

2801295

<https://www.phoenixcontact.com/us/products/2801295>

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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                          | 2801295       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CL22          |
| Product key                          | CL2153        |
| GTIN                                 | 4046356766753 |
| Weight per piece (including packing) | 128.133 g     |
| Weight per piece (excluding packing) | 122 g         |
| Customs tariff number                | 85363010      |
| Country of origin                    | DE            |

# PT-IQ-5-HF+F-12DC-PT - Surge protection device



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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 |
|-----------------------|---------|

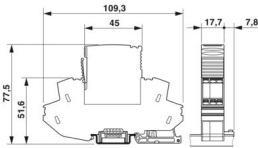
### Connection data

|                                  |                     |
|----------------------------------|---------------------|
| Connection method                | Push-in connection  |
| Conductor cross-section flexible | 0.2 mm² ... 2.5 mm² |
| Conductor cross-section rigid    | 0.2 mm² ... 4 mm²   |
| 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 |
| Maximum continuous operating voltage $U_C$                      | 15 V DC                                                                            |
|                                                                 | 10 V AC                                                                            |
| Rated current                                                   | 600 mA (40 °C)                                                                     |
| Operating effective current $I_C$ at $U_C$                      | $\leq 100 \mu A$ (per path)                                                        |
| Protective conductor current $I_{PE}$                           | $\leq 10 \mu A$ (per path)                                                         |
| Nominal discharge current $I_n$ (8/20) $\mu s$ (line-line)      | 10 kA                                                                              |
| Nominal discharge current $I_n$ (8/20) $\mu s$ (line-ground)    | 10 kA                                                                              |
| Pulse discharge current $I_{imp}$ (10/350) $\mu s$ (line-earth) | 2.5 kA                                                                             |
| Total discharge current $I_{Total}$ (8/20) $\mu s$              | 20 kA                                                                              |
| Voltage protection level $U_p$ (line-line)                      | $\leq 90 V$ (C1 - 1 kV / 500 A)                                                    |
|                                                                 | $\leq 40 V$ (C3 - 25 A)                                                            |
|                                                                 | $\leq 40 V$ (C3 - 50 A)                                                            |
|                                                                 | $\leq 145 V$ (C2 - 10 kV / 5 kA)                                                   |
| Voltage protection level $U_p$ (line-earth)                     | $\leq 730 V$ (C1 - 1 kV / 500 A)                                                   |
|                                                                 | $\leq 900 V$ (C2 - 10 kV / 5 kA)                                                   |
|                                                                 | $\leq 900 V$ (C3 - 25 A)                                                           |
|                                                                 | $\leq 900 V$ (C3 - 50 A)                                                           |
| Voltage protection level $U_p$ static (line-line)               | $\leq 55 V$ (C1 - 1 kV / 500 A)                                                    |
| Response time $t_A$ (line-line)                                 | $\leq 1 ns$                                                                        |
| Response time $t_A$ (line-earth)                                | $\leq 100 ns$                                                                      |
| Input attenuation aE, sym.                                      | typ. 0.3 dB ( $\leq 10 MHz/150 \Omega$ )                                           |
| Input attenuation aE, asym.                                     | typ. 0.3 dB ( $\leq 10 MHz/150 \Omega$ )                                           |
| Cut-off frequency $f_g$ (3 dB), sym. in 150 $\Omega$ 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)                                                                        |
| Impulse durability (line-line)                                  | C1 - 1 kV / 500 A                                                                  |
|                                                                 | C2 - 10 kV / 5 kA                                                                  |
|                                                                 | C2 - 10 kA                                                                         |

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|                                 |                   |
|---------------------------------|-------------------|
| Impulse durability (line-earth) | C3 - 25 A         |
|                                 | C3 - 50 A         |
|                                 | 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           |
| Pulse reset time (line-earth)   | ≤ 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

|                          |                          |
|--------------------------|--------------------------|
| 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 |
|---------------|-----------------|

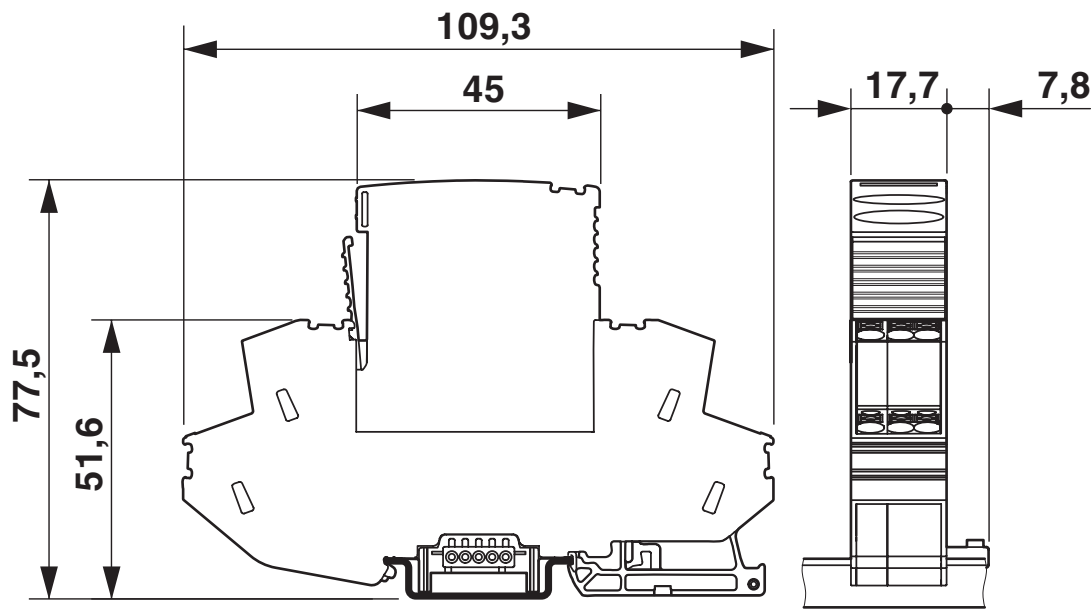
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Drawings

Dimensional drawing

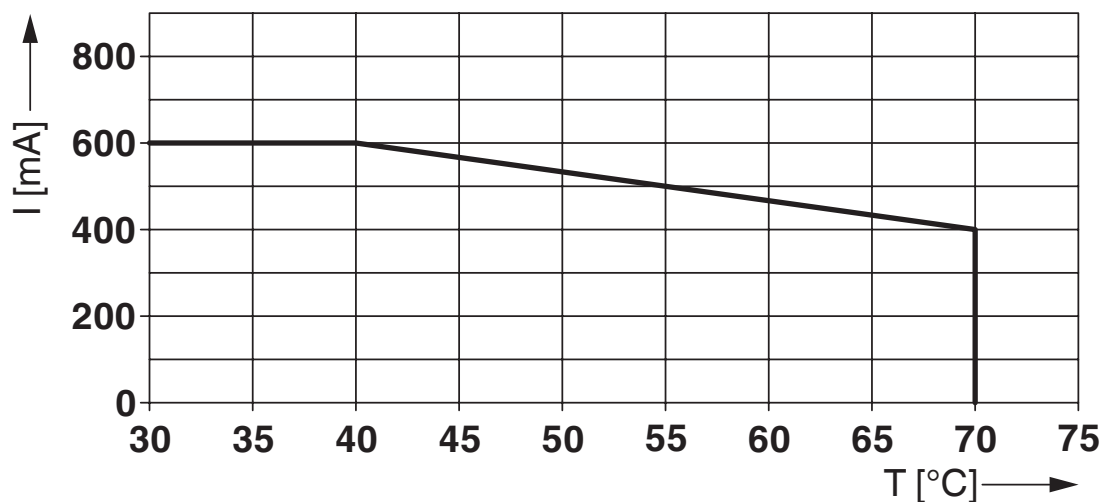


Schematic diagram

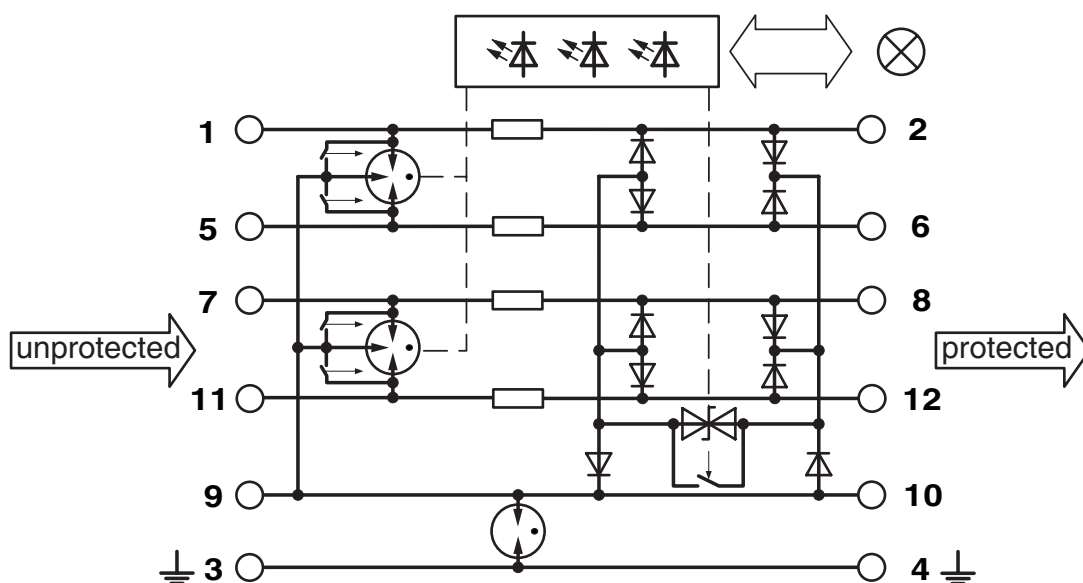
| PT-IQ-2X2+F-...DC-UT(PT)                                                                                                                                                                                                                                                                                                 |                                  |                                      |                          |       |                                  |                                       |      |                          |       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------|--------------------------|-------|----------------------------------|---------------------------------------|------|--------------------------|-------|
| Category                                                                                                                                                                                                                                                                                                                 | 1oo1 architecture, HFT=0         |                                      |                          |       | 1oo2 architecture, HFT=1         |                                       |      |                          |       |
|                                                                                                                                                                                                                                                                                                                          | PFD <sub>AVG</sub>               | PFH                                  | Used budget of SIL 2 SIF |       | PFD <sub>AVG</sub>               | PFH                                   | CCF  | Used budget of SIL 3 SIF |       |
|                                                                                                                                                                                                                                                                                                                          |                                  |                                      | PFD <sub>AVG</sub>       | PFH   |                                  |                                       |      | PFD <sub>AVG</sub>       | PFH   |
|                                                                                                                                                                                                                                                                                                                          | 1.07 <sub>x10<sup>-5</sup></sub> | 1.90 <sub>x10<sup>-9</sup></sub> 1/h | 0.1 %                    | 0.2 % | 5.34 <sub>x10<sup>-7</sup></sub> | 9.50 <sub>x10<sup>-11</sup></sub> 1/h | 5 %  | 0.1 %                    | 0.1 % |
|                                                                                                                                                                                                                                                                                                                          |                                  |                                      |                          |       | 1.07 <sub>x10<sup>-6</sup></sub> | 1.90 <sub>x10<sup>-10</sup></sub> 1/h | 10 % | 0.1 %                    | 0.2 % |
| Calculation based on exida report, Phoenix Contact 13/04-032 R017 V4R0<br>exida Profile 1, FMEDA Analysis 2, T <sub>proof</sub> : 1 year, MT: 10 years, MTTR: 24 hours, PTC: 99%<br>Used standards<br>IEC/EN 61508, edition 2010 (device specific)<br>IEC/EN 61511, edition 2016 + COR1:2016 + A1:2017 (system specific) |                                  |                                      |                          |       |                                  |                                       |      |                          |       |

Functional safety scenarios  
Table also applies to the PT-IQ-5-HF+F-...DC-UT(PT) item group

Diagram



Circuit diagram



# PT-IQ-5-HF+F-12DC-PT - Surge protection device



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2801295>



**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 9.0 | EC000943 |
|----------|----------|

### UNSPSC

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

## 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                                | c27207ba-f744-48d2-9835-747ce17593cf                           |