

PT-IQ-4X1+F-48DC-PT - Surge protection device



2801274

<https://www.phoenixcontact.com/us/products/2801274>

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Surge protection, consisting of protective plug and base element, with integrated multi-stage status indicator on the module for four signal wires with common reference potential. Indirect grounding via gas discharge tube. Can be used in safety-related circuits up to SIL 3.

Your advantages

- Predictive monitoring with 3-stage LED display
- Integration of the status message into the system controller via group remote signaling
- Install quickly and error-free with DIN rail connectors
- Maximum ease of maintenance, thanks to the 2-piece design
- Maximum protection for MCR applications with high discharge capacity

Commercial data

Item number	2801274
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL22
Product key	CL2153
GTIN	4046356766562
Weight per piece (including packing)	130 g
Weight per piece (excluding packing)	130 g
Customs tariff number	85363010
Country of origin	DE

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2801274

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Technical data

Notes

General

Note	Remote signaling as well as the power supply of the DIN rail connector are established by snapping the module into place on the DIN rail connector.
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Product properties

Product type	Surge protection for MCR technology
Product family	PLUGTRAB IQ
IEC test classification	C1
	C2
	C3
	D1
Type	DIN rail module, two-section, divisible
Surge protection fault message	Optical, multi-stage

Insulation characteristics

Overvoltage category	III
Pollution degree	2

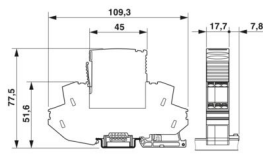
Electrical properties

Nominal voltage U_N	48 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	0.5 mm ² ... 4 mm ²
Conductor cross-section AWG	24 ... 12

Dimensions

Dimensional drawing	
Width	17.7 mm
Height	109.3 mm
Depth	77.5 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	1 Div.

Material specifications

Color	black (RAL 9005)
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	black (RAL 9005)
Flammability rating according to UL 94	V-0
Housing material	PA 6.6

Mechanical properties

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
Nominal voltage U_N	48 V DC
Maximum continuous operating voltage U_C	53 V DC 37 V AC
Rated current	300 mA
Operating effective current I_C at U_C	$\leq 6 \mu\text{A}$ (per path)
Protective conductor current I_{PE}	$\leq 1 \mu\text{A}$
Nominal discharge current I_n (8/20) μs (line-ground)	10 kA
Pulse discharge current I_{imp} (10/350) μs (line-earth)	2.5 kA
Total discharge current I_{Total} (8/20) μs	20 kA
Voltage protection level U_p (line-earth)	$\leq 750 \text{ V}$ (C1 - 1 kV / 500 A) $\leq 950 \text{ V}$ (C2 - 10 kV / 5 kA) $\leq 850 \text{ V}$ (C3 - 25 A)
Voltage protection level U_p static (line-earth)	$\leq 200 \text{ V}$ (C2 - 10 kV / 5 kA)
Response time t_A (line-earth)	$\leq 100 \text{ ns}$
Input attenuation aE, asym.	typ. 0.3 dB ($\leq 530 \text{ kHz} / 150 \Omega$)
Resistance per path	$1.2 \Omega \pm 5 \%$
Surge protection fault message	Optical, multi-stage
Max. required back-up fuse	315 mA (FF)
Impulse durability (line-earth)	C1 - 1 kV / 500 A C2 - 10 kV / 5 kA C2 - 10 kA C3 - 25 A D1 - 2.5 kA
Pulse reset time (line-earth)	$\leq 250 \text{ ms}$

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	$\leq 4000 \text{ m}$ (amsl)

Standards and regulations

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2801274

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Standards/specifications	IEC 61643-21
Note	2000 + A1:2008, modified
Standards/specifications	EN 61643-21
Note	2001 + A1:2009
Standards/specifications	EN 61000-6-3
Note	2007 + A1:2011
Standards/specifications	EN 61000-6-2
Note	2005

Mounting

Mounting type	DIN rail: 35 mm
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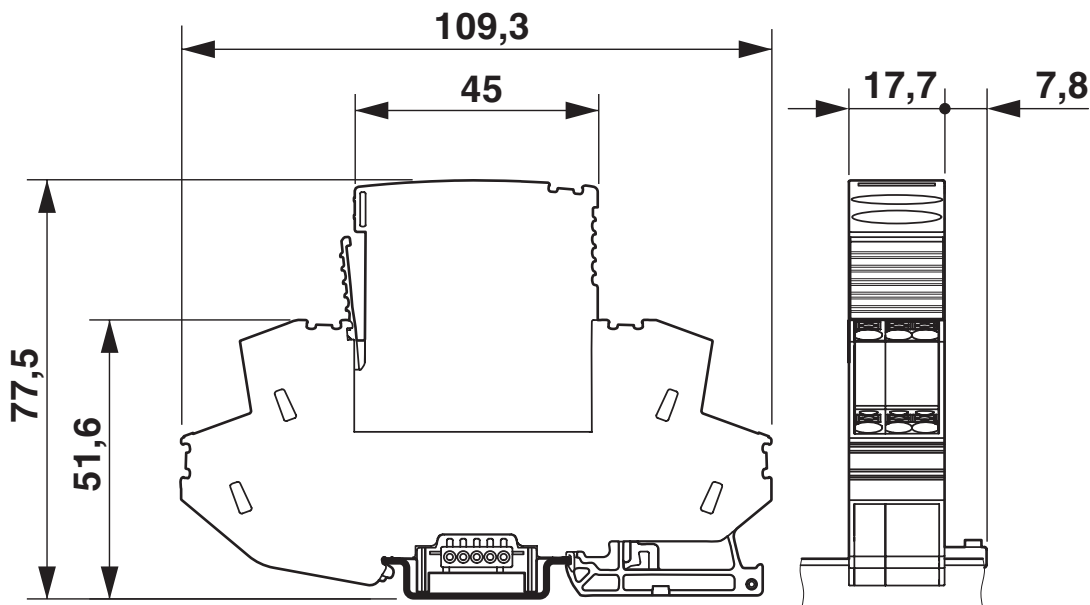


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Drawings

Dimensional drawing



Schematic diagram

PT-IQ-4X1+F-...DC-UT(PT)									
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
	1.46 $\times 10^{-5}$	2.60 $\times 10^{-9}$ 1/h	0.1 %	0.3 %	7.31 $\times 10^{-7}$	1.30 $\times 10^{-10}$ 1/h	5 %	0.1 %	0.1 %
					1.46 $\times 10^{-6}$	2.60 $\times 10^{-10}$ 1/h	10 %	0.1 %	0.3 %
Calculation based on exida report, Phoenix Contact 13/04-032 R017 V4R0 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

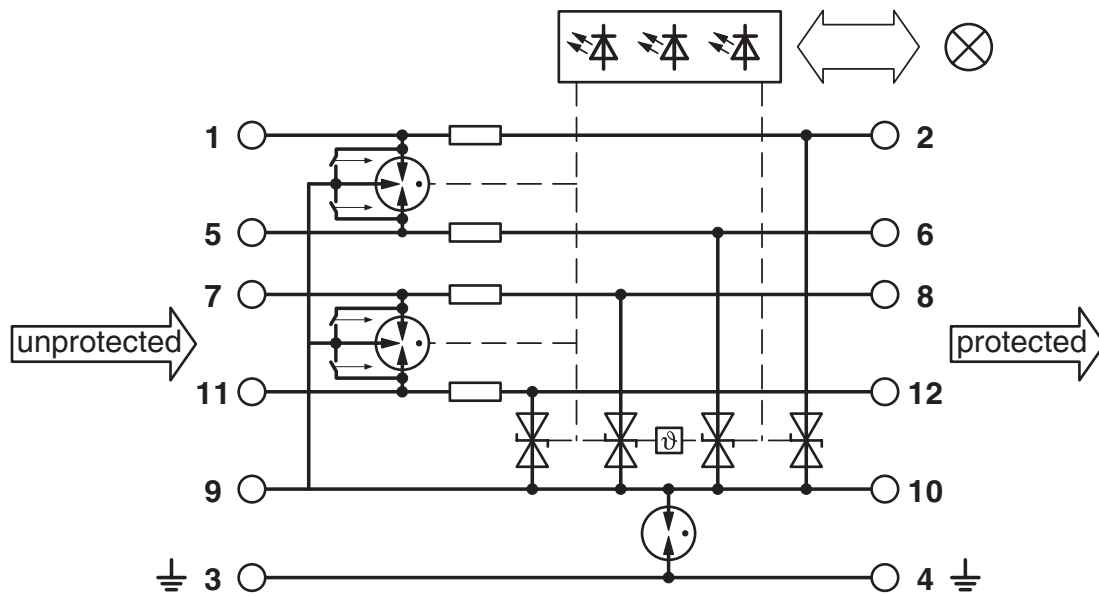
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Circuit diagram



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Approvals

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UL Listed

Approval ID: FILE E 138168

Functional Safety

Approval ID: 13-04-032 R017 V4R0

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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	6(c), 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)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)
SCIP	5ed2569c-379c-49f1-9f64-b8d9ad9f30ae

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