

TTC-6P-2X1-M-EX-24DC-UT-I - Surge protection device



2906825

<https://www.phoenixcontact.com/us/products/2906825>

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, consisting of protective plug and base element, with integrated status indicator and disconnect knife for a 2-wire Ex i signal circuit with common reference potential, e.g., digital IN/OUT. Can be used in safety-related circuits up to SIL 3.

Your advantages

- Space-saving and cost-saving with a narrow overall width of just 6 mm
- Continuous monitoring of protective devices, plus mechanical status indicator with optional remote signaling
- Finding the right product for all possible requirements in MCR applications is easy, thanks to the complete range of products with customized features
- Easy testing and documentation with CHECKMASTER 2 with pluggable protective modules
- The signal is not influenced during maintenance work, thanks to the impedance-neutral insertion and removal of protective plugs

Commercial data

Item number	2906825
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL23
Product key	CL2163
GTIN	4055626135878
Weight per piece (including packing)	66.9 g
Weight per piece (excluding packing)	62.6 g
Customs tariff number	85363010
Country of origin	DE

TTC-6P-2X1-M-EX-24DC-UT-I - Surge protection device



2906825

<https://www.phoenixcontact.com/us/products/2906825>

Technical data

Product properties

Product type	Surge protection for MCR technology
Product family	TERMITRAB complete
IEC test classification	C1
	C2
	C3
	D1
Type	DIN rail module, two-section, divisible

Insulation characteristics

Overvoltage category	III
Pollution degree	2

Electrical properties

Nominal voltage U_N	24 V DC
-----------------------	---------

Connection data

Connection method	Screw connection
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross section rigid	0.2 mm ² ... 4 mm ²
Conductor cross section AWG	24 ... 12

Ex data

Maximum inner capacitance C_i	negligible
Max. internal inductance L_i	negligible
Max. input current I_i	400 mA (T4 / -40 °C ... +50 °C)
	250 mA (T4 / -40 °C ... +70 °C)
	350 mA (T6 / -40 °C ... +35 °C)
	100 mA (T6 / -40 °C ... +70 °C)
Max. input voltage U_i	30 V DC
Ambient temperature (operation)	-40 °C ... 70 °C (with current derating)

Dimensions

Dimensional drawing	
Width	6.2 mm +0.1 mm
Height	105.8 mm

TTC-6P-2X1-M-EX-24DC-UT-I - Surge protection device



2906825

<https://www.phoenixcontact.com/us/products/2906825>

Depth	100 mm (incl. DIN rail 7.5 mm)
-------	--------------------------------

Material specifications

Color	blue (RAL 5015)
Flammability rating according to UL 94	V-0
Insulating material	PBT
Housing material	PBT

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	30 V DC
Rated current	600 mA (40 °C)
Operating effective current I_C at U_C	$\leq 5 \mu\text{A}$
Protective conductor current I_{PE}	$\leq 10 \mu\text{A}$
Nominal discharge current I_n (8/20) μs (line-ground)	5 kA
Pulse discharge current I_{imp} (10/350) μs (line-earth)	0.5 kA
Total discharge current I_{Total} (8/20) μs	10 kA
Output voltage limitation at 1 kV/ μs (wire-earth)	$\leq 45 \text{ V}$
Voltage protection level U_p (line-earth)	$\leq 140 \text{ V}$ (C1 - 1 kV / 500 A)
	$\leq 190 \text{ V}$ (C2 - 10 kV / 5 kA)
	$\leq 50 \text{ V}$ (C3 - 100 A)
Voltage protection level U_p static (line-earth)	$\leq 55 \text{ V}$ (C1 - 1 kV / 500 A)
	$\leq 120 \text{ V}$ (C2 - 10 kV / 5 kA)
Response time t_A (line-earth)	$\leq 1 \text{ ns}$
Input attenuation aE, asym.	typ. 0.3 dB ($\leq 270 \text{ kHz}/150 \Omega$)
Cut-off frequency f_g (3 dB), asym. (PE) in 150 Ω system	typ. 960 kHz
Capacity (Core-Earth)	typ. 2.2 nF
Resistance per path	1.65 $\Omega \pm 20 \%$
Surge protection fault message	optical
Max. required back-up fuse	630 mA (FF)
Impulse durability (line-earth)	C1 - 1 kV / 500 A
	C2 - 10 kV / 5 kA
	C3 - 100 A
	D1 - 500 A
Pulse reset time (line-earth)	$\leq 300 \text{ ms}$

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
----------------------	------

TTC-6P-2X1-M-EX-24DC-UT-I - Surge protection device



2906825

<https://www.phoenixcontact.com/us/products/2906825>

Ambient temperature (operation)	-40 °C ... 85 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 2000 m (amsl)
Permissible humidity (operation)	5 % ... 95 %

Approvals

Conformity/Approvals

UL, USA / Canada	Class I, Div. 2, Groups A, B, C, D T4A
------------------	--

Standards and regulations

Standards/specifications	EN 60079-0
Note	2018
Standards/specifications	EN 60079-11
Note	2012

EN 61643-21

Standards/specifications	EN 61643-21
Note	2001 + A1:2009 + A2:2013
Standards/specifications	IEC 60079-0
Note	2017
Standards/specifications	IEC 60079-11
Note	2008
Standards/specifications	IEC 61643-21
Note	2000 + corrigendum 2001 + A1:2008, modified + A2:2012

Mounting

Mounting type	DIN rail: TH 35 - 7.5 mm
---------------	--------------------------

TTC-6P-2X1-M-EX-24DC-UT-I - Surge protection device

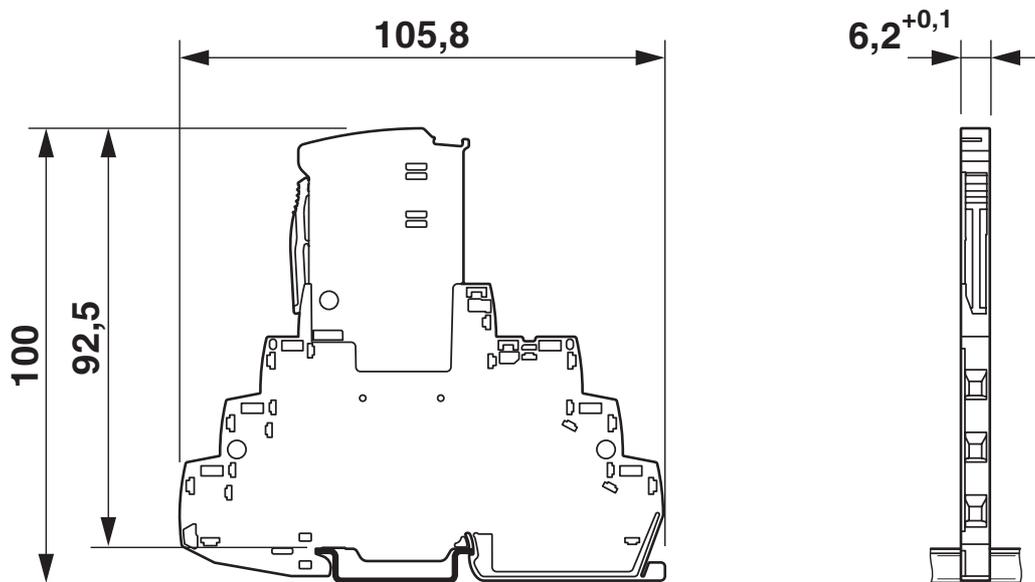


2906825

<https://www.phoenixcontact.com/us/products/2906825>

Drawings

Dimensional drawing

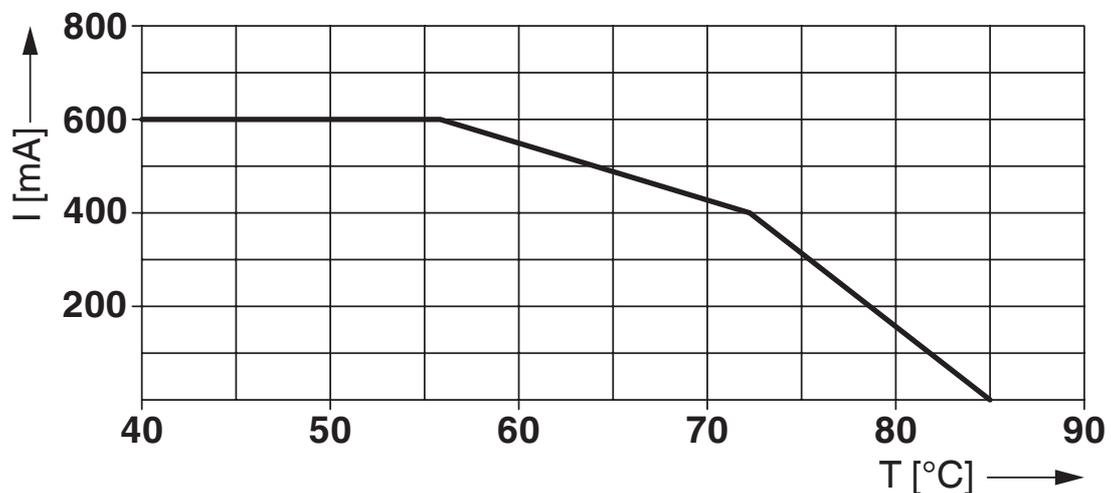


Schematic diagram

TTC-6P-2X1-M-EX-...-I									
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
	1.69x10 ⁻⁵	3.00x10 ⁻⁹ 1/h	0.2 %	0.3 %	8.44x10 ⁻⁷	1.50x10 ⁻¹⁰ 1/h	5 %	0.1 %	0.2 %
					1.69x10 ⁻⁶	3.00x10 ⁻¹⁰ 1/h	10 %	0.2 %	0.3 %
Calculation based on exida report, Phoenix Contact 16/06-072 R022 V4R2 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

Diagram



Derating for non-Ex applications

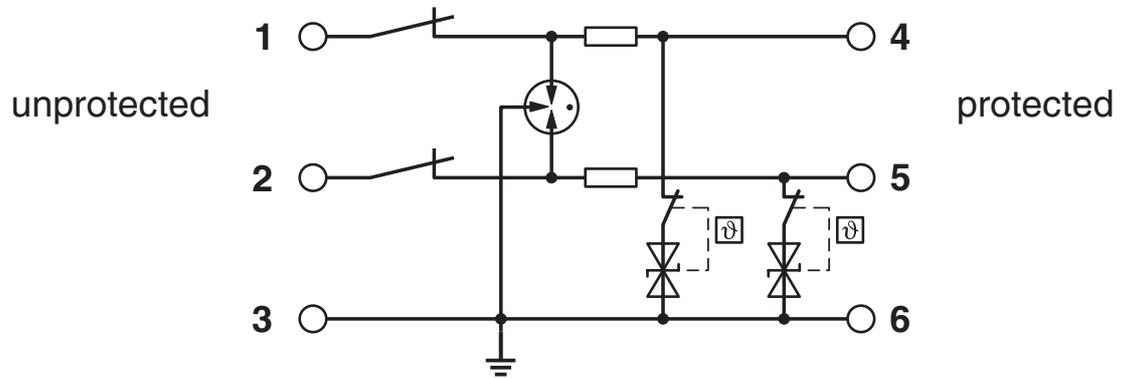
TTC-6P-2X1-M-EX-24DC-UT-I - Surge protection device



2906825

<https://www.phoenixcontact.com/us/products/2906825>

Circuit diagram



TTC-6P-2X1-M-EX-24DC-UT-I - Surge protection device



2906825

<https://www.phoenixcontact.com/us/products/2906825>

Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2906825>

 **CSA**
Approval ID: 70136717

 **DNV GL**
Approval ID: TAE000027G

 **UL Listed**
Approval ID: FILE E 138168

 **CSAus**
Approval ID: 70136717

UAE-RoHS
Approval ID: 22-06-16781

Functional Safety
Approval ID: 16-06-072 R022 V4R3

 **IECEX**
Approval ID: IECEX BVS 16.0090X

 **cUL Listed**
Approval ID: FILE E 333250

 **UL Listed**
Approval ID: FILE E 333250

 **ATEX**
Approval ID: BVS 16 ATEX E 125 X

INMETRO
Approval ID: 19.0077 X

TTC-6P-2X1-M-EX-24DC-UT-I - Surge protection device



2906825

<https://www.phoenixcontact.com/us/products/2906825>



NEPSI-EX

Approval ID: GYJ20.1114X



CCC

Approval ID: 2020322316000780



UKCA-EX

Approval ID: DEKRA 23UKEX0110X

TTC-6P-2X1-M-EX-24DC-UT-I - Surge protection device



2906825

<https://www.phoenixcontact.com/us/products/2906825>

Classifications

ECLASS

ECLASS-13.0	27171502
ECLASS-15.0	27171502

ETIM

ETIM 9.0	EC001625
----------	----------

UNSPSC

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

TTC-6P-2X1-M-EX-24DC-UT-I - Surge protection device



2906825

<https://www.phoenixcontact.com/us/products/2906825>

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	98bcfb62-0b5a-41c5-bf4c-cfd46431bb7a

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