

# Repeater - PSI-REP-RS485W2 - 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



## Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4046356098816

## Technical data

### Note

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

Caption	Housing dimensions
Width	35 mm
Height	99 mm
Depth	105 mm

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## Technical data

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
	≤ 2000 m (Restrictions for ATEX applications)
Degree of protection	IP20
Noise immunity	EN 61000-4-2

### General

Transmission channels	2 (1/1), TD, RD, half duplex
Bit delay	< 1 bit
Bit distortion, input	max. ± 35 %
Bit distortion, output	< 6.25 %
Electrical isolation	VCC // TBUS // RS-485 (A) // RS-485 (B)
Test voltage data interfaces	1.5 kV
Test voltage data interface/power supply	1.5 kV <sub>rms</sub> (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011
Net weight	240.8 g
Housing material	PA 6.6-FR
Color	green
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))
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%)

### Power supply

Nominal supply voltage	24 V DC (With UL approval)
Supply voltage range	18 V DC ... 30 V DC (via pluggable COMBICON screw terminal block)
Typical current consumption	75 mA (24 V DC #)

### Interfaces

Interface 1	RS-485 interface, in acc. with EIA/TIA-485, DIN 66259-4/RS-485 2-wire
Connection method	Pluggable screw connection
File format/coding	UART (11/10 bit switchable; NRZ)
Data direction switching	Automatic control, min. station response time 2 bits
Transmission medium	2-wire twisted pair, shielded

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## Technical data

### Interfaces

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
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12

### Conformance/approvals

Designation	CE
Identification	CE-compliant
Designation	EAC
Identification	EAC
Designation	ATEX
Identification	# II 3 G Ex nA IIC T4 Gc X
Additional text	Please follow the special installation instructions in the documentation!
Designation	UL, USA/Canada
Identification	508 Recognized
	Class I, Zone 2, AEx nA IIC T6
	Class I, Zone 2, Ex nA IIC T6 Gc X
	Class I, Div. 2, Groups A, B, C, D
Designation	Corrosive gas test
Identification	ISA-S71.04-1985 G3 Harsh Group A

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Type of test	Free fall in acc. with IEC 60068-2-32
Test result	1 m
Type of test	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6
Test result	5g, 10...150 Hz, 2.5 h, in XYZ direction
Type of test	Shock in acc. with EN 60068-2-27/IEC 60068-2-27
Test result	15g, 11 ms period, half-sine shock pulse
Noise emission	EN 55011
Noise immunity	EN 61000-4-2
Free from substances that could impair the application of coating	according to P-VW 3.10.7 57 65 0 VW-AUDI-Seat central standard
Connection in acc. with standard	CUL
Standards/regulations	EN 61000-4-2
Contact discharge	± 6 kV
Standards/regulations	EN 61000-4-3

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### Technical data

#### Standards and Regulations

Frequency range	80 MHz ... 3 GHz
Standards/regulations	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-4-5
Signal	± 1 kV
Standards/regulations	EN 55011
	EN 61000-4-6
Designation	Air clearances and creepage distances
Standards/regulations	DIN EN 50178, DIN EN 60950
Shock	15g in all directions in acc. with IEC 60068-2-27
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz

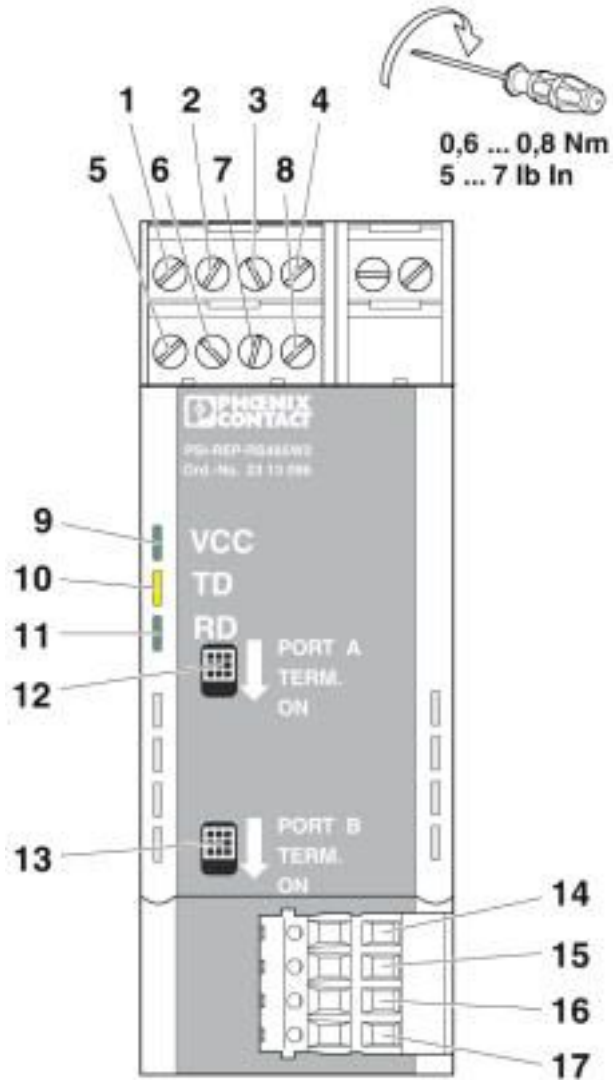
#### Environmental Product Compliance

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

### Drawings

# Repeater - PSI-REP-RS485W2 - 2313096

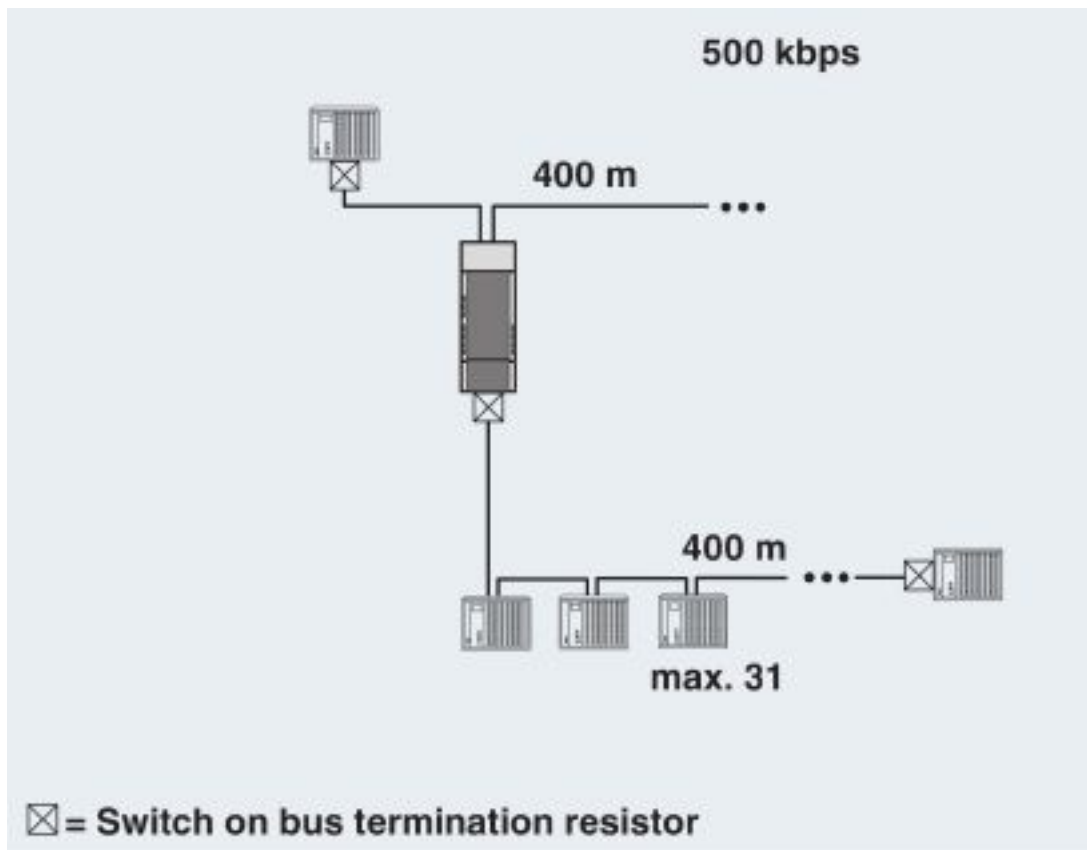
Schematic diagram



Front view

## Repeater - PSI-REP-RS485W2 - 2313096

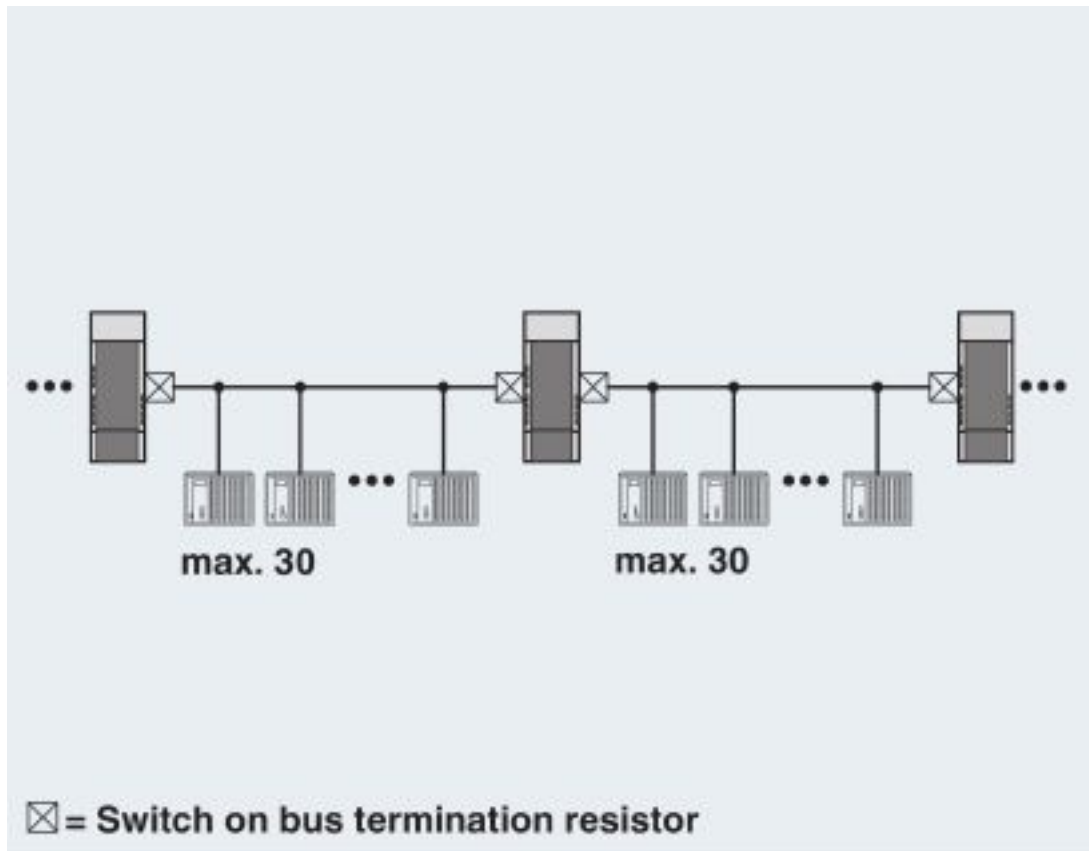
Application drawing



Branch/bus segmentation

## Repeater - PSI-REP-RS485W2 - 2313096

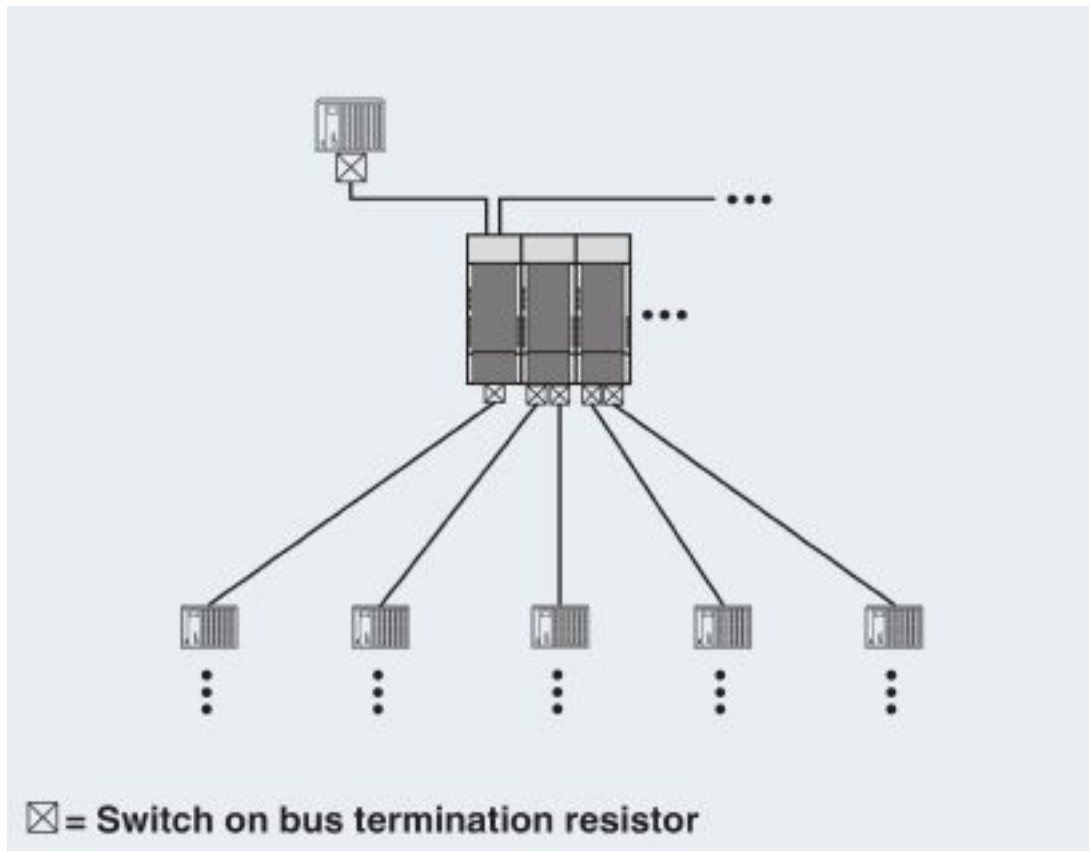
Application drawing



Line structure

## Repeater - PSI-REP-RS485W2 - 2313096

Application drawing

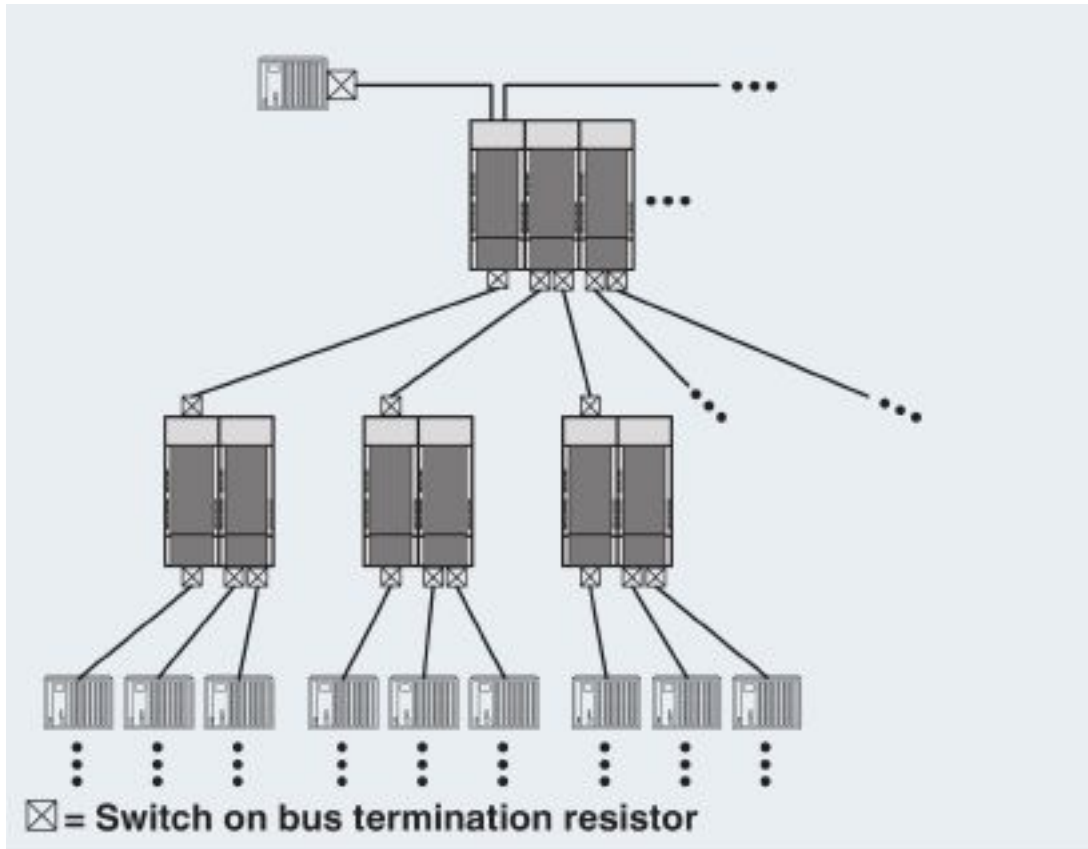


Star structure



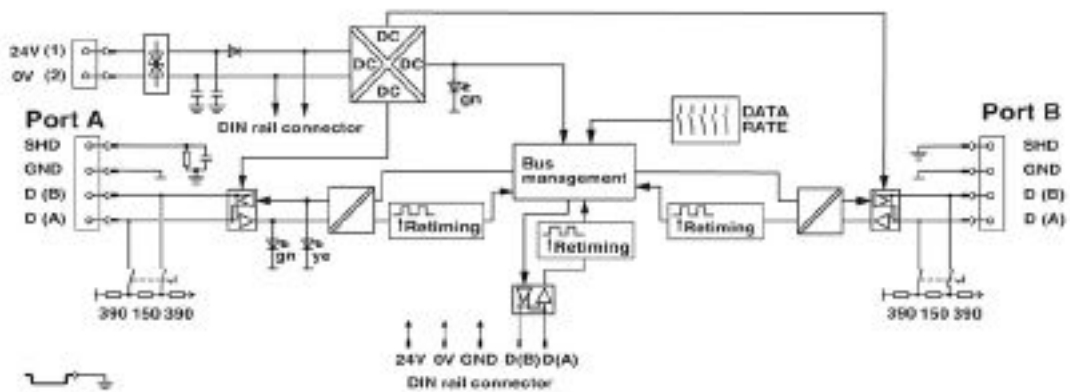
# Repeater - PSI-REP-RS485W2 - 2313096

Application drawing



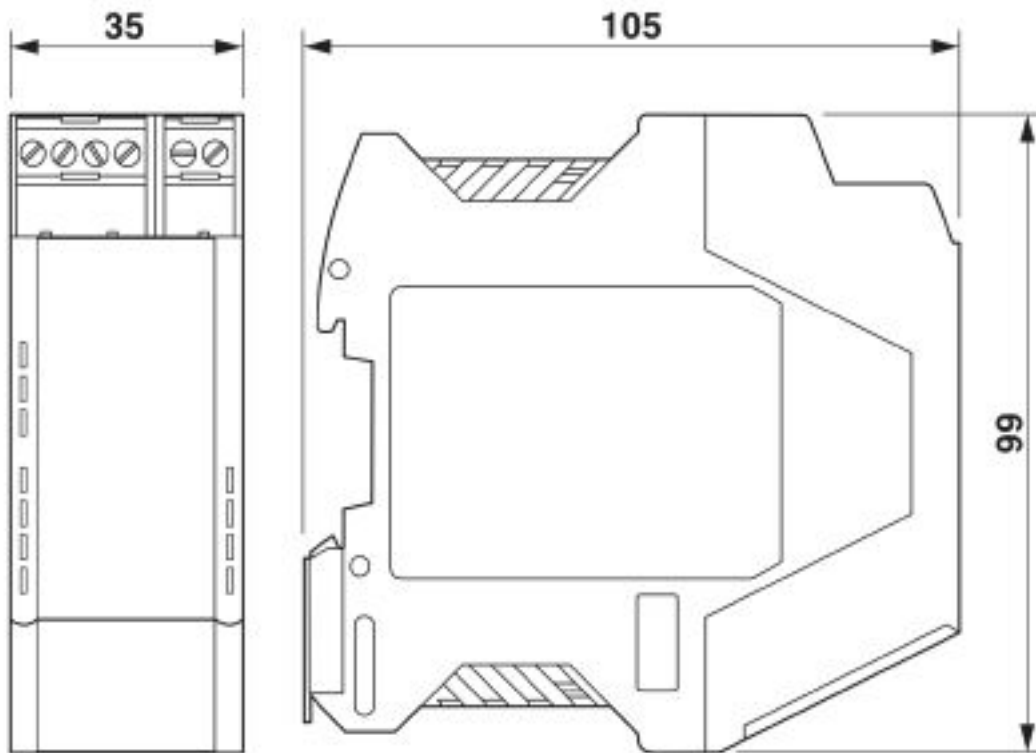
Tree structure

Block diagram



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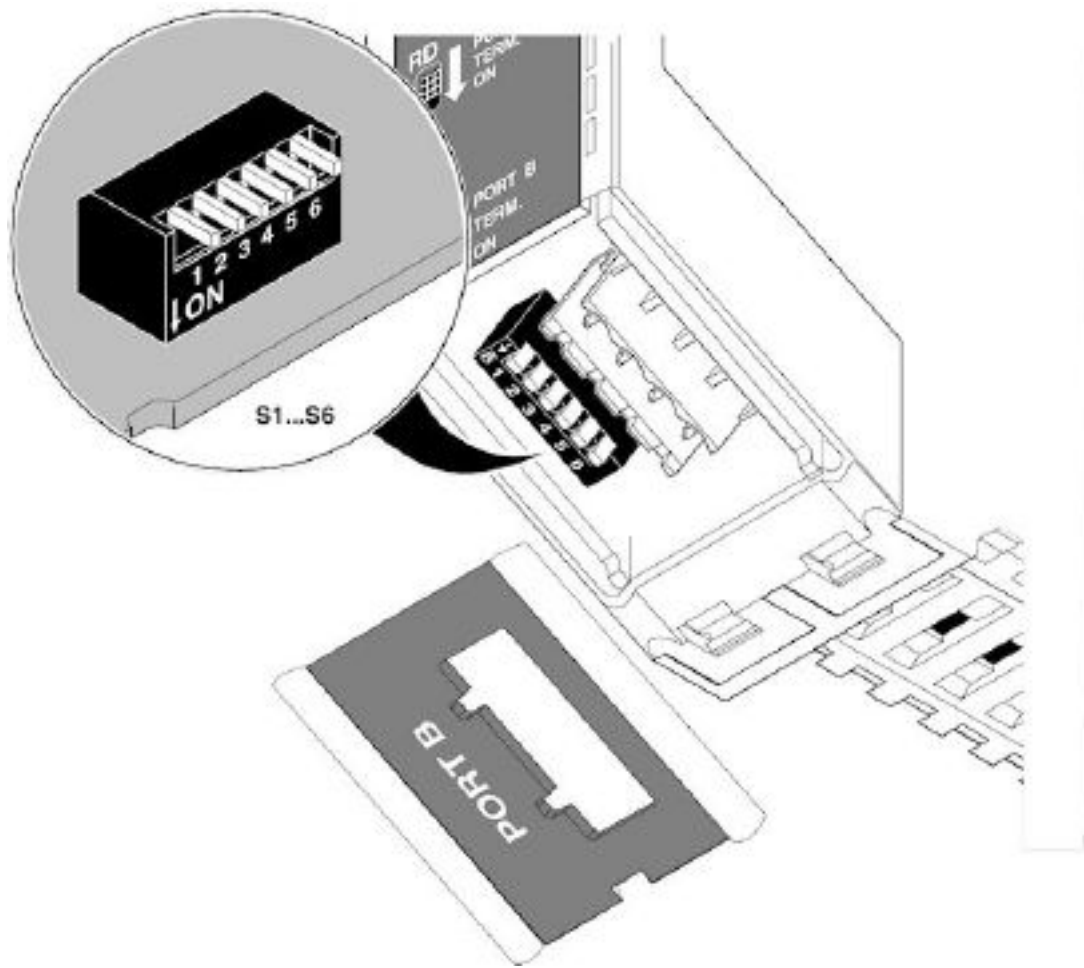
Dimensional drawing



Housing dimensions

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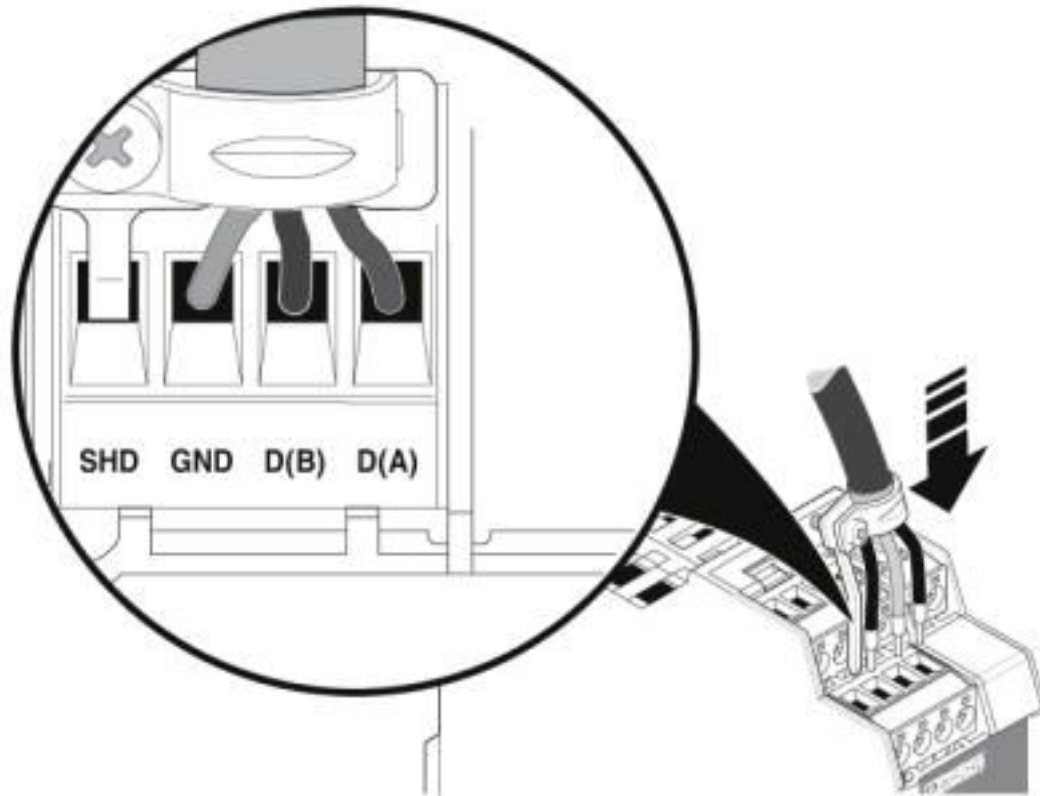
Schematic diagram



DIP switches

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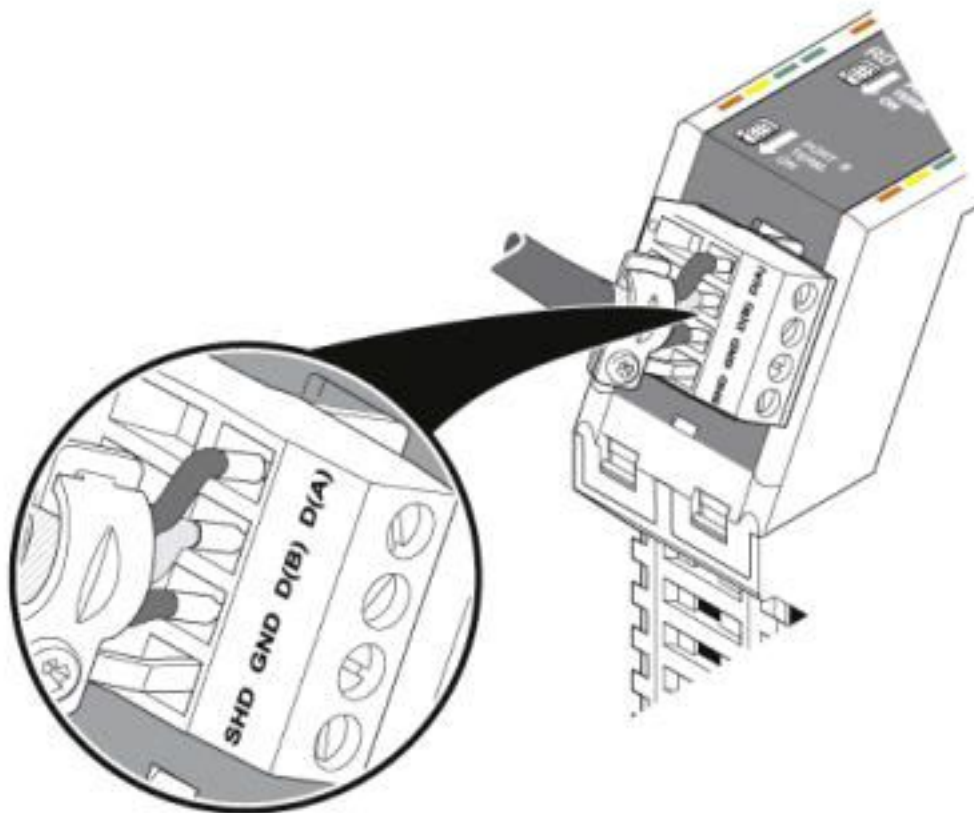
Schematic diagram



Connecting the cables

# Repeater - PSI-REP-RS485W2 - 2313096

Schematic diagram



Connecting the cables

## Classifications

eCl@ss

eCl@ss 10.0.1	19179290
eCl@ss 4.0	27250300
eCl@ss 4.1	27250300
eCl@ss 5.0	27242200
eCl@ss 5.1	27242200
eCl@ss 6.0	19179200
eCl@ss 7.0	19179290
eCl@ss 8.0	19179290
eCl@ss 9.0	19179290

ETIM

ETIM 2.0	EC000698
ETIM 3.0	EC000698
ETIM 4.0	EC000698
ETIM 5.0	EC000310

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## Classifications

### ETIM

ETIM 6.0	EC000310
ETIM 7.0	EC000310

### UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	43222604
UNSPSC 18.0	43222604
UNSPSC 19.0	43222604
UNSPSC 20.0	43222604
UNSPSC 21.0	43222604

## Approvals

### Approvals

#### Approvals

UL Recognized / cUL Recognized / EAC / cULus Recognized

#### Ex Approvals

ATEX / UL Listed / cUL Listed / cULus Listed

### Approval details

UL Recognized		<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 238705
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cUL Recognized		<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 238705
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EAC		EAC-Zulassung
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cULus Recognized	
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## Repeater - PSI-REP-RS485W2 - 2313096

### Accessories

#### Accessories

#### Adapter

#### Connection distributor - PSM PTK - 2760623



Passive RS-485 T-distributor, fitted with one 9-pin D-SUB pin strip and two 9-pin D-SUB socket strips

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#### Connection distributor - PSM PTK-4 - 2799364



Passive RS-485 T-distributor, fitted with one 9-pin D-SUB pin strip and five 9-pin D-SUB socket strips

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#### DIN rail connector

#### DIN rail bus connectors - ME 17,5 TBUS 1,5/PP000-3,81 BK - 2890014



DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 2-pos.

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#### DIN rail bus connectors - ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - 2709561



DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

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#### Media converter

#### FO converters - PSI-MOS-RS485W2/FO 660 E - 2708313



FO converter with integrated optical diagnostics, alarm contact, for RS-485 2-wire bus systems (SUCONET K, Modbus ...) up to 500 kbps, NRZ coding, terminal device with one FO interface (FSMA), 660 nm, for polymer/PCF fiber cable

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## Repeater - PSI-REP-RS485W2 - 2313096

### Accessories

#### FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339



FO converter with integrated optical diagnostics, alarm contact, for RS-485 2-wire bus systems (SUCONET K, Modbus ...) up to 500 kbps, NRZ coding, terminal device with one FO interface (BFOC), 850 nm, for PCF/fiberglass cable (multimode)

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#### FO converters - PSI-MOS-RS485W2/FO1300 E - 2708562



FO converter with integrated optical diagnostics, alarm contact, for RS-485 2-wire bus systems (SUCONET K, MODBUS ...) up to 500 kbps, NRZ coding, termination device with an FO interface (SC-Duplex), 1300 nm, for fiberglass cable

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### Mounting material

#### Shield connection clamp - ME-SAS - 2853899



Shield connection clamp for printed circuit terminal block

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### Power supply

#### Power supply unit - MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983



Primary-switched MINI POWER supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A

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### Screwdriver tools

#### Screwdriver - SZF 1-0,6X3,5 - 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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### Terminal resistor



## Repeater - PSI-REP-RS485W2 - 2313096

### Accessories

Termination resistor - PSI-TERMINATOR-PB-TBUS - 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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