

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



2856029

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

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



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	1 pc
Sales key	CL21
Product key	CL2111
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

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



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

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

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



2856029

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

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
-----------------	----

Protective circuit

Direction of action	Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground
Maximum continuous operating voltage U_C	13 V DC
	9 V AC
Rated current	450 mA (45 °C)
Operating effective current I_C at U_C	$\leq 5 \mu A$
Protective conductor current I_{PE}	$\leq 1 \mu A$ (with PT 1X2+F-BE)
	$\leq 2 \mu A$ (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 I_{an} (10/1000) μs (line-line)	67 A
Output voltage limitation at 1 kV/ μs (line-line) spike	$\leq 20 V$
Output voltage limitation at 1 kV/ μs (line-earth) spike	$\leq 450 V$ (with PT 1X2-BE)
	$\leq 1 kV$ (with PT 1X2+F-BE)
Output voltage limitation at 1 kV/ μs (line-line) static	$\leq 18 V$
Output voltage limitation at 1 kV/ μs (line-earth) static	$\leq 25 V$ (with PT 1X2-BE)
	$\leq 50 V$ (with PT 1X2+F-BE)
Residual voltage at I_n (conductor-conductor)	$\leq 18 V$
Residual voltage with I_{an} (10/1000) μs (line-line)	$\leq 23 V$
Voltage protection level U_p (line-line)	$\leq 50 V$ (C2 - 10 kV / 5 kA)
Voltage protection level U_p (line-earth)	$\leq 450 V$ (C1 - 1 kV / 500 A with PT 1X2-BE)
	$\leq 1000 V$ (C2 - 10 kV / 5 kA with PT 1X2+F-BE)
Voltage protection level U_p static (line-line)	$\leq 18 V$ (C2 - 10 kV / 5 kA)

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



2856029

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

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 f_g (3 dB), sym. in 50 Ω system	typ. 3 MHz
Cut-off frequency f_g (3 dB), sym. in 150 Ω system	typ. 1 MHz
Cut-off frequency f_g (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 $\Omega \pm 10$ %
Surge protection fault message	none
Max. required back-up fuse	500 mA (T)
Impulse durability (line-line)	C2 - 10 kV / 5 kA
	C3 - 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
Standards/specifications	GB/T 3836.1
Note	2021
Standards/specifications	GB/T 3836.3
Note	2021

Mounting

Mounting type	on base element
---------------	-----------------

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

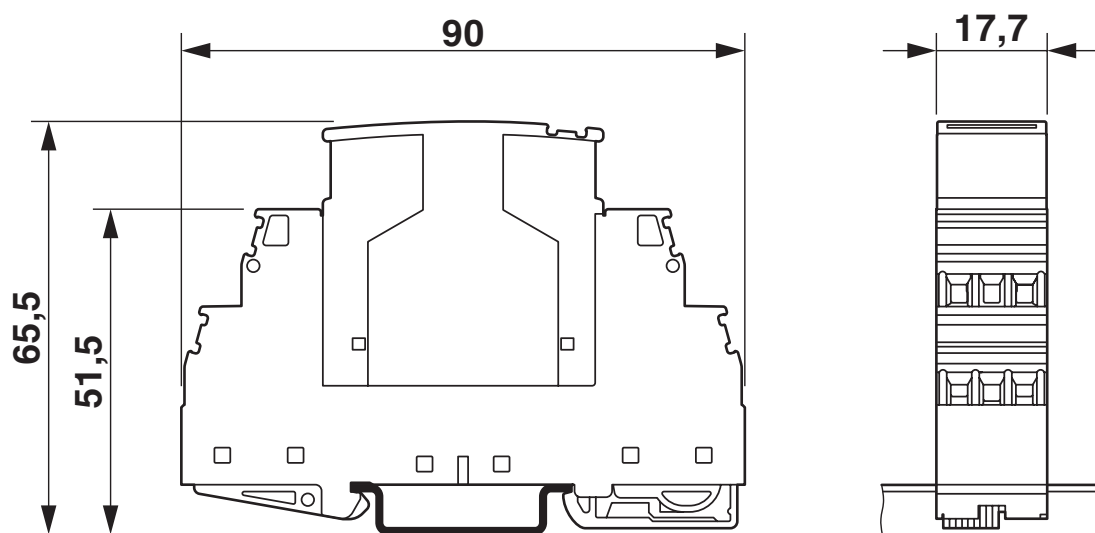
2856029

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



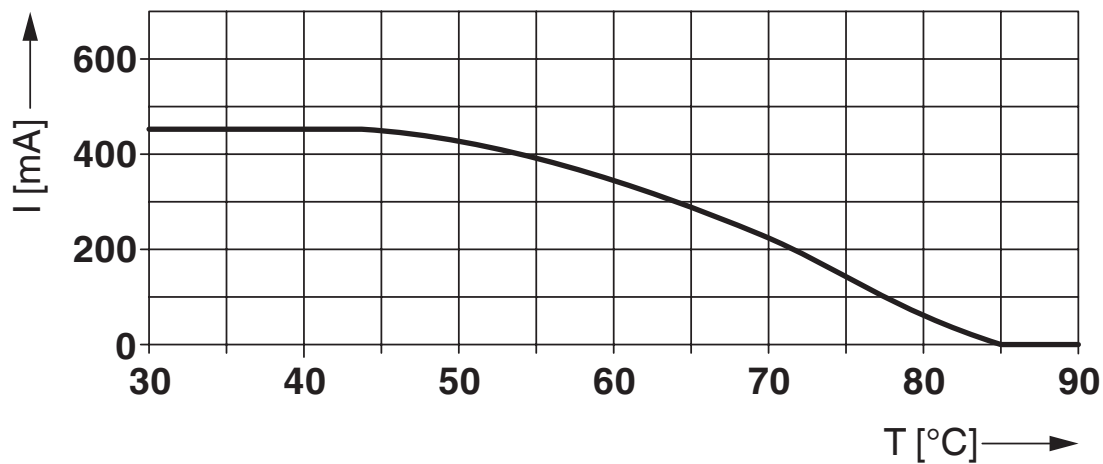
Drawings

Dimensional drawing



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

Diagram



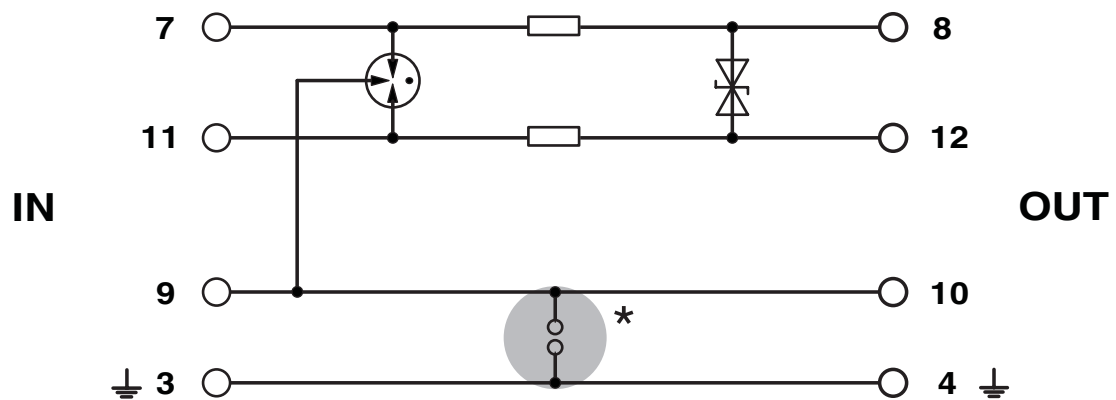
PT 1X2-12DC-ST - Surge protection plug

2856029

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



Circuit diagram



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



2856029

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

Approvals

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



DNV GL

Approval ID: TAE00001N6



UL Listed

Approval ID: FILE E 138168

	Nominal voltage U_N	Nominal current I_N	Cross section AWG	Cross section mm^2
keine				
	12 V	0.45 A	-	-



CCC

Approval ID: 2020322316003150



cUL Listed

Approval ID: FILE E 333250



UL Listed

Approval ID: FILE E 333250



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

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



2856029

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

Classifications

ECLASS

ECLASS-13.0	27171501
ECLASS-15.0	27171501

ETIM

ETIM 9.0	EC000943
----------	----------

UNSPSC

UNSPSC 21.0	39121600
-------------	----------

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



2856029

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

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

EF3.0 Climate Change

CO2e kg	0.896 kg CO2e
---------	---------------

Phoenix Contact 2025 © - all rights reserved
<https://www.phoenixcontact.com>

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com