

VAL-MS 1000DC-PV/2+V/40 - Type 2 surge arrester



1099551

<https://www.phoenixcontact.com/us/products/1099551>

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Surge protective device for 2-pos. isolated and grounded 1,000 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

- Quality proven millions of times over in the widest range of applications
- Rapid installation with bridges, thanks to industry-standard overall width of 1 HP
- Easy testing and insulation measurement, thanks to pluggable protection modules
- Wide range of applications due to various nominal voltages
- High degree of modularity provides individual solutions for every application

Commercial data

Item number	1099551
Packing unit	40 pc
Minimum order quantity	40 pc
Product key	CL1324
GTIN	4055626948058
Weight per piece (including packing)	341.06 g
Weight per piece (excluding packing)	322.7 g
Country of origin	CN

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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

Product type	PV arrester
Product family	VALVETRAB MS
IEC test classification	PV II PV T2
EN type	T2
IEC power supply system	DC
Type	DIN rail module, two-section, divisible
Distance between live and grounded parts	8 mm
Environment	Indoor
Installation location of the disconnect device	Internal
Accessibility	Accessible
Connection configuration	Y configuration
End-of-life mode	OCFM (Open-Circuit Failure Mode)
Surge protection fault message	optical
Number of ports	One

Insulation characteristics

Overvoltage category	III
Pollution degree	2

Connection data

Connection method	Screw connection
Screw thread	M5
Tightening torque	3 Nm (1.5 mm ² ... 16 mm ²) 4.5 Nm (25 mm ² ... 35 mm ²)
Stripping length	16 mm
Conductor cross-section flexible	1.5 mm ² ... 25 mm ²
Conductor cross-section rigid	1.5 mm ² ... 35 mm ²
Conductor cross-section AWG	15 ... 2
Connection method	Fork-type cable lug
Conductor cross-section flexible	1.5 mm ² ... 16 mm ²

Dimensions

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

Material specifications

Color	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

Mechanical properties

Mechanical data

Open side panel	No
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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
Protective conductor current I_{PE}	$\leq 20 \mu\text{A DC}$ $\leq 250 \mu\text{A AC}$
Standby power consumption P_C	$\leq 25 \text{ mVA}$
Nominal discharge current I_n (8/20) μs	15 kA
Maximum discharge current I_{max} (8/20) μs	40 kA
Total discharge current I_{Total} (8/20) μs	40 kA
Voltage protection level U_p	$\leq 3.7 \text{ kV}$
Residual voltage U_{res}	$\leq 3.7 \text{ kV}$ (at I_n) $\leq 3.1 \text{ kV}$ (at 5 kA) $\leq 3.5 \text{ kV}$ (at 10 kA) $\leq 4 \text{ kV}$ (at 20 kA) $\leq 4.6 \text{ kV}$ (at 30 kA) $\leq 5 \text{ kV}$ (at 40 kA)
Response time t_A	$\leq 25 \text{ ns}$

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PV protective circuit

Connection configuration	Y configuration
End-of-life mode	OCFM (Open-Circuit Failure Mode)

Protective circuit DC voltage side (DC)

Maximum continuous operating voltage U_{CPV}	1170 V DC
Short-circuit current rating I_{SCPV}	2000 A
Open-circuit voltage U_{OCSTC}	≤ 975 V DC
Maximum discharge current I_{max} (8/20) μ s	40 kA
Response time t_A	≤ 25 ns
Total discharge current I_{Total} (8/20) μ s	40 kA
Insulation resistance R_{iso}	> 5 G Ω (at 500 V DC)
Nominal discharge current I_n (8/20) μ s	15 kA
Rated load current I_L	80 A
Continuous operating current I_{CPV}	< 20 μ A
Maximum continuous operating voltage U_{CPV}	1170 V DC
Short-circuit current rating I_{SCPV}	2000 A
Residual voltage U_{res}	≤ 3.7 kV (at I_n) ≤ 3.1 kV (at 5 kA) ≤ 3.5 kV (at 10 kA) ≤ 4 kV (at 20 kA) ≤ 4.6 kV (at 30 kA) ≤ 5 kV (at 40 kA)
Protective conductor current I_{PE}	≤ 20 μ A DC ≤ 250 μ A AC
Voltage protection level U_p	≤ 3.7 kV
Standby power consumption P_C	≤ 25 mVA

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)
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	60g (Half-sine / 11 ms / 3x \pm X, \pm Y, \pm Z)
Vibration (operation)	7.5g (5-500 Hz/2.5 h/XYZ)

Approvals

UL specifications

Maximum continuous operating voltage MCOV	1170 V DC
Short-circuit current rating (SCCR)	50 kA
Voltage protection rating VPR	3 kV

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Nominal discharge current I_n	10 kA
Mode of protection	(L+) - (L-)
	(L+) - G
	(L-) - G
Nominal voltage	1170 V DC
Power distribution system	DC PV
SPD Type	1CA

UL connection data

Tightening torque	30 lb _F -in.
Conductor cross-section AWG	14 ... 2

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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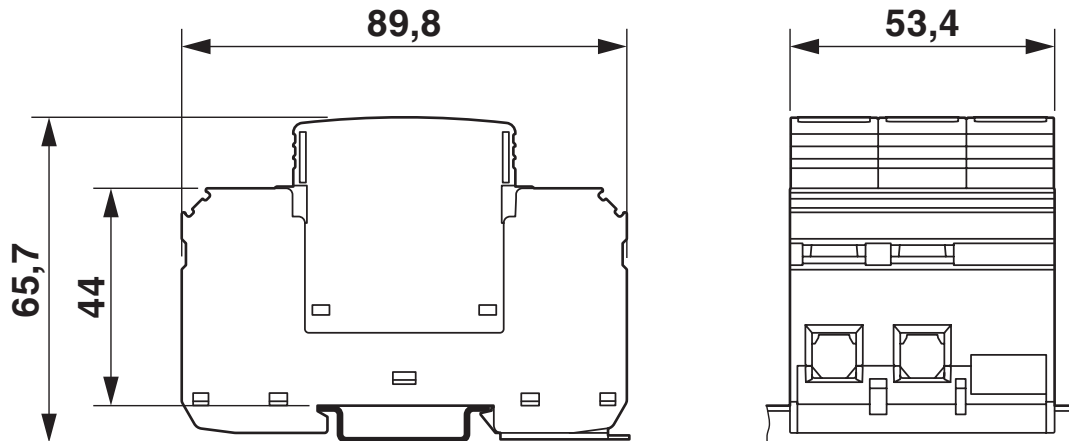
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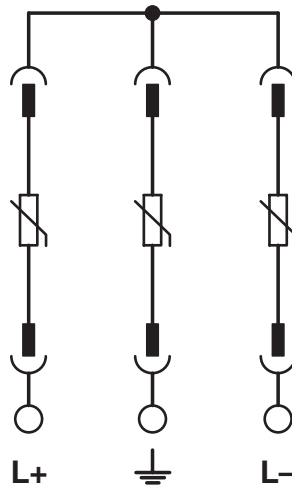
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Drawings

Dimensional drawing



Circuit diagram



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Approvals

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UAE-RoHS

Approval ID: 22-09-51250

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Classifications

ECLASS

ECLASS-13.0

27171402

ETIM

ETIM 9.0

EC000941

UNSPSC

UNSPSC 21.0

39121620

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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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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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