

## Repeater - PSI-REP-PROFIBUS/12MB - 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

### Why buy this product

- ✓ 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



### Key Commercial Data

Packing unit	1 STK
GTIN	 4 046356 078993
GTIN	4046356078993
Weight per Piece (excluding packing)	212.400 g
Custom tariff number	85176200
Country of origin	Germany

### Technical data

#### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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#### 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)	30 % ... 95 % (non-condensing)
Altitude	≤ 5000 m (For restrictions see manufacturer's declaration)
	≤ 2000 m (When used in EX zone 2)
Degree of protection	IP20
Noise immunity	EN 61000-4-2

### General

Transmission channels	2 (1/1), TD, RD, half duplex
Bit delay	1 bit (Direct mode)
Bit distortion, input	max. ± 35 %
Bit distortion, output	< 6.25 %
Electrical isolation	VCC // TBUS // PROFIBUS (A) // PROFIBUS (B)
Test voltage data interfaces	1.5 kV
Test voltage data interface/power supply	1.5 kV <sub>rms</sub> (50 Hz, 1 min.)
Standards/regulations	DIN EN 50178, DIN EN 60950
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011
Net weight	212.4 g
Housing material	PA 6.6-FR
Color	green
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))
MTTF	1638 Years (SN 29500 standard, temperature 25 °C, operating cycle 21 % (5 days a week, 8 hours a day))
	812 Years (SN 29500 standard, temperature 40 °C, operating cycle 34.25 % (5 days a week, 12 hours a day))
	340 Years (SN 29500 standard, temperature 40 °C, operating cycle 100 % (7 days a week, 24 hours a day))
Conformance	CE-compliant
ATEX	# II 3 G Ex nA nC IIC T4 Gc X (Please follow the special installation instructions in the documentation!)
UL, USA/Canada	cULus listed UL 508
	Class I, Zone 2, AEx nA nC IIC T6
	Class I, Zone 2, Ex nA nC IIC T6 Gc X
	Class I, Div. 2, Groups A, B, C, D

### 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	< 90 mA (24 V DC #)

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## Technical data

### Serial interface

Interface 1	PROFIBUS acc. to IEC 61158, RS-485 2-conductor
Operating mode	Through PROFIBUS connector
Connection method	D-SUB-9 female connector
File format/coding	UART (11 Bit, NRZ)
Data direction switching	Automatic control, min. station response time 2 bits
Transmission medium	2-wire twisted pair, shielded
Transmission length	≤ 1200 m (Depends on transmission speed and cable type)
Termination resistor	external
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.	14
Output nominal voltage	5 V DC ±5 %
Output current	50 mA

### Digital outputs

Output name	Relay output
Output description	Alarm output
Number of outputs	1
Maximum switching voltage	30 V DC (1 A)
	65 V DC (0.46 A)
	150 V AC (0.46 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
Frequency range	80 MHz ... 3 GHz
Standards/regulations	EN 61000-4-4

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### Technical data

#### Standards and Regulations

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
Conformance	CE-compliant
ATEX	# II 3 G Ex nA nC IIC T4 Gc X
UL, USA/Canada	cULus listed UL 508
	Class I, Zone 2, AEx nA nC IIC T6
	Class I, Zone 2, Ex nA nC IIC T6 Gc X
	Class I, Div. 2, Groups A, B, C, D
Noxious gas test	ISA-S71.04-1985 G3 Harsh Group A

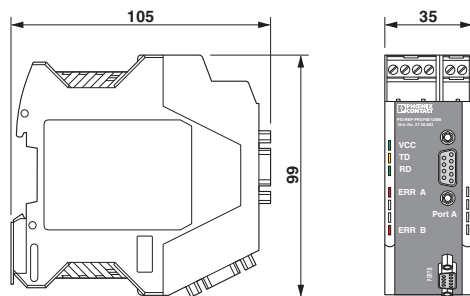
#### Environmental Product Compliance

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

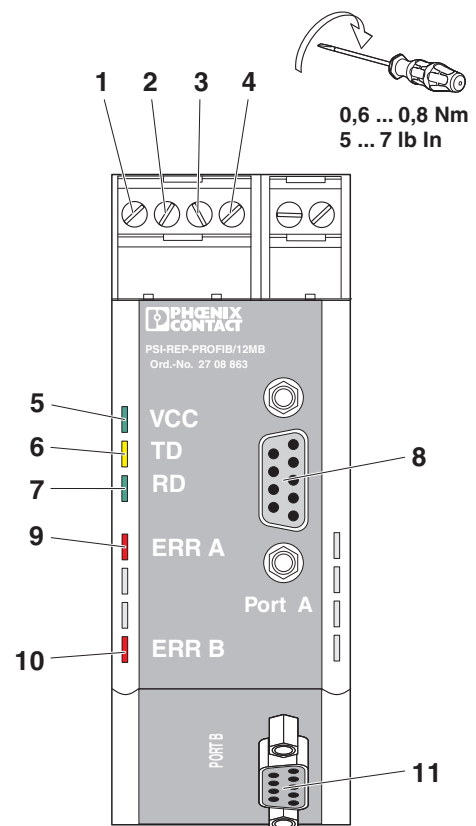
### Drawings

## Repeater - PSI-REP-PROFIBUS/12MB - 2708863

Dimensional drawing

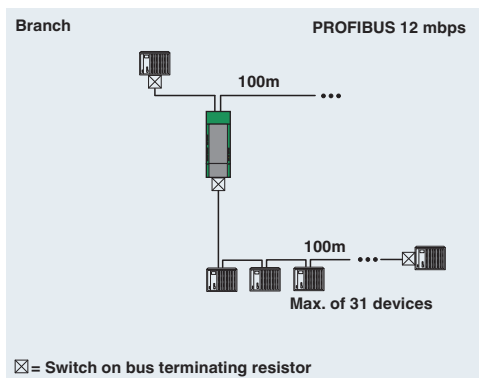


Schematic diagram



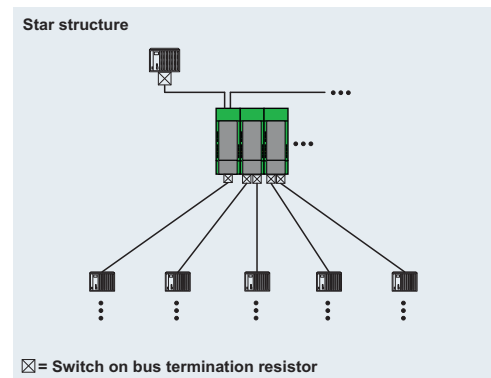
Front view

Application drawing



Branch line

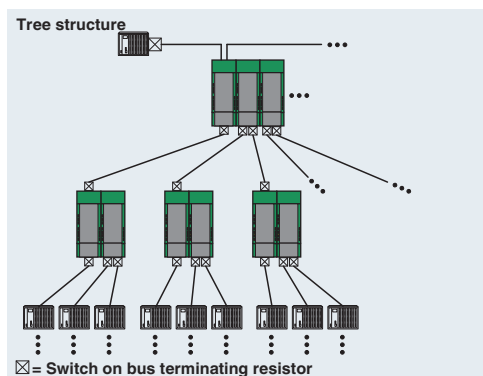
Application drawing



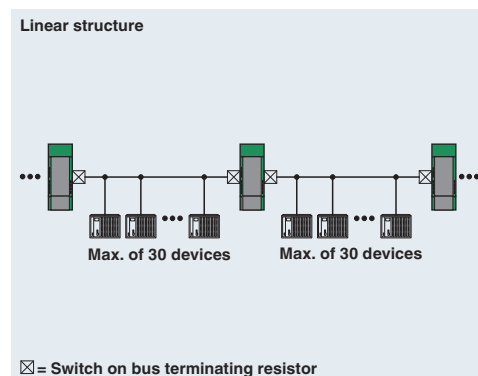
Star structure

## Repeater - PSI-REP-PROFIBUS/12MB - 2708863

Application drawing



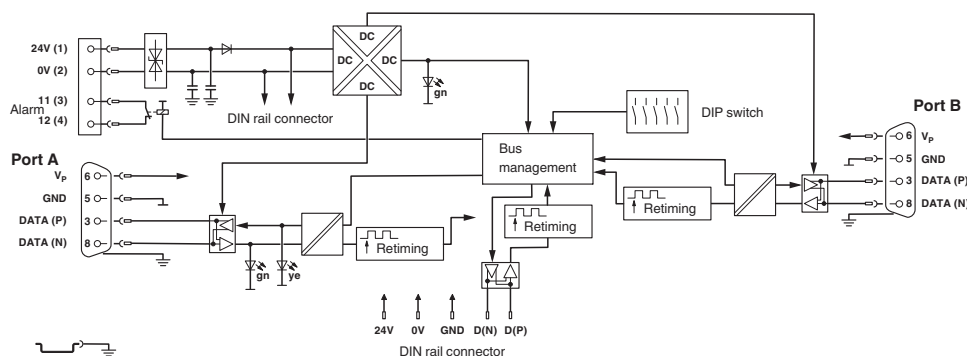
Application drawing



Tree structure

Line structure

Block diagram



## Approvals

### Approvals

#### Approvals

UL Recognized / cUL Recognized / EAC / KC / cULus Recognized

#### Ex Approvals

UL Listed / cUL Listed / UL Listed / cUL Listed / ATEX / cULus Listed

### Approval details

UL Recognized



<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm>

FILE E 238705

## Repeater - PSI-REP-PROFIBUS/12MB - 2708863

### Approvals

cUL Recognized



<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm>

FILE E 238705

EAC



EAC-Zulassung

KC



<http://eng.kcc.go.kr/user/ehpMain.do>

MSIP-REI-  
PCK-2708863

cULus Recognized



<http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm>

### Accessories

#### Accessories

##### Data cable by the meter

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

#### Data plug

##### D-SUB bus connector - SUBCON-PLUS-PROFIB/90/PG/SC - 2313708



D-SUB connector, 9-pos., male connector, cable entry  $< 90^\circ$ , 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

##### D-SUB bus connector - SUBCON-PLUS-PROFIB/PG/SC2 - 2708245



D-SUB connector, 9-pos., male connector, cable entry  $< 35^\circ$ , 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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### Accessories

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#### D-SUB bus connector - SUBCON-PLUS-PROFIB/90/PG/IDC - 2313685



D-SUB connector, 9-pos., male connector, cable entry < 90°, 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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#### D-SUB bus connector - SUBCON-PLUS-PROFIB/AX/M12 - 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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#### D-SUB bus connector - SUBCON-PLUS-PROFIB/90X/M12 - 2902729



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

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#### D-SUB bus connector - SUBCON-PLUS-PROFIB/90/M12 - 2902318



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

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#### D-SUB bus connector - SUBCON-PLUS-PROFIB/35/M12 - 2902320



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

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#### DIN rail connector



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### Accessories

Electronic housing - 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-PROFIB/FO 660 T - 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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FO converters - PSI-MOS-PROFIB/FO 660 E - 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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FO converters - PSI-MOS-PROFIB/FO 850 T - 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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FO converters - PSI-MOS-PROFIB/FO 850 E - 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)

## Repeater - PSI-REP-PROFIBUS/12MB - 2708863

### Accessories

#### FO converters - PSI-MOS-PROFIB/FO1300 T - 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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#### FO converters - PSI-MOS-PROFIB/FO1300 E - 2708559



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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### Modem

#### Modem - PSI-MODEM-SHDSL/PB - 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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### 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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### Terminal resistor

#### 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

