

## Type 2 surge arrester - VAL-MS 1000DC-PV/2+V - 2800628

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Surge arrester for 2-pos. isolated 1000 V DC voltage systems, for DIN rail mounting, 3-pos. base element, three plug-in temperature-monitored protective elements, status message on each plug.

### Why buy this product

- ✓ 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
- ✓ Always the right arrester, thanks to universal type 1/type 2 protective components

RoHS

### Key Commercial Data

Packing unit	1 STK
GTIN	 4 046356 615082
GTIN	4046356615082
Weight per Piece (excluding packing)	320.000 g
Custom tariff number	85363030
Country of origin	Germany

### Technical data

#### Dimensions

Height	89.8 mm
Width	53.4 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)

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## Technical data

### Dimensions

Horizontal pitch	3 Div.
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### 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)

### General

IEC test classification	PV II
	PV T2
EN type	T2
SPD failure behavior	OCM (Open-circuit mode)
Connection configuration	Y configuration
Installation location	Inside
Accessibility	Accessible
Installation location of the disconnect device	Internal
Mode of protection	(L+) - (L-)
	(L+) - PE
	(L-) - PE
Mounting type	DIN rail: 35 mm
Color	jet black RAL 9005
Housing material	PA 6.6-FR
	PBT-FR
Degree of pollution	2
Distance between live and grounded parts	8 mm
Flammability rating according to UL 94	V-0
Type	DIN rail module, two-section, divisible
Surge protection fault message	optical

### Additional descriptions

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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### Protective circuit DC voltage side (DC)

Maximum continuous operating voltage $U_{CPV}$	1170 V DC
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## Technical data

### Protective circuit DC voltage side (DC)

Open circuit voltage $U_{OCSTC}$	$\leq 970$ V DC
Short-circuit current rating $I_{SCPV}$	2000 A
Continuous operating current $I_{CPV}$	$< 20$ $\mu$ A
Rated load current $I_L$	80 A
Residual current $I_{PE}$	$\leq 20$ $\mu$ A DC
	$\leq 250$ $\mu$ A AC
Standby power consumption $P_C$	$\leq 25$ mVA
Nominal discharge current (8/20) $\mu$ s	15 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s	40 kA
Total discharge current $I_{total}$ (8/20) $\mu$ s	40 kA
Voltage protection level $U_p$	$\leq 3.7$ kV
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)
Response time $t_A$	$\leq 25$ ns
Insulation resistance $R_{iso}$	$> 5$ G $\Omega$ (at 500 V 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> )
Stripping length	16 mm
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>

### UL specifications

SPD Type	1CA
Maximum continuous operating voltage MCOV	1170 V DC
Nominal voltage	1170 V DC
Mode of protection	(L+) - (L-)
	(L+) - G

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### Technical data

#### UL specifications

	(L-) - G
Power distribution system	DC PV
Voltage protection rating VPR	3 kV
Nominal discharge current $I_n$	10 kA
Short-circuit current rating (SCCR)	50 kA

#### UL connection data

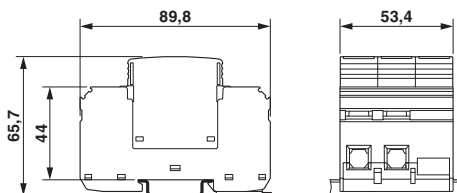
Conductor cross section AWG	10 ... 2
Tightening torque	30 lb <sub>F</sub> ·in.

#### Standards and Regulations

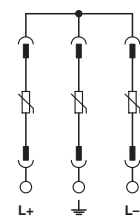
Standards/regulations	EN 50539-11 2013
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### Drawings

Dimensional drawing



Circuit diagram



### Classifications

#### eCl@ss

eCl@ss 4.0	27140201
eCl@ss 4.1	27130801
eCl@ss 5.0	27130801
eCl@ss 5.1	27130800
eCl@ss 6.0	27130800
eCl@ss 7.0	27130805
eCl@ss 8.0	27130805
eCl@ss 9.0	27130805

#### ETIM

ETIM 3.0	EC000941
ETIM 4.0	EC000941

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### Classifications

#### ETIM

ETIM 5.0	EC000941
ETIM 6.0	EC000941

#### UNSPSC

UNSPSC 6.01	30212010
UNSPSC 7.0901	39121610
UNSPSC 11	39121610
UNSPSC 12.01	39121610
UNSPSC 13.2	39121620

### Approvals

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UL Recognized / KEMA-KEUR / cUL Recognized / EAC / cULus Recognized

#### Ex Approvals

### Approval details

UL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 330181
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KEMA-KEUR		<a href="http://www.dekra-certification.com">http://www.dekra-certification.com</a>	71-102960
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cUL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 330181
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EAC			RU C- DE.A*30.B01561
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### Approvals

cULus Recognized



### Accessories

#### Accessories

##### Bridge

Wiring bridge - MPB F200X16/ 1GS - 2818339



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 200 mm

Wiring bridge - MPB F400X16/ 1GS - 2818342



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 400 mm

Wiring bridge - MPB F600X16/ 1GS - 2818355



Wiring bridge flexible, diameter: 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 600 mm

### Device marking

Zack marker strip - 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

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### Accessories

#### Labeled device marker

Marker for terminal blocks - 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

Marker for terminal blocks - 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

#### 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

### Spare parts

Type 2 surge protection plug - VAL-MS 1000DC-PV-ST - 2800624



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