

# PSI-REP-PROFIBUS/12MB - Repeater



2708863

<https://www.phoenixcontact.com/us/products/2708863>

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Modular repeater for electrical isolation and range increase for PROFIBUS up to 12 Mbps, 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

- Automatic data rate detection or fixed data rate setting via DIP switches
- Suitable for all data rates up to 12 Mbps
- High-quality 4-way isolation between all interfaces
- Bit oversampling for reliable detection of sporadic disturbances
- Bit retiming for unrestricted cascading of devices
- Filtering of faulty telegrams based on start delimiter detection
- Can be combined with PSI-MOS FO converters in a modular way thanks to DIN rail connectors

## Commercial Data

Item number	2708863
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DN11
Product Key	DNC121
Catalog Page	Page 422 (C-6-2019)
GTIN	4046356078993
Weight per Piece (including packing)	232.3 g
Weight per Piece (excluding packing)	212.4 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	1638 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	812 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	340 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)
MTBF	1136 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	238 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))

### Electrical properties

Electrical isolation	VCC // TBUS // PROFIBUS (A) // PROFIBUS (B)
Maximum power dissipation for nominal condition	2.16 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	< 90 mA (24 V DC ...)
Max. current consumption	≤ 2 A (For operation in a joining station, via the DIN rail connector)

### Output data

#### Switching

Output name	Relay output
Output description	Alarm output
Number of outputs	1
Maximum switching voltage	60 V DC (Resistive Load, General Load)
	30 V AC (Resistive load)
	42 V AC (peak, resistive load)
Limiting continuous current	0.46 A

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## Connection data

### Supply

Stripping length	7 mm
Tightening torque	0.6 Nm ... 0.8 Nm

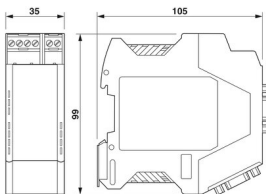
## Interfaces

Bit distortion, input	max. $\pm$ 35 %
Bit distortion, output	< 6.25 %
Bit delay	1 bit (Direct mode)
Signal	PROFIBUS
Transmission channels	2 (1/1), TD, RD, half duplex

Data: PROFIBUS acc. to IEC 61158, RS-485 2-conductor

Transmission speed	9.6/19.2/45.45/93.75/187.5/500/1500/3000/6000/12000 kbps (can be set manually and automatically)
Connection method	D-SUB-9 female connector
Transmission length	$\leq$ 1200 m (Depends on transmission speed and cable type)
Termination resistor	external
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section, rigid max.	2.5 mm <sup>2</sup>
Conductor cross section, rigid min.	0.2 mm <sup>2</sup>
Max. AWG conductor cross section, flexible	14
Min. AWG conductor cross section, flexible	24
Single-wire/terminal point, rigid AWG max.	14
Single-wire/terminal point, rigid AWG min.	24
Transmission medium	2-wire twisted pair, shielded
File format/coding	UART (11 Bit, NRZ)
Data direction switching	Automatic control, min. station response time 2 bits
Output nominal voltage	5 V DC $\pm$ 5 %
Output current	50 mA

## Dimensions

Dimensional drawing	
Width	35 mm
Height	99 mm
Depth	105 mm

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## Material specifications

Material Housing	PA 6.6-FR
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## 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)	30 % ... 95 % (non-condensing)

## Approvals

### CE

Certificate	CE-compliant
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### 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
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### KC approval for South Korea

Certificate	MSIP-REI-PCK-2708863
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### Corrosive gas test

Identification	ISA-S71.04-1985 G3 Harsh Group A
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## 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
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## Electrostatic discharge

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

## Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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## 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
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## Fast transients (burst)

Input	± 2 kV
Signal	± 2 kV
Comments	Criterion B

## Surge current load (surge)

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

Input	± 0.5 kV
Signal	± 1 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

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## Mounting

Mounting type	DIN rail mounting
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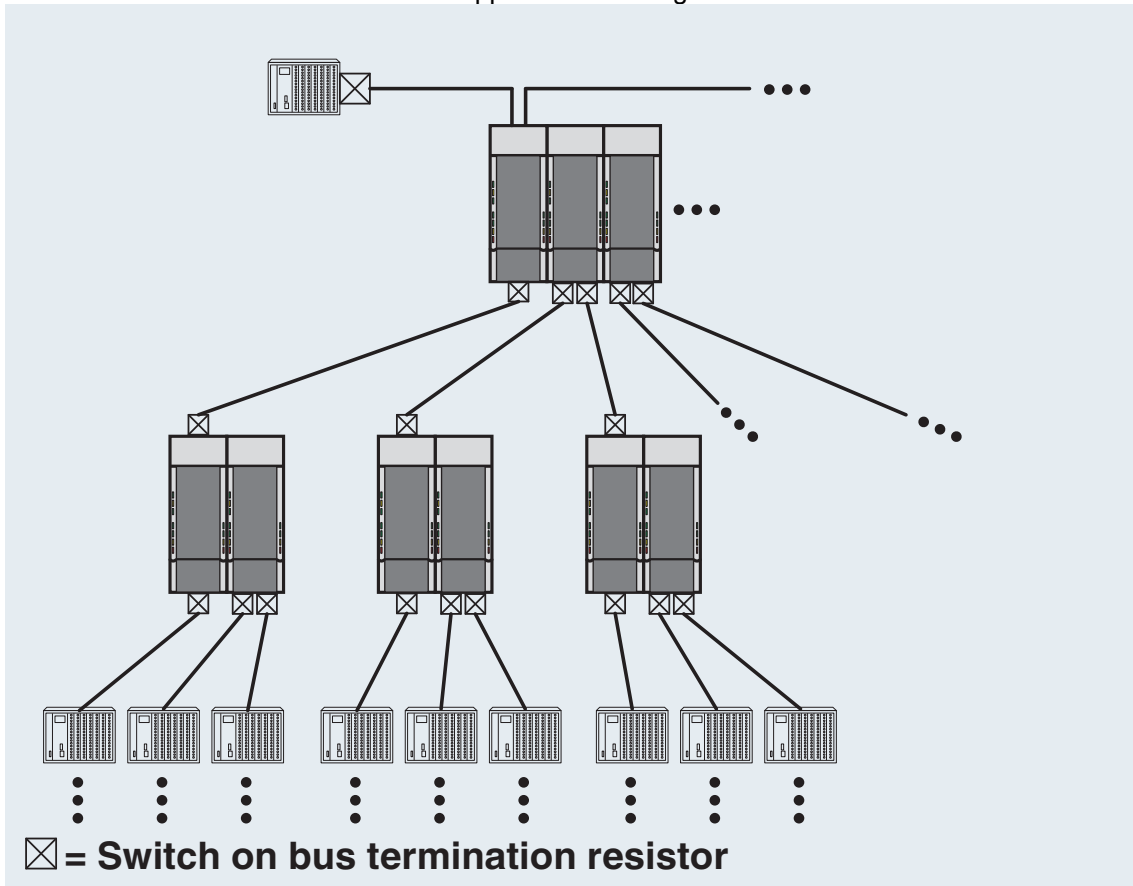
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## Drawings

Application drawing



Tree structure

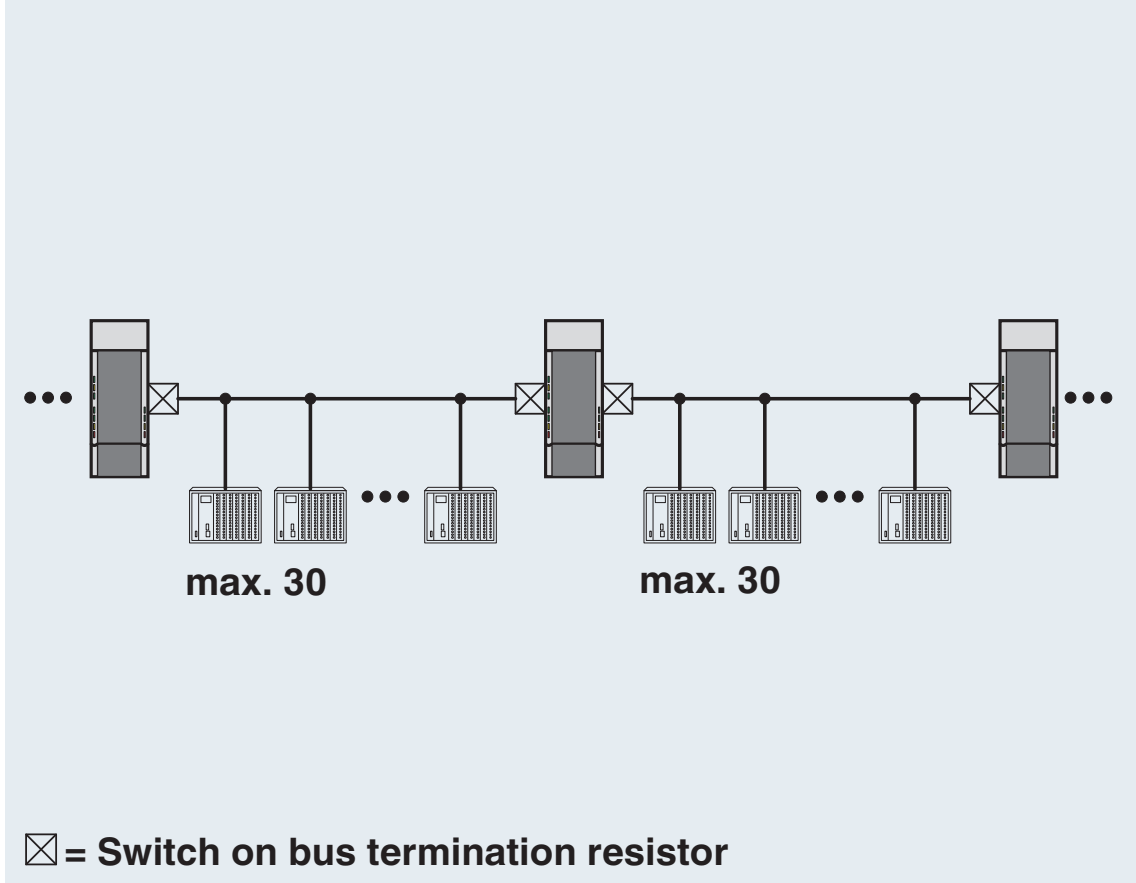
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Application drawing



Line structure



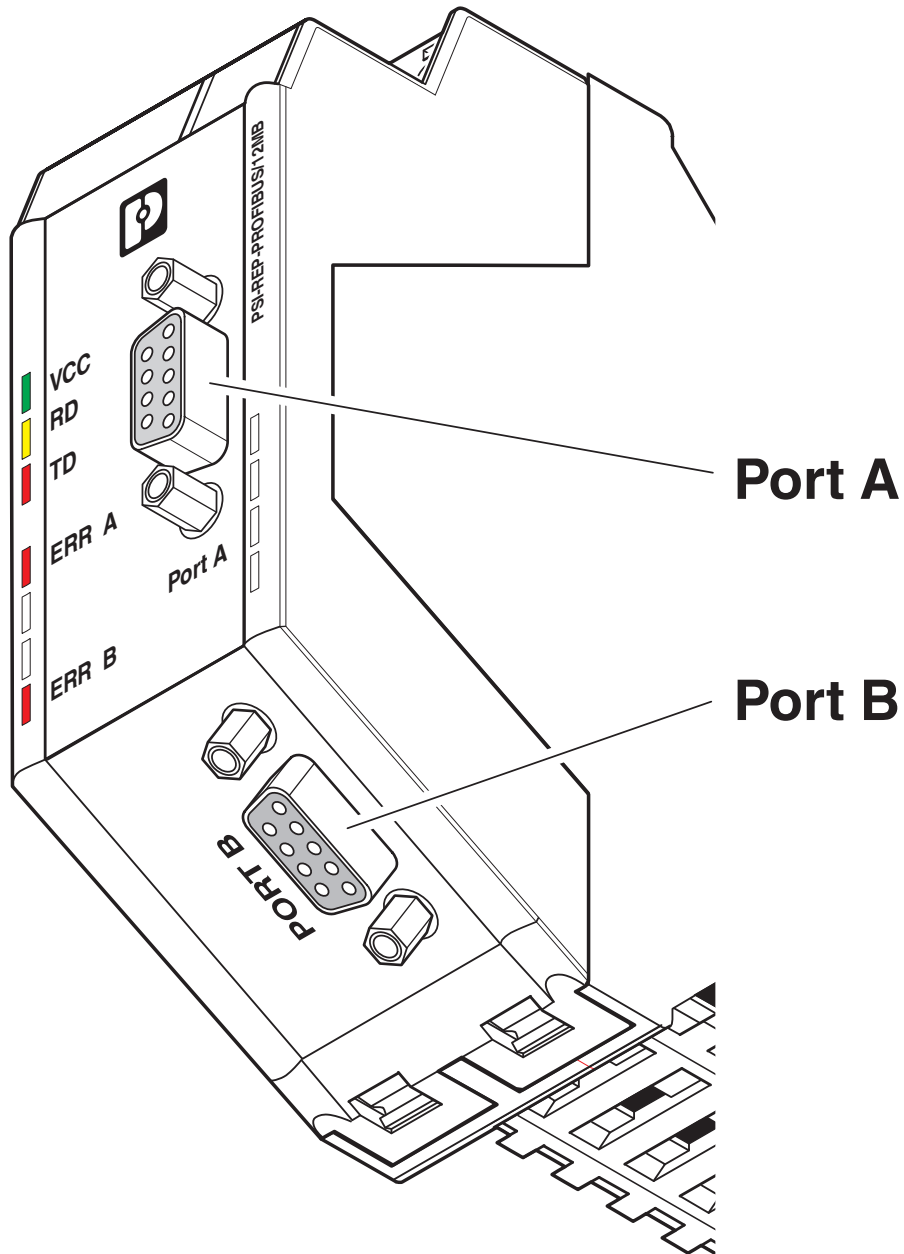
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Schematic diagram



Device connections

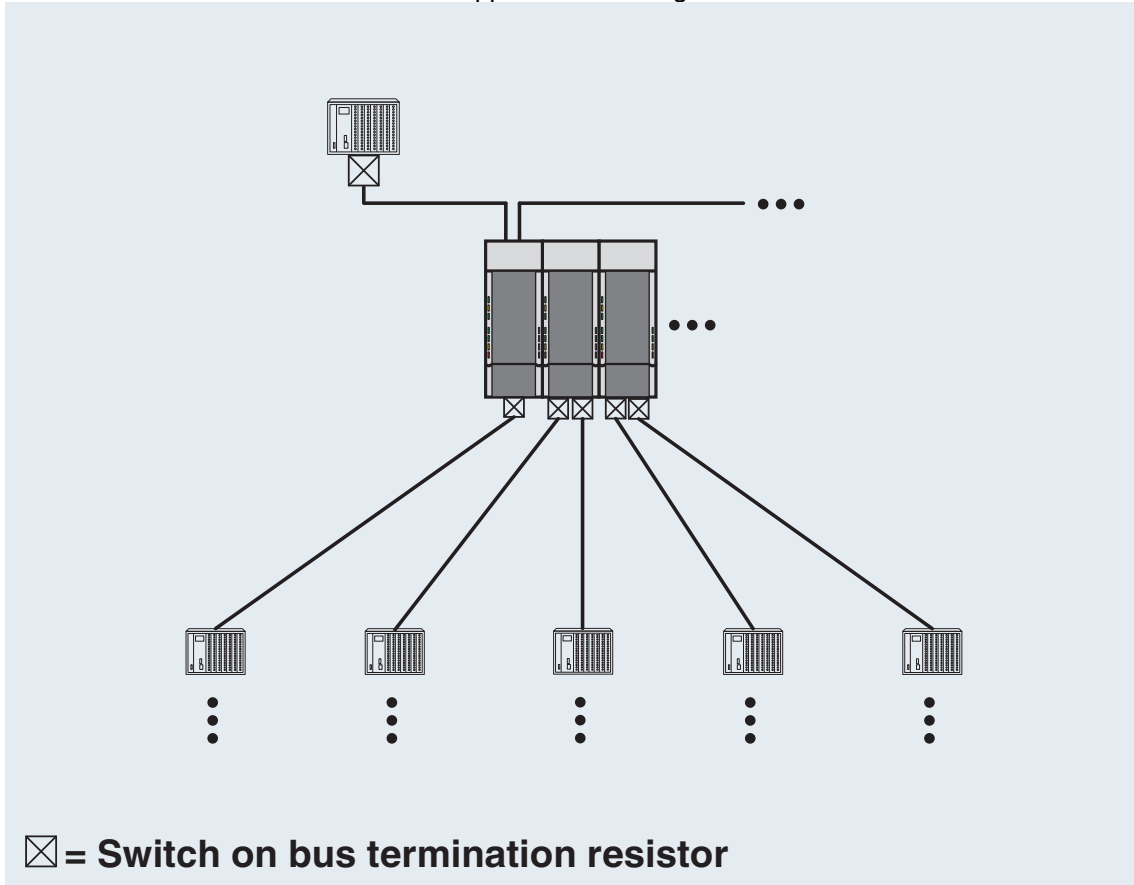
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Application drawing



Star structure

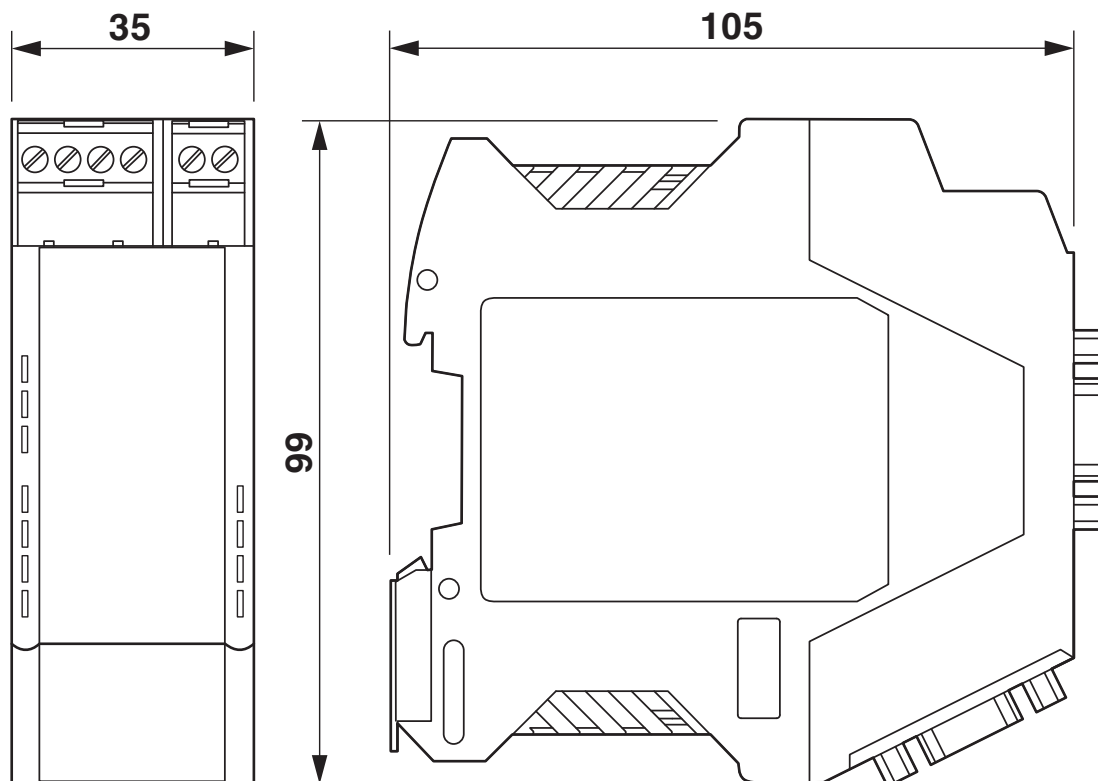
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Dimensional drawing



Housing dimensions

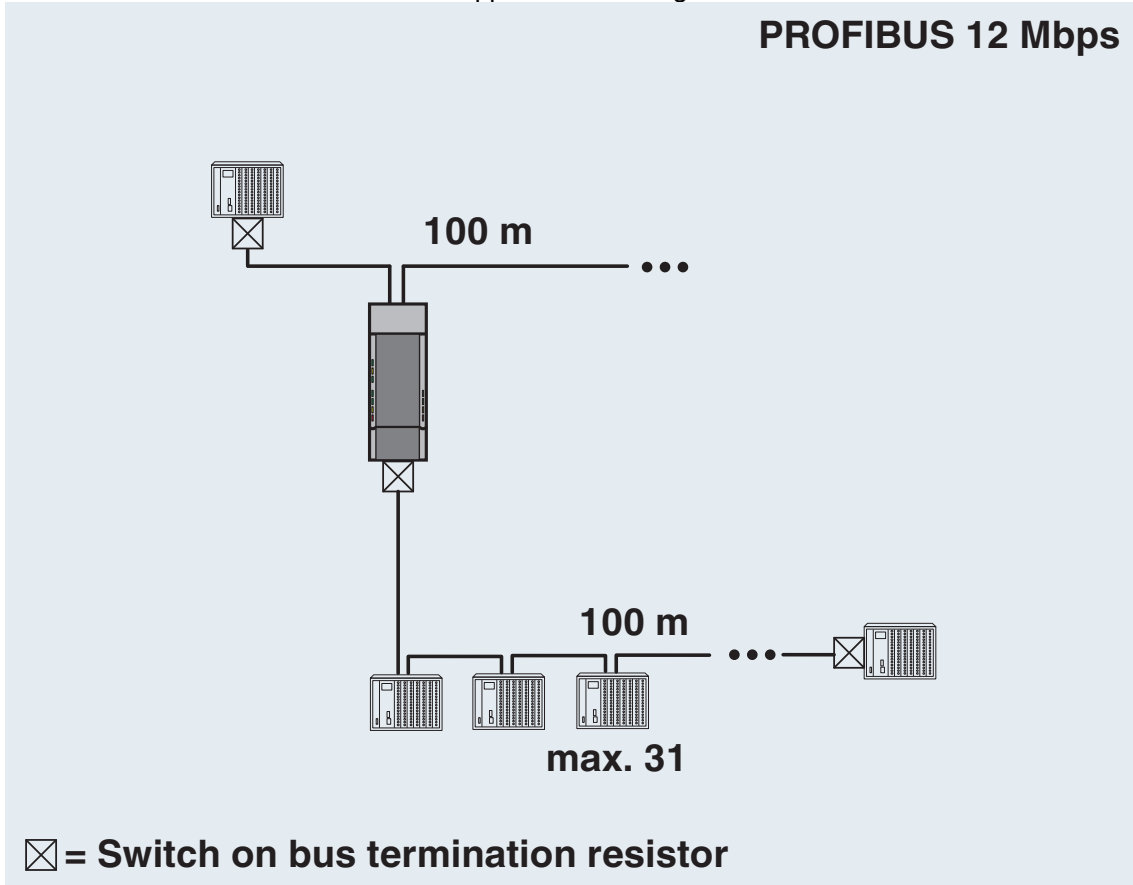
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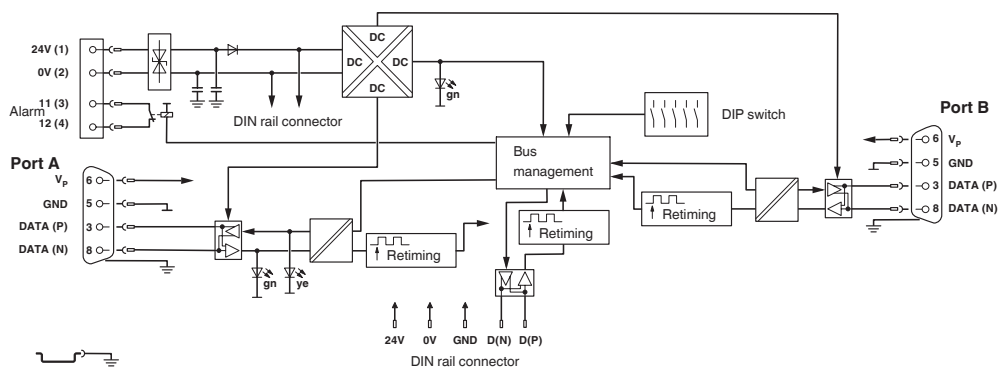
<https://www.phoenixcontact.com/us/products/2708863>

Application drawing



Branch line

Block diagram



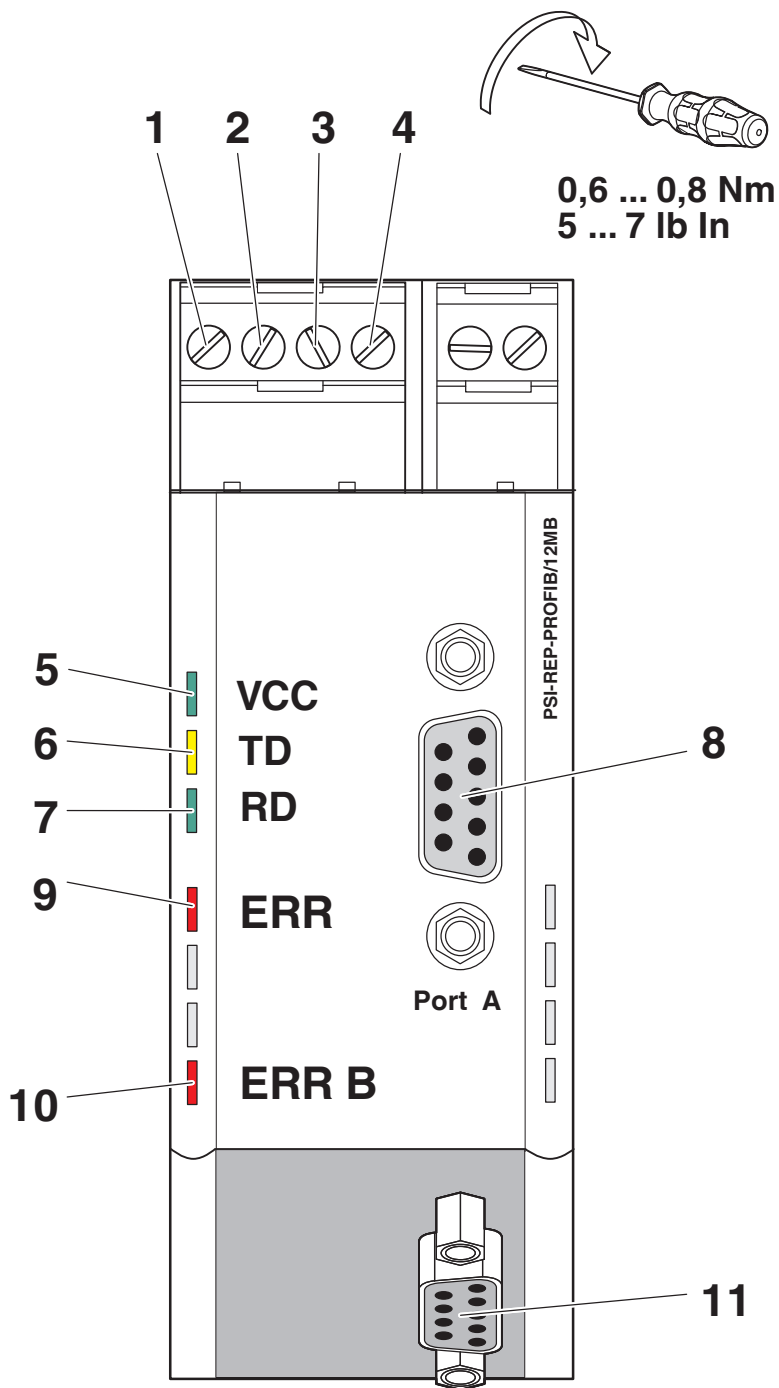
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Schematic diagram



Front view

# PSI-REP-PROFIBUS/12MB - Repeater



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2708863>



**EAC**

Approval ID: TR TS\_D\_01871-19



**KC**

Approval ID: MSIP-REI-PCK-2708863



**UL Listed**

Approval ID: FILE E 238705



**cUL Listed**

Approval ID: FILE E 238705



**ATEX**

Approval ID: PxCIF06ATEX2708863X



**cUL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827



**IECEx**

Approval ID: IECEx ULD 21.0013X



**ATEX**

Approval ID: UL 21 ATEX 2550X

**cULus Listed**

**cULus Listed**

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## Classifications

### ECLASS

ECLASS-11.0	19179090
ECLASS-12.0	19179090
ECLASS-13.0	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

### PSM-CABLE-PROFIB/FC - Bus system cable

2744652

<https://www.phoenixcontact.com/us/products/2744652>



By the meter, Bus system cable, PROFIBUS (12 Mbps), shielded, PVC FR VI/PVC, violet, 2-wire (1x2xAWG22/1), color single wire: red, green, cable length: Free entry (1.0 ... 1000.0 m)

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### QUINT4-SYS-PS/1AC/24DC/2.5/SC - Power supply unit

2904614

<https://www.phoenixcontact.com/us/products/2904614>



Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

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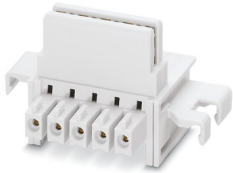
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## ME 17,5 TBUS 1,5/ 5-ST-3,81 KMGY - DIN rail bus connectors

2713645

<https://www.phoenixcontact.com/us/products/2713645>



DIN rail connector, color: light grey, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

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## PSI-TERMINATOR-PB-TBUS - Termination resistor

2702636

<https://www.phoenixcontact.com/us/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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## SUBCON-PLUS-PROFIB/90/P/SC - D-SUB bus connector

2313708

<https://www.phoenixcontact.com/us/products/2313708>



D-SUB connector, 9-pos., male connector, 90° cable entry, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

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## SUBCON-PLUS-PROFIB/P/SC2 - D-SUB bus connector

2708245

<https://www.phoenixcontact.com/us/products/2708245>



D-SUB connector, 9-pos., male connector, 35° cable entry, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

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## SUBCON-PLUS-PROFIB/90/PG/IDC - D-SUB bus connector

2313685

<https://www.phoenixcontact.com/us/products/2313685>



D-SUB connector, 9-pos., male connector, 90° cable entry, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; IDC terminal block connection

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## SUBCON-PLUS-PROFIB/AX/M12 - D-SUB bus connector

2902321

<https://www.phoenixcontact.com/us/products/2902321>



D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two M12 cable glands (B-coded) under 180° (axial). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.

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## SUBCON-PLUS-PROFIB/90X/M12 - D-SUB bus connector

2902729

<https://www.phoenixcontact.com/us/products/2902729>

D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two 90° cable entries M12 (B-coded). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator. Long version; S7-compatible.



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## SUBCON-PLUS-PROFIB/90/M12 - D-SUB bus connector

2902318

<https://www.phoenixcontact.com/us/products/2902318>

D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two 90° M12 cable glands (B-coded). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.



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## SUBCON-PLUS-PROFIB/35/M12 - D-SUB bus connector

2902320

<https://www.phoenixcontact.com/us/products/2902320>



D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two 35° cable entries M12 (B-coded). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.

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## PSI-MOS-PROFIB/FO 660 T - FO converters

2708287

<https://www.phoenixcontact.com/us/products/2708287>



FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two FO interfaces (FSMA), 660 nm, for polymer/PCF fiber cable

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## PSI-MOS-PROFIB/FO 660 E - FO converters

2708290

<https://www.phoenixcontact.com/us/products/2708290>



FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, terminal device with one FO interface (FSMA), 660 nm, for polymer/PCF fiber cable

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## PSI-MOS-PROFIB/FO 850 T - FO converters

2708261

<https://www.phoenixcontact.com/us/products/2708261>



FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two FO interfaces (BFOC), 850 nm, for PCF/fiberglass cable (multimode)

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## PSI-MOS-PROFIB/FO 850 E - FO converters

2708274

<https://www.phoenixcontact.com/us/products/2708274>



FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, terminal device with one FO interface (BFOC), 850 nm, for PCF/fiberglass cable (multimode)

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## PSI-MOS-PROFIB/FO1300 T - FO converters

2708892

<https://www.phoenixcontact.com/us/products/2708892>



Fiber optic converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two fiber optic interfaces (SC-Duplex), 1300 nm, for fiberglass cable



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## PSI-MOS-PROFIB/FO1300 E - FO converters

2708559

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Fiber optic converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, termination device with one fiber optic interface (SC-Duplex), 1300 nm, for fiberglass cable

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## PSI-MODEM-SHDSL/PB - Modem

2313656

<https://www.phoenixcontact.com/us/products/2313656>



Industrial PROFIBUS extender, for point-to-point connections, linear structures, and mixed operation with repeaters and fiber optic converters. Distances of up to 20 km, PROFIBUS data rates of up to 1.5 Mbps via simple copper wires, such as in-house phone lines.

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