

## Surge protection device - PT-IQ-5-HF+F-5DC-PT - 2801292

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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).

### Product Features

- ✓ Surge protection system
- ✓ Multi-level state monitoring
- ✓ Collective message about supply and remote module
- ✓ System supplied via DIN rail bus
- ✓ Up to 28 protection modules per supply module
- ✓ For HF applications, thanks to high transmission speeds
- ✓ Maximum ease of maintenance thanks to the two-piece design
- ✓ Codable plug
- ✓ Impedance-neutral disconnection of plug for maintenance purposes
- ✓ Base element remains an integral part of the installation

### Key commercial data

|                  |               |
|------------------|---------------|
| package_quantity | 1             |
| GTIN             | 4046356766739 |

### Technical data

#### Dimensions

|            |          |
|------------|----------|
| Height     | 109.3 mm |
| Width      | 17.7 mm  |
| Depth      | 77.5 mm  |
| Pitch unit | 1 Div.   |

#### Ambient conditions

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

#### General

|                                         |                 |
|-----------------------------------------|-----------------|
| Housing material                        | PA 6.6          |
| Inflammability class according to UL 94 | V0              |
| Color                                   | black           |
| Mounting type                           | DIN rail: 35 mm |

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## Technical data

### General

|                            |                                                                                    |
|----------------------------|------------------------------------------------------------------------------------|
| <b>Design</b>              | DIN rail module, two-section, divisible                                            |
| <b>Direction of action</b> | Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground |
| <b>Transmission speed</b>  | 90 MBit/s                                                                          |

### Protective circuit

|                                                                               |                              |
|-------------------------------------------------------------------------------|------------------------------|
| <b>IEC test classification</b>                                                | C1                           |
| <b>IEC test classification</b>                                                | C2                           |
| <b>IEC test classification</b>                                                | C3                           |
| <b>IEC test classification</b>                                                | D1                           |
| <b>Nominal voltage <math>U_N</math></b>                                       | 5 V DC                       |
| <b>Maximum continuous operating voltage <math>U_C</math></b>                  | 6 V DC                       |
| <b>Maximum continuous operating voltage <math>U_C</math></b>                  | 4 V AC                       |
| <b>Nominal current <math>I_N</math></b>                                       | 600 mA (up to 40 °C)         |
| <b>Operating effective current <math>I_C</math> at <math>U_C</math></b>       | ≤ 800 µA (per system)        |
| <b>Residual current <math>I_{PE}</math></b>                                   | ≤ 10 µA                      |
| <b>Nominal discharge current <math>I_n</math> (8/20) µs (Core-Core)</b>       | 10 kA                        |
| <b>Nominal discharge current <math>I_n</math> (8/20) µs (Core-Earth)</b>      | 10 kA                        |
| <b>Total surge current (8/20) µs</b>                                          | 20 kA                        |
| <b>Impulse discharge current (10/350) µs, peak value <math>I_{imp}</math></b> | 2.5 kA                       |
| <b>Voltage protection level <math>U_P</math> (Core-Core)</b>                  | ≤ 90 V (C1 - 1 kV/500 A)     |
| <b>Voltage protection level <math>U_P</math> (Core-Core)</b>                  | ≤ 30 V (C3 - 25 A)           |
| <b>Voltage protection level <math>U_P</math> (Core-Core)</b>                  | ≤ 30 V (C3 - 50 A)           |
| <b>Voltage protection level <math>U_P</math> (Core-Core)</b>                  | ≤ 140 V (C2 - 10 kV / 5 kA)  |
| <b>Voltage protection level <math>U_P</math> (Core-Earth)</b>                 | ≤ 730 V (C1 - 1 kV/500 A)    |
| <b>Voltage protection level <math>U_P</math> (Core-Earth)</b>                 | ≤ 900 V (C2 - 10 kV / 5 kA)  |
| <b>Voltage protection level <math>U_P</math> (Core-Earth)</b>                 | ≤ 900 V (C3 - 25 A)          |
| <b>Voltage protection level <math>U_P</math> (Core-Earth)</b>                 | ≤ 900 V (C3 - 50 A)          |
| <b>Voltage protection level <math>U_P</math> (Core-GND)</b>                   | ≤ 90 V (C1 - 1 kV/500 A)     |
| <b>Voltage protection level <math>U_P</math> (Core-GND)</b>                   | ≤ 30 V (C3 - 25 A)           |
| <b>Voltage protection level <math>U_P</math> (Core-GND)</b>                   | ≤ 30 V (C3 - 50 A)           |
| <b>Voltage protection level <math>U_P</math> (Core-GND)</b>                   | ≤ 140 V (C2 - 10 kV / 5 kA)  |
| <b>Voltage protection level <math>U_P</math> static (core-core)</b>           | ≤ 45 V (C1 - 1 kV/500 A)     |
| <b>Voltage protection level <math>U_P</math> static (core-GND)</b>            | ≤ 45 V (C1 - 1 kV/500 A)     |
| <b>Response time <math>t_A</math> (Core-Core)</b>                             | ≤ 1 ns                       |
| <b>Response time <math>t_A</math> (Core-Earth)</b>                            | ≤ 1 ns                       |
| <b>Response time <math>t_A</math> (Core-Earth)</b>                            | ≤ 100 ns                     |
| <b>Input attenuation <math>a_E</math>, sym.</b>                               | typ. 0.3 dB (≤ 10 MHz/150 Ω) |
| <b>Cut-off frequency <math>f_g</math> (3 dB), sym. in 150 Ohm system</b>      | > 60 MHz                     |
| <b>Capacity (Core-Core)</b>                                                   | typ. 30 pF                   |
| <b>Capacity (Core-GND)</b>                                                    | typ. 30 pF                   |

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## Technical data

### Protective circuit

|                                                                |                        |
|----------------------------------------------------------------|------------------------|
| Resistance in series                                           | 1.2 $\Omega$ $\pm$ 5 % |
| Message: Surge protection fault                                | Optical, multi-stage   |
| Max. required back-up fuse                                     | 0.6 A (FF)             |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Core)  | C1 (1 kV/500 A)        |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Core)  | C2 (10 kV/5 kA)        |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Core)  | C2 (10 kA)             |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Core)  | C3 (25 A)              |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Core)  | C3 (50 A)              |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Earth) | C1 (1 kV / 500 A)      |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Earth) | C2 (10 kV / 5 kA)      |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Earth) | C2 (10 kA)             |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Earth) | C3 (25 A)              |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Earth) | C3 (50 A)              |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-Earth) | D1 (2.5 kA)            |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-GND)   | C1 (1 kV/500 A)        |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-GND)   | C2 (10 kV/5 kA)        |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-GND)   | C2 (10 kA)             |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-GND)   | C3 (25 A)              |
| Surge carrying capacity in acc. with IEC 61643-21 (Core-GND)   | C3 (50 A)              |
| Pulse reset time $t_r$ in acc. with IEC 61643-21 (Core-Core)   | $\leq$ 10 ms           |
| Pulse reset time $t_r$ in acc. with IEC 61643-21 (Core-Earth)  | $\leq$ 10 ms           |
| Pulse reset time $t_r$ in acc. with IEC 61643-21 (Core-GND)    | $\leq$ 10 ms           |
| Overload failure mode as per IEC 61643-21 (plug)               | Mode 2                 |

### Connection data

|                                        |                     |
|----------------------------------------|---------------------|
| Connection method                      | Push-in connection  |
| Connection type IN                     | Push-in connection  |
| Connection type OUT                    | Push-in connection  |
| Stripping length                       | 10 mm               |
| Conductor cross section stranded min.  | 0.2 mm <sup>2</sup> |
| Conductor cross section stranded max.  | 2.5 mm <sup>2</sup> |
| Conductor cross section solid min.     | 0.2 mm <sup>2</sup> |
| Conductor cross section solid max.     | 4 mm <sup>2</sup>   |
| Conductor cross section AWG/kcmil min. | 24                  |
| Conductor cross section AWG/kcmil max  | 12                  |

### Connection, equipotential bonding

|                   |                                             |
|-------------------|---------------------------------------------|
| Connection method | NS 35 DIN rail or connection terminal block |
|-------------------|---------------------------------------------|

## classifications

eCI@ss

|            |          |
|------------|----------|
| eCI@ss 4.0 | 27140201 |
|------------|----------|

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### classifications

#### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.1 | 27130801 |
| eCl@ss 5.0 | 27130801 |
| eCl@ss 5.1 | 27130801 |
| eCl@ss 6.0 | 27130807 |
| eCl@ss 7.0 | 27130807 |
| eCl@ss 8.0 | 27130807 |

#### ETIM

|          |          |
|----------|----------|
| ETIM 3.0 | EC000943 |
| ETIM 4.0 | EC000943 |
| ETIM 5.0 | EC000943 |

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30212010 |
| UNSPSC 7.0901 | 39121610 |
| UNSPSC 11     | 39121610 |
| UNSPSC 12.01  | 39121610 |
| UNSPSC 13.2   | 39121620 |

### accessories

#### Marker pen

X-PEN 0,35 - 0811228



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### Terminal marking

ZBF 5:UNBEDRUCKT - 0808642



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## accessories

ZBF 5/WH-100:UNBEDRUCKT - 0808668



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### Labeled terminal marker

ZBF 5,LGS:FORTL.ZAHLEN - 0808671



ZBF 5,LGS:GERADE ZAHLEN - 0810821



ZBF 5,LGS:UNGERADE ZAHLEN - 0810863



ZBF 5,QR:FORTL.ZAHLEN - 0808697



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### Device marking

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## accessories

ZBN 18:UNBEDRUCKT - 2809128



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## Mounting material

E/ME TBUS NS35 GY - 2713780



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## PCB plug

FK-MC 0,5/ 5-ST-2,5 - 1881354



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## accessories

ZBF 15:SO/CMS - 0814717



ZBF 5:SO/CMS - 0808707



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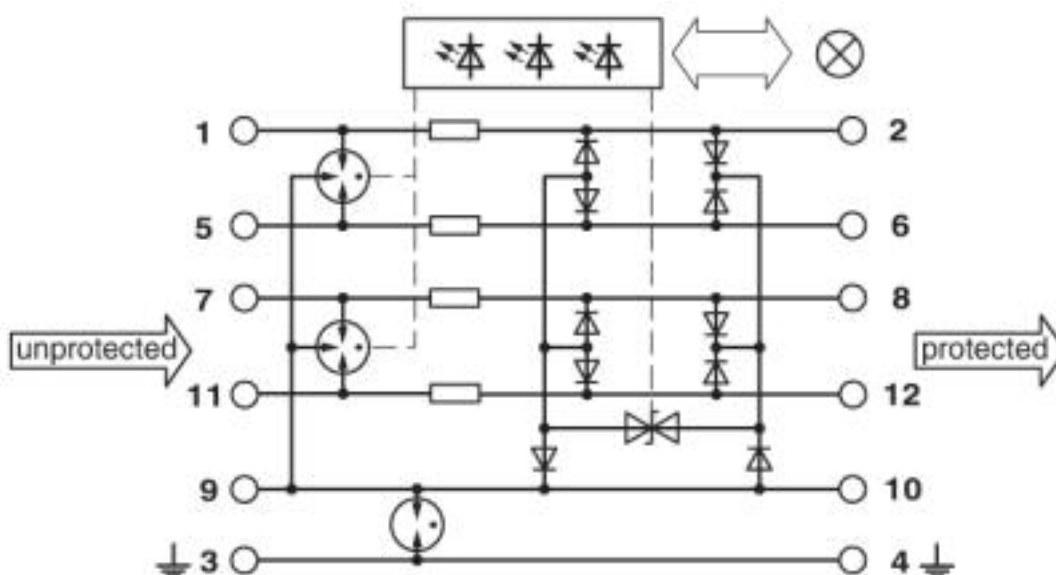
accessories

ZBN 18:SO/CMS - 0800763



### Drawings

Circuit diagram



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