# VAL-SEC-T2-2+0-48DC-FM - Type 2 surge arrester

2907865

https://www.phoenixcontact.com/us/products/2907865

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Pluggable surge protective device, in accordance with Type 2/Class II, for DC power sources with linear operating characteristics, 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

## Commercial data

| | |
|---|---|
| Item number | 2907865 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CL01 |
| Product key | CL1353 |
| Catalog page | Page 58 (C-4-2019) |
| GTIN | 4055626244587 |
| Weight per piece (including packing) | 209.6 g |
| Weight per piece (excluding packing) | 206.6 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 | DC |
| Type | DIN rail module, two-section, divisible |
| Number of positions | 2 |
| 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) |
| Nominal voltage $U_N$ | 48 V DC ... 60 V DC |

Indicator/remote signaling

| | |
|---|---|
| Connection name | Remote fault indicator contact |
| Switching function | Changeover contact |
| Operating voltage | 5 V AC ... 250 V AC (Altitude ≤ 2000 m (amsl)) |
| | 5 V AC ... 150 V AC (Altitude > 2000 m (amsl)) |
| | 125 V DC (200 mA DC) |
| Operating current | 5 mA AC ... 1 A AC |
| | 1 A DC (30 V DC) |

### Connection data

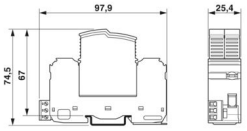
| | |
|---|---|
| Connection method | Screw connection |
| Screw thread | M5 |
| Tightening torque | 4.5 Nm |
| Stripping length | 16 mm |
| Conductor cross section flexible | 2.5 mm² ... 16 mm² |
| Conductor cross section rigid | 2.5 mm² ... 25 mm² |
| Conductor cross section AWG | 12 ... 4 |
| Connection 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 | 25.4 mm |
| Height | 97.9 mm |
| Depth | 74.5 mm (incl. DIN rail 7.5 mm) |
| Horizontal pitch | 1.4 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 | (DC+) - (DC-) |
| | (DC+) - PE |
| | (DC-) - PE |
| Direction of action | (DC+/DC-) - PE |
| Nominal voltage $U_N$ | 60 V AC (TN) |
| | 48 V DC ... 60 V DC |
| Nominal frequency $f_N$ | 50 Hz (60 Hz) |
| Maximum continuous voltage $U_C$ | 75 V DC |
| | 75 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 $I_{PE}$ | ≤ 50 µA DC |
| | ≤ 450 µA AC |
| Nominal discharge current $I_n$ (8/20) µs | 20 kA |
| Maximum discharge current $I_{max}$ (8/20) µs | 40 kA |
| Impulse discharge current (10/350) µs, charge | 2 As |

| | |
|---|---|
| Impulse discharge current (10/350) µs, specific energy | 4 kJ/Ω |
| Impulse discharge current (10/350) µs, peak value $I_{imp}$ | 4 kA |
| Total discharge current $I_{total}$ (8/20) µs | 40 kA |
| Short-circuit current rating $I_{SCCR}$ | 0.2 kA DC (without backup fuse) |
| | 6 kA DC (for 20 A gG/B backup fuse) |
| | 10 kA AC (C63 A miniature circuit breaker) |
| | 25 kA AC (for a backup fuse of up to 315 A gG) |
| | 50 kA AC (for a backup fuse of up to 200 A gG) |
| Voltage protection level $U_p$ (DC+) - (DC-) | ≤ 0.9 kV |
| Voltage protection level $U_p$ (DC+/DC-) - PE | ≤ 0.5 kV |
| Response time $t_A$ | ≤ 25 ns |
| Max. backup fuse with V-type through wiring | 20 A DC (gG / B at $I_{SCCR}$ > 200 A) |
| Max. backup fuse with branch wiring | 20 A DC (gG / B at $I_{SCCR}$ > 200 A) |
| | 315 A AC (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 | ≤ 6000 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

| | |
|---|---|
| Short-circuit current rating (SCCR) | 50 kA |
| Voltage protection rating VPR (DC+) - (DC-) | 800 V |
| Voltage protection rating VPR (DC+) - G | 400 V |
| Voltage protection rating VPR (DC-) - G | 400 V |
| Nominal discharge current $I_n$ | 20 kA |
| Mode of protection | (DC+) - (DC-) |
| | (DC+) - G |
| | (DC-) - G |
| Nominal voltage | 60 V DC |
| Power distribution system | DC |
| SPD Type | 1 |

UL indicator/remote signaling

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

UL connection data

| | |
|---|---|
| Tightening torque | 30 $lb_f$in. |
| Conductor cross section AWG | 10 ... 2 |

## Standards and regulations

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

EN 61643-11

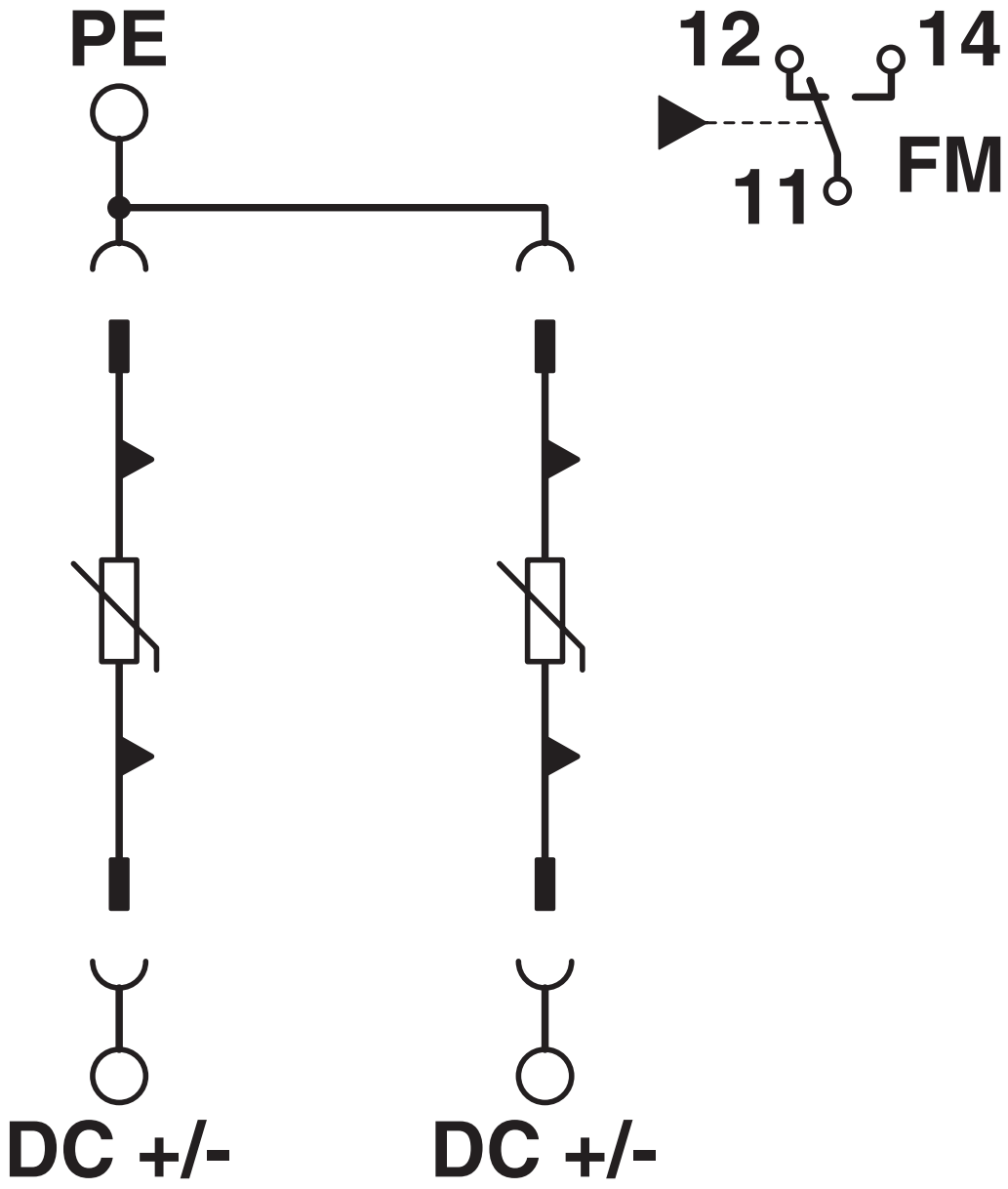
| | |
|---|---|
| Standards/specifications | EN 61643-11 |
| Note | 2012 |

## Mounting

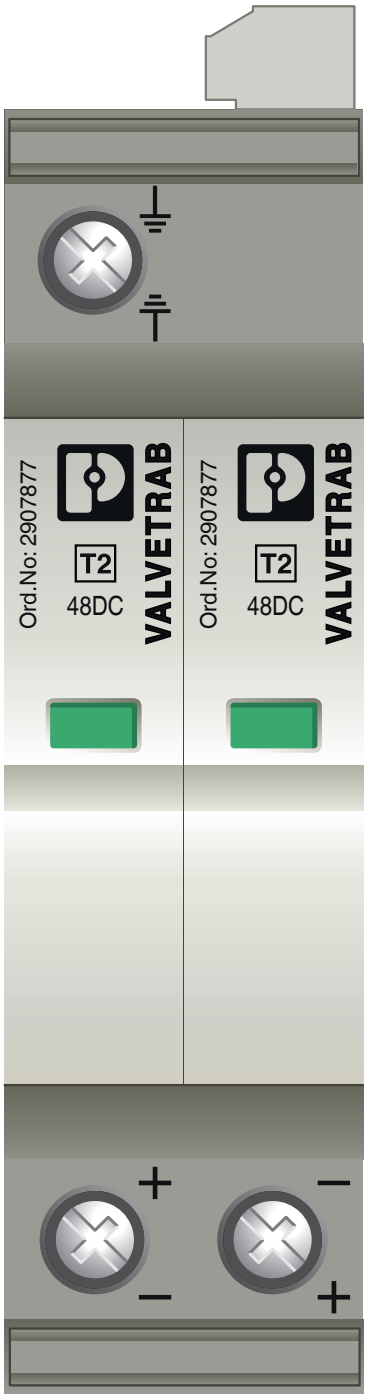
| | |
|---|---|
| Mounting type | DIN rail mounting |

## Drawings

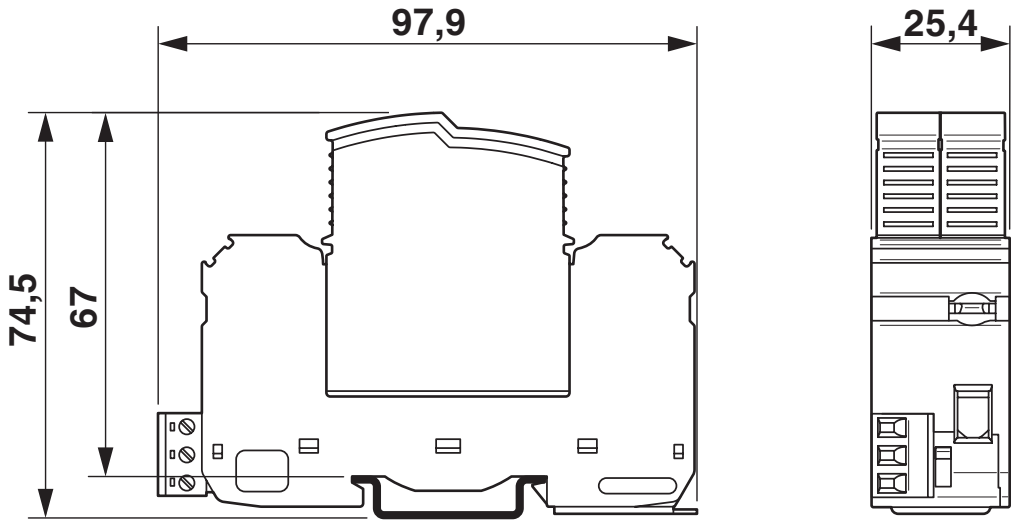
Circuit diagram



Product drawing



Dimensional drawing



## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2907865

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

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

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

**DNV GL**
Approval ID: TAE000023D

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

**cULus Recognized**

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-11.0 | 27130805 |
| ECLASS-13.0 | 27171302 |

### 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

## SZS 0,4X2,5 VDE - Screwdriver

1205037

https://www.phoenixcontact.com/us/products/1205037



Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip

# VAL-SEC-T2-2+0-48DC-FM - Type 2 surge arrester

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## VAL-SEC-T2-48DC-P - Type 2 surge protection plug

2907877

https://www.phoenixcontact.com/us/products/2907877



Replacement plug for surge protective devices from the VALVETRAB SEC product range for DC power sources.

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