

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



2856100

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

- 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	2856100
Packing unit	10 pc
Minimum order quantity	1 pc
Note	Made to order (non-returnable)
Sales key	CL21
Product key	CL2111
Catalog page	Page 135 (C-4-2019)
GTIN	4017918599140
Weight per piece (including packing)	21.5 g
Weight per piece (excluding packing)	19.85 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 2X1+F-BE 2856142
	PT 2X1-BE 2856139

Product properties

Product type	Surge protection for MCR technology
Product family	PLUGTRAB PT
IEC test classification	C1
	C2
	C3
	D1
Type	Male
Arrester can be tested with CHECKMASTER from software version:	From SW rev. 1.00

Data management status	
Article revision	11

Insulation characteristics	
Overvoltage category	III
Pollution degree	2

Electrical properties

Nominal voltage U_N	24 V AC
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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 mm² ... 2.5 mm²
Conductor cross section rigid	0.2 mm² ... 4 mm²
Conductor cross section AWG	24 ... 12

Dimensions

Dimensional drawing	
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Width	17.5 mm
Height	44.8 mm
Depth	51.7 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	black (RAL 9005)
	Copper color
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	40 V DC
	28 V AC
Rated current	300 mA (45 °C)
Operating effective current I_C at U_C	$\leq 5 \mu A$
Residual current I_{PE}	$\leq 1 \mu A$ (with PT 2X1+F-BE)
	$\leq 10 \mu A$ (with PT 2x1-BE)
Nominal discharge current I_n (8/20) μs (line-ground)	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-earth)	10 kA
Nominal pulse current I_{an} (10/1000) μs (line-earth)	23 A
Output voltage limitation at 1 kV/ μs (line-earth) spike	$\leq 60 V$ (with PT 2x1-BE)
	$\leq 600 V$ (with PT 2X1+F-BE)
Output voltage limitation at 1 kV/ μs (line-earth) static	$\leq 55 V$ (with PT 2x1-BE)
	$\leq 50 V$ (with PT 2X1+F-BE)
Residual voltage at I_n (conductor-ground)	$\leq 55 V$
Residual voltage with I_{an} (10/1000) μs (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-earth)	$\leq 1 ns$ (with PT 2x1-BE)
	$\leq 100 ns$ (with PT 2X1+F-BE)

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Response time t_A (line-signalground)	≤ 1 ns (with PT 2X1+F-BE)
Input attenuation aE, asym.	typ. 0.5 dB (≤ 1.5 MHz / 50 Ω)
	typ. 0.2 dB (≤ 500 kHz / 150 Ω)
	typ. 0.1 dB (≤ 100 kHz / 600 Ω)
Cut-off frequency f_g (3 dB), asym. (PE) in 50 Ω system	typ. 8 MHz
Cut-off frequency f_g (3 dB), asym. (PE) in 150 Ω system	typ. 300 kHz
Cut-off frequency f_g (3 dB), asym. (PE) in 600 Ω system	typ. 800 kHz
Capacity (Core-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

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	≤ 2000 m (amsl)

Standards and regulations

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

Mounting

Mounting type	on base element
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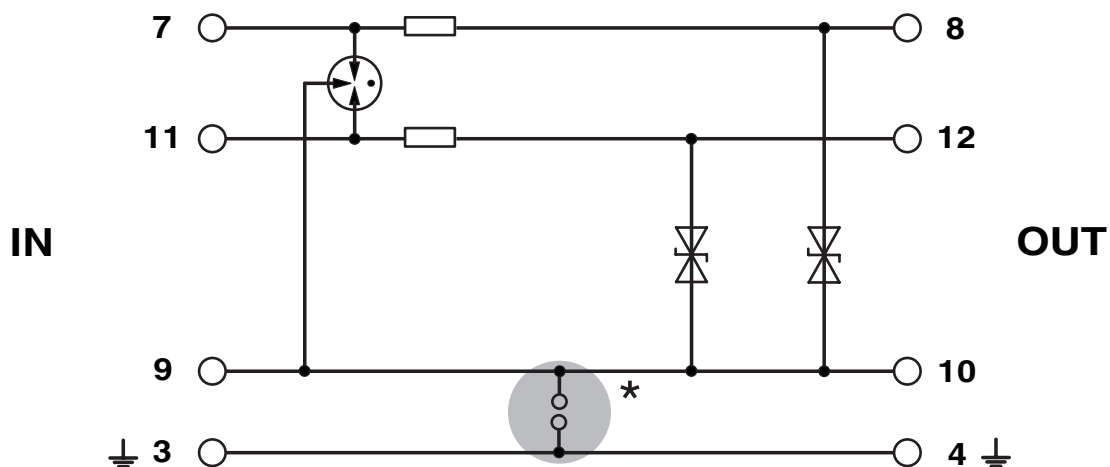
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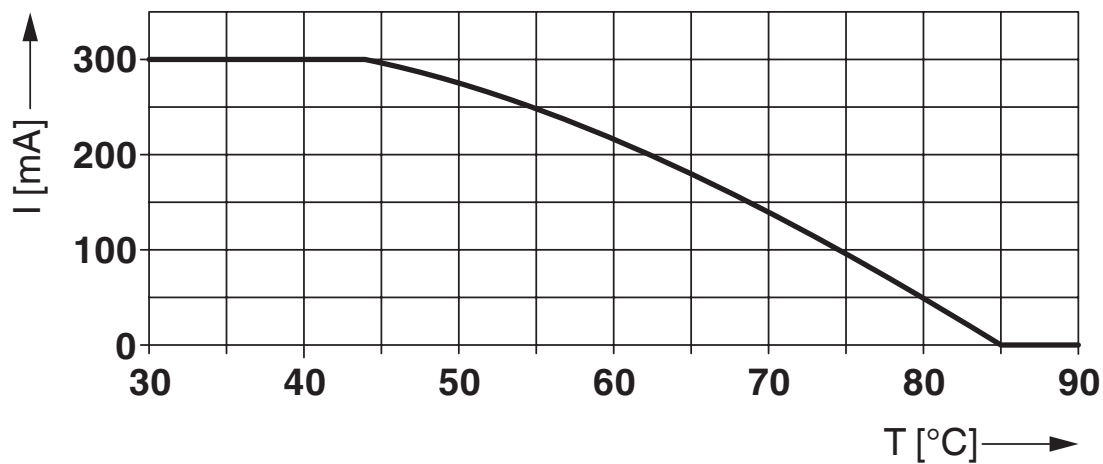


Drawings

Circuit diagram



Diagram



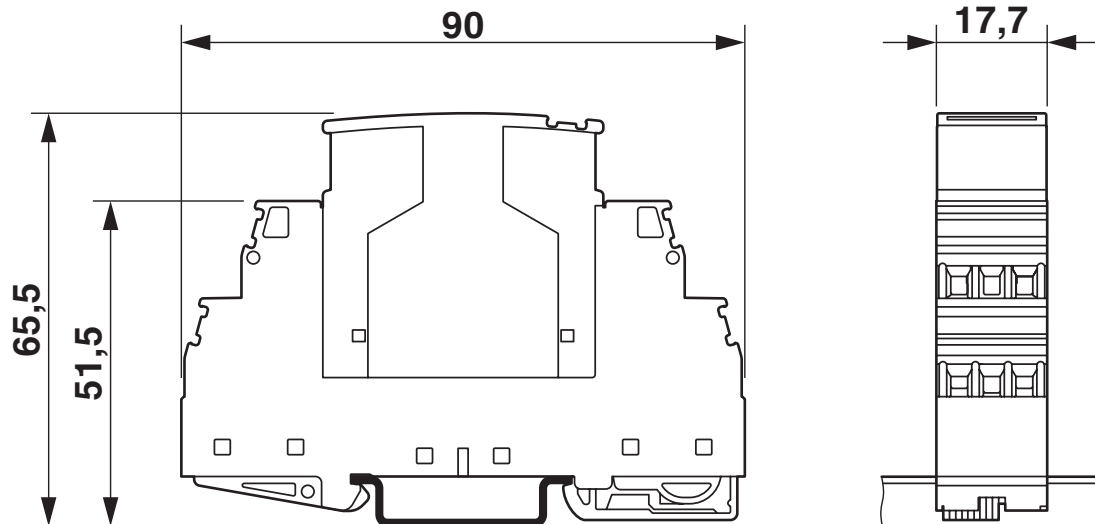
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Dimensional drawing



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

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Classifications

ECLASS

ECLASS-11.0	27130807
ECLASS-13.0	27171501

ETIM

ETIM 8.0	EC000943
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UNSPSC

UNSPSC 21.0	39121600
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	7(a)
China RoHS	
Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	b43af039-b776-4c4d-9a64-ea6023a82385

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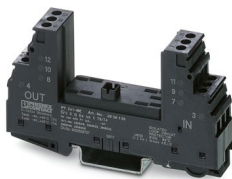
<https://www.phoenixcontact.com/us/products/2856100>

Mandatory accessories

PT 2X1-BE - Surge protection base-element

2856139

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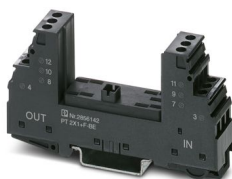


Base element for protective plug PT with protective circuit for 2 conductors of signal circuits grounded on one side. Mounting on NS 35/7.5 und NS 35/15, housing width: 17.5 mm.

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

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

Accessories

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X-PEN 0,35 - Marker pen

0811228

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



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

ZBF 5:UNBEDRUCKT - Zack Marker strip, flat

0808642

<https://www.phoenixcontact.com/us/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/us/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

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

0808671

<https://www.phoenixcontact.com/us/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/us/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

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

0810863

<https://www.phoenixcontact.com/us/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/us/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

ZBN 18:UNBEDRUCKT - Zack marker strip

2809128

<https://www.phoenixcontact.com/us/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/us/products/2839295>

Shield fast connection for 3 ... 6 mm cable diameter. Potential connecting cable:
200 mm, 1 mm², color: black



SSA 5-10 - Shield connection

2839512

<https://www.phoenixcontact.com/us/products/2839512>

Shield fast connection for 5 ... 10 mm cable diameter. Potential connecting cable:
200 mm, 1 mm², color: black



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