

Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/2+0/1U/ FM - 2907042

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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, with remote indication contact.




Your advantages

- ✓ Rack-mount 1U panel applications
- ✓ Dual-channel, panel mountable surge protective device
- ✓ Orthogonal mounting orientation to plug
- ✓ Base element with floating remote indication contact



Key Commercial Data

| | |
|--------------------------------------|---------------------------------------------------------------------------------------------------------|
| Packing unit | 1 pc |
| GTIN |  4 055626 248974 |
| GTIN | 4055626248974 |
| Weight per Piece (excluding packing) | 251.160 g |
| Custom tariff number | 85363030 |
| Country of origin | Germany |
| Note | Made to Order (non-returnable) |

Technical data

Dimensions

| | |
|------------------|---------|
| Height | 40.6 mm |
| Width | 70.6 mm |
| Depth | 98.1 mm |
| Height unit | 1 U |
| Horizontal pitch | 4 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-sine / 11 ms / 3x ±X, ±Y, ±Z) |
| Vibration (operation) | 7.5g (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 | TN-S |
| Mode of protection | L-PE |
| | N-PE |
| Mounting type | Panel mount |
| Color | gray |
| 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 | For installation into a touch protected cabinet. For applications with $U_c > 500$ V distances at the side and distances at the connection area must be minimum of 5 mm between different active parts including earthed parts. |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Protective circuit

| | |
|----------------------------------------------------|----------------------|
| Nominal voltage U_N | 60 V AC ±10 % (TN-S) |
| | -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 | ≤ 45 mVA |
| Nominal discharge current I_n (8/20) μ s | 12.5 kA |
| Maximum discharge current I_{max} (8/20) μ s | 30 kA |

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Technical data

Protective circuit

| | |
|------------------------------------------------------------------|------------------------------------|
| 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 |
| Short-circuit current rating I_{SCCR} | 25 kA |
| Voltage protection level U_p | ≤ 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) |
| Response time t_A | ≤ 25 ns |
| Max. backup fuse with V-type through wiring | 80 A AC (gG - 16 mm ²) |
| Max. backup fuse with branch wiring | 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 | Push-in spring connection |
| Stripping length | 6 mm |
| Conductor cross section flexible min. | 0.2 mm ² |
| Conductor cross section flexible max. | 0.5 mm ² |
| Conductor cross section flexible | 0.2 mm ² ... 0.5 mm ² |
| Conductor cross section solid min. | 0.14 mm ² |
| Conductor cross section solid max. | 0.5 mm ² |
| Conductor cross section solid | 0.14 mm ² ... 0.5 mm ² |
| Conductor cross section AWG | 24 ... 20 (UL) |

Connection data

| | |
|-------------------|------------------------------------------------------------|
| Connection method | Screw connection |
| Screw thread | M5 |
| Tightening torque | 2.5 Nm ... 3 Nm |
| | 22 lb _F -in. ... 26.5 lb _F -in. (UL) |

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Technical data

Connection data

| | |
|---------------------------------------|--------------------------------------------|
| Stripping length | 16 mm |
| Conductor cross section flexible min. | 1.5 mm ² |
| 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 |
| Conductor cross section flexible | 1.5 mm ² ... 25 mm ² |
| Conductor cross section solid | 1.5 mm ² ... 35 mm ² |
| Conductor cross section AWG | 15 ... 2 |
| | 10 ... 2 (UL) |

UL specifications

| | |
|-------------------------------------------------|-------------|
| SPD Type | 1CA |
| Maximum continuous operating voltage MCOV (L-N) | 75 V AC |
| | 100 V DC |
| Nominal voltage | 60 V DC |
| Mode of protection | N-G |
| | L-G |
| | (L+) - (L-) |
| | (L+) - G |
| | (L-) - G |

UL indicator/remote signaling

| | |
|-----------------------------|-----------|
| Operating voltage | 125 V AC |
| Conductor cross section AWG | 30 ... 14 |

UL connection data

| | |
|-----------------------------|-------------------------------------------------------|
| Conductor cross section AWG | 10 ... 2 |
| Tightening torque | 22 lb _F -in. ... 26.5 lb _F -in. |

Additional technical data

| | |
|----------------------------------------------------|-------|
| Maximum discharge current I_{max} (8/20) μ s | 65 kA |
|----------------------------------------------------|-------|

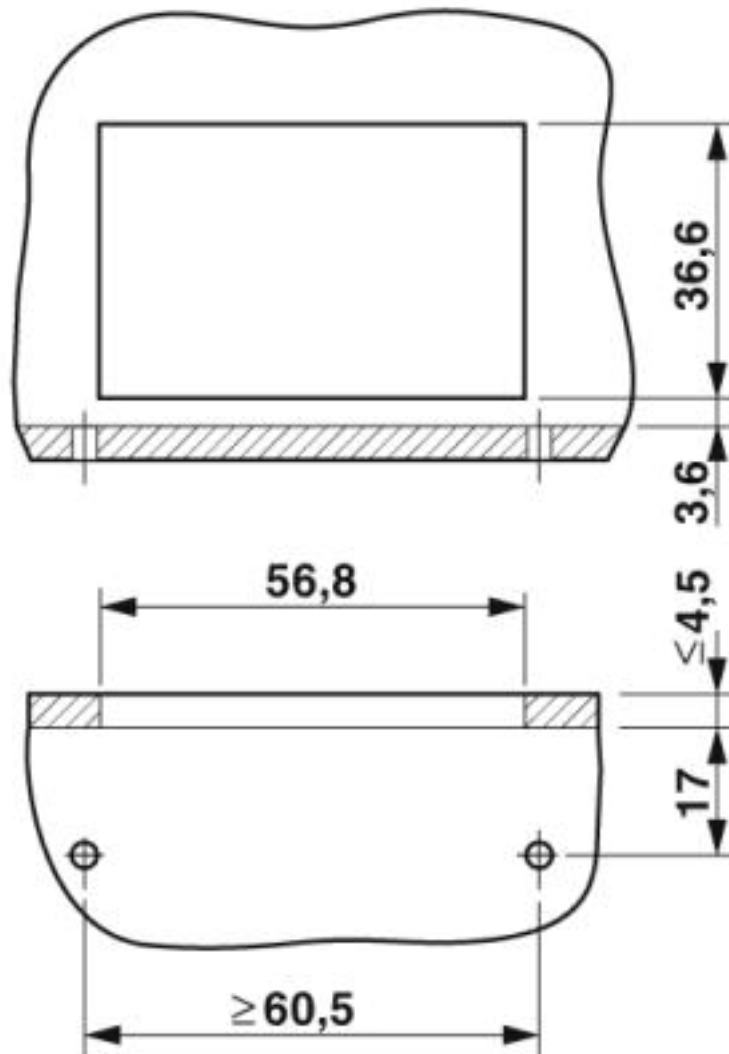
Environmental Product Compliance

| | |
|------------|-----------------------------------------------------------------------------------------------------|
| REACH SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally Friendly Use Period = 50 |
| | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

Drawings

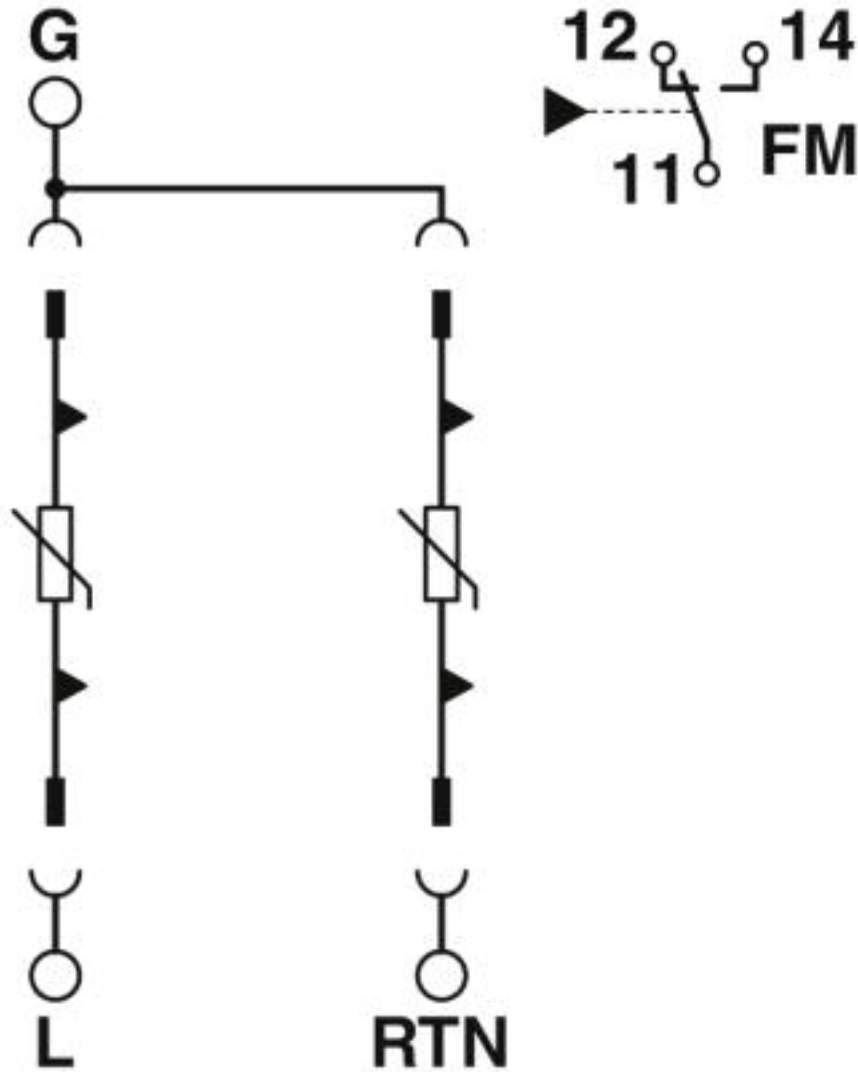
Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/2+0/1U/ FM - 2907042

Drilling diagram



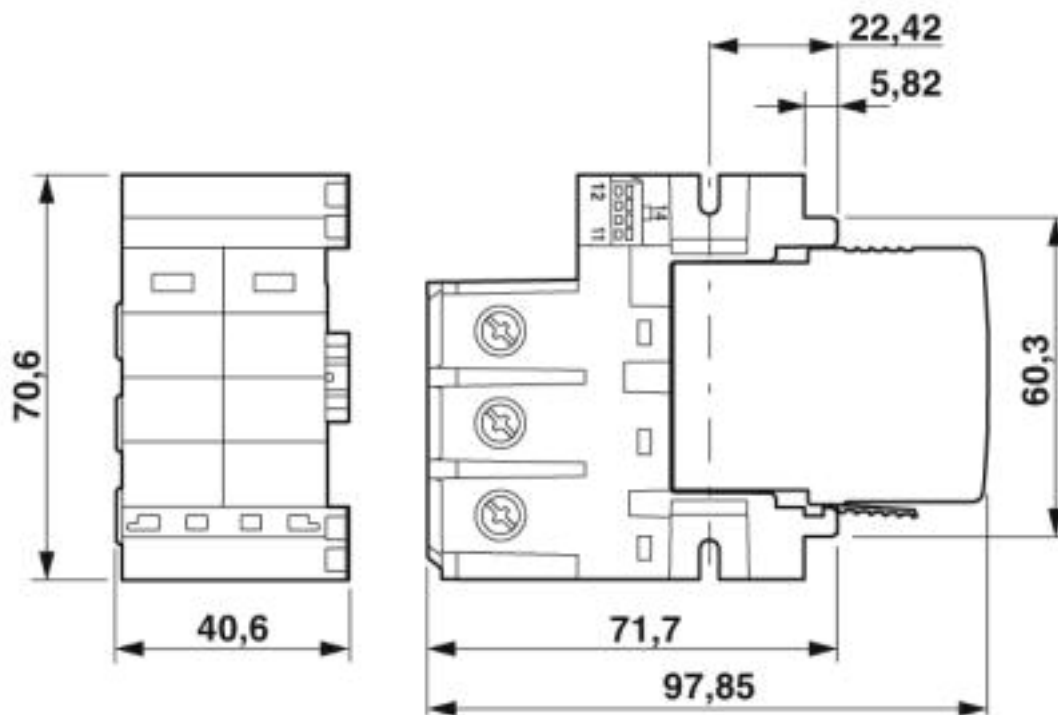
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Circuit diagram



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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 2.0 | EC000941 |
| ETIM 3.0 | EC000941 |
| ETIM 4.0 | EC000381 |
| ETIM 5.0 | EC000381 |
| ETIM 6.0 | EC000381 |
| ETIM 7.0 | EC000381 |

UNSPSC

| | |
|-------------|----------|
| UNSPSC 6.01 | 30212010 |
|-------------|----------|

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Classifications

UNSPSC

| | |
|---------------|----------|
| UNSPSC 7.0901 | 39121610 |
| UNSPSC 11 | 39121610 |
| UNSPSC 12.01 | 39121610 |
| UNSPSC 13.2 | 39121620 |
| UNSPSC 18.0 | 39121620 |
| UNSPSC 19.0 | 39121620 |
| UNSPSC 20.0 | 39121620 |
| UNSPSC 21.0 | 39121620 |

Approvals

Approvals

Approvals

UL Recognized / cUL Recognized / cULus Recognized

Ex Approvals

Approval details

| | | | |
|---------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| UL Recognized | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 330181 |
|---------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|

| | | | |
|----------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| cUL Recognized | | http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm | FILE E 330181 |
|----------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|

| | | | |
|------------------|--|--|--|
| cULus Recognized | | | |
|------------------|--|--|--|

Accessories

Accessories

Bridge

Lightning/surge arrester type 1/2 - VAL-MS-T1/T2 48/12.5/2+0/1U/ FM - 2907042

Accessories

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 F400X16/ 1GS - 2818342



Wiring bridge flexible, diameter 16 mm², with a fork-type cable lug on one side, length: 400 mm

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 F600X16/ 1GS - 2818355



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

Wiring bridge - MPB F400X16/ 1GS - 2818342



Wiring bridge flexible, diameter 16 mm², with a fork-type cable lug on one side, length: 400 mm

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Accessories

Wiring bridge - MPB F200X16/ 1GS - 2818339



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

Device marking

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

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

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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.

Base element - VAL-MS BE/2+0/1U/FM - 2907037



Universal plug-in surge arrester base for up to 240 V applications with two conductors plus ground, with remote indication contact
