

## Surge protection plug - PT 1X2-48DC-ST - 2803658

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Protective plug PT with protective circuit for a 2-wire floating signal circuit.

### Your advantages

- ✓ Plugs can be checked with CHECKMASTER
- ✓ Installed in conjunction with the PT 1x2...-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 a floating signal circuit
- ✓ Impedance-neutral disconnection of plug for test and maintenance purposes



### Key Commercial Data

Packing unit	10 pc
GTIN	 4 046356 299268
GTIN	4046356299268

### 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

Ambient temperature (operation)	-40 °C ... 85 °C
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## Technical data

### Ambient conditions

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
Mounting type	on base element
Type	Male
Number of positions	2
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. 3.15

### Additional descriptions

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

### Protective circuit

IEC test classification	C1
	C2
	C3
	D1
Nominal voltage $U_N$	48 V DC
Maximum continuous voltage $U_C$	53 V DC
	37 V AC
Rated current	450 mA (45 °C)
Operating effective current $I_C$ at $U_C$	≤ 5 μA
Residual current $I_{PE}$	≤ 2 μA (with PT 1X2-BE)
	≤ 1 μA (with PT 1X2+F-BE)
Nominal discharge current $I_n$ (8/20) μs (line-line)	10 kA
Nominal discharge current $I_n$ (8/20) μs (line-earth)	10 kA
Pulse discharge current $I_{imp}$ (10/350) μs	2.5 kA
Total discharge current $I_{total}$ (8/20) μs	20 kA
Max. discharge current $I_{max}$ (8/20) μs maximum (line-line)	10 kA
Max. discharge current $I_{max}$ (8/20) μs maximum (line-earth)	20 kA (in total)
Nominal pulse current $I_{an}$ (10/1000) μs (line-line)	18 A
Output voltage limitation at 1 kV/μs (line-line) spike	≤ 70 V
Output voltage limitation at 1 kV/μs (line-earth) spike	≤ 450 V (with PT 1X2-BE)

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## Technical data

### Protective circuit

	≤ 1 kV (with PT 1X2+F-BE)
Output voltage limitation at 1 kV/μs (line-line) static	≤ 70 V
Output voltage limitation at 1 kV/μs (line-earth) static	≤ 25 V (with PT 1X2-BE)
	≤ 50 V (with PT 1X2+F-BE)
Voltage protection level U <sub>p</sub> (line-line)	≤ 80 V (C1 - 1 kV/500 A)
	≤ 85 V (C2 - 2 kV/1 kA)
	≤ 120 V (C2 - 10 kV / 5 kA)
Voltage protection level U <sub>p</sub> (line-earth)	≤ 450 V (C1 - 1 kV / 500 A with PT 1X2-BE)
	≤ 550 V (C2 - 2 kV / 1 kA with PT 1X2-BE)
	≤ 600 V (C2 - 10 kV / 5 kA with PT 1X2-BE)
	≤ 800 V (C1 - 1 kV / 500 A with PT 1x2+F-BE)
	≤ 900 V (C2 - 2 kV / 1 kA with PT 1x2+F-BE)
	≤ 1000 V (C2 - 10 kV / 5 kA with PT 1X2+F-BE)
Response time t <sub>A</sub> (line-line)	≤ 1 ns
Response time t <sub>A</sub> (line-earth)	≤ 100 ns
Input attenuation aE, sym.	typ. 0.5 dB (≤ 2 MHz / 50 Ω)
	typ. 0.2 dB (≤ 600 kHz / 150 Ω)
Cut-off frequency f <sub>g</sub> (3 dB), sym. in 50 Ohm system	typ. 10 MHz
Cut-off frequency f <sub>g</sub> (3 dB), sym. in 150 Ohm system	typ. 3.5 MHz
Capacity (line-line)	typ. 1 nF
Capacity (line-earth)	typ. 4 pF (with PT 1X2-BE)
	typ. 2 pF (with PT 1X2+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 - 2 kV / 1 kA
	C2 - 10 kV / 5 kA
Impulse durability (line-earth)	C1 - 1 kV / 500 A
	C2 - 2 kV / 1 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

# Surge protection plug - PT 1X2-48DC-ST - 2803658

## Technical data

### Standards and Regulations

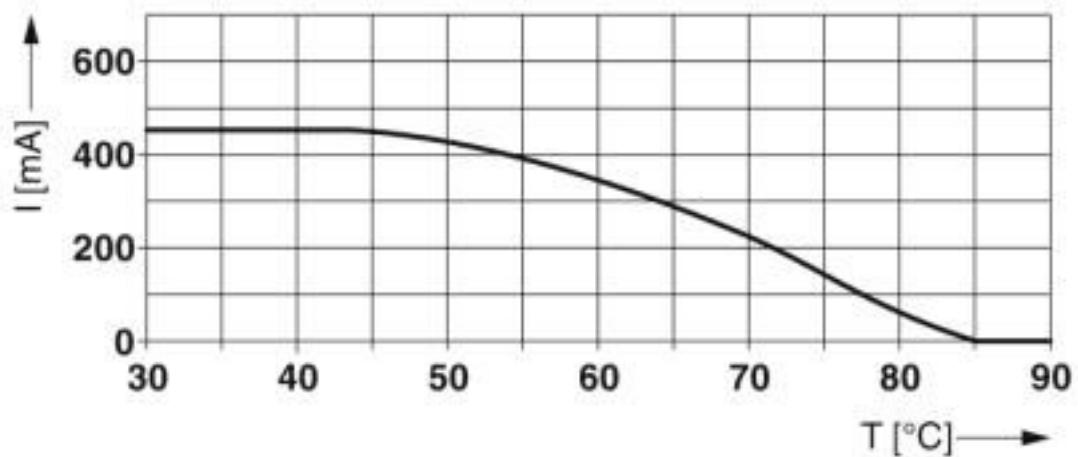
Standards/specifications	IEC 61643-21 2000 + corrigendum 2001 + A1:2008, modified + A2:2012
	EN 61643-21 2001 + A1:2009 + A2:2013

### Environmental Product Compliance

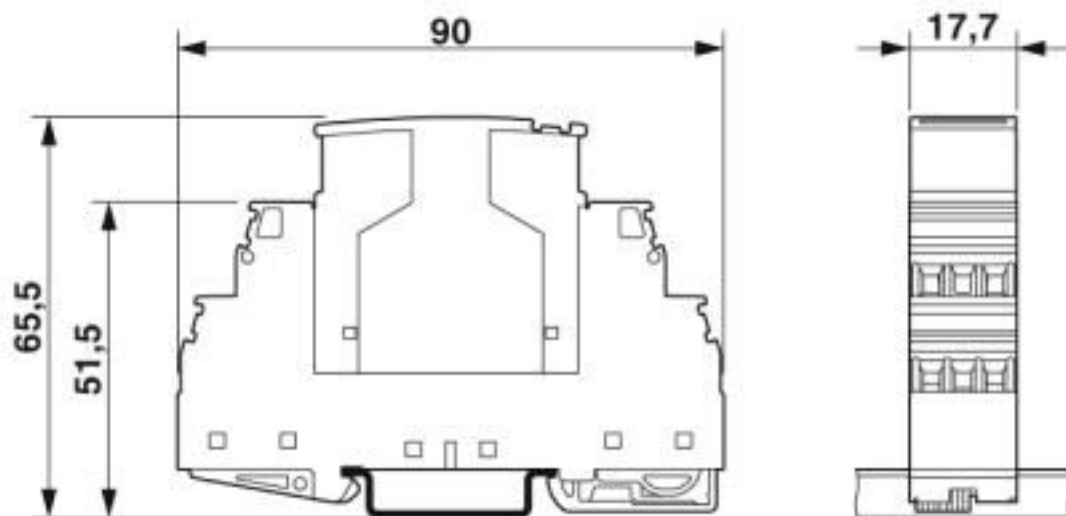
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

Diagram



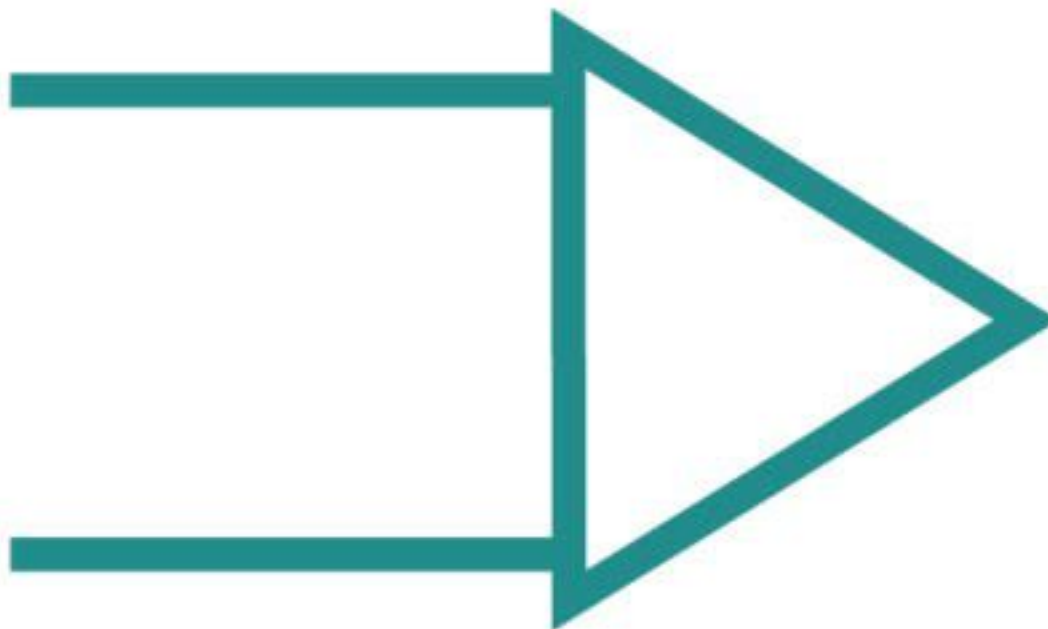
Dimensional drawing



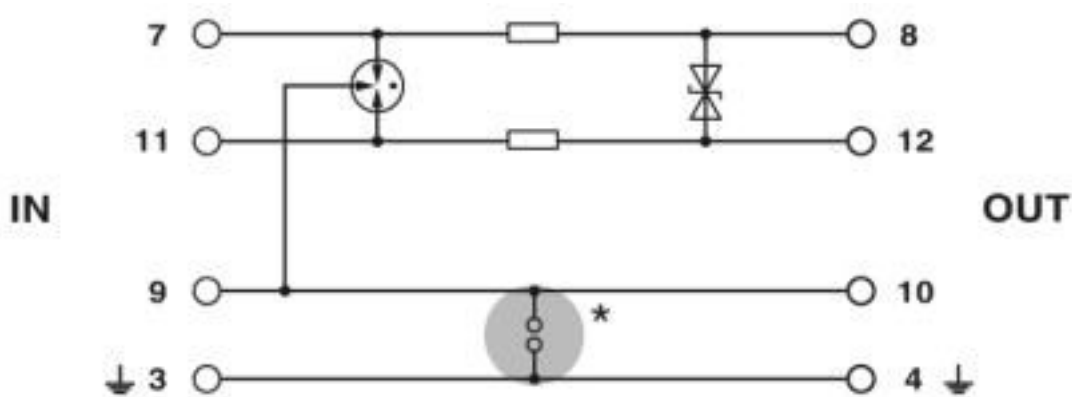
The figure shows the complete module consisting of a base element and connector

# Surge protection plug - PT 1X2-48DC-ST - 2803658

Pictogram



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
eCl@ss 8.0	27130807
eCl@ss 9.0	27130807

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## Classifications

### 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

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Approvals

EAC

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Ex Approvals

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### Approval details

EAC		RU C- DE.*09.B.00169
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## Accessories

Accessories

Device marking

## Surge protection plug - PT 1X2-48DC-ST - 2803658

### 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

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### 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 1X2-BE - 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.

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



## Surge protection plug - PT 1X2-48DC-ST - 2803658

### 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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PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstr. 8  
32825 Blomberg  
Germany  
Tel. +49 5235 300  
Fax +49 5235 3 41200  
<http://www.phoenixcontact.com>

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