

# PT-IQ-1X2+F-24DC-UT - Surge protection device



2800977

<https://www.phoenixcontact.com/us/products/2800977>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



Surge protection, consisting of protective plug and base element, with integrated multi-stage status indicator on the module, for one 2-wire floating signal circuit. 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	2800977
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL22
Product key	CL2151
GTIN	4046356665179
Weight per piece (including packing)	110.9 g
Weight per piece (excluding packing)	106 g
Customs tariff number	85363010
Country of origin	DE

# PT-IQ-1X2+F-24DC-UT - Surge protection device



2800977

<https://www.phoenixcontact.com/us/products/2800977>

## 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.
------	---

### 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
Wire pairs per module	1

#### Insulation characteristics

Overvoltage category	III
Pollution degree	2

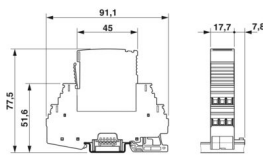
### Electrical properties

Nominal voltage $U_N$	24 V DC
-----------------------	---------

### Connection data

Connection method	Screw connection
Screw thread	M3
Tightening torque	0.5 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	17.7 mm
Height	91.1 mm
Depth	77.5 mm (incl. DIN rail 7.5 mm)

# PT-IQ-1X2+F-24DC-UT - Surge protection device



2800977

<https://www.phoenixcontact.com/us/products/2800977>

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
-----------------	----

## Protective circuit

Direction of action	Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground
Nominal voltage $U_N$	24 V DC
Maximum continuous operating voltage $U_C$	30 V DC
	21 V AC
Rated current	1000 mA (40 °C)
Operating effective current $I_C$ at $U_C$	$\leq 1$ mA (in the signal circuit)
Protective conductor current $I_{PE}$	$\leq 1$ $\mu$ A
Nominal discharge current $I_n$ (8/20) $\mu$ s (line-line)	10 kA
Nominal discharge current $I_n$ (8/20) $\mu$ s (line-ground)	10 kA
Pulse discharge current $I_{imp}$ (10/350) $\mu$ s (line-earth)	2.5 kA
Total discharge current $I_{Total}$ (8/20) $\mu$ s	20 kA
Voltage protection level $U_p$ (line-line)	$\leq 80$ V (C1 - 1 kV / 500 A)
	$\leq 130$ V (C2 - 10 kV / 5 kA)
	$\leq 150$ V (C2 - 10 kA)
	$\leq 55$ V (C3 - 25 A)
	$\leq 60$ V (C3 - 100 A)
Voltage protection level $U_p$ (line-earth)	$\leq 900$ V (C1 - 1 kV / 500 A)
	$\leq 1300$ V (C2 - 10 kV / 5 kA)
	$\leq 1200$ V (C2 - 10 kA)
	$\leq 1000$ V (C3 - 25 A)
	$\leq 1300$ V (C3 - 100 A)
Voltage protection level $U_p$ static (line-line)	$\leq 65$ V (C1 - 1 kV / 500 A)
	$\leq 65$ V (C2 - 10 kA)
Response time $t_A$ (line-line)	$\leq 1$ ns
Response time $t_A$ (line-earth)	$\leq 100$ ns
Input attenuation aE, sym.	typ. 0.3 dB ( $\leq 270$ kHz/150 $\Omega$ )
Cut-off frequency $f_g$ (3 dB), sym. in 150 $\Omega$ system	typ. 1.1 MHz
Capacity (Core-Earth)	typ. 2 nF
Resistance per path	1.2 $\Omega \pm 5$ %
Surge protection fault message	Optical, multi-stage

# PT-IQ-1X2+F-24DC-UT - Surge protection device



2800977

<https://www.phoenixcontact.com/us/products/2800977>

Max. required back-up fuse	1 A (FF)
Impulse durability (line-line)	C1 - 1 kV / 500 A
	C2 - 10 kV / 5 kA
	C2 - 10 kA
	C3 - 100 A
Impulse durability (line-earth)	C1 - 1 kV / 500 A
	C2 - 10 kV / 5 kA
	C2 - 10 kA
	C3 - 100 A
	D1 - 2.5 kA
Pulse reset time (line-line)	≤ 4000 ms
Pulse reset time (line-earth)	≤ 30 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)
Permissible humidity (operation)	5 % ... 95 %

## Standards and regulations

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
---------------	-----------------

# PT-IQ-1X2+F-24DC-UT - Surge protection device



2800977

<https://www.phoenixcontact.com/us/products/2800977>

## Drawings

Dimensional drawing



Schematic diagram

PT-IQ-1X2+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



# PT-IQ-1X2+F-24DC-UT - Surge protection device



2800977

<https://www.phoenixcontact.com/us/products/2800977>

## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2800977>



**CSA**

Approval ID: 2761632



**UL Listed**

Approval ID: FILE E 138168



**CSAus**

Approval ID: 2761632

**Functional Safety**

Approval ID: 13-04-032 R017 V4R0

# PT-IQ-1X2+F-24DC-UT - Surge protection device



2800977

<https://www.phoenixcontact.com/us/products/2800977>

## Classifications

### ECLASS

ECLASS-13.0	27171501
ECLASS-15.0	27171501

### ETIM

ETIM 10.0	EC001466
-----------	----------

### UNSPSC

UNSPSC 21.0	39121600
-------------	----------

2800977

<https://www.phoenixcontact.com/us/products/2800977>

## 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	53f68426-3d22-4f8c-b538-6c1cd5bc149f

Phoenix Contact 2026 © - all rights reserved  
<https://www.phoenixcontact.com>

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