



# SCHIRTEC®

## Surge Protection Devices



New Products  
2010-2011

**POWER SUPPLY SYSTEMS UP TO 1000 V**

**HIGH-POWER LIGHTNING ARRESTER**

SZ110 is a lightning arrester class 1 according to EN 61643-11. These 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 in power supply systems entering the building.

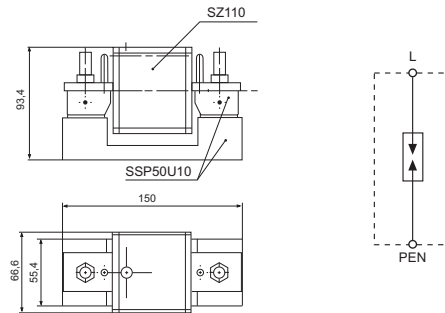
The lightning arrester is constructed as an encapsulated multiple spark gap for installation in main switchboards. SZ110 is mainly intended for use in TNC systems.

**SZ110**

**SZ110/500**



**SZ110**



**SZ110/500**

High-power lightning arrester SZ\* is intended for use in areas with a high frequency of storm days. The main use of SZ\* arrester is in industrial installations such as transformers or the main switchboards of large industrial buildings.

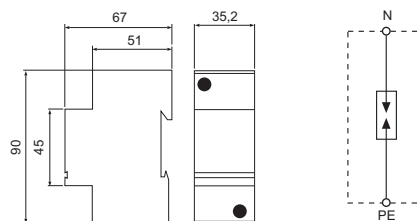
Type		SZ110	SZ110/500
Nominal Voltage	$U_N$	230 V AC	400 V AC
Max. continuous operating voltage	$U_C$	255 V AC	500 V AC
Insulation resistance	$R_i$	> 100 M $\Omega$	
Lightning impulse current (10/350)	$I_{imp}$	110 kA	
- charge	Q	55 As	
- specific energy	W/R	3000 kJ/ $\Omega$	
Temporary overvoltage (TOV)	$U_T$	500 V / 5 sec	
Voltage protection Level at $I_{imp}$	$U_P$	< 2,5 kV	
Follow current interrupting rating at $U_C$	$I_{fi}$	50 kArms	8 kArms
Response time	$t_A$	< 100 ns	
Max. back-up fuse		500 AgL/gG	
Life time		min. 100.000 h	
Weight	m	1000 g	

\* SZ110, SZ110/500

## SJK110



**SJK110**



SJK110 is a total current spark gap class 1 according to EN 61643-11 and is intended for use in TNS and TT systems (3+1 or 1+1) at the boundaries of LPZ 0-1. SJK110 is to be installed between N and PE only.

Type		SJK110
Max. continuous operating voltage	$U_C$	255 V AC
Insulation resistance	$R_i$	> 1000 M $\Omega$
Lightning impulse current (10/350)	$I_{imp}$	110 kA
- charge	Q	55 As
- specific energy	W/R	3000 kJ/ $\Omega$
Max. discharge current (8/20)	$I_{max}$	150 kA
Nominal discharge current (8/20)	$I_n$	75 kA
Temporary overvoltage (TOV)	$U_T$	1200 V / 0,2 sec
Voltage protection Level at $I_{imp}$	$U_P$	< 2 kV
Follow current interrupting rating at $U_C$	$I_{fi}$	100 A <sub>rms</sub>
Response time	$t_A$	< 100 ns
Life time		min. 100.000 h
Weight	m	360 g

### Application table

Type	TE	Weight (g)	No. of poles	Circuit	$I_{imp}$ (kA)	$U_C$ (V)	Mode of protection
SZ110	4	1000	1	1+0	110	255	L/N, L/PEN, L/PE
SZ110/500	4	1000	1	1+0	110	500	L/N, L/PEN, L/PE
SJK110	2	360	1	0+1	110	255	N/PE

### Recommended sets for TNC system

Set	Consisting of	TE	Weight (g)	No. of poles	Circuit	$I_{total}$ (kA)	Application
SZ110/3+0	3xSZ110	12	3000	3	3+0	-	Areas with high frequency of storm days
SZ110/500/3+0	3xSZ110/500	12	3000	3	3+0	-	

## 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 necessary 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.

<b>Type</b>		<b>SBM7 75</b> SBM7 75 DS	<b>SBM7 150</b> SBM7 150 DS	<b>SBM7 275</b> SBM7 275 DS	<b>SBM7 320</b> SBM7 320 DS	<b>SBM7 385</b> SBM7 385 DS	<b>SBM7 440</b> 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/ $\Omega$					
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 <sub>rms</sub>					
Weight	m	98 g	106 g	99 g	106 g	106 g	108 g

<b>Type</b>		<b>SB12,5 275</b> SB12,5 275 DS	<b>SB12,5 320</b> SB12,5 320 DS	<b>SB12,5 385</b> SB12,5 385 DS	<b>SB12,5 440</b> 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/ $\Omega$			
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			
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 <sub>rms</sub>			
Weight	m	140 g	234 g	236 g	236 g

**SSPC\***



**SSPC\***



**SSPC\*/1+1**

SSPC\* is lightning and surge arrester class 1+2 according to EN 61643-11. These 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 SSPC12,5 is intended for use in TNC systems (1+0 or 3+0). For TNS and TT systems (1+1 or 3+1) the SSPC12,5 is equipped with high energy gas discharge tube for equipotential bonding between N and PE.

The main use of SSPC12,5 arrester is in structures of LPL II according to EN 62305, e.g. industrial and administration buildings, school, supermarkets and cathedrals.

Type		SSPC12,5 SSPC12,5 DS	SSPC25 SSPC25 DS
Max. continuous operating voltage	$U_C$	275 V AC	
Lightning impulse current (10/350)	$I_{imp}$	12,5 kA	25 kA
	Q	6 As	12,5 As
	W/R	36 kJ/Ω	156 kJ/Ω
Total lightning current (8/20) L1—PEN	$I_{total}$	12,5 kA	25 kA
Nominal discharge current (8/20)	$I_n$	25 kA	50 kA
Voltage protection level at $I_{imp}$	$U_P$	< 1,2 kV	< 1,3 kV
Response time	$t_A$	< 25 ns	
Temporary overvoltage (TOV)		335 V / 5 sec	
Max. back-up fuse	$U_T$	315 AgL/gG	
Max. back-up fuse ("V" connection)		63 AgL/gG	
Short-circuit withstand capability at max. back-up fuse	$I_P$	80 kA <sub>rms</sub>	
Life time		min. 100.000 h	
Weight	m	240 g	300 g



**SSPC\***



**SSPC25/3+0**



**SSPC12,5/3+1**

The SSPC25 is intended for use in TNC systems (1+0 or 3+0). For TNS and TT systems (1+1 or 3+1) the SSPC25 is equipped with high energy gas discharge tube for equipotential bonding between N and PE.

The main use of SSPC25 arrester is in structures of LPL I according to EN 62305, e.g. hospitals, bank, mobile operator stations, water-stations, power plants, airport buildings for air traffic control and all structures with explosive risk.

To be installed in the main switchboard.

Type		SSPC12,5/1+1 SSPC12,5 DS/1+1	SSPC25/1+1 SSPC25 DS/1+1
Max. continuous operating voltage	$U_c$	275 V AC	
Lightning impulse current (10/350) L/N	$I_{imp}$	12,5 kA	25 kA
- charge	Q	6 As	12,5 As
- specific energy	W/R	36 kJ/Ω	156 kJ/Ω
Lightning impulse current (10/350) N/PE	$I_{imp}$	25 kA	50 kA
- charge	Q	12,5 As	25 As
- specific energy	W/R	156 kJ/Ω	625 kJ/Ω
Total lightning current (10/350) L1+N→PE	$I_{total}$	25 kA	50 kA
Nominal discharge current (8/20)	$I_n$	25 kA	50 kA
Voltage protection level at $I_{imp}$	$U_p$	< 1,2 kV	< 1,3 kV
Response time L/N	$t_A$	< 25 ns	
Response time N/PE	$t_A$	< 100 ns	
Temporary overvoltage (TOV), L/NE	$U_T$	335 V / 5 sec	
Temporary overvoltage (TOV), N/PE	$U_T$	1200 V / 0,2 sec	
Max. back-up fuse		315 AgL/gG	
Max. back-up fuse ("V" connection)		63 AgL/gG	
Short-circuit withstand capability at max. back-up fuse	$I_p$	80 kA <sub>rms</sub>	
Life time		min. 100.000 h	
Weight	m	370 g	460 g

**SSPC\***

Type		SSPC12,5/3+0 SSPC12,5 DS / 3+0	SSPC25/3+0 SSPC25 DS / 3+0
Max. continuous operating voltage	$U_C$	275 V AC	
Lightning impulse current (10/350)	$I_{imp}$	12,5 kA	25 kA
- charge	Q	6 As	12,5 As
- specific energy	W/R	36 kJ/ $\Omega$	156 kJ/ $\Omega$
Total lightning current (10/350) L1+L2+L3—PEN	$I_{total}$	37,5 kA	75 kA
Nominal discharge current (8/20)	$I_n$	25 kA	50 kA
Voltage protection level at $I_{imp}$	$U_P$	< 1,2 kV	< 1,3 kV
Response time	$t_A$	< 25 ns	
Temporary overvoltage (TOV)	$U_T$	335 V / 5 sec	
Max. back-up fuse		315 AgL/gG	
Max. back-up fuse ("V" connection)		63 AgL/gG	
Short-circuit withstand capability at max. back-up fuse	$I_P$	80 kA <sub>rms</sub>	
Life time		min. 100.000 h	
Weight	m	720 g	900 g

Type		SSPC12,5/3+1 SSPC12,5 DS / 3+1	SSPC25/3+1 SSPC25 DS / 3+1
Max. continuous operating voltage	$U_C$	275 V AC	
Lightning impulse current (10/350) L/N	$I_{imp}$	12,5 kA	25 kA
- charge	Q	6 As	12,5 As
- specific energy	W/R	36 kJ/ $\Omega$	156 kJ/ $\Omega$
Lightning impulse current (10/350) N/PE	$I_{imp}$	50 kA	100 kA
- charge	Q	25 As	50 As
- specific energy	W/R	625 kJ/ $\Omega$	2500 kJ/ $\Omega$
Total lightning current (10/350) L1+L2+L3+N—PE	$I_{total}$	50 kA	100 kA
Nominal discharge current (8/20)	$I_n$	25 kA	50 kA
Voltage protection level at $I_{imp}$	$U_P$	< 1,2 kV	< 1,3 kV
Response time L/N	$t_A$	< 25 ns	
Response time N/PE	$t_A$	< 100 ns	
Temporary overvoltage (TOV), L/N	$U_T$	335 V / 5 sec	
Temporary overvoltage (TOV), N/PE	$U_T$	1200 V / 0,2 sec	
Max. back-up fuse		315 AgL/gG	
Max. back-up fuse ("V" connection)		63 AgL/gG	
Short-circuit withstand capability at max. back-up fuse	$I_P$	80 kA <sub>rms</sub>	
Life time		min. 100.000 h	
Weight	m	1030 g	1125 g

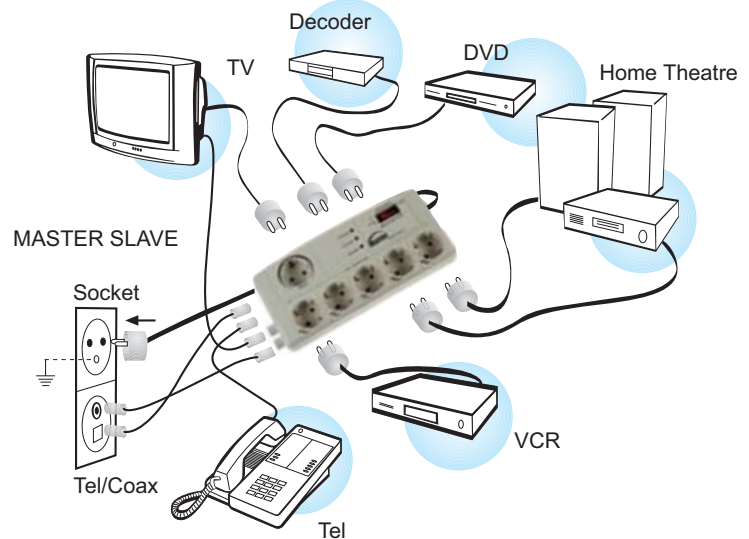
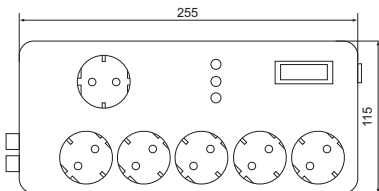


**SURGE ARRESTER - VARISTOR**

**SCHIRTEC PROTECTOR MS FULL**



**SCHIRTEC PROTECTOR MS FULL**



SCHIRTEC PROTECTOR MS FULL is universal surge protector designed for use in single-phase TNS system. These devices comply with the requirements for surge arrester type 3 according to EN 61643-11. This type of surge protective multiple socket outlet contains protection of telephone lines with RJ12 connector as well as protection of coaxial cable for TV connector 75Ω.

The right function of the protector is indicated by following indicator lights:

- Protected LED: Indicates that the internal surge Protection is in function.
- Power OK LED: Indicates that master socket outlets are supplied with voltage.
- Slave On LED: Indicates that the slave sockets outlets are feeded with power

All socket outlets have child-protection. The length of connecting cable is 1,8m.

Type		SCHIRTEC PROTECTOR MS FULL
Nominal voltage	$U_N$	230 V AC
Max. continuous operating voltage	$U_C$	275 V AC
Nominal current	$I_N$	10 A
Nominal discharge current $I_n$ (8/20)	$I_n$	2,5 kA
Combined impulse	$U_{OC}$	5 kV
Voltage protection Level at $U_{OC}$	$U_P$	< 1,5 kV L/N < 300 V (TEL/TV)
Number of socket outlets with child-protection		6 pcs
Length of connecting cable		2 m
Response time	$t_A$	< 25 ns (L/N)
Recommended backup fuse		10 A
Temporary overvoltage (TOV)	$U_T$	335 V / 5 s (L/N) 1200V+ $U_O$ /200 ms (L/PE)
Life time		min. 100.000 h
Weight	m	730 g

**HIGH POWER GAS DISCHARGE TUBE**

**NEW SOLUTION EQUIPOTENTIAL BONDING OF CONDUCTING PARTS OF THE ELECTRICAL INSTALLATION BY HIGH POWER GAS DISCHARGE TUBE - SGDT100 EX**



SGDT100 Ex Separating high power gas discharge tube SGDT100 Ex for use in explosion hazards areas. It is intended for equipotential bonding of the installation parts of buildings or technological entities which are not interconnected operationally. In case of p.d. (potential difference) origin between those parts, the high power gas discharge tube ignites and interconnects both parts for a transient time (typical value of internal resistance at startup of SGDT100 Ex is  $0,001 \div 0,002\Omega$ ). Recommended installation is inside of the buildings, outdoors, in the damp rooms as well as in the subterraneous areas.

It is an explosion-proof gas discharge tube with flexible connecting cable for equipotential bonding acc. to IEC 61024-1 and also for the use in IT installations acc. to IEC 60364-5-54. It complies with EN 50014 and EN 50028 standards. It is recommended for insulated flanges and insulated screw joints bridging in cathodic protected parts of industrial technology.

Type		SGDT100 Ex
EC-Type examination certificate		ⓂII2G Ex mb II T6 ⓂII2D Ex mD 21 T135°C
Class of lightning impulse current strength acc. to EN 50164-3		H
Approvals, certification		FTZU 04 ATEX 0255X
DC-Sparkover voltage		400 ÷ 650 V DC
AC-Sparkover voltage (50 Hz)	$U_{aw}$	275 ÷ 450 V DC
Rated AC withstand voltage (50 Hz)	$U_{w/AC}$	250 V
Impulse sparkover voltage at 5 kV/ $\mu$ s- for 99% of measured values (wave 1,2/50 $\mu$ s, 6 kV)	$U_{rimp}$	< 1 kV
Max. impulse discharge current (8/20)	$I_{max}$	150 kA
Max. lightning impulse current (10/350)	$I_{imp}$	100 kA
- Charge	Q	50 As
- Specific energy	W/R	2500 kJ/ $\Omega$
Insulation resistance at 100 V DC	$R_i$	>1 G $\Omega$
Capacitance at 1 MHz	C	5 pF
Casing		corundum/binary resin with an external steel coat, resistant to climatic effects
Lifetime		min. 100.000 h
Weight	m	535 g

**HIGH POWER GAS DISCHARGE TUBE**

**SGDT 150 RW\***



**SGDT150 RW1**



**SGDT150 RW2**

SGDT150 RW is range of voltage limiters designed for overvoltage protection of personnel and equipment in DC and AC rail traction systems. It is recommended to install this limiter between the current return path and non-electrified parts of structures laying adjacent to the rails. In case of overvoltage, SGDT150 RW generates a durable conductive path between the overloaded area and the railway's substation. This results in increased current loads that are sensed at the substation, tripping the safety switch and thus protecting personnel and equipment. In addition, all overvoltages generated by lightning are effectively limited by Schirtec's internal construction of SGDT150 RW. All requirements given by EN 50122-1 and EN 50123-5:2003 relating to electrical safety earthing for this specific use are also fulfilled. Schirtec company offers this voltage limiter in three modifications which differ in their external cover construction.

Type		SGDT150 RW1	SGDT150 RW2
Examinations according to		EN 616 43-11/A11, EN 50 123-5:2003	
DC-Sparkover voltage		300 ÷ 500 V DC*	
AC-Sparkover voltage		> 250 V <sub>rms</sub>	
Impulse sparkover voltage 5 kV/μs - for 99% of measured values (wave, 1,2/50μs, 6 kV)		< 1200 V	
Max. impulse discharge current (8/20)	I <sub>max</sub>	200 kA	
Nominal impulse discharge current (8/20)	I <sub>n</sub>	100 kA	
Max. lightning impulse current (10/350)	I <sub>imp</sub>	150 kA	
- charge	Q	75 As	
- specific energy	W/R	5500 kJ/Ω	
Insulation resistance at 100 V DC	R <sub>i</sub>	> 1GΩ	
Capacitance at 1 MHz	C	5 pF	
Casing		an external steel coat, resistant to climatic effects	
Recommended installation to rail		min. 50m <sup>2</sup> Fe conductor with isolation	
Method connection of SGDT to non-electrical part		by on pair of M12 nut & washer	
Life time		min. 100.000 h	
Weight	m	925 g	1060 g

\* Special SGDT150 RW for 200÷300 V is available on demand.



**SCHIRTEC<sup>®</sup>**

# **Surge Protection Devices**

**New Products  
2010-2011**

