

# TTC-6-2X1-F-M-24DC-PT-I - Surge protection device



2906776

<https://www.phoenixcontact.com/be/products/2906776>

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Surge protection with integrated status indicator and disconnect knife for two signal wires with common reference potential. Indirect grounding via gas-filled surge arrester, e.g., Digital IN/OUT.

## Your advantages

- Space-saving and cost-saving with a narrow overall width of just 6 mm
- Continuous monitoring of protective devices, plus mechanical status indicator with optional remote signaling
- Finding the right product for all possible requirements in MCR applications is easy, thanks to the complete range of products with customized features
- Signal circuits easily interrupted for maintenance work, thanks to vertical knife disconnection

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2906776             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | CL2262              |
| Product key                          | CL2262              |
| Catalog page                         | Page 130 (C-4-2019) |
| GTIN                                 | 4055626135342       |
| Weight per piece (including packing) | 38,4 g              |
| Weight per piece (excluding packing) | 31,76 g             |
| Customs tariff number                | 85363010            |
| Country of origin                    | DE                  |

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## Technical data

### Product properties

|                         |                                     |
|-------------------------|-------------------------------------|
| IEC test classification | C1                                  |
|                         | C2                                  |
|                         | C3                                  |
|                         | D1                                  |
| Type                    | DIN rail module, one-piece          |
| Product type            | Surge protection for MCR technology |
| Product family          | TERMITRAB complete                  |

### Insulation characteristics

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

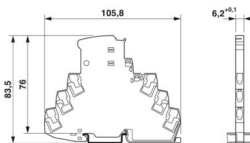
### Electrical properties

|                       |         |
|-----------------------|---------|
| Nominal voltage $U_N$ | 24 V DC |
|-----------------------|---------|

### Connection data

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

### Dimensions

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 6.2 mm +0.1 mm                                                                       |
| Height              | 105.8 mm                                                                             |
| Depth               | 83.5 mm (incl. DIN rail 7.5 mm)                                                      |

### Material specifications

|                                        |                       |
|----------------------------------------|-----------------------|
| Color                                  | gray (RAL 7042)       |
|                                        | light grey (RAL 7035) |
| Flammability rating according to UL 94 | V-0                   |
| Insulating material                    | PBT                   |
| Housing material                       | PBT                   |

### Mechanical properties

#### Mechanical data

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|                 |    |
|-----------------|----|
| Open side panel | No |
|-----------------|----|

## Protective circuit

|                                                                              |                                                                                                                                  |
|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Direction of action                                                          | Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground                                               |
| Maximum continuous voltage $U_C$                                             | 30 V DC<br>21 V AC                                                                                                               |
| Rated current                                                                | 600 mA (40 °C)                                                                                                                   |
| Operating effective current $I_C$ at $U_C$                                   | $\leq 5 \mu A$                                                                                                                   |
| Residual current $I_{PE}$                                                    | $\leq 1 \mu A$                                                                                                                   |
| Nominal discharge current $I_n$ (8/20) $\mu s$ (line-ground)                 | 5 kA                                                                                                                             |
| Nominal discharge current $I_n$ (8/20) $\mu s$ (line-signal ground)          | 5 kA                                                                                                                             |
| Pulse discharge current $I_{imp}$ (10/350) $\mu s$ (line-earth)              | 0.5 kA                                                                                                                           |
| Pulse discharge current $I_{imp}$ (10/350) $\mu s$ (line-signalground)       | 0.5 kA                                                                                                                           |
| Total discharge current $I_{total}$ (8/20) $\mu s$                           | 10 kA                                                                                                                            |
| Voltage protection level $U_p$ (line-earth)                                  | $\leq 750$ V (C1 - 1 kV / 500 A)<br>$\leq 750$ V (C2 - 10 kV / 5 kA)<br>$\leq 1.1$ kV (C3 - 25 A)<br>$\leq 1.15$ kV (C3 - 100 A) |
| Voltage protection level $U_p$ (line-signalground)                           | $\leq 140$ V (C1 - 1 kV / 500 A)<br>$\leq 130$ V (C2 - 10 kV / 5 kA)<br>$\leq 45$ V (C3 - 25 A)<br>$\leq 50$ V (C3 - 100 A)      |
| Voltage protection level $U_p$ static (line-earth)                           | $\leq 750$ V (C1 - 1 kV / 500 A)<br>$\leq 750$ V (C2 - 10 kV / 5 kA)                                                             |
| Voltage protection level $U_p$ static (line-signalground)                    | $\leq 55$ V (C1 - 1 kV / 500 A)<br>$\leq 80$ V (C2 - 10 kV / 5 kA)                                                               |
| Response time $t_A$ (line-earth)                                             | $\leq 100$ ns                                                                                                                    |
| Response time $t_A$ (line-signalground)                                      | $\leq 1$ ns                                                                                                                      |
| Input attenuation aE, asym.                                                  | typ. 0.3 dB ( $\leq 270$ kHz/150 $\Omega$ )                                                                                      |
| Cut-off frequency $f_g$ (3 dB), asym. (signal ground) in 150 $\Omega$ system | typ. 960 kHz                                                                                                                     |
| Capacity (line-signalground)                                                 | typ. 2.2 nF                                                                                                                      |
| Resistance per path                                                          | 1.65 $\Omega \pm 20$ %                                                                                                           |
| Surge protection fault message                                               | optical                                                                                                                          |
| Max. required back-up fuse                                                   | 630 mA (FF)                                                                                                                      |
| Impulse durability (line-earth)                                              | C1 - 1 kV / 500 A<br>C2 - 10 kV / 5 kA<br>C3 - 100 A<br>D1 - 500 A                                                               |
| Impulse durability (line-signalground)                                       | C1 - 1 kV / 500 A<br>C2 - 10 kV / 5 kA<br>C3 - 100 A<br>D1 - 500 A                                                               |

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|                                      |          |
|--------------------------------------|----------|
| Pulse reset time (line-earth)        | ≤ 30 ms  |
| Pulse reset time (line-signalground) | ≤ 300 ms |

## Additional technical data

|                                                                          |            |
|--------------------------------------------------------------------------|------------|
| Max. total discharge current $I_{\text{total max}}$ (8/20) $\mu\text{s}$ | 20 kA (1x) |
|--------------------------------------------------------------------------|------------|

## Environmental and real-life conditions

### Ambient conditions

|                                         |                  |
|-----------------------------------------|------------------|
| Degree of protection                    | IP20             |
| Ambient temperature (operation)         | -40 °C ... 85 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Altitude                                | ≤ 4000 m (amsl)  |
| Permissible humidity (operation)        | 5 % ... 95 %     |

## Standards and regulations

|                          |                                                       |
|--------------------------|-------------------------------------------------------|
| Standards/specifications | IEC 61643-21                                          |
| Note                     | 2000 + corrigendum 2001 + A1:2008, modified + A2:2012 |

### EN 61643-21

|                          |                          |
|--------------------------|--------------------------|
| Standards/specifications | EN 61643-21              |
| Note                     | 2001 + A1:2009 + A2:2013 |

## Mounting

|               |                          |
|---------------|--------------------------|
| Mounting type | DIN rail: TH 35 - 7.5 mm |
|---------------|--------------------------|

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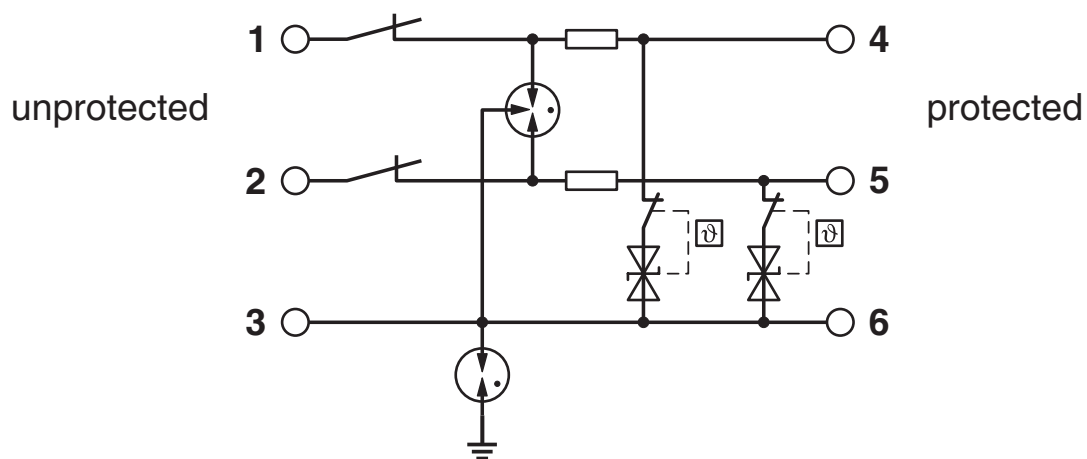
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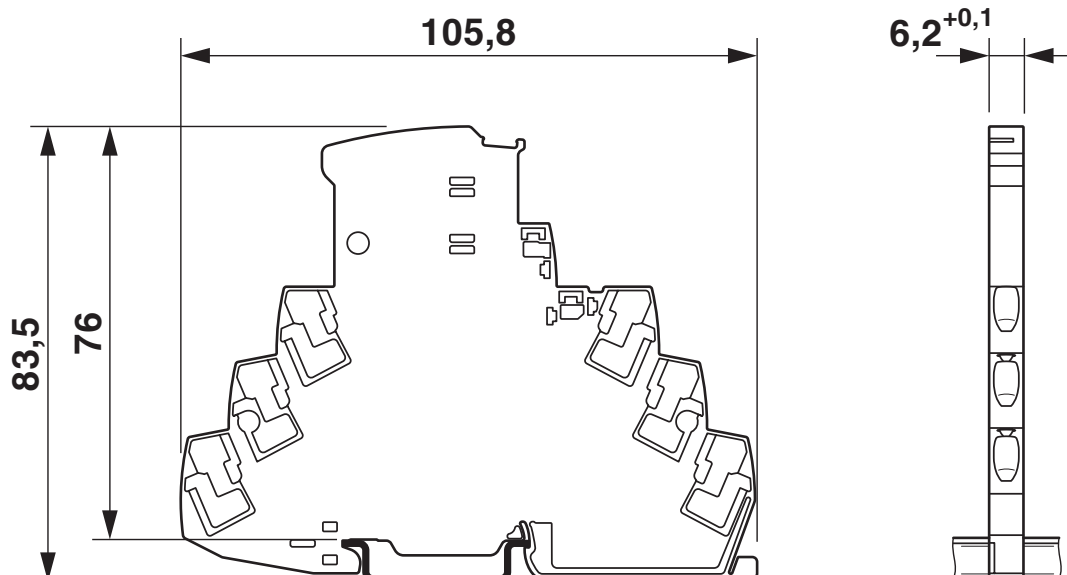


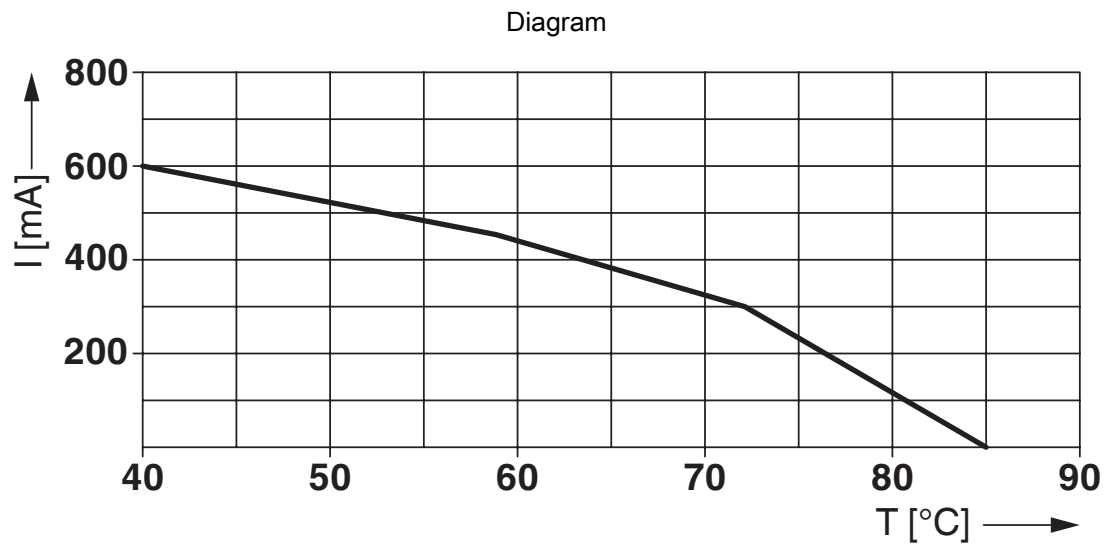
## Drawings

Circuit diagram



Dimensional drawing





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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/be/products/2906776>



**CSA**

Approval ID: 70136717



**DNV GL**

Approval ID: TAE000027G



**UL Listed**

Approval ID: FILE E 138168



**CSAus**

Approval ID: 70136717

**UAE-RoHS**

Approval ID: 22-06-16191

**Functional Safety**

Approval ID: 16-06-072 R023 V3R1

**cCSAus**

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27130807 |
| ECLASS-13.0 | 27171501 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001625 |
|----------|----------|

### UNSPSC

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

Environmental product compliance

|            |                                                                                                              |
|------------|--------------------------------------------------------------------------------------------------------------|
| REACH SVHC | Lead 7439-92-1                                                                                               |
| China RoHS | Environmentally Friendly Use Period = 50 years                                                               |
|            | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

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