

# VAL-MS 350 VF ST - Type 2 surge protection plug



2856595

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Surge protection connector type 2 with series connection consisting of varistor and gas-filled spark gap for VAL-MS base element, thermal monitoring, visual fault warning. Design: 350 V AC

## Commercial data

Item number	2856595
Packing unit	10 pc
Minimum order quantity	1 pc
Sales key	CL18
Product key	CL1321
GTIN	4017918876869
Weight per piece (including packing)	38.26 g
Weight per piece (excluding packing)	37.8 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

Product type	Replacement plug
Product family	VALVETRAB MS
IEC test classification	II T2
EN type	T2
IEC power supply system	TN TT IT
Type	DIN rail module, two-section, divisible
Number of positions	1
Surge protection fault message	optical
Arrester can be tested with CHECKMASTER from software version:	From SW rev. 1.12

#### Insulation characteristics

Overvoltage category	III
Pollution degree	2

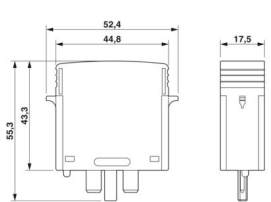
### Electrical properties

Nominal frequency $f_N$	50 Hz (60 Hz)
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### Connection data

Connection method	pluggable
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### Dimensions

Dimensional drawing	
Width	17.5 mm

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Height	52.4 mm
Depth	55.3 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
Material group	I
Housing material	PA 6.6

## 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)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$	350 V AC
Protective conductor current $I_{PE}$	$\leq 5 \mu\text{A}$
Standby power consumption $P_C$	$\leq 2 \text{ mVA}$
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 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

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Degree of protection	IP20
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-N)	350 V AC
Nominal discharge current $I_n$ (L-N)	10 kA
Mode of protection	L-N
Nominal voltage	350 V AC
Power distribution system	Single phase
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-N)	1610 V
SPD Type	4CA

## Standards and regulations

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

## Mounting

Mounting type	on base element
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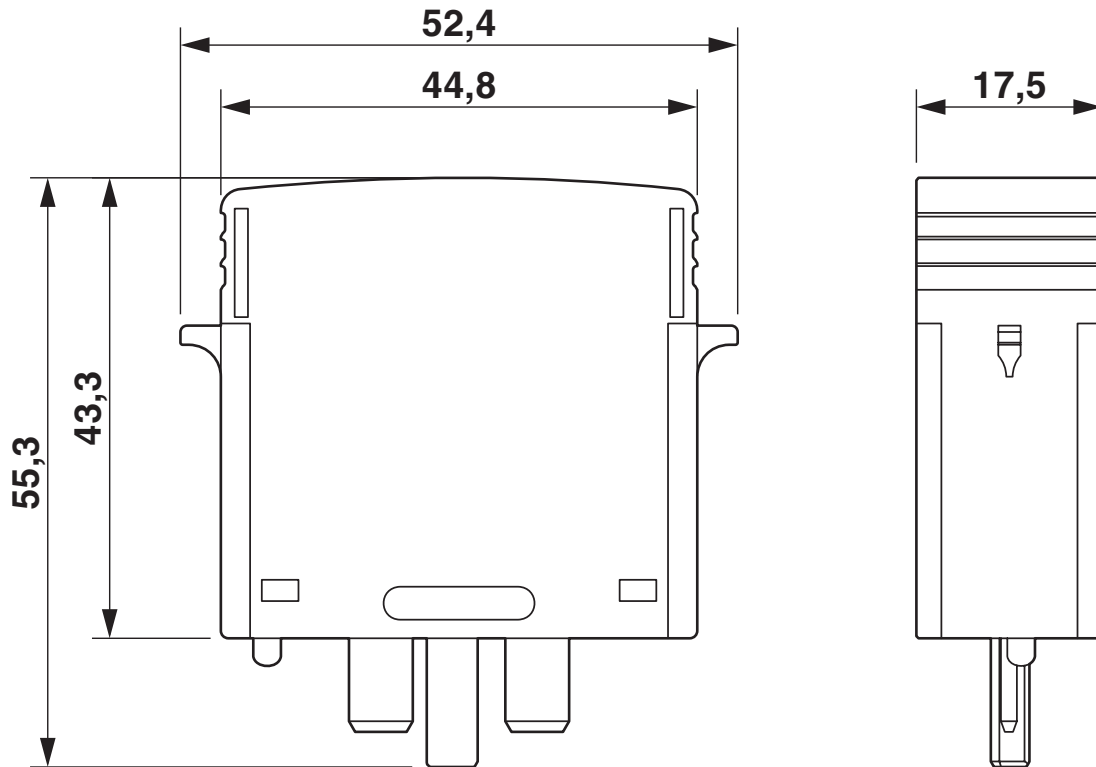
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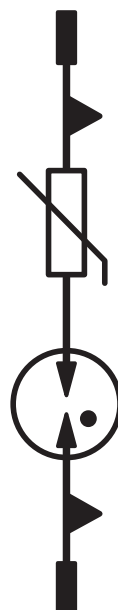


## Drawings

Dimensional drawing



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	27171292
ECLASS-15.0	27171292

### ETIM

ETIM 10.0	EC002496
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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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