

# VAL-MS 580/3+0-FM - Type 2 surge arrester



2920447

<https://www.phoenixcontact.com/us/products/2920447>

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Surge arrester for 4-conductor power supply systems (L1, L2, L3, PEN), consisting of a base element with remote indication contact and protective connectors, for mounting on NS 35.

## Your advantages

- Quality proven millions of times over in the widest range of applications
- Rapid installation with bridges, thanks to industry-standard overall width of 1 HP
- Easy testing and insulation measurement, thanks to pluggable protection modules
- Wide range of applications due to various nominal voltages
- High degree of modularity provides individual solutions for every application

## Commercial data

Item number	2920447
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL18
Product key	CL1321
GTIN	4046356163569
Weight per piece (including packing)	388 g
Weight per piece (excluding packing)	386.1 g
Customs tariff number	85363030
Country of origin	DE

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## Technical data

### Notes

#### General

Note	For use in all low-voltage systems between L-PEN. Only for use in IT systems between L-PE if the bodies of the equipment in the low-voltage system are connected to the grounding system of the transformer station. (common grounding of the HV transformer station and the bodies of the LV consumer's installation. $R_E = R_A$ according to IEC 60364-4-442/VDE 0100-442 Figure 44D/example a)
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### Product properties

Product type	Surge arrester
Product family	VALVETRAB MS
IEC test classification	II T2
EN type	T2
IEC power supply system	TN-C IT
Type	DIN rail module, two-section, divisible
Distance between live and grounded parts	5 mm
Number of positions	3
Surge protection fault message	Optical, remote indicator contact
Number of ports	One

#### Insulation characteristics

Overvoltage category	III
Pollution degree	2

### Electrical properties

Nominal frequency $f_N$	50 Hz (60 Hz)
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#### Indicator/remote signaling

Connection name	Remote fault indicator contact
Switching function	Changeover contact
Operating voltage	5 V AC ... 250 V AC 30 V DC
Operating current	5 mA AC ... 1.5 A AC 1 A DC

### 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> )

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2920447

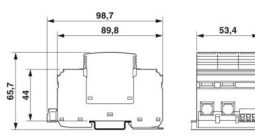
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Stripping length	16 mm
Conductor cross-section flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross-section rigid	1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>
Conductor cross-section AWG	15 ... 2
Connection method	Fork-type cable lug
Conductor cross-section flexible	1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>

## Remote fault indicator contact

Connection method	Plug-in/screw connection via COMBICON
Screw thread	M2
Tightening torque	0.25 Nm
Stripping length	7 mm
Conductor cross-section flexible	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section rigid	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	28 ... 16

## Dimensions

Dimensional drawing	
Width	53.4 mm
Height	98.7 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	3 Div.

## Material specifications

Color	black (RAL 9005)
Flammability rating according to UL 94	V-0
CTI value of material	600
Insulating material	PA 6.6/PBT
Material group	I
Housing material	PA 6.6 PBT

## Protective circuit

Mode of protection	L-PE L-PEN
Direction of action	3L-PEN
Nominal voltage $U_N$	400/690 V AC (TN-C) 500 V AC (IT)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$	580 V AC

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2920447

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Rated load current $I_L$	80 A
Protective conductor current $I_{PE}$	$\leq 0.75$ mA
Standby power consumption $P_C$	$\leq 450$ mVA
Nominal discharge current $I_n$ (8/20) $\mu$ s	15 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s	30 kA
Short-circuit current rating $I_{SCCR}$	25 kA
Voltage protection level $U_p$	$\leq 2.5$ kV
Residual voltage $U_{res}$	$\leq 2.5$ kV (at $I_n$ )
	$\leq 2.3$ kV (at 10 kA)
	$\leq 2.1$ kV (at 5 kA)
	$\leq 1.9$ kV (at 3 kA)
TOV behavior at $U_T$	690 V AC (5 s / withstand mode)
	762 V AC (120 min / withstand mode)
Response time $t_A$	$\leq 25$ ns
Max. backup fuse with V-type through wiring	80 A (gG)
Max. backup fuse with branch wiring	125 A (gG)

## Environmental and real-life conditions

### 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
Altitude	$\leq 2000$ m (amsl)
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	25g (Half-sine / 11 ms / 3x $\pm$ X, $\pm$ Y, $\pm$ Z)
Vibration (operation)	5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

## Approvals

### UL specifications

Maximum continuous operating voltage MCOV (L-L)	1160 V AC
Maximum continuous operating voltage MCOV (L-G)	580 V AC
Nominal discharge current $I_n$ (L-L)	10 kA
Nominal discharge current $I_n$ (L-G)	10 kA
Mode of protection	L-L
	L-G
Nominal voltage	400/690 V AC
Power distribution system	Delta
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-L)	4270 V
Measured limiting voltage MLV (L-G)	2310 V
SPD Type	4CA

### UL indicator/remote signaling

Operating voltage	125 V AC
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2920447

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AC operating current	1 A AC
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## UL connection data

Tightening torque	30 lb <sub>F</sub> ·in.
Conductor cross-section AWG	14 ... 2

## Standards and regulations

Standards/specifications	IEC 61643-11
Note	2011
Standards/specifications	EN 61643-11
Note	2012

## Mounting

Mounting type	DIN rail: 35 mm
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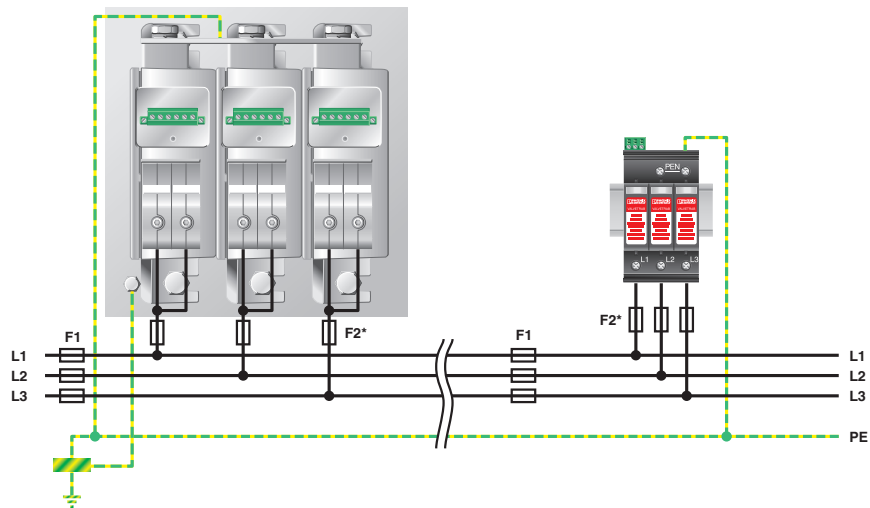
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## Drawings

Dimensional drawing



Application drawing



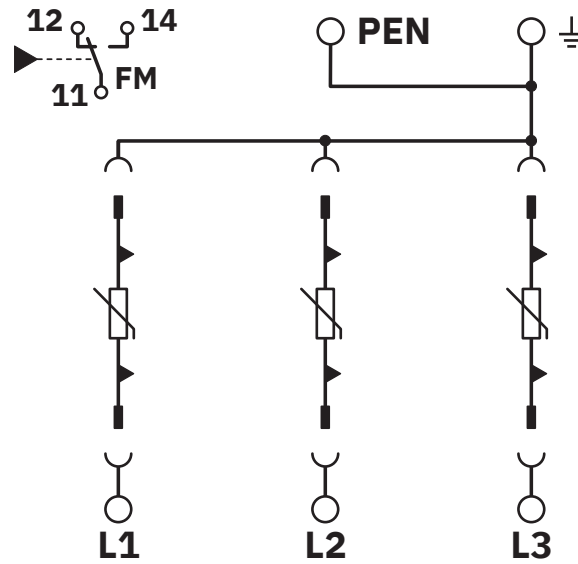
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Circuit diagram



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## Approvals

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**cUL Recognized**  
Approval ID: FILE E 330181



**UL Recognized**  
Approval ID: FILE E 330181



**IECEE CB Scheme**  
Approval ID: AT 2905/M1

**CCA**

Approval ID: NTR-AT 1947-A



**KEMA-KEUR**  
Approval ID: 71-148002



**CSA**  
Approval ID: 13631



**ÖVE**  
Approval ID: 18583-001-17

**UAE-RoHS**

Approval ID: 22-09-51251



**ÖVE**  
Approval ID: 18583-001-18

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## Classifications

### ECLASS

ECLASS-13.0	27171202
ECLASS-15.0	27171202

### ETIM

ETIM 10.0	EC000941
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### UNSPSC

UNSPSC 21.0	39121600
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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### EF3.1 Climate Change

CO2e kg	8.47 kg CO2e
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