

PT 1X2- 5DC-ST - Surge protection plug



2856016

<https://www.phoenixcontact.com/us/products/2856016>

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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	2856016
Packing unit	10 pc
Minimum order quantity	1 pc
Sales key	CL21
Product key	CL2111
Catalog page	Page 122 (C-4-2019)
GTIN	4017918599225
Weight per piece (including packing)	23.97 g
Weight per piece (excluding packing)	16.25 g
Customs tariff number	85363010
Country of origin	DE

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2856016
<https://www.phoenixcontact.com/us/products/2856016>

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

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
Wire pairs per module	1

Insulation characteristics	
Overvoltage category	III
Pollution degree	2

Electrical properties

Nominal voltage U_N	5 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 mm² ... 2.5 mm²
Conductor cross section rigid	0.2 mm² ... 4 mm²
Conductor cross section AWG	24 ... 12

Dimensions

Dimensional drawing	
Width	17.7 mm
Height	45 mm

PT 1X2- 5DC-ST - Surge protection plug



2856016

<https://www.phoenixcontact.com/us/products/2856016>

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	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	6 V DC
	4 V AC
Rated current	450 mA (45 °C)
Operating effective current I_C at U_C	≤ 1 mA
Residual current I_{PE}	≤ 1 μ A (with PT 1X2+F-BE)
	≤ 2 μ A (with PT 1X2-BE)
Nominal discharge current I_n (8/20) μ s (line-line)	10 kA
Nominal discharge current I_n (8/20) μ s (line-ground)	10 kA
Pulse discharge current I_{imp} (10/350) μ s	2.5 kA
Total discharge current I_{Total} (8/20) μ s	20 kA
Max. discharge current I_{max} (8/20) μ s maximum (line-line)	10 kA
Max. discharge current I_{max} (8/20) μ s maximum (line-earth)	10 kA
Nominal pulse current I_{an} (10/1000) μ s (line-line)	125 A
Output voltage limitation at 1 kV/ μ s (line-line) spike	≤ 12 V
Output voltage limitation at 1 kV/ μ s (line-earth) spike	≤ 450 V (with PT 1X2-BE)
	≤ 1 kV (with PT 1X2+F-BE)
Output voltage limitation at 1 kV/ μ s (line-line) static	≤ 10 V
Output voltage limitation at 1 kV/ μ s (line-earth) static	≤ 25 V (with PT 1X2-BE)
	≤ 50 V (with PT 1X2+F-BE)
Residual voltage at I_n (conductor-conductor)	≤ 10 V
Residual voltage with I_{an} (10/1000) μ s (line-line)	≤ 12 V
Voltage protection level U_p (line-line)	≤ 40 V (C2 - 10 kV / 5 kA)
Voltage protection level U_p (line-earth)	≤ 450 V (C1 - 1 kV / 500 A with PT 1X2-BE)
	≤ 1000 V (C2 - 10 kV / 5 kA with PT 1X2+F-BE)
Voltage protection level U_p static (line-line)	≤ 9 V (C2 - 10 kV / 5 kA)

PT 1X2- 5DC-ST - Surge protection plug



2856016

<https://www.phoenixcontact.com/us/products/2856016>

Voltage protection level U_p static (line-earth)	≤ 50 V (C2 - 10 kV / 5 kA with PT 1X2-BE)
	≤ 100 V (C2 - 10 kV / 5 kA with PT 1X2+F-BE)
Response time t_A (line-line)	≤ 1 ns
Response time t_A (line-earth)	≤ 100 ns
Input attenuation aE, sym.	typ. 0.5 dB (≤ 200 kHz / 50 Ω)
	typ. 0.2 dB (≤ 100 kHz / 150 Ω)
	typ. 0.1 dB (≤ 20 kHz / 600 Ω)
Cut-off frequency f_g (3 dB), sym. in 50 Ω system	typ. 1 MHz
Cut-off frequency f_g (3 dB), sym. in 150 Ω system	typ. 400 kHz
Cut-off frequency f_g (3 dB), sym. in 600 Ω system	typ. 100 kHz
Capacity (Core-Core)	typ. 6 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)	C2 - 10 kV / 5 kA
	C3 - 125 A
Impulse durability (line-earth)	C1 - 1 kV / 500 A
	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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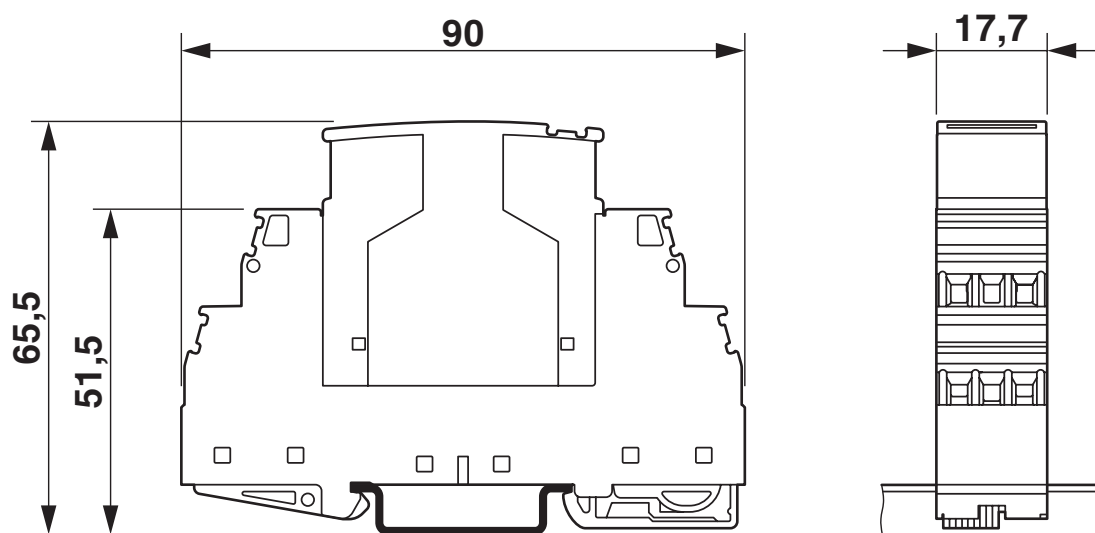
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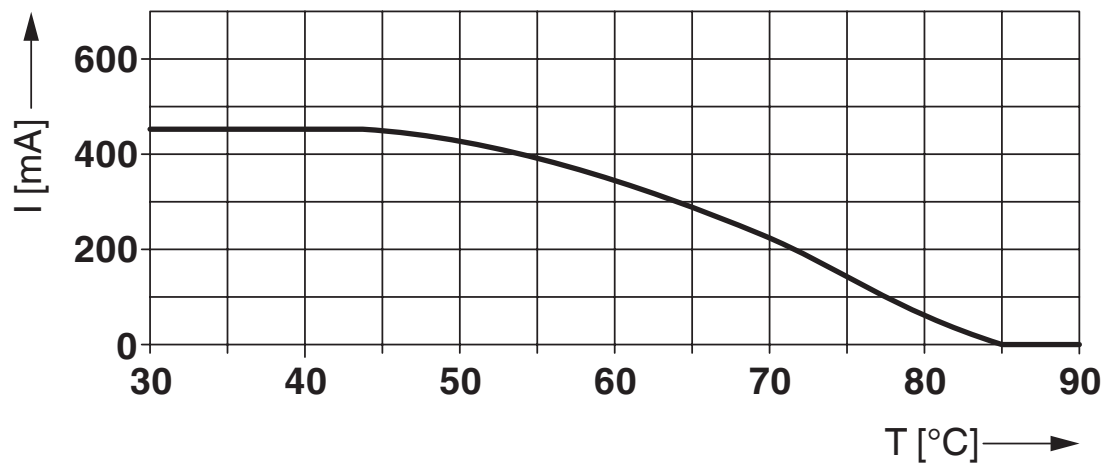
Drawings

Dimensional drawing



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

Diagram



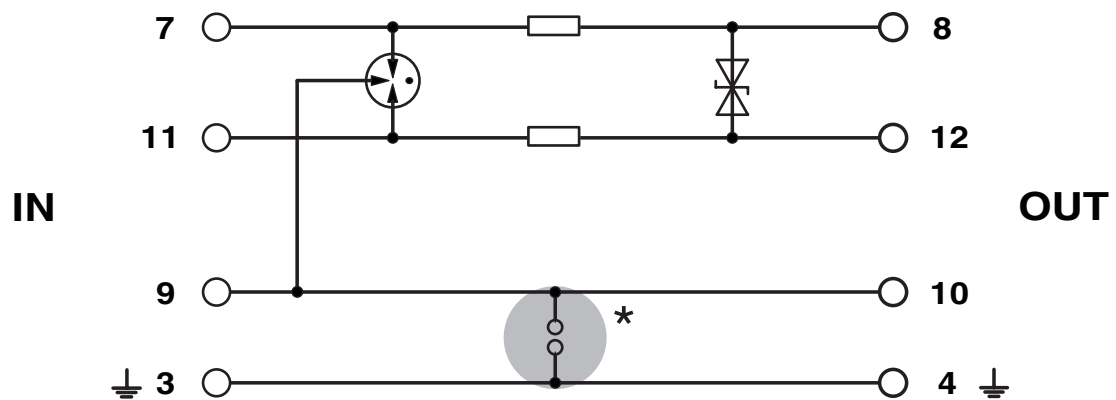
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Circuit diagram



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2856016>



EAC

Approval ID: EAC-Zulassung



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

5 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



ATEX

Approval ID: DEKRA 22ATEX0044 X



IECEx

Approval ID: IECEx DEK 22.0031X



UKCA-EX

Approval ID: DEKRA 22UKEX6005X



NEPSI-EX

Approval ID: GYJ20.1180X

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Classifications

ECLASS

ECLASS-13.0	27171501
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ETIM

ETIM 9.0	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), 7(c)-I

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	69926779-093b-45c4-aa83-b16739e11672

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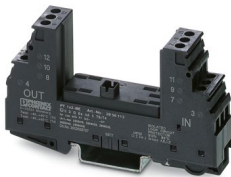
Mandatory accessories

PT 1X2-BE - Surge protection base-element

2856113

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

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

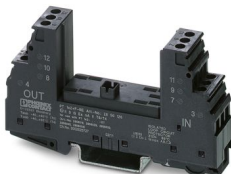


PT 1X2+F-BE - Surge protection base-element

2856126

<https://www.phoenixcontact.com/us/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 and NS 35/15, housing width: 17.5 mm.



Accessories

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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: latching, for terminal block width: 5 mm, Number of individual labels: 10, text field height: 5.15 mm, text field width: 5.15 mm

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: latching, for terminal block width: 5 mm, Number of individual labels: 1000, text field height: 5.15 mm, text field width: 5.15 mm

PT 1X2- 5DC-ST - Surge protection plug

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

0808671

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

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: latching, for terminal block width: 5 mm, Number of individual labels: 10, text field height: 5.15 mm, text field width: 5.15 mm

PT 1X2- 5DC-ST - Surge protection plug



2856016

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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: latching, for terminal block width: 5 mm, Number of individual labels: 10, text field height: 5.15 mm, text field width: 5.15 mm

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: latching, for terminal block width: 5 mm, Number of individual labels: 10, text field height: 5.15 mm, text field width: 5.15 mm

PT 1X2- 5DC-ST - Surge protection plug

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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: latching, for terminal block width: 18 mm, Number of individual labels: 5, text field height: 5 mm, text field width: 18 mm

ZBN 18 CUS - Zack marker strip

0825059

<https://www.phoenixcontact.com/us/products/0825059>



Zack marker strip, can be ordered: Strip, white, labeled according to customer specifications, mounting type: snap into tall marker groove, for terminal block width: 18 mm, Number of individual labels: 5, text field height: 5 mm, text field width: 18 mm

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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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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

SZS 0,6X3,5 VDE - Screwdriver

1212602

<https://www.phoenixcontact.com/us/products/1212602>



Screwdriver, slot-headed, VDE insulated, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

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