

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



2906282

<https://www.phoenixcontact.com/gb/products/2906282>

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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.



Your advantages

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

Commercial data

| | |
|--------------------------------------|--------------------------------|
| Item number | 2906282 |
| Packing unit | 12 pc |
| Minimum order quantity | 12 pc |
| Note | Made to order (non-returnable) |
| Sales key | CL1151 |
| Product key | CL1151 |
| GTIN | 4055626063072 |
| Weight per piece (including packing) | 154.033 g |
| Weight per piece (excluding packing) | 154.033 g |
| Customs tariff number | 85363090 |
| 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 |
| | I |
| EN type | T1 / T2 |
| IEC power supply system | DC |
| Type | DIN rail module, two-section, divisible |
| Number of positions | 1 |
| Surge protection fault message | Optical, remote indicator contact |
| Number of ports | One |

Insulation characteristics

| | |
|------------------|---|
| Pollution degree | 2 |
|------------------|---|

Electrical properties

| | |
|-------------------------|---------------|
| Nominal frequency f_N | 50 Hz (60 Hz) |
|-------------------------|---------------|

Indicator/remote signaling

| | |
|--------------------|--------------------------------|
| Connection name | Remote fault indicator contact |
| Switching function | Changeover 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 data

| | |
|----------------------------------|--|
| Connection method | Screw connection |
| Screw thread | M5 |
| Tightening torque | 3 Nm ... 4.5 Nm (UL) |
| | 27 lb _F -in. ... 40 lb _F -in. (UL) |
| 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 |
| | 10 ... 2 (UL) |

Remote fault indicator contact

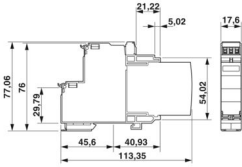
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| | |
|----------------------------------|--|
| Connection method | Screw connection |
| Screw thread | M2 |
| Tightening torque | 0.25 Nm |
| Stripping length | 7 mm |
| Conductor cross-section flexible | 0.14 mm ² ... 1.5 mm ² |
| Conductor cross-section rigid | 0.14 mm ² ... 1.5 mm ² |
| Conductor cross-section AWG | 28 ... 16 |

Dimensions

| | |
|---------------------|--|
| Dimensional drawing |  |
| Width | 17.5 mm |
| Height | 77.1 mm |
| Depth | 89.2 mm |
| Horizontal pitch | 1 Div. |

Material specifications

| | |
|--|------------------|
| Color | black (RAL 9005) |
| Flammability rating according to UL 94 | V0 |
| Housing material | PBT |

Mechanical properties

Mechanical data

| | |
|-----------------|----|
| Open side panel | No |
|-----------------|----|

Protective circuit

| | |
|--|----------------|
| Mode of protection | L-PEN |
| | (L+) - (L-) |
| | (L-) - PE |
| | (L+) - PE |
| Direction of action | L-N / L-PEN |
| Nominal voltage U_N | -48 V DC (RRH) |
| | 60 V DC |
| 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 |

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| | |
|--|---------------------------------|
| | 100 V DC |
| Rated load current I_L | 80 A |
| | 80 A |
| Protective conductor current I_{PE} | ≤ 0.6 mA |
| | ≤ 0.6 mA |
| Standby power consumption P_C | ≤ 45 mVA |
| | ≤ 45 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 (L-PEN) | 12.5 kA |
| Maximum discharge current I_{max} (8/20) μ s | 30 kA |
| Maximum discharge current I_{max} (8/20) μ s (L-N) | 30 kA |
| Maximum discharge current I_{max} (8/20) μ s (L-PEN) | 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 |
| | 12.5 kA |
| Impulse discharge current (10/350) μ s (L-N), charge | 6.25 As |
| | 6.25 As |
| | 6.25 As |
| Impulse discharge current (10/350) μ s (L-N), specific energy | 39 kJ/ Ω |
| | 39 kJ/ Ω |
| | 39 kJ/ Ω |
| Impulse discharge current (10/350) μ 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 | ≤ 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 |

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| | |
|---|------------------------------------|
| 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 ²) |
| | 80 A AC (gG - 16 mm ²) |
| Max. backup fuse with branch wiring | 160 A AC (gG) |
| | 160 A AC (gG) |

Additional technical data

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

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

Approvals

UL specifications

| | |
|---|--------------|
| 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 |
| Voltage protection rating VPR | 400 V |
| Voltage protection rating VPR (L-N) | 400 V |
| Nominal discharge current I_n | 20 kA |
| Nominal discharge current I_n (L-G) | 20 kA |
| Nominal discharge current I_n (L+) - (L-) | 20 kA |
| Mode of protection | L-L |
| | L-G |
| | (L+) - (L-) |
| | (L+) - G |
| | (L-) - G |
| Nominal voltage | 60 V DC |
| Power distribution system | Single phase |
| Measured limiting voltage MLV | 1240 V |
| Measured limiting voltage MLV (L-G) | 1240 V |
| Measured limiting voltage MLV (L+) - (L-) | 1230 V |

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| | |
|----------|-----|
| SPD Type | 1CA |
|----------|-----|

UL connection data

| | |
|-----------------------------|------------------------|
| Tightening torque | 30 lb _F in. |
| Conductor cross-section AWG | 10 ... 2 |

Standards and regulations

Air clearances and creepage distances

| | |
|--------------------------|----------------------|
| Standards/regulations | EN 61643-11 / UL 840 |
| Standards/specifications | EN 61643-11/A11 |
| Note | 2007 |

Mounting

| | |
|---------------|-----------------|
| Mounting type | DIN rail: 35 mm |
|---------------|-----------------|

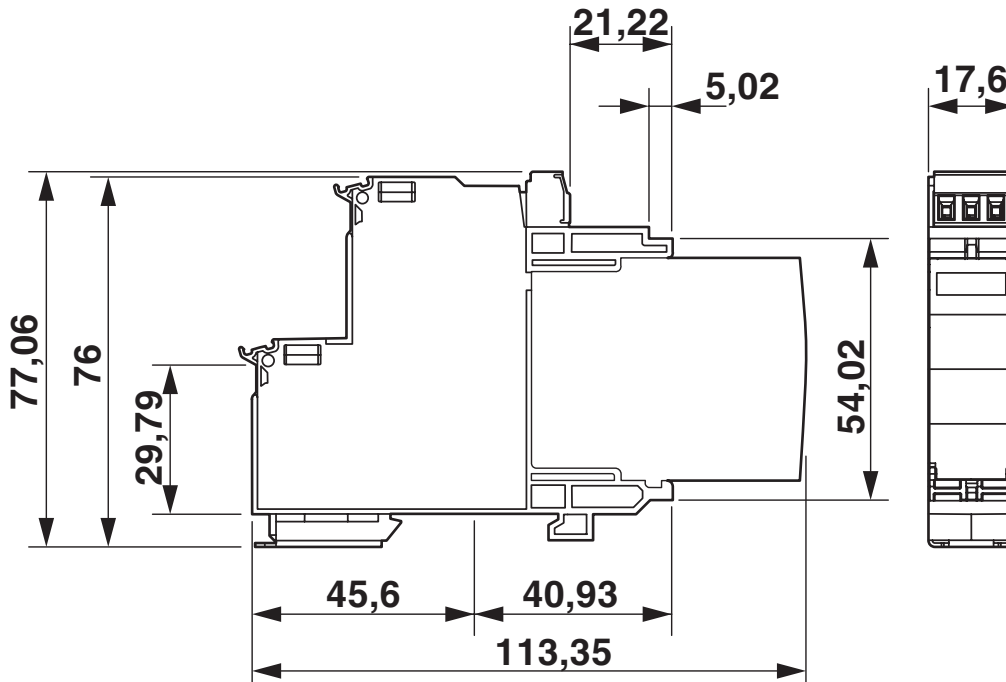
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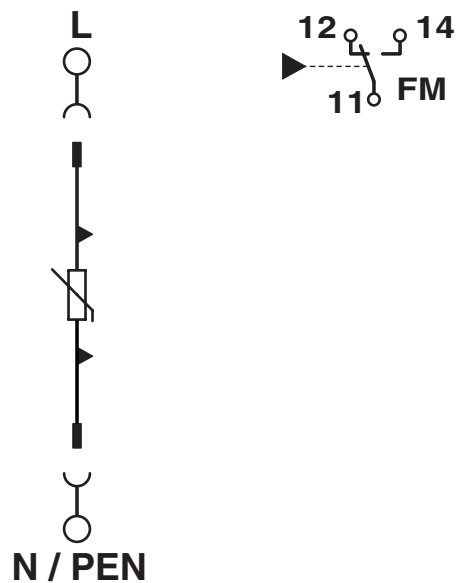
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Drawings

Dimensional drawing



Circuit diagram



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Approvals

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cUL Recognized
Approval ID: FILE E 330181



UL Recognized
Approval ID: FILE E 330181

UAE-RoHS

Approval ID: 23-10-88705

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-13.0 | 27171201 |
| ECLASS-15.0 | 27171201 |

ETIM

| | |
|-----------|----------|
| ETIM 10.0 | EC000381 |
|-----------|----------|

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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