

# PSI-REP-PROFIBUS/12MB - Repeater

2708863

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



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Modular repeater for electrical isolation and increasing the range for PROFIBUS up to 12 Mbps, 4-way isolation, DIN-rail mountable, 24 V DC supply. Product is being prepared for compliance with the Cyber Resilience Act (CRA).

## 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

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|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2708863       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | DN11          |
| Product key                          | DNC121        |
| GTIN                                 | 4046356078993 |
| Weight per piece (including packing) | 226 g         |
| Weight per piece (excluding packing) | 212.4 g       |
| Customs tariff number                | 85176200      |
| Country of origin                    | DE            |

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## Technical data

### Notes

|                         |                                                                                                                                                                                                                               |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note on application     | Only for industrial use                                                                                                                                                                                                       |
| Note on application     | As things stand now, we are preparing the product so that, as of December 11, 2027, it will comply with the requirements of the EU Cyber Resilience Act (CRA) based on the information currently available regarding the CRA. |
| Utilization restriction |                                                                                                                                                                                                                               |
| CCCex note              | Use in potentially explosive areas is not permitted in China.                                                                                                                                                                 |

### 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                                                                |
| 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)         |

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|                             |        |
|-----------------------------|--------|
| Limiting continuous current | 0.46 A |
|-----------------------------|--------|

## Connection data

### Supply

|                                         |                                             |
|-----------------------------------------|---------------------------------------------|
| 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> |
| Conductor cross-section, flexible [AWG] | 24 ... 14                                   |
| Stripping length                        | 7.00 mm                                     |
| Tightening torque                       | 0.6 Nm ... 0.8 Nm                           |

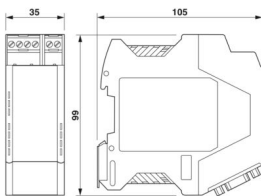
## Interfaces

|                        |                              |
|------------------------|------------------------------|
| 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<br>(can be set manually and automatically) |
| Connection method        | D-SUB-9 female connector                                                                            |
| Tightening torque        | 0.4 Nm                                                                                              |
| Transmission length      | $\leq 1200$ m (Depends on transmission speed and cable type)                                        |
| Termination resistor     | external                                                                                            |
| 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                                                                               |

## Material specifications

|                    |                 |
|--------------------|-----------------|
| Color (Housing)    | gray (RAL 7042) |
| Material (Housing) | PA 6.6-FR       |

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## Mechanical tests

|                                                                    |                                                     |
|--------------------------------------------------------------------|-----------------------------------------------------|
| Free fall in accordance with IEC 60068-2-32                        | Free fall: 1 m                                      |
| Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6 | Operation: 5g, 10...150 Hz, 2.5 h, in XYZ direction |
| Shock in accordance with EN 60068-2-27/IEC 60068-2-27              | Operation: 15g, 11 ms period, half-sine shock pulse |

## 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)<br>≤ 2000 m (Hazardous locations) |
| Permissible humidity (operation)        | 30 % ... 95 % (non-condensing)                                                                                           |

## Approvals

### CE

|             |              |
|-------------|--------------|
| Certificate | CE-compliant |
|-------------|--------------|

### ATEX

|                |                                                                           |
|----------------|---------------------------------------------------------------------------|
| Identification | Ex 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 21.0013X |

### UL, USA/Canada

|                |                                                                                              |
|----------------|----------------------------------------------------------------------------------------------|
| Identification | Class I, Zone 2, AEx ec IIC T5 Gc<br>Ex ec IIC T5 Gc X<br>Class I, Div. 2, Groups A, B, C, D |
|----------------|----------------------------------------------------------------------------------------------|

### KC approval for South Korea

|             |                      |
|-------------|----------------------|
| Certificate | MSIP-REI-PCK-2708863 |
|-------------|----------------------|

### Corrosive gas test

|                |                                  |
|----------------|----------------------------------|
| Identification | ISA-S71.04-1985 G3 Harsh Group A |
|----------------|----------------------------------|

## EMC data

|                               |                                           |
|-------------------------------|-------------------------------------------|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| Noise immunity                | EN 61000-4-2                              |

### Noise emission

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|                            |                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------|
| Standards/regulations      | EN 55011                                                                             |
| Electrostatic discharge    |                                                                                      |
| Standards/regulations      | EN 61000-4-2                                                                         |
| Electrostatic discharge    |                                                                                      |
| Contact discharge          | $\pm 6 \text{ kV}$                                                                   |
| Discharge in air           | $\pm 8 \text{ kV}$                                                                   |
| 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)    |                                                                                      |
| Input                      | $\pm 2 \text{ kV}$                                                                   |
| Signal                     | $\pm 2 \text{ kV}$                                                                   |
| Comments                   | Criterion B                                                                          |
| Surge current load (surge) |                                                                                      |
| Standards/regulations      | EN 61000-4-5                                                                         |
| 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                                                                         |
| 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. |

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## Standards and regulations

|                                                                   |                    |
|-------------------------------------------------------------------|--------------------|
| Free from substances that could impair the application of coating | VDMA 24364:2018-05 |
| Standards/regulations                                             | EN 62368           |

## Mounting

|               |                   |
|---------------|-------------------|
| Mounting type | DIN rail mounting |
|---------------|-------------------|

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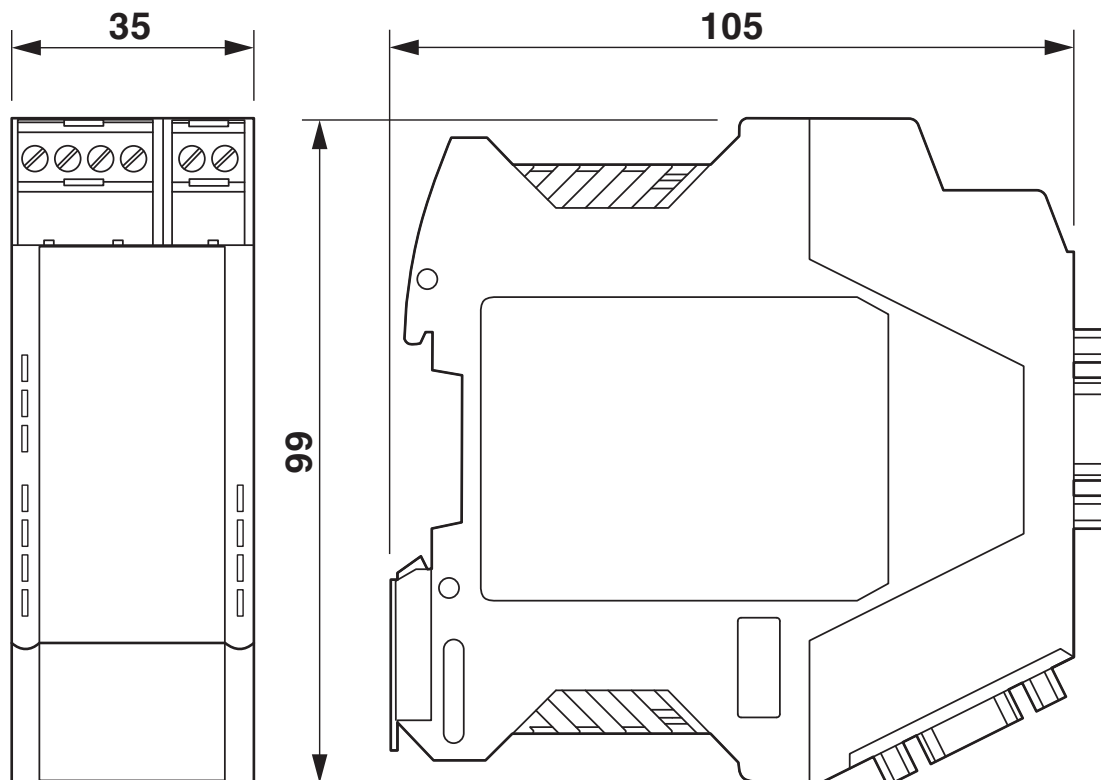
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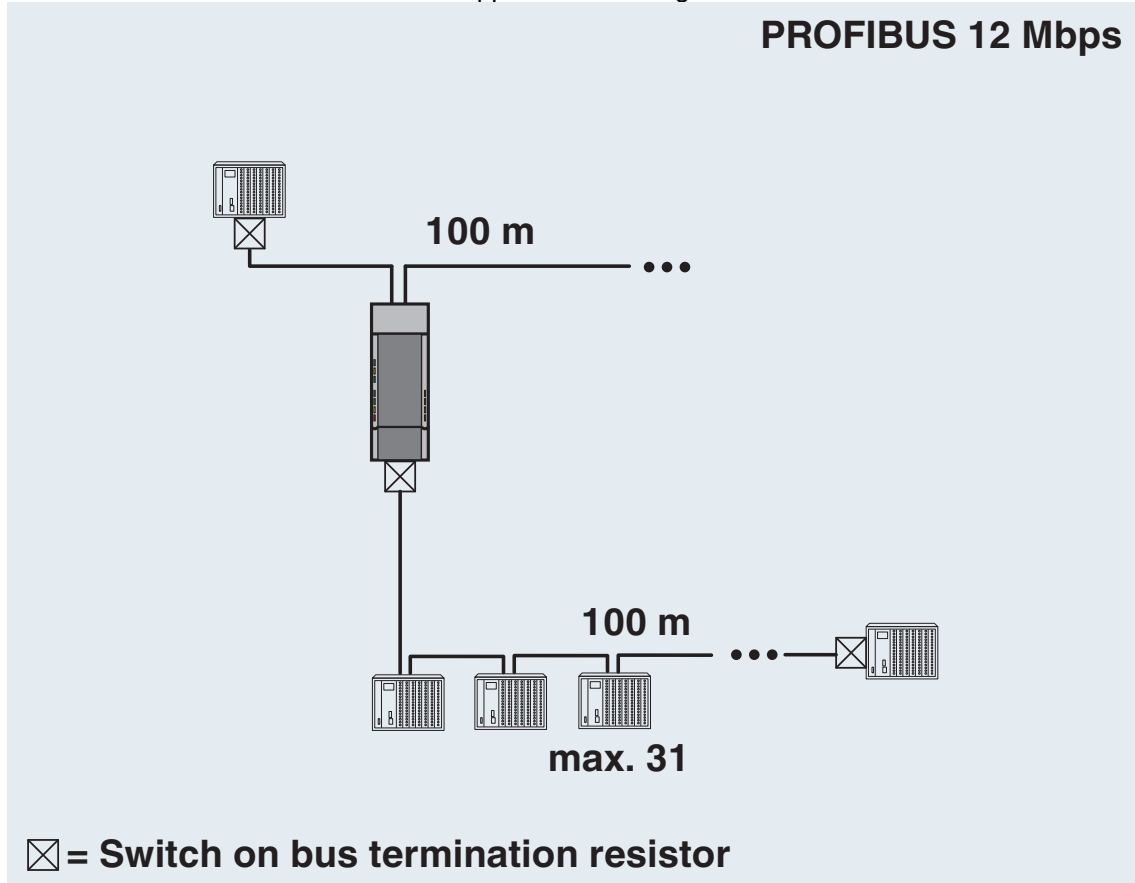
## Drawings

Dimensional drawing



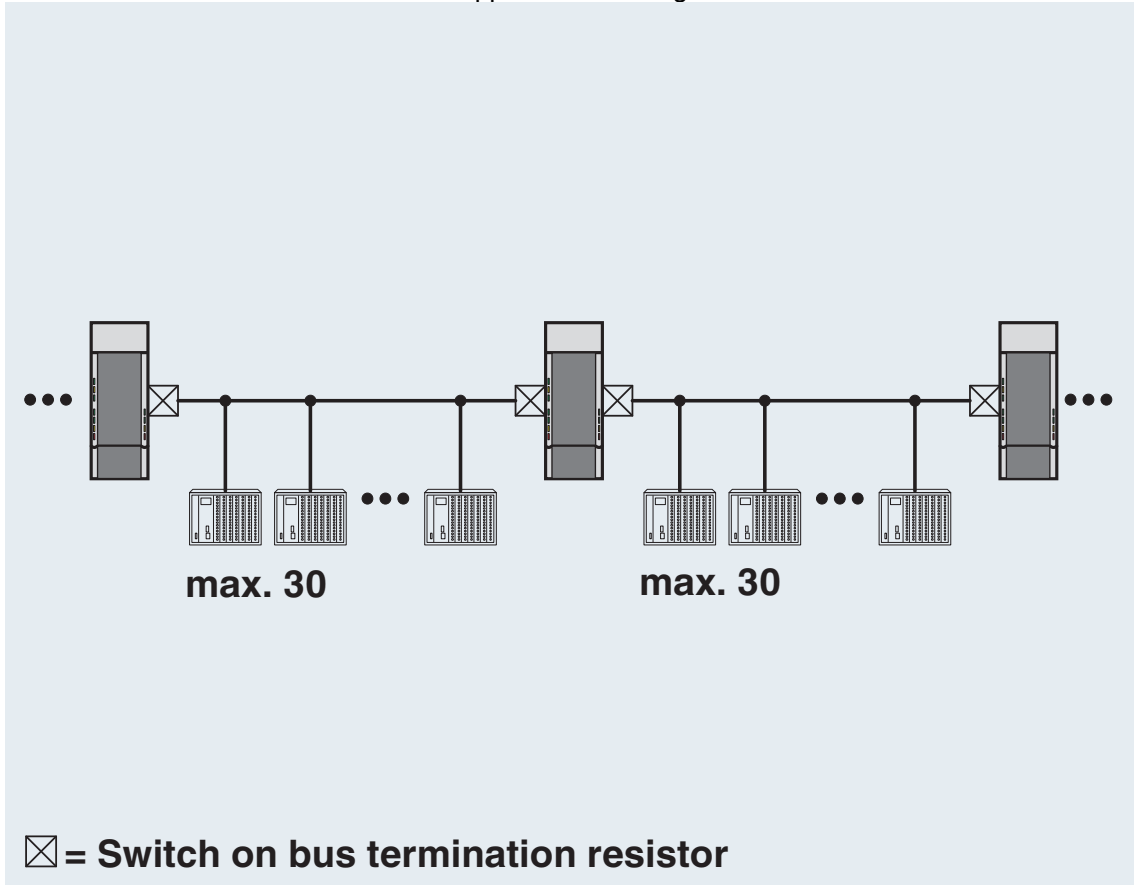
Housing dimensions

Application drawing



Branch line

Application drawing



Line structure

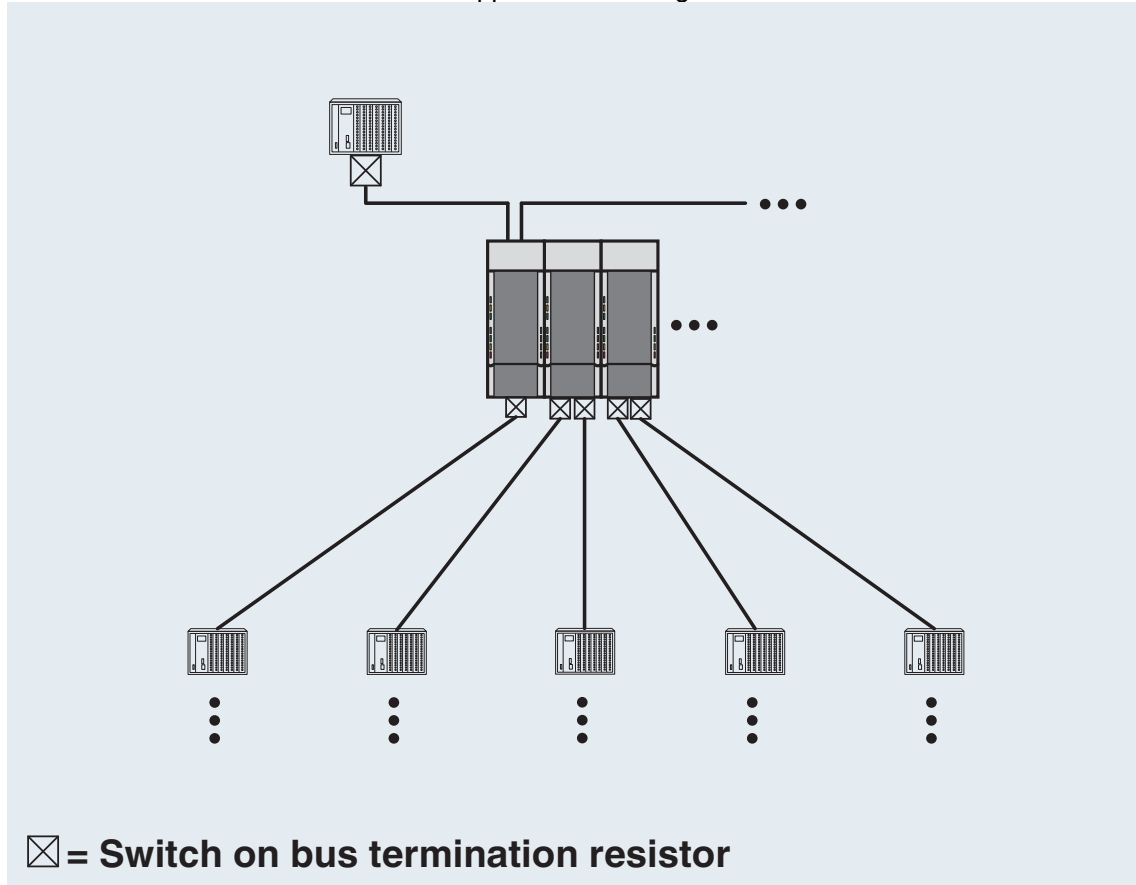
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Application drawing



Star structure

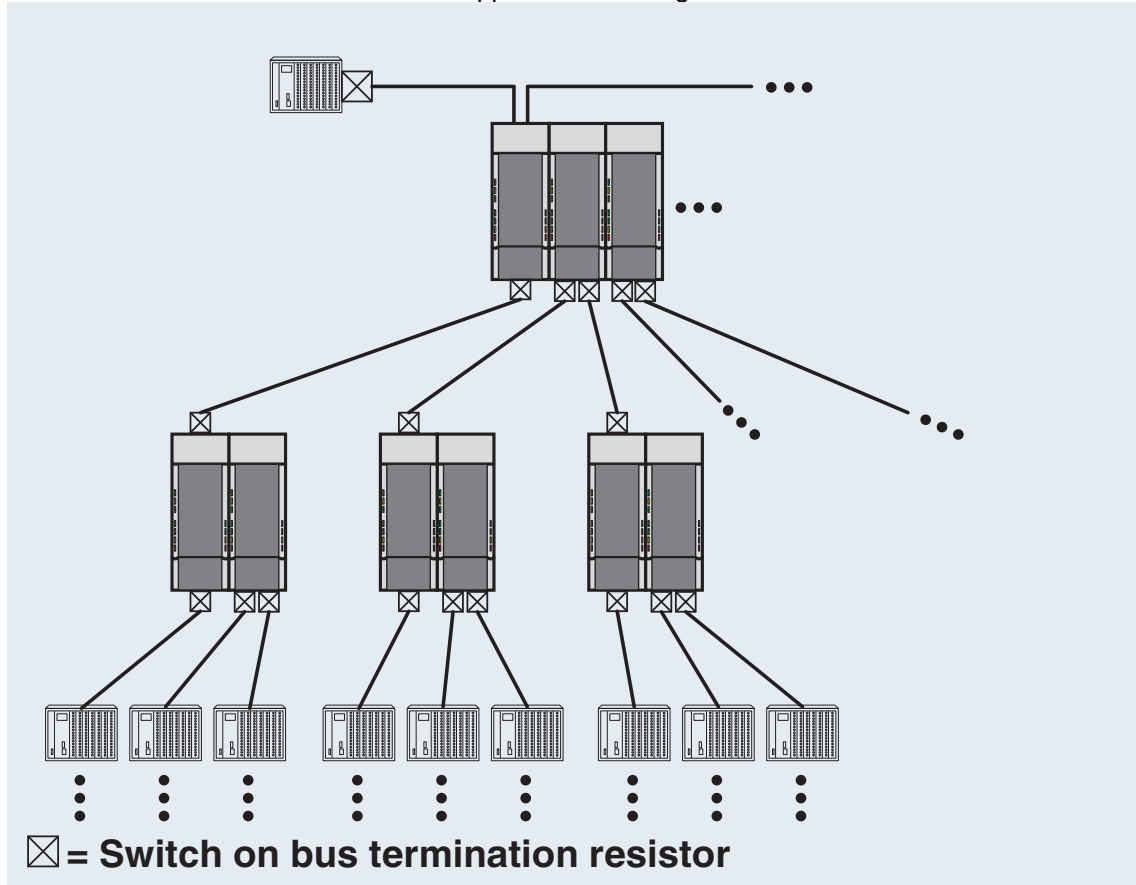
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Application drawing



Tree structure

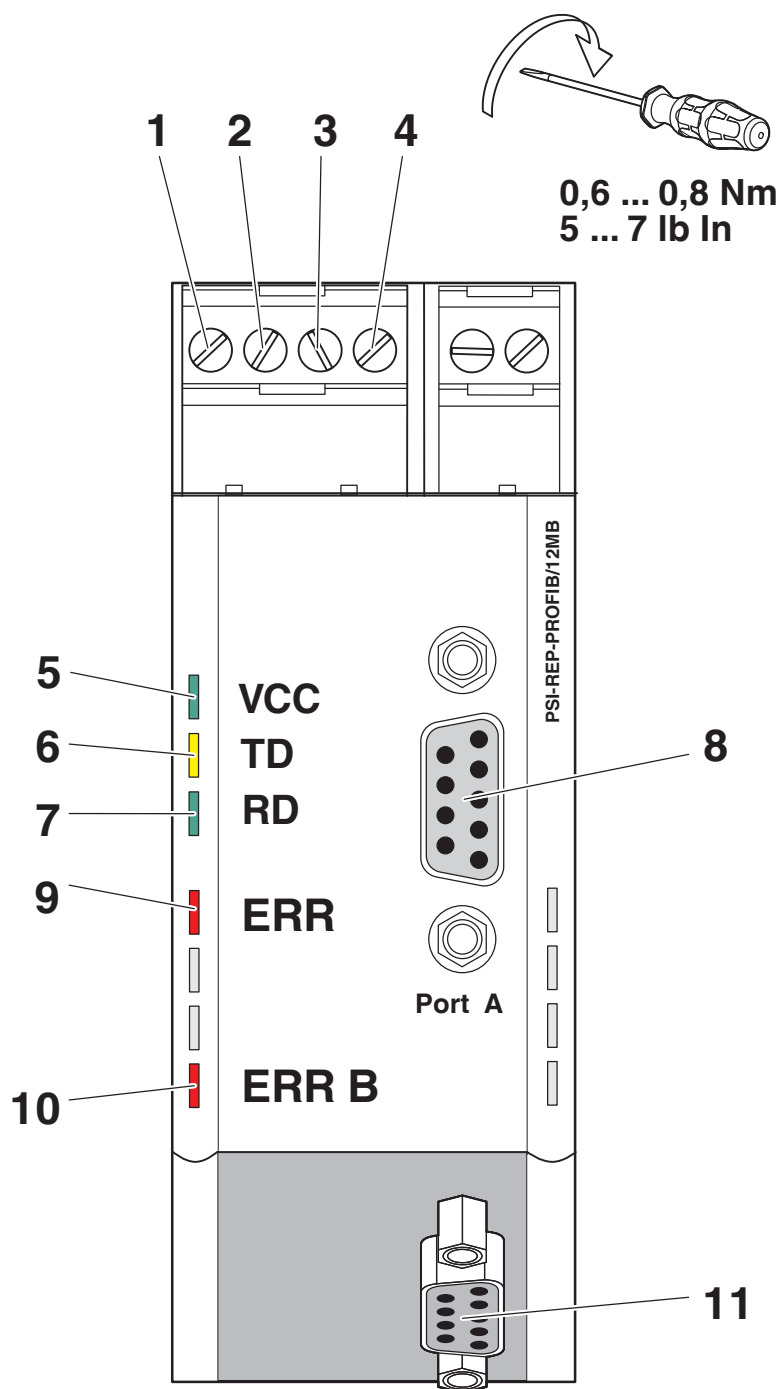
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Schematic diagram



Front view

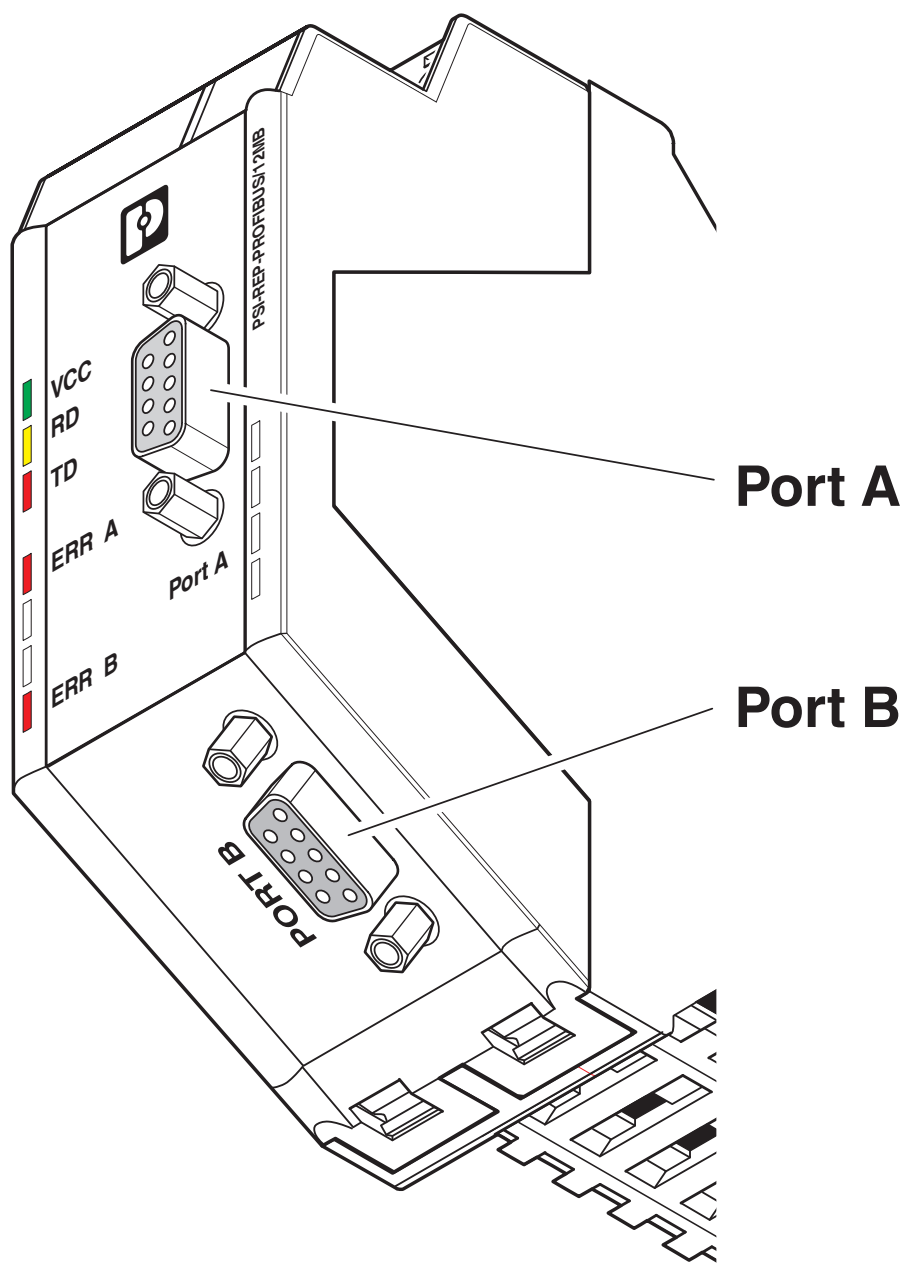
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Schematic diagram



Device connections

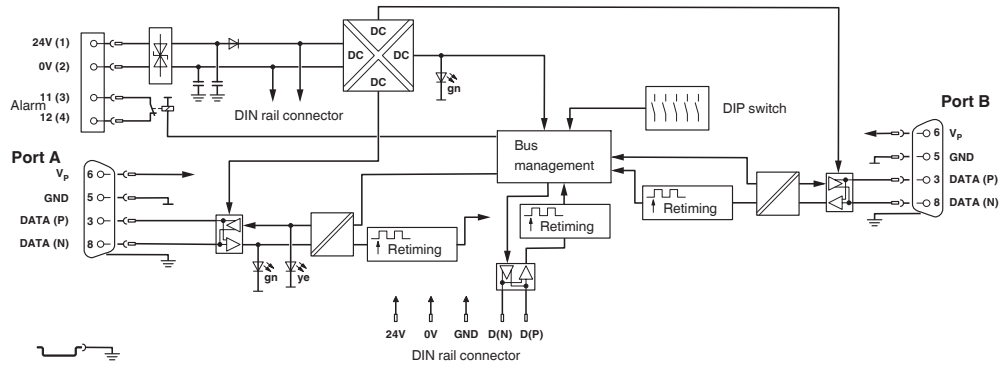
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Block diagram



Circuit diagram

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## Approvals

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



**KC**

Approval ID: MSIP-REI-PCK-2708863



**cULus Listed**

Approval ID: E238705



**cULus Recognized**

Approval ID: E238705



**IECEx**

Approval ID: IECEx ULD 21.0013X



**ATEX**

Approval ID: UL 21 ATEX 2550X



**cULus Listed**

Approval ID: E199827

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27242208 |
| ECLASS-15.0 | 27242208 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC001423 |
|-----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 43222600 |
|-------------|----------|

## Environmental product compliance

### EU RoHS

|                                         |              |
|-----------------------------------------|--------------|
| Fulfills EU RoHS substance requirements | Yes          |
| Exemption                               | 7(a), 7(c)-I |

### China RoHS

|                                        |                                                                                                                                                                                                                                   |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environment friendly use period (EFUP) | EFUP-50                                                                                                                                                                                                                           |
|                                        | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

### EU REACH SVHC

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1)                 |
| SCIP                                | 9db7fad1-e573-4b3c-82c8-9fea0df51fda |