

PT 1X2-24DC/FM-ST - Surge protection plug



2920078

<https://www.phoenixcontact.com/us/products/2920078>

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Surge protection plug with integrated diagnostic and status indicator on the module and remote indication contact for a 2-wire floating signal circuit.

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
- Permanent protective device monitoring with optical signaling via LED

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2920078 |
| Packing unit | 10 pc |
| Minimum order quantity | 10 pc |
| Sales key | CL21 |
| Product key | CL2112 |
| GTIN | 4046356154000 |
| Weight per piece (including packing) | 29.8 g |
| Weight per piece (excluding packing) | 27.05 g |
| Customs tariff number | 85363010 |
| Country of origin | DE |

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Technical data

Product properties

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

Insulation characteristics

| | |
|------------------|---|
| Pollution degree | 2 |
|------------------|---|

Electrical properties

| | |
|-----------------------|---------|
| Nominal voltage U_N | 24 V DC |
|-----------------------|---------|

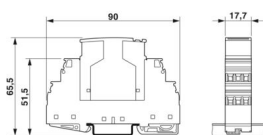
Indicator/remote signaling

| | |
|---|------------------|
| Switching function | N/C contact |
| Maximum operating voltage $U_{max. AC}$ | 250 V AC |
| Max. operating current I_{max} | 0.2 A (250 V AC) |
| | 0.2 A (220 V DC) |
| | 1 A (60 V AC) |
| | 1 A (60 V DC) |

Connection data

| | |
|----------------------------------|--|
| Connection method | Screw connection (in connection with the base element) |
| Screw thread | M3 |
| Tightening torque | 0.8 Nm |
| Conductor cross-section flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section rigid | 0.2 mm ² ... 4 mm ² |
| Conductor cross-section AWG | 24 ... 12 |

Dimensions

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

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| | |
|------------------------|---------|
| Width | 17.7 mm |
| Height | 45 mm |
| Depth | 52 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) |
| Flammability rating according to UL 94 | V-0 |
| Housing material | PA 6.6 |

Mechanical properties

Mechanical data

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

Protective circuit

| | |
|--|---|
| Direction of action | Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground |
| Nominal voltage U_N | 24 V DC |
| Maximum continuous operating voltage U_C | 28 V DC 20 V AC |
| Rated current | 450 mA (45 °C) |
| Operating effective current I_C at U_C | $\leq 5 \mu\text{A}$ |
| Standby power consumption P_C | $\leq 1.78 \text{ VA}$ |
| Protective conductor current I_{PE} | $\leq 2 \mu\text{A}$ (Directly grounded) $\leq 1 \mu\text{A}$ (with PT 1X2+F-BE) |
| 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 | 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) | 10 kA |
| Nominal pulse current I_{an} (10/1000) μs (line-line) | 33 A (25 °C) |
| Output voltage limitation at 1 kV/ μs (line-line) spike | $\leq 45 \text{ V}$ |
| Output voltage limitation at 1 kV/ μs (line-earth) spike | $\leq 450 \text{ V}$ $\leq 1 \text{ kV}$ (with PT 1X2+F-BE) |
| Output voltage limitation at 1 kV/ μs (line-line) static | $\leq 40 \text{ V}$ |
| Residual voltage at I_n (conductor-conductor) | $\leq 40 \text{ V}$ |
| Residual voltage with I_{an} (10/1000) μs (line-line) | $\leq 50 \text{ V}$ |
| Voltage protection level U_p (line-line) | $\leq 40 \text{ V}$ (C1 - 500 V / 250 A) $\leq 40 \text{ V}$ (C3 - 25 A) |
| Voltage protection level U_p (line-earth) | $\leq 450 \text{ V}$ (C2 - 10 kV / 5 kA) |

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| | |
|---|---|
| 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 MHz / 50 Ω) |
| | typ. 0.2 dB (≤ 400 kHz / 150 Ω) |
| Cut-off frequency f_g (3 dB), sym. in 50 Ω system | typ. 6 MHz |
| Cut-off frequency f_g (3 dB), sym. in 150 Ω system | typ. 2.5 MHz |
| Capacity (Core-Core) | typ. 1.4 nF |
| Capacity (Core-Earth) | typ. 4 pF |
| Resistance per path | 2.2 $\Omega \pm 10\%$ (7-8/11-12) |
| Surge protection fault message | Optical, remote indicator contact |
| Max. required back-up fuse | 500 mA (T) |
| Impulse durability (line-line) | C2 - 10 kV / 5 kA |
| | C3 - 25 A |
| Impulse durability (line-earth) | C2 - 10 kV / 5 kA |
| | D1 - 2.5 kA |
| | C3 - 100 A |
| Alternating current carrying capacity (line-earth) | 5 A - 1 s |

Environmental and real-life conditions

Ambient conditions

| | |
|---------------------------------|------------------|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -40 °C ... 85 °C |

Standards and regulations

| | |
|-----------------------|----|
| VDE requirement class | C1 |
| | C2 |
| | C3 |
| | D1 |

Air clearances and creepage distances

| | |
|--------------------------|--------------------------|
| Standards/regulations | VDE 0110-1 / IEC 60664-1 |
| Standards/specifications | IEC 61643-21 |
| Note | 2002 |

Mounting

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

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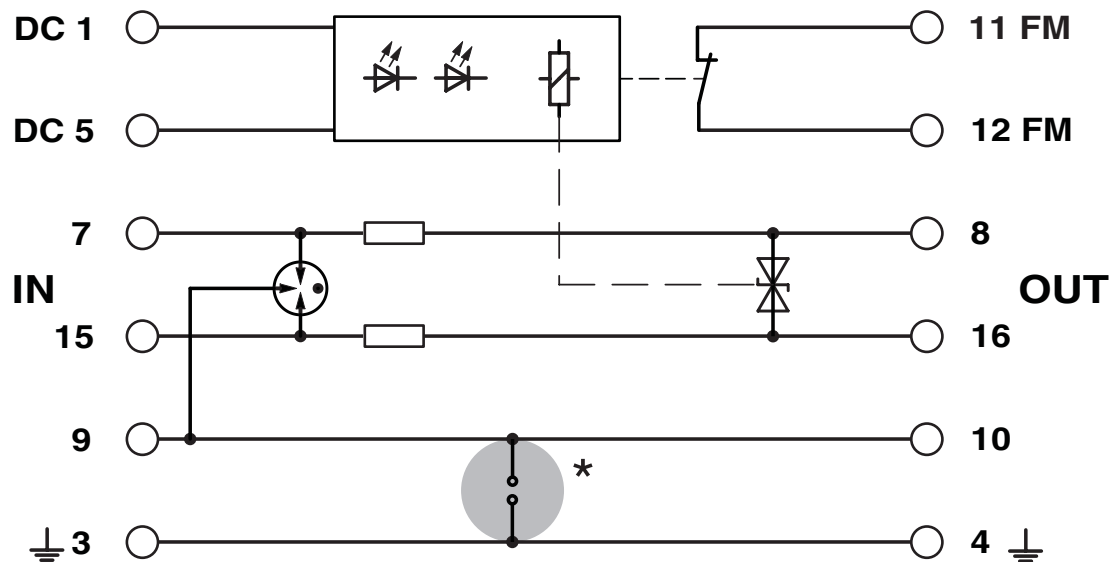
Drawings

Dimensional drawing



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

Circuit diagram



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Approvals

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UL Listed

Approval ID: FILE E 138168

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-13.0 | 27171501 |
| ECLASS-15.0 | 27171501 |

ETIM

| | |
|-----------|----------|
| ETIM 10.0 | EC001466 |
|-----------|----------|

UNSPSC

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

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Environmental product compliance

EU RoHS

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

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) |
| | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7) |
| SCIP | a03b3fa0-3b19-4ba0-8002-a635b02ed1cc |

EF3.1 Climate Change

| | |
|---------|---------------|
| CO2e kg | 2.654 kg CO2e |
|---------|---------------|

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