

# PT 1X2-12DC/FM-ST

Order No.: 2920065

The figure shows version PT 1X2-24DC/FM-ST



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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. Nominal voltage: 12 V DC



Commercial data	
GTIN (EAN)	4 046356 153980
sales group	J213
Pack	10 pcs.
Customs tariff	85369010
Catalog page information	Page 84 (TT-2009)

## Product notes

WEEE/RoHS-compliant since:  
07/01/2007



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## Technical data

### General

Housing material	PA 6.6
Inflammability class acc. to UL 94	V0
Color	black

Standards for air and creepage distances	VDE 0110-1
	IEC 60664-1: 1992-10
Total surge current (8/20) $\mu$ s	20 kA
Ambient temperature (operation)	-40 °C ... 85 °C
Mounting type	On base element
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	17.70 mm
Height	52.00 mm
Length	45.00 mm
Pitch unit	1 Div.

**Protective circuit**

IEC category	C1
	C2
	C3
	D1
VDE requirement class	C1
	C2
	C3
	D1
Nominal voltage $U_N$	12 V DC
Maximum continuous operating voltage $U_C$	13 V DC
	9 V AC
Maximum continuous voltage $U_C$ (wire-wire)	13 V DC
	9 V AC
Nominal current $I_N$	450 mA (45°C)
Operating effective current $I_C$ at $U_C$	$\leq 5 \mu$ A
Ground conductor current $I_{PE}$	$\leq 2 \mu$ A (Directly grounded)
	$\leq 1 \mu$ A (BE: 1x2+F)
Nominal discharge surge current $I_n$ (8/20) $\mu$ s (Core-Core)	10 kA
Nominal discharge surge current $I_n$ (8/20) $\mu$ s (Core-Earth)	10 kA
Total surge current (8/20) $\mu$ s	20 kA

Max. discharge surge current $I_{max}$ (8/20) $\mu$ s maximum (Core-Core)	10 kA
Max. discharge surge current $I_{max}$ (8/20) $\mu$ s maximum (Core-Earth)	10 kA
Nominal pulse current $I_{an}$ (10/1000) $\mu$ s (Core-Core)	70 A (25°C / 1x)
	50 A (25°C)
Lightning test current (10/350) $\mu$ s, peak value $I_{imp}$	2.5 kA
Output voltage limitation at 1 kV/ $\mu$ s (Core-Core) spike	$\leq 25$ V
Output voltage limitation at 1 kV/ $\mu$ s (Core-Earth) spike	$\leq 450$ V
	$\leq 1$ kV (BE: 1x2+F)
Output voltage limitation at 1 kV/ $\mu$ s (Core-Core) static	$\leq 19$ V
Output voltage limitation at 1 kV/ $\mu$ s (Core-Earth) static	$\leq 450$ V
	$\leq 50$ V (BE: 1x2+F)
Residual voltage at $I_n$ , (conductor-conductor)	$\leq 18$ V
Residual voltage with $I_{an}$ (10/1000) $\mu$ s (conductor-conductor)	$\leq 23$ V
Protection level $U_p$ (Core-Core)	$\leq 19$ V (C1 (500 V/250 A))
	$\leq 19$ V (C3 (25 A))
Protection level $U_p$ (Core-Earth)	$\leq 450$ V (C2 (10 kV/5 kA))
Response time $t_A$ (Core-Core)	$\leq 1$ ns
Response time $t_A$ (Core-Earth)	$\leq 100$ ns
Input attenuation aE, sym.	Typ. 0.5 dB ( $\leq 600$ kHz / 50 $\Omega$ )
	Typ. 0.2 dB ( $\leq 200$ kHz/150 $\Omega$ )
Cut-off frequency $f_g$ (3 dB), sym. in 50 Ohm system	Typ. 3 MHz
Cut-off frequency $f_g$ (3 dB), sym. in 150 Ohm system	Typ. 1 MHz
Capacity (Core-Core)	Typ. 3 nF
Capacity (Core-Earth)	Typ. 4 pF
Resistance in series	2.2 $\Omega \pm 10\%$ (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)
	C3 (25 A)

Surge carrying capacity in acc. with IEC 61643-21 (Core-Earth)	C2 (10 kV/5 kA)
	D1 (2.5 kA)
	C3 (100 A)
Alternating current carrying capacity in acc. with IEC 61643-21 (Core-Earth)	5 A - 1 s

**Connection data**

Type of connection	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
	DIN EN 61643-21

**Certificates / Approvals**



Certification

GOST, UL Listed

**Accessories**

Item	Designation	Description
<b>Marking</b>		
0811228	X-PEN 0,35	Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm
0814717	ZBF 15:SO/CMS	Zack strip, flat, 10-section, divisible, special printing, marking according to customer requirements
0808671	ZBF 5,LGS:FORTL.ZAHLEN	Zack marker strip, flat, printed horizontally: 10-section, with the numbers 1 - 10, 11 - 20, and so on up to 491 - 500, color: white
0810821	ZBF 5,LGS:GERADE ZAHLEN	Zack marker strip, flat, printed horizontally: 10-section, with even numbers, printed with the numbers: 2-20, 22-40, etc. up to 82-100
0810863	ZBF 5,LGS:UNGERADE ZAHLEN	Zack strip, flat, printed horizontally: 10-section, with odd numbers, printed with the numbers: 1-19, 21-39 etc. up to 81-99
0808697	ZBF 5,QR:FORTL.ZAHLEN	Zack marker strip, flat, printed vertically: 10-section, with the numbers 1 - 10, 11 - 20, and so on up to 91 - 100, color: white
0808668	ZBF 5/WH-100:UNBEDRUCKT	Zack strip, flat, unprinted: 10-section, for individual labeling with M-PEN or ZBF-T, large batch, sufficient for labeling 1000 terminal blocks, color: white
0808642	ZBF 5:UNBEDRUCKT	Zack strip, flat, unprinted: 10-section, for individual labeling with M-PEN or ZBF-T, sufficient for 100 terminal blocks, color: white
0800763	ZBN 18:SO/CMS	Marker labels, 5-section, special printing, labeled according to customer requirements (Please specify the required marking with order), for terminal width: 17.5 mm, color: White
2809128	ZBN 18:UNBEDRUCKT	Unprinted marker labels, strips with 5 labels for individual labeling with M-PEN or CMS system, for terminal block width: 17.5 mm, color: White

**Additional products**

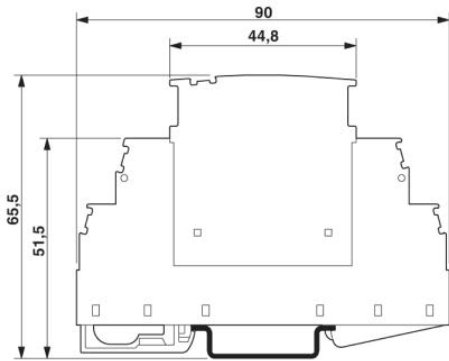
Item	Designation	Description
<b>Assembly</b>		
2839295	SSA 3-6	shield fast connections for conductor diameter 3 - 6 mm. Potential connection cable: 200 mm, black
2839512	SSA 5-10	Shield fast connection for conductor diameters 5 - 10 mm. Potential connection cable: 200 mm, black

**General**

2920023	PT 1X2+F-BE/FM	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.
2920010	PT 1X2-BE/FM	Base element to accept a protective plug with diagnostic and status indicator for one floating double wire

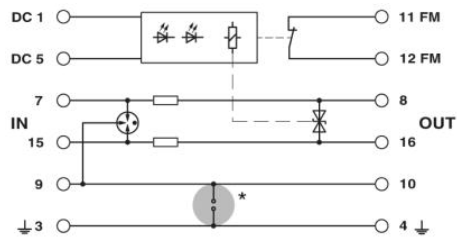
## Diagrams/Drawings

### Dimensioned drawing



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

### Circuit diagram



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