

# PT 2X2-12DC-ST - Surge protection plug



2838254

<https://www.phoenixcontact.com/us/products/2838254>

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PT protective connector with protective circuit for two 2-wire floating signal circuits. 12 V DC nominal voltage. HART-compatible.

## Your advantages

- Easy testing and documentation with CHECKMASTER 2 with pluggable protective modules
- Maximum ease of maintenance, thanks to the 2-piece design
- Easy selection for all possible demands in MCR applications with a complete product portfolio
- The signal is not influenced during maintenance work, thanks to the impedance-neutral insertion and removal of protective plugs

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2838254       |
| Packing unit                         | 10 pc         |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CL21          |
| Product key                          | CL2111        |
| GTIN                                 | 4017918182663 |
| Weight per piece (including packing) | 25.79 g       |
| Weight per piece (excluding packing) | 25.79 g       |
| Customs tariff number                | 85363010      |
| Country of origin                    | DE            |

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## Technical data

### Product properties

|                                                                |                                     |
|----------------------------------------------------------------|-------------------------------------|
| Product type                                                   | Surge protection for MCR technology |
| Product family                                                 | PLUGTRAB PT                         |
| IEC test classification                                        | C1                                  |
|                                                                | C2                                  |
|                                                                | C3                                  |
|                                                                | D1                                  |
| Type                                                           | Male                                |
| Surge protection fault message                                 | none                                |
| Arrester can be tested with CHECKMASTER from software version: | From SW rev. 1.00                   |
| Wire pairs per module                                          | 2                                   |

### Insulation characteristics

|                      |     |
|----------------------|-----|
| Overvoltage category | III |
|----------------------|-----|

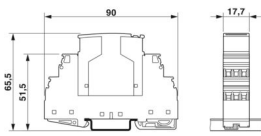
### Electrical properties

|                       |         |
|-----------------------|---------|
| Nominal voltage $U_N$ | 12 V DC |
|-----------------------|---------|

### Connection data

|                                  |                                                        |
|----------------------------------|--------------------------------------------------------|
| Connection method                | Screw connection (in connection with the base element) |
| Screw thread                     | M3                                                     |
| Tightening torque                | 0.8 Nm                                                 |
| 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                  | 17.5 mm                                                                              |
| Height                 | 44.8 mm                                                                              |
| Depth                  | 51.7 mm                                                                              |
| Horizontal pitch       | 1 HP                                                                                 |
| Complete module width  | 17.7 mm                                                                              |
| Complete module height | 90 mm                                                                                |
| Complete module depth  | 65.5 mm                                                                              |

### Material specifications

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|                                        |                  |
|----------------------------------------|------------------|
| Color                                  | black (RAL 9005) |
|                                        | copper color     |
| 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 |
| Nominal voltage $U_N$                                                | 12 V DC                                                                            |
| Maximum continuous operating voltage $U_C$                           | 13 V DC                                                                            |
|                                                                      | 9 V AC                                                                             |
| Rated current                                                        | 450 mA (45 °C)                                                                     |
| Operating effective current $I_C$ at $U_C$                           | $\leq 5 \mu A$                                                                     |
| Protective conductor current $I_{PE}$                                | $\leq 1 \mu A$ (with PT 2X2+F-BE)                                                  |
|                                                                      | $\leq 4 \mu A$                                                                     |
| 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) $\mu s$                   | 2.5 kA (per path)                                                                  |
| Total discharge current $I_{Total}$ (8/20) $\mu s$                   | 20 kA                                                                              |
| Max. discharge current $I_{max}$ (8/20) $\mu s$ maximum (line-line)  | 10 kA                                                                              |
| Max. discharge current $I_{max}$ (8/20) $\mu s$ maximum (line-earth) | 10 kA                                                                              |
| Output voltage limitation at 1 kV/ $\mu s$ (line-line) spike         | $\leq 20 V$                                                                        |
| Output voltage limitation at 1 kV/ $\mu s$ (line-earth) spike        | $\leq 450 V$                                                                       |
| Output voltage limitation at 1 kV/ $\mu s$ (line-line) static        | $\leq 18 V$                                                                        |
| Output voltage limitation (10/700) $\mu s$ (line-earth)              | $\leq 450 V$                                                                       |
| Output voltage limitation (10/700) $\mu s$ (line-signal ground)      | $\leq 18 V$                                                                        |
| Residual voltage at $I_n$ (conductor-conductor)                      | $\leq 18 V$                                                                        |
| Residual voltage at $I_n$ (line-signal ground)                       | $\leq 450 V$                                                                       |
| Residual voltage with $I_{an}$ (10/1000) $\mu s$ (line-line)         | $\leq 23 V$                                                                        |
| Response time $t_A$ (line-line)                                      | $\leq 1 ns$                                                                        |
| Response time $t_A$ (line-earth)                                     | $\leq 100 ns$                                                                      |
| Input attenuation aE, sym.                                           | 0.5 dB ( $\leq 600 kHz$ )                                                          |
| Cut-off frequency $f_g$ (3 dB), sym. in 50 $\Omega$ system           | typ. 3 MHz                                                                         |
| Capacity (Core-Core)                                                 | 3 nF                                                                               |
| Resistance per path                                                  | 2.2 $\Omega$                                                                       |
| Surge protection fault message                                       | none                                                                               |
| Impulse durability (line-line)                                       | C2 - 10 kV / 5 kA                                                                  |
| Impulse durability (line-earth)                                      | C2 - 10 kV / 5 kA                                                                  |
|                                                                      | D1 - 2.5 kA                                                                        |

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## Environmental and real-life conditions

### Ambient conditions

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

## Standards and regulations

### Standards Information technology specification

|                       |                 |
|-----------------------|-----------------|
| Standards/regulations | IEC 61643-21    |
|                       | DIN EN 61643-21 |
|                       | UL 497B         |
|                       | IEC 61643-21    |
|                       | DIN EN 61643-21 |
|                       | UL 497B         |

### Air clearances and creepage distances

|                       |                          |
|-----------------------|--------------------------|
| Standards/regulations | VDE 0110-1 / IEC 60664-1 |
|-----------------------|--------------------------|

## Mounting

|               |                 |
|---------------|-----------------|
| Mounting type | on base element |
|---------------|-----------------|

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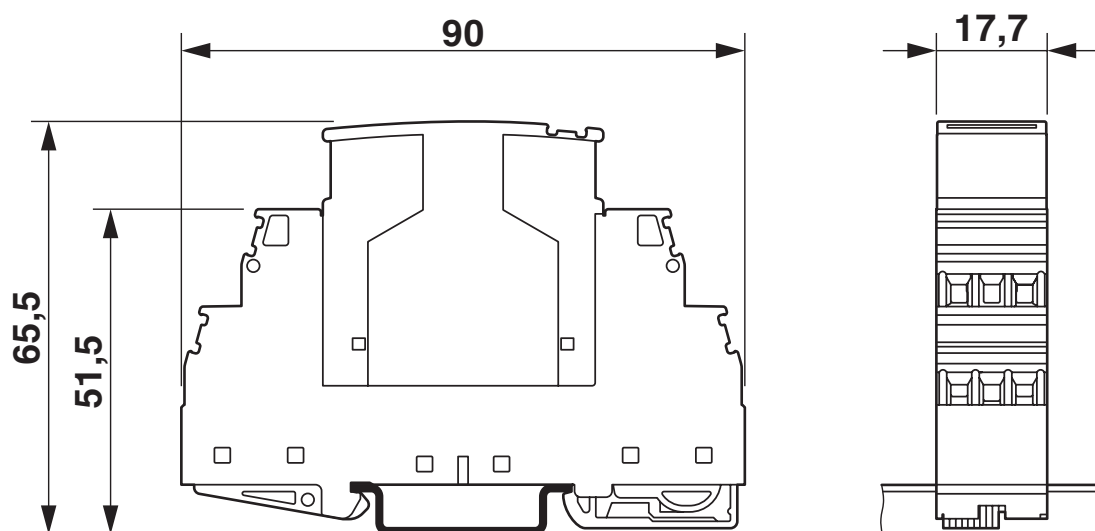
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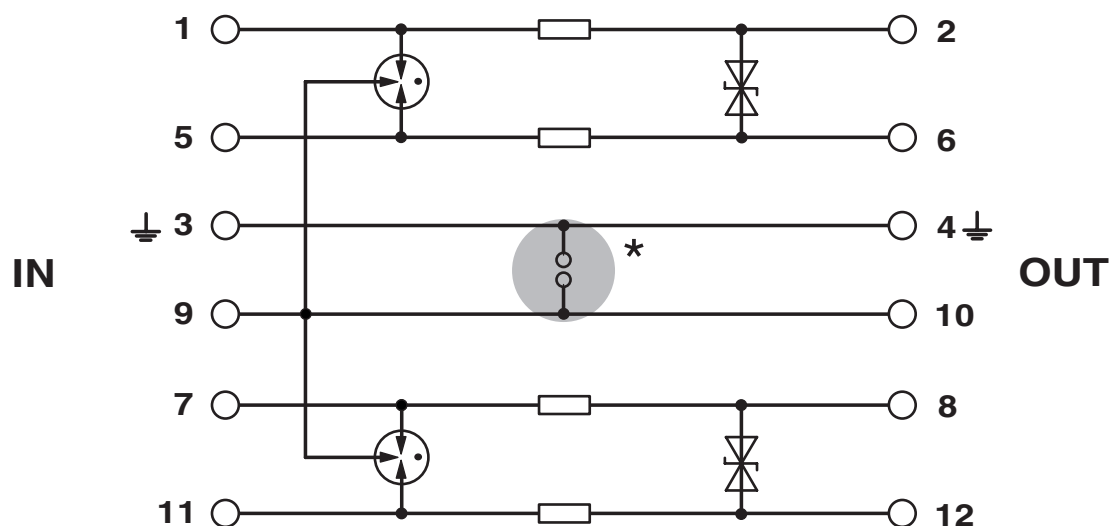
## Drawings

Dimensional drawing



The figure shows the complete module consisting of a base element and connector

Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2838254>

|                                                                                                                                             |                                |                                |                   |                               |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------|
| <div><b>UL Listed</b><br/>Approval ID: FILE E 138168</div> |                                |                                |                   |                               |
|                                                                                                                                             | Nominal voltage U <sub>N</sub> | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| keine                                                                                                                                       |                                |                                |                   |                               |
|                                                                                                                                             | 12 V                           | 0.45 A                         | -                 | -                             |

|                                                                                                                                              |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| <div><b>cUL Listed</b><br/>Approval ID: FILE E 333250</div> |  |  |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|

|                                                                                                                                             |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
| <div><b>UL Listed</b><br/>Approval ID: FILE E 333250</div> |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27171501 |
| ECLASS-15.0 | 27171501 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC001466 |
|-----------|----------|

### UNSPSC

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

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## Environmental product compliance

### EU RoHS

|                                         |              |
|-----------------------------------------|--------------|
| Fulfills EU RoHS substance requirements | Yes          |
| Exemption                               | 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)                 |
| SCIP                                | 2f0bfa03-fbaf-4a35-a433-ec0cd7d1317d |

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 1.107 kg CO2e |
|---------|---------------|

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)