

## Surge protection plug - PT 2X1-12DC/FM-ST - 2920117

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Surge protection plug with integrated diagnostic and status indicator on the module and remote indication contact for two signal wires with common reference potential. Nominal voltage: 12 V DC

### Your advantages

- ✔ Plugs can be checked with CHECKMASTER
- ✔ Maximum ease of maintenance thanks to the two-piece design
- ✔ Base element remains an integral part of the installation
- ✔ With floating remote indication contact
- ✔ Permanent and independent monitoring by a diagnostics unit
- ✔ Consistent plug-in signal circuit protection
- ✔ Optical status indication for the individual arresters
- ✔ Impedance-neutral disconnection of plug for test and maintenance purposes



### Key Commercial Data

Packing unit	10 pc
GTIN	 4 046356 154055
GTIN	4046356154055

### Technical data

#### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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#### Dimensions

Height	44.8 mm
Width	17.5 mm
Depth	51.7 mm
Horizontal pitch	1 Div.
Complete module height	90 mm

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## Technical data

### Dimensions

Complete module width	17.7 mm
Complete module depth	65.5 mm

### Ambient conditions

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

### General

Housing material	PA 6.6
Flammability rating according to UL 94	V-0
Color	black
Standards for clearances and creepage distances	VDE 0110-1
	IEC 60664-1
Mounting type	on base element
Type	Male
Direction of action	Line-Line & Line-Signal Ground/Shield & optional Signal Ground/Shield-Earth Ground

### Protective circuit

IEC test classification	C1
	C2
	C3
	D1
VDE requirement class	C1
	C2
	C3
	D1
Nominal voltage $U_N$	12 V DC
Maximum continuous voltage $U_C$	13 V DC
	9 V AC
Rated current	300 mA (45 °C)
Operating effective current $I_C$ at $U_C$	$\leq 5 \mu A$
Residual current $I_{PE}$	$\leq 1 \mu A$ (with PT 2X1+F-BE)
	$\leq 10 \mu A$ (Directly grounded)
Nominal discharge current $I_n$ (8/20) $\mu s$ (line-earth)	10 kA
Pulse discharge current $I_{imp}$ (10/350) $\mu s$	2.5 kA (per path)
Total discharge current $I_{total}$ (8/20) $\mu s$	20 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-earth)	70 A (25 °C / 1x)
	50 A (25 °C)
Output voltage limitation at 1 kV/ $\mu s$ (line-earth) spike	$\leq 25 V$
	$\leq 600 V$ (with PT 2X1+F-BE)

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## Technical data

### Protective circuit

Output voltage limitation at 1 kV/μs (line-signalground) spike	≤ 25 V
Output voltage limitation at 1 kV/μs (line-earth) static	≤ 19 V
Output voltage limitation at 1 kV/μs (line-signalground) static	≤ 19 V
Residual voltage at I <sub>n</sub> (line-earth)	≤ 18 V
Residual voltage with I <sub>an</sub> (10/1000) μs (line-earth)	≤ 23 V
Voltage protection level U <sub>p</sub> (line-earth)	≤ 19 V (C1 - 500 V / 250 A)
	≤ 19 V (C3 - 25 A)
Voltage protection level U <sub>p</sub> (line-signalground)	≤ 19 V (C1 - 500 V / 250 A)
	≤ 19 V (C3 - 25 A)
Response time t <sub>A</sub> (line-earth)	≤ 1 ns
Input attenuation aE, asym.	typ. 0.5 dB (≤ 600 kHz / 50 Ω)
	typ. 0.2 dB (≤ 200 kHz / 150 Ω)
Cut-off frequency f <sub>g</sub> (3 dB), asym. (GND) in 50 Ohm system	typ. 3 MHz
Cut-off frequency f <sub>g</sub> (3 dB), asym. (GND) in 150 Ohm system	typ. 1 MHz
Resistance per path	4.7 Ω (7-8/11-12)
Surge protection fault message	Optical, remote indicator contact
Max. required back-up fuse	315 mA (T)
Impulse durability (line-earth)	C2 - 10 kV / 5 kA
	D1 - 2.5 kA
	C3 - 25 A
Alternating current carrying capacity (line-earth)	5 A - 1 s

### Connection data

Connection method	Screw connection (in connection with the base element)
Screw thread	M3
Tightening torque	0.8 Nm
Stripping length	8 mm
Conductor cross section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section solid	0.2 mm <sup>2</sup> ... 4 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12

### Remote indication contact

Switching function	N/C contact
Maximum operating voltage U <sub>max</sub> AC	250 V AC
Max. operating current I <sub>max</sub>	0.2 A (250 V AC)
	0.2 A (220 V DC)
	1 A (60 V AC)
	1 A (60 V DC)

### Standards and Regulations

Standards/regulations	IEC 61643-21
	DIN EN 61643-21

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## Technical data

### Standards and Regulations

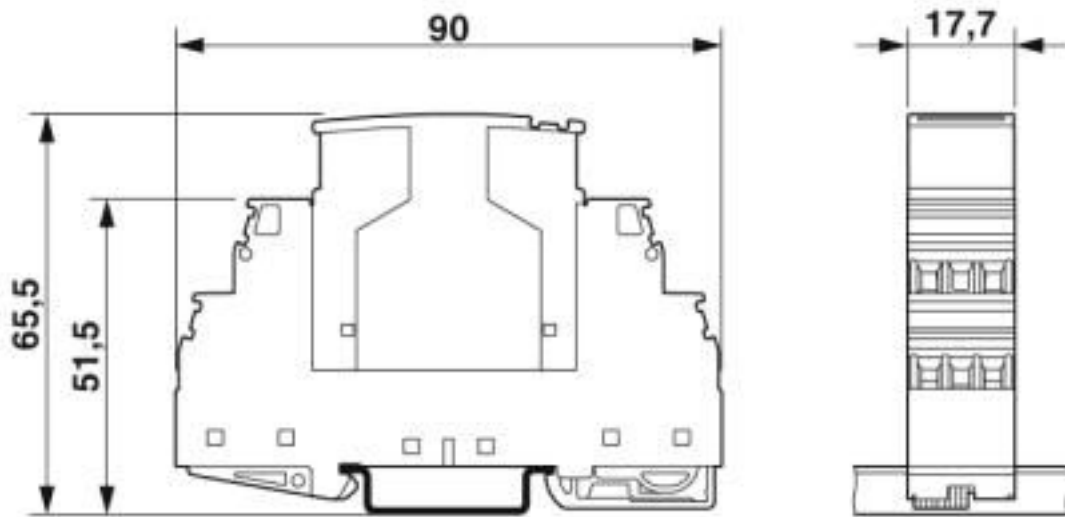
Standards/specifications	IEC 61643-21 2002
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### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

## Drawings

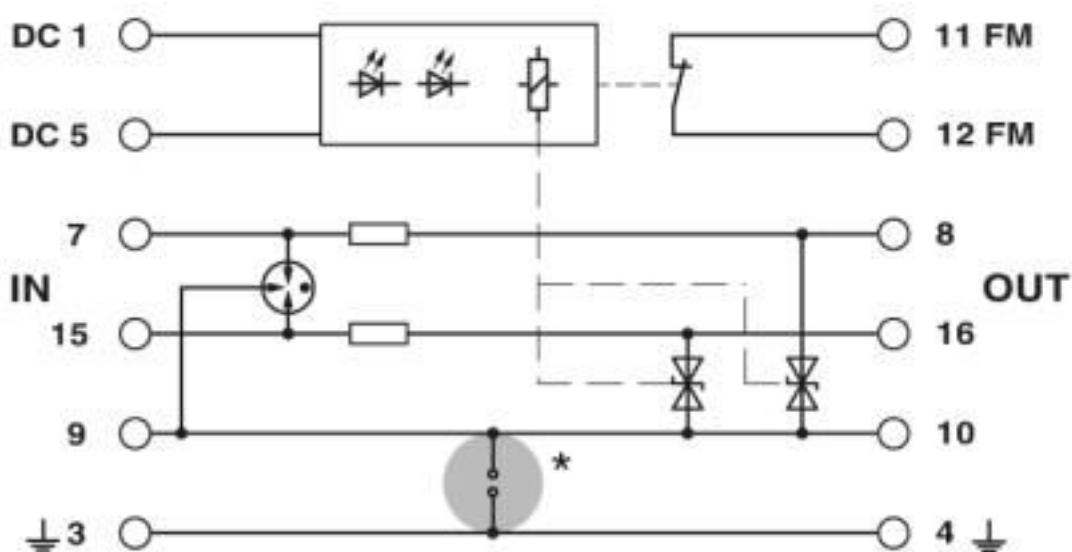
Dimensional drawing



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

## Surge protection plug - PT 2X1-12DC/FM-ST - 2920117

Circuit diagram



### Classifications

eCl@ss

eCl@ss 10.0.1	27130807
eCl@ss 4.0	27130800
eCl@ss 4.1	27130800
eCl@ss 5.0	27130800
eCl@ss 5.1	27130800
eCl@ss 6.0	27130800
eCl@ss 7.0	27130807
eCl@ss 8.0	27130807
eCl@ss 9.0	27130807

ETIM

ETIM 2.0	EC000943
ETIM 3.0	EC000943
ETIM 4.0	EC000943
ETIM 5.0	EC000943
ETIM 6.0	EC000943
ETIM 7.0	EC000943

UNSPSC

UNSPSC 6.01	30212010
UNSPSC 7.0901	39121610
UNSPSC 11	39121610
UNSPSC 12.01	39121610
UNSPSC 13.2	39121620

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## Classifications

### UNSPSC

UNSPSC 18.0	39121620
UNSPSC 19.0	39121620
UNSPSC 20.0	39121620
UNSPSC 21.0	39121620

## Approvals

### Approvals

Approvals

UL Listed / EAC

Ex Approvals

### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 138168
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EAC		RU C- DE.*09.B.00169
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## Accessories

### Accessories

#### Device marking

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snap into tall marker groove, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

### Labeled terminal marker

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### Accessories

Zack Marker strip, flat - ZBF 5,LGS:FORTL.ZAHLEN - 0808671



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 491 ... 500, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

Zack Marker strip, flat - ZBF 5,LGS:GERADE ZAHLEN - 0810821



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: consecutive numbers 2 ... 20, 22 ... 40, etc. up to 82 ... 100, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

Zack Marker strip, flat - ZBF 5,LGS:UNGERADE ZAHLEN - 0810863



Zack Marker strip, flat, Strip, white, labeled, printed horizontally: Odd numbers 1 - 19, 21 - 39, etc. up to 81 - 99, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

Zack Marker strip, flat - ZBF 5,QR:FORTL.ZAHLEN - 0808697



Zack Marker strip, flat, Strip, white, labeled, Printed vertically: consecutive numbers 1 ... 10, 11 ... 20, etc. up to 91 ... 100, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

### Marker pen

Marker pen - X-PEN 0,35 - 0811228



Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm

### Terminal marking

## Surge protection plug - PT 2X1-12DC/FM-ST - 2920117

### Accessories

Zack Marker strip, flat - ZBF 5:UNBEDRUCKT - 0808642



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.1 x 5.2 mm, Number of individual labels: 10

Zack Marker strip, flat - ZBF 5/WH-100:UNBEDRUCKT - 0808668



Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snap into flat marker groove, for terminal block width: 5 mm, lettering field size: 5.15 x 5.15 mm, Number of individual labels: 10

### Necessary add-on products

Surge protection base element - PT 2X1+F-BE/FM - 2920049



Base element to accept a protective plug with diagnostic and status indicator for two signal wires with common reference potential, integrated spark gap to provide a high-resistance connection between the ground of the protective circuit of the plug and ground potential.

Surge protection base element - PT 2X1-BE/FM - 2920036



Base element to accept a protective plug with diagnostic and status indicator for two signal wires with common reference potential.

### Additional products

Shield connection - SSA 3-6 - 2839295



Shield fast connection for 3 ... 6 mm cable diameter. Potential connecting cable: 200 mm, 1 mm<sup>2</sup>, color: black



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### Accessories

Shield connection - SSA 5-10 - 2839512



Shield fast connection for 5 ... 10 mm cable diameter. Potential connecting cable: 200 mm, 1 mm<sup>2</sup>, color: black

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