

# VAL-MS 1000DC-PV/2+V - Type 2 surge arrester



2800628

<https://www.phoenixcontact.com/no/products/2800628>

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Surge protective device for 2-pos. isolated and grounded 1,000 V DC PV systems, for DIN rail mounting, 3-pos. base element, three pluggable temperature-monitored protective elements, status message on each plug.

## 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	2800628
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	31BCL
Product key	CL1324
Catalog page	Page 73 (C-4-2019)
GTIN	4046356615082
Weight per piece (including packing)	336 g
Weight per piece (excluding packing)	329 g
Customs tariff number	85363090
Country of origin	DE

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## Technical data

### Notes

#### General

Note	The device is intended for touch proof installation in a housing. Ensure that there is a gap of at least 8 mm between the active and grounded parts in the connection area.
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### Product properties

IEC test classification	PV II
	PV T2
EN type	T2
IEC power supply system	DC
Type	DIN rail module, two-section, divisible
Distance between live and grounded parts	8 mm
Product type	PV arrester
Product family	VALVETRAB MS
Installation location	Interior
Installation location of the disconnect device	Internal
Accessibility	Accessible
Connection configuration	Y configuration
SPD failure behavior	OCFM (Open-Circuit Failure Mode)
Surge protection fault message	optical

#### Insulation characteristics

Overvoltage category	III
Pollution degree	2

### 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>

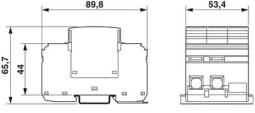
### Dimensions

# VAL-MS 1000DC-PV/2+V - Type 2 surge arrester



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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	3 Div.

## Material specifications

Flammability rating according to UL 94	V-0
CTI value of material	600
Insulating material	PA 6.6-FR PBT-FR
Material group	I
Housing material	PA 6.6-FR PBT-FR

## Mechanical properties

### Mechanical data

Open side panel	No
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## Protective circuit

Mode of protection	(L+) - (L-) (L+) - PE (L-) - PE
Direction of action	(L+)-PE & (L-)-PE & (L+)-(L-)
Rated load current $I_L$	80 A
Residual current $I_{PE}$	$\leq 20 \mu\text{A DC}$ $\leq 250 \mu\text{A AC}$
Standby power consumption $P_C$	$\leq 25 \text{ mVA}$
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$	15 kA
Maximum discharge current $I_{max}$ (8/20) $\mu\text{s}$	40 kA
Total discharge current $I_{total}$ (8/20) $\mu\text{s}$	40 kA
Voltage protection level $U_p$	$\leq 3.7 \text{ kV}$
Residual voltage $U_{res}$	$\leq 3.7 \text{ kV (at } I_n)$ $\leq 3.1 \text{ kV (at } 5 \text{ kA)}$ $\leq 3.5 \text{ kV (at } 10 \text{ kA)}$ $\leq 4 \text{ kV (at } 20 \text{ kA)}$ $\leq 4.6 \text{ kV (at } 30 \text{ kA)}$ $\leq 5 \text{ kV (at } 40 \text{ kA)}$
Response time $t_A$	$\leq 25 \text{ ns}$

PV protective circuit

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Connection configuration	Y configuration
SPD failure behavior	OCFM (Open-Circuit Failure Mode)

## Protective circuit DC voltage side (DC)

Open circuit voltage $U_{OCSTC}$	$\leq 975$ V DC
Maximum discharge current $I_{max}$ (8/20) $\mu$ s	40 kA
Response time $t_A$	$\leq 25$ ns
Total discharge current $I_{total}$ (8/20) $\mu$ s	40 kA
Insulation resistance $R_{iso}$	$> 5$ G $\Omega$ (at 500 V DC)
Nominal discharge current $I_n$ (8/20) $\mu$ s	15 kA
Rated load current $I_L$	80 A
Continuous operating current $I_{CPV}$	$< 20$ $\mu$ A
Maximum continuous operating voltage $U_{CPV}$	1170 V DC
Short-circuit current rating $I_{SCPV}$	2000 A
Residual voltage $U_{res}$	$\leq 3.7$ kV (at $I_n$ ) $\leq 3.1$ kV (at 5 kA) $\leq 3.5$ kV (at 10 kA) $\leq 4$ kV (at 20 kA) $\leq 4.6$ kV (at 30 kA) $\leq 5$ kV (at 40 kA)
Residual current $I_{PE}$	$\leq 20$ $\mu$ A DC $\leq 250$ $\mu$ A AC
Voltage protection level $U_p$	$\leq 3.7$ kV
Standby power consumption $P_C$	$\leq 25$ mVA

## 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	$\leq 2000$ m (amsl)
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	60g (Half-sine / 11 ms / 3x $\pm$ X, $\pm$ Y, $\pm$ Z)
Vibration (operation)	7.5g (5-500 Hz/2.5 h/XYZ)

## Approvals

### UL specifications

Maximum continuous operating voltage MCOV	1170 V DC
Short-circuit current rating (SCCR)	50 kA
Voltage protection rating VPR	3 kV
Nominal discharge current $I_n$	10 kA
Mode of protection	(L+) - (L-) (L+) - G (L-) - G

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Nominal voltage	1170 V DC
Power distribution system	DC PV
SPD Type	1CA

## UL connection data

Tightening torque	30 lb <sub>F</sub> ·in.
Conductor cross section AWG	14 ... 2

## Standards and regulations

### EN 61643-31

Standards/specifications	EN 61643-31
Note	2019
Standards/specifications	IEC 61643-31
Note	2018

## Mounting

Mounting type	DIN rail: 35 mm
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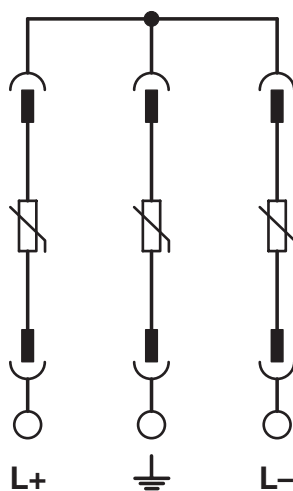
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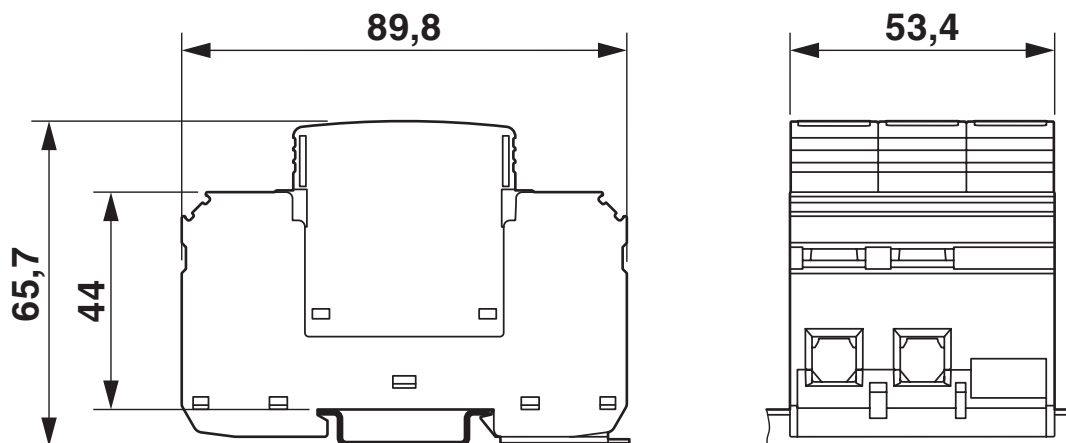
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## Drawings

Circuit diagram



Dimensional drawing



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/no/products/2800628>



**cUL Recognized**

Approval ID: FILE E 330181



**UL Recognized**

Approval ID: FILE E 330181



**EAC**

Approval ID: RU C-DE.\*09.B.00169



**KEMA-KEUR**

Approval ID: 71-123544 REV.2



**IECEE CB Scheme**

Approval ID: NL-81006/A1

**CCA**

Approval ID: NTR-NL 7937

**UAE-RoHS**

Approval ID: 22-09-51250

**cULus Recognized**

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## Classifications

### ECLASS

ECLASS-11.0	27130805
ECLASS-13.0	27171402

### ETIM

ETIM 8.0	EC000941
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### UNSPSC

UNSPSC 21.0	39121620
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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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## Accessories

### ZBN 18,LGS:ERDE - Marker for terminal blocks

2749589

<https://www.phoenixcontact.com/no/products/2749589>



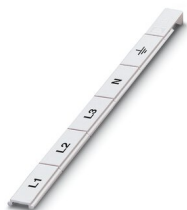
Marker for terminal blocks, Strip, white, labeled, horizontal: Grounding symbol, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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### ZBN 18,LGS:L1-N,ERDE - Marker for terminal blocks

2749576

<https://www.phoenixcontact.com/no/products/2749576>



Marker for terminal blocks, Strip, white, labeled, horizontal: L1, L2, L3, N, GND, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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## ZBN 18:UNBEDRUCKT - Zack marker strip

2809128

<https://www.phoenixcontact.com/no/products/2809128>



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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## B-STIFT - Marker pen

1051993

<https://www.phoenixcontact.com/no/products/1051993>



Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

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## ATP-QTTCB - Partition plate

3206238

<https://www.phoenixcontact.com/no/products/3206238>

Partition plate, length: 102 mm, width: 2 mm, height: 102 mm, color: gray



## VAL-MS 1000DC-PV-ST - Type 2 surge protection plug

2800624

<https://www.phoenixcontact.com/no/products/2800624>



Replacement plug for PV arrester combinations from the VAL-MS 1000DC-PV-... product range

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