

## Type 1 surge protection device - VAL-MS-T1/T2 335/12.5/3+0-FM - 2800188

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Universal varistor-based plug-in lightning arrester for 3-phase power supply networks with common N and PE (4-conductor system: L1, L2, L3, PEN), for Lightning Protection Levels III and IV, with remote indication contact.

### Product Features

- ✓ With or without floating remote indication contact
- ✓ Plugs can be checked with CHECKMASTER
- ✓ Secure hold of plugs in the event of high lightning current loads and strong vibrations thanks to new latching
- ✓ Mechanical coding of all slots
- ✓ Thermal disconnect device for each individual plug
- ✓ Optical, mechanical status indication for the individual arresters



### Key commercial data

|                  |               |
|------------------|---------------|
| package_quantity | 1             |
| GTIN             | 4046356518598 |

### Technical data

#### Dimensions

|            |         |
|------------|---------|
| Height     | 99 mm   |
| Width      | 53.4 mm |
| Depth      | 77.5 mm |
| Pitch unit | 3 Div.  |

#### Ambient conditions

|                                 |                  |
|---------------------------------|------------------|
| Degree of protection            | IP20             |
| Ambient temperature (operation) | -40 °C ... 80 °C |

#### General

|                                          |            |
|------------------------------------------|------------|
| IEC power supply system                  | TN-C       |
| Housing material                         | PBT / PA   |
| Inflammability class according to UL 94  | V0         |
| Color                                    | black      |
| Standards for air and creepage distances | EN 60664-1 |

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## Technical data

### General

|                                          |                                         |
|------------------------------------------|-----------------------------------------|
| Standards for air and creepage distances | EN 61643-11                             |
| Mounting type                            | DIN rail: 35 mm                         |
| Design                                   | DIN rail module, two-section, divisible |
| Number of positions                      | 3                                       |
| Message: Surge protection fault          | Optical, remote indicator contact       |
| Direction of action                      | 3L-PEN                                  |

### Protective circuit

|                                                             |                                                     |
|-------------------------------------------------------------|-----------------------------------------------------|
| IEC test classification                                     | I, II                                               |
| IEC test classification                                     | T1, T2                                              |
| EN type                                                     | T1, T2                                              |
| Nominal voltage $U_N$                                       | 240 V AC (230/400 V AC ... 240/415 V AC)            |
| Maximum continuous operating voltage $U_C$                  | 335 V AC                                            |
| Maximum continuous operating voltage $U_C$ (L-PEN)          | 335 V AC                                            |
| $U_T$ (TOV-proof)                                           | 415 V AC (5 s/L-PEN)                                |
| Nominal frequency $f_N$                                     | 50 Hz (60 Hz)                                       |
| Rated load current $I_L$                                    | 80 A (with serial 16mm <sup>2</sup> through wiring) |
| Residual current $I_{PE}$                                   | ≤ 5 μA (Per phase)                                  |
| Standby power consumption $P_C$                             | ≤ 268 mVA                                           |
| Max. discharge current $I_{max}$ (8/20) μs maximum (L-PEN)  | 150 kA (3 x L)                                      |
| Max. discharge current $I_{max}$ (8/20) μs maximum (L-PEN)  | 50 kA                                               |
| Nominal discharge current $I_n$ (8/20) μs (L-PEN)           | 37.5 kA (3 x L)                                     |
| Nominal discharge current $I_n$ (8/20) μs (L-PEN)           | 12.5 kA                                             |
| Impulse discharge current (10/350) μs, charge               | 18.75 As                                            |
| Impulse discharge current (10/350) μs, specific energy      | 352.00 kJ/Ω                                         |
| Impulse discharge current (10/350) μs, peak value $I_{imp}$ | 37.5 kA                                             |
| Impulse discharge current (10/350) μs, charge               | 6.25 As                                             |
| Impulse discharge current (10/350) μs, specific energy      | 39.00 kJ/Ω                                          |
| Impulse discharge current (10/350) μs, peak value $I_{imp}$ | 12.5 kA (1-pos.)                                    |
| Voltage protection level $U_p$                              | ≤ 1.2 kV                                            |
| Voltage protection level $U_p$ (L-PEN)                      | ≤ 1.2 kV                                            |
| Voltage protection level $U_p$ (L-PEN)                      | ≤ 1.6 kV (30 kA - 8/20μs)                           |
| Residual voltage (L-PEN)                                    | ≤ 1.1 kV                                            |
| Residual voltage (L-PEN)                                    | ≤ 1 kV (at 5 kA)                                    |
| Residual voltage (L-PEN)                                    | ≤ 0.9 kV (at 3 kA)                                  |
| Residual voltage (L-PEN)                                    | ≤ 1.2 kV (at $I_n$ )                                |
| Response time                                               | ≤ 25 ns                                             |
| Response time (L-PEN)                                       | ≤ 25 ns                                             |
| Max. required backup fuse with branch wiring                | 160 A (gL/gG)                                       |
| Max. required backup fuse with V-type through wiring        | 80 A (gL/gG / with 16 mm <sup>2</sup> )             |

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## Technical data

### Protective circuit

|                                                                                    |                      |
|------------------------------------------------------------------------------------|----------------------|
| <b>Short-circuit resistance <math>I_p</math> with max. backup fuse (effective)</b> | 25 kA <sub>rms</sub> |
|------------------------------------------------------------------------------------|----------------------|

### Connection, protective circuit

|                                               |                                |
|-----------------------------------------------|--------------------------------|
| <b>Connection method</b>                      | Screw connection               |
| <b>Connection type IN</b>                     | Biconnect screw terminal block |
| <b>Connection type OUT</b>                    | Biconnect screw terminal block |
| <b>Connection method</b>                      | Biconnect terminal block       |
| <b>Screw thread</b>                           | M5                             |
| <b>Tightening torque</b>                      | 4.5 Nm                         |
| <b>Stripping length</b>                       | 16 mm                          |
| <b>Conductor cross section stranded min.</b>  | 1.5 mm <sup>2</sup>            |
| <b>Conductor cross section stranded max.</b>  | 25 mm <sup>2</sup>             |
| <b>Conductor cross section solid min.</b>     | 1.5 mm <sup>2</sup>            |
| <b>Conductor cross section solid max.</b>     | 35 mm <sup>2</sup>             |
| <b>Conductor cross section AWG/kcmil min.</b> | 15                             |
| <b>Conductor cross section AWG/kcmil max</b>  | 2                              |

### Remote indicator contact

|                                                          |                                |
|----------------------------------------------------------|--------------------------------|
| <b>Connection name</b>                                   | Remote fault indicator contact |
| <b>Switching function</b>                                | PDT, 1-pos.                    |
| <b>Connection method</b>                                 | Screw connection               |
| <b>Screw thread</b>                                      | M2                             |
| <b>Tightening torque</b>                                 | 0.25 Nm                        |
| <b>Stripping length</b>                                  | 7 mm                           |
| <b>Conductor cross section stranded min.</b>             | 0.14 mm <sup>2</sup>           |
| <b>Conductor cross section stranded max.</b>             | 1.5 mm <sup>2</sup>            |
| <b>Conductor cross section solid min.</b>                | 0.14 mm <sup>2</sup>           |
| <b>Conductor cross section solid max.</b>                | 1.5 mm <sup>2</sup>            |
| <b>Conductor cross section AWG/kcmil min.</b>            | 28                             |
| <b>Conductor cross section AWG/kcmil max</b>             | 16                             |
| <b>Maximum operating voltage <math>U_{max}</math> AC</b> | 250 V AC                       |
| <b>Maximum operating voltage <math>U_{max}</math> DC</b> | 30 V DC                        |
| <b>Max. operating current <math>I_{max}</math></b>       | 1.5 A AC (250 V AC)            |
| <b>Max. operating current <math>I_{max}</math></b>       | 1.5 A DC (30 V DC)             |

### Standards and Regulations

|                              |                      |
|------------------------------|----------------------|
| <b>Standards/regulations</b> | IEC 61643-1 2005     |
| <b>Standards/regulations</b> | EN 61643-11/A11 2007 |

## classifications

eCI@ss

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## classifications

### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27140201 |
| eCl@ss 4.1 | 27130801 |
| eCl@ss 5.0 | 27130801 |
| eCl@ss 5.1 | 27130801 |
| eCl@ss 6.0 | 27130802 |
| eCl@ss 7.0 | 27130802 |
| eCl@ss 8.0 | 27130802 |

### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000941 |
| ETIM 3.0 | EC000941 |
| ETIM 4.0 | EC000381 |
| ETIM 5.0 | EC000381 |

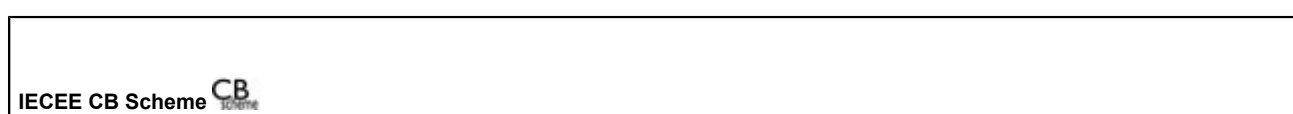
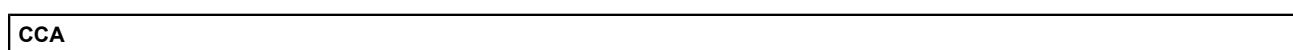
### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30212010 |
| UNSPSC 7.0901 | 39121610 |
| UNSPSC 11     | 39121610 |
| UNSPSC 12.01  | 39121610 |
| UNSPSC 13.2   | 39121620 |

## approvals

KEMA-KEUR / ÖVE / CCA / IEC EE CB Scheme / GL / IEC EE CB Scheme / UL Recognized / cUL Recognized / cULus Recognized /

### Approval details



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approvals

GL

CB  
10kV

UL Recognized 

cUL Recognized 

cULus Recognized 

accessories

**Labeled device marker**

ZBN 18,LGS:ERDE - 2749589



ZBN 18,LGS:L1-N,ERDE - 2749576



**Device marking**

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### accessories

ZBN 18:UNBEDRUCKT - 2809128



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### Marker pen

B-STIFT - 1051993



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### Feed-through terminal block

DK-BIC-35 - 2749880



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### accessories

ZBN 18:SO/CMS - 0800763



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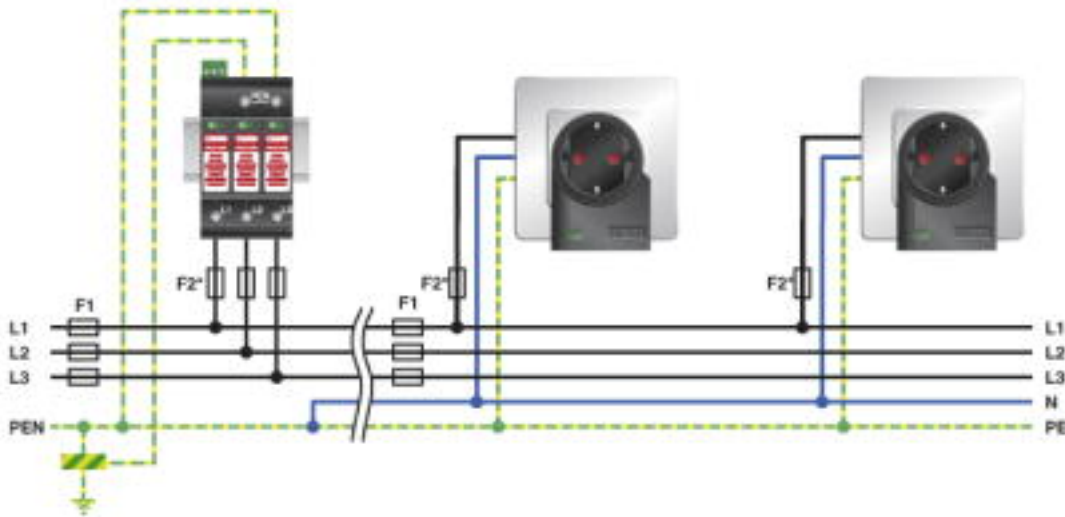
ZBN 18,LGS:L1-N,ERDE - 2830469



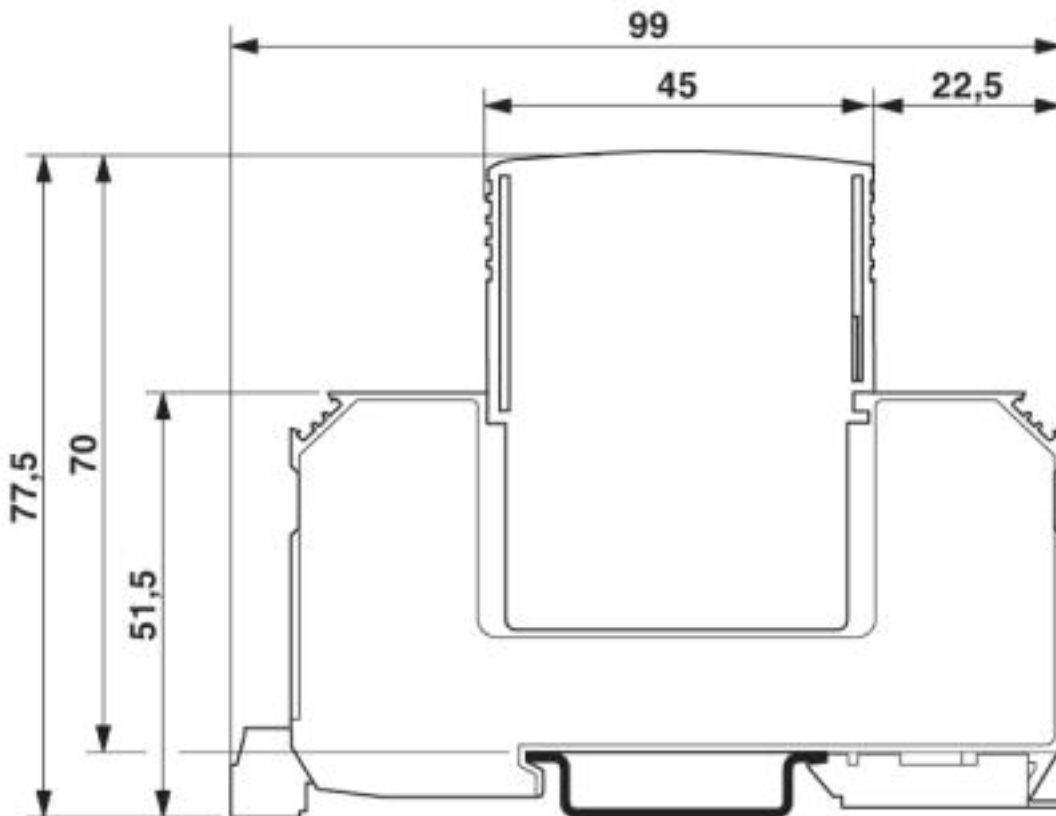
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### Drawings

#### Application drawing



#### Dimensioned drawing



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Circuit diagram

