

# PT PE/S+1X2-24-ST - Surge protection plug



2819008

<https://www.phoenixcontact.com/us/products/2819008>

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Protective plug PT with surge voltage equipment protection for power supply units, visual error display, nominal voltage: 24 V and a 2-core floating signal circuit, nominal voltage: 24 V.

## 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	2819008
Packing unit	10 pc
Minimum order quantity	1 pc
Sales key	CL21
Product key	CL2111
GTIN	4017918819323
Weight per piece (including packing)	31.43 g
Weight per piece (excluding packing)	25.833 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
Surge protection fault message	optical
Wire pairs per module	1

### Insulation characteristics

Overvoltage category	III
Pollution degree	2
Arrester can be tested with CHECKMASTER from software version:	From SW rev. 1.00
EN type	T3
Number of ports	One

### Electrical properties

Nominal voltage $U_N$	24 V AC
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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 <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
Connection method	Screw connection (in connection with the base element)
Screw thread	M3
Tightening torque	0.5 Nm
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Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 12

### Dimensions

Dimensional drawing	
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Width	17.5 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	black (RAL 9005) copper color
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

### Power supplies

Direction of action	L-N-PE & Signal Line-Signal Line-Earth Ground
Nominal voltage $U_N$	24 V AC
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$	34 V AC 44 V DC
Rated load current $I_L$	6 A (30 °C)
Protective conductor current $I_{PE}$	$\leq 5 \mu A$
Operating effective current $I_C$ at $U_C$	$\leq 1.5$ mA
Nominal discharge current $I_n$ (8/20) $\mu s$	700 A
Maximum discharge current $I_{max}$ (8/20) $\mu s$	2 kA
Combination wave $U_{OC}$	2 kV
Voltage protection level $U_p$ (L-N)	$\leq 0.18$ kV
Voltage protection level $U_p$ (L-PE)	$\leq 0.55$ kV
Residual voltage at $I_{max}$ , (L-N)	$\leq 0.17$ kV (at $I_n$ )
Residual voltage at $I_{max}$ , (L-PE)	$\leq 0.1$ kV (at $I_n$ )
Response time $t_A$ (L-N)	$\leq 25$ ns
Response time $t_A$ (L-PE)	$\leq 100$ ns
Short-circuit current rating $I_{SCCR}$	1.5 kA 1 kA
Max. backup fuse with branch wiring	6 A (gG)

### Information technology

Nominal voltage $U_N$	24 V AC
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Maximum continuous operating voltage $U_C$	40 V DC
	28 V AC
Rated current	450 mA (45 °C)
Operating effective current $I_C$ at $U_C$	$\leq 5 \mu\text{A}$
Protective conductor current $I_{PE}$	$\leq 2 \mu\text{A}$
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-earth)	2.5 kA
Total discharge current $I_{Total}$ (8/20) $\mu\text{s}$	20 kA
Max. discharge current $I_{max}$ (8/20) $\mu\text{s}$ maximum (line-line)	10 kA
Max. discharge current $I_{max}$ (8/20) $\mu\text{s}$ maximum (line-earth)	20 kA (in total)
Nominal pulse current $I_{an}$ (10/1000) $\mu\text{s}$ (line-line)	23 A
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-line) spike	$\leq 55 \text{ V}$
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-earth) spike	450 V
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-line) static	$\leq 55 \text{ V}$
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-earth) static	$\leq 25 \text{ V}$
Residual voltage at $I_n$ (conductor-conductor)	$\leq 55 \text{ V}$
Residual voltage with $I_{an}$ (10/1000) $\mu\text{s}$ (line-line)	$\leq 65 \text{ V}$
Voltage protection level $U_p$ (line-line)	$\leq 80 \text{ V}$ (C2 - 10 kV / 5 kA)
Voltage protection level $U_p$ (line-earth)	$\leq 450 \text{ V}$ (C2 - 10 kV / 5 kA)
Voltage protection level $U_p$ static (line-line)	$\leq 50 \text{ V}$ (C2 - 10 kV / 5 kA)
Voltage protection level $U_p$ static (line-earth)	$\leq 50 \text{ V}$ (C2 - 10 kV / 5 kA)
Response time $t_A$ (line-line)	$\leq 1 \text{ ns}$
Response time $t_A$ (line-earth)	$\leq 100 \text{ ns}$
Input attenuation aE, sym.	typ. 0.5 dB ( $\leq 1.5 \text{ MHz} / 50 \Omega$ )
	typ. 0.2 dB ( $\leq 500 \text{ kHz} / 150 \Omega$ )
	typ. 0.1 dB ( $\leq 100 \text{ kHz} / 600 \Omega$ )
Cut-off frequency $f_g$ (3 dB), sym. in 50 $\Omega$ system	typ. 8 MHz
Cut-off frequency $f_g$ (3 dB), sym. in 150 $\Omega$ system	typ. 3 MHz
Cut-off frequency $f_g$ (3 dB), sym. in 600 $\Omega$ system	typ. 800 kHz
Capacity (Core-Core)	typ. 1.1 nF
Capacity (Core-Earth)	typ. 4 pF
Resistance per path	2.2 $\Omega \pm 10 \%$
Surge protection fault message	Optical, remote indicator contact
Max. required back-up fuse	500 mA (T)

## 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	$\leq 2000 \text{ m}$ (amsl)
Permissible humidity (operation)	5 % ... 95 %

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## Standards and regulations

Standards/specifications	IEC 61643-11
Note	2011
Standards/specifications	EN 61643-11
Note	2012
Standards/specifications	EN 61643-21
Note	A2:2013

## Mounting

Mounting type	on base element
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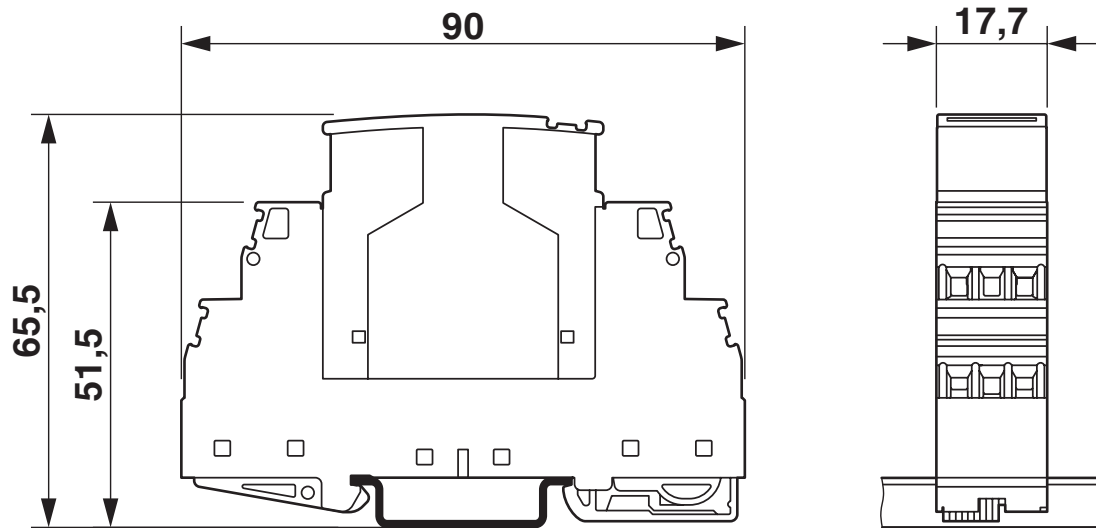
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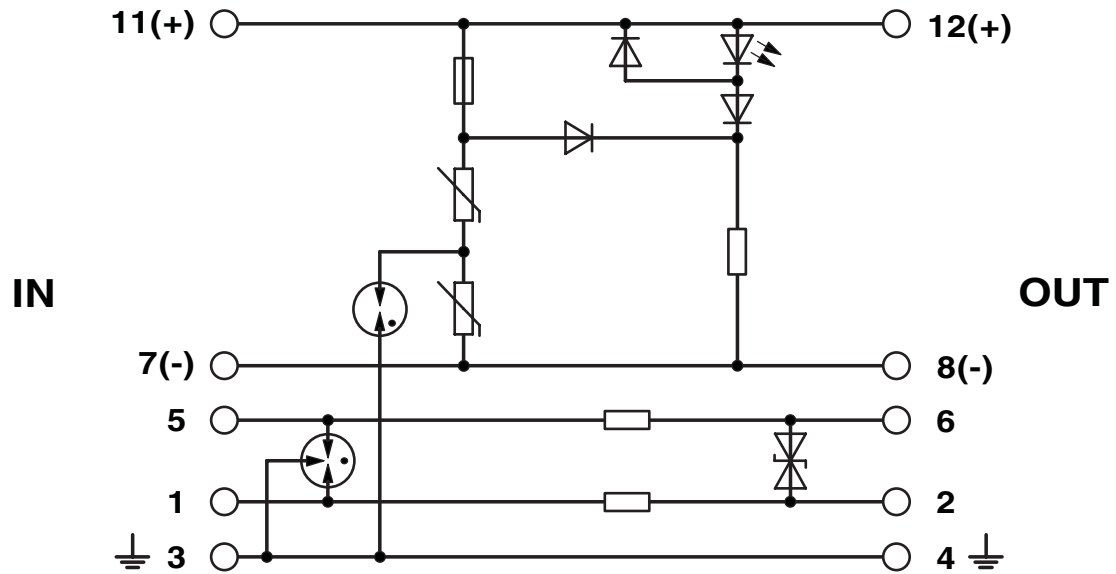
## Drawings

Dimensional drawing



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

Circuit diagram



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## Classifications

### ECLASS

ECLASS-13.0	27171602
ECLASS-15.0	27171602

### 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	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	9119892a-b46b-4fe9-9d5b-2bda7424128c

### EF3.1 Climate Change

CO2e kg	1.063 kg CO2e
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