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

2905351

https://www.phoenixcontact.com/us/products/2905351

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Plug-in surge arrester, in accordance with Type 2/Class II, for 2-phase power supply networks with separate N and PE (4-conductor system: L1, L2, N, PE), with remote indication contact.

## Your advantages

- Surge protection family for universal use with optimum energy coordination from the lightning current arrester to the device protection
- Easy to maintain due to consistently pluggable protection modules
- Excellent level of information provided by mechanical/visual status indicator and remote indication contact
- More space in the control cabinet due to the narrow overall width of just 12 mm per position and use without separate backup fuse up to 315 A gG

## Commercial data

| | |
|---|---|
| Item number | 2905351 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CL01 |
| Product key | CL1351 |
| Catalog page | Page 57 (C-4-2019) |
| GTIN | 4046356948241 |
| Weight per piece (including packing) | 293.3 g |
| Weight per piece (excluding packing) | 295.8 g |
| Customs tariff number | 85363090 |
| Country of origin | DE |

# Technical data

## Product properties

| | |
|---|---|
| Product type | Surge arrester |
| Product family | SEC Family |
| IEC test classification | II |
| | T2 |
| EN type | T2 |
| IEC power supply system | TN-S |
| | TT |
| Type | DIN rail module, two-section, divisible |
| Number of positions | 3 |
| Surge protection fault message | Optical, remote indicator contact |

### 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 |
| | 125 V DC (200 mA DC) |
| Operating current | 5 mA AC ... 1 A AC |
| | 1 A DC (30 V DC) |

## Connection data

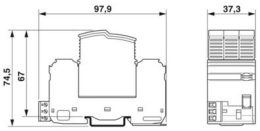
| | |
|---|---|
| Connection method | Screw connection |
| Screw thread | M5 |
| Tightening torque | 4.5 Nm |
| Stripping length | 16 mm |
| Conductor cross section flexible | 2.5 mm² ... 16 mm² |
| Conductor cross section rigid | 2.5 mm² ... 25 mm² |
| Conductor cross section AWG | 12 ... 4 |
| Connection method | Fork-type cable lug |
| Conductor cross section flexible | 1.5 mm² ... 6 mm² |

### Remote fault indicator contact

| | |
|---|---|
| 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 mm² ... 1.5 mm² |
| Conductor cross section rigid | 0.14 mm² ... 1.5 mm² |
| Conductor cross section AWG | 28 ... 16 |

## Dimensions

| | |
|---|---|
| Dimensional drawing |  |
| Width | 37.3 mm |
| Height | 97.9 mm |
| Depth | 74.5 mm (incl. DIN rail 7.5 mm) |
| Horizontal pitch | 2 Div. |

## Material specifications

| | |
|---|---|
| Color (Male connector) | light grey (RAL 7035) |
| Color (Base element) | gray (RAL 7042) |
| Flammability rating according to UL 94 | V-0 |
| CTI value of material | 600 |
| Insulating material | PA6.6-FR 20% GF |
| | PBT-FR |
| Material group | I |
| Housing material | PA 6.6-FR 20 % GF |
| | PBT-FR |

## Protective circuit

| | |
|---|---|
| Mode of protection | L-N |
| | L-PE |
| | N-PE |
| Direction of action | 2L-N & N-PE |
| Nominal voltage $U_N$ | 120/208 V AC (TN-S) |
| | 120/208 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 operating voltage $U_C$ (N-PE) | 150 V AC |
| Rated load current $I_L$ | 40 A (Biconnect M4 fork-type cable lug 6 mm²) |
| | 63 A (TWIN ferrule 2 x 10 mm²) |
| 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) |
| 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) | ≤ 0.85 kV |
| Voltage protection level $U_p$ (L-PE) | ≤ 1.3 kV |
| Voltage protection level $U_p$ (N-PE) | ≤ 0.95 kV |
| Residual voltage $U_{res}$ (L-N) | ≤ 0.85 kV (at $I_n$) |
| | ≤ 0.75 kV (at 10 kA) |
| | ≤ 0.65 kV (at 5 kA) |
| | ≤ 0.63 kV (at 4 kA) |
| | ≤ 0.57 kV (at 2 kA) |
| Residual voltage $U_{res}$ (N-PE) | ≤ 0.4 kV (at $I_n$) |
| | ≤ 0.4 kV (at 10 kA) |
| | ≤ 0.4 kV (at 5 kA) |
| | ≤ 0.4 kV (at 4 kA) |
| | ≤ 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) | ≤ 25 ns |
| Response time $t_A$ (L-PE) | ≤ 100 ns |
| Response time $t_A$ (N-PE) | ≤ 100 ns |
| Max. backup fuse with V-type through wiring | 40 A (gG / Biconnect M4 fork-type cable lug, 6 mm²) |
| | 63 A (gG / TWIN ferrule 2x 10mm²) |
| Max. backup fuse with branch wiring | 315 A (gG) |

## Environmental and real-life conditions

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) |
| 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) |

## Approvals

UL specifications

| | |
|---|---|
| Maximum continuous operating voltage MCOV (L-L) | 350 V AC |
| 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 |
| 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 |
| | L-N |
| | L-G |
| | N-G |
| Nominal voltage | 120/208 V AC |
| Power distribution system | Wye |
| Nominal frequency | 50/60 Hz |
| Measured limiting voltage MLV (L-L) | 2010 V |
| Measured limiting voltage MLV (L-N) | 1510 V |
| Measured limiting voltage MLV (L-G) | 1630 V |
| Measured limiting voltage MLV (N-G) | 560 V |
| Follow current (L-G) | 200 A (150 V AC) |
| SPD Type | 4CA |

UL indicator/remote signaling

| | |
|---|---|
| Operating voltage | 125 V AC |
| AC operating current | 1 A AC |

UL connection data

| | |
|---|---|
| Tightening torque | 40 $lb_f$-in. ... 50 $lb_f$-in. |
| Conductor cross section AWG | 14 ... 2 (solid) |
| | 14 ... 4 (flexible) |

## Standards and regulations

Air clearances and creepage distances

| | |
|---|---|
| Standards/regulations | DIN VDE 0110-1 / IEC 60664-1 / IEC 61643-11 / UL 1449 |
| Standards/specifications | IEC 61643-11 |
| Note | 2011 |

EN 61643-11

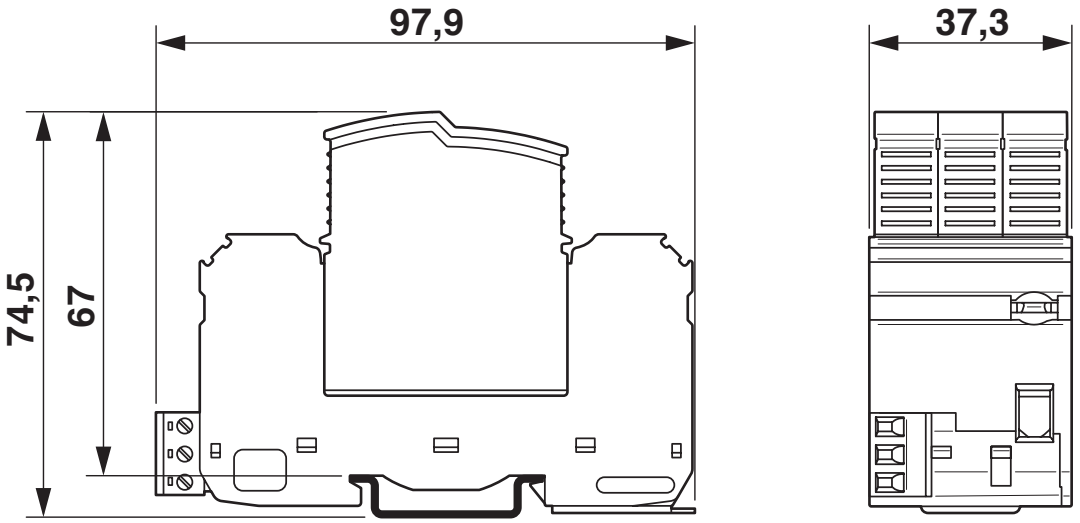
| | |
|---|---|
| Standards/specifications | EN 61643-11 |
| Note | 2012 |

## Mounting

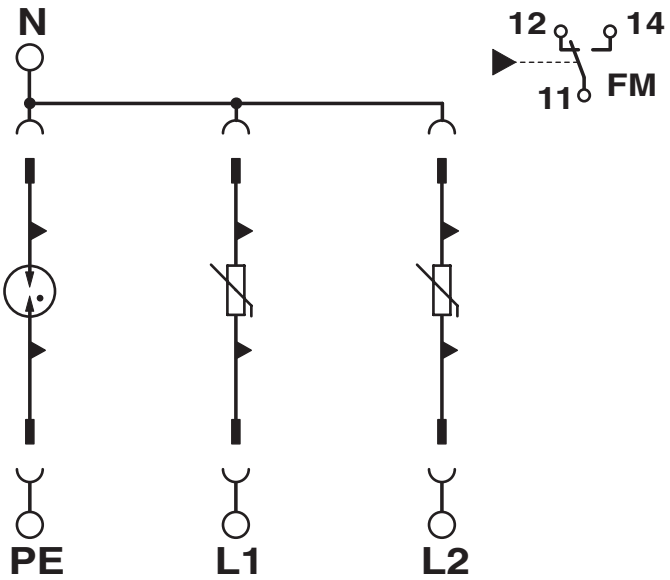
| | |
|---|---|
| Mounting type | DIN rail: 35 mm |

## Drawings

Dimensional drawing




Circuit diagram



## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2905351

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

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

**IECEE CB Scheme**
Approval ID: NL-34356

**EAC**
Approval ID: RU C-DE.*09.B.00169

**CCA**
Approval ID: NTR-NL 7347

**KEMA-KEUR**
Approval ID: 2196453.01

**DNV GL**
Approval ID: TAE000023D

**UAE-RoHS**
Approval ID: 23-10-88707

**cULus Recognized**

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-11.0 | 27130805 |
| ECLASS-13.0 | 27171202 |

### ETIM

| | |
|---|---|
| ETIM 9.0 | EC000941 |

### UNSPSC

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

## 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% |

## Accessories

### CLIPFIX 35 - End bracket

3022218

https://www.phoenixcontact.com/us/products/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

### EML (20XE)R - Label

0803452

https://www.phoenixcontact.com/us/products/0803452



Label, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: adhesive, lettering field size: continuous x 20 mm, Number of individual labels: 1

## EML (20XE)R YE - Label

0803453

https://www.phoenixcontact.com/us/products/0803453



Label, Roll, yellow, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: adhesive, lettering field size: continuous x 20 mm, Number of individual labels: 1

## ZBN 18:UNBEDRUCKT - Zack marker strip

2809128

https://www.phoenixcontact.com/us/products/2809128



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

## ZBN 18,LGS:L1-N,ERDE - Marker for terminal blocks

2749576

https://www.phoenixcontact.com/us/products/2749576




Marker for terminal blocks, Strip, white, labeled, horizontal: L1, L2, L3, N, GND, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

## ZBN 18,LGS:ERDE - Marker for terminal blocks

2749589

https://www.phoenixcontact.com/us/products/2749589



Marker for terminal blocks, Strip, white, labeled, horizontal: Grounding symbol, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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

0803595

https://www.phoenixcontact.com/us/products/0803595



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

## VAL-SEC-AGK-25 - Pick-off terminal block

1452282

https://www.phoenixcontact.com/us/products/1452282



Pick-off terminal block, can only be used in combination with VAL-SEC-T2 series, nominal voltage: 400 V, nominal current: 63 A, connection method: screw connection, rated cross-section: 25 $mm^2$, cross-section: 1.5 $mm^2$ ... 25 $mm^2$, color: gray

## ZBN 18 CUS - Zack marker strip

0825059

https://www.phoenixcontact.com/us/products/0825059



Zack marker strip, can be ordered: Strip, white, labeled according to customer specifications, 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

## X-PEN 0,35 - Marker pen

0811228

https://www.phoenixcontact.com/us/products/0811228



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

## SZK PZ2 VDE - Screwdriver

1206463

https://www.phoenixcontact.com/us/products/1206463



Screwdriver, PZ crosshead, VDE insulated, size: PZ 2 x 100 mm, 2-component grip, with non-slip grip

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

2905355

https://www.phoenixcontact.com/us/products/2905355



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

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

2905351

https://www.phoenixcontact.com/us/products/2905351

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

2905356

https://www.phoenixcontact.com/us/products/2905356



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

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