PT 1X2-12DC-ST - Surge protection plug

2856029

https://www.phoenixcontact.com/us/products/2856029

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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	2856029
Packing unit	10 pc
Minimum order quantity	10 pc
Sales key	CL21
Product key	CL2111
Catalog page	Page 122 (C-4-2019)
GTIN	4017918599218
Weight per piece (including packing)	23.8 g
Weight per piece (excluding packing)	15.586 g
Customs tariff number	85363010
Country of origin	DE

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

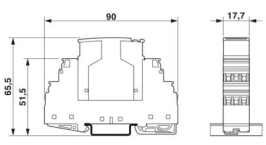
Electrical properties

Nominal voltage U_N	12 V DC

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

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
Flammability rating according to UL 94	V-0
Housing material	PA 6.6

Mechanical properties

Mechanical data

Open side panel	No

Protective circuit

Direction of action	Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground
Maximum continuous voltage U_C	13 V DC
	9 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 1X2+F-BE)
	≤ 2 µA (with PT 1X2-BE)
Nominal discharge current I_n (8/20) µs (line-line)	10 kA
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-line)	10 kA
Max. discharge current I_{max} (8/20) µs maximum (line-earth)	10 kA
Nominal pulse current Ian (10/1000) µs (line-line)	67 A
Output voltage limitation at 1 kV/µs (line-line) spike	≤ 20 V
Output voltage limitation at 1 kV/µs (line-earth) spike	≤ 450 V (with PT 1X2-BE)
	≤ 1 kV (with PT 1X2+F-BE)
Output voltage limitation at 1 kV/µs (line-line) static	≤ 18 V
Output voltage limitation at 1 kV/µs (line-earth) static	≤ 25 V (with PT 1X2-BE)
	≤ 50 V (with PT 1X2+F-BE)
Residual voltage at I_n (conductor-conductor)	≤ 18 V
Residual voltage with Ian (10/1000) µs (line-line)	≤ 23 V
Voltage protection level U_p (line-line)	≤ 50 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)	≤ 18 V (C2 - 10 kV / 5 kA)

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 (≤ 600 kHz / 50 Ω)
	typ. 0.2 dB (≤ 200 kHz / 150 Ω)
	typ. 0.1 dB (≤ 50 kHz / 600 Ω)
Cut-off frequency fg (3 dB), sym. in 50 Ω system	typ. 3 MHz
Cut-off frequency fg (3 dB), sym. in 150 Ω system	typ. 1 MHz
Cut-off frequency fg (3 dB), sym. in 600 Ω system	typ. 300 kHz
Capacity (Core-Core)	typ. 3 nF
Capacity (Core-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)	C2 - 10 kV / 5 kA
	C3 - 67 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

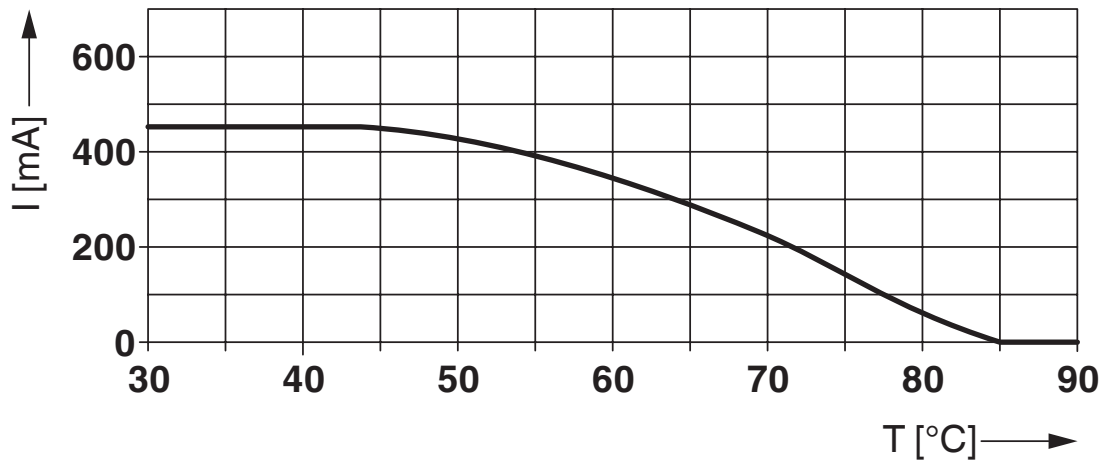
Standards/specifications	IEC 61643-21
Note	2000 + corrigendum 2001 + A1:2008, modified + A2:2012
Standards/specifications	EN 61643-21
Note	2001 + A1:2009 + A2:2013

Mounting

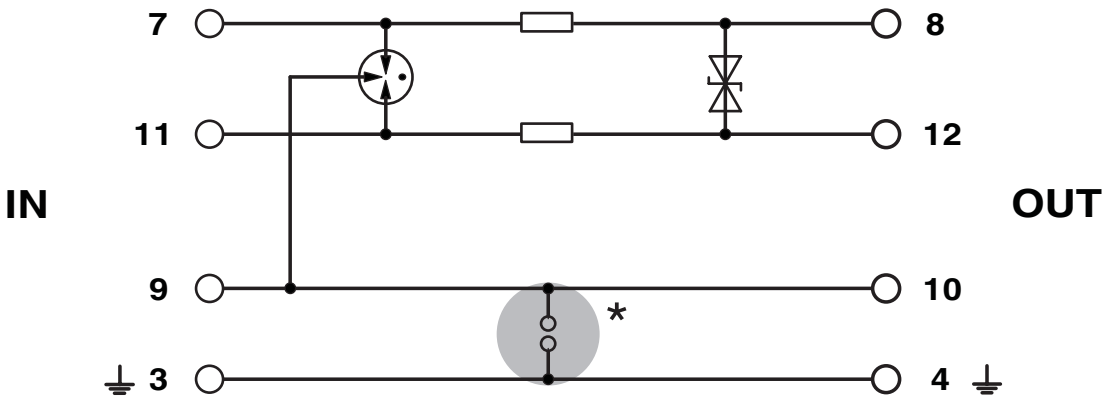
Mounting type	on base element

Drawings

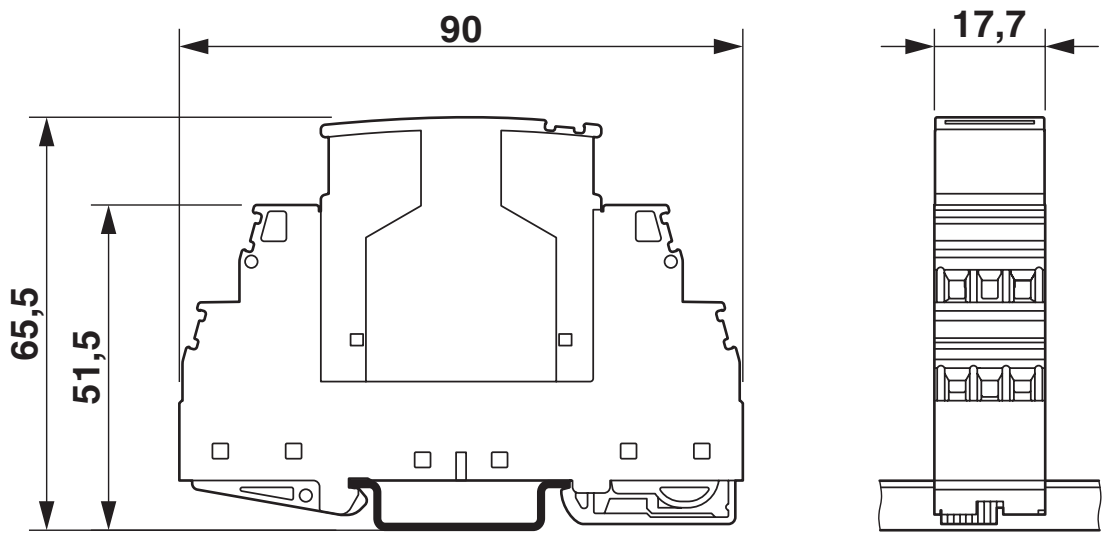
Diagram



Circuit diagram



Dimensional drawing



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

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2856029

EAC
Approval ID: EAC-Zulassung

DNV GL
Approval ID: TAE00001N6

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
	12 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: 2020322316002243

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

CCC
Approval ID: 2020322316003150

CCC
Approval ID: 2020322316003150

cULus Listed

Classifications

ECLASS

ECLASS-11.0	27130807
ECLASS-13.0	27171501

ETIM

ETIM 9.0	EC001625

UNSPSC

UNSPSC 21.0	39121600

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

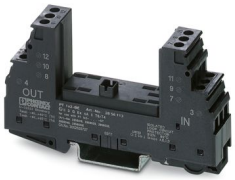
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	00147076-5464-45e4-accc-1a96b3d82c02

Mandatory accessories

PT 1X2-BE - Surge protection base-element

2856113

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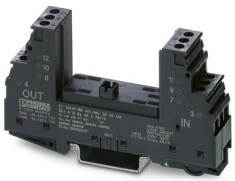


Base element for protective plug PT with protective circuit for a 2-core floating signal circuit. Mounting on NS 35/7.5 und NS 35/15, housing width: 17.5 mm.

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 und NS 35/15, housing width: 17.5 mm.

Accessories

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

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

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

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

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, lettering field size: 18 x 5 mm, Number of individual labels: 5

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 mm^2, 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 mm^2, color: black

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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