

# Surge protection device - TTC-6-1X2-M-24DC-UT-I - 2906713

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Surge protection with integrated status indicator and knife disconnection for a 2-wire floating signal circuit, e. g. 0(4)...20 mA current loop, HART-compatible.

## Your advantages

- ✓ Space-saving installation due to the narrow overall width of 6.2 mm
- ✓ Signaling without additional auxiliary power, thanks to the mechanical status indicator
- ✓ Optional remote signaling module monitors up to 40 items, without additional wiring
- ✓ Signal circuits easily interrupted for maintenance work, thanks to vertical knife disconnection
- ✓ Safe behavior in the event of overload, thanks to the integrated disconnect device



## Key Commercial Data

|                                      |               |
|--------------------------------------|---------------|
| Packing unit                         | 1 pc          |
| GTIN                                 |               |
| GTIN                                 | 4055626134376 |
| Weight per Piece (excluding packing) | 41.700 g      |
| Custom tariff number                 | 85363010      |
| Country of origin                    | Germany       |

## Technical data

### Dimensions

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

### Ambient conditions

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

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## Technical data

### Ambient conditions

|                      |      |
|----------------------|------|
| Degree of protection | IP20 |
|----------------------|------|

### General

|  |  |
|--|--|
| Housing material                       | PBT  |
| Flammability rating according to UL 94 | V-0  |
| Color                                  | traffic grey A RAL 7042  |
| Mounting type                          | DIN rail: TH 35 - 7.5 mm   |
| Type                                   | DIN rail module, one-piece   |
| Direction of action                    | Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground |

### 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   | 600 mA (40 °C)                           |
| Operating effective current $I_C$ at $U_C$                            | $\leq 5 \mu\text{A}$                     |
| Residual current $I_{PE}$   | $\leq 1 \mu\text{A}$                     |
| Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-line)      | 5 kA                                     |
| Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-earth)     | 5 kA                                     |
| Pulse discharge current $I_{imp}$ (10/350) $\mu\text{s}$ (line-line)  | 0.5 kA                                   |
| Pulse discharge current $I_{imp}$ (10/350) $\mu\text{s}$ (line-earth) | 0.5 kA                                   |
| Total discharge current $I_{total}$ (8/20) $\mu\text{s}$              | 10 kA                                    |
| Voltage protection level $U_p$ (line-line)                            | $\leq 55 \text{ V}$ (C1 - 1 kV/500 A)    |
|   | $\leq 65 \text{ V}$ (C2 - 10 kV / 5 kA)  |
|   | $\leq 50 \text{ V}$ (C3 - 25 A)          |
|   | $\leq 55 \text{ V}$ (C3 - 100 A)         |
| Voltage protection level $U_p$ (line-earth)                           | $\leq 750 \text{ V}$ (C1 - 1 kV/500 A)   |
|   | $\leq 750 \text{ V}$ (C2 - 10 kV / 5 kA) |
|   | $\leq 700 \text{ V}$ (C3 - 25 A)         |
|   | $\leq 750 \text{ V}$ (C3 - 100 A)        |
| Voltage protection level $U_p$ static (line-line)                     | $\leq 50 \text{ V}$ (C1 - 1 kV/500 A)    |
|   | $\leq 65 \text{ V}$ (C2 - 10 kV / 5 kA)  |
| Voltage protection level $U_p$ static (line-earth)                    | $\leq 750 \text{ V}$ (C1 - 1 kV/500 A)   |
|   | $\leq 750 \text{ V}$ (C2 - 10 kV / 5 kA) |
| Response time $t_A$ (line-line)                                       | $\leq 1 \text{ ns}$                      |
| Response time $t_A$ (line-earth)                                      | $\leq 100 \text{ ns}$                    |

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## Technical data

### Protective circuit

|   |  |
|---|--|
| Input attenuation aE, sym.                                      | typ. 0.3 dB ( $\leq 250$ kHz / 150 $\Omega$ )                      |
| Cut-off frequency f <sub>g</sub> (3 dB), sym. in 150 Ohm system | typ. 940 kHz   |
| Capacity (line-line)  | typ. 2.2 nF  |
| Resistance per path   | 1.65 $\Omega$ $\pm$ 20 %   |
| Max. required back-up fuse                                      | 630 mA (FF)  |
| Impulse durability (line-line)                                  | C1 - 1 kV / 500 A<br>C2 - 10 kV / 5 kA<br>C3 - 100 A               |
| Impulse durability (line-earth)                                 | C1 - 1 kV / 500 A<br>C2 - 10 kV / 5 kA<br>C3 - 100 A<br>D1 - 500 A |
| Pulse reset time (line-line)                                    | $\leq 700$ ms  |
| Pulse reset time (line-earth)                                   | $\leq 1500$ ms   |

### Additional technical data

|  |            |
|--|------------|
| Max. total discharge current I <sub>total max</sub> (8/20) $\mu$ s | 20 kA (1x) |
|--|------------|

### Connection data

|                                  |   |
|----------------------------------|---|
| Connection method                | Screw connection                            |
| Screw thread                     | M3  |
| Tightening torque                | 0.5 Nm ... 0.6 Nm                           |
| Stripping length                 | 8 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                                   |

### Standards and Regulations

|                          |  |
|--------------------------|--|
| Standards/specifications | IEC 61643-21 2000 + corrigendum 2001 + A1:2008, modified + A2:2012<br>EN 61643-21 2001 + A1:2009 + A2:2013 |
|--------------------------|--|

### Environmental Product Compliance

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