

# VAL-MS-T1/T2 335/12.5/3+1 - Lightning/surge arrester type 1/2



2800184

<https://www.phoenixcontact.com/us/products/2800184>

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 documentation. Our general terms of use for downloads are valid.



Universal varistor-based plug-in lightning/surge arrester for 3-phase power supply networks with separate N and PE (5-conductor system: L1, L2, L3, N, PE), 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
- 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                          | 2800184       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CL18          |
| Product key                          | CL1151        |
| GTIN                                 | 4046356518567 |
| Weight per piece (including packing) | 672.4 g       |
| Weight per piece (excluding packing) | 638 g         |
| Customs tariff number                | 85363030      |
| Country of origin                    | DE            |

# VAL-MS-T1/T2 335/12.5/3+1 - Lightning/surge arrester type 1/2



2800184

<https://www.phoenixcontact.com/us/products/2800184>

## 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        | TT                                      |
|                                | TN-S                                    |
| Type                           | DIN rail module, two-section, divisible |
| Number of positions            | 4                                       |
| Surge protection fault message | optical                                 |
| Number of ports                | One                                     |

### Insulation characteristics

|                      |     |
|----------------------|-----|
| Overvoltage category | III |
| Pollution degree     | 2   |

### Electrical properties

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

### Connection data

|                                  |   |
|----------------------------------|---|
| Connection method                | Screw connection                                    |
| Screw thread                     | M5  |
| Tightening torque                | 3 Nm (1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup> )  |
|                                  | 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>          |

### Dimensions

|                     |                                 |
|---------------------|---------------------------------|
| Dimensional drawing |                                 |
| Width               | 71.2 mm                         |
| Height              | 89.8 mm                         |
| Depth               | 77.5 mm (incl. DIN rail 7.5 mm) |

# VAL-MS-T1/T2 335/12.5/3+1 - Lightning/surge arrester type 1/2



2800184

<https://www.phoenixcontact.com/us/products/2800184>

|                  |        |
|------------------|--------|
| Horizontal pitch | 4 Div. |
|------------------|--------|

## Material specifications

|  |                  |
|--|------------------|
| Color                                  | 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<br>PBT    |

## Mechanical properties

### Mechanical data

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

## Protective circuit

|   |                        |
|---|------------------------|
| Mode of protection  | L-N                    |
|   | L-PE                   |
|   | N-PE                   |
| Direction of action   | 3L-N & N-PE            |
| Nominal voltage $U_N$   | 240/415 V AC (TN-S)    |
|   | 240/415 V AC (TT)      |
| Nominal frequency $f_N$   | 50 Hz (60 Hz)          |
| Maximum continuous operating voltage $U_C$ (L-N)                                | 335 V AC               |
| Maximum continuous operating voltage $U_C$ (L-PE)                               | 335 V AC               |
| Maximum continuous operating voltage $U_C$ (N-PE)                               | 264 V AC               |
| Rated load current $I_L$  | 80 A                   |
| Protective conductor current $I_{PE}$   | $\leq 5 \mu A$         |
| Standby power consumption $P_C$   | $\leq 810 \text{ mVA}$ |
| Nominal discharge current $I_n$ (8/20) $\mu s$ (L-N)                            | 12.5 kA                |
| Nominal discharge current $I_n$ (8/20) $\mu s$ (L-PE)                           | 12.5 kA                |
| Nominal discharge current $I_n$ (8/20) $\mu s$ (N-PE)                           | 50 kA                  |
| Maximum discharge current $I_{max}$ (8/20) $\mu s$                              | 50 kA                  |
| Impulse discharge current (10/350) $\mu s$ (L-N), charge                        | 6.25 As                |
| Impulse discharge current (10/350) $\mu s$ (L-N), specific energy               | 39 kJ/ $\Omega$        |
| Impulse discharge current (10/350) $\mu s$ (L-N), peak current value $I_{imp}$  | 12.5 kA                |
| Impulse discharge current (10/350) $\mu s$ (L-PE), charge                       | 6.25 As                |
| Impulse discharge current (10/350) $\mu s$ (L-PE), specific energy              | 39 kJ/ $\Omega$        |
| Impulse discharge current (10/350) $\mu s$ (L-PE), peak current value $I_{imp}$ | 12.5 kA                |
| Impulse discharge current (10/350) $\mu s$ (N-PE), charge                       | 25 As                  |
| Impulse discharge current (10/350) $\mu s$ (N-PE), specific energy              | 625 kJ/ $\Omega$       |

# VAL-MS-T1/T2 335/12.5/3+1 - Lightning/surge arrester type 1/2



2800184

<https://www.phoenixcontact.com/us/products/2800184>

|  |   |
|--|---|
| Impulse discharge current (10/350) $\mu\text{s}$ (N-PE), peak current value $I_{\text{imp}}$ | 50 kA   |
| Total discharge current $I_{\text{Total}}$ (8/20) $\mu\text{s}$                              | 50 kA   |
| Total discharge current $I_{\text{Total}}$ (10/350) $\mu\text{s}$                            | 50 kA   |
| Follow current interrupt rating $I_{\text{fi}}$ (N-PE)                                       | 100 A   |
| Short-circuit current rating $I_{\text{SCCR}}$   | 25 kA   |
| Voltage protection level $U_p$ (L-N)   | $\leq 1.2 \text{ kV}$<br>$\leq 1.6 \text{ kV}$ (30 kA - 8/20 $\mu\text{s}$ )  |
| Voltage protection level $U_p$ (L-PE)  | $\leq 2 \text{ kV}$   |
| Voltage protection level $U_p$ (N-PE)  | $\leq 1.7 \text{ kV}$   |
| Residual voltage $U_{\text{res}}$ (L-N)  | $\leq 1.2 \text{ kV}$ (at $I_n$ )<br>$\leq 1.1 \text{ kV}$ (at 10 kA)<br>$\leq 1 \text{ kV}$ (at 5 kA)<br>$\leq 0.9 \text{ kV}$ (at 3 kA)   |
| Residual voltage $U_{\text{res}}$ (L-PE)   | $\leq 2 \text{ kV}$ (at $I_n$ )<br>$\leq 1.5 \text{ kV}$ (at 10 kA)<br>$\leq 1.2 \text{ kV}$ (at 5 kA)<br>$\leq 1.1 \text{ kV}$ (at 3 kA)   |
| Residual voltage $U_{\text{res}}$ (N-PE)   | $\leq 0.6 \text{ kV}$ (at $I_n$ )<br>$\leq 0.5 \text{ kV}$ (at 10 kA)<br>$\leq 0.5 \text{ kV}$ (at 5 kA)<br>$\leq 0.4 \text{ kV}$ (at 3 kA) |
| TOV behavior at $U_T$ (L-N)  | 415 V AC (5 s / withstand mode)<br>457 V AC (120 min / safe failure mode)   |
| TOV behavior at $U_T$ (N-PE)   | 1200 V AC (200 ms / withstand mode)   |
| Response time $t_A$ (L-N)  | $\leq 25 \text{ ns}$  |
| Response time $t_A$ (L-PE)   | $\leq 100 \text{ ns}$   |
| Response time $t_A$ (N-PE)   | $\leq 100 \text{ ns}$   |
| 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 $I_{\text{max}}$ (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)                    |

# VAL-MS-T1/T2 335/12.5/3+1 - Lightning/surge arrester type 1/2



2800184

<https://www.phoenixcontact.com/us/products/2800184>

## Approvals

### UL specifications

|   |                          |
|---|--------------------------|
| Maximum continuous operating voltage MCOV (L-L) | 670 V AC                 |
| Maximum continuous operating voltage MCOV (L-N) | 335 V AC                 |
| Maximum continuous operating voltage MCOV (L-G) | 335 V AC                 |
| Maximum continuous operating voltage MCOV (N-G) | 264 V AC                 |
| Nominal discharge current $I_n$ (L-L)           | 20 kA                    |
| Nominal discharge current $I_n$ (L-N)           | 20 kA                    |
| Nominal discharge current $I_n$ (L-G)           | 20 kA                    |
| Nominal discharge current $I_n$ (N-G)           | 20 kA                    |
| Mode of protection                              | L-L<br>L-N<br>L-G<br>N-G |
| Nominal voltage                                 | 415/240 V AC             |
| Power distribution system                       | Wye                      |
| Nominal frequency                               | 50/60 Hz                 |
| Measured limiting voltage MLV (L-L)             | 3570 V                   |
| Measured limiting voltage MLV (L-N)             | 2630 V                   |
| Measured limiting voltage MLV (L-G)             | 3600 V                   |
| Measured limiting voltage MLV (N-G)             | 2600 V                   |
| SPD Type  | 4CA                      |

### UL connection data

|                             |                         |
|-----------------------------|-------------------------|
| Tightening torque           | 30 lb <sub>F</sub> ·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 |
|---------------|-----------------|

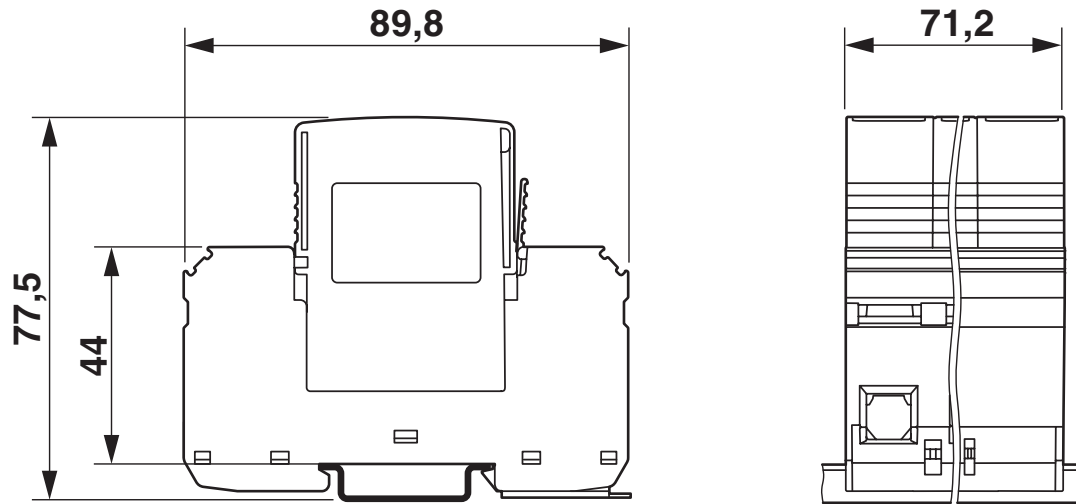
# VAL-MS-T1/T2 335/12.5/3+1 - Lightning/surge arrester type 1/2

2800184

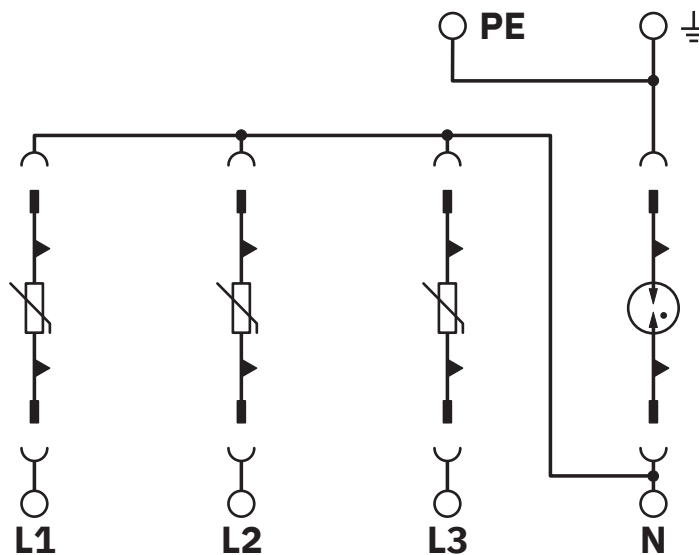
<https://www.phoenixcontact.com/us/products/2800184>

## Drawings

Dimensional drawing



Circuit diagram



# VAL-MS-T1/T2 335/12.5/3+1 - Lightning/surge arrester type 1/2



2800184

<https://www.phoenixcontact.com/us/products/2800184>

## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2800184>



**cUL Recognized**  
Approval ID: FILE E 330181



**UL Recognized**  
Approval ID: FILE E 330181



**IECEE CB Scheme**  
Approval ID: AT 2584

**CCA**

Approval ID: NTR-AT 1906



**KEMA-KEUR**  
Approval ID: 2162496-01



**DNV GL**  
Approval ID: TAE00001N9



**ÖVE**  
Approval ID: 18583-009-09

**UAE-RoHS**

Approval ID: 23-10-88705

# VAL-MS-T1/T2 335/12.5/3+1 - Lightning/surge arrester type 1/2



2800184

<https://www.phoenixcontact.com/us/products/2800184>

## Classifications

### ECLASS

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

### ETIM

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

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121600 |
|-------------|----------|

# VAL-MS-T1/T2 335/12.5/3+1 - Lightning/surge arrester type 1/2



2800184

<https://www.phoenixcontact.com/us/products/2800184>

## 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% |
|-------------------------------------|----------------------------|

### EF3.1 Climate Change

|         |                |
|---------|----------------|
| CO2e kg | 10.249 kg CO2e |
|---------|----------------|

Phoenix Contact 2026 © - all rights reserved  
<https://www.phoenixcontact.com>

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