

PT-IQ-2X2-EX-24DC-UT - Surge protection device



2801513

<https://www.phoenixcontact.com/gb/products/2801513>

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Surge protection, consisting of protective plug and base element, with integrated multi-stage status indicator on the module, for two 2-wire floating Ex i signal circuits. HART-compatible. 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	2801513
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL2152
Product key	CL2152
GTIN	4046356801232
Weight per piece (including packing)	126.3 g
Weight per piece (excluding packing)	123 g
Customs tariff number	85363010
Country of origin	DE

2801513

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Technical data

Product properties

Product family	PLUGTRAB IQ
IEC test classification	C1
	C2
	C3
	D1
Type	DIN rail module, two-section, divisible
Wire pairs per module	2

Insulation characteristics

Overvoltage category	III
Pollution degree	2

Electrical properties

Nominal voltage U_N	24 V DC
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Indicator/remote signaling

Switching function	via DIN rail connector
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Connection data

Connection method	Screw connection
Screw thread	M3
Tightening torque	0.5 Nm
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

Ex data

Maximum inner capacitance C_i	negligible
Max. internal inductance L_i	negligible
Max. input current I_i	350 mA
Max. input voltage U_i	30 V DC
max. input power P_i	1.20 W
Insulation voltage to ground	> 500 V AC
Ambient temperature (operation)	-40 °C ... 50 °C (T6)
	-40 °C ... 70 °C (T4)

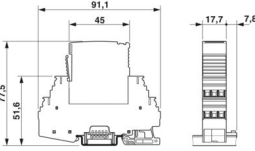
Dimensions

PT-IQ-2X2-EX-24DC-UT - Surge protection device



2801513

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Dimensional drawing	
Width	17.7 mm
Height	91.1 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
Insulating material	PA 6.6
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	24 V DC
Maximum continuous operating voltage U_C	30 V DC
	21 V AC
Rated current	350 mA
Operating effective current I_C at U_C	$\leq 5 \mu\text{A}$ (per system)
Protective conductor current I_{PE}	$\leq 100 \text{ nA}$ (per system)
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 kA
Total discharge current I_{Total} (8/20) μs	20 kA
Voltage protection level U_p (line-line)	$\leq 60 \text{ V}$ (C1 - 1 kV / 500 A)
	$\leq 110 \text{ V}$ (C2 - 10 kV / 5 kA)
	$\leq 140 \text{ V}$ (C2 - 10 kA)
	$\leq 50 \text{ V}$ (C3 - 25 A)
	$\leq 55 \text{ V}$ (C3 - 100 A)
Voltage protection level U_p (line-earth)	$\leq 1.3 \text{ kV}$ (C2 - 10 kV / 5 kA)
	$\leq 1.5 \text{ kV}$ (C2 - 10 kA)
	$\leq 1.3 \text{ kV}$ (C3 - 100 A)
Response time t_A (line-line)	$\leq 1 \text{ ns}$

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2801513

<https://www.phoenixcontact.com/gb/products/2801513>

Response time t_A (line-earth)	≤ 100 ns
Input attenuation aE, sym.	typ. 0.3 dB (≤ 300 kHz / 150 Ω)
Cut-off frequency f_g (3 dB), sym. in 150 Ω 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
Max. required back-up fuse	350 mA (F)
Impulse durability (line-line)	C1 - 1 kV / 500 A C2 - 10 kA C3 - 100 A
Impulse durability (line-earth)	C2 - 10 kA D1 - 2 kA
Pulse reset time (line-line)	≤ 30 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	≤ 2000 m (amsl)

Approvals

Conformity/Approvals

UL, USA / Canada	Class I, Div. 2, Groups A, B, C, D T5
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Standards and regulations

Standards/specifications	EN 61643-21
Note	A2:2013
Standards/specifications	IEC 61643-21
Note	A2:2012
Standards/specifications	EN 61000-6-2
Note	2005
Standards/specifications	EN 61000-6-3
Note	A1:2011
Standards/specifications	EN 60079-0
Note	2018
Standards/specifications	EN 60079-11
Note	2012
Standards/specifications	EN 60079-15
Note	2010
Standards/specifications	IEC 60079-0
Note	2017

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2801513

<https://www.phoenixcontact.com/gb/products/2801513>

Standards/specifications	IEC 60079-11
Note	2011
Standards/specifications	IEC 60079-15
Note	2010
Standards/specifications	GB/T 3836.1
Note	2021
Standards/specifications	GB/T 3836.3
Note	2021
Standards/specifications	GB/T 3836.4
Note	2021
Standards/specifications	GB/T 3836.8
Note	2021

Mounting

Mounting type	DIN rail: 35 mm
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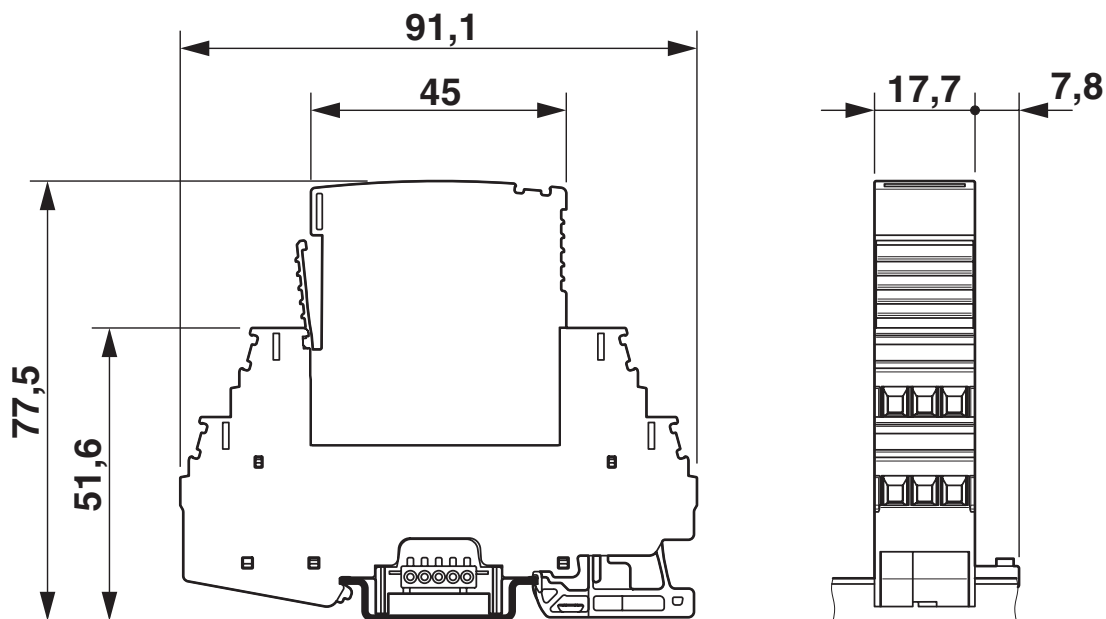


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Drawings

Dimensional drawing



Schematic diagram

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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
	1.63·10 ⁻⁵	2.90·10 ⁻⁹ 1/h	0.2 %	0.3 %	8.16·10 ⁻⁷	1.45·10 ⁻¹⁰ 1/h	5 %	0.1 %	0.1 %
					1.63·10 ⁻⁶	2.90·10 ⁻¹⁰ 1/h	10 %	0.2 %	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)									

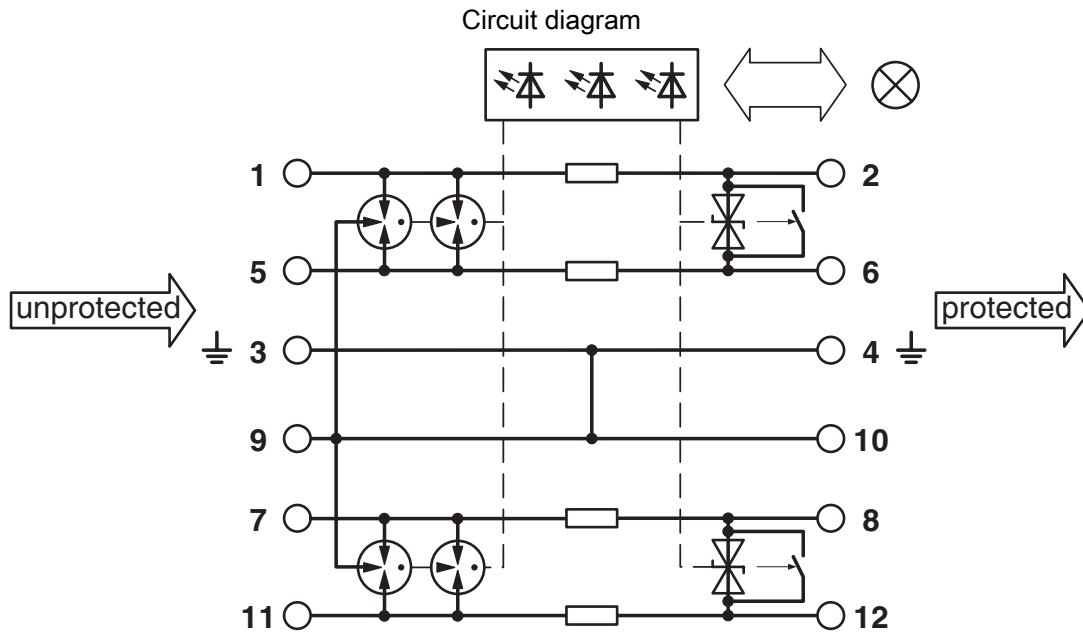
Functional safety scenarios

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Approvals

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UL Listed

Approval ID: FILE E 138168

Functional Safety

Approval ID: 13-04-032 R017 V4R0



IECEX

Approval ID: IECEX BVS 14.0017X



cUL Listed

Approval ID: FILE E 333250



UL Listed

Approval ID: FILE E 333250



ATEX

Approval ID: BVS 14 ATEX E 020 X



NEPSI-EX

Approval ID: GYJ20.1158X



CCC

Approval ID: 2020322316001010



UKCA-EX

Approval ID: DEKRA 23UKEX0111X

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Classifications

ECLASS

ECLASS-13.0	27171502
ECLASS-15.0	27171502

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	c84fb623-0e44-4a64-a5a7-27add653788

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