

Repeater - PSM-ME-RS485/RS485-P



2744429

<https://www.phoenixcontact.com/pc/products/2744429>

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Repeater, for potential separation and range increase in RS-485 2-wire bus systems, 3-way isolation, rail-mountable

Product Description

The performance and availability of bus systems can be significantly increased by using repeaters. In addition to electrical isolation, bus segmentation with repeaters makes it possible to multiply the permissible coverage of the network and to extend the number of devices. The **PSM-ME-RS485/RS485-P** compact repeater is for universal use in RS-485 2-wire bus systems. The device supports bus systems that rely on the UART/NRZ data format with a character length of 10 or 11 bits.

Your advantages

- Mounting on standard EN DIN rails
- Transmission speeds of up to 1.5 Mbps
- High-quality 3-way isolation between all interfaces
- Space-saving slim 22.5 mm device
- Integrated, connectable termination resistors
- All connections can be plugged in using a COMBICON screw terminal block
- Shipbuilding approval in accordance with DNV GL

Commercial Data

Item number	2744429
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	DNC111
Catalog Page	Page 423 (C-6-2019)
GTIN	4017918171797
Weight per Piece (including packing)	199.2 g
Weight per Piece (excluding packing)	188.8 g
Customs tariff number	85176200
Country of origin	DE

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Technical Data

Notes

Utilization restriction

EMC note	EMC: class A product, see manufacturer's declaration in the download area
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Utilization restriction

CCCex note	Use in potentially explosive areas is not permitted in China.
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Product properties

Product type	Interface converter
MTTF	1808 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	796 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	334 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)

Insulation characteristics

Pollution degree	2
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Electrical properties

Electrical isolation	VCC // RS-485 (A) // RS-485 (B)
Maximum power dissipation for nominal condition	2.16 W
Test voltage data interface/power supply	1.5 kV _{rms} (50 Hz, 1 min.)
Test voltage data interface/power supply	1.5 kV AC
Test voltage data interfaces	1.5 kV AC

Supply

Supply voltage range	18 V AC/DC ... 30 V AC/DC (via pluggable COMBICON screw terminal block)
Nominal supply voltage	24 V AC/DC
Typical current consumption	90 mA (24 V DC)
Max. current consumption	100 mA

Connection data

Supply

Conductor cross section, flexible	0.20 mm ² ... 2.50 mm ²
Conductor cross section, rigid	0.20 mm ² ... 2.50 mm ²
Conductor cross section, flexible [AWG]	24 ... 12
Conductor cross section AWG	24 ... 12
Tightening torque	0.56 Nm ... 0.79 Nm

Interfaces

Bit distortion	< 1.5 %
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Bit distortion, input	max. ± 35 %
Bit distortion, output	< 3.6 %
Bit delay	< 200 ns
Signal	Modbus
Transmission channels	2 (1/1), TD, RD, half duplex

Data: RS-485 interface, in acc. with EIA/TIA-485, DIN 66259-4/RS-485 2-wire

Serial transmission speed	1.2 / 2.4 / 4.8 / 9.6 / 19.2 / 38.4 / 57.6 / 75 / 93.75 / 115.2 / 136 / 187.5 / 375 / 500 / 1500 kbps
Connection method	Pluggable screw connection
Transmission length	≤ 1200 m (depends on transmission speed, bus system and cable type)
Cascadability	9 (4,8 ... 93,75 kbps)
	8 (115.2 kbps)
	7 (136 kbps)
	6 (187.5 kbps)
	5 (375 ... 1500 kbps)
Termination resistor	390 Ω
	180 Ω
	390 Ω (Can be connected)
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Max. AWG conductor cross section, flexible	12
Min. AWG conductor cross section, flexible	24
Transmission medium	2-wire twisted pair, shielded
File format/coding	UART (11/10 bit switchable; NRZ)
Data direction switching	Automatic control, min. station response time 1 bits
Protocols supported	transparent protocol

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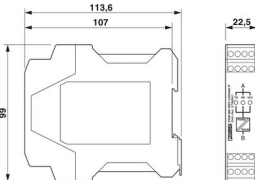


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Protocols supported	transparent protocol
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Dimensions

Dimensional drawing	
Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Material specifications

Material	PA 6.6-FR (Housing)
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Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
Permissible humidity (operation)	10 % ... 95 % (non-condensing)

Approval data

CE

Certificate	CE-compliant
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EAC

Identification	EAC
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ATEX

Identification	□ II 3 G Ex nA IIC T4 Gc
Certificate	IBExU16ATEXB004 X
Note	Please follow the special installation instructions in the documentation!

IECEX

Identification	Ex nA IIC T4 Gc
Certificate	IECEX IBE 15.0034X

UL, USA / Canada

Identification	508 Recognized
	Class I, Div. 2, Groups A, B, C, D
	Class I, Zone 2, AEx nA IIC T4

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	Class I, Zone 2, Ex nA IIC T4 Gc X
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KC approval for South Korea

Certificate	KCC-REI-PCK-FL2744429
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Corrosive gas test

Identification	ISA-S71.04-1985 G3 Harsh Group A
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Shipbuilding

Identification	DNV GL
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DNV GL data

Temperature	B
Humidity	A
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 61000-6-4
Noise immunity	EN 61000-6-2:2005

Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

Contact discharge	± 6 kV (Test Level 3)
Discharge in air	± 8 kV (Test Level 3)
Indirect discharge	± 6 kV (Test Level 3)
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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Electromagnetic HF field

Frequency range	26 MHz ... 3 GHz (Test Level 3)
Field intensity	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4
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Fast transients (burst)

Input	± 2.2 kV (Test Level 3)
Signal	± 2.2 kV (Test Level 3)
Comments	Criterion B

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Surge current load (surge)

Standards/regulations	EN 61000-4-5
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Surge current load (surge)

Input	± 0.5 kV (DC supply)
Signal	± 1 kV (Data line, asymmetrical)
Comments	Criterion B

Conducted interference

Standards/regulations	EN 61000-4-6
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Conducted interference

Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V

Emitted interference

Standards/regulations	EN 55011
Comments	Class A, industrial applications
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

Mounting

Mounting type	DIN rail mounting
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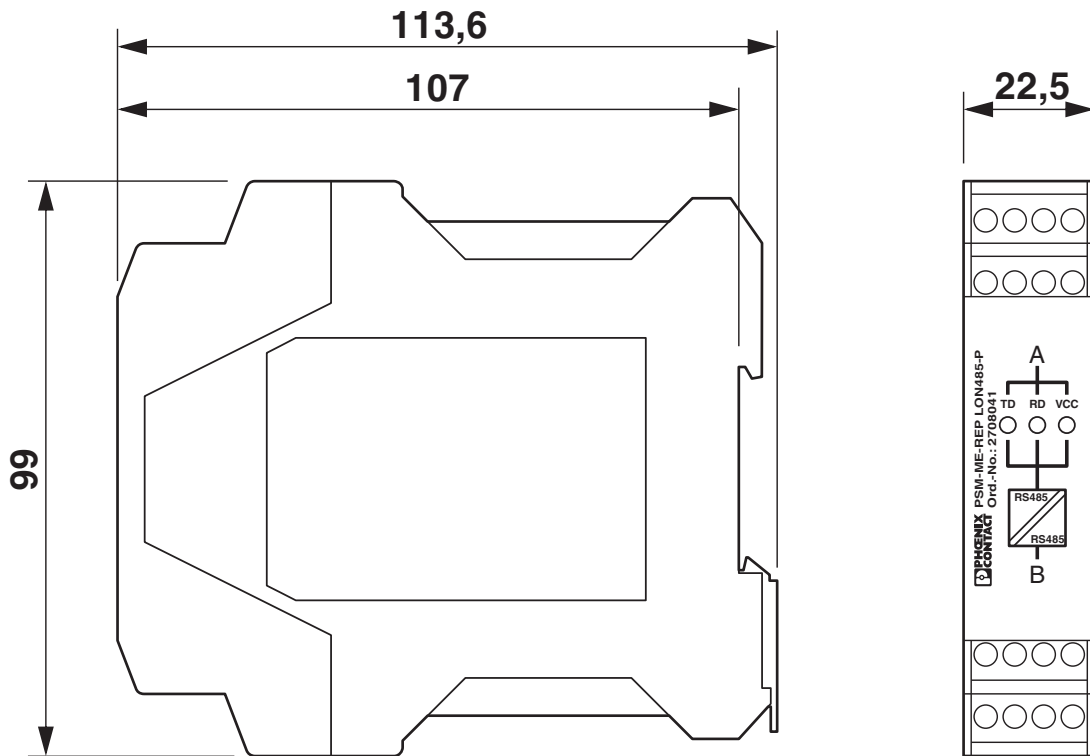
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Drawings

Dimensional drawing



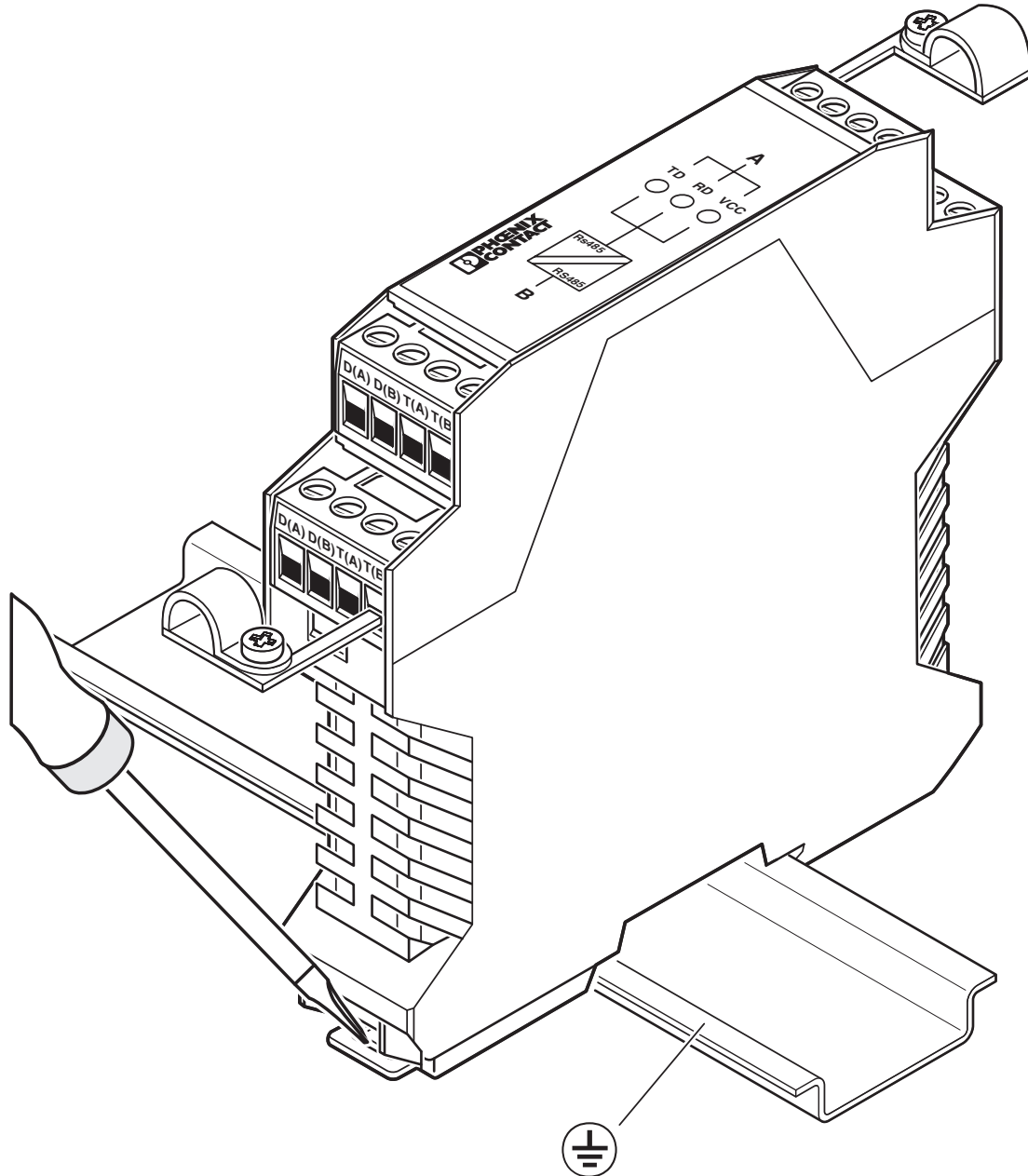
Slim design

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Schematic diagram



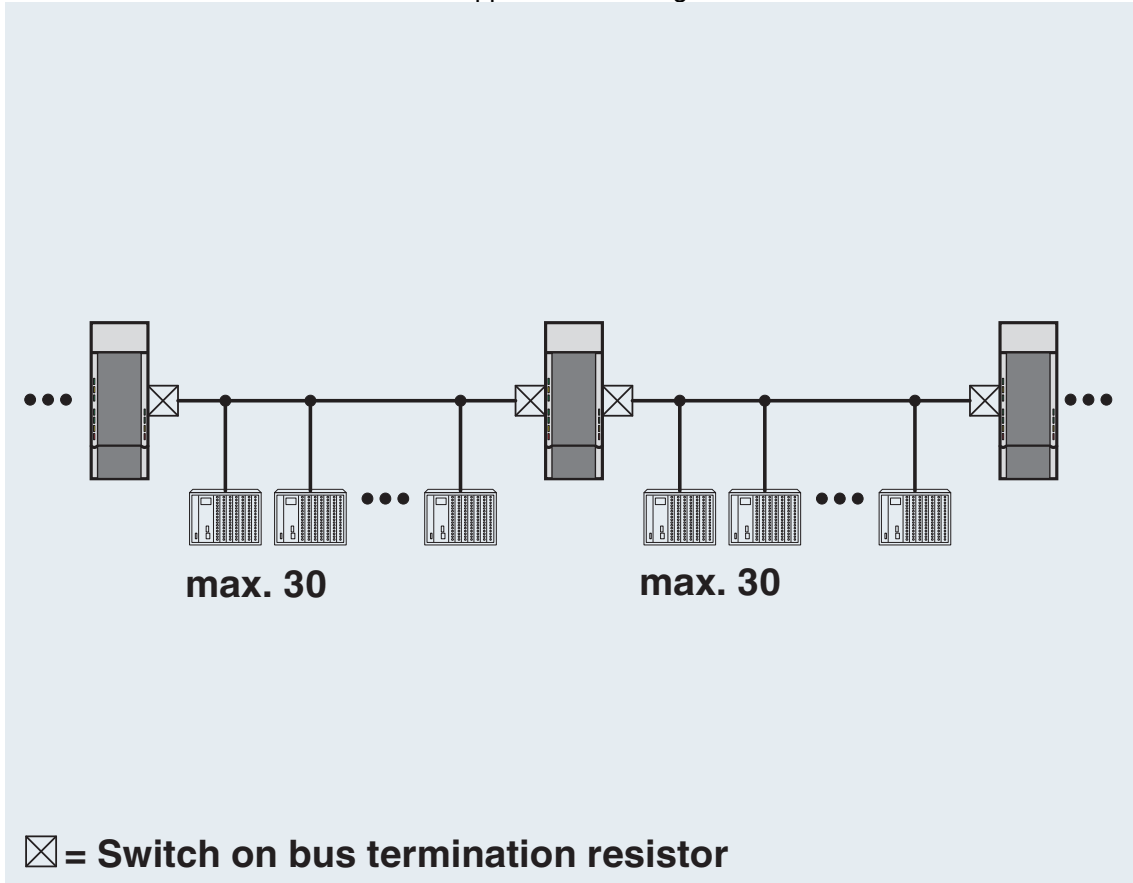
Removal

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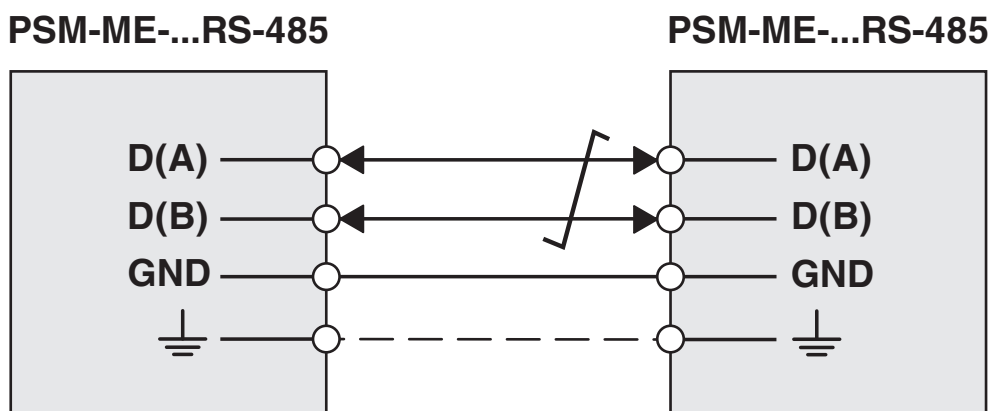
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Application drawing



Line structure

Connection diagram



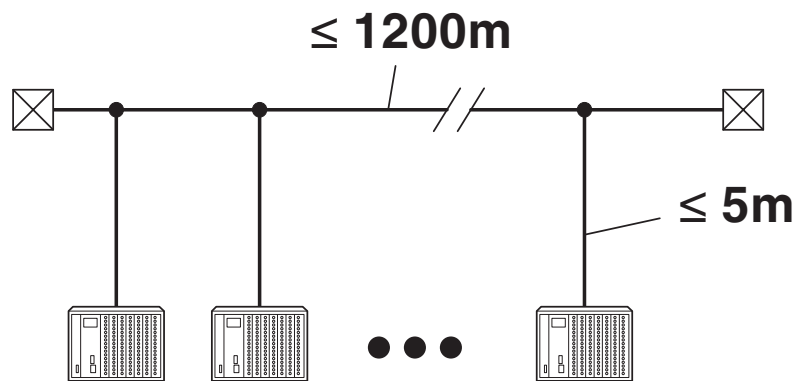
RS-485 interface

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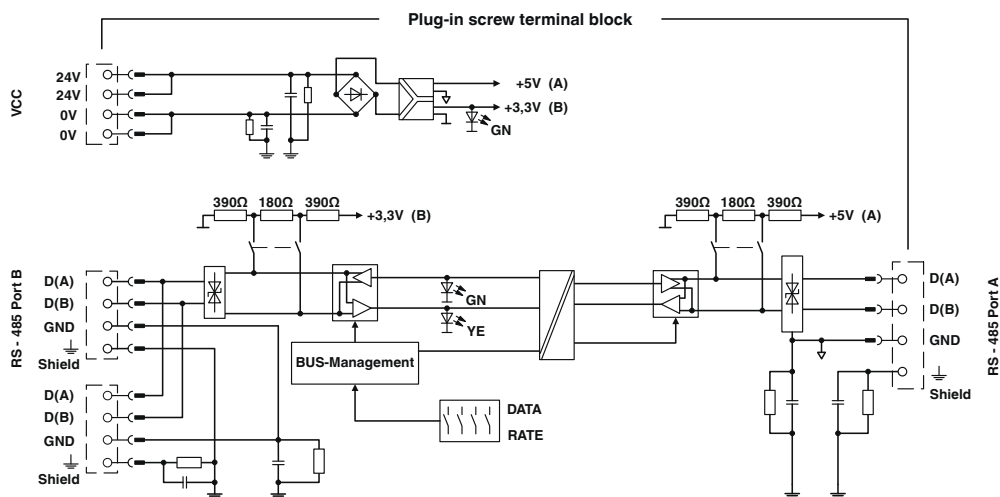
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Application drawing



Cable lengths according to the RS-485 standard

Circuit diagram

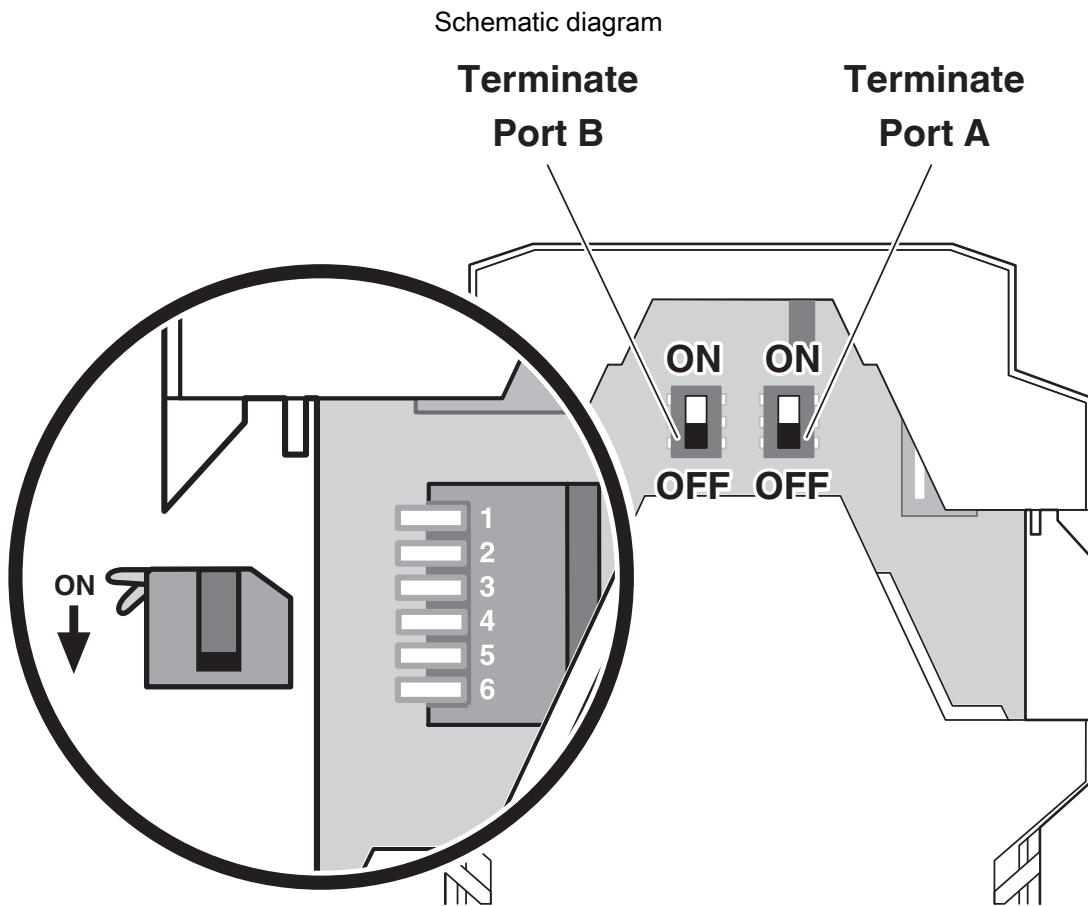


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DIP switches


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Approvals


 cUL Recognized Approval ID: FILE E 238705				
	Nominal Voltage U_N	Nominal Current I_N	Cross Section AWG	Cross Section mm^2
			-	-

 UL Recognized Approval ID: FILE E 238705				
	Nominal Voltage U_N	Nominal Current I_N	Cross Section AWG	Cross Section mm^2
			-	-

 DNV GL Approval ID: TAA00001KR				
	Nominal Voltage U_N	Nominal Current I_N	Cross Section AWG	Cross Section mm^2
			-	-

 KC Approval ID: KCC-REI-PCK-FL274442				
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 EAC Approval ID: TR TS_D_01871-19				
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 cUL Recognized Approval ID: FILE E 199827				
	Nominal Voltage U_N	Nominal Current I_N	Cross Section AWG	Cross Section mm^2
	24 V	0.09 A	-	-

 IECEx Approval ID: IECEx IBE 15.0034 X				
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 cUL Listed Approval ID: FILE E 199827				
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 UL Listed Approval ID: FILE E 199827				
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ATEX

Approval ID: IBExU 16 ATEX B004 X

cULus Recognized

cULus Listed

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Classifications

ECLASS

ECLASS-9.0	19179290
ECLASS-10.0.1	19179290
ECLASS-11.0	19179090

ETIM

ETIM 8.0	EC002608
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UNSPSC

UNSPSC 21.0	43222600
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Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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Accessories

Shield connection clamp

Shield connection clamp - ME-SAS - 2853899

<https://www.phoenixcontact.com/pc/products/2853899>

Shield connection clamp for terminal points starting from 2.5 mm²



Screwdriver

Screwdriver - SZF 1-0,6X3,5 - 1204517

<https://www.phoenixcontact.com/pc/products/1204517>

Actuation tool, for ST terminal blocks, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip



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Termination resistor

Termination resistor - PSI-TERMINATOR-PB-TBUS - 2702636

<https://www.phoenixcontact.com/pc/products/2702636>



Active termination resistor for PROFIBUS and RS-485 bus systems, redundant power supply, routing of the supply voltage via DIN rail connector, electrical isolation, switchable termination, integrated programming interface

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