

# VAL-MS 350 VF/FM - Type 2 surge arrester

2856579

<https://www.phoenixcontact.com/us/products/2856579>

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Surge voltage arrester consisting of base element with remote indicator contact and protective plug with a connection in series with a varistor and a gas-filled spark gap, for mounting on NS 35/7.5, nominal voltage: 230 V AC, 1-channel

## 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	2856579
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL18
Product key	CL1321
Catalog page	Page 62 (C-4-2019)
GTIN	4017918876852
Weight per piece (including packing)	134.7 g
Weight per piece (excluding packing)	134.9 g
Customs tariff number	85363030
Country of origin	DE

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## Technical data

### Notes

#### General

Note	Usable in all low-voltage systems between L-N or L-PEN. 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

IEC test classification	II T2
EN type	T2
IEC power supply system	TN TT IT
Type	DIN rail module, two-section, divisible
Product type	Surge arrester
Product family	VALVETRAB MS
Number of positions	1
Surge protection fault message	Optical, remote indicator contact

#### 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 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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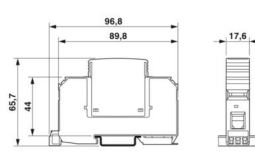
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Stripping length	16 mm
Conductor cross section flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross section rigid	1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>
Conductor cross section AWG	15 ... 2
Connection method	Fork-type cable lug
Conductor 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	17.6 mm
Height	96.8 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	1 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-N
	L-PE
	L-PEN
Direction of action	1L-N/PE
Nominal voltage $U_N$	240/415 V AC (TN)
	240/415 V AC (TT)
	230 V AC (IT)

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Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous voltage $U_C$	350 V AC
Rated load current $I_L$	80 A
Residual current $I_{PE}$	$\leq 5 \mu\text{A}$
Standby power consumption $P_C$	$\leq 2.00 \text{ mVA}$
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$	10 kA
Maximum discharge current $I_{\text{max}}$ (8/20) $\mu\text{s}$	20 kA
Short-circuit current rating $I_{\text{SCCR}}$	25 kA
Voltage protection level $U_p$	$\leq 1.5 \text{ kV}$
Residual voltage $U_{\text{res}}$	$\leq 1.2 \text{ kV}$ (at $I_n$ )
	$\leq 1.2 \text{ kV}$ (at 10 kA)
	$\leq 1.1 \text{ kV}$ (at 5 kA)
Front of wave sparkover voltage at 6 kV (1.2/50) $\mu\text{s}$	$\leq 1.5 \text{ kV}$
TOV behavior at $U_T$	415 V AC (5 s / withstand mode)
	440 V AC (120 min / withstand mode)
Response time $t_A$	$\leq 100 \text{ ns}$
Max. backup fuse with V-type through wiring	80 A (gG)
Max. backup fuse with branch wiring	125 A (gG)

## Additional technical data

Impulse discharge current (10/350) $\mu\text{s}$ , charge	0.25 As
Impulse discharge current (10/350) $\mu\text{s}$ , specific energy	62.5 J/ $\Omega$
Impulse discharge current (10/350) $\mu\text{s}$ , peak value $I_{\text{imp}}$	500 A

## 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	$\leq 2000 \text{ m}$ (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)

## Approvals

### UL specifications

Maximum continuous operating voltage MCOV (L-N)	350 V AC
Nominal discharge current $I_n$ (L-N)	10 kA
Mode of protection	L-N
Nominal voltage	240 V AC
Power distribution system	Single phase
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-N)	2420 V
SPD Type	4CA

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## UL indicator/remote signaling

Operating voltage	125 V AC
AC operating current	1 A AC

## 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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## Classifications

### ECLASS

ECLASS-11.0	27130805
ECLASS-13.0	27171202

### ETIM

ETIM 9.0	EC000941
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### UNSPSC

UNSPSC 21.0	39121600
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## Environmental product compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

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