# PT PE/S+1X2-24-ST - Surge protection plug

2819008

https://www.phoenixcontact.com/us/products/2819008

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Protective plug PT with surge voltage equipment protection for power supply units, visual error display, nominal voltage: 24 V and a 2-core floating signal circuit, nominal voltage: 24 V.

## Your advantages

- Easy testing and documentation with CHECKMASTER 2 with pluggable protective modules
- Maximum ease of maintenance, thanks to the 2-piece design
- Easy selection for all possible demands in MCR applications with a complete product portfolio
- The signal is not influenced during maintenance work, thanks to the impedance-neutral insertion and removal of protective plugs

## Commercial data

| | |
|---|---|
| Item number | 2819008 |
| Packing unit | 10 pc |
| Minimum order quantity | 10 pc |
| Sales key | CL21 |
| Product key | CL2111 |
| Catalog page | Page 123 (C-4-2019) |
| GTIN | 4017918819323 |
| Weight per piece (including packing) | 31.43 g |
| Weight per piece (excluding packing) | 25.833 g |
| Customs tariff number | 85363010 |
| Country of origin | DE |

## Technical data

### Product properties

| | |
|---|---|
| Product type | Surge protection for MCR technology |
| Product family | PLUGTRAB PT |
| IEC test classification | C1 |
| | C2 |
| | C3 |
| | D1 |
| Type | Male |
| Surge protection fault message | optical |
| Wire pairs per module | 1 |

Insulation characteristics

| | |
|---|---|
| Overvoltage category | III |
| Pollution degree | 2 |
| Arrester can be tested with CHECKMASTER from software version: | From SW rev. 1.00 |
| EN type | T3 |
| Number of ports | One |

### Electrical properties

| | |
|---|---|
| Nominal voltage $U_N$ | 24 V AC |

### Connection data

| | |
|---|---|
| Connection method | Screw connection (in connection with the base element) |
| Screw thread | M3 |
| Tightening torque | 0.5 Nm |
| Conductor cross section flexible | 0.2 mm² ... 2.5 mm² |
| Conductor cross section rigid | 0.2 mm² ... 4 mm² |
| Conductor cross section AWG | 24 ... 12 |
| Connection method | Screw connection (in connection with the base element) |
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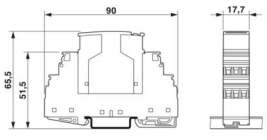
| Conductor cross section rigid | 0.2 mm² ... 4 mm² |
| Conductor cross section AWG | 24 ... 12 |

### Dimensions

| | |
|---|---|
| Dimensional drawing |  |

| | |
|---|---|
| Width | 17.5 mm |
| Height | 44.8 mm |
| Depth | 51.7 mm |
| Horizontal pitch | 1 Div. |
| Complete module width | 17.7 mm |
| Complete module height | 90 mm |
| Complete module depth | 65.5 mm |

## Material specifications

| | |
|---|---|
| Color | black (RAL 9005) |
| | Copper |
| Flammability rating according to UL 94 | V-0 |
| Insulating material | PA 6.6 |
| Housing material | PA 6.6 |

## Mechanical properties

Mechanical data

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

## Protective circuit

Power supplies

| | |
|---|---|
| Direction of action | L-N-PE & Signal Line-Signal Line-Earth Ground |
| Nominal voltage $U_N$ | 24 V AC |
| Nominal frequency $f_N$ | 50 Hz (60 Hz) |
| Maximum continuous voltage $U_C$ | 34 V AC |
| | 44 V DC |
| Rated load current $I_L$ | 6 A (30 °C) |
| Residual current $I_{PE}$ | ≤ 5 µA |
| Operating effective current $I_C$ at $U_C$ | ≤ 1.5 mA |
| Nominal discharge current $I_n$ (8/20) µs | 700 A |
| Maximum discharge current $I_{max}$ (8/20) µs | 2 kA |
| Combination wave $U_{OC}$ | 2 kV |
| Voltage protection level $U_p$ (L-N) | ≤ 0.18 kV |
| Voltage protection level $U_p$ (L-PE) | ≤ 0.55 kV |
| Residual voltage at Iamax, (L-N) | ≤ 0.17 kV (at $I_n$) |
| Residual voltage at Iamax, (L-PE) | ≤ 0.1 kV (at $I_n$) |
| Response time $t_A$ (L-N) | ≤ 25 ns |
| Response time $t_A$ (L-PE) | ≤ 100 ns |
| Short-circuit current rating $I_{SCCR}$ | 1.5 kA |
| | 1 kA |
| Max. backup fuse with branch wiring | 6 A (gG) |

Information technology

| | |
|---|---|
| Maximum continuous voltage $U_C$ | 40 V DC |

| | |
|---|---|
| | 28 V AC |
| Rated current | 450 mA (45 °C) |
| Operating effective current $I_C$ at $U_C$ | ≤ 5 µA |
| Residual current $I_{PE}$ | ≤ 2 µA |
| Nominal discharge current $I_n$ (8/20) µs (line-line) | 10 kA |
| Nominal discharge current $I_n$ (8/20) µs (line-ground) | 10 kA |
| Pulse discharge current $I_{imp}$ (10/350) µs (line-earth) | 2.5 kA |
| Total discharge current $I_{total}$ (8/20) µs | 20 kA |
| Max. discharge current $I_{max}$ (8/20) µs maximum (line-line) | 10 kA |
| Max. discharge current $I_{max}$ (8/20) µs maximum (line-earth) | 20 kA (in total) |
| Nominal pulse current Ian (10/1000) µs (line-line) | 23 A |
| Output voltage limitation at 1 kV/µs (line-line) spike | ≤ 55 V |
| Output voltage limitation at 1 kV/µs (line-earth) spike | 450 V |
| Output voltage limitation at 1 kV/µs (line-line) static | ≤ 55 V |
| Output voltage limitation at 1 kV/µs (line-earth) static | ≤ 25 V |
| Residual voltage at $I_n$ (conductor-conductor) | ≤ 55 V |
| Residual voltage with Ian (10/1000) µs (line-line) | ≤ 65 V |
| Voltage protection level $U_p$ (line-line) | ≤ 80 V (C2 - 10 kV / 5 kA) |
| Voltage protection level $U_p$ (line-earth) | ≤ 450 V (C2 - 10 kV / 5 kA) |
| Voltage protection level $U_p$ static (line-line) | ≤ 50 V (C2 - 10 kV / 5 kA) |
| Voltage protection level $U_p$ static (line-earth) | ≤ 50 V (C2 - 10 kV / 5 kA) |
| Response time $t_A$ (line-line) | ≤ 1 ns |
| Response time $t_A$ (line-earth) | ≤ 100 ns |
| Input attenuation aE, sym. | typ. 0.5 dB (≤ 1.5 MHz / 50 Ω) |
| | typ. 0.2 dB (≤ 500 kHz / 150 Ω) |
| | typ. 0.1 dB (≤ 100 kHz / 600 Ω) |
| Cut-off frequency fg (3 dB), sym. in 50 Ω system | typ. 8 MHz |
| Cut-off frequency fg (3 dB), sym. in 150 Ω system | typ. 3 MHz |
| Cut-off frequency fg (3 dB), sym. in 600 Ω system | typ. 800 kHz |
| Capacity (Core-Core) | typ. 1.1 nF |
| Capacity (Core-Earth) | typ. 4 pF |
| Resistance per path | 2.2 Ω ±10 % |
| Surge protection fault message | Optical, remote indicator contact |
| Max. required back-up fuse | 500 mA (T) |

## Environmental and real-life conditions

Ambient conditions

| | |
|---|---|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -40 °C ... 85 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Altitude | ≤ 2000 m (amsl) |
| Permissible humidity (operation) | 5 % ... 95 % |

## Standards and regulations

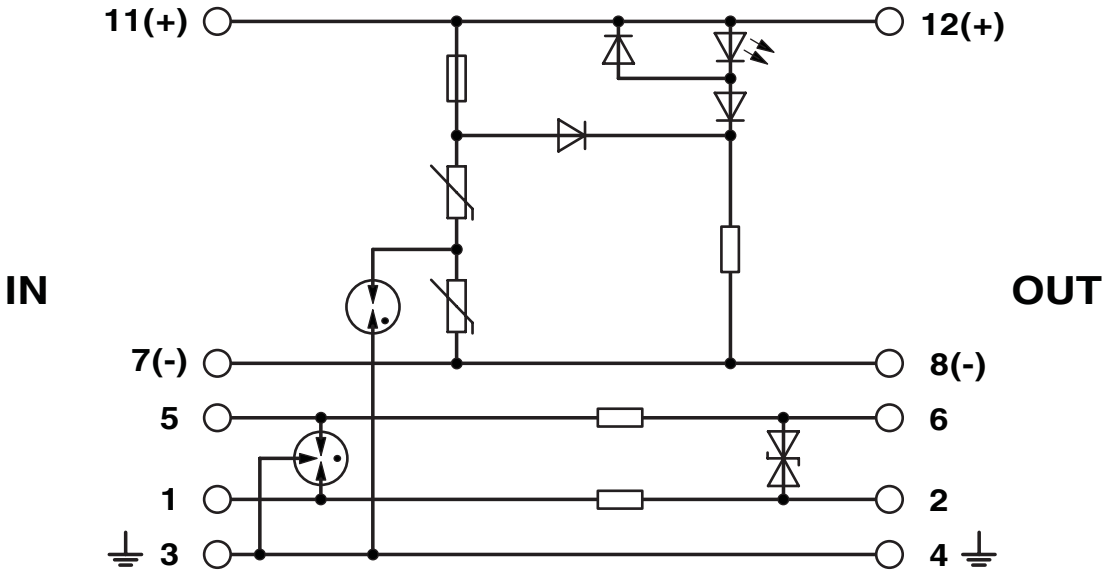
| | |
|---|---|
| Standards/specifications | IEC 61643-11 |
| Note | 2011 |
| Standards/specifications | EN 61643-11 |
| Note | 2012 |
| Standards/specifications | EN 61643-21 |
| Note | A2:2013 |

## Mounting

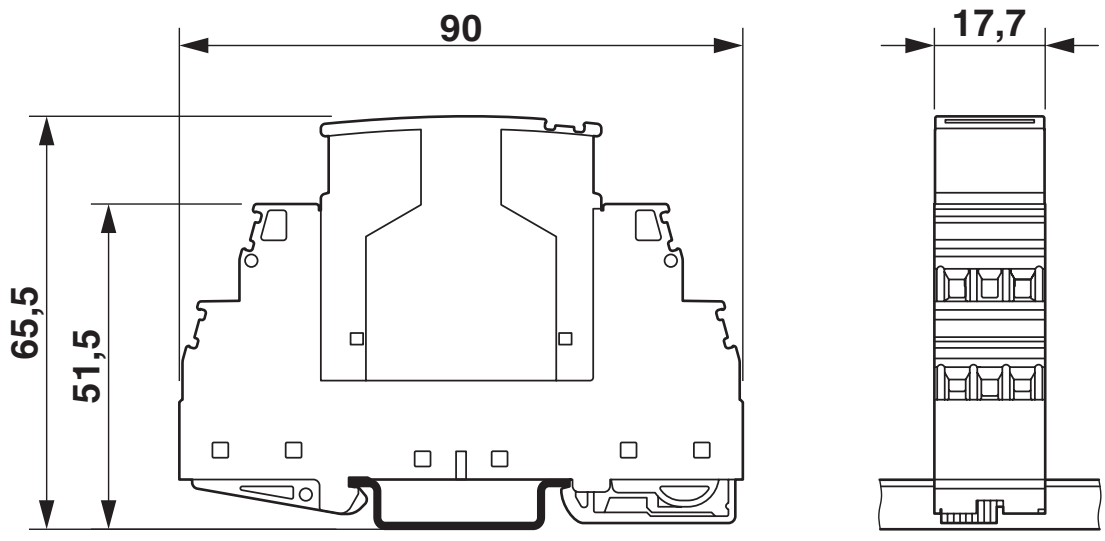
| | |
|---|---|
| Mounting type | on base element |

## Drawings

Circuit diagram




Dimensional drawing




The figure shows the complete module consisting of a base element and connector

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2819008

EAC
Approval ID: EAC-Zulassung

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

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-11.0 | 27130810 |
| ECLASS-13.0 | 27171602 |

### ETIM

| | |
|---|---|
| ETIM 9.0 | EC001473 |

### UNSPSC

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

## Environmental product compliance

EU RoHS

| | |
|---|---|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 7(a) |

China RoHS

| | |
|---|---|
| Environment friendly use period (EFUP) | EFUP-50 |
| | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

EU REACH SVHC

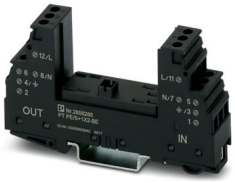
| | |
|---|---|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1) |
| SCIP | 9119892a-b46b-4fe9-9d5b-2bda7424128c |

## Mandatory accessories

### PT PE/S+1X2-BE - Surge protection base-element

2856265

https://www.phoenixcontact.com/us/products/2856265




Base element for protective plug PT with surge voltage device protection for the power supply unit and one 2-wire floating signal circuit, mounting on NS 35/7.5 and NS 35/15, housing width: 17.5 mm

## Accessories

### ZBF 5:UNBEDRUCKT - Zack Marker strip, flat

0808642

https://www.phoenixcontact.com/us/products/0808642



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.1 x 5.2 mm, Number of individual labels: 10

## ZBF 5/WH-100:UNBEDRUCKT - Zack Marker strip, flat

0808668

https://www.phoenixcontact.com/us/products/0808668



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 1000

## ZBF 5,LGS:FORTL.ZAHLEN - Zack Marker strip, flat

0808671

https://www.phoenixcontact.com/us/products/0808671




Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 491 ... 500, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

## ZBF 5,LGS:GERADE ZAHLEN - Zack Marker strip, flat

0810821

https://www.phoenixcontact.com/us/products/0810821




Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive even numbers 2 ... 20, 22 ... 40, etc. up to 82 ... 100, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

## ZBF 5,LGS:UNGERADE ZAHLEN - Zack Marker strip, flat

0810863

https://www.phoenixcontact.com/us/products/0810863




Zack Marker strip, flat, Strip, white, labeled, printed horizontally: Odd numbers 1 - 19, 21 - 39, etc. up to 81 - 99, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

## ZBF 5,QR:FORTL.ZAHLEN - Zack Marker strip, flat

0808697

https://www.phoenixcontact.com/us/products/0808697




Zack Marker strip, flat, Strip, white, labeled, Printed vertically: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... 100, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

## 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 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

## SZS 0,6X3,5 VDE - Screwdriver

1212602

https://www.phoenixcontact.com/us/products/1212602



Screwdriver, slot-headed, VDE insulated, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip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