

## Surge protection plug - PT 2X1-24DC/FM-ST - 2920120

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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: 24 V DC

### Why buy this product

- ✓ 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
- ✓ Consistent plug-in signal circuit protection
- ✓ Permanent and independent monitoring by a diagnostics unit
- ✓ Impedance-neutral disconnection of plug for test and maintenance purposes
- ✓ Optical status indication for the individual arresters



### Key Commercial Data

Packing unit	1 STK
GTIN	 4 046356 154079
GTIN	4046356154079
Weight per Piece (excluding packing)	30.630 g
Custom tariff number	85369010
Country of origin	Germany

### Technical data

#### Note

# Surge protection plug - PT 2X1-24DC/FM-ST - 2920120

## 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
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 $U_N$	24 V DC
Maximum continuous voltage $U_C$	28 V DC
	20 V AC
Rated current	300 mA (45°C)

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## Technical data

### Protective circuit

Operating effective current $I_C$ at $U_C$	$\leq 5 \mu A$
Standby power consumption $P_C$	$\leq 1.73 VA$
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) $\mu s$ (core-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 (Core-Earth)	10 kA
Nominal pulse current $I_{an}$ (10/1000) $\mu s$ (Core-Earth)	33 A (25 °C)
Output voltage limitation at 1 kV/ $\mu s$ (core-earth) spike	$\leq 50 V$
	$\leq 600 V$ (with PT 2X1+F-BE)
Output voltage limitation at 1 kV/ $\mu s$ (core-GND) spike	$\leq 50 V$
Output voltage limitation at 1 kV/ $\mu s$ (core-earth) static	$\leq 40 V$
Output voltage limitation at 1 kV/ $\mu s$ (core-GND) static	$\leq 40 V$
Residual voltage at $I_n$ (conductor-ground)	$\leq 40 V$
Residual voltage with $I_{an}$ (10/1000) $\mu s$ (conductor-ground)	$\leq 50 V$
Voltage protection level $U_p$ (core-ground)	$\leq 40 V$ (C1 - 500 V / 250 A)
	$\leq 40 V$ (C3 - 25 A)
Voltage protection level $U_p$ (core-GND)	$\leq 40 V$ (C1 - 500 V / 250 A)
	$\leq 40 V$ (C3 - 25 A)
Response time $t_A$ (core-earth)	$\leq 1 ns$
Input attenuation $a_E$ , asym.	typ. 0.5 dB ( $\leq 1 MHz / 50 \Omega$ )
	typ. 0.2 dB ( $\leq 400 kHz / 150 \Omega$ )
Cut-off frequency $f_g$ (3 dB), asym. (GND) in 50 Ohm system	typ. 6 MHz
Cut-off frequency $f_g$ (3 dB), asym. (GND) in 150 Ohm system	typ. 2.5 MHz
Resistance in series	4.7 $\Omega$ (7-8/11-12)
Surge protection fault message	Optical, remote indicator contact
Max. required back-up fuse	315 mA (T)
Impulse durability (conductor-ground)	C2 - 10 kV/5 kA
	D1 - 2.5 kA
	C3 - 25 A
Alternating current carrying capacity (conductor-ground)	5 A - 1 s

### Connection data

Connection method	Screw connection (in connection with the base element)
Screw thread	M3
Tightening torque	0.8 Nm

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### Technical data

#### Connection data

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 $U_{max. AC}$	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)

#### Standards and Regulations

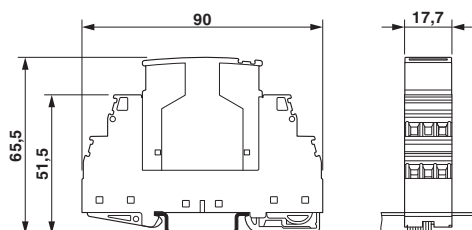
Standards/regulations	IEC 61643-21
	DIN EN 61643-21
Standards/specifications	IEC 61643-21 2002

#### Environmental Product Compliance

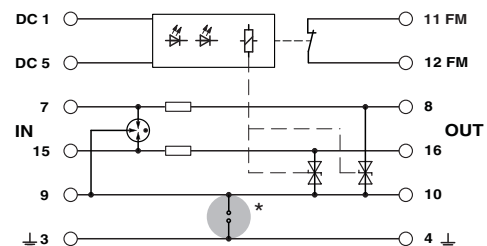
China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

### Drawings

Dimensional drawing



Circuit diagram



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

### Classifications

eCl@ss

eCl@ss 4.0	27140201
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### Classifications

#### eCl@ss

eCl@ss 4.1	27130801
eCl@ss 5.0	27130801
eCl@ss 5.1	27130801
eCl@ss 6.0	27130807
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

#### UNSPSC

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

### Approvals

#### Approvals

Approvals

UL Listed / EAC / EAC

Ex Approvals

#### Approval details

UL Listed





<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm>

FILE E 138168

## Surge protection plug - PT 2X1-24DC/FM-ST - 2920120

### Approvals

EAC		EAC-Zulassung
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EAC		RU C- DE.A*30.B01561
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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

#### Labeled terminal marker

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

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

## Surge protection plug - PT 2X1-24DC/FM-ST - 2920120

### Accessories

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

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

### 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

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



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: 5.1 x 5.2 mm

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

## Surge protection plug - PT 2X1-24DC/FM-ST - 2920120

### Accessories

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#### 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.

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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.

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#### 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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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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