

TTC-6-TVSD-C-12DC-PT-I - Surge protection device



2906847

<https://www.phoenixcontact.com/us/products/2906847>

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Fine surge protection with integrated status indicator for one 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	2906847
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL23
Product key	CL2265
GTIN	4055626137032
Weight per piece (including packing)	27.5 g
Weight per piece (excluding packing)	27.5 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 C3
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	12 V DC
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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

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Direction of action	Line-Earth Ground
Nominal voltage U_N	12 V DC
Maximum continuous operating voltage U_C	15 V DC
	10 V AC
Rated current	10 A (60 °C)
Operating effective current I_C at U_C	$\leq 5 \mu\text{A}$
Protective conductor current I_{PE}	$\leq 5 \mu\text{A}$
Nominal discharge current I_n (8/20) μs (line-ground)	300 A
Voltage protection level U_p (line-earth)	$\leq 25 \text{ V}$ (C1 - 0,6 kV / 300 A)
	$\leq 22 \text{ V}$ (C3 - 25 A)
	$\leq 25 \text{ V}$ (C3 - 60 A)
Response time t_A (line-earth)	$\leq 1 \text{ ns}$
Input attenuation aE, asym.	typ. 0.3 dB ($\leq 340 \text{ kHz}/150 \Omega$)
Cut-off frequency f_g (3 dB), asym. (PE) in 150 Ω system	typ. 1.1 MHz
Capacity (Core-Earth)	2 nF
Resistance per path	$\leq 100 \text{ m}\Omega$
Surge protection fault message	optical
Impulse durability (line-earth)	C1 - 0.6 kV/300 A
	C3 - 60 A

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
Note	2001 + A1:2009 + A2:2013

Mounting

Mounting type	DIN rail: 35 mm
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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

Diagram



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: 22-06-16783

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

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	7831d36e-8e00-4a1d-9d06-c7f4f76274c0

EF3.1 Climate Change

CO2e kg	41.639 kg CO2e
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