

PT-IQ-5-HF-12DC-PT - Surge protection device



2801293

<https://www.phoenixcontact.com/us/products/2801293>

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Surge protection, consisting of protective plug and base element, with integrated multi-stage status indicator on the module for five signal wires. For HF applications and telecommunications interfaces without supply voltage (up to 90 Mbps). 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	2801293
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL22
Product key	CL2153
GTIN	4046356766746
Weight per piece (including packing)	126 g
Weight per piece (excluding packing)	121 g
Customs tariff number	85363010
Country of origin	DE

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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 information 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	12 V DC
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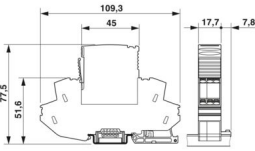
Connection data

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

Interfaces

Transmission speed	90 Mbps
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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)
	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	12 V DC
Maximum continuous operating voltage U_C	15 V DC
	10 V AC
Rated current	600 mA (40 °C)
Operating effective current I_C at U_C	$\leq 100 \mu\text{A}$ (per path)
Protective conductor current I_{PE}	$\leq 100 \mu\text{A}$ (per path)
Nominal discharge current I_n (8/20) μs (line-line)	10 kA
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-line)	$\leq 90 \text{ V}$ (C1 - 1 kV / 500 A)
	$\leq 40 \text{ V}$ (C3 - 25 A)
	$\leq 40 \text{ V}$ (C3 - 50 A)
	$\leq 145 \text{ V}$ (C2 - 10 kV / 5 kA)
Voltage protection level U_p (line-earth)	$\leq 90 \text{ V}$ (C1 - 1 kV / 500 A)
	$\leq 145 \text{ V}$ (C2 - 10 kV / 5 kA)
	$\leq 40 \text{ V}$ (C3 - 25 A)
	$\leq 40 \text{ V}$ (C3 - 50 A)
Voltage protection level U_p static (line-line)	$\leq 55 \text{ V}$ (C1 - 1 kV / 500 A)
Voltage protection level U_p static (line-earth)	$\leq 55 \text{ V}$ (C1 - 1 kV / 500 A)
Response time t_A (line-line)	$\leq 1 \text{ ns}$
Response time t_A (line-earth)	$\leq 1 \text{ ns}$
Input attenuation aE, sym.	typ. 0.3 dB ($\leq 10 \text{ MHz}/150 \Omega$)
Input attenuation aE, asym.	typ. 0.3 dB ($\leq 10 \text{ MHz}/150 \Omega$)
Cut-off frequency f_g (3 dB), sym. in 150 Ω system	typ. 60 MHz
Capacity (Core-Core)	typ. 30 pF
Resistance per path	1.2 $\Omega \pm 5 \%$
Surge protection fault message	Optical, multi-stage
Max. required back-up fuse	600 mA (FF)
	C1 - 1 kV / 500 A

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Impulse durability (line-line)	C2 - 10 kV / 5 kA
	C2 - 10 kA
	C3 - 25 A
	C3 - 50 A
Impulse durability (line-earth)	C1 - 1 kV / 500 A
	C2 - 10 kV / 5 kA
	C2 - 10 kA
	C3 - 25 A
	C3 - 50 A
	D1 - 2.5 kA
Pulse reset time (line-line)	≤ 15 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	≤ 4000 m (amsl)

Standards and regulations

Air clearances and creepage distances

Standards/regulations	IEC 60664-1
Standards/specifications	IEC 61643-21
Note	2000 + A1:2008 + A2:2012
Standards/specifications	EN 61643-21
Note	2001 + A1:2009 + A2:2013
Standards/specifications	EN 61000-6-2
Note	2005
Standards/specifications	EN 61000-6-3
Note	2007 + A1:2011

Mounting

Mounting type	DIN rail: 35 mm
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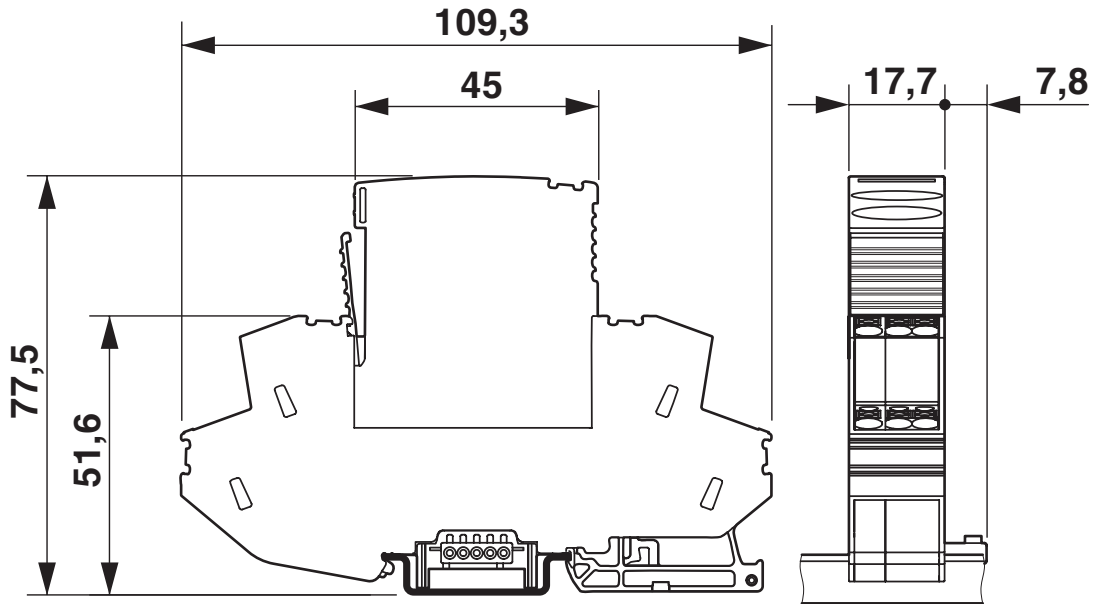


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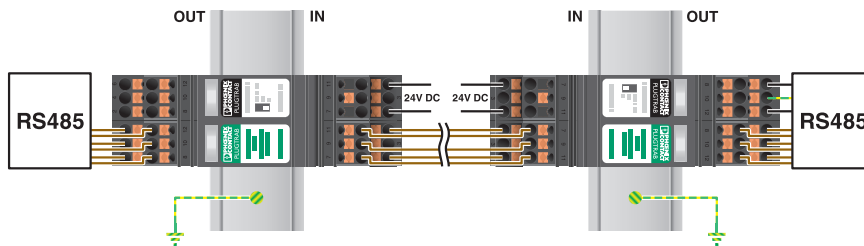
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Drawings

Dimensional drawing



Application drawing



Schematic diagram

Category	PT-IQ-2X2+F-...DC-UT(PT)								
	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	
	1.07 $\times 10^{-5}$	1.90 $\times 10^{-9}$ 1/h	0.1 %	0.2 %	5.34 $\times 10^{-7}$	9.50 $\times 10^{-11}$ 1/h	5 %	0.1 %	0.1 %
					1.07 $\times 10^{-6}$	1.90 $\times 10^{-10}$ 1/h	10 %	0.1 %	0.2 %
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

Table also applies to the PT-IQ-5-HF-...DC-UT(PT) item group

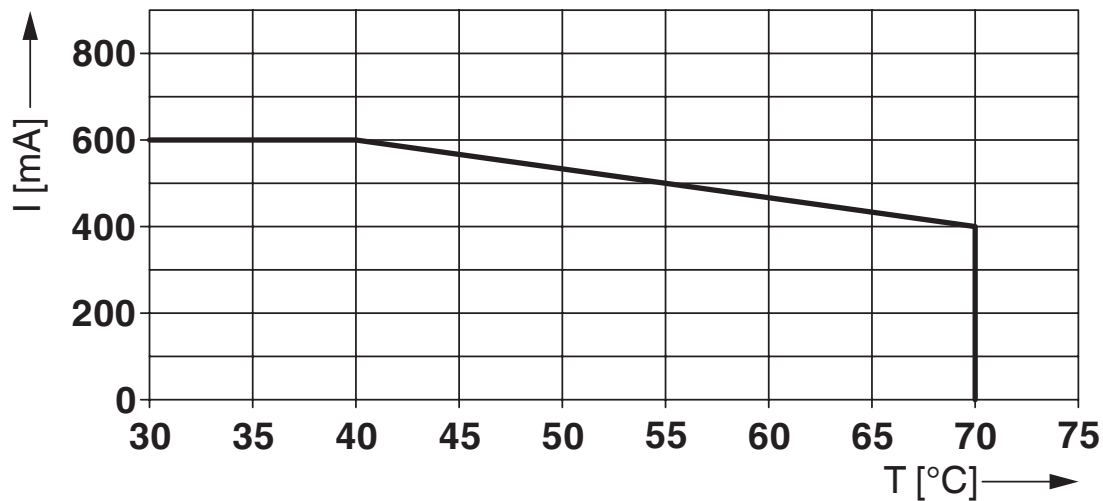
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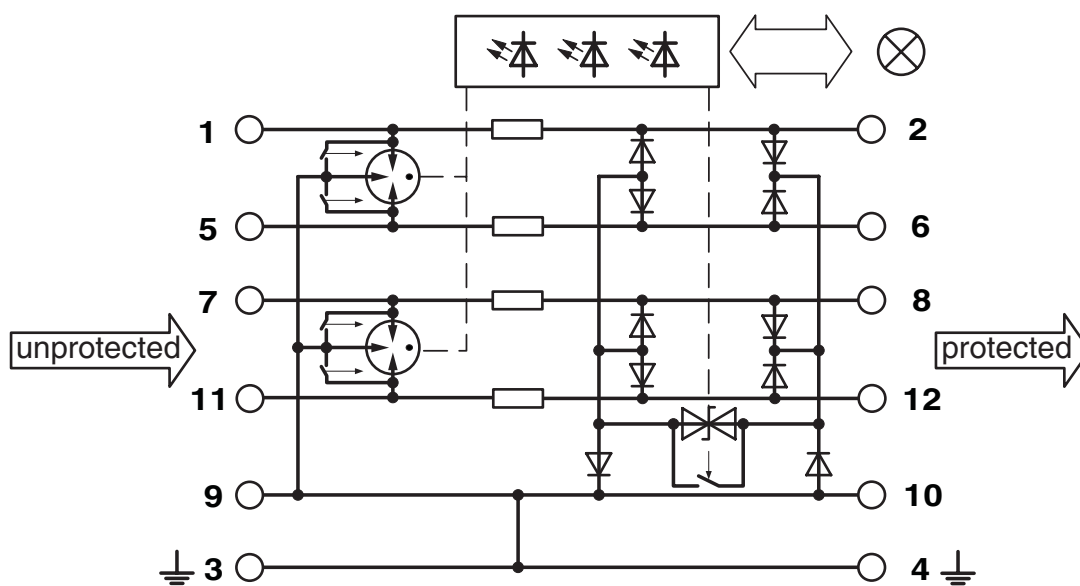
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Diagram



Circuit diagram



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Approvals

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CSA

Approval ID: 2761632



UL Listed

Approval ID: FILE E 138168



CSAus

Approval ID: 2761632

Functional Safety

Approval ID: 13-04-032 R017 V4R0

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Classifications

ECLASS

ECLASS-13.0	27171503
ECLASS-15.0	27171503

ETIM

ETIM 10.0	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	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	ca965997-4604-41ef-b6db-62ab6d978eb9

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