

# PT 3-PB-ST - Surge protection plug



2858030

<https://www.phoenixcontact.com/us/products/2858030>

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Surge protection plug for the base element, normal mode voltage coarse and fine protection for two floating signal wires in IT, common mode voltage coarse protection to ground.

## 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	2858030
Packing unit	10 pc
Minimum order quantity	1 pc
Sales key	CL03
Product key	CL3121
GTIN	4017918878030
Weight per piece (including packing)	28.8 g
Weight per piece (excluding packing)	20.53 g
Customs tariff number	85363090
Country of origin	DE

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## Technical data

### Product properties

Product type	Surge protection for information technology
Product family	PLUGTRAB PT
IEC test classification	C1
	C2
	C3
	D1
VDE requirement class	C1
	C2
	C3
	D1
Type	Male
Number of positions	2
Arrester can be tested with CHECKMASTER from software version:	From SW rev. 1.10
Wire pairs per module	3

### Insulation characteristics

Overvoltage category	III
Pollution degree	2

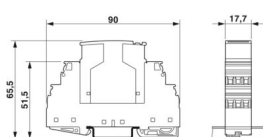
### Electrical properties

Nominal voltage $U_N$	5 V DC
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### Connection data

Connection method	Screw connection (in connection with the base element)
Screw thread	M3
Tightening torque	0.8 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	45 mm
Depth	52 mm
Horizontal pitch	1 Div.

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Complete module width	17.7 mm
Complete module height	90 mm
Complete module depth	65.5 mm

## Material specifications

Color	black (RAL 9005)
Flammability rating according to UL 94	V-0
Housing material	PA

## 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 $U_N$	5 V DC
Maximum continuous operating voltage $U_C$	5.2 V DC 3.6 V AC
Rated current	450 mA (45 °C)
Operating effective current $I_C$ at $U_C$	$\leq 300 \mu\text{A}$
Protective conductor current $I_{PE}$	$\leq 300 \mu\text{A}$ (with PT 1X2-BE) $\leq 1 \mu\text{A}$ (with PT 1X2+F-BE)
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-ground)	10 kA
Pulse discharge current $I_{imp}$ (10/350) $\mu\text{s}$	2.5 kA
Total discharge current $I_{Ttotal}$ (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)	10 kA
Nominal pulse current $I_{an}$ (10/1000) $\mu\text{s}$ (line-line)	90 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	$\leq 55 \text{ V}$ (with PT 1X2-BE) $\leq 700 \text{ V}$ (with PT 1X2+F-BE)
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-line) static	$\leq 15 \text{ V}$
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-earth) static	$\leq 15 \text{ V}$ $\leq 30 \text{ V}$ (with PT 1X2+F-BE)
Residual voltage at $I_n$ (conductor-conductor)	$\leq 15 \text{ V}$
Residual voltage at $I_n$ (conductor-ground)	$\leq 30 \text{ V}$ (with PT 1X2-BE)
Residual voltage at $I_n$ (line-signal ground)	$\leq 15 \text{ V}$ (with PT 1X2-BE)
Residual voltage with $I_{an}$ (10/1000) $\mu\text{s}$ (line-line)	$\leq 15 \text{ V}$
Residual voltage with $I_{an}$ (10/1000) $\mu\text{s}$ (line-signal ground)	$\leq 15 \text{ V}$
Voltage protection level $U_p$ (line-line)	$\leq 70 \text{ V}$ (C1 - 1 kV / 500 A) $\leq 45 \text{ V}$ (C3 - 25 A) $\leq 100 \text{ V}$ (C2 - 10 kV / 5 kA) $\leq 70 \text{ V}$ (6 kV / 3 kA)

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Voltage protection level $U_p$ (line-earth)	$\leq 80$ V (C1 - 1 kV / 500 A)
	$\leq 110$ V (C2 - 10 kV / 5 kA)
	$\leq 100$ V (6 kV / 3 kA)
	$\leq 45$ V (C3 - 25 A)
Voltage protection level $U_p$ (line-signal ground)	$\leq 45$ V (C3 - 25 A)
Response time $t_A$ (line-line)	$\leq 500$ ns
Response time $t_A$ (line-earth)	$\leq 500$ ns
Response time $t_A$ (line-signal ground)	$\leq 500$ ns
Input attenuation aE, sym.	typ. 0.3 dB ( $\leq 5$ MHz / 100 $\Omega$ )
Cut-off frequency $f_g$ (3 dB), sym. in 100 $\Omega$ system	typ. 60 MHz
Capacity (Core-Core)	typ. 30 pF
Resistance per path	2.2 $\Omega \pm 10\%$ (7-8/11-12)
Surge protection fault message	none
Max. required back-up fuse	500 mA (T)
Impulse durability (line-line)	C2 - 10 kV / 5 kA
	C3 - 90 A
Impulse durability (line-earth)	C2 - 10 kV / 5 kA
	C3 - 90 A
	D1 - 2.5 kA

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 85 °C
Altitude	max. 2000 m

## Standards and regulations

VDE requirement class	C1
	C2
	C3
	D1

### Air clearances and creepage distances

Standards/regulations	DIN EN 61664-1 / IEC 60664-1
Standards/specifications	EN 61643-21/A1
Note	2009
Standards/specifications	IEC 61643-21/A1
Note	2008

## Mounting

Mounting type	on base element
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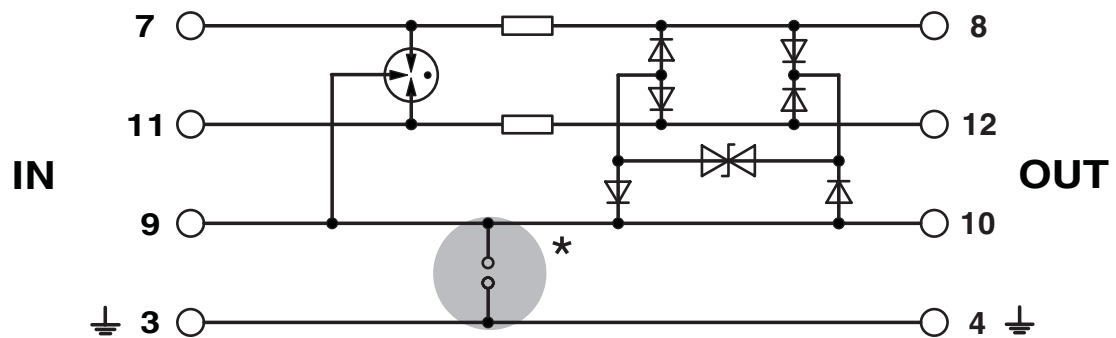
## Drawings

Dimensional drawing



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

Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2858030>



**DNV GL**

Approval ID: TAE00001N6



**UL Listed**

Approval ID: FILE E 138168

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## Classifications

### ECLASS

ECLASS-13.0	27171503
ECLASS-15.0	27171503

### ETIM

ETIM 10.0	EC001466
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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	7cb99cb1-c917-4b56-9222-921e264f4a80

### EF3.1 Climate Change

CO2e kg	0.462 kg CO2e
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