

## Surge protection plug - PT 4-24DC-ST - 2839240

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Protective plug PT with protective circuit for a 4-core floating signal circuit. Nominal voltage: 24 V DC

### Your advantages

- ✓ Easy testing and documentation with CHECKMASTER 2 with pluggable protective modules
- ✓ Maximum ease of maintenance thanks to the two-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



### Key Commercial Data

|                                      |                                                                                                         |
|--------------------------------------|---------------------------------------------------------------------------------------------------------|
| Packing unit                         | 10 pc                                                                                                   |
| GTIN                                 | <br>4 017918 182786 |
| GTIN                                 | 4017918182786                                                                                           |
| Weight per Piece (excluding packing) | 21.783 g                                                                                                |
| Custom tariff number                 | 85363010                                                                                                |
| Country of origin                    | Germany                                                                                                 |
| Sales Key                            | CL2111                                                                                                  |

### Technical data

#### Dimensions

|                        |         |
|------------------------|---------|
| Height                 | 45 mm   |
| Width                  | 17.7 mm |
| Depth                  | 52 mm   |
| Horizontal pitch       | 1 Div.  |
| Complete module height | 90 mm   |
| Complete module width  | 17.7 mm |
| Complete module depth  | 65.5 mm |

#### Ambient conditions

# Surge protection plug - PT 4-24DC-ST - 2839240

## Technical data

### Ambient conditions

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

### General

|                                                                |                                                                                    |
|----------------------------------------------------------------|------------------------------------------------------------------------------------|
| Housing material                                               | PA 6.6                                                                             |
| Flammability rating according to UL 94                         | V-0                                                                                |
| Color                                                          | black                                                                              |
| Standards for clearances and creepage distances                | VDE 0110-1                                                                         |
|                                                                | IEC 60664-1                                                                        |
| Mounting type                                                  | on base element                                                                    |
| Type                                                           | Male                                                                               |
| Direction of action                                            | Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground |
| Arrester can be tested with CHECKMASTER from software version: | From SW rev. 1.00                                                                  |

### Protective circuit

|                                                                      |                                 |
|----------------------------------------------------------------------|---------------------------------|
| IEC test classification                                              | C1                              |
|                                                                      | C2                              |
|                                                                      | C3                              |
|                                                                      | D1                              |
| VDE requirement class                                                | C1                              |
|                                                                      | C2                              |
|                                                                      | C3                              |
|                                                                      | D1                              |
| Nominal voltage $U_N$                                                | 24 V DC                         |
| Maximum continuous voltage $U_C$                                     | 27 V DC                         |
|                                                                      | 19 V AC                         |
| Rated current                                                        | 2 A (80 °C)                     |
| Operating effective current $I_C$ at $U_C$                           | $\leq 5 \mu A$                  |
| Residual current $I_{PE}$                                            | $\leq 4 \mu A$ (with PT 4-BE)   |
|                                                                      | $\leq 1 \mu A$ (with PT 4+F-BE) |
| Nominal discharge current $I_n$ (8/20) $\mu s$ (line-line)           | 365 A                           |
| Nominal discharge current $I_n$ (8/20) $\mu s$ (line-earth)          | 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)  | 365 A                           |
| Max. discharge current $I_{max}$ (8/20) $\mu s$ maximum (line-earth) | 10 kA                           |
| Nominal pulse current $I_{an}$ (10/1000) $\mu s$ (line-line)         | 67 A                            |
| Output voltage limitation at 1 kV/ $\mu s$ (line-line) spike         | $\leq 40 V$                     |
| Output voltage limitation at 1 kV/ $\mu s$ (line-earth) spike        | $\leq 450 V$ (with PT 4-BE)     |
|                                                                      | $\leq 1 kV$ (with PT 4+F-BE)    |
| Output voltage limitation at 1 kV/ $\mu s$ (line-line) static        | $\leq 40 V$                     |

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### Technical data

#### Protective circuit

|                                                              |                                                |
|--------------------------------------------------------------|------------------------------------------------|
| Residual voltage at $I_n$ (line-line)                        | $\leq 60$ V                                    |
| Residual voltage with $I_{an}$ (10/1000) $\mu$ s (line-line) | $\leq 45$ V                                    |
| Voltage protection level $U_p$ (line-line)                   | $\leq 50$ V (C1 - 500 V / 250 A)               |
|                                                              | $\leq 45$ V (C3 - 67 A)                        |
| Voltage protection level $U_p$ (line-earth)                  | $\leq 500$ V (C2 - 10 kV / 5 kA with PT 4-BE)  |
|                                                              | $\leq 1$ kV (C2 - 10 kV / 5 kA with PT 4+F-BE) |
|                                                              | $\leq 500$ V (6 kV / 3 kA)                     |
| Response time $t_A$ (line-line)                              | $\leq 1$ ns                                    |
| Response time $t_A$ (line-signalground)                      | $\leq 1$ ns                                    |
| Response time $t_A$ (line-earth)                             | $\leq 100$ ns                                  |
| Input attenuation aE, sym.                                   | 0.1 dB ( $\leq 1$ MHz)                         |
|                                                              | 0.1 dB ( $\leq 1$ MHz / 50 $\Omega$ )          |
|                                                              | 0.2 dB ( $\leq 400$ kHz / 150 $\Omega$ )       |
| Cut-off frequency $f_g$ (3 dB), sym. in 50 $\Omega$ system   | typ. 4.5 MHz                                   |
| Cut-off frequency $f_g$ (3 dB), sym. in 150 $\Omega$ system  | typ. 1.5 MHz                                   |
| Resistance per path                                          | 0 $\Omega$                                     |
| Surge protection fault message                               | none                                           |
| Impulse durability (line-line)                               | C1 - 500 V / 250 A                             |
|                                                              | C3 - 25 A                                      |
| Impulse durability (line-earth)                              | C2 - 10 kV / 5 kA                              |
|                                                              | D1 - 2.5 kA                                    |

#### Connection data

|                                  |                                                        |
|----------------------------------|--------------------------------------------------------|
| Connection method                | Screw connection (in connection with the base element) |
| Screw thread                     | M3                                                     |
| Tightening torque                | 0.8 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                                              |

#### Connection, equipotential bonding

|                                       |                     |
|---------------------------------------|---------------------|
| Stripping length                      | 8 mm                |
| Conductor cross section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross section flexible max. | 2.5 mm <sup>2</sup> |
| Conductor cross section solid min.    | 0.2 mm <sup>2</sup> |
| Conductor cross section solid max.    | 4 mm <sup>2</sup>   |
| Conductor cross section AWG min.      | 24                  |
| Conductor cross section AWG max.      | 12                  |

#### Standards and Regulations

|                       |              |
|-----------------------|--------------|
| Standards/regulations | IEC 61643-21 |
|-----------------------|--------------|

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## Technical data

### Standards and Regulations

|                          |                      |
|--------------------------|----------------------|
|                          | DIN EN 61643-21      |
|                          | UL 497B              |
| Standards/specifications | EN 61643-21/A1 2009  |
|                          | IEC 61643-21/A1 2008 |
|                          | UL 497B              |

### Environmental Product Compliance

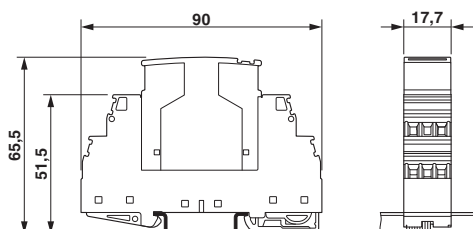
|            |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| REACH SVHC | Lead 7439-92-1                                     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

## Drawings

Pictogram



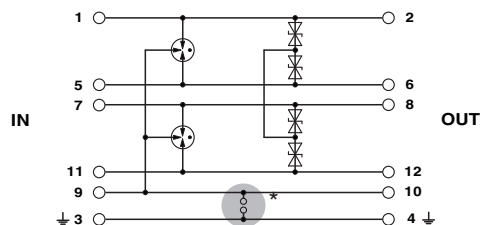
Dimensional drawing



Pictogram



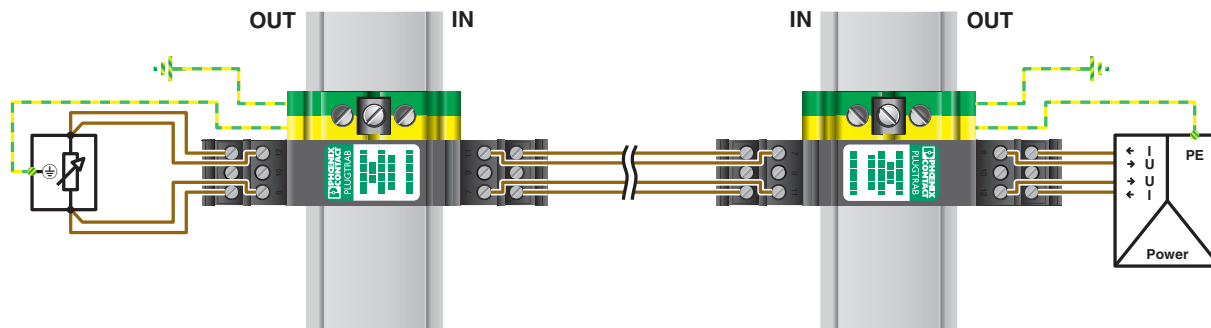
Circuit diagram



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

# Surge protection plug - PT 4-24DC-ST - 2839240

Application drawing



## Classifications

### eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27130807 |
| eCl@ss 11.0   | 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 |
| eCl@ss 9.0    | 27130807 |

### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000943 |
| ETIM 3.0 | EC000943 |
| ETIM 4.0 | 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 |

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## Classifications

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121620 |
|-------------|----------|

## Approvals

### Approvals

#### Approvals


DNV GL / UL Listed / EAC / EAC

#### Ex Approvals


UL Listed / cUL Listed / cULus Listed


## Approval details

|        |                                                                                     |                                                                                   |            |
|--------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------|
| DNV GL |  | <a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a> | TAE00001N6 |
|--------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------|

|           |                                                                                     |                                                                                                                                                       |               |
|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 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 |
|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|

|                    |      |
|--------------------|------|
| Nominal voltage UN | 24 V |
| Nominal current IN | 2 A  |

|     |                                                                                     |               |
|-----|-------------------------------------------------------------------------------------|---------------|
| EAC |  | EAC-Zulassung |
|-----|-------------------------------------------------------------------------------------|---------------|

|     |                                                                                     |                     |
|-----|-------------------------------------------------------------------------------------|---------------------|
| EAC |  | RU C-DE.*09.B.00169 |
|-----|-------------------------------------------------------------------------------------|---------------------|

## Accessories

### Accessories

### Device marking

## Surge protection plug - PT 4-24DC-ST - 2839240

### Accessories

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

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### 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

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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

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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

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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

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### Marker pen

## Surge protection plug - PT 4-24DC-ST - 2839240

### Accessories

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

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### Terminal marking

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

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### Necessary add-on products

Surge protection base element - PT 4-BE - 2839402



Base element for protective plug PT with protective circuit for a 4-wire floating signal circuit, bridge between the connections 3-4 (GND) and 9-10, for mounting on NS 35/7.5 and NS 35/15, housing width: 17.5 mm

Surge protection base element - PT 4+F-BE - 2839415



Base element for protective plug PT with protective circuit for a 4-wire floating signal circuit, gas-filled surge arrester between the connections 3-4 (GND) and 9-10, for mounting on NS 35/7.5 and NS35/15, housing width: 17.5 mm

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### Additional products



## Surge protection plug - PT 4-24DC-ST - 2839240

### Accessories

#### 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

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#### 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

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