

PSI-REP-DNET CAN - Repeater

2313423

<https://www.phoenixcontact.com/us/products/2313423>



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Modular repeater for electrical isolation and increasing the range for DeviceNet™, SDS, CANopen®, data rate of up to 1 Mbps, high-quality electrical isolation between the interfaces, DIN-rail mountable, 24 V DC supply

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
- Data rates of up to 1 Mbps
- High-quality 4-way isolation between all interfaces
- Can be combined with PSI-MOS FO converters in a modular way thanks to DIN rail connectors
- All connections can be plugged in using a COMBICON screw terminal block
- Approved for use in zone 2
- Shipbuilding approval in accordance with DNV GL

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2313423 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN11 |
| Product key | DNC123 |
| GTIN | 4046356428392 |
| Weight per piece (including packing) | 242.83 g |
| Weight per piece (excluding packing) | 164.23 g |
| Customs tariff number | 85176200 |
| Country of origin | DE |

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Technical data

Notes

Note on application

| | |
|-------------------------|-------------------------|
| Note on application | Only for industrial use |
| Utilization restriction | |

CCCx note

Use in potentially explosive areas is not permitted in China.

Product properties

| | |
|--------------|--|
| Product type | Interface converter |
| MTTF | 1091 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) |
| | 514 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) |
| | 208 Years (SN 29500 standard, temperature 40°C, operating cycle 100%) |
| MTBF | 823 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day)) |
| | 170 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day)) |

Electrical properties

| | |
|---|--|
| Electrical isolation | VCC // TBUS // CAN A // CAN B |
| Maximum power dissipation for nominal condition | 1.32 W |
| Test voltage data interface/power supply | 1.5 kV _{rms} (50 Hz, 1 min.) |
| Rated insulation voltage | 85 V DC (In accordance with EN/IEC 60079-7, Annex H) |

Supply

| | |
|-----------------------------|--|
| Supply voltage range | 10 V DC ... 30 V DC (via pluggable COMBICON screw terminal block) |
| Nominal supply voltage | 24 V DC |
| Typical current consumption | 55 mA (24 V DC) |
| Max. current consumption | 80 mA |
| | ≤ 2 A (For operation in a joining station, via the DIN rail connector) |

Function

| | |
|----------------------------------|---|
| Status and diagnostic indicators | LEDs: VCC (supply voltage), NET A (Mod/Net status port A), NET B (Mod/Net status port B), ACT (activity/data traffic) |
|----------------------------------|---|

Output data

Switching

| | |
|------------------------|--------------|
| Output name | Relay output |
| Number of outputs | 1 |
| Contact switching type | N/C contact |

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| | |
|-----------------------------|---------|
| Minimum switching voltage | 10 V DC |
| Maximum switching voltage | 30 V DC |
| Limiting continuous current | 500 mA |

Connection data

Supply

| | |
|-------------------|---------------------|
| Stripping length | 7.00 mm |
| Tightening torque | 0.56 Nm ... 0.79 Nm |

Interfaces

| | |
|------------------------|--------------------------------|
| Bit distortion, input | ± 35 % |
| Bit distortion, output | < 6.25 % |
| Bit delay | One telegram length (EXTENDED) |
| Signal | CAN |
| | CANopen® |
| | DeviceNet™ |

Data: CAN interface, in accordance with ISO/IS 11898 for DeviceNet™, CAN, CANopen®

| | |
|--|---|
| Transmission speed | ≤ 1 Mbps (Configurable via DIP switches) |
| Connection method | COMBICON plug-in screw terminal block |
| No. of channels | 2 (CAN_High / CAN_Low) |
| Transmission length | ≤ 5000 m (Dependent on the data rate and the protocol used) |
| Number of bus devices | ≤ 64 (per potential segment) |
| | ≤ 63 (DeviceNet™, can be addressed logically) |
| | ≤ 128 (CANopen®, can be addressed logically) |
| Termination resistor | 124 Ω (Integrated and ready to be switched) |
| Single conductor/terminal point, rigid | 0.2 mm² ... 2.5 mm² |
| Single-wire/terminal point, flexible | 0.2 mm² ... 2.5 mm² |
| 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 |
| Stripping length | 7 mm |
| Transmission medium | 2-wire twisted pair, shielded |
| Transmission method | CSMA/CA |
| File format/coding | Bit stuffing, NRZ |

Data: CAN interface, in accordance with ISO/IS 11898 for DeviceNet™, CAN, CANopen®

| | |
|-----------------------|---|
| Transmission speed | ≤ 1 Mbps (Configurable via DIP switches) |
| Connection method | COMBICON plug-in screw terminal block |
| No. of channels | 2 (CAN_High / CAN_Low) |
| Transmission length | ≤ 5000 m (Dependent on the data rate and the protocol used) |
| Number of bus devices | ≤ 64 (per potential segment) |
| | ≤ 63 (DeviceNet™, can be addressed logically) |
| | ≤ 128 (CANopen®, can be addressed logically) |

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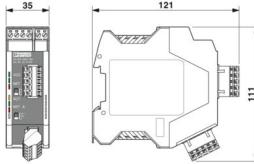
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| | |
|--|---|
| Termination resistor | 124 Ω (Integrated and ready to be switched) |
| Single conductor/terminal point, rigid | 0.2 mm ² ... 2.5 mm ² |
| Single-wire/terminal point, flexible | 0.2 mm ² ... 2.5 mm ² |
| Max. AWG conductor cross-section, 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 |
| Transmission method | CSMA/CA |
| File format/coding | Bit stuffing, NRZ |

Dimensions

| Dimensional drawing | |
|---|--------|
|  | |
| Width | 35 mm |
| Height | 111 mm |
| Depth | 121 mm |

Material specifications

| | |
|--------------------|------------------|
| Color (Housing) | green (RAL 6021) |
| Material (Housing) | PA 6.6-FR |

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 | Vibration (operation): 5g, 10...150 Hz, 2.5 h, in XYZ direction |
| Shock in accordance with EN 60068-2-27/IEC 60068-2-27 | Shock (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) |
| Permissible humidity (operation) | 30 % ... 95 % (non-condensing) |

Approvals

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

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ATEX

| | |
|----------------|---|
| Identification | Ex II 3 G Ex ec IIC T4 Gc |
| Certificate | PxCIF07ATEX2313533X |
| Note | Please follow the special installation instructions in the documentation! |

UKEX

| | |
|----------------|---------------------------|
| Identification | Ex II 3 G Ex ec IIC T4 Gc |
| Certificate | PxCIMA22UKEX2313423X |

UL, USA/Canada

| | |
|----------------|------------|
| Identification | 508 Listed |
|----------------|------------|

Corrosive gas test

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

Shipbuilding

| | |
|----------------|--------|
| Identification | DNV GL |
|----------------|--------|

Shipbuilding data

| | |
|-------------|---|
| Temperature | B |
| Humidity | A |
| Vibration | A |
| EMC | B |
| Enclosure | Required protection according to the Rules shall be provided upon installation on board |

EMC data

| | |
|-------------------------------|---|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| Noise immunity | EN 61000-6-2 |

Noise emission

| | |
|-----------------------|----------|
| Standards/regulations | EN 55011 |
|-----------------------|----------|

Electrostatic discharge

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-2 |
|-----------------------|--------------|

Electrostatic discharge

| | |
|-------------------|-------------|
| Contact discharge | ± 6 kV |
| Discharge in air | ± 8 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 |

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Fast transients (burst)

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-4 |
|-----------------------|--------------|

Fast transients (burst)

| | |
|----------|-------------|
| Input | ± 2 kV |
| Signal | ± 2 kV |
| Comments | Criterion B |

Surge current load (surge)

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-5 |
|-----------------------|--------------|

Surge current load (surge)

| | |
|----------|-------------|
| Input | ± 0.5 kV |
| Signal | ± 1 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. |

Standards and regulations

| | |
|---|--------------------|
| Free from substances that could impair the application of coating | VDMA 24364:2018-05 |
|---|--------------------|

Mounting

| | |
|-----------------------|--|
| Mounting type | DIN rail mounting |
| Assembly note | The product can be snapped onto all 35 mm DIN rails in accordance with EN 60715. |
| Useable DIN rail type | DIN rail: 35 mm |

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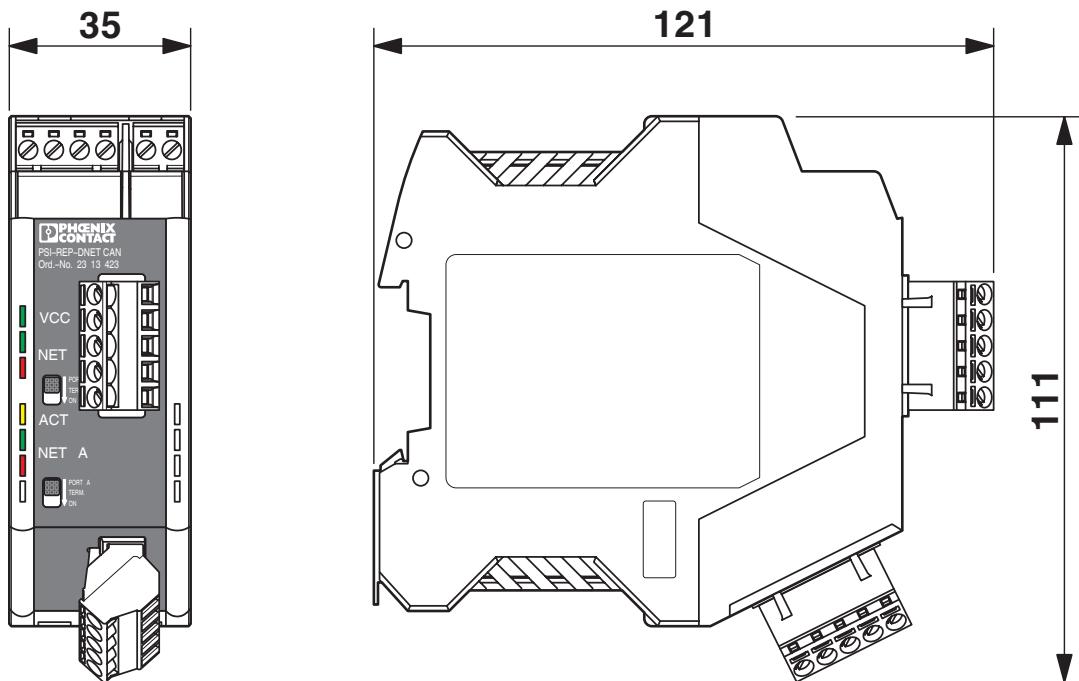
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Drawings

Dimensional drawing



Housing dimensions

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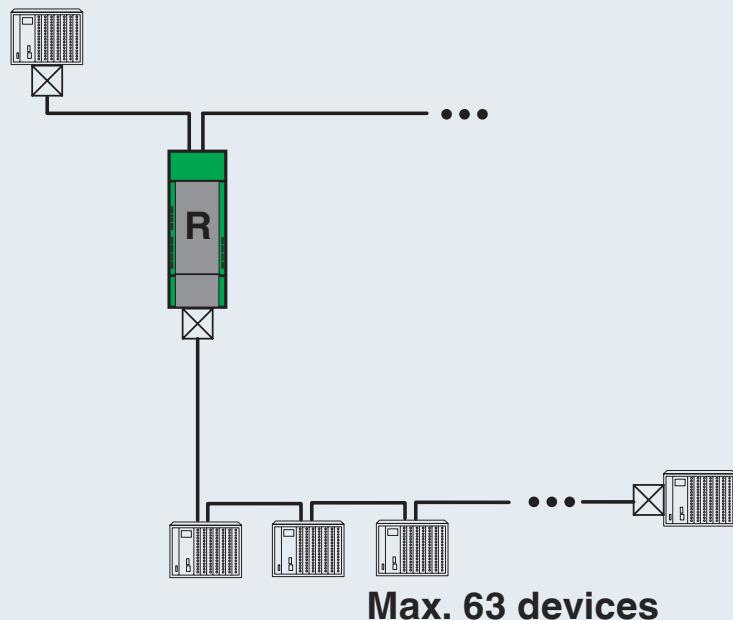


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Application drawing

Stub line



= Switch on bus termination resistor

Branch line

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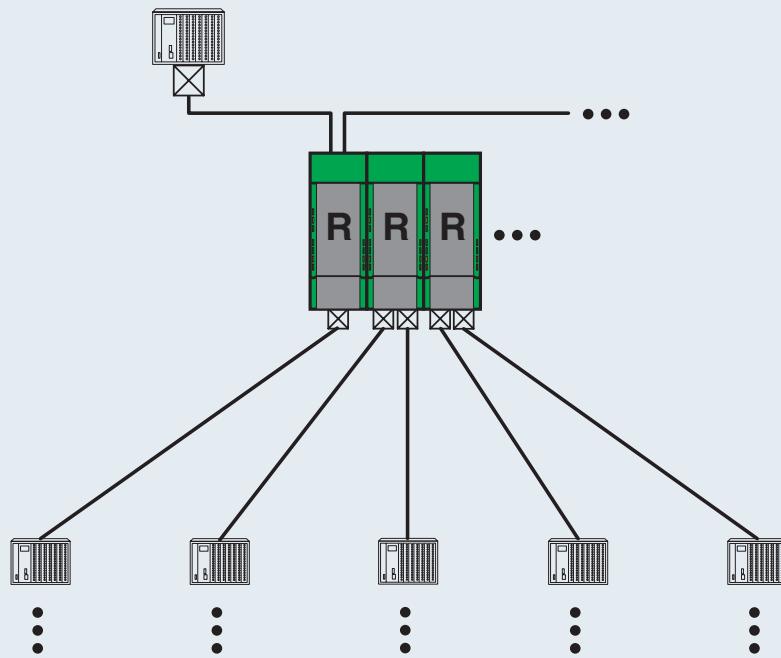
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Application drawing

Star structure



= Switch on bus termination resistor

Star structure

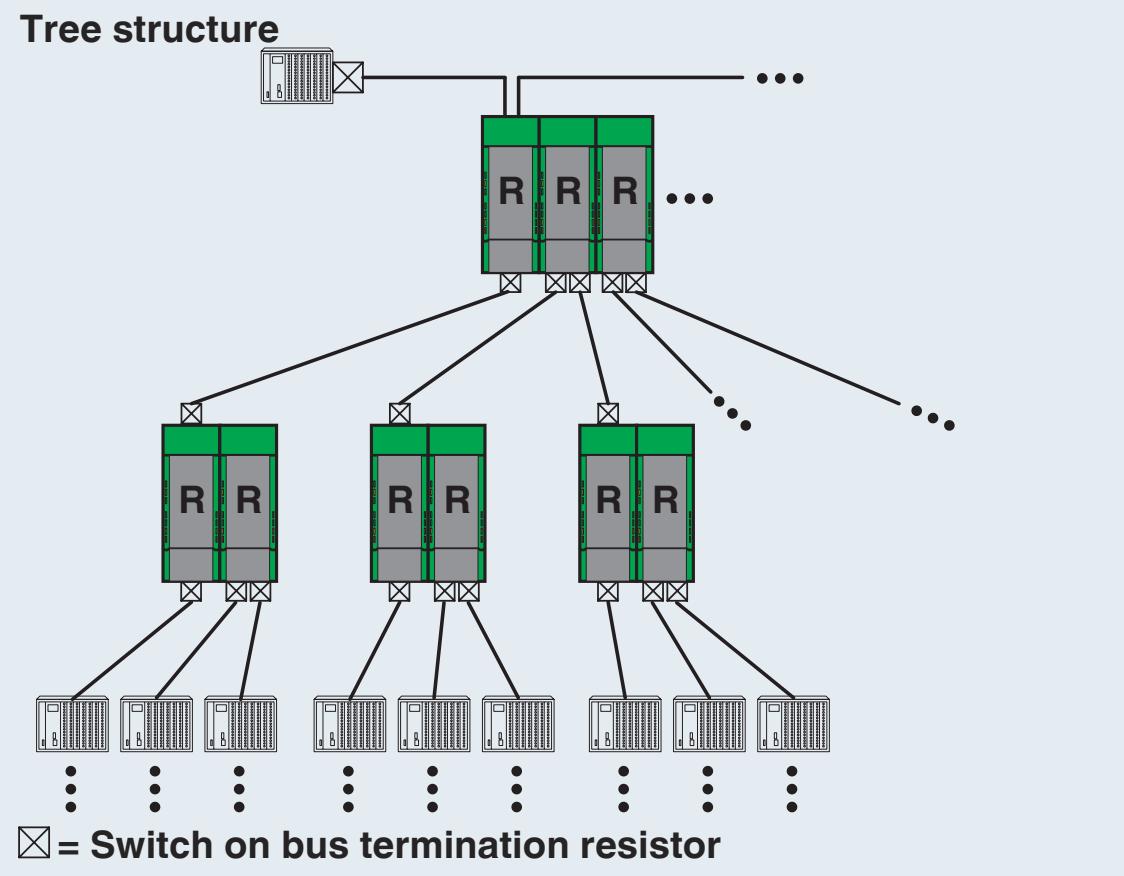
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Application drawing



Tree structure

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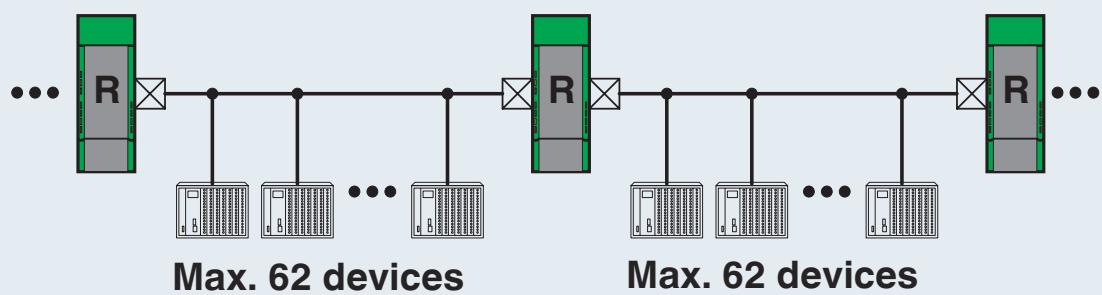


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Application drawing

Linear structure



☒ = Switch on bus termination resistor

Line structure

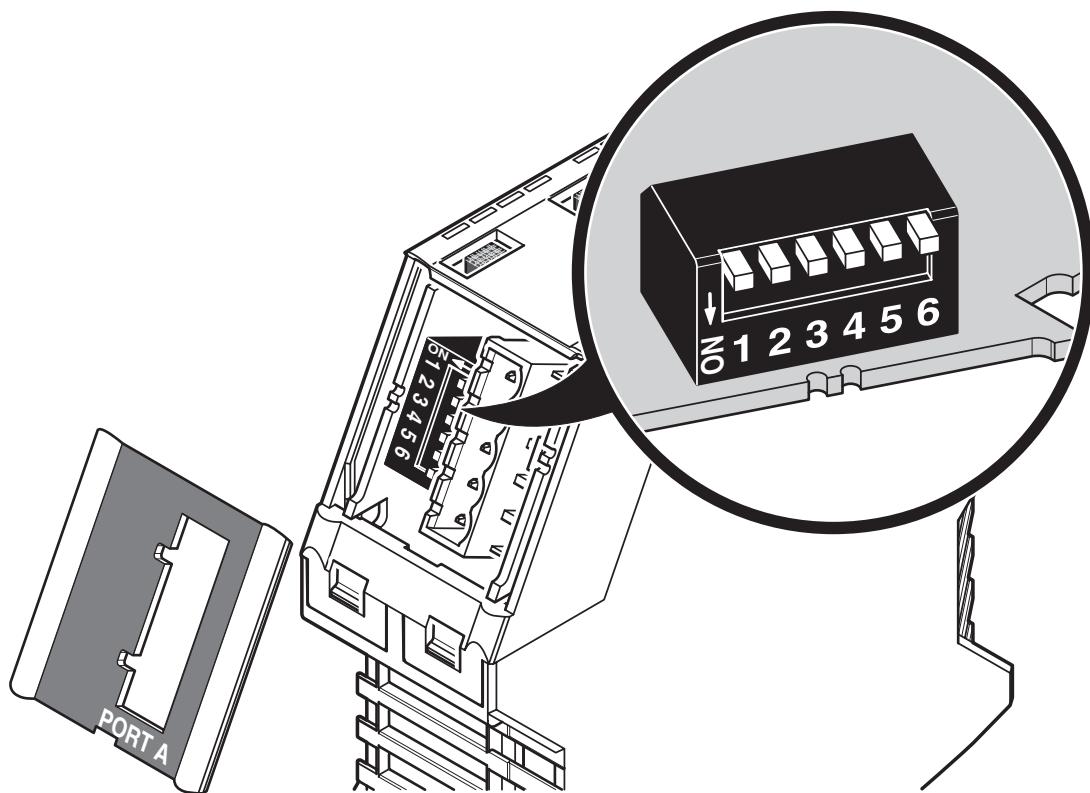
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Schematic diagram



DIP switches

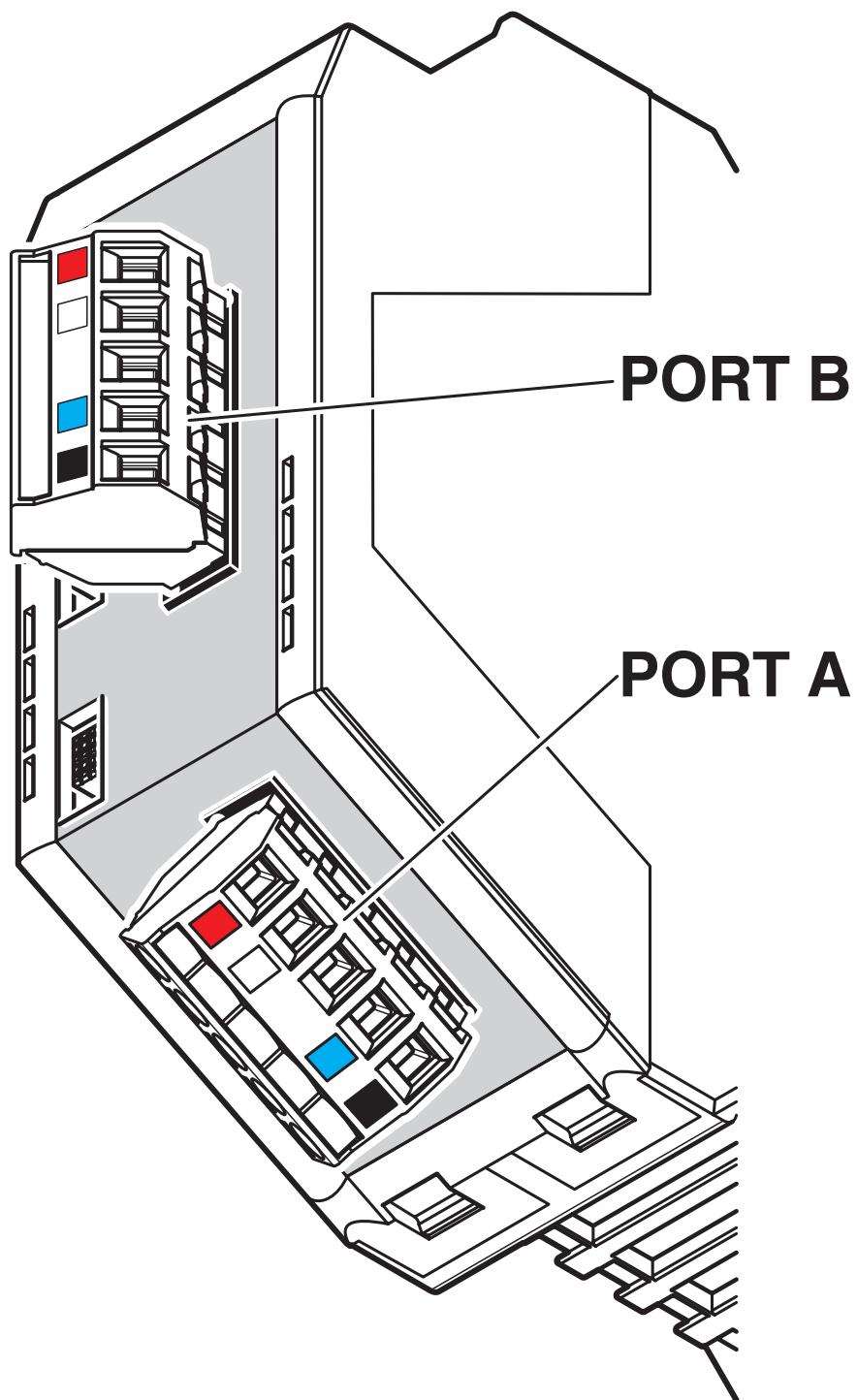
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Schematic diagram



Device connections

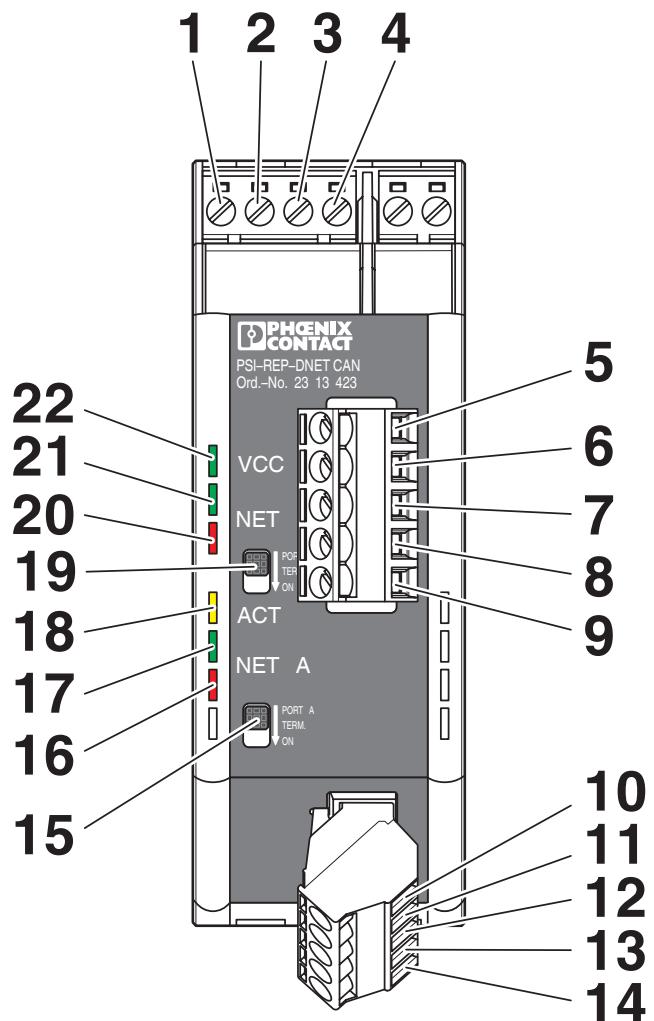
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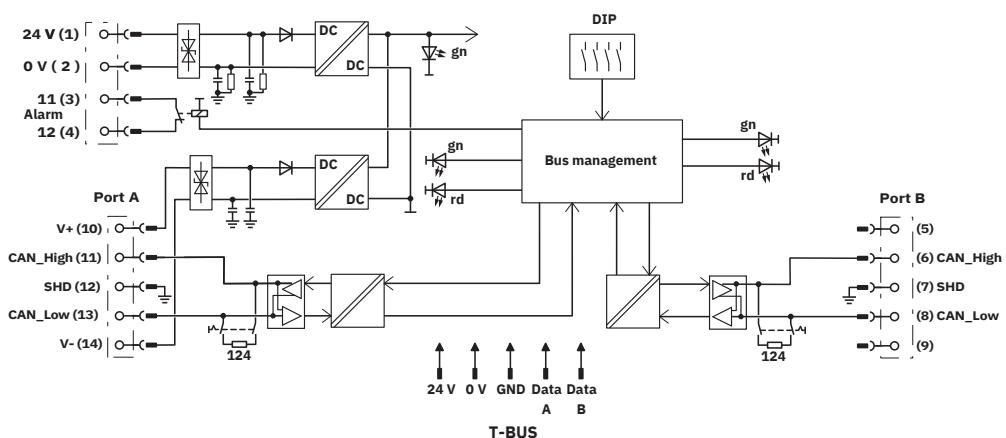


Schematic diagram



Front view

Circuit diagram



Basic circuit diagram

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Approvals

ⓘ To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2313423>



DNV GL

Approval ID: TAA00001KR



UL Listed

Approval ID: E238705



cUL Listed

Approval ID: E238705

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Classifications

ECLASS

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

ETIM

| | |
|----------|----------|
| ETIM 9.0 | EC001423 |
|----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 32151700 |
|-------------|----------|

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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 | 8a76a96e-69ef-4528-8fc1-85c388799e92 |

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