

## Type 2 surge arrester - VAL-MS 385/80/1+1 - 2921297

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Type 2 surge arrester for 3-wire power supply systems (L1, N, PE), with connector latching.

### Your advantages

- ✓ With or without floating remote indication contact
- ✓ Plugs can be checked with CHECKMASTER
- ✓ Secure hold of plugs in the event of high lightning current loads and strong vibrations thanks to new latching
- ✓ Multi-channel type 2 arresters
- ✓ Optical, mechanical status indication for the individual arresters
- ✓ Mechanical coding of all slots
- ✓ Type 2 consistent plug-in surge arresters
- ✓ Disconnect device on each individual plug



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 290869
GTIN	4046356290869

### Technical data

#### Dimensions

Height	89.8 mm
Width	35.6 mm
Depth	77.5 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	2 Div.

#### Ambient conditions

Degree of protection	IP20 (only when all terminal points are used)
Ambient temperature (operation)	-40 °C ... 80 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C

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## Technical data

### Ambient conditions

Altitude	≤ 2000 m (amsl (above mean sea level))
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	30g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	7.5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

### General

IEC test classification	II
	T2
EN type	T2
IEC power supply system	TT
	TN-C
	TN-S
Mode of protection	L-N
	L-PE
	N-PE
Mounting type	DIN rail: 35 mm
Color	jet black RAL 9005
Housing material	PA 6.6
	PBT
Degree of pollution	2
Flammability rating according to UL 94	V-0
Type	DIN rail module, two-section, divisible
Surge protection fault message	optical

### Protective circuit

Nominal voltage $U_N$	240 V AC (TN-S)
	240 V AC (TT)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$ (L-N)	385 V AC
Maximum continuous voltage $U_C$ (N-PE)	264 V AC
Rated load current $I_L$	80 A
Residual current $I_{PE}$	≤ 5 μA
Standby power consumption $P_C$	≤ 231 mVA
Nominal discharge current $I_n$ (8/20) μs	40 kA
Maximum discharge current $I_{max}$ (8/20) μs	80 kA
Impulse discharge current (10/350) μs (L-N), charge	1.25 As
Impulse discharge current (10/350) μs (L-N), specific energy	1.56 kJ/Ω
Impulse discharge current (10/350) μs (L-N), peak current value $I_{imp}$	2.5 kA
Impulse discharge current (10/350) μs (L-PE), charge	1.25 As
Impulse discharge current (10/350) μs (L-PE), specific energy	1.56 kJ/Ω
Impulse discharge current (10/350) μs (L-PE), peak current value $I_{imp}$	2.5 kA

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## Technical data

### Protective circuit

Impulse discharge current (10/350) $\mu$ s (N-PE), charge	5 As
Impulse discharge current (10/350) $\mu$ s (N-PE), specific energy	25 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu$ s (N-PE), peak current value $I_{imp}$	10 kA
Total discharge current $I_{total}$ (8/20) $\mu$ s	80 kA
Total discharge current $I_{total}$ (10/350) $\mu$ s	5 kA
Follow current interrupt rating $I_{fi}$ (N-PE)	100 A (264 V AC)
Short-circuit current rating $I_{SCCR}$	25 kA
Voltage protection level $U_p$ (L-N)	$\leq 2$ kV
Voltage protection level $U_p$ (L-PE)	$\leq 2$ kV
Voltage protection level $U_p$ (N-PE)	$\leq 1.7$ kV
Residual voltage $U_{res}$ (L-N)	$\leq 2$ kV (at $I_n$ )
	$\leq 1.3$ kV (at 10 kA)
	$\leq 1.2$ kV (at 5 kA)
	$\leq 1.15$ kV (at 3 kA)
Residual voltage $U_{res}$ (L-PE)	$\leq 2$ kV (at $I_n$ )
	$\leq 1.5$ kV (at 10 kA)
	$\leq 1.4$ kV (at 5 kA)
	$\leq 1.3$ kV (at 3 kA)
Residual voltage $U_{res}$ (N-PE)	$\leq 0.6$ kV (at $I_n$ )
	$\leq 0.5$ kV (at 10 kA)
	$\leq 0.5$ kV (at 5 kA)
	$\leq 0.4$ kV (at 3 kA)
TOV behavior at $U_T$ (L-N)	480 V AC (5 s / withstand mode)
	457 V AC (120 min / withstand mode)
TOV behavior at $U_T$ (N-PE)	1200 V AC (200 ms / withstand mode)
Response time $t_A$ (L-N)	$\leq 25$ ns
Response time $t_A$ (L-PE)	$\leq 100$ ns
Response time $t_A$ (N-PE)	$\leq 100$ ns
Max. backup fuse with V-type through wiring	80 A (gG - 16 mm <sup>2</sup> )
Max. backup fuse with branch wiring	250 A (gG)

### Connection data

Connection method	Screw connection
Screw thread	M5
Tightening torque	3 Nm (1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup> )
	4.5 Nm (25 mm <sup>2</sup> ... 35 mm <sup>2</sup> )
Stripping length	16 mm
Conductor cross section flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross section solid	1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>
Conductor cross section AWG	15 ... 2

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### Technical data

#### Connection data

Connection method	Fork-type cable lug
Conductor cross section flexible	1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>

#### UL specifications

SPD Type	4CA
Maximum continuous operating voltage MCOV (L-N)	385 V AC
Maximum continuous operating voltage MCOV (L-G)	385 V AC
Maximum continuous operating voltage MCOV (N-G)	264 V AC
Nom. voltage	240 V AC
Mode of protection	L-N
	L-G
	N-G
Power distribution system	Single phase
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-N)	2710 V
Measured limiting voltage MLV (L-G)	3730 V
Measured limiting voltage MLV (N-G)	2590 V
Nominal discharge current I <sub>n</sub> (L-N)	20 kA
Nominal discharge current I <sub>n</sub> (L-G)	20 kA
Nominal discharge current I <sub>n</sub> (N-G)	20 kA

#### UL connection data

Conductor cross section AWG	10 ... 2
Tightening torque	30 lb <sub>F</sub> -in.

#### Standards and Regulations

Standards/regulations	IEC 61643-11 2011
	EN 61643-11 2012

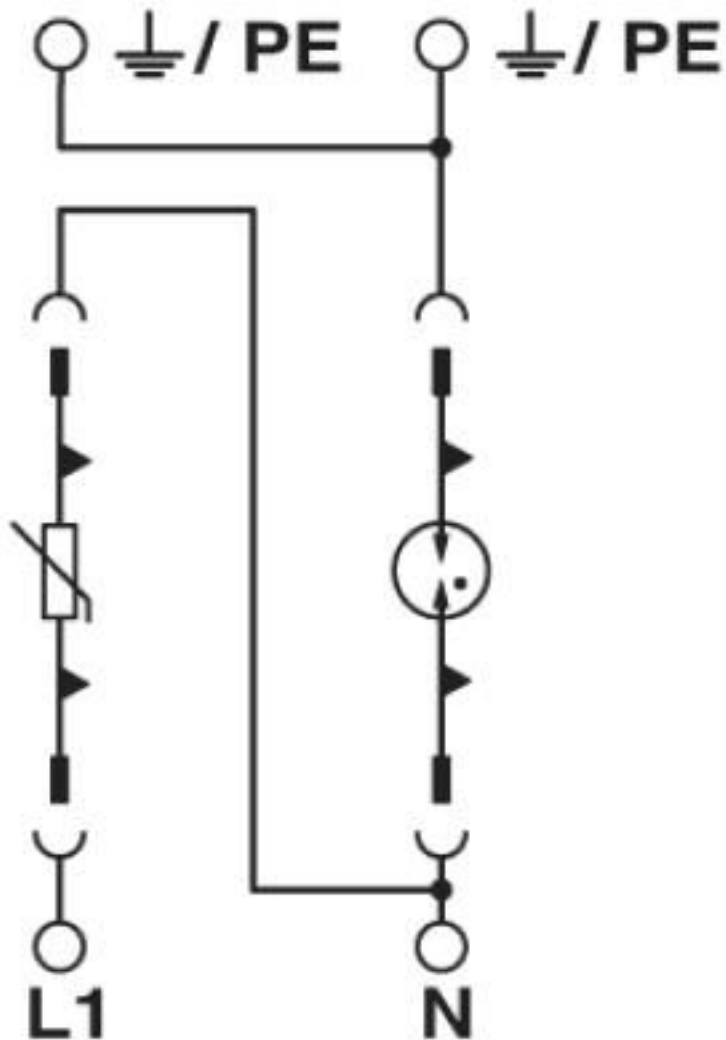
#### Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

### Drawings

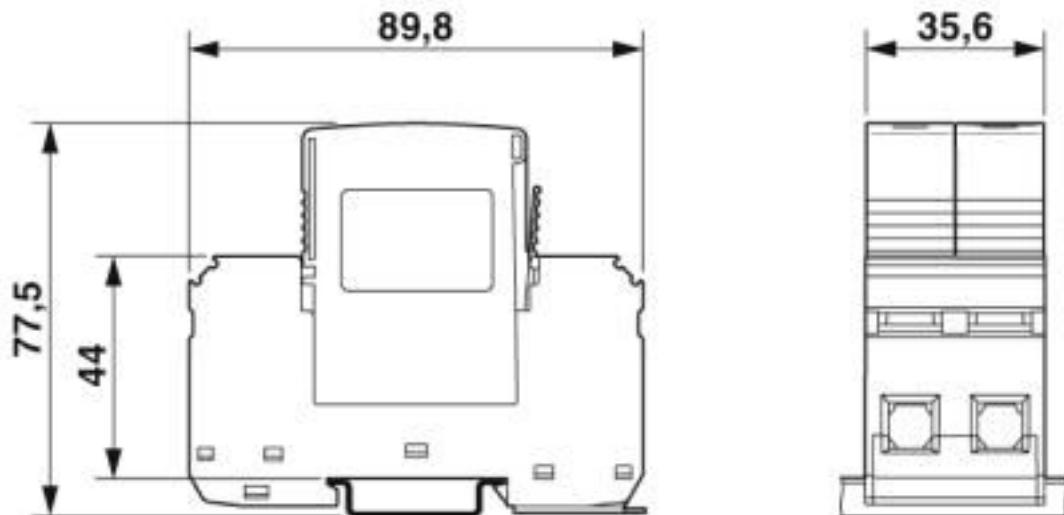
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Circuit diagram



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Dimensional drawing



### Classifications

#### eCl@ss

eCl@ss 4.0	27140201
eCl@ss 4.1	27130801
eCl@ss 5.0	27130801
eCl@ss 5.1	27130800
eCl@ss 6.0	27130800
eCl@ss 7.0	27130805
eCl@ss 8.0	27130805
eCl@ss 9.0	27130805

#### ETIM

ETIM 2.0	EC000941
ETIM 3.0	EC000941
ETIM 4.0	EC000941
ETIM 5.0	EC000941
ETIM 6.0	EC000941
ETIM 7.0	EC000941

#### UNSPSC

UNSPSC 6.01	30212010
UNSPSC 7.0901	39121610
UNSPSC 11	39121610
UNSPSC 12.01	39121610
UNSPSC 13.2	39121620
UNSPSC 19.0	39121620

## Type 2 surge arrester - VAL-MS 385/80/1+1 - 2921297

### Accessories

#### Accessories

#### Replacement plug

Type 2 surge protection plug - VAL-MS 385/80 ST - 2920353



Type 2 surge protection plug with varistor for VAL-MS 385/80/..., thermal monitoring, visual fault warning.

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Type 2 surge protection plug - F-MS 80 ST - 2921307



Type 2 surge protection plug with N-PE total current spark gap.

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### Spare parts

Type 2 surge protection plug - VAL-MS 385/80 ST - 2920353



Type 2 surge protection plug with varistor for VAL-MS 385/80/..., thermal monitoring, visual fault warning.

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Type 2 surge protection plug - F-MS 80 ST - 2921307



Type 2 surge protection plug with N-PE total current spark gap.

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