Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/1+0-FM - 2801240

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Universal varistor-based plug-in lightning/surge arrester for 1-phase power supply networks with common N and PE (2-conductor system: L1, PEN), with remote indication contact.

Key commercial data

Packing unit	1 pc
GTIN	4 046356 750189
Weight per Piece (excluding packing)	133.42 g
Custom tariff number	85363030
Country of origin	Germany

Technical data

Dimensions

Height	97 mm
Width	17.5 mm
Depth	77.5 mm
Horizontal pitch	1 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
	L-PEN
	(L+) - (L-)
	(L-) - PE
	(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, remote indicator contact

Protective circuit

Nominal voltage U_N	60 V AC ±10 % (TN)
	60 V DC ±10 %
	-48 V DC ±10 % (RRH)
Nominal frequency f_N	50 Hz (60 Hz)
Maximum continuous operating voltage U_C	75 V AC
	100 V DC
Maximum continuous operating voltage U_C (L-N)	75 V AC
	100 V DC
Maximum continuous operating voltage U_C (L-PEN)	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	≤ 45 mVA
Nominal discharge current I_n (8/20) µs	12.5 kA
Nominal discharge current I_n (8/20) µs (L-N)	12.5 kA
Nominal discharge current I_n (8/20) µs (L-PEN)	12.5 kA
Maximum discharge current I_{max} (8/20) µs	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 (L-PEN)	30 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-PEN), charge	6.25 As
Impulse discharge current (10/350) µs (L-PEN), specific energy	39 kJ/Ω
Impulse discharge current (10/350) µs (L-PEN), peak current value I_{imp}	12.5 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 (L-PEN)	≤ 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 (L-PEN)	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 (L-PEN)	≤ 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 mm²)

Indicator/remote signaling

Connection name	Remote fault indicator contact
Switching function	PDT contact
Operating voltage	5 V AC ... 250 V AC
	125 V AC (UL)
	125 V DC (200 mA DC)
Operating current	5 mA AC ... 1.5 A AC
	1 A AC (UL)
	1 A DC (30 V DC)
Connection method	Screw connection

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Indicator/remote signaling

Screw thread	M2
Tightening torque	0.25 Nm
	4 lb_f-in. (UL)
Stripping length	7 mm
Conductor cross section stranded min.	0.14 mm²
Conductor cross section stranded max.	1.5 mm²
Conductor cross section solid min.	0.14 mm²
Conductor cross section solid max.	1.5 mm²
AWG conductor cross section	28 ... 16
	30 ... 14 (UL)

Connection data

Connection method	Screw connection
Conductor cross section stranded min.	1.5 mm²
Conductor cross section stranded max.	25 mm²
Conductor cross section solid min.	1.5 mm²
Conductor cross section solid max.	35 mm²
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-G)	75 V AC
Maximum continuous operating voltage MCOV (L+) - (L-)	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-G)	1240 V
Measured limiting voltage MLV (L+) - (L-)	1230 V
Nominal discharge current I_n (L-G)	20 kA

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UL specifications

Nominal discharge current I_n (L+) - (L-)	20 kA

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 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

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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

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Accessories

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Bridge

Wiring bridge - MPB F600X16/ 1GS - 2818355

Wiring bridge flexible, diameter: 16 mm², with a fork-type cable lug on one side, length: 600 mm

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Wiring bridge - MPB F600X16/ 1GS - 2818355

Wiring bridge flexible, diameter: 16 mm², with a fork-type cable lug on one side, length: 600 mm

Wiring bridge - MPB F200X16/ 1GS - 2818339

Wiring bridge flexible, diameter 16 mm², with a fork-type cable lug on one side, length: 200 mm

Wiring bridge - MPB 18/1-10/1.0.0 - 2830443

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 10 pitches with contact sequence 1-0-0

Wiring bridge - MPB 18/4-12 - 2809296

Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 12-pos.

Wiring bridge - MPB 18/4- 8 - 2809283

Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 8-pos.

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Accessories

Wiring bridge - MPB 18/3- 6 - 2809241

Wiring bridge for modules with connecting pitch 17.5 mm, 3-phase, 6-pos.

Wiring bridge - MPB 18/1-57 - 2809238

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 57-pos.

Wiring bridge - MPB 18/1-12 - 2748593

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 12-pos.

Wiring bridge - MPB 18/1- 9 - 2748580

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 9-pos.

Wiring bridge - MPB 18/1- 8 - 2748577

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 8-pos.

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Wiring bridge - MPB 18/1- 6 - 2748564

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 6-pos.

Wiring bridge - MPB 18/1- 4 - 2809225

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 4-pos.

- MPB 18/1- 3 - 2809212

Wiring bridge - MPB 18/1- 2 - 2809209

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 2-pos.

Device marking

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128

Zack marker strip, Strip, white, unlabeled, can be labeled with: Plotter, Mounting type: Snap into tall marker groove, for terminal block width: 18 mm, Lettering field: 18 x 5 mm

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Feed-through terminal block

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Accessories

Feed-through terminal block - DK-BIC-35 - 2749880

Feed-through terminal block for VAL and FLT applications

Labeled device marker

Marker for terminal blocks - ZBN 18,LGS:ERDE - 2749589

Marker for terminal blocks, Strip, white, labeled, Horizontal: Grounding symbol, Mounting type: Snap into tall marker groove, for terminal block width: 18 mm, Lettering field: 18 x 5 mm

Marker for terminal blocks - ZBN 18,LGS:L1-N,ERDE - 2749576

Marker for terminal blocks, Strip, white, labeled, Horizontal: L1, L2, L3, N, GND, Mounting type: Snap into tall marker groove, for terminal block width: 18 mm, Lettering field: 18 x 5 mm

Marker pen

Marker pen - B-STIFT - 1051993

Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

Spare parts

Type 1/2 surge protection plug - VAL-MS-T1/T2 48/12.5 ST - 2801242

L-N replacement plug for VAL-MS-T1/T2 48/12.5 plug-in lighting/surge arrester.

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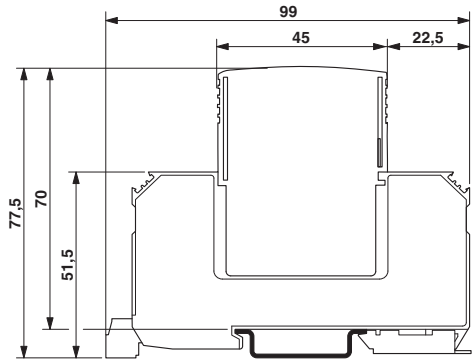
Drawings

Dimensioned drawing



Circuit diagram