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

2800670

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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

Technical data

Notes

General

Note	Nominal voltage UN = 120 V AC/240 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

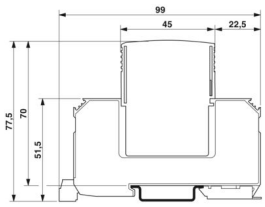
Connection method	Screw connection
Screw thread	M5
Tightening torque	4.5 Nm
Stripping length	16 mm
Conductor cross-section flexible	1.5 mm² ... 25 mm²
Conductor cross-section rigid	1.5 mm² ... 35 mm²

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 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	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)

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}	≤ 5 µA
Standby power consumption P_C	≤ 420 mVA
Nominal discharge current I_n (8/20) µs (L-N)	12.5 kA
Nominal discharge current I_n (8/20) µs (L-PE)	12.5 kA
Nominal discharge current I_n (8/20) µs (N-PE)	50 kA
Maximum discharge current I_{max} (8/20) µs	50 kA
Impulse discharge current (10/350) µs (L-N), charge	6.25 As
Impulse discharge current (10/350) µs (L-N), specific energy	39 kJ/Ω
Impulse discharge current (10/350) µs (L-N), peak current value I_{imp}	12.5 kA
Impulse discharge current (10/350) µs (L-PE), charge	6.25 As
Impulse discharge current (10/350) µs (L-PE), specific energy	39 kJ/Ω
Impulse discharge current (10/350) µs (L-PE), peak current value I_{imp}	12.5 kA
Impulse discharge current (10/350) µs (N-PE), charge	25 As
Impulse discharge current (10/350) µs (N-PE), specific energy	625 kJ/Ω
Impulse discharge current (10/350) µs (N-PE), peak current value I_{imp}	50 kA
Total discharge current I_{Total} (8/20) µs	50 kA
Total discharge current I_{Total} (10/350) µs	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)	≤ 0.8 kV
Voltage protection level U_p (L-PE)	≤ 2 kV
Voltage protection level U_p (N-PE)	≤ 1.7 kV
Residual voltage U_{res} (L-N)	≤ 0.8 kV (at I_n)
	≤ 0.75 kV (at 10 kA)
	≤ 0.65 kV (at 5 kA)
	≤ 0.6 kV (at 3 kA)
Residual voltage U_{res} (L-PE)	≤ 2 kV (at I_n)
	≤ 1.5 kV (at 10 kA)
	≤ 1.4 kV (at 5 kA)
	≤ 1.3 kV (at 3 kA)
Residual voltage U_{res} (N-PE)	≤ 0.6 kV (at I_n)
	≤ 0.5 kV (at 10 kA)
	≤ 0.5 kV (at 5 kA)
	≤ 0.4 kV (at 3 kA)
TOV behavior at U_T (L-N)	208 V AC (5 s / withstand mode)

	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 mm²)
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

Operating voltage	125 V AC
AC operating current	1 A AC

UL connection data

Tightening torque	30 lb_f-in.
Conductor cross-section AWG	10 ... 2

Standards and regulations

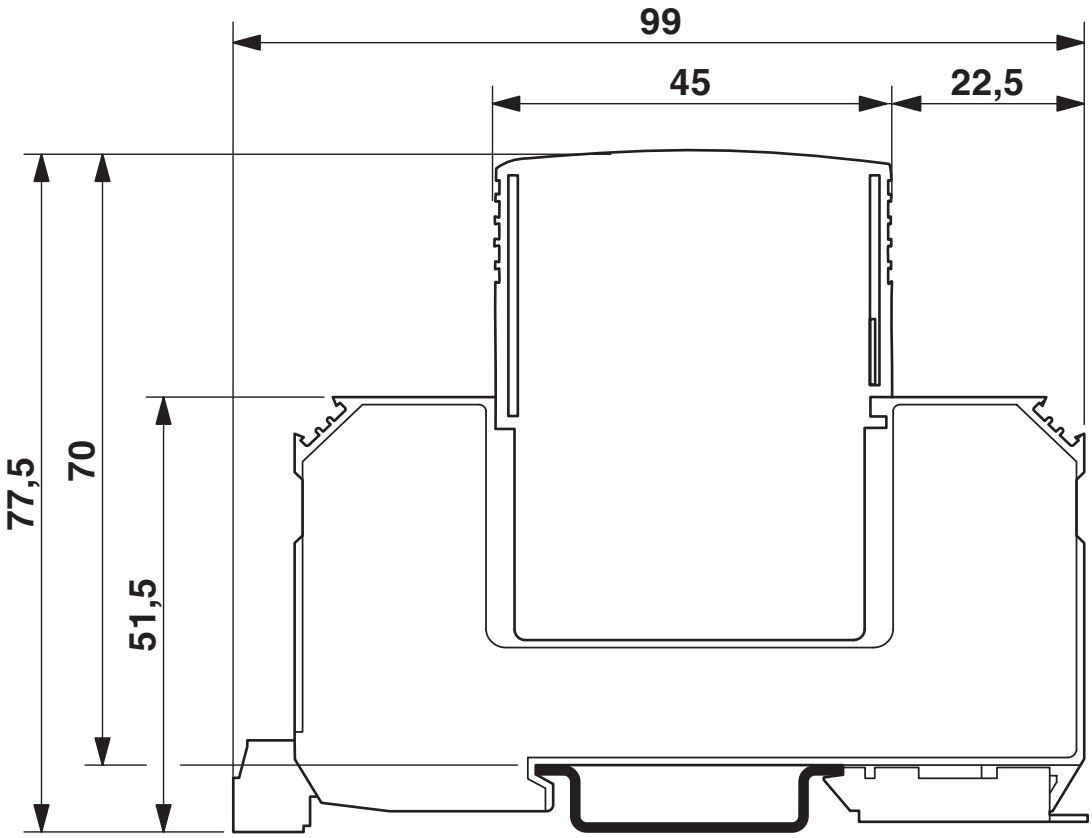
Standards/specifications	IEC 61643-11
Note	2011
Standards/specifications	EN 61643-11
Note	2012

Mounting

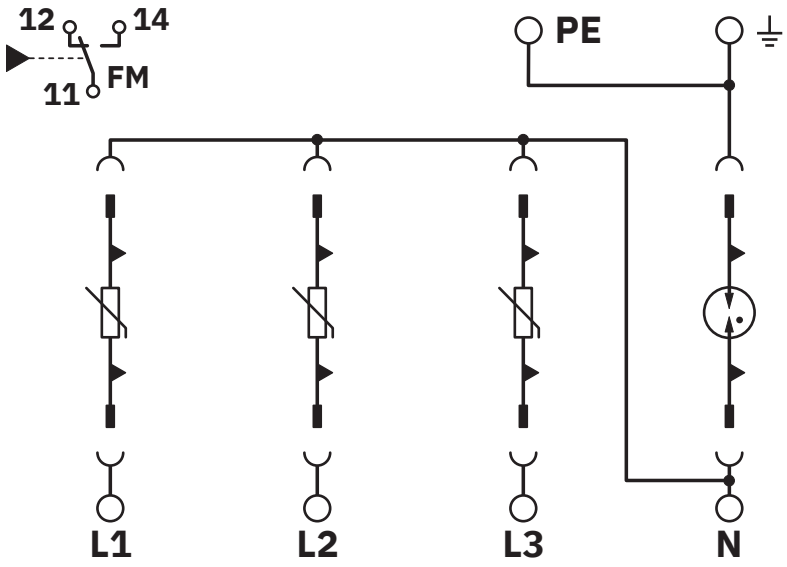
Mounting type	DIN rail: 35 mm

Drawings

Dimensional drawing



Circuit diagram



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 USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com