

# TTC-6-GDT-D-24AC-UT-I - Surge protection device



2906845

<https://www.phoenixcontact.com/us/products/2906845>

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Coarse surge protection with integrated status indicator for a 2-wire floating signal circuit. 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	2906845
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to order (non-returnable)
Sales key	CL23
Product key	CL2264
GTIN	4055626137018
Weight per piece (including packing)	26.1 g
Weight per piece (excluding packing)	21.21 g
Customs tariff number	85363010
Country of origin	DE

## 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
Wire pairs per module	1

### Insulation characteristics

Overvoltage category	III
Pollution degree	2

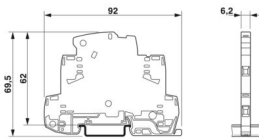
### Electrical properties

Nominal voltage $U_N$	24 V AC
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### Connection data

Connection method	Screw connection
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm
Conductor cross-section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
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

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## Mechanical properties

### Mechanical data

Open side panel	Yes
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## Protective circuit

Direction of action	Line-Line
Nominal voltage $U_N$	24 V AC
Maximum continuous operating voltage $U_C$	28 V DC
	30 V AC
Rated current	1 A DC (60 °C)
	2 A AC (60 °C)
Operating effective current $I_C$ at $U_C$	$\leq 1 \mu A$
Nominal discharge current $I_n$ (8/20) $\mu s$ (line-line)	5 kA
Pulse discharge current $I_{imp}$ (10/350) $\mu s$ (line-line)	0.5 kA
Voltage protection level $U_p$ (line-line)	$\leq 800$ V (C1 - 2 kV)
	$\leq 1$ kV (C2 - 10 kV)
	$\leq 800$ V (C3 - 25 A)
	$\leq 900$ V (C3 - 100 A)
Response time $t_A$ (line-line)	$\leq 100$ ns
Input attenuation aE, sym.	typ. 0.3 dB ( $\leq 8$ MHz/150 $\Omega$ )
	typ. 0.3 dB ( $\leq 30$ MHz/50 $\Omega$ )
Cut-off frequency $f_g$ (3 dB), sym. in 50 $\Omega$ system	typ. 130 MHz
Cut-off frequency $f_g$ (3 dB), sym. in 150 $\Omega$ system	typ. 25 MHz
Capacity (Core-Core)	5 pF
Resistance per path	$\leq 100$ m $\Omega$
Surge protection fault message	optical
Impulse durability (line-line)	C1 - 1 kA
	C2 - 5 kA
	C3 - 100 A
	D1 - 500 A
Pulse reset time (line-line)	$\leq 1$ 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	$\leq 4000$ m (amsl)
Permissible humidity (operation)	5 % ... 95 %

## Standards and regulations

Standards/specifications	IEC 61643-21
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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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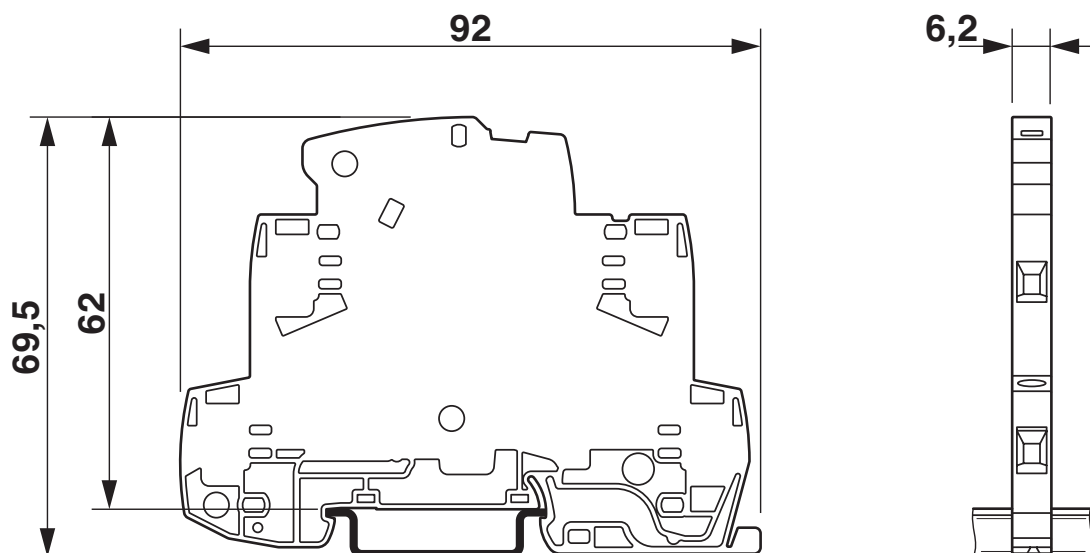


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## Drawings

Dimensional drawing



Schematic diagram

TTC-6-TVSD									
Category	1oo1 architecture, HFT=0				1oo2 architecture, HFT=1				
	PFD <sub>AVG</sub>	PFH	Used budget of SIL 2 SIF		PFD <sub>AVG</sub>	PFH	CCF	Used budget of SIL 3 SIF	
			PFD <sub>AVG</sub>	PFH				PFD <sub>AVG</sub>	PFH
	5.62x10 <sup>-7</sup>	1.00x10 <sup>-10</sup> 1/h	0.0 %	0.0 %	2.81x10 <sup>-8</sup>	5.00x10 <sup>-12</sup> 1/h	5 %	0.0 %	0.0 %
					5.62x10 <sup>-8</sup>	1.00x10 <sup>-11</sup> 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 <sub>proof</sub> : 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



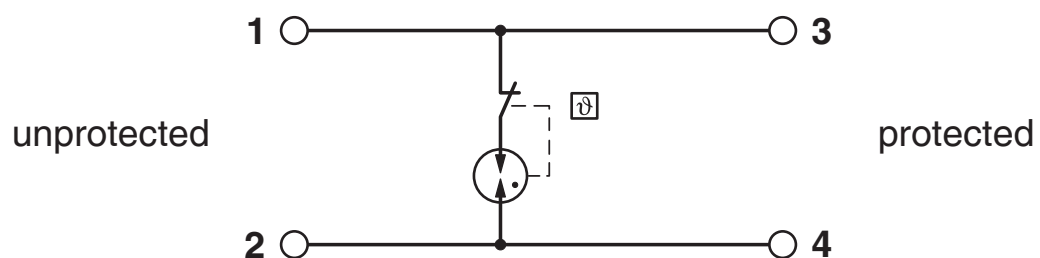
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Circuit diagram



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## Classifications

### ECLASS

ECLASS-13.0

27171501

### ETIM

ETIM 9.0

EC000943

### UNSPSC

UNSPSC 21.0

39121600

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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### 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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