

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



2920065

<https://www.phoenixcontact.com/in/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	1 pc
Sales key	CL2
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
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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 ² ... 2.5 mm ²
Conductor cross section rigid	0.2 mm ² ... 4 mm ²
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) 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	2.5 kA
Total discharge current I_{total} (8/20) μs	20 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)	10 kA
Nominal pulse current I_{an} (10/1000) μs (line-line)	70 A (25 °C / 1x)
	50 A (25 °C)
Output voltage limitation at 1 kV/ μs (line-line) spike	$\leq 25 V$
Output voltage limitation at 1 kV/ μs (line-earth) spike	$\leq 450 V$
	$\leq 1 kV$ (with PT 1X2+F-BE)
Output voltage limitation at 1 kV/ μs (line-line) static	$\leq 19 V$
Residual voltage at I_n (conductor-conductor)	$\leq 18 V$
Residual voltage with I_{an} (10/1000) μs (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 Ω)

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	typ. 0.2 dB ($\leq$ 200 kHz / 150 Ω)
Cut-off frequency f_g (3 dB), sym. in 50 Ω system	typ. 3 MHz
Cut-off frequency f_g (3 dB), sym. in 150 Ω 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

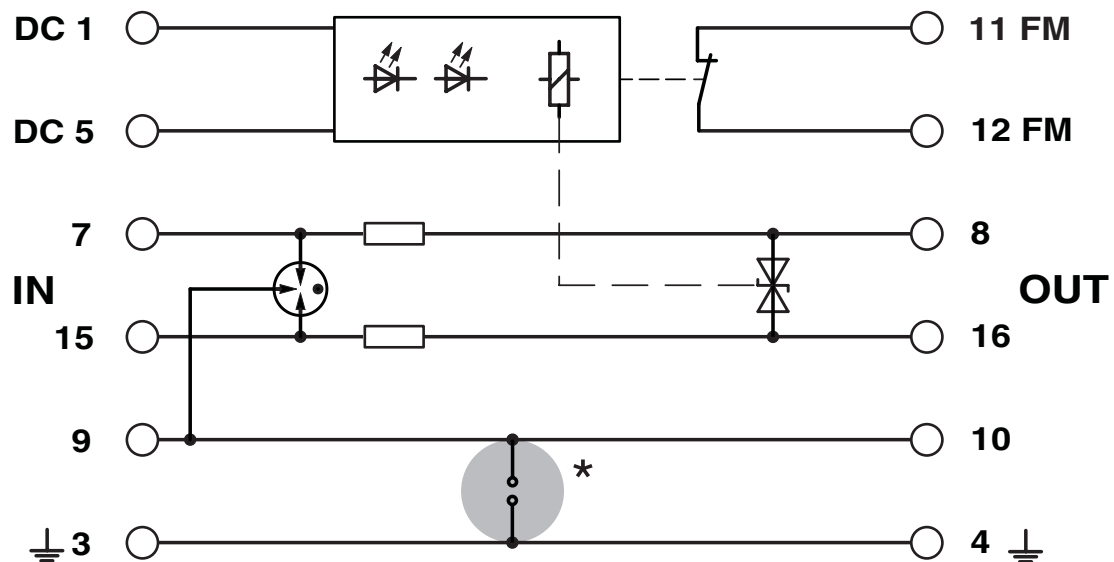
Standards/regulations	VDE 0110-1 / IEC 60664-1
Standards/specifications	IEC 61643-21
Note	2002

Mounting

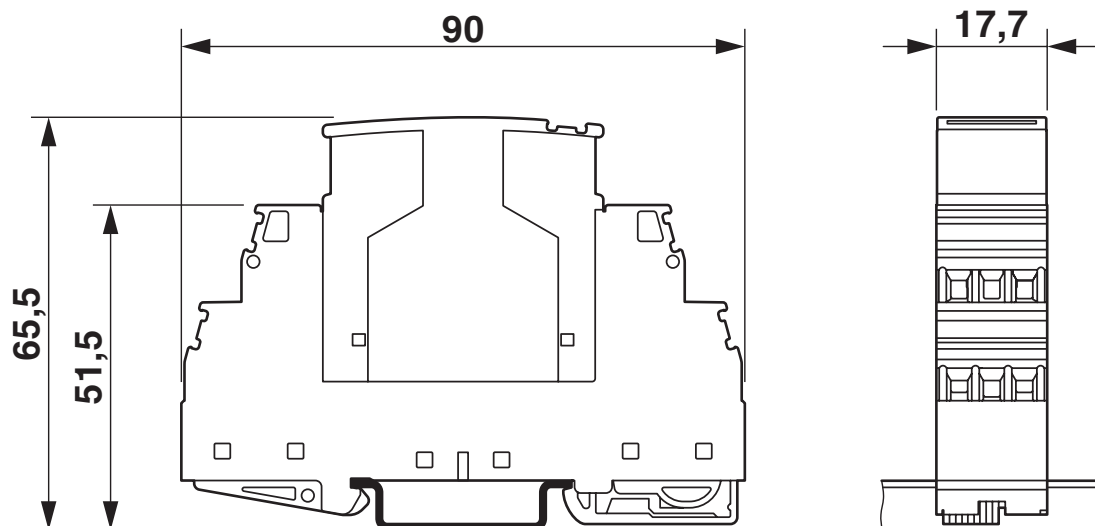
Mounting type	on base element
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Drawings

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/in/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 9.0	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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Mandatory accessories

PT 1X2-BE/FM - Type 2 surge protection base element

2920010

<https://www.phoenixcontact.com/in/products/2920010>

Base element to accept a protective plug with diagnostic and status indicator for one floating double wire



Accessories

ZBF 5:UNBEDRUCKT - Zack Marker strip, flat

0808642

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



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: latching, for terminal block width: 5 mm, Number of individual labels: 10, text field height: 5.15 mm, text field width: 5.15 mm

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

0808668

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



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

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

0808671

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



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

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

0810821

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

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

0810863

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



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

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

0808697

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



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

ZBN 18:UNBEDRUCKT - Zack marker strip

2809128

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



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

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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, Number of individual labels: 5, text field height: 5 mm, text field width: 18 mm

SSA 3-6 - Shield connection

2839295

<https://www.phoenixcontact.com/in/products/2839295>



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

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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/in/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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SZS 0,6X3,5 VDE - Screwdriver

1212602

<https://www.phoenixcontact.com/in/products/1212602>



Screwdriver, slot-headed, VDE insulated, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

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