

## Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 175/12.5/1+1-FM - 2800674

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Universal varistor-based plug-in lightning/surge arrester for 1-phase power supply networks with separate N and PE (3-conductor system: L1, N, PE), with remote indication contact.

### Product Features

- With or without floating remote indication contact
- Plugs can be checked with CHECKMASTER
- Secure hold of plugs in the event of high lightning current loads and strong vibrations thanks to new latching
- Mechanical coding of all slots
- Thermal disconnect device for each individual plug
- Optical, mechanical status indication for the individual arresters



### Key Commercial Data

Packing unit	1 pc
Weight per Piece (excluding packing)	320.0 g
Custom tariff number	85363030
Country of origin	Germany

### Technical data

#### Dimensions

Height	99 mm
Width	35.6 mm
Depth	77.5 mm
Horizontal pitch	2 Div.

#### Ambient conditions

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## Technical data

### 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 (above mean sea level))
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	30g (half sinus / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	7.5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

### General

Standards/specifications	IEC 61643-11 2011
	EN 61643-11 2012
IEC test classification	I / II
	T1 / T2
	T1
	I
EN type	T1 / T2
	T1
IEC power supply system	TT
	TN-C
	TN-S
Number of ports	One
SPD design	Combination type
Mode of protection	L-N
	L-PE
	N-PE
Mounting type	DIN rail: 35 mm
Color	jet black RAL 9005
Housing material	PA 6.6
	PBT
Degree of pollution	2
Flammability rating according to UL 94	V-0
Type	DIN rail module, two-section, divisible
Surge protection fault message	Optical, remote indicator contact

### Additional descriptions

Note	Nominal voltage UN = 120 V AC/240 V AC split-phase (separate GND)
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### Protective circuit

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## Technical data

### Protective circuit

Nominal voltage $U_N$	120 V AC (TN-S)
	120 V AC (TT)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$ (L-N)	175 V AC
Maximum continuous voltage $U_C$ (N-PE)	264 V AC
Rated load current $I_L$	80 A
Residual current $I_{PE}$	$\leq 5 \mu A$
Standby power consumption $P_C$	$\leq 140$ mVA
Nominal discharge current $I_n$ (8/20) $\mu s$ (L-N)	12.5 kA
Nominal discharge current $I_n$ (8/20) $\mu s$ (N-PE)	50 kA
Maximum discharge current $I_{max}$ (8/20) $\mu s$ (L-N)	50 kA
Maximum discharge current $I_{max}$ (8/20) $\mu s$ (N-PE)	50 kA
Impulse discharge current (10/350) $\mu s$ (L-N), charge	6.25 As
Impulse discharge current (10/350) $\mu s$ (L-N), specific energy	39 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu s$ (L-N), peak current value $I_{imp}$	12.5 kA
Impulse discharge current (10/350) $\mu s$ (N-PE), charge	25 As
Impulse discharge current (10/350) $\mu s$ (N-PE), specific energy	625 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu s$ (N-PE), peak current value $I_{imp}$	50 kA
Total discharge current $I_{Total}$ (8/20) $\mu s$	50 kA
Total discharge current $I_{Total}$ (10/350) $\mu s$	25 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)	$\leq 0.8$ kV
Voltage protection level $U_p$ (L-PE)	$\leq 2$ kV
Voltage protection level $U_p$ (N-PE)	$\leq 1.7$ kV
Residual voltage $U_{res}$ (L-N)	$\leq 0.8$ kV (at $I_n$ )
	$\leq 0.65$ kV (at 10 kA)
	$\leq 0.6$ kV (at 5 kA)
	$\leq 0.5$ kV (at 3 kA)
Residual voltage $U_{res}$ (L-PE)	$\leq 2$ kV (at $I_n$ )
	$\leq 1.5$ kV (at 10 kA)
	$\leq 1.4$ kV (at 5 kA)
	$\leq 1.3$ kV (at 3 kA)
Residual voltage $U_{res}$ (N-PE)	$\leq 0.6$ kV (at $I_n$ )
	$\leq 0.5$ kV (at 10 kA)

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### Protective circuit

	≤ 0.5 kV (at 5 kA)
	≤ 0.4 kV (at 3 kA)
Front of wave sparkover voltage at 6 kV (1.2/50) μs (N-PE)	≤ 1.7 kV
TOV behavior at U <sub>T</sub> (L-N)	208 V AC (5 s / withstand mode)
	229 V AC (120 min / withstand mode)
TOV behavior at U <sub>T</sub> (N-PE)	1200 V AC (200 ms / withstand mode)
Response time t <sub>A</sub> (L-N)	≤ 25 ns
Response time t <sub>A</sub> (L-PE)	≤ 100 ns
Response time t <sub>A</sub> (N-PE)	≤ 100 ns
Max. backup fuse with branch wiring	160 A (gG)
Max. backup fuse with V-type through wiring	80 A (gG - 16 mm <sup>2</sup> )

### Indicator/remote signaling

Connection name	Remote fault indicator contact
Switching function	PDT contact
Operating voltage	5 V AC ... 250 V AC
	30 V DC
Operating current	5 mA AC ... 1.5 A
	1 A
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 solid	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section AWG	28 ... 16

### Connection data

Connection method	Screw connection
Conductor cross section flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross section solid	1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>
Conductor cross section AWG	15 ... 2
Screw thread	M5
Tightening torque	4.5 Nm
Stripping length	16 mm

### UL specifications

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## Technical data

### UL specifications

SPD Type	4CA
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
Nom. voltage	120 V AC
Mode of protection	L-N
	L-G
	N-G
Power distribution system	1
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-N)	2200 V
Measured limiting voltage MLV (L-G)	3160 V
Measured limiting voltage MLV (N-G)	2600 V
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

### UL indicator/remote signaling

Operating voltage	125 V AC
Operating current	1 A
Tightening torque	4 lb <sub>F</sub> -in.
Conductor cross section AWG	30 ... 14

### UL connection data

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

## Classifications

### eCl@ss

eCl@ss 4.0	27140201
eCl@ss 4.1	27130801
eCl@ss 5.0	27130801
eCl@ss 5.1	27130801
eCl@ss 6.0	27130802
eCl@ss 7.0	27130802
eCl@ss 8.0	27130802

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## Classifications

### eCl@ss

eCl@ss 9.0	27130802
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### ETIM

ETIM 2.0	EC000941
ETIM 3.0	EC000941
ETIM 4.0	EC000381
ETIM 5.0	EC000381

### UNSPSC

UNSPSC 6.01	30212010
UNSPSC 7.0901	39121610
UNSPSC 11	39121610
UNSPSC 12.01	39121610
UNSPSC 13.2	39121620

## Approvals

### Approvals

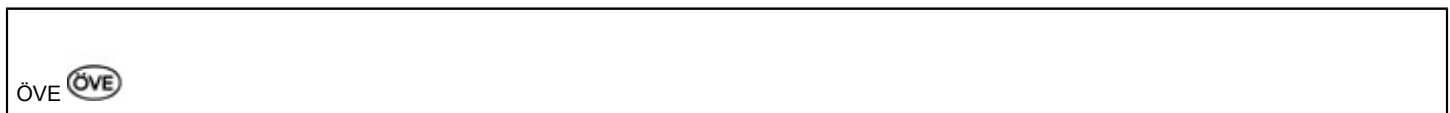
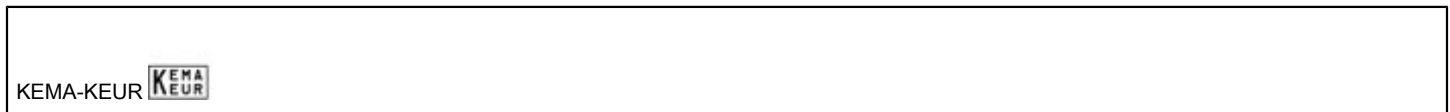
#### Approvals

KEMA-KEUR / ÖVE / GL / IECCEB Scheme / CCA / UL Recognized / cUL Recognized / EAC / cULus Recognized

#### Ex Approvals

#### Approvals submitted

### Approval details



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## Approvals

GL

IECEE CB Scheme

CCA

UL Recognized

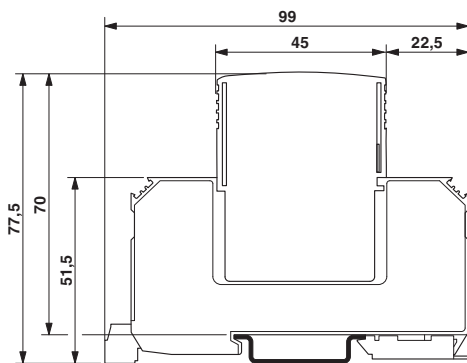
cUL Recognized

EAC

cULus Recognized

## Drawings

Dimensional drawing



Circuit diagram

