

PT-IQ-1X2-24DC-PT - Surge protection device



2801255

<https://www.phoenixcontact.com/pc/products/2801255>

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Surge protection, consisting of protective plug and base element, with integrated multi-stage status indicator on the module, for a 2-wire floating signal circuit, 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	2801255
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	CL2153
Catalog page	Page 120 (C-4-2019)
GTIN	4046356766388
Weight per piece (including packing)	113.3 g
Weight per piece (excluding packing)	109.2 g
Customs tariff number	85363030
Country of origin	DE

PT-IQ-1X2-24DC-PT - Surge protection device



2801255
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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
Wire pairs per module	1

Insulation characteristics

Overvoltage category	III
Pollution degree	2

Electrical properties

Nominal voltage U_N	24 V DC
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Connection data

Connection method	Push-in connection
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross section rigid	0.2 mm² ... 4 mm²
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

PT-IQ-1X2-24DC-PT - Surge protection device



2801255

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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
Maximum continuous voltage U_C	30 V DC
	21 V AC
Rated current	1000 mA (40 °C)
Operating effective current I_C at U_C	≤ 1 mA (in the signal circuit)
Residual current I_{PE}	≤ 2 μ A (per signal circuit)
Nominal discharge current I_n (8/20) μ s (line-line)	10 kA
Nominal discharge current I_n (8/20) μ s (line-ground)	10 kA
Pulse discharge current I_{imp} (10/350) μ s (line-earth)	2.5 kA
Total discharge current I_{total} (8/20) μ s	20 kA
Voltage protection level U_p (line-line)	≤ 80 V (C1 - 1 kV / 500 A)
	≤ 130 V (C2 - 10 kV / 5 kA)
	≤ 55 V (C3 - 25 A)
	≤ 60 V (C3 - 100 A)
Voltage protection level U_p (line-earth)	≤ 600 V (C1 - 1 kV / 500 A)
	≤ 750 V (C2 - 10 kV / 5 kA)
	≤ 700 V (C3 - 25 A)
	≤ 800 V (C3 - 100 A)
Voltage protection level U_p static (line-line)	≤ 65 V (C1 - 1 kV / 500 A)
Voltage protection level U_p static (line-earth)	≤ 60 V (C2 - 10 kV / 5 kA)
	≤ 40 V (C3 - 25 A)
	≤ 100 V (C3 - 100 A)
Response time t_A (line-line)	≤ 1 ns
Response time t_A (line-earth)	≤ 100 ns
Input attenuation aE, sym.	typ. 0.3 dB (≤ 270 kHz/150 Ω)
Cut-off frequency f_g (3 dB), sym. in 150 Ω system	typ. 1.1 MHz
Capacity (Core-Core)	typ. 2 nF
Resistance per path	1.2 $\Omega \pm 5\%$
Surge protection fault message	Optical, multi-stage
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

PT-IQ-1X2-24DC-PT - Surge protection device



2801255

<https://www.phoenixcontact.com/pc/products/2801255>

	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)	≤ 2600 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 + 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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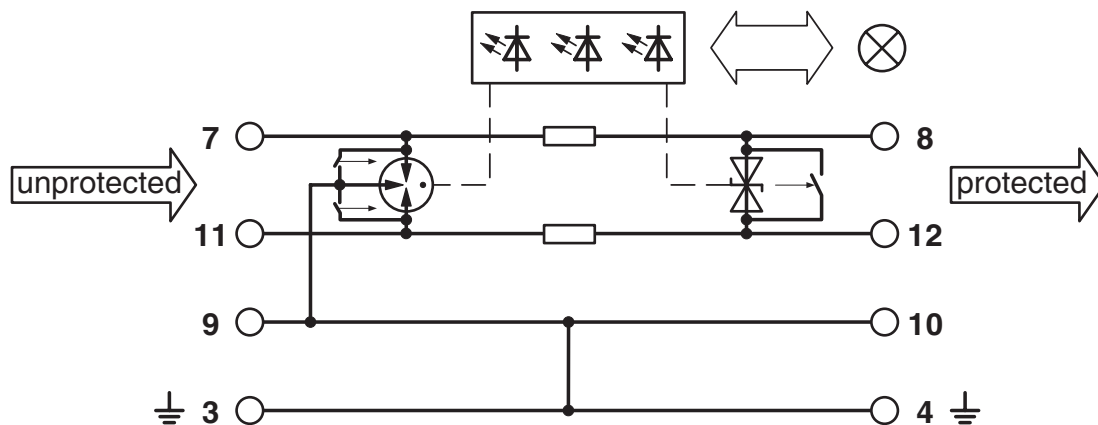
Drawings

Schematic diagram

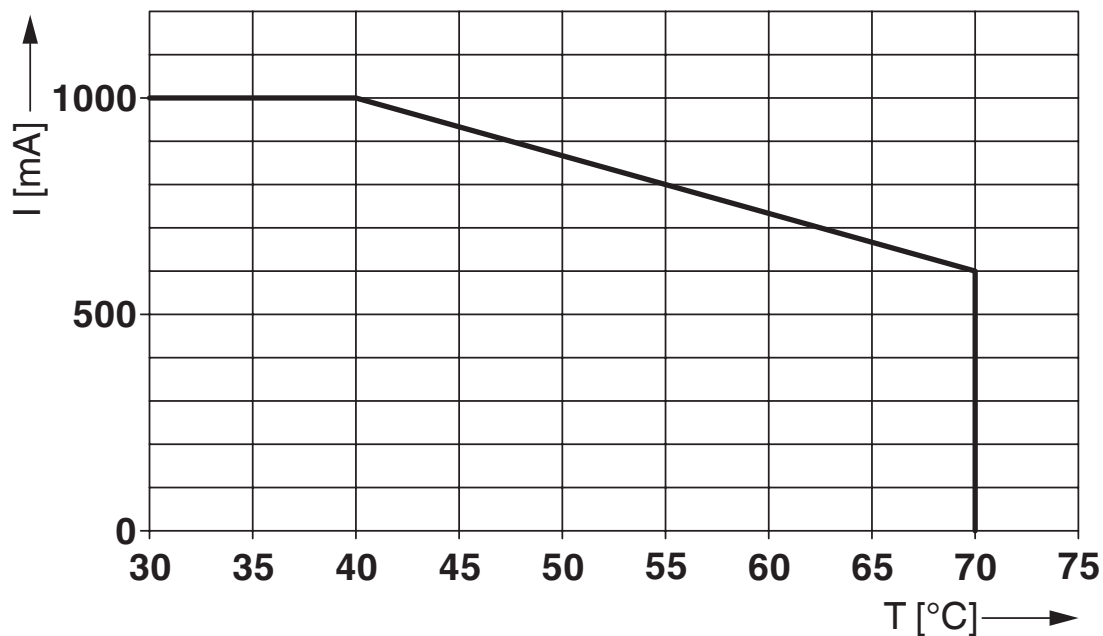
PT-IQ-1X2-...DC-UT(PT)									
Category	1oo1 architecture, HFT=0				1oo2 architecture, HFT=1				
	PFD _{AVG}	PFH	Used budget of SIL 2 SIF		PFD _{AVG}	PFH	CCF	Used budget of SIL 3 SIF	
			PFD _{AVG}	PFH				PFD _{AVG}	PFH
	1.07·10 ⁻⁸	1.90·10 ⁻⁹ 1/h	0.1 %	0.2 %	5.34·10 ⁻⁷	9.50·10 ⁻¹¹ 1/h	5 %	0.1 %	0.1 %
				1.07·10 ⁻⁸	1.90·10 ⁻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

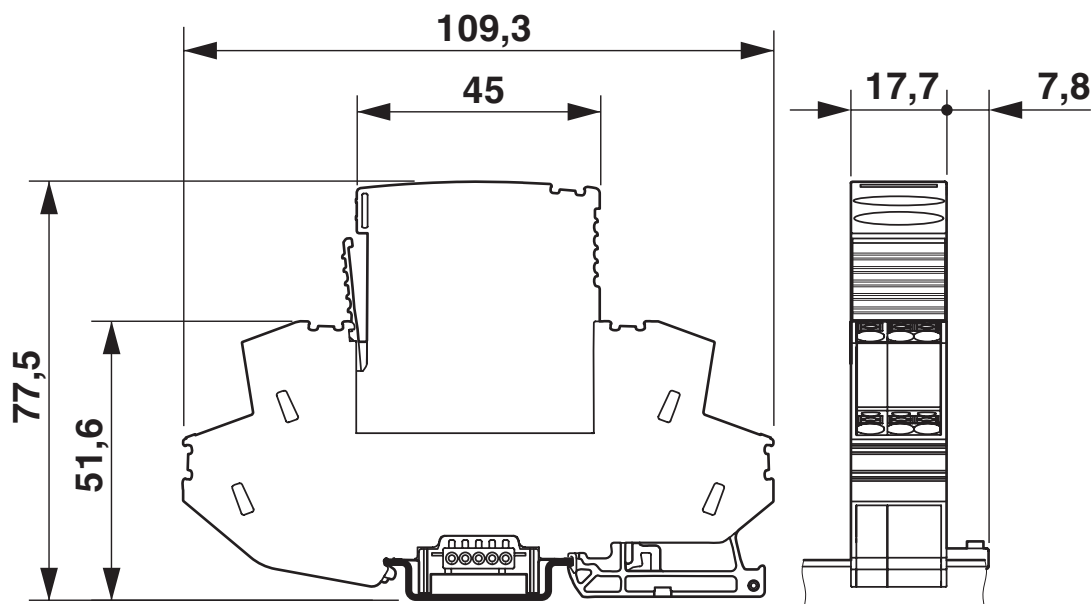
Circuit diagram



Diagram



Dimensional drawing



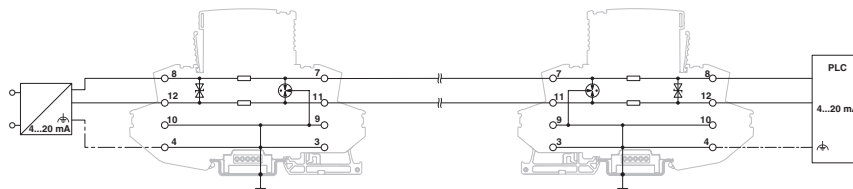
PT-IQ-1X2-24DC-PT - Surge protection device

2801255

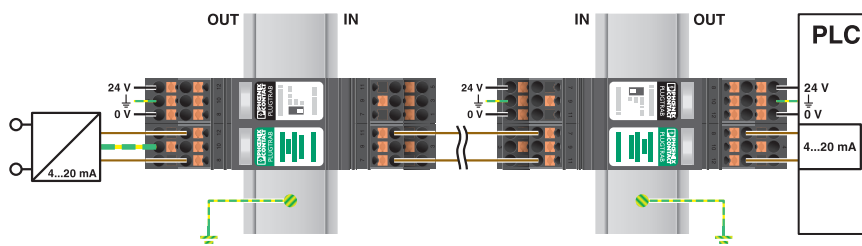
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Application drawing



Application drawing



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/pc/products/2801255>



CSA

Approval ID: 2761632



EAC

Approval ID: RU C-DE.*09.B.00169



UL Listed

Approval ID: FILE E 138168



CSAus

Approval ID: 2761632

Functional Safety

Approval ID: 13-04-032 R017 V4R0

cCSAus

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Classifications

ECLASS

ECLASS-11.0	27130807
ECLASS-13.0	27171501

ETIM

ETIM 9.0	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)
SCIP	305611df-5c37-401f-9a7a-87dbd21c2e1a

PT-IQ-1X2-24DC-PT - Surge protection device



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Mandatory accessories

PT-IQ-PTB-PT - Supply and remote module

2801296

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Module for power supply and multi-stage, floating remote signaling of connected surge protection modules.

Accessories

ZBF 5:UNBEDRUCKT - Zack Marker strip, flat

0808642

<https://www.phoenixcontact.com/pc/products/0808642>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.1 x 5.2 mm, Number of individual labels: 10

PT-IQ-1X2-24DC-PT - Surge protection device

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ZBF 5/WH-100:UNBEDRUCKT - Zack Marker strip, flat

0808668

<https://www.phoenixcontact.com/pc/products/0808668>



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 1000

ZBF 5,LGS:FORTL.ZAHLEN - Zack Marker strip, flat

0808671

<https://www.phoenixcontact.com/pc/products/0808671>



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 491 ... 500, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

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ZBF 5,LGS:GERADE ZAHLEN - Zack Marker strip, flat

0810821

<https://www.phoenixcontact.com/pc/products/0810821>



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive even numbers 2 ... 20, 22 ... 40, etc. up to 82 ... 100, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

ZBF 5,LGS:UNGERADE ZAHLEN - Zack Marker strip, flat

0810863

<https://www.phoenixcontact.com/pc/products/0810863>



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: Odd numbers 1 - 19, 21 - 39, etc. up to 81 - 99, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

PT-IQ-1X2-24DC-PT - Surge protection device



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ZBF 5,QR:FORTL.ZAHLEN - Zack Marker strip, flat

0808697

<https://www.phoenixcontact.com/pc/products/0808697>



Zack Marker strip, flat, Strip, white, labeled, Printed vertically: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... 100, mounting type: snapped, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

ZBN 18:UNBEDRUCKT - Zack marker strip

2809128

<https://www.phoenixcontact.com/pc/products/2809128>



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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E/ME TBUS NS35 GY - End bracket

2713780

<https://www.phoenixcontact.com/pc/products/2713780>

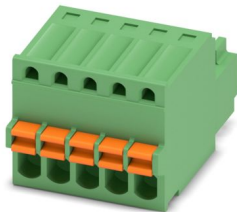


End clamp, stable construction for DIN rail bus connector

FK-MC 0,5/ 5-ST-2,5 - PCB connector

1881354

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PCB connector, nominal cross section: 0.5 mm², color: green, nominal current: 4 A, rated voltage (III/2): 160 V, contact surface: Tin, contact connection type: Socket, number of potentials: 5, number of rows: 1, number of positions: 5, number of connections: 5, product range: FK-MC 0,5/...-ST, pitch: 2.5 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON FK-MC 0,5, locking: without, mounting: without, type of packaging: packed in cardboard

PT-IQ-1X2-24DC-PT - Surge protection device

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ZBN 18 CUS - Zack marker strip

0825059

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Zack marker strip, can be ordered: Strip, white, labeled according to customer specifications, mounting type: snap into tall marker groove, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

SSA 3-6 - Shield connection

2839295

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Shield fast connection for 3 ... 6 mm cable diameter. Potential connecting cable: 200 mm, 1 mm², color: black

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SSA 5-10 - Shield connection

2839512

<https://www.phoenixcontact.com/pc/products/2839512>



Shield fast connection for 5 ... 10 mm cable diameter. Potential connecting cable:
200 mm, 1 mm², color: black

X-PEN 0,35 - Marker pen

0811228

<https://www.phoenixcontact.com/pc/products/0811228>



Marker pen without ink cartridge, for manual labeling of markers, labeling
extremely wipe-proof, line thickness 0.35 mm

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PT-IQ-1X2-24DC-P - Surge protection plug

2800772

<https://www.phoenixcontact.com/pc/products/2800772>

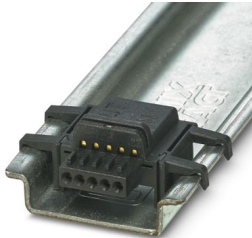


Surge protection plug with integrated multi-stage status indicator on the module for a 2-wire floating signal circuit. 24 V DC nominal voltage.

PT-IQ-17,5-TBUS-5-2.0 - DIN rail bus connectors

2906878

<https://www.phoenixcontact.com/pc/products/2906878>



DIN rail connector for PT-IQ system for establishing remote signaling and the power supply when a surge protection module is snapped on.

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