

PT 2XEX(I)-24DC-ST - Surge protection plug



2838225

<https://www.phoenixcontact.com/us/products/2838225>

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PT protective plug with protective circuit for two 2-wire floating Ex i signal circuits. Nominal voltage: 24 V DC, HART-compatible.

Your advantages

- Easy testing and documentation with CHECKMASTER 2 with pluggable protective modules
- Maximum ease of maintenance, thanks to the 2-piece design
- Easy selection for all possible demands in MCR applications with a complete product portfolio
- The signal is not influenced during maintenance work, thanks to the impedance-neutral insertion and removal of protective plugs

Commercial data

Item number	2838225
Packing unit	10 pc
Minimum order quantity	1 pc
Sales key	CL21
Product key	CL2113
GTIN	4017918182861
Weight per piece (including packing)	46.48 g
Weight per piece (excluding packing)	21.09 g
Customs tariff number	85363010
Country of origin	DE

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Technical data

Product properties

Product type	Surge protection for MCR technology
Product family	PLUGTRAB PT
IEC test classification	C1
	C2
	C3
	D1
Type	Male
Number of positions	4
Arrester can be tested with CHECKMASTER from software version:	From SW rev. 1.00
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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Connection data

Connection method	Screw connection (in connection with the base element)
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 ... 14

Ex data

Maximum inner capacitance C_i	1.3 nF
Max. internal inductance L_i	1 μ H
Max. input current I_i	325 mA (T4 / $\leq 80^\circ\text{C}$)
	325 mA (T5 / $\leq 55^\circ\text{C}$)
	325 mA (T6 / $\leq 40^\circ\text{C}$)
Max. input voltage U_i	30 V DC
max. input power P_i	3.00 W
Maximum inner time factor (R_i/L_i)	$\leq 0.2 \mu\text{s}$
Ambient temperature (operation)	-40 °C ... 80 °C (T4)
	-40 °C ... 55 °C (T5)
	-40 °C ... 40 °C (T6)

Dimensions

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Dimensional drawing	
Width	17.7 mm
Height	44.8 mm
Depth	51.7 mm
Horizontal pitch	1 Div.
Complete module width	17.7 mm
Complete module height	90 mm
Complete module depth	65.5 mm

Material specifications

Color	blue (RAL 5015)
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 & Signal Ground/Shield-Earth Ground
Maximum continuous operating voltage U_C	30 V DC 21 V AC
Rated current	325 mA (40 °C)
Operating effective current I_C at U_C	$\leq 5 \mu A$
Protective conductor current I_{PE}	$\leq 4 \mu A$
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-line)	1 kA
Pulse discharge current I_{imp} (10/350) μs (line-earth)	2 kA (in total)
Total discharge current I_{Total} (8/20) μs	20 kA
Total discharge current I_{Total} (10/350) μs	2 kA
Max. discharge current I_{max} (8/20) μs maximum (line-line)	10 kA
Max. discharge current I_{max} (8/20) μs maximum (line-earth)	20 kA (in total)
Nominal pulse current I_{an} (10/1000) μs (line-line)	30 A
Output voltage limitation at 1 kV/ μs (line-line) spike	$\leq 45 V$
Output voltage limitation at 1 kV/ μs (line-earth) spike	$\leq 1 kV$
Output voltage limitation at 1 kV/ μs (line-line) static	$\leq 45 V$
Output voltage limitation at 1 kV/ μs (line-earth) static	$\leq 1 kV$
Residual voltage at I_n (conductor-conductor)	$\leq 45 V$

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Residual voltage with I_{an} (10/1000) μ s (line-line)	≤ 50 V
Voltage protection level U_p (line-line)	≤ 45 V (C1 - 0.5 kV / 250 A)
	≤ 50 V (C1 - 1 kV / 500 A)
	≤ 60 V (C2 - 2 kV/1 kA)
	≤ 100 V (C2 - 10 kV / 5 kA)
	≤ 50 V (C3 - 10 A)
	≤ 50 V (C3 - 25 A)
	≤ 150 V (D1 - 1 kA)
Voltage protection level U_p (line-earth)	≤ 1 kV (C1 - 1 kV / 500 A)
	≤ 1 kV (C2 - 2 kV/1 kA)
	≤ 1 kV (C2 - 10 kV / 5 kA)
	≤ 1 kV (D1 - 1 kA)
Response time t_A (line-line)	≤ 1 ns
Response time t_A (line-earth)	≤ 100 ns
Input attenuation aE, sym.	typ. 0.5 dB (≤ 900 kHz/50 Ω)
	typ. 0.2 dB (≤ 300 kHz / 150 Ω)
	typ. 0.1 dB (≤ 60 kHz/600 Ω)
Cut-off frequency f_g (3 dB), sym. in 50 Ω system	typ. 4.5 MHz
Cut-off frequency f_g (3 dB), sym. in 150 Ω system	typ. 1.6 MHz
Cut-off frequency f_g (3 dB), sym. in 600 Ω system	typ. 400 kHz
Resistance per path	2.2 $\Omega \pm 10$ %
Surge protection fault message	none
Max. required back-up fuse	315 mA (T)
Impulse durability (line-line)	C1 - 0.5 kV / 250 A
	C1 - 1 kV / 500 A
	C2 - 2 kV / 1 kA
	C2 - 10 kV / 5 kA
	C3 - 10 A
	C3 - 25 A
	D1 - 1 kA
Impulse durability (line-earth)	C1 - 1 kV / 500 A
	C2 - 2 kV / 1 kA
	C2 - 10 kV / 5 kA
	D1 - 1 kA
Alternating current carrying capacity (line-earth)	10 A - 1 s

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 85 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 2000 m (amsl)

Approvals

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Conformity/Approvals

ATEX	II 1G Ex ia IIC T4...T6 Ga
	II 1D Ex ia IIIC T135 °C...T85 °C Da
IECEX	Ex ia IIC T4...T6 Ga
	Ex ia IIIC T135 °C...T85 °C Da

Standards and regulations

Standards/specifications	EN 61643-21
Note	A2:2013
Standards/specifications	EN 60079-0
Note	2018
Standards/specifications	EN 60079-11
Note	2012
Standards/specifications	IEC 61643-21
Note	A2:2012
Standards/specifications	IEC 60079-0
Note	2017
Standards/specifications	IEC 60079-11
Note	2011
Standards/specifications	GB/T 3836.1
Note	2021
Standards/specifications	GB/T 3836.4
Note	2021

Mounting

Mounting type	on base element
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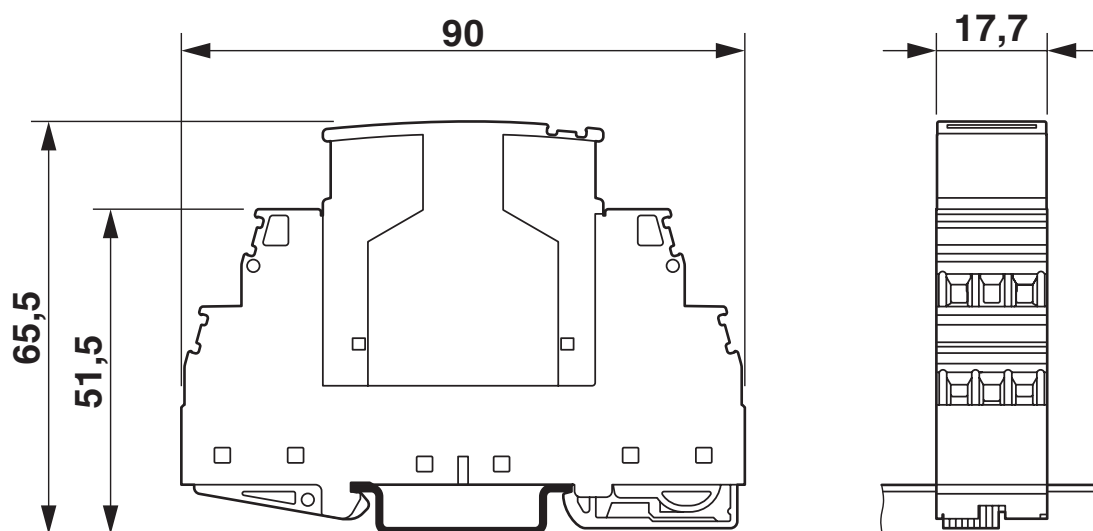
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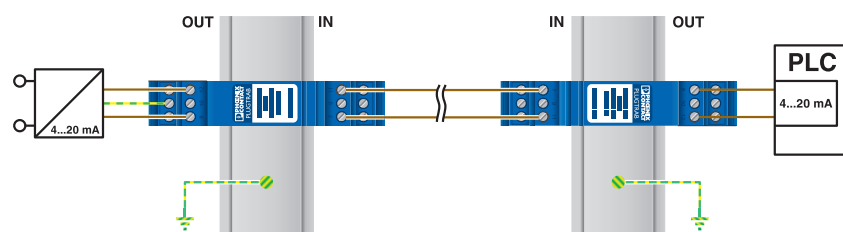
Drawings

Dimensional drawing

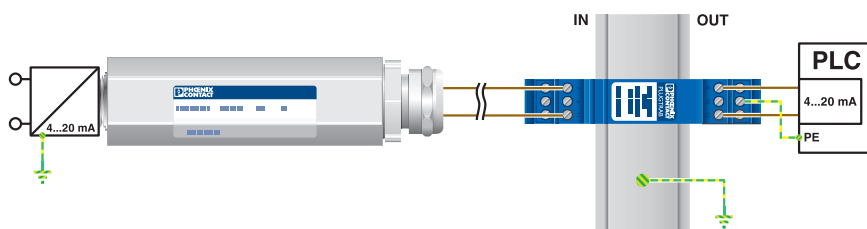


The figure shows the complete module consisting of a base element and connector

Application drawing



Application drawing



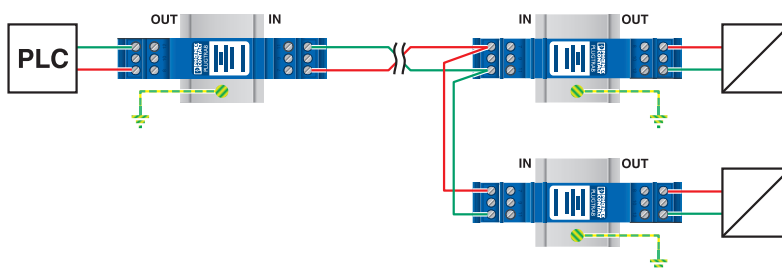
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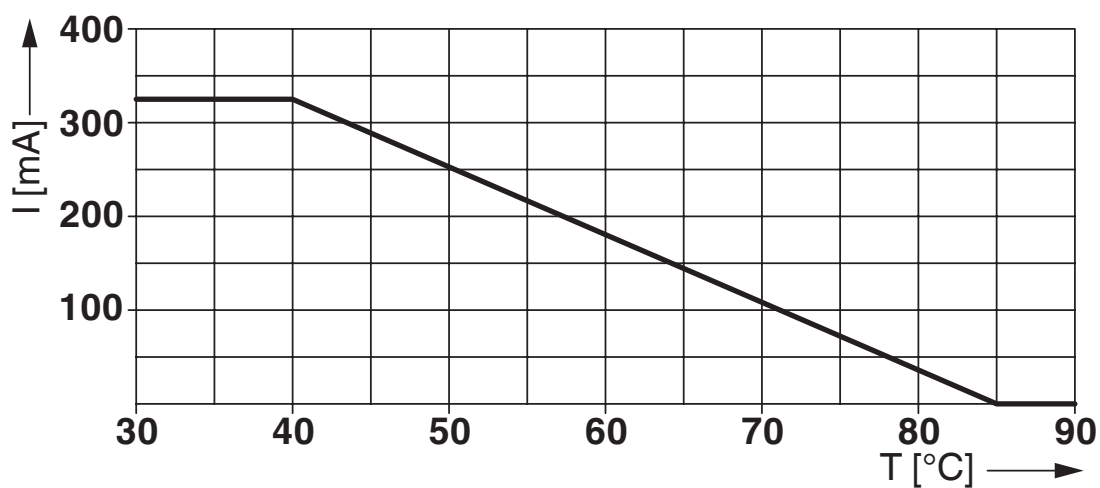
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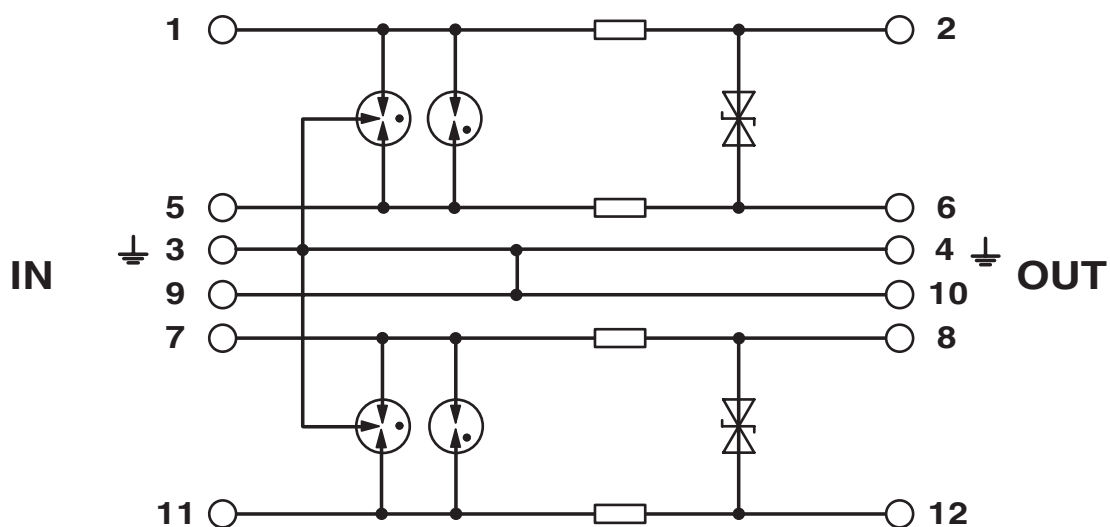
Application drawing



Diagram



Circuit diagram



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Approvals

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DNV GL

Approval ID: TAE00001N6



UL Listed

Approval ID: FILE E 138168

	Nominal voltage U_N	Nominal current I_N	Cross section AWG	Cross section mm^2
keine				
	24 V	0.47 A	-	-



ATEX

Approval ID: KEMA 00ATEX1099 X



IECEX

Approval ID: IECEX KEM 10.0063X



cUL Listed

Approval ID: FILE E 333250



UL Listed

Approval ID: FILE E 333250

INMETRO

Approval ID: DNV 19.0031 X/01



NEPSI-EX

Approval ID: GYJ20.1177X



UKCA-EX

Approval ID: DEKRA 21UKEX0234 X

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Classifications

ECLASS

ECLASS-13.0	27171502
ECLASS-15.0	27171502

ETIM

ETIM 9.0	EC001625
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UNSPSC

UNSPSC 21.0	39121620
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	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	aaa90750-e2d0-419b-94dd-65920b3fd1f2

EF3.0 Climate Change

CO2e kg	1.706 kg CO2e
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