

# PT 1X2-24DC-ST - Surge protection plug



2856032

<https://www.phoenixcontact.com/in/products/2856032>

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PT protective connector with protective circuit for a 2-wire floating signal circuit. 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	2856032
Packing unit	10 pc
Minimum order quantity	1 pc
Sales Key	CL2
Product Key	CL2111
Catalog Page	Page 122 (C-4-2019)
GTIN	4017918599201
Weight per Piece (including packing)	23.5 g
Weight per Piece (excluding packing)	20 g
Customs tariff number	85363010
Country of origin	DE

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## Technical Data

### Notes

#### General

Note	Technical data is valid in association with the following specified base elements:
	PT 1X2+F-BE 2856126
	PT 1X2-BE 2856113

### Product properties

IEC test classification	C1
	C2
	C3
	D1
Type	Male
Product type	Surge protection for MCR technology
Product family	PLUGTRAB PT
Surge protection fault message	none
Arrester can be tested with CHECKMASTER from software version:	From SW rev. 1.00
Wire pairs per module	1

#### Insulation characteristics

Overvoltage category	III
Pollution degree	2

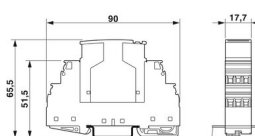
### Electrical properties

Nominal voltage $U_N$	24 V DC
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### 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

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

## Material specifications

Color	jet black RAL 9005
Flammability rating according to UL 94	V-0
Housing material	PA 6.6

## Mechanical properties

### Mechanical data

Open side panel	No
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## Protective circuit

Direction of action	Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground
Maximum continuous voltage $U_C$	28 V DC
	20 V AC
Rated current	450 mA (45 °C)
Operating effective current $I_C$ at $U_C$	$\leq 5 \mu\text{A}$
Residual current $I_{PE}$	$\leq 1 \mu\text{A}$ (with PT 1X2+F-BE)
	$\leq 2 \mu\text{A}$ (with PT 1X2-BE)
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-line)	10 kA
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (Core-Earth)	10 kA
Pulse discharge current $I_{imp}$ (10/350) $\mu\text{s}$	2.5 kA
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)	10 kA
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)	30 A
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-line) spike	$\leq 45 \text{ V}$
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-earth) spike	$\leq 450 \text{ V}$ (with PT 1X2-BE)
	$\leq 1 \text{ kV}$ (with PT 1X2+F-BE)
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-line) static	$\leq 40 \text{ V}$
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-earth) static	$\leq 25 \text{ V}$ (with PT 1X2-BE)
	$\leq 50 \text{ V}$ (with PT 1X2+F-BE)
Residual voltage at $I_n$ (conductor-conductor)	$\leq 40 \text{ V}$
Residual voltage with $I_{an}$ (10/1000) $\mu\text{s}$ (line-line)	$\leq 50 \text{ V}$
Voltage protection level $U_p$ (line-line)	$\leq 70 \text{ V}$ (C1 - 1 kV / 500 A)
	$\leq 70 \text{ V}$ (C2 - 10 kV / 5 kA)
	$\leq 60 \text{ V}$ (C2 - 6 kV / 3 kA)
	$\leq 50 \text{ V}$ (C3 - 25 A)

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Voltage protection level $U_p$ (line-earth)	$\leq 450$ V (C1 - 1 kV / 500 A with PT 1X2-BE)
	$\leq 550$ V (C2 - 10 kV / 5 kA with PT 1X2-BE)
	$\leq 1000$ V (C2 - 10 kV / 5 kA with PT 1X2+F-BE)
	$\leq 500$ V (C2 - 6 kV / 3 kA with PT 1X2-BE)
Voltage protection level $U_p$ static (line-line)	$\leq 40$ V (C2 - 10 kV / 5 kA)
Voltage protection level $U_p$ static (line-earth)	$\leq 50$ V (C2 - 10 kV / 5 kA with PT 1X2-BE)
	$\leq 100$ V (C2 - 10 kV / 5 kA with PT 1X2+F-BE)
Response time $t_A$ (line-line)	$\leq 1$ ns
Response time $t_A$ (line-earth)	$\leq 100$ ns
Input attenuation aE, sym.	typ. 0.5 dB ( $\leq 1$ MHz / 50 $\Omega$ )
	typ. 0.2 dB ( $\leq 400$ kHz / 150 $\Omega$ )
	typ. 0.1 dB ( $\leq 70$ kHz / 600 $\Omega$ )
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
Cut-off frequency $f_g$ (3 dB), sym. in 600 $\Omega$ system	typ. 600 kHz
Capacity (Core-Core)	typ. 1.4 nF
Capacity (Core-Earth)	typ. 4 pF (with PT 1X2-BE)
	typ. 2 pF (with PT 1X2+F-BE)
Resistance per path	2.2 $\Omega \pm 10$ %
Surge protection fault message	none
Max. required back-up fuse	500 mA (T)
Impulse durability (line-line)	C1 - 1 kV / 500 A
	C2 - 6 kV / 3 kA
	C2 - 10 kV / 5 kA
	C3 - 25 A
Impulse durability (line-earth)	C1 - 1 kV / 500 A
	C2 - 6 kV / 3 kA
	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
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	$\leq 2000$ m (amsl (above mean sea level))

## Standards and regulations

Standards/specifications	IEC 61643-21
Standards/specifications	EN 61643-21

## Mounting

Mounting type	on base element
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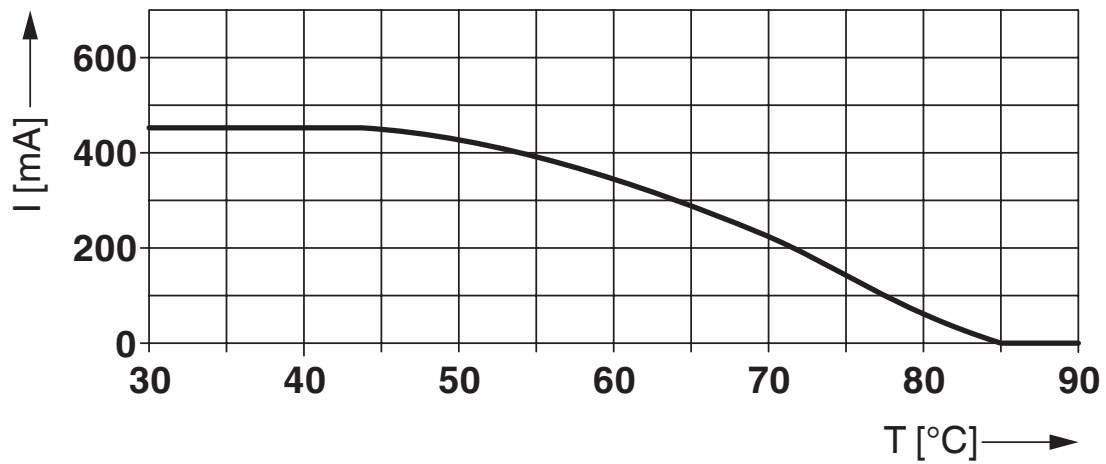
# PT 1X2-24DC-ST - Surge protection plug

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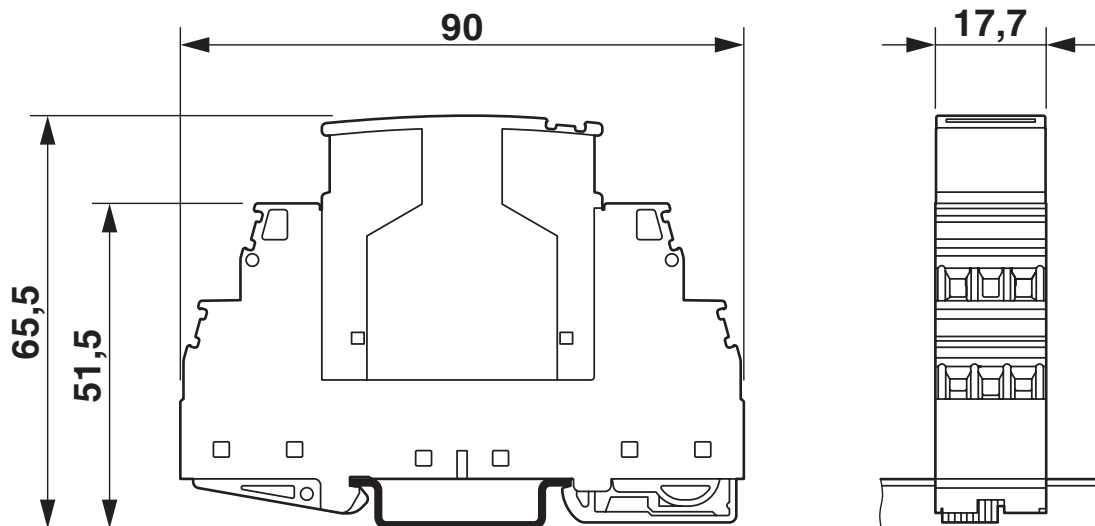
<https://www.phoenixcontact.com/in/products/2856032>

## Drawings

Diagram



Dimensional drawing



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

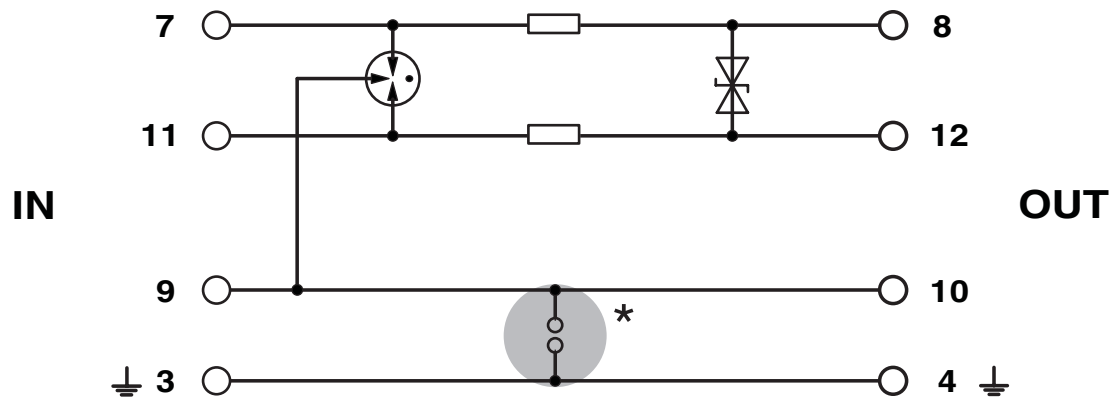
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Circuit diagram



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## Approvals



**EAC**

Approval ID: EAC-Zulassung



**DNV GL**

Approval ID: TAE00001N6



**EAC**

Approval ID: RU C-DE. \*09.B.00169



**UL Listed**

Approval ID: FILE E 138168

Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $mm^2$
24 V	0.45 A	-	-



**CCC**

Approval ID: 2020322316002243



**cUL Listed**

Approval ID: FILE E 333250



**UL Listed**

Approval ID: FILE E 333250



**CCC**

Approval ID: 2020322316003150



**NEPSI**

Approval ID: GYJ20.1180X



**ATEX**

Approval ID: DEKRA 22ATEX0044 X



**IECEx**

Approval ID: IECEx DEK 22.0031X

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**UKCA-EX**

Approval ID: DEKRA 22UKEX6005X



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## Classifications

### ECLASS

ECLASS-11.0

27130807

### ETIM

ETIM 8.0

EC000943

### UNSPSC

UNSPSC 21.0

39121600

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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Mandatory Accessories

### PT 1X2-BE - Surge protection base-element

2856113

<https://www.phoenixcontact.com/in/products/2856113>

Base element for protective plug PT with protective circuit for a 2-core floating signal circuit. Mounting on NS 35/7.5 und NS 35/15, housing width: 17.5 mm.



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### PT 1X2+F-BE - Surge protection base-element

2856126

<https://www.phoenixcontact.com/in/products/2856126>

Base element for protective plug PT with protective circuit for a 2-core floating signal circuit. Integrated gas arrester as coarse protection between GND and PE. Mounting on NS 35/7.5 und NS 35/15, housing width: 17.5 mm.



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## Accessories

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## X-PEN 0,35 - Marker pen

0811228

<https://www.phoenixcontact.com/in/products/0811228>



Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm

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## ZBF 5:UNBEDRUCKT - Zack Marker strip, flat

0808642

<https://www.phoenixcontact.com/in/products/0808642>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.1 x 5.2 mm, Number of individual labels: 10

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## ZBF 5/WH-100:UNBEDRUCKT - Zack Marker strip, flat

0808668

<https://www.phoenixcontact.com/in/products/0808668>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 1000

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## ZBF 5,LGS:FORTL.ZAHLEN - Zack Marker strip, flat

0808671

<https://www.phoenixcontact.com/in/products/0808671>



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 491 ... 500, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

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## ZBF 5,LGS:GERADE ZAHLEN - Zack Marker strip, flat

0810821

<https://www.phoenixcontact.com/in/products/0810821>



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive even numbers 2 ... 20, 22 ... 40, etc. up to 82 ... 100, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

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## ZBF 5,LGS:UNGERADE ZAHLEN - Zack Marker strip, flat

0810863

<https://www.phoenixcontact.com/in/products/0810863>



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: Odd numbers 1 - 19, 21 - 39, etc. up to 81 - 99, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

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## ZBF 5,QR:FORTL.ZAHLEN - Zack Marker strip, flat

0808697

<https://www.phoenixcontact.com/in/products/0808697>



Zack Marker strip, flat, Strip, white, labeled, Printed vertically: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... 100, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

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## ZBN 18:UNBEDRUCKT - Zack marker strip

2809128

<https://www.phoenixcontact.com/in/products/2809128>



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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## SSA 3-6 - Shield connection

2839295

<https://www.phoenixcontact.com/in/products/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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## SSA 5-10 - Shield connection

2839512

<https://www.phoenixcontact.com/in/products/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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