

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)




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.

## Your advantages

- Plug-in direction parallel to the conductor axis
- Versions with and without floating remote indication contact
- Rack-mount 2U panel applications
- Accepts Type 1 and Type 2 VAL-MS plugs.
- Coding when protective plug is inserted for the first time
- DIN rail mounting



## Key Commercial Data

Packing unit	12 pc
Minimum order quantity	12 pc
GTIN	 4 055626 063072
GTIN	4055626063072
Weight per Piece (excluding packing)	154.030 g
Custom tariff number	85363090
Country of origin	Germany
Note	Made to Order (non-returnable)

## Technical data

### Dimensions

Height	77.1 mm
Width	17.5 mm
Depth	89.2 mm

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

## Technical data

### Dimensions

Horizontal pitch	1 Div.
------------------	--------

### 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	max. 2000 m
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	25g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

### General

IEC test classification	I / II
	T1 / T2
	I
EN type	T1 / T2
IEC power supply system	DC
Mode of protection	L-PEN
	(L+) - (L-)
	(L-) - PE
	(L+) - PE
Mounting type	DIN rail: 35 mm
Color	black
Housing material	PBT
Degree of pollution	2
Flammability rating according to UL 94	V0
Type	DIN rail module, two-section, divisible
Number of positions	1
Surge protection fault message	Optical, remote indicator contact

### Protective circuit

Nominal voltage $U_N$	-48 V DC (RRH)
	60 V DC
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous 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
	75 V AC

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

## Technical data

### Protective circuit

	100 V DC
	75 V AC
	100 V DC
Rated load current $I_L$	80 A
	80 A
Residual current $I_{PE}$	$\leq 0.6$ mA
	$\leq 0.6$ mA
Standby power consumption $P_C$	$\leq 45$ mVA
	$\leq 45$ mVA
Nominal discharge current $I_n$ (8/20) $\mu$ s	12.5 kA
Nominal discharge current $I_n$ (8/20) $\mu$ s (L-N)	12.5 kA
Nominal discharge current $I_n$ (8/20) $\mu$ s (L-PEN)	12.5 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s	30 kA
	30 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s (L-N)	30 kA
	30 kA
	30 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s (L-PEN)	30 kA
	30 kA
	30 kA
Impulse discharge current (10/350) $\mu$ s, charge	6.25 As
Impulse discharge current (10/350) $\mu$ s, specific energy	39 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu$ s, peak value $I_{imp}$	12.5 kA
	12.5 kA
Impulse discharge current (10/350) $\mu$ s (L-N), charge	6.25 As
	6.25 As
	6.25 As
Impulse discharge current (10/350) $\mu$ s (L-N), specific energy	39 kJ/ $\Omega$
	39 kJ/ $\Omega$
	39 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu$ s (L-N), peak current value $I_{imp}$	12.5 kA
	12.5 kA
	12.5 kA
Short-circuit current rating $I_{SCCR}$	25 kA
Voltage protection level $U_p$	$\leq 0.4$ kV
Voltage protection level $U_p$ (L-N)	$\leq 0.4$ kV
Voltage protection level $U_p$ (L-PEN)	$\leq 0.4$ kV
Residual voltage $U_{res}$	$\leq 0.4$ kV (at $I_n$ )

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

## Technical data

### Protective circuit

	≤ 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 V-type through wiring	80 A AC (gG - 16 mm <sup>2</sup> )
	80 A AC (gG - 16 mm <sup>2</sup> )
Max. backup fuse with branch wiring	160 A AC (gG)
	160 A AC (gG)

### Indicator/remote signaling

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
	1 A (UL)
	1 A (30 V DC)
Connection method	Screw connection
Screw thread	M2
Tightening torque	0.25 Nm
	4 lb <sub>f</sub> -in. (UL)
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
	30 ... 14 (UL)

### Connection data

Connection method	Screw connection
Screw thread	M5
Tightening torque	3 Nm ... 4.5 Nm (UL)

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

## Technical data

### Connection data

	27 lb <sub>F</sub> -in. ... 40 lb <sub>F</sub> -in. (UL)
Stripping length	16 mm
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
	10 ... 2 (UL)

### UL specifications

SPD Type	1CA
Maximum continuous operating voltage MCOV	75 V AC
Maximum continuous operating voltage MCOV (L-N)	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+/L-) - G	100 V DC
Nominal voltage	60 V DC
Mode of protection	L-L
	L-G
	(L+) - (L-)
	(L+) - G
	(L-) - G
Power distribution system	Single phase
Voltage protection rating VPR	400 V
Voltage protection rating VPR (L-N)	400 V
Measured limiting voltage MLV	1240 V
Measured limiting voltage MLV (L-G)	1240 V
Measured limiting voltage MLV (L+) - (L-)	1230 V
Nominal discharge current I <sub>n</sub>	20 kA
Nominal discharge current I <sub>n</sub> (L-G)	20 kA
Nominal discharge current I <sub>n</sub> (L+) - (L-)	20 kA

### UL connection data

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

### Standards and Regulations

Standards/regulations	EN 61643-11/A11 2007
-----------------------	----------------------

### Environmental Product Compliance

	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

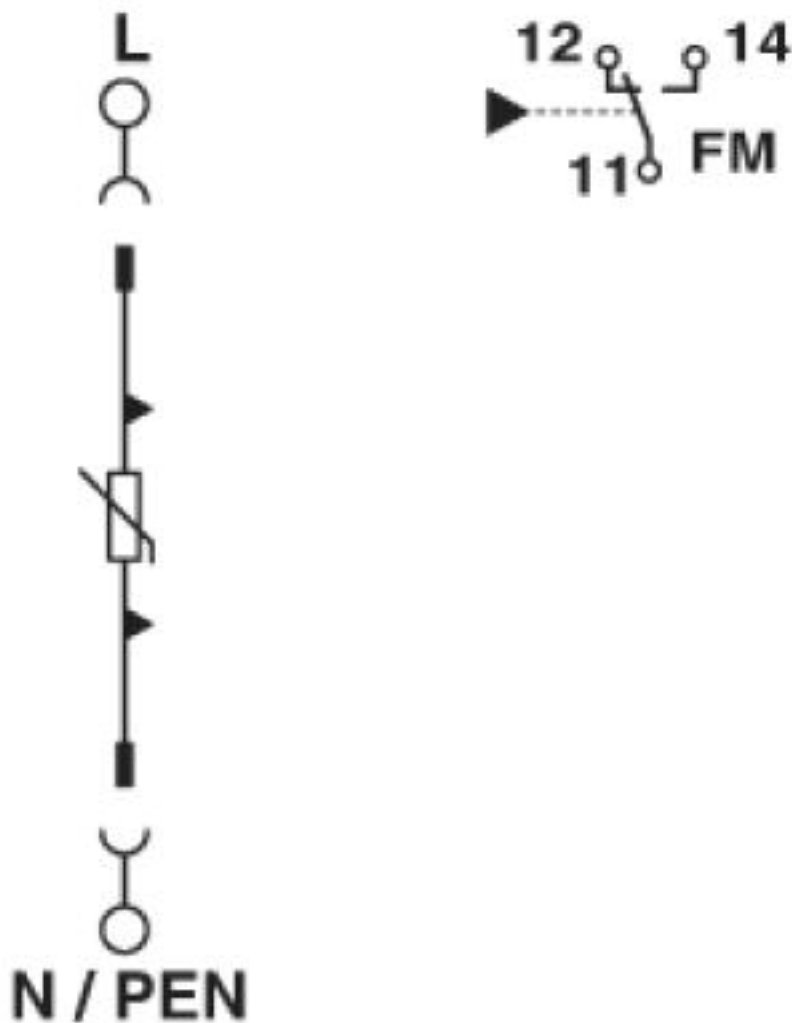
## Technical data

### Environmental Product Compliance

	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"
--	---

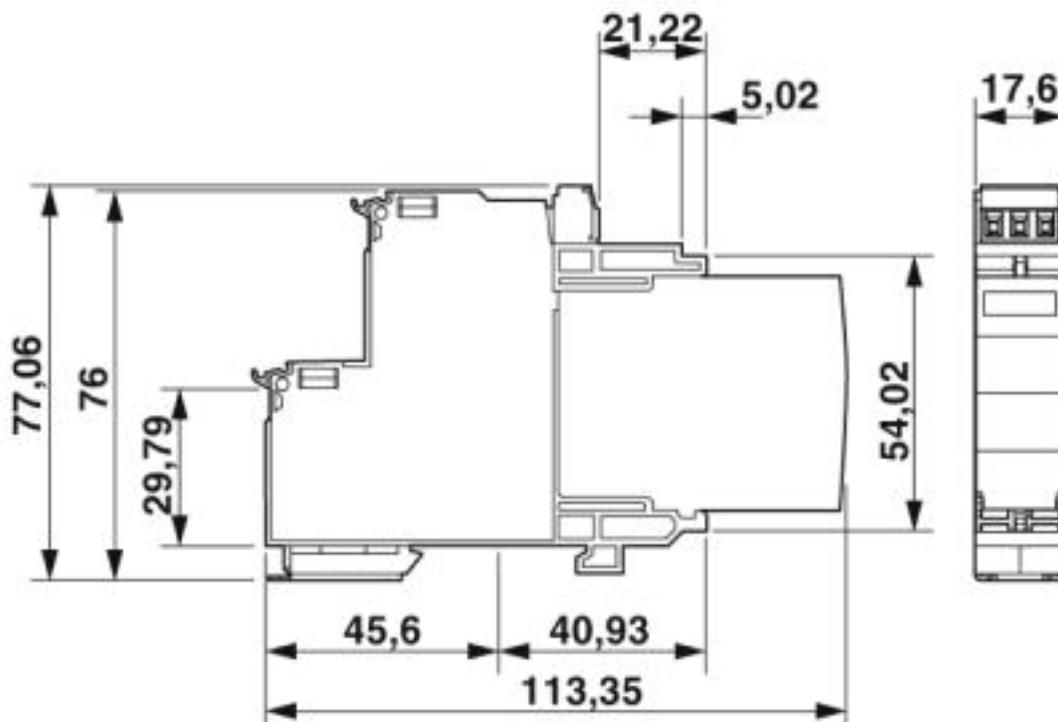
## Drawings

Circuit diagram



# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

Dimensional drawing



## Classifications

eCl@ss

eCl@ss 4.0	27130800
eCl@ss 4.1	27130800
eCl@ss 5.0	27130800
eCl@ss 5.1	27130800
eCl@ss 6.0	27130800
eCl@ss 7.0	27130802
eCl@ss 8.0	27130802
eCl@ss 9.0	27130802

ETIM

ETIM 5.0	EC000381
ETIM 6.0	EC000381
ETIM 7.0	EC000381

UNSPSC

UNSPSC 13.2	39121620
UNSPSC 18.0	39121620
UNSPSC 19.0	39121620

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

## Classifications

### UNSPSC

UNSPSC 20.0	39121620
UNSPSC 21.0	39121620

## Approvals

### Approvals

#### Approvals

UL Recognized / cUL Recognized / cULus Recognized

#### Ex Approvals

### Approval details

UL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 330181
---------------	--	---	---------------

cUL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 330181
----------------	--	---	---------------

cULus Recognized			
------------------	--	--	--

## Accessories

### Accessories

#### Bridge

Wiring bridge - MPB 18/1- 2 - 2809209



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



# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

## Accessories

Wiring bridge - MPB 18/1- 3 - 2809212



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

---

Wiring bridge - MPB 18/1- 4 - 2809225



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

---

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- 7 BU - 2856278



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 7-pos., color: Blue

---

Wiring bridge - MPB 18/1- 8 BU - 2858470



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

---

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

## Accessories

Wiring bridge - MPB 18/1- 8 - 2748577



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 8-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 18/1-12 - 2748593



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 12-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 18/3- 6 - 2809241



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

---

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

## Accessories

Wiring bridge - MPB 18/4- 8 - 2809283



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

---

Wiring bridge - MPB 18/4-12 - 2809296



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

---

Wiring bridge - MPB F200X16/ 1GS - 2818339



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 200 mm

---

Wiring bridge - MPB F400X16/ 1GS - 2818342



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 400 mm

---

Wiring bridge - MPB F600X16/ 1GS - 2818355



Wiring bridge flexible, diameter: 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 600 mm

---

## Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

### Accessories

Wiring bridge - MPB F600X16/ 1GS - 2818355



Wiring bridge flexible, diameter: 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 600 mm

---

Wiring bridge - MPB F400X16/ 1GS - 2818342



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 400 mm

---

Wiring bridge - MPB F200X16/ 1GS - 2818339



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, 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.

---

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

## Accessories

Wiring bridge - MPB 18/4- 8 - 2809283



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

---

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.

---

# Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

## Accessories

Wiring bridge - MPB 18/1- 8 - 2748577



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

---

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.

---

Wiring bridge - MPB 18/1- 3 - 2809212



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

---

Wiring bridge - MPB 18/1- 2 - 2809209



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

---

## Device marking

## Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

### Accessories

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, 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

---

### Feed-through terminal block

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 size: 18 x 5 mm, Number of individual labels: 5

---

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 size: 18 x 5 mm, Number of individual labels: 5

---

### 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

## Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/O-FM - 2906282

### Accessories

#### 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 lightning/surge arrester.

---

Type 2 surge protection base element - VAL-MS-T1/T2 BE/O-FM - 2905652



Base element for type 1/2 arresters from the VALVETRAB MS T1/T2 product range, with remote indication contact.  
Version: 1-channel

---