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POWER SUPPLY SYSTEMS LIGHTNING ARRESTER CLASS I

S45, S55, S50-50, S50-3

This range of lightning arresters is mainly intended for applications in unmeasured parts of electrical installation within the Lightning Protection Zones Concept at the boundaries LPZ $0_{A(B)}$ – 1 (according to IEC 1312-1 and IEC 62305). The lightning arrester is constructed as an encapsulated multiple cellular carbon spark gap with high values of self-extinguished follow currents.
Types S45 ,S55 and S50-50 are designed for the protection of phase bus bars of L.V. supply system (L/N), (L/PE) and (L/PEN) .

Type		S50-50	S50-16	S50-3	S45	S55
Test class according to IEC 61643-1and EN 61643-11		I / T1				
Modes of protection		L/N, L/PE, L/PEN				
Nominal voltage	U_N	230V/ 50 (60) Hz				400 V/50 (60) Hz
Max.continuous operating voltage	U_C	255 V / 50 (60) Hz				440 V/50 (60) Hz
Insulation resistance	R_i	> 100 MΩ				
Max.lightning impulse current (10/350) * charge * specific energy	I_{imp} Q W/R	50kA 25 As 600 kJ/Ω			60kA 30 As 900 kJ/Ω	
Maximum discharge current (8/20)	I_{max}	120 kA				
Voltage protection level at I_{imp}	U_p	< 1,3 kV				< 2,5kV
Follow current interrupting rating at U_c	I_f	$25kA_{rms}$	$16kA_{rms}$	$3,5kA_{rms}$	$20kA_{rms}$	$3,5kA_{rms}$
Response time	t_A	< 100ns				
Recommended back-up fuse		315 AgL/gG				
Operating temperature range	ϑ	-40°to + 80°C				
Cross-section of the connected conductors (at tightening moment of clamps 4Nm)		50mm² (solid) 35mm² (flexible)				
Protection type		IP 20				
Mounting on		DIN rail 35mm				
Housing material		SLOVAMID 6FRC2				
Colour		blue				
Weight	m	< 225g				

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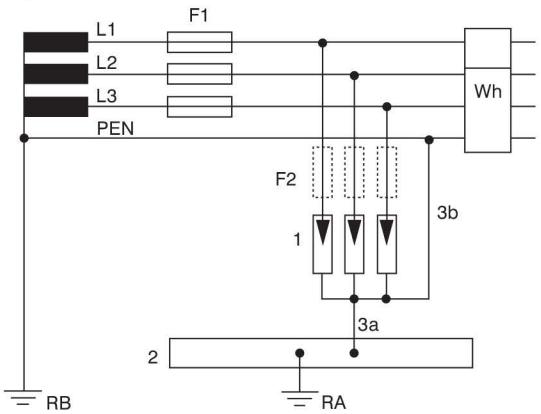
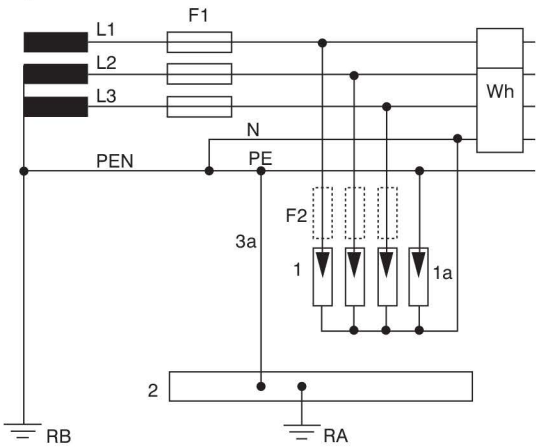
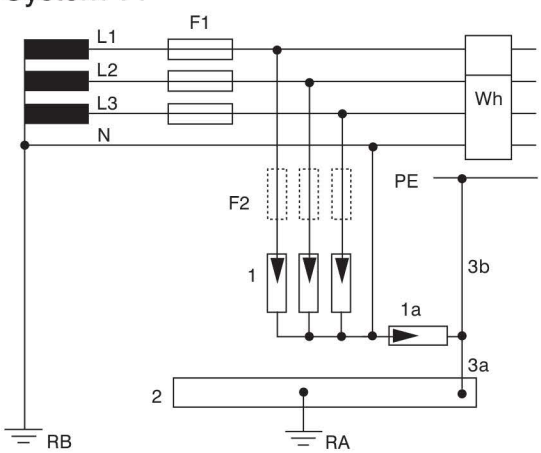
System TN-C



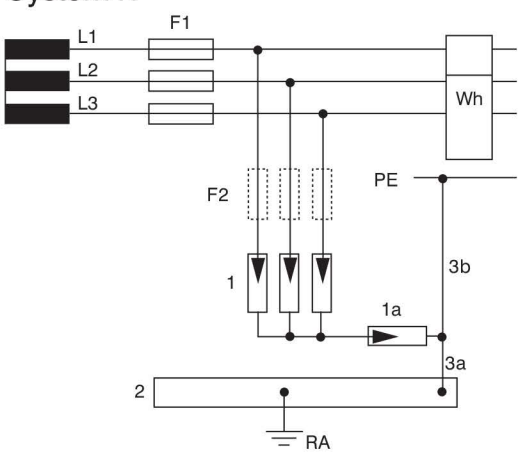
System TN-S



System TT



System IT



1	Multiple chamber carbon spark gap S45, S55, S50-50, S50-16 or S50-3*
1a	Single carbon spark gap S100 or gas discharge tube SBN100**
2	Main equipotential bus bar
3a, 3b	Grounding wires for arresters
F1	Main back-up fuse of service main
F2	Recommended back-up fuse 315AgL/gG (only if the main back up fuse F1 is fitted with back up fuses > 315 AgL /gG)
RA	Grounding of the equipment
RB	Grounding system

* For IT systems without outlet we use lightning arresters dimensioned for phase -to-phase voltage.
** For IT systems we use a special modification of gas discharge tubes or spark gap S100.

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LIGHTNING ARRESTERS - VARISTOR

SB*

SB12,5 385

SB12,5 440

SBN25

SBN25M

SBM7 75

SBM7 150

SBM7 275

SBM7 320

SBM7 385

SBM7 440

SB* and SBM* are modular lightning arresters class 1 according to EN 61643-11. Complete device consist of a base part and pluggable module. These arresters are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0-1 (according to IEC 1312-1 and EN 62305) for lightning current equipotential bonding and elimination of switching surges that originate in power supply systems entering the building.

The SB* and SBM* are mainly intended for use in TNC systems. For TNS and TT systems it is neccessary to combine these arresters with lightning arrester SBN25, SBN25M or SBN50 which are intended for equipotential bonding between N and PE.

The main use of SB* and SBM* arresters are in structures of LPL III-IV according to EN 62305, e.g. residential houses with cable supply and subdistribution boards of big industrial structures.

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Type		SBM7 75 SBM7 75 DS	SBM7 150 SBM7 150 DS	SBM7 275 SBM7 275 DS	SBM7 320 SBM7 320 DS	SBM7 385 SBM7 385 DS	SBM7 440 SBM7 440 DS
Max. continuous operating voltage	U_C	75 V AC	150 V AC	275 V AC	320 V AC	385 V AC	440 V AC
Lightning impulse current (10/350)	I_{imp}	7 kA					
- charge	Q	3,5 As					
- specific energy	W/R	12 kJ/Ω					
Max. discharge current (8/20)	I_{max}	50 kA					
Nominal discharge current (8/20)	I_n	30 kA					
Temporary overvoltage (TOV)	U_T	-	-	335 V / 5 sec		-	580 V / 5 sec
Voltage protection Level at I_{imp}	U_P	< 350 V	< 950 V	< 1,2 kV	< 1,3 kV	< 1,5 kV	< 1,7 kV
Response time	t_A	< 25 ns					
Max. back-up fuse		160 AgL/gG					
Life time		min. 100.000 h					
Short-circuit withstand capability at max. back-up fuse	I_p	60 kA_{rms}					
Weight	m	98 g	106 g	99 g	106 g		108 g

Type		SB12,5 275 SB12,5 275 DS	SB12,5 320 SB12,5 320 DS	SB12,5 385 SB12,5 385 DS	SB12,5 440 SB12,5 440 DS
Max. continuous operating voltage	U_C	275 V AC	320 V AC	385 V AC	440 V AC
Lightning impulse current (10/350)	I_{imp}	12,5 kA			
- charge	Q	6,25 As			
- specific energy	W/R	39 kJ/Ω			
Max. discharge current (8/20)	I_{max}	100 kA			
Nominal discharge current (8/20)	I_n	50 kA			
Temporary overvoltage (TOV)	U_T	335 V / 5 sec		560 V / 5 sec	580 V / 5 sec
Voltage protection Level at I_{imp}	U_P	< 1,2 kV	< 1,3 kV	< 1,5 kV	< 1,6 kV
Response time	t_A	< 25 ns			
Max. back-up fuse		250 AgL/gG			
Life time		min. 100.000 h			
Short-circuit withstand capability at max. back-up fuse	I_p	60 kA_{rms}			
Weight	m	140 g	234 g	236 g	

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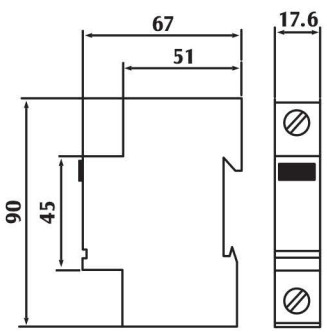
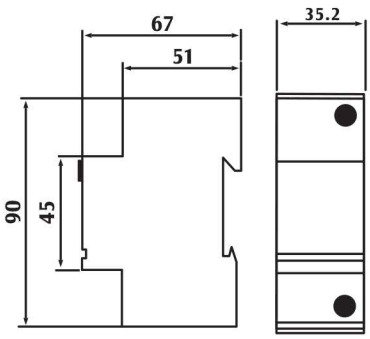
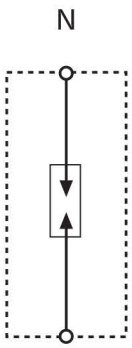
SBN80, SBN100 and S100





Basic circuit diagram of S100



Modules SBN80, SBN100 and S100 are one part of modular units of surge protection intended for mounting on DIN rail 35 mm. They are used for the protection of L.V. power supply systems against surges at direct lightning stroke. Therefore,they create an integral part of building protection and its installations against surge effects.

SBN80 and S100 contain a high power gas discharge tubes.The construction of S100 is based on spark gap technology for max. lightning impulse current I_{imp}=100 kA(10/350). These arresters are mainly used if there is an overhead line as a low voltage supply to a building. Both types fulfil construction demands posed on class I for lightning arresters. The recommended use is in the Lightning Protection Zones Concept at the boundaries of LPZ 0 $_{A(B)}$-1 according to IEC 1312 -1 and IEC 62305 in low voltage power supply systems TNS, TT and IT. These types are intended for equipotential bonding between N and PE.

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Type		SBN80	SBN100	S100
Test class according to IEC 61643-1and EN 61643-11		I / T1		
Use		N/PE		
Max.continuous operating voltage	U_c	255 V/50 (60) Hz		
Insulation resistance	R_i	>1000MΩ		
Max. discharge current (8/20)	I_{max}	120kA	150kA	150kA
Nominal discharge current (8/20)	I_n	60kA	75kA	75kA
Max.Lightning impulse current (10/350)	I_{imp}	80kA	100kA	100kA
* charge	Q	40As	50As	
* specific energy	W/R	1600kJ/Ω	2500kJ/Ω	
Voltage protection level at I_{imp}	U_p	<1,3 kV		<1,5 kV
Follow current interrupting rating at U_c	I_f	100 A_{rms}		100 A_{rms}
Response time	t_A	<100 ns		
Lightning impulse sparkover voltage 1.2/50μs		<1,5 kV		
Operating temperature range	ϑ	-40 to +80°C		
Recommended cross-section of the connected conductors (at tightening moment of clamps 4Nm)		25 mm^2 (solid) 16 mm^2 (flexible)	50 mm^2 (solid) 25 mm^2 (flexible)	
Protection type		IP 20		
Mounting on		DIN rail 35mm		
Housing material		SLOVAMID 6FRC2		
Housing colour		Blue		
Weight	m	140 g	210 g	230 g

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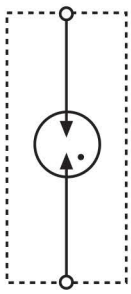
SBN25

Basic circuit diagram of SBN25



Module SBN25 is one part of modular units of surge protection intended for mounting on DIN rail 35mm. It is used for the protection of L.V. power supply systems against surges caused by lightning stroke. Therefore, it creates an integral part of building protection and its installations against surge effects. SBN25 contains a high power gas discharge tube rated for max. lightning impulse current I_{imp} = 25kA (10/350). It is mainly used if there is an overhead line as a low voltage supply to a building or if there are residual current circuit breakers in protected facility. It fulfils construction demands posed on class II for lightning arresters. The recommended use is in the Lightning Protection Zones Concept at the boundaries of LPZ 0_B – 1 and more according to IEC 1312-1 in low voltage power supply systems TNS, TT and IT. SBN25 is in these applications mainly used for equipotential bonding between N and PE (equipotential busbar).

Type		SBN25
Test class according to IEC 61643-1 and EN 61643-11		I / T1
Mode of protection		N/PE
Maximum continuous operating voltage	U_C	255 V/50 (60) Hz
Insulation resistance	R_i	>1000 MΩ
Max. lightning impulse current (10/350) * charge * spesific energy	I_{imp} Q W/R	25 kA 12,5 As 150 kJ/Ω
Max. discharge current (8/20)	I_{max}	60kA
Nominal discharge current (8/20)	I_n	30kA
Voltage protection level at I_{imp}	U_p	<1,3 kV
Lightning impulse sparkover voltage 1,2/50 μs		<1,5 kV
Follow current interrupting rating at U_C	I_{fi}	<100 A_{rms}
Response time	t_A	<100 ns
Operating temperature range	ϑ	-40°to + 80°C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		10 mm^2
Protection type		IP 20
Mounting on		DIN rail 35mm
Housing material		Silamid EFX
Lifetime		100.000 hrs
Weight	m	90 g