

# PV arrester - VAL-MS 600DC-PV/2+V - 2800642

<https://www.phoenixcontact.com/in/products/2800642>

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Surge protective device for 2-pos. isolated and grounded 600 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

- Increased safety, thanks to compliance with standard EN 50539-11
- Reliable contact, thanks to integrated rotating latch
- Easy replacement, thanks to plug-in arresters
- Optimum inverter protection, thanks to low protection level
- Efficient replacement of defective plugs, thanks to visual status indicator
- Protection against mismatching, thanks to keyed plugs and base elements

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## Commercial Data

Order Key	2800642
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	CL1
Catalog Page	Page 73 (C-4-2019)
GTIN	4046356614979
Weight per Piece (including packing)	314.2 GRM
Weight per Piece (excluding packing)	314.2 GRM
Customs tariff number	85363010
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
Type	DIN rail module, two-section, divisible
Distance between live and grounded parts	8 mm
Installation location	Interior
Installation location of the disconnect device	Internal
Accessibility	Accessible
Connection configuration	Y configuration
SPD failure behavior	OCM (Open-circuit mode)
Surge protection fault message	optical

#### Insulation characteristics

Overvoltage category	III
Pollution degree	2

### Mounting

Mounting type	DIN rail: 35 mm
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### Material specifications

Color	jet black RAL 9005
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

### Connection data

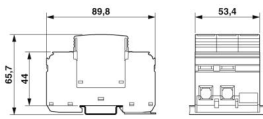
Connection method	Screw connection
Screw thread	M5
Tightening torque	3 Nm (1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup> )
	4.5 Nm (25 mm <sup>2</sup> ... 35 mm <sup>2</sup> )
Stripping length	16 mm

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Conductor cross section flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross section solid	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

Dimensional drawing	
Width	53.4 mm
Height	89.8 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	3 Div.

## 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 $I_{PE}$	$\leq 20 \mu\text{A DC}$
	$\leq 300 \mu\text{A AC}$
Standby power consumption $P_C$	$\leq 20 \text{ mVA}$
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$	15 kA
Maximum discharge current $I_{\text{max}}$ (8/20) $\mu\text{s}$	40 kA
Total discharge current $I_{\text{total}}$ (8/20) $\mu\text{s}$	40 kA
Voltage protection level $U_p$	$\leq 2.7 \text{ kV}$
Residual voltage $U_{\text{res}}$	$\leq 2.7 \text{ kV}$ (at $I_n$ )
	$\leq 2.2 \text{ kV}$ (at 5 kA)
	$\leq 2.5 \text{ kV}$ (at 10 kA)
	$\leq 2.9 \text{ kV}$ (at 20 kA)
	$\leq 3.4 \text{ kV}$ (at 30 kA)
	$\leq 3.8 \text{ kV}$ (at 40 kA)
Response time $t_A$	$\leq 25 \text{ ns}$

## PV protective circuit

Connection configuration	Y configuration
SPD failure behavior	OCM (Open-circuit mode)

## Protective circuit DC voltage side (DC)

Open circuit voltage $U_{\text{OCSTC}}$	$\leq 670 \text{ V DC}$
Maximum discharge current $I_{\text{max}}$ (8/20) $\mu\text{s}$	40 kA

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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 $U_{CPV}$	800 V DC
Short-circuit current rating $I_{SCPV}$	2000 A
Residual voltage $U_{res}$	$\leq 2.7$ kV (at $I_n$ )
	$\leq 2.2$ kV (at 5 kA)
	$\leq 2.5$ kV (at 10 kA)
	$\leq 2.9$ kV (at 20 kA)
	$\leq 3.4$ kV (at 30 kA)
	$\leq 3.8$ kV (at 40 kA)
Residual current $I_{PE}$	$\leq 20$ $\mu$ A DC
	$\leq 300$ $\mu$ A AC
Voltage protection level $U_p$	$\leq 2.7$ kV
Standby power consumption $P_C$	$\leq 20$ mVA

## Mechanical properties

### Mechanical data

Open side panel	No
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## Approval data

### UL specifications

Maximum continuous operating voltage MCOV	800 V DC
Short-circuit current rating (SCCR)	50 kA
Voltage protection rating VPR	2 kV
Nominal discharge current $I_n$	20 kA
Mode of protection	(L+) - (L-)
	(L+) - G
	(L-) - G
Nominal voltage	800 V DC
Power distribution system	DC PV
SPD Type	1

### UL connection data

Tightening torque	30 lb <sub>F</sub> -in.
Conductor cross section AWG	10 ... 2

## Standards and regulations

Standards/specifications	EN 50539-11
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## Environmental and real-life conditions

### Ambient conditions

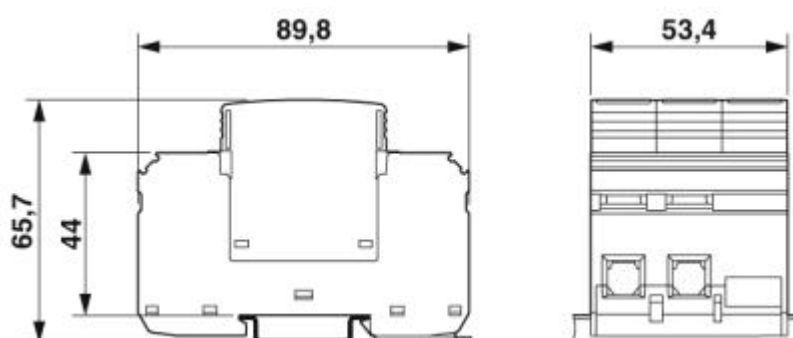
Degree of protection	IP20 (only when all terminal points are used)
Ambient temperature (operation)	-40 °C ... 80 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 2000 m (amsl (above mean sea level))
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	60g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	7.5g (5-500 Hz/2.5 h/XYZ)

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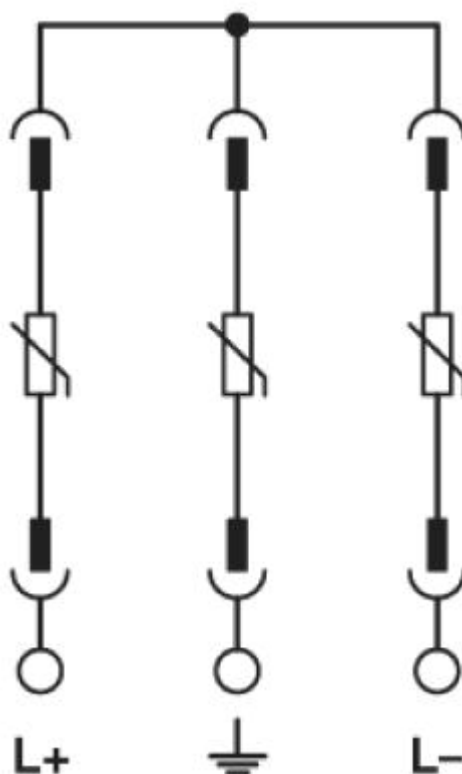
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## Drawings

Dimensional drawing



Circuit diagram





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## Approvals

UL Listed 

KEMA-KEUR 

cUL Listed 

EAC 

cULus Listed



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## Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50 years
China RoHS	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

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## Accessories

### Labeled device marker

Labeled device marker - ZBN 18,LGS:ERDE - 2749589

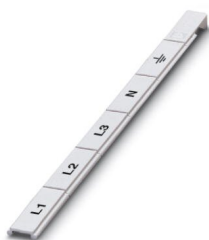


Marker for terminal blocks, Strip, white, labeled, horizontal: Grounding symbol, mounting type: snap into tall marker groove, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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### Labeled device marker

Labeled device marker - ZBN 18,LGS:L1-N,ERDE - 2749576



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

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## Marker pen

Marker pen - B-STIFT - 1051993



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

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## Device marking

Device marking - ZBN 18:UNBEDRUCKT - 2809128



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

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## Replacement plug

Replacement plug - VAL-MS 600DC-PV-ST - 2800623



Replacement plug for PV arrester combinations from the VAL-MS 600DC-PV-...  
product range

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