

# VAL-MS 350 VF/3+0 - Type 2 surge arrester



2901861

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Plug-in surge arrester free of leakage current for 3-phase power supply networks with N and PE in a common conductor (4-conductor system: L1, L2, L3, PEN).

## Commercial data

Item number	2901861
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	CL1321
GTIN	4046356912822
Weight per piece (including packing)	327 g
Weight per piece (excluding packing)	308.1 g
Country of origin	DE

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## Technical data

### Notes

#### General

Note	Only usable in IT Systems between L-PE, if the exposed-conductive-parts (bodies) of the equipment of the low-voltage installation is connected to the earthing arrangement of the transformer substation (interconnected earthing arrangement of the HV-transformer substation with the bodies of the LV-installation. $R_E = R_A$ accordance to IEC 60364-4-442 / VDE 0100-442 Fig. 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
Number of positions	3
Surge protection fault message	optical
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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### Connection data

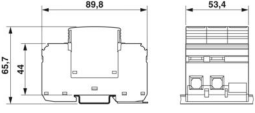
Connection method	Screw connection
Screw thread	M5
Tightening torque	3 Nm (1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup> ) 4.5 Nm (25 mm <sup>2</sup> ... 35 mm <sup>2</sup> )
Stripping length	16 mm
Conductor cross-section flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross-section rigid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

### Dimensions

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Dimensional drawing	
Width	53.4 mm
Height	89.8 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	2 Div.

## Material specifications

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-N/PE
Nominal voltage $U_N$	240/415 V AC (TN-C) 230 V AC (IT)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$	350 V AC
Rated load current $I_L$	80 A
Protective conductor current $I_{PE}$	$\leq 5 \mu A$
Standby power consumption $P_C$	$\leq 6 mVA$
Nominal discharge current $I_n$ (8/20) $\mu s$	10 kA
Maximum discharge current $I_{max}$ (8/20) $\mu s$	20 kA
Short-circuit current rating $I_{SCCR}$	25 kA
Voltage protection level $U_p$	$\leq 1.5 kV$
Residual voltage $U_{res}$	$\leq 1.2 kV$ (at $I_n$ ) $\leq 1.2 kV$ (at 10 kA) $\leq 1.1 kV$ (at 5 kA)
Front-of-wave sparkover voltage at 6 kV (1.2/50) $\mu s$	$\leq 1.5 kV$
TOV behavior at $U_T$ (L-PEN)	415 V AC (5 s / withstand mode) 440 V AC (120 min / withstand mode)
Response time $t_A$	$\leq 100 ns$
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

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

## Approvals

### UL specifications

Maximum continuous operating voltage MCOV (L-L)	700 V AC
Nominal discharge current $I_n$ (L-L)	20 kA
Mode of protection	L-L
Nominal voltage	240 V AC
Power distribution system	Delta
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-L)	2420 V
SPD Type	4CA

### UL connection data

Tightening torque	30 lb <sub>f</sub> -in.
Conductor cross-section AWG	10 ... 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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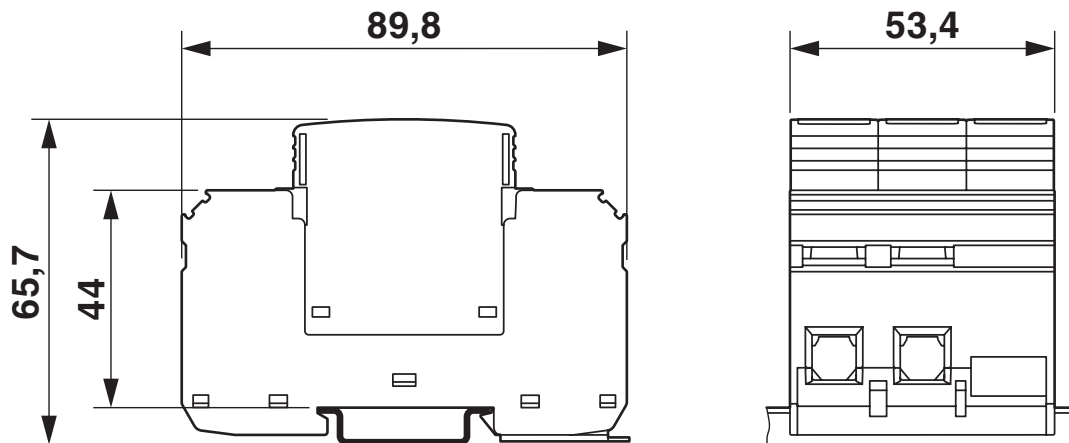
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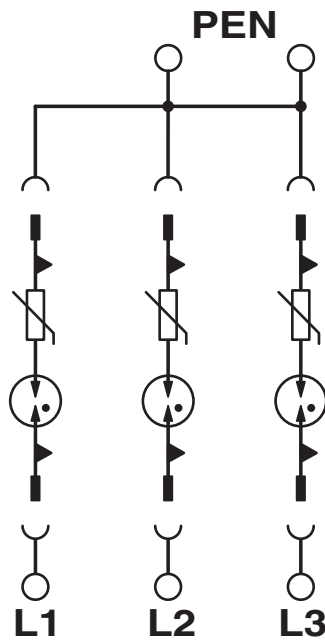
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## Drawings

Dimensional drawing



Circuit diagram



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## Environmental product compliance

EU REACH SVHC

REACH candidate substance (CAS No.)	
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	No substance above 0.1 wt%
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