

PT-IQ-5-HF-12DC-PT - Surge protection device



2801293

<https://www.phoenixcontact.com/us/products/2801293>

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Surge protection, consisting of protective plug and base element, with integrated multi-stage status indicator on the module for five signal wires. For HF applications and telecommunications interfaces without supply voltage (up to 90 Mbps). 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 | 2801293 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CL22 |
| Product key | CL2153 |
| GTIN | 4046356766746 |
| Weight per piece (including packing) | 126 g |
| Weight per piece (excluding packing) | 121 g |
| Customs tariff number | 85363010 |
| Country of origin | DE |

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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 information 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 |

Insulation characteristics

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

Electrical properties

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

Connection data

| | |
|----------------------------------|---|
| Connection method | Push-in connection |
| 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 |

Interfaces

| | |
|--------------------|---------|
| Transmission speed | 90 Mbps |
|--------------------|---------|

Dimensions

| | |
|---------------------|---------------------------------|
| Dimensional drawing | |
| Width | 17.7 mm |
| Height | 109.3 mm |
| Depth | 77.5 mm (incl. DIN rail 7.5 mm) |
| Horizontal pitch | 1 Div. |

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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 |
| Rated current | 600 mA (40 °C) |
| Operating effective current I_C at U_C | $\leq 100 \mu\text{A}$ (per path) |
| Protective conductor current I_{PE} | $\leq 100 \mu\text{A}$ (per path) |
| 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 |
| Voltage protection level U_p (line-line) | $\leq 90 \text{ V}$ (C1 - 1 kV / 500 A) |
| | $\leq 40 \text{ V}$ (C3 - 25 A) |
| | $\leq 40 \text{ V}$ (C3 - 50 A) |
| | $\leq 145 \text{ V}$ (C2 - 10 kV / 5 kA) |
| Voltage protection level U_p (line-earth) | $\leq 90 \text{ V}$ (C1 - 1 kV / 500 A) |
| | $\leq 145 \text{ V}$ (C2 - 10 kV / 5 kA) |
| | $\leq 40 \text{ V}$ (C3 - 25 A) |
| | $\leq 40 \text{ V}$ (C3 - 50 A) |
| Voltage protection level U_p static (line-line) | $\leq 55 \text{ V}$ (C1 - 1 kV / 500 A) |
| Voltage protection level U_p static (line-earth) | $\leq 55 \text{ V}$ (C1 - 1 kV / 500 A) |
| Response time t_A (line-line) | $\leq 1 \text{ ns}$ |
| Response time t_A (line-earth) | $\leq 1 \text{ ns}$ |
| Input attenuation aE, sym. | typ. 0.3 dB ($\leq 10 \text{ MHz}/150 \Omega$) |
| Input attenuation aE, asym. | typ. 0.3 dB ($\leq 10 \text{ MHz}/150 \Omega$) |
| Cut-off frequency f_g (3 dB), sym. in 150 Ω system | typ. 60 MHz |
| Capacity (Core-Core) | typ. 30 pF |
| Resistance per path | 1.2 $\Omega \pm 5 \%$ |
| Surge protection fault message | Optical, multi-stage |
| Max. required back-up fuse | 600 mA (FF) |
| | C1 - 1 kV / 500 A |

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| | |
|---------------------------------|-------------------|
| Impulse durability (line-line) | C2 - 10 kV / 5 kA |
| | C2 - 10 kA |
| | C3 - 25 A |
| | C3 - 50 A |
| Impulse durability (line-earth) | C1 - 1 kV / 500 A |
| | C2 - 10 kV / 5 kA |
| | C2 - 10 kA |
| | C3 - 25 A |
| | C3 - 50 A |
| | D1 - 2.5 kA |
| Pulse reset time (line-line) | ≤ 15 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

Air clearances and creepage distances

| | |
|--------------------------|--------------------------|
| Standards/regulations | IEC 60664-1 |
| Standards/specifications | IEC 61643-21 |
| Note | 2000 + A1:2008 + A2:2012 |
| Standards/specifications | EN 61643-21 |
| Note | 2001 + A1:2009 + A2:2013 |
| Standards/specifications | EN 61000-6-2 |
| Note | 2005 |
| Standards/specifications | EN 61000-6-3 |
| Note | 2007 + A1:2011 |

Mounting

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

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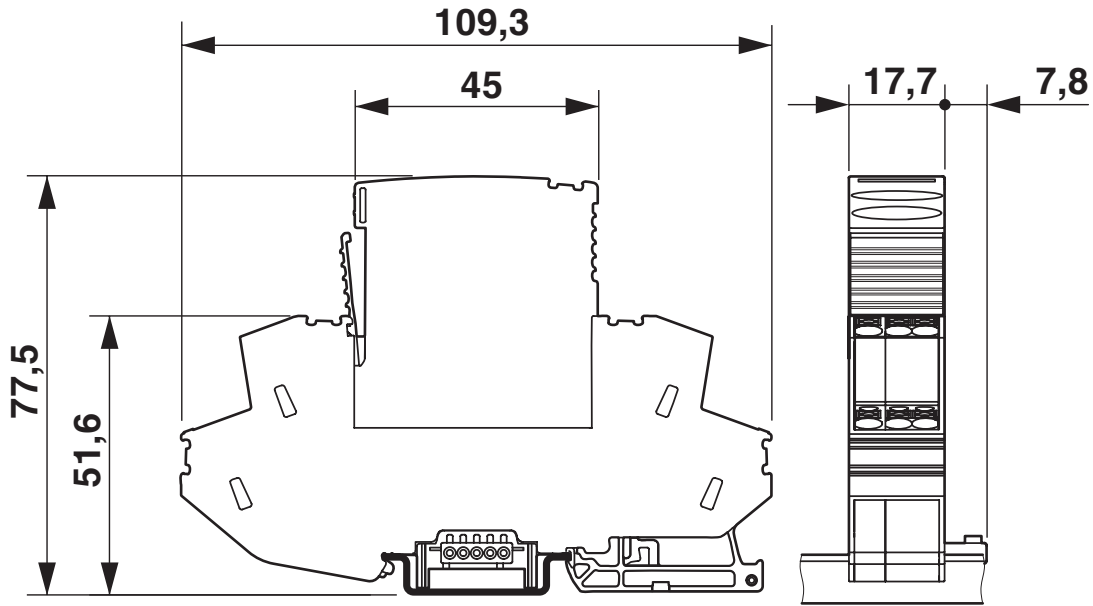


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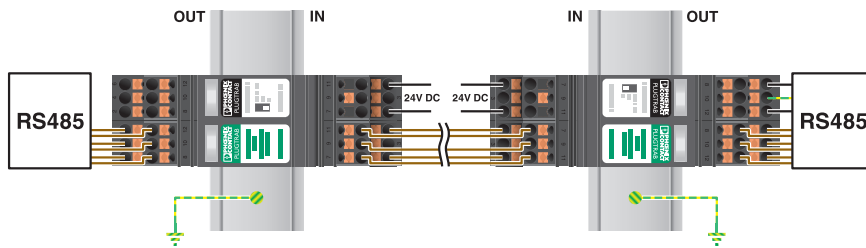
<https://www.phoenixcontact.com/us/products/2801293>

Drawings

Dimensional drawing



Application drawing



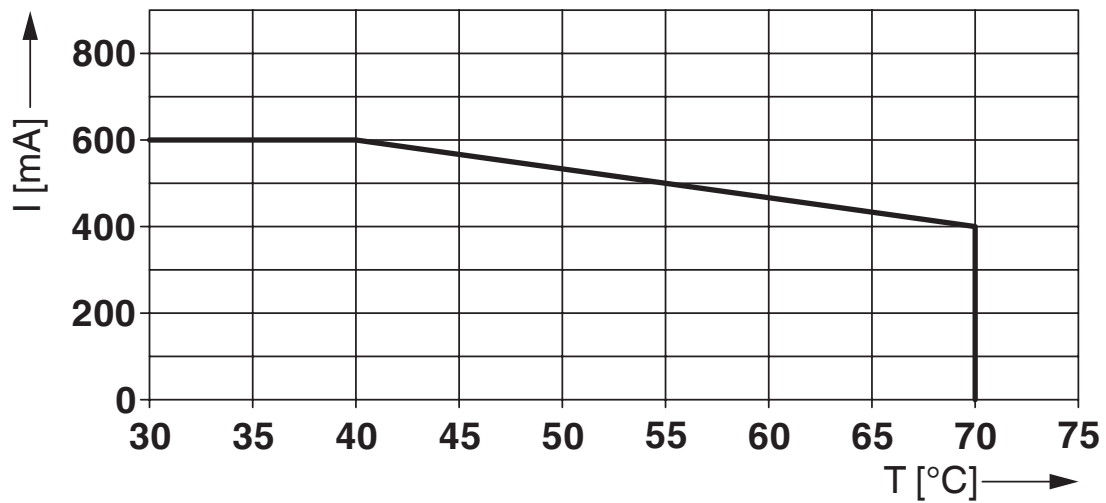
Schematic diagram

| 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) | | | | | | | | | |

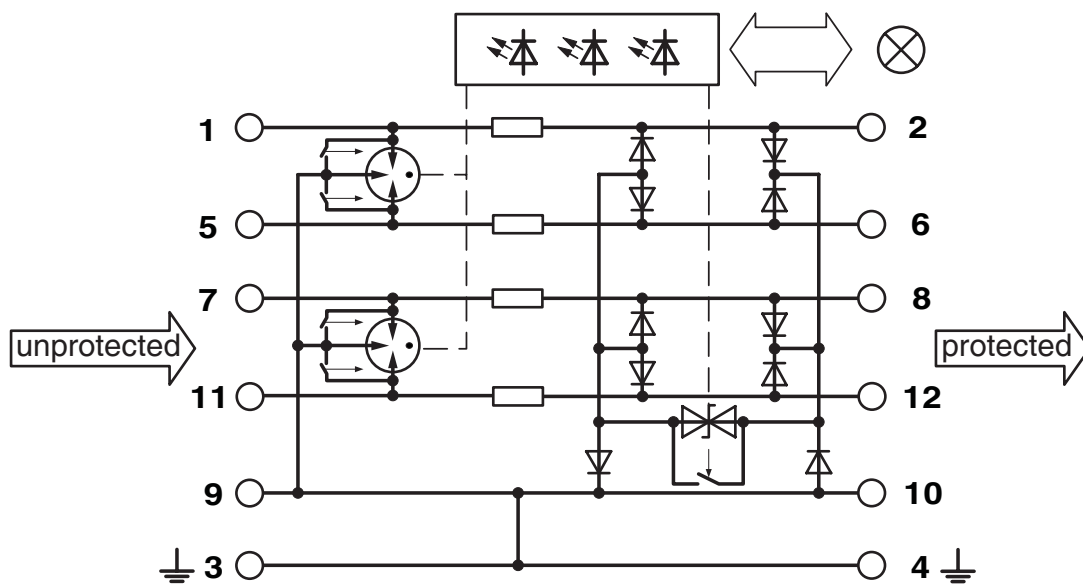
Functional safety scenarios

Table also applies to the PT-IQ-5-HF-...DC-UT(PT) item group

Diagram



Circuit diagram



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2801293>



CSA

Approval ID: 2761632



UL Listed

Approval ID: FILE E 138168



CSAus

Approval ID: 2761632

Functional Safety

Approval ID: 13-04-032 R017 V4R0

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-13.0 | 27171503 |
| ECLASS-15.0 | 27171503 |

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 | 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 | ca965997-4604-41ef-b6db-62ab6d978eb9 |

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