



- Protection against overvoltage and high surge conditions caused by direct or indirect lightning strikes
- Version with integrated fuse and “no leakage current” available
- Types with plug-in cartridge provide fast servicing capability
- Visual failure status signalling of single modules
- Versions with or without output for remote SPD status indication
- Versions for data and signal lines
- Versions for photovoltaic applications
- UL-certified versions.

Surge protection devices for AC system

Type 1 and 2 monoblock $I_{imp}=25kA$	18 - 4
Type 1 and 2 with plug-in cartridge $I_{imp}=25kA$ with integrated fuse.....	18 - 4
Type 1 and 2 with plug-in cartridge $I_{imp}=12.5kA$	18 - 5
Type 1 and 2 monoblock $I_{imp}=12.5kA$	18 - 5
Type 1 and 2 with plug-in cartridge Type 1CA/Open-Type 1 UL-certified	18 - 5
Type 2 with plug-in cartridge $I_n=20kA$	18 - 6
Type 2 with plug-in cartridge $I_n=5kA$	18 - 6
Type 3 with plug-in cartridge $U_{oc}/I_{cw}=10kV/5kA$	18 - 6
Type 3 compact versions $U_{oc}/I_{cw}=6kV/3kA$	18 - 6

Surge protection devices for data and signal lines

Type C2-D1	18 - 7
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Surge protection devices for photovoltaic applications

Type 1 and 2 with plug-in cartridge $U_{cpv}=1100VDC$ and $1500VDC$	18 - 7
Type 2 with plug-in cartridge $U_{cpv}=600VDC$, $1100VDC$ and $1500VDC$	18 - 7

Dimensions	18 - 8
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Wiring diagrams	18 - 10
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Technical characteristics	18 - 13
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Page 18-4

TYPE 1 AND 2 MONOBLOCK Iimp=25kA

- 1P, 1P+N, 2P, 3P, 3P+N, 4P
- IEC impulse current Iimp (10/350µs): 25kA
- IEC maximum discharge current I_{max} (8/20µs): 100kA
- SPD status indicator
- Versions with output for remote status indication
- Version with integrated fuse and “no leakage current” available.



Page 18-5

TYPE 1 AND 2 Iimp=12.5kA

- 1P, 1P+N, 2P, 3P, 3P+N, 4P
- IEC impulse current Iimp (10/350µs): 12.5kA
- IEC maximum discharge current I_{max} (8/20µs):
 - 40kA for versions with plug-in cartridge
 - 50kA for monoblock versions
- Single module status indicator
- Versions with output for remote status indication.



Page 18-5

TYPE 1CA/OPEN-TYPE 1 UL-CERTIFIED WITH PLUG-IN CARTRIDGE

- 3P
- IEC impulse current Iimp (10/350µs): 5...12.5kA
- IEC rated discharge current I_n (8/20µs): 20kA
- IEC maximum discharge current I_{max} (8/20µs): 50kA
- Maximum continuous voltage U_c: 300...750VAC
- Versions with output for remote status indication.



Page 18-6

TYPE 2 WITH PLUG-IN CARTRIDGE I_n=20kA

- 1P, 1P+N, 2P, 3P, 3P+N, 4P
- IEC maximum discharge current I_{max} (8/20µs): 50kA
- IEC rated discharge current I_n (8/20µs): 20kA
- Single module status indicator
- Versions with or without output for remote status indication.



Page 18-6

TYPE 2 WITH PLUG-IN CARTRIDGE I_n=5kA

- 1P, 1P+N, 2P, 3P, 3P+N, 4P
- IEC maximum discharge current I_{max} (8/20µs): 15kA
- IEC rated discharge current I_n (8/20µs): 5kA
- Single module status indicator
- Versions with or without output for remote status indication.



Page 18-6

TYPE 3 WITH PLUG-IN CARTRIDGE U_{oc}/I_{cw}=10kV/5kA

- 1P+N
- Version with plug-in cartridge:
 - IEC rated current I_n (8/20µs): 5kA
 - SPD status indicator
 - output for remote status indication
- Acoustic or optical intervention indicator.



Page 18-6

TYPE 3 COMPACT VERSIONS U_{oc}/I_{cw}=6kV/3kA

- 1P+N
- Compact versions:
 - IEC rated current I_n (8/20µs): 3kA
 - Combined impulse U_{oc}: 6kV
- Acoustic or optical intervention indicator.



Page 18-7

TYPE C2-D1 FOR DATA AND SIGNAL LINES I_n=10kA

- Versions for RS485 and BUS 24VDC lines:
 - C2 rated current I_n (8/20µs): 10kA
 - D1 impulse current Iimp (10/350µs): 2.5kA
 - Output for remote status indication
- Version for Cat.6 Ethernet line - POE
 - C2 rated current I_n (8/20µs): 10kA
 - D1 impulse current Iimp (10/350µs): 1kA.
- Versions for telephone line:
 - C2 rated current I_n (8/20µs): up to 20kA
 - D1 impulse current Iimp (10/350µs): up to 7.5kA
 - Output for remote status indication.

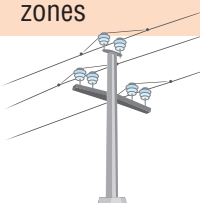



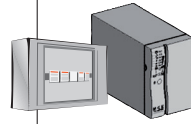


Page 18-7

TYPE 1 AND 2 AND TYPE 2 WITH PLUG-IN CARTRIDGE FOR PHOTOVOLTAIC APPLICATIONS

- Versions with plug-in cartridge: +, -, PE
- IEC maximum operational voltage: 1500VDC
- IEC maximum discharge current I_{max} (8/20µs): 40kA
- IEC rated discharge current I_n (8/20µs): 20kA
- Single module status indicator
- Versions with or without output for remote status indication
- Tested according to EN/BS 50539-11.

SAFE INSTALLATIONS!

	type 1, 2				type 2	type 3
LPZ protection zones	0 _A 0 _B	1	2	3		
						
Installation category	IV	III	II	I		
Impulse withstand voltage of equipment	6kV	4kV	2.5kV	1.5kV		

SURGE PROTECTION DEVICES

The surge arresters commonly defined as SPD (Surge Protection Devices), are devices designed to protect electric systems and equipment against transient and impulse overvoltage such as those caused by lightning strikes and by electric switching.

Their function is to divert the discharge or impulse current generated by an overvoltage to earth/ground, thereby protecting the equipment downstream.

SPD are installed in parallel with the electric line to be protected. At the mains rated voltage, they are comparable to an open circuit and have a high impedance at their ends.

In the presence of an overvoltage, this impedance falls to very low values, closing the circuit to earth/ground.

Once the overvoltage has ended, their impedance rises again rapidly to the initial value (very high), returning to open loop conditions.

The SA1B and SA0B (monoblock) and SA0 (with plug-in cartridge) type protects against direct and indirect lightning strikes as well as induced overvoltage conditions. It can be installed in areas with a high risk of direct lightning strikes, inside main distribution boards or nearby sub-distribution boards.

PROTECTION ZONES

Standards define the LPZs (Lightning Protection Zone), which indicate the different zones at risk. These are distinguished among:

LPZ 0A: Area outside a building not protected by LPS (e.g. lightning rods) where a direct lightning strikes is possible. In this zone, there is total exposure to induced electromagnetic fields.

LPZ 0B: Area outside a building not protected by LPS; therefore, a direct lightning strike is not possible. In this zone zone, there is total exposure to induced electromagnetic fields.

LPZ 1: Area inside a building so protected against direct lightning strikes. In this zone, there is the possibility of very high overvoltages and of induced electromagnetic fields which may be attenuated depending on the degree of screening. This zone must be protected by an SPD type 1 at the boundary with zone LPZ 0A or 0B.

LPZ 2: Area inside a building (e.g. in a room) in which there is the possibility of low overvoltages since they are limited by SPDs installed upstream. This zone must be protected by an SPD type 2 at the boundary with zone LPZ 1.

LPZ 3: Area inside a building (e.g. the system connected to a socket in a room) characterised by very sensitive equipment, in which there is the possibility of very low overvoltages as they are limited by SPDs installed upstream. This zone must be protected by an SPD type 3 at the boundary with zone LPZ 2.

INSTALLATION CATEGORY

For the correct choice of the SPD, the dielectric strength of the equipment to protect needs to be considered. This level is established by IEC 60664-1 standard.

For a 230/400V installation, it specifies:

Installation category IV: 6kV for devices installed upstream of the distribution board (for example, delivery point with the distribution system)

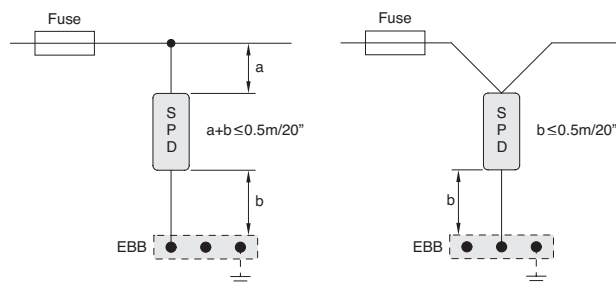
Installation category III: 4kV for devices being part of the fixed system (for example, distribution boards, switching devices, isolators, ducting and their accessories)

Installation category II: 2.5kV for non electric devices (for example, household appliances or electric tools)

Installation category I: 1.5kV for equipment containing "particularly sensitive" electronic circuits (for example, electronic devices like PCs or TVs).

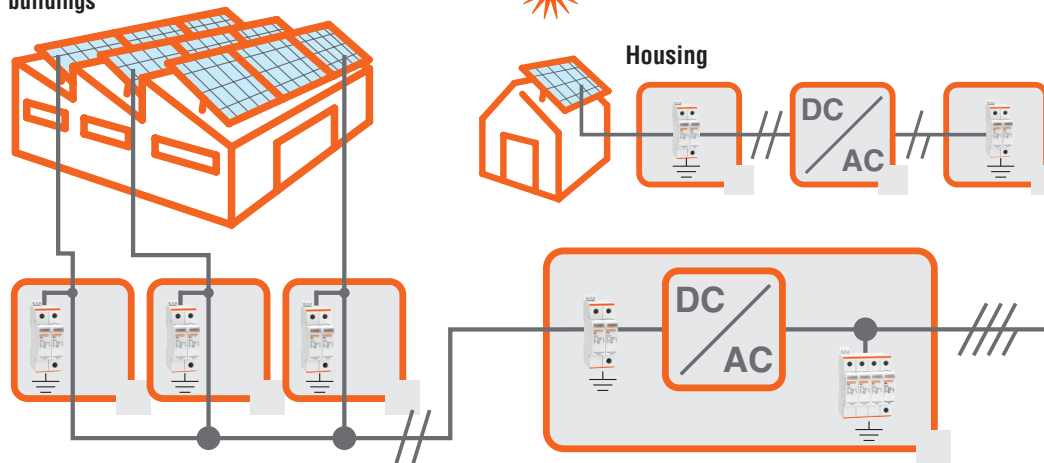
RECOMMENDATIONS FOR INSTALLATION

For correct installation, it is advisable to make connections between the line and SPD input (phase or neutral terminals) as well as between the SPD output (earth/ground terminal) and the equipotential bonding connection with a maximum 0.5m/20" length of the leads. To reduce the distance, use of the so-called "V connection" is admissible.



For more details, CEI/EN/BS 62305 standards can be consulted.

Industrial buildings



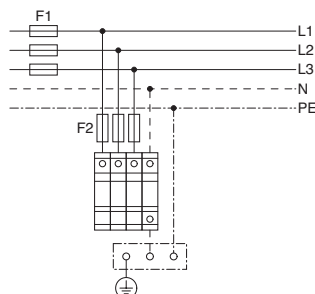
type 2 DC

SURGE PROTECTION DEVICES FOR PHOTOVOLTAIC APPLICATIONS

In photovoltaic applications in a domestic environment or industrial facility or other similar circumstances, equipped with lightning rod systems having a safety distance (S), SPD type 2, suitable for DC duty, can be used to protect the installation. It is advisable to install these devices as close as possible to the photovoltaic panels, consequently in the so-called string boards. If the AC/DC inverter is far away the string boards (indicatively more than 10/33' apart), another SPD type 2 DC needs to be installed next to the inverter on the DC side. Installation of SPD type 2 suitable of AC duty is also required downstream of the inverter on the AC side. For more details, consult specific national standards and/or application guides issued by local authorities for solar systems concerning protection against induced overvoltage conditions. The SG2DG... types with plug-in cartridge are suitable for connection in the DC side of a solar installation and offer protection against induced overvoltage conditions. The SG2...A300 type is suitable for installation downstream of the inverter on the AC side and in intermediate panels.

BACKUP PROTECTION

Protection against short circuits of SPDs is provided by overcurrent devices (gL/gG fuses), which should be chosen according to the SPD manufacturer's recommendations.



Fuse size depends on SPD

FOR SA1F34A275R THERE IS NO NEED TO USE ANY BACKUP PROTECTION

SPD COORDINATION

In order to obtain an effective protection against overvoltage, it is advisable to install several SPDs coordinated with one another in cascade connection. For instance, it is advisable to have a type 1 SPD in the main distribution board, a type 2 in the sub-distribution board and a type 3 SPD near the terminal equipment to be protected.

In this way, the energy originating from an overvoltage gradually decreases as it reaches the equipment to protect

DEFINITIONS AND RATING ACCORDING IEC/EN/BS

Maximum continuous voltage U_c :

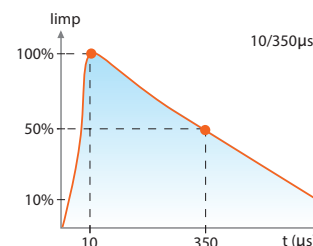
Maximum value of AC or DC voltage that the SPD is capable of permanently withstanding without activating or getting damaged; this is its rated voltage.

Protection level voltage U_p :

Maximum value of the voltage between the terminals of the SPD in presence of an impulsive overvoltage. It is a fundamental parameter to correctly choose the SPD; it must be taken into account with regards to the impulse voltage of the equipment to protect.

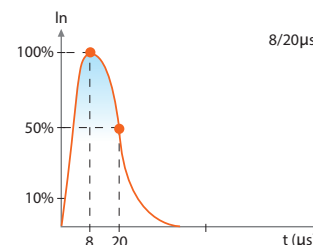
Impulse current I_{imp} :

Crest value of the current that circulates in the SPD with a 10/350 μ s waveform (activation must be guaranteed for 20 times without damage). It is used to classify SPDs in test class I.



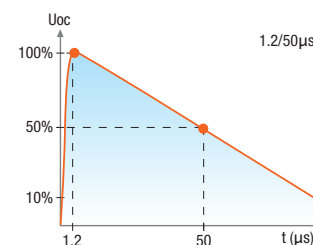
Rated discharge current I_n :

Crest value of the current that circulates in the SPD with an 8/20 μ s waveform (activation must be guaranteed for 20 times without damage). It is used to classify SPDs in test class II.



Open circuit discharge voltage U_{oc} :

Crest value of the no-load discharge voltage delivered by the test generation with a 1.2/50 μ s waveform simultaneously with a short circuit current of an 8/20 μ s waveform, applied at the SPD terminals. It is used to classify SPDs in test class III.



Monoblock Iimp=25kA



SA1B1PA320R



SA1B3NA320R

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg	Wt
		(SPDT)		n°	[kg]

MONOBLOCK VERSION.

IEC impulse current Iimp (10/350µs) 25kA per pole.

SA1B1PA320R	1P	YES	2	1	0.275
SA1B1NA320R	1P+N	YES	4	1	0.390
SA1B2PA320R	2P	YES	4	1	0.395
SA1B3PA320R	3P	YES	6	1	0.595
SA1B3NA320R	3P+N	YES	8	1	0.760
SA1B4PA320R	4P	YES	8	1	0.780

General characteristics

The surge protection device type SA1B combines the performance of SPD type 1 and 2 into a single product. It protects against direct and indirect lightning strikes as well as induced overvoltage conditions. It can be installed in areas with a high risk of direct lightning strikes, inside main distribution boards or nearby sub-distribution boards.

Operational characteristics

- IEC maximum continuous operating voltage U_c : 320VAC
- IEC maximum discharge current I_{max} (8/20µs): 100kA per pole
- IEC rated discharge current I_n (8/20µs): 25kA per pole
- Version with relay output having changeover contact for remote status indication
- IEC degree of protection: IP20.

Certifications and compliance

Certification obtained: EAC.

Compliant with standards: IEC/EN/BS 61643-11.

Characteristics

Type	IEC rated voltage U_n	IEC voltage protection level U_p	Power installation system
	[V]	[kV] L-N	
SA1B1PA320R	230	<1.4	TN-C, TN-S, TT①
SA1B1NA320R	230	<1.4/1.3	TT, TN-S
SA1B2PA320R	230	<1.4	TN-S
SA1B3PA320R	230/400	<1.4	TN-C
SA1B3NA320R	230/400	<1.4/1.5	TT, TN-S
SA1B4PA320R	230/400	<1.4	TN-S

① Between L-N only.

With plug-in cartridge Iimp=25kA with integrated fuse and “no leakage current”

new



SA1F34A275R



SAX1FA275

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg	Wt
				n°	[kg]

VERSION WITH PLUG-IN CARTRIDGE WITH INTEGRATED FUSE AND “NO LEAKAGE CURRENT”.

Impulse current Iimp (10/350µs) 25kA per pole.

SA1F34A275R	3P+N/4P	YES	8	1	1.065
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PLUG-IN CARTRIDGE.

Order code	Description	Q.y per pkg	Wt
		n°	[kg]
SAX1FA275	For SA1F... type	1	0.194

General characteristics

The surge protection device SA1F34A275R combines the performance of SPD type 1 and 2 into a single product. It protects against direct and indirect lightning strikes as well as induced overvoltage conditions. It can be installed in areas with a high risk of direct lightning strikes, inside main distribution boards or nearby sub-distribution boards.

This surge protection device is immune to temporary overvoltage (TOV) and stop the flow of current after the trip. The presence of the integrated fuse does not require any backup protection (see page 18-3).

The “no leakage current” technology allows it to be installed upstream of energy meters as it does not influence the measurement of consumed energy.

Operational characteristics

- IEC maximum continuous operating voltage U_c : 275VAC
- IEC maximum discharge current I_{max} (8/20µs): 65kA per pole
- IEC rated discharge current I_n (8/20µs): 25kA per pole
- Versions with or without relay output having changeover contact for remote status indication
- IEC degree protection: IP20.

Compliance

Compliant with standards: IEC/EN/BS 61643-11.

Characteristics

Type	IEC rated voltage U_n	IEC voltage protection level U_p	Power installation system
	[V]	[kV] L-N	
SA1F34A275R	240	<1.5	TN-C, TN-S, TT

With plug-in cartridge Iimp=12.5kA



SA01PA320R



SA03PA320R



SAX00PA320

Monoblock Iimp=12.5kA



SA0B1PA320R

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg	Wt
		(SPDT)		n°	[kg]

VERSION WITH PLUG-IN CARTRIDGES.
IEC impulse current Iimp (10/350µs) 12.5kA per pole.

SA01PA320R	1P	YES	1	1	0.195
SA01NA320R	1P+N	YES	2	1	0.365
SA02PA320R	2P	YES	2	1	0.370
SA03PA320R	3P	YES	3	1	0.540
SA03NA320R	3P+N	YES	4	1	0.670
SA04PA320R	4P	YES	4	1	0.670

PLUG-IN CARTRIDGE.

Order code	Description	Qty per pkg	Wt
		n°	[kg]
SAX00PA320	For SA0... type	1	0.100

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg	Wt
		(SPDT)		n°	[kg]

MONOBLOCK VERSION.
IEC impulse current Iimp (10/350µs) 12.5kA per pole.

SA0B1PA320R	1P	YES	2	1	0.205
SA0B1NA320R	1P+N	YES	2	1	0.155
SA0B2PA320R	2P	YES	2	1	0.230
SA0B3PA320R	3P	YES	3	1	0.330
SA0B3NA320R	3P+N	YES	4	1	0.600
SA0B4PA320R	4P	YES	4	1	0.600

General characteristics

SURGE PROTECTION DEVICES SA0

It has a plug-in cartridge and combines the performance of SPD type 1 and 2 into a single product. It is ideal in all those systems of reduced extent to protect the load side downstream of main circuit breaker to terminal equipment. It protects against direct and indirect lightning strikes as well as induced overvoltage conditions. It can be installed inside main distribution boards and nearby terminal equipment. The protection cartridges are plug-in and can be easily replaced for quick servicing.

SURGE PROTECTION DEVICES TYPE SA0B

Monoblock version SPD, it combines the performance of SPD type 1 and 2 into a single product. It is ideal in all those systems of reduced extent to protect the load side downstream of main circuit breaker to terminal equipment. It protects against direct and indirect lightning strikes as well as induced overvoltage conditions. It can be installed inside main distribution boards and nearby terminal equipment.

Operational characteristics

- IEC maximum continuous operating voltage Uc: 300VAC (SA0...); 320VAC (SA0B...)
- IEC maximum discharge current I_{max} (8/20µs): 40kA per pole (SA0...); 50kA (SA0B...)
- IEC rated discharge current I_n (8/20µs): 20kA per pole
- Version with relay output having changeover contact for remote status indication
- IEC degree of protection IP20.

Certifications and compliance

Certifications obtained: EAC.

Compliant with standards: IEC/EN/BS 61643-11.

Characteristics

Type	IEC rated voltage U _n	IEC voltage protection level U _p	Power installation system
	[V]	[kV] L-N	
SA0...1PA...	230	<1.5	TN-C, TN-S, TT ¹
SA0...1NA...	230	<1.5	TT, TN-S
SA0...2PA...	230	<1.5	TN-S
SA0...3PA...	230/400	<1.5	TN-C
SA0...3NA...	230/400	<1.5	TT, TN-S
SA0...4PA...	230/400	<1.5	TN-S

¹ Between L-N only.

With plug-in cartridge Type 1CA/Open-Type 1, I_n=20kA UL-certified



new



SG13PA...RUL

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg	Wt
				n°	[kg]

VERSION WITH PLUG-IN CARTRIDGE.
TYPE 1CA/OPEN-TYPE 1.
Rated discharge current I_n (8/20µs) 20kA per pole.

SG13PA300RUL	3P	YES	3	1	0.508
SG13PA350RUL	3P	YES	3	1	0.565
SG13PA480RUL	3P	YES	3	1	0.574
SG13PA750RUL	3P	YES	3	1	0.583

General characteristics

SURGE PROTECTION DEVICES TYPES SG13PA...RUL

It has a plug-in cartridge and combines the performance of SPD type 1 and 2 into a single product. It is ideal in all those systems of reduced extent to protect the load side downstream of main circuit breaker to terminal equipment. It protects against direct and indirect lightning strikes as well as induced overvoltage conditions. It can be installed inside main distribution boards and nearby terminal equipment.

Operational characteristics

- IEC maximum continuous operating voltage Uc: 300...750VAC
- IEC maximum discharge current I_{max} (8/20µs): 50kA per pole
- IEC rated discharge current I_n (8/20µs): 20kA per pole
- IEC impulse discharge current Iimp (10/350µs):
 - 12.5kA per pole (SG13PA300RUL and SG13PA350RUL)
 - 10kA per pole (SG13PA480RUL)
 - 5kA per pole (SG13PA750RUL)
- Versions with or without relay output having changeover contact for remote status indication
- IEC degree of protection: IP20.

Certifications and compliance

Certifications: cULus.

Compliant with standards: IEC/EN/BS 61643-11, UL1449 4th edition.

Type 2 with plug-in cartridge In=20kA



SG2...

Type 2 with plug-in cartridge In=5kA



SG2C...

Type 3 with plug-in cartridge Uoc/lcw = 10kV/5kA



SA31NA320R

Type 3 compact version Uoc/lcw = 6kV/3kA



SA31NA275MS

SA31NA275ML

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg	Wt
				n°	[kg]

VERSIONS WITH PLUG-IN CARTRIDGE.
Rated discharge current In (8/20μs) 20kA per pole.

SG21PA300	1P	NO	1	1	0.128
SG21PA300R	1P	YES	1	1	0.135
SG21NA300	1P+N	NO	2	1	0.234
SG21NA300R	1P+N	YES	2	1	0.240
SG22PA300	2P	NO	2	1	0.252
SG22PA300R	2P	YES	2	1	0.266
SG23PA300	3P	NO	3	1	0.366
SG23PA300R	3P	YES	3	1	0.376
SG23NA300	3P+N	NO	4	1	0.477
SG23NA300R	3P+N	YES	4	1	0.486
SG24PA300	4P	NO	4	1	0.496
SG24PA300R	4P	YES	4	1	0.505

PLUG-IN CARTRIDGE.

Order code	Description	Qty per pkg	Wt
		n°	[kg]
SGX02PA300	For SG2...A300/300R types	1	0.100

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg	Wt
		(SPDT)		n°	[kg]

VERSIONS WITH PLUG-IN CARTRIDGE.
Rated discharge current In (8/20μs) 5kA per pole.

SG2C1NA320	1P+N	NO	1	1	0.126
SG2C2PA320	2P	NO	1	1	0.144

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg	Wt
		(SPDT)		n°	[kg]

VERSIONS WITH PLUG-IN CARTRIDGE.
Combined impulse Uoc/lcw (1.2/50μs, 8/20μs) 10kV/5kA.

SA31NA320R	1P+N	YES	1	1	0.140
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Order code	Pole arrangement	Intervention signaling	Qty per pkg	Wt
			n°	[kg]

COMPACT VERSION.
Combined impulse Uoc/lcw (1.2/50μs, 8/20μs) 6kV/3kA.

SA31NA275MS	1P+N	Acoustic	1	0.050
SA31NA275ML	1P+N	Optical	1	0.050

General characteristics

SURGE PROTECTION DEVICES TYPE SG2

They are available in plug-in cartridge version and they are suitable for installation in secondary boards and in terminal equipment.

They ensure protection against overvoltages conditions.

The protection cartridges are plug-in and can be easily replaced for quick servicing.

SG2 surge arresters are immune to temporary overvoltages (TOV) and block the circulation of the subsequent network current after the intervention.

SURGE PROTECTION DEVICES TYPE SG2C

They are available in plug-in cartridge version and suitable for installation in residential boards where a 5kA per pole indirect discharge protection is sufficient. They have compact size, 1 module width for two poles.

Operational characteristics

- IEC maximum continuous operating voltage Uc: 300VAC (SG2...); 320VAC (SG2C...)
- IEC maximum discharge current I_{max} (8/20μs): 50kA per pole (SG2...); 15kA (SG2C...)
- IEC rated discharge current In (8/20μs): 20kA per pole (SG2...); 5kA (SG2C...)
- Versions with or without relay output having changeover contact for remote status indication (SG2...)
- IEC degree of protection IP20.

Certifications and compliance

Certification obtained: EAC.

Compliant with standards: IEC/EN/BS 61643-11.

Characteristics

Type	IEC rated voltage Un	IEC voltage protection level Up	Power installation system
	[V]	[kV] L-N	
SG21PA...	230	<1.5	TN-C, TN-S, TT①
SG2/SG2C1NA...	230	<1.5	TT, TN-S
SG2/SG2C2PA...	230	<1.5	TN-S
SG23PA...	230/400	<1.5	TN-C
SG23NA...	230/400	<1.5	TT, TN-S
SG24PA...	230/400	<1.5	TN-S

① Between L-N only.

General characteristics

SURGE PROTECTION DEVICE TYPE SA3

They are available in plug-in cartridge version for installation on DIN rail or compact version for installation in terminal block or electrical conduct. They are used for protection of end users (electronic devices).

The DIN rail version includes a relay output with exchange contact for status reporting. The compact versions are available with acoustic or light signaling and are provided with pre-wired connectors, length 11cm.

Operational characteristics

- IEC rated voltage Un: 230VAC
- IEC rated current In (8/20μs): 5kA (SA3...A320R), 3kA (SA3...MS, SA3...ML)
- IEC combined impulse Uoc: 10kV (SA3...A320R), 6kV (SA3...MS, SA3...ML)
- IEC protection level Up<1.5kV
- IEC degree of protection IP20.

Certifications and compliance

Certification obtained: EAC.

Compliant with standards: IEC/EN/BS 61643-11.

18 Surge protection devices

INDEX

Type C2-D1 for data and signal lines.

Type 1 and 2 and type 2 for photovoltaic application.

Type C2-D1 for data and signal lines In = 10kA



SASD...VR

SASDET6

new



SASDTELIP

Order code	Application	Relay output	Qty per pkg n°	Wt [kg]
Rated current C2 In (8/20µs): 10kA.				
SASD5VR	RS485 - 5VDC	YES	1	0.058
SASDET6	Ethernet Cat.6 - POE	–	1	0.120
SASD024VR	Data lines - BUS 24VDC	YES	1	0.058
SASDTELDIN	Telephone line - 110VDC, for DIN rail installation	YES	1	0.052
SASDTELIP	Telephone - 110VDC, for outdoor installation (IP66)	–	1	0.150

General characteristics

Surge protection device for data lines type RS485 (5VDC), BUS (24VDC e.g. intercom), Ethernet Cat. 6 Power Over Ethernet (POE) and telephone lines (110VDC). Typically used for protection of televisions, data lines, PCs, video cameras, electronic control units, measuring devices, switches and routers.

Operational characteristics

Types SASD...VR

- IEC rated voltage Un: 5VDC (SASD5VR); 30VDC (SASD024VR)
- C2 rated current In (8/20µs): 10kA
- D1 impulse current Iimp (10/350µs): 2.5kA
- Bandwidth: 30MHz
- IEC degree of protection: IP20.

TYPE SASDET6

- IEC rated voltage Un: 48VDC (POE)
- C2 rated current In (8/20µs): 10kA
- D1 impulse current Iimp (10/350µs): 1kA
- Bandwidth: 250MHz
- IEC degree of protection: IP20.

TYPE SASDTELDIN

- IEC rated voltage Un: 110VDC
- C2 rated current In (8/20µs): 10kA
- D1 impulse current Iimp (10/350µs): 2.5kA
- Bandwidth: 30MHz
- IEC degree of protection: IP20.

TYPE SASDTELIP

- IEC rated voltage Un: 110VDC
- C2 rated current In (8/20µs): 20kA
- D1 impulse current Iimp (10/350µs): 7.5kA
- Bandwidth: 250MHz
- IEC degree of protection: IP66, suitable for outdoor applications.

Certifications and compliance

Certification obtained: EAC.

Compliant with standards: IEC/EN/BS 61643-21.

Type 1 and 2 for photovoltaic application with plug-in cartridge



SG2EDGK10M3R

new

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg n°	Wt [kg]
EN rated voltage Un 1100VDC.					
SG2EDGK10M3R	+, -, PE	YES	3	1	0.406
EN rated voltage Un 1500VDC.					
SG2EDGK50M3R	+, -, PE	YES	3	1	0.475

Type 2 for photovoltaic application with plug-in cartridge



SG2DG600M2...

SG2DGK10M3R

Order code	Pole arrangement	Relay output	Number of DIN modules	Qty per pkg n°	Wt [kg]
EN rated voltage Un 600VDC.					
SG2DG600M2	+, -, PE	NO	2	1	0.320
SG2DG600M2R	+, -, PE	YES	2	1	0.325
EN rated voltage Un 1100VDC.					
SG2DGK10M3	+, -, PE	NO	3	1	0.396
SG2DGK10M3R	+, -, PE	YES	3	1	0.406
SA2EDGK10M3	+, -, PE	NO	3	1	0.329
EN rated voltage Un 1500VDC.					
SG2DGK50M3	+, -, PE	NO	3	1	0.444
SG2DGK50M3R	+, -, PE	YES	3	1	0.454

Plug-in cartridge



SGX02DG600M2

Order code	Description	Qty per pkg n°	Wt [kg]
SGX02DG600M2	For SG2DG600M2/M2R type	1	0.100
SGX02DGK10M3	For SG2DGK10M3/M3R type	1	0.100
SGX02DGK50M3	For SG2DGK50M3R type	1	0.100

General characteristics

The surge protection device type SG2EDG..., SG2DG... and SA2EDG... with plug-in cartridge for photovoltaic applications is suitable for installation on the direct-current end of a photovoltaic installation and protects against induced overvoltage conditions.

The protection cartridges are plug-in and can be easily replaced for quick servicing.

Operational characteristics

- EN maximum continuous voltage Ucpv: 600VDC, 1100VDC, 1500VDC
- EN short circuit current rating Iscpv: 30kA for SG2EDGK50..., 11kA for SG2DGK10... and SG2DG..., 9kA for SA2EDG...
- Versions with or without relay output having changeover contact for remote status indication
- IEC degree of protection: IP20.

Characteristics

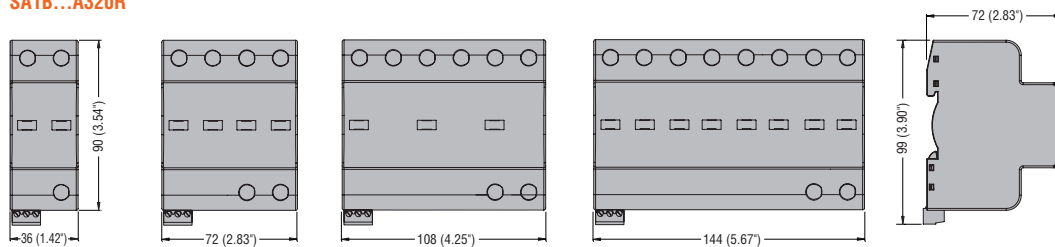
Type	EN rated voltage Un [VDC]	EN continuous voltage Ucpv [VDC]	EN voltage protection level Up [kV]
SG2DG600M2	600	600	<1.9
SG2DG600M2R	600	600	<1.9
SG2DGK10M3	1100	1100	<3.8
SG2DGK10M3R	1100	1100	<3.8
SG2EDGK10M3R	1100	1100	<3.8
SA2EDGK10M3	1100	1100	<4.0
SG2EDGK50M3R	1500	1500	<4.5
SG2DGK50M3	1500	1500	<5.0
SG2DGK50M3R	1500	1500	<5.0

Certifications and compliance

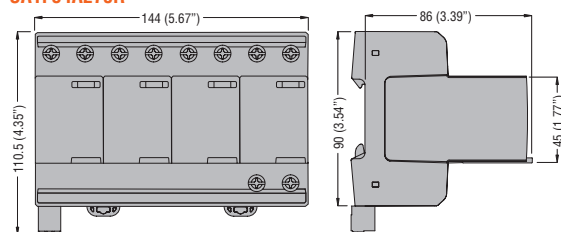
Certification obtained: EAC.

Compliant with standards: EN/BS 50539-11.

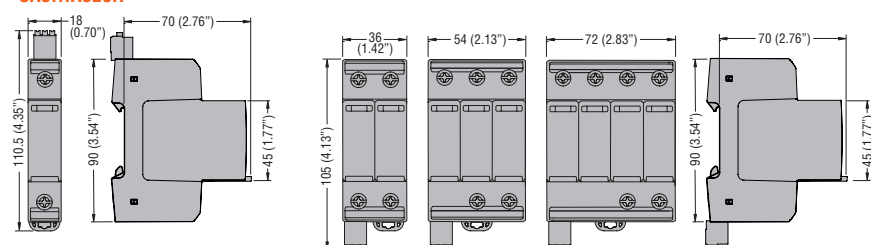
SA1B...A320R



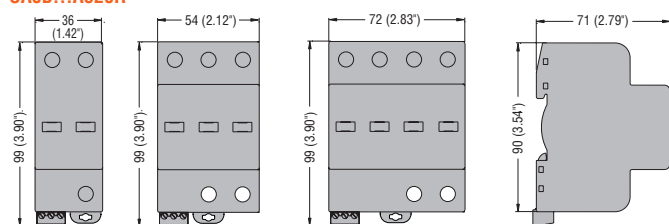
SA1F34A275R



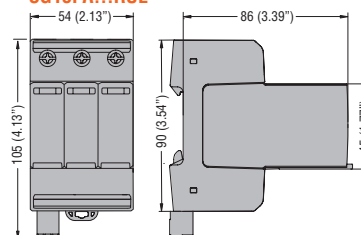
SA0...A320R



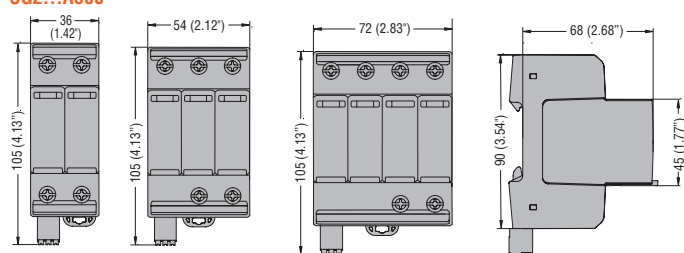
SA0B...A320R



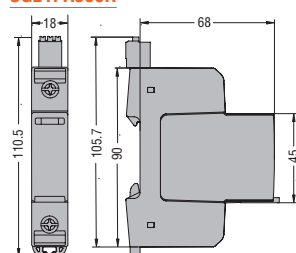
SG13PA...RUL



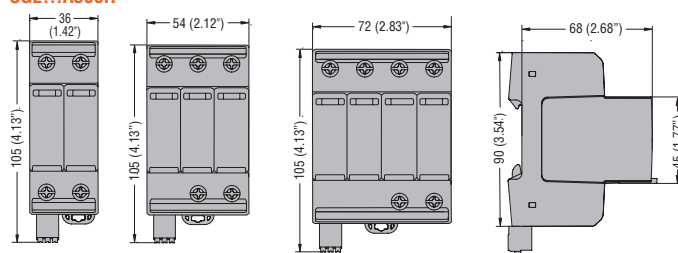
SG2...A300



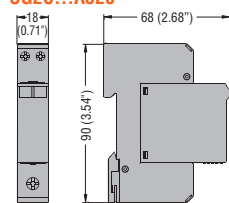
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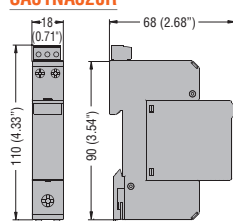
SG2...A300R



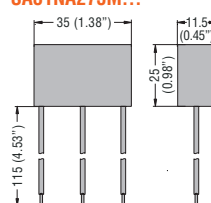
SG2C...A320



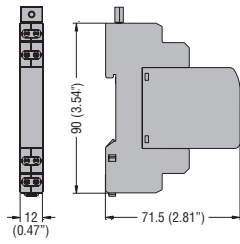
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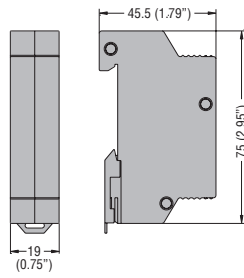
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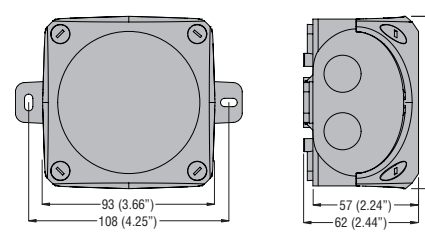
SASD...VR - SASDTELDIN



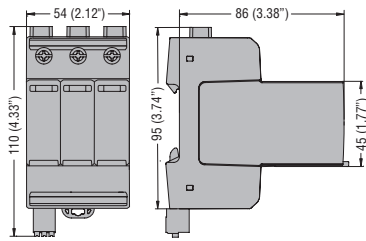
SASDET6



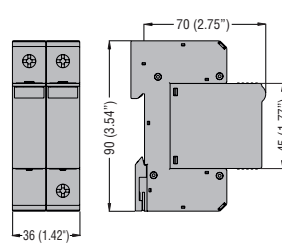
SASDTLIP



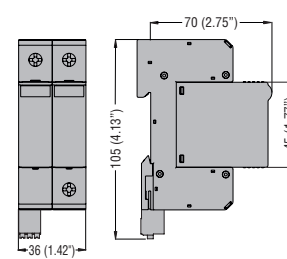
SG2EDGK...M3R



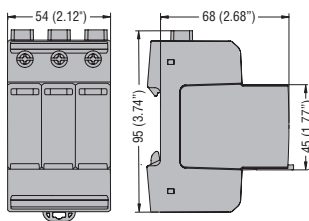
SG2DG600M2



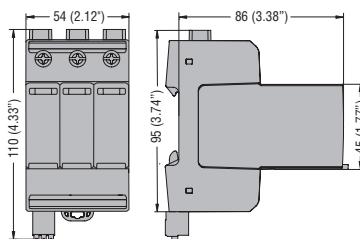
SG2DG600M2R



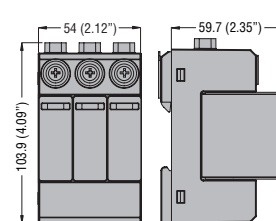
SG2DGK...M3



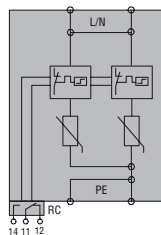
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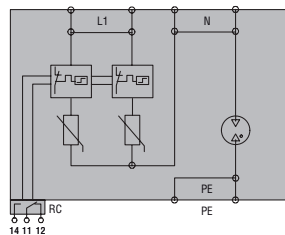
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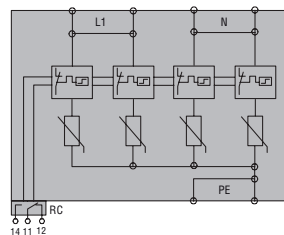
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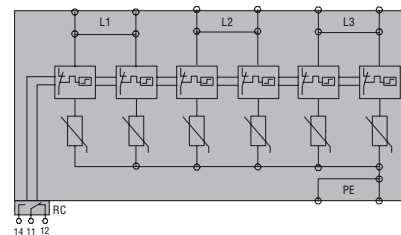
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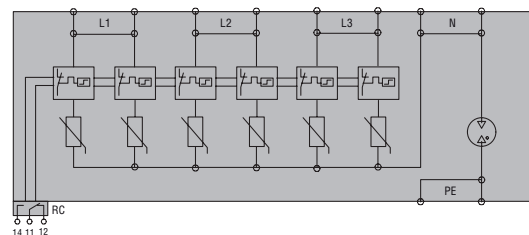
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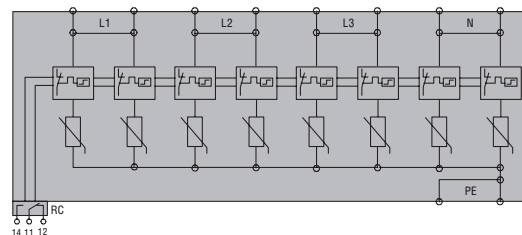
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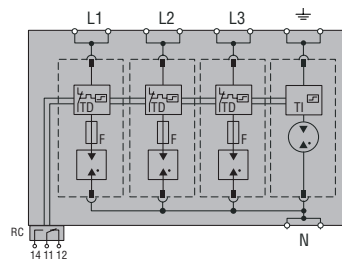
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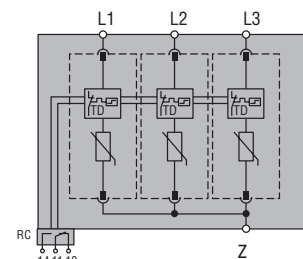
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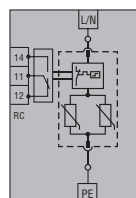
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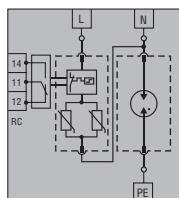
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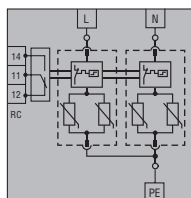
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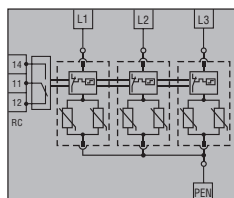
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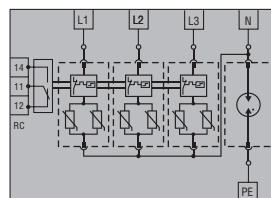
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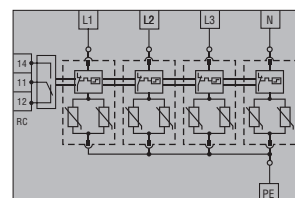
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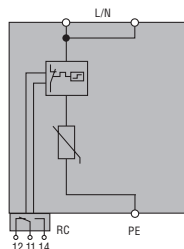
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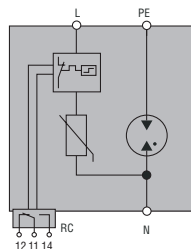
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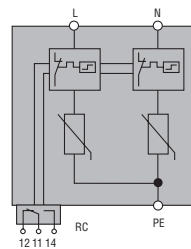
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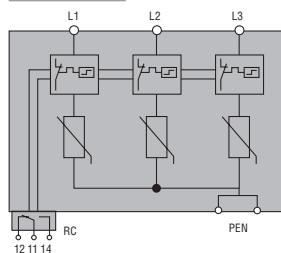
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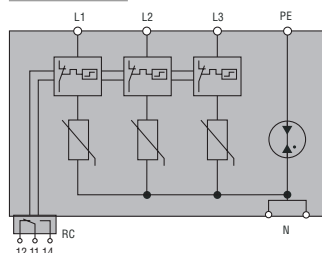
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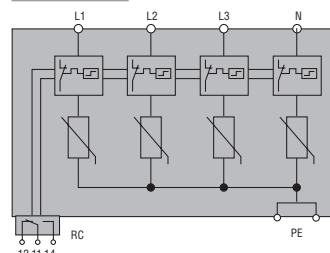
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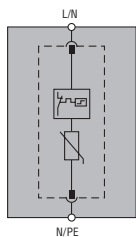
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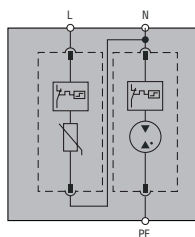
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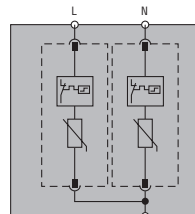
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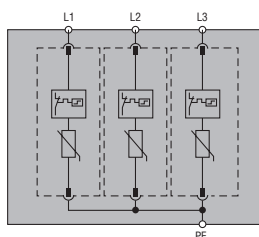
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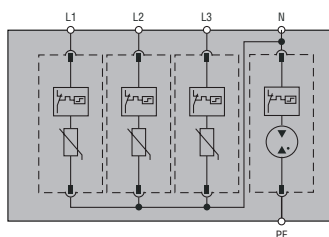
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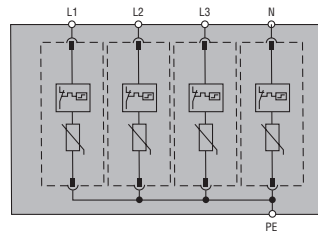
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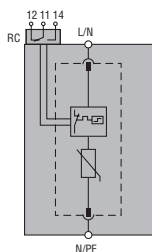
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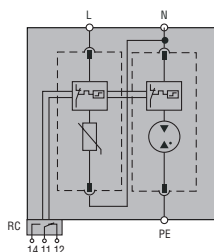
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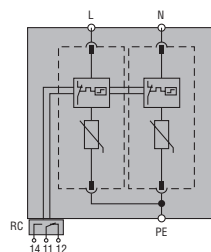
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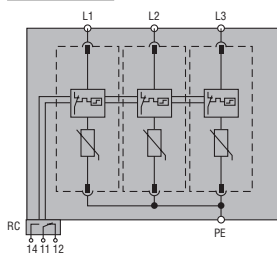
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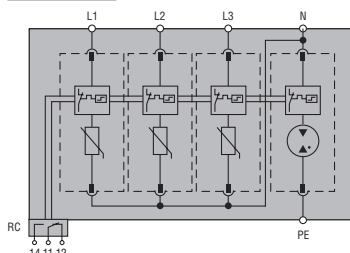
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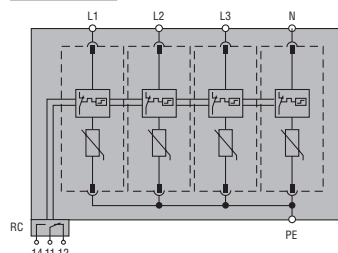
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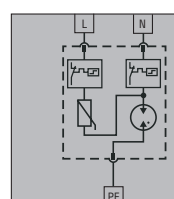
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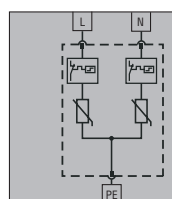
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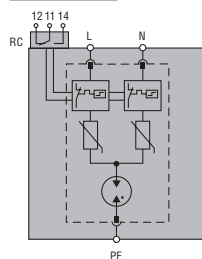
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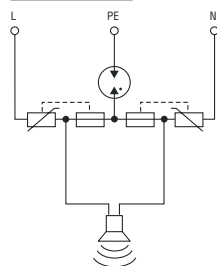
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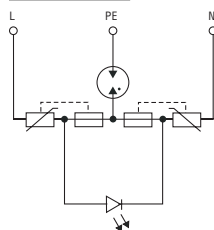
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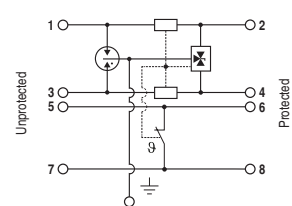
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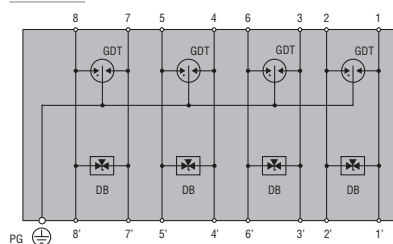
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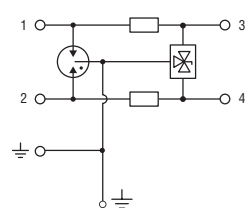
SASD...VR



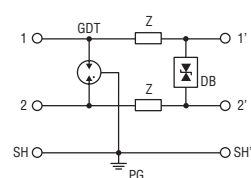
SASDET6



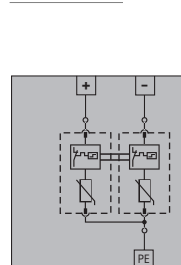
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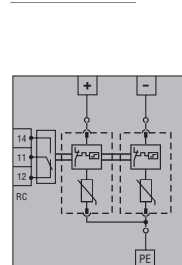
SASDTELIP



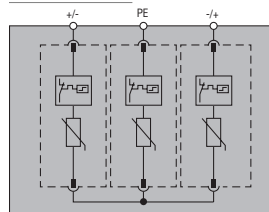
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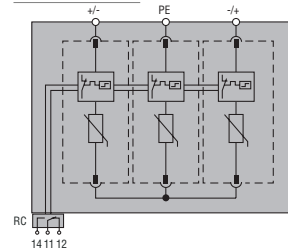
SG2DG600M2R



SG2DGK10M3
SG2DGK50M3
SA2EDGK10M3



SG2DGK10M3R
SG2EDGK10M3R
SG2DGK50M3R



TYPE	with relay output	SA1B1PA320R	SA1B1NA320R	SA1B2PA320R	SA1B3PA320R	SA1B3NA320R	SA1B4PA320R	SA1F34A275R
ELECTRICAL PROPERTIES								
SPD per IEC/EN/BS 61643-11		Type 1, 2 (test class I, II)						
IEC rated voltage Un	VAC	230	230	230	230 / 400	230 / 400	230 / 400	230 / 400
IEC maximum continuous voltage Uc	VAC	320						275
IEC impulse current Iimp (10/350) (L-N/N-PE)	kA	25	25 / 50	25 per pole	25 per pole	25 / 100	25 per pole	25 / 100
IEC max impulse current Imax (8/20) (L-N/N-PE)	kA	100	100 / 100	100 per pole	100 per pole	100 / 100	100 per pole	65 / 130
IEC rated discharge current In (8/20) (L-N/N-PE)	kA	25	25 / 50	25 per pole	25 per pole	25 / 100	25 per pole	25 / 100
IEC voltage protection level Up (L-N/N-PE)	kV	<1.4	<1.4 / <1.3	<1.4	<1.4	<1.4 / <1.5	<1.4	<2.1 / <1.5
IEC temporary overvoltage (TOV) withstand Ut (L-N for 5s)	VAC	334						–
IEC temporary overvoltage (TOV) safe fail (L-N for 120min)	VAC	438						442
IEC temporary overvoltage (TOV) withstand (N-PE for 200ms)	VAC	–	1200V / 300A	–	–	–	1200V / 300A	1200V
IEC residual voltage Ures (L-N/N-PE) at 5kA (8/20)	kV	1	1	1	1.1	1.1	1.1	1.2 / 0.3
IEC follow current If (N-PE)	Arms	No	>100	No	No	>100	No	100,000
Tripping time ta (L-N/N-PE)	ns	<25	<25 / 100	<25	<25	<25 / 100	<25	<100
Thermal isolation protection		Yes						–
Backup protection fuse (gL/gG) in case of main fuse >250A	A min	125 (Iimp=10kA)						Not needed
	A max	250						
IEC maximum short circuit current 50Hz	kA	50						100
Status indicator - operating / failure	colour	Green / Red						
CONNECTIONS								
IEC degree of protection		IP20						
Terminal tightening torque	Nm	3						4.5
Maximum conductor section	mm²	25 (flexible) / 35 (rigid)						
RELAY OUTPUT FOR REMOTE STATUS INDICATION								
Type of contact		Changeover (NO/NC)						
Contact capacity	A	0.5A 250VAC; 3A 125VAC; 0.1A 250VDC; 0.2A 125VDC						1A 250VAC; 0.5A 48VDC
Contact terminal tightening torque	Nm	0.25						
Maximum contact conductor section	mm²	1.5						
AMBIENT CONDITIONS								
Operating temperature		-40...+85°C						
Fixing		On 35mm DIN rail (IEC/EN/BS 60715)						
Material		Thermoplastic, RAL 7035, UL 94 V-0						

TYPE	with relay output	SA01PA320R	SA01NA320R	SA02PA320R	SA03PA320R	SA03NA320R	SA04PA320R
ELECTRICAL PROPERTIES							
SPD per IEC/EN/BS 61643-11		Type 1, 2 (test class I, II)					
IEC rated voltage Un	VAC	230	230	230	230 / 400	230 / 400	230 / 400
IEC maximum continuous voltage Uc	VAC	300					
IEC impulse current Iimp (10/350) (L-N/N-PE)	kA	12.5	12.5 / 50	12.5 per pole	12.5 per pole	12.5 / 50	12.5 per pole
IEC max discharge current Imax (8/20) (L-N/N-PE)	kA	40	40 / 100	40 per pole	40 per pole	40 / 100	40 per pole
IEC rated discharge current In (8/20) (L-N/N-PE)	kA	20	20 / 50	20 per pole	20 per pole	20 / 50	20 per pole
IEC combined surge Uoc/Isc (1,2/50, 8/20)	kV/kA	10 / 5					
IEC voltage level protection Up (L-N/N-PE)	kV	<1.5					
IEC temporary overvoltage (TOV) withstand Ut (L-N for 5s)	VAC	335					
IEC temporary overvoltage (TOV) withstand (N-PE for 200ms)	VAC	–	–	1200V / 300A	–	1200V / 300A	–
IEC residual voltage Ures (L-N/N-PE) at 5kA (8/20)	kV	0.8	0.8 / 0.2	0.8	0.8	0.8 / 0.2	0.8
IEC follow current If (N-PE)	Arms	No	>100	No	No	>100	No
Tripping time ta (L-N/N-PE)	ns	<25	<25 / 100	<25	<25	<25 / 100	<25
Thermal isolation protection		Yes					
Backup protection fuse (gG) in case of main fuse >160A	A min	125 (Iimp=10kA)					
	A max	160					
IEC maximum short circuit current (50Hz)	kA	25					
Status indicator - operating / failure	colour	– / Red					
CONNECTIONS							
IEC degree of protection		IP20					
Terminal tightening torque	Nm	3					
Maximum conductor section	mm²	25 (flexible) / 35 (rigid)					
RELAY OUTPUT FOR REMOTE STATUS INDICATION							
Type of contact		Changeover (NO/NC)					
Contact capacity	A	0.5A 250VAC; 3A 125VAC; 0.1A 250VDC; 0.2A 125VDC					
Contact terminal tightening torque	Nm	0.25					
Maximum contact conductor section	mm²	1.5					
AMBIENT CONDITIONS							
Operating temperature		-40...+80°C					
Fixing		On 35mm DIN rail (IEC/EN/BS 60715)					
Material		Thermoplastic, RAL 7035, UL 94 V-0					

TYPE	with relay output	SA0B1PA320R	SA0B1NA320R	SA0B2PA320R	SA0B3PA320R	SA0B3NA320R	SA0B4PA320R
ELECTRICAL PROPERTIES							
SPD per IEC/EN/BS 61643-11		Type 1, 2 (test class I, II)					
IEC rated voltage Un	VAC	230	230	230	230 / 400	230 / 400	230 / 400
IEC maximum continuous voltage Uc	VAC	320					
IEC impulse current Iimp (10/350) (L-N/N-PE)	kA	12.5	12.5 / 50	12.5	12.5	12.5 / 50	12.5
IEC max discharge current Imax (8/20) (L-N/N-PE)	kA	50	50 / 100	50	50	50 / 100	50
IEC rated discharge current In (8/20) (L-N/N-PE)	kA	20	20 / 50	20	20	20 / 50	20
IEC voltage level protection Up (L-N/N-PE)	kV	<1.5	<1.5 / <1.5	<1.5	<1.5	<1.5 / <1.5	<1.5
IEC temporary overvoltage (TOV) withstand Ut (L-N for 5s)	VAC	334					
IEC temporary overvoltage (TOV) safe fail (L-N for 120min)	VAC	438					
IEC temporary overvoltage (TOV) withstand (N-PE for 200ms)	VAC	–	–	1200V / 300A	–	1200V / 300A	–
IEC follow current If (N-PE)	Arms	No	>100	No	No	>100	No
Tripping time ta (L-N/N-PE)	ns	<25	<25 / 100	<25	<25	<25 / 100	<25
Thermal isolation protection		Yes					
Backup protection fuse (gL/gG) in case of main fuse >250A	A min	125 (Iimp=10kA)					
	A max	250					
IEC maximum short circuit current (50Hz)	kA	50					
Status indicator - operating / failure	colour	Green / Red					
CONNECTIONS							
IEC degree of protection		IP20					
Terminal tightening torque	Nm	3					
Maximum conductor section	mm²	25 (flexible) / 35 (rigid)					
RELAY OUTPUT FOR REMOTE STATUS INDICATION							
Type of contact		Changeover (NO/NC)					
Contact capacity	A	0.5A 250VAC; 3A 125VAC					
Contact terminal tightening torque	Nm	0.25					
Maximum contact conductor section	mm²	1.5					
AMBIENT CONDITIONS							
Operating temperature		-40...+85°C					
Fixing		On 35mm DIN rail (IEC/EN/BS 60715)					
Material		Thermoplastic, RAL 7035, UL 94 V-0					

TYPE	with relay output		SG13PA300RUL	SG13PA350RUL	SG13PA480RUL	SG13PA750RUL
ELECTRIC PROPERTIES						
SPD per IEC/EN/BS 61643-11		Type 1, 2 (test class I, II)				
SPD per UL1449 5 th edition		Type 1CA, Open-Type 1 SPD Listed				
IEC rated voltage Un	VAC	240	277	400	600	
IEC maximum continuous voltage Uc/MCOV	VAC	300	350	480	750	
IEC max discharge current I _{max} (8/20) (L-N/N-PE)	kA	50			35	
IEC rated discharge current I _n (8/20) (L-N/N-PE)	kA	20				
IEC impulse current I _{imp} (10/350) (L-N/N-PE)	kA	12.5	12.5	10	5	
IEC voltage level protection U _p (L-N/N-PE)	kV	<1.5	<1.75	<2.1	<3.2	
Voltage Protection Rating VPR	V	900	1200	1500	2500	
IEC temporary overvoltage (TOV) withstand U _t (L-N for 5s)	VAC	337	403	581	871	
IEC temporary overvoltage (TOV) safe fail (L-N for 120min)	VAC	442	529	762	1143	
IEC residual voltage U _{res} at 5kA (8/20)	kV	1.1	1.3	1.5	2.5	
IEC follow current I _a	ns	<25				
Thermal isolation protection		Yes	Yes	Yes	Yes	
Backup protection fuse (gG) in case of main fuse >315A and I _k <25kA or >250A and I _k <50kA	A max	315A with I _{sc} =25kA, 250A with I _{sc} =50kA			250A	
	A min	160A			80A	
IEC maximum short circuit current	50Hz	kA	25 / 50		50	
	SCCR	kA	150	150	200	150
Status indicator - operating / failure	colour	Green / Red				
CONNECTIONS						
IEC degree of protection		IP20				
Terminal tightening torque	Nm/lbf.in	4.5 / 35				
Maximum conductor section	mm ² /AWG	25 (flexible) / 6 - 35 (rigid) / 6				
RELAY OUTPUT FOR REMOTE STATUS INDICATION						
Type of contact		Changeover (NO/NC)				
Contact capacity	A	1A 250VAC; 0.5A 48VDC				
Maximum contact conductor section	mm ² /AWG	1.5 / 10				
AMBIENT CONDITIONS						
Operating temperature		-40...+85°C				
Fixing		On 35mm DIN rail (IEC/EN/BS 60715)				
Material		Thermoplastic, RAL 7035, UL 94 V-0				

TYPE	without relay output		SG21PA300	SG21NA300	SG22PA300	SG23PA300	SG23NA300	SG24PA300
	with relay output		SG21PA300R	SG21NA300R	SG22PA300R	SG23PA300R	SG23NA300R	SG24PA300R
ELECTRICAL PROPERTIES								
SPD per IEC/EN/BS 61643-11		Type 2 (test class II)						
IEC rated voltage Un	VAC	240	240	240	240 / 400	240 / 400	240 / 400	
IEC maximum continuous voltage Uc	VAC	300						
IEC max discharge current I _{max} (8/20) (L-N/N-PE)	kA	50	50 / 65	50	50	50 / 65	50	
IEC rated discharge current I _n (8/20) (L-N/N-PE)	kA	20	20 / 40	20	20	20 / 40	20	
IEC level protection U _p (L-N/N-PE)	kV	<1.5	<1.5 / <1,5	<1.5	<1.5	<1.5 / <1.5	<1.5	
IEC temporary overvoltage (TOV) U _t (L-N for 5s)	VAC	337						
IEC follow current I _f (N-PE)	Arms	No	100	No	No	100	No	
Tripping time t _a (L-N/N-PE)	ns	<25	<25 / 100	<25	<25	<25 / 100	<25	
Thermal isolation protection		Yes						
Backup protection fuse (gG) in case of main fuse >315A and I _k <25kA or >250A e I _k <50kA	A min	125						
	A max	315A with I _{sc} =25kA, 250A with I _{sc} =50kA						
IEC maximum short circuit current (50Hz)	kA	25 / 50						
Status indicator - operating / failure	colour	Green / Red						
CONNECTIONS								
IEC degree of protection		IP20						
Terminal tightening torque	Nm	4.5						
Maximum conductor section	mm ²	25 (flexible) / 35 (rigid)						
RELAY OUTPUT FOR REMOTE STATUS INDICATION								
Type of contact		Changeover (NO/NC)						
Contact capacity	A	1A 250VAC; 1A 125VAC; 0.5A 48VDC; 0.5A 24VDC; 0.5A 12VDC						
Maximum contact conductor section	mm ²	1.5						
AMBIENT CONDITIONS								
Operating temperature		-40...+85°C						
Fixing		On 35mm DIN rail (IEC/EN/BS 60715)						
Material		Thermoplastic, RAL 7035, UL 94 V-0						

TYPE	with relay output		SG2C1NA320	SG2C2PA320
ELECTRICAL PROPERTIES				
SPD per IEC/EN/BS 61643-11		Type 2 (test class II)		
IEC rated voltage Un	VAC	230		
IEC maximum continuous voltage Uc	VAC	320		
IEC max discharge current Imax (8/20) (L-N/N-PE)	kA	15/35	15	
IEC rated discharge current In (8/20) (L-N/N-PE)	kA	5/20	5	
IEC voltage level protection Up	kV	<1.5		
IEC temporary overvoltage (TOV) Ut (L-N for 5s)	VAC	335		
IEC follow current If (N-PE)	Arms	>100	No	
Tripping time ta (L-N/N-PE)	ns	<25 / 100	<25	
Thermal isolation protection		Yes		
Backup protection fuse (gG) in case of main fuse >63A	Fusible A	63 gG		
IEC maximum short circuit current (50Hz)	kA	6		
Status indicator - operating / failure	colour	- / Red		
CONNECTIONS				
IEC degree of protection		IP20		
Terminal tightening torque	Nm	0.5 (L,N); 3 (PE)		
Maximum conductor section	mm²	L,N: 4 (flexible) / 6 (rigid) PE: 25 (flexible) / 35 (rigid)		
AMBIENT CONDITIONS				
Operating temperature		-40...+85°C		
Fixing		On 35mm DIN rail (IEC/EN/BS 60715)		
Material		Thermoplastic, RAL 7035, UL 94 V-0		

TYPE		SA31NA320R	SA31NA275MS	SA31NA275ML
ELECTRICAL PROPERTIES				
SPD per IEC/EN/BS 61643-11		Type 3 (test class III)		
IEC rated voltage Un	VAC	230	230	
IEC maximum continuous voltage Uc	VAC	320	275	
Combined impulse (1.2/50; 8/20) Uoc/lcw	kV/kA	10/5	6/3	
IEC max discharge current Imax (8/20)	kA	10	–	
IEC level protection Up (L-N/N-PE)	kV	<1.5	<1.5 / <1.7	
IEC temporary overvoltage TOV Ut (L-N per 5s)	VAC	337		
Tripping time ts (L-N/N-PE)	ns	<100ns		
IEC backup protection	A	63A fuse gG (line fuse >63 A)	MCB/B 16A (if >16 A)	
IEC maximum short circuit current (50Hz)	kA	10	1	
Status indicator - operating / failure		Red replace + relay output	Acoustic (buzzer)	Optical (LED)
CONNECTIONS				
IEC degree of protection		IP20		
Terminal tightening torque (L-N / PE)	Nm	0.5 / 3	–	
Maximum conductor section	mm²	L-N: 4 (flexible) / 6 (rigid); PE: 25 (flexible) / 35 (rigid)	1 (rigid)	
RELAY OUTPUT FOR REMOTE STATUS INDICATION				
Type of contact		Changeover (NO/NC)	–	
Contact capacity	A	0.5A 250VAC; 3A 125VAC	–	
Contact terminal tightening torque	Nm	0.25	–	
Maximum contact conductor section	mm²	1.5	–	
AMBIENT CONDITIONS				
Operating temperature		-40...+85°C		
Fixing		On 35mm DIN rail (IEC/EN/BS 60715)	Socket circuit, terminal block, electrical conduct	
Material		Thermoplastic. RAL 7035. UL 94 V-0		

TYPE	for data and signal lines	SASD5VR	SASD024VR	SASDTELDIN	SASDTELIP	SASDET6
ELECTRICAL PROPERTIES						
SPD per IEC/EN/BS 61643-11		Type D1/C1/C2/C3				
Application		RS485	BUS 24VDC	Telephone line	Telephone line	Ethernet Cat.6, POE
IEC rated voltage U_n	VDC	5	30	110	110	48
IEC maximum discharge current I_{dc}	VDC	6	33	170	180	50
C2 rated current I_n (8/20)	kA	10	10	10	10	10
Maximum discharge current I_{max} (8/20)	kA	20	20	20	20	10
D1 impulse current I_{imp} (10/350)	kA	2.5	2.5	2.5	7.5	1
EN residual voltage U_{res} at 5kA (8/20)	V	<22	<42	<450	–	–
Protection level U_p (L-L)	V	<10	<43	<264	<250	<150
Load current I_L at 25°C	A	1	1	1	0.6	1
Tripping time t_a	ns	<1	<1	<1	–	<1
Line resistance	Ω	1.6...2.0	1.6...2.0	1.6...2.0	1.6...2.0	–
Capacity	pF	50	50	50	20	–
Bandwidth	MHz	30	30	30	250	250, Cat.6
CONNECTIONS						
IEC degree of protection		IP20	IP20	IP20	IP66	IP20
Terminal tightening torque	Nm	0.5	0.5	0.5	(Terminals PCB)	(RJ45 sockets)
Conductor section (L / PE)	mm ²	4 (max) / 6 (min)	4 (max) / 6 (min)	4 (max) / 6 (min)	2.5 (max) / 0.13 (min)	–
RELAY OUTPUT FOR REMOTE STATUS INDICATION						
Type of contact		NC	NC	–	–	–
Contact capacity	A	0.5A 250VAC; 1A 50VDC		–	–	–
Maximum contact conductor section	mm ²	0.3...4	0.3...4	–	–	–
AMBIENT CONDITIONS						
Operating temperature		-40...+80°C	-40...+80°C	-40...+80°C	-25...+40°C	-40...+80°C
Fixing		On 35mm DIN rail (IEC/EN/BS 60715)			Screw	On 35mm DIN rail (IEC/EN/BS 60715)
Material		Thermoplastic, V-0	Thermoplastic, V-0	Thermoplastic, V-0	Polypropylene	Metal

TYPE	without relay output	–	–	SG2DG600M2	SG2DGK10M3	SG2DGK50M3	SA2EDGK10M3
	with relay output	SG2EDGK10M3R	SG2EDGK50M3R	SG2DG600M2R	SG2DGK10M3R	SG2DGK50M3R	–
ELECTRICAL PROPERTIES							
SPD per IEC/EN/BS 61643-11		Type 1,2 (test class I, II)	Type 1,2 (test class I, II)	Type 2 (test class II)			
IEC rated voltage Un	VDC	1100	1500	600	1100	1500	1100
Maximum continuous voltage Ucpv	VDC	1100	1500	600	1100	1500	1100
IEC impulse current Iimp (10/350)	kA	6.25	6.25	–	–	–	–
Maximum discharge current Imax (8/20)	kA	40	60	40	40	30	40
Rated discharge current In (8/20)	kA	20	20	20	20	20	20
Protection level Up	kV	<3.8	<4.5	<1.9	<3.8	<5.0	<4.0
EN residual voltage Ures at 5kA (8/20)	kV	–	3.4	1.5	–	–	–
Tripping time ta	ns	<25					
Thermal isolation protection		Yes					
EN maximum short circuit current Iscpv	kA	11	30	11			9
Status indicator - operating / failure	colour	Green / Red					
CONNECTIONS							
EN degree of protection		IP20					
Terminal tightening torque	Nm	4.5		4.5			2.5
Maximum conductor section	mm²	25 (flexible) / 35 (rigid)					
RELAY OUTPUT FOR REMOTE STATUS INDICATION							
Type of contact		Changeover (NO/NC)					
Contact capacity	A	1A 250VAC; 1A 125VAC; 0.5A 48VDC; 0.5A 24VDC; 0.5A 12VDC					
Maximum contact conductor section	mm²	1.5					
AMBIENT CONDITIONS							
Operating temperature		-40...+85°C					
Fixing		On 35mm DIN rail (IEC/EN/BS 60715)					
Material		Thermoplastic, RAL 7035, UL 94 V-0					