

# VAL-MS-T1/T2 335/12.5/1+0-FM - Lightning/surge arrester type 1/2



2801042

<https://www.phoenixcontact.com/us/products/2801042>

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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

- 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
- Can be used 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                          | 2801042       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CL18          |
| Product key                          | CL1151        |
| GTIN                                 | 4046356698153 |
| Weight per piece (including packing) | 205 g         |
| Weight per piece (excluding packing) | 210.5 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<br>T1 / T2                       |
| EN type                        | T1 / T2                                 |
| IEC power supply system        | TN-S<br>TN-C<br>TT                      |
| Type                           | DIN rail module, two-section, divisible |
| Surge protection fault message | Optical, remote indicator contact       |
| Number of ports                | One                                     |

### Insulation characteristics

|                      |     |
|----------------------|-----|
| Overvoltage category | III |
| 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<br>30 V DC |
| Operating current  | 5 mA AC ... 1 A AC<br>1 A DC   |

### Connection data

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

### Remote fault indicator contact

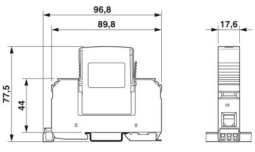
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|                                  |  |
|----------------------------------|--|
| Connection method                | Plug-in/screw connection via COMBICON        |
| Screw thread                     | M2   |
| Tightening torque                | 0.25 Nm                                      |
| Stripping length                 | 7 mm   |
| Conductor cross-section flexible | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross-section rigid    | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross-section AWG      | 28 ... 16                                    |

## Dimensions

|                     |  |
|---------------------|--|
| Dimensional drawing |  |
| Width               | 17.6 mm  |
| Height              | 96.8 mm  |
| Depth               | 77.5 mm (incl. DIN rail 7.5 mm)  |
| Horizontal pitch    | 1 Div.   |

## Material specifications

|  |                  |
|--|------------------|
| Color                                  | black (RAL 9005) |
|  | black (RAL 9005) |
| 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 |
|-----------------|----|

## Protective circuit

|  |                       |
|--|-----------------------|
| Mode of protection                         | L-N                   |
|  | L-PEN                 |
| Direction of action                        | L-N / L-PEN           |
| Nominal voltage $U_N$                      | 240 V AC (TN-C, TN-S) |
|  | 240 V AC (TT)         |
| Nominal frequency $f_N$                    | 50 Hz (60 Hz)         |
| Maximum continuous operating voltage $U_C$ | 335 V AC              |
| Rated load current $I_L$                   | 80 A                  |

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|   |   |
|---|---|
| Protective conductor current $I_{PE}$                                   | $\leq 800 \mu\text{A}$                              |
| Standby power consumption $P_C$   | $\leq 270 \text{ mVA}$                              |
| Nominal discharge current $I_n$ (8/20) $\mu\text{s}$                    | 12.5 kA   |
| Maximum discharge current $I_{max}$ (8/20) $\mu\text{s}$                | 50 kA   |
| Impulse discharge current (10/350) $\mu\text{s}$ , charge               | 6.25 As   |
| Impulse discharge current (10/350) $\mu\text{s}$ , specific energy      | 39 kJ/ $\Omega$                                     |
| Impulse discharge current (10/350) $\mu\text{s}$ , peak value $I_{imp}$ | 12.5 kA   |
| Total discharge current $I_{Total}$ (8/20) $\mu\text{s}$                | 12.5 kA   |
| Total discharge current $I_{Total}$ (10/350) $\mu\text{s}$              | 12.5 kA   |
| Short-circuit current rating $I_{SCCR}$                                 | 25 kA   |
| Voltage protection level $U_p$  | $\leq 1.2 \text{ kV}$                               |
|   | $\leq 1.6 \text{ kV}$ (30 kA - 8/20 $\mu\text{s}$ ) |
| Residual voltage $U_{res}$  | $\leq 1.2 \text{ kV}$ (at $I_n$ )                   |
|   | $\leq 1.1 \text{ kV}$ (at 10 kA)                    |
|   | $\leq 1 \text{ kV}$ (at 5 kA)                       |
|   | $\leq 0.9 \text{ kV}$ (at 3 kA)                     |
| TOV behavior at $U_T$   | 415 V AC (5 s / withstand mode)                     |
| Response time $t_A$   | $\leq 25 \text{ ns}$                                |
| Max. backup fuse with V-type through wiring                             | 80 A (gG - 16 mm <sup>2</sup> )                     |
| Max. backup fuse with branch wiring                                     | 160 A (gG)  |

## Additional technical data

|  |       |
|--|-------|
| Maximum discharge current $I_{max}$ (8/20) $\mu\text{s}$ | 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                                | $\leq 2000 \text{ m}$ (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)                    |

## Standards and regulations

|                          |              |
|--------------------------|--------------|
| Standards/specifications | IEC 61643-11 |
| Note                     | 2011         |
| Standards/specifications | EN 61643-11  |
| Note                     | 2012         |

## Mounting

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

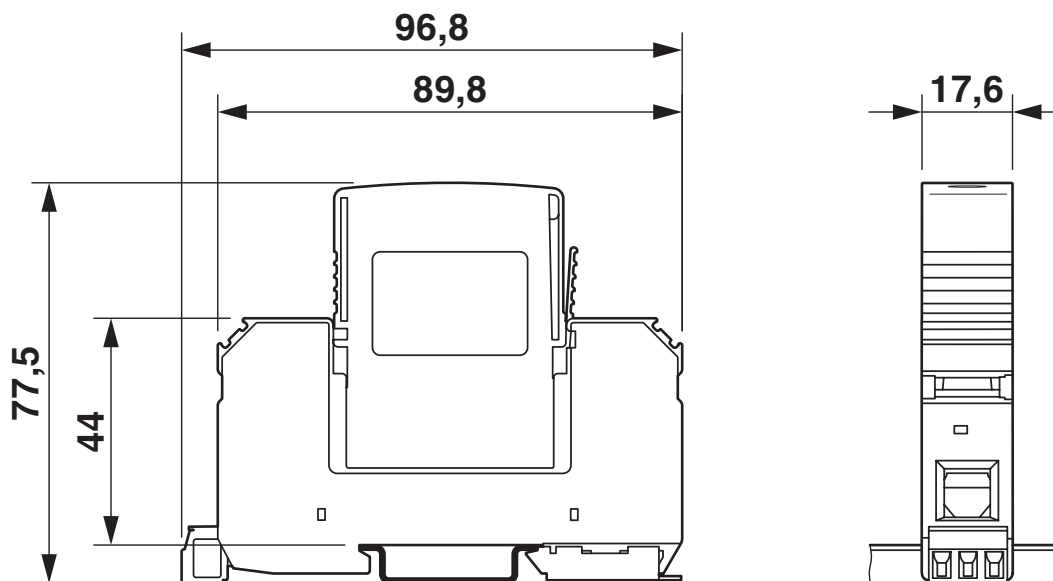
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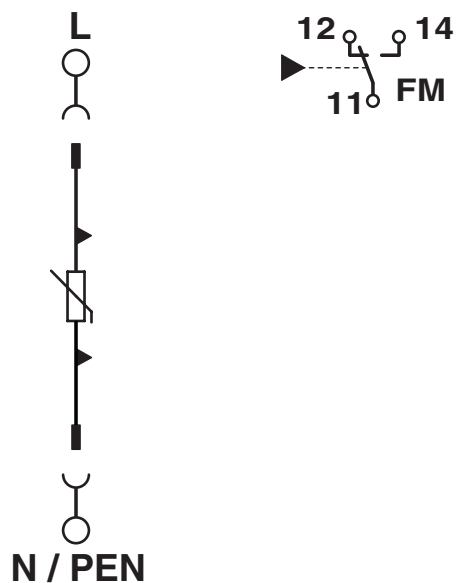
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## Drawings

Dimensional drawing



Circuit diagram



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## Approvals

🔗 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2801042>

### **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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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)