

TTC-6-GDT-C-24AC-PT-I - Surge protection device



2906860

<https://www.phoenixcontact.com/us/products/2906860>

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Coarse surge protection with integrated status indicator for a signal wire with grounded reference potential. 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

Commercial data

Item number	2906860
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL23
Product key	CL2265
GTIN	4055626137155
Weight per piece (including packing)	27.2 g
Weight per piece (excluding packing)	22.49 g
Customs tariff number	85363010
Country of origin	DE

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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, one-piece
Surge protection fault message	optical

Insulation characteristics

Overvoltage category	III
Pollution degree	2

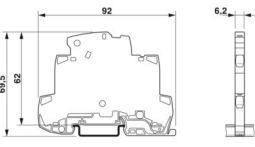
Electrical properties

Nominal voltage U_N	24 V AC
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Connection data

Connection method	Push-in connection
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

Dimensions

Dimensional drawing	
Width	6.2 mm
Height	92 mm
Depth	69.5 mm (incl. DIN rail 7.5 mm)

Material specifications

Color	gray (RAL 7042)
Flammability rating according to UL 94	V-0
Insulating material	PBT
Housing material	PBT

Mechanical properties

Mechanical data

Open side panel	Yes
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Protective circuit

Direction of action	Line-Earth Ground
Nominal voltage U_N	24 V AC
Maximum continuous operating voltage U_C	28 V DC
	36 V AC
Rated current	1 A DC (60 °C)
	2 A AC (60 °C)
Operating effective current I_C at U_C	$\leq 1 \mu\text{A}$
Protective conductor current I_{PE}	$\leq 1 \mu\text{A}$
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
Voltage protection level U_p (line-earth)	$\leq 800 \text{ V}$ (C1 - 2 kV)
	$\leq 1 \text{ kV}$ (C2 - 10 kV)
	$\leq 800 \text{ V}$ (C3 - 25 A)
	$\leq 900 \text{ V}$ (C3 - 100 A)
Response time t_A (line-earth)	$\leq 100 \text{ ns}$
Input attenuation aE, asym.	typ. 0.3 dB ($\leq 8 \text{ MHz}/150 \Omega$)
	typ. 0.3 dB ($\leq 30 \text{ MHz}/50 \Omega$)
Cut-off frequency f_g (3 dB), asym. (PE) in 50 Ω system	typ. 130 MHz
Cut-off frequency f_g (3 dB), asym. (PE) in 150 Ω system	typ. 25 MHz
Capacity (Core-Earth)	5 pF
Resistance per path	$\leq 100 \text{ m}\Omega$
Surge protection fault message	optical
Impulse durability (line-earth)	C1 - 1 kA
	C2 - 5 kA
	C3 - 100 A
	D1 - 500 A
Pulse reset time (line-earth)	$\leq 1 \text{ ms}$

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20 (with end cover)
Ambient temperature (operation)	-40 °C ... 85 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	$\leq 4000 \text{ m}$ (amsl)
Permissible humidity (operation)	5 % ... 95 %

Standards and regulations

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

EN 61643-21

Standards/specifications	EN 61643-21
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Note	2001 + A1:2009 + A2:2013
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Mounting

Mounting type	DIN rail: 35 mm
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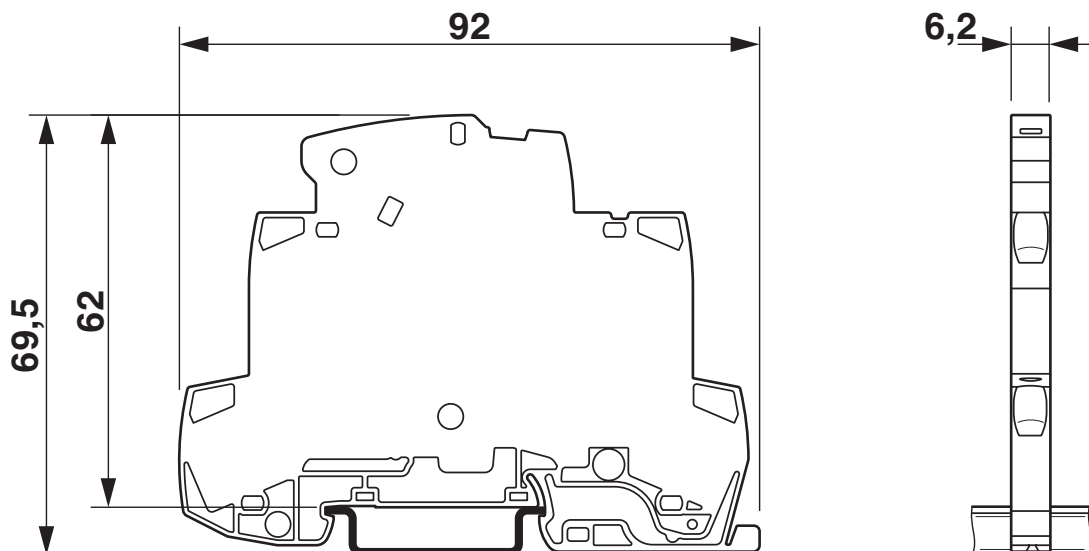


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Drawings

Dimensional drawing



Schematic diagram

TTC-6-TVSD									
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
	5.62x10 ⁻⁷	1.00x10 ⁻¹⁰ 1/h	0.0 %	0.0 %	2.81x10 ⁻⁸	5.00x10 ⁻¹² 1/h	5 %	0.0 %	0.0 %
					5.62x10 ⁻⁸	1.00x10 ⁻¹¹ 1/h	10 %	0.0 %	0.0 %
Calculation based on exida report, Phoenix Contact 16/06-072 R024 V2R0 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

Table also applies to the TTC-6-GDT item group

Diagram



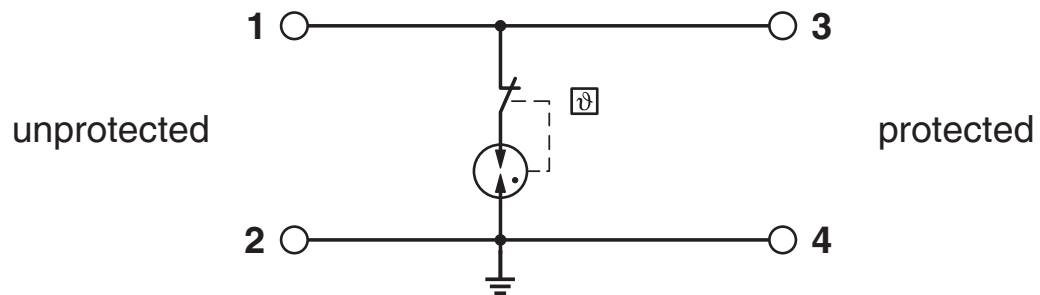
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Circuit diagram



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Approvals

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 **CSA**
Approval ID: 70136717

 **DNV GL**
Approval ID: TAE000027G

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

 **CSAus**
Approval ID: 70136717

UAE-RoHS
Approval ID: 22-06-16192

Functional Safety
Approval ID: 16-06-072 R024 V2R0

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Classifications

ECLASS

ECLASS-13.0	27171501
ECLASS-15.0	27171501

ETIM

ETIM 10.0	EC001466
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UNSPSC

UNSPSC 21.0	39121600
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Environmental product compliance

China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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EF3.1 Climate Change

CO2e kg	41.663 kg CO2e
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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com