

# PT 1X2-12DC/FM-ST - Surge protection plug



2920065

<https://www.phoenixcontact.com/us/products/2920065>

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Surge protection plug with integrated diagnostic and status indicator on the module and remote indication contact for a 2-wire floating signal circuit.

## Your advantages

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

## Commercial data

Item number	2920065
Packing unit	10 pc
Minimum order quantity	10 pc
Sales key	CL21
Product key	CL2112
Catalog page	Page 90 (TT-2011)
GTIN	4046356153980
Weight per piece (including packing)	30.55 g
Weight per piece (excluding packing)	27.1 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
VDE requirement class	C1
	C2
	C3
	D1
Type	Male
Surge protection fault message	Optical, remote indicator contact
Wire pairs per module	1

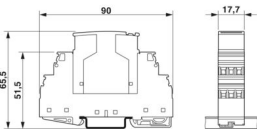
### Electrical properties

Nominal voltage $U_N$	12 V DC
Indicator/remote signaling	
Switching function	N/C contact
Maximum operating voltage $U_{max. AC}$	250 V AC
Max. operating current $I_{max}$	0.2 A (250 V AC)
	0.2 A (220 V DC)
	1 A (60 V AC)
	1 A (60 V DC)

### 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

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Depth	52 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)
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 $U_C$	13 V DC
	9 V AC
Rated current	450 mA (45 °C)
Operating effective current $I_C$ at $U_C$	$\leq 5 \mu A$
Residual current $I_{PE}$	$\leq 2 \mu A$ (Directly grounded)
	$\leq 1 \mu A$ (with PT 1X2+F-BE)
Nominal discharge current $I_n$ (8/20) $\mu s$ (line-line)	10 kA
Nominal discharge current $I_n$ (8/20) $\mu s$ (line-ground)	10 kA
Pulse discharge current $I_{imp}$ (10/350) $\mu s$	2.5 kA
Total discharge current $I_{total}$ (8/20) $\mu s$	20 kA
Max. discharge current $I_{max}$ (8/20) $\mu s$ maximum (line-line)	10 kA
Max. discharge current $I_{max}$ (8/20) $\mu s$ maximum (line-earth)	10 kA
Nominal pulse current $I_{an}$ (10/1000) $\mu s$ (line-line)	70 A (25 °C / 1x)
	50 A (25 °C)
Output voltage limitation at 1 kV/ $\mu s$ (line-line) spike	$\leq 25 V$
Output voltage limitation at 1 kV/ $\mu s$ (line-earth) spike	$\leq 450 V$
	$\leq 1 kV$ (with PT 1X2+F-BE)
Output voltage limitation at 1 kV/ $\mu s$ (line-line) static	$\leq 19 V$
Residual voltage at $I_n$ (conductor-conductor)	$\leq 18 V$
Residual voltage with $I_{an}$ (10/1000) $\mu s$ (line-line)	$\leq 23 V$
Voltage protection level $U_p$ (line-line)	$\leq 19 V$ (C1 - 500 V / 250 A)
	$\leq 19 V$ (C3 - 25 A)
Voltage protection level $U_p$ (line-earth)	$\leq 450 V$ (C2 - 10 kV / 5 kA)
Response time $t_A$ (line-line)	$\leq 1 ns$
Response time $t_A$ (line-earth)	$\leq 100 ns$
Input attenuation aE, sym.	typ. 0.5 dB ( $\leq 600 kHz$ / 50 $\Omega$ )

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	typ. 0.2 dB ( $\leq$ 200 kHz / 150 $\Omega$ )
Cut-off frequency $f_g$ (3 dB), sym. in 50 $\Omega$ system	typ. 3 MHz
Cut-off frequency $f_g$ (3 dB), sym. in 150 $\Omega$ system	typ. 1 MHz
Capacity (Core-Core)	typ. 3 nF
Capacity (Core-Earth)	typ. 4 pF
Resistance per path	2.2 $\Omega \pm 10\%$ (7-8/11-12)
Surge protection fault message	Optical, remote indicator contact
Max. required back-up fuse	500 mA (T)
Impulse durability (line-line)	C2 - 10 kV / 5 kA C3 - 25 A
Impulse durability (line-earth)	C2 - 10 kV / 5 kA D1 - 2.5 kA C3 - 100 A
Alternating current carrying capacity (line-earth)	5 A - 1 s

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 85 °C

## Standards and regulations

VDE requirement class	C1
	C2
	C3
	D1

### Air clearances and creepage distances

Standards/regulations	VDE 0110-1 / IEC 60664-1
Standards/specifications	IEC 61643-21
Note	2002

## Mounting

Mounting type	on base element
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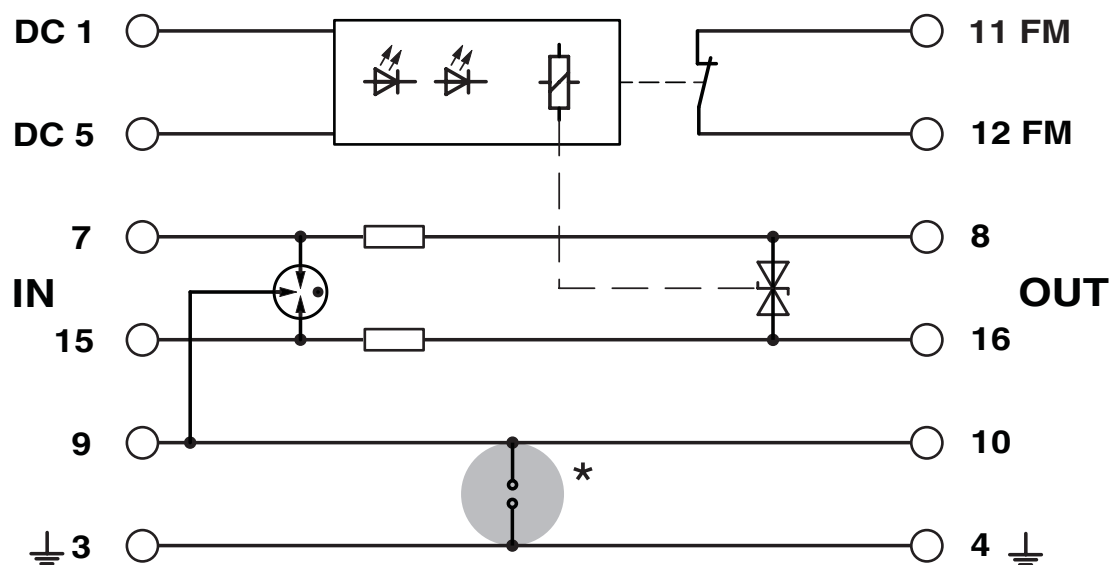
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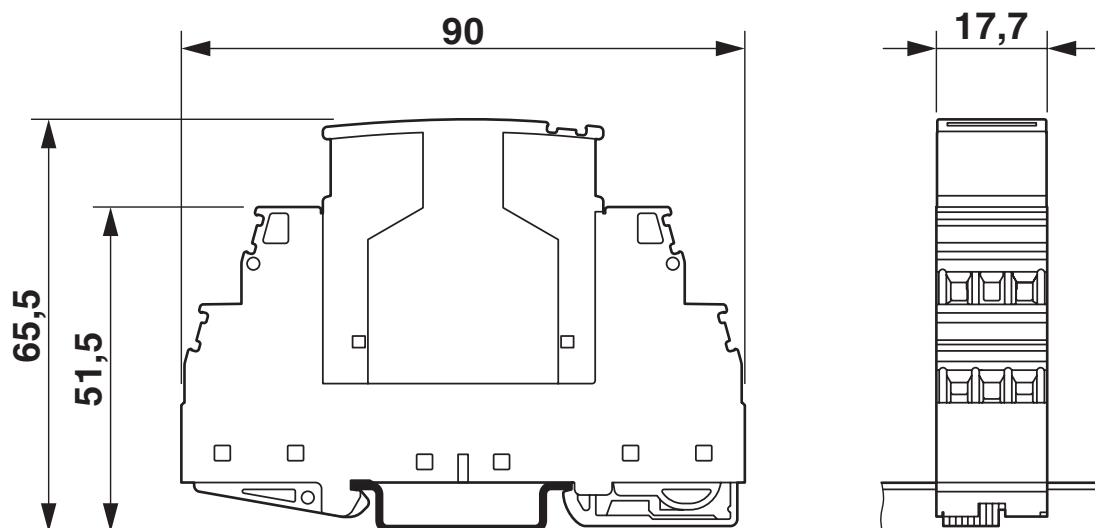


## Drawings

Circuit diagram



Dimensional drawing



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


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## Approvals

 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2920065>



**EAC**

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



**UL Listed**

Approval ID: FILE E 138168

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## Classifications

### ECLASS

ECLASS-11.0	27130807
ECLASS-13.0	27171501

### ETIM

ETIM 8.0	EC000943
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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	81c0ffef-035c-4b50-9caf-545c7619b2b1

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)