PSI-REP-RS485W2 - Repeater

2313096

https://www.phoenixcontact.com/au/products/2313096

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Modular repeater for electrical isolation and range increase in RS-485 2-wire bus systems up to 500 kbps, 4-way isolation, rail-mountable, supply 24 V DC

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.

Your advantages

- Data rates of up to 500 kbps (adjustable via DIP switches)
- High-quality 4-way isolation between all interfaces
- Bit oversampling for reliable detection of sporadic disturbances
- Bit retiming for unrestricted cascading of devices
- Integrated, connectable termination resistors
- Can be combined with PSI-MOS FO converters in a modular way thanks to DIN rail connectors
- Approved for use in zone 2

Commercial data

Item number	2313096
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DNC122
Product key	DNC122
Catalog page	Page 423 (C-6-2019)
GTIN	4046356098816
Weight per piece (including packing)	260.6 g
Weight per piece (excluding packing)	240.8 g
Customs tariff number	85176200
Country of origin	DE

Technical data

Notes

Note on application

Note on application	Only for industrial use

Utilization restriction

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

Utilization restriction

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

Product properties

Product type	Interface converter
MTTF	1439 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	717 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	305 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)
MTBF	1247 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	261 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))

Electrical properties

Electrical isolation	VCC // TBUS // RS-485 (A) // RS-485 (B)
Maximum power dissipation for nominal condition	1.8 W
Test voltage data interface/power supply	1.5 kV_{rms} (50 Hz, 1 min.)
Test voltage data interfaces	1.5 kV

Supply

Supply voltage range	18 V DC ... 30 V DC (via pluggable COMBICON screw terminal block)
Nominal supply voltage	24 V DC (in acc. with UL)
Typical current consumption	75 mA (24 V DC ⎓)
Max. current consumption	≤ 2 A (For operation in a joining station, via the DIN rail connector)

Connection data

Supply

Stripping length	7.00 mm
Tightening torque	0.6 Nm ... 0.8 Nm

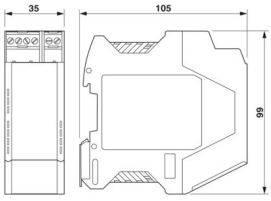
Interfaces

Bit distortion, input	max. ± 35 %
Bit distortion, output	< 6.25 %
Bit delay	< 1 bit
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

Transmission speed	4.8/9.6/19.2/38.4/57.6/75/93.75/115.2/136/187.5/375/500 kbps (Can be set manually)
Connection method	Pluggable screw connection
Transmission length	≤ 1200 m (depends on transmission speed, bus system and cable type)
Termination resistor	390 Ω (Can be connected to port A and B)
	150 Ω
	390 Ω
Single conductor/terminal point, rigid	0.2 mm² ... 2.5 mm²
Single-wire/terminal point, flexible	0.2 mm² ... 2.5 mm²
Max. AWG conductor cross section, flexible	12
Min. AWG conductor cross section, flexible	24
Single-wire/terminal point, rigid AWG max.	12
Single-wire/terminal point, rigid AWG min.	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 2 bits

Dimensions

Dimensional drawing	
Width	35 mm
Height	99 mm
Depth	105 mm

Material specifications

Color (Housing)	gray (RAL 7042)
Material (Housing)	PA 6.6-FR

Mechanical tests

Free fall in accordance with IEC 60068-2-32	: 1 m
Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	: 5g, 10...150 Hz, 2.5 h, in XYZ direction
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	: 15g, 11 ms period, half-sine shock pulse

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-20 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
	≤ 2000 m (Hazardous locations)
Permissible humidity (operation)	10 % ... 95 % (non-condensing)

Approvals

CE

Certificate	CE-compliant

ATEX

Identification	Ⓔx II 3 G Ex ec IIC T5 Gc
Certificate	UL 21 ATEX 2550X
Note	Please follow the special installation instructions in the documentation!

IECEx

Identification	Ex ec IIC T5 Gc
Certificate	IECEx ULD 21.0013X

UL, USA/Canada

Identification	Class I, Zone 2, AEx ec IIC T5 Gc
	Ex ec IIC T5 Gc X
	Class I, Div. 2, Groups A, B, C, D

Corrosive gas test

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

EMC data

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

Noise emission

Standards/regulations	EN 55011

Electrostatic discharge

Standards/regulations	EN 61000-4-2

Electrostatic discharge

Contact discharge	± 6 kV
Discharge in air	± 8 kV
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3

Electromagnetic HF field

Frequency range	80 MHz ... 3 GHz
Field intensity	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4

Fast transients (burst)

Input	± 2 kV
Signal	± 2 kV
Comments	Criterion B

Surge current load (surge)

Standards/regulations	EN 61000-4-5

Surge current load (surge)

Input	± 0.5 kV
Signal	± 1 kV
Comments	Criterion B

Conducted interference

Standards/regulations	EN 61000-4-6

Conducted interference

Comments	Criterion A
Voltage	10 V

Emitted interference

Standards/regulations	EN 55011
Comments	Class A, industrial applications

Criteria

Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

Standards and regulations

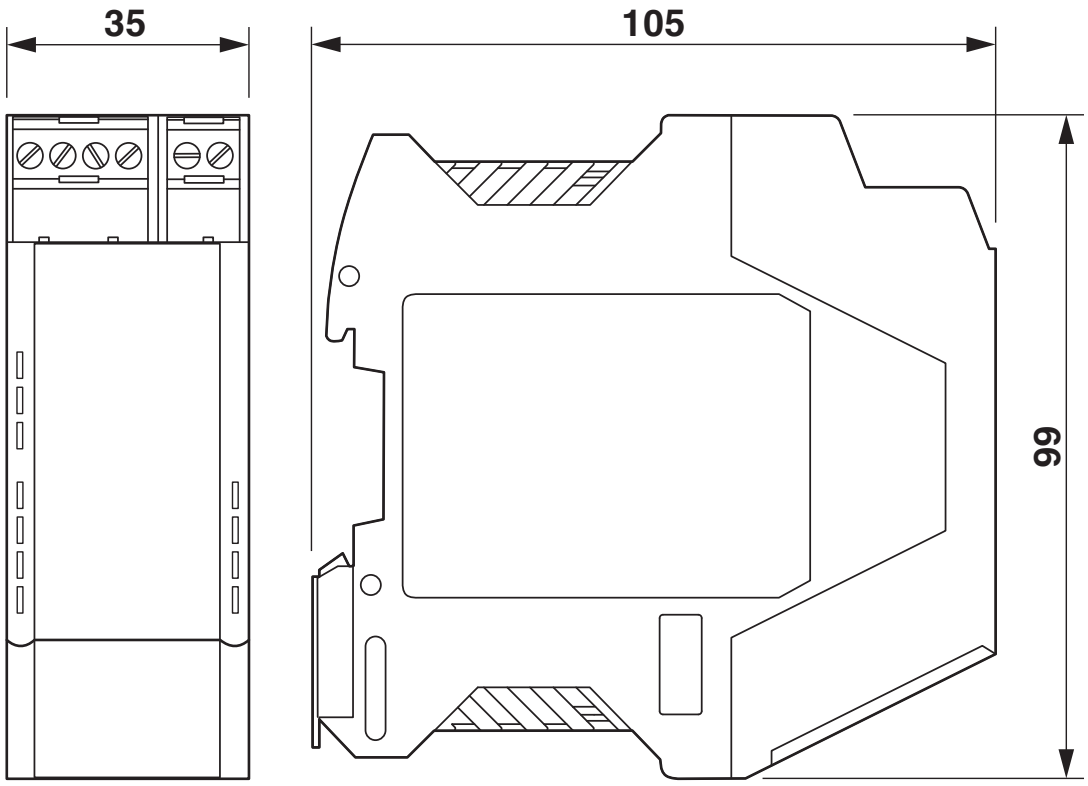
Free from substances that could impair the application of coating	VDMA 24364:2018-05
Standards/regulations	EN 62368

Mounting

Mounting type	DIN rail mounting

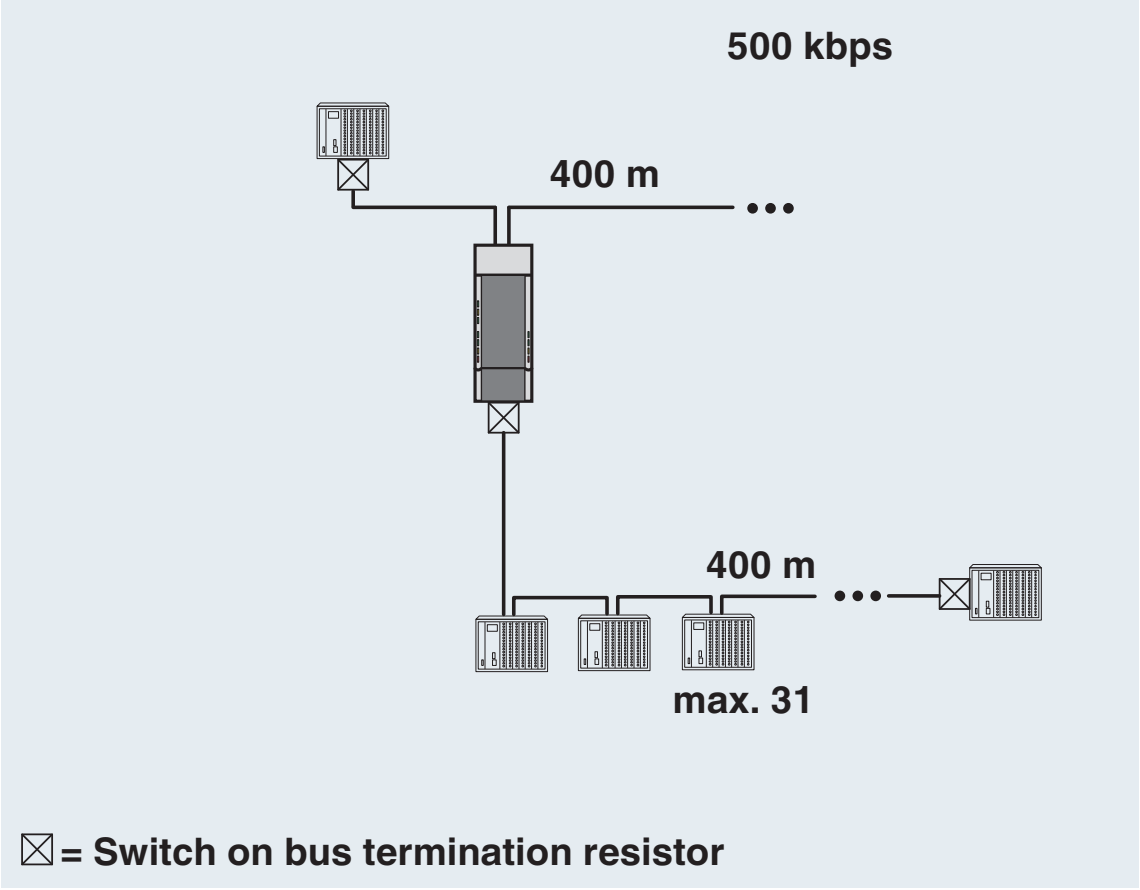
Drawings

Dimensional drawing



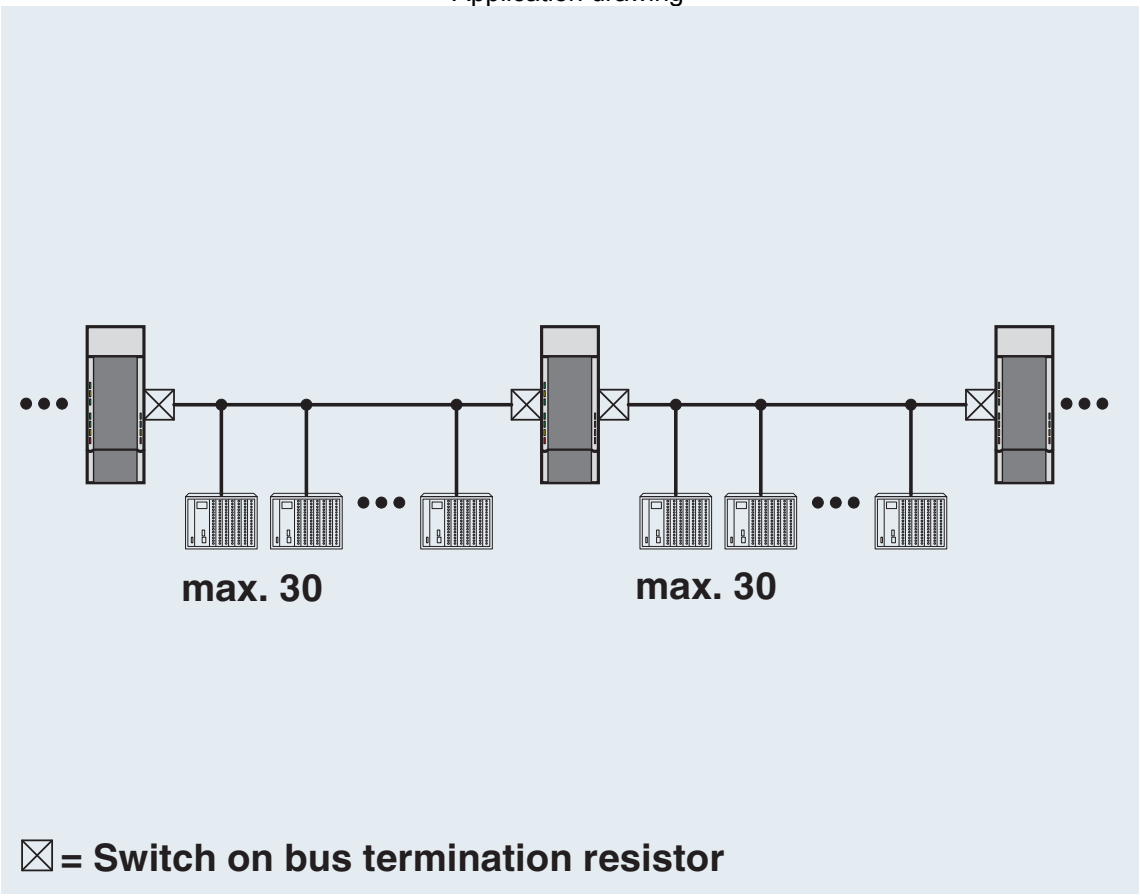
Housing dimensions

Application drawing



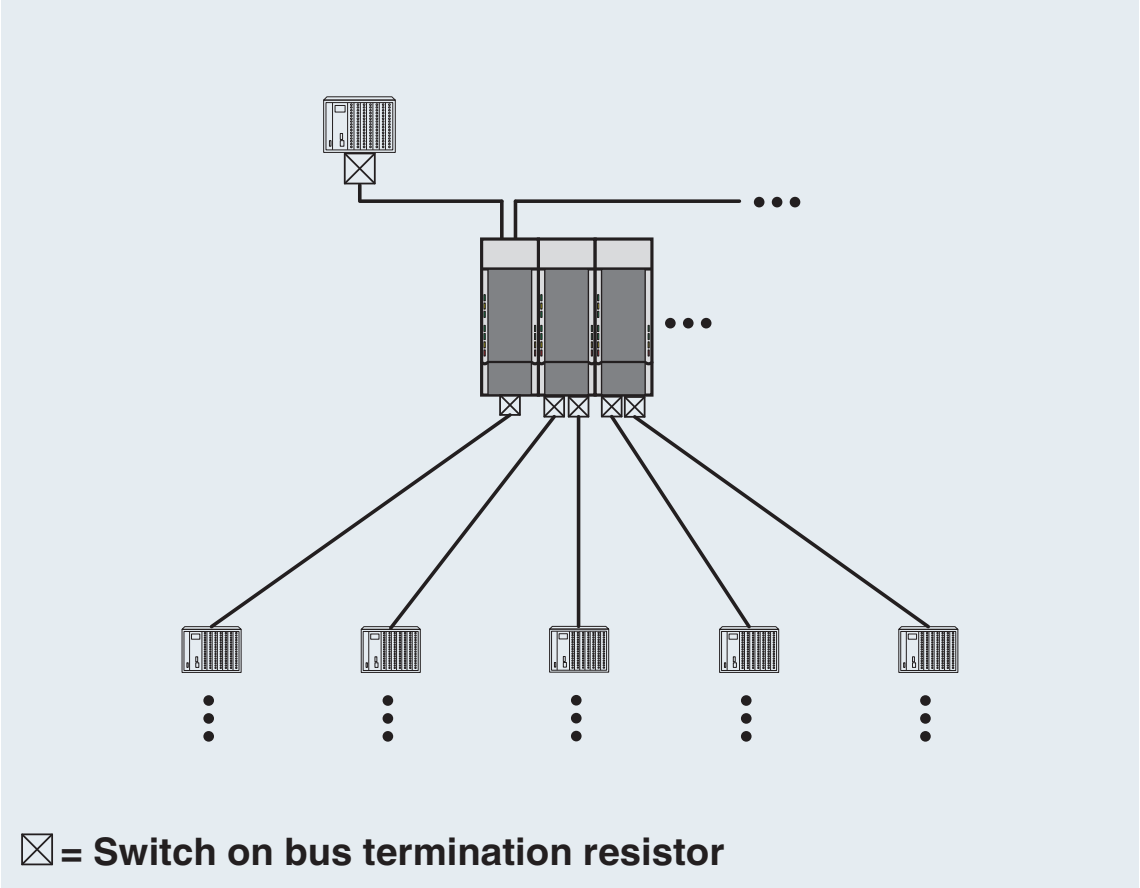
Branch/bus segmentation

Application drawing



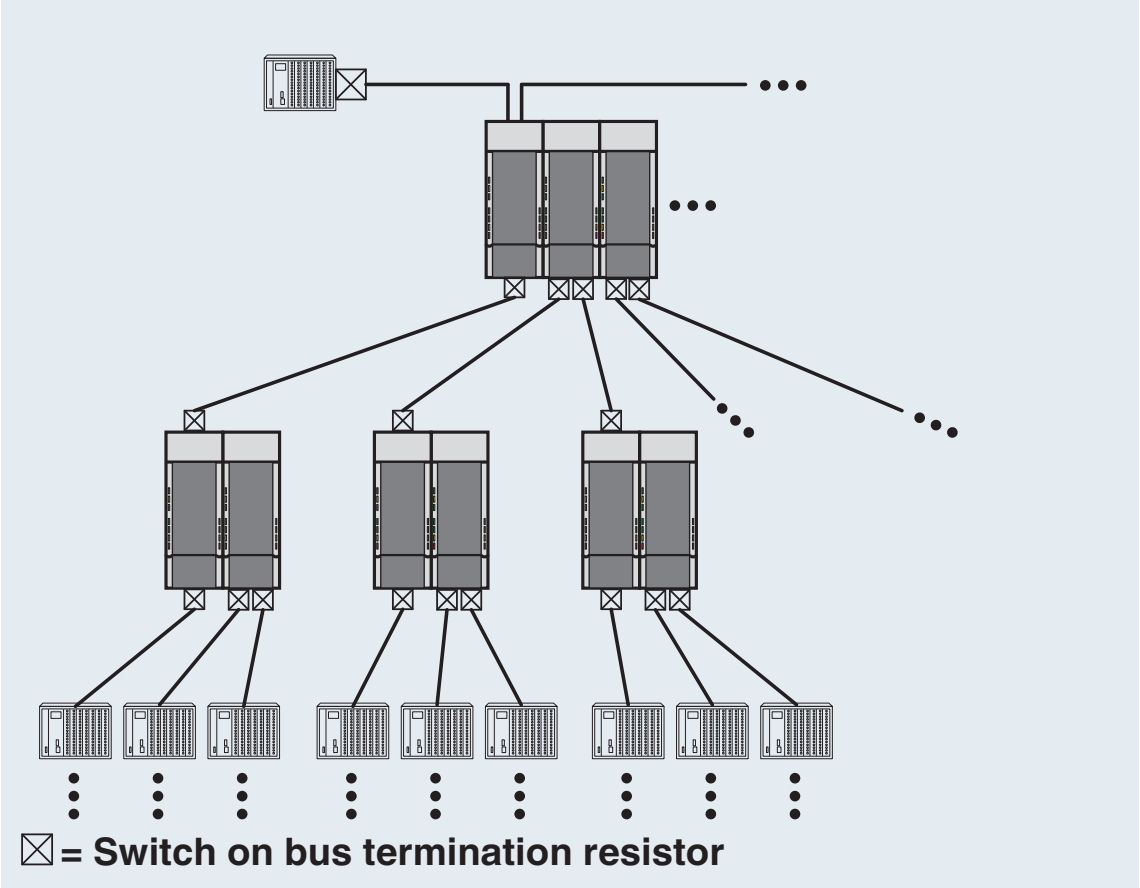
Line structure

Application drawing



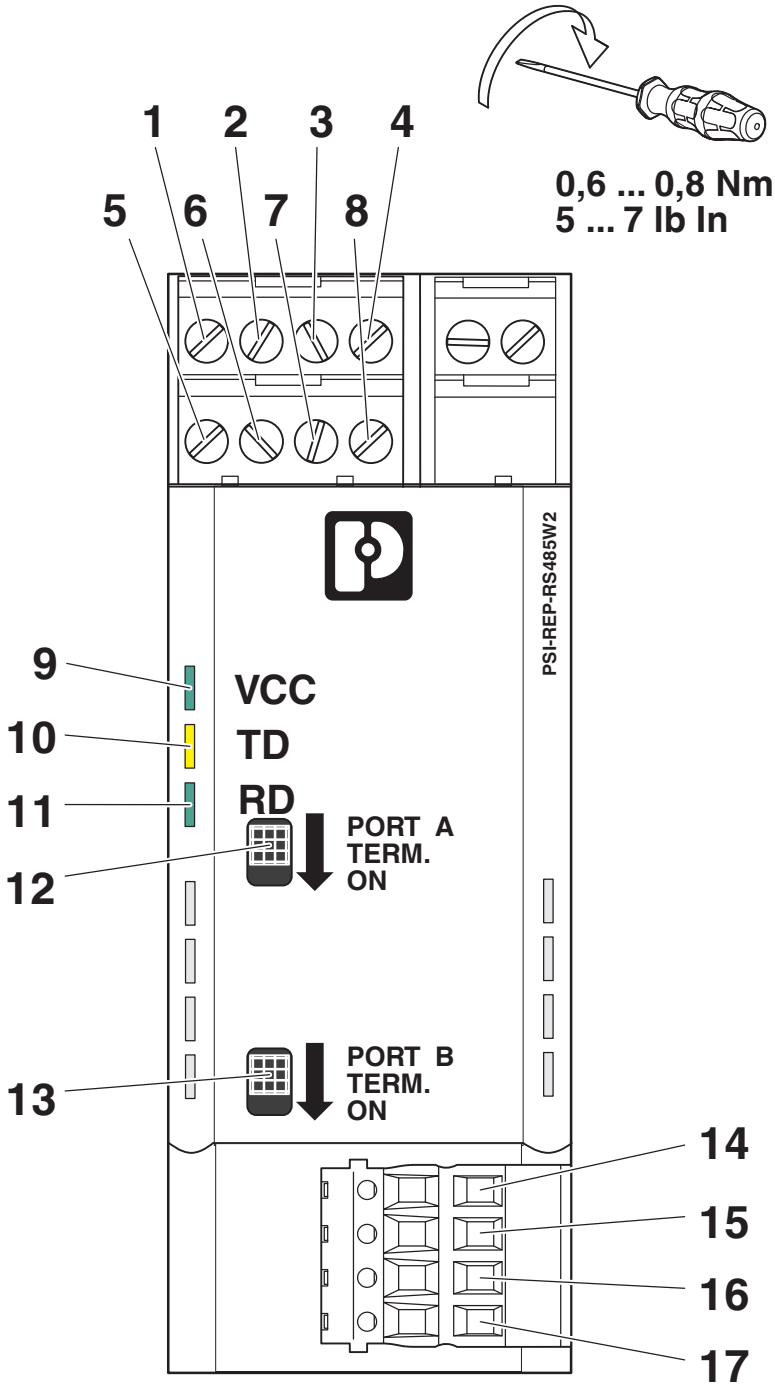
Star structure

Application drawing



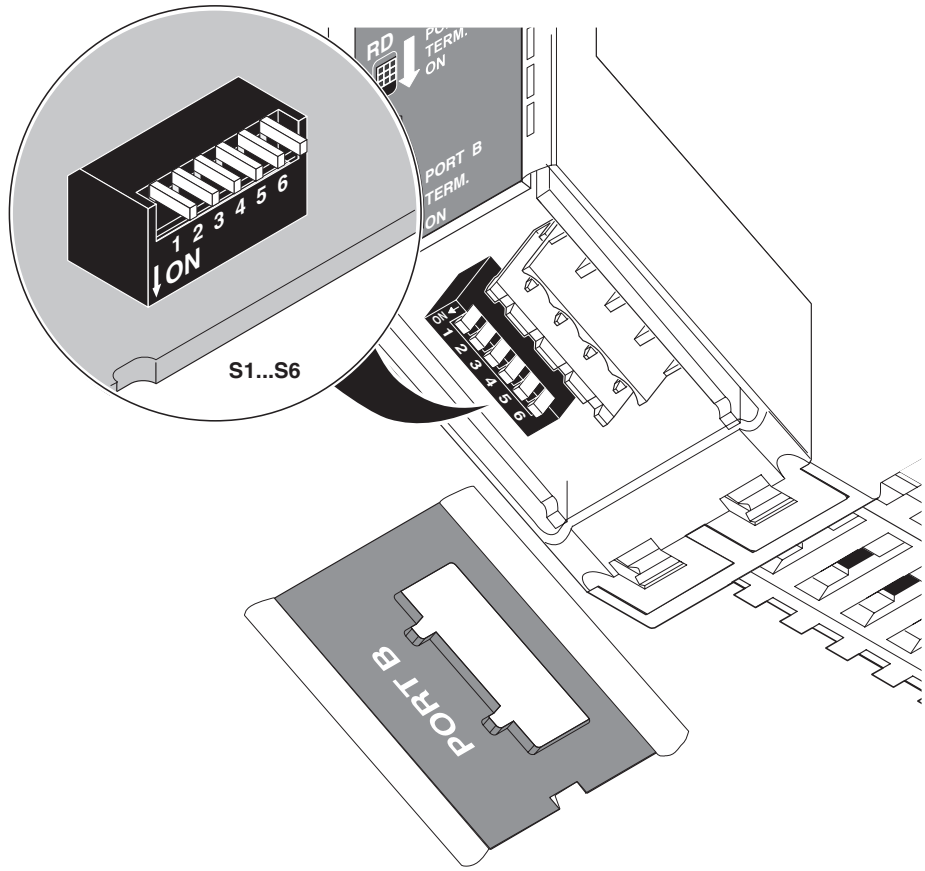
Tree structure

Schematic diagram



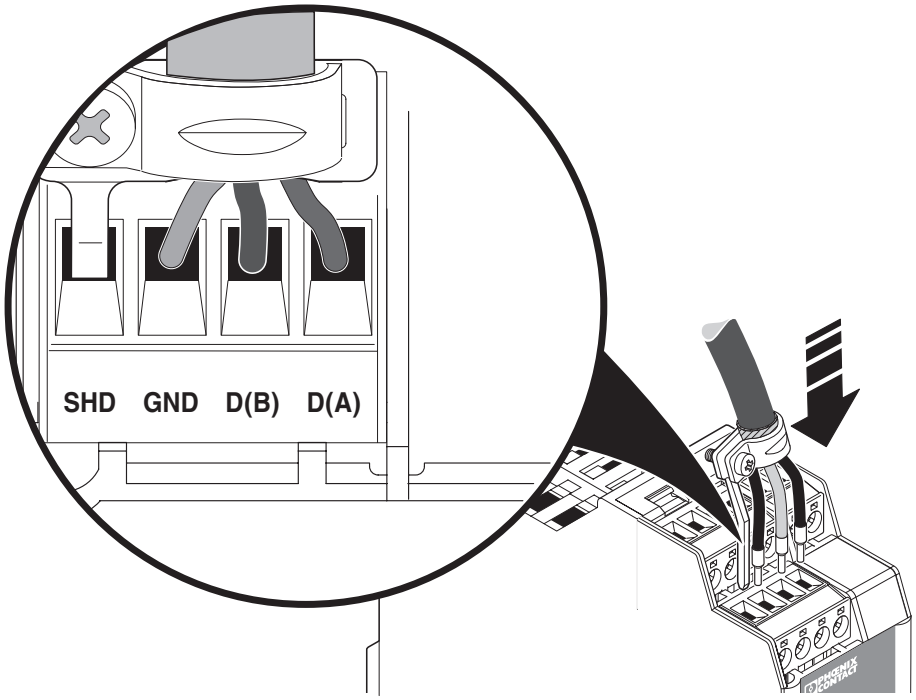
Front view

Schematic diagram



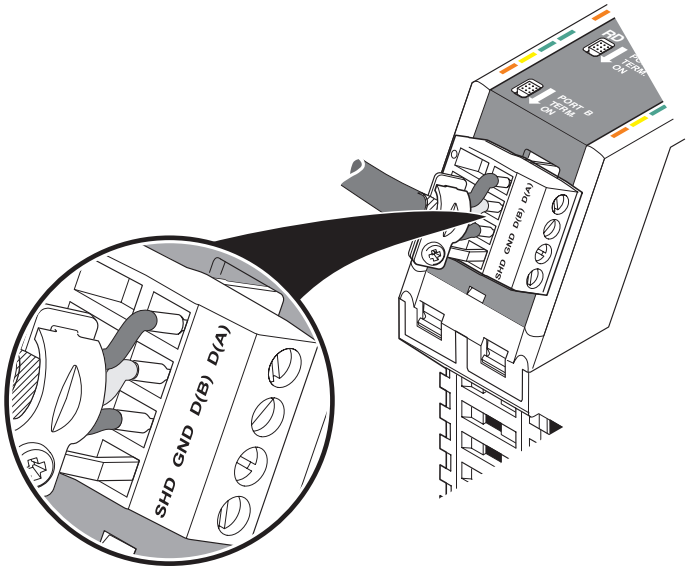
DIP switches

Schematic diagram



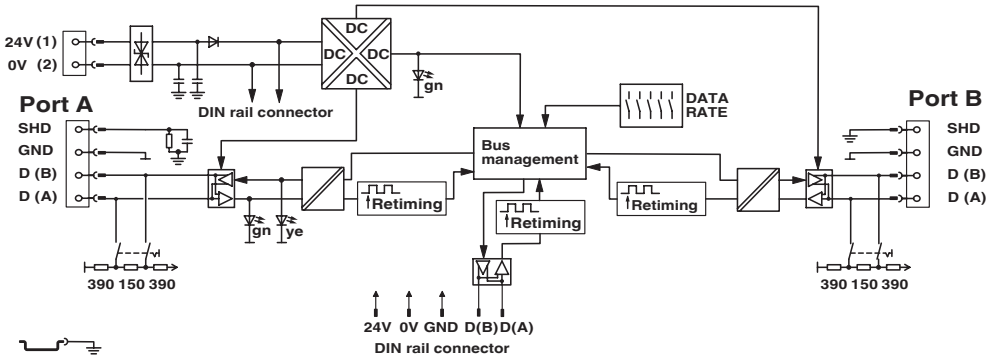
Connecting the cables

Schematic diagram



Connecting the cables

Block diagram



Basic circuit diagram

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/au/products/2313096

cULus Listed
Approval ID: E238705

cULus Recognized
Approval ID: E238705

cUL Listed
Approval ID: E199827

UL Listed
Approval ID: E199827

Classifications

ECLASS

ECLASS-13.0	27242208

ETIM

ETIM 9.0	EC001423

UNSPSC

UNSPSC 21.0	43222600

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	9ae6a00b-07c9-4c16-a83d-d5932c6a7119

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