

# PSI-REP-RS485W2 - Repeater



2313096

<https://www.phoenixcontact.com/in/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	DNC
Product key	DNC122
Catalog page	Page 423 (C-6-2019)
GTIN	4046356098816
Weight per piece (including packing)	260.1 g
Weight per piece (excluding packing)	240.8 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	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 <sub>rms</sub> (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

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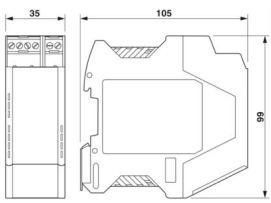
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Signal	Modbus
Transmission channels	2 (1/1), TD, RD, half duplex

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 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Single-wire/terminal point, flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
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

## 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)

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Permissible humidity (operation)

10 % ... 95 % (non-condensing)

## Approvals

### CE

Certificate

CE-compliant

### ATEX

Identification

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 21.00013X

### 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

Noise immunity

EN 61000-4-2

Electromagnetic compatibility

Conformance with EMC Directive 2014/30/EU

Noise emission

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)

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Input	$\pm 2 \text{ kV}$
Signal	$\pm 2 \text{ kV}$
Comments	Criterion B

## Surge current load (surge)

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

Input	$\pm 0.5 \text{ kV}$
Signal	$\pm 1 \text{ kV}$
Comments	Criterion B

## Conducted interference

Standards/regulations	EN 61000-4-6
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## 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	in accordance with VW-AUDI-Seat central standard P-VW 3.10.7 57 65 0
Standards/regulations	EN 62368

## Mounting

Mounting type	DIN rail mounting
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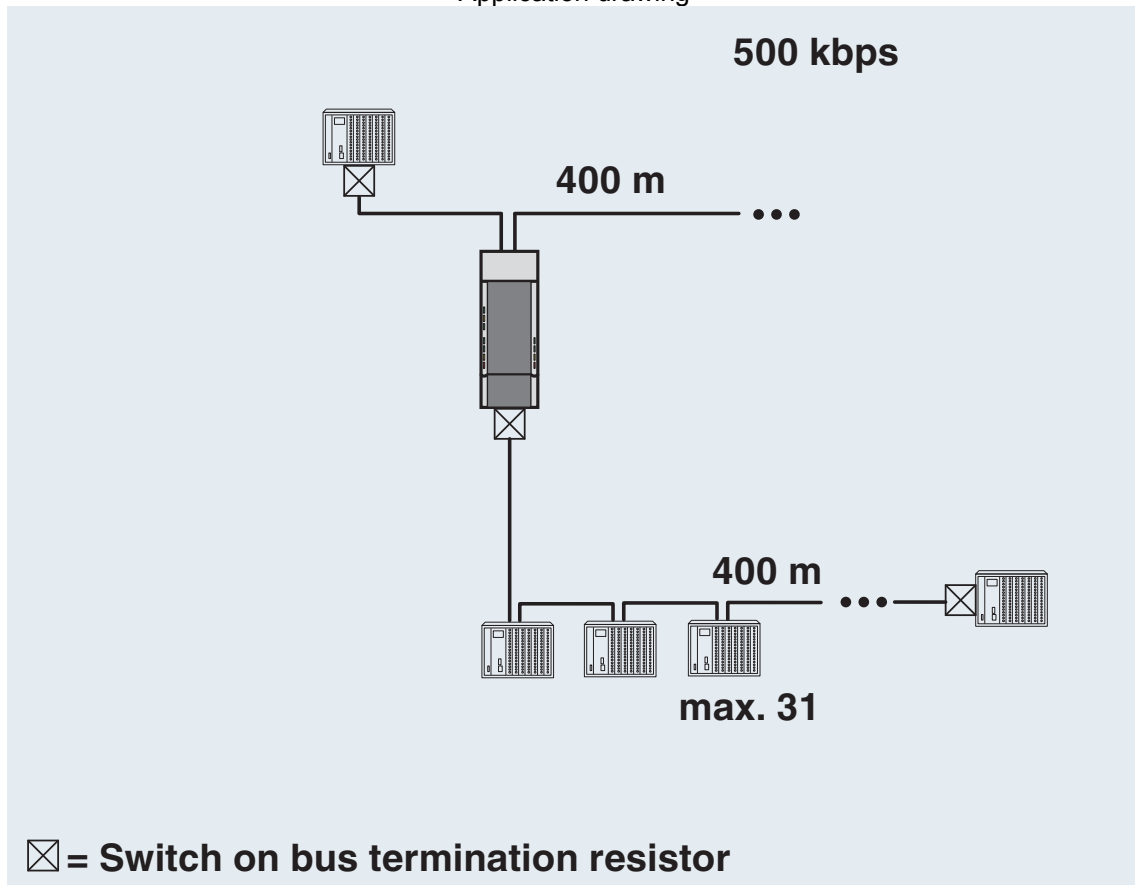
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## Drawings

Application drawing



Branch/bus segmentation

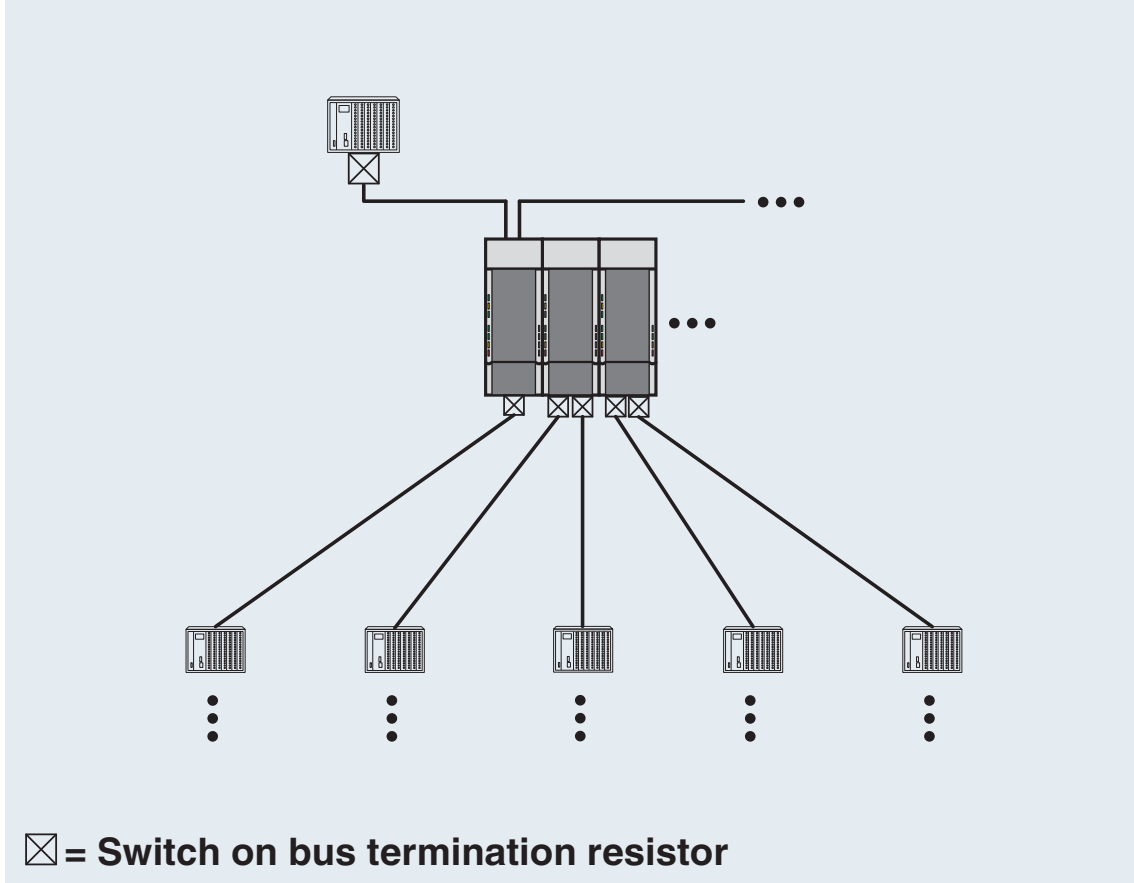
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Application drawing



Star structure

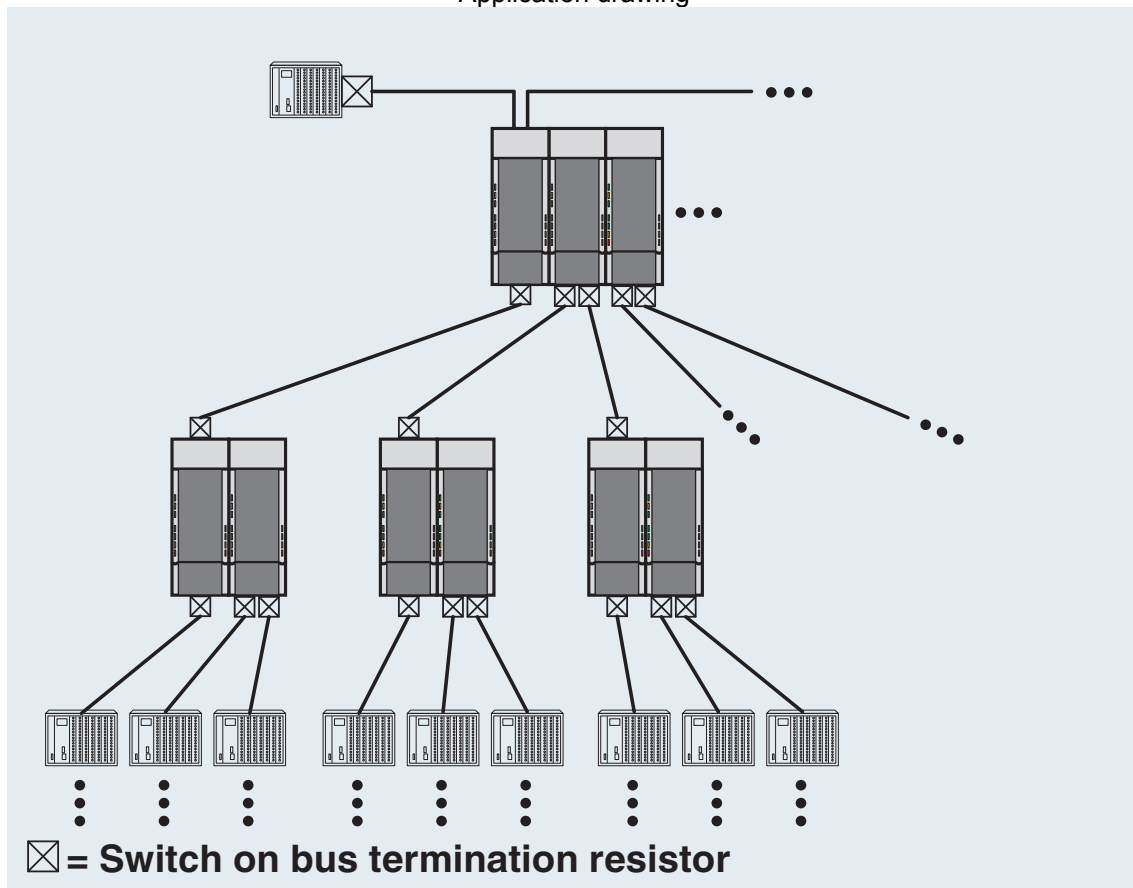
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Application drawing



Tree structure



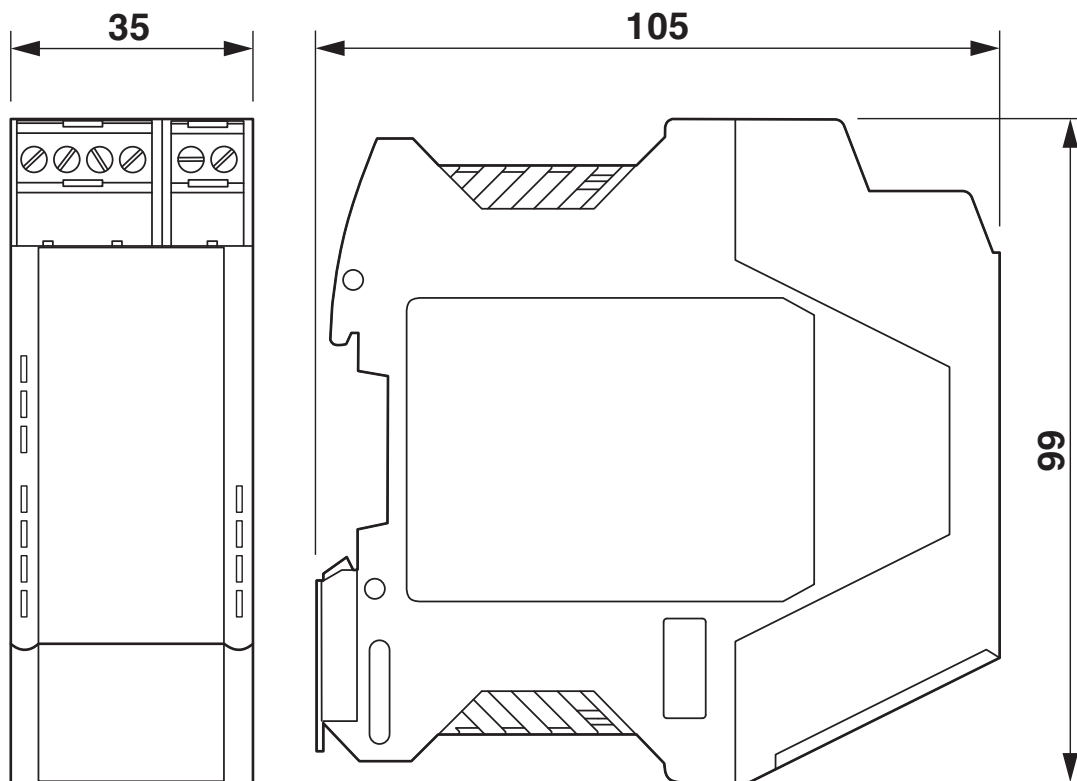
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Dimensional drawing



Housing dimensions

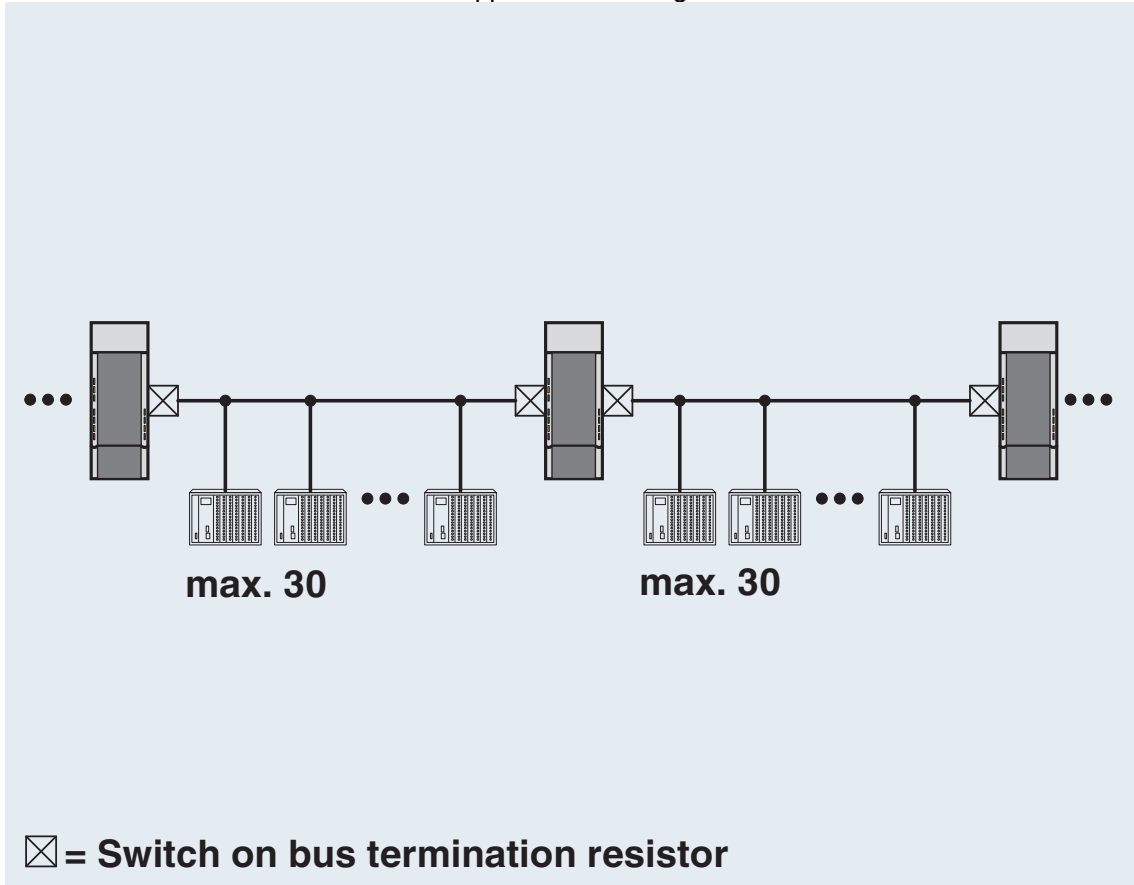
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Application drawing



Line structure

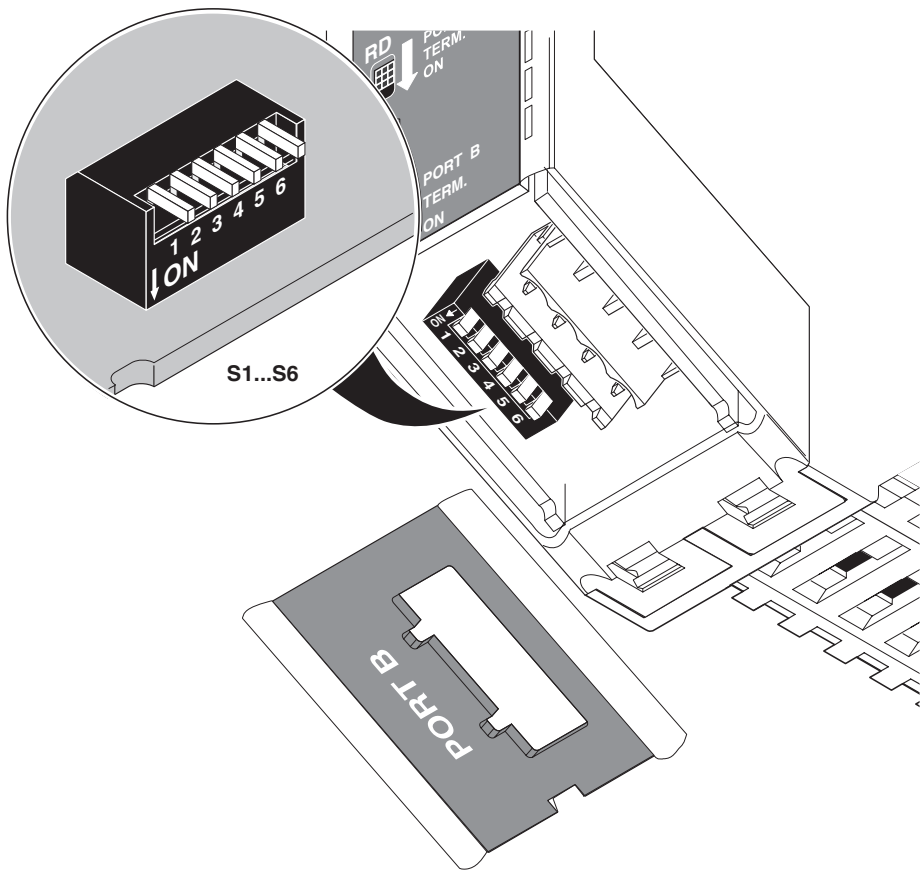
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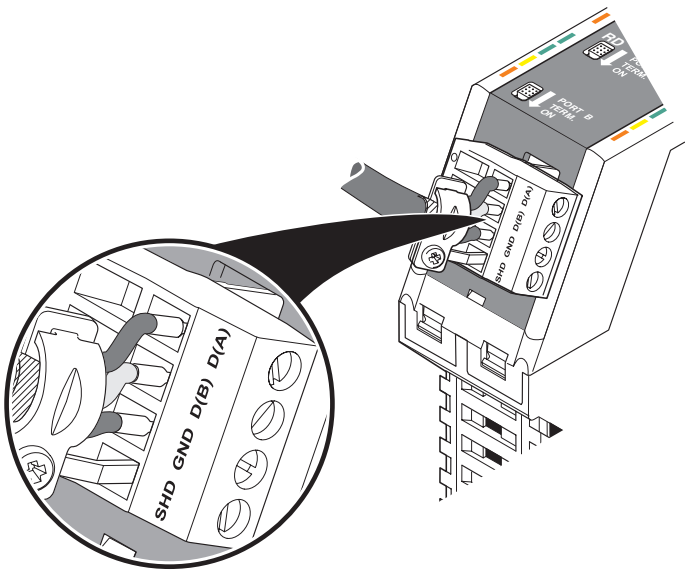
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Schematic diagram



DIP switches

Schematic diagram



Connecting the cables

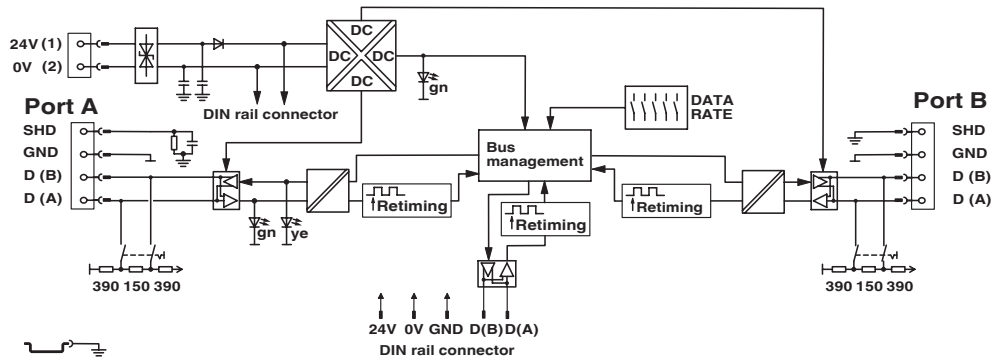
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Block diagram



Basic circuit diagram

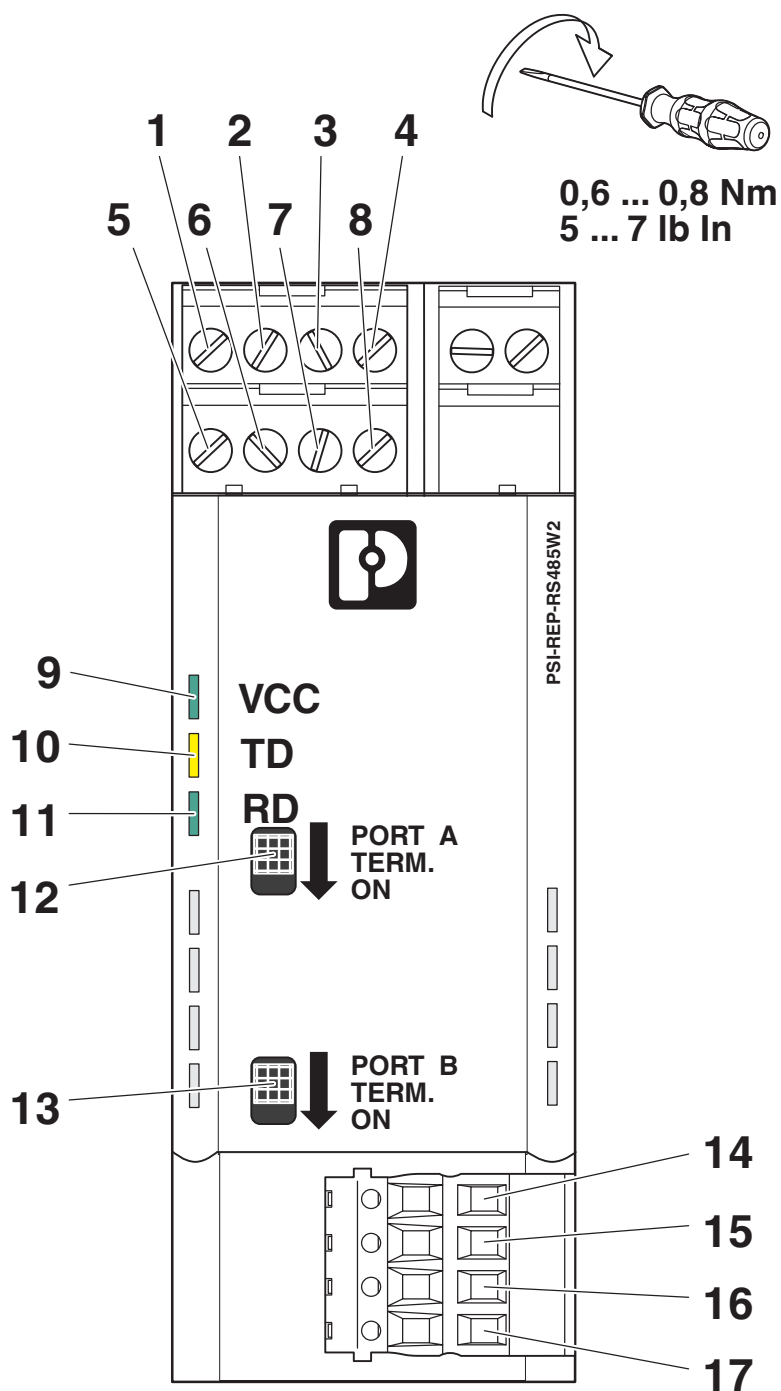
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Schematic diagram



Front view

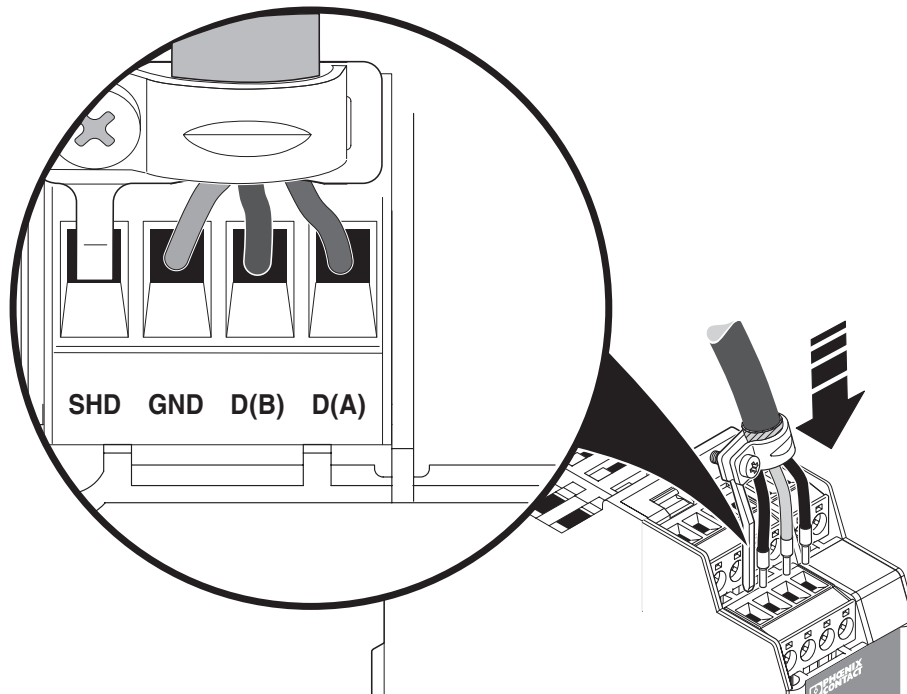
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Schematic diagram



Connecting the cables

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


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## Approvals

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	<b>EAC</b> Approval ID: TR TS_D_01871-19
	<b>UAE-RoHS</b> Approval ID: 23-02-63194
	<b>cULus Listed</b> Approval ID: E238705
	<b>cUL Listed</b> Approval ID: FILE E 199827
	<b>UL Listed</b> Approval ID: FILE E 199827
	<b>IECEX</b> Approval ID: IECEX ULD 21.0013X
	<b>ATEX</b> Approval ID: UL 21 ATEX 2550X
	<b>cULus Listed</b>

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## Classifications

### ECLASS

ECLASS-11.0	27242208
ECLASS-12.0	27242208
ECLASS-13.0	27242208

### ETIM

ETIM 9.0	EC001423
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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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