

# VAL-MS 400/3+0/VF-FM/32 - Type 2 surge arrester



2909828

<https://www.phoenixcontact.com/gb/products/2909828>

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Surge protective device combination, 3-channel, for installation on NS 35/7,5, with remote indication contact (FM) as changeover contact, voltage 400 V AC

## 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
- Suitable for use in insulation-monitored systems due to combination of varistor and gas discharge tube free of leakage current
- Can be used in applications with increased insulation strength, e.g., railway technology

## Commercial data

Item number	2909828
Packing unit	32 pc
Minimum order quantity	32 pc
Note	Made to order (non-returnable)
Sales key	CL1321
Product key	CL1321
GTIN	4055626383484
Weight per piece (including packing)	390 g
Weight per piece (excluding packing)	385.55 g
Customs tariff number	85363010
Country of origin	DE

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## Technical data

### Notes

#### General

Note	Burst test up to 4 kV passed according to DIN EN 61000-4-4.
	Insulates against repetitive pulses up to 1.5 kV.
	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).
	At altitudes > 2000 m (amsl), a lateral distance of 2 mm must be maintained between live and grounded parts.

### Product properties

Product type	Surge arrester
Product family	VALVETRAB MS
IEC test classification	II
	T2
EN type	T2
IEC power supply system	IT
Type	DIN rail module, two-section, divisible
Number of positions	4
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 (Altitude $\leq$ 2000 m (amsl))
	5 V AC ... 150 V AC (Altitude > 2000 m (amsl))
	30 V DC
Operating current	5 mA AC ... 750 mA AC
	1 A DC

### Connection data

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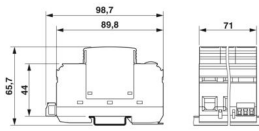
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Screw thread	M5
Tightening torque	3 Nm (1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup> )
	4.5 Nm (25 mm <sup>2</sup> ... 35 mm <sup>2</sup> )
Stripping length	16 mm
Conductor cross-section flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross-section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

## 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	71 mm
Height	98.7 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	4 Div.

## Material specifications

Color	black (RAL 9005)
	gray (RAL 7042)
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-L
Direction of action	3L-N/PE

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Nominal voltage $U_N$	400 V AC (IT)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$	440 V AC
Rated load current $I_L$	80 A
Protective conductor current $I_{PE}$	$\leq 5 \mu\text{A}$
Standby power consumption $P_C$	$\leq 600 \text{ mVA}$
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$	20 kA
Maximum discharge current $I_{max}$ (8/20) $\mu\text{s}$	40 kA
Short-circuit current rating $I_{SCCR}$	25 kA
Voltage protection level $U_p$ (L-L)	$\leq 4 \text{ kV}$
Voltage protection level $U_p$ (L-PE)	$\leq 3.5 \text{ kV}$
Residual voltage $U_{res}$ (L-L)	$\leq 4 \text{ kV}$ (at $I_n$ )
Residual voltage $U_{res}$ (L-PE)	$\leq 2.3 \text{ kV}$ (at $I_n$ )
Response time $t_A$ (L-L)	$\leq 25 \text{ ns}$
Response time $t_A$ (L-PE)	$\leq 100 \text{ ns}$
Max. backup fuse with V-type through wiring	80 A (gG)
Max. backup fuse with branch wiring	100 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	$\leq 5000 \text{ m}$ (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)

## 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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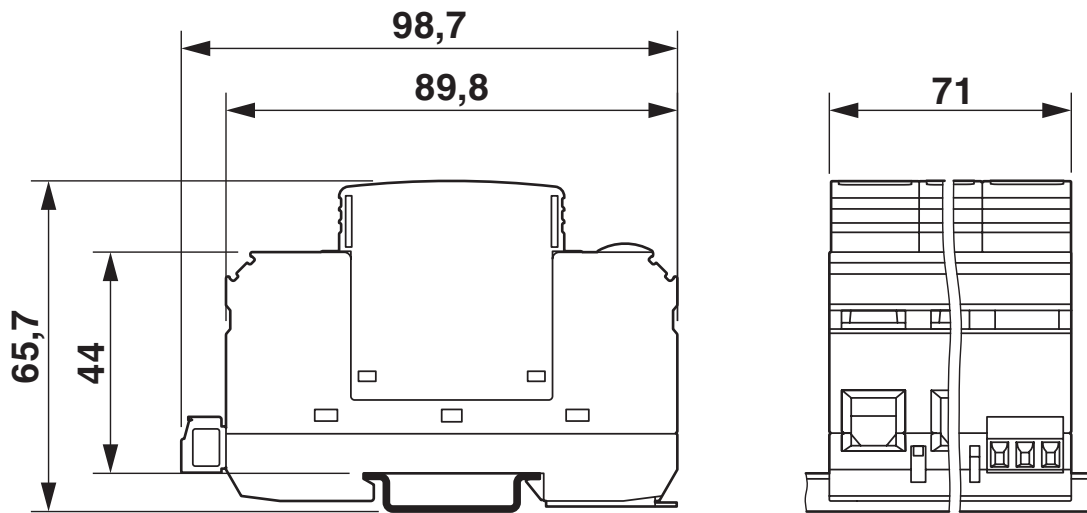
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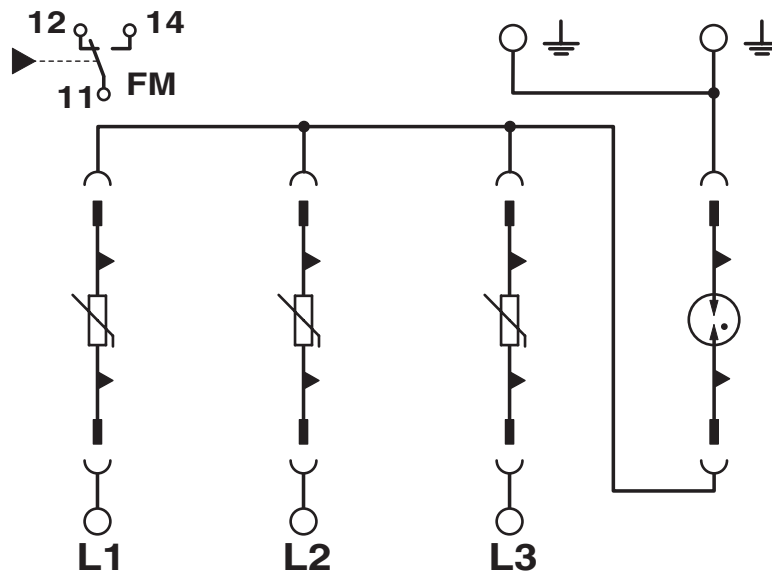
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## Drawings

Dimensional drawing



Circuit diagram



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## Classifications

### ECLASS

ECLASS-13.0

27171202

### ETIM

ETIM 9.0

EC000941

### 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	11.106 kg CO2e
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