

# Surge protection device - PT-IQ-2X1+F-24DC-PT - 2801248


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Surge protection, consisting of protective plug and base element, with integrated multi-stage status indicator on the module for two signal wires with common reference potential. Indirect grounding via gas-filled surge arrester.



## Key Commercial Data

|              |   |
|--------------|---|
| Packing unit | 1 pc  |
| GTIN         | <br>4 046356 766319 |
| GTIN         | 4046356766319   |

## Technical data

### Dimensions

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

### Ambient conditions

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

### General

|  |  |
|--|--|
| Housing material                       | PA 6.6   |
| Flammability rating according to UL 94 | V-0  |
| Color                                  | jet black RAL 9005   |
| Mounting type                          | DIN rail: 35 mm  |
| Type                                   | DIN rail module, two-section, divisible  |
| Direction of action                    | Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground |

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## Technical data

### Additional descriptions

|      |   |
|------|---|
| 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. |
|------|---|

### Protective circuit

|   |   |
|---|---|
| IEC test classification   | C1  |
|   | C2  |
|   | C3  |
|   | D1  |
| Nominal voltage $U_N$   | 24 V DC                                       |
| Maximum continuous voltage $U_C$                                    | 30 V DC                                       |
|   | 21 V AC                                       |
| Rated current   | 1000 mA (40 °C)                               |
| Operating effective current $I_C$ at $U_C$                          | $\leq 1$ mA (per path)                        |
| Residual current $I_{PE}$   | $\leq 1$ $\mu$ A                              |
| Nominal discharge current $I_n$ (8/20) $\mu$ s (line-earth)         | 10 kA   |
| Nominal discharge current $I_n$ (8/20) $\mu$ s (line-signal 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-earth)                         | $\leq 800$ V (C1 - 1 kV/500 A)                |
|   | $\leq 950$ V (C2 - 10 kV / 5 kA)              |
|   | $\leq 780$ V (C3 - 25 A)                      |
|   | $\leq 950$ V (C3 - 50 A)                      |
| Voltage protection level $U_p$ (line-signalground)                  | $\leq 75$ V (C1 - 1 kV/500 A)                 |
|   | $\leq 135$ V (C2 - 10 kV / 5 kA)              |
|   | $\leq 55$ V (C3 - 25 A)                       |
|   | $\leq 60$ V (C3 - 50 A)                       |
| Voltage protection level $U_p$ static (line-earth)                  | $\leq 90$ V (C3 - 25 A)                       |
|   | $\leq 90$ V (C3 - 50 A)                       |
| Response time $t_A$ (line-signalground)                             | $\leq 1$ ns                                   |
| Response time $t_A$ (line-earth)                                    | $\leq 100$ ns                                 |
| Input attenuation aE, asym.   | typ. 0.3 dB ( $\leq 300$ kHz / 150 $\Omega$ ) |
| Cut-off frequency $f_g$ (3 dB), asym. (GND) in 150 Ohm system       | typ. 1.1 MHz                                  |
| Capacity (line-signalground)  | typ. 2 nF                                     |
| Resistance per path   | 1.2 $\Omega \pm 5$ %                          |
| Surge protection fault message                                      | Optical, multi-stage                          |
| Max. required back-up fuse  | 1 A (FF)                                      |
| Impulse durability (line-earth)                                     | C1 - 1 kV / 500 A                             |
|   | C2 - 10 kV / 5 kA                             |
|   | C2 - 10 kA                                    |
|   | C3 - 50 A                                     |

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### Technical data

#### Protective circuit

|  |                   |
|--|-------------------|
|  | D1 - 2.5 kA       |
| Impulse durability (line-signalground) | C1 - 1 kV / 500 A |
|  | C2 - 10 kV / 5 kA |
|  | C2 - 10 kA        |
|  | C3 - 50 A         |
|  | D1 - 2,5 kA       |
| Pulse reset time (line-earth)          | ≤ 30 ms           |
| Pulse reset time (line-signalground)   | ≤ 350 ms          |

#### Connection data

|                                  |   |
|----------------------------------|---|
| Connection method                | Push-in connection                          |
| Stripping length                 | 10 mm                                       |
| Conductor cross section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross section solid    | 0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>   |
| Conductor cross section AWG      | 24 ... 12                                   |

#### Connection, equipotential bonding

|                   |               |
|-------------------|---------------|
| Connection method | DIN rail NS35 |
|-------------------|---------------|

#### Standards and Regulations

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

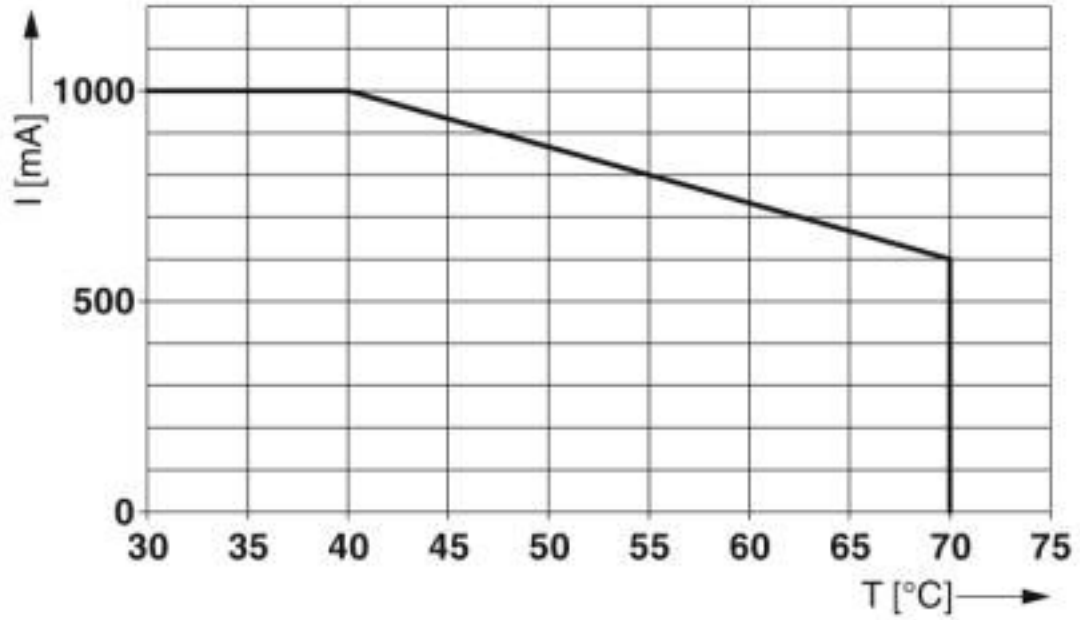
#### Environmental Product Compliance

|            |   |
|------------|---|
| REACH SVHC | Lead 7439-92-1  |
| China RoHS | Environmentally Friendly Use Period = 50 years  |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

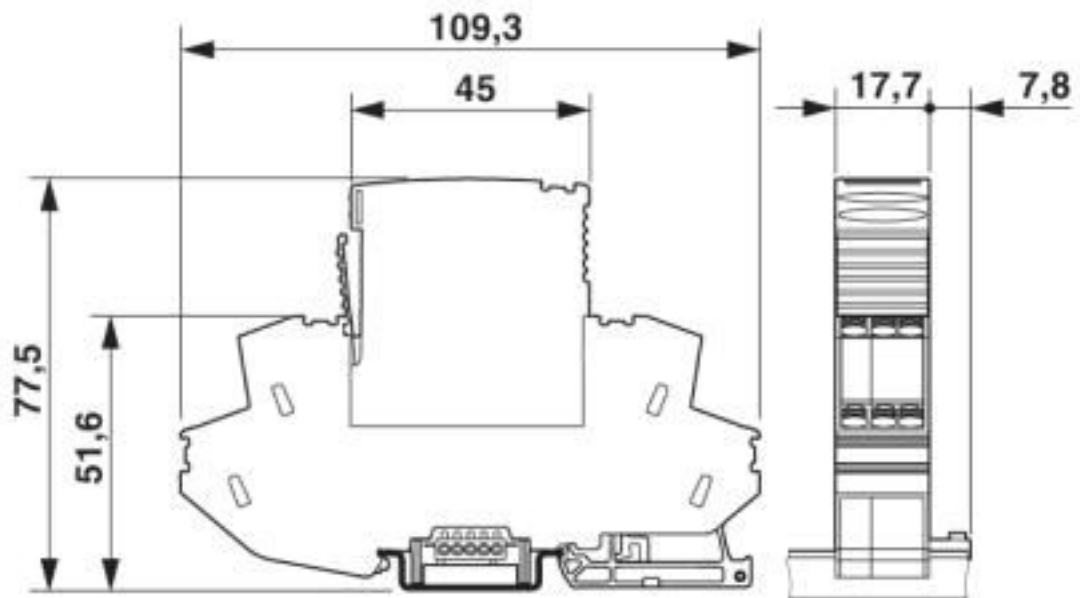
### Drawings

# Surge protection device - PT-IQ-2X1+F-24DC-PT - 2801248

Diagram

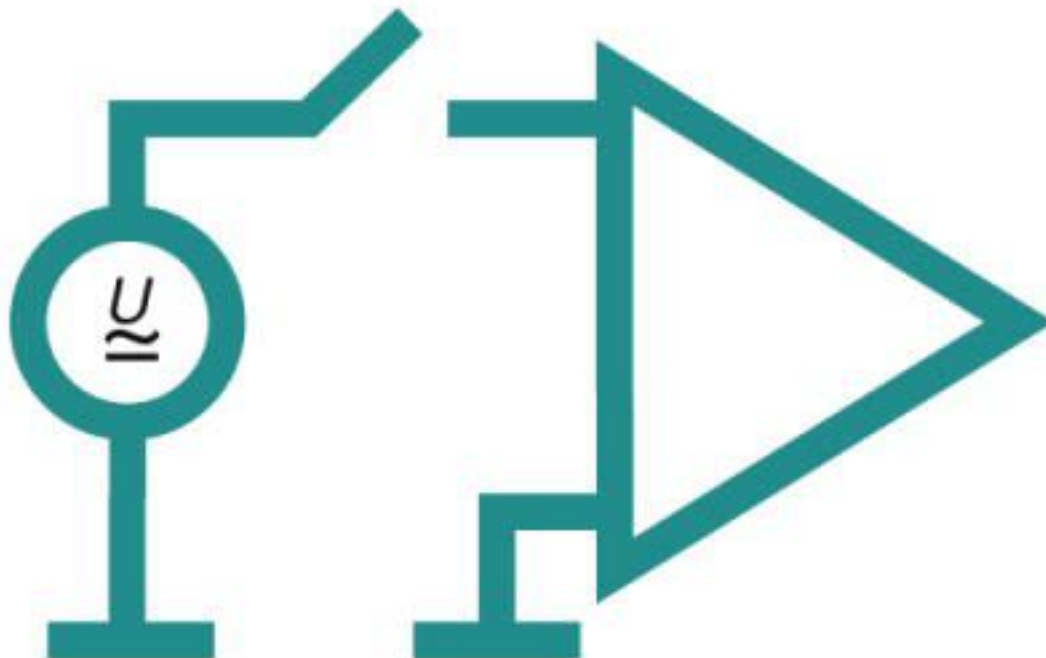


Dimensional drawing

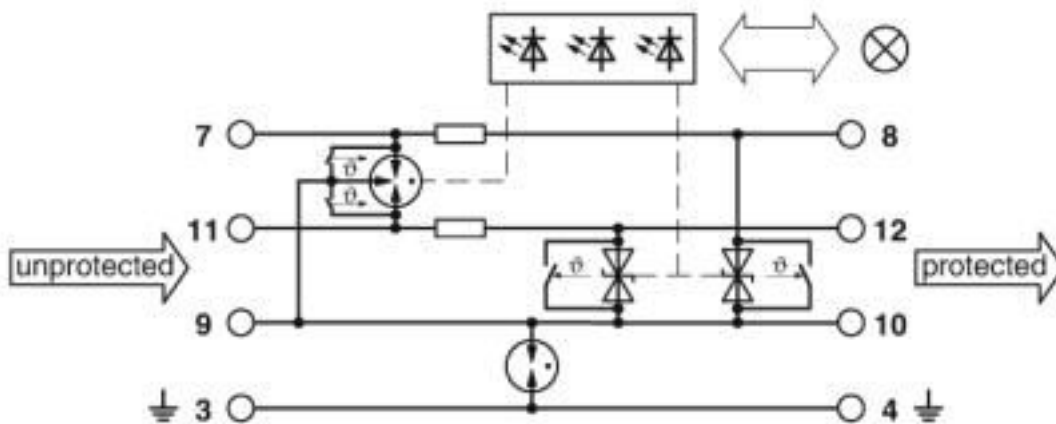


# Surge protection device - PT-IQ-2X1+F-24DC-PT - 2801248

Pictogram



Circuit diagram



## Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27130807 |
| eCl@ss 4.0    | 27130800 |
| eCl@ss 4.1    | 27130800 |
| eCl@ss 5.0    | 27130800 |
| eCl@ss 5.1    | 27130800 |
| eCl@ss 6.0    | 27130800 |
| eCl@ss 7.0    | 27130807 |

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## Classifications

### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 8.0 | 27130807 |
| eCl@ss 9.0 | 27130807 |

### ETIM

|          |          |
|----------|----------|
| ETIM 3.0 | EC000943 |
| ETIM 4.0 | EC000943 |
| ETIM 5.0 | EC000943 |
| ETIM 6.0 | EC000943 |
| ETIM 7.0 | EC000943 |

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30212010 |
| UNSPSC 7.0901 | 39121610 |
| UNSPSC 11     | 39121610 |
| UNSPSC 12.01  | 39121610 |
| UNSPSC 13.2   | 39121620 |
| UNSPSC 18.0   | 39121620 |
| UNSPSC 19.0   | 39121620 |
| UNSPSC 20.0   | 39121620 |
| UNSPSC 21.0   | 39121620 |

## Approvals

### Approvals


#### Approvals

CSA / UL Listed / CSAus / EAC / cCSAus

#### Ex Approvals

### Approval details

|     |   |   |         |
|-----|---|---|---------|
| CSA |  | <a href="http://www.csagroup.org/services-industries/product-listing/">http://www.csagroup.org/services-industries/product-listing/</a> | 2761632 |
|-----|---|---|---------|

|           |   |   |               |
|-----------|---|---|---------------|
| UL Listed |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 138168 |
|-----------|---|---|---------------|

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## Approvals

|       |  |   |         |
|-------|--|---|---------|
| CSAus |  | <a href="http://www.csagroup.org/services-industries/product-listing/">http://www.csagroup.org/services-industries/product-listing/</a> | 2761632 |
|-------|--|---|---------|

|     |  |  |                         |
|-----|--|--|-------------------------|
| EAC |  |  | RU C-<br>DE.*09.B.00169 |
|-----|--|--|-------------------------|

|        |  |  |  |
|--------|--|--|--|
| cCSAus |  |  |  |
|--------|--|--|--|

## Accessories

### Accessories

#### Device marking

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snap into tall marker groove, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

#### Labeled terminal marker

Zack Marker strip, flat - ZBF 5,LGS:FORTL.ZAHLEN - 0808671



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 491 ... 500, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

Zack Marker strip, flat - ZBF 5,LGS:GERADE ZAHLEN - 0810821



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive numbers 2 ... 20, 22 ... 40, etc. up to 82 ... 100, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

# Surge protection device - PT-IQ-2X1+F-24DC-PT - 2801248

## Accessories

Zack Marker strip, flat - ZBF 5,LGS:UNGERADE ZAHLEN - 0810863



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: Odd numbers 1 - 19, 21 - 39, etc. up to 81 - 99, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

Zack Marker strip, flat - ZBF 5,QR:FORTL.ZAHLEN - 0808697



Zack Marker strip, flat, Strip, white, labeled, Printed vertically: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... 100, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

## Marker pen

Marker pen - X-PEN 0,35 - 0811228



Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm

## Mounting material

End clamp - E/ME TBUS NS35 GY - 2713780



End clamp, stable construction for DIN rail bus connector

## PCB plug

Printed-circuit board connector - FK-MC 0,5/ 5-ST-2,5 - 1881354



PCB connector, nominal current: 4 A, rated voltage (III/2): 160 V, nominal cross section: 0.5 mm<sup>2</sup>, number of positions: 5, pitch: 2.5 mm, connection method: Push-in spring connection, color: green, contact surface: Tin

## Terminal marking



## Surge protection device - PT-IQ-2X1+F-24DC-PT - 2801248

### Accessories

Zack Marker strip, flat - ZBF 5:UNBEDRUCKT - 0808642



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.1 x 5.2 mm, Number of individual labels: 10

Zack Marker strip, flat - ZBF 5/WH-100:UNBEDRUCKT - 0808668



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

### Necessary add-on products

Supply and remote module - PT-IQ-PTB-PT - 2801296



Module for power supply and multi-stage, floating remote signaling of connected surge protection modules.

### Additional products

Shield connection - SSA 3-6 - 2839295



Shield fast connection for 3 ... 6 mm cable diameter. Potential connecting cable: 200 mm, 1 mm<sup>2</sup>, color: black

Shield connection - SSA 5-10 - 2839512



Shield fast connection for 5 ... 10 mm cable diameter. Potential connecting cable: 200 mm, 1 mm<sup>2</sup>, color: black

### Spare parts

## Surge protection device - PT-IQ-2X1+F-24DC-PT - 2801248

### Accessories

Surge protection plug - PT-IQ-2X1-24DC-P - 2800776



Surge protection plug with integrated multi-stage status indicator on the module for two signal wires with common reference potential. 24 V DC nominal voltage.

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DIN rail bus connectors - PT-IQ-17,5-TBUS-5-2.0 - 2906878



DIN rail connector for PT-IQ system for establishing remote signaling and the power supply when a surge protection module is snapped on.

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