

## Surge protection connector - PT 1X2-24DC/FM-ST - 2920078

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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.

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



### Key commercial data

Packing unit	0
Minimum order quantity	1
Catalog page	Page 90 (TT-2011)
GTIN	 4 046356 154000
Custom tariff number	85369010
Country of origin	GERMANY

### Technical data

#### General

Housing material	PA 6.6
Inflammability class according to UL 94	V0
Color	black
Standards for air and creepage distances	VDE 0110-1
Standards for air and creepage distances	IEC 60664-1
Total surge current (8/20) $\mu$ s	20 kA
Ambient temperature (operation)	-40 °C ... 85 °C
Mounting type	On base element

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### Technical data

#### General

Design	DIN rail module, two-section, divisible
Degree of protection	IP20
Direction of action	Line-Line & Line-Signal Ground/Shield & optional Signal Ground/ Shield-Earth Ground
Width	17.7 mm
Height	45 mm
Depth	52 mm
Pitch unit	1 Div.

#### Protective circuit

IEC category	C1
IEC category	C2
IEC category	C3
IEC category	D1
VDE requirement class	C1
VDE requirement class	C2
VDE requirement class	C3
VDE requirement class	D1
Nominal voltage UN	24 V DC
Maximum continuous operating voltage UC	28 V DC
Maximum continuous operating voltage UC	20 V AC
Maximum continuous voltage UC (wire-wire)	28 V DC
Maximum continuous voltage UC (wire-wire)	20 V AC
Nominal current IN	450 mA (45°C)
Operating effective current IC at UC	≤ 5 μA
Ground conductor current IPE	≤ 2 μA (Directly grounded)
Ground conductor current IPE	≤ 1 μA (BE: 1x2+F)
Nominal discharge surge current In (8/20) μs (Core-Core)	10 kA
Nominal discharge surge current In (8/20) μs (Core-Earth)	10 kA
Total surge current (8/20) μs	20 kA
Max. discharge surge current I <sub>max</sub> (8/20) μs maximum (Core-Core)	10 kA
Max. discharge surge current I <sub>max</sub> (8/20) μs maximum (Core-Earth)	10 kA
Nominal pulse current I <sub>an</sub> (10/1000) μs (Core-Core)	33 A (25°C)
Lightning test current (10/350) μs, peak value I <sub>imp</sub>	2.5 kA
Output voltage limitation at 1 kV/μs (Core-Core) spike	≤ 45 V
Output voltage limitation at 1 kV/μs (Core-Earth) spike	≤ 450 V
Output voltage limitation at 1 kV/μs (Core-Earth) spike	≤ 1 kV (BE: 1x2+F)
Output voltage limitation at 1 kV/μs (Core-Core) static	≤ 40 V
Residual voltage at I <sub>n</sub> , (conductor-conductor)	≤ 40 V
Residual voltage with I <sub>an</sub> (10/1000) μs (conductor-conductor)	≤ 50 V
Protection level UP (Core-Core)	≤ 40 V (C1 (500 V/250 A))
Protection level UP (Core-Core)	≤ 40 V (C3 (25 A))

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### Technical data

#### Protective circuit

Protection level UP (Core-Earth)	≤ 450 V (C2 (10 kV/5 kA))
Response time tA (Core-Core)	≤ 1 ns
Response time tA (Core-Earth)	≤ 100 ns
Input attenuation aE, sym.	Typ. 0.5 dB (≤ 1 MHz / 50 Ω)
Input attenuation aE, sym.	Typ. 0.2 dB (≤ 400 kHz/150 Ω)
Cut-off frequency fg (3 dB), sym. in 50 Ohm system	Typ. 6 MHz
Cut-off frequency fg (3 dB), sym. in 150 Ohm system	Typ. 2.5 MHz
Capacity (Core-Core)	Typ. 1.4 nF
Capacity (Core-Earth)	Typ. 4 pF
Resistance in series	2.2 Ω ± 10% (7-8/11-12)
Max. required back-up fuse	500 mA (e.g. T ( IEC 127-2/III))
Surge carrying capacity in acc. with IEC 61643-21 (Core-Core)	C2 (10 kV/5 kA)
Surge carrying capacity in acc. with IEC 61643-21 (Core-Core)	C3 (25 A)
Surge carrying capacity in acc. with IEC 61643-21 (Core-Earth)	C2 (10 kV/5 kA)
Surge carrying capacity in acc. with IEC 61643-21 (Core-Earth)	D1 (2.5 kA)
Surge carrying capacity in acc. with IEC 61643-21 (Core-Earth)	C3 (100 A)
Alternating current carrying capacity in acc. with IEC 61643-21 (Core-Earth)	5 A - 1 s

#### Connection data

Connection method	Screw connection (in connection with the base element)
Connection type IN	PLUGTRAB plug-in system
Connection type OUT	PLUGTRAB plug-in system
Screw thread	M3
Tightening torque	0.8 Nm
Stripping length	8 mm
Conductor cross section stranded min.	0.2 mm <sup>2</sup>
Conductor cross section stranded max.	2.5 mm <sup>2</sup>
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	4 mm <sup>2</sup>
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	12

#### Connection, protective circuit

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

### Classifications

#### eclass

eCl@ss 4.0	27140201
eCl@ss 4.1	27130801
eCl@ss 5.0	27130801
eCl@ss 5.1	27130801

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## Classifications

### eclass

eCl@ss 6.0	27130807
eCl@ss 7.0	27130807

### etim

ETIM 2.0	EC000943
ETIM 3.0	EC000943
ETIM 4.0	EC000943

### unspsc

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

## Approvals

### Approvals

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Approvals

UL Listed / GOST

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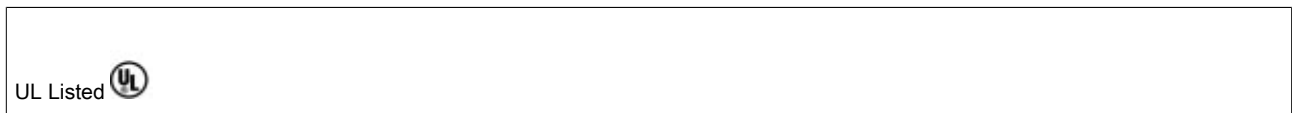
Ex Approvals

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Approvals submitted

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### Approval details



## Accessories

Accessories

Marking

## Surge protection connector - PT 1X2-24DC/FM-ST - 2920078

### Accessories

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

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



Zack Marker strip, flat, Strip, white, Unlabeled, Can be labeled with: Plotter, Mounting type: Snap into flat marker groove, For terminal block width: 5 mm, Lettering field: 5.1 x 5.2 mm

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



Zack Marker strip, flat, Strip, white, Unlabeled, Can be labeled with: Plotter, Mounting type: Snap into flat marker groove, For terminal block width: 5 mm, Lettering field: 5.15 x 5.15 mm

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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: 5.15 x 5.15 mm

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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: 5.15 x 5.15 mm

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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: 5.15 x 5.15 mm

## Surge protection connector - PT 1X2-24DC/FM-ST - 2920078

### Accessories

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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: 5.15 x 5.15 mm

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Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128



Zack marker strip, Strip, white, Unlabeled, Can be labeled with: Plotter, Mounting type: Snap into tall marker groove, For terminal block width: 18 mm, Lettering field: 18 x 5 mm

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### Necessary add-on products

Surge protection base element - PT 1X2+F-BE/FM - 2920023



Base element to accept a protective plug with diagnostic and status indicator for one floating double wire, 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 1X2-BE/FM - 2920010



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

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### Additional products

Shield connection - SSA 3-6 - 2839295



shield fast connections for conductor diameter 3 - 6 mm. Potential connection cable: 200 mm, black

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## Accessories

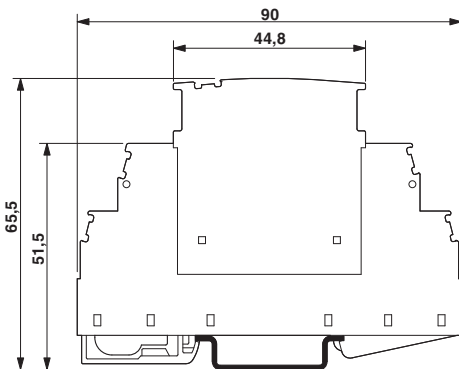
Shield connection - SSA 5-10 - 2839512



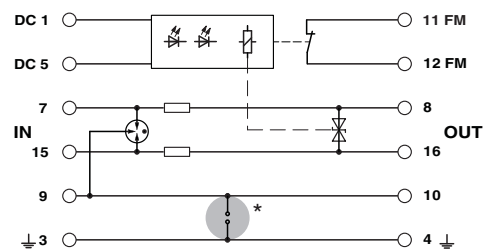
Shield fast connection for conductor diameters 5 - 10 mm. Potential connection cable: 200 mm, black

## Drawings

Dimensioned drawing



Circuit diagram



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

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