

# PT 4- 5DC-ST - Surge protection plug



2839211

<https://www.phoenixcontact.com/us/products/2839211>

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Protective plug PT with protective circuit for a 4-core floating signal circuit. Nominal voltage: 5 V DC

## 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                          | 2839211       |
| Packing unit                         | 10 pc         |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CL21          |
| Product key                          | CL2111        |
| GTIN                                 | 4017918182755 |
| Weight per piece (including packing) | 26.5 g        |
| Weight per piece (excluding packing) | 20.656 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                                  |
| VDE requirement class  | 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                   |

### Insulation characteristics

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

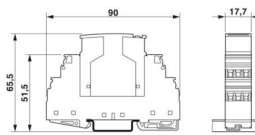
### Electrical properties

|                       |        |
|-----------------------|--------|
| Nominal voltage $U_N$ | 5 V DC |
|-----------------------|--------|

### Connection data

|                                  |  |
|----------------------------------|--|
| Connection method                | Screw connection (in connection with the base element) |
| Screw thread                     | M3   |
| Tightening torque                | 0.5 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                 | 17.7 mm  |
| Height                | 45 mm  |
| Depth                 | 52 mm  |
| Horizontal pitch      | 1 Div.   |
| Complete module width | 17.7 mm  |

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|                        |         |
|------------------------|---------|
| Complete module height | 90 mm   |
| Complete module depth  | 65.5 mm |

## Material specifications

|  |                  |
|--|------------------|
| 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 $U_N$  | 5 V DC   |
| Maximum continuous operating voltage $U_C$                                 | 6 V DC   |
|  | 4 V AC   |
| Rated current  | 2 A (80 °C)  |
| Operating effective current $I_C$ at $U_C$                                 | $\leq 300 \mu\text{A}$   |
| Protective conductor current $I_{PE}$                                      | $\leq 4 \mu\text{A}$ (Directly grounded)   |
|  | $\leq 1 \mu\text{A}$ (with PT 4+F-BE)  |
| Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-line)           | 720 A  |
| Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-ground)         | 10 kA  |
| Pulse discharge current $I_{imp}$ (10/350) $\mu\text{s}$                   | 2.5 kA (per path)  |
| Total discharge current $I_{Total}$ (8/20) $\mu\text{s}$                   | 20 kA  |
| Max. discharge current $I_{max}$ (8/20) $\mu\text{s}$ maximum (line-line)  | 720 A  |
| Max. discharge current $I_{max}$ (8/20) $\mu\text{s}$ maximum (line-earth) | 10 kA  |
| Nominal pulse current $I_{an}$ (10/1000) $\mu\text{s}$ (line-line)         | 160 A  |
| Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-line) spike         | $\leq 13 \text{ V}$  |
| Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-earth) spike        | $\leq 450 \text{ V}$   |
|  | $\leq 1 \text{ kV}$ (with PT 4+F-BE)   |
| Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-line) static        | $\leq 10 \text{ V}$  |
| Residual voltage at $I_n$ (conductor-conductor)                            | $\leq 40 \text{ V}$  |
| Residual voltage with $I_{an}$ (10/1000) $\mu\text{s}$ (line-line)         | $\leq 20 \text{ V}$  |
| Voltage protection level $U_p$ (line-line)                                 | $\leq 30 \text{ V}$ (C1 - 1 kV / 500 A)  |
| Voltage protection level $U_p$ (line-earth)                                | $\leq 450 \text{ V}$   |
|  | $\leq 1 \text{ kV}$ (with PT 4+F-BE)   |
| Response time $t_A$ (line-line)  | $\leq 1 \text{ ns}$  |
| Response time $t_A$ (line-earth)   | $\leq 100 \text{ ns}$  |
| Response time $t_A$ (line-signal ground)                                   | $\leq 1 \text{ ns}$  |
| Input attenuation aE, sym.   | 0.1 dB ( $\leq 250 \text{ kHz}$ )  |
| Cut-off frequency $f_g$ (3 dB), sym. in 50 $\Omega$ system                 | typ. 1 MHz   |

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|                                 |                   |
|---------------------------------|-------------------|
| Surge protection fault message  | none              |
| Max. required back-up fuse      | 2 A (T)           |
| Impulse durability (line-line)  | C1 - 1 kV / 500 A |
|                                 | C3 - 100 A        |
| Impulse durability (line-earth) | C2 - 10 kV / 5 kA |
|                                 | D1 - 2.5 kA       |

## Environmental and real-life conditions

### Ambient conditions

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

## Standards and regulations

|                       |    |
|-----------------------|----|
| VDE requirement class | C1 |
|                       | C2 |
|                       | C3 |
|                       | D1 |

### 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 |
| Standards/specifications | IEC 61643-21             |
| Note                     | 2000                     |

## Mounting

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

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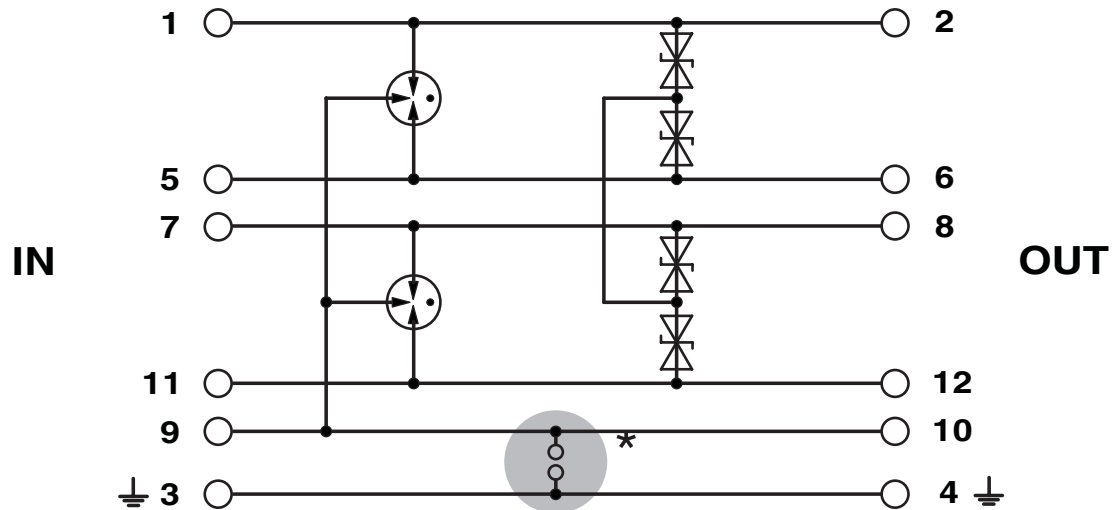
## Drawings

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/2839211>

|  <b>UL Listed</b><br>Approval ID: FILE E 138168 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine  |                       |                       |                   |                             |
|  | 5 V                   | 2 A                   | -                 | -                           |

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

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

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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                                | c325c22d-2f06-41f9-8631-459fe867b462 |

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 1.115 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)