

PSI-MOS-RS232/FO 850 E - FO converters



2708371

<https://www.phoenixcontact.com/us/products/2708371>

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FO converter with integrated optical diagnostics, alarm contact, for RS-232 interfaces up to 115.2 kbps, terminal device with one FO interface (BFOC), 850 nm, for PCF/fiberglass cable (multimode)

Your advantages

- Supply voltage and data signals routed through the DIN rail connectors
- Connections can be plugged in via a COMBICON screw terminal block
- Redundant power supply possible by means of optional system power supply unit
- High-quality electrical isolation between all interfaces (RS-232 // fiber optic ports // power supply // DIN rail connector)
- Approved for use in zone 2
- Intrinsically safe fiber optic interface (Ex op is) for direct connection to devices in zone 1
- Integrated optical diagnostics for continuous monitoring of FO paths
- Floating switch contact for advance warning of critical FO paths
- Automatic data rate detection for all data rates up to 115.2 kbps
- Shipbuilding approval in accordance with DNV GL

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2708371 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN06 |
| Product key | DNC215 |
| GTIN | 4017918974077 |
| Weight per piece (including packing) | 236 g |
| Weight per piece (excluding packing) | 221.1 g |
| Customs tariff number | 85176200 |
| Country of origin | DE |

Technical data

Notes

Note on application

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

Utilization restriction

| | |
|------------|---|
| CCCex note | Use in potentially explosive areas is not permitted in China. |
|------------|---|

Product properties

| | |
|----------------|---|
| Product type | Media converter |
| Product family | PSI-MOS |
| MTTF | 1092 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) |
| | 468 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) |
| | 194 Years (SN 29500 standard, temperature 40°C, operating cycle 100%) |
| MTBF | 320 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day)) |
| | 48 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day)) |

Electrical properties

| | |
|---|---------------------------------------|
| Electrical isolation | VCC // V.24 (RS-232) |
| Maximum power dissipation for nominal condition | 2.88 W |
| Test voltage data interface/power supply | 1.5 kV _{rms} (50 Hz, 1 min.) |

Supply

| | |
|-----------------------------|---------------------------|
| Supply voltage range | 18 V DC ... 30 V DC |
| Nominal supply voltage | 24 V DC (in acc. with UL) |
| Typical current consumption | 120 mA (24 V DC) |
| Max. current consumption | 120 mA |

Output data

Switching

| | |
|-----------------------------|--------------|
| Output name | Relay output |
| Output description | Alarm output |
| Number of outputs | 1 |
| Maximum switching voltage | 60 V DC |
| | 42 V AC |
| Limiting continuous current | 0.46 A |

Connection data

Supply

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| | |
|-------------------|---------------------------------------|
| Connection method | COMBICON plug-in screw terminal block |
| Tightening torque | 0.56 Nm ... 0.79 Nm |

Interfaces

| | |
|------------------------|--------------------------------|
| Bit distortion, input | ± 35 % (permitted) |
| Bit distortion, output | < 6.25 % |
| Signal | Modbus |
| Transmission channels | 2 (1/1), RxD, TxD, full duplex |

Data: optical FO

| | |
|---|--|
| No. of channels | 1 |
| Transmit capacity, minimum | -4.6 dBm (200/230 µm) -17.6 dBm (50/125 µm) -13.6 dBm (62,5/125 µm) |
| Transmission length incl. 3 dB system reserve | 2800 m (F-K 200/230 8 dB/km with quick mounting connector) 4200 m (with F-G 50/125 2.5 dB/km) 4800 m (with F-G 62,5/125 3.0 dB/km) |
| Transmission protocol | Transparent to protocol for RS-232 interface |
| Connection method | B-FOC (ST®) |
| Wavelength | 850 nm |
| Minimum receiver sensitivity | -33.2 dBm |
| Transmission medium | PCF fiber Multi-mode fiberglass |

Data: V.24 (RS-232) interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1

| | |
|--|---|
| Serial transmission speed | 4.8 Kbps ... 115.2 Kbps |
| Connection method | D-SUB 9 plug |
| Transmission length | ≤ 15 m |
| 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 | Copper |
| File format/coding | UART (11 Bit, NRZ) |
| Data direction switching | Automatic control |

Dimensions

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

Material specifications

| | |
|-----------------|------------------|
| Color (Housing) | green (RAL 6021) |
|-----------------|------------------|

| | |
|--------------------|-----------|
| Material (Housing) | PA 6.6-FR |
|--------------------|-----------|

Cable/line

FO cable

| | |
|-------------|-------------|
| Fiber types | 200/230 µm |
| | 50/125 µm |
| | 62.5/125 µm |
| | PCF fiber |
| | Fiberglass |

Mechanical tests

| | |
|--|---|
| 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) |
| Permissible humidity (operation) | 30 % ... 95 % (non-condensing) |

Approvals

CE

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

ATEX

| | |
|----------------|---|
| Identification | ⊕ II 3 G Ex nA nC IIC T4 Gc X |
| Note | Please follow the special installation instructions in the documentation! |

ATEX, FO interface

| | |
|----------------|---|
| Identification | ⊕ II (2) G [Ex op is Gb] IIC |
| | ⊕ II (2) D [Ex op is Db] IIC |
| Certificate | PTB 06 ATEX 2042 U |
| Note | Please follow the special installation instructions in the documentation! |

UL, USA/Canada

| | |
|----------------|------------------------------------|
| Identification | Class I, Zone 2, AEx nc IIC T5 |
| | Class I, Zone 2, Ex nC nL IIC T5 X |
| | Class I, Div. 2, Groups A, B, C, D |

Corrosive gas test

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| | |
|----------------|----------------------------------|
| 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 61000-6-2:2005 |

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

| | |
|----------|-------------|
| Comments | Criterion A |
|----------|-------------|

Fast transients (burst)

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

Fast transients (burst)

| | |
|----------|-------------|
| Comments | Criterion B |
|----------|-------------|

Surge current load (surge)

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

Surge current load (surge)

| | |
|----------|-------------|
| Comments | Criterion B |
|----------|-------------|

Conducted interference

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-6 |
|-----------------------|--------------|

Conducted interference

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

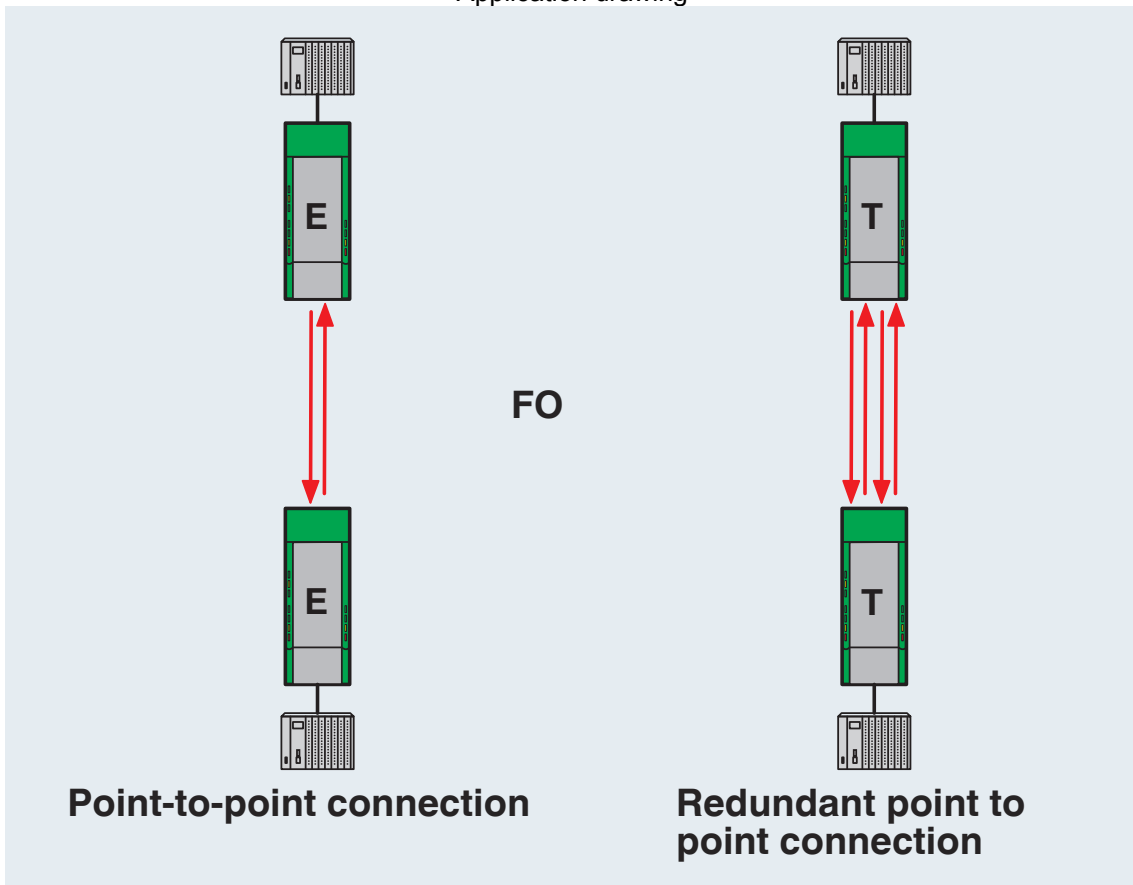
| | |
|---|--------------------|
| Free from substances that could impair the application of coating | VDMA 24364:2018-05 |
|---|--------------------|

Mounting

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

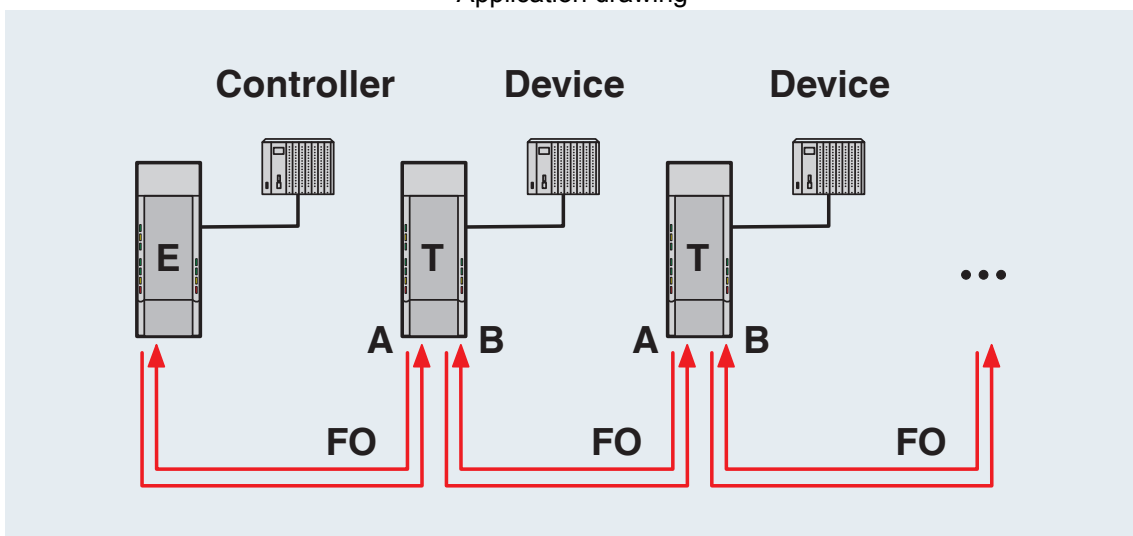
Drawings

Application drawing



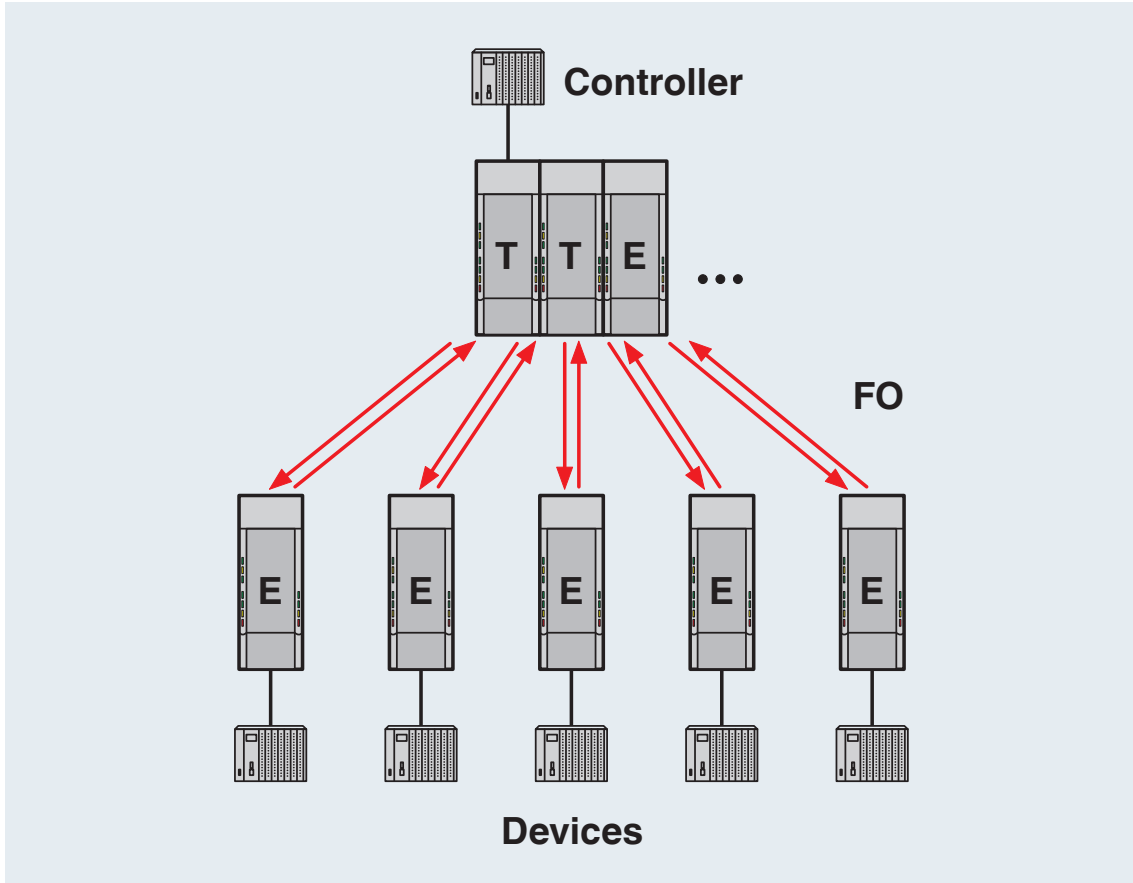
Redundant point-to-point connection

Application drawing



Controller-device line structure

Application drawing

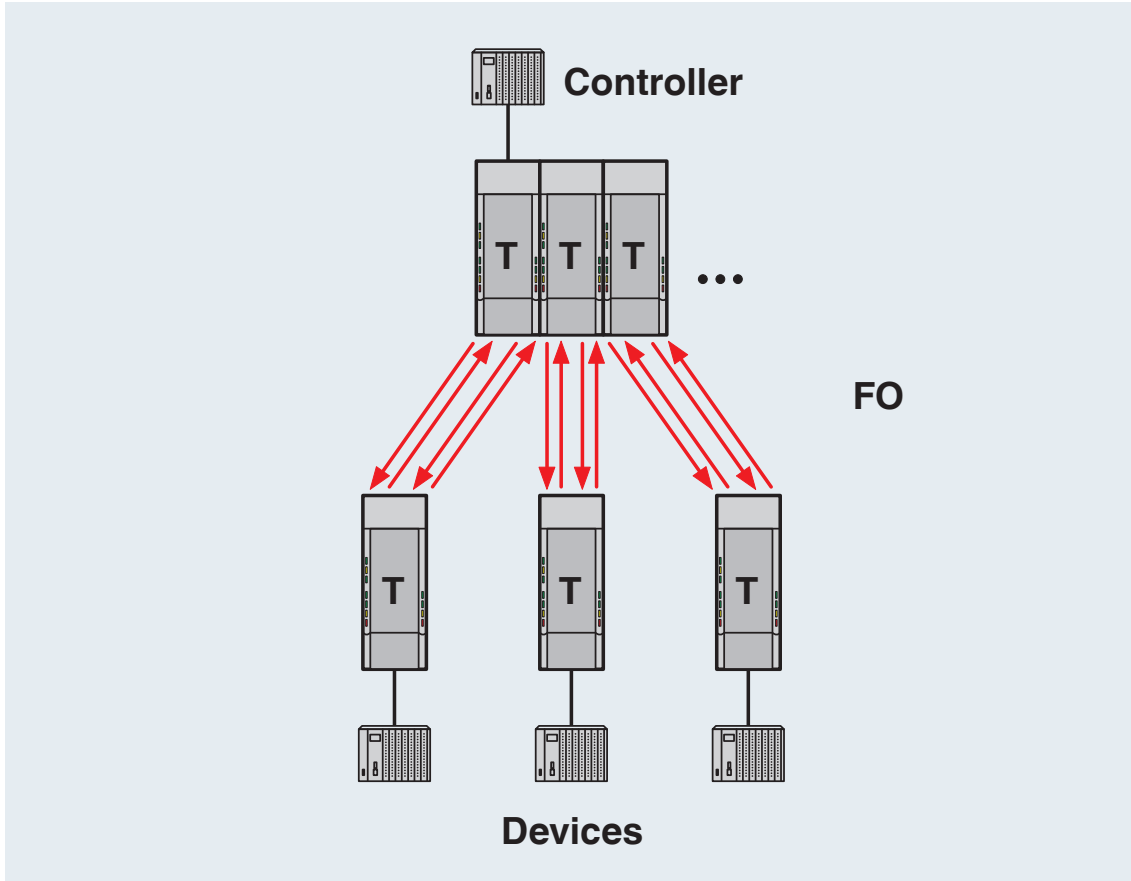


Star structure

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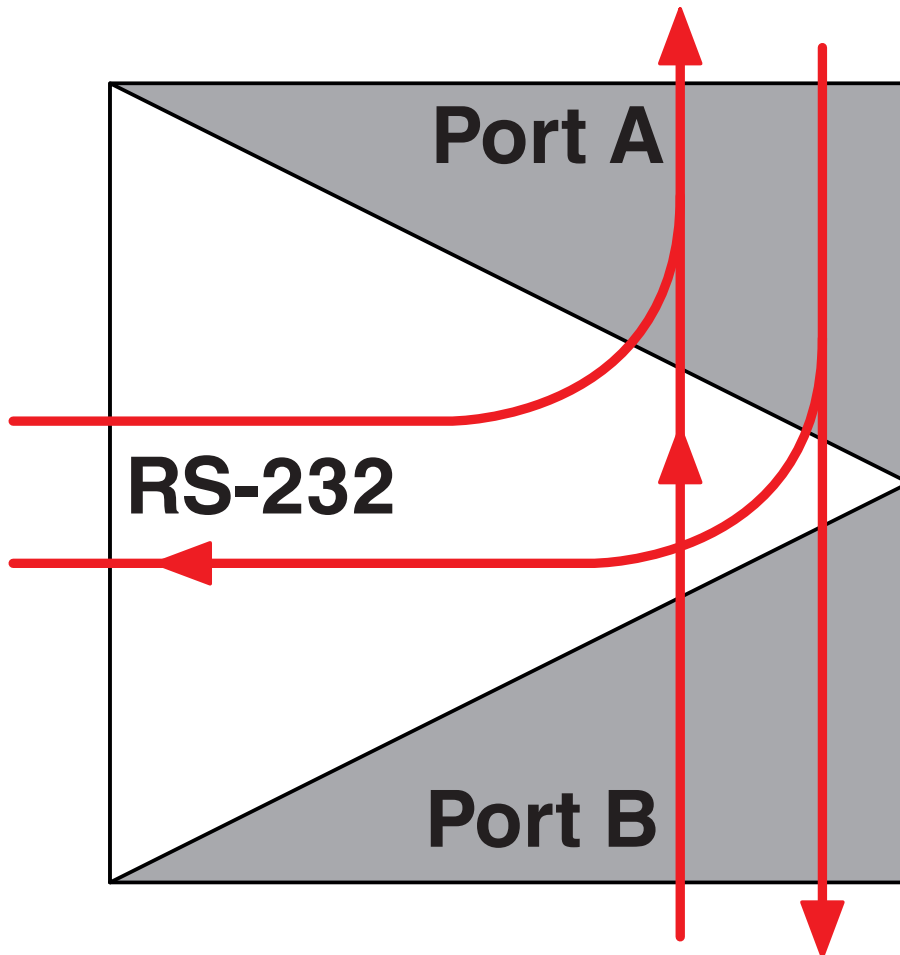
<https://www.phoenixcontact.com/us/products/2708371>

Application drawing



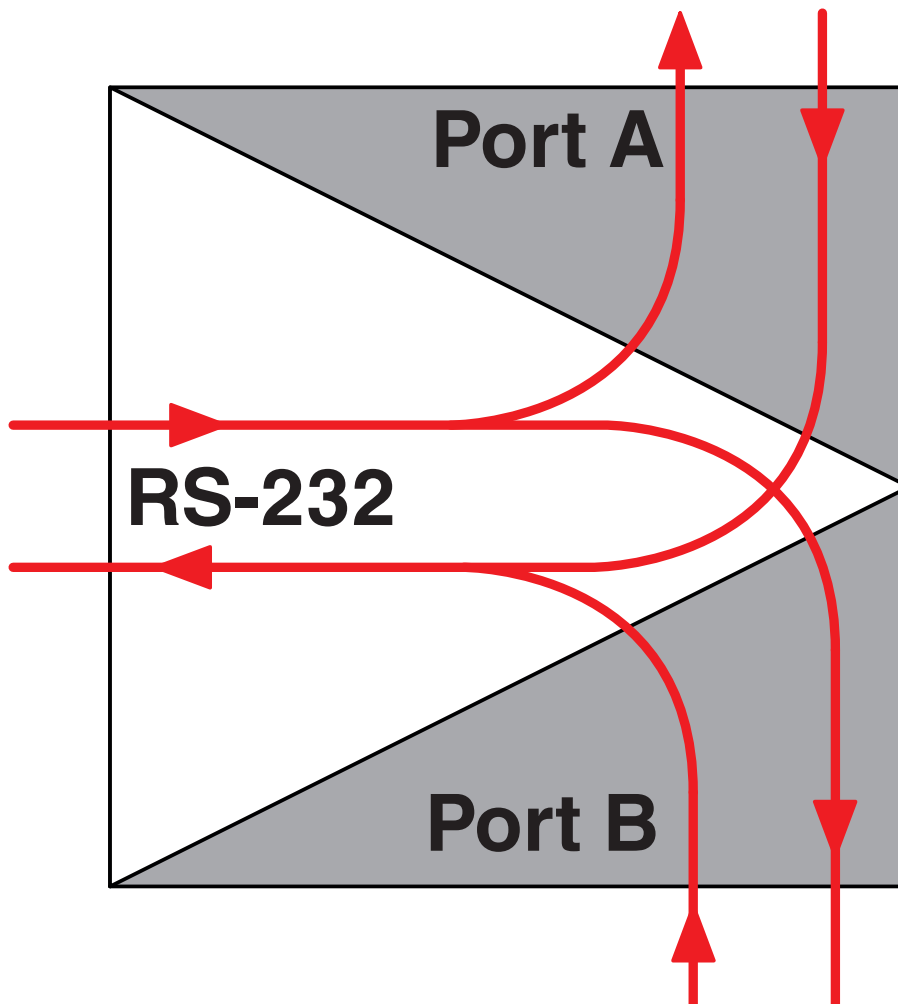
Redundant structure

Schematic diagram



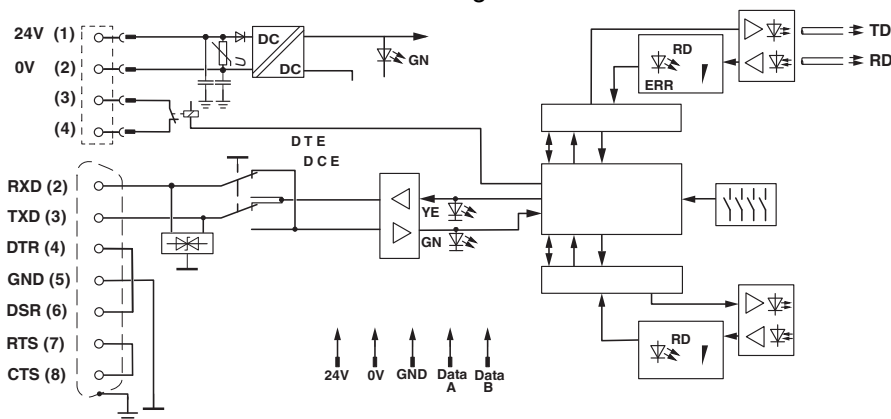
Port assignment in a line structure

Schematic diagram



Port assignment in star structures

Block diagram



*) only with PSI-MOS.../FO...T

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2708371>



cULus Recognized
Approval ID: E238705



DNV GL
Approval ID: TAA00001KR



cUL Listed
Approval ID: E199827



UL Listed
Approval ID: E199827

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-13.0 | 19170411 |
| ECLASS-15.0 | 19170411 |

ETIM

| | |
|-----------|----------|
| ETIM 10.0 | EC001467 |
|-----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 43201500 |
|-------------|----------|

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Environmental product compliance

EU RoHS

| | |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 6(c), 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 | c5763b83-d871-430b-bd59-b53cb3b35fbe |

EF3.1 Climate Change

| | |
|---------|----------------|
| CO2e kg | 14.022 kg CO2e |
|---------|----------------|

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Phoenix Contact USA
 586 Fulling Mill Road
 Middletown, PA 17057, United States
 (+717) 944-1300
info@phoenixcon.com