

TTC-6P-2X1-F-M-24DC-PT-I - Surge protection device



2906794

<https://www.phoenixcontact.com/us/products/2906794>

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Surge protection, consisting of protective plug and base element, with integrated status indicator and disconnect knife for two signal wires with common reference potential, e.g., digital IN/OUT. Indirect grounding via gas discharge tube. 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	2906794
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL23
Product key	CL2162
Catalog page	Page 129 (C-4-2019)
GTIN	4055626135496
Weight per piece (including packing)	43 g
Weight per piece (excluding packing)	37.92 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, two-section, divisible

Data management status

Article revision	04
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Insulation characteristics

Overvoltage category	III
Pollution degree	2

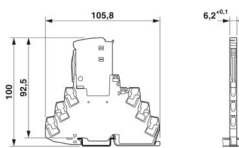
Electrical properties

Nominal voltage U_N	24 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 +0.1 mm
Height	105.8 mm
Depth	100 mm (incl. DIN rail 7.5 mm)

Material specifications

Color (Base element)	gray (RAL 7042)
Color (Male connector)	light gray (RAL 7035)
Flammability rating according to UL 94	V-0
Insulating material	PBT
Housing material	PBT

Mechanical properties

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Mechanical data

Open side panel	No
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Protective circuit

Direction of action	Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground
Maximum continuous voltage U_C	30 V DC 21 V AC
Rated current	600 mA (56 °C)
Operating effective current I_C at U_C	$\leq 5 \mu A$
Residual current I_{PE}	$\leq 1 \mu A$
Nominal discharge current I_n (8/20) μs (line-ground)	5 kA
Nominal discharge current I_n (8/20) μs (line-signal ground)	5 kA
Pulse discharge current I_{imp} (10/350) μs (line-earth)	0.5 kA
Pulse discharge current I_{imp} (10/350) μs (line-signalground)	0.5 kA
Total discharge current I_{total} (8/20) μs	10 kA
Voltage protection level U_p (line-earth)	$\leq 750 V$ (C1 - 1 kV / 500 A) $\leq 800 V$ (C2 - 10 kV / 5 kA) $\leq 1.1 kV$ (C3 - 25 A) $\leq 1.15 kV$ (C3 - 100 A)
Voltage protection level U_p (line-signalground)	$\leq 140 V$ (C1 - 1 kV / 500 A) $\leq 190 V$ (C2 - 10 kV / 5 kA) $\leq 45 V$ (C3 - 25 A) $\leq 50 V$ (C3 - 100 A)
Voltage protection level U_p static (line-earth)	$\leq 750 V$ (C1 - 1 kV / 500 A) $\leq 800 V$ (C2 - 10 kV / 5 kA)
Voltage protection level U_p static (line-signalground)	$\leq 55 V$ (C1 - 1 kV / 500 A) $\leq 120 V$ (C2 - 10 kV / 5 kA)
Response time t_A (line-earth)	$\leq 100 ns$
Response time t_A (line-signalground)	$\leq 1 ns$
Input attenuation aE, asym.	typ. 0.3 dB ($\leq 270 kHz/150 \Omega$)
Cut-off frequency f_g (3 dB), asym. (signal ground) in 150 Ω system	typ. 960 kHz
Capacity (line-signalground)	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
Impulse durability (line-signalground)	C1 - 1 kV / 500 A C2 - 10 kV / 5 kA C3 - 100 A

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	D1 - 500 A
Pulse reset time (line-earth)	≤ 30 ms
Pulse reset time (line-signalground)	≤ 300 ms

Additional technical data

Max. total discharge current $I_{\text{total max}} (8/20) \mu\text{s}$	20 kA (1x)
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Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 85 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 4000 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: TH 35 - 7.5 mm
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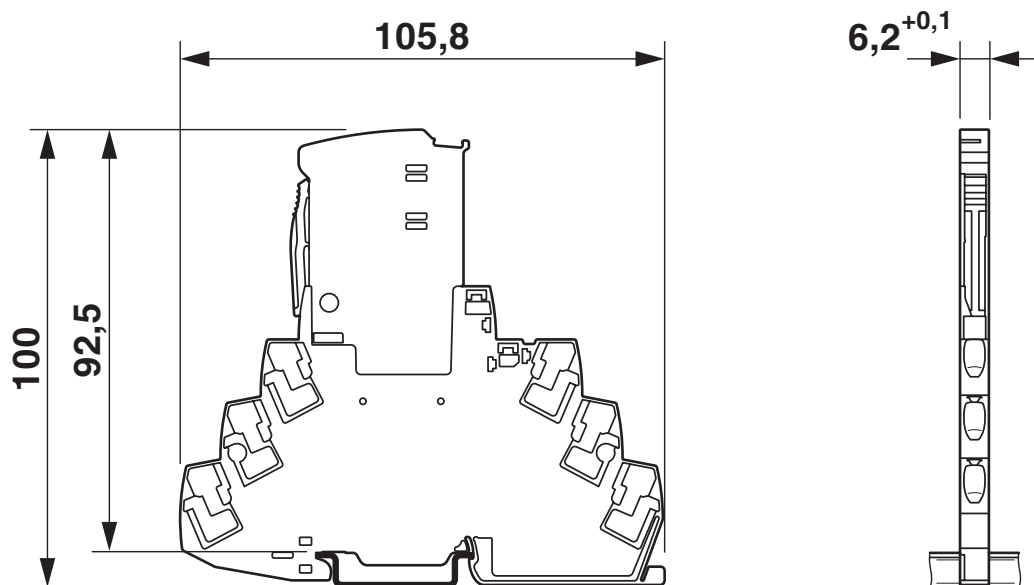


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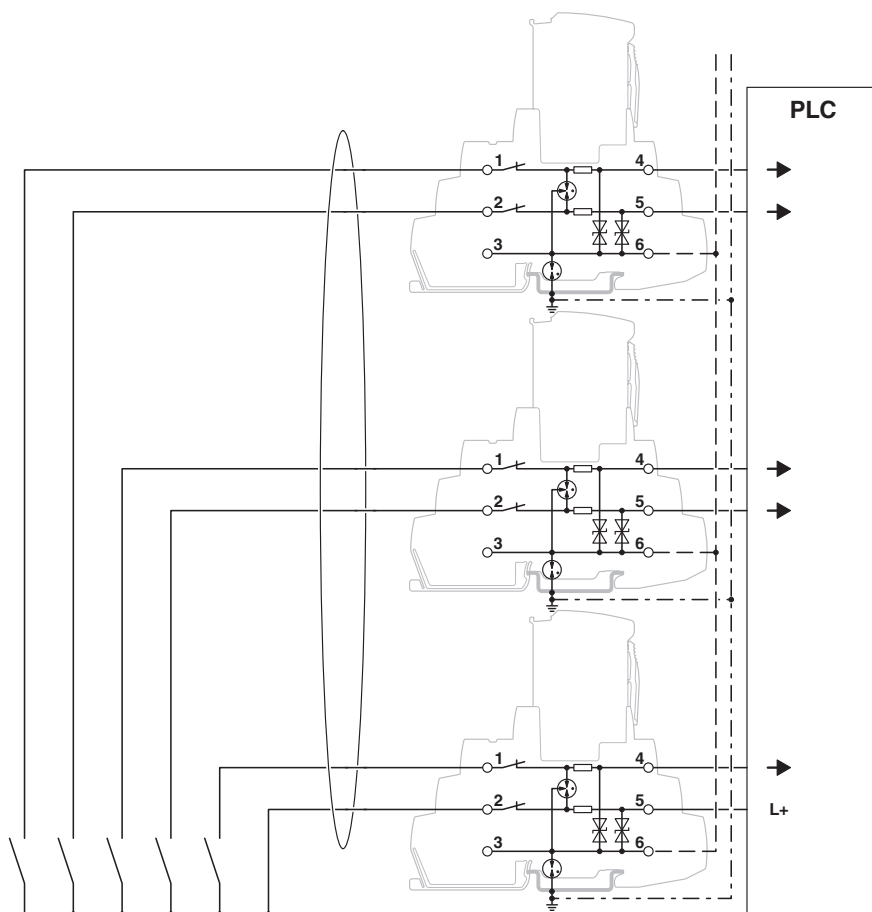
<https://www.phoenixcontact.com/us/products/2906794>

Drawings

Dimensional drawing



Application drawing



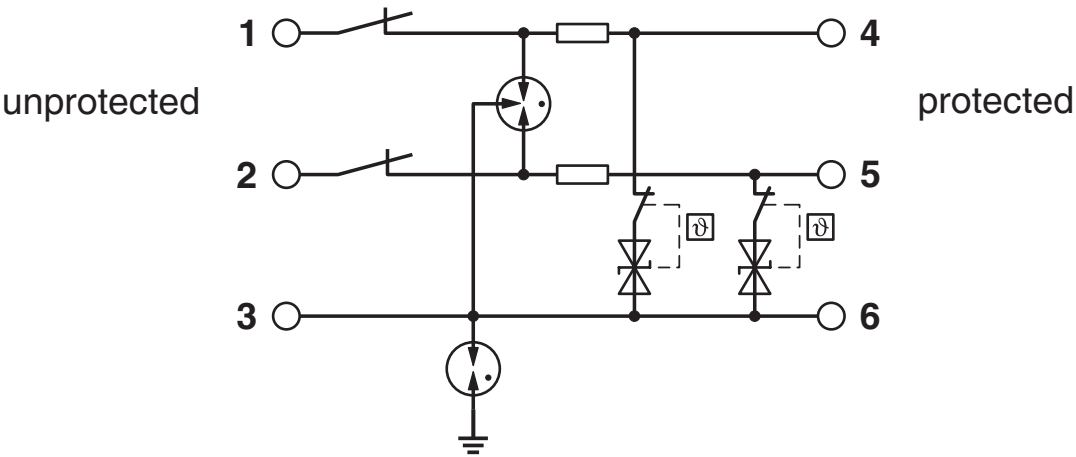
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Circuit diagram

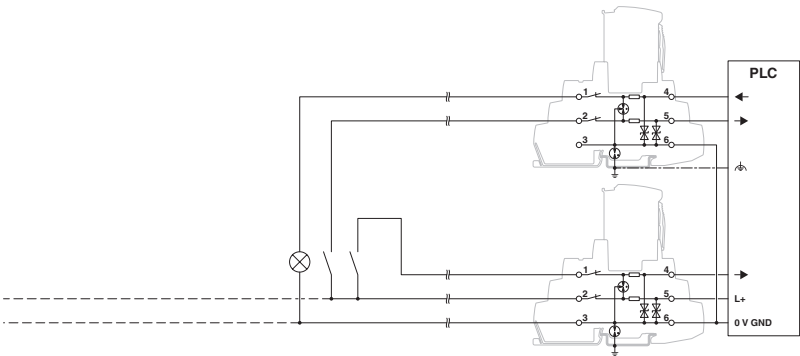


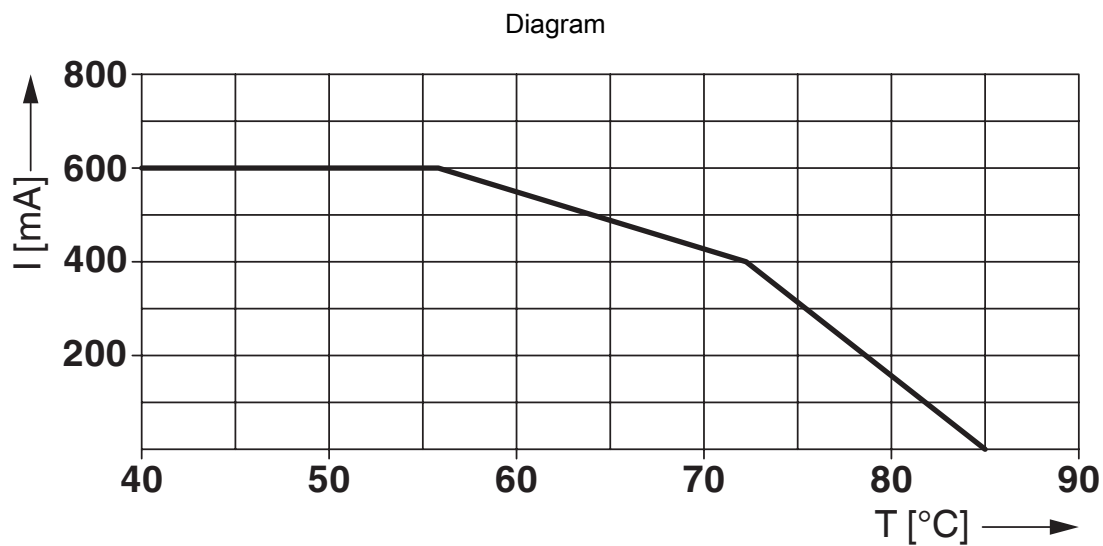
Schematic diagram

TTC-6P-2X1-F-M-...-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
	2.25·10 ⁻⁵	4.00·10 ⁻⁹ 1/h	0.2 %	0.4 %	1.13·10 ⁻⁶	2.00·10 ⁻¹⁰ 1/h	5 %	0.1 %	0.2 %
					2.25·10 ⁻⁶	4.00·10 ⁻¹⁰ 1/h	10 %	0.2 %	0.4 %
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

Application drawing





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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2906794>



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 V4R2

cCSAus

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Classifications

ECLASS

ECLASS-11.0	27130807
ECLASS-13.0	27171501

ETIM

ETIM 9.0	EC001625
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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	87be5da4-0960-4c3b-a489-f7c285aa8bec

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Accessories

ZBF 6 CUS - Zack Marker strip, flat

0825027

<https://www.phoenixcontact.com/us/products/0825027>



Zack Marker strip, flat, Strip, can be ordered: Strip, white, labeled according to customer specifications, mounting type: snap into flat marker groove, for terminal block width: 6.2 mm, lettering field size: 5.15 x 6.15 mm, Number of individual labels: 10

ZBF 6:UNBEDRUCKT - Zack Marker strip, flat

0808710

<https://www.phoenixcontact.com/us/products/0808710>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 6.2 mm, lettering field size: 5.15 x 6.15 mm, Number of individual labels: 10

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ZBF 6/WH-100:UNBEDRUCKT - Zack Marker strip, flat

0808736

<https://www.phoenixcontact.com/us/products/0808736>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 6.2 mm, lettering field size: 5.15 x 6.15 mm, Number of individual labels: 1000

ZBF 6,QR:FORTL.ZAHLEN - Zack Marker strip, flat

0808765

<https://www.phoenixcontact.com/us/products/0808765>



Zack Marker strip, flat, Strip, white, labeled, Printed vertically: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... 100, mounting type: snapped, for terminal block width: 6.2 mm, lettering field size: 5.15 x 6.15 mm, Number of individual labels: 10

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CLIPFIX 35-5 - End bracket

3022276

<https://www.phoenixcontact.com/us/products/3022276>



Quick mounting end clamp for NS 35/7,5 DIN rail or NS 35/15 DIN rail, with marking option, with parking option for FBS...5, FBS...6, KSS 5, KSS 6, width: 5.15 mm, color: gray

TTC-6-FMRS-PT - Remote signaling set

2907811

<https://www.phoenixcontact.com/us/products/2907811>



Module set for the optical monitoring and floating remote signaling of adjacent surge protective devices in the TERMITRAB complete or CLIXTRAB product family. Suitable for directly grounded DIN rails.

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SSA 3-6 - Shield connection

2839295

<https://www.phoenixcontact.com/us/products/2839295>

Shield fast connection for 3 ... 6 mm cable diameter. Potential connecting cable:
200 mm, 1 mm², color: black



SSA 5-10 - Shield connection

2839512

<https://www.phoenixcontact.com/us/products/2839512>

Shield fast connection for 5 ... 10 mm cable diameter. Potential connecting cable:
200 mm, 1 mm², color: black



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X-PEN 0,35 - Marker pen

0811228

<https://www.phoenixcontact.com/us/products/0811228>



Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm

TTC-6P-2X1-24DC-I-P - Surge protection plug

2907843

<https://www.phoenixcontact.com/us/products/2907843>



Surge protection plug with integrated status indicator on the module for two signal wires with a common reference potential. Nominal voltage: 24 V DC

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