

# Surge protection device - TT-2-PE/S1-M-24DC - 2920638

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Double-level modular terminal block with two-stage surge protection for one two-wire impedance-sensitive signal circuit, disconnect knife on both signal paths, separate ground connection, nominal voltage: 24 V DC.

## Why buy this product

- ✓ Versions with and without disconnect knife
- ✓ Protection of a floating double wire in which the introduction of additional resistors for decoupling the protection stages leads to problems
- ✓ Multi-stage modular terminal blocks with screw connection technology
- ✓ Disconnection of signal circuits by disconnect knife



## Key Commercial Data

Packing unit	14 STK
GTIN	 4 046356 160186
GTIN	4046356160186

## Technical data

### Dimensions

Height	94.8 mm
Width	6.2 mm
Depth	69.1 mm

### Ambient conditions

Ambient temperature (operation)	-40 °C ... 80 °C
Altitude	≤ 2000 m (amsl (above mean sea level))
Degree of protection	IP20 (with end cover)

### General

Housing material	PA 6.6
Flammability rating according to UL 94	V-0

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## Technical data

### General

Color	jet black RAL 9005
Mounting type	DIN rail: 35 mm
Type	Double-level terminal block with PE foot – separate PE connection
Number of positions	2
Direction of action	Line-Line & Line-Earth Ground

### Protective circuit

IEC test classification	C1
	C2
	C3
	D1
Nominal voltage $U_N$	24 V DC
Maximum continuous voltage $U_C$	30 V DC
	21 V AC
Rated current	10 A (40 °C)
Operating effective current $I_C$ at $U_C$	$\leq 5 \mu\text{A}$
Residual current $I_{PE}$	$\leq 2 \mu\text{A}$
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-line)	300 A
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (line-earth)	5 kA
Pulse discharge current $I_{imp}$ (10/350) $\mu\text{s}$ (line-earth)	500 A
Total discharge current $I_{total}$ (8/20) $\mu\text{s}$	10 kA
Nominal pulse current $I_{an}$ (10/1000) $\mu\text{s}$ (line-line)	60 A
Nominal pulse current $I_{an}$ (10/1000) $\mu\text{s}$ (line-earth)	100 A
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-line) spike	$\leq 45 \text{ V}$
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-earth) spike	$\leq 650 \text{ V}$
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-line) static	$\leq 45 \text{ V}$
Output voltage limitation at 1 kV/ $\mu\text{s}$ (line-earth) static	$\leq 650 \text{ V}$
Residual voltage at $I_n$ (line-line)	$\leq 55 \text{ V}$
Residual voltage with $I_{an}$ (10/1000) $\mu\text{s}$ (line-line)	$\leq 50 \text{ V}$
Voltage protection level $U_p$ (line-line)	$\leq 50 \text{ V}$ (C1 - 500 V / 250 A)
Response time $t_A$ (line-line)	$\leq 1 \text{ ns}$
Response time $t_A$ (line-earth)	$\leq 100 \text{ ns}$
Input attenuation aE, sym.	typ. 0.1 dB ( $\leq 1 \text{ MHz} / 50 \Omega$ )
	typ. 0.1 dB ( $\leq 400 \text{ kHz} / 150 \Omega$ )
Cut-off frequency $f_g$ (3 dB), sym. in 50 Ohm system	typ. 7 MHz
Cut-off frequency $f_g$ (3 dB), sym. in 150 Ohm system	typ. 2 MHz
Capacity (line-line)	$< 2.5 \text{ nF}$
Resistance in series	$< 5 \text{ m}\Omega$
Surge protection fault message	none
Max. required back-up fuse	10 A (gL/gG/C)
Impulse durability (line-line)	C1 - 500 V / 250 A

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## Technical data

### Protective circuit

	C3 - 25 A
Impulse durability (line-earth)	C2 - 10 kV/5 kA
	D1 - 500 A

### Connection data

Connection method	Screw connection
Connection method IN	Screw terminal blocks
Connection method OUT	Screw terminal blocks
Screw thread	M3
Tightening torque	0.6 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 ... 14

### Standards and Regulations

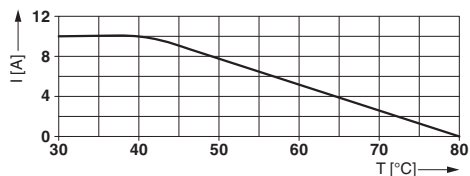
Standards/specifications	EN 61643-21 2001
	IEC 61643-21 2000

### Environmental Product Compliance

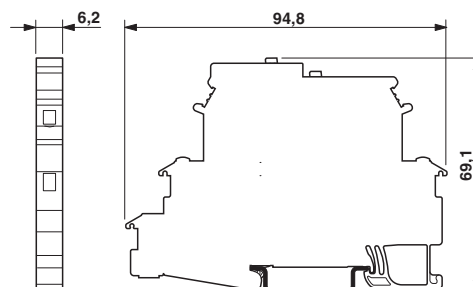
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

Diagram

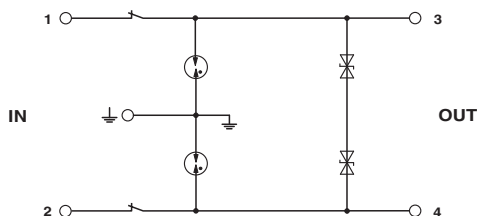


Dimensional drawing



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Circuit diagram



## Approvals

### Approvals

Approvals

EAC / EAC / UL Listed / DNV GL

Ex Approvals

### Approval details

EAC		EAC-Zulassung
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EAC		RU C- DE.A*30.B01561
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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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DNV GL	<a href="http://exchange.dnv.com/tari/">http://exchange.dnv.com/tari/</a>	TAE00001N7
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