

# PT-IQ-3-PB-PT - Surge protection device



2801286

<https://www.phoenixcontact.com/us/products/2801286>

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Surge protection, consisting of protective plug and base element, with integrated multi-stage status indicator on the module for three signal wires with common reference potential. 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	2801286
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL22
Product key	CL2153
GTIN	4046356766678
Weight per piece (including packing)	113.7 g
Weight per piece (excluding packing)	109.7 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 $U_N$	5 V DC
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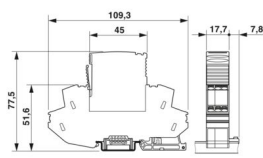
### Connection data

Connection method	Push-in connection
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

### 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.

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## 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 $U_N$	5 V DC
Maximum continuous operating voltage $U_C$	6 V DC
	4 V AC
Rated current	600 mA (40 °C)
Operating effective current $I_C$ at $U_C$	$\leq 800 \mu\text{A}$ (per path)
Protective conductor current $I_{PE}$	$\leq 800 \mu\text{A}$ (per path)
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-line)	10 kA
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-ground)	10 kA
Pulse discharge current $I_{imp}$ (10/350) $\mu\text{s}$ (line-line)	2.5 kA
Pulse discharge current $I_{imp}$ (10/350) $\mu\text{s}$ (line-earth)	2.5 kA
Total discharge current $I_{Total}$ (8/20) $\mu\text{s}$	20 kA
Voltage protection level $U_p$ (line-line)	$\leq 90 \text{ V}$ (C1 - 1 kV / 500 A)
	$\leq 140 \text{ V}$ (C2 - 10 kV / 5 kA)
	$\leq 30 \text{ V}$ (C3 - 25 A)
	$\leq 30 \text{ V}$ (C3 - 50 A)
Voltage protection level $U_p$ (line-earth)	$\leq 90 \text{ V}$ (C1 - 1 kV / 500 A)
	$\leq 140 \text{ V}$ (C2 - 10 kV / 5 kA)
	$\leq 30 \text{ V}$ (C3 - 25 A)
	$\leq 30 \text{ V}$ (C3 - 50 A)
Voltage protection level $U_p$ static (line-line)	$\leq 45 \text{ V}$ (C1 - 1 kV / 500 A)
Voltage protection level $U_p$ static (line-earth)	$\leq 45 \text{ V}$ (C1 - 1 kV / 500 A)
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 $\Omega$ 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
	C3 - 50 A
Impulse durability (line-earth)	C1 - 1 kV / 500 A
	C2 - 10 kV / 5 kA
	C3 - 50 A
	D1 - 2.5 kA
Pulse reset time (line-line)	≤ 10 ms
Pulse reset time (line-earth)	≤ 10 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

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

## Mounting

Mounting type	DIN rail: 35 mm
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# PT-IQ-3-PB-PT - Surge protection device

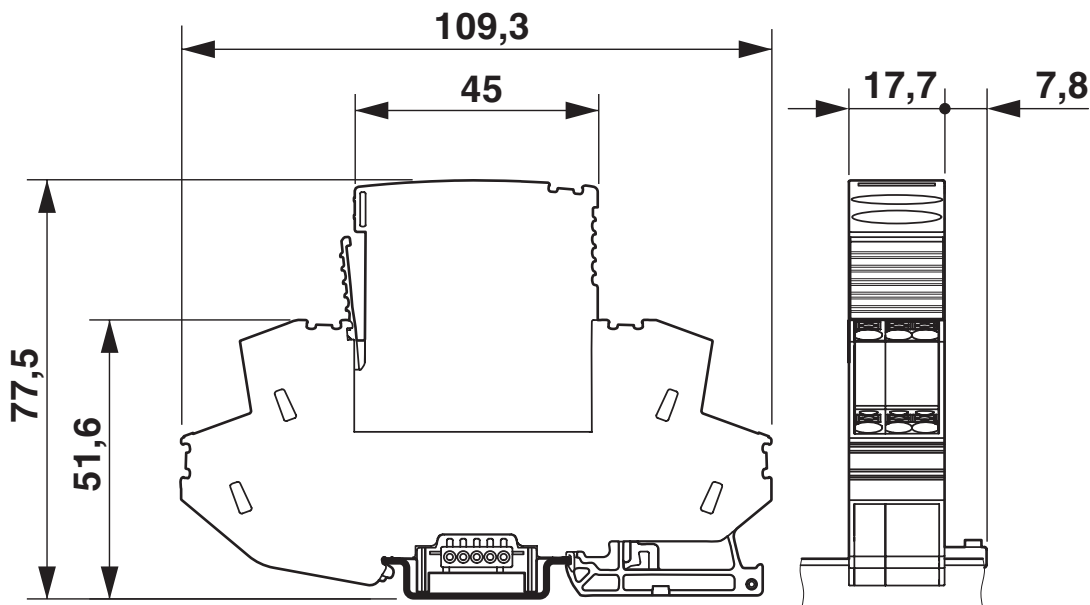


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## Drawings

Dimensional drawing



Schematic diagram

PT-IQ-2X2+F-...DC-UT(PT)									
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
	1.07·10 <sup>-5</sup>	1.90·10 <sup>-9</sup> 1/h	0.1 %	0.2 %	5.34·10 <sup>-7</sup>	9.50·10 <sup>-11</sup> 1/h	5 %	0.1 %	0.1 %
					1.07·10 <sup>-6</sup>	1.90·10 <sup>-10</sup> 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 <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 PT-IQ-3-PB-UT(PT) item group

# PT-IQ-3-PB-PT - Surge protection device

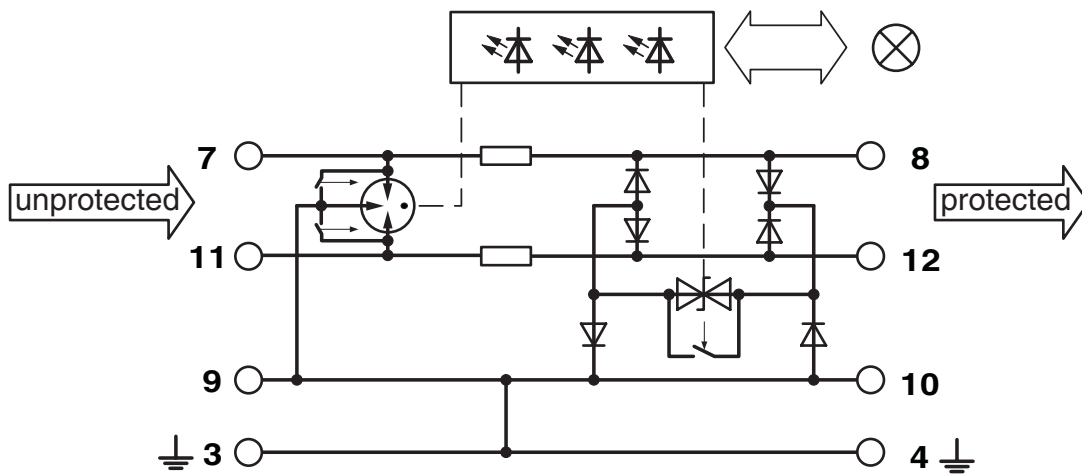
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Diagram



Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2801286>



### 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	27171503
ECLASS-15.0	27171503

### 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	957cd337-9986-4fc4-9a68-83428db9349b

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