

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 600DC-PV/2+V - 2801163

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Lightning/surge arrester for 2-pos. isolated 600 V DC voltage systems, for DIN rail mounting, 3-pos. base element, three plug-in 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
- ✓ Always the right arrester, thanks to universal type 1/type 2 protective components



## Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 714303
GTIN	4046356714303

## Technical data

### Dimensions

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

### Ambient conditions

Degree of protection	IP20 (only when all terminal points are used)
Ambient temperature (operation)	-40 °C ... 80 °C

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## Technical data

### Ambient conditions

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 I / II
	PV T1 / T2
EN type	T1 / T2
SPD failure behavior	OCM (Open-circuit mode)
Connection configuration	Y configuration
Installation location	Interior
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 $U_{CPV}$	720 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 $I_{PE}$	≤ 20 $\mu$ A DC
	≤ 350 $\mu$ A AC
Standby power consumption $P_C$	≤ 25 mVA

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### Protective circuit DC voltage side (DC)

Nominal discharge current (8/20) $\mu$ s	15 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s	40 kA
Impulse discharge current (10/350) $\mu$ s, charge	2.5 As
Impulse discharge current (10/350) $\mu$ s, specific energy	6.25 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu$ s, peak value $I_{imp}$	5 kA
Total discharge current $I_{total}$ (8/20) $\mu$ s	40 kA
Total discharge current $I_{total}$ (10/350) $\mu$ s	7 kA
Voltage protection level $U_p$	$\leq 2.6$ kV
Residual voltage $U_{res}$	$\leq 2.6$ kV (at $I_n$ )
	$\leq 2$ kV (at 5 kA)
	$\leq 2.3$ kV (at 10 kA)
	$\leq 2.8$ kV (at 20 kA)
	$\leq 3.1$ kV (at 30 kA)
	$\leq 3.6$ 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	1
Maximum continuous operating voltage MCOV	800 V DC
Nominal voltage	800 V DC
Mode of protection	(L+) - (L-)
	(L+) - G
	(L-) - G
Power distribution system	DC PV
Voltage protection rating VPR	2 kV
Nominal discharge current $I_n$	20 kA
Short-circuit current rating (SCCR)	50 kA

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## Technical data

### 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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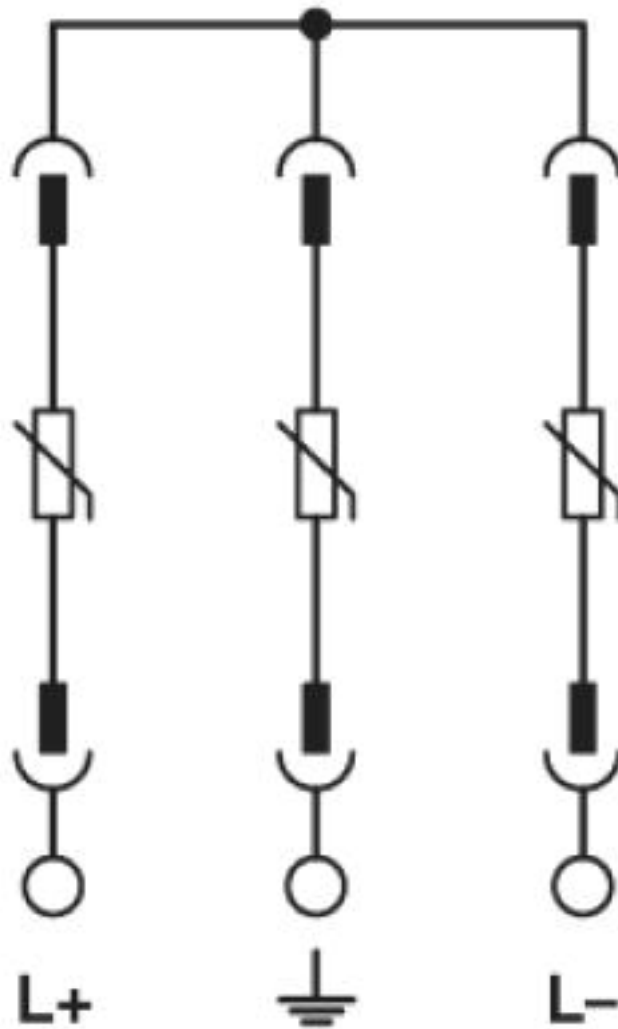
### Environmental Product Compliance

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

## Drawings

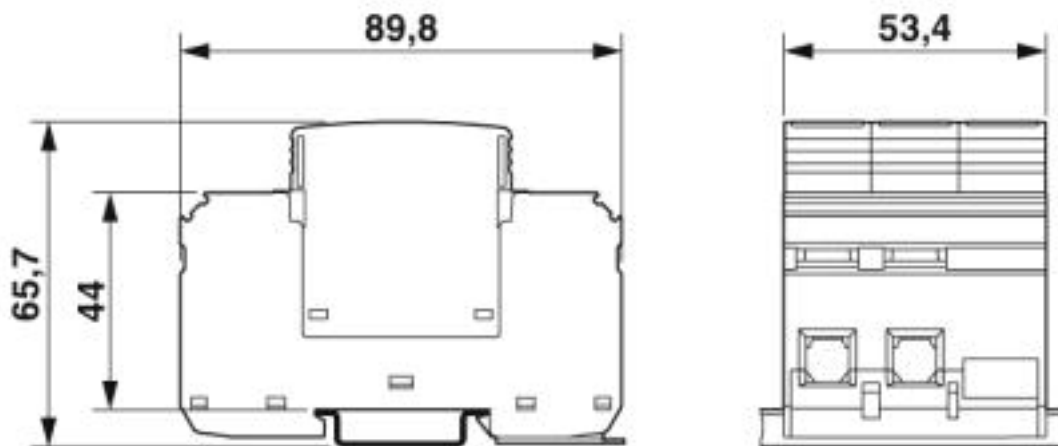
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Circuit diagram



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Dimensional drawing



## Approvals

Approvals

Approvals

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

Ex Approvals

## Approval details

UL Listed		<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
KEMA-KEUR		<a href="http://www.dekra-certification.com">http://www.dekra-certification.com</a>	71-102960
cUL Listed		<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
EAC			RU C-DE.A*30.B01561

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### Approvals

cULus Listed



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