

## 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

### 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



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 046356 078993 |
| GTIN                                 | 4046356078993   |
| Weight per Piece (excluding packing) | 215.000 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 |
|-------------------------|---|

#### Dimensions

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

## Technical data

### Dimensions

|        |        |
|--------|--------|
| Width  | 35 mm  |
| Height | 99 mm  |
| Depth  | 105 mm |

### 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.)   |
| 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   |

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## Technical data

### General

|  |                                       |
|--|---------------------------------------|
|  | 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 #)   |

### 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                                       |

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## Technical data

### Standards and Regulations

|   |  |
|---|--|
| 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   |
| 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                               |

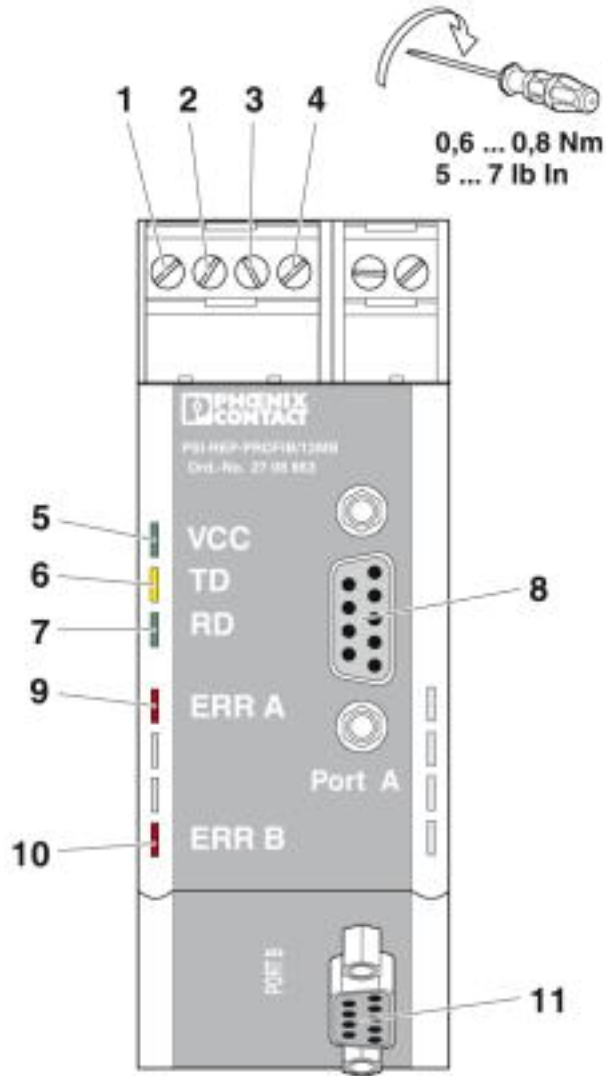
### Environmental Product Compliance

|            |   |
|------------|---|
| 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

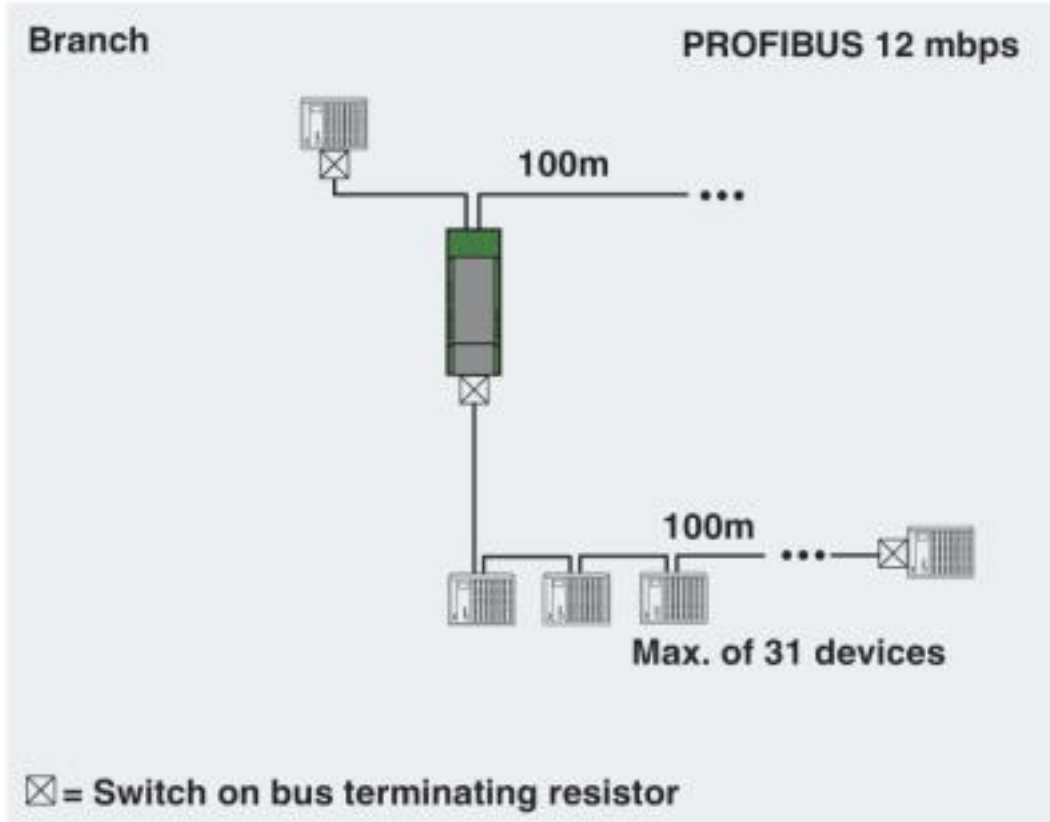
Schematic diagram



Front view

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

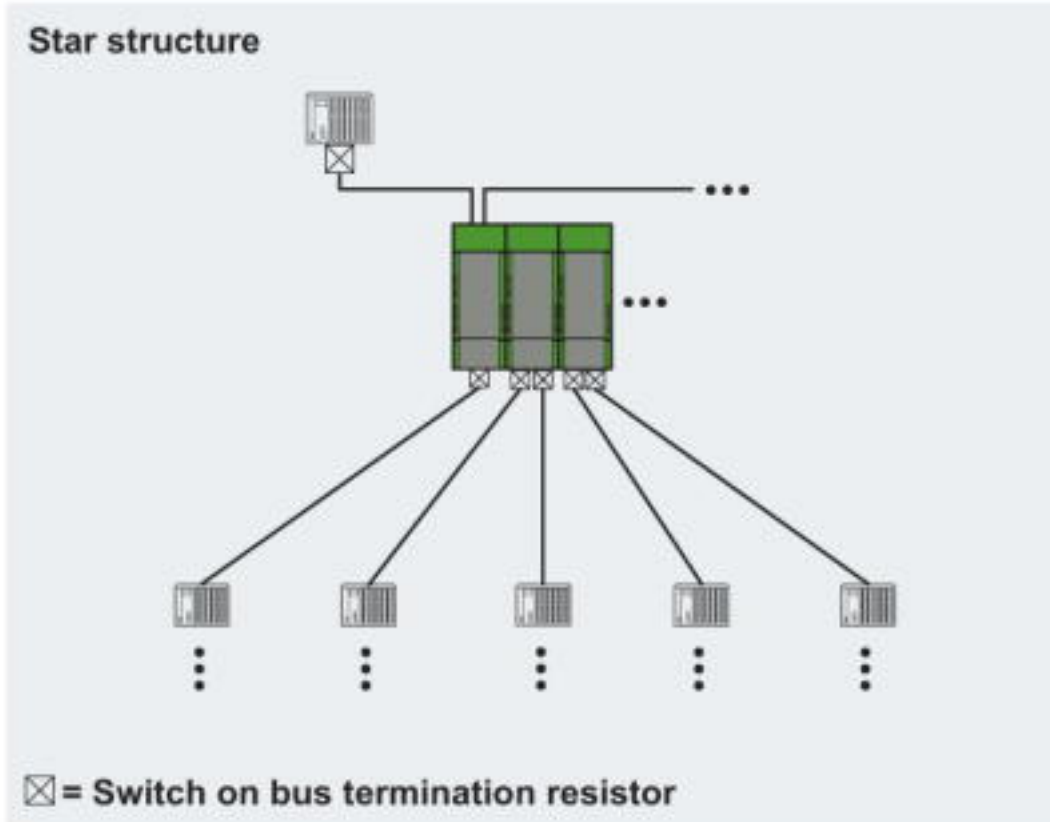
Application drawing



Branch line

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

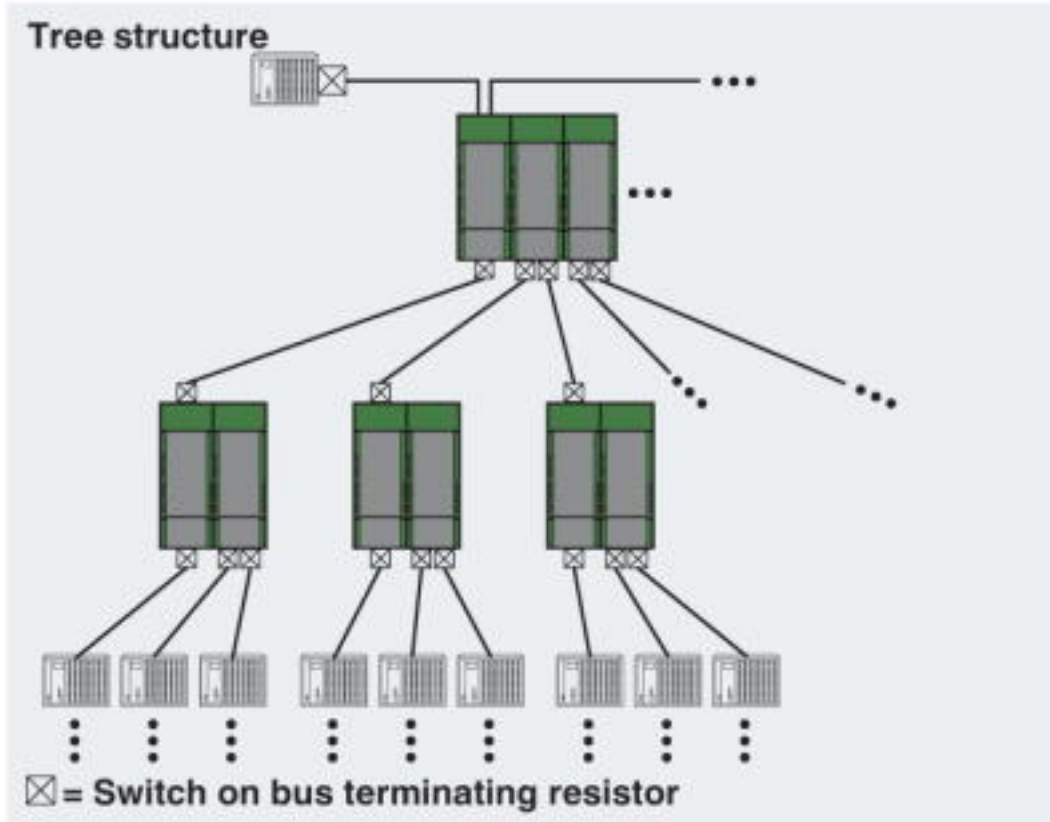
Application drawing



Star structure

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

Application drawing

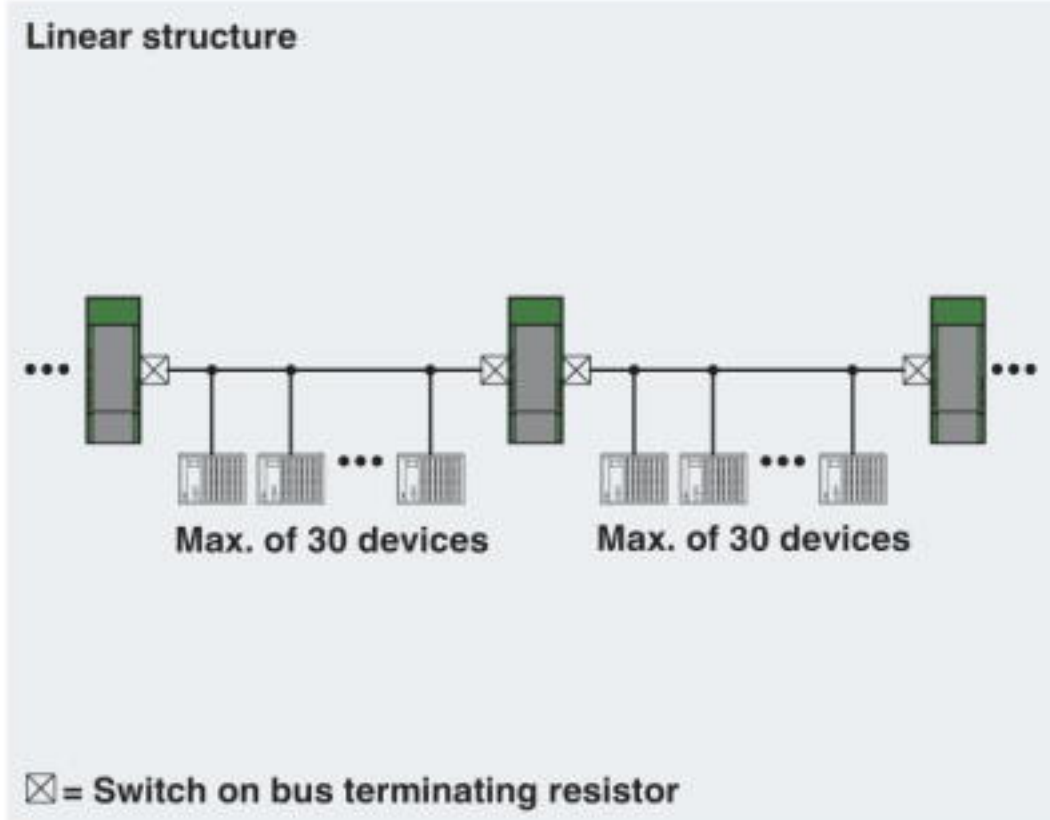


Tree structure



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

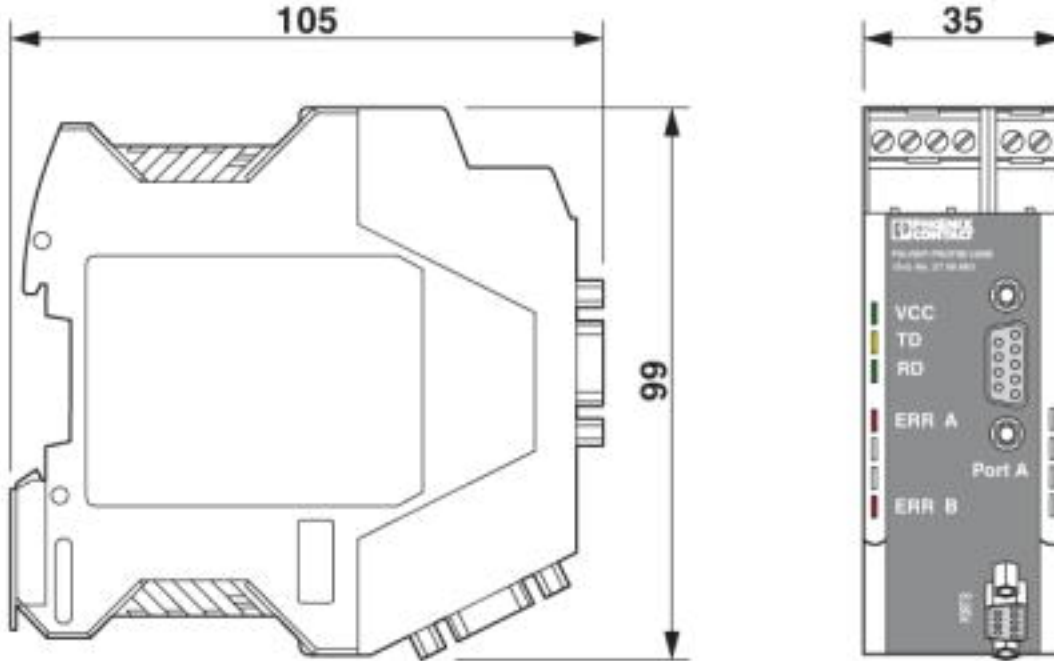
Application drawing



Line structure

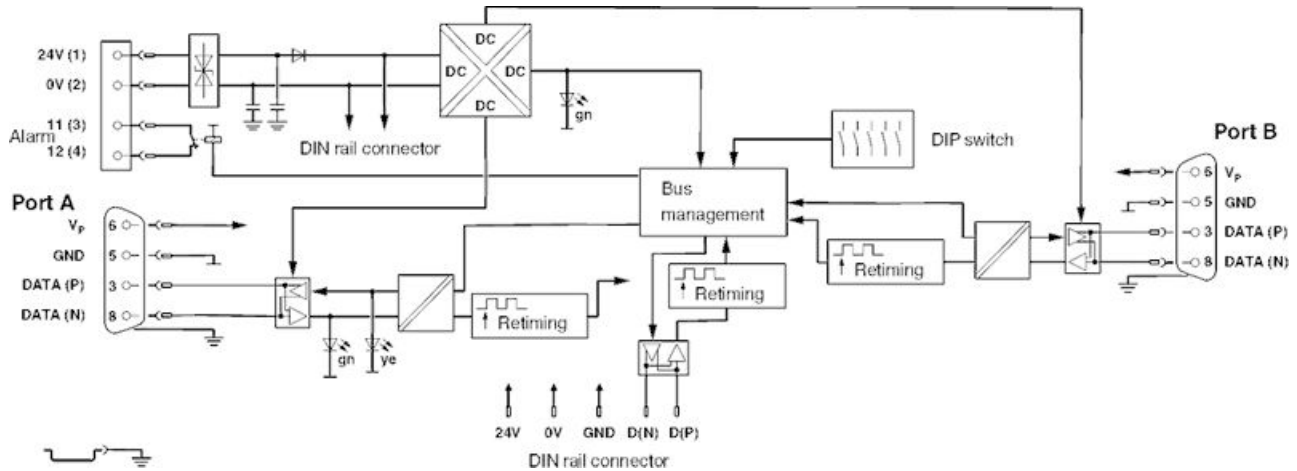
# Repeater - PSI-REP-PROFIBUS/12MB - 2708863

Dimensional drawing



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

Block diagram



## 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 |

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

## 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 |

## Approvals

### Approvals


#### Approvals

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

#### Ex Approvals

UL Listed / cUL Listed / ATEX / UL Listed / cUL 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 |
|---------------|---|---|---------------|

|                |   |   |               |
|----------------|---|---|---------------|
| 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 |
|----------------|---|---|---------------|

|     |   |               |
|-----|---|---------------|
| EAC |  | EAC-Zulassung |
|-----|---|---------------|

|    |   |   |                      |
|----|---|---|----------------------|
| KC |  | <a href="http://eng.kcc.go.kr/user/ehpMain.do">http://eng.kcc.go.kr/user/ehpMain.do</a> | MSIP-REI-PCK-2708863 |
|----|---|---|----------------------|

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

## Approvals

cULus Recognized



## 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°, 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°, 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/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

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

### Accessories

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.

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.

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.

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.

### DIN rail connector

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.

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

### Accessories

#### 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)

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

### Accessories

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-SHDSSL/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