

Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/1+1V - 2801532

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Universal varistor-based plug-in lightning/surge arrester for 48 V DC applications with grounded return conductor (positive pole), without risk assessment for Lightning Protection Levels III and IV.

The figure shows the VAL-MS-T1/T2
75/12.5/1+1V version

Product Features



Key commercial data

Packing unit	1 pc
Custom tariff number	85363030
Country of origin	Germany

Technical data

Dimensions

Height	90 mm
Width	35.6 mm
Depth	77.5 mm
Horizontal pitch	2 Div.

Ambient conditions

Degree of protection	IP20
	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)

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Technical data

General

Standards/specifications	IEC 61643-11 2011
	EN 61643-11 2012
IEC test classification	I / II
	T1 / T2
EN type	T1 / T2
Number of ports	One
SPD design	Voltage-limiting type
Mode of protection	L-N
	N-PE
	(L+) - (L-)
	(L+) - PE
Mounting type	DIN rail: 35 mm
Color	black
Housing material	PA 6.6
	PBT
Pollution degree	2
Inflammability class according to UL 94	V-0
Type	DIN rail module, two-section, divisible
Surge protection fault message	optical

Protective circuit

Nominal voltage U_N	60 V AC $\pm 10\%$ (TN-S)
	60 V DC $\pm 10\%$
	-48 V DC $\pm 10\%$ (RRH)
Nominal frequency f_N	50 Hz (60 Hz)
Maximum continuous voltage U_C	75 V AC
Maximum continuous operating voltage U_C (L-N)	75 V AC
	100 V DC
Maximum continuous voltage U_C (N-PE)	75 V AC
	100 V DC
Rated load current I_L	80 A
Residual current I_{PE}	≤ 0.6 mA
Standby power consumption P_C	≤ 90 mVA
Nominal discharge current I_n (8/20) μ s	12.5 kA
Nominal discharge current I_n (8/20) μ s (L-N)	12.5 kA
Nominal discharge current I_n (8/20) μ s (N-PE)	12.5 kA
Maximum discharge current I_{max} (8/20) μ s	30 kA

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Protective circuit

Maximum discharge current $I_{\max}$ (8/20) μs (L-N)	30 kA
Maximum discharge current $I_{\max}$ (8/20) μs (N-PE)	30 kA
Impulse discharge current (10/350) μs , charge	6.25 As
Impulse discharge current (10/350) μs , specific energy	39 kJ/ Ω
Impulse discharge current (10/350) μs , peak value I_{imp}	12.5 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 (N-PE), charge	6.25 As
Impulse discharge current (10/350) μs (N-PE), specific energy	39 kJ/ Ω
Impulse discharge current (10/350) μs (N-PE), peak current value I_{imp}	12.5 kA
Total discharge current I_{Total} (8/20) μs	50 kA
Total discharge current I_{Total} (10/350) μs	25 kA
Short-circuit current rating I_{SCCR}	25 kA
Voltage protection level U_p	≤ 0.4 kV
Voltage protection level U_p (L-N)	≤ 0.4 kV
Voltage protection level U_p (N-PE)	≤ 0.4 kV
Residual voltage U_{res}	≤ 0.4 kV (at I_n)
	≤ 0.35 kV (at 10 kA)
	≤ 0.3 kV (at 5 kA)
	≤ 0.275 kV (at 4 kA)
	≤ 0.25 kV (at 3 kA)
TOV behavior at U_T	100 V AC (5 s / withstand mode)
	130 V DC (5 s / withstand mode)
TOV behavior at U_T (L-N)	100 V AC (5 s / withstand mode)
	130 V DC (5 s / withstand mode)
TOV behavior at U_T (N-PE)	100 V AC (5 s / withstand mode)
	130 V DC (5 s / withstand mode)
Response time t_A	≤ 25 ns
Response time t_A (L-N)	≤ 25 ns
Response time t_A (N-PE)	≤ 25 ns
Max. backup fuse with branch wiring	160 A AC (gG)
Max. backup fuse with V-type through wiring	80 A AC (gG - 16 mm ²)

Connection data

Connection method	Screw connection
Conductor cross section flexible min.	1.5 mm ²

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Connection data

Conductor cross section flexible max.	25 mm ²
Conductor cross section solid min.	1.5 mm ²
Conductor cross section solid max.	35 mm ²
AWG conductor cross section	15 ... 2
	10 ... 2 (UL)
Screw thread	M5
Tightening torque	4.5 Nm
	30 lb _f -in. (UL)
Stripping length	16 mm

UL specifications

UL class	SPD type 4CA
Maximum continuous operating voltage MCOV (L-L)	75 V AC
Maximum continuous operating voltage MCOV (L-G)	75 V AC
Maximum continuous operating voltage MCOV (L+) - (L-)	100 V DC
Maximum continuous operating voltage MCOV (L+) - G	100 V DC
Maximum continuous operating voltage MCOV (L-) - G	100 V DC
Nom. voltage	60 V AC
Nominal voltage	60 V DC
Mode of protection	L-L
	L-G
	(L+) - (L-)
	(L+) - G
	(L-) - G
Power distribution system	1
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-L)	730 V
Measured limiting voltage MLV (L-G)	1240 V
Measured limiting voltage MLV (L+) - (L-)	810 V
Measured limiting voltage MLV (L+) - G	1230 V
Measured limiting voltage MLV (L-) - G	2040 V
Nominal discharge current I _n (L-L)	20 kA
Nominal discharge current I _n (L-G)	20 kA
Nominal discharge current I _n (L+) - (L-)	20 kA
Nominal discharge current I _n (L+) - G	20 kA
Nominal discharge current I _n (L-) - G	20 kA

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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

ETIM

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

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UL Recognized / cUL Recognized / KEMA-KEUR / VDE Zeichengenehmigung / EAC / CCA / IECEE CB Scheme / cULus Recognized

Ex Approvals

Approvals submitted

Approval details

UL Recognized 

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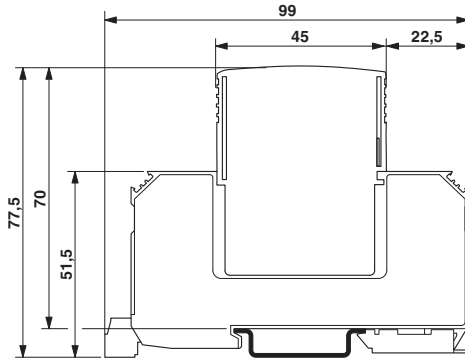
IECEE CB Scheme 

cULus Recognized 

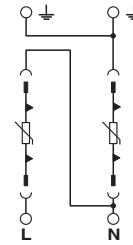
Drawings

Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/1+1V - 2801532

Dimensional drawing



Circuit diagram



The illustration shows the dimensional drawing for a version with remote indicator contact