

S-PT-EX-48DC-1/2" - Surge protection device



2800054

<https://www.phoenixcontact.com/us/products/2800054>

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.



Surge protection for a floating signal circuit in the screw-on module with IP67 degree of protection for sensor heads, connection: 1/2-inch 14 NPT. Tested in accordance with the following types of protection in Ex areas: Ex d/Ex tD/Ex ia IIC/Ex iaD. Suitable for use in the fieldbus system in accordance with the FISCO concept. Can be used in safety-related circuits up to SIL 3.

Your advantages

- Easiest field mounting with standardized thread
- Versatile in use with universal protective circuit
- Use under extreme ambient conditions with robust design

Commercial data

Item number	2800054
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL02
Product key	CL2232
GTIN	4046356445689
Weight per piece (including packing)	233.1 g
Weight per piece (excluding packing)	198.62 g
Customs tariff number	85363010
Country of origin	DE

S-PT-EX-48DC-1/2" - Surge protection device



2800054

<https://www.phoenixcontact.com/us/products/2800054>

Technical data

Product properties

Product type	Surge protection for MCR technology
Product family	SURGETRAB
IEC test classification	C1
	C2
	C3
	D1
Type	Screw-in module
Number of positions	2
Wire pairs per module	1

Insulation characteristics

Overvoltage category	III
Pollution degree	2

Electrical properties

Nominal voltage U_N	48 V DC
-----------------------	---------

Connection data

Connection method	Individual wires
-------------------	------------------

Ex data

Maximum inner capacitance C_i	1.14 nF
Max. internal inductance L_i	1 μ H
Max. input current I_i	500 mA (T4 / ≤ 75 °C)
	500 mA (T5 / ≤ 75 °C)
	500 mA (T6 / ≤ 60 °C)
Max. input voltage U_i	53 V DC
max. input power P_i	3.00 W
Insulation voltage to ground	500 V AC
Ambient temperature (operation)	-40 °C ... 75 °C (T4)
	-40 °C ... 75 °C (T5)
	-40 °C ... 60 °C (T6)
Operating temperature range	-40 °C ... 100 °C (T4)
	-40 °C ... 75 °C (T5)
	-40 °C ... 60 °C (T6)
Max. surface temperature	135 °C (T4)
	100 °C (T5)
	85 °C (T6)


Dimensions

S-PT-EX-48DC-1/2" - Surge protection device



2800054

<https://www.phoenixcontact.com/us/products/2800054>

Dimensional drawing	
Width	28 mm
Height	28 mm
Depth	79 mm
Horizontal pitch	1 Div.

Material specifications

Color	Steel/stainless steel color
Housing material	Stainless steel 1.4404 ASTM 316L

Mechanical properties

Mechanical data

Open side panel	No
-----------------	----

Protective circuit

Direction of action	Line-Line & Line-Earth Ground
Nominal voltage U_N	48 V DC
Maximum continuous operating voltage U_C	53 V DC 37 V AC
Operating effective current I_C at U_C	$\leq 5 \mu A$
Protective conductor current I_{PE}	$\leq 2 \mu A$
Nominal discharge current I_n (8/20) μs (line-line)	170 A
Nominal discharge current I_n (8/20) μs (line-ground)	10 kA
Pulse discharge current I_{imp} (10/350) μs	1 kA
Total discharge current I_{Total} (8/20) μs	20 kA
Total discharge current I_{Total} (10/350) μs	2 kA
Nominal pulse current I_{an} (10/1000) μs (line-line)	34 A
Output voltage limitation at 1 kV/ μs (line-line) spike	$\leq 160 V$
Output voltage limitation at 1 kV/ μs (line-earth) spike	$\leq 1.1 kV$
Output voltage limitation at 1 kV/ μs (line-line) static	$\leq 80 V$
Voltage protection level U_p (line-line)	$\leq 90 V$ (C3 - 10 A)
Voltage protection level U_p (line-earth)	$\leq 1.1 kV$ (C3 - 100 A) $\leq 1.1 kV$ (C1 - 1 kV / 500 A) $\leq 1.2 kV$ (C2 - 10 kV / 5 kA)
Response time t_A (line-line)	$\leq 1 ns$
Response time t_A (line-earth)	$\leq 100 ns$
Input attenuation aE, sym.	typ. 0.1 dB (30 MHz / 50 Ω) typ. 0.1 dB (6 MHz / 150 Ω)
Cut-off frequency f_g (3 dB), sym. in 50 Ω system	typ. 70 MHz

S-PT-EX-48DC-1/2" - Surge protection device



2800054

<https://www.phoenixcontact.com/us/products/2800054>

Cut-off frequency f_g (3 dB), sym. in 150 Ω system	typ. 40 MHz
Capacity (Core-Core)	typ. 20 pF
Capacity (Core-Earth)	typ. 5 pF
Surge protection fault message	none
Impulse durability (line-line)	C3 - 10 A
Impulse durability (line-earth)	C1 - 1 kV / 500 A
	C2 - 10 kV / 5 kA
	C3 - 100 A
	D1 - 1 kA
Alternating current carrying capacity (line-earth)	10 A - 1 s

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP67
Ambient temperature (operation)	-40 °C ... 80 °C (non-Ex)
Altitude	≤ 2000 m (amsl)

Approvals

Conformity/Approvals

ATEX	Ⓜ II 1 G Ex ia IIC T4...T6
	Ⓜ II 2 G Ex d IIC T4...T6
	Ⓜ II 1 D Ex iaD 20 IP6x T85 °C...135 °C
	Ⓜ II 2 D Ex tD A21 IP6x T85 °C...135 °C
IECEX	Ga Ex ia IIC T4...T6
	Ex d IIC T4...T6
	Ex iaD IP6x T85 °C...135 °C
	Ex tD A21 IP6x T85 °C...135 °C

Standards and regulations

Air clearances and creepage distances

Standards/regulations	IEC 60664-1 / IEC 60079-11
Standards/specifications	EN 61643-21
Note	A2:2013
Standards/specifications	EN 60079-0
Note	2018
Standards/specifications	EN 60079-1
Note	2007
Standards/specifications	EN 60079-11
Note	2012
Standards/specifications	EN 60079-31
Note	2009
Standards/specifications	IEC 60079-0
Note	2017

S-PT-EX-48DC-1/2" - Surge protection device



2800054

<https://www.phoenixcontact.com/us/products/2800054>

Standards/specifications	IEC 60079-1
Note	2007
Standards/specifications	IEC 60079-11
Note	2011
Standards/specifications	IEC 60079-31
Note	2008
Standards/specifications	GB/T 3836.1
Note	2021
Standards/specifications	GB/T 3836.2
Note	2021
Standards/specifications	GB/T 3836.4
Note	2021
Standards/specifications	GB/T 3836.31
Note	2021

Mounting

Mounting type	1/2" NPT
---------------	----------

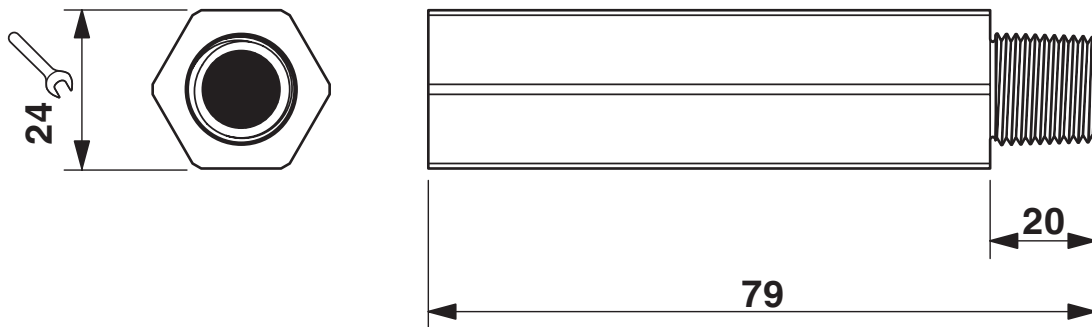
S-PT-EX-48DC-1/2" - Surge protection device

2800054

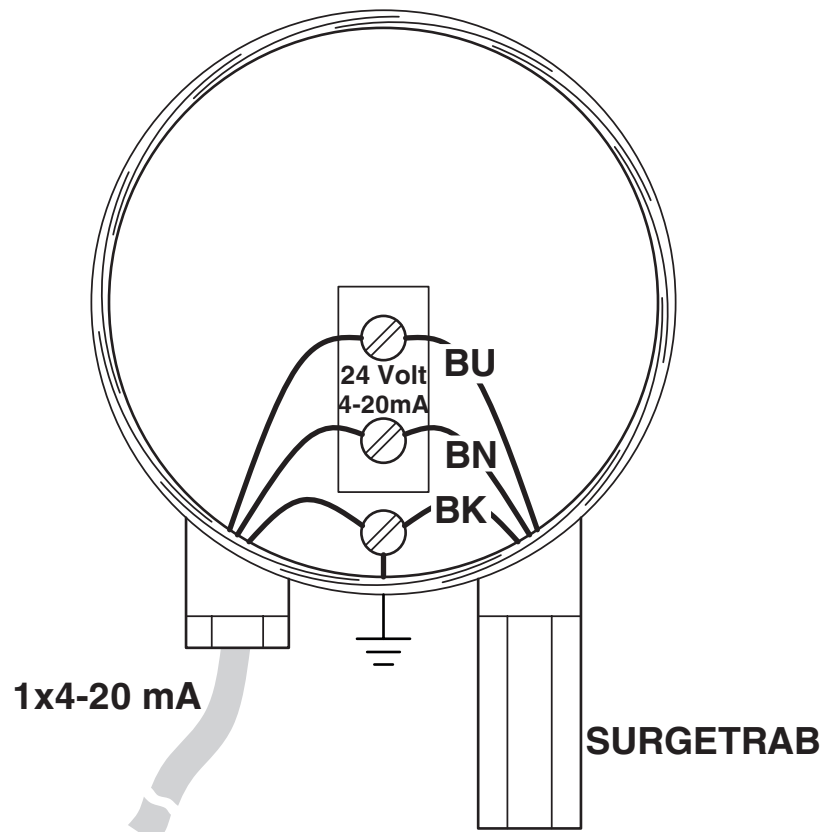
<https://www.phoenixcontact.com/us/products/2800054>

Drawings

Dimensional drawing



Application drawing



S-PT-EX-48DC-1/2" - Surge protection device



2800054

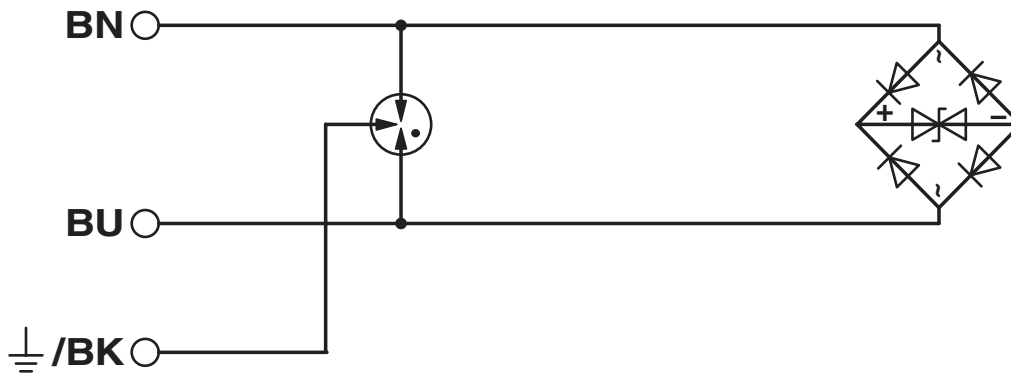
<https://www.phoenixcontact.com/us/products/2800054>

Schematic diagram

S-PT-EX-...DC*									
Category	1oo1 architecture, HFT=0				1oo2 architecture, HFT=1				
	PFD _{AVG}	PFH	Used budget of SIL 2 SIF		PFD _{AVG}	PFH	CCF	Used budget of SIL 3 SIF	
			PFD _{AVG}	PFH				PFD _{AVG}	PFH
	8.43x10 ⁻⁵	1.50x10 ⁻⁹ 1/h	0.1 %	0.2 %	4.22x10 ⁻⁷	7.50x10 ⁻¹¹ 1/h	5 %	0.0 %	0.1 %
					8.43x10 ⁻⁷	1.50x10 ⁻¹⁰ 1/h	10 %	0.1 %	0.2 %
Calculation based on exida report, Phoenix Contact 09/08-42 R011 V4R1 exida Profile 1, FMEDA Analysis 2, T _{proof} : 1 year, MT: 10 years, MTTR: 24 hours, PTC: 99% Used standards IEC/EN 61508, edition 2010 (device specific) IEC/EN 61511, edition 2016 + COR1:2016 + A1:2017 (system specific)									

Functional safety scenarios

Circuit diagram



S-PT-EX-48DC-1/2" - Surge protection device



2800054

<https://www.phoenixcontact.com/us/products/2800054>

Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2800054>

Functional Safety

Approval ID: 09-08-42 R011 V4R1



ATEX

Approval ID: KEMA 09ATEX0028 X



IECEX

Approval ID: IECEX KEM 09.0014X



CCC

Approval ID: 2020322316000794



CCC

Approval ID: 2025322304006705



KC-s

Approval ID: 25-KA4BO-0698X



KC-s

Approval ID: 25-KA4BO-0697X

S-PT-EX-48DC-1/2" - Surge protection device



2800054

<https://www.phoenixcontact.com/us/products/2800054>

Classifications

ECLASS

ECLASS-13.0	27171502
ECLASS-15.0	27171502

ETIM

ETIM 10.0	EC001466
-----------	----------

UNSPSC

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

S-PT-EX-48DC-1/2" - Surge protection device



2800054

<https://www.phoenixcontact.com/us/products/2800054>

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	6f2d2099-c3b6-4528-9e62-833da139720c

EF3.1 Climate Change

CO2e kg	9.791 kg CO2e
---------	---------------

Phoenix Contact 2026 © - 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