

# Surge protection device - PT 5-HF-24DC-ST - 2906002

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PT protective plug with HF protective circuit for 4 signal wires. Nominal voltage: 24 V DC



## Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4055626013398

## Technical data

### Dimensions

Height	45 mm
Width	17.7 mm
Depth	52 mm

### Ambient conditions

Ambient temperature (operation)	-40 °C ... 85 °C
Altitude	≤ 2000 m
Degree of protection	IP20

### General

Housing material	PA 6.6
Flammability rating according to UL 94	V-0
Color	black
Type	Male
Number of positions	5
Direction of action	Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground

### Protective circuit

IEC test classification	C1
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## Technical data

### Protective circuit

	C2
	C3
	D1
VDE requirement class	C1
	C2
	C3
	D1
Nominal voltage $U_N$	24 V DC
Maximum continuous voltage $U_C$	28 V DC
Rated current	450 mA (45 °C)
Operating effective current $I_C$ at $U_C$	$\leq 5 \mu\text{A}$
Residual current $I_{PE}$	$\leq 5 \mu\text{A}$ (with PT 2X2-BE)
	$\leq 1 \mu\text{A}$ (with PT 2X2+F-BE)
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-line)	10 kA
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-earth)	10 kA (with PT 2X2+F-BE)
	10 kA (with PT 2X2-BE)
Pulse discharge current $I_{imp}$ (10/350) $\mu\text{s}$	2.5 kA (with PT 2X2-BE)
	2.5 kA (with PT 2X2+F-BE)
Total discharge current $I_{total}$ (8/20) $\mu\text{s}$	20 kA
Nominal pulse current $I_{an}$ (10/1000) $\mu\text{s}$ (line-line)	25 A
Voltage protection level $U_p$ (line-line)	$\leq 150 \text{ V}$ (C1 - 1 kV/500 A)
	$\leq 165 \text{ V}$ (C2 - 10 kV / 5 kA)
	$\leq 450 \text{ V}$ (C2 - 10 kA)
	$\leq 50 \text{ V}$ (C3 - 25 A)
Voltage protection level $U_p$ (line-earth)	$\leq 150 \text{ V}$ (C1 - 1 kV/500 A)
	$\leq 700 \text{ V}$ (C1 - 1 kV / 500 A with PT 2X2+F-BE)
	$\leq 165 \text{ V}$ (C2 - 10 kV / 5 kA)
	$\leq 900 \text{ V}$ (C2 - 10 kV / 5 kA with PT 2X2+F-BE)
	$\leq 450 \text{ V}$ (C2 - 10 kA)
	$\leq 1000 \text{ V}$ (C2 - 10 kA with PT 2X2+F-BE)
	$\leq 50 \text{ V}$ (C3 - 25 A)
	$\leq 800 \text{ V}$ (C3 - 25 A with PT 2X2+F-BE)
Voltage protection level $U_p$ (line-signalground)	$\leq 150 \text{ V}$ (C1 - 1 kV/500 A)
	$\leq 150 \text{ V}$ (C1 - 1 kV / 500 A with PT 2X2+F-BE)
	$\leq 165 \text{ V}$ (C2 - 10 kV / 5 kA)
	$\leq 165 \text{ V}$ (C2 - 10 kV / 5 kA with PT 2X2-BE)
	$\leq 450 \text{ V}$ (C2 - 10 kA)
	$\leq 450 \text{ V}$ (C2 - 10 kV / 5 kA with PT 2X2-BE)
	$\leq 50 \text{ V}$ (C3 - 25 A)
	$\leq 50 \text{ V}$ (C3 - 25 A with PT 2X2-BE)

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## Technical data

### Protective circuit

Response time $t_A$ (line-line)	$\leq 500$ ns
Response time $t_A$ (line-earth)	$\leq 500$ ns
Input attenuation aE, sym.	typ. 0.3 dB ( $\leq 13$ MHz/100 $\Omega$ )
Cut-off frequency $f_g$ (3 dB), sym. in 100 Ohm system	typ. 70 MHz
Capacity (line-line)	typ. 23 pF
Resistance per path	2.2 $\Omega \pm 10$ %
Max. required back-up fuse	500 mA (T)

### 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/specifications	EN 61643-21/A2 2013
	IEC 61643-21/A2 2012

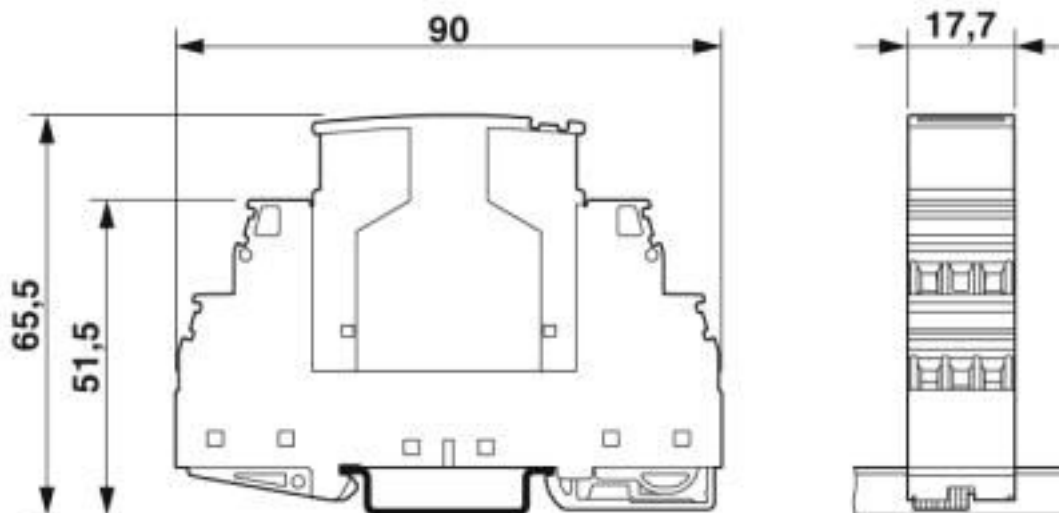
### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

## Drawings

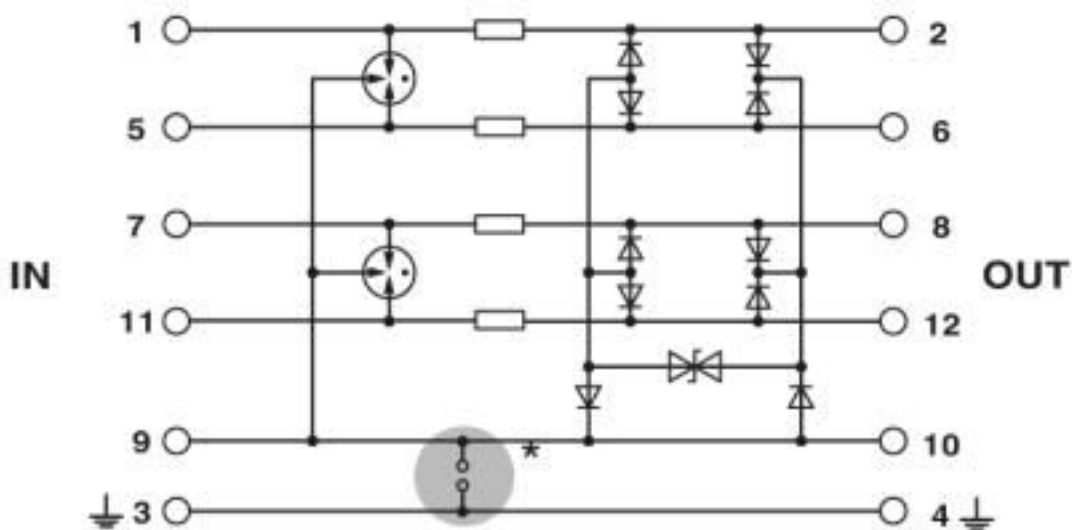
# Surge protection device - PT 5-HF-24DC-ST - 2906002

Dimensional drawing



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

Circuit diagram



## Classifications

eCl@ss

eCl@ss 10.0.1	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

# Surge protection device - PT 5-HF-24DC-ST - 2906002

## Classifications

### eCl@ss

eCl@ss 8.0	27130807
eCl@ss 9.0	27130807

### ETIM

ETIM 2.0	EC000943
ETIM 3.0	EC000943
ETIM 4.0	EC000943
ETIM 5.0	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
UNSPSC 21.0	39121620

## Accessories

### Accessories

#### Device marking

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

#### 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

## Surge protection device - PT 5-HF-24DC-ST - 2906002

### Accessories

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

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

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

### Marker pen

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

### 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

## Surge protection device - PT 5-HF-24DC-ST - 2906002

### Accessories

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 2X2-BE - 2839208



Base element for protective plug PT with protective circuit for two 2-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

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### Additional products

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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