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VAL-MB-T1/T2 1500DC-PV/2+V-FM/20 - Lightning/surge arrester type 1/2

1099552

https://www.phoenixcontact.com/gb/products/1099552

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Lightning current arrester/surge protective device for 2-pos. isolated and grounded 1,500 V DC PV systems, for DIN rail mounting, with remote indication contact, temperature-monitored protective elements, status message on the module.

Your advantages

- Space-saving installation, thanks to the compact design
- Double terminal block for safe and easy equipotential bonding connection
- Screw shafts with raised domes to ensure safe working
- Main connections with extended insertion funnels for increased resistance to creepage
- Visual display for checking the status directly on the device
- Plug-in signal connection for remote status signaling

Commercial data

Item number	1099552
Packing unit	20 pc
Minimum order quantity	20 pc
Sales key	CL1231
Product key	CL1231
GTIN	4055626948966
Weight per piece (including packing)	517.85 g
Weight per piece (excluding packing)	517.85 g
Customs tariff number	85359000
Country of origin	IN

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Technical data

Notes

General

Note	The product is also suitable for use in photovoltaic systems with max. short-circuit current I_{SCPV} = 15 kA (in accordance with EN 50539-11: 2013).

Product properties

Product type	PV arrester
Product family	VALVETRAB MB
IEC test classification	PV I / II
	PV T1 / T2
EN type	T1 / T2
IEC power supply system	DC
Type	DIN rail module, one-piece
Installation location	Indoor
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, remote indicator contact

Insulation characteristics

Pollution degree	2

Electrical properties

Indicator/remote signaling

Connection name	Remote fault indicator contact
Switching function	Changeover contact
Operating voltage	5 V AC ... 250 V AC
	5 V DC ... 30 V DC
Operating current	5 mA AC ... 1.5 A AC
	5 mA DC ... 1 A DC

Connection data

Connection method	Screw connection
Screw thread	M5
Tightening torque	3 Nm
Stripping length	16 mm
Conductor cross section flexible	2.5 mm² ... 35 mm²
Conductor cross section AWG	14 ... 2

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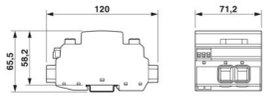
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Remote fault indicator contact

Connection method	Screw connection
Screw thread	M2
Tightening torque	0.25 Nm
Stripping length	7 mm
Conductor cross section flexible	0.14 mm² ... 1.5 mm²
Conductor cross section rigid	0.14 mm² ... 1.5 mm²
Conductor cross section AWG	28 ... 16

Dimensions

Dimensional drawing	
Width	71.2 mm
Height	120 mm
Depth	65.5 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	4 Div.

Material specifications

Color	gray (RAL 7042)
Flammability rating according to UL 94	V-0
Insulating material	PA 6.6
	PBT
Housing material	PA 6.6

Mechanical properties

Mechanical data

Open side panel	No

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	50 A
Residual current I_{PE}	≤ 100 µA DC
	≤ 540 µA AC
Standby power consumption P_C	≤ 150 mVA
Nominal discharge current I_n (8/20) µs	20 kA
Maximum discharge current I_{max} (8/20) µs	40 kA
Impulse discharge current (10/350) µs, charge	3.125 As

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Impulse discharge current (10/350) µs, specific energy	9.77 kJ/Ω
Impulse discharge current (10/350) µs, peak value I_{imp}	6.25 kA
Total discharge current I_{Total} (8/20) µs	40 kA
Total discharge current I_{Total} (10/350) µs	12.5 kA
Voltage protection level U_p	≤ 4.5 kV
Residual voltage U_{res}	≤ 4.5 kV (at I_n)
	≤ 3.3 kV (at 3 kA)
	≤ 3.6 kV (at 6.25 kA)
	≤ 3.8 kV (at 10 kA)
	≤ 4.2 kV (at 15 kA)
	≤ 5.4 kV (at 40 kA)
Response time t_A	≤ 25 ns

PV protective circuit

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

Protective circuit DC voltage side (DC)

Open circuit voltage U_{OCSTC}	≤ 1250 V DC
Maximum discharge current I_{max} (8/20) µs	40 kA
Response time t_A	≤ 25 ns
Impulse discharge current (10/350) µs, charge	3.125 As
Impulse discharge current (10/350) µs, specific energy	9.77 kJ/Ω
Impulse discharge current (10/350) µs, peak value I_{imp}	6.25 kA
Total discharge current I_{Total} (8/20) µs	40 kA
Total discharge current I_{Total} (10/350) µs	12.5 kA
Insulation resistance R_{iso}	> 5 GΩ (at 500 V DC)
Nominal discharge current I_n (8/20) µs	20 kA
Rated load current I_L	50 A
Continuous operating current I_{CPV}	< 100 µA
Maximum continuous operating voltage U_{CPV}	1500 V DC
Short-circuit current rating I_{SCPV}	2000 A
Residual voltage U_{res}	≤ 4.5 kV (at I_n)
	≤ 3.3 kV (at 3 kA)
	≤ 3.6 kV (at 6.25 kA)
	≤ 3.8 kV (at 10 kA)
	≤ 4.2 kV (at 15 kA)
	≤ 5.4 kV (at 40 kA)
Residual current I_{PE}	≤ 100 µA DC
	≤ 540 µA AC
Voltage protection level U_p	≤ 4.5 kV
Standby power consumption P_C	≤ 150 mVA

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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	≤ 6000 m (amsl)
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	50g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	5g (5 - 500 Hz/2.5 h/X, Y, Z)

Standards and regulations

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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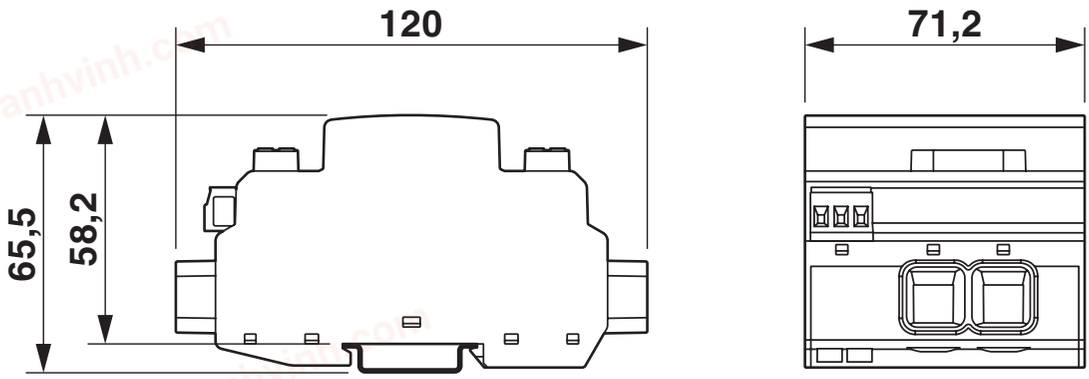
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Drawings

Dimensional drawing



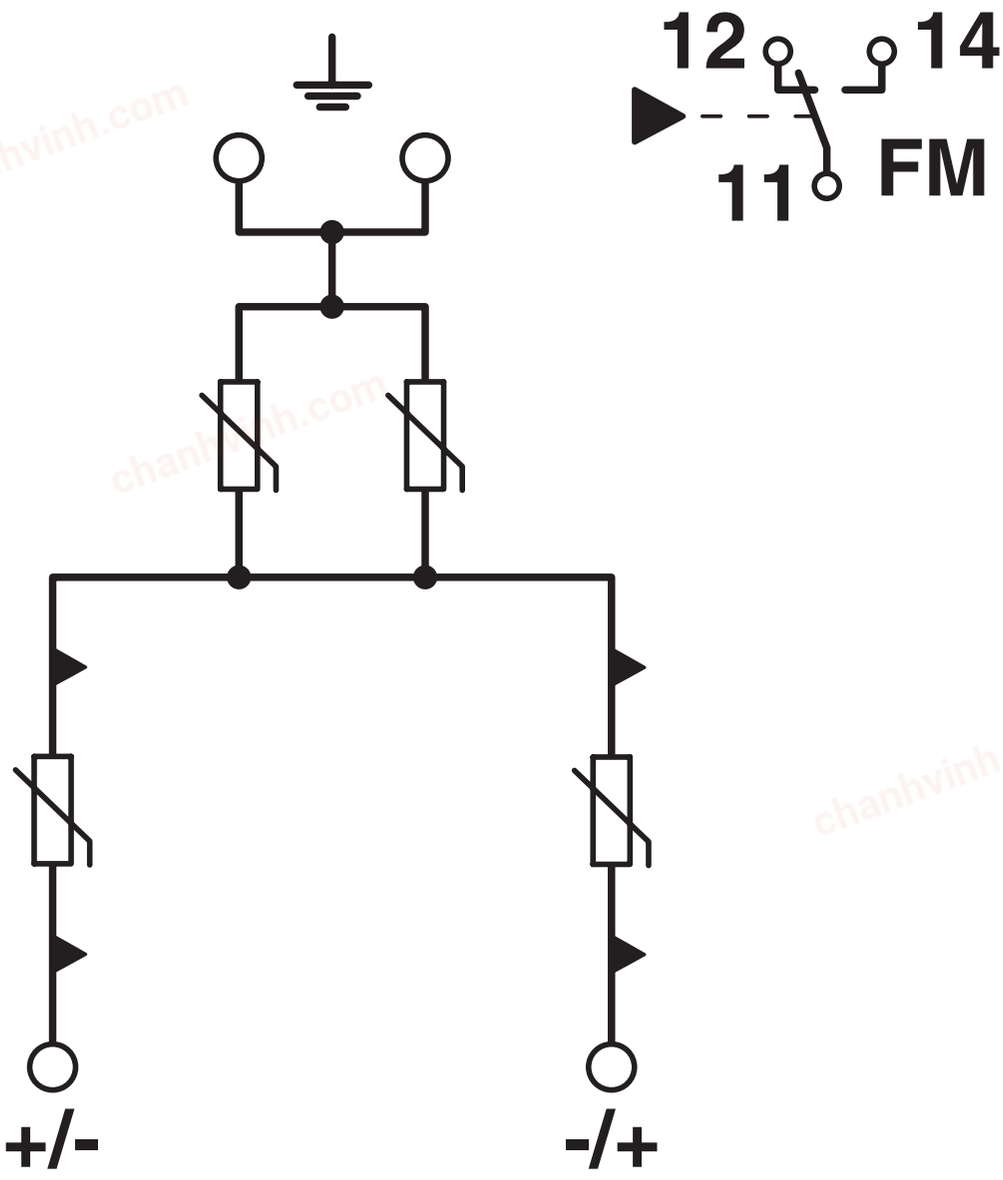
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Circuit diagram



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Classifications

ECLASS

ECLASS-13.0	27171401

ETIM

ETIM 9.0	EC000381

UNSPSC

UNSPSC 21.0	39121600

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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions

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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PHOENIX CONTACT Ltd
Halesfield 13, Telford
Shropshire, TF7 4PG
01952 681700
info@phoenixcontact.co.uk