

# VAL-MS-T1/T2 175/12.5/3+1-FM - Lightning/surge arrester type 1/2



2800670

<https://www.phoenixcontact.com/us/products/2800670>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



Universal varistor-based plug-in lightning/surge arrester for 3-phase power supply networks with separate N and PE (5-conductor system: L1, L2, L3, N, PE), for Lightning Protection Levels III and IV, with remote indication contact.

## Commercial data

Item number	2800670
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	CL18
Product key	CL1151
GTIN	4046356624251
Weight per piece (including packing)	580.3 g
Weight per piece (excluding packing)	580.3 g
Customs tariff number	85363030
Country of origin	DE

# VAL-MS-T1/T2 175/12.5/3+1-FM - Lightning/surge arrester type 1/2



2800670

<https://www.phoenixcontact.com/us/products/2800670>

## Technical data

### Notes

#### General

Note	Nominal voltage $U_N = 120 \text{ V AC}/240 \text{ V AC}$ split-phase (separate GND)
------	--

### Product properties

Product type	Arrester combination
Product family	VALVETRAB MS
IEC test classification	I / II T1 / T2
EN type	T1 / T2
IEC power supply system	TT TN-C TN-S
Type	DIN rail module, two-section, divisible
Surge protection fault message	Optical, remote indicator contact
Number of ports	One

#### Insulation characteristics

Overvoltage category	III
Pollution degree	2

### Electrical properties

Nominal frequency $f_N$	50 Hz (60 Hz)
Nominal voltage $U_N$	120 V AC

#### Indicator/remote signaling

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

### Connection data

Connection method	Screw connection
Screw thread	M5
Tightening torque	4.5 Nm
Stripping length	16 mm
Conductor cross-section flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross-section rigid	1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>

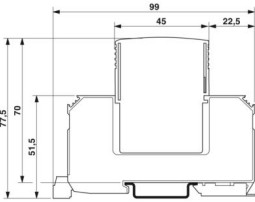
# VAL-MS-T1/T2 175/12.5/3+1-FM - Lightning/surge arrester type 1/2

2800670

<https://www.phoenixcontact.com/us/products/2800670>

Conductor cross-section AWG	15 ... 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 <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section rigid	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	28 ... 16

## Dimensions

Dimensional drawing	
Width	71.2 mm
Height	99 mm
Depth	77.5 mm
Horizontal pitch	4 Div.

## Material specifications

Flammability rating according to UL 94	V-0
CTI value of material	600
Insulating material	PA 6.6/PBT
Material group	I
Housing material	PA 6.6 PBT

## Mechanical properties

### Mechanical data

Open side panel	No
-----------------	----

## Protective circuit

Mode of protection	L-N
	L-PE
	N-PE
Direction of action	3L-N & N-PE
Nominal voltage $U_N$	120/208 V AC (TN-S)
	120/208 V AC (TT)

# VAL-MS-T1/T2 175/12.5/3+1-FM - Lightning/surge arrester type 1/2



2800670

<https://www.phoenixcontact.com/us/products/2800670>

Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$ (L-N)	175 V AC
Maximum continuous operating voltage $U_C$ (L-PE)	175 V AC
Maximum continuous operating voltage $U_C$ (N-PE)	264 V AC
Rated load current $I_L$	80 A
Protective conductor current $I_{PE}$	$\leq 5 \mu\text{A}$
Standby power consumption $P_C$	$\leq 420 \text{ mVA}$
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (L-N)	12.5 kA
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (L-PE)	12.5 kA
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (N-PE)	50 kA
Maximum discharge current $I_{max}$ (8/20) $\mu\text{s}$	50 kA
Impulse discharge current (10/350) $\mu\text{s}$ (L-N), charge	6.25 As
Impulse discharge current (10/350) $\mu\text{s}$ (L-N), specific energy	39 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu\text{s}$ (L-N), peak current value $I_{imp}$	12.5 kA
Impulse discharge current (10/350) $\mu\text{s}$ (L-PE), charge	6.25 As
Impulse discharge current (10/350) $\mu\text{s}$ (L-PE), specific energy	39 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu\text{s}$ (L-PE), peak current value $I_{imp}$	12.5 kA
Impulse discharge current (10/350) $\mu\text{s}$ (N-PE), charge	25 As
Impulse discharge current (10/350) $\mu\text{s}$ (N-PE), specific energy	625 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu\text{s}$ (N-PE), peak current value $I_{imp}$	50 kA
Total discharge current $I_{Total}$ (8/20) $\mu\text{s}$	50 kA
Total discharge current $I_{Total}$ (10/350) $\mu\text{s}$	50 kA
Follow current interrupt rating $I_{fi}$ (N-PE)	100 A (264 V AC)
Short-circuit current rating $I_{SCCR}$	25 kA
Voltage protection level $U_p$ (L-N)	$\leq 0.8 \text{ kV}$
Voltage protection level $U_p$ (L-PE)	$\leq 2 \text{ kV}$
Voltage protection level $U_p$ (N-PE)	$\leq 1.7 \text{ kV}$
Residual voltage $U_{res}$ (L-N)	$\leq 0.8 \text{ kV}$ (at $I_n$ ) $\leq 0.75 \text{ kV}$ (at 10 kA) $\leq 0.65 \text{ kV}$ (at 5 kA) $\leq 0.6 \text{ kV}$ (at 3 kA)
Residual voltage $U_{res}$ (L-PE)	$\leq 2 \text{ kV}$ (at $I_n$ ) $\leq 1.5 \text{ kV}$ (at 10 kA) $\leq 1.4 \text{ kV}$ (at 5 kA) $\leq 1.3 \text{ kV}$ (at 3 kA)
Residual voltage $U_{res}$ (N-PE)	$\leq 0.6 \text{ kV}$ (at $I_n$ ) $\leq 0.5 \text{ kV}$ (at 10 kA) $\leq 0.5 \text{ kV}$ (at 5 kA) $\leq 0.4 \text{ kV}$ (at 3 kA)
TOV behavior at $U_T$ (L-N)	208 V AC (5 s / withstand mode)

# VAL-MS-T1/T2 175/12.5/3+1-FM - Lightning/surge arrester type 1/2



2800670

<https://www.phoenixcontact.com/us/products/2800670>

	229 V AC (120 min / withstand mode)
TOV behavior at $U_T$ (N-PE)	1200 V AC (200 ms / withstand mode)
Response time $t_A$ (L-N)	≤ 25 ns
Response time $t_A$ (L-PE)	≤ 100 ns
Response time $t_A$ (N-PE)	≤ 100 ns
Max. backup fuse with V-type through wiring	80 A (gG - 16 mm <sup>2</sup> )
Max. backup fuse with branch wiring	160 A (gG)

## 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)	30g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	7.5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

## Approvals

### UL specifications

Maximum continuous operating voltage MCOV (L-L)	350 V AC
Maximum continuous operating voltage MCOV (L-N)	175 V AC
Maximum continuous operating voltage MCOV (L-G)	175 V AC
Maximum continuous operating voltage MCOV (N-G)	264 V AC
Nominal discharge current $I_n$ (L-L)	20 kA
Nominal discharge current $I_n$ (L-N)	20 kA
Nominal discharge current $I_n$ (L-G)	20 kA
Nominal discharge current $I_n$ (N-G)	20 kA
Mode of protection	L-L L-N L-G N-G
Nominal voltage	120/208 V AC
Power distribution system	Wye
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-L)	2800 V
Measured limiting voltage MLV (L-N)	2200 V
Measured limiting voltage MLV (L-G)	3160 V
Measured limiting voltage MLV (N-G)	2600 V
SPD Type	4CA

UL indicator/remote signaling

# VAL-MS-T1/T2 175/12.5/3+1-FM - Lightning/surge arrester type 1/2



2800670

<https://www.phoenixcontact.com/us/products/2800670>

Operating voltage	125 V AC
AC operating current	1 A AC

## UL connection data

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

## Standards and regulations

Standards/specifications	IEC 61643-11
Note	2011
Standards/specifications	EN 61643-11
Note	2012

## Mounting

Mounting type	DIN rail: 35 mm
---------------	-----------------

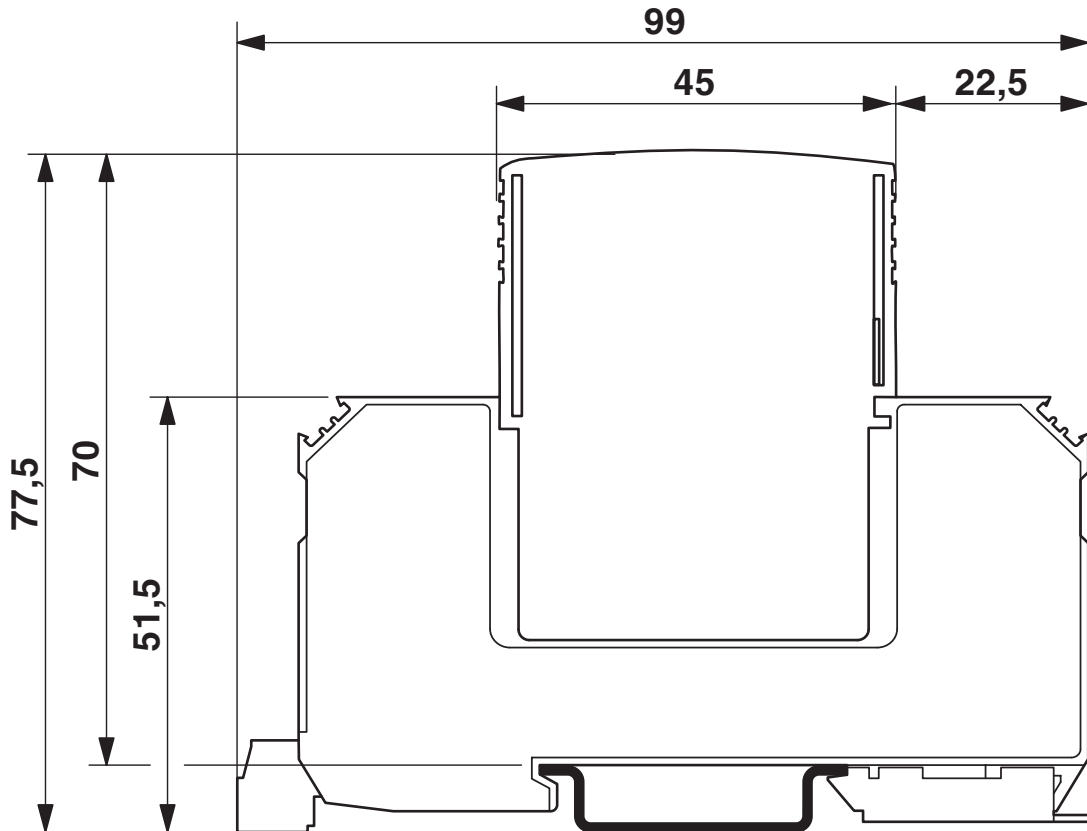
# VAL-MS-T1/T2 175/12.5/3+1-FM - Lightning/surge arrester type 1/2

2800670

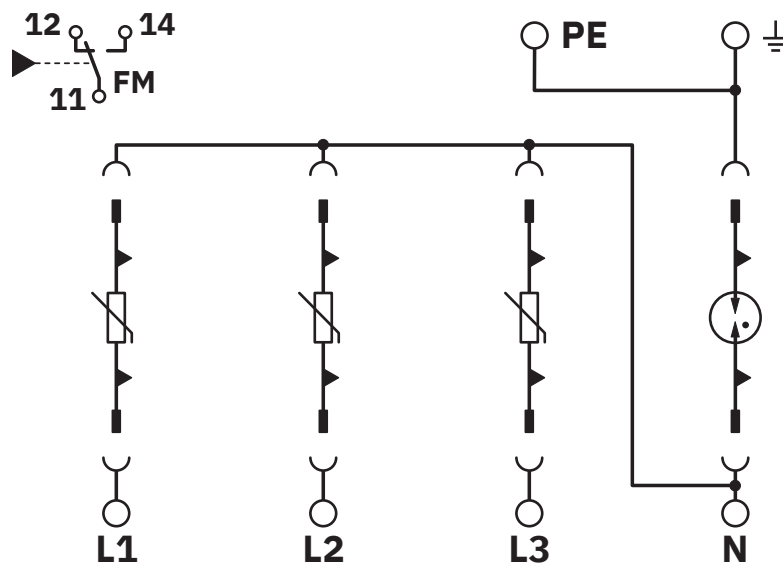
<https://www.phoenixcontact.com/us/products/2800670>

## Drawings

Dimensional drawing



Circuit diagram



# VAL-MS-T1/T2 175/12.5/3+1-FM - Lightning/surge arrester type 1/2



2800670

<https://www.phoenixcontact.com/us/products/2800670>

## Environmental product compliance

### 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%
-------------------------------------	----------------------------

Phoenix Contact 2026 © - all rights reserved  
<https://www.phoenixcontact.com>

Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)