

# VAL-MS 400 ST - Type 2 surge protection plug

2816399

<https://www.phoenixcontact.com/us/products/2816399>

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Surge protection connector type 2 with high-capacity varistor for VAL-MS base element, thermal monitoring, visual fault warning. Design: 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
- Wide range of applications due to various nominal voltages
- High degree of modularity provides individual solutions for every application

## Commercial data

Item number	2816399
Packing unit	10 pc
Minimum order quantity	1 pc
Sales key	CL18
Product key	CL1321
GTIN	4017918131593
Weight per piece (including packing)	54.73 g
Weight per piece (excluding packing)	51 g
Customs tariff number	85363030
Country of origin	DE

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## Technical data

### Notes

Order information:	Use in DC applications on request
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### 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. 1.10

### Insulation characteristics

Overvoltage category	III
Pollution degree	2

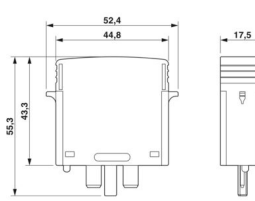
### Electrical properties

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

Connection method	pluggable
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### Dimensions

Dimensional drawing	
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Width	17.5 mm
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 $U_C$	440 V AC
Protective conductor current $I_{PE}$	$\leq 0.45$ mA
Standby power consumption $P_C$	$\leq 200$ mVA
Nominal discharge current $I_n$ (8/20) $\mu$ s	20 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s	40 kA
Short-circuit current rating $I_{SCCR}$	25 kA
Voltage protection level $U_p$	$\leq 2.2$ kV
Residual voltage $U_{res}$	$\leq 2.2$ kV (at $I_n$ )
	$\leq 1.8$ kV (at 10 kA)
	$\leq 1.5$ kV (at 5 kA)
	$\leq 1.4$ kV (at 3 kA)
TOV behavior at $U_T$	440 V AC (5 s / withstand mode)
	440 V AC (120 min / withstand mode)
Response time $t_A$	$\leq 25$ ns
Max. backup fuse with branch wiring	125 A (gG)

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 80 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	$\leq 2000$ m (amsl)

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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)	440 V AC
Nominal discharge current $I_n$ (L-N)	20 kA
Mode of protection	L-N
Nominal voltage	400 V AC
Power distribution system	Single phase
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-N)	2280 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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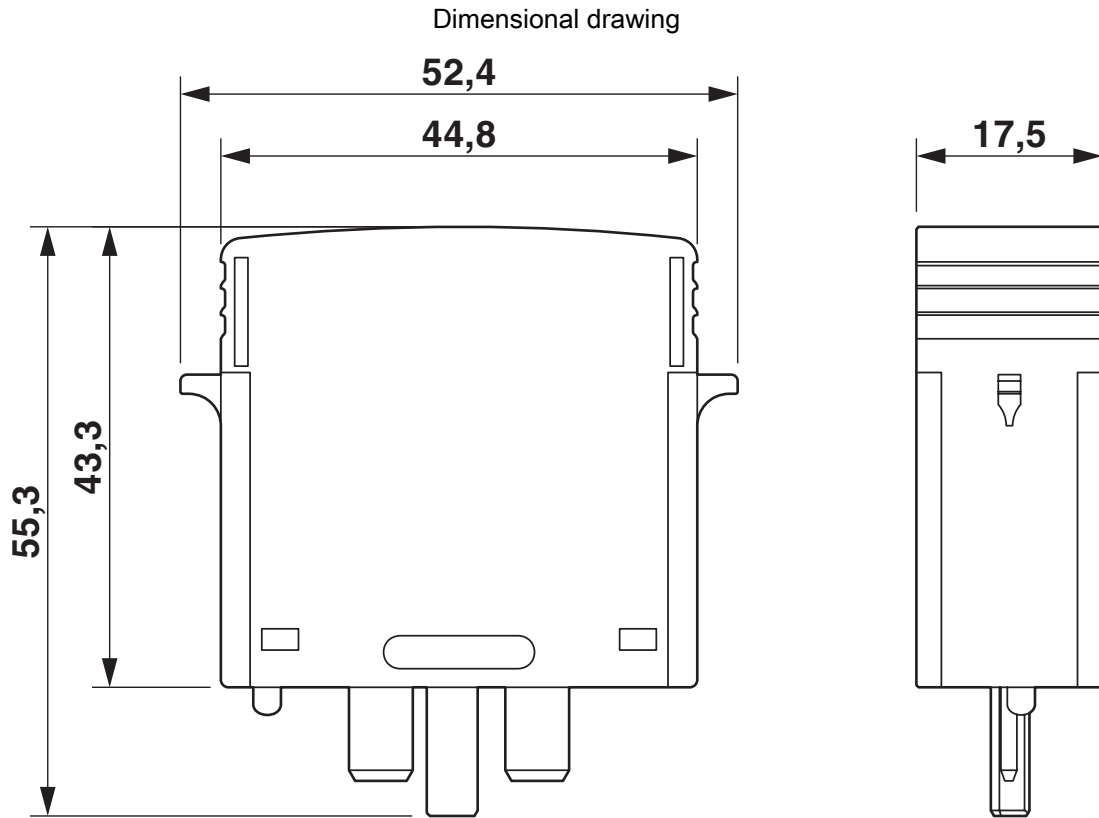
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## Drawings



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



**DNV GL**

Approval ID: TAE000041M



**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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### EF3.1 Climate Change

CO2e kg	0.62 kg CO2e
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