

## Type 2 surge arrester - VAL-SEC-T2-1S-175-FM - 2905348

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Plug-in surge arrester, in accordance with Type 2/Class II, for 1-phase power supply networks with separate N and PE (3-conductor system: L1, N, PE), with remote indication contact.

### Your advantages

- ✓ Varistor arrester with a low leakage current
- ✓ High-performance gas-filled surge arrester for N/PE protection
- ✓ Extremely narrow design, just 12 mm per position
- ✓ High continuous voltage of 175 V AC for 120 V AC networks with high voltage fluctuations
- ✓ Pluggable
- ✓ Low voltage protection level of 0.85 kV
- ✓ Optical, mechanical status indicator
- ✓ With floating remote indication contact
- ✓ Plugs can be checked with CHECKMASTER 2



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 046356 948036 |
| GTIN                                 | 4046356948036   |
| Weight per Piece (excluding packing) | 207.800 g   |
| Custom tariff number                 | 85363030  |
| Country of origin                    | Germany   |

### Technical data

#### Dimensions

|                  |                                 |
|------------------|---------------------------------|
| Height           | 97.9 mm                         |
| Width            | 25.4 mm                         |
| Depth            | 74.5 mm (incl. DIN rail 7.5 mm) |
| Horizontal pitch | 1.4 Div.                        |

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## Technical data

### Ambient conditions

|   |   |
|---|---|
| Degree of protection                    | IP20                                    |
| 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)                   | 5g (10 ... 500 Hz / 2.5 h / X, Y, Z)    |

### General

|  |   |
|--|---|
| IEC test classification                | II                                      |
|  | T2                                      |
| EN type                                | T2                                      |
| IEC power supply system                | TN-S                                    |
|  | TT                                      |
| Mode of protection                     | L-N                                     |
|  | L-PE                                    |
|  | N-PE                                    |
| Mounting type                          | DIN rail: 35 mm                         |
| Color                                  | light grey RAL 7035                     |
|  | traffic grey A RAL 7042                 |
| Housing material                       | PA 6.6-FR 20 % GF                       |
|  | PBT-FR                                  |
| Degree of pollution                    | 2                                       |
| Flammability rating according to UL 94 | V-0                                     |
| Type                                   | DIN rail module, two-section, divisible |
| Number of positions                    | 2                                       |
| Surge protection fault message         | Optical, remote indicator contact       |

### Protective circuit

|   |  |
|---|--|
| Nominal voltage $U_N$                             | 120 V AC (TN-S)  |
|   | 120 V AC (TT)  |
| Nominal frequency $f_N$                           | 50 Hz (60 Hz)  |
| Maximum continuous operating voltage $U_C$ (L-N)  | 175 V AC   |
| Maximum continuous operating voltage $U_C$ (L-PE) | 175 V AC   |
| Maximum continuous voltage $U_C$ (N-PE)           | 150 V AC   |
| Rated load current $I_L$                          | 40 A (Biconnect M4 fork-type cable lug 6 mm <sup>2</sup> ) |
|   | 63 A (TWIN ferrule 2 x 10 mm <sup>2</sup> )                |
| Residual current $I_{PE}$                         | ≤ 1 μA   |
| Nominal discharge current $I_n$ (8/20) μs         | 20 kA  |
| Maximum discharge current $I_{max}$ (8/20) μs     | 40 kA  |
| Follow current interrupt rating $I_{fi}$ (N-PE)   | 100 A (150 V AC)   |

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### Protective circuit

|   |  |
|---|--|
| Short-circuit current rating $I_{SCCR}$     | 25 kA (for a backup fuse of up to 315 A gG)                      |
|   | 50 kA (for a backup fuse of up to 200 A gG)                      |
| Voltage protection level $U_p$ (L-N)        | $\leq 0.85$ kV   |
| Voltage protection level $U_p$ (L-PE)       | $\leq 1.3$ kV  |
| Voltage protection level $U_p$ (N-PE)       | $\leq 0.95$ kV   |
| Residual voltage $U_{res}$ (L-N)            | $\leq 0.85$ kV (at $I_n$ )                                       |
|   | $\leq 0.75$ kV (at 10 kA)  |
|   | $\leq 0.65$ kV (at 5 kA)   |
|   | $\leq 0.63$ kV (at 4 kA)   |
|   | $\leq 0.57$ kV (at 2 kA)   |
| Residual voltage $U_{res}$ (N-PE)           | $\leq 0.4$ kV (at $I_n$ )  |
|   | $\leq 0.4$ kV (at 10 kA)   |
|   | $\leq 0.4$ kV (at 5 kA)  |
|   | $\leq 0.4$ kV (at 4 kA)  |
|   | $\leq 0.4$ kV (at 2 kA)  |
| TOV behavior at $U_T$ (L-N)                 | 240 V AC (5 s / withstand mode)                                  |
|   | 240 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)                   | $\leq 25$ ns   |
| Response time $t_A$ (N-PE)                  | $\leq 100$ ns  |
| Max. backup fuse with V-type through wiring | 40 A (gG / Biconnect M4 fork-type cable lug, 6 mm <sup>2</sup> ) |
|   | 63 A (gG / TWIN ferrule 2x 10mm <sup>2</sup> )                   |
| Max. backup fuse with branch wiring         | 315 A (gG)   |

### Indicator/remote signaling

|                                  |  |
|----------------------------------|--|
| Switching function               | PDT contact                                  |
| Operating voltage                | 5 V AC ... 250 V AC                          |
|                                  | 125 V DC (200 mA DC)                         |
| Operating current                | 5 mA AC ... 1 A AC                           |
|                                  | 1 A DC (30 V DC)                             |
| 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 solid    | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section AWG      | 28 ... 16                                    |

### Connection data

|                   |                  |
|-------------------|------------------|
| Connection method | Screw connection |
| Screw thread      | M5               |

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## Technical data

### Connection data

|                                  |  |
|----------------------------------|--|
| Tightening torque                | 4.5 Nm                                     |
| Stripping length                 | 16 mm                                      |
| Conductor cross section flexible | 2.5 mm <sup>2</sup> ... 16 mm <sup>2</sup> |
| Conductor cross section solid    | 2.5 mm <sup>2</sup> ... 25 mm <sup>2</sup> |
| Conductor cross section AWG      | 12 ... 4                                   |
| Connection method                | Fork-type cable lug                        |
| Conductor cross section flexible | 1.5 mm <sup>2</sup> ... 6 mm <sup>2</sup>  |

### UL specifications

|   |              |
|---|--------------|
| SPD Type  | 4CA          |
| Maximum continuous operating voltage MCOV (L-N) | 175 V AC     |
| Maximum continuous operating voltage MCOV (L-G) | 175 V AC     |
| Maximum continuous operating voltage MCOV (N-G) | 150 V AC     |
| Nom. voltage                                    | 120 V AC     |
| Mode of protection                              | L-N          |
|   | L-G          |
|   | N-G          |
| Power distribution system                       | Single phase |
| Nominal frequency                               | 50/60 Hz     |
| Measured limiting voltage MLV (L-N)             | 1510 V       |
| Measured limiting voltage MLV (L-G)             | 1630 V       |
| Measured limiting voltage MLV (N-G)             | 560 V        |
| Nominal discharge current I <sub>n</sub> (L-N)  | 20 kA        |
| Nominal discharge current I <sub>n</sub> (L-G)  | 20 kA        |
| Nominal discharge current I <sub>n</sub> (N-G)  | 20 kA        |

### UL indicator/remote signaling

|                             |   |
|-----------------------------|---|
| Operating voltage           | 125 V AC  |
| Operating current           | 1 A AC  |
| Tightening torque           | 2 lb <sub>F</sub> -in. ... 4 lb <sub>F</sub> -in. |
| Conductor cross section AWG | 30 ... 14   |

### UL connection data

|                             |   |
|-----------------------------|---|
| Conductor cross section AWG | 14 ... 2 (solid)                                    |
|                             | 14 ... 4 (flexible)                                 |
| Tightening torque           | 40 lb <sub>F</sub> -in. ... 50 lb <sub>F</sub> -in. |

### Standards and Regulations

|                       |                   |
|-----------------------|-------------------|
| Standards/regulations | IEC 61643-11 2011 |
|                       | EN 61643-11 2012  |

### Environmental Product Compliance

|            |                |
|------------|----------------|
| REACH SVHC | Lead 7439-92-1 |
|------------|----------------|

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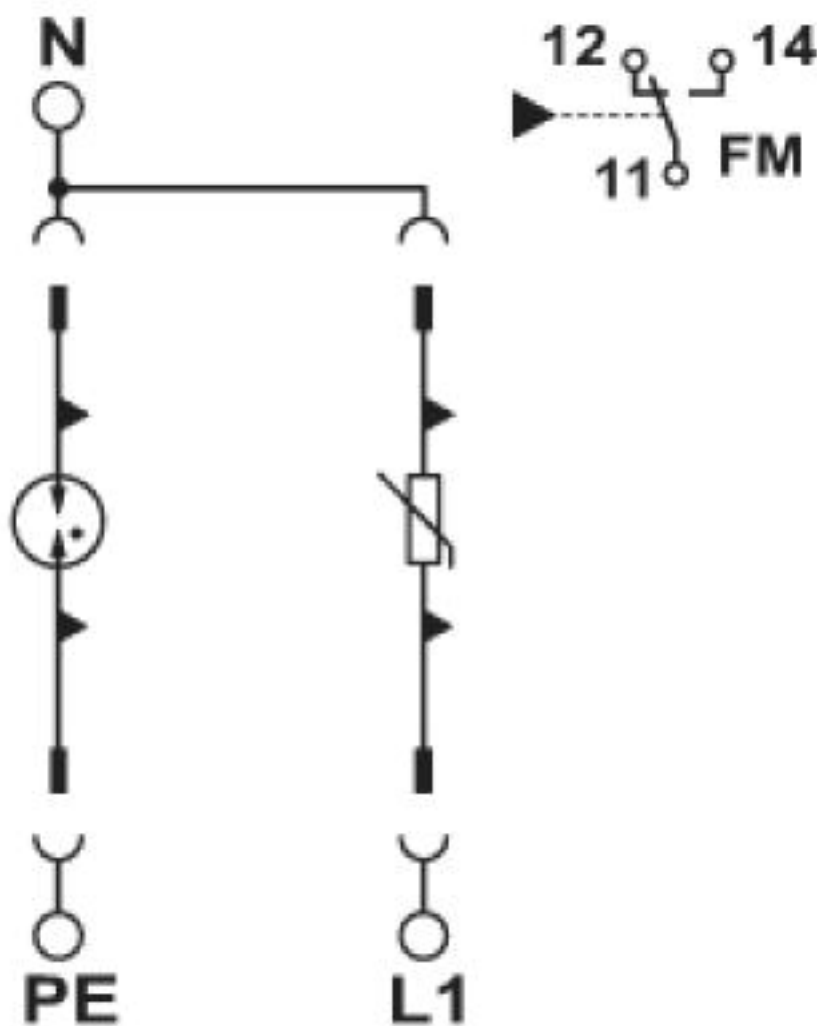
## Technical data

### Environmental Product Compliance

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

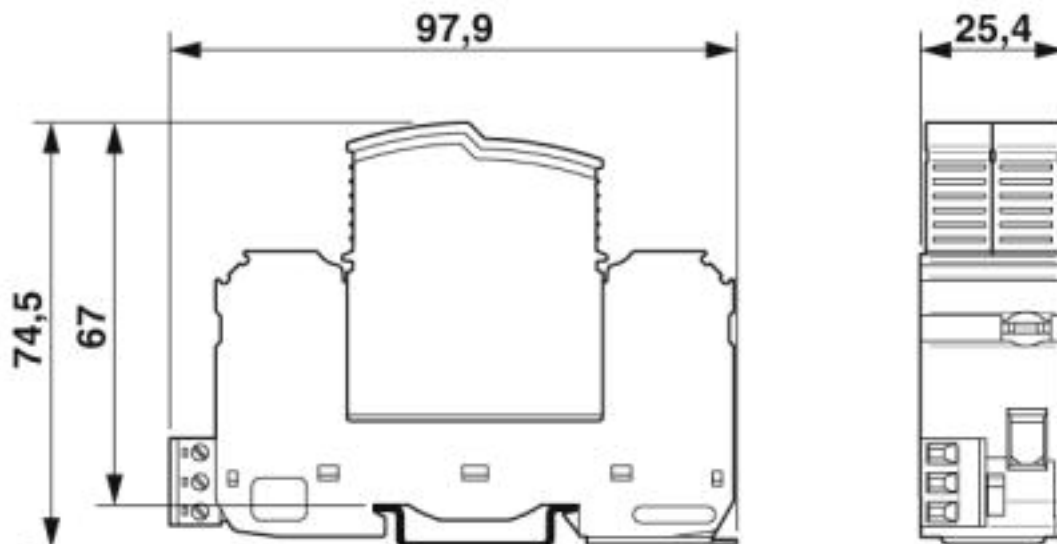
## Drawings

Circuit diagram



# Type 2 surge arrester - VAL-SEC-T2-1S-175-FM - 2905348

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 | 27130805 |
| eCl@ss 8.0 | 27130805 |
| eCl@ss 9.0 | 27130805 |

### ETIM

|          |          |
|----------|----------|
| ETIM 5.0 | EC000941 |
| ETIM 6.0 | EC000941 |
| ETIM 7.0 | EC000941 |

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 13.2 | 39121620 |
| UNSPSC 18.0 | 39121620 |
| UNSPSC 19.0 | 39121620 |
| UNSPSC 20.0 | 39121620 |
| UNSPSC 21.0 | 39121620 |

## Approvals

### Approvals

# Type 2 surge arrester - VAL-SEC-T2-1S-175-FM - 2905348

## Approvals

Approvals

DNV GL / CCA / UL Recognized / KEMA-KEUR / cUL Recognized / IECCEB Scheme / EAC / cULus Recognized

Ex Approvals

## Approval details

|                  |  |   |                         |
|------------------|--|---|-------------------------|
| DNV GL           |  | <a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>   | TAE000023D              |
| CCA              |  |   | NTR-NL 7347             |
| UL Recognized    |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 330181           |
| KEMA-KEUR        |  | <a href="http://www.dekra-certification.com">http://www.dekra-certification.com</a>   | 2196453.01              |
| cUL Recognized   |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 330181           |
| IECEE CB Scheme  |  | <a href="http://www.iecee.org/">http://www.iecee.org/</a>   | NL-34356                |
| EAC              |  |   | RU C-<br>DE.A*30.B01561 |
| cULus Recognized |  |   |                         |

## Accessories

Accessories

Device marking

## Type 2 surge arrester - VAL-SEC-T2-1S-175-FM - 2905348

### Accessories

Label - EML (20XE)R - 0803452



Label, Roll, white, unlabeled, can be labeled with: THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, THERMOMARK ROLL X1, THERMOMARK ROLL 2.0, THERMOMARK ROLL, mounting type: adhesive, lettering field size: continuous x 20 mm

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Label - EML (20XE)R YE - 0803453



Label, Roll, yellow, unlabeled, can be labeled with: THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, THERMOMARK ROLL X1, THERMOMARK ROLL 2.0, THERMOMARK ROLL, mounting type: adhesive, lettering field size: continuous x 20 mm

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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

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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

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End block

End clamp - CLIPFIX 35 - 3022218



Quick mounting end clamp for NS 35/7,5 DIN rail or NS 35/15 DIN rail, with marking option, width: 9.5 mm, color: gray

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Labeled device marker



## Type 2 surge arrester - VAL-SEC-T2-1S-175-FM - 2905348

### Accessories

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 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 pen

Marker pen - X-PEN 0,35 - 0811228



Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm

### Terminal marking

Flat zack marker sheet - ZBFM 5/WH:UNBEDRUCKT - 0803595



Flat zack marker sheet, Sheet, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snap into flat marker groove, for terminal block width: 5.2 mm, lettering field size: 5 x 4.5 mm, Number of individual labels: 120

### Spare parts

Type 2 surge protection plug - VAL-SEC-T2-175-P - 2905355



Replacement plug for surge arresters from the VALVETRAB SEC product range for L-N and L-PEN paths.

## Type 2 surge arrester - VAL-SEC-T2-1S-175-FM - 2905348

### Accessories

Type 2 surge protection plug - VAL-SEC-T2-N/PE-175-P - 2905356



Replacement plug for surge arresters from the VALVETRAB SEC product range for the N-PE path.