

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



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.

Your advantages

- Quality proven millions of times over in the widest range of applications
- Rapid installation with bridges, thanks to industry-standard overall width of 1 HP
- Easy testing and insulation measurement, thanks to pluggable protection modules
- Surge protection for (-) 48 V DC in lightning protection level III and IV due to discharge capacity of 12.5 kA per position
- Vibration-resistant latching ensures the plug remains firmly in place

Commercial data

Item number	2801532
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL18
Product key	CL1151
Catalog page	Page 48 (C-4-2019)
GTIN	4046356811316
Weight per piece (including packing)	277.8 g
Weight per piece (excluding packing)	255.7 g
Customs tariff number	85363030
Country of origin	DE

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Technical data

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	TN-S
Type	DIN rail module, two-section, divisible
Surge protection fault message	optical

Insulation characteristics

Overvoltage category	III
Pollution degree	2

Electrical properties

Nominal frequency f_N	50 Hz (60 Hz)
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Connection data

Connection method	Screw connection
Screw thread	M5
Tightening torque	3 Nm (1.5 mm ² ... 16 mm ²)
	4.5 Nm (25 mm ² ... 35 mm ²)
Stripping length	16 mm
Conductor cross section flexible	1.5 mm ² ... 25 mm ²
Conductor cross section rigid	1.5 mm ² ... 35 mm ²
Conductor cross section AWG	15 ... 2
Connection method	Fork-type cable lug
Conductor cross section flexible	1.5 mm ² ... 16 mm ²

Dimensions

Dimensional drawing	
Width	35.6 mm
Height	89.8 mm
Depth	77.5 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	2 Div.

Material specifications

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Color	black (RAL 9005)
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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
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Protective circuit

Mode of protection	L-N
	N-PE
	L-PE
	(L+) - (L-)
	(L+) - PE
	(L-) - PE
Direction of action	L-L / L-PE
Nominal voltage U_N	60 V AC ± 10 % (TN-S)
	60 V DC ± 10 %
	-48 V DC ± 10 % (RRH)
Nominal frequency f_N	50 Hz (60 Hz)
Maximum continuous voltage U_C	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	≤ 90.00 mVA
Nominal discharge current I_n (8/20) μ s	12.5 kA
Maximum discharge current I_{max} (8/20) μ s	30 kA
Impulse discharge current (10/350) μ s, charge	6.25 As
Impulse discharge current (10/350) μ s, specific energy	39 kJ/ Ω
Impulse discharge current (10/350) μ s, peak value I_{imp}	12.5 kA
Total discharge current I_{total} (8/20) μ s	50 kA
Total discharge current I_{total} (10/350) μ s	12.5 kA
Short-circuit current rating I_{SCCR}	25 kA
Voltage protection level U_p (L-N)	≤ 0.4 kV
Voltage protection level U_p (L-PE)	≤ 0.8 kV
Voltage protection level U_p (N-PE)	≤ 0.4 kV
Voltage protection level U_p (L+) - (L-)	≤ 0.4 kV

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Voltage protection level U_p (L+) - PE	≤ 0.4 kV
Voltage protection level U_p (L-) - PE	≤ 0.8 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)
Response time t_A	≤ 25 ns
Max. backup fuse with V-type through wiring	80 A (gG - 16 mm ²)
Max. backup fuse with branch wiring	160 A (gG)

Additional technical data

Maximum discharge current I_{max} (8/20) μ s	65 kA
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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 $\pm$ X, $\pm$ Y, $\pm$ Z)
Vibration (operation)	7.5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

Approvals

UL specifications

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
Short-circuit current rating (SCCR)	5 kA
Voltage protection rating VPR (L+) - (L-)	400 V
Voltage protection rating VPR (L+) - G	400 V
Voltage protection rating VPR (L-) - G	600 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-) - G	20 kA
Mode of protection	(L+) - (L-)
	(L+) - G
	(L-) - G
Nominal voltage	60 V DC

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SPD Type	1CA
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UL connection data

Tightening torque	30 lb _F in.
Conductor cross section AWG	14 ... 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
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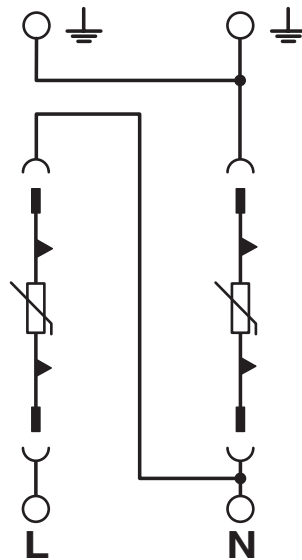


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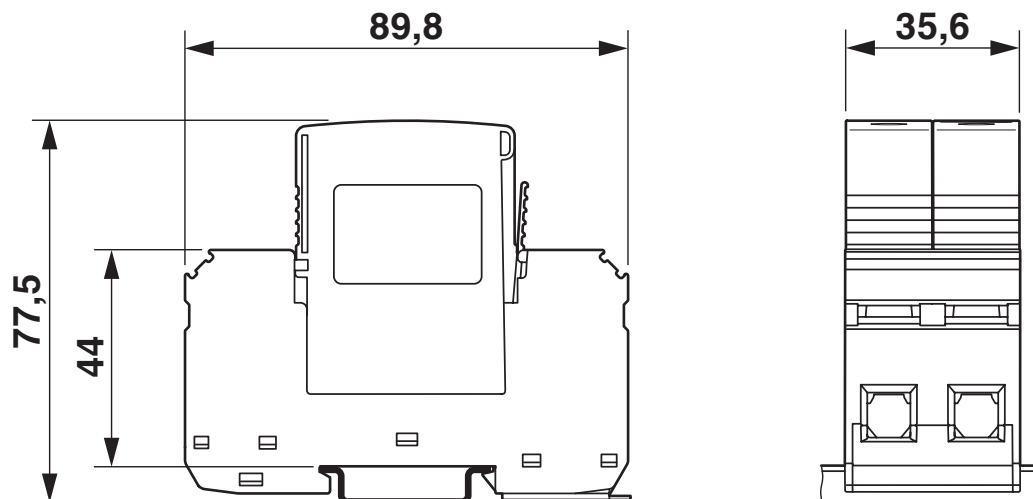
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Drawings

Circuit diagram



Dimensional drawing



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Approvals

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	cUL Recognized Approval ID: FILE E 330181
	UL Recognized Approval ID: FILE E 330181
	IECEE CB Scheme Approval ID: DE1-54090
	EAC Approval ID: RU C-DE.*09.B.00169
	CCA Approval ID: DE1-34421
	KEMA-KEUR Approval ID: 2168290.01
	VDE Zeichengenehmigung Approval ID: 40037097
	UAE-RoHS Approval ID: 23-10-88705
	cULus Recognized

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Classifications

ECLASS

ECLASS-11.0	27130802
ECLASS-13.0	27171201

ETIM

ETIM 9.0	EC000381
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UNSPSC

UNSPSC 21.0	39121600
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes, No exemptions
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%

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Accessories

MPB 18/1-10/1.0.0 - Wiring bridge

2830443

<https://www.phoenixcontact.com/us/products/2830443>



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

MPB 18/4- 8 - Wiring bridge

2809283

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

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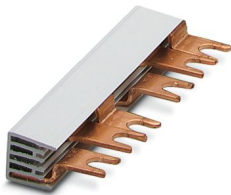
<https://www.phoenixcontact.com/us/products/2801532>

MPB 18/3- 6 - Wiring bridge

2809241

<https://www.phoenixcontact.com/us/products/2809241>

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



MPB 18/1-57 - Wiring bridge

2809238

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



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MPB 18/1-12 - Wiring bridge

2748593

<https://www.phoenixcontact.com/us/products/2748593>



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

MPB 18/1- 9 - Wiring bridge

2748580

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

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MPB 18/1- 8 - Wiring bridge

2748577

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

MPB 18/1- 6 - Wiring bridge

2748564

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

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MPB 18/1- 4 - Wiring bridge

2809225

<https://www.phoenixcontact.com/us/products/2809225>

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



MPB 18/1- 3 - Wiring bridge

2809212

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Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 3-pos.



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MPB 18/1- 2 - Wiring bridge

2809209

<https://www.phoenixcontact.com/us/products/2809209>

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



ZBN 18,LGS:ERDE - Marker for terminal blocks

2749589

<https://www.phoenixcontact.com/us/products/2749589>

Marker for terminal blocks, Strip, white, labeled, horizontal: Grounding symbol, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5



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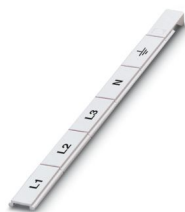
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ZBN 18,LGS:L1-N,ERDE - Marker for terminal blocks

2749576

<https://www.phoenixcontact.com/us/products/2749576>



Marker for terminal blocks, Strip, white, labeled, horizontal: L1, L2, L3, N, GND, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

ZBN 18:UNBEDRUCKT - Zack marker strip

2809128

<https://www.phoenixcontact.com/us/products/2809128>



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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DK-BIC-35 - Feed-through terminal block

2749880

<https://www.phoenixcontact.com/us/products/2749880>

Feed-through terminal block for VAL and FLT applications



ZBN 18 CUS - Zack marker strip

0825059

<https://www.phoenixcontact.com/us/products/0825059>



Zack marker strip, can be ordered: Strip, white, labeled according to customer specifications, mounting type: snap into tall marker groove, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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B-STIFT - Marker pen

1051993

<https://www.phoenixcontact.com/us/products/1051993>



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

SZK PZ2 VDE - Screwdriver

1206463

<https://www.phoenixcontact.com/us/products/1206463>



Screwdriver, PZ crosshead, VDE insulated, size: PZ 2 x 100 mm, 2-component grip, with non-slip grip

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

2801242

<https://www.phoenixcontact.com/us/products/2801242>

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



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