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### SURGE PROTECTION DEVICES TYPE 1 AND 2 MONOBLOCK VERSIONS

- 1P, 1P+N, 2P, 3P, 3P+N, 4P
- IEC impulse current Iimp (10/350µs): 25kA
- IEC maximum discharge current I<sub>max</sub> (8/20µs): 100kA
- SPD status indicator
- Version with output for remote status indication.



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### SURGE PROTECTION DEVICES TYPE 1 AND 2 VERSIONS WITH PLUG-IN CARTRIDGE

- 1P, 1P+N, 2P, 3P, 3P+N, 4P
- IEC impulse current Iimp (10/350µs): 12.5kA
- IEC maximum discharge current I<sub>max</sub> (8/20µs): 60kA
- IEC combined surge U<sub>oc</sub>/I<sub>sc</sub> (1.2/50, 8/20µs): 10kV/5kA
- Single module status indicator
- Version with output for remote status indication.



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### SURGE PROTECTION DEVICES TYPE 1 AND 2 MONOBLOCK VERSIONS

- 1P, 1P+N, 2P, 3P, 3P+N, 4P
- IEC impulse current Iimp (10/350µs): 12.5kA
- IEC maximum discharge current I<sub>max</sub> (8/20µs): 50kA
- SPD status indicator
- Version with output for remote status indication.



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### SURGE PROTECTION DEVICES TYPE 2 VERSIONS WITH PLUG-IN CARTRIDGE

- 1P, 1P+N, 2P, 3P, 3P+N, 4P
- IEC maximum discharge current I<sub>max</sub> (8/20µs): 50kA or 15kA
- IEC rated discharge current I<sub>n</sub> (8/20µs): 20kA or 5kA
- Single module status indicator
- Versions with and without output for remote status indication.



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### SURGE PROTECTION DEVICES TYPE 3 VERSIONS WITH PLUG-IN CARTRIDGE AND COMPACT VERSIONS

- 1P+N
- Version with plug-in cartridge
  - IEC rated current I<sub>n</sub>(8/20µs):5kA
  - Combined impulse U<sub>oc</sub>: 10kV
  - SPD status indicator
  - Output for remote status indication
- Compact version
  - IEC rated current I<sub>n</sub>(8/20µs):3kA
  - Combined impulse U<sub>oc</sub>: 6kA
- Acoustic or optical intervention indicator.



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### SURGE PROTECTION DEVICES TYPE C2-D1 FOR DATA AND SIGNAL LINES

- Version for line RS485
  - Rated voltage U<sub>n</sub>:5VDC
  - C2 Rated current I<sub>n</sub>(8/20µs):10kA
  - D1 Impulse current Iimp (10/350 µs): 2.5kA
  - Output for remote status indication
- Version for Ethernet line Cat.6 - POE
  - Rated voltage U<sub>n</sub>:48VDC
- C2 Rated current I<sub>n</sub> (8/20 µs) L-PE: 10kA
- D1 Impulse current Iimp (10/350 µs): 1kA.



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### SURGE PROTECTION DEVICES TYPE 2 FOR PHOTOVOLTAIC APPLICATIONS

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



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### SPARE PLUG-IN CARTRIDGES

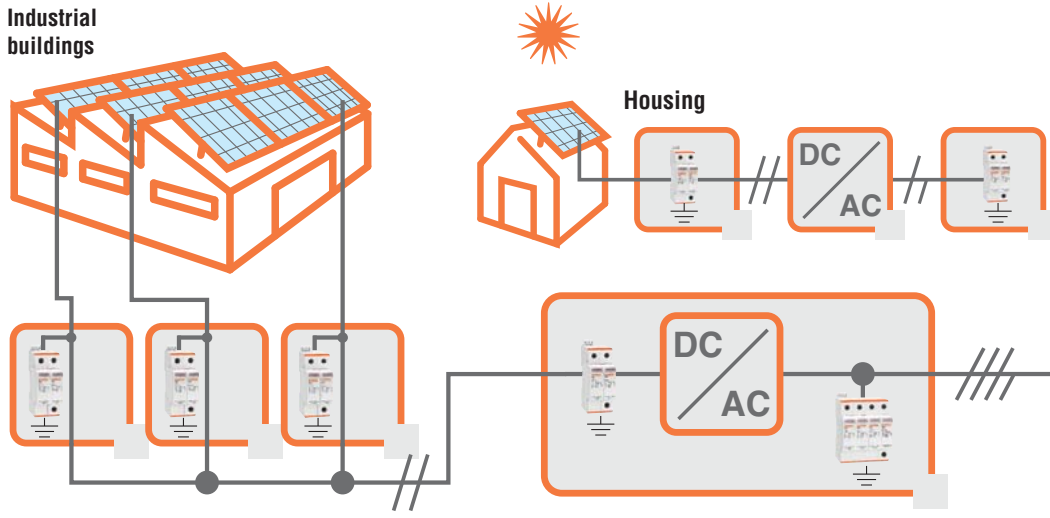
- Versions suitable for SPDs:
  - Type 1 and 2
  - Type 2
  - Type 2 for photovoltaic applications
- Status indicator for single modules.



## Type 2 DC

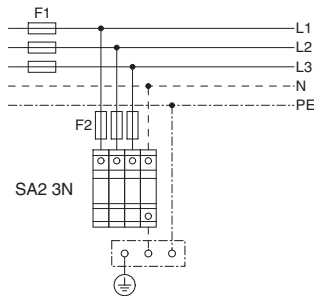
### SURGE PROTECTION DEVICES FOR PHOTOVOLTAIC APPLICATIONS

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 from the string boards (indicatively more than 10m/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 lightning. The SA2DG... and SG2DG... types with plug-in cartridges are suitable for connection in the DC side of a solar installation and offer protection against induced overvoltage conditions. The SA2...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 (g/L/gG fuses), which should be chosen according to the SPD manufacturer's recommendations.



Fuse size depends on SPD

#### 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 SPD 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 RATINGS ACCORDING TO IEC/EN

##### Maximum continuous voltage $U_c$ :

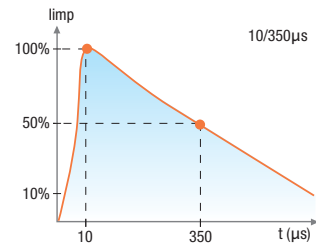
Maximum value of AC or DC voltage that the SPD is capable of permanently withstanding without activating or getting damaged; this is its rated voltage.

##### 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.

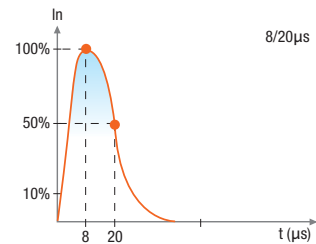
#### Impulse current $I_{imp}$ :

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



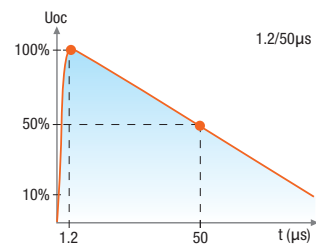
#### Rated discharge current $I_n$ :

Crest value of the current that circulates in the SPD with an 8/20 $\mu$ 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 $\mu$ s waveform simultaneously with a short-circuit current of an 8/20 $\mu$ s waveform, applied at the SPD terminals. It is used to classify SPDs in test class III.





### With plug-in cartridge In=20kA



SG2...

**new**

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

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

<b>SG2 1P A300</b>	1P	NO	1	1	0.128
<b>SG2 1P A300R</b>	1P	YES	1	1	0.135
<b>SG2 1N A300</b>	1P+N	NO	2	1	0.234
<b>SG2 1N A300R</b>	1P+N	YES	2	1	0.240
<b>SG2 2P A300</b>	2P	NO	2	1	0.252
<b>SG2 2P A300R</b>	2P	YES	2	1	0.266
<b>SG2 3P A300</b>	3P	NO	3	1	0.366
<b>SG2 3P A300R</b>	3P	YES	3	1	0.376
<b>SG2 3N A300</b>	3P+N	NO	4	1	0.477
<b>SG2 3N A300R</b>	3P+N	YES	4	1	0.486
<b>SG2 4P A300</b>	4P	NO	4	1	0.496
<b>SG2 4P A300R</b>	4P	YES	4	1	0.505

PLUG-IN CARTRIDGE.

Order code	Description	Qty per pkg	Wt
		n°	[kg]
<b>SGX02 P A300</b>	For SG2...A300/300R types	1	0.100

### In=5kA



SG2C...

**new**

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

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

<b>SG2C 1N A320</b>	1P+N	NO	1	1	0.126
<b>SG2C 2P A320</b>	2P	NO	1	1	0.144

### Main 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 Imax (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 61643-11.

### Characteristics

Type	IEC rated voltage Un [V]	IEC voltage protection level Up [kV] L-N	Power installation system
SG2 1P A..	230	<1,5	TN-C, TN-S, TT <sup>①</sup>
SG2/SG2C 1N A..	230	<1,5	TT, TN-S
SG2/SG2C 2P A..	230	<1,5	TN-S
SG2 3P A..	230/400	<1,5	TN-C
SG2 3N A..	230/400	<1,5	TT, TN-S
SG2 4P A..	230/400	<1,5	TN-S

① Between L-N only.



# 14 Surge protection devices

## Type 2 surge protection devices for photovoltaic application

### With plug-in cartridge



SA2 DG 600M2R



SG2 DG K10M3R

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

VERSION WITH PLUG-IN CARTRIDGE.

EN short-circuit current rating I<sub>scpv</sub> 100A.

<b>SA2 DG 600M2</b>	+, -, PE	NO	2	1	0.320
<b>SA2 DG 600M2R</b>	+, -, PE	YES	2	1	0.325

EN short-circuit current rating I<sub>scpv</sub> 1000A.

<b>SG2 DG K10M3</b>	+, -, PE	NO	3	1	0.396
<b>SG2 DG K10M3R</b>	+, -, PE	YES	3	1	0.406
<b>SG2 DG K50M3</b>	+, -, PE	NO	3	1	0.444

**new**

#### PLUG-IN CARTRIDGES

Order code	Description	Qty per pkg	Wt
		n°	[kg]
<b>SAX02 DG 600M2</b>	For SA2 DG 600M2/M2R type	1	0.100
<b>SGX02 DG K10M3</b>	For SG2 DG K10M3/M3R type	1	0.100
<b>SGX02 DG K50M3</b>	For SG2 DG K50M3 type	1	0.100

**new**

#### Main characteristics

The surge protection device type SA2 D and SG2 DG 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 U<sub>cpv</sub>: 600VDC, 1100VDC, 1500VDC
- Versions with or without relay output having changeover contact for remote status indication
- EN degree of protection: IP20.

#### Characteristics

Type	EN rated voltage U <sub>n</sub>	EN continuous voltage U <sub>cpv</sub>	EN voltage protection level U <sub>p</sub>
	[VDC]	[VDC]	[kV]
SA2 DG 600M2	600	600	<1.9
SA2 DG K10M3	1100	1100	<3.8
SA2 DG K50M3	1500	1500	<5.0

#### Certifications and compliance

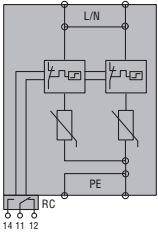
Certification obtained: EAC.

Compliant with standards: IEC/EN 50539-11.

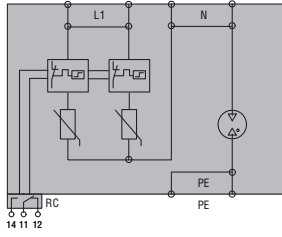




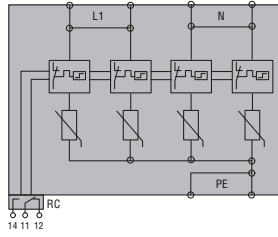
**SA1B 1P A320R**



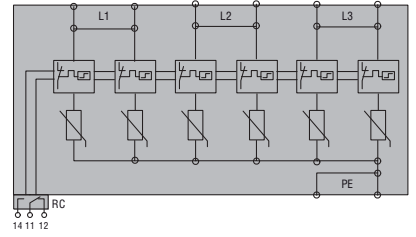
**SA1B 1N A320R**



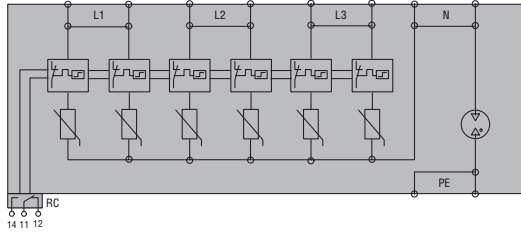
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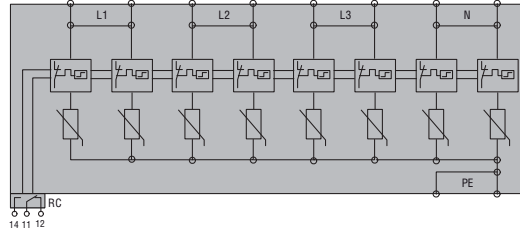
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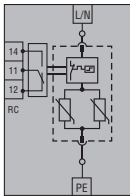
**SA1B 3N A320R**



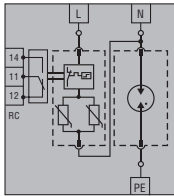
**SA1B 4P A320R**



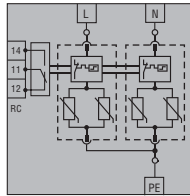
**SAO 1P A320R**



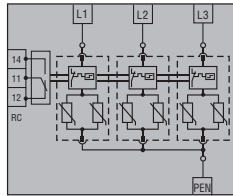
**SAO 1N A320R**



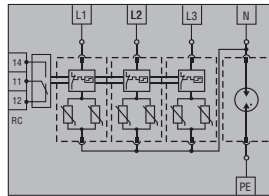
**SAO 2P A320R**



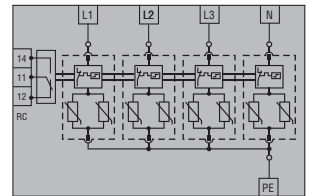
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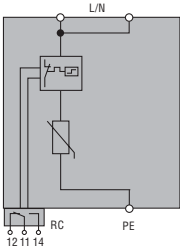
**SAO 3N A320R**



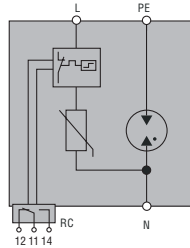
**SAO 4P A320R**



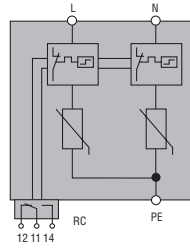
**SAOB 1P A320R**



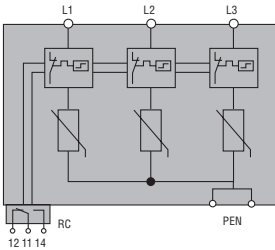
**SAOB 1N A320R**



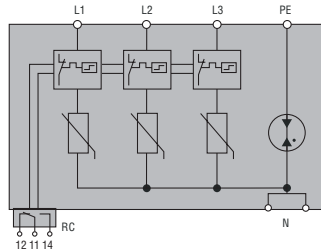
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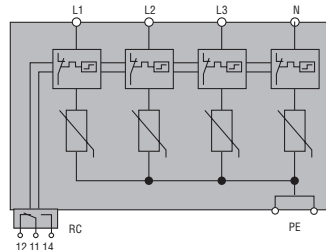
**SAOB 3P A320R**



**SAOB 3N A320R**



**SAOB 4P A320R**





TYPE	with relay output	SA1B 1P A320R	SA1B 1N A320R	SA1B 2P A320R	SA1B 3P A320R	SA1B 3N A320R	SA1B 4P A320R
<b>ELECTRICAL PROPERTIES</b>							
SPD per IEC/EN 61643-11		Type 1, 2 (test class I, II)					
IEC rated voltage $U_n$	VAC	230	230	230	230 / 400	230 / 400	230 / 400
IEC maximum continuous voltage $U_c$	VAC	320					
IEC impulse current $I_{imp}$ (10/350) (L-N/N-PE)	kA	25	25 / 50	25 per pole	25 per pole	25 / 100	25 per pole
IEC max impulse current $I_{max}$ (8/20) (L-N/N-PE)	kA	100	100 / 100	100 per pole	100 per pole	100 / 100	100 per pole
IEC rated discharge current $I_n$ (8/20) (L-N/N-PE)	kA	25	25 / 50	25 per pole	25 per pole	25 / 100	25 per pole
IEC voltage protection level $U_p$ (L-N/N-PE)	kV	<1.4	<1.4 / <1.3	<1.4	<1.4	<1.4 / <1.5	<1.4
Temporary overvoltage (TOV) $U_t$ (L-N for 5s)	VAC	335					
IEC residual voltage $U_{res}$ (L-N/N-PE) at 5kA (8/20)	kV	1	1	1	1.1	1.1	1.1
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					
IEC backup protection fuse (supply >250A) (L-N/N-PE)	fuse A	250 gL/gG					
IEC maximum short-circuit current 50Hz	kA	50					
Status indicator - operating / failure	colour	Green / Red					
<b>CONNECTIONS</b>							
IEC degree of protection		IP20					
Terminal tightening torque	Nm	3					
Maximum conductor section	mm <sup>2</sup>	25 (flexible) / 35 (rigid)					
<b>RELAY OUTPUT FOR REMOTE STATUS INDICATION</b>							
Type of contact		Changeover (NO/NC - SPDT)					
Contact capacity	A	0.5A at 250VAC; 3A at 125VAC; 0.1A at 250VDC; 0.2A at 125VDC					
Contact terminal tightening torque	Nm	0.25					
Maximum contact conductor section	mm <sup>2</sup>	1.5					
<b>AMBIENT CONDITIONS</b>							
Operating temperature		-40...+80°C					
Fixing		On 35mm DIN rail (IEC/EN 60715)					
Housing material		Thermoplastic, RAL 7035, UL 94 V-0					



TYPE	with relay output	SA0B 1P A320R	SA0B 1N A320R	SA0B 2P A320R	SA0B 3P A320R	SA0B 3N A320R	SA0B 4P A320R
<b>ELECTRICAL PROPERTIES</b>							
SPD per IEC/EN 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 I <sub>max</sub> (8/20) (L-N/N-PE)	kA	50	50 / 100	50	50	50 / 100	50
IEC rated discharge current I <sub>n</sub> (8/20) (L-N/N-PE)	kA	20	20 / 50	20	20	20 / 50	20
IEC voltage level protection U <sub>p</sub> (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 <sub>t</sub> (L-N for 5s)	VAC	335					
IEC follow current I <sub>f</sub> (N-PE)	Arms	no	>100	no	no	>100	no
Tripping time t <sub>a</sub> (L-N/N-PE)	ns	<25	<25 / 100	<25	<25	<25 / 100	<25
Thermal isolation protection		Yes					
IEC backup fuse (supply>250A) (L-N/N-PE)	fuse A	250 gG					
IEC maximum short-circuit current 50Hz	kA	50					
Status indicator - operating / failure	colour	Green / Red					
<b>CONNECTIONS</b>							
IEC degree of protection		IP20					
Terminal tightening torque	Nm	3					
Maximum conductor section	mm <sup>2</sup>	25 (flexible) / 35 (rigid)					
<b>RELAY OUTPUT FOR REMOTE STATUS INDICATION</b>							
Type of contact		Changeover (NO/NC - SPDT)					
Contact capacity	A	0.5A at 250VAC; 3A at 125VAC					
Contact terminal tightening torque	Nm	0.25					
Maximum contact conductor section	mm <sup>2</sup>	1.5					
<b>AMBIENT CONDITIONS</b>							
Operating temperature		-40...+85°C					
Fixing		On 35mm DIN rail (IEC/EN 60715)					
Housing material		Thermoplastic, RAL 7035, UL 94 V-0					

TYPE	without relay output	SG2 1P A300	SG2 1N A300	SG2 2P A300	SG2 3P A300	SG2 3N A300	SG2 4P A300
	with relay output	SG2 1P A300R	SG2 1N A300R	SG2 2P A300R	SG2 3P A300R	SG2 3N A300R	SG2 4P A300R
<b>ELECTRICAL PROPERTIES</b>							
SPD per IEC/EN 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 <sub>max</sub> (8/20) (L-N/N-PE)	kA	50	50 / 65	50	50	50 / 65	50
IEC rated discharge current I <sub>n</sub> (8/20) (L-N/N-PE)	kA	20	20 / 40	20	20	20 / 40	20
IEC level protection U <sub>p</sub> (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 <sub>t</sub> (L-N for 5s)	VAC	337					
IEC follow current I <sub>f</sub> (N-PE)	Arms	no	100	no	no	100	no
Tripping time t <sub>a</sub> (L-N/N-PE)	ns	<25	<25 / 100	<25	<25	<25 / 100	<25
Thermal isolation protection		Yes					
IEC backup fuse (supply>315A) (L-N/N-PE)	fuse A	315/250 gG					
IEC maximum short-circuit current 50Hz	kA	25 / 50					
Status indicator - operating / failure	colour	Green / Red					
<b>CONNECTIONS</b>							
IEC degree of protection		IP20					
Terminal tightening torque	Nm	4.5					
Maximum conductor section	mm <sup>2</sup>	25 (flexible) / 35 (rigid)					
<b>RELAY OUTPUT FOR REMOTE STATUS INDICATION</b>							
Type of contact		Changeover (NO/NC - SPDT)					
Contact capacity	A	1A at 250VAC; 1A at 125VAC; 0.5A at 48VDC; 0.5A at 24VDC; 0.5A at 12VDC					
Maximum contact conductor section	mm <sup>2</sup>	1.5					
<b>AMBIENT CONDITIONS</b>							
Operating temperature		-40...+85°C					
Fixing		On 35mm DIN rail (IEC/EN 60715)					
Housing material		Thermoplastic, RAL 7035, UL 94 V-0					

## 14 Surge protection devices

## Technical characteristics

TYPE		SG2C 1N A320	SG2C 2P A320
<b>ELECTRICAL PROPERTIES</b>			
SPD per IEC/EN 61643-11		Type 2 (test class II)	
IEC Rated voltage Un	VAC	230	
IEC maximum continuous voltage Uc	VAC	320	
IEC max discharge current I <sub>max</sub> (8/20) (L-N/N-PE)	kA	15/35	15
IEC rated discharge current I <sub>n</sub> (8/20) (L-N/N-PE)	kA	5/20	5
IEC voltage level protection U <sub>p</sub>	kV	<1.5	
IEC temporary overvoltage (TOV) U <sub>t</sub> (L-N for 5s)	VAC	335	
IEC follow current I <sub>f</sub> (N-PE)	Arms	>100	no
Tripping time t <sub>a</sub> (L-N/N-PE)	ns	<25 / 100	<25
Thermal isolation protection		Yes	
IEC backup fuse (supply>63A) (L-N/N-PE)	fuse A	63 gG	
IEC maximum short-circuit current 50Hz	kA	6	
Status indicator - operating / failure	colour	- / Red	
<b>CONNECTIONS</b>			
IEC degree of protection		IP20	
Terminal tightening torque	Nm	0.5 (L,N); 3 (PE)	
Maximum conductor section	mm <sup>2</sup>	L,N: 4 (flexible) / 6 (rigid) PE: 25 (flexible) / 35 (rigid)	
<b>AMBIENT CONDITIONS</b>			
Operating temperature		-40...+85°C	
Fixing		On 35mm DIN rail (IEC/EN 60715)	
Housing material		Thermoplastic, RAL 7035, UL 94 V-0	

TYPE		SA3 1N A320R	SA3 1N A275MS	SA3 1N A275ML
<b>ELECTRICAL PROPERTIES</b>				
SPD per IEC/EN 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) U <sub>oc</sub> /I <sub>cw</sub>	kV/kA	10/5	6/3	
IEC max discharge current I <sub>max</sub> (8/20)	kA	10	-	
IEC level protection U <sub>p</sub> (L-N/N-PE)	kV	<1.5	<1.5 / <1.7	
IEC temporary overvoltage (TOV) U <sub>t</sub> (L-N for 5s)	VAC	337		
Tripping time t <sub>a</sub> (L-N/N-PE)	ns	<100ns		
IEC backup protection	A	63A fuse gG (line fuse >63 A)	MCB/B 16A (if MCB >16A)	
IEC maximum short-circuit current 50Hz	kA	10	1	
Status indicator - operating / failure		Red replace + relay output	Buzzer	LED
<b>CONNECTIONS</b>				
IEC degree of protection		IP20		
Terminal tightening torque (L-N / PE)	Nm	0.5 / 3		
Maximum conductor section	mm <sup>2</sup>	L-N: 4 (flexible) / 6 (rigid); PE: 25 (flexible) / 35 (rigid)	1 (rigid)	
<b>RELAY OUTPUT FOR REMOTE STATUS INDICATION</b>				
Type of contact		Changeover (NO/NC - SPDT)	-	
Contact capacity	A	0.5A at 250VAC; 3A at 125VAC	-	
Contact terminal tightening torque	Nm	0.25	-	
Maximum contact conductor section	mm <sup>2</sup>	1.5	-	
<b>AMBIENT CONDITIONS</b>				
Operating temperature		-40...+85°C		
Fixing		On 35mm DIN rail (IEC/EN 60715)	Socket circuit	
Housing material		Thermoplastic, RAL 7035, UL 94 V-0		

TYPE		SASD 5VR	SASD ET6
<b>ELECTRICAL PROPERTIES</b>			
SPD according to IEC/EN 61643-21		D1/C1/C2/C3 types	
Application		RS485	Ethernet Cat.6, Power over Ethernet (POE)
IEC rated voltage $U_n$	VDC	5	48
IEC maximum continuous voltage $U_c$	VDC	6	50
C2 rated current $I_n$ (8/20)	kA	10	10
Maximum discharge current $I_{max}$ (8/20)	kA	20	10
D1 impulse current $I_{imp}$ (10/350)	kA	2.5	1
EN residual voltage $U_{res}$ at 5kA (8/20)	V	<22	-
Protection level $U_p$ (L-L / L-PE)	V	-	150 / 550
Load current $I_L$ at 25°C	A	1	1
Tripping time $t_a$	ns	<1	<1
Line resistance	$\Omega$	1.6...2.0	-
Capacity	pF	50	-
Bandwidth	MHz	30	250, Cat.6
<b>CONNECTIONS</b>			
IEC degree of protection		IP20	
Terminal tightening torque	Nm	0.5	(RJ45 sockets)
Conductor section (L / PE)	mm <sup>2</sup>	4 (max) / 6 (min)	-
<b>RELAY OUTPUT FOR REMOTE STATUS INDICATION</b>			
Type of contact		NC	-
Contact capacity	A	0.5A 250VAC; 1A 50VDC	-
Maximum contact conductor section	mm <sup>2</sup>	0.3...4	-
<b>AMBIENT CONDITIONS</b>			
Operating temperature		-40...+80°C	
Fixing		On 35mm DIN rail	
Housing material		Thermoplastic, V-0	Metal

TYPE	without relay output	SA2 DG 600 M2	SG2 DG K10 M3	SG2 DG K50 M3
	with relay output	SA2 DG 600 M2R	SG2 DG K10 M3R	-
<b>ELECTRICAL PROPERTIES</b>				
SPD according to EN50539-11		Type 2 (test class II)		
IEC rated voltage $U_n$	VDC	600	1100	1500
Maximum continuous voltage $U_{cpv}$	VDC	600	1100	1500
Maximum discharge current $I_{max}$ (8/20)	kA	30	40	30
Rated discharge current $I_n$ (8/20)	kA	15	20	20
Protection level $U_p$	kV	<1.9	<3.8	<5.0
EN residual voltage $U_{res}$ at 5kA (8/20)	kV	1	-	-
Tripping time $t_a$	ns	<25		
Thermal isolation protection		Yes		
EN maximum short-circuit current $I_{scpv}$	A	100	11kA	
EN backup protection fuse ( $I_{sc}>100A$ )	A	100A gPV	-	
Status indication - operating / failure	colour	Green / Red		
<b>CONNECTIONS</b>				
EN degree of protection		IP20		
Terminal tightening torque	Nm	3	4.5	
Maximum conductor section	mm <sup>2</sup>	25 (flexible) / 35 (rigid)		
<b>RELAY OUTPUT FOR REMOTE STATUS INDICATION</b>				
Type of contact		Changeover (NO/NC)		
Contact capacity	A	0.5A 250VAC; 3A 125VAC; 0.1A 250VDC; 0.2A 125VDC	1A 250VAC; 1A 125VAC; 0.5A 48VDC; 0.5A 24VDC; 0.5A 12VDC	
Maximum contact conductor section	mm <sup>2</sup>	1.5		
<b>AMBIENT CONDITIONS</b>				
Operating temperature		-40...+80°C	-40...+85°C	
Fixing		On 35mm DIN rail (IEC/EN 60715)		
Housing material		Thermoplastic, RAL 7035, UL 94 V-0		