2000 VA
Make-/break-current I_c (AC-3)	80 A AC / 64 A AC

AC-5a

Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	10 A AC
Rated operational power AC-5a	1125 W ($\cos \varphi = 0.45$), 2500 VA
Make-/break-current I_c (AC-5a)	30 A AC

AC-5b

Rated operational voltage U_e	230/400 V AC
Rated operational current I_e	8.8 A AC
Rated operational power AC-5b	2024 W
Make-/break-current I_c (AC-5b)	13.2 A AC

AC-7a (acc. to EN 61095)

Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	16 A AC
Rated operational power AC-7a	3200 W ($\cos \varphi = 0.8$), 4000 VA
Make-/break-current I_c (AC-7a)	24 A AC

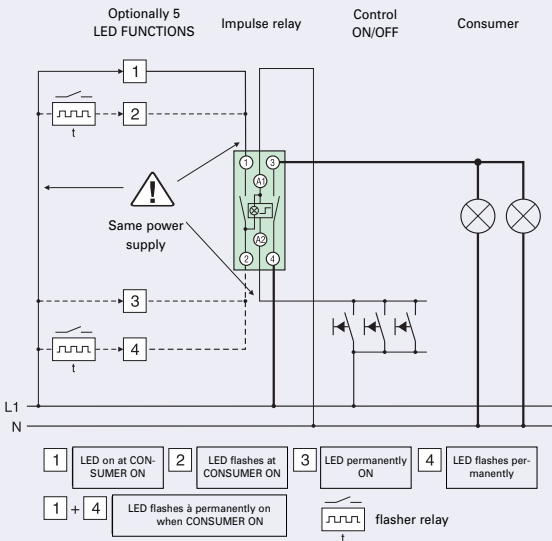
AC-7b (acc. to EN 61095)

Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	10 A AC
Rated operational power AC-7b	1125 W ($\cos \varphi = 0.8$), 2500 VA
Make-/break-current I_c (AC-7b)	30 A AC

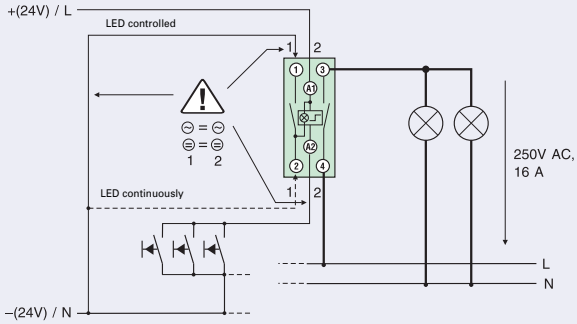
Lamp Types	Power W	Current A	Capacitor μ F	Z-S max. number of lamps per current path at 230V, 50 Hz
Incandescent lamps	60	0,27		33
Low-voltage halogen lamps (12 or 24 V) with transformer / electronic transformer	20	0,09		55
	50	0,22		22
	75	0,33		14
	100	0,43		11
	150	0,65		7
	200	0,87		5
	300	1,3		3
Fluorescent tubes without compensation or with series comp.	11	0,16	1,3	62
	18	0,37	2,7	27
	24	0,35	2,5	27
	36	0,43	3,4	24
	58	0,67	5,3	15
	65	0,67	5,3	14
	85	0,8	5,3	12
Fluorescent tubes lead-lag circuit	11	0,07	-	2 x 71
	18	0,11	-	2 x 45
	24	0,14	-	2 x 35
	36	0,22	-	2 x 22
	58	0,35	-	2 x 14
	65	0,35	-	2 x 14
	85	0,47	-	2 x 10
Fluorescent tubes with parallel comp.	11	0,16	3,0	34
	18	0,37	4,0	26
	24	0,35	4,0	26
	36	0,43	4,0	26
	58	0,67	7,0	14
	65	0,67	7,0	14
	85	0,8	8,0	13
Fluorescent tubes with electronic ballast	18	0,09	-	32
	36	0,16	-	16
	58	0,25	-	12
	2 x 18	0,17	-	2 x 16
	2 x 36	0,32	-	2 x 8
	2 x 58	0,49	-	2 x 6

Controlling & Switching

Impulse Relay with Switchable LED



Applikation at 24 V AC and DC



Controlling & Switching

Impulse Relay Z-SC with Central Control

- Impulse relay according to EN/IEC 60669 for switching electrical consumers in impulse operation.
- Local and central control, capable of switching 2-stage groups
- Shape and terminal compatible with the installation relay range
- Manual operation for testing purposes is possible
- Glow lamps of illuminated pushbuttons connected parallel produce reactive currents which may be compensated by a capacitor block in order to prevent excessive heating of coils in case of high numbers of glow lamps.
- Glow lamps parallel to control keys according to table
- Main contacts can be connected to standard busbar

Security:

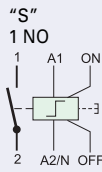
- Switching position indicated on the front side by manual operating key
- All terminals - coil and contacts - equipped with guide for secure terminal connection. Misplacement of wires impossible.
- Made of hardly flammable materials and plastics free from chlorine and halogens.
- Finger and hand touch safe according to VBG4.

Advantages:

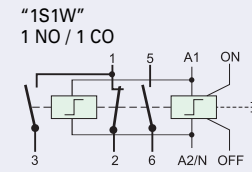
- Low switching noise and no humming
- Easy to connect thanks to large terminals which are supplied open
- Simple snap-on fastening on 35 mm DIN rail
- High degree of flexibility thanks to a variety of contact configurations
- Easy access for coil connection

Connection diagrams

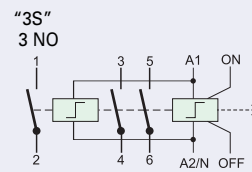
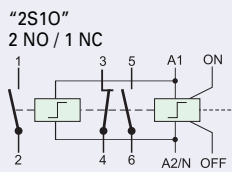
1MU Z-SC./S



2MU Z-SC./.



2MU Z-SC./.



- Permanent command, control by long pulse (1MU) and timer is possible



Technical Data

Electrical

Rated current (IEC/EN 60669-2-2)	
250 V AC	16 A
Number of poles	1 to 3
Main contacts	
NO	1 (1MU), 3 (2MU)
NO + NC	2+1 (2MU)
CO + NO	1 (2MU)

Control Circuit

Rated control feed voltage U_s	12, 24, 110, 230, 240 V AC
Alternative control voltages, frequencies, and contact arrangements upon enquiry	
Rated frequency	50 Hz; 50-60 Hz 240 V
Operating range	0.9-1.1 x U_s
Maximum power of coils, pick-up	$U_s = 24V$: 25VA (15W) $U_s = 230V$: 32VA (19W)
Max. number of parallel pushbutton units	unlimited
Max. number of parallel illuminated pushbutton units 230 V 0.6 mA typ.	
without compensation	4 units (1MU, 2MU)
with compensation 1 x Z-SC/KO (Z-S/KO)	19 units (1MU), 9 units (2MU)
with compensation 2 x Z-SC/KO (Z-S/KO)	30 units (1MU), 18 units (2MU)
Minimum command duration	> 200 ms
Operating noise	no humming
Rated peak withstand voltage U_{imp}	2 kV (1.2/50 μ s)
Duty	100% (1MU) see above <100% (2MU), 1 h max. with spacer

Load Circuit

Rated operational voltage U_n	1p, 2p: 250VAC; 3p, 4p: 240/415VAC
Minimum operational voltage U_{min}	24 V AC/DC (U_s 8-110 V)
Rated insulation voltage U_i	500 V
Rated peak withstand voltage U_{imp}	4 kV (1.2/50 μ s)
Conventional thermal current I_{th}	16 A AC

Rated operational current I_e	16 A AC
Rated constant current I_u	16 A AC
Rated current DC	
24 V	I_e 16 A
48 V	I_e 12.5 A
230 V	I_e 1 A
Conditional rated short circuit current I_q	10 kA (with 20 A gL/gG)
Duration of bouncing	< 10 ms (typ. < 5 ms)
Endurance electrical comp.	$\approx 40 \times 10^3$ operating cycles
mechanical comp.	$\approx 1 \times 10^6$ operating cycles

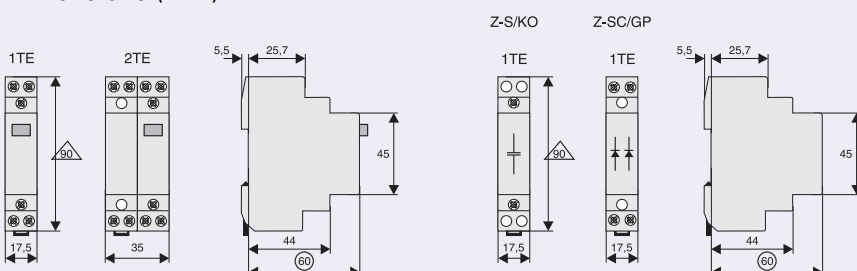
Mechanical

Frame size	45 mm
Device height	90 mm
Device width	17.5 mm (1MU)
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection installed device	IP20
Position of device in use	works in any position
Upper and lower terminals	lift terminals (captive)
Terminal capacity	
Contact and coil	0.5 - 10 mm ² one- or more wire 0.5 - 6 mm ² fine-wire with wire end sleeve
Temperature range	-20°C to +45°C
Total contact gap	> 5mm / independent contacts
Contact material	does not contain cadmium

Accessories

Capacitor block	1.5 μ F, 240 V AC
Group block	240 V AC

Dimensions (mm)



Controlling & Switching

Utilization Categories (acc. to IEC/EN 60947-4-1)

UTILIZATION CATEGORIES

1MU (1NO, 2NO, 1NO+1NC, 1CO), 2MU (2NO+2NC, 2CO, 3NO+1NC)

AC-1

Rated operational voltage U_e	250 V AC
Rated operational current I_e	16 A AC
Rated operational power AC-1	3200 W ($\cos \varphi = 0.8$), 4000 VA
Make-/break-current I_c (AC-1)	24 A AC

AC-3

Rated operational voltage U_e	250 V AC
Rated operational current I_e	8 A AC
Rated operational power AC-3	900 W ($\cos \varphi = 0.45$), 2000 VA
Make-/break-current I_c (AC-3)	80 A AC

AC-5a

Rated operational voltage U_e	250 V AC
Rated operational current I_e	10 A AC
Rated operational power AC-5a	1125 W ($\cos \varphi = 0.45$), 2500 VA
Make-/break-current I_c (AC-5a)	30 A AC

AC-5b

Rated operational voltage U_e	230 V AC
Rated operational current I_e	8.8 A AC
Rated operational power AC-5b	2024 W
Make-/break-current I_c (AC-5b)	13.2 A AC

AC-7a (acc. to EN 61095)

Rated operational voltage U_e	250 V AC
Rated operational current I_e	16 A AC
Rated operational power AC-7a	3200 W ($\cos \varphi = 0.8$), 4000 VA
Make-/break-current I_c (AC-7a)	24 A AC

UTILIZATION CATEGORIES

2MU (3NO, 4NO)

AC-1 $\text{---}\square\square\text{---}$

Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	16 A AC
Rated operational power AC-1	3200 W ($\cos \varphi = 0.8$), 4000 VA
Make-/break-current I_c (AC-1)	24 A AC

AC-3

Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	8 A AC
Rated operational power AC-3	900 W ($\cos \varphi = 0.45$), 2000 VA
Make-/break-current I_c (AC-3)	80 A AC / 64 A AC

AC-5a

Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	10 A AC
Rated operational power AC-5a	1125 W ($\cos \varphi = 0.45$), 2500 VA
Make-/break-current I_c (AC-5a)	30 A AC

AC-5b \otimes

Rated operational voltage U_e	230/400 V AC
Rated operational current I_e	8.8 A AC
Rated operational power AC-5b	2024 W
Make-/break-current I_c (AC-5b)	13.2 A AC

AC-7a (acc. to EN 61095) $\text{---}\square\text{---}$

Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	16 A AC
Rated operational power AC-7a	3200 W ($\cos \varphi = 0.8$), 4000 VA
Make-/break-current I_c (AC-7a)	24 A AC

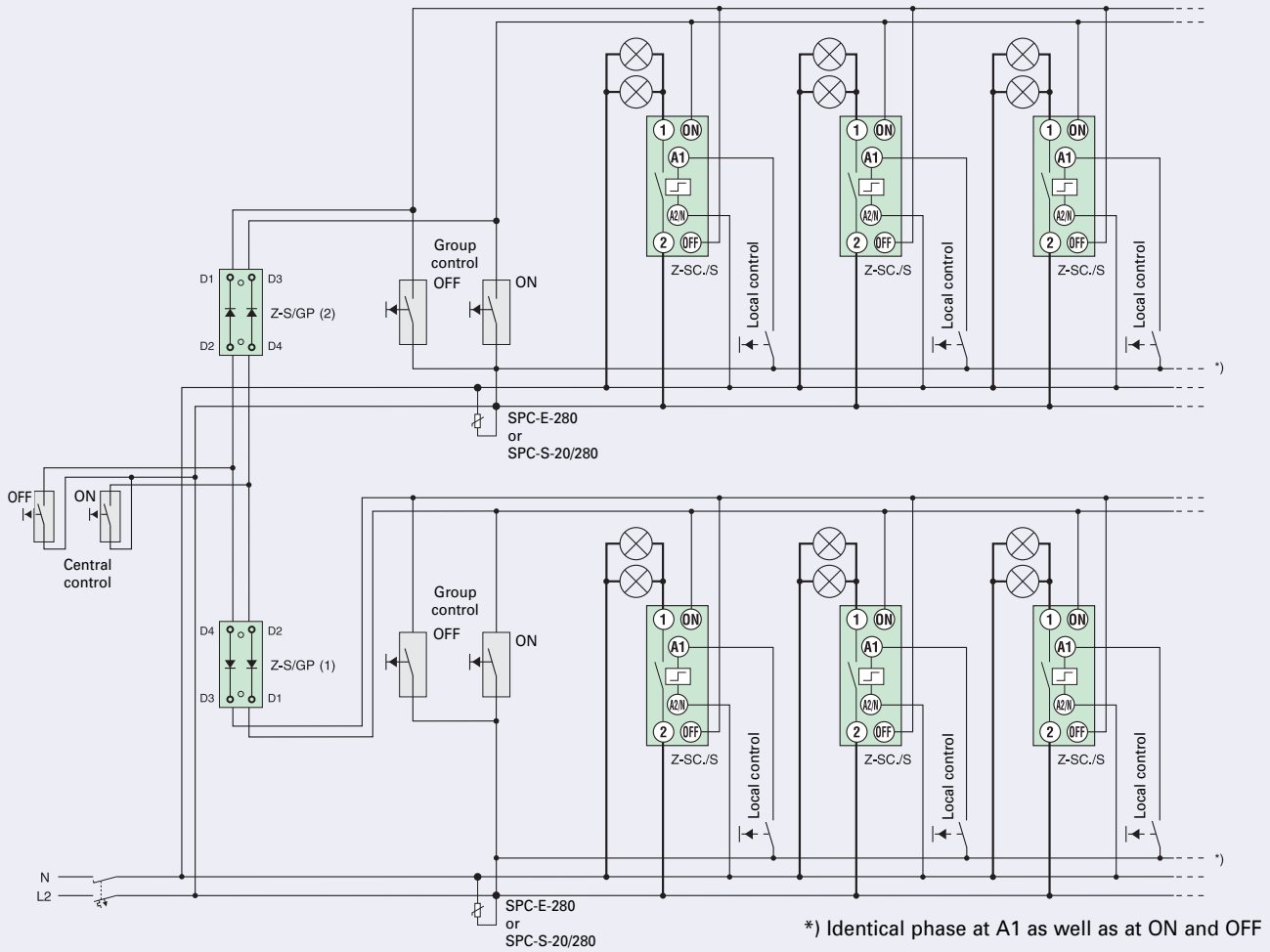
AC-7b (acc. to EN 61095) \odot

Rated operational voltage U_e	240/415 V AC
Rated operational current I_e	10 A AC
Rated operational power AC-7b	1125 W ($\cos \varphi = 0.8$), 2500 VA
Make-/break-current I_c (AC-7b)	30 A AC

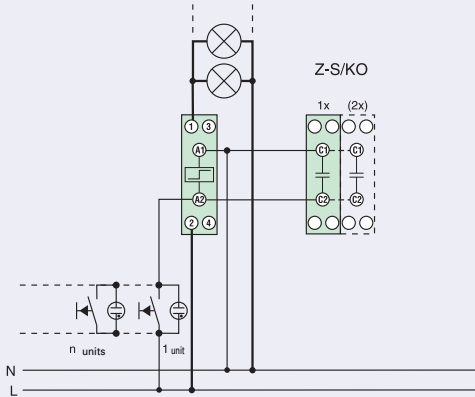
Lamp Types	Power W	Current A	Capacitor μF	Z-SC max. number of lamps per current path at 230V, 50 Hz
Incandescent lamps	60	0,27		33
Low-voltage halogen lamps (12 or 24 V) with transformer / electronic transformer	20	0,09		55
	50	0,22		22
	75	0,33		14
	100	0,43		11
	150	0,65		7
	200	0,87		5
Fluorescent tubes without compensation or with series comp.	300	1,3		3
	11	0,16	1,3	62
	18	0,37	2,7	27
	24	0,35	2,5	27
	36	0,43	3,4	24
	58	0,67	5,3	15
Fluorescent tubes lead-lag circuit	65	0,67	5,3	14
	85	0,8	5,3	12
	11	0,07	-	2 x 71
	18	0,11	-	2 x 45
	24	0,14	-	2 x 35
	36	0,22	-	2 x 22
Fluorescent tubes with parallel comp.	58	0,35	-	2 x 14
	65	0,35	-	2 x 14
	85	0,47	-	2 x 10
	11	0,16	3,0	34
	18	0,37	4,0	26
	24	0,35	4,0	26
Fluorescent tubes with electronic ballast	36	0,43	4,0	26
	58	0,67	7,0	14
	65	0,67	7,0	14
	85	0,8	8,0	13
	18	0,09	-	32
	36	0,16	-	16
2 x 18 2 x 36 2 x 58	58	0,25	-	12
		0,17	-	2 x 16
		0,32	-	2 x 8
	0,49	-	2 x 6	

Controlling & Switching

Block Diagram for Central, Group, and Local Control



Compensation by Means of Capacitor Block



Controlling & Switching

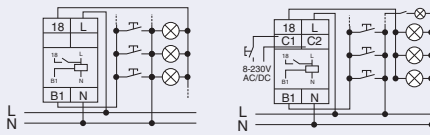
Staircase Switch with switch-off warning and stop function TLE, TLK

- Automatic electronic staircase switch
- Switch-off warning can be switched off (type TLK)
- Subsequent switching is possible, programmable long-time function
- Power saving function, low switching noise
- Automatic 3-/4 wire circuit recognition
- Zero voltage safety thanks to memory function (type TLK)
- Central control function (type TLK)
- External voltage control input (type TLK)

Connection diagrams

e.g. 3 wire circuit TLE

e.g. 4 wire circuit with attic lighting TLK



Technical Data

Electrical

Feed voltage	230 VAC
Rated voltage tolerance	-15%, +10%
Power consumption	6 VA (0.8 W)
Rated frequency	48-63 Hz
Duty	100%
Reset time	500 ms
Adjustment range	0,5 - 15 min.
Overvoltage category	III (in acc. with IEC 60664-1)
Rated surge voltage	4 kV

Output

Contact	1 NO (Terminals L-18)
Rated voltage	250 VAC
Constant current	16 A
Switch on peak current (20 ms)	80 A
Switching capacity AC	4000 VA / AC1, 384 W / DC
Maximum current	30 A / < 3s
Switching voltage	250 V AC1 / 24 V DC
Minimum switching capacity DC	500 mW
Output indication	yellow LED ()
Mechanical endurance	30 x 10 ⁶ switching operations
Electrical endurance (AC1)	10 x 10 ⁵ switching op. 16A/250V

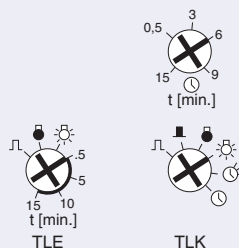
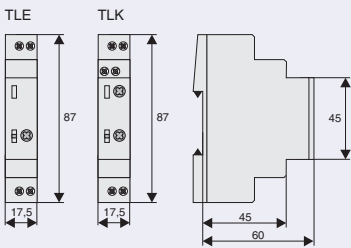
Control input B1

Connection (carrying voltage)	Pushbutton T-N (3 wire circuit)
	Pushbutton T-L (4 wire circuit)
Glow lamps parallel to control keys	max. 100 mA
Overload protection	electronic
Control input C1-C2 (Type TLK)	8-230 V AC/DC

Mechanical

Frame size	45 mm
Device height	87 mm
Device width	17.5 mm (1MU)
Installation	quick fastening on DIN rail IEC/EN 60715
Protection class / Pollution degree	IP20 / 2
Type of connection	lift terminal acc. to VBG 4 (PZ1 required)
Terminal capacity	1x 0.5-4 mm ² 2x 0.5-2.5 mm ²
Tightening torque	max. 1 Nm
Temperature range	-25°C to +55°C
Operation position	any

Dimensions (mm)



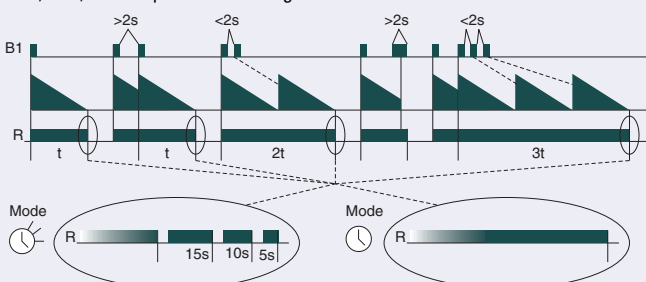
Modes

- Automatic timing
 - Automatic timing with switch-off warning
 - Permanent light
 - Off
 - Impulse relay
 - Impulse relay, zero-voltage proof
- 2000 W
 1000 W
 500 W
 max. 100 mA

Functional Description

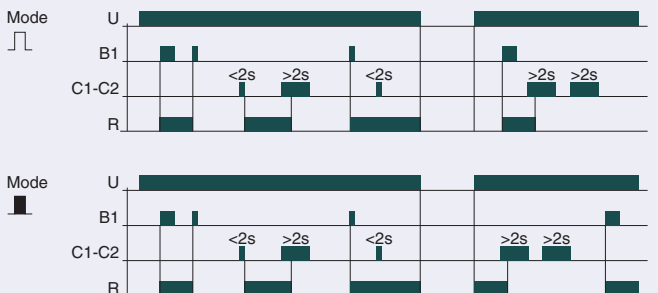
Automatic timing

After pushing the button the output relay closes (terminals L-18) and the set time starts to run. If the button is pushed again before the time t has lapsed the time re-starts from zero (subsequent switching function in accordance with EN 60669-2-3). Repeated quick pressing of the pushbutton ("pumping") leads to the addition of 2, 3 or more time intervals up to 60 min. Pushing the button once for a long time (> 2 s) stops the running lighting period, and the relay switches off (power saving function). In the function, the device generates short pulses (flickering) as a switch-off warning (according to DIN 18015-2), 15 s, 10 s, and 5 s prior to switching off.



Impulse mode

In the impulse mode each push of the button makes the output relay switch over. In the function the output relay is always open after the feed voltage has been applied. In the function the relay immediately picks up when the feed voltage is applied provided that it was closed prior to the power failure. By applying a short voltage pulse (< 2 s) to the additional control input C1-C2 the relay R is switched on (central ON). A longer voltage pulse (> 2 s) causes the relay R to switch off (central OFF).



The additional control input permits activating the staircase switch e.g. from an intercom system by means of a voltage from 8 to 230 V AC/DC in the modes and . This input channel permits starting the lighting time, as well as subsequent switching. Switching off (power saving function) and programming of longer lighting periods ("pumping") is not possible via this input channel.

Controlling & Switching

Time Lag Relays ZR

Functions

• ZRER/W

- E ON delay
- R OFF delay

• ZRMF1/W, ZRMF2/WW

- E ON delay
- R OFF delay
- Ws Single shot leading edge with control input
- Wa Single shot trailing edge with control input
- Es ON delay with control input
- Wu Single shot leading edge voltage controlled
- Bp Flasher pause first

• ZRTAK/W

- lp Asymmetric flasher pause first
- li Asymmetric flasher pulse first

Indicators:

ZRER/W, ZRMF1/W, ZRMF2/WW

- Green LED U/t ON: indication of supply voltage
- Green LED U/t flashes: indication of time period
- Yellow LED R ON/OFF: indication of output relay

ZRTAK/W

- Green LED U/t ON: indication of supply voltage
- Green LED U/t slow flashing: indication of time period t1
- Green LED U/t fast flashing: indication of time period t2
- Yellow LED R ON/OFF: indication of output relay

Connection diagram

Type ZRTAK/W

Type ZRER/W, ZRMF1/W



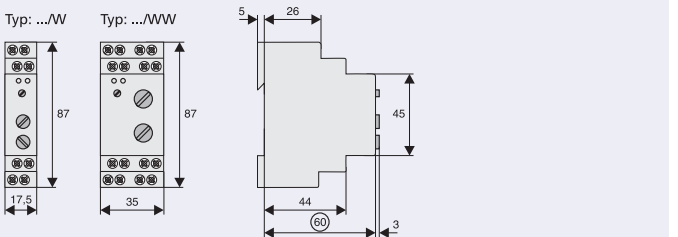
Type ZRMF2/WW



Time Ranges

Absolute time range	Setting range	
1s	50ms	1s
10s	500ms	10s
1min	3s	1min
10min	30s	10min
1h	3min	1h
10h	30min	10h
100h	5h	100h

Dimensions (mm)



Technical Data

Electrical

Design according to	EN 60669
Basic accuracy	±1% (of scale end value)
Setting accuracy	<5% (of scale end value)
Repeating accuracy:	<0.5% or ±5ms
Effect of voltage	-
Effect of temperature	≤0.01% / °C

Input circuit:

Feed voltage	
Terminals A1-A2	24V to 240V AC/DC, 24V/-15% to 240V/+10%
Nominal frequency	48 to 63Hz
Nominal consumption	
Type: .../W	4VA (1.5W)
Type: .../WW	6VA (2W)
Duty	100%
Operational again after	100ms
Residual ripple in case of DC	10%
Release voltage	>30% of min. feed voltage

Output circuit:

Switching capacity	2000 VA (8A / 250V AC)
Fuse protection	8A quick-acting
Mechanical endurance	20 x 10 ⁶ operating cycles
Electrical endurance	
at a resistive load of 1000 VA	2 x 10 ⁵ operating cycles
Switching frequency	
at a resistive load of 100 VA	max. 60/min,
at a resistive load of 1000 VA (in acc. with IEC 60947-5-1)	max. 6/min
Rated surge voltage	4kV
Overvoltage category	III (in acc. with IEC 60664-1)

Control contact:

Input carrying potential	Terminals A1-B1
loadable	yes
Maximum line length	10m
Minimum control pulse length	
DC	50ms
AC	100ms
Trigger level (sensitivity)	automatic adaption to supply voltage

Mechanical

Frame size	45 mm
Device height	87 mm
Device width	17.5 (/W) and 35 (/WW) mm
Degree of protection, built-in	IP40
Position of installation	optional
Upper and lower terminals	Bow terminal
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Terminal capacity	
1 x 0,5-2,5 mm ²	with/without multicore cable end
1 x 4 mm ²	without multicore cable end
2 x 0,5-1,5 mm ²	with/without multicore cable end
2 x 2,5 mm ²	flexible without multicore cable end
Tightening torque of terminal screws	max. 1 Nm
Permitted relative humidity	15% to 85%
in acc. with IEC 60721-3-3 Class 3K3	
Ambient temperature	-25 to +55°C
in acc. with IEC 60068-1	
Storage and transport temperature	-25 to +70°C
Pollution degree	2
when built in	3

Controlling & Switching

Description of Functions

• ON delay (E)

When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated) This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and is restarted when the supply voltage is next applied.



• OFF delay (R)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated) When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED flashes) After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated) If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted.



• Single shot leading edge with control input (Ws)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (green LED U/t illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



• Single shot trailing edge with control input (Wa)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). Closing the control contact S has no influence on the condition of the output R. When the control contact is opened, the output relay switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated), the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



• ON delay with control input (Es)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.



• Single shot leading edge voltage controlled (Wu)

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the interval t has expired. The output relay switches into off-position. The interval already is erased and is restarted when the supply voltage is next applied.



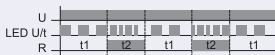
• Flasher pause first (Bp)

When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.



• Asymmetric flasher pause first (lp)

When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly) After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.



• Asymmetric flasher pulse first (li)

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into on-position (yellow LED illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.

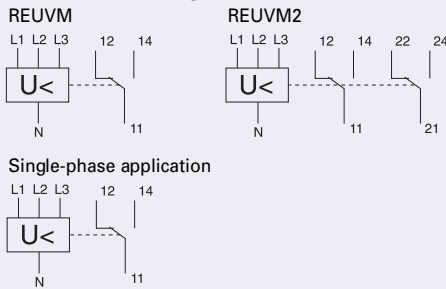


Controlling & Switching

Undervoltage Relay REUVM

- When the connection to the three phases and neutral conductor is made the relay is energized in case there is no fault and the green Power LED lights. If the monitored nominal voltage U_N drops under the switching voltage U_S , in one, two or all three phases the relay reverts to its de-energized position.
- Optical indication
 - Power...green LED
 - Fault in phases L1, L2, L3...red LED is flashing
 - Loss of Neutral conductor N...green Power LED is flashing
- Single-phase operation: bridge L1-L2-L3

Connection diagrams



Technical Data

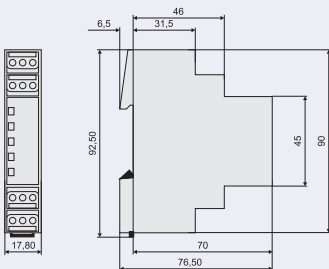
Electrical

Rated operational voltage U_N	230/400 V AC
Rated frequency	50-60 Hz
Switching voltage U_S	$U_N \times 0.85$ fix
Power consumption	< 1 VA
Switching time delay	approx. 500 ms
Switching contact	1 CO, 2 CO (potential-free)
Rated operational voltage / current	250 VAC / 5A $\cos \varphi = 1$ 30 VDC / 5A 300 VDC / 0,25A
Min. rated operational voltage	100 mV AC/DC
Min. rated operational current	10 mA AC/DC
Rated impulse withstand voltage	4 kV
Duty cycle	100%
Overvoltage category	III
Dielectric strength	
Coil – contact circuit	4 kV _{r.m.s}
Open circuit contact	1 kV _{r.m.s}

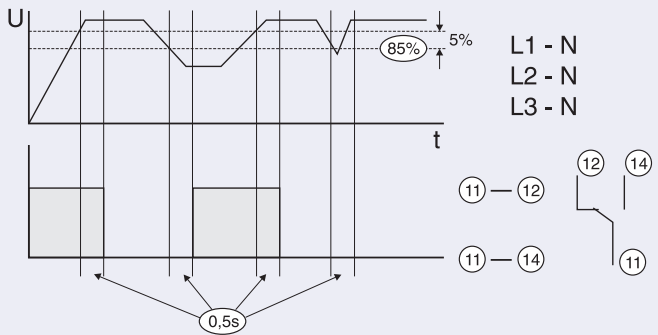
Mechanical

Frame size	45 mm
Device height	90 mm
Device width	17.8 mm
Weight	65 g, 73 g
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Upper and lower terminals	lift terminals
Terminal capacity	
rigid	1x4 mm ² , 2x1.5 mm ²
flexible	1x2.5 mm ²
Tightening torque of terminal screws	0.5-0.7 Nm
Resistance to climatic conditions	F / DIN 40040
Perm. ambient temperature range	-25 to +60°C
Flame class	V0, glow wire 960°C
Pollution degree	2
Comparative tracking index	CTI 600

Dimensions (mm)

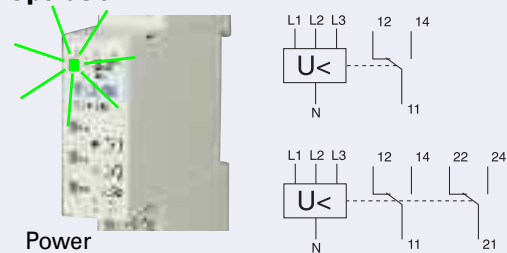


Functional diagram

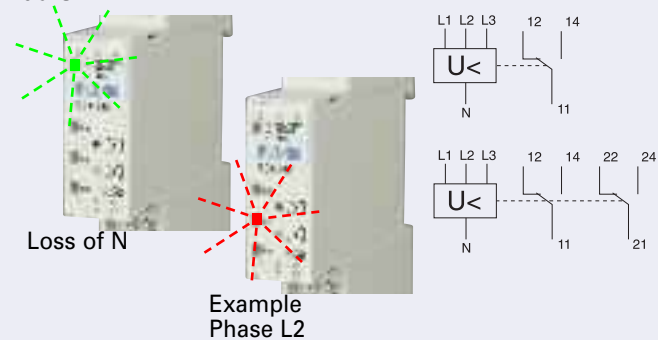


Optical indication and contact position

Operation



Fault

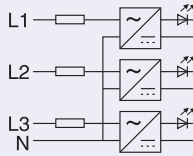


Controlling & Switching

Voltage Indication UVA

- When the connection to the three phases and neutral conductor is made, the green Power LED lights. If only two phases are connected, eg. L1 and L3, only these green LED's lights, even at loss of Neutral conductor N.
- For use as voltage return indication in manual operated Mains-Emergency-system operation
- Large operational voltage range 85-690 V AC/DC

Connection diagram



Technical Data

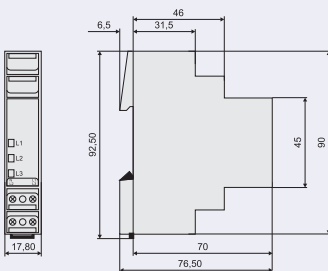
Electrical

Rated operational voltage U_N	230/400 V AC
Rated frequency	50-60 Hz
Rated operational voltage	85-690 V AC/DC
Power consumption	< 3x 23 mW
Max. permissible back-up fuse	16A gG (gL)
Duty cycle	100%
Rated impulse withstand voltage	6 kV
Overvoltage category	IV

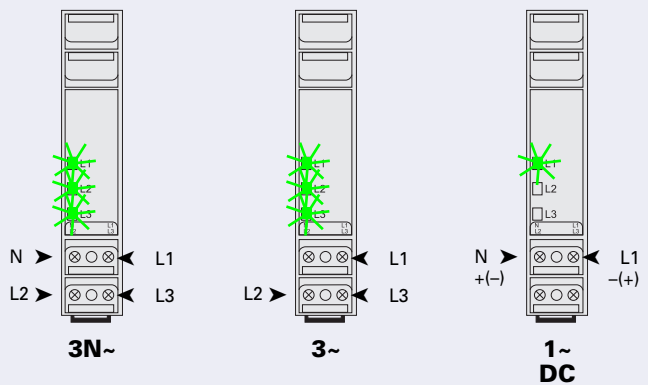
Mechanical

Frame size	45 mm
Device height	90 mm
Device width	17.8 mm
Weight	42 g
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Upper and lower terminals	lift terminals
Terminal capacity	
rigid	1x4 mm ² , 2x1.5 mm ²
flexible	1x2.5 mm ²
Tightening torque of terminal screws	0.5 Nm
Resistance to climatic conditions	F / DIN 40040
Perm. ambient temperature range	-30 to +60°C
Flame class	V0, glow wire 960°C
Pollution degree	2
Comparative tracking index	CTI 600

Dimensions (mm)



Application and optical indication

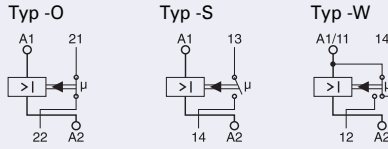


Controlling & Switching

Priority-(Current) Relay Z-LAR/

- For simple priority connection of important consumers
- For fast current increase
- Expensive peak loads are avoided efficiently (staggered heating)
- Integrated auxiliary switch, 1 NC or 1 NO or 1 CO contact
- NC and NO contact are potential free

Connection diagram



Technical Data

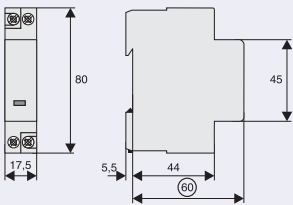
	Z-LAR/8	Z-LAR/16	Z-LAR/32
Electrical			
Nominal thermal current I_{th}	8 A	16 A	32 A
Rated voltage U	250V AC	250V AC	250V AC
Responding current I_{AN}	3 A	10 A	15 A
Release current I_A	≤ 1.8 A	≤ 4.2 A	≤ 7.4 A
Max. electrical switching frequency	3600/h	3600/h	3600/h
Rated insulation voltage U_i	440 V	440 V	440 V
Power loss at I_{th}			
Effective power	3.4 W	1.95 W	3.17 W
Apparent power	7.7 VA	4.66 VA	7.36 VA
Rated peak withstand voltage U_{imp}	4 kV	4 kV	4 kV
Back-up fuse line protection	max. 10 A	max. 16 A	max. 32 A
Switching contact:			
Function NC, NO, CO			
Back-up fuse	max. 1 A gL	max. 1 A gL	max. 1 A gL
Contact gap *)	< 3 mm (μ)	< 3 mm (μ)	< 3 mm (μ)
Switching capacity	1A/250V~	1A/250V~	1A/250V~
Minimum switching capacity	300 mW	300 mW	300 mW
Minimum operational voltage	12 V	12 V	12 V
Electrical endurance	100.000 operating cycles		

*) Do not use as the only means of isolating a device from the line voltage

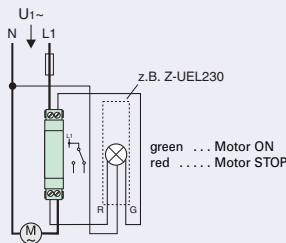
Mechanical

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
Upper and lower terminals	lift terminals	lift terminals	lift terminals
Terminal protection	finger and hand touch safe, according to BGV A3, ÖVE-EN 6		
Terminal capacity			
Main circuit	2 x 10 mm ²	2 x 10 mm ²	2 x 10 mm ²
Auxiliary circuit	2 x 2.5 mm ²	2 x 2.5 mm ²	2 x 2.5 mm ²
Fastening torque of terminal screws			
Main circuit	max. 2.4 Nm	max. 2.4 Nm	max. 2.4 Nm
Auxiliary circuit	max. 1 Nm	max. 1 Nm	max. 1 Nm

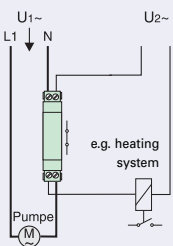
Dimensions (mm)



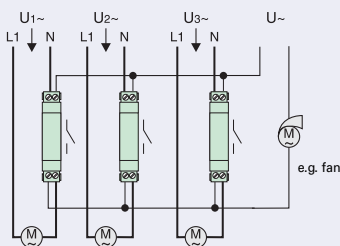
Connection Example - Operating Status



Connection Example - Priority for Pump



Connection Example - "OR" Circuit, Extraction System

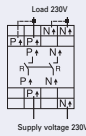


Controlling & Switching

Bioswitch FFS/16

- Line voltage LED
- AUTOMATIC ON/OFF switch
- All-pole disconnection
- 2 contacts NO
- Not suitable for consumers with electronic control

Connection diagram



Technical Data

Electrical

Rated voltage	230 V AC
Tolerance	-15% to +10%
Rated frequency	48 - 63 Hz
Rated consumption	11 VA (1.6 W)
Duration of operation	100%
Detecting voltage	200 - 250 mV DC
Current consumption	32 mA
Making current	5 - 200 mA
Breaking current	fix, approx. 70% of making current
Drop-out voltage	> 10% of the rated voltage
Tripping delay	fixed, approx. 6 s
Rise time	fixed, approx. 0.5 s
Base accuracy	±10% (of max. scale value)
Green LED ON:	indication of supply voltage
Yellow LED ON:	indication of relay output

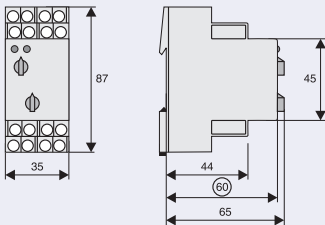
Output circuit

Switching capacity	2 potentialfree contacts NO 4000 VA (16 A / 250 V AC)
Back-up fuse	16 A fast acting
Mechanical life	30 x 10 ⁶ operations
Electrical life	2 x 10 ⁵ operations at 1000 VA resistive load
Switching frequency	max. 60/min. at 100 VA resistive load max. 6/min. at 1000 VA resistive load (according to IEC 664-1)
Rated insulating voltage	250 V AC (according to IEC 664-1)
Rated surge voltage	4 kV, overvoltage cat. III (according to IEC 664-1)
Base load resistor Z-NKA...	if high-impedance consumers are connected to a "Bio-switch", the Z-NKA... is needed. By pressing the button, the Z-NKA... is activated for 5 minutes. As long as any consumer is still switched on, the automatic deactivating of the Z-NKA... will have no effect.

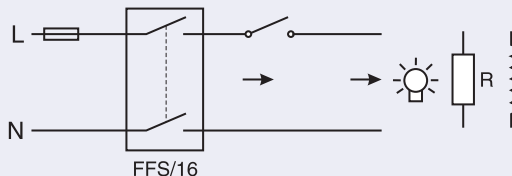
Mechanical

Frame size	45 mm
Device height	87 mm
Device width	35 mm
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Installation	in any position
Terminal protection	finger and hand touch safe, BGV A3, ÖVE-EN 6
Torque	max. 1 Nm
Terminal capacity	1 x 0.5-4 mm ² 2 x 0.5-2.5 mm ²
Ambient temperature	-25°C to +55°C
Storage temperature	-25°C to +70°C
Transport temperature	-25°C to +70°C
Relative humidity	15% to 85% (acc. to IEC 721-3-3 class 3K3)
Degree of pollution	2, if built-in 3 (acc. to IEC 664-1)

Dimensions (mm)



Connection Example

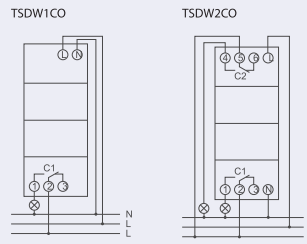


Controlling & Switching

Digital Time Switches with a Weekly Program, for DIN Rail, TSDW1CO, TSDW2CO

- Spring terminals
- Text-based user guidance on the display
- 56 memory cells
- Interface for memory card (PC programming)
- 10 years power backup (lithium battery)
- Zero-cross switching for a relay-saving way of switching and for high lamp loads
- ON-OFF switching times
- Pre-selected switching
- Permanent ON/OFF switching
- Integrated counter for operating hours
- Vacation program
- Display background lighting (can be switched off)
- PIN coding
- Automatic spring forward/fall back at daylight-saving start and end dates
- For type TSDW1CO: 1 channel
- For type TSDW2CO: 2 channels

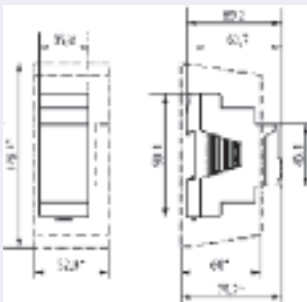
Connection examples



Technical Data

	TSDW1CO	TSDW2CO
Electrical		
Operating voltage	230–240 V AC	230–240 V AC
Frequency	50–60 Hz	50–60 Hz
Power backup	10 years	10 years
Switching capacity at 250 V AC, $\cos \varphi = 1$	16 A	16 A
Switching capacity at 250 V AC, $\cos \varphi = 0.6$	10 A	10 A
Incandescent/halogen lamp load	2600 W	2600 W
Min. switching capacity	approx. 10 mA	approx. 10 mA
Shortest switching time	1 min	
Accuracy	$\leq \pm 0.5$ s/day (quartz)	$\leq \pm 0.5$ s/day (quartz)
Stand-by power	0.8 W	0.8 W
Mechanical		
Frame size	45 mm	45 mm
Installation width	36 mm	36 mm
Mounting	DIN rail	DIN rail
Degree of protection	IP20	IP20
Protection class	II acc. to EN 60 730-1	II according to EN 60 730-1
Ambient temperature	-30 °C ... +55 °C	-30 °C ... +55 °C
Certification mark	V	V

Dimensions (mm)



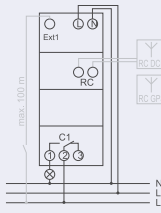
Controlling & Switching

Digital Time Switch with a Weekly Program TSDW1CODG

- Spring terminals
- Text-based operator guidance on the display
- 84 memory cells
- Interface for memory card (PC programming)
- 10 years power backup (lithium battery)
- Zero-cross switching for a relay-saving way of switching and for high lamp loads
- ON/OFF switching times
- Pulse program
- Cyclical program
- Pre-selected switching
- Permanent ON/OFF switching
- Expiry timer
- Integrated counter for operating hours
- Vacation program
- 2 random programs
- Display background lighting (can be switched off)
- PIN coding
- Automatic spring forward/fall back at daylight-saving start and end dates
- Time synchronization is possible by connecting an external aerial, e. g. a TSADCF or TSAGPSKIT aerial set
- 1 Channel
- External input

Connection example

TSDW1CODG



Technical Data

TSDW1CODG

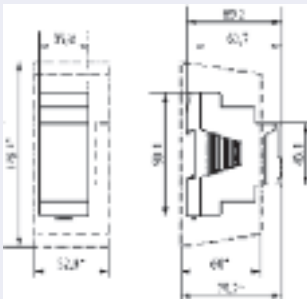
Electrical

Operating voltage	230–240 V AC
Frequency	50–60 Hz
Power backup	10 years
Switching capacity at 250 V AC, $\cos \varphi = 1$	16 A
Switching capacity at 250 V AC, $\cos \varphi = 0.6$	10 A
Incandescent/halogen lamp load	2600 W
Min. switching capacity	approx. 10 mA
Shortest switching time	1 s
Accuracy	$\leq \pm 0.5$ s/day (quartz) or DCF77/GPS
Stand-by power	1.4 W

Mechanical

Frame size	45 mm
Installation width	36 mm
Mounting	DIN rail
Degree of protection	IP20
Protection class	II according to EN 60 730-1
Ambient temperature	-30 °C ... +55 °C
Certification mark	V

Dimensions (mm)



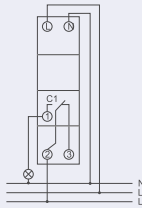
Controlling & Switching

Digital Time Switch with a Weekly Program TSDW1COMIN

- 1 Channel
- Screw-type terminals
- Text-based operator guidance on the display
- 28 memory cells
- 3 years power backup (exchangeable lithium battery)
- ON-OFF switching times
- Pre-selected switching
- Permanent ON/OFF switching
- PIN coding
- Automatic spring forward/fall back at daylight-saving start and end dates

Connection example

TSDW1COMIN



Technical Data

TSDW1COMIN

Electrical

Operating voltage	230 V AC
Frequency	50–60 Hz
Power backup	3 years
Switching capacity at 250 V AC, $\cos \varphi = 1$	16 A
Switching capacity at 250 V AC, $\cos \varphi = 0.6$	6 A
Incandescent/halogen lamp load	1000 W
Shortest switching time	1 min
Accuracy	$\leq \pm 1$ s/day (quartz)
Stand-by power	0.4 W

Mechanical

Frame size	45 mm
Installation width	17.5 mm
Mounting	DIN rail
Degree of protection	IP20
Protection class	II according to EN 60 730-1
Ambient temperature	-10 °C ... +55 °C
Certification mark	V

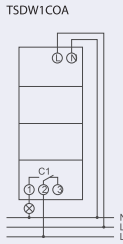
Dimensions (mm)

Controlling & Switching

Astro Time Switch with a Weekly Program TSDW1COA

- Astronomical switching function (automatic calculation of sunrise and sunset times for the entire year)
- Spring terminals
- Text-based operator guidance on the display
- Interface for memory card (PC programming)
- 10 years power backup (lithium battery)
- Zero-cross switching for a relay-saving way of switching and for high lamp loads
- Calculated astronomical switching times
- Programmable ON/OFF switching times
- Pre-selected switching
- Permanent ON/OFF switching
- Integrated counter for operating hours
- Vacation program
- Display background lighting (can be switched off)
- PIN coding
- Automatic spring forward/fall back at daylight-saving start and end dates
- 1 Channel
- 54 Memory cells

Connection example



Technical Data

TSDW1COA

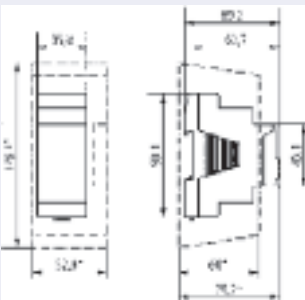
Electrical

Operating voltage	230–240 V AC
Frequency	50–60 Hz
Power backup	10 years
Switching capacity at 250 V AC, $\cos \varphi = 1$	16 A
Switching capacity at 250 V AC, $\cos \varphi = 0.6$	10 A
Incandescent/halogen lamp load	2600 W
Min. switching capacity	approx. 10 mA
Shortest switching time	1 min
Accuracy	$\leq \pm 0.5$ s/day (quartz)
Stand-by power	0.8 W

Mechanical

Frame size	45 mm
Installation width	36 mm
Mounting	DIN rail
Degree of protection	IP20
Protection class	II according to EN 60 730-1
Ambient temperature	-30 °C ... +55 °C
Certification mark	V

Dimensions (mm)

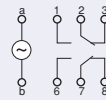


Controlling & Switching

Astronomical, digital Timer SA-TD/1W

- Design according to DIN EN 60730
- Digital timer in CMOS-technology
- Microprocessor and quartz control
- Programming by means of multi-function keys
- LCD display
- Programme data saved in case of power failure
- Optionally in each programme impulse time (switching interval 1-99 s) or fixed switching time (shortest switching interval 1 min) are possible
- Direct manual switching of relay ON/OFF
- Manual switching of relay to permanent operation ON/OFF (holiday operation)
- Automatic change to summer/winter time
- Automatic leap year adjustment
- Terminal covers which can be sealed with leads available as accessories

Block Diagram



Technical Data

SA-TD/1W

General

Design according to	EN 60730-1, EN 60730-2-7
Rated voltage	230-240 V AC +10%/-15%
Rated frequency	50-60 Hz
Power consumption	max. 6 VA
Drive	Quartz
Accuracy at 20°C	1 s/day
Power reserve at 20°C	10 years
Type of battery	Li
Operating cycles	> 40,000
Degree of protection	IP20
Ambient temperature	-30°C...+55°C
Storage temperature	-30°C...+55°C
Protection class (acc. to EN 60 730-1) upon installation	II

Switching contacts

Type of switching contact	1 x change-over contact
Contact material	AgSnO ₂
Switching capacity at 250 V~, cosφ=1	16 A
Switching capacity at 250 V~, cosφ=0.6	10 A

Programme features

Switching period	Week
Number of channels	1
Min. switching time	1 min.
Max. programme steps in the memory	732

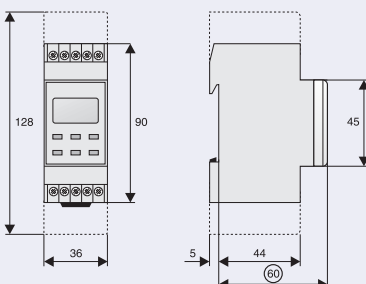
Size & Weight

Module units	2
Width	35 mm
Height	65.5 mm
Length	90 mm
Weight	170 g

Terminals

Terminal capacity - fine stranded wire	1.....2.5 mm ²
Terminal capacity - solid wire	1.....4 mm ²
Size of terminal screw	M3.5
Type of screw head	PZ size 1
Max. torque	0.8 Nm

Dimensions (mm)

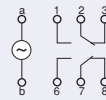


Controlling & Switching

Digital Timers Z-SDM

- Design according to DIN EN 60730
- Digital timers in CMOS-technology
- Microprocessor and quartz control
- Programming by means of multi-function keys
- LCD display
- Program data saved in case of power failure
- Optionally in each program impulse time (switching interval 1-99 s) or fixed switching time (shortest switching interval 1 min) are possible
- Direct manual switching of relay ON/OFF
- Manual switching of relay to permanent operation ON/OFF (holiday operation)
- Automatic change to summer/winter time
- Automatic leap year adjustment
- Terminal covers which can be sealed with leads available as accessories

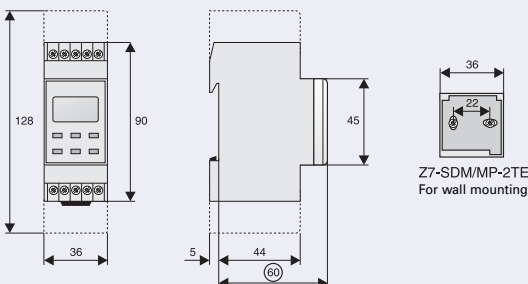
Block Diagram



Technical Data

	Z-SDM/1K-TA	Z-SDM/1K-WO	Z-SDM/2K-WO
Electrical			
Rated voltage	230 V AC	230 V AC	230 V AC
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz
Current consumption	29mA, $\cos \varphi = 0,13$	29mA, $\cos \varphi = 0,13$	29mA, $\cos \varphi = 0,13$
Apparent power	6.6 VA	6.6 VA	6.6 VA
Reactive power	-6.5 VAr	-6.5 VAr	-6.5 VAr
Power loss	0.9 W	0.9 W	0.9 W
Switching contact (potential-free)	1 CO	1 CO	2 CO
Switching capacity			
Rated insulation voltage	250 V	250 V	250 V
Rated current	16 A μ	16 A μ	16 A μ
Resistive load	3000W, $\cos \varphi = 1$	3000W, $\cos \varphi = 1$	3000W, $\cos \varphi = 1$
Incandescent lamp load	1000W, $\cos \varphi = 1$	1000W, $\cos \varphi = 1$	1000W, $\cos \varphi = 1$
Inductive load	2A/250VAC $\cos \varphi = 0.6$	2A/250VAC $\cos \varphi = 0.6$	2A/250VAC $\cos \varphi = 0.6$
Power reserve	250 h	250 h	250 h
Power reserve storage	NiMH storage battery	NiMH storage battery	NiMH storage battery
Data saved by	EEPROM	EEPROM	EEPROM
Accuracy at 20°C	approx. 1 s per day	approx. 1 s per day	approx. 1 s per day
Switching accuracy	accurate to the second	accurate to the second	accurate to the second
Quartz frequency	32.768 MHz	32.768 MHz	32.768 MHz
Switching pairs freely programmable	20/day	20/week	20/week
Switching interval	1 min. or 1 s	1 min. or 1 s	1 min. or 1 s
Mechanical			
Frame size	45 mm	45 mm	45 mm
Device height	90 mm	90 mm	90 mm
Device width	36 mm	36 mm	36 mm
Weight	170 g	170 g	200 g
Mounting	quick fastening on DIN rail IEC/EN 60715		
Degree of protection, built-in	IP40	IP40	IP40
Upper and lower terminals	lift terminals	lift terminals	lift terminals
Terminal capacity			
one-wire	1.5-4 mm ²	1.5-4 mm ²	1.5-4 mm ²
fine wire	1-2.5 mm ²	1-2.5 mm ²	1-2.5 mm ²
Tightening torque of terminal screws	0.8 Nm	0.8 Nm	0.8 Nm
Permitted relative humidity	< 95%	< 95%	< 95%
Perm. ambient temperature range	0 to +55°C	0 to +55°C	0 to +55°C
Flame class acc. to EN 60730	D	D	D

Dimensions (mm)

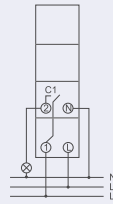


Controlling & Switching

Analog Time Switches TSQD1NO, TSSD1NO

- 1 MU
- 1 Channel
- Screw-type terminals
- Manual switch with 3 positions: Permanent ON/AUTO/Permanent OFF
- Switching status indication
- For type TSQD1NO: with power backup (exchangeable NiMH cell)
 - quartz-controlled
- For type TSSD1NO: Daily program
 - Without power backup
 - 96 switching segments
 - Mains-synchronized
 - Shortest switching time: 15 minutes

Connection example



Technical Data

	TSQD1NO	TSSD1NO
Electrical		
Operating voltage	230–240 V AC	230 V AC
Frequency	50–60 Hz	50 Hz
Program	Daily program	Daily program
Power backup	3 days	–
Switching capacity at 250 V AC, $\cos \varphi = 1$	16 A	16 A
Switching capacity at 250 V AC, $\cos \varphi = 0.6$	4 A	4 A
Shortest switching time	15 min	15 min
Programmable	Every 15 min	Every 15 min
Accuracy	$\leq \pm 1$ s/day (quartz)	Mains-synchronized
Stand-by power	0.5 W	0.9 W
Mechanical		
Frame size	45 mm	45 mm
Installation width	17.5 mm	17.5 mm
Mounting	DIN rail	DIN rail
Degree of protection	IP20	IP20
Protection class	II acc. to EN 60 730-1	II according to EN 60 730-1
Ambient temperature	–10 °C ... +55 °C	–25 °C ... +50 °C
Certification mark	V	V

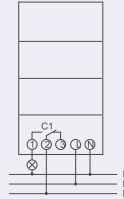
Dimensions (mm)

Controlling & Switching

Analog Time Switches TSQD1CO, TSSD1CO, TSQW1CO

- 3 MUs
- 1 Channel
- Spring terminals
- Pre-selected switching
- Manual switch with 3 positions: Permanent ON/AUTO/Permanent OFF
- Switching position indication
- Type TSQD1CO:
 - With power backup (NiMH cell)
 - Quartz-controlled
 - Clock-hands for time indication and 12h/24h recognition
 - Easy correction of spring forward/fall back at daylight-saving start and end
- Type TSQW1CO:
 - Weekly program
 - 84 Switching segments
 - Shortest switching time: 2 hours
- Type TSSD1CO:
 - Daily program
 - Without power backup
 - 96 Switching segments
 - Shortest switching time: 15 minutes
 - Clock-hands for time indication and 12h/24h recognition
 - Easy correction of spring forward/fall back at daylight-saving start and end

Connection example



Technical Data

	TSQD1CO	TSSD1CO	TSQW1CO
Electrical			
Operating voltage	110–230 V AC	110–230 V AC	110–230 V AC
Frequency	50–60 Hz	50 Hz	50–60 Hz
Program	Daily program	Daily program	Weekly program
Power backup	200 hours, approx. 100 hours with 110 V	–	200 hours, approx. 100 hours with 110 V
Switching capacity at 250 V AC, $\cos \varphi = 1$	16 A	16 A	16 A
Switching capacity at 250 V AC, $\cos \varphi = 0.6$	4 A	4 A	4 A
Shortest switching time	15 min	15 min	2 h
Programmable	Every 15 min	Every 15 min	Every 2 h
Accuracy	$\leq \pm 1$ s/day (quartz)	Mains-synchronized	$\leq \pm 1$ s/day (quartz)
Stand-by power	0.5 W	0.9 W	0.5 W
Mechanical			
Frame size	45 mm	45 mm	
Installation width	52.5 mm	52.5 mm	52.5 mm
Mounting	DIN rail	DIN rail	DIN rail
Degree of protection	IP20	IP20	IP20
Protection class	II acc. to EN 60 730-1	II acc. to EN 60 730-1	II according to EN 60 730-1
Ambient temperature	–20 °C ... +55 °C	–20 °C ... +55 °C	–20 °C ... +55 °C
Certification mark	V	V	V

Dimensions (mm)

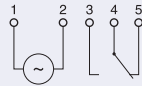


Controlling & Switching

Analogue Timers SU-T

- Design according to EN 60730-1, EN 60730-2-7
- Programming by means of switching slides

Block Diagram



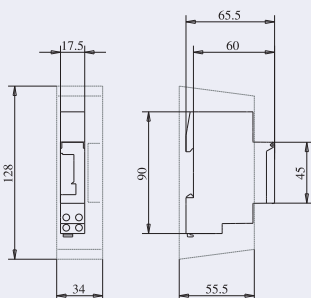
Technical Data

	SU-TS/TA	SU-TS/1W-TA	SU-TS/WO	SU-TQ/TA	SU-TQ/1W-TA, -WO	SU-TQ/2W-TW
General						
Design according to	EN 60730-1, EN 60730-2-7					
Rated voltage	230 V AC ± 10 %	230 V AC ± 10 %	230 V AC ± 10 %	230 V AC ± 10 %	230 V AC ± 10 %	230 V AC ± 10 %
Rated frequency	50 Hz	50 Hz	45-60 Hz	45-60 Hz	45-60 Hz	45-60 Hz
Power consumption	max. 2.5 VA	max. 2.5 VA	max. 2.5 VA	max. 2.5 VA	max. 2.5 VA	max. 2.5 VA
Drive	Mains	Mains	Mains	Quartz	Quartz	Quartz
Accuracy at 20°C	acc. to mains	acc. to mains	acc. to mains	≤±1 s/day	≤±1 s/day	≤±1 s/day
Power reserve at 20°C	-	-	-	>3 days	>3 days	>3 days
Type of battery	-	-	-	NiMH	NiMH	NiMH
Operating cycles	>10,000	>10,000	>10,000	>10,000	>10,000	>10,000
Degree of protection	IP20	IP20	IP20	IP20	IP20	IP20
Ambient temperature	-25 °C...+50 °C	-20 °C...+50 °C	-10 °C...+50 °C	-10 °C...+50 °C	-20 °C...+50 °C	-20 °C...+50 °C
Storage temperature	-25 °C...+50 °C	-20 °C...+50 °C	-10 °C...+50 °C	-10 °C...+50 °C	-20 °C...+50 °C	-20 °C...+50 °C
Protection class (acc. to EN 60 730-1) upon installation	II	II	II	II	II	II
Switching contacts						
Type of switching cont.	1 x NO	1 x CO	1 x NO	1 x NO	1 x CO	2 x CO
Contact material	Solid silver	Solid silver	Solid silver	Solid silver	Solid silver	Solid silver
Switching capacity at 250 V~, cosφ=1	16 A	16 A	16 A	16 A	16 A	16 A
Switching capacity at 250 V~, cosφ=0.6	4 A	4 A	4 A	4 A	4 A	4 A
Programme features						
Switching period	Day	Day	Week	Day	Day, Week	Week
Number of channels	1	1	1	1	1	2
Shortest switching interval	15 min.	15 min.	30 min.	2 hours	15 min.	30 min., 4 hours
Max. programme steps in the memory	96	48	84	96	48	32/day
Size & Weight						
Module units	1	3	1	1	3	3
Width	17.5 mm	52.5 mm	17.5 mm	17.5 mm	52.5 mm	52.5 mm
Height	65.5 mm	65.5 mm	65.5 mm	65.5 mm	65.5 mm	66.5 mm
Length	90 mm	90 mm	90 mm	90 mm	90 mm	90 mm
Weight	80 g	164 g	90 g	80 g	170 g, 172 g	175 g
Terminals						
Terminal capacity - fine stranded wire	1.....2.5 mm ²	1.....2.5 mm ²	1.....2.5 mm ²	1.....2.5 mm ²	1.....2.5 mm ²	1.....2.5 mm ²
Terminal capacity - solid wire	1.....4 mm ²	1.....4 mm ²	1.....4 mm ²	1.....4 mm ²	1.....4 mm ²	1.....4 mm ²
Size of terminal screws	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
Type of screw head	PZ size 1	PZ size 1	PZ size 1	PZ size 1	PZ size 1	PZ size 1
Max. torque	2 Nm	2 Nm	2 Nm	2 Nm	2 Nm	2 Nm

Dimensions (mm)

SU-TS/TA, SU-TS/WO, SU-TQ/TA

SU-TS/1W-TA, SU-TQ/1W-TA, SU-TQ/1W-WO, SU-TQ/2W-TW

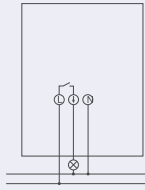


Controlling & Switching

Surface-Mounted Twilight Switch SRSW1NO

- Twilight switch with an integrated light sensor
- Cable entry is possible at the rear or from the bottom
- Large terminal area
- Setting the brightness value is possible from outside, without the need to open the device
- Wide angle of light incidence (approx. 180°)
- Test button
- Switch-on and switch-off delay can be adjusted
- Brightness level can be continuously adjusted
- Expanded brightness range

Switching diagram



Technical Data

SRSW1NO

Electrical

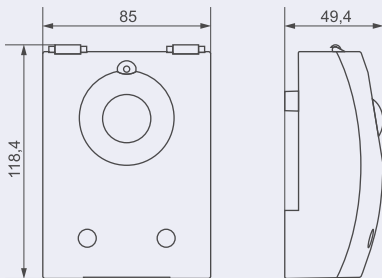
Operating voltage	220–230 V AC
Frequency	50–60 Hz
Setting range for brightness	2–2000 lx
Switch-on delay	2–100 s
Contact type	Make-contact
Switch output	Not potential-free (230 V)
Switching capacity at 230 V AC, $\cos \varphi = 1$	16 A
Switching capacity at 230 V AC, $\cos \varphi = 0.3$	10 AX
Incandescent lamp load	2300 W
Fluorescent lamp load (VVG - low-loss ballast)	2300 VA
non-compensated/series-compensated/ duo switching	
Energy saving lamps	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W
Stand-by power	0.6 W

Mechanical

Height	118.4 mm
Width	85 mm
Depth	49.4 mm
Degree of protection	IP55
Protection class	II
Ambient temperature	-35 °C ... +55 °C

Dimensions (mm)

SRSW1NO

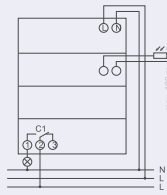


Controlling & Switching

Twilight Switch with Timer, for DIN Rail, SRCD1CO

- Twilight switch with an integrated weekly timer
- Adjustable switch-on and switch-off delay
- Brightness levels and switching-delay can separately be set for switch-on and switch-off
- Fixed times for ON and OFF (e.g. interruption during the night)
- DuoFix spring terminals
- Zero-cross switching to protect the relay contact and the lamp so as to increase their service life
- Interface for the OBELISK top2 memory card (PC programming)
- Light sensor included in the scope of delivery
- Permanent ON/OFF switching
- Test function
- Pre-selected switching
- Display background lighting
- PIN coding
- Counter for operating hours
- Display of the channel and switching status
- Vacation and holiday program with annual function for fixed date and variable date holidays (e.g. the ones that depend on Easter)
- Different rules can be selected for daylight-saving start and end or they can be freely selected
- For type SRCD1CO:
 - Analog twilight switch
 - 1 Channel
 - Analog setting of brightness levels

Switching diagram



Technical Data

SRCD1CO

Electrical

Operating voltage	220–240 V AC
Frequency	50–60 Hz
Setting range for brightness	2–2000 lx
Switch-on delay	0–59 min
Contact type	Change-over contact
Switch output	Potential-free, not suitable for SELV
Switching capacity at 250 V AC, $\cos \varphi = 1$	16 A
Switching capacity at 250 V AC, $\cos \varphi = 0.6$	10 A
Switching capacity with fluorescent lamp load	10 AX
Min. switching capacity	approx. 10 mA
Incandescent lamp load	2600 W
Fluorescent lamp load (VVG - low-loss ballast) non-compensated/series-compensated/ duo-switching	2300 VA
Energy saving lamp	22 x 7 W, 18 x 11 W, 16 x 15 W, 16 x 20 W, 14 x 23 W
Stand-by power	1.3 W

Mechanical

Frame size	45 mm
Installation width	52.5 mm
Mounting	DIN rail
Protection class	II
Ambient temperature	-30 °C ... +55 °C
Max. line length to the sensor	100 m

Dimensions (mm)



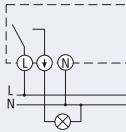
Controlling & Switching

Light Intensity Switch for support rail assembly DS-TA, DS-TD

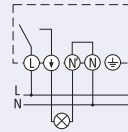
- Device for automatic control of lighting systems
- For outdoor installation
- Wall mounting IP55
- With integrated light sensor
- Brightness range infinitely adjustable
- **Type DS-TA:** can be combined with timers for time and light-dependent control
- **Type DS-TA:** with integrated timer
- With make and break-time delay
- Suitable for street lighting, yard or general outdoor lighting

Connection diagram

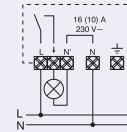
DS-TA/WA



DS-TA/VWA



DS-TD/WA



Technical Data

	DS-TA/WA	DS-TA/VWA	DS-TD/WA
General			
Design according to	EN 60669-1, EN 60669-2-1		
Rated voltage	230 V AC / 220 V~	230 V AC / 220 V~	230 V AC / 220 V~
Rated operating voltage tolerance	-10%....+10%	-10%....+10%	-10%....+10%
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz
Power consumption	3.5 VA	4.5 VA	2 VA
Brightness range	5 - 200 Lux	2 - 2000 Lux	2 - 200 Lux, digital
Max. cable length for sensor	-	-	-
Drive	-	-	Quartz
Accuracy at 20°C	-	-	-
Power reserve at 20°C	-	-	1.5 years
Type of battery	-	-	Lithium, replacable
Operating cycles	40,000	40,000	40,000
Degree of protection	IP55	IP55	IP55
Ambient temperature	-35°C...+55°C	-35°C...+55°C	-35°C...+55°C
Ambient temperature - sensor	-	-	-
Storage temperature	-40 °C...+70 °C	-40 °C...+70 °C	-40 °C...+70 °C
Storage temperature - sensor	-40 °C...+70 °C	-40 °C...+70 °C	-40 °C...+70 °C
Protection class - device	II	II	II
Protection class - sensor	-	-	-
Switching contacts			
Type of switching contact	1 x NO	1 x NO	1 x NO
Contact material	Ag Sn O ₂	Ag Sn O ₂	Ag Sn O ₂
Switching capacity at 250V~cosφ=1	10 A	16 A	16 A
Switching capacity at 250 V~, cosφ=0.6	6 A	10 A	10 A
Switching capacity with lamps			
Incandescent lamps	1000 W	2300 W	2300 W
Halogen lamps	1000 W	2300 W	2300 W
Fluorescent lamps			
Non-compensated	1000 VA	2300 VA	2300 VA
Compensated in parallel	120 VA (18μF)	400 VA (42μF)	400 VA
Lead-lag circuit - compensated in series	1000 VA	2300 VA	2300 VA
Ballast - compensated	4 x 7W, 3 x 11W, 3 x 15W, 2 x 20W, 3 x 23W	9 x 7W, 7 x 11W, 7 x 15W, 7 x 20W, 7 x 23W	9 x 7W, 7 x 11W, 7 x 15W, 7 x 20W, 7 x 23W
Make-time delay	40 s	2-100 s	0-10 min, digital
Break-time delay	40 s	2-100 s	0-10 min, digital
Switching status indication	Yes	Yes	Yes
Non-delayed switching status indication	LED	LED	LED
Programme features			
Number of channels	1	1	1
Minimum switching time	-	-	1 min.
Max. programme steps in the memory	-	-	-
Programming via EEPROM or software	-	-	No
Automatic change of clock to summer/winter time	-	-	Yes
Random switching	-	-	No
Holiday programme	-	-	No
Impulse switching	-	-	No
Cycle-based programme	-	-	No
LCD background light	-	-	No

Controlling & Switching

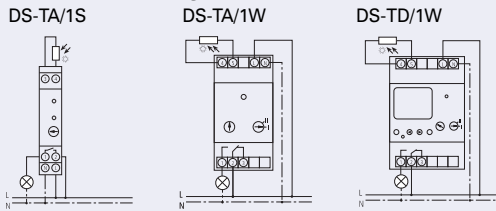
	DS-TA/WA	DS-TA/VWA	DS-TD/WA
Size & weight			
Module units	-	-	-
Width	85 mm	85 mm	85 mm
Height	49.4 mm	49.4 mm	49.4 mm
Length	118.4 mm	118.4 mm	118.4 mm
Weight	202 g	247 g	320 g
Terminals			
Terminal capacity - fine stranded wire	1.....2.5 mm ²	1.....2.5 mm ²	1.....2.5 mm ²
Terminal capacity - solid wire	1.....4 mm ²	1.....4 mm ²	1.....4 mm ²
Size of terminal screws	M3	M3	M3
Type of screw head	Slotted, size 1	Slotted, size 1	Slotted, size 1
Max. torque	0.5 Nm	0.5 Nm	0.5 Nm
Dimensions (mm)			

Controlling & Switching

Light Intensity Switch for wall mounting DS-TA, DS-TD

- Device for automatic control of lighting systems
- With external light sensor
- Brightness range infinitely adjustable
- **Type DS-TA:** can be combined with timers for time and light-dependent control
- **Type DS-TD:** with integrated timer for time and light-dependent control
- With make and break-time delay
- Supplied with light sensor IP65
- Spare sensors available

Connection diagrams



Technical Data

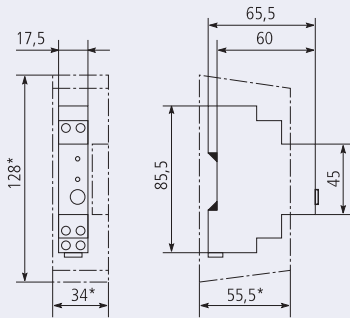
	DS-TA/1S	DS-TA/1W	DS-TD/1W
General			
Design according to	EN 60669-1, EN 60669-2-1		
Rated voltage	220-240 V AC	230 V AC	230 V AC
Rated operating voltage tolerance	-15%...+10%	-10%...+10%	-10%...+10%
Rated frequency	50-60 Hz	45-60 Hz	45-60 Hz
Power consumption	approx. 6 VA	approx. 5 VA	approx. 5 VA
Brightness range	2 - 100 Lux	2 - 2000 Lux	2 - 2000 Lux
Max. cable length for sensor	100 m	100 m	100 m
Drive	-	-	Quartz
Operating cycles	40,000	40,000	40,000
Degree of protection - control device	IP20	IP20	IP20
Degree of protection - sensor	IP54/IP65	IP54/IP65	IP54/IP65
Ambient temperature	-25 °C...+50 °C	-10 °C...+50 °C	-10 °C...+50 °C
Ambient temperature - sensor	-40 °C...+70 °C	-40 °C...+70 °C	-40 °C...+70 °C
Storage temperature	-25 °C...+50 °C	-25 °C...+50 °C	-25 °C...+50 °C
Storage temperature - sensor	-40 °C...+70 °C	-40 °C...+70 °C	-40 °C...+70 °C
Protection class - device	II	II	II
Protection class - sensor	II	III	III
Switching contacts			
Type of switching contact	1 x NO	1 x CO	1 x CO
Contact material	Ag Sn O ₂	Ag Sn O ₂	Ag Sn O ₂
Switching capacity at 250V~cosφ=1	16 A	10 A	10 A
Switching capacity at 250 V~, cosφ=0.6	10 A	6 A	6 A
Switching capacity with lamps			
Incandescent lamps	2300 W	2300 W	2300 W
Halogen lamps	2300 W	2300 W	2300 W
Fluorescent lamps			
Non-compensated	2300 VA	2300 VA	2300 VA
Compensated in parallel	400 VA (42 µF)	400 VA (42 µF)	400 VA (42 µF)
Lead-lag circuit - compensated in series	2300 VA	2300 VA	2300 VA
Ballast - compensated	4 x 7W, 3 x 11W, 3 x 15W, 2 x 20W, 3 x 23W	9 x 7W, 7 x 11W, 7 x 15W, 7 x 20W, 7 x 23W	9 x 7W, 7 x 11W, 7 x 15W, 7 x 20W, 7 x 23W
Make-time delay	20 s	40 s	80 s
Break-time delay	80 s	40 s	80 s
Switching status indication	Yes	Yes	Yes
Non-delayed switching status indication	LED	LED	LED
Programme features			
Number of channels	1	1	1
Minimum switching time	-	-	1 min.
Max. programme steps in the memory	-	-	42
Programming via EEPROM or software	-	-	No
Automatic change of clock to summer/winter time	-	-	Yes
Random switching	-	-	-
Holiday programme	-	-	Yes
Size & weight			
Module units	1	3	4
Width	17.5 mm	52,5 mm	72 mm
Height	65.5 mm	65.5 mm	65.5 mm
Length	90 mm	90 mm	90 mm
Weight	172 g	330 g	330 g

Controlling & Switching

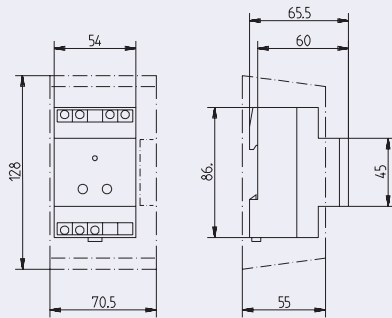
	DS-TA/1S	DS-TA/1W	DS-TD/1W
Terminals			
Terminal capacity - fine stranded wire	1.....2.5 mm ²	1.....2.5 mm ²	1.....2.5 mm ²
Terminal capacity - solid wire	1.....4 mm ²	1.....4 mm ²	1.....4 mm ²
Size of terminal screws	M3.5	M3.5	M3.5
Type of screw head	PZ size 1	PZ size 1	PZ size 1
Max. torque	0.8 Nm	0.8 Nm	0.8 Nm

Dimensions (mm)

DS-TA/1S



DS-TA/1W



DS-TD/1W



Controlling & Switching

Light Sensor Z-DS/S

Technical Data

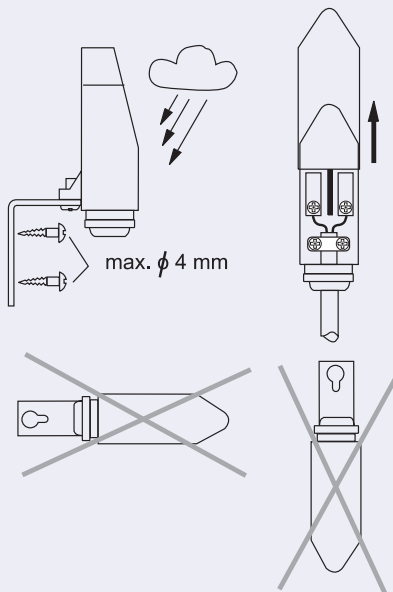
	Z-DS/S-E	Z-DS/S-A
General		
Use	built-in	external
Design according to	EN 60669-1, EN 60669-2-1	
Max. cable length for sensor	100 m	100 m
Connection cable	1.5 m	-
Degree of protection	IP65	IP54
Ambient temperature - sensor	-40 °C...+70 °C	-40 °C...+70 °C
Storage temperature	-40 °C...+70 °C	-40 °C...+70 °C
Protection class	III	III
Size & Weight		
Module units	-	-
Width	20 mm	28 mm
Height	PG 9 (diameter of thread)	28 mm
Length	40.5 mm	85 mm
Weight	52 g	55 g
Terminals		
Terminal capacity - fine stranded wire	1.....1.5 mm ²	1.....1.5 mm ²
Terminal capacity - solid wire	1.....1.5 mm ²	1.....1.5 mm ²
Size of terminal screws	M2.5	M2.5
Type of screw heads	PZ size 1	PZ size 1
Max. torque	0.8 Nm	0.8 Nm

Dimensions (mm)

Z-DS/S-E



Z-DS/S-A

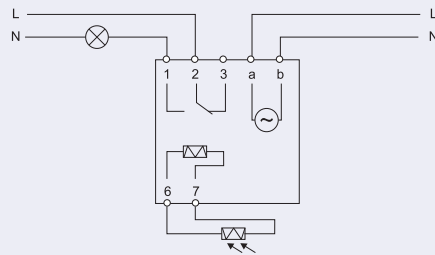


Controlling & Switching

Light Intensity Switch Z-LMS, Light Sensor Z7-LMS/SENSOR

- Device for automatic control of lighting systems
- With external light sensor
- Brightness range infinitely adjustable
- Can be combined with timers for time- and light-dependent control
- With make and break-time delay
- Supplied with light sensor IP54
- Spare sensors available (Z7-LMS/SENSOR)

Connection diagram



Technical Data

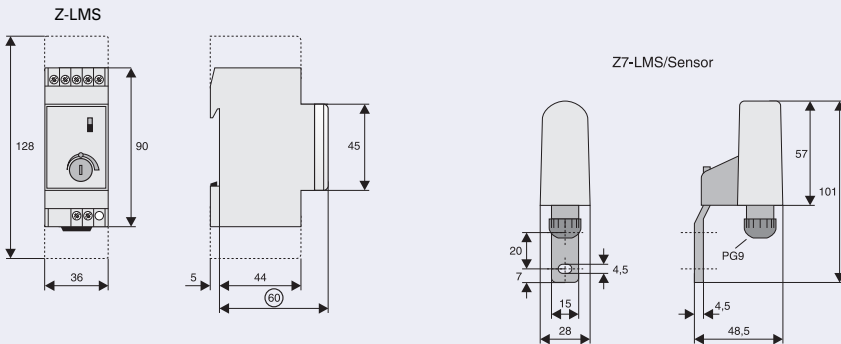
Electrical

Rated voltage	230 V AC +6% -10%
Rated frequency	50-60 Hz
Current consumption	9.5 mA
Power consumption	2.2 VA
Switching contact	1 CO (potential-free)
Rated insulation voltage	250 V
Rated current	16 A μ
Switching capacity	
Resistive load	3500W, $\cos \varphi = 1$
Incandescent lamp load	2300W, $\cos \varphi = 1$
Inductive load	3A / 250 V, $\cos \varphi = 0.8$
Make delay	8 s
Break time delay	38 s
Switch status	
Relay on	red LED
Switching point	green LED
Setting range	2-100 2-1000 2-10.000 Lux
Duty	100%

Mechanical

Frame size	45 mm
Device height	90 mm
Device width	36 mm
Weight	285 g
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40
Upper and lower terminals	lift terminals
Terminal capacity	0.5-2.5 mm ²
Tightening torque of terminal screws	0.5 Nm
Line length to the light sensor	max. 100m at 2 x 0.5 mm ²
Perm. ambient temperature range	0 to +55°C

Dimensions (mm)



Z7-SDM/MP-2TE
For wall mounting

Controlling & Switching

Communication Center Z-CC/2CO

- Compact remote monitoring and controlling unit
- The Communication Center keeps you informed for example, when the RCD has tripped or when the room temperature in your weekend cottage is too low. Connect your alarm lines from fire detectors or security systems to the Communication Center directly. Switch pumps, heating systems or other devices with your mobile phone by SMS.
- The device can be fully configured via SMS (optionally it can be configured via the Web-Browser of a connected PC)
- Integrated quad-band GSM modem
- 4 Digital inputs
- 2 Relay outputs
- Activated inputs triggers sending of SMS messages and e-mails up to 3 phone numbers and one e-mail address
- Controlling outputs via SMS
- The current status can be checked by SMS anytime
- Compatible with SIM cards of all common mobile communication providers (no SIM lock)
- It is also possible to check the current credit available on prepaid phone cards
- Connection to customer's network is possible
- Permanent intern control of the modem - functions are shown on the front LEDs

Accessories:

Power supply unit	EASYPOW200	229424
Temperature sensor for serial interface	Z-CC/2CO-SE	119430
Cross-over patch cord CAT5e	DNW-PX/0200/RJ45/ RJ45/5E/CSUTP/GR/PV	237271

Technical Data

Electrical

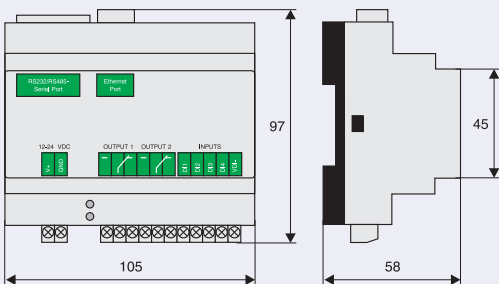
Power supply	12-24 VDC (min. 10 VDC up to a max. of 30 VDC)
Power consumption	1.5 W up to a max. of 6 W
Temperature sensor	d = 15.8 mm, length 106mm, cable of 1.4 m length incl. 9-pole sub-D-plug for RS232 connector Measuring range -10°C to +50°C Accuracy: +/- 2°C
Outputs	2 potential-free relay outputs AC: 5 A at 250 VAC DC: 5 A up to 30 VDC, 0.3 A up to 110 VDC and 0.12 A up to 220 VDC Max. switching capacity AC15 at 230 VAC: 500 VA
Inputs	4; max. 12-24 VDC (2-4 mA), galvanically separated (optical coupler)
Ethernet interface	For parameterization via a PC (Web-Browser). Connection to the PC and Communication Center (Z-CC/2CO) by means of a cross-over network cable (DNW-PX/0200/RJ45/RJ45).
RS232 interface	9-pole sub-D-plug; for connecting an external temperature sensor
Green LED ON	Modem Status LED (LED flashes every 3 seconds during registration at the GSM-net)
Red LED ON	Modem Activity LED (LED flashes when a SMS is sended or received)

Mechanical

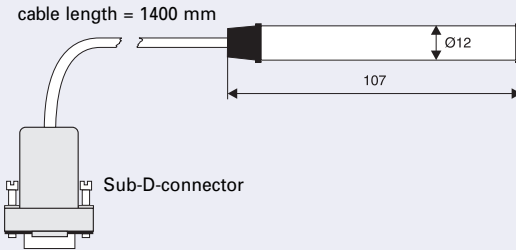
Frame size	45 mm
Device height	97 mm
Device width	105 mm
Mounting	Quick-fastening for DIN rail EN50022
Degree of protection, built-in	IP40

Dimensions (mm)

Communication Center Z-CC/2CO

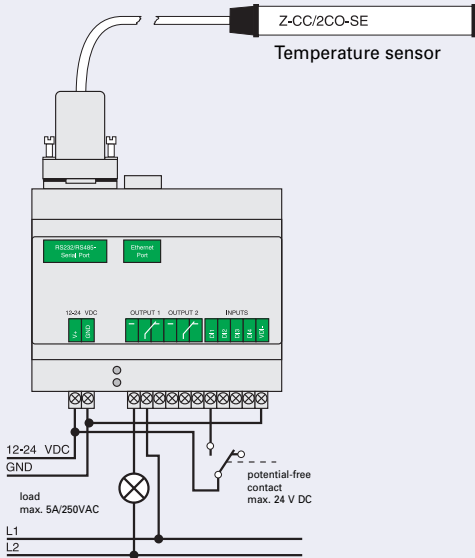


Temperature sensor Z-CC/2CO-SE



Controlling & Switching

Basic circuit



PC configuration

Message settings

Input 1 sends the following message:

Input 2 sends the following message:

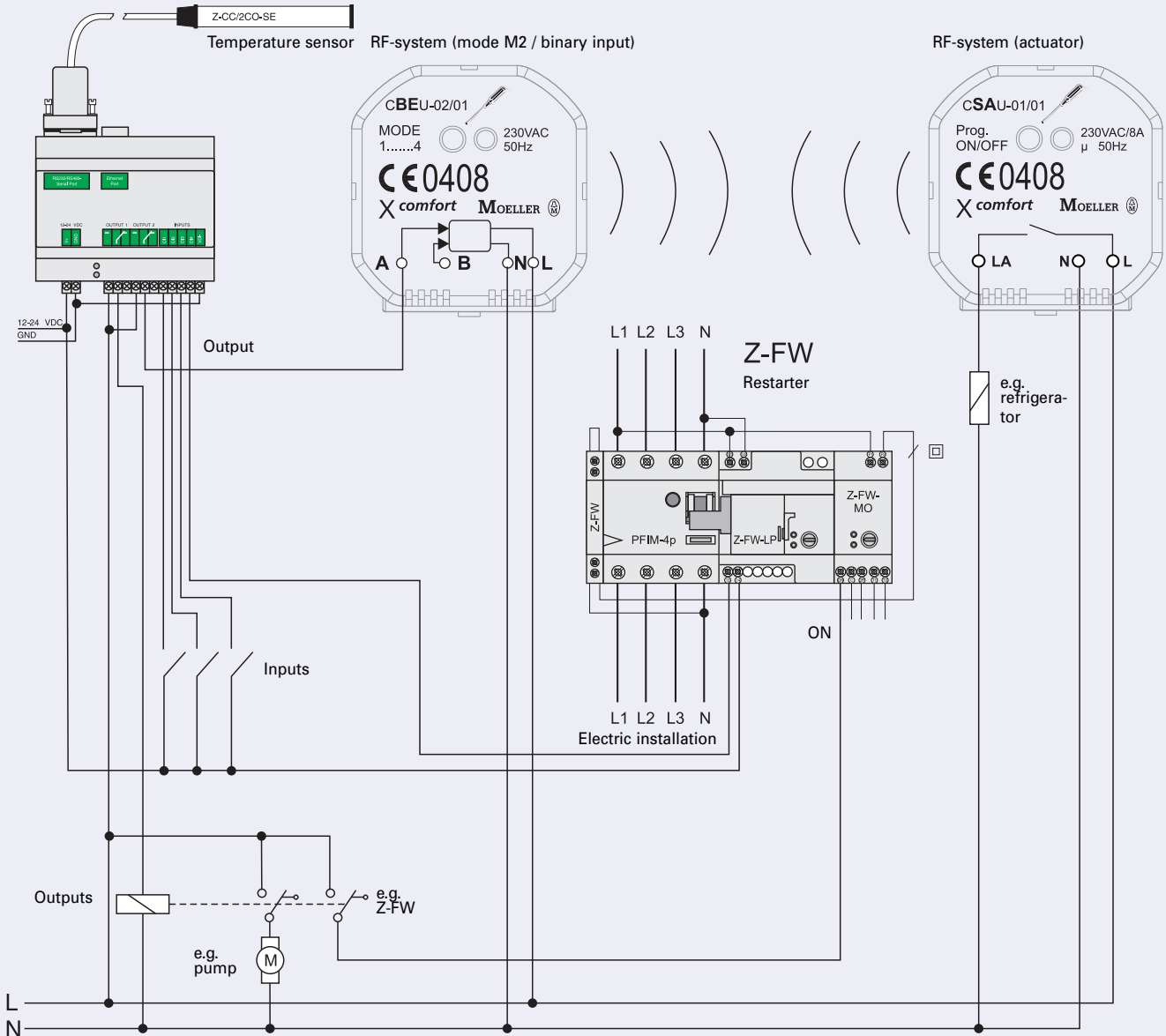
Input 3 sends the following message:

Input 4 sends the following message:

The above-listed messages will be sent to the following phone numbers, for example (max. 3):

The above-listed messages will be sent to the following e-mail address, for example:

Application example



Controlling & Switching

Signalling Devices, Buzzer Z-SUM, Bell Z-GLO

Connection diagram



Technical Data

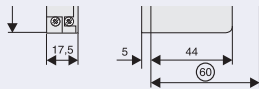
Electrical

Rated voltage	12, 24, 230 VAC $\pm 10\%$
Frequency	50-60 Hz
Power loss	
12 V	5 VA
24 V, 230 V	10 VA
Duty	100% (5 min.)
Volume	
Bell Z-GLO	84 dB / 1 meter
Buzzer Z-SUM	80 dB / 1 meter

Mechanical

Frame size	45 mm
Device height	86 mm
Device width	17.5 mm (1MU)
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	lift terminals
Terminal screws	captive screws
Terminal capacity	1-10 mm ²

Dimensions (mm)

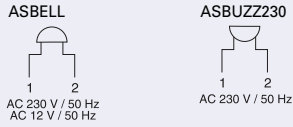


Controlling & Switching

Signal bell ASBELL, Buzzer ASBUZZ230

- Signal bells and buzzers are typically used in residential buildings and in functional buildings such as shops, offices, banks etc. They are either used to signalize alert conditions, or generally as audible sound signals.
- These devices are built-in devices installed in distribution cabinets. They are designed for short-time operation in compliance with the IEC 62080 standard.
- Space-saving design of one module unit only.
- Safe device protection thanks to PTC to avoid overloads and short-circuits.

Connection diagram



Technical Data

		ASBELL230 ASBUZZ230	ASBELL12
Standards		IEC 62080	IEC 62080
Rated operating voltage U_e	VAC	230	12
Rated operating power P_s	VA	5,5	4
Working range	at 50/60 Hz	$x U_c$	0,94 ... 1,06
Rated frequency	Hz	50	50
Working range of frequency	Hz	45 ... 65	45 ... 65
Rated power loss P_v			
	In idle operation	W	0,83
Degree of pollution	acc. to EN 61010-1	-	2
Operating voltage	acc. to EN 61010-1	VAC	230
Insulating material group	acc. to EN 61010-1	-	II
Safe separation	Air gap	mm	3
	Creep distance within the device	mm	2,5
Test voltage	50 Hz, 1 min.	kv	1,25
Flammability		Class	V0
Terminal capacity	rigid	mm ²	1 x 6 or 2 x 4
	flexible with wire end sleeve, min.	mm ²	0,75
Sound volume		dB	75
Allowed range of ambient temperature		°C	-10 ... +55
Degree of protection	acc. to DIN EN 60529	-	IP20, with conductors connected
Protection class	acc. to DIN EN 61140 / VDE 0140	II	II

Dimensions (mm)



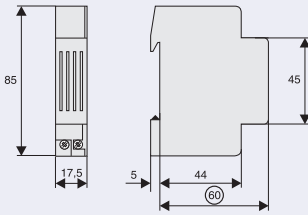
Controlling & Switching

Siren ASSIR24

Technical Data

	ASSIR24
Data in compliance with	EN 60669-1
Supply Voltage	24 VAC/DC
Voltage tolerance range	± 15%
Power dissipation	2.4 VA
AC Voltage test	2.5 kV
Sound level	105 dB
Operative Temperature	-10°C to +55°C
Storage Temperature	-25°C to +70°C
Degree of protection	IP20

Dimensions (mm)

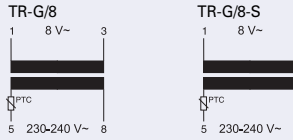


Controlling & Switching

Bell Transformers TR-G.

- Bell transformers with separate windings according to EN 61558
- Accessories: Surface Mounting Set (mounting plate, terminal covers)

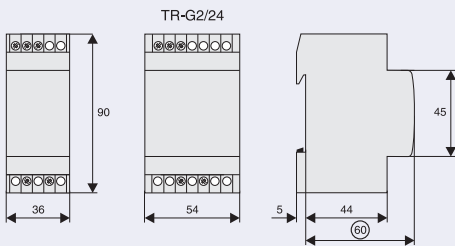
Connection diagrams (e.g.)



Technical Data

	TR-G/8	TR-G3/8	TR-G/8-S	TR-G3/18	TR-G2/24
Electrical					
Rated output	8 VA	8 VA	8 VA	18 VA	24 VA
Rated supply voltage range at terminals	230-240 V AC 5-8	230-240 V AC 5-8	230-240 V AC 5-8	230-240 V AC 5-8	230-240 V AC 5-8
Rated frequency	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
No-load current	25 mA	26 mA	25 mA	36 mA	24 mA
Rated supply current	69 mA	58 mA	69 mA	72/124/138 mA	155/160 mA
Primary resistance	616 Ω	667 Ω	616 Ω	229 Ω	616 Ω
Rated output voltage at terminals	8 VAC 1-3	4/8/12 VAC 2-3/1-2/1-3	8 VAC 1-3	4/8/12 VAC 2-3/1-2/1-3	12/24 VAC 1-2/1-3
No-load output voltage	13 V	4.9/12/16.8 V	13 V	5.9/12/17.8 V	16/31 V
Output voltage at rated output current	8.4 V 1 A	3.8/7.9/12.2 V 1-1-0.67 A	8.4 V 1 A	4.3/8.4/12.7 V 2-2-1.5 A	12.2/23.2 V 2-1 A
Secondary resistance	2 Ω	0.9/1.9/2.8 Ω	2 Ω	0.4/1/1.3 Ω	1/3 Ω
Power loss in no-load operation	1.4 W	1.4 W	1.4 W	1.8 W	1.9 W
Total power loss at nominal load	7.1 W	6.2 W	7.1 W	11.6 W	11.9 W
Short circuit proof	PTC	PTC	PTC	PTC	PTC
Test voltage (primary-secondary)	5 kV	5 kV	5 kV	5 kV	5 kV
Pollution degree	P2	P2	P2	P2	P2
Mechanical					
Frame size	45 mm	45 mm	45 mm	45 mm	45 mm
Device height	90 mm	90 mm	90 mm	90 mm	90 mm
Device width	36 mm	36 mm	36 mm	36 mm	54 mm
Weight	236 g	253 g	236 g	354 g	612 g
Mounting	quick fastening on DIN rail IEC/EN 60715				
Degree of protection, built-in	IP20	IP20	IP20	IP20	IP20
Upper and lower terminals	lift terminals	lift terminals	lift terminals	lift terminals	lift terminals
Terminal capacity	1 - 3x2.5 mm ²	1 - 3x2.5 mm ²	1 - 3x2.5 mm ²	1 - 3x2.5 mm ²	1 - 3x2.5 mm ²
Tightning torque of terminal screws	0.5 Nm	0.5 Nm	0.5 Nm	0.5 Nm	0.5 Nm
Permitted relative humidity	<95%	<95%	<95%	<95%	<95%
Rated ambient temperature	40°C	40°C	40°C	40°C	35°C
Temperature rise at intermittent duty (20 x 1min. 100% and 5min. 20%)	24 K	24 K	24 K	26 K	31 K
Insulation class	E	E	E	E	E
Glow wire-test	850°C	850°C	850°C	850°C	850°C

Dimensions (mm)



Practical Hint

Safety transformer
(Fail-safe = no danger in case of failure)



Bell transformer



Short circuit-proof transformer

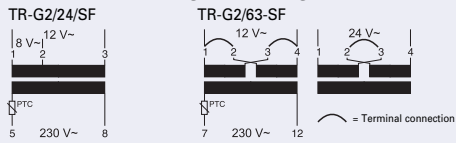
According to EN 61558

Controlling & Switching

Safety Transformers TR-G./..-SF

- Safety transformers with separate windings according to EN 61558
- Accessories: Surface Mounting Set (mounting plate, terminal covers)

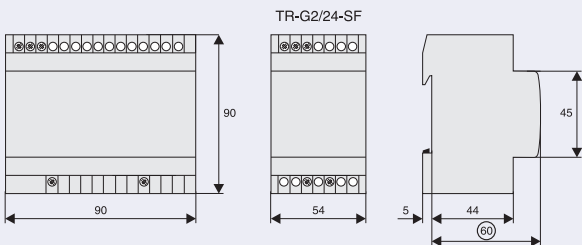
Connection diagrams (e.g.)



Technical Data

	TR-G2/24-SF	TR-G2/24-SF2	TR-G2/63-SF
Electrical			
Rated output	24 VA	24 VA	63 VA
Rated supply voltage range	230-240 V AC	230-240 V AC	230-240 V AC
at terminals	5-8	7-12	7-12
Rated frequency	50 Hz	50 Hz	50 Hz
No-load current	22 mA	58 mA	60 mA
Rated supply current	100/150 mA	140/135 mA	340 mA
Primary resistance	133 Ω	92 Ω	41 Ω
Rated output voltage	8/12 VAC	12/24 VAC	12/24 VAC
at terminals	1-2/1-3	1-2/1-3	1-4/1-4 (terminal conn.)
No-load output voltage	9.9/15.6 V	13.3/26.8 V	13.6/27.3 V
Output voltage	8.2/12.3 V	11.6/23.8 V	12/24.1 V
at rated output current	2-2 A	2-1 A	5.2-2.6 A
Secondary resistance	0.5/0.75 Ω	0.45/0.95 Ω	0.15/0.6 Ω
Power loss in no-load operation	1.8 W	4.3 W	4.1 W
Total power loss at nominal load	10.4 W	6.3 W	19.6 W
Duty	100%	100%	100%
Short circuit proof	inherently (PTC)	inherently (PTC)	inherently (PTC)
Test voltage (primary-secondary)	5 kV	5 kV	5 kV
Pollution degree	P2	P2	P2
Mechanical			
Frame size	45 mm	45 mm	45 mm
Device height	90 mm	90 mm	90 mm
Device width	54 mm	90 mm	90 mm
Weight	604 g	1087 g	1256 g
Mounting	quick fastening on DIN rail IEC/EN 60715		
Degree of protection, built-in	IP40	IP40	IP40
Upper and lower terminals	lift terminals	lift terminals	lift terminals
Terminal capacity	1 - 3x2,5 mm ²	1 - 3x2,5 mm ²	1 - 3x2,5 mm ²
Tightning torque of terminal screws	0,5 Nm	0,5 Nm	0,5 Nm
Permitted relative humidity	<95%	<95%	<95%
Rated ambient temperature	25°C	35°C	25°C
Temperature rise at uninterrupted duty	56 K	34 K	51 K
Insulation class	E	F	F
Glow wire-test	850°C	850°C	850°C

Dimensions (mm)



Practical Hint



Safety transformer
(Fail-safe = no danger in case of failure)



Bell transformer



Short circuit-proof transformer

According to EN 61558

Busbar Systems

Easyvation busbar 1m 10mm², 16mm² (Fork or Pin) BB-EVF (-EVP)

for MCBs, RCCBs, RCBOs, SPDs

Technical Data

General

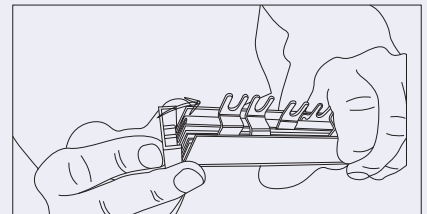
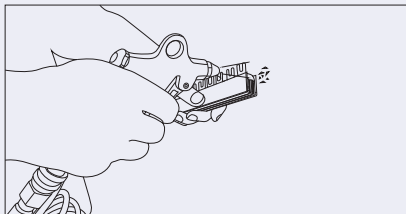
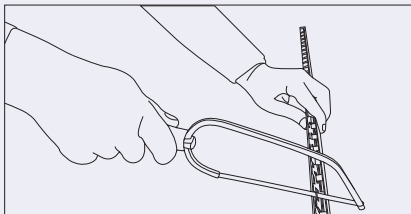
Heat deflection temperature	80°C UL94 VO
Standards	EN 60947-1:2007 / IEC 60947-1:2007 / IEC 60999:2000
Climate stability	according to DIN EN 60068
Insulation coordination	Overvoltage category III / Degree of pollution 2

Electrical

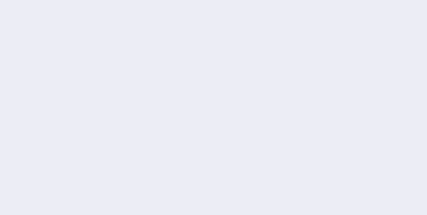
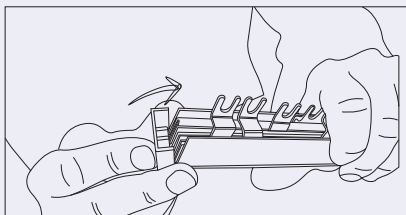
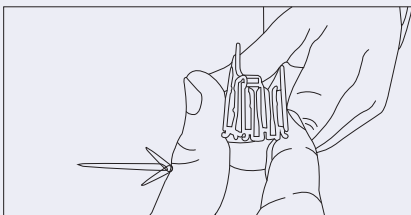
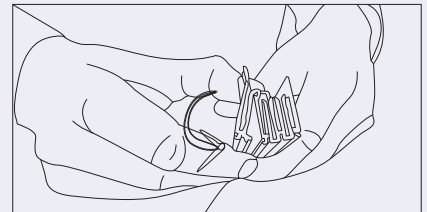
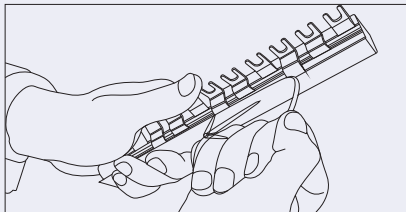
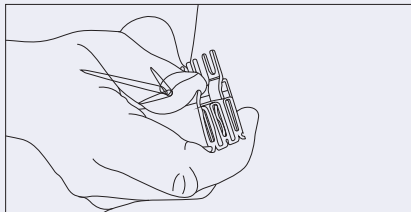
Impulse voltage strenght	4.5 kV
Min. air distance	>5.5 mm
Min. creeping distance	>5 mm
Max. operating voltage	690 V AC/DC 1000 V DC 1-pole only
Max. current I _g /Phase	
10 mm ²	63 A
16 mm ²	80 A
Protection class	IP20
Short circuit rating	ICC 25kA - NH3 355A gC500V JM
Dielectric strenght	PC - ABS >32 kV / mm

Assembly instruction:

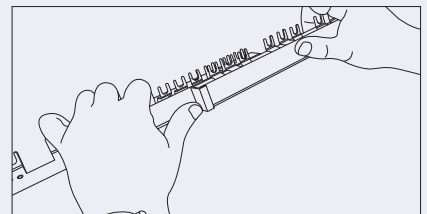
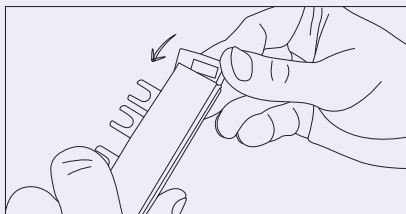
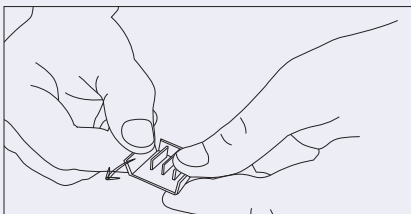
Cutting



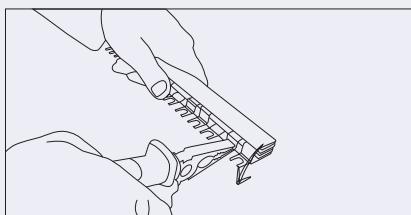
Mounting of an extension busbar



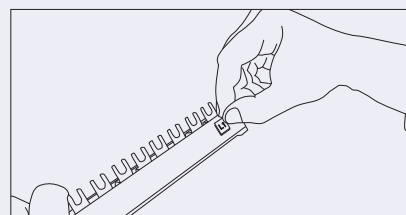
Overlapping mounting or further connection, resp.



Breaking out of connection lugs



Sticking on phase marking



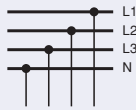
Busbar Systems

Plug-in Busbar System 50A, 80A ZV

for PLS., CLS., PKN., PFIM, PFHM, (with Auxiliary Switch)

- Any combinations of switchgear with or without auxiliary switch possible
- Low number of components, 2 angle types per busbar cross-section for three-phase AC
- Same busbar cover and end caps for ZV-SS and ZV-SS-80A
- Short-circuit withstand strength and dielectric properties tested according to IEC/EN 60439-1

Connection diagram



Technical Data

Electrical

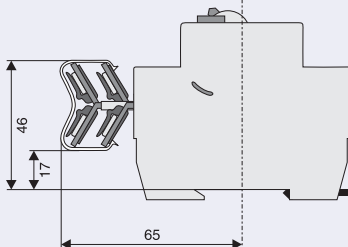
Rated operational voltage	240/415 VAC
Rated frequency	50/60 Hz, DC
Rated voltage	690 V (at pollution degree 2) 440 V (at pollution degree 3)
Overvoltage category	III
Rated impulse withstand voltage U_{imp}	4 kV

	ZV-./., ZV-SS	ZV-./.-80A, ZV-SS-80A	ZV-.-N-05TE
Rated current	50 A	80 A	32 A
Rated conditional short-circuit current			
AC with 125 A gG	50 kA	50 kA	10 kA
AC with 160 A gG	–	50 kA	10 kA
DC with 160 A gG	10 kA	10 kA	–

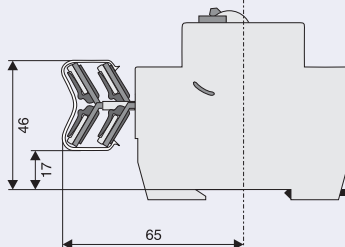
Mechanical

Busbar cross section	
ZV-SS	16 mm ² Cu
ZV-SS-80A	25 mm ² Cu
Busbar length	1 m
Degree of protection mounted with cover and end caps	IP20
Pollution degree	2 (3)
Minimum clearance	3.2 mm
Minimum creepage distance	7 mm

Dimensions (mm) 50 A



Dimensions (mm) 80 A



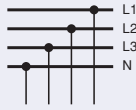
Busbar Systems

Busbar Block 10mm², 16mm² (Fork) Z-GV

for PLS., CLS., PKN., PFIM, PFHM, Z-SLS/D01 (with Auxiliary Switch also)

- Length 1m
- Delivered without end caps. Please order separately.
- Short version (/17, /16, /8) delivered with end caps.

Connection diagram



Technical Data

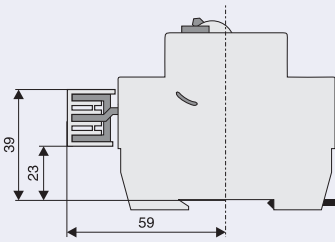
Electrical

Rated voltage	240/415 V, 50/60 Hz
Rated current	
10 mm ²	63 A
16 mm ²	80 A
Short circuit strength	25 kA

Mechanical

Busbar cross section	10 and 16 mm ² Cu
Step distance	17.8 mm
Z-GV-16-.P+HS	17.8/27 mm

Dimensions (mm)

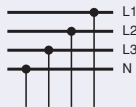


Busbar Block 16mm² (Fork + Pin) Z-GSV-16/

for PLS.1N (1.5MU)

- Length 1m
- Delivered without end caps. Please order separately.
- Short version (/9) delivered with end caps.

Connection diagram



Technical Data

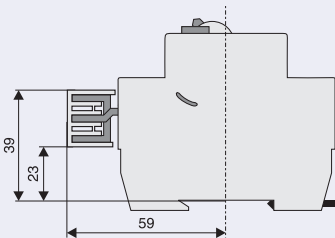
Electrical

Rated voltage	240/415 V, 50/60 Hz
Rated current	63 A
Short circuit strength	25 kA

Mechanical

Busbar cross section	16 mm ² Cu
Step distance	26.7 mm

Dimensions (mm)



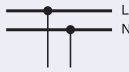
Busbar Systems

Busbar Block 10mm² (Pins) Z-SV...-SD

for Protected Earth Socket Z-SD230

- Delivered with end caps
- Step (distance between two pins of identical phase, i. e. L or N) 2.5 MU
- Length 1m

Connection diagram



Technical Data

Electrical

Rated voltage	230/400 V, 50/60 Hz
Rated current	50 A
Short circuit strength	25 kA

Mechanical

Busbar cross section	10 mm ² Cu
Step distance	44 mm

Dimensions

Accessories

WA_SG10602



End caps

WA_SG10702



Connection terminal
Z-EK/25/QL

WA_SG10702



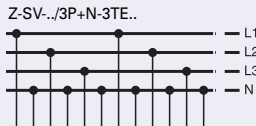
Connection terminal
Z-EK/25

Busbar Block 10mm² (Pins) Z-SV-10/, 16mm² (Pins) Z-SV-16/

for PLN. (1MU), Z-SI

- Busbar block 10mm² inclusive end caps, length 13MU
- Busbar block 16mm² without end caps, length 1m

Connection diagram



Technical Data

Electrical

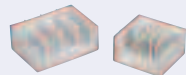
Rated voltage	240/415 V, 50/60 Hz
Rated current	
10 mm ²	50 A
16 mm ²	63 A
Short circuit strength	25 kA

Mechanical

Busbar cross section	10/16 mm ² Cu
Step distance	17.95 mm

Accessories

SG4800



End caps

WA_SG10702



Connection terminal
Z-EK/25/Q

SG07703



Connection terminal
Z-EK/25/K

WA_SG10702



Connection terminal
Z-EK/25/QL

WA_SG10702



Connection terminal
Z-EK/25

Examples

Busbar Systems

Busbar Block 12 TE 10mm² (Fork + Pins) Z-GSV-10/

for PLN. (1MU) + RCD

- 12 MU busbar elements incl. end caps

Connection diagram

Z-GSV-10/3P+N/12-0

Technical Data

Electrical

Rated voltage	240/415 V, 50/60 Hz
Rated current	63 A
Short circuit strength	25 kA

Mechanical

Busbar cross section	10 mm ² Cu
Step distance	17.95 mm

Accessories

WA_SG10702



Connection terminal
Z-EK/25/QL

WA_SG10702



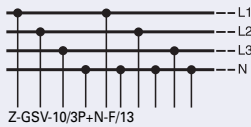
Connection terminal
Z-EK/25

Busbar Block 13 TE 10mm² (Fork + Pins) Z-GSV-10/

for 1x RCD + PLG. (1MU)

- 13 MU busbar elements without end caps

Connection diagram



Technical Data

Electrical

Rated voltage	240/415 V, 50/60 Hz
Rated current	63 A
Short circuit strength	25 kA

Mechanical

Busbar cross section	10 mm ² Cu
Step distance	17.95 mm

Accessories

WA_SG10602



End caps

WA_SG10702



Connection terminal
Z-EK/25/QL

WA_SG10702



Connection terminal
Z-EK/25

Busbar Systems

Busbar Block 10mm² (Pins) Z-SV-10/1P+N-F/

for PLG. (1MU) + RCD

- Busbar elements without end caps

Connection diagram



Technical Data

Electrical

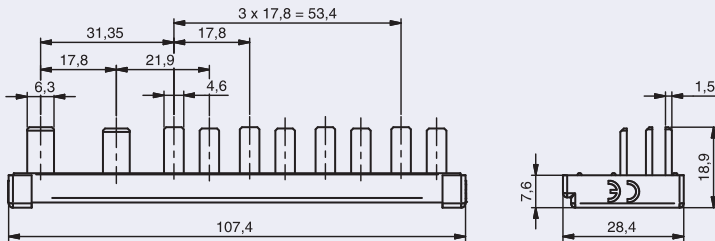
Rated voltage	240/415 V, 50/60 Hz
Rated current	63 A
Overvoltage category	III
Rated impulse withstand voltage U_{imp}	4 kV
Rated conditional short-circuit current AC with 125 A gG	10 kA

Mechanical

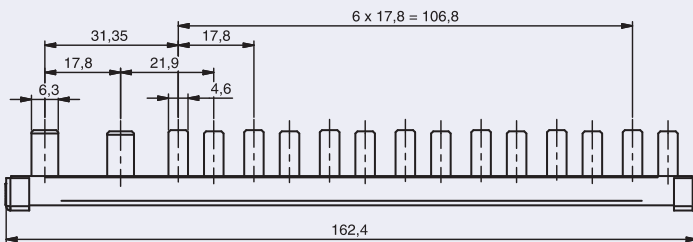
Busbar cross section	10 mm ² Cu
Step distance	17.8 mm
Flame class acc. to UL94	V0, glow wire tested 960°C
Pollution degree	2
Comparative tracking index	CTI 300
Minimum clearance	5,5 mm
Minimum creepage distance	5 mm

Dimensions (mm)

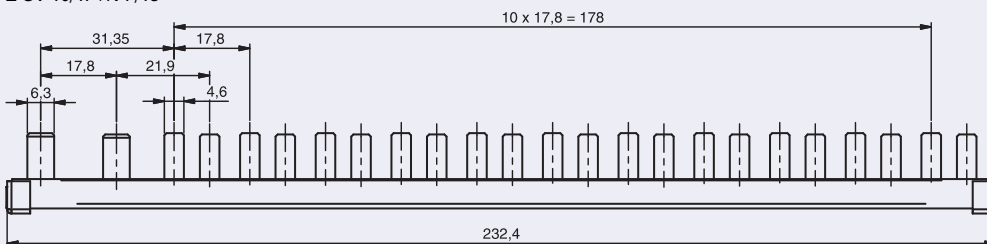
Z-SV-10/1P+N-F/6



Z-SV-10/1P+N-F/9




Z-SV-10/1P+N-F/13



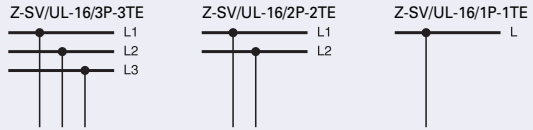
Busbar Systems

Busbar Block UL489 (Pin), Z-SV/UL-16/

for FAZ-NA, FAZ-RT

- Tested according to UL489
- Do not cut 
- Extension terminal 35 mm² Z-EK/35/UL for copper conductors
- For covering of not used pins use busbar tag shrouds ZV-BS-UL

Connection diagram



Technical Data

UL489 IEC/EN60947-2

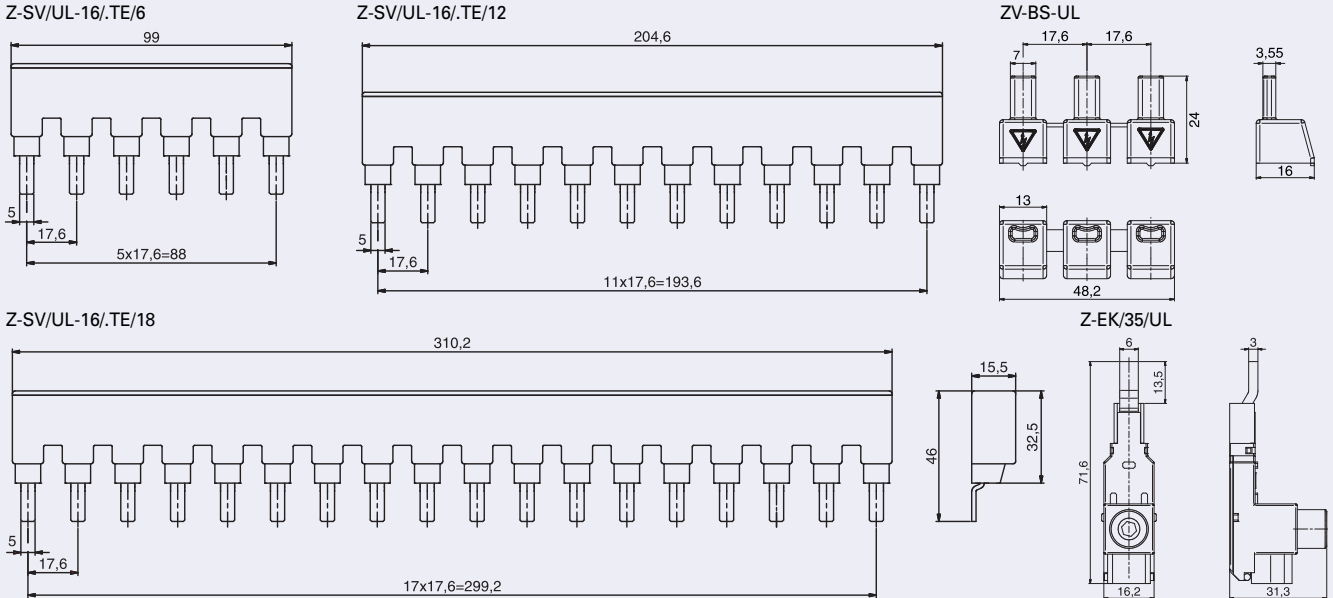
Electrical

Rated operational voltage	480/277 VAC	
	96 VDC	
Rated frequency	50/60 Hz	
Rated voltage	–	690 VAC
Overvoltage category	–	III
Rated impulse withstand voltage U_{imp}	–	9.5 kV
Rated current	80 A	80 A
Rated conditional short-circuit current AC with 350 A gG	–	15 kA
Short-circuit current	10 kA	–

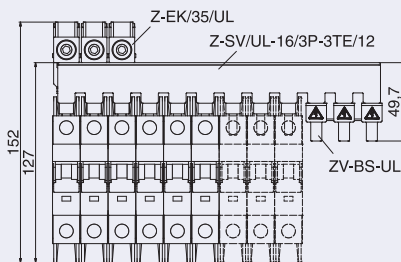
Mechanical

Busbar cross section	–	16 mm ² Cu
Flame class acc. to UL94	V0	
Pollution degree	–	2
Comparative tracking index	–	CTI 600
Minimum clearance (intern/extern)	–	> 9.5 / 25.4 mm
Minimum creepage distance (intern/extern)	–	> 12.7 / 50.8 mm
Resistance to climatic conditions	–	acc. to DIN/EN60068




Dimensions (mm)



Busbar Connection Example



Z-EK/35/UL

	UL489	IEC/EN60947-2
	# 2-14 AWG 60/75°C Cu	2.5-35 mm ² Cu
	0.56 in	14 mm
tested acc. to		Tightening torque of terminal screws
UL486A	# 14 AWG	2.3 Nm
UL486B	# 8-12 AWG	2.8 Nm
UL486E	# 6-1 AWG	4 Nm

Busbar Systems

Busbar Block 16mm² (Pins) Z-SV-16/3P

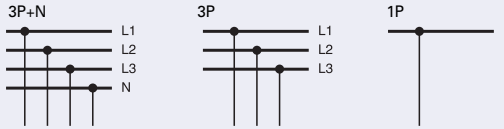
for Z-SLS, PLHT, D0.-SO/ (1.5MU)

Busbar Block 35mm² (Pins) Z-SV-35

for Z-SLS, PLHT, PLHT-V, D0.-SO/ (1.5MU)

- End caps are to be ordered separately
Exception Z-SV-35/3P+N-6TE
- Halogenfree plastic

Connection diagram

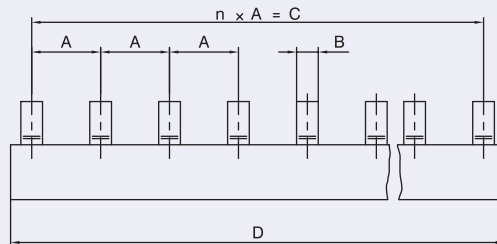
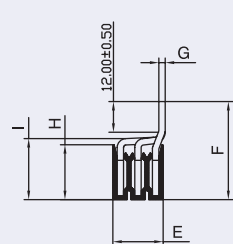


Technical Data

	Z-SV-16	Z-SV-35
Electrical		
Rated operational voltage	240/415 VAC	240/415 VAC
Rated frequency	50/60 Hz	50/60 Hz
Rated voltage	500 V	690 V
Overvoltage category	III	III
Rated impulse withstand voltage U_{imp}	4 kV	6 kV
Rated current	80 A	110 A
Rated conditional short-circuit current AC with 350 A gG	50 kA _{r.m.s.}	100 kA _{r.m.s.}
Mechanical		
Busbar cross section	16 mm ² Cu	35 mm ² Cu
Step distance	27 mm	27 mm (Z-SV-35/PLHT-V 30.5 mm)
Flame class	V0, Glow wire-test 960°C	V0, Glow wire-test 850°C
Degree of protection, with end caps	IP20	IP20
Pollution degree	2	2
Comparative tracking index	CTI 300	CTI 600
Minimum clearance	5 mm	4.3 mm
Minimum creepage distance	10.2 mm	6.7 mm

Dimensions (mm)

	n	A	B	C	D	E	F	G	H	I
Z-SV-16/3P	35	27	5	945	971	14,9	31	1,5	17	19
Z-SV-35/3P	35	27	8,5	945	1000	19,7	38,4	2,5	21,5	23,9
Z-SV-35/PLHT-V	32	30,5	8,5	976	1000	19,7	38,4	2,5	21,5	23,9

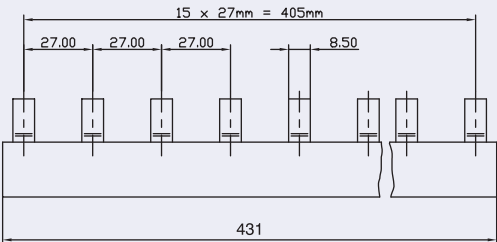
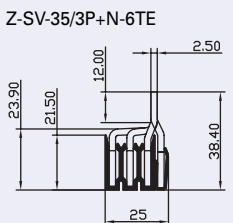


Accessories for Z-SV-16

Wa_sg10802



Connection terminal
Z-EK/50

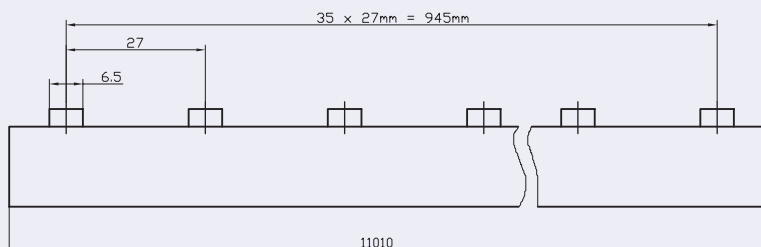
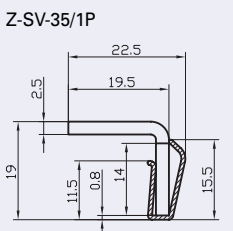


Accessories for Z-SV-35

Wa_sg10802



Connection terminals
Z-EK/95, Z-EK/95-3N,
Z-EK/95-1



Busbar Systems

Fork-Type Euro-Vario Busbar 10mm², 16mm² (Fork) EVG

for PLS., CLS., PKN., PFIM, PFHM, PFNM (with Auxiliary Switch)

Euro Vario busbars (EVG) offer maximum user comfort and a high degree of safety.

Using EVG busbars helps to save up to 30 % assembly time as compared to conventional systems.

The danger of flashover is minimised since there is no need of cutting, burring, or cleaning.

No end caps are needed.

Technical Data

Electrical

Rated voltage	240/415 V, 50/60 Hz
Rated current	
10 mm ²	63 A
16 mm ²	80 A
Short circuit strength	25 kA

Mechanical

Busbar length	2, 6, 9, 12, 16, 20 MU
Busbar cross section	10 mm ² / 16 mm ²
Step distance	
10 mm ²	17,8mm / 26,8mm / 71,2mm
16 mm ²	17,8mm / 27mm / 71,2mm

Fuse-Base FCFBD02DI-

- According to DIN VDE 0636-301
- For Fuse-links size D02 and D01
- Can be sealed with leads
- Silicone-, halogen- and phosphorfree
- Cartridge-ring adapter inserts ASGRD02-.A required for current coding
- Low-loss stainless steel terminal (anti-magnetic)

Technical Data

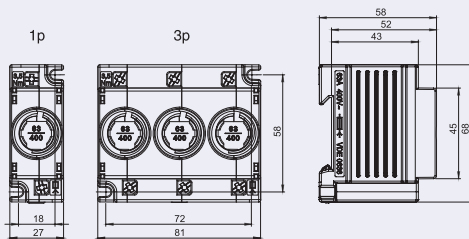
Electrical

Number of poles	1P, 3P
Rated voltage	400 VAC, 250 VDC
Rated current	
D01	16 A
D02	63 A
Conditional short-circuit current tested with inserts	50 kA (AC)
Operating class gG (gL)	8 kA (DC)

Mechanical

Frame size	45 mm
Device height	68 mm
Device width	27 mm per pole
Weight	1P 3P
	74 g 213 g
Electrical thread D02	E18
Mounting	
Quick fastening on DIN rail 35 mm	acc. to IEC/EN 60715
Screw fastening on mounting plate	screw ≤4 mm, head ≤7 mm
Upper and lower terminals	lift terminal
Terminal capacity	1.5-35 mm ²
Tightening torque of terminal screws	3.5 Nm
Comparative tracking index	CTI 600
Flame class acc. to UL94	V0

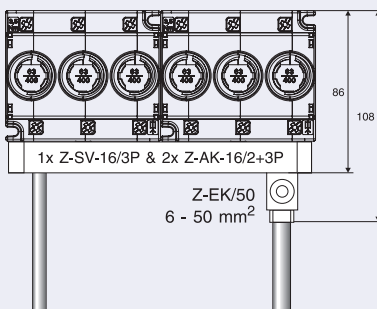
Dimensions (mm)



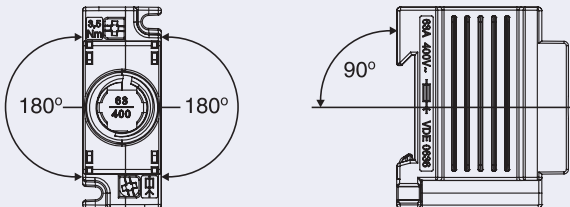
Busbar Examples

3-phases

16 mm²

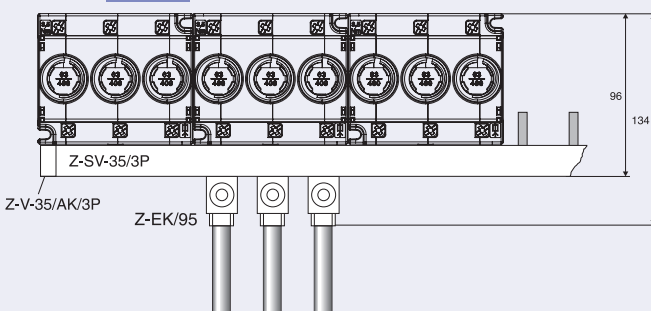


Mounting position



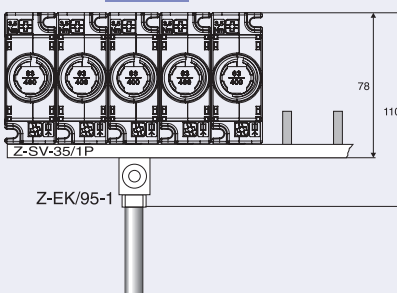
3-phases

35 mm²



1-phase

35 mm²



Terminal capacity Z-EK/95, Z-EK/95-1:

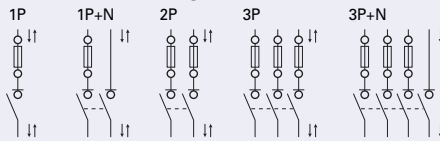
25-95 mm² rigid/stranded

16-70 mm² flexible with wire end ferrules

Switch-Disconnecter-Fuse Z-SLS/D01

- Design according to IEC/EN 60947-3
- Mechanical current coding by means of integrated, adjustable coding ring
- Plug-in technology without screw caps
- Visual tripping indicator is flashing
- Suitable for the following fuse-links
D01: 2, 4, 6, 10, 16 A

Connection diagram



Technical Data

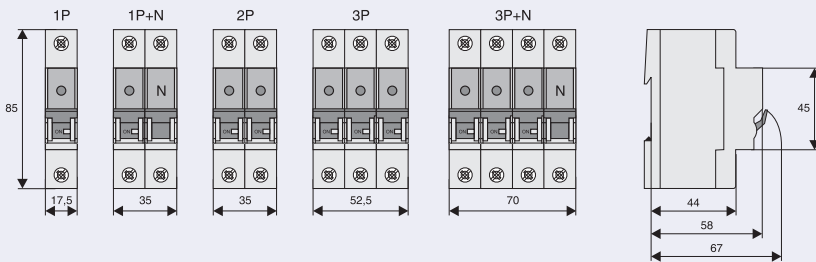
Electrical

Number of poles	1P, 1P+N, 2P, 3P, 3P+N
Rated operational voltage U_e	
AC	400 V
DC	1P to 60V / 2P to 110V
Rated operational current I_e	16 A
Rated uninterrupted current I_u	16 A
Rated short-circuit making capacity I_{cm}	50 kAr.m.s
Utilization category	AC 22 B, DC 21 B
Overvoltage category	IV
Rated impulse withstand voltage U_{imp}	6 kV
Power loss per current path	0.64 W at I_e
Power loss per current path with fuse-link	2.24 W at I_e

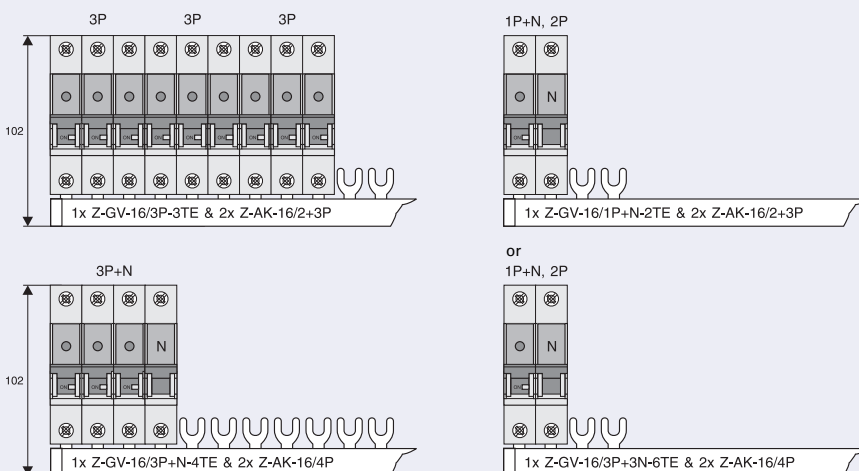
Mechanical

Frame size	45 mm
Device height	86 mm
Device width	17.5 mm per pole (1MU)
Weight	1P 90g 1P+N 170g 2P 180g 3P 270g 3P+N 350g
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	lift terminals
Terminal capacity	1.5-25 mm ²
Tightening torque of terminal screws	max. 2.5 Nm
Temperature range	-25 to +60°C
Flame class	V0, glow-wire tested 960°C
Pollution degree	3
Comparative tracking index	CTI 600

Dimensions (mm)



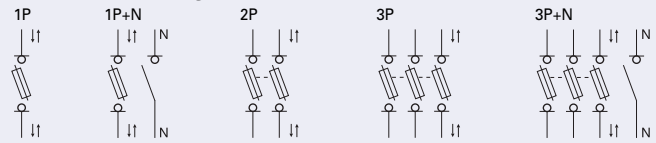
Busbar Connection Examples



Fuse-Switch-Disconnecter Z-SLS/NEOZ, Standard

- Design according to IEC/EN 60947-3
- Mechanical current coding
- Plug-in technology without screw caps
- Suitable for the following fuse-links
 - D01: 1, 2, 4, 6, 10, 16 A
 - D02: 20, 25, 35, 50, 63 A
- Can be sealed with leads

Connection diagram



Technical Data

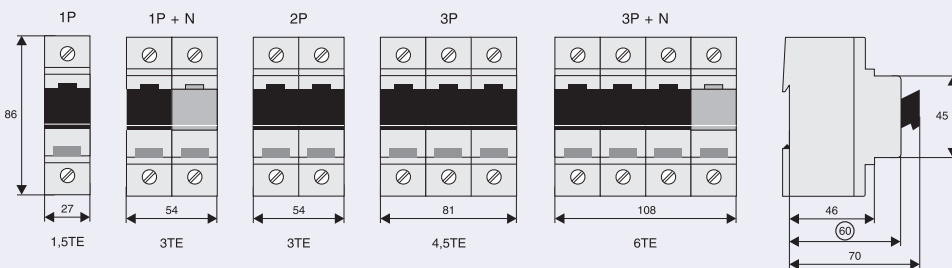
Electrical

Number of poles	1P, 1P+N, 2P, 3P, 3P+N
Rated operational voltage U_e	
AC	400 V
DC	1P to 110V / 2P to 220V
Rated operational current I_e	63 A
Rated uninterrupted current I_u	63 A
Rated short-circuit making capacity I_{cm}	50 kAr.m.s
Utilization category	AC 22 B, DC 21 B
Overvoltage category	IV
Rated impulse withstand voltage U_{imp}	6 kV
Power loss per current path	0.5 W at I_e
Power loss per current path with fuse-link	7.5 W at I_e

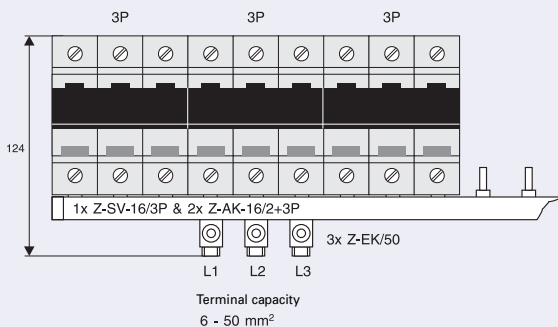
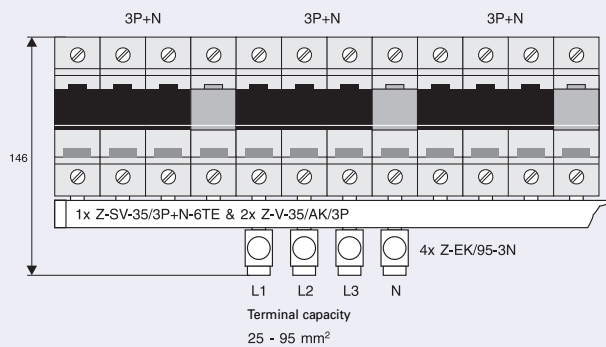
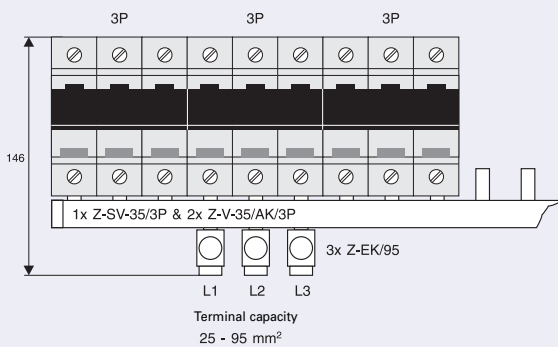
Mechanical

Frame size	45 mm
Device height	86 mm
Device width	27 mm per pole (1.5MU)
Weight	1P 113g 1P+N 225g 2P 224g 3P 450g 3P+N 472g
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	lift terminals
Terminal capacity	1.5-35 mm ²
Tightening torque of terminal screws	max. 4.5 Nm
Temperature range	-25 to +60°C
Flame class	V0, glow-wire tested 960°C
Pollution degree	3
Comparative tracking index	CTI 600

Dimensions (mm)



Busbar Connection Examples

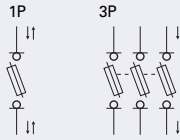


Terminal capacity

Fuse-Switch-Disconnecter Z-SLS/CEK, Complete with Captive Current Code

- Design according to IEC/EN 60947-3
 - Can be used as main fuse downstream of the meter according to the Technical Connection Rules of the Austrian Power Supply Companies ("TAEV")
 - Current coding by the manufacturer
 - Plug-in technology without screw caps
 - Suitable for the following fuse-links
D01: 10, 16 A
D02: 25, 35, 40, 50, 63 A
 - Can be sealed with leads
- Type Z-SLS/CEK
- No visual tripping indicator
- Type Z-SLS/CEK..-SP
- Visual tripping indicator
 - Equipped with neutral lead through terminal
 - Integrated switch-locking

Connection diagrams



Technical Data

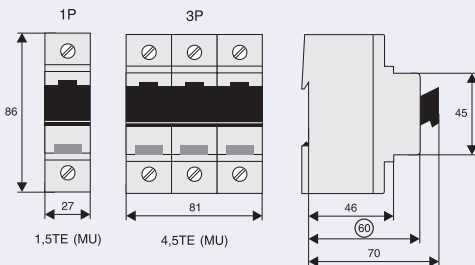
Electrical

Number of poles	1P, 3P
Rated operational voltage U_e AC	400 V
Rated uninterrupted current I_u 1P 3P	10, 16, 25 A 16, 25, 35, 40, 50, 63 A
Rated short-circuit making capacity I_{cm}	50 kAr.m.s
Utilization category	AC 22 B
Overvoltage category	IV
Rated impulse withstand voltage U_{imp}	6 kV
Power loss per current path	0.5 W at I_e
Power loss per current path with fuse-link	7.5 W at I_e

Mechanical

Frame size	45 mm
Device height	86 mm
Device width	27mm per pole (1.5MU)
Weight	147 g / 441 g
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	lift terminals
Terminal capacity	1.5-35 mm ²
Tightening torque of terminal screws	max. 4.5 Nm
Temperature range	-25 to +60°C
Flame class	V0, glow-wire tested 960°C
Pollution degree	3
Comparative tracking index	CTI 600

Dimensions (mm)



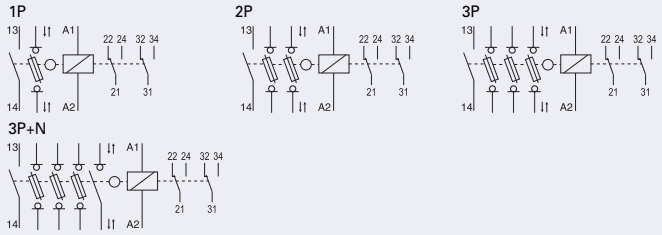
Busbar Connection Example

Terminal capacity

Fuse-Switch-Disconnecter Z-SLK/NEOZ, with Fuse Monitoring

- Design according to IEC/EN 60947-3
- Fuse monitoring by relay contact
- Mechanical current coding
- Plug-in technology without screw caps
- Suitable for the following fuse-links
 - D01: 1, 2, 4, 6, 10, 16 A
 - D02: 20, 25, 35, 50, 63 A
- Can be sealed with leads
- Other AC/DC voltages requires special types

Connection diagram



Technical Data

Electrical

Number of poles	1P, 1P+N, 2P, 3P, 3P+N
Rated operational voltage U_e	
AC: 1P	60-230 V AC
2P, 3P, 3P+N	60-400 V AC
DC: 1P	60-110 V DC
2P	60-220 V DC
Rated operational current I_e	63 A
Rated uninterrupted current I_u	63 A
Rated short-circuit making capacity I_{cm}	50 kAr.m.s
1 NO	5A/250V
Utilization category	AC 22 B, DC 21 B
Overvoltage category	IV
Rated impulse withstand voltage U_{imp}	6 kV
Power loss per current path	0.5 W at I_e
Power loss per current path with fuse-link	7.5 W at I_e

Relay Component - Electrical

Operational voltage range	24-240 V AC/DC
Operational voltage tolerance	±10%
Power consumption	5 VA
Frequency	50-60 Hz
Function display	
Line voltage	1 LED
Trouble	1 LED
Duty	100%
Responding delay	approx. 100 ms
Reset time	approx. 100 ms
Relay contacts	2 CO, 5A/250V
Auxiliary switch	
Rated impulse withstand voltage	4 kV
Overvoltage category	III

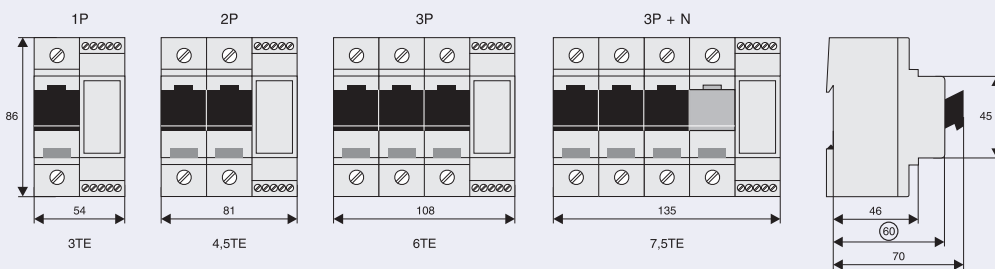
Mechanical

Frame size	45 mm
Device height	86 mm
Device width	27mm/pole (1.5MU) + 27mm
Weight	1P 224g 2P 345g 3P 450g 3P+N 590g
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	lift terminals
Terminal capacity	1.5-35 mm ²
Tightening torque of terminal screws	max. 4.5 Nm
Temperature range	-25 to +60°C
Flame class	V0, glow-wire tested 960°C
Pollution degree	3
Comparative tracking index	CTI 600

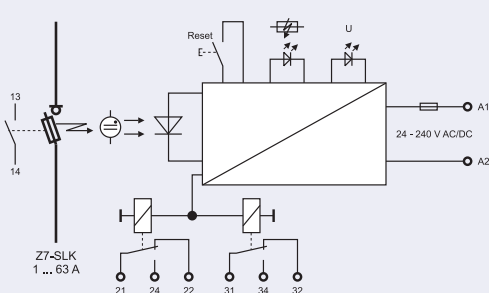
Relay Component - Mechanical

Upper and lower terminals	lift terminals
Terminal capacity	
rigid	0.14-4 mm ²
flexible	0.14-2.5 mm ²
Tightening torque of terminal screws	0.5-0.7 Nm

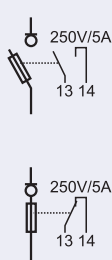
Dimensions (mm)



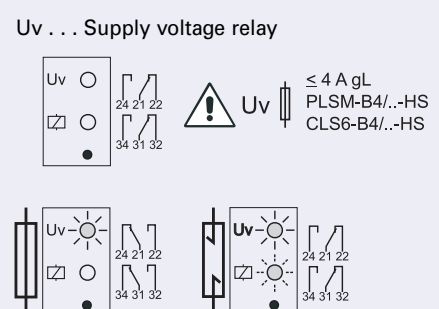
Block Diagram



Function - Switch position



Relay - Fuse Monitoring

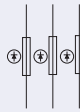


Fuse-link Sets complete Z-SLS/B, Z-SLS/E

- Fuse-links with flashing function (Z-SLS/B) in case of disconnection
- Fuse-links without flashing function (Z-SLS/E) upon enquiry, not on stock
- Supplied as a set with 3 fuse-links and 3 gauge-pieces in plastic box of different colours which can be mounted onto DIN rail.
- Dimensions of plastic box:

Frame size	45 mm
Depth	75 mm
Width	54 mm

Connection diagram



Technical Data

Electrical

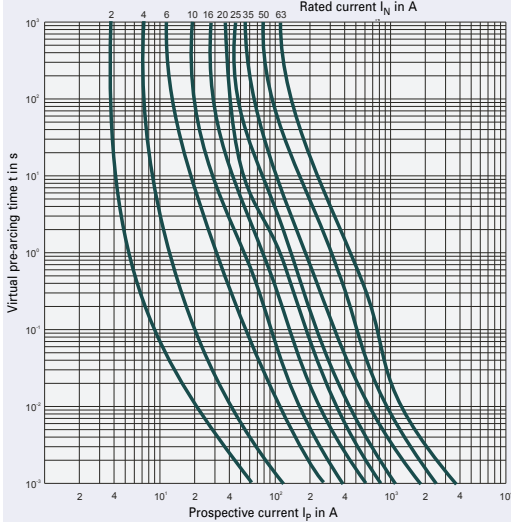
Operating class	gG (gL)		
Rated voltage	Z-SLS/B/24	Z-SLS/B	Z-SLS/E
AC	24 - 60 V	60 - 400 V	400 V
DC	24 - 60 V		220 V
Test voltage	5 kV		

Mechanical

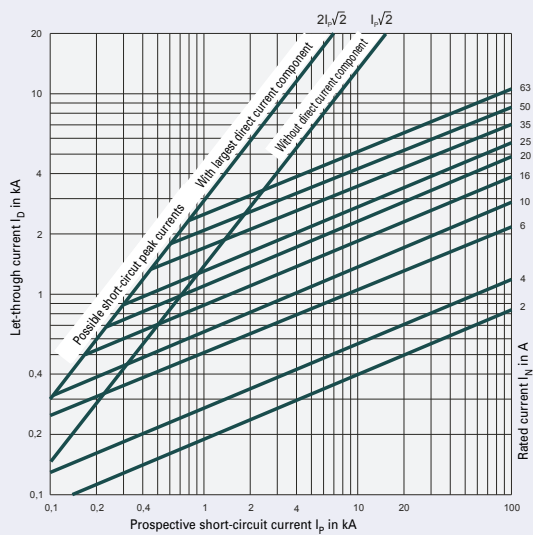
Size	
D01	1, 2, 4, 6, 10, 13, 16 A
D02	20, 25, 32, 35, 40, 50, 63 A

Characteristics

Time/current characteristics of D0-Fuse-links 2 ... 63A gG(gL)



Let-through characteristics of D0-Fuse-links 2 ... 63A gG(gL)



Solid-link Set Z-SLS/TR-SET

- Supplied as a set with 3 solid-links inserts and 3 gauge-pieces in plastic box which can be mounted onto DIN rail.
- Dimensions of plastic box:

Frame size	45 mm
Depth	75 mm
Width	54 mm

Connection diagram



Technical Data

Electrical

Rated voltage	400 V AC
Rated uninterrupted current I_u	63 A
Test voltage	5 kV

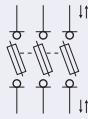
Mechanical

Size D02	63 A
----------	------

Fuse-Switch-Disconnecter with visual tripping indicator Z-SLS/CB - Current coding by means of cartridge-ring adapter inserts

- Design according to IEC/EN 60947-3
- Current coding by means of cartridge-ring adapter inserts
- Visual tripping indicator is flashing
- Suitable for the following fuse-links
 - D01: 2, 4, 6, 10, 16 A with cartridge-ring adapter insert Z-D02-D01/PE-... and adapter spring Z-SLS/CB-HF
 - D02: 20, 25, 35, 50, 63 A
- Can be sealed with leads

Connection diagram



Technical Data

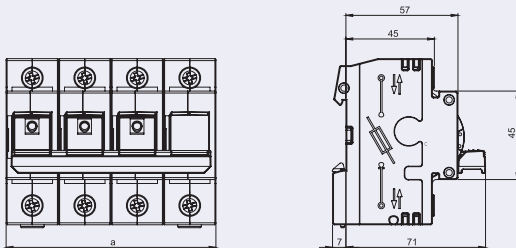
Electrical

Number of poles	1P, 1+N, 2P, 3P, 3+N
Rated operational voltage U_e	
AC	400 V
DC	1P to 110V / 2P to 220V
Rated operational current I_e	63 A
Rated uninterrupted current I_u	63 A
Rated short-circuit making capacity I_{cm}	50 kAr.m.s
Utilization category	AC 22 B
Overvoltage category	IV
Rated impulse withstand voltage U_{imp}	6 kV
Power loss per current path	0.5 W at I_e
Power loss per current path with fuse-link	7.5 W at I_e

Mechanical

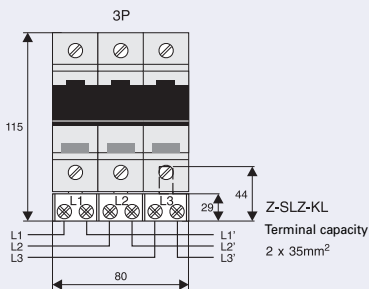
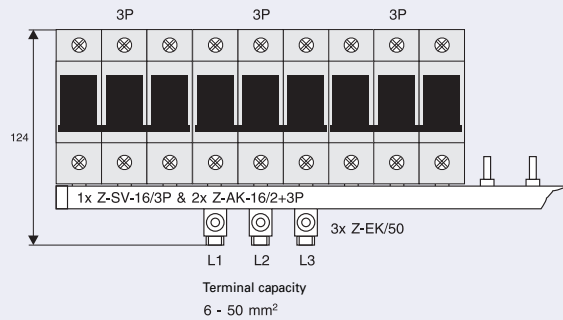
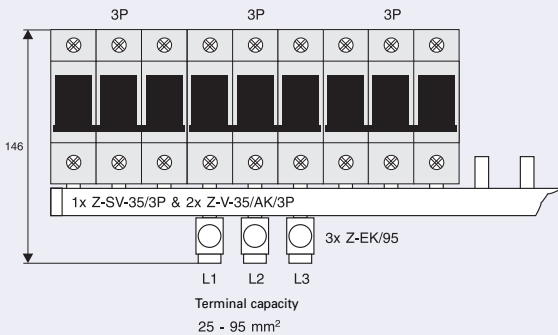
Frame size	45 mm
Device height	86 mm
Device width	27 mm per pole (1.5MU)
weight	1P 1+N 2P 3P 3+N
	120g 230g 230g 350g 448g
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	lift terminals
Terminal capacity	1.5-35 mm ²
Tightening torque	
of terminal screws	max. 4.5 Nm
Temperature range	-25 to +60°C
Flame class	V0, glow-wire tested 960°C
Pollution degree	3
Comparative tracking index	CTI 600

Dimensions (mm)



Poles	Dimension a [mm]
1P	27
1+N	54
2P	54
2+N	81
3P	81
4P	108

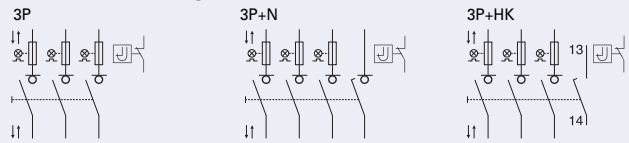
Busbar Connection Examples



Switch-Disconnecter-Fuse D02-LTS - Current coding by means of cartridge-ring adapter inserts

- Design according to IEC/EN 60947-3
- Current coding by means of cartridge-ring adapter inserts
- Visual tripping indicator is flashing
- Thermal monitoring with integrated thermo switch
- Suitable for fuse-links with operating classes gG (gL), aM
- D01: 2, 4, 6, 10, 16 A with cartridge-ring adapter insert Z-D02-D01/PE-.. and adapter spring Z-D02-LTS-HF
- D02: 20, 25, 35, 50, 63 A
- Cylindrical 10x38 up to 32 A with adapter spring Z-D02-LTS-HF
- Can be sealed with leads

Connection diagram



Technical Data

Electrical

Number of poles	3P, 3P+N, 3P+HK
Rated operational voltage U_e	
AC	400 V
Rated operational current I_e	63 A
Rated uninterrupted current I_u	63 A
Rated short-circuit making capacity I_{cm}	50 kAr.m.s
Utilization category	AC 22 B
Overvoltage category	IV
Rated impulse withstand voltage U_{imp}	6 kV
Power loss per current path	1.8 W at I_e
Power loss per current path with fuse-link	7.3 W at I_e
Max. permissible power loss of fuse-links	5.5 W
Auxiliary switch	
1 NO	5 A / 250 V AC
Max. thermal back-up protection	2 A gL: PLSM-B4/...-HS, CLS6-B4/...-HS
Thermo switch	
1 NC	
AC $\cos\varphi = 1$	2,5 A / 250 V
AC $\cos\varphi = 0.6$	1,5 A / 250 V
DC	1,6 A / 24 V
	1,2 A / 48 V

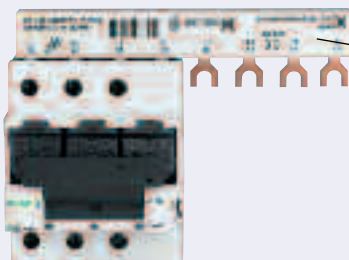
Mechanical

Frame size	45 mm
Device height	84 mm
Device width	18 mm per pole (1MU)
Weight	3P 340 g 3P+N 380 g 3P+HK 380 g
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection	IP20
Upper and lower terminals	lift terminals
Terminal capacity	1.5-25 mm ²
Tightening torque of terminal screws	max. 3 Nm
Temperature range	-25 to +60°C
Flame class	V0, glow-wire tested 960°C
Pollution degree	3
Comparative tracking index	CTI 600
Femal push-on connector	0.8 x 2.5 mm

Dimensions (mm)



Busbar Connection Example 3P, 3P+N

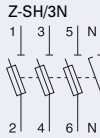


EVG-16/4PHAS/8MODUL

Fuse-Disconnecter for Industrial Applications Z-SH.

- Design according to IEC/EN 60947-3
- Version
 - without visual tripping indicator Z-SH
 - with visual tripping indicator Z-SHL
- Can be sealed with leads
- Supplied without fuse-links

Connection diagram



Technical Data

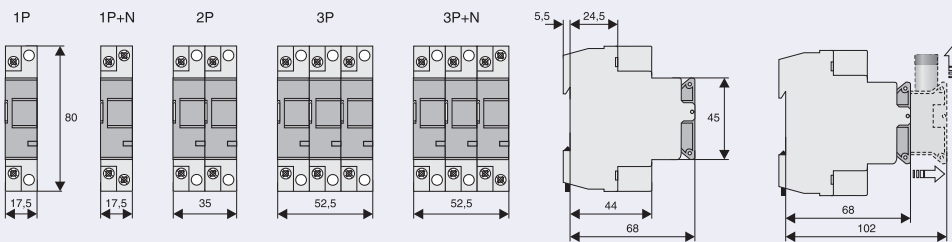
Electrical

Number of poles	1P, 1P+N, 2P, 3P, 3P+N
Rated voltage	
1P, 1P+N	230 V AC
2P, 3P, 3P+N	400 V AC
Rated operational current I_e	32 A
Conditional short-circuit current	10 kA _{r.m.s}
Utilization category	AC 20 B
Rated impulse withstand voltage U_{imp}	4 kV
Fuse-links	10, 16, 20, 25 and 32 A
Operating class	gG(gL)/aM
Max. Power loss per current path	3.2 W

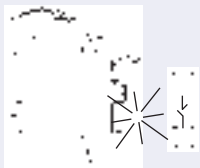
Mechanical

Frame size	45 mm
Device height	80 mm
Device width	acc. to dimensioned drawing
Weight	Z-SH Z-SHL
1P	74g 76g
1P+N	84g 86g
2P	156g 158g
3P	234g 236g
4P	244g 246g
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection (built-in)	IP20 (IP40)
Upper and lower terminals	lift terminals
Terminal capacity	1.5-10 mm ²
Tightening torque of terminal screws	max. 2 Nm
Dimensions of fuse-link	10.3 x 38 mm

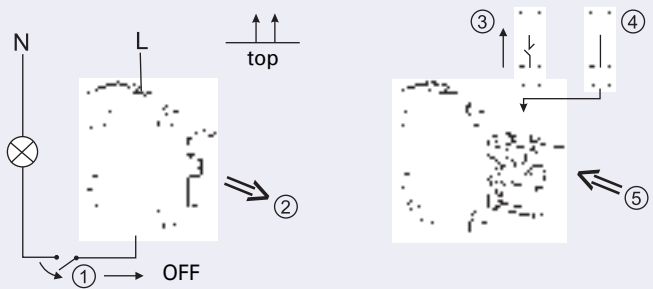
Dimensions (mm)



Visual Tripping Indicator



Attention

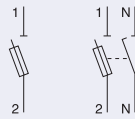


 Do not switch the fuse-disconnector under load

Fuse-Disconnecter for Household Applications Z-SI.

- Design according to IEC/EN 60947-3
- Version
 - without visual tripping indicator Z-SI
 - with visual tripping indicator Z-SIL
- Can be sealed with leads
- The open fuse drawer can be secured against re-switch-on by means of a padlock
- Supplied without fuse-links

Connection diagram



Technical Data

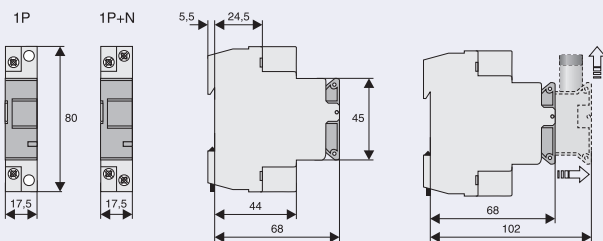
Electrical

Number of poles	1P, 1P+N
Rated voltage	230 V AC
Rated operational current I_g	32 A
Conditional short-circuit current	10 kA _{r.m.s}
Utilization category	AC 20 B
Rated impulse withstand voltage U_{imp}	4 kV
Fuse-links	10, 16, 20, 25 and 32 A
Operating class	gG (gL)/aM
Max. Power loss	3.2 W

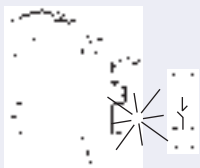
Mechanical

Frame size	45 mm	
Device height	80 mm	
Device width	17.5 mm	
Weight	Z-SI	Z-SIL
1P	74g	76g
1P+N	84g	86g
Mounting	quick fastening on DIN rail IEC/EN 60715	
Degree of protection (built-in)	IP20 (IP40)	
Upper and lower terminals	lift terminals	
Terminal capacity	1.5-10 mm ²	
Tightening torque of terminal screws	max. 2 Nm	
Dimensions of fuse-link		
Rated current (A)	(mm)	
10	8.5 x 23	
16	10.3 x 25.8	
20	8.5 x 31.5	
25	10.3 x 31.5	
32	10.3 x 38	

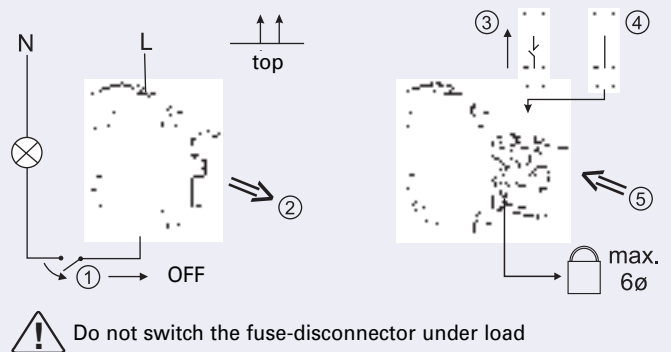
Dimensions (mm)

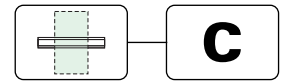


Visual Tripping Indicator



Attention

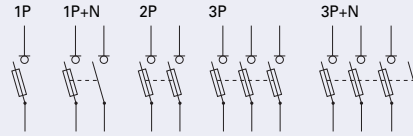




Fuse-Switch-Disconnecter C10-SLS, VLC

- Design according to IEC/EN 60947-3
- Types /L with visual tripping indicator (flashing)
- Suitable for cylindrical fuse-links with operating classes gG, aM
 - 10x38 C10-SLS
 - 14x51 VLC14
 - 22x58 VLC22
- Can be sealed with leads
- Supplied without fuse-links

Connection diagram



Technical Data

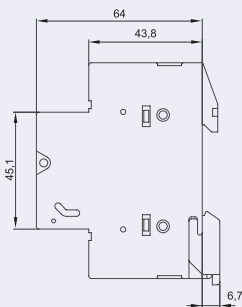
	C10-SLS	VLC14	VLC22
Electrical			
Number of poles	1P, 1P+N, 2P, 3P, 3P+N	1P, 1P+N, 2P, 3P, 3P+N	1P, 1P+N, 2P, 3P, 3P+N
Rated operational voltage U_e			
1P	690 V, 50 Hz	690 V, 50 Hz	690 V, 50 Hz
1P+N	400 V, 50 Hz	690 V, 50 Hz	690 V, 50 Hz
2P, 3P, 3P+N	690 V, 50 Hz	690 V, 50 Hz	690 V, 50 Hz
Rated operational current I_e	32 A	50 A	100 A
Rated conditional short-circuit current	100 kA (at 400 V)	100 kA	100 kA
Rated short-time withstand current I_{cw}	300 A	600 A	1200 A
Utilization category	AC 22 B	AC 22 B	AC 21 B
Rated insulation voltage U_i	690 V	690 V	690 V
Overvoltage category	II	IV	IV
Rated impulse withstand voltage U_{imp}	4 kV	8 kV	8 kV
Power loss per current path without fuse-link	0.9 W	1 W	3.1 W
Maximum permissible power loss of fuse-links			
gG	3 W	5 W	9.5 W
aM	1.2 W	3 W	7 W

Mechanical

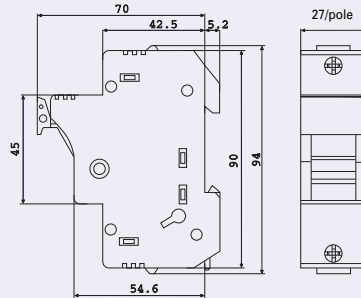
Frame size	45 mm	45 mm	45 mm
Device height	83.3 mm	94 mm	121 mm
Device width	17.5 mm per pole	27 mm per pole	36 mm per pole
Weight			
1P	58 g	100 g	160 g
1P+N	70 g	222 g	355 g
2P	120 g	201 g	310 g
3P	180 g	308 g	480 g
3P+N	195 g	437 g	680 g
Mounting	Quick fastening on DIN rail IEC/EN 60715		
Degree of protection	IP20	IP20	IP20
Terminals above and below	lift terminals	lift terminals	lift terminals
Terminal capacity	0.5 - 10 mm ² AWG 20-8	1.5 - 35mm ² AWG 16-2	4 - 50 mm ² -
Tightening torque of terminal screws	≤ 1,2 Nm	2.5 - 3 Nm	2.5 - 3 Nm
Ambient temperature range	-25 to +40°C	-25 to +40°C	-25 to +40°C
Flame class	glow wire tested 960°C	glow wire tested 960°C	glow wire tested 960°C
Pollution degree	2	1	1
Comparative tracking index	CTI 450	CTI 400	CTI 400

Dimensions (mm)

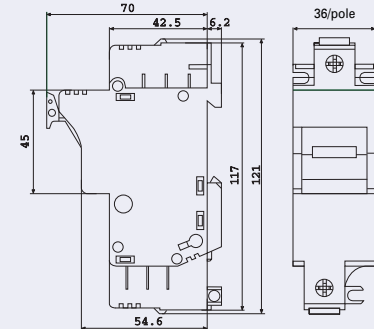
C10-SLS



VLC 14



VLC 22



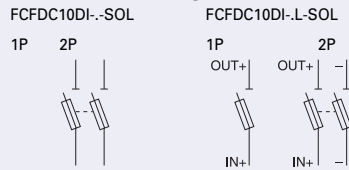
Fuse Devices



Fuse-Disconnecter FCFDC10DI-.-SOL

- Design according to IEC 60947-1 Ed. 4.0, EN 60947-1:1999+A1:2000+A2:2001 IEC 60947-3 Ed. 2.1, EN 60947-3:1999+A1:2001
- Types L with visual tripping indicator
- Suitable for cylindrical fuse-links photovoltaic application 10x38 according to IEC 60269, UL284-4
- Can be sealed with leads
- Supplied without fuse-links

Connection diagram



Technical Data

Electrical

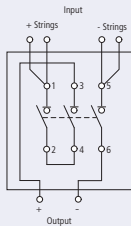
Number of poles	1P, 2P
Rated voltage U_e	1000 V DC
Rated current I_e	25 A
Rated conditional short-circuit current	10 kA
Utilization category	DC 20 B
Rated insulation voltage U_i	1000 V DC
Overvoltage category	III
Rated impulse withstand voltage U_{imp}	6 kV
Power loss per current path without fuse-link	0.9 W
Maximum permissible power loss of fuse-links	3 W

Mechanical

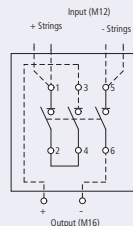
Frame size	45 mm
Device height	83.3 mm
Device width	17.5 mm per pole
Weight	
1P	58 g
2P	70 g
Mounting	Quick fastening on DIN rail IEC/EN 60715
Degree of protection	IP20
Terminals above and below	lift terminals
Terminal capacity	0.5 - 10 mm ² AWG 20-8
Tightening torque of terminal screws	1.2 Nm
Ambient temperature range	-25 to +40°C
Flame class	glow wire tested 960°C
Pollution degree	2
Comparative tracking index	CTI 450

Connection diagram

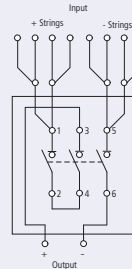
SOL20/2MC3
SOL20/2MC4
SOL30/2MC3
SOL30/2MC4



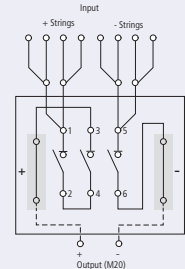
SOL20/2MV
SOL30/2MV



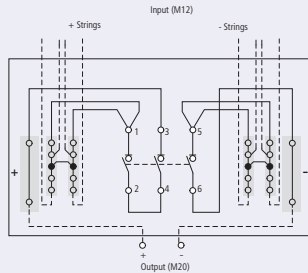
SOL20/4MC3
SOL20/4MC4
SOL30/4MC3
SOL30/4MC4



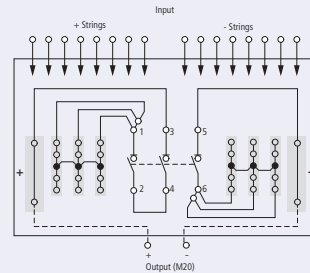
SOL60/4MC3
SOL60/4MC4



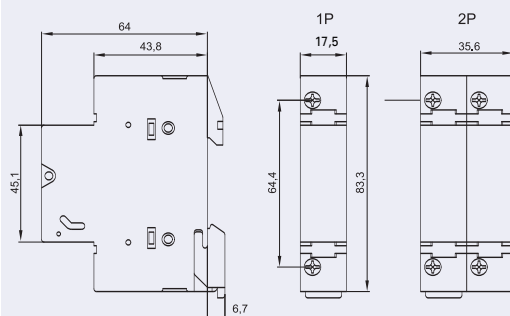
SOL60/4MV



SOL60/8MC3
SOL60/8MC4



Dimensions (mm)



Slide Fuse-Base D02 (+D01); D02-SO/63/3-R27, Z-D02/R/3

- Design according to IEC/EN 60269-1, VDE 0636 part 301
- Vertical and horizontal mounting possible
- Delivered empty and without screw caps
- For 60 mm - busbar system, 5 or 10 mm thick
- Rail detent for 12, 15, 20, 25, 30mm wide busbars
- Does not contain halogens, phosphorus or silicon
- Recyclable
- Marking area on the base and cover
- For fuse-links DIN 49522 D02 20...63A 400VAC / 250VDC
- For cartridge-ring adapter inserts DIN 49523
- Cartridge-ring adapter inserts Z-D02-D01-PE-.. for D01 fuse-links 1...16 A available

Technical Data

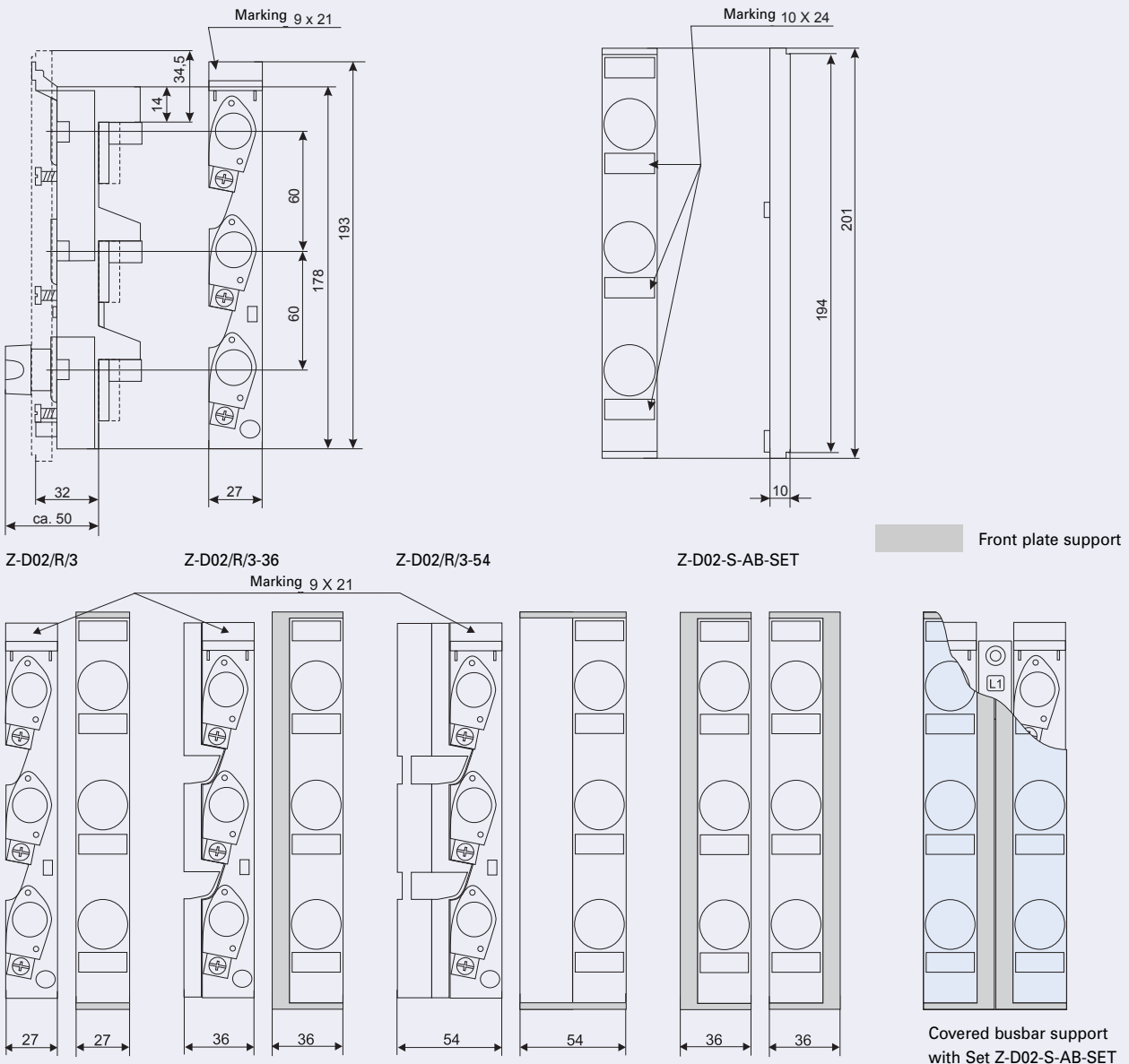
Electrical

Number of poles	3
Rated operational voltage U_e	400 V AC
Rated frequency	40-60 Hz
Rated operational current I_e	63 A
Conv. thermal current with fuse-links I_{th}	63 A
Rated duty	uninterrupted duty
Rated conditional short-circuit current	50 kA _{r.m.s.}
Overvoltage category	IV
Rated impulse withstand voltage U_{imp}	6 kV
Power loss per current path	0.5 W
Power loss of base without fuse-links	1.5 W
Max. permissible power loss of fuse-links	5.5 W

Mechanical

Device height	201 mm
Device width	27 / 36 / 54 mm
Weight	163 g / 184 g / 205 g
Mounting onto busbars, without drilling or screwing	12x5/10, 15x5/10, 20x5/10, 25x5/10, 30x5/10
Degree of protection while operating	IP20
Terminals	Lift terminals
Terminal capacity	1.5-35 mm ²
Tightening torque of terminal screws	3-4 Nm
Electrical thread type	E18
Ambient temperature range	-25°C bis +55°C
Pollution degree	3
Flame class according UL94	V0
Comparative tracking index	CTI 600
Climatic resistance: moist heat	constant acc. to IEC 60068-2-78 cyclical acc. to IEC 60068-2-30

Dimensions (mm)



Switch-Disconnecter-Fuse D02 (+D01), D02-S/63/3-RS

- Design according to IEC/EN 60947-3
- For 60 mm busbar system, busbar thickness 5 or 10 mm
- Rail detent for busbars, 20 and 30 mm wide
- Delivered empty and without screw caps
- Current coding by means of cartridge-ring adapter inserts
- Suitable for the following fuse-links
 - D01: 2, 4, 6, 10, 16 A with cartridge-ring adapter insert Z-D02-D01/PE-... and adapter spring Z-D02/SIKA-HF
 - D02: 20, 25, 35, 50, 63 A
- Can be sealed with leads

Connection diagram

Technical Data

Electrical

Number of poles	3P
Rated operational voltage U_e AC	400 V / 40-60 Hz
Rated operational current I_e	63 A
Conventional thermal current with fuse-links I_{th}	63 A
Rated duty	Uninterrupted duty
Rated conditional short-circuit current	50 kA _{r.m.s}
Utilization category	AC 23 B
Overvoltage category	III
Rated impulse withstand voltage U_{imp}	8 kV
Power loss per current path	2 W at I_e
Power loss per current path with fuse-link	7.5 W at I_e
Max. permissible power loss of fuse-links	5.5 W

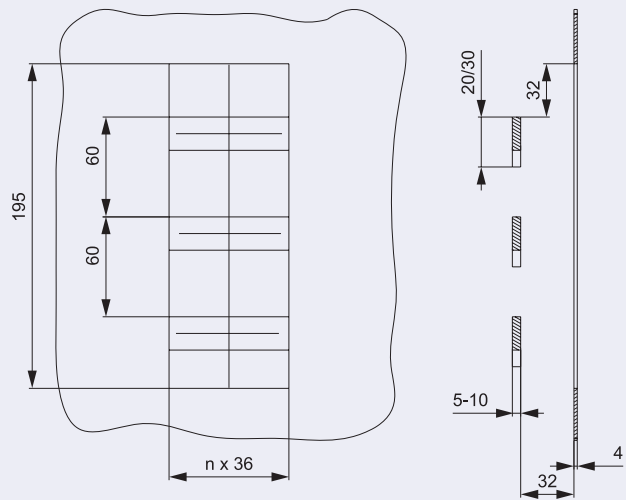
Mechanical

Device height	212 mm
Device width	36 mm
Weight	260 g
Mounting	with a distance between busbars of 60 mm
Degree of protection (in use)	IP30
Terminals	lift terminals
Terminal capacity	1.5-25 mm ² Cu
Tightening torque of terminal screws	max. 2,6 Nm
Electrical thread	E18
Temperature range	-25 to +55°C
Pollution degree	3

Dimensions (mm)



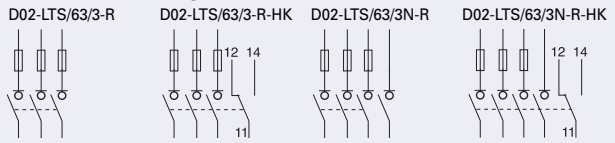
Cut-out for front plate



Slide Switch-Disconnecter-Fuse D02 (+D01) + C, D02-LTS/63/3.-R

- Design according to IEC/EN 60947-3
- Vertical and horizontal mounting possible
- Supplied empty
- Current coding by means of cartridge-ring adapter inserts
- Suitable for fuse-links
 - D01: 2, 4, 6, 10, 16 A with cartridge-ring adapter inserts
Z-D02-D01/PE... and adapter spring Z-D02-LTS-HF
 - D02: 20, 25, 35, 50, 63 A
Cylindrical 10x38: 1 - 32 A
- Can be sealed with leads, lockable

Connection diagram



Technical Data

Electrical

Number of poles	3P/3P+N
Rated operational voltage U_e	AC 400 V / 40-60 Hz
Rated operational current I_e	63 A
Rated uninterrupted current I_u	63 A
Rated duty	Uninterrupted duty
Rated short-circuit capacity I_{cm}, I_{cn}	50 kA _{r.m.s.}
Utilization category	AC 22 B
Overvoltage category	IV
Rated impulse withstand voltage U_{imp}	6 kV
Power loss per current path	1.5 W at I_e
Power loss per current path with fuse-link	7 W at I_e
Max. permissible power loss of fuse-links	5.5 W

Auxiliary switch electrical

1 CO	5 A / 250 V AC
Max. thermal back-up protection	2 A gL PLSM-B4/...HS / CLS6-B4/...HS

Mechanical

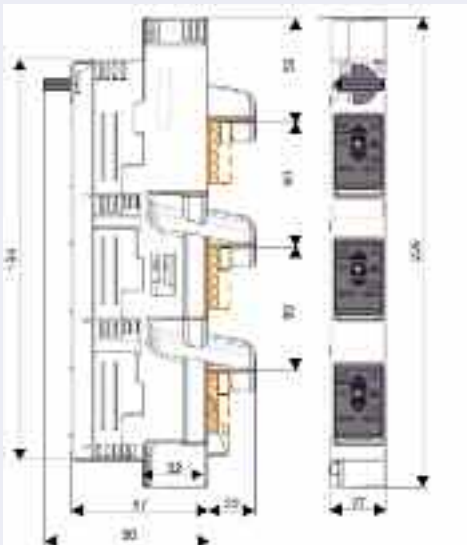
Device height 3P/3P+N	226/262 mm
Device width	27 mm
Weight	340 g
Mounting onto busbars, without drilling or screwing	12x5/10 mm 15x5/10 mm 20x5/10 mm 25x5/10 mm 30x5/10 mm
Degree of protection while operating (built-in)	IP20/IP40
Terminals	Lift terminals
Terminal capacity	1.5-35 mm ² Cu
Tightening torque of terminal screws	max. 4 Nm
Temperature range	-25 to +55°C
Pollution degree	3

Connection

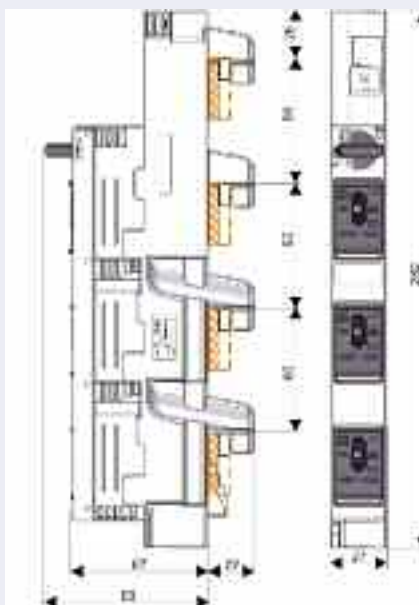
Femal push-on connector	2.8 x 0.5 mm
-------------------------	--------------

Dimensions (mm)

3P



3P+N



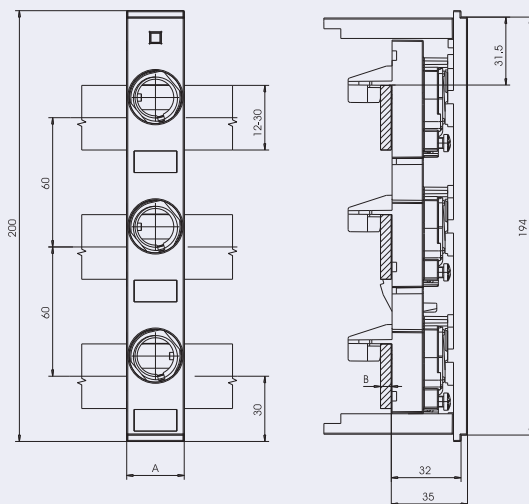
Slide Fuse-Base DII and DIII, DII.-SO/

- Design according to IEC/EN 60269-1, VDE 0636 Part 301
- Vertical and horizontal mounting possible
- Delivered empty, without screw caps

Technical Data

	DII-SO/25/3-R(-PS)	DIII-SO/63/3-R(-PS)
Electrical		
Number of poles	3	3
Rated operational voltage U_e	500 V AC	690 V AC
Rated frequency	40-60 Hz	40-60 Hz
Rated operational current I_e	25 A	63 A
Conv. thermal current with fuse-links I_{th}	25 A	63 A
Rated duty	uninterrupted duty	uninterrupted duty
Rated conditional short-circuit current	50 kA _{r.m.s.}	50 kA _{r.m.s.}
Overvoltage category	III	III
Rated impulse withstand voltage U_{imp}	4 kV	4 kV
Power loss per current path	0.4 W	3.34 W
Power loss of base without fuse-links	1.2 W	10 W
Max. permissible power loss of fuse-links	4 W	7 W
Mechanical		
Device height	200 mm	200 mm
Device width	45 mm	54 mm
Weight	140 g	150 g
Mounting onto busbars, without drilling or screwing	12x5/10 20x5/10 25x5/10 30x5/10	12x5/10 20x5/10 25x5/10 30x5/10
Degree of protection while operating	IP20	IP20
Terminals	Lift terminals	Lift terminals
Terminal capacity	1.5-25 mm ²	1.5-25 mm ²
Tightening torque of terminal screws	2.6 Nm	2.6 Nm
Electrical thread type	E27	E33
Ambient temperature range	-25 to +55°C *)	-25 to +55°C *)
*) (35°C normal temperature, at 55°C with reduced operational current)		
Pollution degree	3	3
Climatic resistance: moist heat	constant acc. to IEC 60068-2-78, cyclical acc. to IEC 60068-2-30	

Dimensions (mm)



Type	A
DII-SO/25/3-R(-PS)	45
DIII-SO/63/3-R(-PS)	54

NH-Fuse-Switch-Disconnecter LTS, 3-pole, xPole

- Supplied without NH-fuse-links
- Symmetrical device - top or bottom connection is possible
- Modular cable cover system for cable lugs or terminals can be expanded as required
- Standard LTS-160/00/3E-R and LTS-250/1/3-R are equipped with locks which can be sealed with leads
- The switch cover features large viewing windows permitting to see the marking and the flat indicator of the NH-fuse-links.
- The windows of LTS-160/00/3-R, LTS-250/1/3-R and LTS-400/2/3-R are hinged and permit testing of the fuse-links - without affecting touch protection IP20
- The switch cover can be removed in the OFF position
- Parking position of switch cover is possible
- The base body consists of a glass-fibre reinforced high-temperature-resistant, non-flammable, self-extinguishing and halogen-free plastic
- The single-part contact system is corrosion- and torsion-proof. The copper contacts are nickel-plated, and the contact springs are made of stainless steel
- The protective cover consists of a glass-fibre re-enforced, high-temperature-resistant, self-extinguishing and halogen-free plastic

Connection diagram

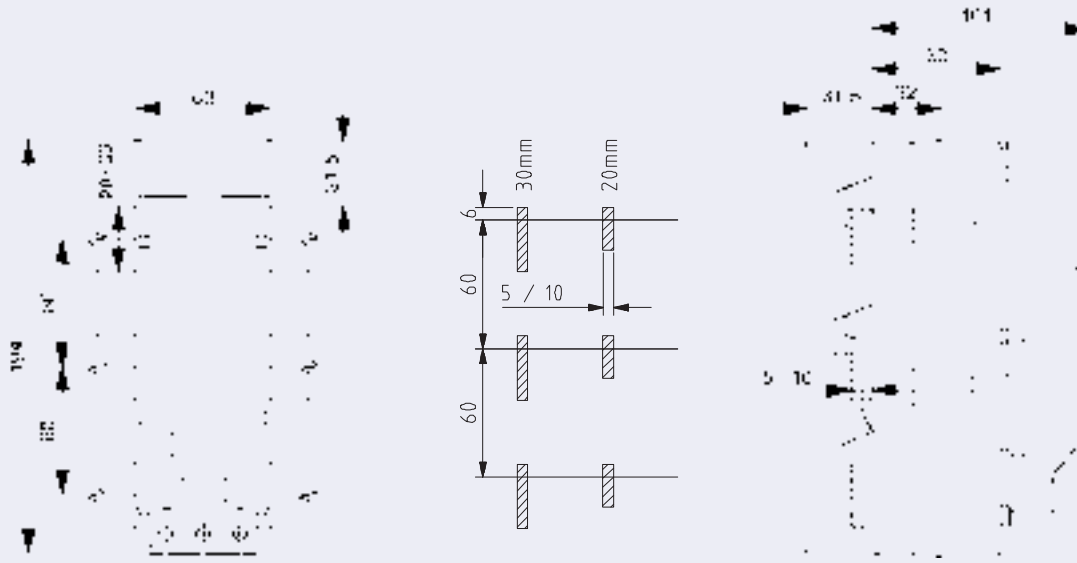


Technical Data

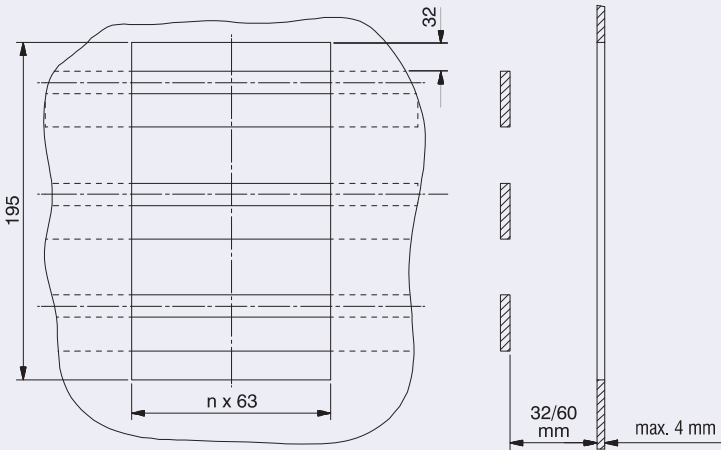
	LTS-100/C00/3-R	LTS-160/00/3E-R	LTS-160/00/3-R	LTS-250/1/3-R	LTS-400/2/3-R
Electrical					
Technical data according to	IEC/EN 60947	IEC/EN 60947	IEC/EN 60947	IEC/EN 60947	IEC/EN 60947
Size	C00	00	00	1	2
Number of poles/phases	3	3	3	3	3
Conventional free air thermal current with NH-fuse-links I_{th}	100 A	160 A	160 A	250 A	400 A
Max. permitted nominal power loss of NH-fuse-links	7.5 W	12 W	12 W	23 W	34 W
Conventional free air thermal current with solid-links I_{th}	160 A	200 A	200 A	400 A	530 A
Max. permitted nominal power loss of solid-links	–	1.2 W	1.2 W	2.6 W	9 W
Utilization category AC 23 B					
Rated operational voltage U_e	–	400 V AC	400 V AC	400 V AC	400 V AC
Rated operational current I_e	–	160 A	160 A	250 A	400 A
Rated short-circuit making capacity	–	80 kA	80 kA	80 kA	80 kA
Utilization category AC 22 B					
Rated operational voltage U_e	500 V AC	500 V AC	500 V AC	500 V AC	500 V AC
Rated operational current I_e	100 A	160 A	160 A	250 A	400 A
Rated short-circuit making capacity	50 kA	80 kA	80 kA	50 kA	80 kA
Utilization category AC 21 B					
Rated operational voltage U_e	–	690 V AC	690 V AC	690 V AC	690 V AC
Rated operational current I_e	–	125 A	125 A	200 A	315 A
Rated short-circuit making capacity	–	50 kA	50 kA	50 kA	80 kA
Rated insulation voltage U_i	750 V	1000 V	1000 V	1000 V	1000 V
Rated impulse withstand voltage U_{imp}	8 kV	8 kV	8 kV	12 kV	12 kV
Rated frequency	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Rated duty	uninterrupted duty	uninterrupted duty	uninterrupted duty	uninterrupted duty	uninterrupted duty
Rated short-circuit making capacity I_{cm} with solid-links	–	6.2 kA _{sw}	6.2 kA _{sw}	8.2 kA _{sw}	10.6 kA _{sw}
Rated short-time withstand current I_{cw} with solid-links	–	4 kA/1s	4 kA/1s	8 kA/1s	13 kA/1s
Power loss without NH-fuse-links	–	10W at 160A	10W at 160A	28W at 250A	53W at 400A
Power loss without solid-links	–	16W at 200A	16W at 200A	–	–
Mechanical					
Standard connection	Lift terminal	Lift terminal	Clamp strap	M10	M10
For cable lugs	1.5-50mm ² Cu	2.5-70mm ² Cu	M8 max. 2x70mm ² CU 2x95mm ² Al	2x150mm ² Cu 2x185mm ² Al	2x240mm ² Cu 2x240mm ² Al
For busbar max. width	–	–	20 mm	30 mm	35 mm
For busbar system with distance (mm)	60	60	60 / 40	60 / 40	60 / 40
For busbars					
max. width x thickness (mm)	30x10	30x10 / 12x10	30x10 / 12x10	30x10 / 12x10	30x10 / 12x10
min. width x thickness (mm)	20x5	12x5	12x5	12x5	12x5
Ambient temperature range	-5°C to +40°C	-5°C to +40°C	-5°C to +40°C	-5°C to +40°C	-5°C to +40°C
Degree of protection	IP 20	IP 30	IP 20	IP 20	IP 20
Pollution degree	3	3	3	3	3

Dimensions (mm)

LTS-100/C00/3-R



Cut-out for front plate



Cable Terminal Connections LTS-100/00/3-R

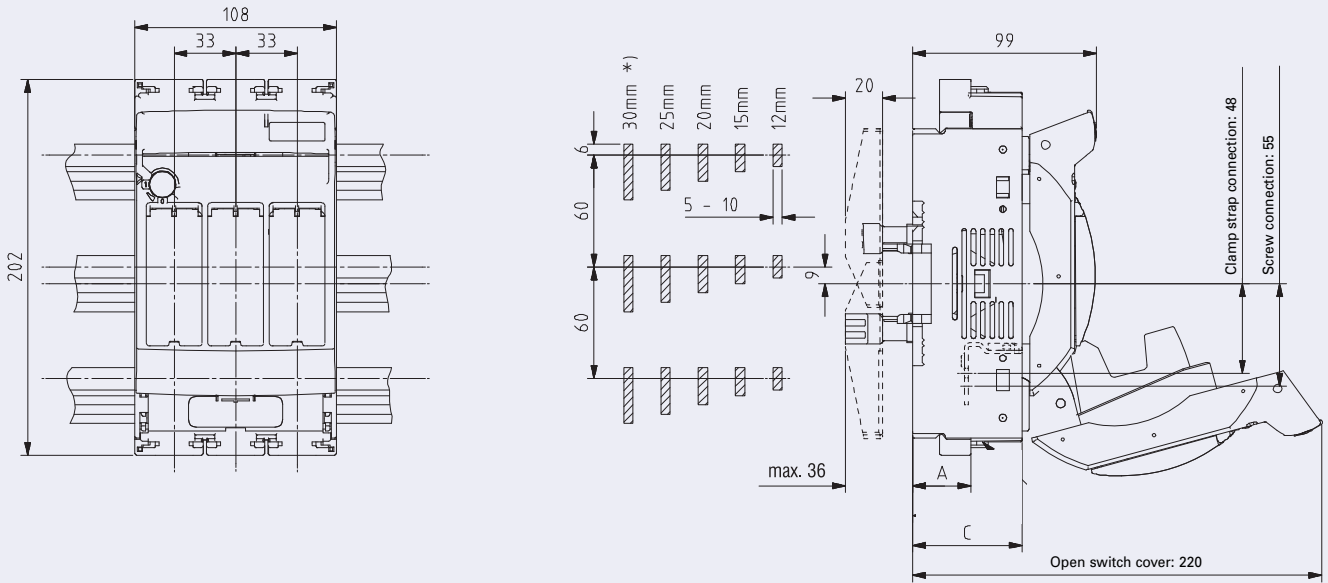
Lift terminal:

Cross section Cu 1,5-50 mm²
Band 6 x 9 x 0,8

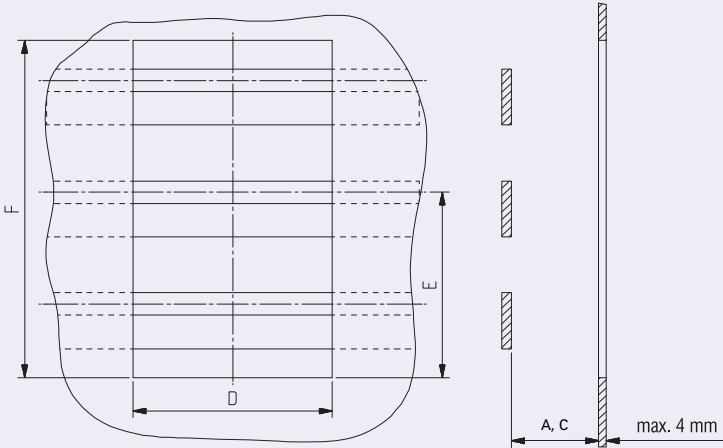
Tightening torque 2.6 Nm

Dimensions (mm)

LTS-160/00/3-R



Cut-out for front plate



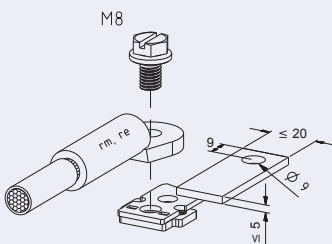
	Depth	Cut-out dimensions		
		D	E	F
A	32	109	97,5	195
C	59,5	105	90,5	181

Dimensions valid for cable terminal top/bottom symmetrical.

*) Busbar-centering not necessary

Cable Terminal Connections LTS-160/00/3-R

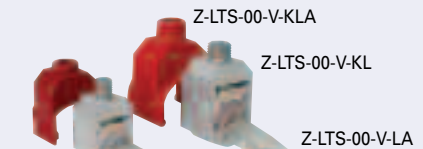
Screw M8:
Cross section Cu 16-70, Al 16-95 mm²
Tightening torque 15-17 Nm



Clamp strap Z-LTS-160-BK:
Cross section Cu 4-70 mm²
Tightening torque 3-4 Nm



Accessories: V-shaped terminal
Cross section: 50-95 mm² se
35-70 mm² sm
10-50 mm² rm
Tightening torque 12 Nm



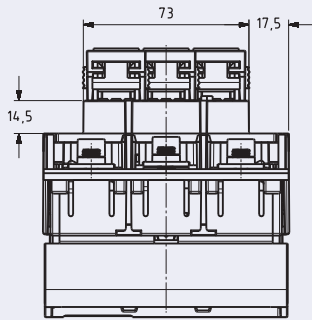
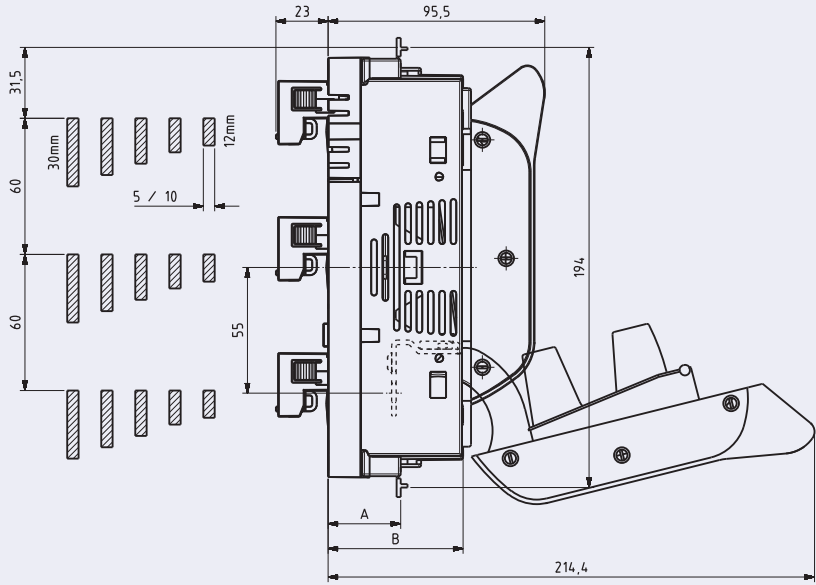
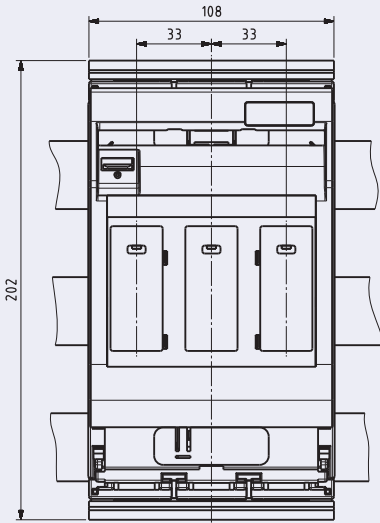
WA-SG01502

Dimensions (mm)

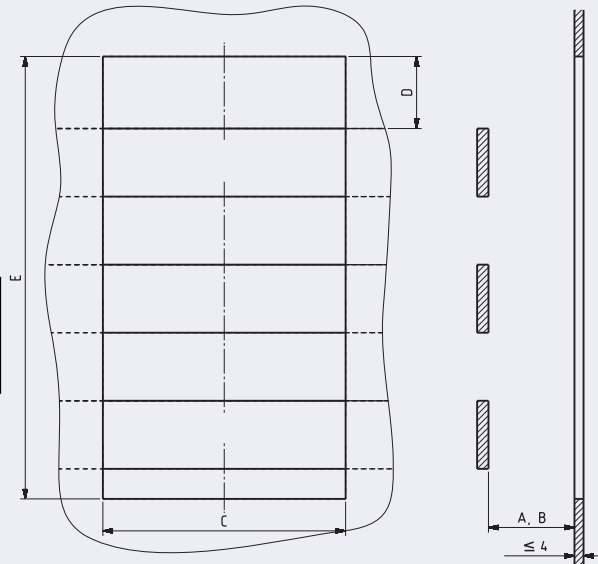
LTS-160/00/3E-R

Busbar support can be overbuilt

Dimensions valid for cable terminal top/bottom symmetrical.



Cut-out for front plate

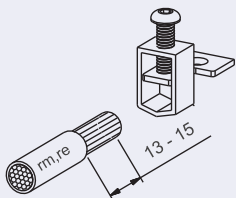


Depth	Cut-out dimensions		
	C	D	E
A 32	109	31.5	195
B 60	107	13.5	159

Cable Terminal Connections LTS-160/00/3E-R

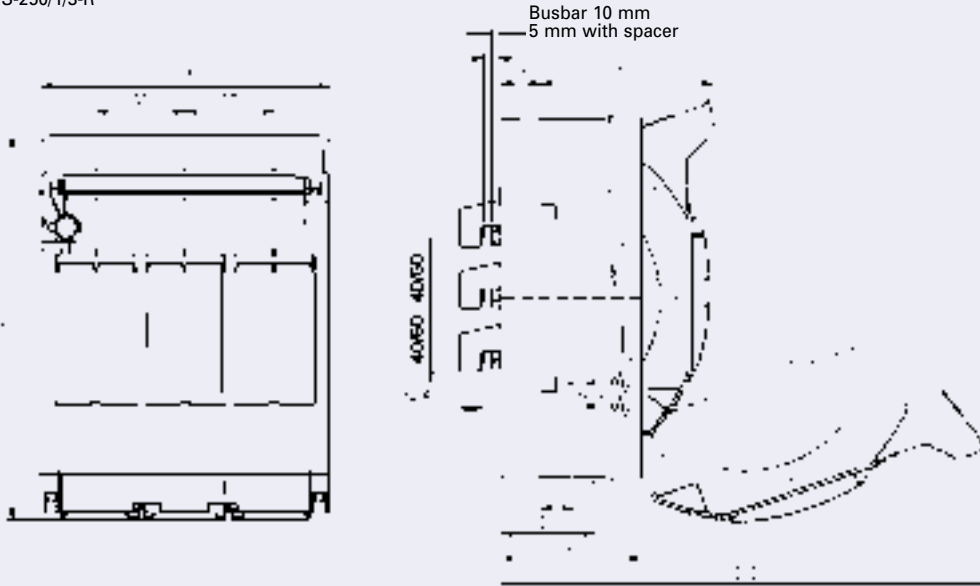
Cross section Cu 2.5-70 mm²

Tightening torque 6 Nm

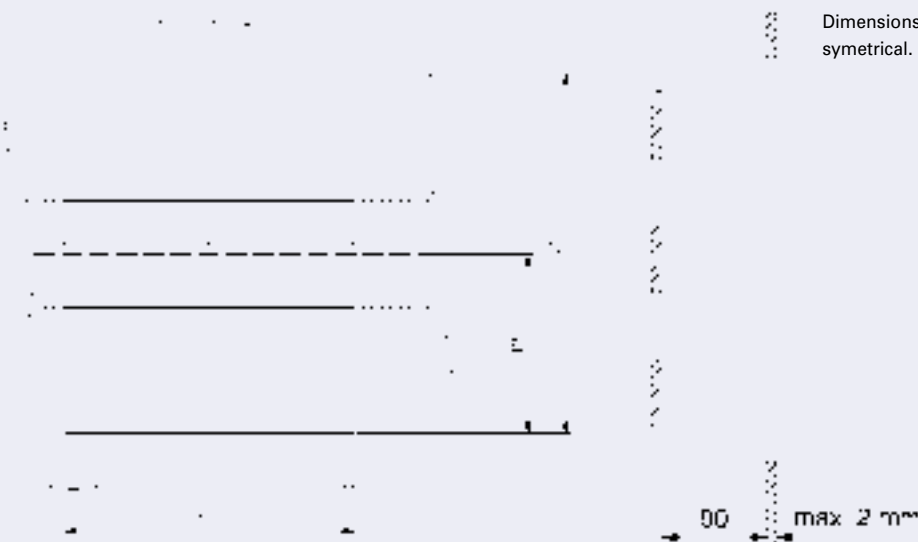


Dimensions (mm)

LTS-250/1/3-R



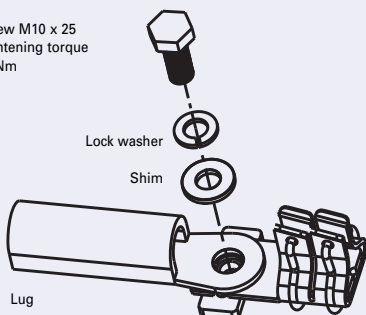
Cut-out for front plate



Cable Terminal Connections LTS-250/1/3-R

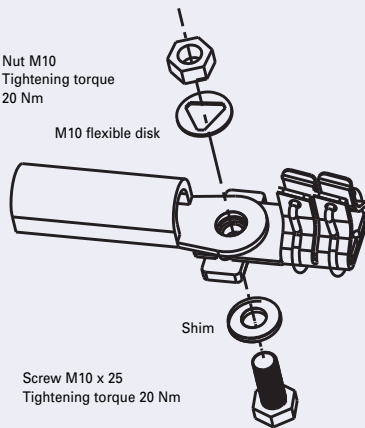
Screw connection

Screw M10 x 25
Tightening torque
20 Nm

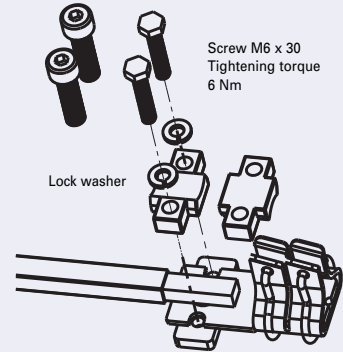


Bolt connection

Nut M10
Tightening torque
20 Nm



Accessories: Clamp strap Z-LTS-250-BK

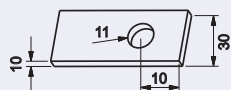


Suitable : for round conductor 70-150 mm² rm
for rails or laminated copper 18 x 7-18

Screw- and bolt connection

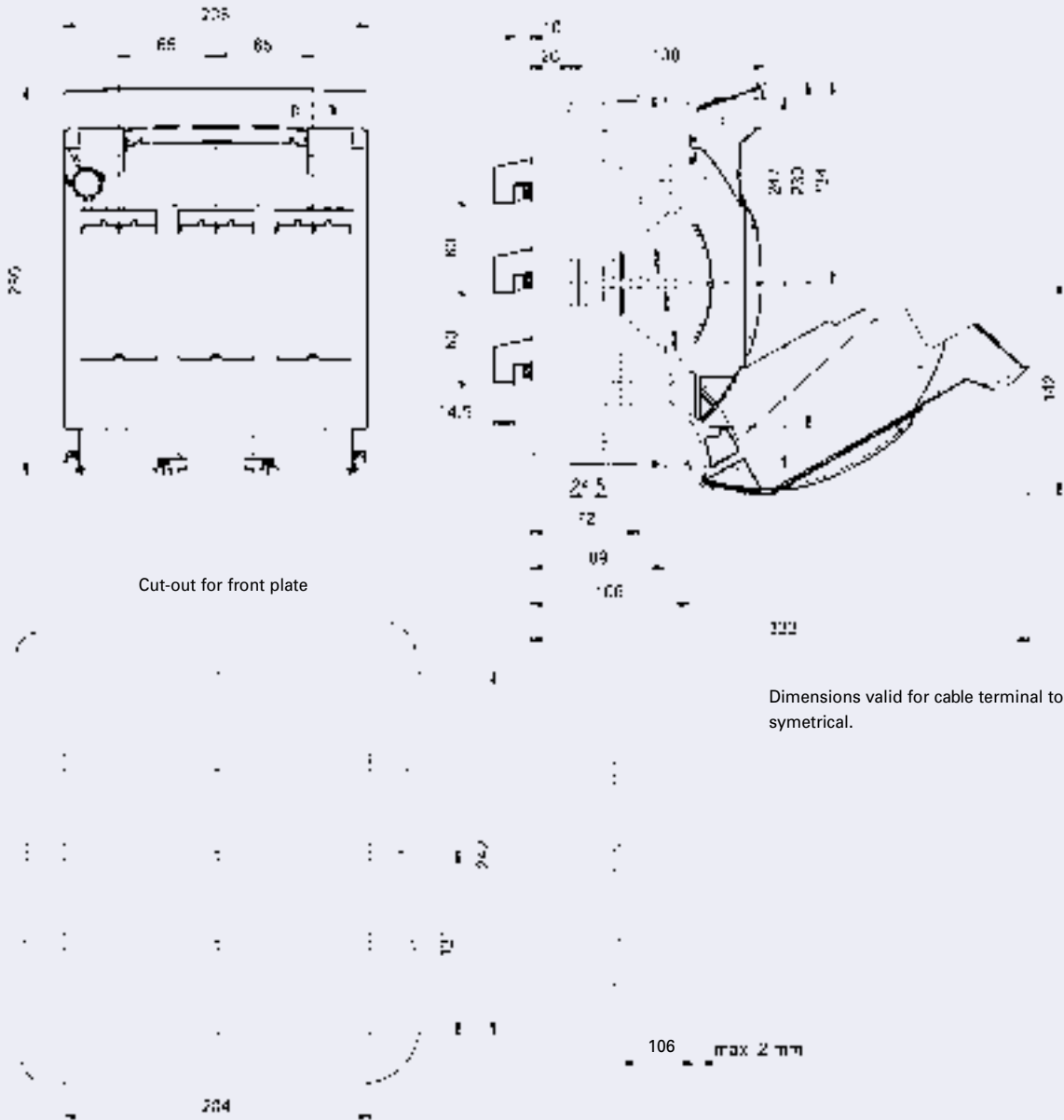
Suitable for lugs according to:
DIN 46235 max. 10-150 mm²
DIN 46234 max. 10-150 mm²
DIN 46329 max. 10-185 mm²

Copper Rails



Dimensions (mm)

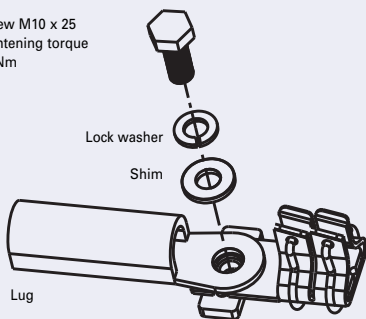
LTS-400/2/3-R



Cable Terminal Connections LTS-400/2/3-R

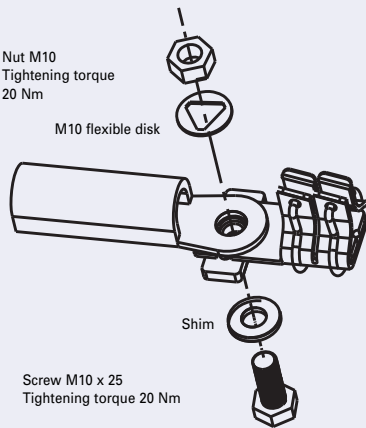
Screw connection

Screw M10 x 25
Tightening torque
20 Nm



Bolt connection

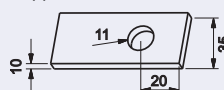
Nut M10
Tightening torque
20 Nm



Screw- and bolt connection

Suitable for lugs according to:
DIN 46235 max. 10-185 mm²
DIN 46234 max. 10-240 mm²
DIN 46329 max. 10-240 mm²

Copper Rails



NH-Vertical Fuse-Switch-Disconnecter LTS-L, 3-pole

- Supplied without NH-fuse-links
- Vertical and horizontal position of installation is possible
- Symmetrical device - top or bottom connection is possible
- Break-proof, flexible connection chamber
- Fully insulated, finger and hand touch-safe according to IEC/EN 60947 and BGV A3
- Laterally offset ventilation slots in order to avoid flash-over to adjoining vertical switching devices
- The base body consists of a glass-fibre reinforced high-temperature resistant self-extinguishing and halogen-free plastic
- The single-part contact system is corrosion- and torsion-proof. The copper contacts are nickel-plated
- The switch cover consists of a glass-fibre re-enforced, self-extinguishing and halogen-free plastic
- The switch cover features large viewing windows permitting to see the marking and the flat indicator of the NH-fuse-links.
- The sliding viewing windows feature test holes
- The switch cover can be deposited ("park position")

Connection diagram



Technical Data

LTS-L/160/00-60-10-R

Electrical

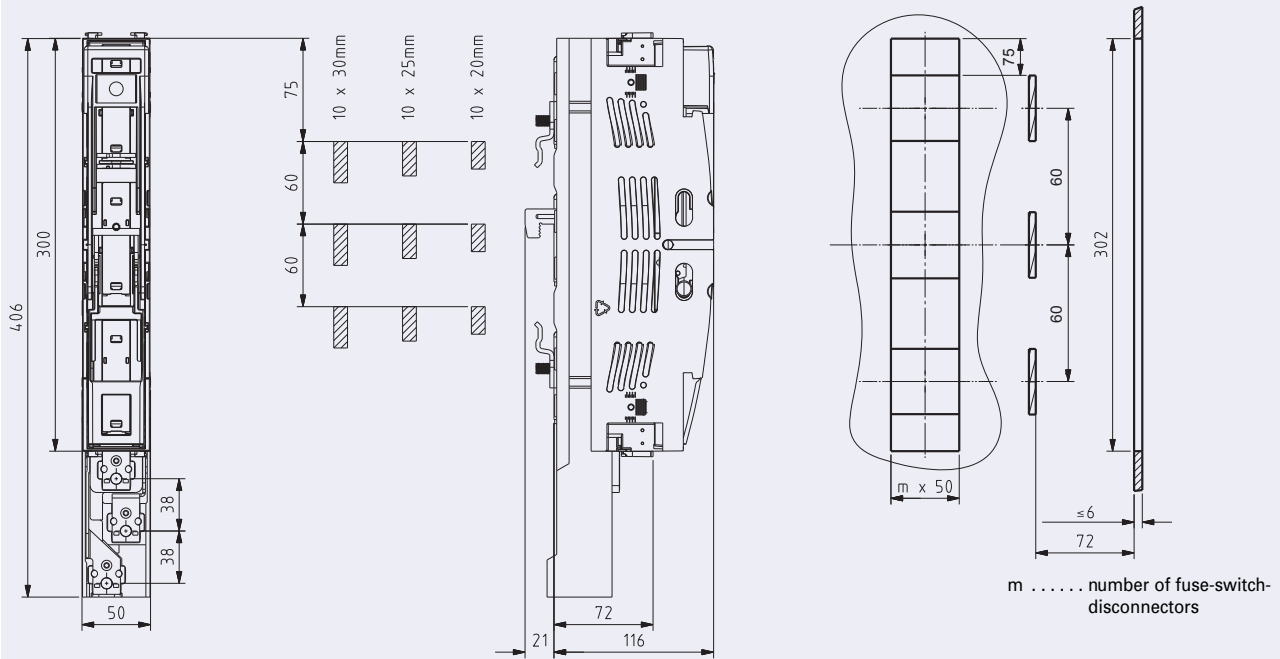
Technical data according to	IEC/EN 60947
Size	00
Number of poles/phases	3
Conventional free air thermal current with NH-fuse-links I_{th}	160 A
Max. permissible power loss of NH-fuse-links	12 W
Conventional free air thermal current with solid-links I_{th}	250 A
Max. permissible power loss of solid-links	1.2 W
Utilization category AC 23 B	
Rated operational voltage U_e	400 V AC
Rated operational current I_e	160 A
Rated short-circuit making capacity with fuse-links	80 kA
Utilization category AC 22 B	
Rated operational voltage U_e	500 V AC
Rated operational current I_e	160 A
Rated short-circuit making capacity with fuse-links	80 kA
Utilization category AC 21 B	
Rated operational voltage U_e	690 V AC
Rated operational current I_e	100 A
Rated short-circuit making capacity with fuse-links	10 kA
Rated insulation voltage U_i	1000 V
Rated impulse withstand voltage U_{imp}	8 kV
Rated frequency	50-60 Hz
Rated duty	uninterrupted duty
Rated short-circuit making capacity I_{cm} with solid-links	4.5 kA _{sw}
Rated short-time withstand current I_{cw} with solid-links	4.5 kA/1s
Power loss without NH-fuse-links	20 W at 160A
Power loss without solid-links	49 W at 200A

Mechanical

Mounting onto busbar system	
Hooked clamps for busbar thickness	10 mm
Screws	-
Standard connection	Clamp Straps 70mm ²
For cable lugs	M8 max. 1x70mm ²
For busbar max. width	20 mm
Ambient temperature range	-5°C to +40°C
Degree of protection	IP 2Lx
Pollution degree	3

Dimensions (mm)

LTS-L/160/00



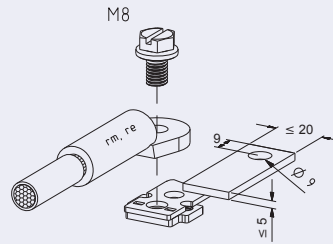
Cable Terminal Connections LTS-L/160/00

Clamp strap Z-LTS-160-BK:
 Cross section Cu 4-70 mm²
 Tightening torque 3-4 Nm

Accessories: Screw M8
 Cross section Cu 16-70, Al 16-95 mm²
 Tightening torque 15-17 Nm



- re round solid
- rm round stranded
- se sectorial solid
- sm sectorial stranded



NH In-line Fuse Switch Disconnectors, 3 poles, FCFSDNH00BB100...

- Center-to-center distance of 100 mm between the phases
- Size 00

Technical Data

FCFSDNH00BB100(-CTO)

Electrical

For LV HRC fuse-links acc. to DIN VDE 0636-2	Size	000/00
Rated operational voltage U_e	V AC	690
Rated operational current I_e ¹⁾	A	160
Conv. free air thermal current I_{th} with fuse-links ¹⁾	A	160
Conv. free air thermal current I_{th} with solid-links ¹⁾	A	210
Rated frequency	Hz	40 - 60
Rated insulation voltage U_i	V AC	800
Total power loss at I_{th} (without fuse-links) P_v	W	18
Rated impuls withstand voltage U_{imp}	kV	8
Utilization category (AC-22B)		
400 V	A	160
500 V	A	160
690 V	A	100
Rated conditional short-circuit current ²⁾	kA	80
Rated short-time withstand current I_{cw}	ka	–
Max. permissible power loss P_a per fuse-link	W	12

Mechanical

Flat terminal		
Bolt diameter		M8
Cable lug (DIN 46235)	mm ²	1 x 10-95 (max. 25 mm width)
Flat bar	mm	20 x 10
Tightening torque M_a	Nm	12 - 15
Clamp		
Clamping cross-section	mm ²	round 1,5 - 70 Cu / flat 6 x 9 x 0,8
Tightening torque M_a	Nm	2,6
Degree of protection, front side, device fitted		
Operating condition		IP30
Switching element open		IP10
Ambient temperature T_{amb} ³⁾	°C	-25 up to +55
Rated operating mode		uninterrupted duty
Actuation		dependent manual operation
Mounting position		vertical, horizontal
Altitude	m	up to 2000
Pollution degree		3
Overvoltage category		III

1) In case of mounting of several units in low voltage switchgear-combinations, please consider rated diversity factors acc. to EN 60439-1.

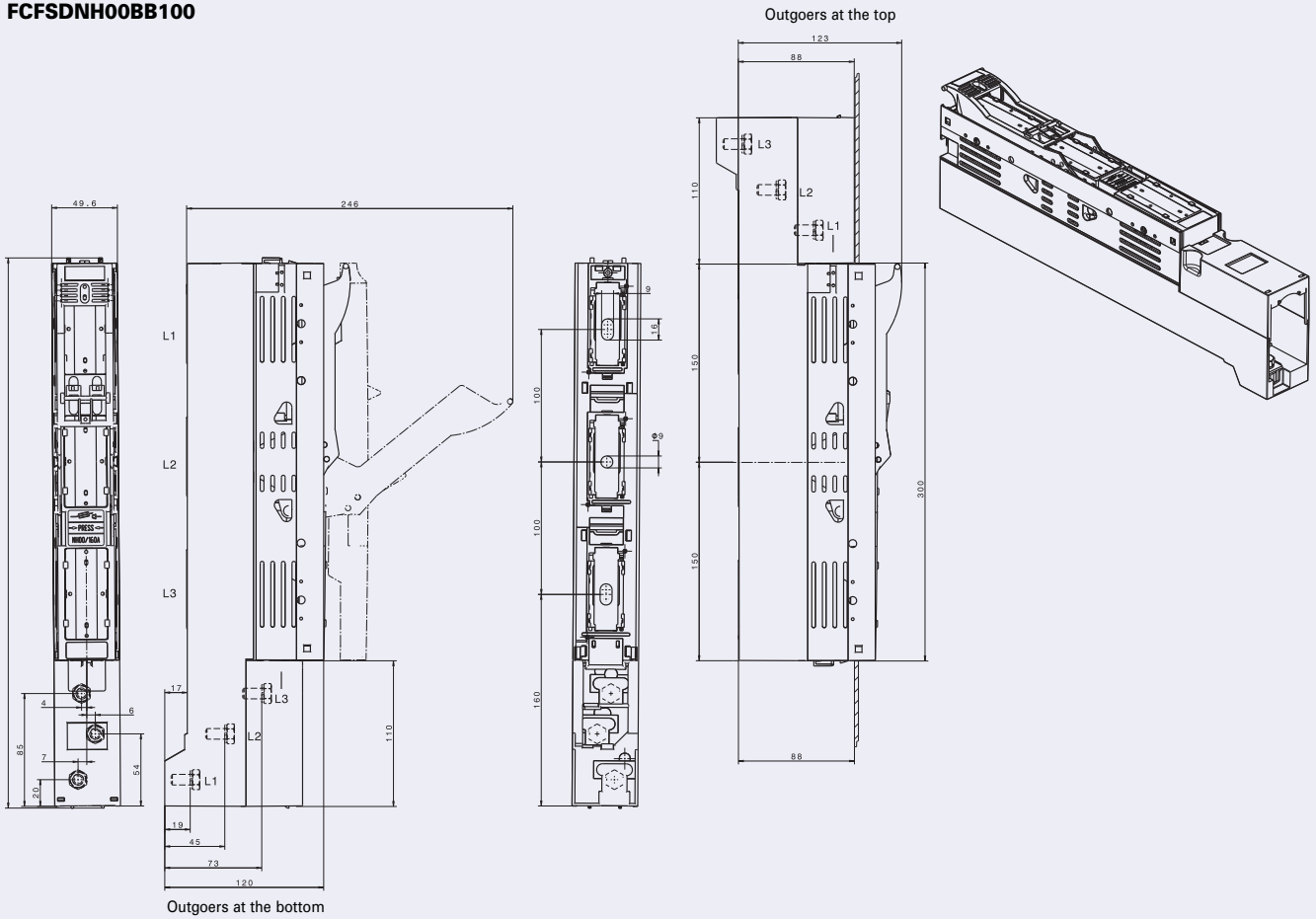
2) Type tested with LV-HRC-fuse-links characteristic gG.

3) 35°C Normal temperature, at 55°C with reduced operating current.

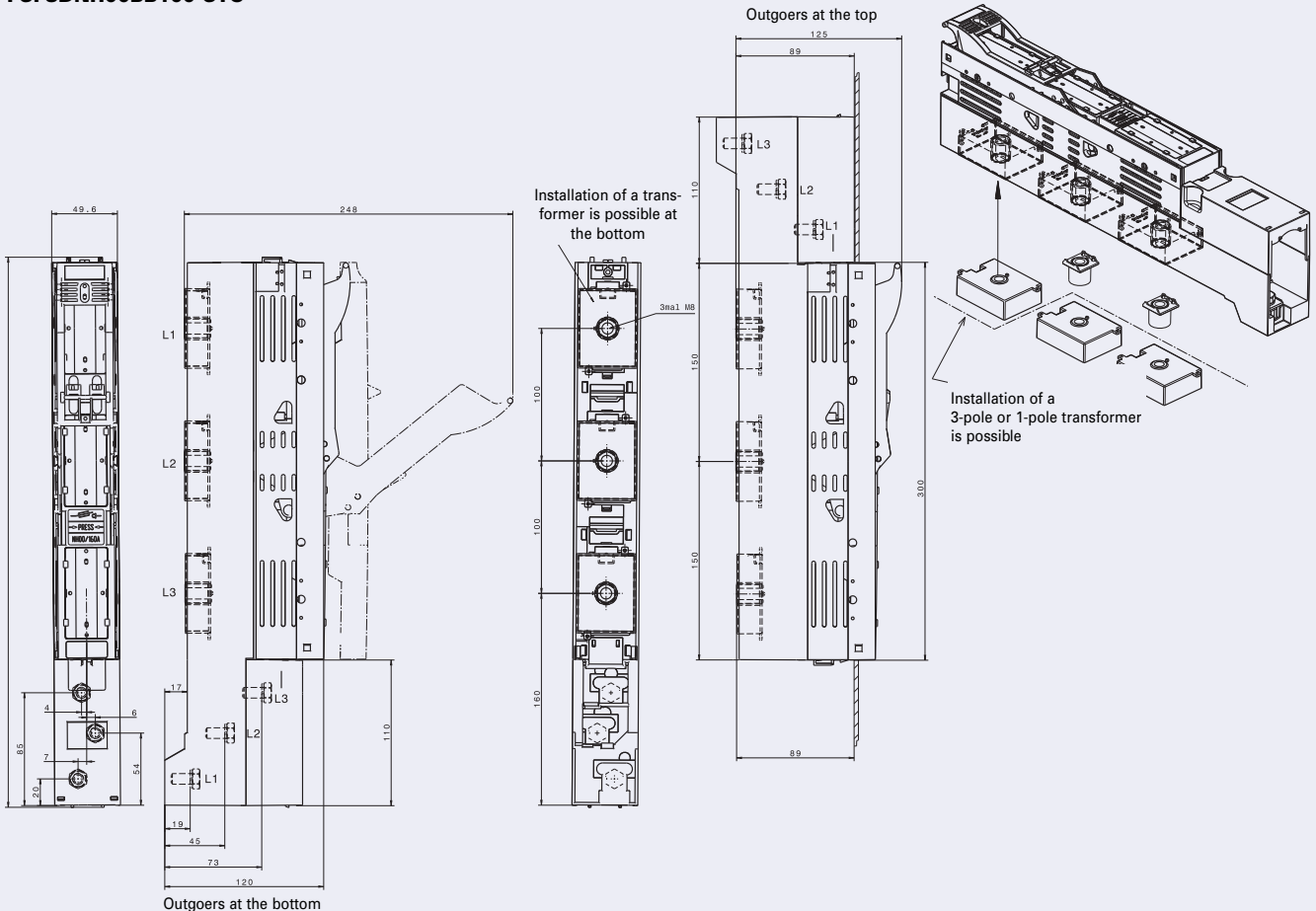
Dimensions (mm)

NH In-line Fuse Switch Disconnectors, 3 poles, center-to-center distance of 100 mm between the phases, size 00

FCFSDNH00BB100



FCFSDNH00BB100-CTO



NH In-line Fuse Switch Disconnectors, 3 poles, FCFSDNH.BB185...

- Center-to-center distance of 185 mm between the phases
- Sizes 1, 2, 3

Technical Data

		FCFSDNH1BB185(-CTO)	FCFSDNH2BB185(-CTO)	FCFSDNH3BB185(-CTO)
Electrical				
For LV HRC fuse-links acc. to DIN VDE 0636-2	Size	1	2	3
Rated operational voltage U_e	V AC	690	690	690
Rated operational current I_e ¹⁾	A	250	400	630
Conv. free air thermal current I_{th} with fuse-links ¹⁾	A	250	400	630
Conv. free air thermal current I_{th} with solid-links ¹⁾	A	400	630	800
Rated frequency	Hz	40 - 60	40 - 60	40 - 60
Rated insulation voltage U_i	V AC	1000	1000	1000
Total power loss at I_{th} (without fuse-links) P_v	W	23	54	115
Rated impuls withstand voltage U_{imp}	kV	12	12	12
Utilization category				
400 V	A	250 (AC-23B)	400 (AC-23B)	630 (AC-22B)
500 V	A	250 (AC-22B)	400 (AC-22B)	630 (AC-22B)
690 V	A	250 (AC-22B)	400 (AC-22B)	630 (AC-21B)
Rated conditional short-circuit current ²⁾	kA	110	110	110 ^{2a)}
Rated short-time withstand current I_{cw}	ka	14,5	14,5	14,5
Max. permissible power loss P_a per fuse-link	W	32	45	48
Mechanical				
Flat terminal				
Bolt diameter		M10	M12	M12
Cable lug (DIN 46235)	mm ²	1 x 25-150	1 x 25-240	1 x 25-300 (max 43mm width)
Flat bar	mm	30 x 10	30 x 10	30 x 10
Tightening torque M_a	Nm	30 - 35	35 - 40	35 - 40
Degree of protection, front side, device fitted				
Operating condition		IP30	IP30	IP30
Switching element open		IP10	IP10	IP10
Ambient temperature T_{amb} ³⁾	°C	-25 up to +55	-25 up to +55	-25 up to +55
Rated operating mode		uninterrupted duty	uninterrupted duty	uninterrupted duty
Actuation		dependent manual operation	dependent manual operation	dependent manual operation
Mounting position		vertical, horizontal	vertical, horizontal	vertical, horizontal
Altitude	m	up to 2000	up to 2000	up to 2000
Pollution degree		3	3	3
Overvoltage category		IV	IV	IV

1) In case of mounting of several units in low voltage switchgear-combinations , please consider rated diversity factors acc. to EN 60439-1.

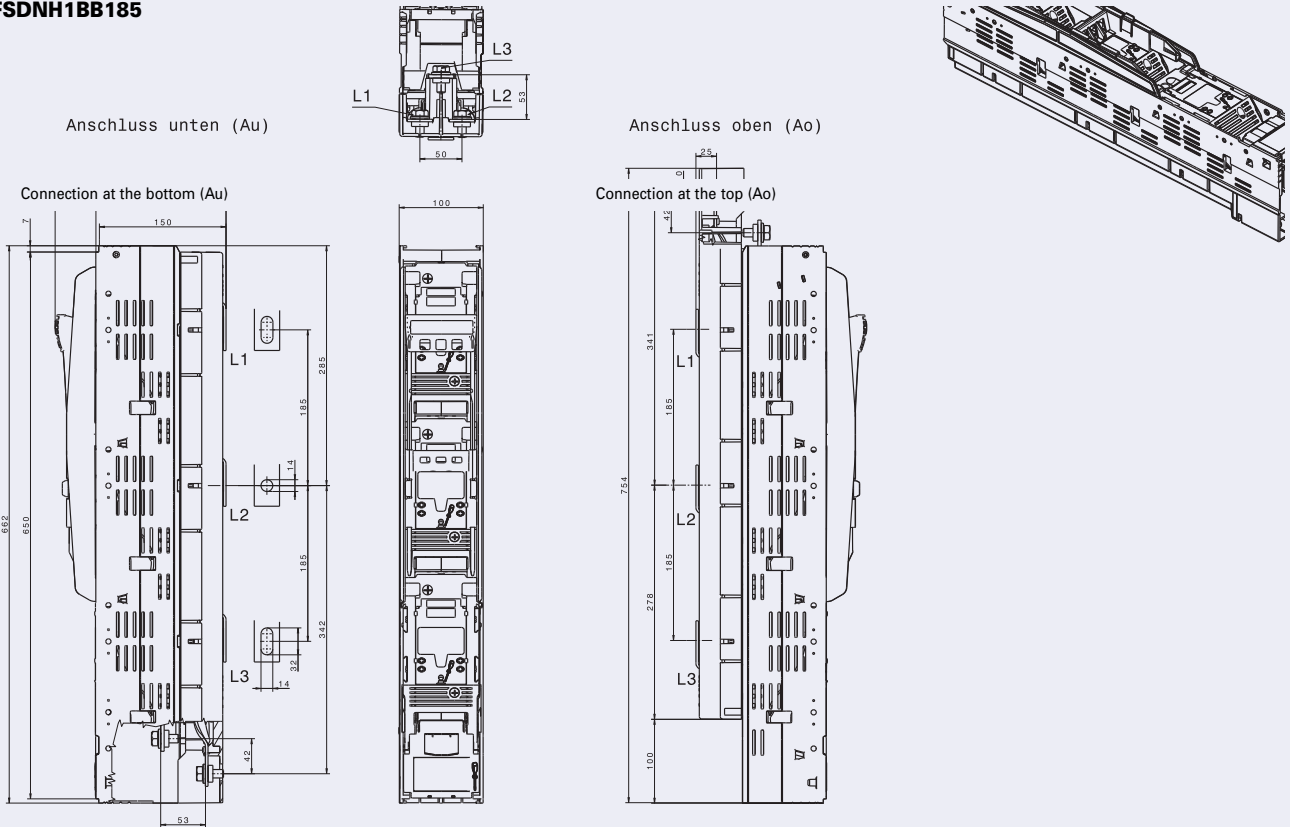
2) Type tested at AC 725 V with LV-HRC-fuse-links characteristic gG.

3) 35°C Normal temperature, at 55°C with reduced operating current.

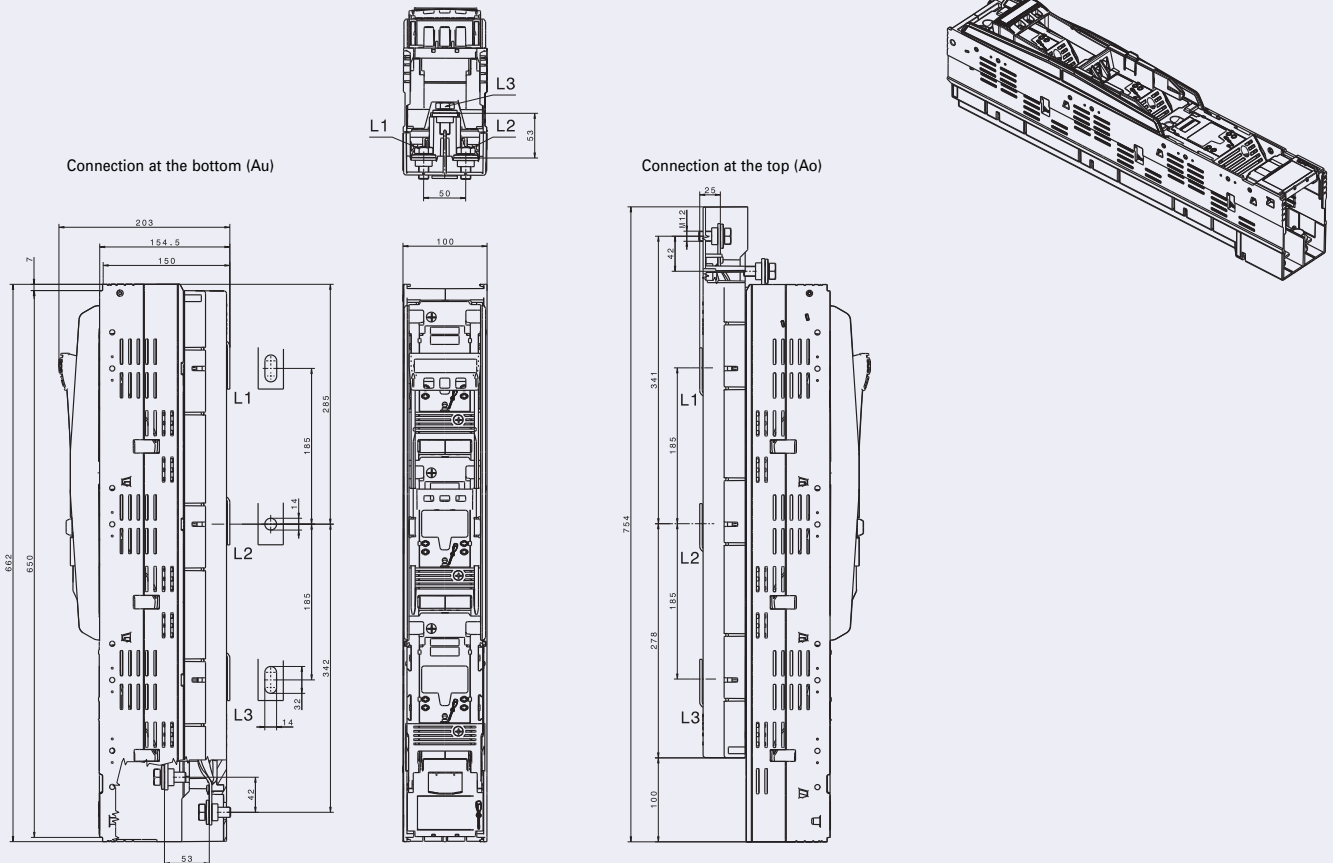
Dimensions (mm)

NH In-line Fuse Switch Disconnectors, 3 poles, center-to-center distance of 185 mm between the phases, size 1 - size 3

FCFSDNH1BB185

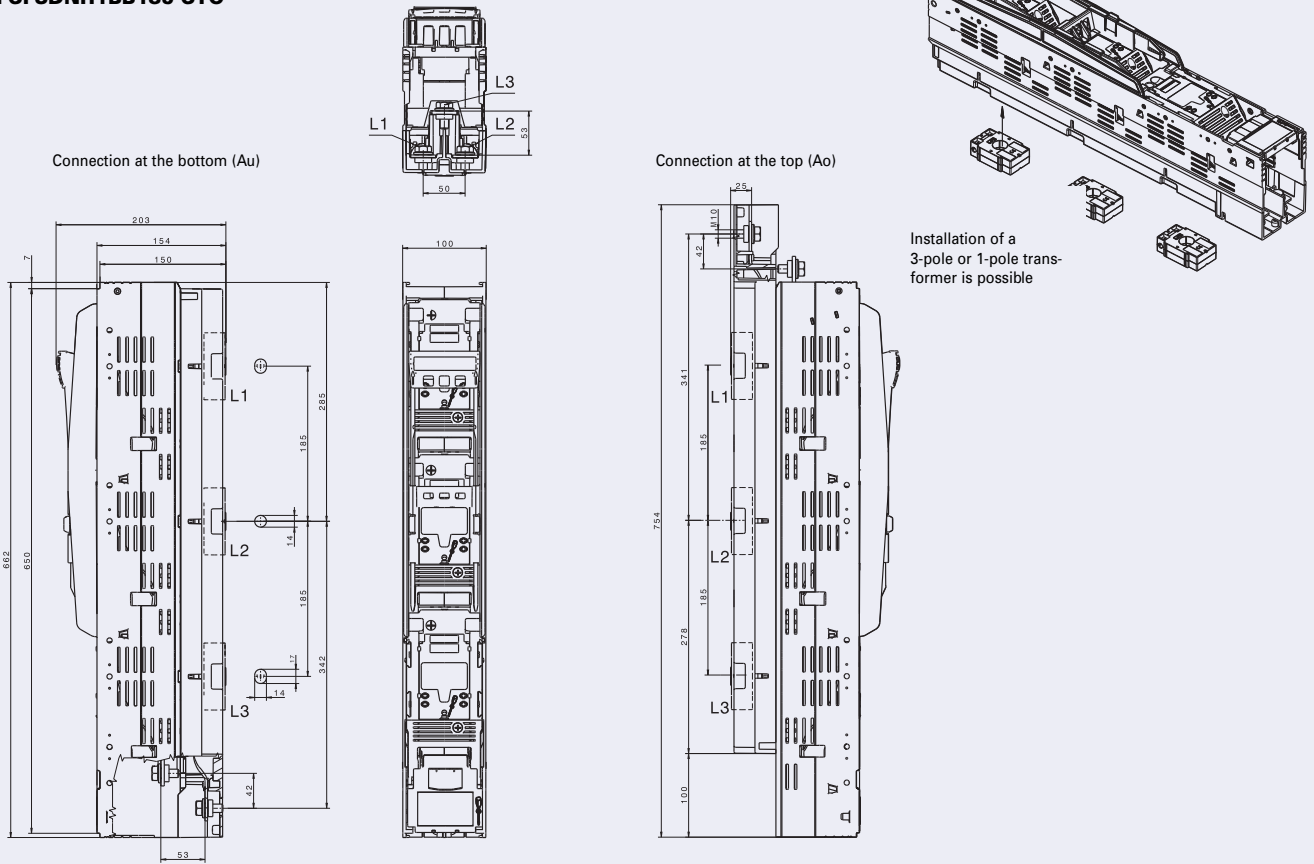


FCFSDNH2BB185, FCFSDNH3BB185

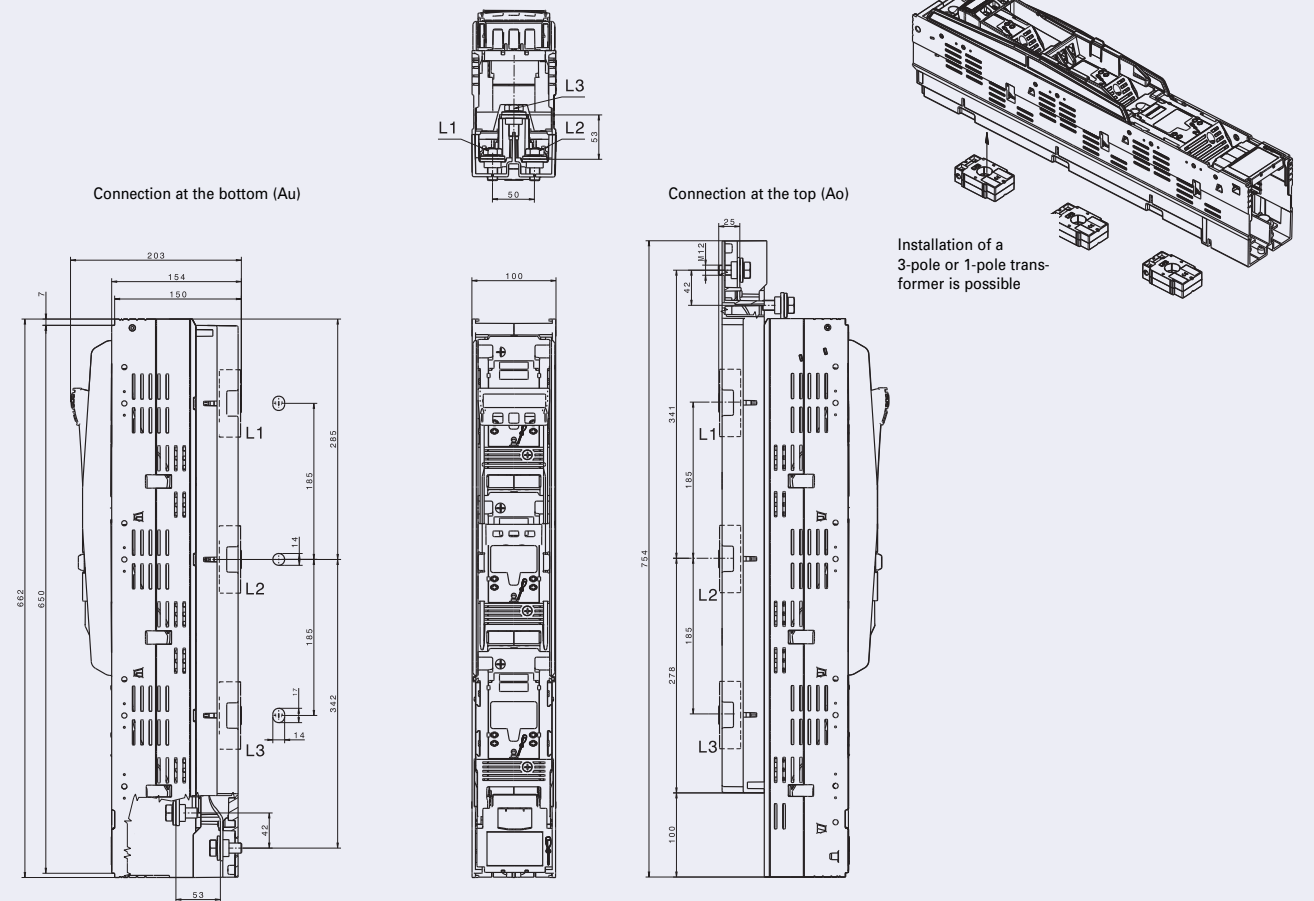


NH In-line Fuse Switch Disconnectors, 3 poles, center-to-center distance of 185 mm between the phases , size 1 - size 3, for installing transformers

FCFSDNH1BB185-CTO



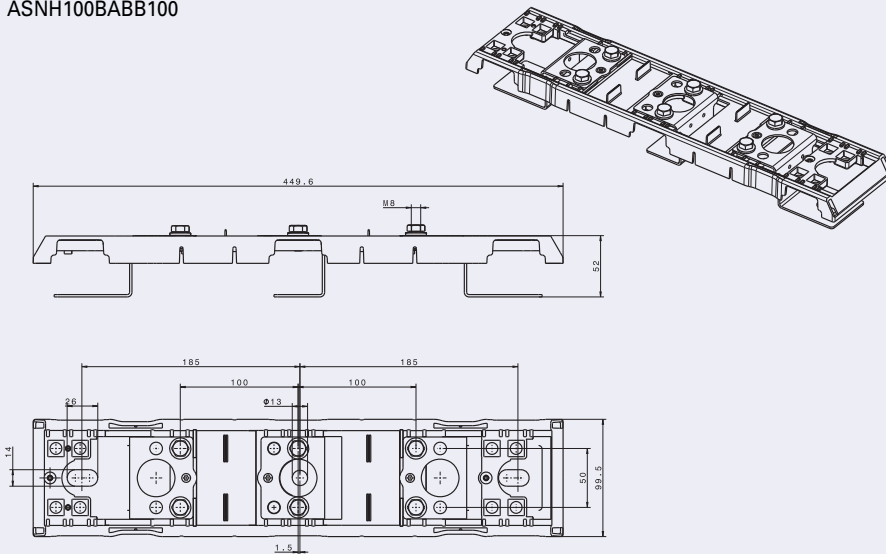
FCFSDNH2BB185-CTO, FCFSDNH3BB185-CTO



Dimensions (mm) - Accessories

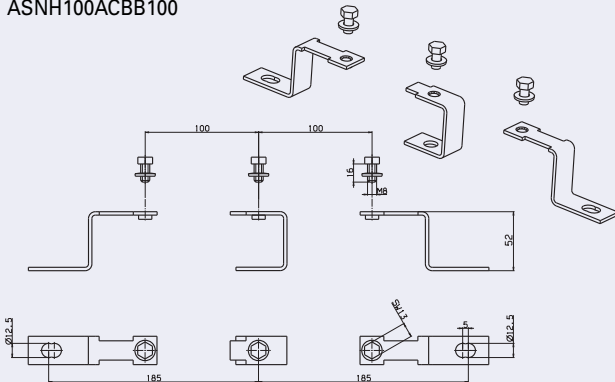
Double Adapter

ASNH100BABB100



Adapter Clips

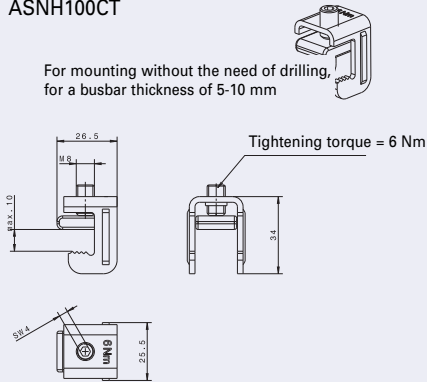
ASNH100ACBB100



Busbar Terminal Size 00

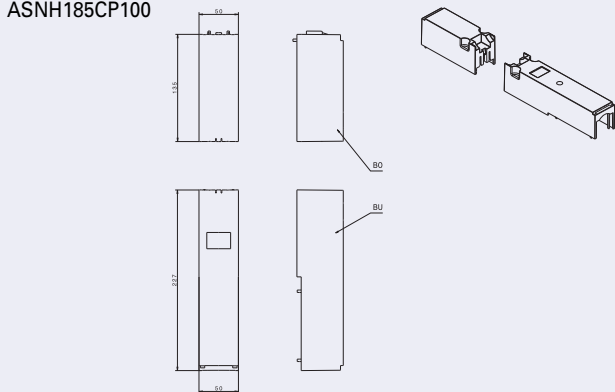
ASNH100CT

For mounting without the need of drilling,
for a busbar thickness of 5-10 mm



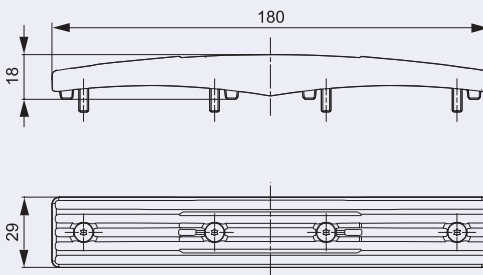
Compensation Cover

ASNH185CP100



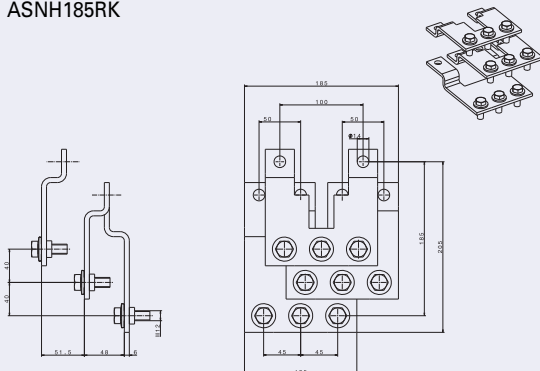
Handle Connection

ASNH185HCK



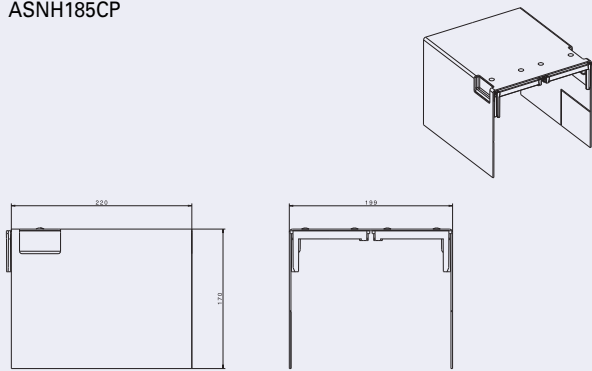
Busbar Kit

ASNH185RK



Cover for Connection Area

ASNH185CP





Cover for Connection Area

ASNH185CP123



NH-Vertical Fuse-Switch-Disconnecter LTS-L, 3-pole

- Supplied without NH-fuse-links
- Vertical and horizontal position of installation is possible
- Top or bottom connection is possible
- Break-proof, flexible connection chamber
- Fully insulated, finger and hand touch-safe according to IEC/EN 60947 and BGV A3
- Laterally offset ventilation slots in order to avoid flash-over to adjoining vertical switching devices
- The base body consists of a glass-fibre reinforced high-temperature resistant self-extinguishing and halogen-free plastic
- The single-part contact system is corrosion- and torsion-proof. The copper contacts are nickel-plated
- The switch cover consists of a glass-fibre re-enforced, self-extinguishing and halogen-free plastic
- The switch cover features large viewing windows permitting to see the marking and the flat indicator of the NH-fuse-links.
- The sliding viewing windows feature test holes
- The switch cover can be deposited ("park position")

Connection diagram



Technical Data

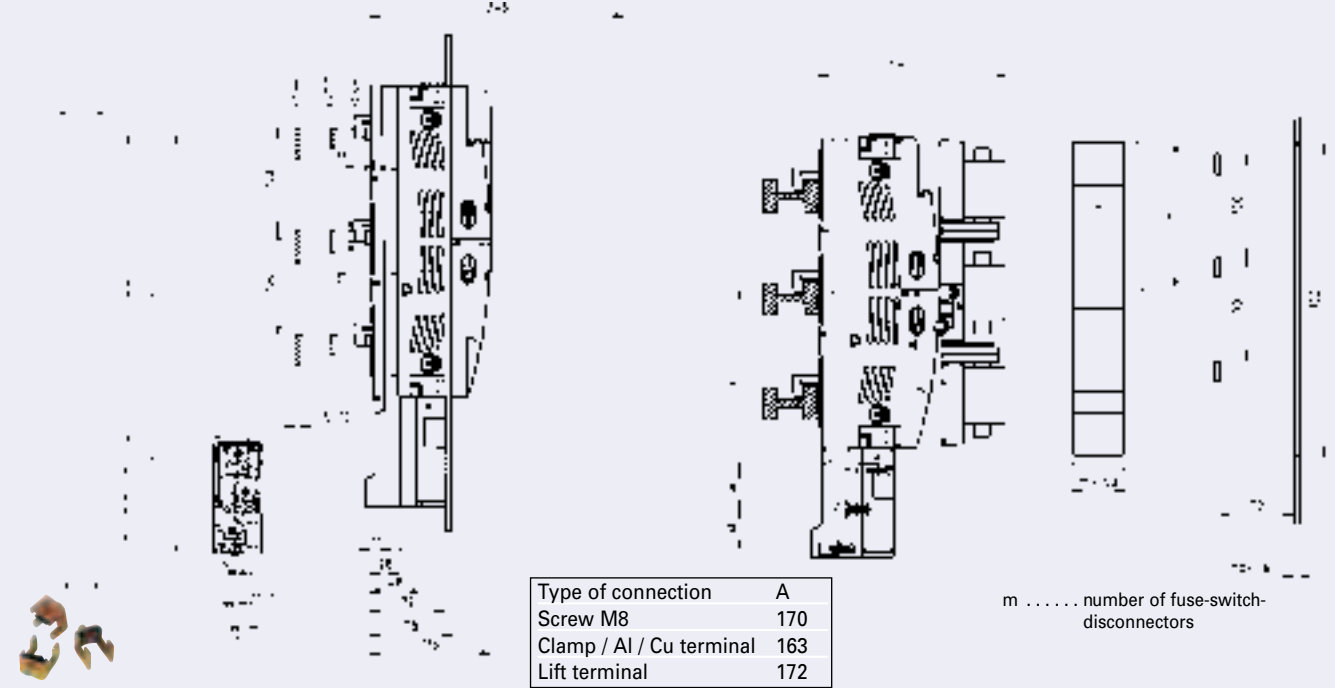
	LTS-L/160/00/(3-L)	LTS-L/250/1	LTS-L/400/2	LTS-L/630/3
Electrical				
Technical data according to	IEC/EN 60947	IEC/EN 60947	IEC/EN 60947	IEC/EN 60947
Size	00	1	2	3
Number of poles/phases	3	3	3	3
Conventional free air thermal current with NH-fuse-links I_{th}	160 A	250 A	400 A	630 A
Max. permissible power loss of NH-fuse-links	12 W	23 W	34 W	48 W
Conventional free air thermal current with solid-links I_{th}	250 A	400 A	630 A	1000 A
Max. permissible power loss of solid-links	1.2 W	2.6 W	9 W	17.5 W
Utilization category AC 23 B				
Rated operational voltage U_e	400 V AC	500 V AC	400 V AC	400 V AC
Rated operational current I_e	160 A	250 A	400 A	630 A
Rated short-circuit making capacity with fuse-links	80 kA	120 kA	120 kA	80 kA
Utilization category AC 22 B				
Rated operational voltage U_e	500 V AC	690 V AC	500 V AC	500 V AC
Rated operational current I_e	160 A	250 A	400 A	630 A
Rated short-circuit making capacity with fuse-links	80 kA	120 kA	120 kA	80 kA
Utilization category AC 21 B				
Rated operational voltage U_e	690 V AC	690 V AC	690 V AC	690 V AC
Rated operational current I_e	100 A	250 A	400 A	630 A
Rated short-circuit making capacity with fuse-links	10 kA	120 kA	120 kA	80 kA
Rated insulation voltage U_i	1000 V	1000 V	1000 V	1000 V
Rated impulse withstand voltage U_{imp}	8 kV	8 kV	8 kV	8 kV
Rated frequency	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Rated duty	uninterrupted duty	uninterrupted duty	uninterrupted duty	uninterrupted duty
Rated short-circuit making capacity I_{cm} with solid-links	4.5 kA _{sw}	16 kA _{sw}	16 kA _{sw}	16 kA _{sw}
Rated short-time withstand current I_{cw} with solid-links	4.5 kA/1s	8 kA/1s	8 kA/1s	12,6 kA/1s
Power loss without NH-fuse-links	20 W at 160A	24 W at 250A	46 W at 400A	92 W at 630A
Power loss without solid-links	49 W at 200A	65 W at 400A	126 W at 630A	161 W at 1000A
Mechanical				
Mounting onto busbar system				
Hooked clamps for busbar thickness	5-10 mm	5-10 mm	5-10 mm	5-10 mm
Screws	M8 (-)	M12	M12	M12
Standard connection	Terminal 70mm ²	M10	M12	M12
For cable lugs	M8 max. 1x70mm ²	max. 300mm ²	max. 300mm ²	max. 300mm ²
For busbar max. width	20 mm	40 mm	40 mm	40 mm
Ambient temperature range	-5°C to +40°C	-5°C to +40°C	-5°C to +40°C	-5°C to +40°C
Degree of protection	IP 2Lx	IP 2Lx	IP 2Lx	IP 2Lx
Pollution degree	3	3	3	3

Dimensions (mm)

LTS-L/160/00

Drill-free mounting with hooked clamps Z-LTS-LG/00-KR

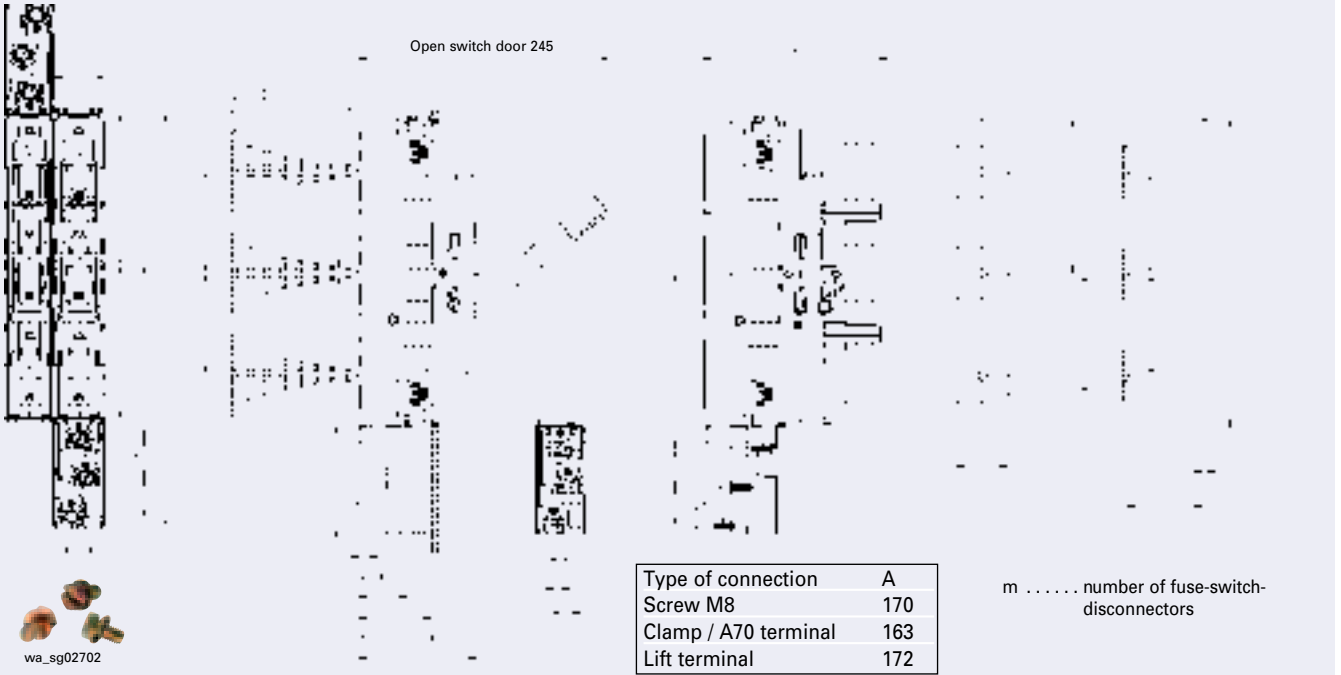
Switch cover deposit and cut-out for front plate



WA-SG02802

Screw Mounting - Cu drilled

Switch cover deposit and cut-out for front plate



wa_sg02702

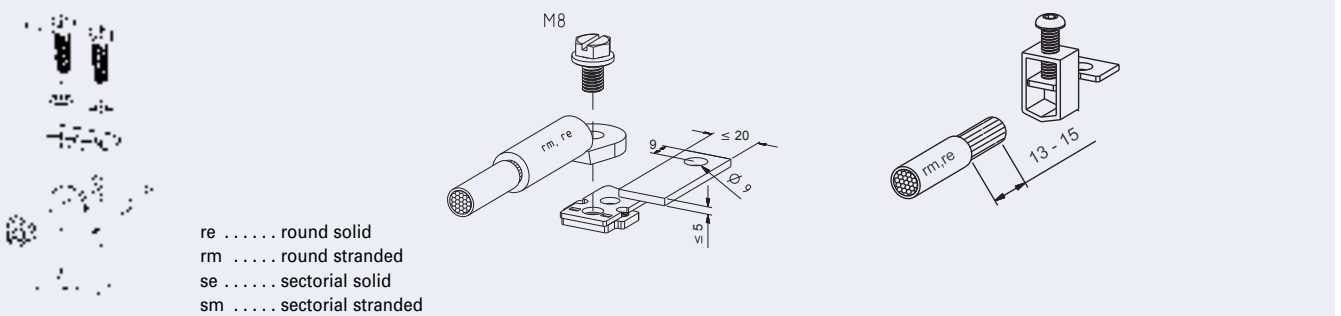
Cable Terminal Connections LTS-L/160/00

Clamp strap Z-LTS-160-BK:
Cross section Cu 4-70 mm²
Tightening torque 3-4 Nm

Accessories: Screw M8
Cross section Cu 16-70, Al 16-95 mm²
Tightening torque 15-17 Nm

Cable Terminal Connections LTS-L/160/00/3-L

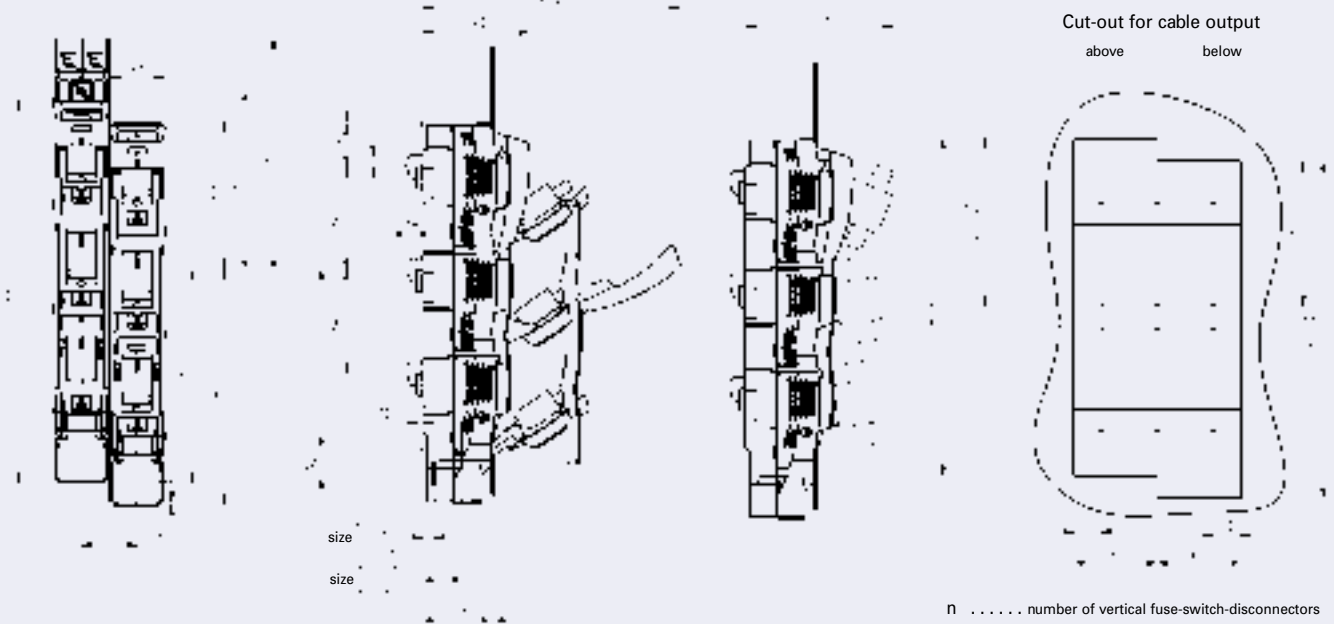
Cross section Cu 2.5-70 mm²
Tightening torque 6 Nm



Dimensions (mm)

LTS-L/250/1, LTS-L/400/2, LTS-L/630/3

Drill-free mounting with hooked clamps



Accessories: Hooked Clamps Z-LTS-L-KR

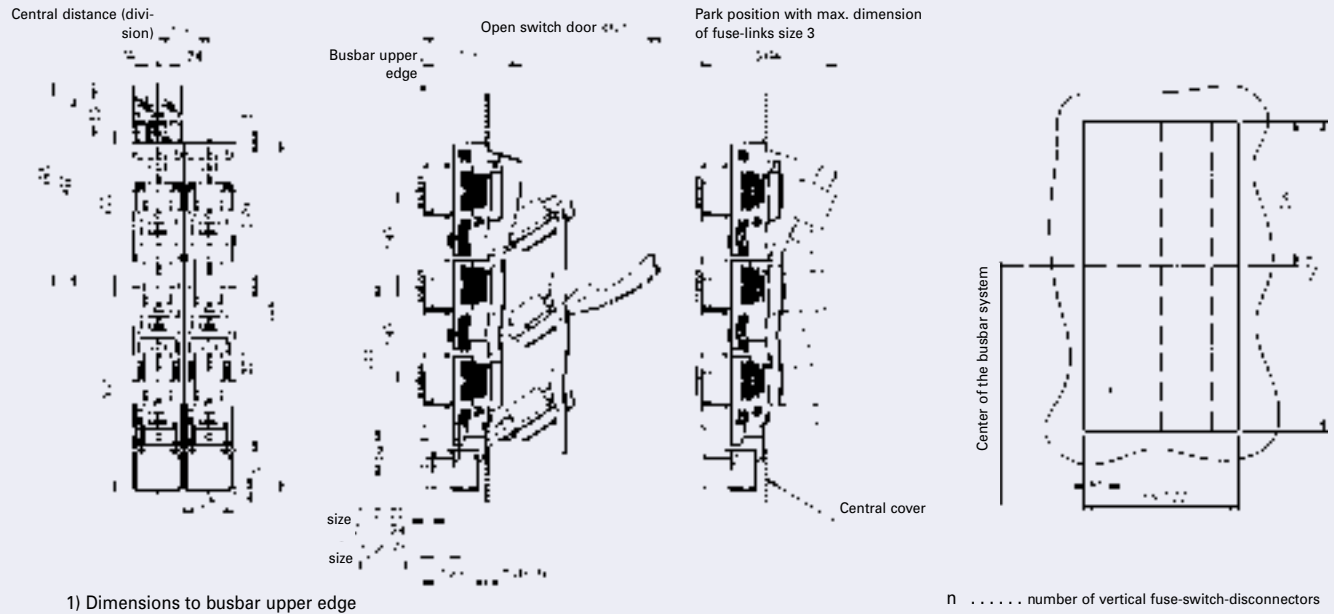
WA-SG14703

For direct mounting without drilling onto bus bar system.



Screw Mounting - Cu drilled

Central distance (division)



1) Dimensions to busbar upper edge

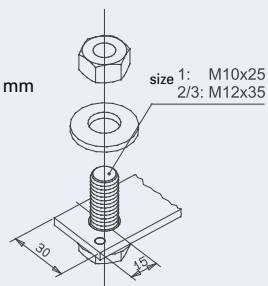
Cable Terminal Connections LTS-L/250/1, LTS-L/400/2, LTS-L/630/3

Bolt connection:

Cross section max. 300 mm²

Tightening torque 35±3 Nm

Accessories: Cable lug max. width 45 mm

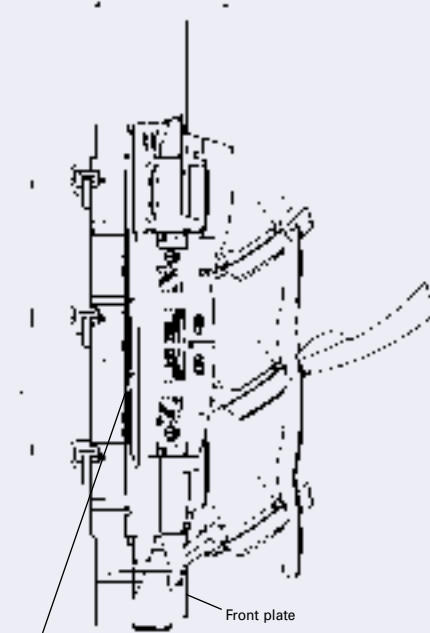


Dimensions (mm)

Kombination LTS-L/160/00 and LTS-L/250/1, LTS-L/400/2, LTS-L/630/3

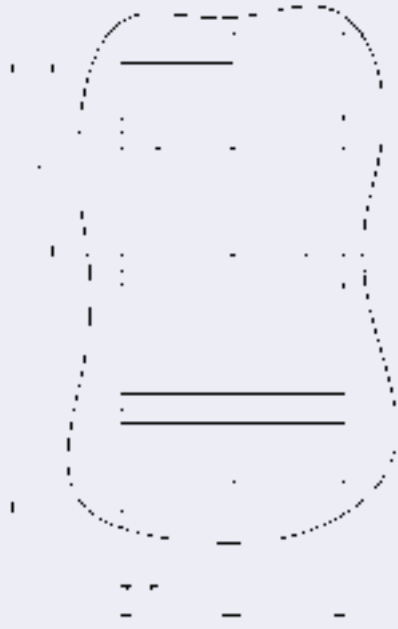
Drill-free mounting with hooked clamps

Z-LTS-L-KA



Cut-out for front plate

above below

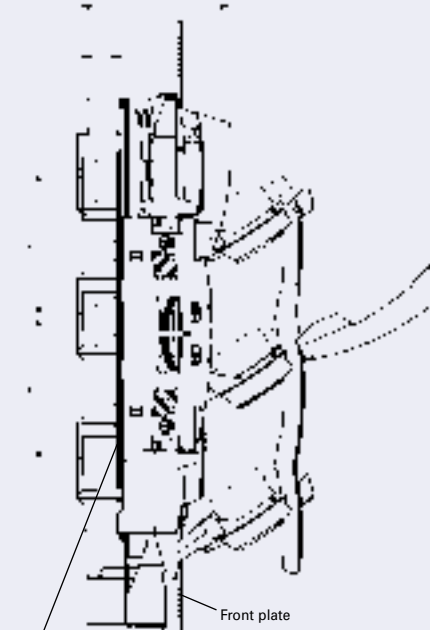


Z-LTS-L/160-SADD-KR Double Adapter
Z-LTS-L/160-SAD-KR Single Adapter

m number of Single Adapter (LTS-L/160/00)
n number of vertical fuse-switch-disconnectors
LTS-L/250/1 to LTS-L/630/3 and Double Adapter

Screw Mounting - Cu drilled

Z-LTS-L-KA



Cut-out for front plate



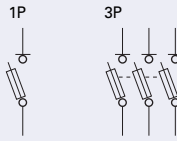
Z-LTS-L/160-SADD Double Adapter
Z-LTS-LG/00-SAD Single Adapter

m number of Single Adapter (LTS-L/160/00)
n number of vertical fuse-switch-disconnectors
LTS-L/250/1 to LTS-L/630/3 and Double Adapter

NH-Fuse-Switch-Disconnecter LTS, 1- and 3-pole, xPole

- Supplied without NH-fuse-links
- Symmetrical device - top or bottom connection is possible
- Modular cable cover system for cable lugs or terminals can be expanded as required
- Standard LTS-160/00/3E and LTS-250/1/3 are equipped with locks which can be sealed with leads
- The switch cover features large viewing windows permitting to see the marking and the flat indicator of the NH-fuse-links.
- The windows of LTS-160/00/3, LTS-250/1/3, LTS-400/2/3 and LTS-630/3/3 are hinged and permit testing of the fuse-links
- without affecting touch protection IP20
- The switch cover can be removed in the OFF position
- Parking position of switch cover is possible
- The base body consists of a glass-fibre reinforced high-temperature-resistant, non-flammable, self-extinguishing and halogen-free plastic
- The single-part contact system is corrosion- and torsion-proof. The copper contacts are nickel-plated, and the contact springs are made of stainless steel
- The protective cover consists of a glass-fibre re-enforced, high-temperature-resistant, self-extinguishing and halogen-free plastic

Connection diagrams

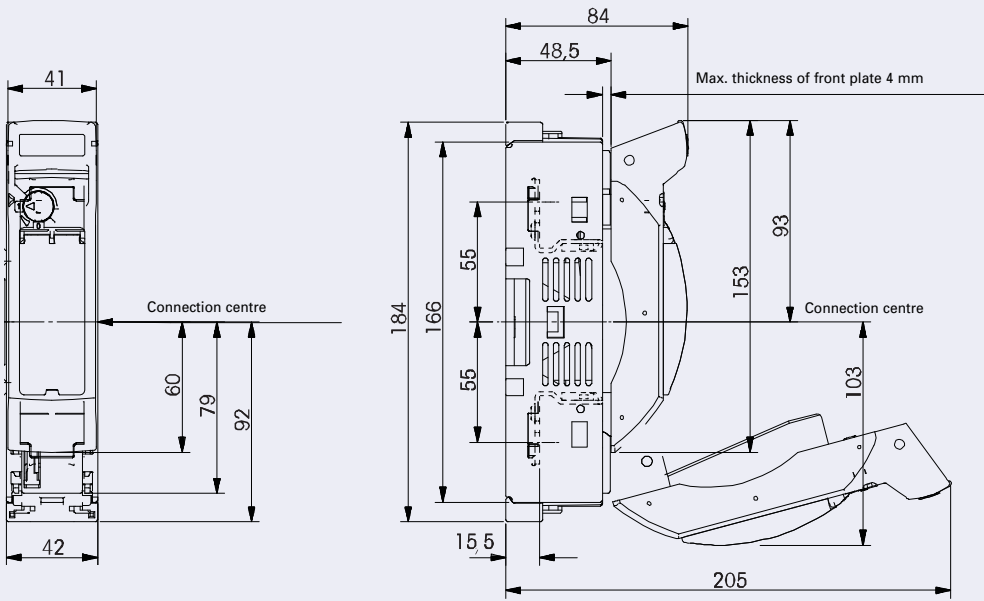


Technical Data

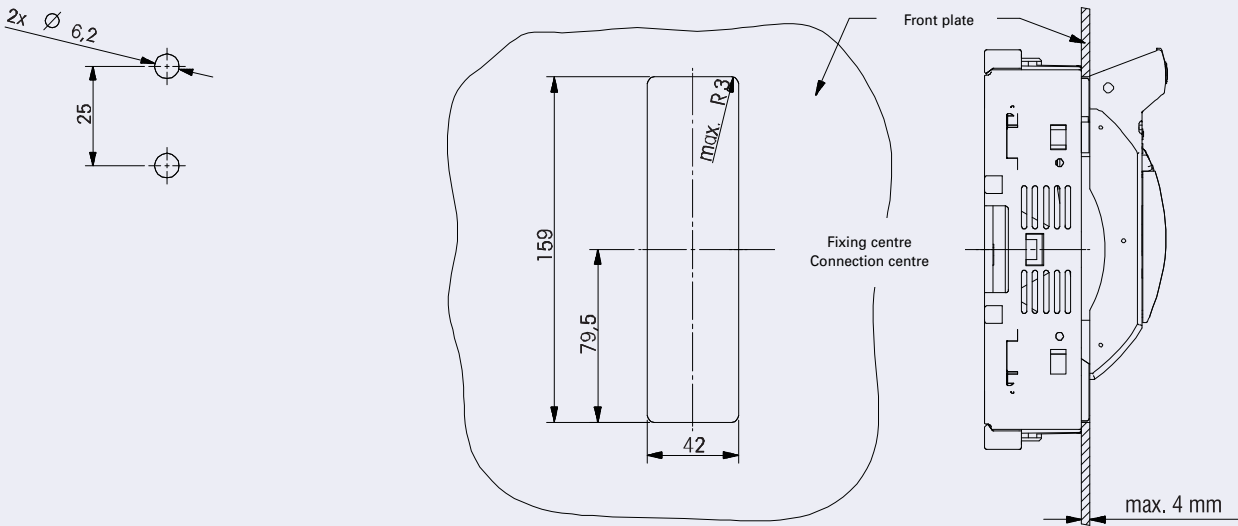
	LTS-160/00/1	LTS-160/00/3(E)	LTS-250/1/3	LTS-400/2/3	LTS-630/3/3
Electrical					
Technical data according to	IEC/EN 60947	IEC/EN 60947	IEC/EN 60947	IEC/EN 60947	IEC/EN 60947
Size	00	00	1	2	3
Number of poles/phases	1	3	3	3	3
Conventional free air thermal current with NH-fuse-links I_{th}	160 A	160 A	250 A	400 A	630 A
Max. permissible power loss of NH-fuse-links	12 W	12 W	23 W	34 W	48 W
Conventional free air thermal current with solid-links I_{th}	200 A	200 A	400 A	630 A	780 A
Max. permissible power loss of solid-links	1.2 W	1.2 W	2.6 W	9 W	17.5 W
Utilization category AC 23 B					
Rated operational voltage U_e	400 V AC	400 V AC	400 V AC	400 V AC	400 V AC
Rated operational current I_e	160 A	160 A	250 A	400 A	630 A
Rated short-circuit making capacity with fuse-links	80 kA	80 kA	80 kA	80 kA	80 kA
Utilization category AC 22 B					
Rated operational voltage U_e	500 V AC	500 V AC	500 V AC	500 V AC	500 V AC
Rated operational current I_e	160 A	160 A	250 A	400 A	630 A
Rated short-circuit making capacity with fuse-links	80 kA	80 kA	50 kA	80 kA	80 kA
Utilization category AC 21 B					
Rated operational voltage U_e	690 V AC	690 V AC	690 V AC	690 V AC	690 V AC
Rated operational current I_e	125 A	125 A	200 A	315 A	500 A
Rated short-circuit making capacity with fuse-links	50 kA	50 kA	50 kA	80 kA	50 kA
Rated insulation voltage U_i	1000 V	1000 V	1000 V	1000 V	1000 V
Rated impulse withstand voltage U_{imp}	8 kV	8 kV	12 kV	12 kV	12 kV
Rated frequency	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Rated duty	uninterrupted duty	uninterrupted duty	uninterrupted duty	uninterrupted duty	uninterrupted duty
Rated short-circuit making capacity I_{cm} with solid-links	6.2 kA _{sw}	6.2 kA _{sw}	8.2 kA _{sw}	10.6 kA _{sw}	18.6 kA _{sw}
Rated short-time withstand current I_{cw} with solid-links	4 kA/1s	4 kA/1s	8 kA/1s	13 kA/1s	13 kA/1s
Power loss without NH-fuse-links	2.3W at 160A	7W at 160A	10W at 250A	20W at 400A	40W at 630A
Power loss without solid-links	3.3W at 200A	10W at 200A	24W at 400A	50W at 630A	150W at 1000A
Mechanical					
Standard connection	Clamp strap	Clamp strap	M10	M10	M12
For cable lugs	M8 max. 2x70mm ² 2x95mm ² Al	M8 max. 2x70mm ² Cu 2x95mm ² Al	2x150mm ² Cu 2x185mm ² Al	2x240mm ² Cu 2x240mm ² Al	2x240mm ² Cu 2x300mm ² Al
For busbar max. width	20 mm	20 mm	30 mm	35 mm	45 mm
Ambient temperature range	-5°C to +40°C	-5°C to +40°C	-5°C to +40°C	-5°C to +40°C	-5°C to +40°C
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20
Pollution degree	3	3	3	3	3

Dimensions (mm)

LTS-160/00/1



Dimensions for bottom fixing and front plate cut-out for bottom fixing without cover shield



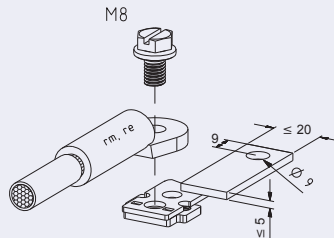
Cable Terminal Connections LTS-160/00/1

Clamp strap Z-LTS-160-BK:
Cross section Cu 4-70 mm²
Tightening torque 3-4 Nm



re round solid
rm round stranded
se sectorial solid
sm sectorial stranded

Accessories: Screw M8
Cross section Cu 16-70, Al 16-95 mm²
Tightening torque 15-17 Nm



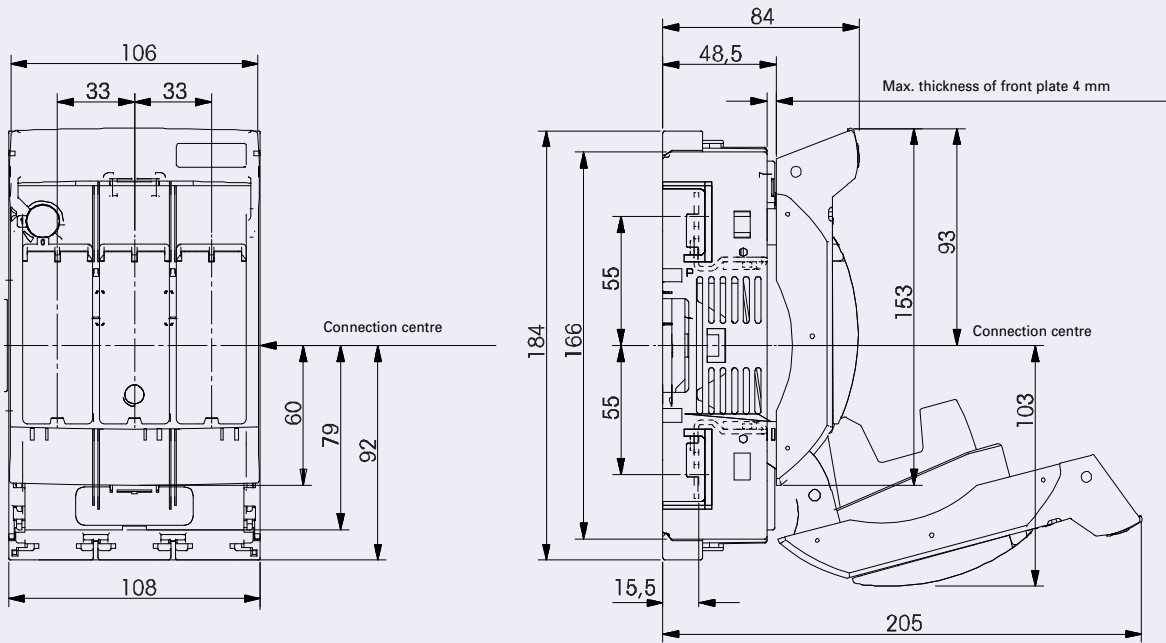
Accessories: V-shaped terminal
Cross section: 50-95 mm² se
35-70 mm² sm
10-50 mm² rm
Tightening torque 12 Nm



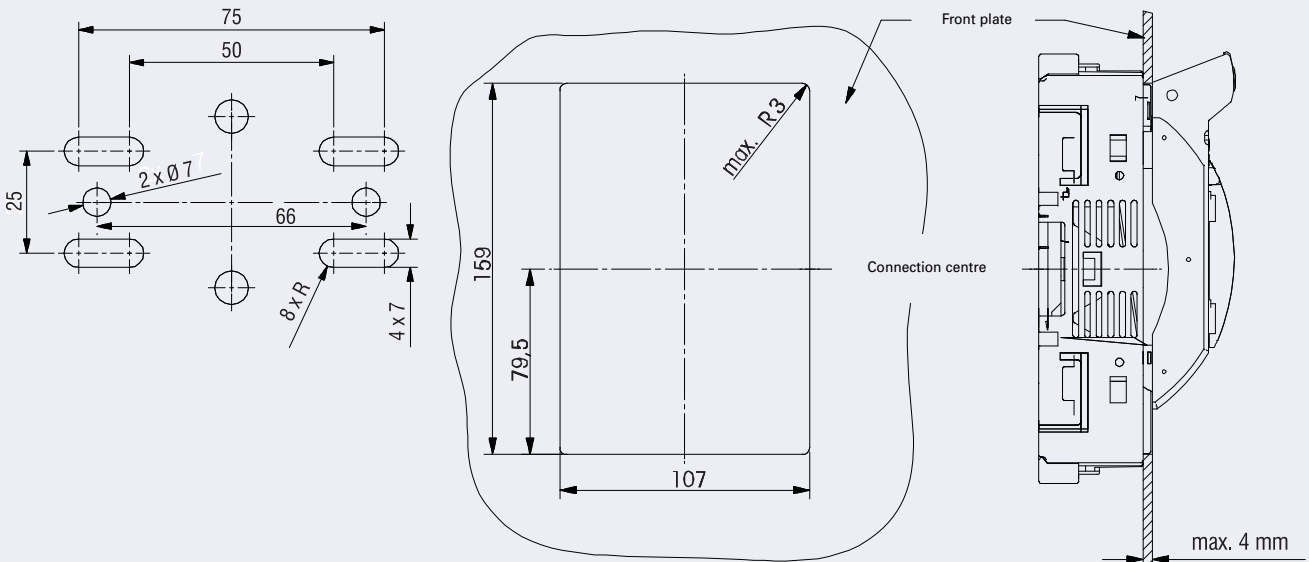
WA-SG01502

Dimensions (mm)

LTS-160/00/3



Dimensions for bottom fixing and front plate cut-out for bottom fixing without cover shield



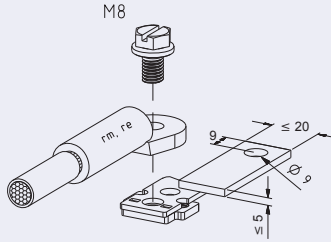
Cable Terminal Connections LTS-160/00/3

Clamp strap Z-LTS-160-BK:
Cross section Cu 4-70 mm²
Tightening torque 3-4 Nm



re round solid
rm round stranded
se sectorial solid
sm sectorial stranded

Accessories: Screw M8
Cross section Cu 16-70, Al 16-95 mm²
Tightening torque 15-17 Nm



Accessories: V-shaped terminal
Cross section: 50-95 mm² se
35-70 mm² sm
10-50 mm² rm
Tightening torque 12 Nm

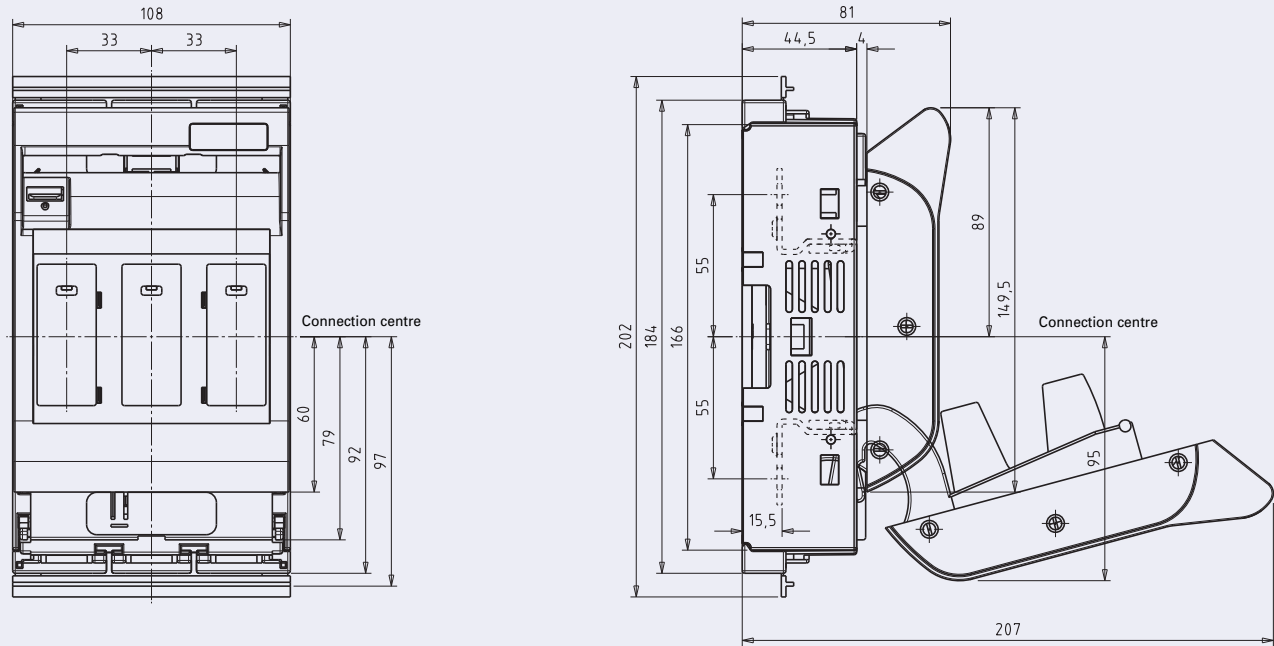


WA-SG01502

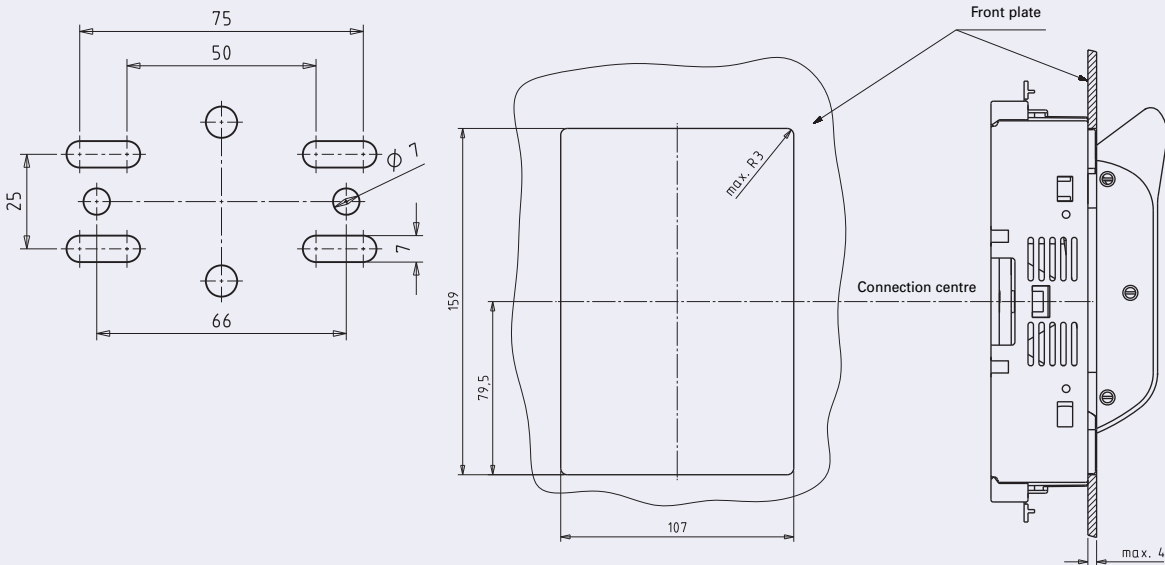
Dimensions (mm)

LTS-160/00/3

Symmetric switch, same dimensions for cable connection at the top or bottom



Dimensions for bottom fixing and front plate cut-out for bottom fixing without cover shield

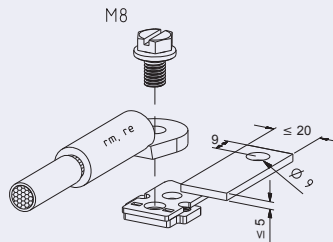


Cable Terminal Connections LTS-160/00/3

Clamp strap Z-LTS-160-BK:
Cross section Cu 4-70 mm²
Tightening torque 3-4 Nm



Accessories: Screw M8
Cross section Cu 16-70, Al 16-95 mm²
Tightening torque 15-17 Nm



Accessories: V-shaped terminal
Cross section: 50-95 mm² se
35-70 mm² sm
10-50 mm² rm
Tightening torque 12 Nm



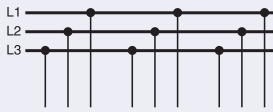
WA-SG01502

re round solid
rm round stranded
se sectorial solid
sm sectorial stranded

Busbar Block 35mm² Z-LTS-00/3-SV for LTS-160/00/3(E)

- Delivered with end caps.
- Extension terminal Z-LTS-EK/95 available

Connection diagram



Technical Data

Electrical

Rated voltage	690/400 V, 50 Hz
Rated current	
Feeding from the side	110 A
Feeding in the middle	220 A
Rated conditional short-circuit current with back-up fuse 250 A gG(gL)	100 kA _{r.m.s}

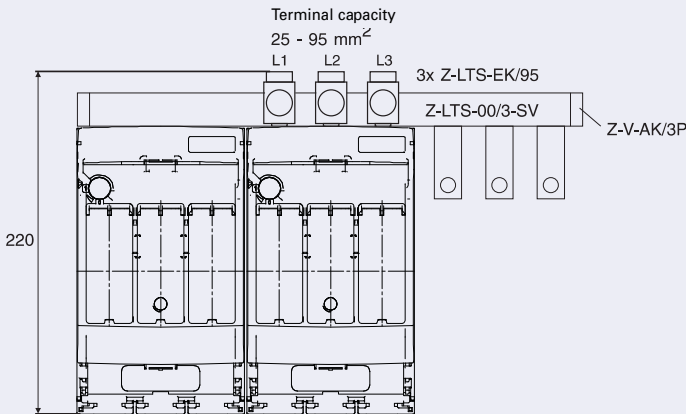
Mechanical

Busbar cross section	35 mm ² Cu
Step distance	33 mm / 108.5 mm
Weight	446 g

Dimensions (mm)

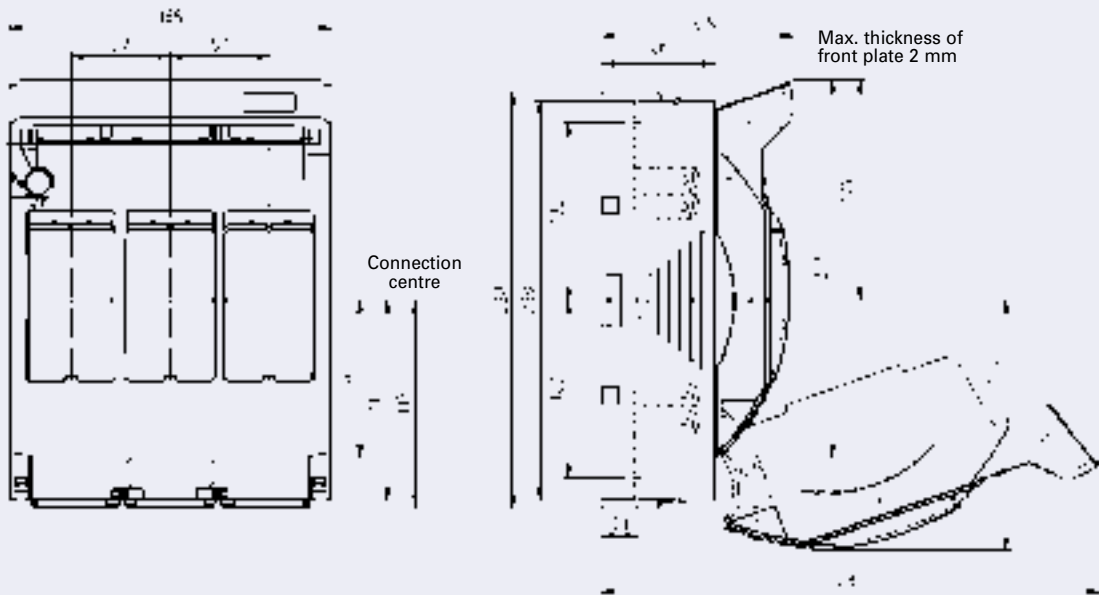


Example

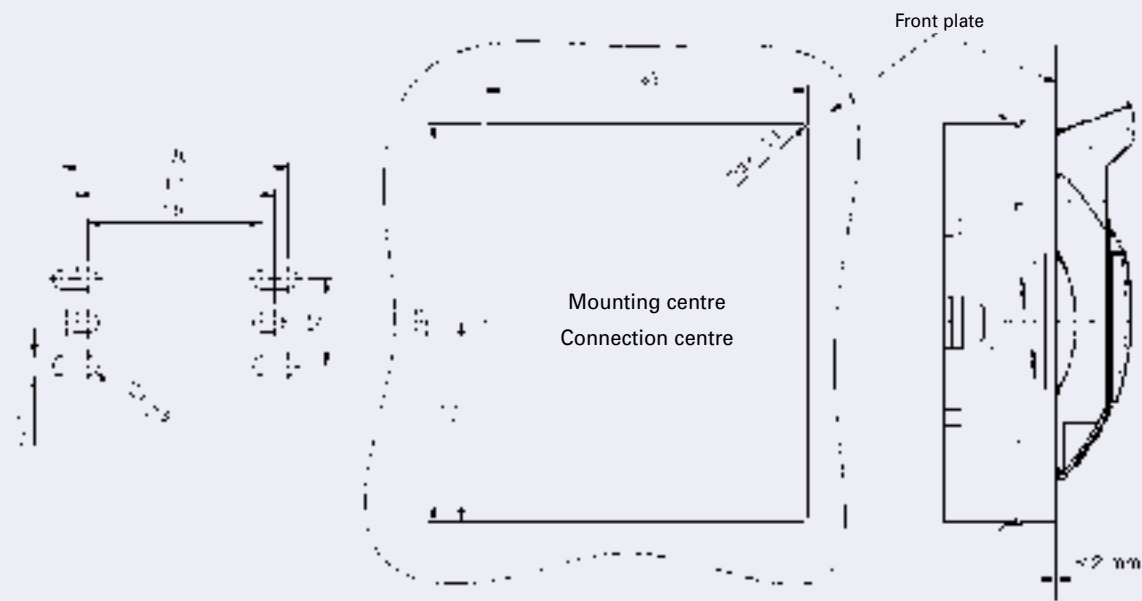


Dimensions (mm)

LTS-250/1/3



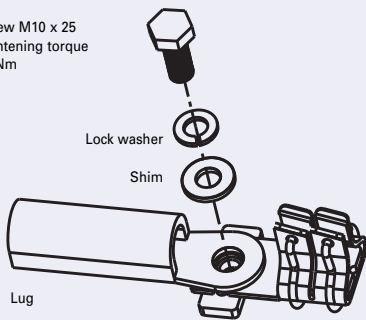
Dimensions for bottom fixing and front plate cut-out for bottom fixing without cover shield



Cable Terminal Connections LTS-250/1/3

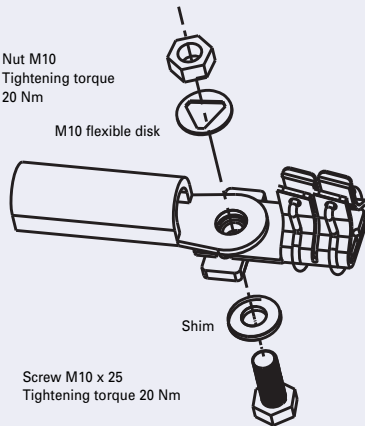
Screw connection

Screw M10 x 25
Tightening torque
20 Nm



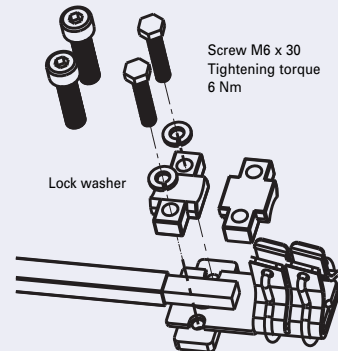
Bolt connection

Nut M10
Tightening torque
20 Nm



Accessories: Clamp strap Z-LTS-250-BK

Screw M6 x 30
Tightening torque
6 Nm

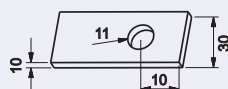


Suitable : for round conductor 70-150 mm² rm
for rails or laminated copper 18 x 7-18

Screw- and bolt connection

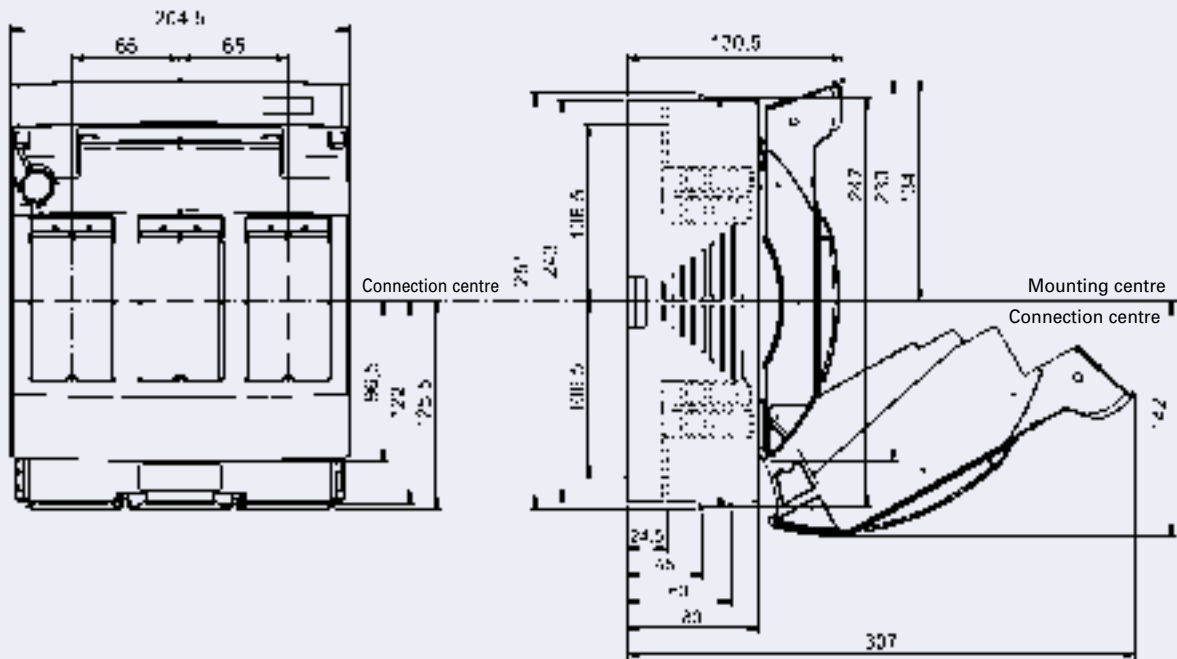
Suitable for lugs according to:
DIN 46235 max. 10-150 mm²
DIN 46234 max. 10-150 mm²
DIN 46329 max. 10-185 mm²

Copper Rails

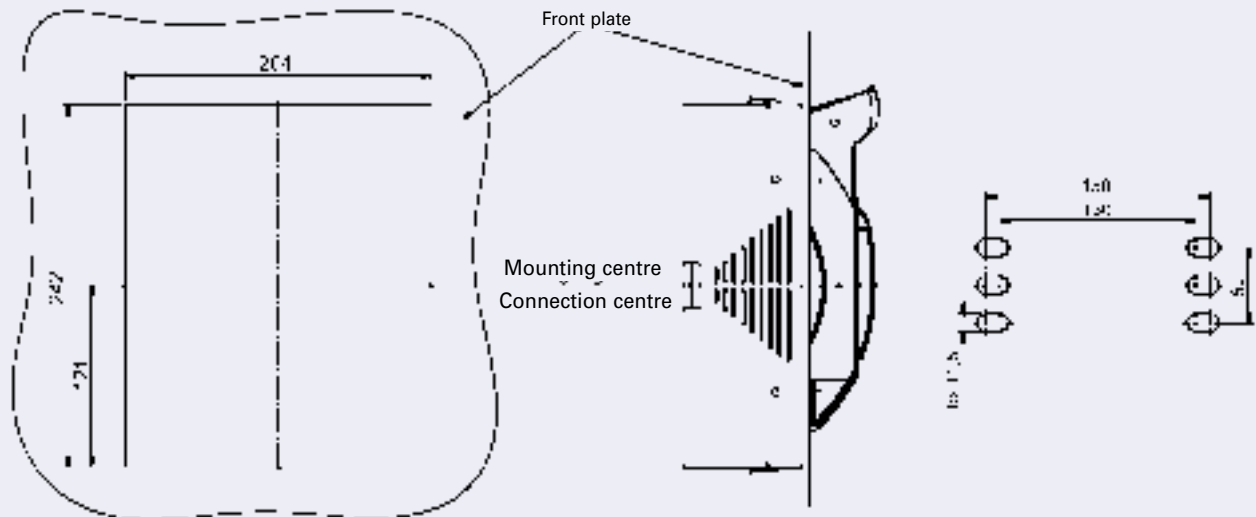


Dimensions (mm)

LTS-400/2/3



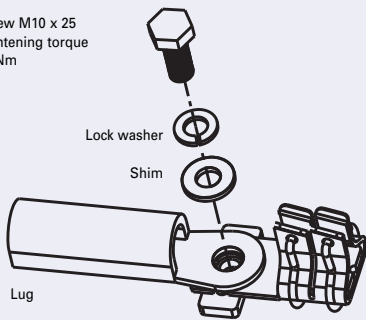
Dimensions for bottom fixing and front plate cut-out for bottom fixing without cover shield



Cable Terminal Connections LTS-400/2/3

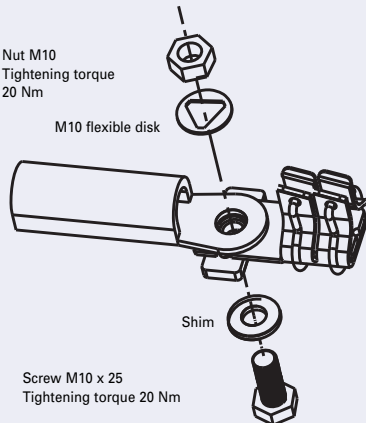
Screw connection

Screw M10 x 25
Tightening torque
20 Nm



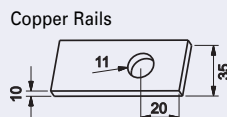
Bolt connection

Nut M10
Tightening torque
20 Nm



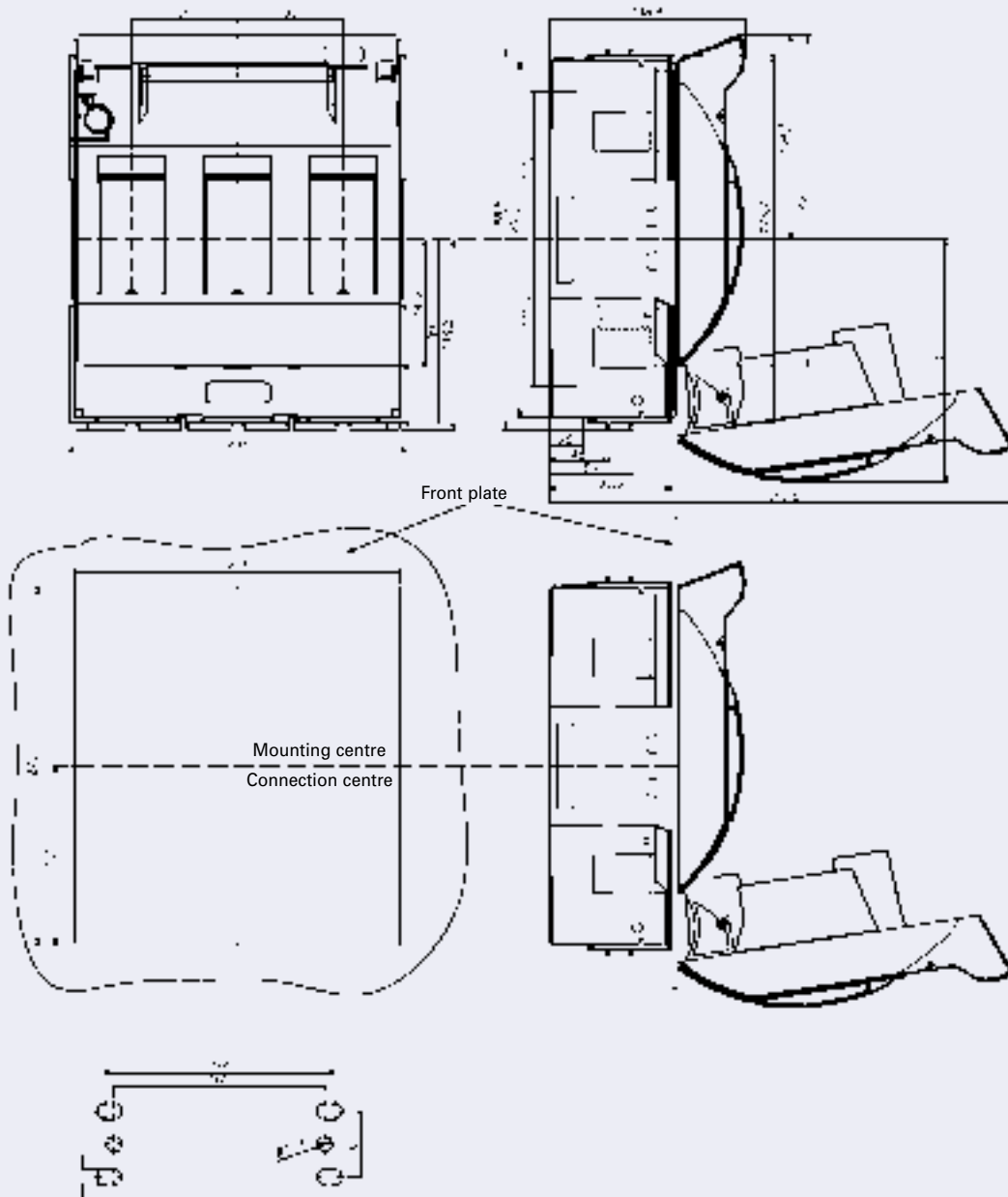
Screw- and bolt connection

Suitable for lugs according to:
DIN 46235 max. 10-185 mm²
DIN 46234 max. 10-240 mm²
DIN 46329 max. 10-240 mm²



Dimensions (mm)

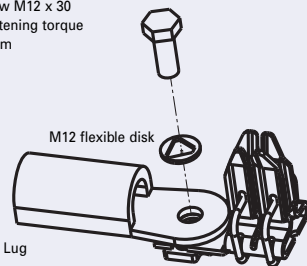
LTS-630/3/3



Cable Terminal Connections LTS-630/3/3

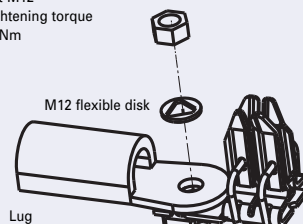
Screw connection

Screw M12 x 30
Tightening torque
35 Nm

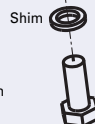


Bolt connection

Nut M12
Tightening torque
35 Nm



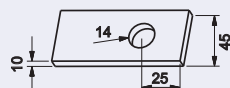
Screw M12 x 30
Tightening torque 35 Nm



Screw- and bolt connection

Suitable for lugs according to:
DIN 46235 max. 10-240 mm²
DIN 46234 max. 10-240 mm²
DIN 46329 max. 10-300 mm²

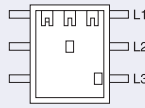
Copper Rails



Busbar Adapter Z-LTS-...-SAD/100-KR, 3-pole

- For the drill-free mounting of LTS fuse-switch-disconnectors on busbar systems with a distance between busbars of 100 mm
- Mounting requires little time and space
- Connection on top or bottom possible

Connection diagram

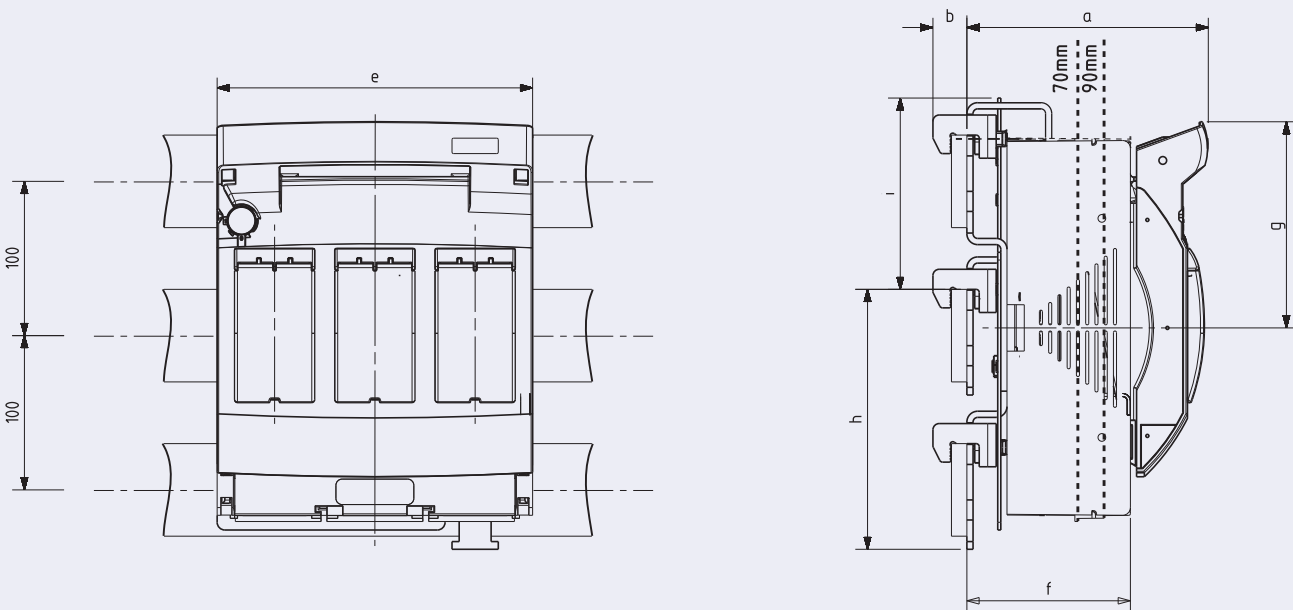


Technical Data

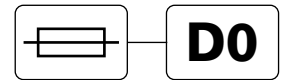
Adapter	Size	Distance between Busbars	Mounting	Max. Busbar Cross Section
Z-LTS-250-SAD/100-KR	1	100 mm	Hex screw M10 15 Nm	60 x 10 mm
Z-LTS-400-SAD/100-KR	2	100 mm	Hex screw M10 15 Nm	60 x 10 mm
Z-LTS-630-SAD/100-KR	3	100 mm	Hex screw M10 15 Nm	60 x 10 mm

Dimensions (mm)

Symmetrical adapter, same dimensions for cable connection on top or bottom



Adapter	Size	NH-Fuse-Switch-Disconnecter	a	b	e	f	g	h	i
Z-LTS-250-SAD/100-KR	1	LTS-250/1/3	137	22	185	91	127	168,5	121
Z-LTS-400-SAD/100-KR	2	LTS-400/2/3	157	22	204,5	106	134	168,5	124
Z-LTS-630-SAD/100-KR	3	LTS-630/3/3	174,5	22	256	122	155	168,5	124



Fuse-Links Z-D0./SE

- According to DIN VDE 0636, DIN 49522
- For fuse-switch-disconnectors Z-SLS, -SLK
- For fuse-bases D0.-SO and Z-D02/R/3

Connection diagram



Technical Data

Electrical

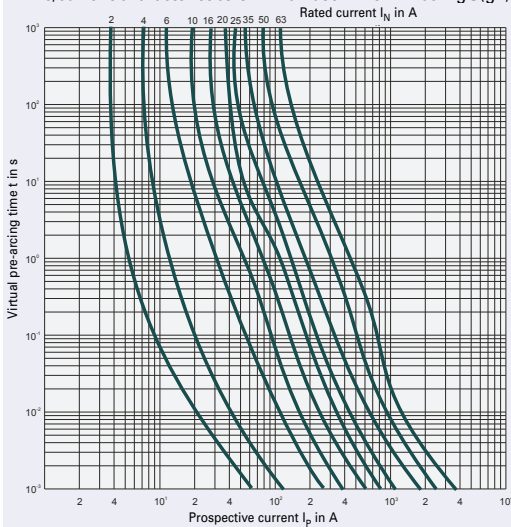
Operating class	gG (gL)
Rated voltage	
AC	400 V
DC	220 V
Rated frequency	45-65 Hz
Rated insulation voltage U_i	2500 V
Rated short-circuit breaking capacity	50kA (AC), 8kA (DC)

Mechanical

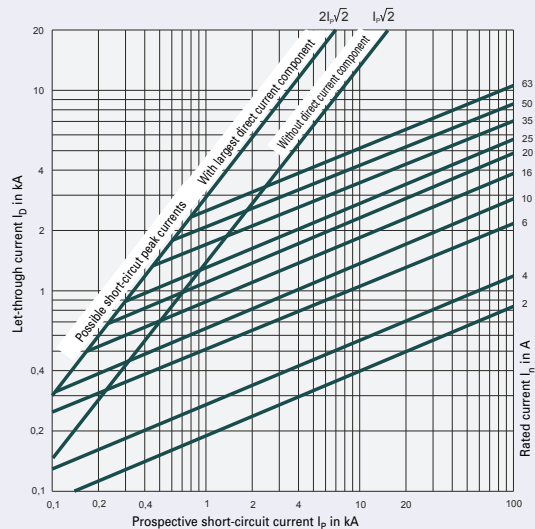
Size	
D01	1, 2, 4, 6, 10, 13, 16 A
D02	20, 25, 32, 35, 40, 50, 63 A

Characteristics Z-D0./SE

Time/current characteristics of Z-D0-Fuse-links 2 ... 63A gG(gL)



Let-through characteristics of Z-D0-Fuse-links 2 ... 63A gG(gL)



Cartridge Ring Adapter Insert Z-D0./PE, Z-D02-D01/PE

- According to DIN 49523
- Used for current coding of D0.-SO, Z-D02/R/3, Z-SLS/CB

Technical Data

Electrical

Rated current	
D01	2 - 10 A
D02	20 - 50 A
D02-D01	2 - 16 A

Screw Caps Z-D0./SK

- Used for D0.-SO, Z-D02/R/3
- Adapter spring Z-D02/SIKA-HF for application of D01 fuse-links into the screw cap Z-D02/SK available

Technical Data

Electrical

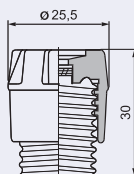
Rated current	
D01	max. 16 A
D02	max. 63 A

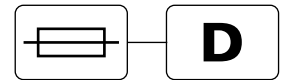
Mechanical

Electrical thread	
D01	E14
D02	E18

Practical Hint

A complete and functioning D-fuse system consists of base + fuse-link + cartridge-ring adapter insert + screw cap. The cartridge-ring adapter insert is not required for the highest rated current of each size (D01...16A and D02...63A).





Fuse-Links Z-DII./SE

- According to DIN EN 60269-1 (VDE 0636 Part 10), DIN EN 60269-3 (VDE 0636 Part 30), DIN VDE 0636-301, CEE 16, IEC/EN 60269-1, IEC/EN 60269-3
- For fuse-bases DII-SO..., DIII-SO...

Connection diagram



Technical Data

Electrical

Operating class	gG (gL), DZ
Rated voltage U_n	
AC	500 V
DC	400 V
Rated frequency	45-65 Hz
Insulating class	C-VDE0110
Rated short-circuit breaking capacity at $1.1 \times U_n$	
AC	50 kA / $\cos \varphi = 0.2$
DC	8 kA / $\tau = 15$ ms

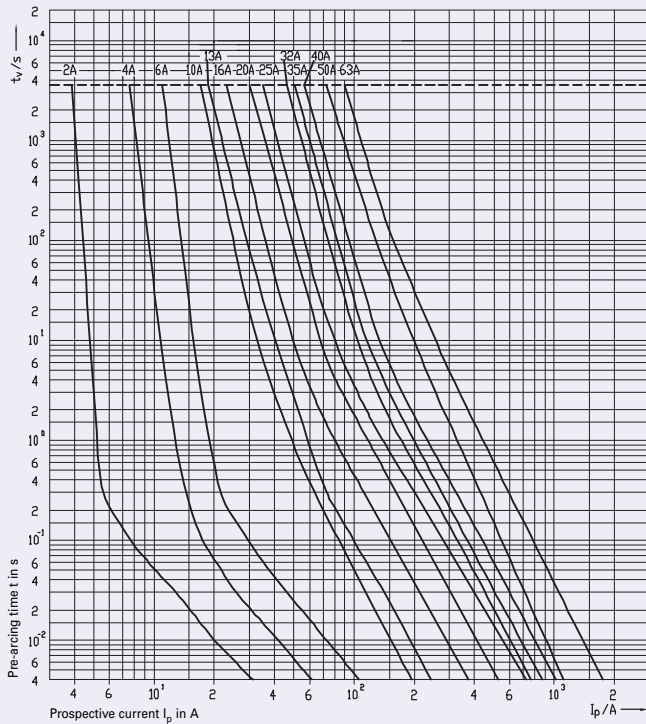
Dimensions (mm)

I_n (A)	$\varnothing A$	$\varnothing B$
DII for fuse-base E27		
2	21,5	6
4	21,5	6
6	21,5	6
10	21,5	8
16	21,5	10
20	21,5	12
25	21,5	14
DIII for fuse-base E33		
35	27	16
50	27	18
63	27	20

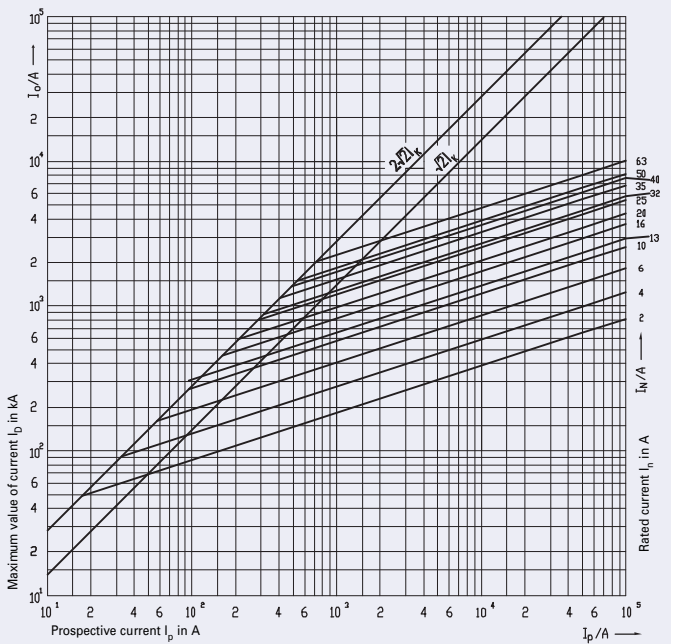


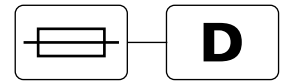
Characteristics Z-DII./SE

Time/current characteristics of Z-DII-Fuse-links 2 ... 63A gG(gL)



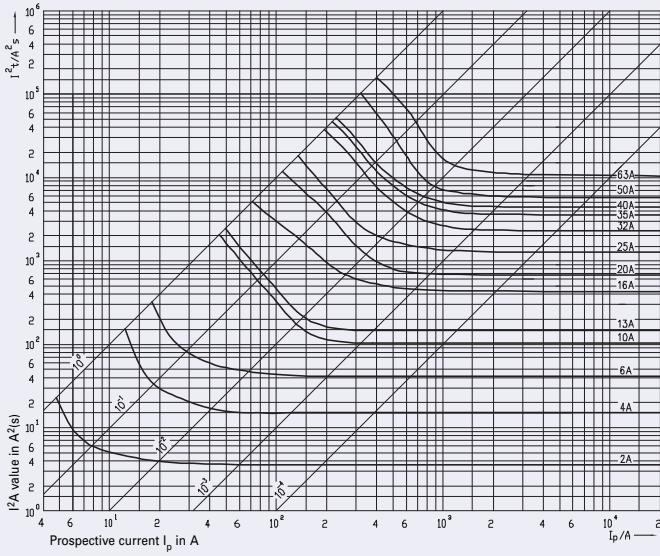
Let-through current characteristics of Z-DII-Fuse-links 2 ... 63A gG(gL)



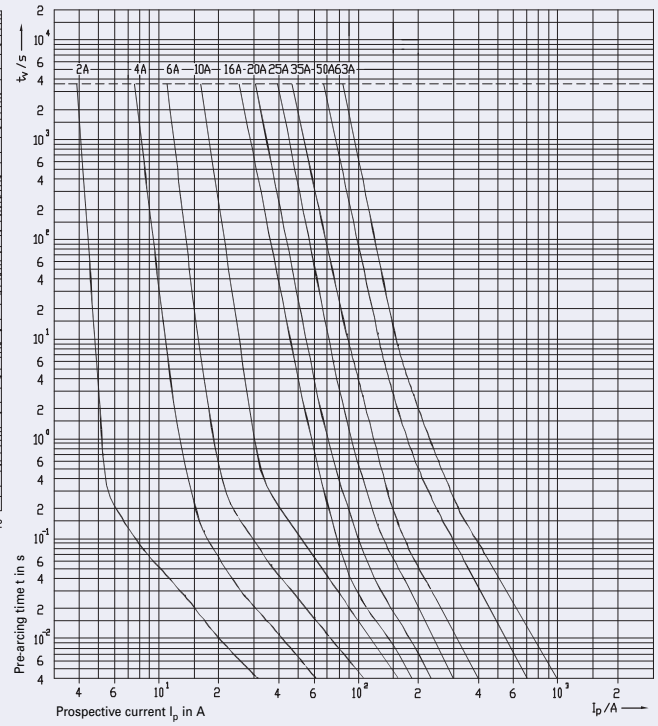


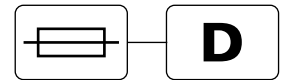
Characteristics Z-DII./SE

Melting energy characteristics I^2t/A of Z-DII-Fuse-links 2 ... 63A gG(gL)



Time/current characteristics of Z-DII-Fuse-links 2 ... 63A DZ





Gauge Ring Z-DII./PE

- Used for current coding of DII.-SO/...

Technical Data

Electrical

Rated current	
DII	2 - 20 A
DIII	2 - 50 A

Screw-in Gauge Ring Z-DII./PS

- Used for current coding of DII.-SO/...-PS

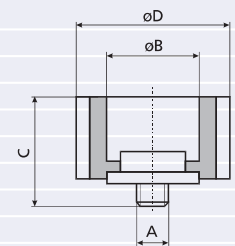
Technical Data

Electrical

Rated current	
DII	2 - 25 A
DIII	35 - 63 A

Dimensions (mm)

I_n (A)	A	B	C	D
DII for fuse-base E27				
2	3/16"	6.5	17	24
4	3/16"	6.5	17	24
6	3/16"	6.5	17	24
10	3/16"	8.5	17	24
16	3/16"	10.5	17	24
20	3/16"	12.5	17	24
25	3/16"	14.5	17	24
DIII for fuse-base E33				
35	3/16"	16.5	17	24
50	3/16"	18.5	17	24
63	3/16"	20.5	17	24



Screw Caps Z-DII./SK

- Used for DII.-SO

Technical Data

Electrical

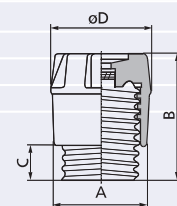
Rated current	
DII	max. 25 A
DIII	max. 63 A
Rated voltage	
Z-DII/SK	500 V AC / 400 V DC
Z-DIII/SK	500 V AC / 400 V DC
Z-DIII/SK-690	690 V AC

Mechanical

Electrical thread	
DII	E27
DIII	E33

Dimensions (mm)

I_n (A)	A	B	C	D
Z-DII/SK	34	44	12	35
Z-DIII/SK	43	44	12	43
Z-DIII/SK-690	43	65	12	43

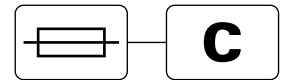


Practical Hint

A complete and functioning D-fuse system consists of

- base for screw-in gauge ring + fuse-link + screw-in gauge ring + screw cap
- base for gauge ring + fuse-link + gauge ring + screw cap

The gauge ring is not required for the highest rated current of each size (DII ... 25 A and DIII ... 63 A).



Fuse-Links Z-C../SE

- According to IEC 60269-1 and IEC 60269-2-1
- For fuse-switch-disconnectors C10-SLS, VLC, C10-CCI
- Operating classes gG (gL) and aM available

Connection diagram



Technical Data

Electrical	Z-C10/SE 10x38	Z-C14/SE 14x51	Z-C22/SE 22x58
Operating class	gG (gL)	gG (gL)	gG (gL)
Rated voltage U_n	1 - 25 A / 500 V AC 32 A / 400 V AC	2 - 32 A / 690 V AC 40 - 50 A / 500 V AC	16 - 40 A / 690 V AC 50 - 100 A / 500 V AC
Operating class	aM	aM	aM
Rated voltage U_n	1 - 16 A / 500 V AC 20 - 32 A / 400 V AC	2 - 25 A / 690 V AC 32 - 50 A / 500 V AC	16 - 50 A / 690 V AC 80 - 100 A / 500 V AC
Rated frequency	50 Hz	50 Hz	50 Hz
Rated short-circuit breaking capacity	100 kA	100 kA	100 kA

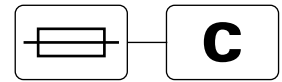
Max. Power dissipation

Operating class gG - Power dissipations 400 V / 500 V / 690 V

Rated current I_n	max. 3 W acc. IEC 60269-2 10x38	max. 5 W acc. IEC 60269-2 14x51	max. 9,5 W acc. IEC 60269-2 22x58
1	0,55		
2	0,90	1,45	
4	1,45	1,60	
6	1,55	1,95	
8	1,05	1,40	
10	1,10	1,45	
12	1,55	1,95	
16	2,85	3,00	3,05
20	2,80	3,15	3,40
25	2,95	4,10	4,40
32	3,00	4,80	5,10
40		4,75	7,20
50		4,95	7,60
63			8,00
80			8,20
100			9,40

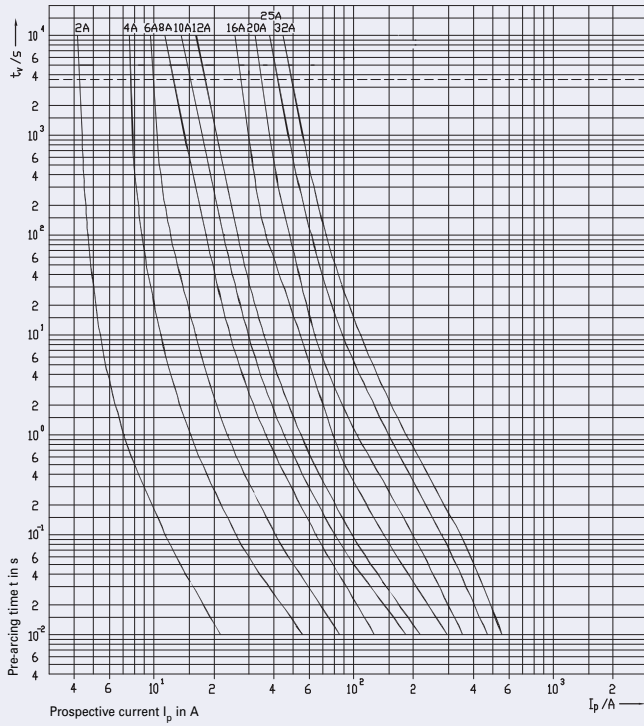
Dimensions (mm)

Type	Size	a	$b_{max.}$	c	$d_{min.}$	r
Z-C10	10x38	38.0±0.6	10.5	10.3±0.1	6	1.5±0.5
Z-C14	14x51	51.0+0.6/-1	13.8	14.3±0.1	7.5	2±0.5
Z-C22	22x58	58.0+1/-2	16.2	22.2±0.1	11	2±0.5

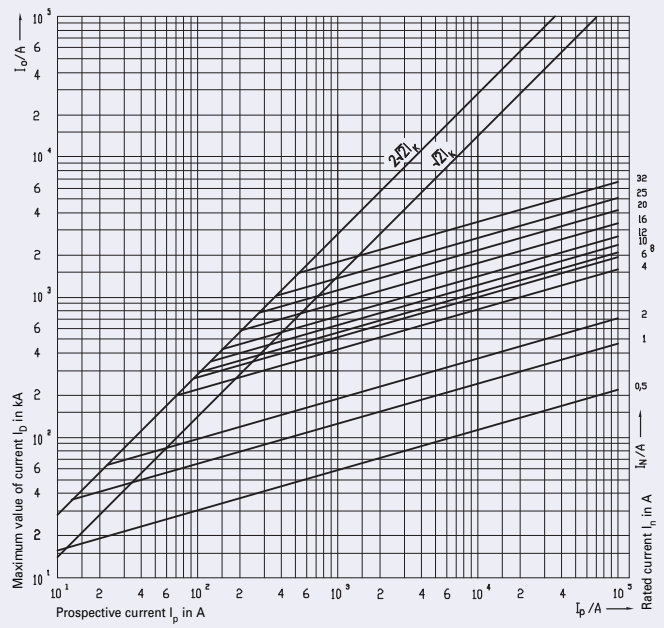


Characteristics Z-C10/SE, Operating class gG, 10x38

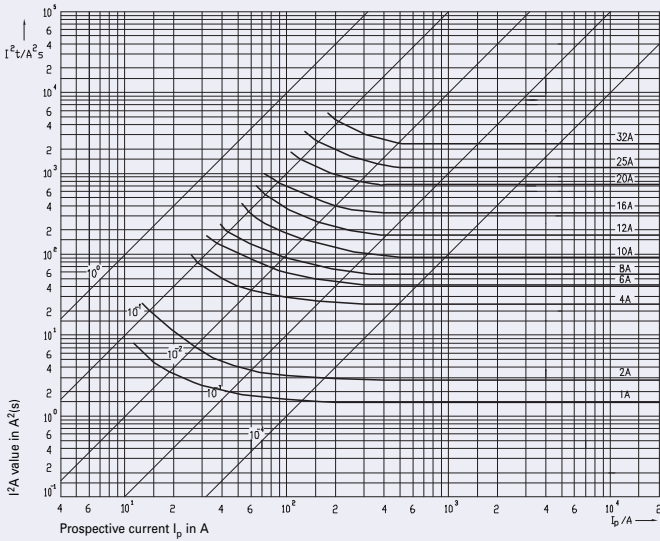
Time/current characteristics of Z-C10-Fuse-links 2 ... 32A gG(gL)

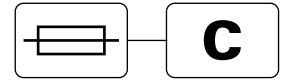


Let-through current characteristics of Z-C10-Fuse-links 2 ... 32A gG(gL)



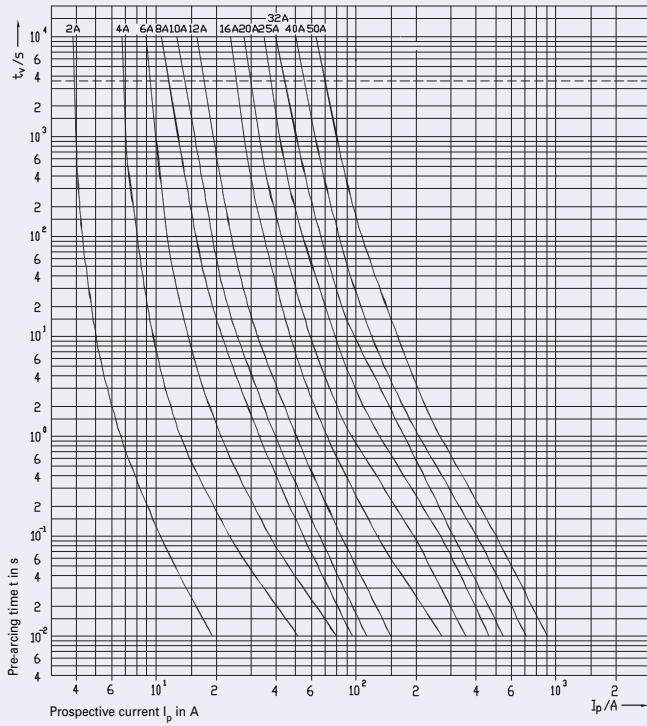
Melting energy characteristics I^2t/A of Z-C10-Fuse-links 1 ... 32A gG(gL)



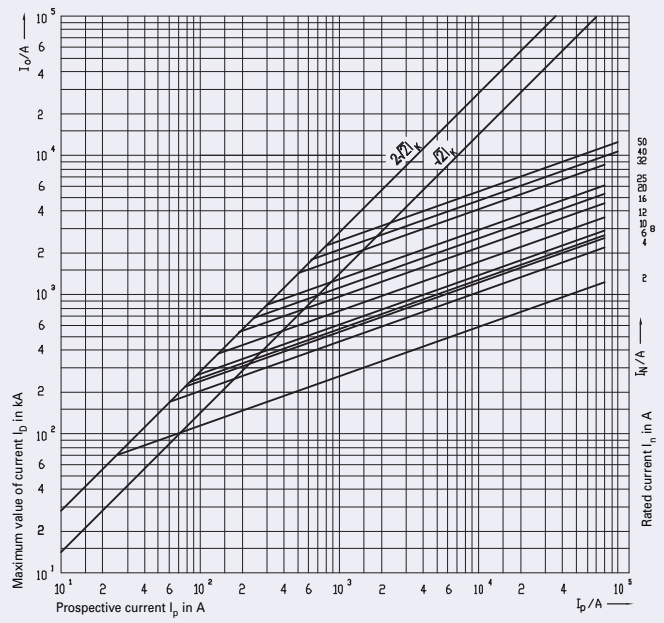


Characteristics Z-C14/SE, Operating class gG, 14x51

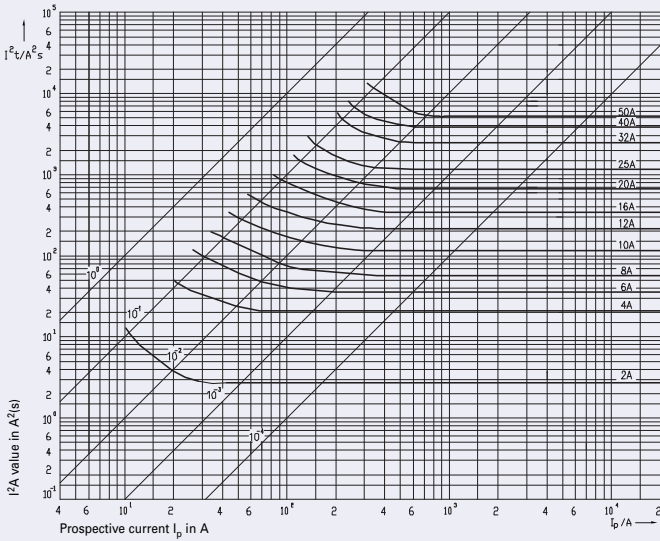
Time/current characteristics of Z-C14-Fuse-links 2 ... 50A gG(gL)

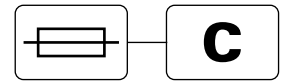


Let-through current characteristics of Z-C14-Fuse-links 2 ... 50A gG(gL)



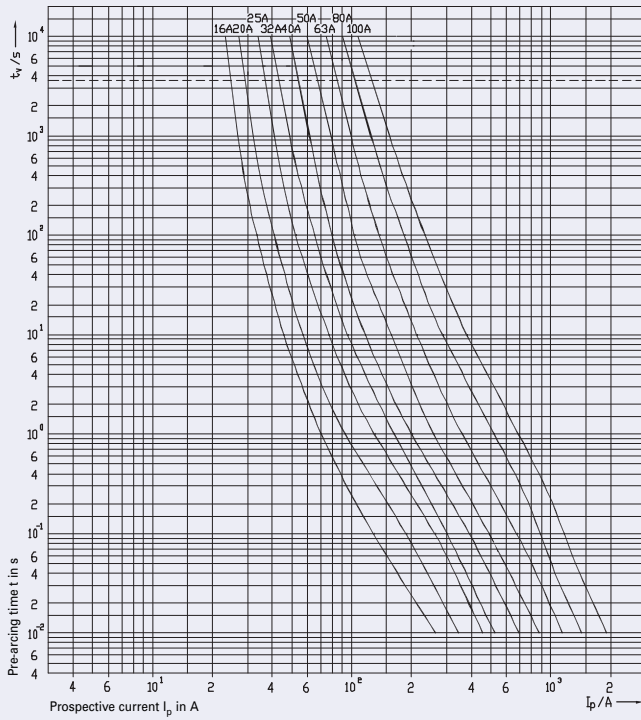
Melting energy characteristics I^2t/A of Z-C14-Fuse-links 2 ... 50A gG(gL)



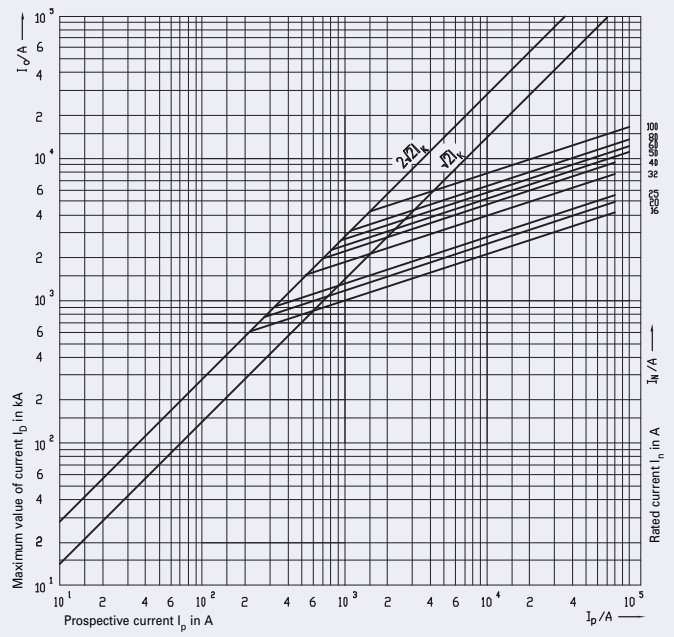


Characteristics Z-C22/SE, Operating class gG, 14x51

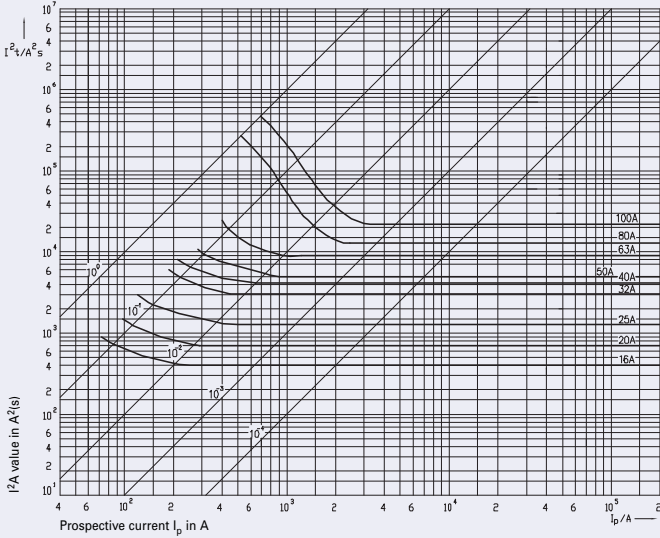
Time/current characteristics of Z-C22-Fuse-links 16 ... 100A gG(gL)

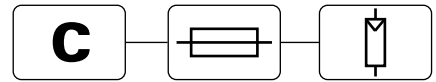


Let-through current characteristics of Z-C22-Fuse-links 16 ... 100A gG(gL)



Melting energy characteristics I^2t/A of Z-C22-Fuse-links 16 ... 100A gG(gL)





Fuse-Links ASFLC10-..A-gPV-SOL Photovoltaic application

- According to IEC 60269-1 and IEC 60269-4
- For fuse-switch-disconnectors FCFDC10DI

Connection diagram



Technical Data

Electrical

ASFLC10-..A-gPV-SOL 10x38

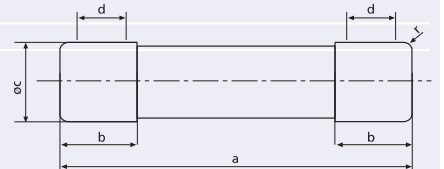
Rated voltage U_n	6 - 20 A / 1000 V DC 25 A / 900 V DC
Rated frequency	–
Rated short-circuit breaking capacity $\tau = L/R$	30 kA 2 ms

Max. Power dissipation

Rated current I_n	Pre-arcing Joule integral L/R = 2 ms	Operating Joule integral L/R = 2 ms	Power dissipation at $0.7 \times I_n$	Power dissipation at I_n	Weight
[A]	[A ² s]	[A ² s]	[W]	P_d [W]	P_d [g]
2	1.3	3.5	1.47	1.00	10
4	3.3	28	0.52	1.25	10
6	5.5	45	0.73	1.65	10
8	8	62	0.93	1.9	10
10	11	88	1.06	2.3	10
12	23	180	1.03	1.9	10
16	35	270	1.00	2.5	10
20	50	430	1.18	3.25	10
25	75	620	1.25	3.45	10

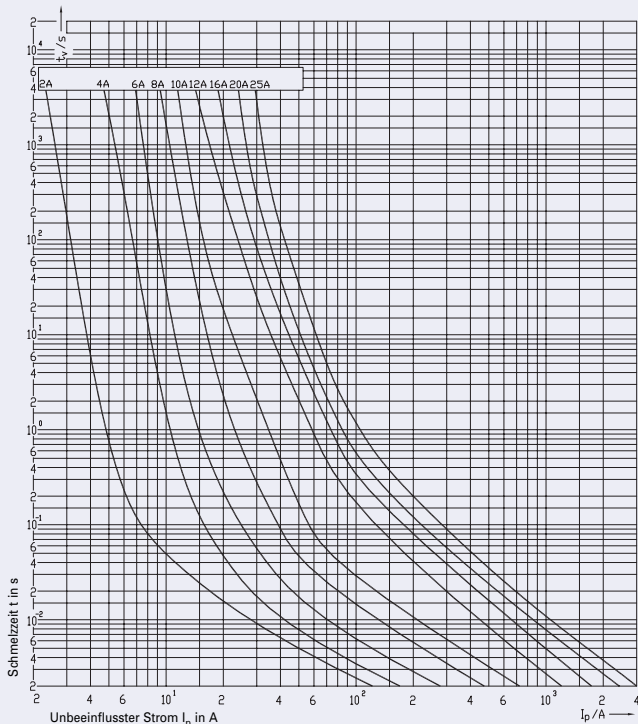
Dimensions (mm)

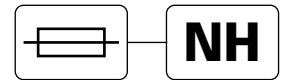
Type	Size	a	$b_{max.}$	c	$d_{min.}$	r
ASFLC10	10x38	38.0±0.6	10.5	10.3±0.1	6	1.5±0.5



Characteristics ASFLC10-..A-gPV-SOL, Photovoltaic application

Time/current characteristics of ASFLC10-..A-gPV-SOL Fuse-links 2 ... 25A





NH-Fuse-Links Z-NH

- Design according to ÖVE-SN 40, IEC 60269, VDE 0636, SEV 1066
- Dimensions according to Austrian standard ÖNORM E-6020, DIN 43.620
- NH-fuse-links of operating class gG/gL are used for line protection. They reliably disconnect overcurrent and short-circuit current above the permitted levels up to the nominal breaking current.
- gG/gL NH-fuse-links also protect electrical systems and equipment against the electrodynamic effects of high short-circuit currents.
- Insulating bodies of steatite/corderite
- Full contact blade of silver-plated copper
- Double blow-out indicator (flat indicator and centre indicator), live grips
- Corrosion-proof
- NH-fuse-links have a selectivity of 1:1.6 (ratio of the series-connected nominal currents), permitting optimum utilization and protection of line cross-sections.
- Strict current limitation permits reduced mechanical dimensions of electrical systems
- High breaking capacity of 120 kA

Connection diagram

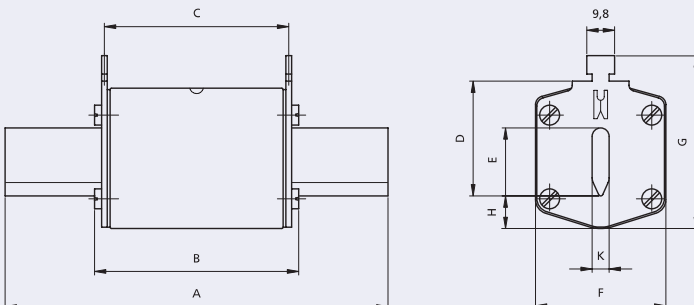


Technical Data

	Z-NH-00/	Z-NH-1/	Z-NH-2/	Z-NH-3/
Electrical				
Nominal voltage				
AC	500 V AC	500 V AC	500 V AC	500 V AC
DC	230 V DC	440 V DC	440 V DC	440 V DC
Nominal current	25-160 A	50-250 A	100-400 A	250-630 A
Rated frequency	45-62 Hz	45-62 Hz	45-62 Hz	45-62 Hz
Nominal breaking capacity				
AC	120 kA	120 kA	120 kA	120 kA
DC	25 kA	25 kA	25 kA	25 kA
Max. Power loss				
$I_n = 10 A$	1.1 W	-	-	-
16 A	1.6 W	-	-	-
20 A	1.7 W	-	-	-
25 A	1.9 W	-	-	-
35 A	3.0 W	-	-	-
40 A	3.5 W	-	-	-
50 A	4.6 W	5.4 W	-	-
63 A	5.4 W	6.3 W	-	-
80 A	5.1 W	7.2 W	-	-
100 A	6.9 W	8.6 W	8.8 W	-
125 A	10.3 W	11.9 W	12.1 W	-
160 A	11.0 W	13.9 W	14.0 W	-
200 A	-	15.2 W	15.2 W	-
250 A	-	21.8 W	21.8 W	19.4 W
315 A	-	-	23.7 W	23.7 W
400 A	-	-	30.5 W	30.5 W
500 A	-	-	-	42.0 W
630 A	-	-	-	47.0 W

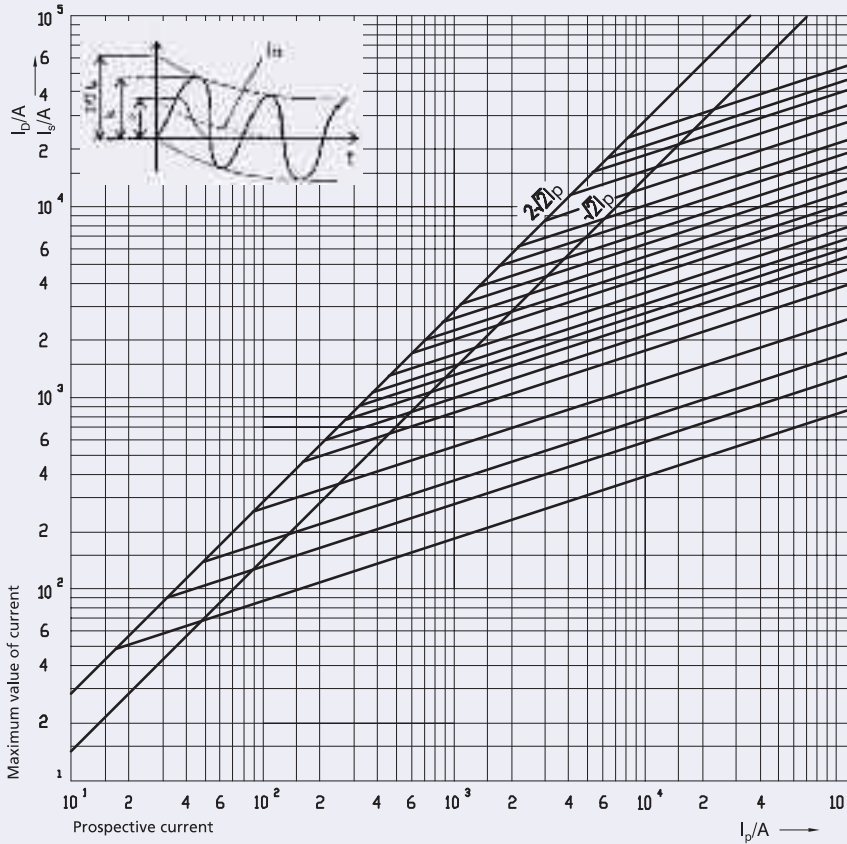
Dimensions (mm)

Type	Size	A	B	C	D	E	F	G	H	K	
Z-NH-00/	up to 100 A	000	79	53	47	35	15	21	52	7.5	6
	125 - 160 A	00	79	53	47	35	15	28	56	12	6
Z-NH-1/	up to 160 A	1C	135	68	65	40	15	28	61	12	6
	200 - 250 A	1	135	72	65	40	20	46	65	14	6
Z-NH-2/	up to 250 A	2C	150	72	65	48	20	46	73	14	6
	315 - 400 A	2	150	72	65	48	26	54	73	14	6
Z-NH-3/	up to 400 A	3C	150	72	65	60	26	54	84	14	6
	500 - 630 A	3	150	72	65	60	33	65	84	14	6

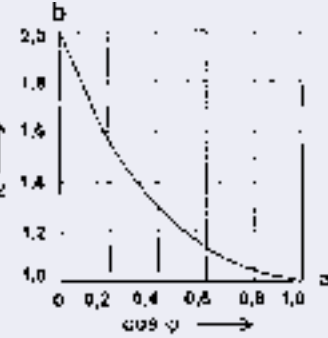


Let-through Current Characteristic, Current Limitation Diagram

The characteristic shows the limited let-through current values (peak values) depending on the prospective short-circuit current (r. m. s.) under unfavourable connection conditions and depending on the respective nominal current.



Correction Factor for DC Component



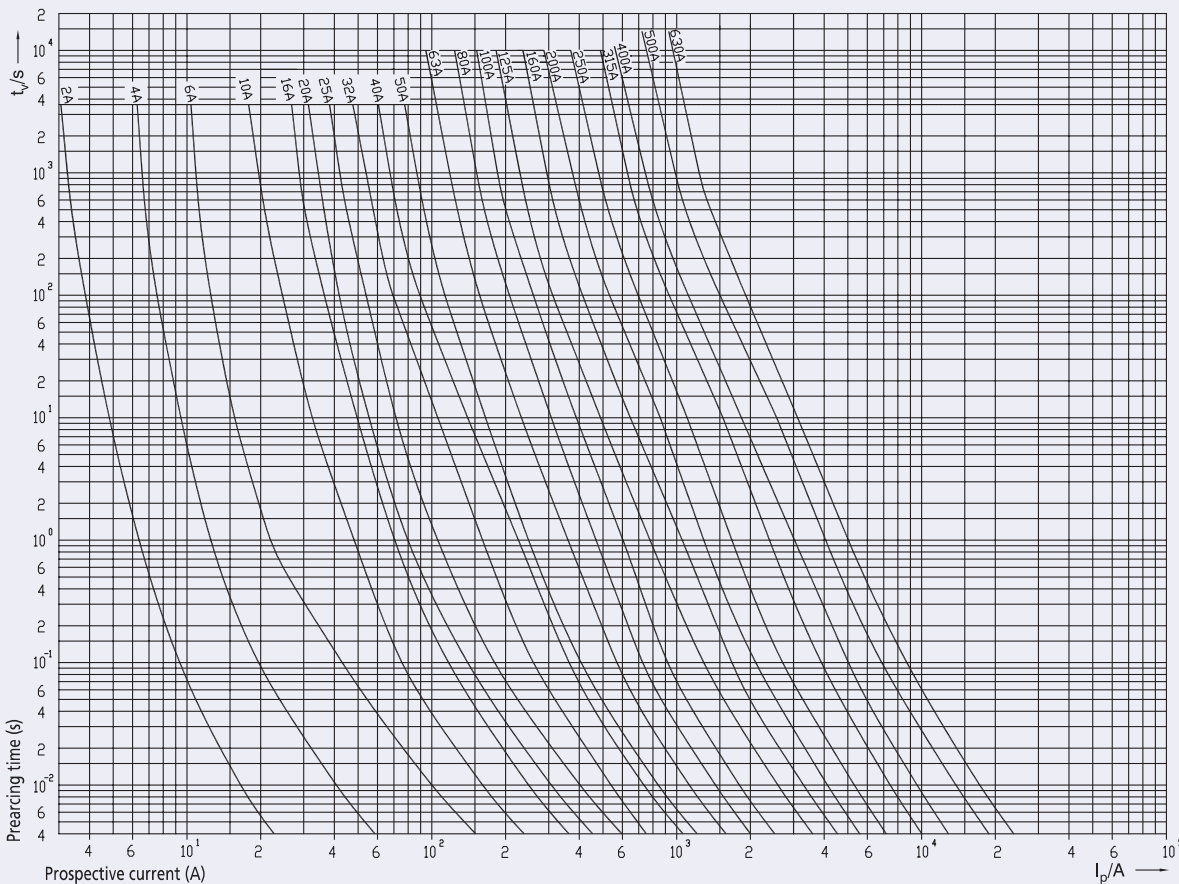
a Surge short-circuit current without DC component ($\kappa = 1$)
 b Surge short-circuit current with maximum DC component ($\kappa = 2$)

I_D let-through current
 I_G declining DC component
 I_p prospective short-circuit current
 I_s surge short-circuit current = $I_p \cdot \kappa$
 κ $\kappa = 2$ for $\cos \varphi = 0$, $\kappa = 1$ for $\cos \varphi = 1$

Time-Current Characteristics

For NH-fuse-links 2 - 630 A operating class gL/gG

The time-current characteristics are valid at an ambient temperature of $20 \pm 5^\circ\text{C}$ and for the cable (line) cross-sections assigned in the regulations for test arrangements.

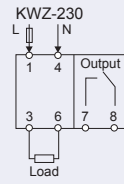


Measuring Instruments

Power Meter KWZ

- Power meter according to IEC/EN 61036 for sub-measurement
- For active energy
- 3-phase AC types also suitable for uneven load
- **Type KWZ-230:** single-phase kWh-meter
- **Type Z-KWZ-3PH:** for 4-wire 3-phase AC system with external transducer X/5A; Type Z-MG/WA.
Transducer ratios according to table
- **Type Z-KWZ-3PH-25:** For 4-wire 3-phase AC system with direct connection

Connection diagram



Technical Data

KWZ-230

Electrical

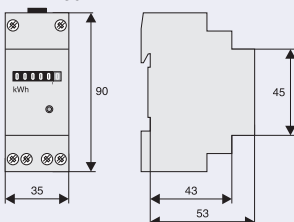
Rated voltage U_n	230 V AC
Working range	0.9 - 1.2 x U_n
Rated current I_b	10A, direct
Maximum current I_{max}	40 A
Rated frequency	50/60Hz
Overload short time	-
Back-up fuse	MCB: C40 40 A gG/gL
Sealable	no
Auxiliary voltage	from measurement
Power consumption	-
Power loss	2 W
Input signal	sinusoidal
Power factor	$\cos\phi=0.5$ inductive to $\cos\phi=0.8$ capacitive
Accuracy class	1
Resolution	0.1 kWh
LED signal	640 pulse/kWh
Own consumption per phase	<8 VA
DIP adjustment switch for transducer ratios	-
Pulse output rated values	5-48V DC, 50mA
Pulse value (jumper)	10 pulse/kWh
Switching contact (potential-free)	1 NO
Rated peak withstand voltage (1.2/50) μ s	5 kV
Test voltage 50Hz/1min.	2.5 kV

Mechanical

Frame size	45 mm
Device height	90 mm
Device width	35 mm (2MU)
Weight	180 g
Calibrateable	no
Display	5+1 digit
Maximum display reading	99999,9kWh
Height of figures	4 mm
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP51
Upper and lower terminals	lift terminals
Terminal capacity	12mm ² (2.5mm ² pulse-outp.)
Tightening torque of terminal screws	2 Nm
Permitted relative humidity	90%
Perm. ambient temperature range	-5 to +55°C
Flame class acc. to UL 94	V0

Dimensions (mm)

KWZ-230



Measuring Instruments

Power Meter KWZ-3PH

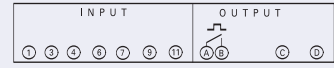
- Power meter according to EN 62053 for sub-measurement
- For active/reactive energy
- For unbalanced load
- Programming by front keyboard, 2 keys
- Sealability front frame and terminal

Connection diagram

KWZ-3PH



KWZ-3PH-63



Technical Data

	KWZ-3PH	KWZ-3PH-63
Electrical		
Rated voltage U_n	230-240/400-415 V AC	230-240/400-415 V AC
Working range	110-254/190-440 V AC	110-254/190-440 V AC
Rated current I_b	1 and 5 A	10 A
Maximum current I_{max}	6 A	63 A
Maximum back-up fuse	MCB: B10 or 10A gG/gL (only voltage pathes)	MCB: C63 or 63A gG/gL
Rated frequency	50 and 60 Hz	50 and 60 Hz
Frequency range	47-63 Hz	47-63 Hz
Power consumption per phase (current path)	≤ 0.5 VA (each phase)	≤ 4 VA (each phase)
Overcurrent short time	$20 \times I_{max} / 0.5$ s	$30 \times I_{max} / 10$ ms
Auxiliary voltage	from measurement	from measurement
Input signal	sinusoidal	sinusoidal
Accuracy class	1	1
Metering LED	1 pulse / 0.1 Wh	1 pulse / Wh
Pulse output rated values	max. 110V AC/DC, 50mA	max. 110V AC/DC, 50mA
Switching contact (potential-free)	Opto coupler	Opto coupler
	S0-Interface according DIN 43864 / EN 62053-31	S0-Interface according DIN 43864 / EN 62053-31
Pulse frequency (selectable)	1 pulse / 10Wh-100Wh-1kWh-10kWh optional 1 pulse / 10VArh-100VArh- 1kVArh-10kVArh	1 pulse / 1Wh-10Wh-100Wh-1kWh-10kWh optional 1 pulse / 10VArh-100VArh- 1kVArh-10kVArh
Pulse duration (selectable)	50-100-150-200-300-400-500 ms	50-100-150-200-300-400-500 ms
Programmable parameters	connection (1-phase, 3-phases 3- or 4-wire), external VT and CT-ratio, power demand, pulse output	connection (3-phases 3- or 4-wire), counting, power demand, pulse output
Overvoltage category	III	III
Insulation voltage rating (phase - phase)	450 V	300 V
Rated impulse withstand voltage (1.2/50) μ s	5 kV	5 kV
Test voltage		
Input/pulse-output	2.75 kV	2.75 kV
all circuits and earth	4 kV	4 kV
Protection class	II	II
Mechanical		
Frame size	45 mm	45 mm
Device height	89 mm	89 mm
Device width	71.2 mm	71.2 mm
Weight	260 g	260 g
Display	LCD 8 digit	LCD 8 digit
Digit height	6 mm	6 mm
Maximum display	setable	999999,99 kWh
Resolution	setable	10 W
Measurement display	subdivided on 6 pages	subdivided on 7 pages
Mounting	quick fastening on DIN rail IEC/EN 60715	
Degree of protection, front frame / terminals	IP52 / IP20	IP52 / IP20
Upper and lower terminals	screw terminals	screw terminals
Terminal capacity		
Current terminal	rigid cable 0.05-4mm ² flexible cable 0.05-2.5mm ²	input: rigid cable 1-10mm ² flexible cable 1-13mm ²
Voltage terminal	rigid cable 0.05-4mm ² flexible cable 0.05-2.5mm ²	output: rigid cable 1-4mm ² flexible cable 1-3mm ²
Permitted relative air humidity	suitable for tropical dissipation	suitable for tropical dissipation
Reference temperature	23°C \pm 2°C	23°C \pm 2°C
Perm. ambient temperature range	-5 to +55°C	-5 to +55°C
Storage and transportation temperature range	-25 to +70°C	-25 to +70°C
Pollution degree	2	2

Measuring Instruments

Dimensions (mm)



Wiring diagrams KWZ-3PH

1-phase



3-phases
3-wires
balanced



3-phases
3-wires
unbalanced



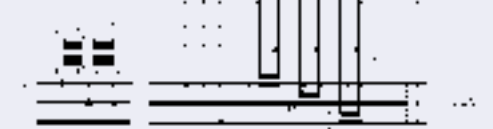
3-phases
3-wires
unbalanced



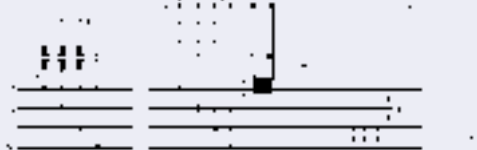
3-phases
3-wires
unbalanced



3-phases
3-wires
unbalanced



3-phases
4-wires
balanced

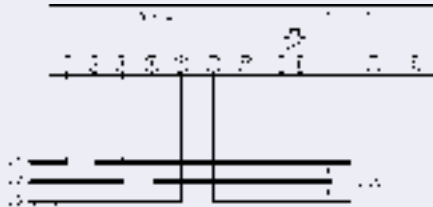


3-phases
4-wires
unbalanced



Wiring diagrams KWZ-3PH-63

3-phases
3-wires



3-phases
4-wires



Measuring Instruments

Energy-meters single-phase 32-40 A, EME

- Digital active energy meter with measurement I - U - Hz - PF measurement of active instantaneous power, by IR side set up communication - 1 tariff - 1 S0
- Active energy-meters for single-phase alternating current with a, 7 digits counter. These meters have 1 S0 output generating pulses for remote processing of the active energy measurements for 1 tariff.
- Display LCD
- For direct connection 32 A and 40 A
- 7 digits for energy values indication
- Accuracy class 1 for active energy according to EN 50470-3 (B)
- Most attractive operating range current ($I_{st} \dots I_{max}$) - for direct connection 32 A and 40 A = 0.020 ... 32 A or 40 A
- The standard versions are designed to be combined with the communication module
- Active energy register zero setting (not for MID types)
- Active energy register in T1 import/export
- Instantaneous power active import/export display
- Current RMS
- Voltage RMS
- Power factor
- Frequency
- FW release
- FW checksum
- 1 DIN modules wide (18 mm)

Technical Data

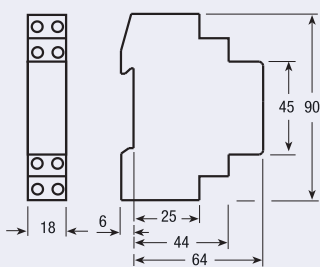
			EME1P32 direct connection 32 A	EME1P32MID direct connection 32 A	EME1P40 direct connection 40 A	EME1P40MID direct connection 40 A
Data in compliance with			EN 50470-1, EN 50470-3 and EN 62053-31			
General characteristics						
Housing	DIN 43880	DIN	1 modules		1 modules	
Mounting	EN 60715	35 mm	DIN rail		DIN rail	
Depth		mm	70		70	
Reference standard	active energy	-	EN 50470-1-3, EN 62053-31		EN 50470-1-3, EN 62053-31	
Operating features						
Connectivity	to single-phase network	n° wires	2		2	
Storage of energy values and configuration	FRAM memory	-	yes		yes	
Supply						
Rated control supply voltage U_n		VAC	230		230	
Operating range voltage		V	184 ... 276		184 ... 276	
Rated frequency f_n		Hz	50		50	
Rated power dissipation (max.) P_v		VA (W)	≤8 (0.6)		≤8 (0.6)	
Overload capability						
Voltage U_n	continuous	V	276		276	
	momentary (1 s)	V	300		300	
Current I_{max}	continuous	A	32		40	
	momentary (10 ms)	A	960		1200	
Display (readouts)						
Display type	LCD	n° digits	7 (2 decimals)		7 (2 decimals)	
	digit dimensions	mm x mm	6.00 x 3		6.00 x 3	
Active energy: 1 display, 7-digit		kWh	0.00 ... 999999.9		0.00 ... 999999.9	
Instantaneous tariff measurement		-	1		1	
	1 display, 1-digit	-	T1		T1	
Display period refresh		s	1		1	
Measuring accuracy at 23 ±1°C, referred to nominal values						
Active energy and power acc.to EN 50470-3		%	±1 (B)		±1 (B)	
Measuring input						
Type of connection	phase/N	-	direct		direct	
Operating range voltage	phase/N	V	184 ... 276		184 ... 276	
Current I_{ref}		A	5		5	
Current I_{min}		A	0.25		0.25	
Operating range current ($I_{st} \dots I_{max}$)	direct connection	A	0.02 ... 32		0.02 ... 40	
Frequency		Hz	50		50	
Input waveform		-	alternating		alternating	
Starting current for energy measurement (I_{st})		mA	20		20	
Pulse output S0 acc.to EN 62053-31						
Pulse output	for active energy	-	yes		yes	
Pulse quantity		Imp/kWh	1000		1000	
Pulse duration		ms	90		90	
Required voltage	min. (max.)	VAC (DC)	5 ... 230 ±5% (5 ... 300)		5 ... 230 ±5% (5 ... 300)	
Permissible current	pulse ON (max. 230 V AC/DC)	mA	90		90	
Permissible current	impuls OFF (leakage current max. 230 V AC/DC)	A	1		1	
Optical interfaces						
Front side (accuracy control)	LED	Imp/kWh	5000		5000	

Measuring Instruments

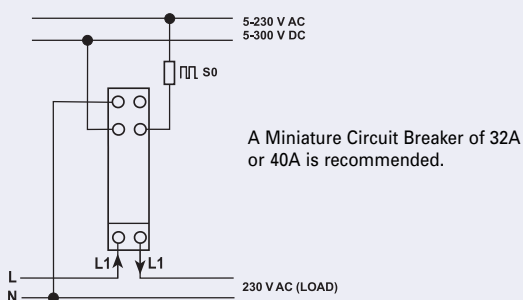
			EME1P32 direct connection 32 A	EME1P32MID	EME1P40 direct connection 40 A	EME1P40MID
Safety acc. to EN 50470-1						
Indoor meter	-	-	yes		yes	
Degree of pollution	-	-	2		2	
Operational voltage	V	-	300		300	
AC voltage test (EN 50470-3, 7.2)	kV	-	4		4	
Impulse voltage test	1.2/50 s-kV	-	6		6	
Protection class (EN 50470)	class	-	II		II	
Housing material flame resistance		-				
UL 94	class	-	V0		V0	
Safety-sealing between upper and lower housing part	-	-	no	yes	no	yes
Adaptor for Communication						
Plug-and-play technology	-	-	•		•	
LAN Interface (TCP/IP)	Ethernet 802.3	EMECLAN	10/100 Mbps		10/100 Mbps	
Modbus RTU, Ascii	RS-485 3 wires	EMECMODB	up to 19.200 bps		up to 19.200 bps	
M-Bus	RS-485 2 wires	EMECMBUS	up to 9.600 bps		up to 9.600 bps	
Connection terminals						
Type cage main current paths						
screw head Z +/-	POZIDRIV		PZ1		PZ1	
Type cage pulse output	blade for slotted screw	mm	PZ0		PZ0	
Terminal capacity main current paths						
solid wire min. (max.)	mm ²		16		16	
stranded wire with sleeve min. (max.)	mm ²		16		16	
Terminal capacity pulse outlet						
solid wire min. (max.)	mm ²		0.15 (2.5)		0.15 (2.5)	
stranded wire with sleeve min. (max.)	mm ²		0.15 (4)		0.15 (4)	
Environmental conditions						
Mechanical environment	-	-	M1		M1	
Electromagnetic environment	-	-	E2		E2	
Operating temperature	°C	-	-10 ... +55		-10 ... +55	
Limit temperature of transportation and storage	°C	-	-25 ... +70		-25 ... +70	
Relative humidity (not condensation)	%	-	≤80		≤80	
Vibrations	50 Hz sinusoidal vibration amplitude					
	mm		±0.075		±0.075	
Degree protectionhousing when mounted in front (terminal)	-	-	IP51*)/IP20		IP51*)/IP20	

*) For the installation in a cabinet at least with IP51 protection

Dimensions (mm)



Connection diagram



Measuring Instruments

Energy-meters single-phase 80 A, EME

- Digital active and reactive energy meter with measurement of active and reactive instantaneous power, by IR side set up communication - 2 tariffs - 2 S0
- Active and reactive (not for MID types) energy-meters for single-phase alternating current with either 1, 7 digits digital counters. These meters have 2 S0 output generating pulses for remote processing of the energy active and reactive measurements for 2 tariffs.
- Green backlit LCD
- For direct connection 80 A
- 7 digits for energy values indication
- Accuracy class 1 for active energy and power according to EN 50470-3 (B)
- Accuracy class 2 for reactive energy and power according to EN 62053-23
- Most attractive operating range current ($I_{st} \dots I_{max}$) for direct connection 80 A = 0.02 ... 80 A
- The standard versions are designed to be combined with the communication module
- Energy register zero setting (not for MID types)
- Energy register for import and export
- Instantaneous power active and reactive display (MID types: only active power)
- Sealable terminal covers
- 2 DIN modules wide (36 mm)

Technical Data

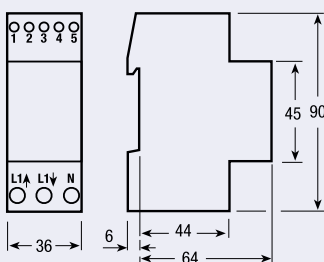
		EME1P80	EME1P80MID
		direct connection 80 A	
Data in compliance with		EN 50470-1, EN 50470-3, EN 62053-23 and EN 62053-31	
General characteristics			
Housing	DIN 43880	DIN	2 modules
Mounting	EN 60715	35 mm	DIN rail
Depth		mm	70
Reference standard	active energy	-	EN 50470-1-3, EN 62053-23-31
	reactive energy - pulse output		
Operating features			
Connectivity	to single-phase network	n° wires	2
Storage of energy values and configuration	digital display (EEPROM)	-	yes
Display tariffs identifier	for active and reactive energy	n° 2	T1 and T2
Supply			
Rated control supply voltage U_n		VAC	230
Operating range voltage		V	184 ... 276
Rated frequency f_n		Hz	50
Rated power dissipation (max.) P_v		VA (W)	≤8 (0.6)
Overload capability			
Voltage U_n	continuous	V	276
	momentary (1 s)	V	300
Current I_{max}	continuous	A	80
	momentary (10 ms)	A	2400
Display (readouts)			
Display type	LCD	n° digits	7 (1 decimal)
	digit dimensions	mm x mm	6.00 x 3
Active energy: 1 display, 7-digit	tariffs 1-2	kWh	000000.0 ... 999999.9
+ display import or export (arrow)	overflow	kWh	999999.9 ... 000000.0
Reactive energy: 1 display, 7-digit	tariffs 1-2	kvarh	000000.0 ... 999999.9
+ display import or export (arrow)	overflow	kvarh	999999.9 ... 000000.0
Instantaneous active power: 1 display, 3-digit		W, kW or MW	000 ... 999
Instantaneous reactive power: 1 display, 3-digit		var, kvar or Mvar	000 ... 999
Instantaneous tariff measurement		-	1
	1 display, 1-digit	-	T1 or T2
Display period refresh		s	1
Measuring accuracy at 23 ±1°C, referred to nominal values			
Active energy and power acc.to EN 50470-3		%	B
Reactive energy and power acc.to EN 62053-23		%	2
Measuring input			
Type of connection	phase/N	-	direct
Operating range voltage	phase/N	V	184 ... 276
Current I_{ref}		A	15
Current I_{min}		A	0.75
Operating range current ($I_{st} \dots I_{max}$)	direct connection	A	0.025 ... 80
Frequency		Hz	50
Input waveform		-	sinusoidal
Starting current for energy measurement (I_{st})		mA	25

Measuring Instruments

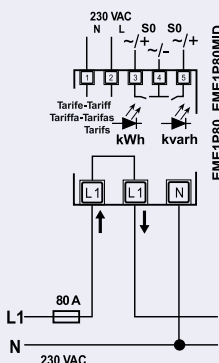
		EME1P80	EME1P80MID
		direct connection 80 A	
Pulse output S0	acc.to EN 62053-31		
Pulse output	for active and reactive energy T1 and T2	yes	
Pulse quantity	Imp/kWh	1000	
Pulse duration	ms	30 ±2 ms	
Required voltage	min. (max.) VAC (DC)	5 ... 230 ±5% (5 ... 300)	
Permissible current	pulse ON (max. 230 V AC/DC)	90	
Permissible current	impuls OFF (leakage current max. 230 V AC/DC)	1	
Optical interfaces			
Front side (accuracy control)			
	LED	Imp/kWh	1000
Safety acc. to EN 50470-1			
Indoor meter	-	yes	
Degree of pollution	-	2	
Operational voltage	V	300	
AC voltage test (EN 50470-3, 7.2)	kV	4	
Impulse voltage test	1.2/50 s-kV	6	
Protection class (EN 50470)	class	II	
Housing material flame resistance			
	UL 94	class	V0
Safety-sealing between upper and lower housing part	-	no	yes
Adaptor for Communication			
Plug-and-play technology			
LAN Interface (TCP/IP)	Ethernet 802.3	EMECLAN	10/100 Mbps
Modbus RTU, Ascii	RS-485 3 wires	EMECMODB	up to 19.200 bps
M-Bus	RS-485 2 wires	EMECMBUS	up to 9.600 bps
Connection terminals			
Type cage main current paths			
	screw head Z +/-	POZIDRIV	PZ2
Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5
Terminal capacity main current paths			
	solid wire min. (max.)	mm ²	1.5 (35)
	stranded wire with sleeve min. (max.)	mm ²	1.5 (35)
Terminal capacity pulse outlet			
	solid wire min. (max.)	mm ²	0.14 (2.5)
	stranded wire with sleeve min. (max.)	mm ²	0.14 (1.5)
Environmental conditions			
Mechanical environment	-	M1	
Electromagnetic environment	-	E2	
Operating temperature	°C	-10 ... +55	
Limit temperature of transportation and storage	°C	-25 ... +70	
Relative humidity (not condensation)	%	≤80	
Vibrations	50 Hz sinusoidal vibration amplitude	mm	±0.075
Degree protectionhousing when mounted in front (terminal)	-	IP51*)/IP20	

*) For the installation in a cabinet at least with IP51 protection

Dimensions (mm)



Connection diagram



A Miniature Circuit Breaker of 80A is recommended.

Measuring Instruments

Energy-meters single-phase 125 A, EME

- Digital active and reactive energy meter with measurement of active and reactive instantaneous power, by IR side set up communication - 2 tariffs
- Active energy-meters for single-phase alternating current with either 2, 8 digits digital counters. These meters have 2 S0 output generating pulses for remote processing of the energy active and reactive measurements for 2 tariffs.
- Green backlighted LCD
- For direct connection 125 A
- 8 digits for energy values indication
- Accuracy class 1 for active energy and power according to EN 50470-3 (B)
- Accuracy class 2 for reactive energy and power according to EN 62053-23
- Most attractive operating range current ($I_{st} \dots I_{max}$) for direct connection 125 A = 0.020 ... 125 A
- The standard versions are designed to be combined with the communication module
- Energy register zero setting (not for MID types)
- Energy register for import and export
- Instantaneous power active and reactive display
- Sealable terminal covers
- 3 DIN modules wide (52 mm)

Technical Data

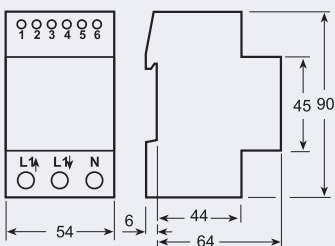
		EME1P125 EME1P125MID	
		direct connection 125 A	
Data in compliance with		EN 50470-1, EN 50470-3, EN 62053-23 and EN 62053-31	
General characteristics			
Housing	DIN 43880	DIN	3 modules
Mounting	EN 60715	35 mm	DIN rail
Depth		mm	70
Reference standard	active energy	-	EN 50470-1-3, EN 62053-23-31
	reactive energy - pulse output		
Operating features			
Connectivity	to single-phase network	n° wires	2
Storage of energy values and configuration	digital display (EEPROM)	-	yes
Display tariffs identifier	for active and reactive energy	n° 2	T1 and T2
Supply			
Rated control supply voltage U_n		VAC	230
Operating range voltage		V	184 ... 276
Rated frequency f_n		Hz	50
Rated power dissipation (max.) P_v		VA (W)	≤8 (0.6)
Overload capability			
Voltage U_n	continuous	V	276
	momentary (1 s)	V	300
Current I_{max}	continuous	A	125
	momentary (10 ms)	A	3750
Display (readouts)			
Display type	LCD	n° digits	8 (2 decimal)
	digit dimensions	mm x mm	6.00 x 3
Active energy: 1 display, 8 digit	tariffs 2	Wh	0.01
+ display import or export (arrow)	overflow	MWh	999999.99
Reactive energy: 1 display, 8 digit	tariffs 2	varh	0.01
+ display import or export (arrow)	overflow	Mvarh	999999.99
Instantaneous active power: 1 display, 3-digit		W, kW or MW	000 ... 999
Instantaneous reactive power: 1 display, 3-digit		var, kvar or Mvar	000 ... 999
Instantaneous tariff measurement		-	1
	1 display, 1-digit	-	T1 or T2
Display period refresh		s	1
Measuring accuracy at 23 ±1°C, referred to nominal values			
Active energy and power acc.to EN 50470-3		%	B
Reactive energy and power acc.to EN 62053-23		%	2
Measuring input			
Type of connection	phase/N	-	direct
Operating range voltage	phase/N	V	184 ... 276
Current I_{ref}		A	5
Current I_{min}		A	0.25
Operating range current ($I_{st} \dots I_{max}$)	direct connection	A	0.020 ... 125
Frequency		Hz	50
Input waveform		-	sinusoidal
Starting current for energy measurement (I_{st})		mA	20

Measuring Instruments

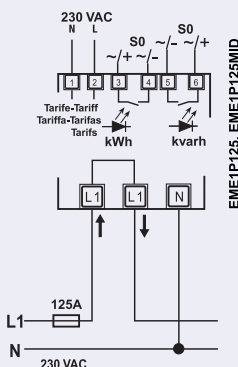
		EME1P125 EME1P125MID	
		direct connection 125 A	
Pulse output S0	acc.to EN 62053-31		
Pulse output	for active and reactive energy T1 and T2	yes	
Pulse quantity	Imp/kWh	1000	
Pulse duration	ms	30 ±2 ms	
Required voltage	min. (max.) VAC (DC)	5 ... 230 ±5% (5 ... 300)	
Permissible current	pulse ON (max. 230 V AC/DC)	mA	90
Permissible current	impuls OFF (leakage current max. 230 V AC/DC)	A	1
Optical interfaces			
Front side (accuracy control)			
	LED	Imp/kWh	1000
Safety acc. to EN 50470-1			
Indoor meter	-		yes
Degree of pollution	-		2
Operational voltage	V		300
AC voltage test (EN 50470-3, 7.2)	kV		4
Impulse voltage test	1.2/50 s-kV		6
Protection class (EN 50470)	class		II
Housing material flame resistance			
	UL 94	class	V0
Safety-sealing between upper and lower housing part	-		no yes
Adaptor for Communication			
Plug-and-play technology			
	-		•
LAN Interface (TCP/IP)	Ethernet 802.3	EMECLAN	10/100 Mbps
Modbus RTU, Ascii	RS-485 3 wires	EMECMODB	up to 19.200 bps
M-Bus	RS-485 2 wires	EMECMBUS	up to 9.600 bps
Connection terminals			
Type cage main current paths			
	screw head Z +/-	POZIDRIV	PZ2
Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5
Terminal capacity main current paths			
	solid wire min. (max.)	mm ²	1.5 (50)
	stranded wire with sleeve min. (max.)	mm ²	1.5 (50)
Terminal capacity pulse outlet			
	solid wire min. (max.)	mm ²	1 (4)
	stranded wire with sleeve min. (max.)	mm ²	1 (2.5)
Environmental conditions			
Mechanical environment	-		M1
Electromagnetic environment	-		E2
Operating temperature	°C		-10 ... +55
Limit temperature of transportation and storage	°C		-25 ... +70
Relative humidity (not condensation)	%		≤80
Vibrations	50 Hz sinusoidal vibration amplitude	mm	±0.075
Degree protectionhousing when mounted in front (terminal)	-		IP51*)/IP20

*) For the installation in a cabinet at least with IP51 protection

Dimensions (mm)



Connection diagram



A Miniature Circuit Breaker of 125A is recommended.

Measuring Instruments

Energy-meters three-phase, transformer 5 A, direct 80 A, EME

- Digital active and reactive energy-meter with measurement of active and reactive instantaneous power, by IR side set up communication - 2 tariffs - 2 S0 (MID types: displays only active power).
- Active energy-meters for three-phase alternating current with either 2, 8 digits digital counters. These meters have 2 S0 output generating pulses for remote processing of the instantaneous energy active and reactive measurements for 2 tariffs.
- Green backlighted LCD
- For direct connection 80 A, or for transformer .../5 A
- For transformer primary current of 5 A to 10.000/5 A. Input is in 5 A increments
- 8 digits - 8 display for energy values indication
- Detection of connection errors (phase transposition)
- Accuracy class 1 for active energy and power according to EN 50470-3 (B)
- Accuracy class 2 for reactive energy and power according to EN 62053-23
- Most attractive operating range current ($I_{st} \dots I_{max}$), for direct connection 80 A = 0.015 ... 80 A, for connection by CT .../5 A = 0.003 ... 5 A
- The standard versions are designed to be combined with the communication module
- Energy register zero setting (not for MID types)
- Energy register for import and export
- Instantaneous power active and reactive display (MID types: only active power)
- Sealable terminal covers
- 4 DIN modules wide (72 mm)

Technical Data

			EME3P80 direct connection 80 A	EME3P80MID CT connection till 10.000/5 A	EME3PCT	EME3PCTMID
Data in compliance with			EN 50470-1, EN 50470-3, EN 62053-23 and EN 62053-31			
General characteristics						
Housing	DIN 43880	DIN	4 modules	4 modules		
Mounting	EN 60715	35 mm	DIN rail	DIN rail		
Depth		mm	70	70		
Reference standard	active energy	-	EN 50470-1-3	EN 50470-1-3		
	pulse output		EN 62053-31	EN 62053-31		
Operating features						
Connectivity	to single/three-phase network					
		n° wires	2-4	4		
Storage of energy values and configuration	digital display (EEPROM)		-	yes		
Display tariffs identifier	for active and reactive energy					
		n° 2	T1 and T2	T1 and T2		
Supply						
Rated control supply voltage U_n		VAC	230	230		
Operating range voltage		V	184 ... 276	184 ... 276		
Rated frequency f_n		Hz	50	50		
Rated power dissipation (max. for phase) P_v		VA (W)	≤8 (0.6)	≤8 (0.6)		
Overload capability						
Voltage U_n	continuous; phase/phase	V	480	480		
	1 second: phase/phase	V	800	800		
	continuous; phase/N	V	276	276		
	1 second: phase/N	V	460	460		
Current I_{max}	continuous	A	80	6		
	momentary (0,5 s)	A	-	120		
	momentary (10 ms)	A	2400	-		
Display (readouts)						
Connection errors and phase out	discernible from phase-sequence indication					
		-	PHASE Err	PHASE Err		
Display type	LCD	n° digits	8 (2 decimal)	8 (2 decimal)		
	digit dimensions	mm x mm	6.00 x 3	6.00 x 3		
Active energy: 1 display, 8 digit	tariffs 2	Wh	0.01	0.01		
+ display import or export (arrow)	overflow	MWh	999999.99	999999.99		
Reactive energy: 1 display, 8-digit	tariffs 2	varh	0.01	0.01		
+ display import or export (arrow)	overflow	Mvarh	999999.99	999999.99		
Instantaneous active power: 1 display, 3-digit		W, kW or MW	000 ... 999	000 ... 999		
Instantaneous reactive power: 1 display, 3-digit		var, kvar or Mvar	000 ... 999	000 ... 999		
Instantaneous tariff measurement	1 display, 1-digit	-	T1 or T2	T1 or T2		
Transformer primary current		A	-	5 ... 10.000		
Display period refresh		s	1	1		
Measuring accuracy						
Active energy and power acc.to EN 50470-3		class 1	B	B		
Reactive energy and power acc.to EN 62053-23		class 2	2	2		

Measuring Instruments

			EME3P80	EME3P80MID	EME3PCT	EME3PCTMID
			direct connection	80 A	CT connection	till 10.000/5 A
Measuring input						
Type of connection			direct		transformer .../5 A	
Voltage U_n	phase/phase	V	400		400	
	phase/N	V	230		230	
Operating range voltage	phase/phase	V	319 ... 480		319 ... 480	
	phase/N	V	184 ... 276		184 ... 276	
Current I_{ref}		A	5		-	
Current I_n		A	-		5	
Current I_{min}		A	0.25		0.05	
Operating range current ($I_{st} \dots I_{max}$)	direct connection	A	0.015 ... 80		-	
	transformer connection (CT)	A	-		0.003 ... 6	
	primary current of the transformer	A	-		5 ... 10.000	
Transformer current	smallest input step adjustment	A	-		in 5 A steps	
		A	-		5	
		Hz	50		50	
Frequency		Hz	50		50	
Input waveform		-	sinusoidal		sinusoidal	
Starting current for energy measurement (I_{st})		mA	15		3	
Pulse output SO						
Pulse output	acc.to EN 62053-31					
Quantity pulse output	for act. and react. energy T1 and T2	Imp/kWh	500		-	
	for direct connection 80 A	Imp/kWh				
	depending on the transf. factor.					
Pulse duration		ms	30 ±2		100-10-1	
Required voltage	min. (max.)	VAC (DC)	5 ... 230 ±5% (5 ... 300)		5 ... 230 ±5% (5 ... 300)	
Permissible current	pulse ON (max. 230 V AC/DC)	mA	90		90	
		A	1		1	
Optical interfaces						
Front side (accuracy control)						
	LED	Imp/kWh	1000		10.000	
Safety acc. to EN 50470-1						
Indoor meter		-	yes		yes	
Degree of pollution		-	2		2	
Operational voltage		V	300		300	
AC voltage test (EN 50470-3, 7.2)		kV	4		4	
Impulse voltage test		1.2/50 s-kV	6		6	
Protection class (EN 50470)		class	II		II	
Housing material flame resistance	UL 94	class	V0		V0	
Safety-sealing between upper and lower housing part		-	yes	no	no	yes
Adaptor for Communication						
Plug-and-play technology		-	•		•	
LAN (TCP/IP) interface	Ethernet 802.3	EMECLAN	10/100 Mbps		10/100 Mbps	
Modbus RTU, Ascii interface						
M-Bus interface	RS-485 - 3 wires	EMECMODB	up to 19.200 bps		up to 19.200 bps	
	RS-485 - 2 wires	EMECMBUS	up to 9.600 bps		up to 9.600 bps	
Connection terminals						
Type cage main current paths						
	screw head Z +/-	POZIDRIV	PZ2		PZ1	
Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5		0.8 x 3.5	
Terminal capacity main current paths	solid wire min. (max.)	mm ²	1.5 (35)		1 (4)	
	stranded wire with sleeve min. (max.)	mm ²	1.5 (35)		1 (4)	
Terminal capacity pulse outlet	solid wire min. (max.)	mm ²	1 (4)		1 (4)	
	stranded wire with sleeve min. (max.)	mm ²	1 (2.5)		1 (4)	

Measuring Instruments

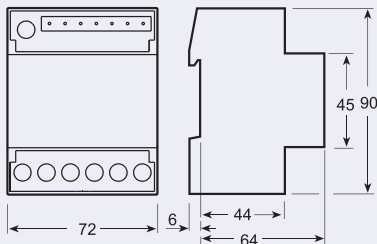
		EME3P80	EME3P80MID	EME3PCT	EME3PCTMID
		direct connection	80 A	CT connection	till 10.000/5 A
Environmental conditions					
Mechanical environment	-	M1		M1	
Electromagnetic environment	-	E2		E2	
Operating temperature	°C	-10 ... +55		-10 ... +55	
Limit temperature of transportation and storage	°C	-25 ... +70		-25 ... +70	
Relative humidity (not condensation)	%	≤80		≤80	
Vibrations	50 Hz sinusoidal vibration amplitude				
	mm	±0.075		±0.075	
Degree protection housing when mounted in front (terminal)	-	IP51*)/IP20		IP51*)/IP20	

*) For the installation in a cabinet at least with IP51 protection

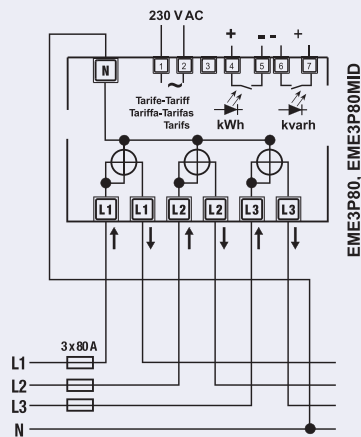
Direct connection 80 A

Dimensions (mm)

EME3P80, EME3P80MID

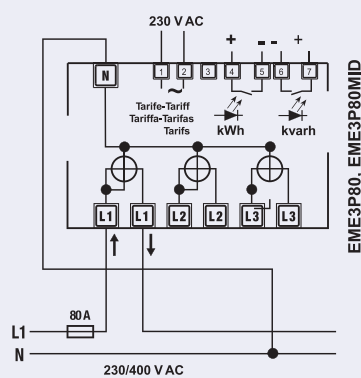
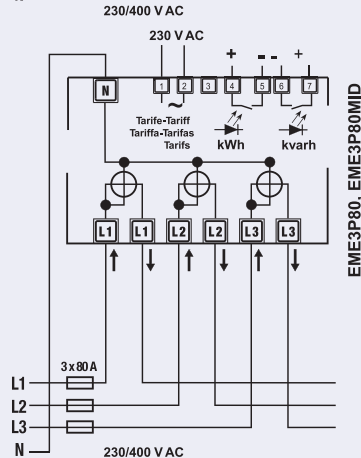


Connection diagrams



A Miniature Circuit Breaker of 80A is recommended.

Wire N needs to be connected to the meter.

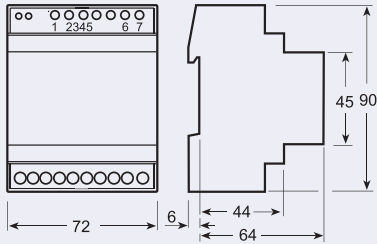


Measuring Instruments

Connection through CT .../5 A till 10.000/5 A

Dimensions (mm)

EME3PCT, EME3PCTMID

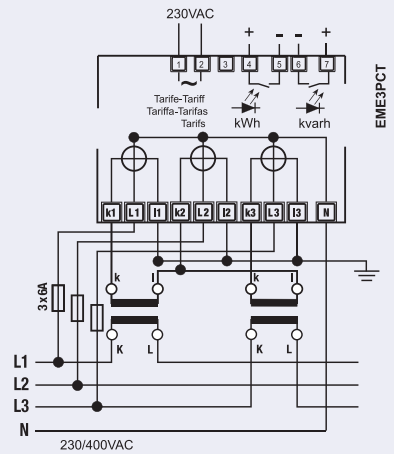
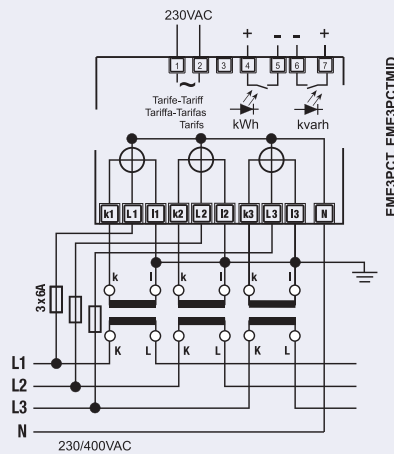
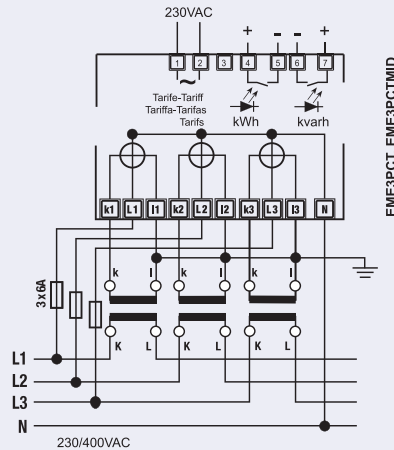


Wire N needs to be connected to the meter.

Instructions for the connection of transformer counters

A Miniature Circuit Breaker of 6A is recommended. Current transformers must not be operated with open terminals since dangerous high voltages might occur which may result in personal injuries and property damage. In addition to this, the transformers are exposed to thermal overload.

Connection diagrams



Measuring Instruments

Energy-meters three-phase 125 A, EME

- Digital active and reactive energy-meter with measurement of active and reactive instantaneous power, by IR side set up communication - 2 tariffs - 2 S0 (MID types: displays only active power).
- Active energy-meters for three-phase alternating current with either 2, 8 digits digital counters. These meters have 2 S0 output generating pulses for remote processing of the instantaneous energy active and reactive measurements for 2 tariffs.
- Green backlighted LCD
- For direct connection 125 A
- 8 digits - 8 display for energy values indication
- Detection of connection errors (phase transposition)
- Accuracy class 1 for active energy and power according to EN 50470-3 (B)
- Accuracy class 2 for reactive energy and power according to EN 62053-23
- Most attractive operating range current ($I_{st} \dots I_{max}$) for direct connection 125 A = 0.020 ... 125 A
- The standard versions are designed to be combined with the communication module
- Energy register zero setting (not for MID types)
- Energy register for import and export
- Instantaneous power active and reactive display (MID types: only active power)
- Sealable terminal covers
- 6 DIN modules wide (108 mm)

Technical Data

		EME3P125 EME3P125MID	
		direct connection 125 A	
Data in compliance with		EN 50470-1, EN 50470-3, EN 62053-23 and EN 62053-31	
General characteristics			
Housing	DIN 43880	DIN	6 modules
Mounting	EN 60715	35 mm	DIN rail
Depth		mm	70
Reference standard	active energy	-	EN 50470-1-3
	reactive energy - pulse output		EN 62053-23-31
Operating features			
Connectivity	to single/three-phase network		
		n° wires	2-4
Storage of energy values and configuration	digital display (EEPROM)		-
Display tariffs identifier	for active and reactive energy		yes
		n° 2	T1 and T2
Supply			
Rated control supply voltage U_n		VAC	230
Operating range voltage		V	184 ... 276
Rated frequency f_n		Hz	50
Rated power dissipation (max.) P_v		VA (W)	≤8 (0.6)
Overload capability			
Voltage U_n	continuous; phase/phase	V	480
	1 second: phase/phase	V	800
	continuous; phase/N	V	276
	1 second: phase/N	V	300
Current I_{max}	continuous	A	125
	momentary (10 ms)	A	3750
Display (readouts)			
Connection errors and phase out		discernible from phase-sequence indication	
		-	PHASE Err
Display type	LCD	n° digits	8 (2 decimal)
	digit dimensions	mm x mm	6.00 x 3
Active energy: 1 display, 8 digit	tariffs 2	Wh	0.01
+ display import or export (arrow)	overflow	MWh	999999.99
Reactive energy: 1 display, 8 digit	tariffs 2	varh	0.01
+ display import or export (arrow)	overflow	Mvarh	999999.99
Instantaneous active power: 1 display, 3-digit		W, kW or MW	000 ... 999
Instantaneous reactive power: 1 display, 3-digit		var, kvar or Mvar	000 ... 999
Instantaneous tariff measurement		-	1
	1 display, 1-digit	-	T1 or T2
Display period refresh		s	1
Measuring accuracy			
Active energy and power acc.to EN 50470-3		%	B
Reactive energy and power	acc.to EN 62053-23	%	2
Measuring input			
Type of connection			direct
Voltage U_n	phase/phase	V	400
	phase/N	V	230
Operating range voltage	phase/phase	V	319 ... 480
	phase/N	V	184 ... 276

Measuring Instruments

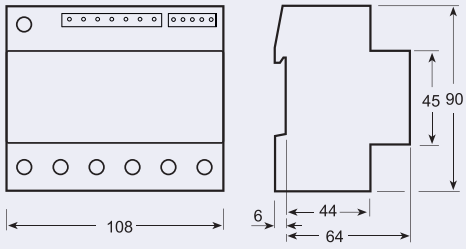
		EME3P125	EME3P125MID
		direct connection 125 A	
Measuring input			
Current I_{ref}		A	5
Current I_{min}		A	0.25
Operating range current ($I_{st} \dots I_{max}$)	direct connection	A	0.020 ... 125
Frequency		Hz	50 \pm 2%
Input waveform		-	sinusoidal
Starting current for energy measurement (I_{st})		mA	20
Pulse output S0			
	acc.to EN 62053-31		
Pulse output	for active and reactive energy T1 and T2		yes
Quantity pulse output		Imp/kWh	500
Pulse duration		ms	30 \pm 2 ms
Required voltage	min. (max.)	VAC (DC)	5 ... 230 \pm 5% (5 ... 300)
Permissible current	pulse ON (max. 230 V AC/DC)	mA	90
Permissible current	impuls OFF (leakage current max. 230 V AC/DC)	A	1
Optical interfaces			
Front side (accuracy control)	LED	Imp/kWh	1000
Safety acc. to EN 50470-1			
Indoor meter		-	yes
Degree of pollution		-	2
Operational voltage		V	300
AC voltage test (EN 50470-3, 7.2)		kV	4
Impulse voltage test		1.2/50 s-kV	6
Protection class (EN 50470)		class	II
Housing material flame resistance	UL 94	class	V0
Safety-sealing between upper and lower housing part		-	no yes
Adaptor for Communication			
Plug-and-play technology		-	•
LAN (TCP/IP) interface	Ethernet 802.3	EMECLAN	10/100 Mbps
Modbus RTU, Ascii interface			
	RS-485 - 3 wires	EMECMODB	up to 19.200 bps
M-Bus interface	RS-485 - 2 wires	ENECMBUS	up to 9.600 bps
Connection terminals			
Type cage main current paths	screw head Z +/-	POZIDRIV	PZ2
Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5
Terminal capacity main current paths			
	solid wire min. (max.)	mm ²	1.5 (50)
	stranded wire with sleeve min. (max.)	mm ²	1.5 (50)
Terminal capacity pulse outlet			
	solid wire min. (max.)	mm ²	1 (4)
	stranded wire with sleeve min. (max.)	mm ²	1 (2.5)
Environmental conditions			
Mechanical environment		-	M1
Electromagnetic environment		-	E2
Operating temperature		°C	-10 ... +55
Limit temperature of transportation and storage		°C	-25 ... +70
Relative humidity (not condensation)		%	\leq 80
Vibrations	50 Hz sinusoidal vibration amplitude	mm	\pm 0.075
Degree protectionhousing when mounted in front (terminal)		-	IP51*)/IP20

*) For the installation in a cabinet at least with IP51 protection

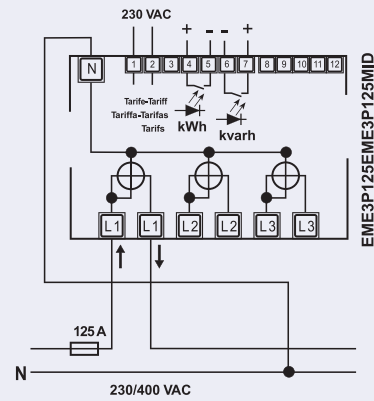
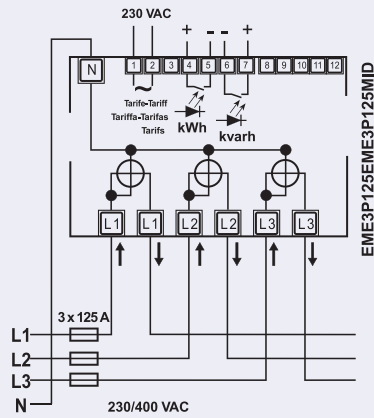
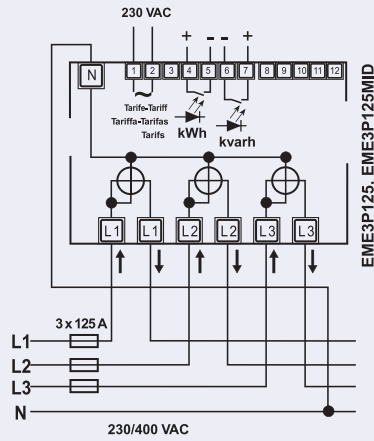
Measuring Instruments

Dimensions (mm)

EME3P125, EME3P125MID



Connection diagrams



A Miniature Circuit Breaker of 125A is recommended.

Wire N needs to be connected to the meter.

Measuring Instruments

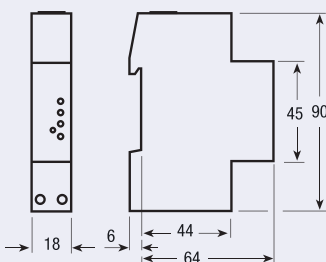
LAN-TCP/IP interface EMECLAN

- Additional communication modules for Energy-meter, Network analyzer and Power-meters
- Additional module for LAN-TCP/IP connection for energy, power, V, I, $\cos\phi$, frequency
- Data transfer speed LAN limited Mbit/s 100
- HW interface RJ 45 connector
- SW protocol TCP/IP
- Suitable for both single-phase and three-phase energy meters
- 1 DIN module wide (18 mm)

Technical Data

				EMECLAN
Data in compliance with				IEC 60950, EN 61000-6-2, EN 61000-6-3 and EN 61000-4-2
General characteristics				
Housing	DIN 43880	DIN	1 module	
Mounting	EN 60715	35 mm	DIN rail	
Depth		mm	70	
Power supply				
Auxiliary voltage rating U_n		VAC	230	
Auxiliary power rating		W	≤ 1.5	
Auxiliary voltage range		VAC	0.80 ... 1.20 x U_n	
Frequency rating		Hz	50/60	
Frequency range		Hz	45 ... 65	
Operating features				
System start		-	automatic at connection of auxiliary power	
LAN Server data addressing		-	by means of it IP address	
Data transfer speed	LAN limited	Mbit/s	≤ 100	
User interface for setup and management	Web browser		W3C HTML 4.01 compliant	
Suitable for both single-phase and three-phase energy meters			yes	
LAN Interface				
HW interface		-	RJ 45 connector	
SW protocol		-	TCP/IP	
Interface to measuring instrument				
HW interface	optical IR	n°	2 (Tx, Rx)	
SW protocol		-	proprietary	
Safety acc. to IEC 60950				
Degree pollution		-	2	
Overvoltage category		-	II	
Working voltage		V	300	
Clearance		mm	⌀	
Creepage distance		mm	⌀	
Test voltage	impulse (1,2/50 s) peak value			
	on AC power supply	kV	4	
	50 Hz 1 min	kV	4	
Housing material flame resistance	UL 94	class	V0	
Connection terminals				
Type cage main current paths				
	screw head Z +/-	POZIDRIV	PZ0	
Terminal capacity	solid wire min. (max.)	mm ²	0.15 (2.5)	
	stranded wire with sleeve min. (max.)	mm ²	0.15 (4)	
Environmental conditions				
Operating temperature		°C	0 ... +55	
Limit temperature of transportation and storage		°C	-25 ... +70	
Relative humidity		%	≤ 80	
Vibrations	50 Hz sinusoidal vibration amplitude	mm	± 0.25	
Protection class	acc.to IEC 60950	-	II	
Degree of protection	housing when mounted in front		IP20	

Dimensions (mm)



Measuring Instruments

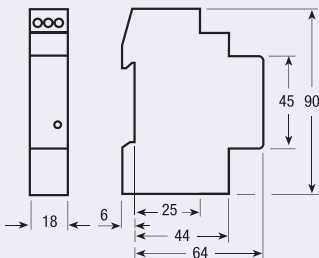
M-Bus interface EMECMBUS

- Additional communication modules for Energy-meter, Network analyzer and Power-meters
- Additional module for M-Bus connection for energy, power, V, I, $\cos\varphi$, frequency
- M-Bus according to EN1434
- Suitable for both single-phase and three-phase energy meters
- 1 DIN module wide (18 mm)

Technical Data

				EMECMBUS
Data in compliance with				EN 13757-1-2-3, IEC 60950, EN 61000-6-2, EN 61000-6-3 and EN 61000-4-2
General characteristics				
Housing	DIN 43880	DIN	1 module	
Mounting	EN 60715	35 mm	DIN rail	
Depth		mm	70	
Power supply				
Power supply		-	through bus connection	
Operating features				
Suitable for both single-phase and three-phase energy meters			yes	
M-bus interface				
HW interface		-	2 screw clamps	
SW protocol		-	M-Bus according to EN1434	
Baudrate		Baud	300-9600	
Interface to measuring instrument				
HW interface	optical IR	n°	2 (Tx, Rx)	
SW protocol		-	proprietary	
Safety acc. to IEC 60950				
Degree pollution		-	2	
Oversvoltage category		-	II	
Working voltage		V	24 ... 36	
Clearance	in equipment	mm	0.5	
	on PCB (not coated)	mm	0.5	
Creepage distance		mm	2.1	
Test voltage	impulse (1,2/50 s)			
	peak value	kV	2.5	
	50 Hz 1 min	kV	1.35	
Housing material flame resistance				
	UL 94	class	V0	
Connection terminals				
Type cage main current paths				
	screw head Z +/-	POZIDRIV	PZ0	
Terminal capacity	solid wire min. (max.)	mm ²	0.15 (2.5)	
	stranded wire with sleeve min. (max.)	mm ²	0.15 (4)	
Environmental conditions				
Operating temperature		°C	0 ... +55	
Limit temperature of transportation and storage		°C	-25 ... +70	
Relative humidity		%	≤80	
Vibrations	50 Hz sinusoidal vibration amplitude			
		mm	±0.25	
Protection class	acc.to IEC 60950	-	II	
Degree of protection	housing when mounted in front		IP20	

Dimensions (mm)



Measuring Instruments

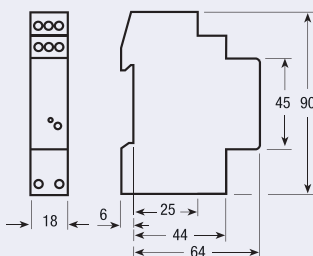
Modbus interface RTU and Ascii EMECMODB

- Additional communication modules for Energy-meter, Network analyzer and Power-meters
- Additional module for Modbus RTU and Ascii connection for energy, power, V, I, $\cos\phi$, frequency
- Protocols Modbus Ascii - Modbus RTU
- Suitable for both single-phase and three-phase energy meters
- 1 DIN module wide (18 mm)

Technical Data

			EMECMODB
Data in compliance with			IEC 60950, EN 61000-6-2, EN 61000-6-3 and EN 61000-4-2
General characteristics			
Housing	DIN 43880	DIN	1 module
Mounting	EN 60715	35 mm	DIN rail
Depth		mm	70
Power supply			
Auxiliary voltage rating U_n		VAC	230
Auxiliary power rating		W	≤ 10
Auxiliary voltage range		VAC	$0.80 \dots 1.20 \times U_n$
Frequency rating		Hz	50/60
Frequency range		Hz	45 ... 65
Operating features			
Protocol	selectable by software	-	Modbus RTU or Ascii
Suitable for both single-phase and three-phase energy meters			yes
Modbus interface			
HW interface	RS-485	terminals n°	3 (+/-, cable shield)
Input resistance		UL (k Ω)	1 (12)
Termination resistance		Ω	80
SW protocol	SW selectable	-	Modbus Ascii - Modbus RTU
Data transfer speed	SW selectable	baud	≤ 38.400 - default 19200
Parity		-	none/even - default: none
Addressing		-	1 to 247
Interface to measuring instrument			
HW interface	optical IR	n°	2 (Tx, Rx)
SW protocol		-	proprietary
Safety acc. to IEC 60950			
Degree pollution		-	2
Overtoltage category		-	II
Working voltage		V	300
Clearance		mm	\square
Creepage distance		mm	\square
Test voltage	impulse (1,2/50 s) peak value		
	on AC power supply	kV	2.5
	on telecommunication network	kV	1.5
	50 Hz 1 min	kV	2.5
Housing material flame resistance			
	UL 94	class	V0
Connection terminals			
Type cage main current paths			
	screw head Z +/-	POZIDRIV	PZ0
Terminal capacity	solid wire min. (max.)	mm ²	0.15 (2.5)
	stranded wire with sleeve min. (max.)	mm ²	0.15 (4)
Environmental conditions			
Operating temperature		°C	0 ... +55
Limit temperature of transportation and storage		°C	-25 ... +70
Relative humidity		%	≤ 80
Vibrations	50 Hz sinusoidal vibration amplitude		
		mm	± 0.25
Protection class	acc.to IEC 60950	-	II
Degree of protection	housing when mounted in front		IP20

Dimensions (mm)



Measuring Instruments

BASIC Energy-meters three-phase, transformer 5 A, EME

- Active energy-meters for three-phase alternating current with either 2, 9 digits digital counters. These meters have 1 S0 output generating pulses for remote processing of the instantaneous energy active measurements for 2 tariffs.
- Three-phase digital active energy-meter with connection by CT .../5 A, up to 10.000/5 A - 0.05-5 (6) A - 2 tariffs - 2 S0
- For transformer .../5 A
- For transformer primary current of 5 A to 10.000/5 A. Input is in 5 A increments
- 9 digits - 4 display for energy values indication
- Detection of connection errors (phase transposition and phase missing)
- Accuracy class 1 for active energy and power according to EN 50470-3 (B)
- Most attractive operating range current ($I_{st} \dots I_{max}$), for connection by CT .../5 A = 0.003 ... 5 A
- Energy register zero setting (not for MID types)
- Energy register for import and export
- Sealable terminal covers
- 4 DIN modules wide (72 mm)

Technical Data

			EME3PCTB EME3PCTB MID CT connection till 10.000/5 A
Data in compliance with			EN 50470-1, EN 50470-3 and EN 62053-31
General characteristics			
Housing	DIN 43880	DIN	4 modules
Mounting	EN 60715	35 mm	DIN rail
Depth		mm	70
Reference standard	active energy	-	EN 50470-1-3
	pulse output		EN 62053-31
Operating features			
Connectivity	to three-phase network	n° wires	4
Storage of energy values and configuration	digital display (EEPROM)	-	yes
Display tariffs identifier	for active energy	n° 2	T1 and T2
Supply			
Rated control supply voltage U_n		VAC	230
Operating range voltage		V	184 ... 276
Rated frequency f_n		Hz	50
Rated power dissipation (max. for phase) P_v		VA (W)	≤8 (0.6)
Overload capability			
Voltage U_n	continuous; phase/phase	V	480
	1 second: phase/phase	V	800
	continuous; phase/N	V	276
	1 second: phase/N	V	300
Current I_{max}	continuous	A	6
	momentary (0,5 s)	A	120
	momentary (10 ms)	A	-
Display (readouts)			
Connection errors and phase out discernible from phase-sequence indication			
Display type	LCD	n° digits	9 (2 decimal)
	digit dimensions	mm x mm	6.00 x 3
Active energy: 1 display, 9 digit - 2 tariffs			
	min. measuring energy	kWh	0.01
+ display import or export (arrow)			
	max. measuring overflow	kWh	9999999.99
Instantaneous tariff measurement			
	1 display, 1-digit	-	T1 or T2
Transformer primary current		A	5 ... 10.000
Display period refresh		s	1
Measuring accuracy			
Active energy	acc.to EN 50470-3	class 1	B
Measuring input			
Type of connection			transformer .../5 A
Voltage U_n	phase/phase	V	400
	phase/N	V	230
Operating range voltage	phase/phase	V	319 ... 480
	phase/N	V	184 ... 276
Current I_{ref}		A	-
Current I_n		A	5
Current I_{min}		A	0.05
Operating range current ($I_{st} \dots I_{max}$)			
	direct connection	A	-
	transformer connection (CT)	A	0.003 ... 6

Measuring Instruments

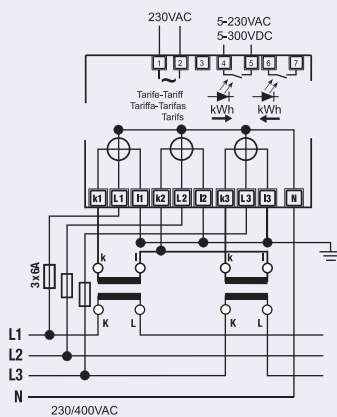
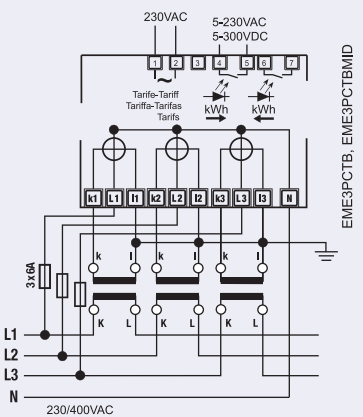
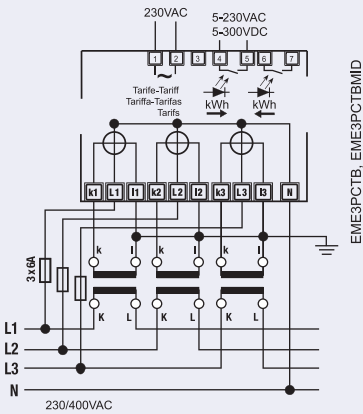
		EME3PCTB	EME3PCTBMID
CT connection till 10.000/5 A			
Measuring input			
Transformer current	primary current of the transformer	A	5 ... 10.000
	smallest input step adjustment	A	in 5 A steps
Frequency		Hz	5
Input waveform		-	sinusoidal
Starting current for energy measurement (I _{st})		mA	3
Pulse output S0	acc.to EN 62053-31		
Pulse output	for active and reactive energy T1 and T2		yes
Quantity pulse output	for direct connection 63 A depending on the transf. factor	Imp/kWh	-
Pulse duration		Imp/kWh	100-10-1
Required voltage	min. (max.)	ms	30 ±2 ms
Permissible current	pulse ON (max. 230 V AC/DC)	VAC (DC)	5 ... 230 ±5% (5 ... 300)
		mA	90
Permissible current	impuls OFF (leakage current max. 230 V AC/DC)	A	1
Optical interfaces			
Front side (accuracy control)			
	LED	Imp/kWh	10.000
Safety acc. to EN 50470-1			
Indoor meter		-	yes
Degree of pollution		-	2
Operational voltage		V	300
AC voltage test (EN 50470-3, 7.2)		kV	4
Impulse voltage test		1.2/50 s-kV	6
Protection class (EN 50470)		class	II
Housing material flame resistance	UL 94	class	V0
	Safety-sealing between upper and lower housing part	-	no yes
Connection terminals			
Type cage main current paths			
	screw head Z +/-	POZIDRIV	PZ1
Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5
Terminal capacity main current paths			
	solid wire min. (max.)	mm ²	1 (4)
	stranded wire with sleeve min. (max.)	mm ²	1 (4)
Terminal capacity pulse outlet			
	solid wire min. (max.)	mm ²	1 (4)
	stranded wire with sleeve min. (max.)	mm ²	1 (4)
Environmental conditions			
Mechanical environment		-	M1
Electromagnetic environment		-	E2
Operating temperature		°C	-10 ... +55
Limit temperature of transportation and storage		°C	-25 ... +70
Relative humidity (not condensation)		%	≤80
Vibrations	50 Hz sinusoidal vibration amplitude	mm	±0.075
Degree protectionhousing when mounted in front (terminal)		-	IP51*)/IP20

*) For the installation in a cabinet at least with IP51 protection

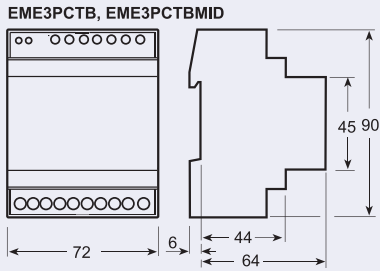
Measuring Instruments

Connection through CT .../5 A till 10.000/5 A

Connection diagrams



Dimensions (mm)



Wire N needs to be connected to the meter.

Instructions for the connection of transformer counters
 A Miniature Circuit Breaker of 6A is recommended.
 Current transformers must not be operated with open terminals since dangerous high voltages might occur which may result in personal injuries and property damage. In addition to this, the transformers are exposed to thermal overload.

Measuring Instruments

BASIC Energy-meters three-phase, direct 63 A, EME

- Active energy-meters for three-phase alternating current with either 2, 9 digits digital counters. These meters have 2 S0 output generating pulses for remote processing of the instantaneous energy active measurements for 2 tariffs.
- Three-phase digital active energy-meter with direct connection 0.25-5 (63) A - 2 tariffs - 2 S0
- For direct connection 63 A
- 9 digits - display for 4 energy values indication
- Detection of connection errors (phase transposition and phase missing)
- Accuracy class 1 for active energy and power according to EN 50470-3 (B)
- Most attractive operating range current ($I_{st} \dots I_{max}$), for direct connection 63 A = 0.015 ... 63 A
- Energy register zero setting (not for MID types)
- Energy register for import and export
- Sealable terminal covers
- 4 DIN modules wide (72 mm)

Technical Data

			EME3P63B direct connection 63 A	EME3P63BMID direct connection 63 A
Data in compliance with			EN 50470-1, EN 50470-3 and EN 62053-1	
General characteristics				
Housing	DIN 43880	DIN	4 modules	4 modules
Mounting	EN 60715	35 mm	DIN rail	DIN rail
Depth		mm	70	70
Reference standard	active energy	-	EN 50470-1-3	EN 50470-1-3
	pulse output		EN 62053-31	EN 62053-31
Operating features				
Connectivity	to three-phase network	n° wires	4	4
Storage of energy values and configuration	digital display (EEPROM)	-	yes	yes
Display tariffs identifier	for active energy	n° 2	T1 and T2	T1 and T2
Supply				
Rated control supply voltage U_n		VAC	230	230
Operating range voltage		V	184 ... 276	184 ... 276
Rated frequency f_n		Hz	50	50
Rated power dissipation (max. for phase) P_v		VA (W)	≤8 (0.6)	≤8 (0.6)
Overload capability				
Voltage U_n	continuous; phase/phase	V	480	480
	1 second: phase/phase	V	800	800
	continuous; phase/N	V	276	276
	1 second: phase/N	V	300	300
Current I_{max}	continuous	A	63	63
	momentary (0,5 s)	A	-	-
	momentary (10 ms)	A	1900	1900
Display (readouts)				
Connection errors and phase out discernible from phase-sequence indication				
Display type	LCD	n° digits	PHASE Err	PHASE Err
	digit dimensions	mm x mm	9 (2 decimal)	9 (2 decimal)
			6.00 x 3	6.00 x 3
Active energy: 1 display, 9 digit - 2 tariffs				
	min. measuring energy	kWh	0.01	0.01
+ display import or export (arrow)				
	max. measuring overflow	kWh	9999999.99	9999999.99
Instantaneous tariff measurement				
	1 display, 1-digit	-	T1 or T2	T1 or T2
Transformer primary current				
		A	-	-
Display period refresh				
		s	1	1
Measuring accuracy				
Active energy	acc.to EN 50470-3	class 1	B	B
Measuring input				
Type of connection			direct	direct
Voltage U_n	phase/phase	V	400	400
	phase/N	V	230	230
Operating range voltage	phase/phase	V	319 ... 480	319 ... 480
	phase/N	V	184 ... 276	184 ... 276
Current I_{ref}		A	5	5
Current I_n		A	-	-
Current I_{min}		A	0.25	0.25
Operating range current ($I_{st} \dots I_{max}$)				
	direct connection	A	0.015 ... 80	0.015 ... 80
	transformer connection (CT)	A	-	-

Measuring Instruments

			EME3P63B direct connection 63 A	EME3P63MID direct connection 63 A
Measuring input				
Transformer current	primary current of the transformer			
		A	-	-
	smallest input step adjustment		-	-
		A	-	-
Frequency		Hz	50	50
Input waveform			sinusoidal	sinusoidal
Starting current for energy measurement (I_{st})		mA	15	15
Pulse output S0				
	acc.to EN 62053-31			
Pulse output	for active and reactive energy T1 and T2		yes	yes
Quantity pulse output	for direct connection 63 A Imp/kWh		500	500
	depending on the transf. factor			
		Imp/kWh	-	-
Pulse duration		ms	30 ±2 ms	30 ±2 ms
Required voltage	min. (max.)	VAC (DC)	5 ... 230 ±5% (5 ... 300)	5 ... 230 ±5% (5 ... 300)
Permissible current	pulse ON (max. 230 V AC/DC)			
		mA	90	90
Permissible current	impuls OFF (leakage current max. 230 V AC/DC)			
		A	1	1
Optical interfaces				
Front side (accuracy control)				
	LED	Imp/kWh	1000	1000
Safety acc. to EN 50470-1				
Indoor meter			yes	yes
Degree of pollution			2	2
Operational voltage		V	300	300
AC voltage test (EN 50470-3, 7.2)		kV	4	4
Impulse voltage test		1.2/50 s-kV	6	6
Protection class (EN 50470)		class	II	II
Housing material flame resistance				
	UL 94	class	V0	V0
Safety-sealing between upper and lower housing part			yes	yes
Connection terminals				
Type cage main current paths				
	screw head Z +/-	POZIDRIV	PZ2	PZ2
Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5	0.8 x 3.5
Terminal capacity main current paths				
	solid wire min. (max.)	mm ²	1.5 (35)	1.5 (35)
	stranded wire with sleeve min. (max.)	mm ²	1.5 (35)	1.5 (35)
Terminal capacity pulse outlet				
	solid wire min. (max.)	mm ²	1 (4)	1 (4)
	stranded wire with sleeve min. (max.)	mm ²	1 (2.5)	1 (2.5)
Environmental conditions				
Mechanical environment			M1	M1
Electromagnetic environment			E2	E2
Operating temperature		°C	-10 ... +55	-10 ... +55
Limit temperature of transportation and storage		°C	-25 ... +70	-25 ... +70
Relative humidity (not condensation)		%	≤80	≤80
Vibrations	50 Hz sinusoidal vibration amplitude			
		mm	±0.075	±0.075
Degree protectionhousing when mounted in front (terminal)				
			IP51*)/IP20	IP51*)/IP20

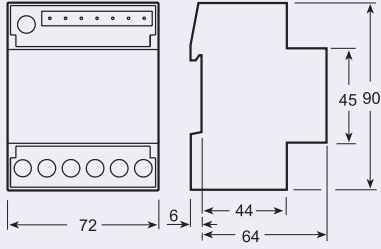
*) For the installation in a cabinet at least with IP51 protection

Measuring Instruments

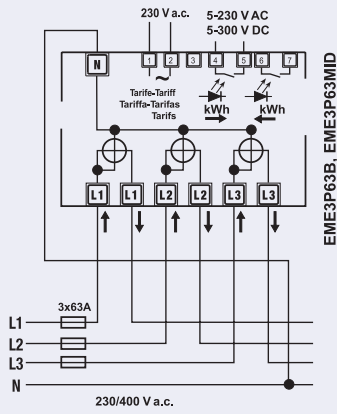
Direct connection 63 A

Dimensions (mm)

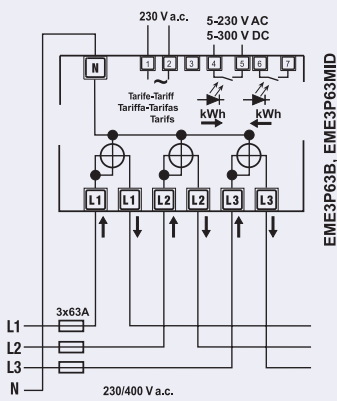
EME3P63B, EME3P63MID



Connection diagrams



A Miniature Circuit Breaker of 63A is recommended.



Wire N needs to be connected to the meter.

Measuring Instruments

BASIC Energy-meters three-phase, 63 A, EME

- Digital active energy meter with partial active energy counter resettable and inbuilt communication Modbus RTU - 2 tariffs
- Three-phase digital active energy-meter with direct connection 0.25-5 (63) A, and inbuilt communication Modbus RTU - 2 tariffs
- For direct connection 63 A
- 9 digits for 8 energy indication values
- Detection of connection errors (phase transposition and phase missing)
- Accuracy class 1 for active energy and power according to EN 50470-3 (B)
- Most attractive operating range current ($I_{st} \dots I_{max}$), for direct connection 63 A = 0.015 ... 63 A
- Energy register zero setting (not for MID types)
- Energy register "Partial" zero setting also for MID types
- Sealable terminal covers
- Energy register for delivery and supply
- 4 DIN modules wide (72 mm)

Technical Data

			EME3P63BMODBUS direct connection 63 A	EME3P63BMODBUSMID direct connection 63 A
Data in compliance with			EN 50470-1, EN 50470-3 and EN 62053-31	
General characteristics				
Housing	DIN 43880	DIN	4 modules	4 modules
Mounting	EN 60715	35 mm	DIN rail	DIN rail
Depth		mm	70	70
Reference standard	active energy	-	EN 50470-1-3	EN 50470-1-3
	pulse output		EN 62053-31	EN 62053-31
Operating features				
Connectivity	to three-phase network	n° wires	4	4
Storage of energy values and configuration	digital display (EEPROM)	-	yes	yes
Display tariffs identifier for active energy		n° 2	T1 and T2	T1 and T2
Supply				
Rated control supply voltage U_n		VAC	230	230
Operating range voltage		V	184 ... 276	184 ... 276
Rated frequency f_n		Hz	50	50
Rated power dissipation (max. for phase) P_v		VA (W)	≤8 (0.6)	≤8 (0.6)
Overload capability				
Voltage U_n	continuous; phase/phase	V	480	480
	1 second; phase/phase	V	800	800
	continuous; phase/N	V	276	276
	1 second; phase/N	V	300	300
Current I_{max}	continuous	A	80	80
	momentary (0,5 s)	A	-	-
	momentary (10 ms)	A	2400	2400
Display (readouts)				
Connection errors and phase out discernible from phase-sequence indication				
Display type	LCD	n° digits	PHASE Err	PHASE Err
	digit dimensions	mm x mm	9 (2 decimal)	9 (2 decimal)
			6.00 x 3	6.00 x 3
Active energy: 1 display, 9 digit - 2 tariffs	min. measuring energy	kWh	0.01	0.01
+ display import or export (arrow)	max. measuring overflow	kWh	9999999.99	9999999.99
Instantaneous tariff measurement	1 display, 1-digit	-	T1 or T2	T1 or T2
Transformer primary current		A	-	-
Display period refresh		s	1	1
Measuring accuracy				
Active energy	acc.to EN 50470-3	class 1	B	B
Measuring input				
Type of connection			direct	direct
Voltage U_n	phase/phase	V	400	400
	phase/N	V	230	230
Operating range voltage	phase/phase	V	319 ... 480	319 ... 480
	phase/N	V	184 ... 276	184 ... 276
Current I_{ref}		A	5	5
Current I_n		A	-	-
Current I_{min}		A	0.25	0.25
Operating range current ($I_{st} \dots I_{max}$)	direct connection	A	0.015 ... 63	0.015 ... 63
	transformer connection (CT)	A	-	-
Transformer current	primary current of the transformer	A	-	-
	smallest input step adjustment	A	-	-
		A	-	-
Frequency		Hz	50	50
Input waveform		-	sinusoidal	sinusoidal
Starting current for energy measurement (I_{st})		mA	15	15

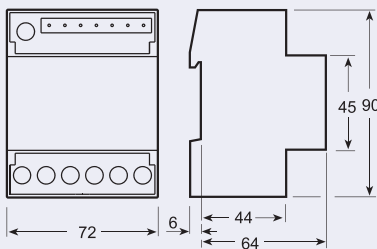
Measuring Instruments

		EME3P63BMODBUS direct connection 63 A		EME3P63BMODBUSMID direct connection 63 A	
Optical interfaces					
Front side (accuracy control)					
	LED	Imp/kWh	1000		1000
Safety acc. to EN 50470-1					
	Indoor meter	-	yes		yes
	Degree of pollution	-	2		2
	Operational voltage	V	300		300
	AC voltage test (EN 50470-3, 7.2)	kV	4		4
	Impulse voltage test	1.2/50 s-kV	6		6
	Protection class (EN 50470)	class	II		II
	Housing material flame resistance				
	UL 94	class	V0		V0
	Safety-sealing between upper and lower housing part	-	yes		yes
Embedded communication					
	Modbus RTU	RS-485 - 3 wires	-	up to 19.200 bps	up to 19.200 bps
Connection terminals					
Type cage main current paths					
	screw head Z +/-	POZIDRIV	PZ2		PZ2
	Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5	0.8 x 3.5
Terminal capacity main current paths					
	solid wire min. (max.)	mm ²	1.5 (35)		1.5 (35)
	stranded wire with sleeve min. (max.)	mm ²	1.5 (35)		1.5 (35)
Terminal capacity pulse outlet					
	solid wire min. (max.)	mm ²	1 (4)		1 (4)
	stranded wire with sleeve min. (max.)	mm ²	1 (2.5)		1 (2.5)
Environmental conditions					
	Mechanical environment	-	M1		M1
	Electromagnetic environment	-	E2		E2
	Operating temperature	°C	-10 ... +55		-10 ... +55
	Limit temperature of transportation and storage	°C	-25 ... +70		-25 ... +70
	Relative humidity (not condensation)	%	≤80		≤80
	Vibrations	50 Hz sinusoidal vibration amplitude			
		mm	±0.075		±0.075
	Degree protectionhousing when mounted in front (terminal)	-	IP51*)/IP20		IP51*)/IP20

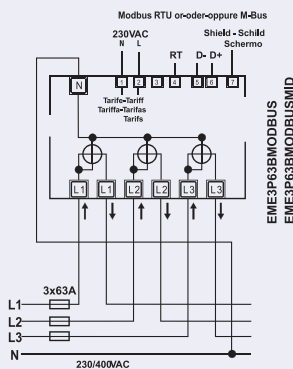
*) For the installation in a cabinet at least with IP51 protection

Dimensions (mm)

EME3P63BMODBUS, EME3P63BMODBUSMID

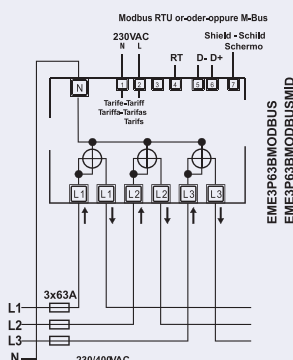


Connection diagrams



Wire N needs to be connected to the meter.

A Miniature Circuit Breaker of 63A is recommended.



Measuring Instruments

BASIC Energy-meters three-phase, direct 80 A, EME

- Active energy-meters for three-phase alternating current with either 2, 9 digits digital counters. These meters have 2 S0 output generating pulses for remote processing of the instantaneous energy active measurements for 2 tariffs.
- Three-phase digital active energy-meter with direct connection 0.015 (80) A - 2 tariffs - 2 S0
- For direct connection 80 A
- 9 digits - display for 4 energy values indication
- Detection of connection errors (phase transposition and phase missing)
- Accuracy class 1 for active energy and power according to EN 50470-3 (B)
- Most attractive operating range current ($I_{st} \dots I_{max}$), for direct connection 80 A = 0.015 ... 80 A
- Energy register zero setting (not for MID types)
- Energy register for import and export
- Sealable terminal covers
- 4 DIN modules wide (72 mm)

Technical Data

				EME3P80BMID direct connection 80 A
Data in compliance with				EN 50470-1, EN 50470-3 and EN 62053-31
General characteristics				
Housing	DIN 43880	DIN	4 modules	
Mounting	EN 60715	35 mm	DIN rail	
Depth		mm	70	
Reference standard	active energy	-	EN 50470-1-3	
	pulse output		EN 62053-31	
Operating features				
Connectivity	to three-phase network	n° wires	4	
Storage of energy values and configuration	digital display (EEPROM)	-	yes	
Display tariffs identifier	for active energy	n° 2	T1 and T2	
Supply				
Rated control supply voltage U_n		VAC	230	
Operating range voltage		V	184 ... 276	
Rated frequency f_n		Hz	50	
Rated power dissipation (max. for phase) P_v		VA (W)	≤8 (0.6)	
Overload capability				
Voltage U_n	continuous; phase/phase	V	480	
	1 second: phase/phase	V	800	
	continuous; phase/N	V	276	
	1 second: phase/N	V	300	
Current I_{max}	continuous	A	80	
	momentary (0,5 s)	A	-	
	momentary (10 ms)	A	2400	
Display (readouts)				
Connection errors and phase out discernible from phase-sequence indication				
Display type	LCD	n° digits	PHASE Err	
	digit dimensions	mm x mm	9 (2 decimal) 6.00 x 3	
Active energy: 1 display, 9 digit - 2 tariffs				
	min. measuring energy	kWh	0.01	
+ display import or export (arrow)				
	max. measuring overflow	kWh	9999999.99	
Instantaneous tariff measurement				
	1 display, 1-digit	-	T1 or T2	
Transformer primary current		A	-	
Display period refresh		s	1	
Measuring accuracy				
Active energy	acc.to EN 50470-3	class 1	B	
Measuring input				
Type of connection				direct
Voltage U_n	phase/phase	V	400	
	phase/N	V	230	
Operating range voltage	phase/phase	V	319 ... 480	
	phase/N	V	184 ... 276	
Current I_{ref}		A	5	
Current I_n		A	-	
Current I_{min}		A	0.25	
Operating range current ($I_{st} \dots I_{max}$)				
	direct connection	A	0.015 ... 80	
	transformer connection (CT)	A	-	

Measuring Instruments

EME3P80BMID			
direct connection 80 A			
Measuring input			
Transformer current	primary current of the transformer	A	-
	smallest input step adjustment	A	-
Frequency		Hz	50
Input waveform		-	sinusoidal
Starting current for energy measurement (I_{st})		mA	15
Pulse output S0	acc.to EN 62053-31		
Pulse output	for active and reactive energy T1 and T2		yes
Quantity pulse output	for direct connection 63 A Imp/kWh		500
	depending on the transf. factor	Imp/kWh	-
Pulse duration		ms	30 ±2 ms
Required voltage	min. (max.)	VAC (DC)	5 ... 230 ±5% (5 ... 300)
Permissible current	pulse ON (max. 230 V AC/DC)	mA	90
Permissible current	impuls OFF (leakage current max. 230 V AC/DC)	A	1
Optical interfaces			
Front side (accuracy control)	LED	Imp/kWh	1000
Safety acc. to EN 50470-1			
Indoor meter		-	yes
Degree of pollution		-	2
Operational voltage		V	300
AC voltage test (EN 50470-3, 7.2)		kV	4
Impulse voltage test		1.2/50 s-kV	6
Protection class (EN 50470)		class	II
Housing material flame resistance	UL 94	class	V0
Safety-sealing between upper and lower housing part		-	yes
Connection terminals			
Type cage main current paths	screw head Z +/-	POZIDRIV	PZ2
Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5
Terminal capacity main current paths	solid wire min. (max.)	mm ²	1.5 (35)
	stranded wire with sleeve min. (max.)	mm ²	1.5 (35)
Terminal capacity pulse outlet	solid wire min. (max.)	mm ²	1 (4)
	stranded wire with sleeve min. (max.)	mm ²	1 (2.5)
Environmental conditions			
Mechanical environment		-	M1
Electromagnetic environment		-	E2
Operating temperature		°C	-10 ... +55
Limit temperature of transportation and storage		°C	-25 ... +70
Relative humidity (not condensation)		%	≤80
Vibrations	50 Hz sinusoidal vibration amplitude	mm	±0.075
Degree protectionhousing when mounted in front (terminal)		-	IP51*)/IP20

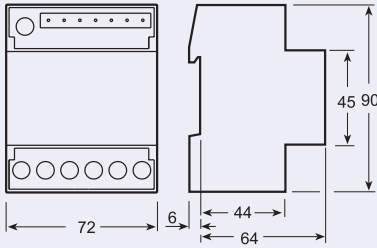
*) For the installation in a cabinet at least with IP51 protection

Measuring Instruments

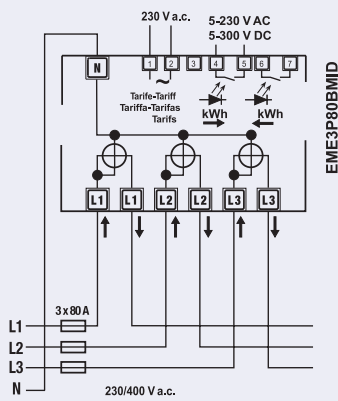
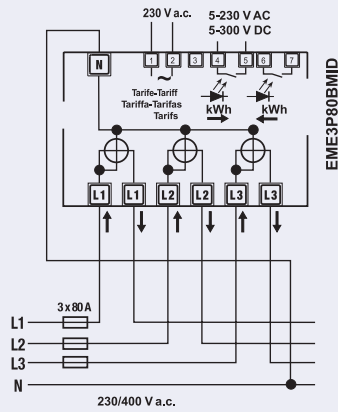
Direct connection 80 A

Dimensions (mm)

EME3P80BMID



Connection diagrams



A Miniature Circuit Breaker of 80A is recommended.

Wire N needs to be connected to the meter.

Measuring Instruments

BASIC Energy-meters three-phase, 80 A, EME

- Digital active energy meter with partial active energy counter resettable and inbuilt communication Modbus RTU- 2 tariffs
- Three-phase digital active energy-meter with direct connection 0.015 (80) A, and inbuilt communication Modbus RTU - 2 tariffs
- For direct connection 80 A
- 9 digits for 8 energy indication values
- Detection of connection errors (phase transposition and phase missing)
- Accuracy class 1 for active energy and power according to EN 50470-3 (B)
- Most attractive operating range current ($I_{st} \dots I_{max}$), for direct connection 80 A = 0.015 ... 80 A
- Energy register zero setting (not for MID types)
- Energy register "Partial" zero setting
- Sealable terminal covers
- 4 DIN modules wide (72 mm)

Technical Data

			EME3P80BMODBUSMID direct connection 80 A
Data in compliance with			EN 50470-1, EN 50470-3 and EN 62053-31
General characteristics			
Housing	DIN 43880	DIN	4 modules
Mounting	EN 60715	35 mm	DIN rail
Depth		mm	70
Reference standard	active energy	-	EN 50470-1-3
	pulse output		EN 62053-31
Operating features			
Connectivity	to three-phase network	n° wires	4
Storage of energy values and configuration	digital display (EEPROM)	-	yes
Display tariffs identifier	for active energy	n° 2	T1 and T2
Supply			
Rated control supply voltage U_n		VAC	230
Operating range voltage		V	184 ... 276
Rated frequency f_n		Hz	50
Rated power dissipation (max. for phase) P_v		VA (W)	≤8 (0.6)
Overload capability			
Voltage U_n	continuous; phase/phase	V	480
	1 second: phase/phase	V	800
	continuous; phase/N	V	276
	1 second: phase/N	V	300
Current I_{max}	continuous	A	80
	momentary (0,5 s)	A	-
	momentary (10 ms)	A	2400
Display (readouts)			
Connection errors and phase out discernible from phase-sequence indication			
Display type	LCD	n° digits	PHASE Err
	digit dimensions	mm x mm	9 (2 decimal) 6.00 x 3
Active energy: 1 display, 9 digit - 2 tariffs			
	min. measuring energy	kWh	0.01
+ display import or export (arrow)			
	max. measuring overflow	kWh	9999999.99
Instantaneous tariff measurement			
	1 display, 1-digit	-	T1 or T2
Transformer primary current		A	-
Display period refresh		s	1
Measuring accuracy			
Active energy	acc.to EN 50470-3	class 1	B
Measuring input			
Type of connection direct			
Voltage U_n	phase/phase	V	400
	phase/N	V	230
Operating range voltage	phase/phase	V	319 ... 480
	phase/N	V	184 ... 276
Current I_{ref}		A	5
Current I_n		A	-
Current I_{min}		A	0.25
Operating range current ($I_{st} \dots I_{max}$)			
	direct connection	A	0.015 ... 80
	transformer connection (CT)	A	-
Transformer current	primary current of the transformer	A	-
		A	-
	smallest input step adjustment	A	-
Frequency		Hz	50
Input waveform		-	sinusoidal
Starting current for energy measurement (I_{st})		mA	15

Measuring Instruments

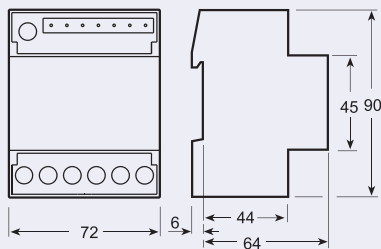
EME3P80BMODBUSMID direct connection 80 A

Optical interfaces			
Front side (accuracy control)			
LED	Imp/kWh	1000	
Safety acc. to EN 50470-1			
Indoor meter	-	yes	
Degree of pollution	-	2	
Operational voltage	V	300	
AC voltage test (EN 50470-3, 7.2)	kV	4	
Impulse voltage test	1.2/50 s-kV	6	
Protection class (EN 50470)	class	II	
Housing material flame resistance	UL 94	class	V0
Safety-sealing between upper and lower housing part	-	yes	
Embedded communication			
Modbus RTU	RS-485 - 3 wires	-	up to 19.200 bps
Connection terminals			
Type cage main current paths			
screw head Z +/-	POZIDRIV	PZ2	
Type cage pulse output	blade for slotted screw	mm	0.8 x 3.5
Terminal capacity main current paths			
solid wire min. (max.)	mm ²	1.5 (35)	
stranded wire with sleeve min. (max.)	mm ²	1.5 (35)	
Terminal capacity pulse outlet			
solid wire min. (max.)	mm ²	1 (4)	
stranded wire with sleeve min. (max.)	mm ²	1 (2.5)	
Environmental conditions			
Mechanical environment	-	M1	
Electromagnetic environment	-	E2	
Operating temperature	°C	-10 ... +55	
Limit temperature of transportation and storage	°C	-25 ... +70	
Relative humidity (not condensation)	%	≤80	
Vibrations	50 Hz sinusoidal vibration amplitude	mm	±0.075
Degree protectionhousing when mounted in front (terminal)	-	IP51*/IP20	

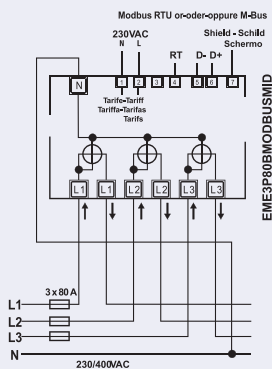
*) For the installation in a cabinet at least with IP51 protection

Dimensions (mm)

EME3P80BMODBUSMID

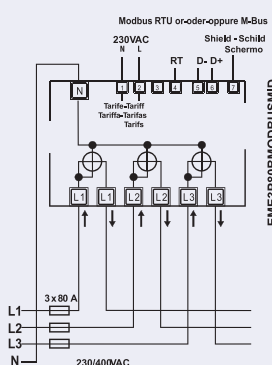


Connection diagrams



Wire N needs to be connected to the meter.

A Miniature Circuit Breaker of 80A is recommended.

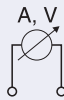


Measuring Instruments

Analogue Measuring Instruments Z-MG

- Analogue ammeters and voltmeters
- For measuring single-phase AC voltages and currents
- Direct measuring range up to 40 A (AC)
- Type Z-MG/AA5-WS with exchangeable dial for transducer operation up to 600 A
- Exchangeable dial (Z-MG/WS...)
- Moving iron measuring unit
- Accessories
Voltmeter changeover switch, see type Z-DSV.

Block Diagram



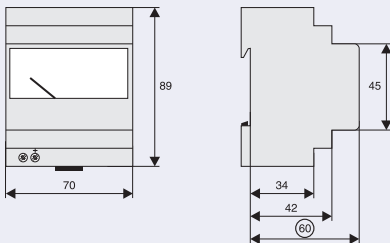
Technical Data

	Z-MG/AA-10	Z-MG/AA-40	Z-MG/AA5-WS	Z-MG/VA-250	Z-MG/VA-500
Electrical					
Rated voltage U_n	–	–	–	250 V AC	500 V AC
Rated current I_n	10 A	40 A	5 A		
Input signal	symmetric, sinusoidal, form factor 1.11				
Rated frequency	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Operational frequency	45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz	45-65 Hz
Measuring accuracy class	1.5	1.5	1.5	1.5	1.5
Measuring range	0 - I_n	0 - I_n	0 - I_n	0 - U_n	0 - U_n
Power consumption	<1,1 VA	<1,1 VA	<1,1 VA	<3 VA	<3 VA
Exceeding of measuring range					
permanently	$1.2 \times I_n$	$1.2 \times I_n$	$1.2 \times I_n$	$1.2 \times U_n$	$1.2 \times U_n$
short time	$10 \times I_n / 5s$	$10 \times I_n / 5s$	$10 \times I_n / 5s$	$2 \times U_n / 5s$	$2 \times U_n / 5s$
Rated insulation voltage	0.6 kV	0.6 kV	0.6 kV	0.6 kV	0.6 kV
Test voltage 50Hz/1min.	2 kV	2 kV	2 kV	2 kV	2 kV

Mechanical

Frame size	45 mm	45 mm	45 mm	45 mm	45 mm
Device height	89 mm	89 mm	89 mm	89 mm	89 mm
Device width	70 mm	70 mm	70 mm	70 mm	70 mm
Weight	130 g	130 g	130 g	130 g	130 g
Mounting	quick fastening on DIN rail IEC/EN 60715				
Degree of protection, built-in	IP50	IP50	IP50	IP50	IP50
Upper and lower terminals	lift terminals	lift terminals	lift terminals	lift terminals	lift terminals
Terminal capacity	4 mm ²	8 mm ²	4 mm ²	4 mm ²	4 mm ²
Tightening torque of terminal screws	1 Nm	1.8 Nm	1 Nm	1 Nm	1 Nm
Permitted relative humidity	65%	65%	65%	65%	65%
Perm. ambient temperature range	-25 to +50°C	-25 to +50°C	-25 to +50°C	-25 to +50°C	-25 to +50°C
Flame class acc. to UL 94	V1	V1	V1	V1	V1

Dimensions (mm)

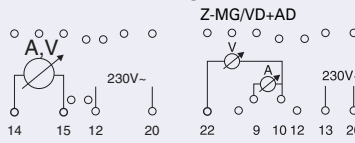


Measuring Instruments

Digital Measuring Instruments Z-MG

- Digital ammeters and voltmeters
- For measuring single-phase AC voltages and currents
- 7 segment display, green LEDs
- LED overload display
- Direct measuring range up to 20 A (Z-MG/AD-20)
Via current transformer X/5A (Z-MG/AD-999) display up to 999A.
- Type Z-MG/AD-999:
Possible current transformer ratios 15/5, 20/5, 25/5, 40/5, 60/5, 100/5, 150/5, 200/5, 250/5, 400/5, 600/5, 1000/5 adjustable
- Type Z-MG/VD+AD+S:
has a alarms intervention display - blinking message "AL"
- Accessories: Voltmeter changeover switch, see type Z-DSV.

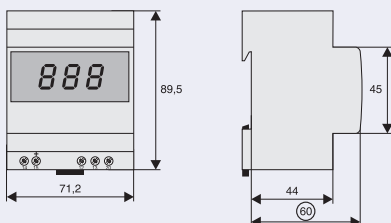
Connection diagram



Technical Data

	Z-MG/AD-20	Z-MG/AD-999	Z-MG/VD-600	Z-MG/VD+AD	Z-MG/VD+AD+S
Electrical					
Rated voltage U_n	–	–	600 V AC	500 V AC	500 V AC
Rated current I_n	20 A	5 A	–	5 A	5 A
Auxiliary voltage	230V, 50Hz	230V, 50Hz	230V, 50Hz	230V, 50Hz	230V, 50Hz
Power consumption auxiliary voltage	< 4.5 VA	< 4.5 VA	< 4.5 VA	≤ 2.5 VA	≤ 2.5 VA
Input signal wave form	symmetric, sinusoidal, form factor 1.11				
Rated frequency	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Operational frequency	45-65 Hz	45-65 Hz	45-65 Hz	47-63 Hz	47-63 Hz
Measuring accuracy	±1% +1 digit	±1% +1 digit	±1% +1 digit	±1% +1 digit	±1% +1 digit
Resolution	1 digit	1 digit	1 digit	1V/0.01-10A	1V/0.01-10A
Number of measuring operations per second	3	3	3	0.67	0.67
Measuring range	0 - I_n	0 - I_n	0 - U_n	0-600V/0,1-6A	0-600V/0,1-6A
Power consumption					
Voltage input	–	–	–	≤0.1VA	≤0.1VA
Current input	–	<1.1 VA	<1.1 VA	–	≤0.6VA ≤0.6VA
Input impedance	–	–	>1MΩ	–	–
Exceeding of measuring range					
permanently	$2xI_n$	$2xI_n$	$1.1xU_n$	$1.2xU_n/1.2xI_n$	$1.2xU_n/1.2xI_n$
short time	$2.5xI_n/5s$	$10xI_n/5s$	–	$2xI_n/5s$	$2xI_n/5s$
Rated insulation voltage	0.66 kV	0.66 kV	0.66 kV	0.66 kV	0.66 kV
Test voltage 50Hz/1min.	2 kV	2 kV	2 kV	3 kV	3 kV
Contact (alarms) 2 pcs.	–	–	–	–	programmable
Type	–	–	–	–	min. and/or max.
Set point	–	–	–	–	0-120%
Hysteresis	–	–	–	–	0-set point
Delay	–	–	–	–	0-60s (1s steps)
Relay state	–	–	–	–	energised/de-energ.
Contacts range	–	–	–	–	5A/250VAC
Mechanical					
Frame size	45 mm	45 mm	45 mm	45 mm	45 mm
Device height	89.5 mm	89.5 mm	89.5 mm	89.5 mm	89.5 mm
Device width	71.2 mm	71.2 mm	71.2 mm	71.2 mm	71.2 mm
Maximum display reading	999	999	999	999	999
Height of figures	14 mm	14 mm	14 mm	14 mm	14 mm
Weight	300 g	300 g	300 g	250 g	270 g
Mounting	quick fastening on DIN rail IEC/EN 60715				
Degree of protection, built-in	IP50	IP50	IP50	IP50	IP50
Upper and lower terminals	lift terminals	lift terminals	lift terminals	lift terminals	lift terminals
Terminal capacity	4 mm ²	4 mm ²	4 mm ²	4 mm ²	4 mm ²
Tightening torque of terminal screws	0.6 Nm	0.6 Nm	0.6 Nm	0.6 Nm	0.6 Nm
Permitted relative humidity	95%	95%	95%	20-80%	20-80%
Perm. ambient temperature range	-10°C to +55°C	-10°C to +55°C	-10°C to +55°C	-5°C to +55°C	-5°C to +55°C
Flame class acc. to UL 94	V1	V1	V1	V1	V1

Dimensions (mm)



Measuring range - resolution

Z-MG/VD+AD Z-MG/VD+AD+S	Range	Display	Resolution	5A 5.00 10mA	60A 60.0	70A 70.0	75A 75.0	80A 80.0
	10A	10.0	15A	15.0	20A	20.0	25A	25.0
	30A	30.0	40A	40.0	50A	50.0	60A	60.0
	300A	300	400A	400	500A	500	600A	600
	100A	100	120A	120	150A	150	160A	160
	200A	200	250A	250	300A	300	400A	400
	1kA	1.00	1,2kA	1.20	1,5kA	1.50	1,6kA	1.60
	2kA	2.00	2,5kA	2.50	3kA	3.00	4kA	4.00
	5kA	5.00	6kA	6.00	7kA	7.00	7,5kA	7.50
	8kA	8.00						

Measuring Instruments

Voltmeter EMV600 - Ammeter EMA20

- Digital measuring instruments offer greater readout immediacy for the value displayed. They also offer the advantage of having no moving parts which are subject to wear over the long term, an issue which can affect the precision and reliability of the instrument.
- Voltmeter AC
- Ammeter AC
- 2 DIN modules wide (36 mm)

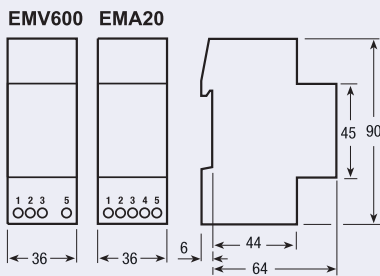
Technical Data

			Voltmeter EMV600	Ammeter EMA20
Data in compliance with			EN 61010-1, EN 61000-6-2, EN 61000-6-3	
General characteristics				
Housing	DIN 43880	DIN	2 modules	2 modules
Mounting	EN 60715	35 mm	DIN rail	DIN rail
Depth		mm	70	70
Reference standard		-	DIN 43751-1-2	DIN 43751-1-2
Power supply				
Voltage		VAC	230	230
Operating range voltage		VAC	0.90 ... 1.15	0.90 ... 1.15
Frequency rating		Hz	50	50
Operating range frequency		Hz	45 ... 65	45 ... 65
Power rating		VA	2	2
Overload capability				
Voltage U_n	continuous	V	1.2 x voltage rating	-
	momentary (1 s)	V	1.3 x voltage rating	-
Current I_b/I_n	continuous	A	-	1.1 x current rating
	momentary (1 s)	A	-	10 x current rating
Display (readouts)				
Voltage	3 digits h = 10 mm	V	12 ... 600	-
	voltages >600 V	-	HHH	-
	voltages <12 V	-	---	-
Current	3 digits h = 10 mm	A	-	0.4 ... 20 (a) 0.1 ... 5 (b) (CT operat.)
	currents >10 A - 20 A/5 A (connection CT)	A	-	HHH
	currents <0.1 A - 0.2 A - 0.4 A (connection CT)	A	-	---
Readout refresh rate		readout/s	4	4
Measuring accuracy at 23 ±1°C referred to nominal values				
Voltage		%	±1 ±1 digit	-
Current		%	-	± 0.5 ±1 digit
Temperature (deviating)		% for °C	±0.03	±0.03
Measuring input				
Connectivity		-	direct	direct (a)(b < 5 A) with CT .../5 A (b)
Voltage U_n		V	600	-
Measurement range	voltage	V	12 ... 600	-
Current I_b/I_n		A	-	20 (a) 5 (b)
Measurement range	current	A	-	0.4 ... 20 (a) 0.2 ... 10 (b)
Frequency rating		Hz	50	(0.1 ... 5) x transformer ratio (b)
Measurement range	frequency	Hz	45 ... 65	50
Input waveform		-	synus. symmetric	45 ... 65 synus. symmetric
Safety acc. to EN 61010-1				
Degree pollution		-	2	2
Overvoltage category		-	II	II
Working voltage		V	300	600
Material group		-	II	II
Clearance		mm	3.0	1.5
Creepage distance	inside the equipment	mm	3.3	1
	on printed wiring boards (not coated)	mm	3.0	1.5
Test voltage	impulse (1,2/50 s) peak value	kV	4.0	2.5
	50 Hz 1 min	kV	2.2	1.35
Housing material flame resistance	UL 94	class	V0	V0

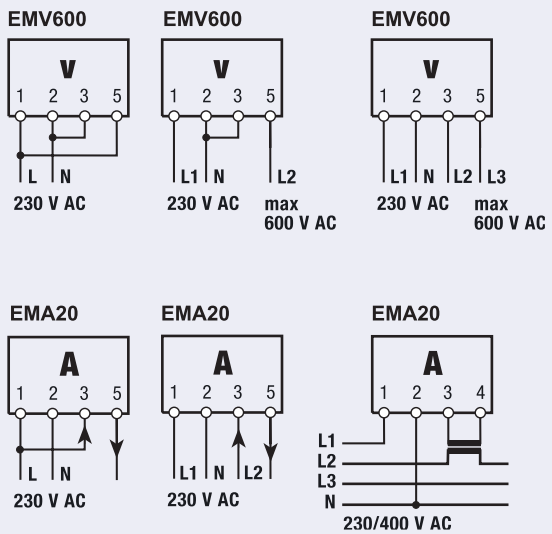
Measuring Instruments

			Voltmeter EMV600	Ammeter EMA20
Connection terminals				
Type cage	screw head Z +/-	POZIDRIV	PZ1	PZ1
Terminal capacity	solid wire min. (max.)	mm ²	1 (6)	1 (6)
	stranded wire with sleeve min. (max.)	mm ²	1 (6)	1 (6)
Environmental conditions				
Operating temperature		°C	0 ... +55	0 ... +55
Limit temperature of transportation and storage		°C	-25 ... +70	-25 ... +70
Relative humidity		%	≤80	≤80
Vibrations (sinusoidal)	50 Hz sinusoidal vibration amplitude	mm	±0.25	±0.25
Protection class	acc.to EN 61010-1	-	II	II
Degree of protection	housing when mounted (terminal)		IP52 (IP20)	IP52 (IP20)

Dimensions (mm)



Connection diagrams



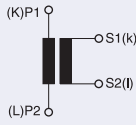
Measuring Instruments

Accessories for Measuring Instruments

Current Transformer for Cable Z-MG/WAK, Current Transformer for Busbar Z-MG/WAS,

- Transform high currents to standard measuring currents
- Current transformers help to cut costs when installing and connecting busbar system
- Recommended from 40 A upward
- Accuracy classes
 - Class 0.5: for accurate measurement and calibrated kWh-meters
 - Class 1: for general measurement and non-calibrated kWh-meters
 - Class 3: for coarse measurement, relays and for protection
- When winding several turns of the primary cable around the current transformer, you will receive half the primary current per turn while power and class remain unchanged.

Connection diagram



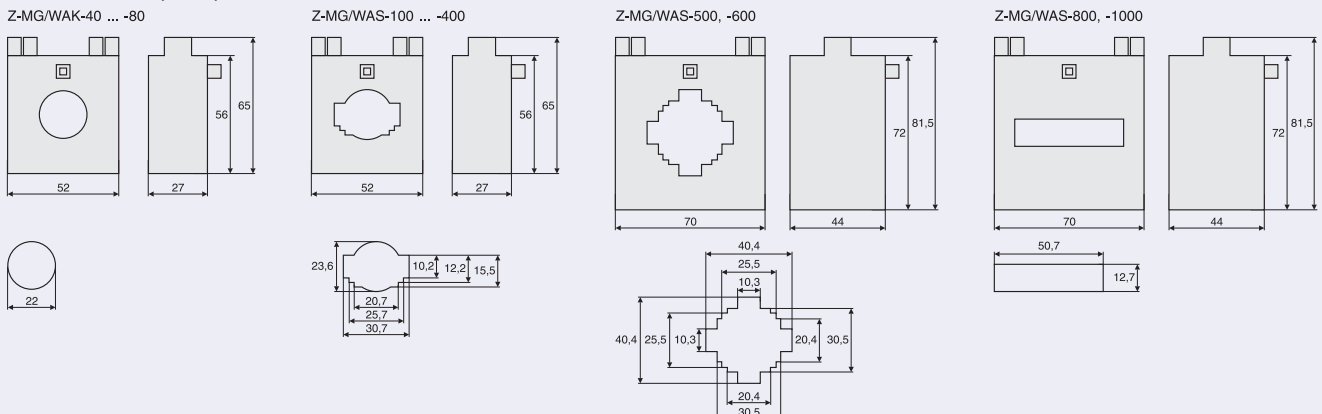
Technical Data

	Z-MG/WAK	Z-MG/WAS
Electrical		
Max. service voltage	720 V	720 V
Secondary current	5 A	5 A
Rated frequency	50-60 Hz	50-60 Hz
Cable diameter	21 mm	23 mm, 30 mm
Busbar cross section	–	30 x 10 mm, 40 x 10 mm, 50 x 12 mm
	Class	P [VA]
Primary nominal current IpN 40 A	3	1.3
50 A	3	1.5
60 A	3	1.5
80 A	3	2
100 A		
150 A		1
200 A		1
250 A		0.5
300 A		0.5
400 A		0.5
500 A		0.5
600 A		0.5
800 A		0.5
1000 A		0.5
Connections	P1 (K) primary input, P2 (L) primary output, s1 (k) secondary input, s2 (l) secondary output	
Nominal thermic short-time current Ith	60 x IpN for 1 s	60 x IpN for 1 s
Nominal dynamic short circuit current Idyn	2.5 x Ith for 1 s	2.5 x Ith for 1 s
Permanent overload	1.2 x IpN	1.2 x IpN
Insulation class (IEC 85)	E	E
Test voltage 50Hz/1min.	6 kV	6 kV

Mechanical

Mounting	quick fastening on DIN rail IEC/EN 60715, wall mounting, directly onto the cable or onto busbar	
Degree of protection	IP30	IP30
Secondary connection	plug-in terminals 6.3 mm	plug-in terminals 6.3 mm
Permitted relative humidity	80%	80%
Perm. ambient temperature range	-20 to +50°C	-20 to +50°C
Max. temperature of busbars	–	70°C

Dimensions (mm)



Measuring Instruments

Operating Hours Counter BSZ

- According to DIN 61010
- Hours counter for gathering operating time data of machines and systems and determining operating costs, maintenance intervals, warranty and working times.

Connection diagram

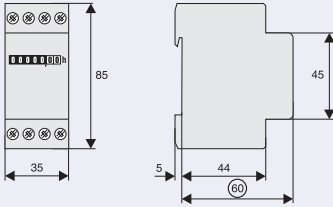
0000000h



Technical Data

	BSZ/230	BSZ/24
Electrical		
Rated voltage	230 V AC $\pm 10\%$	24 V AC $\pm 10\%$
Rated frequency	50 Hz	50 Hz
Current consumption	10 mA	10 mA
Accuracy	line frequency-dependent	line frequency-dependent
Own consumption	1 VA	1 VA
Mechanical		
Frame size	45 mm	45 mm
Device height	85 mm	85 mm
Device width	35 mm	35 mm
Weight	75 g	75 g
Zero position	no	no
Operation indicator	no	no
Counting range	99999,99 h	99999,99 h
Height of figures	3.5 mm	3.5 mm
Colour of figures	white on black decimals red	white on black decimals red
Mounting	quick fastening on DIN rail IEC/EN 60715	
Degree of protection, built-in	IP40	IP40
Lower terminals	screw terminals	
Terminal capacity	10 mm ²	10 mm ²
Tightening torque of terminal screws	1.2 Nm	1.2 Nm
Temperature range	-25 to +55°C	-25 to +55°C

Dimensions (mm)



Measuring Instruments

Operating Hours Counter ASOHC230

- The operating hours counter registers the operating hours to an accuracy of two decimals (hundredths of a second).
- Power supply for terminals 1 and 3 of the electronic counter is required to enable the device to continuously display the measured values. If terminal 3 is supplied with voltage (at DC "+"), the counting process will get started. Supplying terminal 4 with voltage for a moment (at DC "+") will reset the counter.
- In case of a power failure, the counting result will be saved for an indefinite period of time (EEPROM). Once power is back again, counting will be continued from the value that has been saved before.
- The 7-digit LCD display can be reset electrically or manually.
- Time counters are used for a reliable collection of production and service hours, which allows an accurate planning and monitoring of production processes, maintenance cycles and warranty periods.

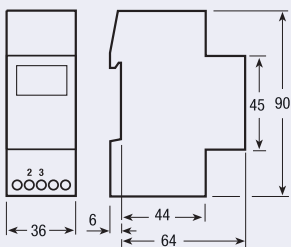
Connection diagram



Technical Data

			ASOHC230
Standards			DIN VDE 0435-110, DIN EN 60255-6, UL 863
Approvals			UL 863, UL File No. E300537, CSA C22.2 No. 6 and 55
Rated control supply voltage U_c		VAC	230
Working range	at 50/60 Hz	$x U_c$	0,9 ... 1,1
Rated frequency		Hz	50
Rated power loss P_v	VA	<1	
Type of operation	counting of	-	hours
Display	Cyclometer register	h	00000,00
Terminals	\pm Screws (Philips)	-	1
Terminal capacity	rigid	mm ²	1,5
	flexible with wire end sleeve, min.	mm ²	0,75
Allowed range of ambient temperature		°C	-10 ... +70
Degree of protection	acc. to DIN EN 60529	-	IP20, with conductors connected
Protection class	acc. to DIN EN 61140 / VDE 0140		II
Allowed range of air humidity		%	<80

Dimensions (mm)

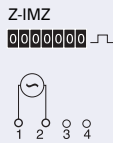


Measuring Instruments

Pulse Counter Z-IMZ

- According to DIN 61010

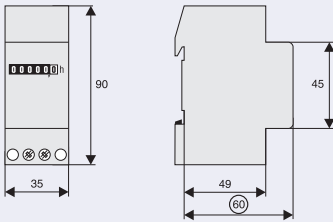
Connection diagram



Technical Data

	Z-IMZ/230	Z-IMZ/24
Electrical		
Rated voltage	230 V AC $\pm 10\%$	24 V AC $\pm 10\%$
Rated frequency	50 Hz	50 Hz
Current consumption	8 mA	10 mA
Accuracy	–	–
Counting frequency	max. 10 pulse/s	max. 10 pulse/s
Pulse duration / interval	10 ms	10 ms
Duty	100%	100%
Own consumption	1.84 VA	0.24 VA
Mechanical		
Frame size	45 mm	45 mm
Device height	90 mm	90 mm
Device width	35 mm	35 mm
Weight	60 g	60 g
Zero position	no	no
Operation indicator	no	no
Counting range	9999999 pulses	9999999 pulses
Height of figures	4 mm	4 mm
Colour of figures	white on black	white on black
Mounting	quick fastening on DIN rail IEC/EN 60715	
Degree of protection, built-in	IP65	IP65
Lower terminals	screw terminals	
Terminal capacity	0.14-4 mm ²	0.14-4 mm ²
Tightening torque of terminal screws	0.8 Nm	0.8 Nm
Temperature range	-10 to +70°C	-10 to +70°C

Dimensions (mm)



Measuring Instruments

Pulse Counter ASPC230

- The pulse counter sums up the number of pulses, e.g. how many times a device is switched on.
- Power supply for terminals 1 and 3 of the electronic counter is required to enable the device to continuously display the measured values. If terminal 3 is supplied with voltage (at DC "+"), the counting process will get started. Supplying terminal 4 with voltage for a moment (at DC "+") will reset the counter.
- In case of a power failure, the counting result will be saved for an indefinite period of time (EEPROM). Once power is back again, counting will be continued from the value that has been saved before.
- The 7-digit LCD display can be reset electrically or manually.
- Pulse counters are used for a reliable collection of production and service hours, which allows an accurate planning and monitoring of production processes, maintenance cycles and warranty periods.
- Pulse counting is used for general quantity counting, registration of the switch-on frequency, and for the collection of switch-on cycles or production quantities in systems and machines.

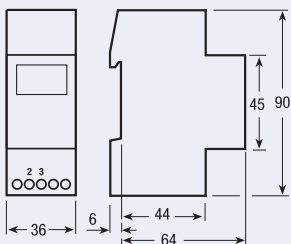
Connection diagram



Technical Data

			ASPC230
Standards			DIN VDE 0435-110, DIN EN 60255-6, UL 863
Approvals			UL 863, UL File No. E300537, CSA C22.2 No. 6 and 55
Rated control supply voltage U_c	VAC		230
Working range	at 50/60 Hz	$x U_c$	0,9 ... 1,1
Rated frequency		Hz	50/60
Rated power loss P_v	VA	<1	
Type of operation	counting of	-	pulses
Display	Cyclometer register		0000000
	LCD Display	h	--
			--
Frequency of counting		Hz	10
Pulse duration		ms	50
Resetting	electrical		--
	mechanical		--
Terminals	±Screws (Philips)	-	1
Terminal capacity	rigid	mm ²	1,5
	flexible with wire end sleeve, min.	mm ²	0,75
Allowed range of ambient temperature		°C	-10 ... +70
Degree of protection	acc. to DIN EN 60529	-	IP20, with conductors connected
Protection class	acc. to DIN EN 61140 / VDE 0140		II
Allowed range of air humidity		%	<80

Dimensions (mm)



Other Accessories

Protective Earth Socket Z-SD230

- Design according to VDE, ÖVE
- Modular busbar connection system L/N
- Screw fastening is possible
- Width 2.5MU
- Busbar block Z7-SD/1P+N 10 mm² available
- Model -BS with child protection device and earth pin

Connection diagram



Technical Data

Electrical

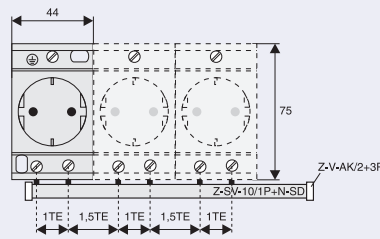
Rated voltage	250V AC
Rated current	10/16 A

Mechanical

Frame size	45 mm
Device height	76 mm
Device width	44 mm
Mounting	quick fastening on DIN rail IEC/EN 60715, screw fastening is possible
Degree of protection, built-in	IP40
Upper and lower terminals	lift terminals
Terminal capacity	1 to 2x2.5 mm ²

Dimensions (mm)

Z-SD230 Z-SD230-BS



Other Accessories

Shaver Sockets RSD

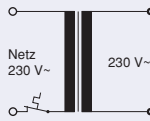
Phase out type

- Design according to EN 61558-1, EN 61558-1/11, EN 61 558-2-5
- Thermal switch for overload protection
- Front plate colour white
- Double insulation (□), Protection class IP21
- Supplied with blanking cover

RSD-2:

- Hotel version with power cut-off for avoiding no-load loss
- Hotel version for plugs with round pins and American flat pins

Connection diagram



Technical Data

Electrical

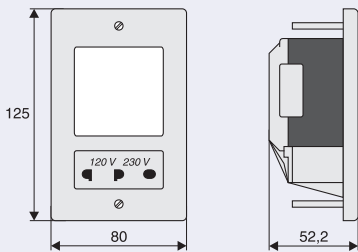
Rated voltage	230 VAC
Frequency	50/60 Hz primary
Rated operating power	20 VA 230/(120V Hotel) sec.
Secondary voltage	
RSD-1	230V AC
RSD-2	230/120V AC

Mechanical

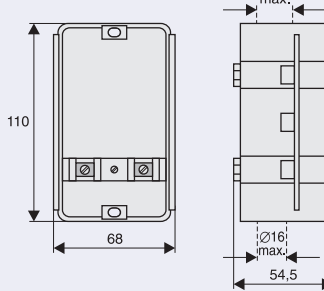
Mounting	flush-mounting
Terminal capacity	
Flush box Z-RD-UD	2.5 mm ²
Cover plate	white RAL 1013

Dimensions (mm)

Insert RSD



Flush box ZRD-UD

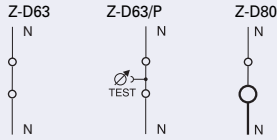


Other Accessories

Neutral Terminal, Feeder Block Z-D

- Compatible with standard busbar to Xtra Combination devices
- **Z-D80:** Feeder block for busbar system 80 A.
Lift terminal (35 mm²) and open mouthed terminal above, lift terminal (50 mm²) below.
Busbar positioning optionally above or below
- **Z-D80:** with testing bush 4mm Ø, 10 A for N-conductor

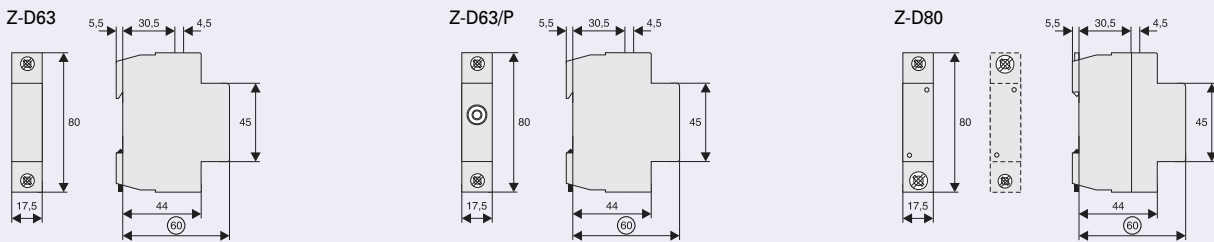
Connection diagrams



Technical Data

	Z-D63	Z-D63/P	Z-D80
Electrical			
Rated current	63 A	63 A	100 A
Frequency	50-60 Hz	50-60 Hz	50-60 Hz
N-conductor test bush	-	10 A, Ø 4	-
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 with 2 lock-in positions on DIN rail IEC/EN 60715		
Degree of protection, built-in	IP40	IP40	IP40
Terminals			
above	open mouthed/lift	open mouthed/lift	open mouthed/lift
below	open mouthed/lift	open mouthed/lift	lift terminals
Terminal capacity			
above	1-25 mm ²	1-25 mm ²	1-35 mm ²
below	1-25 mm ²	1-25 mm ²	2.5-50 mm ²
Terminal protection	finger and hand touch safe, gemäß BGV A3, ÖVE-EN 6		
Busbar thickness	0.8 - 2 mm	0.8 - 2 mm	0.8 - 2 mm

Dimensions (mm)



Other Accessories

Front Plate Tripping Device Z-MFPA

- Mechanical tripping device for PLSM, CLS, Z-A40, PKNM and PKDM, responds when the front plate of a distribution box is removed
- Maximum tripping capacity: 4 + 4 poles symmetrically
- Can be interlocked by twisting when the tripping pin is in the pressed position

Function Diagram



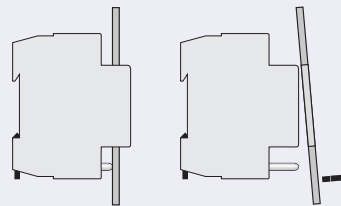
Technical Data

Mechanical

Frame size	45 mm
Device height	80 mm
Device width	17.5 mm
Mounting	quick fastening on DIN rail IEC/EN 60715
Degree of protection, built-in	IP40

Dimensions (mm)

Function



Other Accessories

Compact Enclosure KLV-TC

- Compact enclosure, degree of protection IP30
- Without door
- For 45 mm devices for modular installation

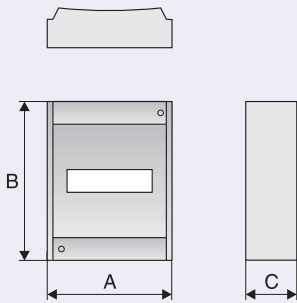
Technical Data

	KLV-TC-2	KLV-TC-4	KLV-TC-4-TB	KLV-TC-8	KLV-TC-8-TB1	KLV-TC-8-TB1
Mechanical						
Module units (MU)	1+1	3+1	3+1	6+2	6+2	6+2
Weight	0.09 kg	0.15 kg	0.17 kg	0.32 kg	0.35 kg	0.36 kg
Terminal Support wirh Terminal Block	-	-	KLV-TC-TB-4/4	-	KLV-TC-TBC-4/4	KLV-TC-TBC-4/4+4

Terminal Support wirh Terminal Block

Type Designation	Number of Terminal	Weight
KLV-TC-TB-4/4	2 x 10mm ² + 2 x 16 mm ²	0.018 kg
KLV-TC-TBC-4/4	2 x 10mm ² + 2 x 16 mm ²	0.030 kg
KLV-TC-TBC-4/4+4	2 x (2 x 10mm ² + 2 x 16 mm ²)	0.045kg

Dimensions (mm)



	A	B	C
	(Outside dimensions)		
KLV-TC-2	50	135	72
KLV-TC-4	90	160	78
KLV-TC-8	162	170	78

Eaton is dedicated to ensuring that reliable, efficient and safe power is available when it's needed most. With unparalleled knowledge of electrical power management across industries, experts at Eaton deliver customized, integrated solutions to solve our customers' most critical challenges.

Our focus is on delivering the right solution for the application. But, decision makers demand more than just innovative products. They turn to Eaton for an unwavering commitment to personal support that makes customer success a top priority.

For more information, visit www.eaton.eu/electrical



Eaton Industries (Austria) GmbH
Scheydgasse 42
1215 Wien
Austria

Eaton Industries Manufacturing GmbH
EMEA Headquarters
Route de la Longeraie
1110 Morges
Switzerland

© 2012 Eaton Industries (Austria) GmbH
Subject to technical modifications. No
responsibility is taken for misprints or errata.
Printed in Austria (07/12)
Publication number

Graphics: SRA
DigiPics, Lithos:
Print: