

PT-IQ-2X2+F-12DC-UT - Surge protection device



2800985

<https://www.phoenixcontact.com/gb/products/2800985>

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Surge protection, consisting of protective plug and base element, with integrated multi-stage status indicator on the module for two 2-wire floating signal circuits. Indirect grounding via gas discharge tube. Can be used in safety-related circuits up to SIL 3.

Your advantages

- Predictive monitoring with 3-stage LED display
- Integration of the status message into the system controller via group remote signaling
- Install quickly and error-free with DIN rail connectors
- Maximum ease of maintenance, thanks to the 2-piece design
- Maximum protection for MCR applications with high discharge capacity

Commercial data

| | |
|--------------------------------------|--------------------------------|
| Item number | 2800985 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Note | Made to order (non-returnable) |
| Sales key | CL2151 |
| Product key | CL2151 |
| GTIN | 4046356665735 |
| Weight per piece (including packing) | 126.9 g |
| Weight per piece (excluding packing) | 121.6 g |
| Customs tariff number | 85363010 |
| Country of origin | DE |

Technical data

Notes

General

| | |
|------|---|
| Note | Remote signaling as well as the power supply of the DIN rail connector are established by snapping the module into place on the DIN rail connector. |
|------|---|

Product properties

| | |
|--------------------------------|---|
| Product type | Surge protection for MCR technology |
| Product family | PLUGTRAB IQ |
| IEC test classification | C1 |
| | C2 |
| | C3 |
| | D1 |
| Type | DIN rail module, two-section, divisible |
| Surge protection fault message | Optical, multi-stage |
| Wire pairs per module | 2 |

Insulation characteristics

| | |
|----------------------|-----|
| Overvoltage category | III |
| Pollution degree | 2 |

Electrical properties

| | |
|-----------------------|---------|
| Nominal voltage U_N | 12 V DC |
|-----------------------|---------|

Connection data

| | |
|----------------------------------|---|
| Connection method | Screw connection |
| Screw thread | M3 |
| Tightening torque | 0.5 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 | |
| Width | 17.7 mm |
| Height | 91 mm |
| Depth | 77.5 mm (incl. DIN rail 7.5 mm) |

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| | |
|------------------|--------|
| Horizontal pitch | 1 Div. |
|------------------|--------|

Material specifications

| | |
|--|------------------|
| Color | black (RAL 9005) |
| | 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 | 12 V DC |
| Maximum continuous operating voltage U_C | 15 V DC |
| | 10 V AC |
| Nominal current I_N | 700 mA (50 °C) |
| Rated current | 700 mA (50 °C) |
| Operating effective current I_C at U_C | $\leq 1 \mu\text{A}$ (in the signal circuit) |
| Protective conductor current I_{PE} | $\leq 1 \mu\text{A}$ |
| Nominal discharge current I_n (8/20) μs (line-line) | 10 kA |
| Nominal discharge current I_n (8/20) μs (line-ground) | 10 kA |
| Nominal discharge current I_n (8/20) μs (line-signal ground) | 10 kA |
| Pulse discharge current I_{imp} (10/350) μs (line-earth) | 2.5 kA |
| Pulse discharge current I_{imp} (10/350) μs (line-signal ground) | 2.5 kA |
| Total discharge current I_{Total} (8/20) μs | 20 kA |
| Voltage protection level U_p (line-line) | $\leq 65 \text{ V}$ (C1 - 1 kV / 500 A) |
| | $\leq 95 \text{ V}$ (C2 - 10 kV / 5 kA) |
| | $\leq 110 \text{ V}$ (C2 - 10 kA) |
| | $\leq 35 \text{ V}$ (C3 - 25 A) |
| | $\leq 40 \text{ V}$ (C3 - 50 A) |
| Voltage protection level U_p (line-earth) | $\leq 900 \text{ V}$ (C1 - 1 kV / 500 A) |
| | $\leq 1300 \text{ V}$ (C2 - 10 kV / 5 kA) |
| | $\leq 1200 \text{ V}$ (C2 - 10 kA) |
| | $\leq 1000 \text{ V}$ (C3 - 25 A) |
| | $\leq 1300 \text{ V}$ (C3 - 100 A) |
| Voltage protection level U_p (line-signal ground) | $\leq 600 \text{ V}$ (C1 - 1 kV / 500 A) |
| | $\leq 750 \text{ V}$ (C2 - 10 kV / 5 kA) |
| | $\leq 800 \text{ V}$ (C2 - 10 kA) |
| | $\leq 700 \text{ V}$ (C3 - 25 A) |
| | $\leq 800 \text{ V}$ (C3 - 100 A) |
| Voltage protection level U_p static (line-line) | $\leq 45 \text{ V}$ (C1 - 1 kV / 500 A) |

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| | |
|--|------------------------------|
| | ≤ 50 V (C2 - 10 kA) |
| Response time t_A (line-line) | ≤ 1 ns |
| Response time t_A (line-earth) | ≤ 100 ns |
| Response time t_A (line-signal ground) | ≤ 100 ns |
| Input attenuation aE, sym. | typ. 0.3 dB (≤ 95 kHz/150 Ω) |
| Cut-off frequency f_g (3 dB), sym. in 150 Ω system | typ. 600 kHz |
| Capacity (Core-Core) | typ. 4 nF |
| Resistance per path | 1.2 Ω ±5 % |
| Surge protection fault message | Optical, multi-stage |
| Max. required back-up fuse | 800 mA (FF) |
| Impulse durability (line-line) | C1 - 1 kV / 500 A |
| | C2 - 10 kV / 5 kA |
| | C2 - 10 kA |
| | C3 - 50 A |
| Impulse durability (line-earth) | C1 - 1 kV / 500 A |
| | C2 - 10 kV / 5 kA |
| | C2 - 10 kA |
| | C3 - 100 A |
| | D1 - 2.5 kA |
| Impulse durability (line-signal ground) | C1 - 1 kV / 500 A |
| | C2 - 10 kV / 5 kA |
| | C2 - 10 kA |
| | C3 - 100 A |
| | D1 - 2,5 kA |
| Pulse reset time (line-line) | ≤ 25 ms |
| Pulse reset time (line-earth) | ≤ 50 ms |
| Pulse reset time (line-signal ground) | ≤ 50 ms |

Environmental and real-life conditions

Ambient conditions

| | |
|---|------------------|
| Degree of protection | IP20 |
| Ambient temperature (operation) | -40 °C ... 70 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Altitude | ≤ 4000 m (amsl) |

Standards and regulations

| | |
|--------------------------|--------------------------|
| Standards/specifications | IEC 61643-21 |
| Note | 2000 + A1:2008, modified |
| Standards/specifications | EN 61643-21 |
| Note | 2001 + A1:2009 |
| Standards/specifications | EN 61000-6-2 |
| Note | 2007 + A1:2011 |
| Standards/specifications | EN 61000-6-3 |
| Note | 2005 |

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Mounting

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

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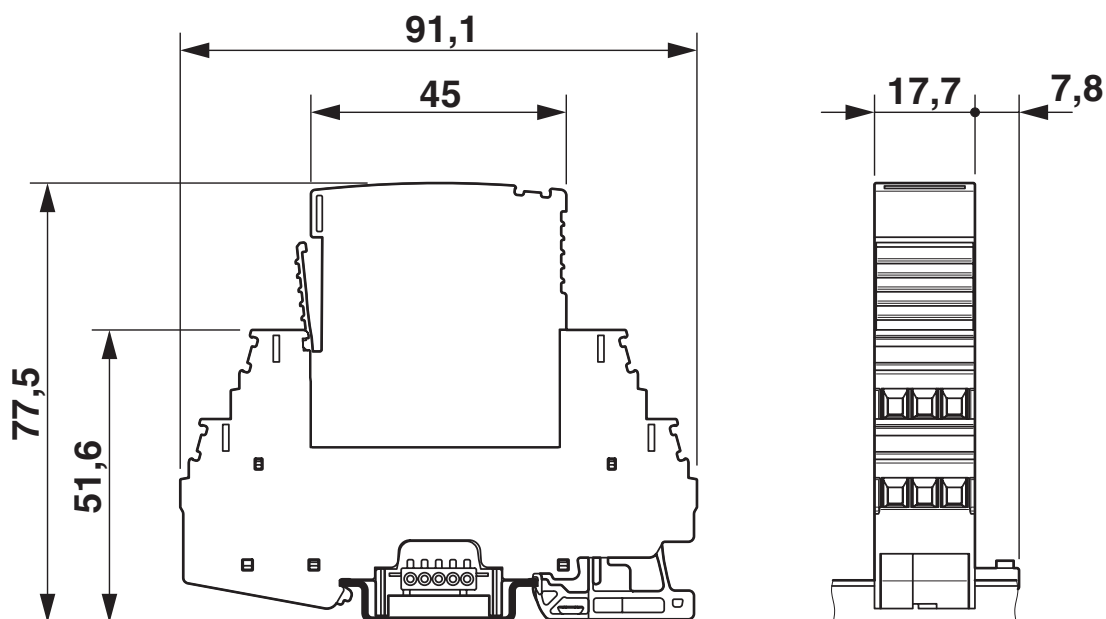


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Drawings

Dimensional drawing

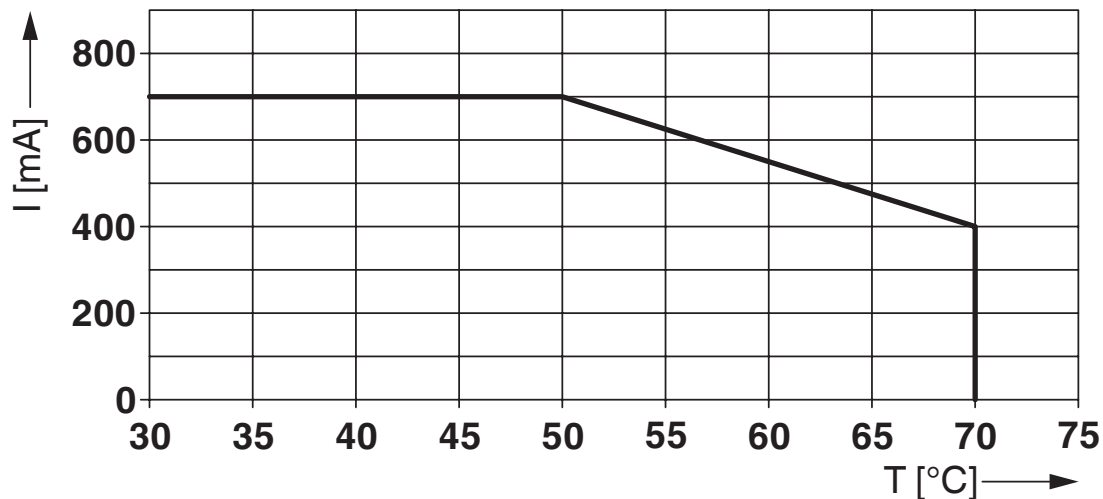


Schematic diagram

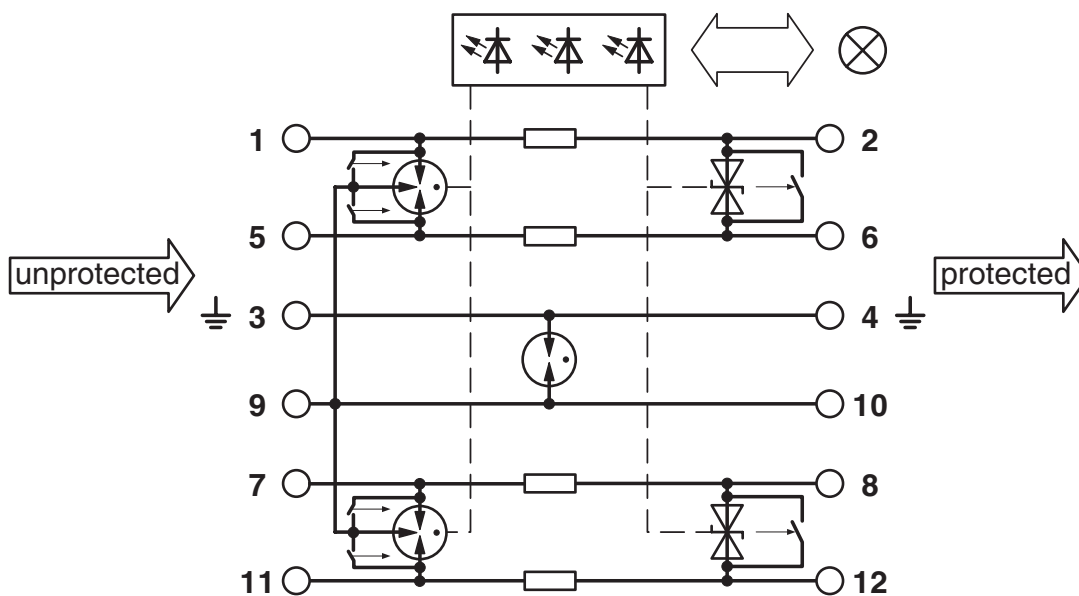
| PT-IQ-2X2+F-...DC-UT(PT) | | | | | | | | | |
|--|--------------------------|---------------------------|--------------------------|-------|--------------------------|----------------------------|------|--------------------------|-------|
| Category | 1oo1 architecture, HFT=0 | | | | 1oo2 architecture, HFT=1 | | | | |
| | PFD _{AVG} | PFH | Used budget of SIL 2 SIF | | PFD _{AVG} | PFH | CCF | Used budget of SIL 3 SIF | |
| | | | PFD _{AVG} | PFH | | | | PFD _{AVG} | PFH |
| | 1.07·10 ⁻⁵ | 1.90·10 ⁻⁹ 1/h | 0.1 % | 0.2 % | 5.34·10 ⁻⁷ | 9.50·10 ⁻¹¹ 1/h | 5 % | 0.1 % | 0.1 % |
| | | | | | 1.07·10 ⁻⁶ | 1.90·10 ⁻¹⁰ 1/h | 10 % | 0.1 % | 0.2 % |
| Calculation based on exida report, Phoenix Contact 13/04-032 R017 V4R0 exida Profile 1, FMEDA Analysis 2, T _{proof} : 1 year, MT: 10 years, MTTR: 24 hours, PTC: 99% Used standards IEC/EN 61508, edition 2010 (device specific) IEC/EN 61511, edition 2016 + COR1:2016 + A1:2017 (system specific) | | | | | | | | | |

Functional safety scenarios

Diagram



Circuit diagram



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Classifications

ECLASS

ECLASS-13.0

27171501

ETIM

ETIM 9.0

EC000943

UNSPSC

UNSPSC 21.0

39121600

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Environmental product compliance

EU RoHS

| | |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 6(c), 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 | baba1e99-d6a0-4831-80e9-290d13830dd5 |

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