

## Surge protection plug - PT 2X1-24AC-ST - 2856100

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Surge protection plug for the base element, coarse and fine protection for two signal wires with common reference potential, common mode voltage coarse protection to ground. Design: 24 V AC

### Your advantages

- ✓ Plugs can be checked with CHECKMASTER
- ✓ Installed in conjunction with the PT 2x1...-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 conductors with common reference potential
- ✓ Impedance-neutral disconnection of plug for test and maintenance purposes



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 017918 599140
GTIN	4017918599140
Weight per Piece (excluding packing)	20.740 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 2X1-24AC-ST - 2856100

## 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
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 2X1+F-BE 2856142
	PT 2X1-BE 2856139

### Protective circuit

IEC test classification	C1
	C2
	C3
	D1
Nominal voltage $U_N$	24 V AC
Maximum continuous voltage $U_C$	40 V DC
	28 V AC
Rated current	300 mA (45 °C)
Operating effective current $I_C$ at $U_C$	≤ 5 $\mu$ A
Residual current $I_{PE}$	≤ 1 $\mu$ A (with PT 2X1+F-BE)
	≤ 10 $\mu$ A (with PT 2x1-BE)
Nominal discharge current $I_n$ (8/20) $\mu$ s (line-earth)	10 kA

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### Technical data

#### Protective circuit

Pulse discharge current $I_{imp}$ (10/350) $\mu$ s	2.5 kA
Total discharge current $I_{total}$ (8/20) $\mu$ s	20 kA
Max. discharge current $I_{max}$ (8/20) $\mu$ s maximum (line-earth)	10 kA
Nominal pulse current $I_{an}$ (10/1000) $\mu$ s (line-earth)	23 A
Output voltage limitation at 1 kV/ $\mu$ s (line-earth) spike	$\leq 60$ V (with PT 2x1-BE)
	$\leq 600$ V (with PT 2X1+F-BE)
Output voltage limitation at 1 kV/ $\mu$ s (line-earth) static	$\leq 55$ V (with PT 2x1-BE)
	$\leq 50$ V (with PT 2X1+F-BE)
Residual voltage at $I_n$ (line-earth)	$\leq 55$ V
Residual voltage with $I_{an}$ (10/1000) $\mu$ s (line-earth)	$\leq 65$ V
Voltage protection level $U_p$ (line-earth)	$\leq 100$ V (C2 - 10 kV/5 kA with PT 2X1-BE)
	$\leq 600$ V (C2 - 10 kV/5 kA with PT 2x1+F-BE)
Voltage protection level $U_p$ static (line-earth)	$\leq 30$ V (C2 - 10 kV/5 kA with PT 2X1-BE)
	$\leq 50$ V (C2 - 10 kV/5 kA with PT 2x1+F-BE)
Response time $t_A$ (line-signalground)	$\leq 1$ ns (with PT 2X1+F-BE)
Response time $t_A$ (line-earth)	$\leq 1$ ns (with PT 2x1-BE)
	$\leq 100$ ns (with PT 2X1+F-BE)
Input attenuation aE, asym.	typ. 0.5 dB ( $\leq 1.5$ MHz / 50 $\Omega$ )
	typ. 0.2 dB ( $\leq 500$ kHz / 150 $\Omega$ )
	typ. 0.1 dB ( $\leq 100$ kHz / 600 $\Omega$ )
Cut-off frequency $f_g$ (3 dB), asym. (PE) in 50 Ohm system	typ. 8 MHz
Cut-off frequency $f_g$ (3 dB), asym. (PE) in 150 Ohm system	typ. 300 kHz
Cut-off frequency $f_g$ (3 dB), asym. (PE) in 600 Ohm system	typ. 800 kHz
Capacity (line-earth)	typ. 0.6 nF (with PT 2x1-BE)
	typ. 2 nF (with PT 2X1+F-BE)
Resistance per path	4.7 $\Omega \pm 10$ %
Surge protection fault message	none
Max. required back-up fuse	315 mA (T)
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	0.5 Nm
Stripping length	8 mm
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>

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## Technical data

### Connection data

Conductor cross section solid	0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12

### Standards and Regulations

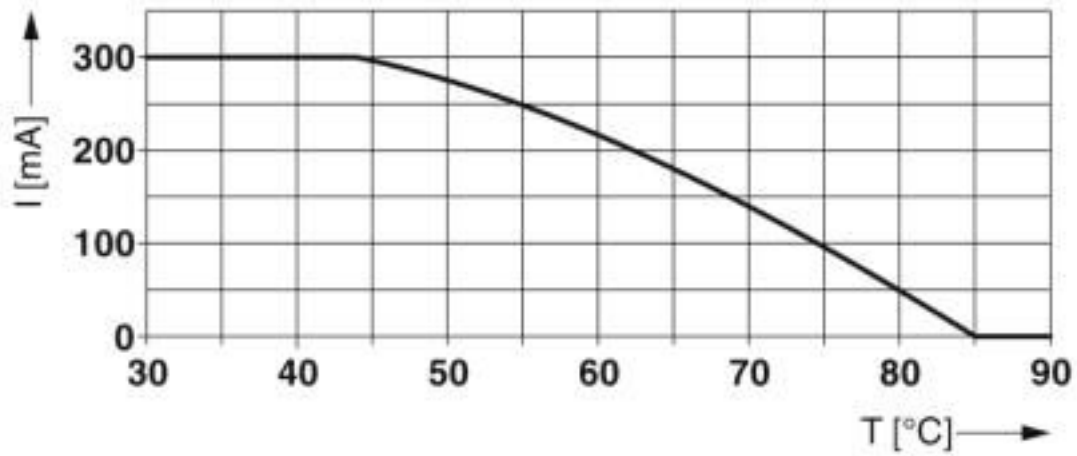
Standards/specifications	IEC 61643-21 2000 + corrigendum 2001 + A1:2008, modified + A2:2012
	EN 61643-21 2001 + A1:2009 + A2:2013

### 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"

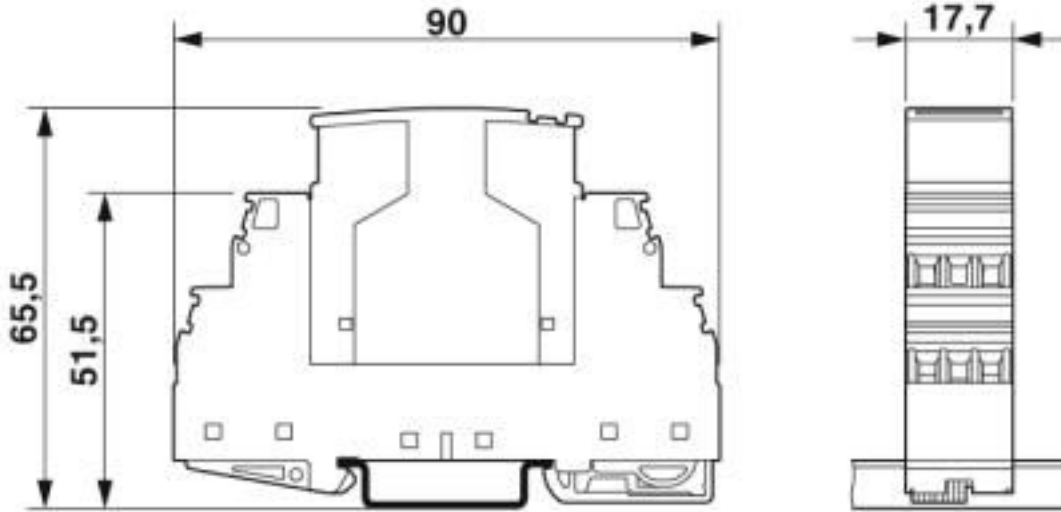
## Drawings

Diagram



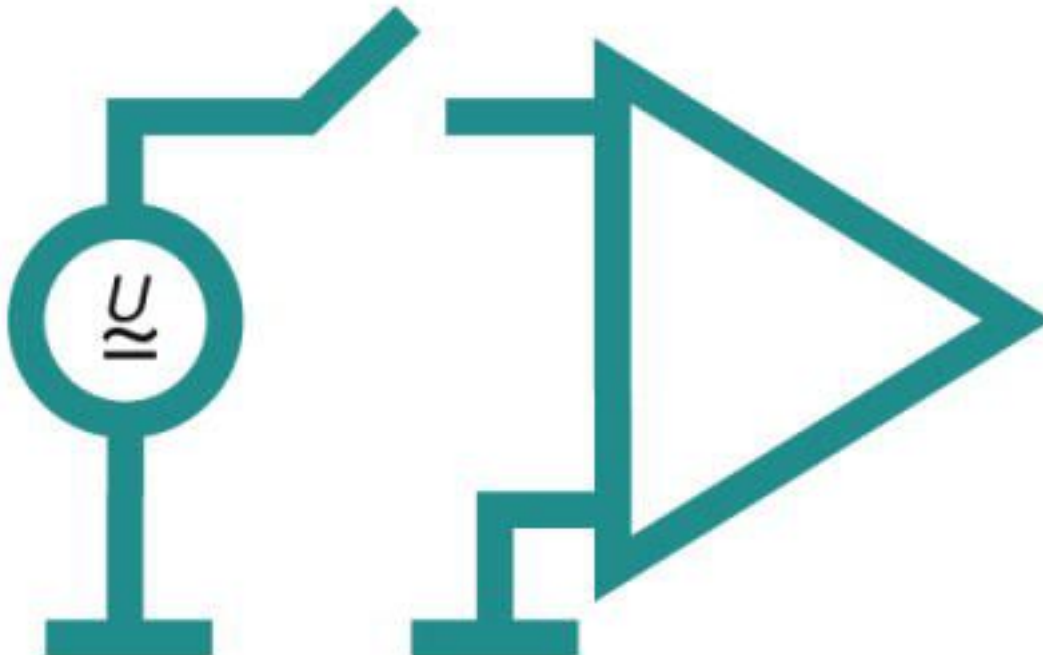
## Surge protection plug - PT 2X1-24AC-ST - 2856100

Dimensional drawing



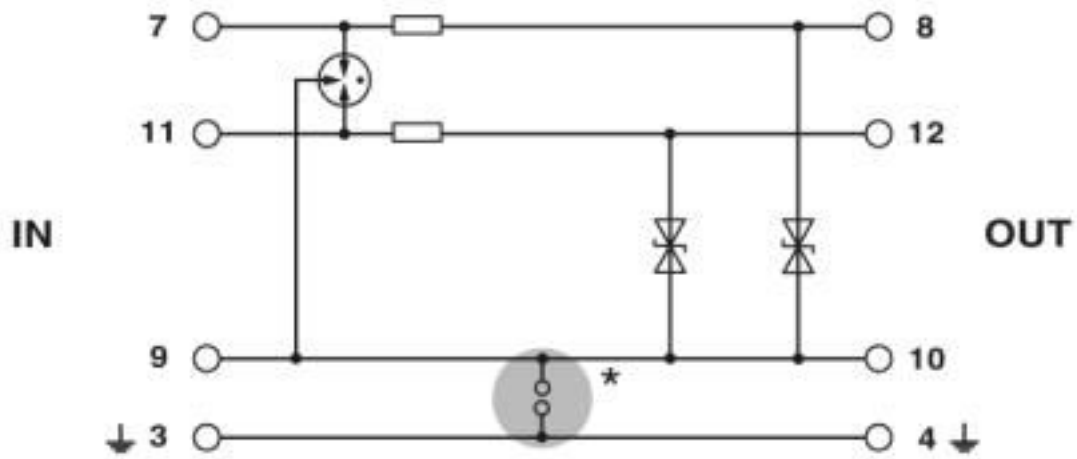
The figure shows the complete module consisting of a base element and connector

Pictogram



## Surge protection plug - PT 2X1-24AC-ST - 2856100

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

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

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## Classifications

### UNSPSC

UNSPSC 13.2	39121620
UNSPSC 18.0	39121620
UNSPSC 19.0	39121620
UNSPSC 20.0	39121620
UNSPSC 21.0	39121620

## Approvals

### Approvals

Approvals

UL Listed / EAC

Ex Approvals

UL Listed / cUL Listed / cULus Listed

### Approval details

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		34 V	
Nominal current IN		0.3 A	

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

Accessories

Device marking

## Surge protection plug - PT 2X1-24AC-ST - 2856100

### 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



## Surge protection plug - PT 2X1-24AC-ST - 2856100

### Accessories

#### 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

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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

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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 2X1-BE - 2856139



Base element for protective plug PT with protective circuit for 2 conductors of signal circuits grounded on one side. Mounting on NS 35/7.5 und NS 35/15, housing width: 17.5 mm.

## Surge protection plug - PT 2X1-24AC-ST - 2856100

### Accessories

Surge protection base element - PT 2X1+F-BE - 2856142



Base element for protective plug PT with protective circuit for 2 conductors of signal circuits grounded on one side. 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

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