

## Surge protection plug - PT 2X2-24DC-ST - 2838228

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)



PT protective connector with protective circuit for two 2-wire floating signal circuits. 24 V DC nominal voltage. HART-compatible.

### Your advantages

- ✓ Plugs can be checked with CHECKMASTER
- ✓ Installed in conjunction with the PT 2x2...-BE base element
- ✓ Maximum ease of maintenance thanks to the two-piece design
- ✓ Base element remains an integral part of the installation
- ✓ Consistent plug-in signal circuit protection
- ✓ Protection for two separate floating signal circuits
- ✓ Impedance-neutral disconnection of plug for test and maintenance purposes



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 017918 182649
GTIN	4017918182649
Weight per Piece (excluding packing)	25.110 g
Custom tariff number	85363010
Country of origin	Germany

### Technical data

#### Dimensions

Height	44.8 mm
Width	17.5 mm
Depth	51.7 mm

## Surge protection plug - PT 2X2-24DC-ST - 2838228

### Technical data

#### Dimensions

Horizontal pitch	1 Div.
Complete module height	90 mm
Complete module width	17.7 mm
Complete module depth	65.5 mm

#### Ambient conditions

Ambient temperature (operation)	-40 °C ... 85 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 2000 m (amsl (above mean sea level))
Degree of protection	IP20

#### General

Housing material	PA 6.6
Flammability rating according to UL 94	V-0
Color	jet black RAL 9005
Overvoltage category	II
Degree of pollution	3
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

#### Additional descriptions

Note	Technical data is valid in association with the following specified base elements:
	PT 2X2+F-BE 2839224
	PT 2X2-BE 2839208

#### Protective circuit

IEC test classification	C1
	C2
	C3
	D1
Nominal voltage $U_N$	24 V DC
Maximum continuous voltage $U_C$	28 V DC
	20 V AC
Rated current	450 mA (45 °C)
Operating effective current $I_C$ at $U_C$	≤ 5 μA
Residual current $I_{PE}$	≤ 1 μA (with PT 2X2+F-BE)

## Surge protection plug - PT 2X2-24DC-ST - 2838228

### Technical data

#### Protective circuit

	$\leq 4 \mu\text{A}$ (with PT 2X2-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
Pulse discharge current $I_{\text{imp}}$ (10/350) $\mu\text{s}$	2.5 kA
Total discharge current $I_{\text{total}}$ (8/20) $\mu\text{s}$	20 kA
Max. discharge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ maximum (line-line)	10 kA
Max. discharge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ maximum (line-earth)	10 kA
Nominal pulse current $I_{\text{an}}$ (10/1000) $\mu\text{s}$ (line-line)	25 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 2X2-BE)
	$\leq 1 \text{ kV}$ (with PT 2X2+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 2X2-BE)
	$\leq 50 \text{ V}$ (with PT 2X2+F-BE)
Residual voltage at $I_n$ (line-line)	$\leq 40 \text{ V}$
Residual voltage at $I_n$ (line-signalground)	$\leq 450 \text{ V}$
Residual voltage with $I_{\text{an}}$ (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)
	$\leq 60 \text{ V}$ (C2 - 6 kV / 3 kA)
	$\leq 70 \text{ V}$ (C2 - 10 kV / 5 kA)
	$\leq 50 \text{ V}$ (C3 - 25 A)
Voltage protection level $U_p$ (line-earth)	$\leq 450 \text{ V}$ (C1 - 1 kV / 500 A with PT 2X2-BE)
	$\leq 500 \text{ V}$ (C2 - 6 kV / 3 kA with PT 2X2-BE)
	$\leq 550 \text{ V}$ (C2 - 10 kV / 5 kA with PT 2X2-BE)
	$\leq 1000 \text{ V}$ (C2 - 10 kV / 5 kA with PT 2X2+F-BE)
Voltage protection level $U_p$ static (line-line)	$\leq 40 \text{ V}$ (C2 - 10 kV / 5 kA)
Voltage protection level $U_p$ static (line-earth)	$\leq 50 \text{ V}$ (C2 - 10 kV / 5 kA with PT 2X2-BE)
	$\leq 100 \text{ V}$ (C2 - 10 kV / 5 kA with PT 2X2+F-BE)
Response time $t_A$ (line-line)	$\leq 1 \text{ ns}$
Response time $t_A$ (line-earth)	$\leq 100 \text{ ns}$
Input attenuation aE, sym.	typ. 0.5 dB ( $\leq 1 \text{ MHz}$ / 50 $\Omega$ )
	typ. 0.3 dB ( $\leq 400 \text{ kHz}$ / 150 $\Omega$ )
	typ. 0.1 dB ( $\leq 70 \text{ kHz}$ / 600 $\Omega$ )
Cut-off frequency $f_g$ (3 dB), sym. in 50 Ohm system	typ. 4.5 MHz
Cut-off frequency $f_g$ (3 dB), sym. in 150 Ohm system	typ. 1.5 MHz
Cut-off frequency $f_g$ (3 dB), sym. in 600 Ohm system	typ. 600 kHz

## Surge protection plug - PT 2X2-24DC-ST - 2838228

### Technical data

#### Protective circuit

Capacity (line-line)	typ. 1.4 nF
Capacity (line-earth)	typ. 8 pF (with PT 2X2-BE)
	typ. 2 pF (with PT 2X2+F-BE)
Resistance per path	2.2 Ω ±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

#### Connection data

Connection method	Screw connection (in connection with the base element)
Screw thread	M3
Tightening torque	0.5 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

#### Standards and Regulations

Standards/specifications	IEC 61643-21 2000 + corrigendum 2001 + A1:2008, modified + A2:2012
	EN 61643-21 2001 + A1:2009 + A2:2013

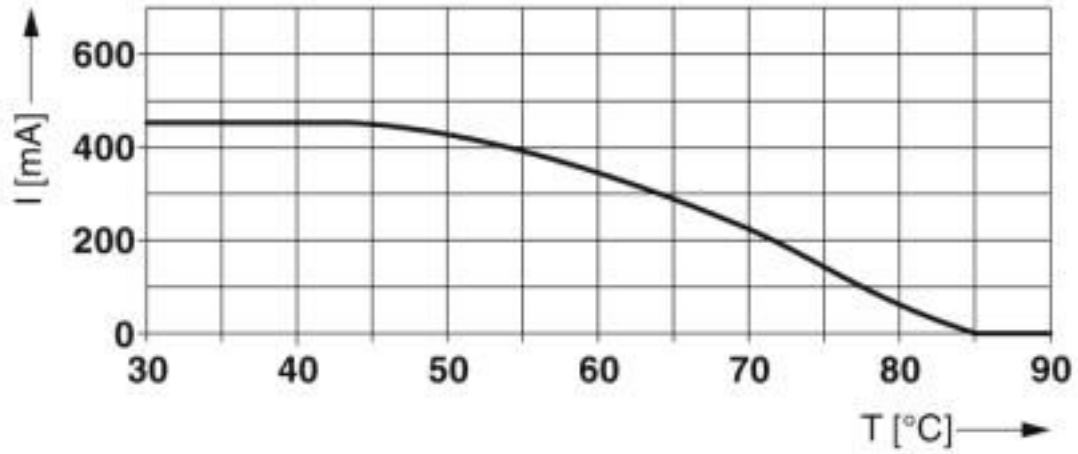
#### Environmental Product Compliance

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"

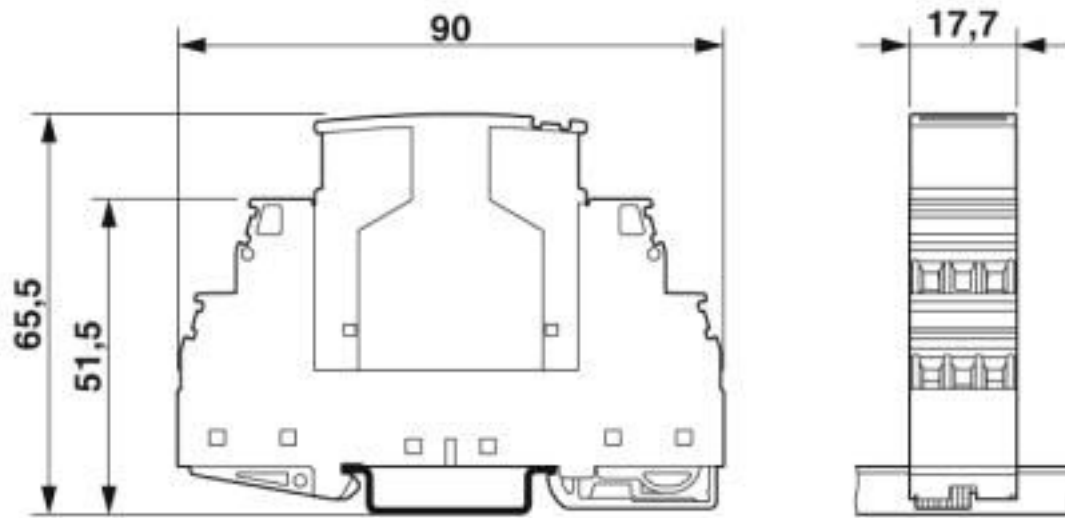
### Drawings

## Surge protection plug - PT 2X2-24DC-ST - 2838228

Diagram



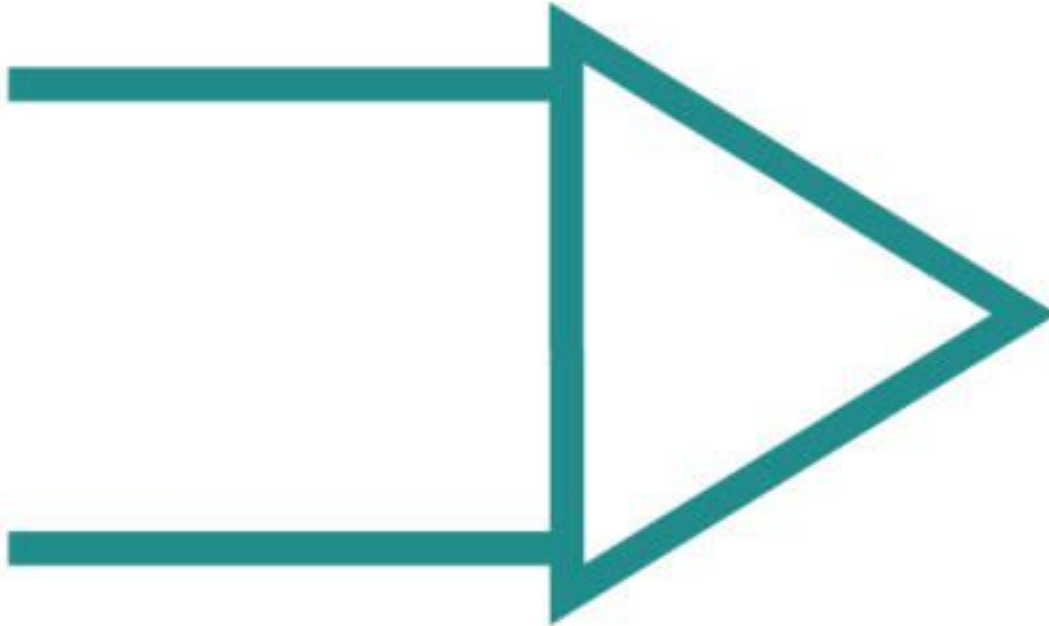
Dimensional drawing



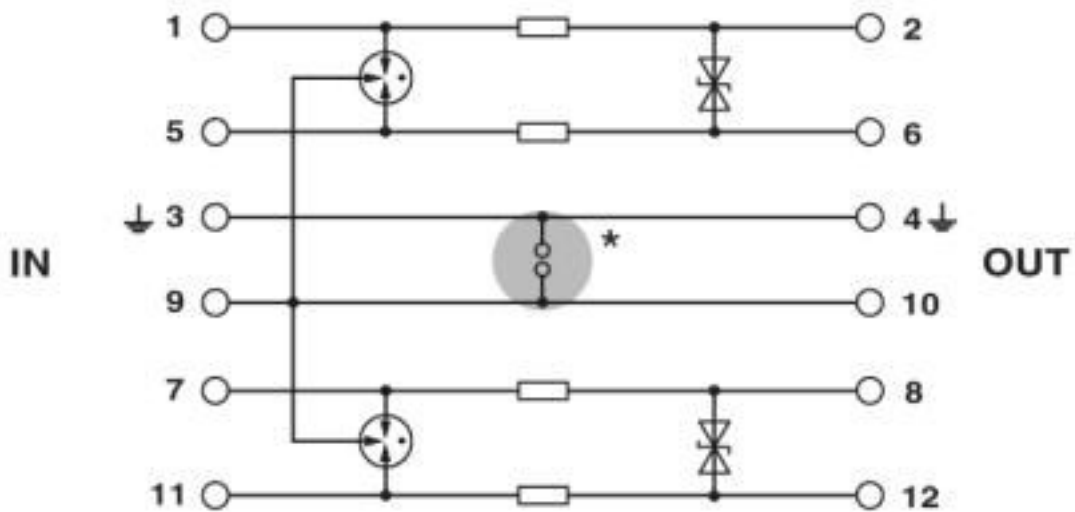
The figure shows the complete module consisting of a base element and connector

# Surge protection plug - PT 2X2-24DC-ST - 2838228

Pictogram



Circuit diagram



## Classifications

eCl@ss

eCl@ss 10.0.1	27130807
eCl@ss 4.0	27130800

# Surge protection plug - PT 2X2-24DC-ST - 2838228

## Classifications

### eCl@ss

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 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

## Approvals

### Approvals

---

#### Approvals

DNV GL / UL Listed / EAC / EAC

---

#### Ex Approvals

ATEX / UL Listed / cUL Listed / cULus Listed

---

## Surge protection plug - PT 2X2-24DC-ST - 2838228

### Approvals

#### 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		0.45 A	

EAC		EAC-Zulassung
-----	--	---------------

EAC		RU C- DE.A*30.B01561
-----	--	-------------------------

### 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



## Surge protection plug - PT 2X2-24DC-ST - 2838228

### Accessories

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

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

## Surge protection plug - PT 2X2-24DC-ST - 2838228

### Accessories

#### 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

### 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

Surge protection base element - PT 2X2+F-BE - 2839224



Base element for protective plug PT with protective circuit for two 2-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 NS 35/15, housing width: 17.5 mm

### Additional products

## Surge protection plug - PT 2X2-24DC-ST - 2838228

### 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

---

#### 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

---

---