

VAL-MB-T1/T2-1000DC-2+V-R - Lightning/surge arrester type 1/2



1683780

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Lightning/surge protective device, according to type 1/2 / class I/II, for linear, unipolar DC supply systems up to 1000 V DC, for DIN rail mounting, with remote indication contact.

Your advantages

- Safe operation of DC voltage supply systems thanks to reliable protection against lightning current and surge voltage events
- For use in unipolar, linear DC supply systems
- Highly versatile with a maximum altitude up to 6000 m (abovesea level)
- Space-saving installation, thanks to the compact design
- Excellent level of information provided by mechanical/visual status indicator and remote indication contact

Commercial data

Item number	1683780
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	CL1391
GTIN	4067923238893
Weight per piece (including packing)	523.6 g
Weight per piece (excluding packing)	457.2 g
Country of origin	IN

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Technical data

Notes

General

Note	The DC power grid must be electrically isolated from any other AC or DC power grid.
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Product properties

Product type	Surge arrester
IEC test classification	T1 / T2
EN type	T1 / T2
IEC power supply system	DC
Type	DIN rail module, one-piece
Surge protection fault message	Optical, remote indicator contact

Insulation characteristics

Overvoltage category	III (main circuit)
	II (Auxiliary circuit)
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 (Altitude $\leq$ 2000 m (amsl))

Connection data

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

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 mm ² ... 1.5 mm ²
Conductor cross section rigid	0.14 mm ² ... 1.5 mm ²
Conductor cross section AWG	28 ... 16

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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
CTI value of material	600
Insulating material	PA 6.6
	PBT
Housing material	PA 6.6

Protective circuit

Mode of protection	(DC+) - (DC-) (DC+/DC-) - PE
Direction of action	(L+)-PE & (L-)-PE & (L+)-(L-)
Nominal voltage U_N	1000 V DC
Maximum continuous voltage U_C	1000 V DC
Rated load current I_L	40 A (2x 10 mm ²)
Residual current I_{PE}	$\leq 100 \mu A$ DC $\leq 540 \mu A$ 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
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
Short-circuit current rating I_{SCCR}	min. 800 A DC max. 40 kA DC < 800 A DC (A shutdown time of < 400 ms must be ensured)
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)

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	$\leq 3.8 \text{ kV (at 10 kA)}$
	$\leq 4.2 \text{ kV (at 15 kA)}$
	$\leq 5.4 \text{ kV (at 40 kA)}$
Response time t_A	$\leq 25 \text{ ns}$
Max. backup fuse with V-type through wiring	40 A (gG at $I_{SCCR} > 800 \text{ A DC}$)
Max. backup fuse with branch wiring	80 A (gG at $I_{SCCR} > 800 \text{ A DC}$)

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	$\leq 2000 \text{ m (operating voltage remote contact } \leq 250 \text{ V)}$
	$\leq 6000 \text{ m (operating voltage remote contact } \leq 150 \text{ V)}$
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	50g (Half-sine / 11 ms / 3x $\pm X$, $\pm Y$, $\pm Z$)
Vibration (operation)	5g (5 - 500 Hz/2.5 h/X, Y, Z)

Standards and regulations

Standards/specifications	IEC 61643-41
Note	Ed. 1 CDV
Standards/specifications	IEC 61643-31
Note	2018
Standards/specifications	EN 61643-31
Note	2019

Mounting

Mounting type	DIN rail: 35 mm
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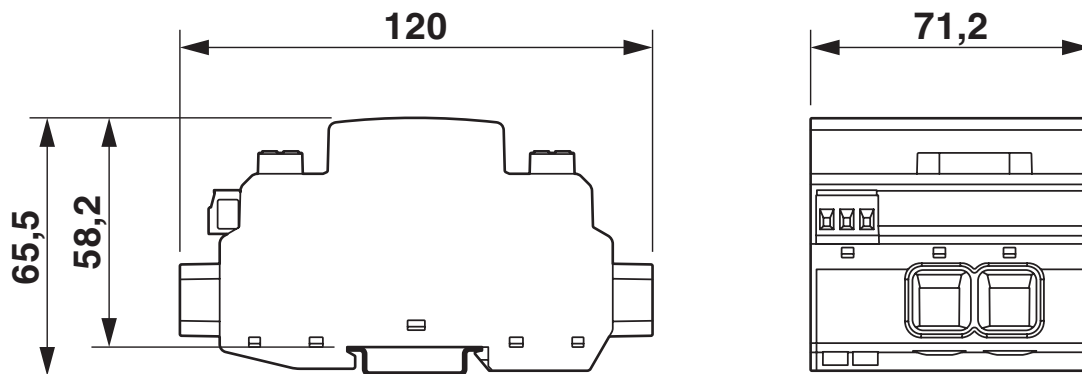


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Drawings

Dimensional drawing

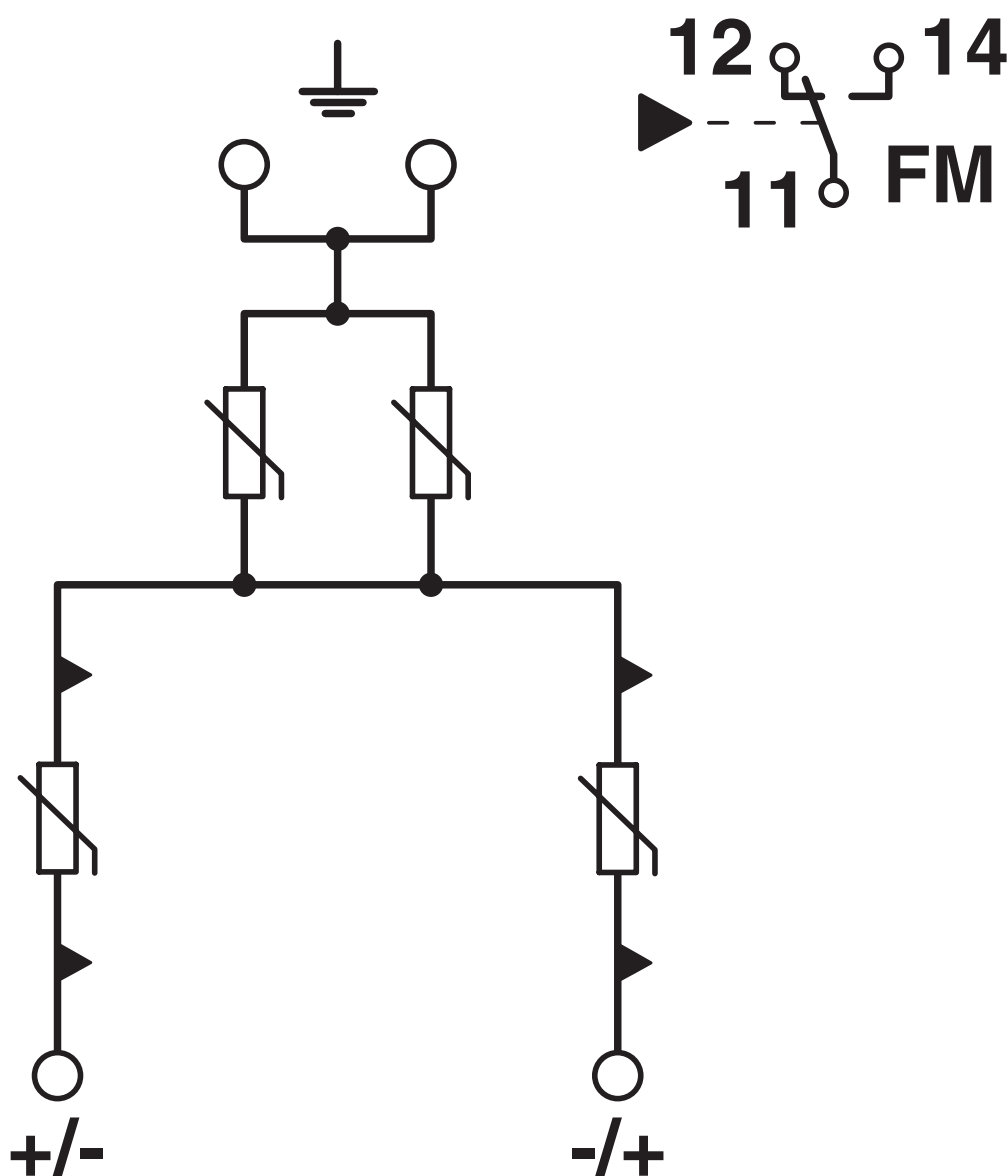


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Circuit diagram



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Classifications

ECLASS

ECLASS-13.0	27171403
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ETIM

ETIM 9.0	EC001457
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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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Accessories

X-PEN 0,35 - Marker pen

0811228

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Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm

ATP-QTTCB - Partition plate

3206238

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Partition plate, depth: 54 mm, width: 2 mm, height: 102 mm, color: gray



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SZK PZ2 VDE - Screwdriver

1206463

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Screwdriver, PZ crosshead, VDE insulated, size: PZ 2 x 100 mm, 2-component grip, with non-slip grip

SZS 0,4X2,5 VDE - Screwdriver

1205037

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Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip

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