

Surge protection device - TT-EX(I)-M-24DC - 2803865

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Modular terminal block with two-stage surge protection for a floating Ex-i signal circuit, disconnect knife on both signal paths, separate PE connection, nominal voltage: 24 V DC

Product Features

- ✓ Versions with and without disconnect knife
- ✓ To terminate a row of TERMITRAB TT... devices, covers are available in the corresponding colors
- ✓ Other voltage levels available on request
- ✓ Multi-stage modular terminal blocks with screw connection technology
- ✓ Protection of a floating double wire in intrinsically safe circuits
- ✓ Use in Ex protection zones 1 and 2
- ✓ Conductors can be led up to Ex protection zone 0
- ✓ Disconnection of signal circuits by disconnect knife



Key commercial data

Packing unit	1 pc
Weight per Piece (excluding packing)	32.857 GRM
Custom tariff number	85363010
Country of origin	Germany

Technical data

Dimensions

Height	92 mm
Width	6.2 mm
Depth	66.45 mm

Ambient conditions

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Technical data

Ambient conditions

Ambient temperature (operation)	-40 °C ... 80 °C
Degree of protection	IP20

General

Housing material	PA 6.6
Inflammability class according to UL 94	V-2
Color	blue
Standards for air and creepage distances	EN 50020
	VDE 0110-1
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
	17 V AC
Maximum continuous operating voltage U_C	30 V DC
	21 V AC
Maximum continuous voltage U_C (wire-wire)	30 V DC
	21 V AC
Nominal current I_N	250 mA ($T_A < 40\text{ °C}$)
Operating effective current I_C at U_C	$\leq 5\ \mu\text{A}$
Residual current I_{PE}	$\leq 1\ \mu\text{A}$
Nominal discharge current I_n (8/20) μs (Core-Core)	5 kA
Nominal discharge current I_n (8/20) μs (Core-Earth)	5 kA
Total surge current (8/20) μs	10 kA
Total surge current (10/350) μs	1 kA
Max. discharge current I_{max} (8/20) μs maximum (Core-Core)	5 kA
Max. discharge current I_{max} (8/20) μs maximum (Core-Earth)	5 kA (per path)
Nominal pulse current I_{an} (10/1000) μs (Core-Core)	100 A
Nominal pulse current I_{an} (10/1000) μs (Core-Earth)	100 A (per path)
Impulse discharge current (10/350) μs , peak value I_{imp}	500 A (per path)
Output voltage limitation at 1 kV/ μs (Core-Core) spike	$\leq 44\ \text{V}$

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Protective circuit

Output voltage limitation at 1 kV/ μ s (Core-Earth) spike	≤ 1.5 kV
Output voltage limitation at 1 kV/ μ s (Core-Core) static	≤ 44 V
Output voltage limitation at 1 kV/ μ s (Core-Earth) static	≤ 1.5 kV
Residual voltage at I_{n1} (conductor-conductor)	≤ 40 V
Residual voltage at I_{n1} (conductor-ground)	≤ 110 V
Voltage protection level U_p (Core-Core)	≤ 70 V (C2 (10 kV/5 kA))
Voltage protection level U_p (Core-Earth)	≤ 1.5 kV (C2 (10 kV/5 kA))
Response time t_A (Core-Core)	≤ 1 ns
Response time t_A (Core-Earth)	≤ 100 ns
Input attenuation aE, sym.	1 dB (≤ 1 MHz / 50 Ω)
	0.3 dB (≤ 200 kHz / 150 Ω)
Cut-off frequency f_g (3 dB), sym. in 50 Ohm system	typ. 6 MHz
Cut-off frequency f_g (3 dB), sym. in 150 Ohm system	typ. 2 MHz
Resistance in series	4.7 $\Omega \pm 10$ %
	4.7 Ω
Surge protection fault message	None
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-Earth)	C2 - 10 kV / 5 kA
	D1 (500 A)

Connection data

Connection method	Screw connection
Connection type IN	Screw terminal blocks
Connection type OUT	Screw terminal blocks
Screw thread	M3
Tightening torque	0.8 Nm
Stripping length	8 mm
Conductor cross section stranded min.	0.2 mm ²
Conductor cross section stranded max.	2.5 mm ²
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	14

Standards and Regulations

Standards/regulations	IEC 61643-21
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General

Maximum inner capacitance C_i	2 nF
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General

Maximum inner inductance L_i	1 μ H
Maximum inner time factor (R_i/L_i)	0.1 μ s
Max. input current I_i	250 mA
Max. input voltage U_i	30 V
Maximum input power P_i	0.75 W
Insulation voltage to ground	500 V 10 %

Conformity / approvals

ATEX	# II 1G Ex ia IIC T4...T6 Ga
	# II 1D Ex ia IIIC T135°C...T85°C Da
IECEX	Ex ia IIC T4...T6 Ga
	Ex ia IIIC T135 °C...T85 °C Da

Classifications

eCl@ss

eCl@ss 4.0	27140201
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

ETIM

ETIM 2.0	EC000943
ETIM 3.0	EC000943
ETIM 4.0	EC000943
ETIM 5.0	EC000943

UNSPSC

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

Drawings

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Circuit diagram

