

PSI-MOS-PROFIB/FO1300 E - FO converters



2708559

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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

Product description

The **PSI-MOS-PROFIB/FO...** devices convert copper-based PROFIBUS interfaces to fiber optics. The integrated optical diagnostics allow permanent monitoring of the FO paths during installation and also during operation. The floating switch contact is activated when the signal output on the fiber optic paths drops to a critical level. The **PSI-MOS-PROFIB/FO... E** terminal devices convert a PROFIBUS interface for a **FO cable**. They are ideal for point-to-point connections.

Your advantages

- Connections can be plugged in via a COMBICON screw terminal block
- Supply voltage and data signals routed through the DIN rail connectors
- Can be combined with the PSI copper repeater in a modular way using DIN rail connectors
- Automatic data rate detection or fixed data rate setting via DIP switches
- Redundant power supply possible by means of optional system power supply unit
- High-quality electrical isolation between all interfaces (PROFIBUS // fiber optic ports // power supply // DIN rail connector)
- Approved for use in zone 2
- Floating switch contact for advance warning of critical FO paths
- Integrated optical diagnostics for continuous monitoring of FO paths
- Bit retiming for any cascading depth
- Suitable for all data rates up to 12 Mbps

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2708559 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN06 |
| Product key | DNC211 |
| GTIN | 4046356174060 |
| Weight per piece (including packing) | 227.01 g |
| Weight per piece (excluding packing) | 160.86 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 | 849 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) |
| | 392 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%) |
| | 163 Years (SN 29500 standard, temperature 40°C, operating cycle 100%) |
| MTBF | 406 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day)) |
| | 92 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day)) |

Electrical properties

| | |
|---|---------------------------------------|
| Electrical isolation | VCC // RS-485 |
| Maximum power dissipation for nominal condition | 1.32 W |
| Test voltage data interface/power supply | 1.5 kV _{rms} (50 Hz, 1 min.) |

Supply

| | |
|-----------------------------|--|
| Supply voltage range | 18 V DC ... 32 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 | 90 mA |
| | ≤ 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) |

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

Connection data

Supply

| | |
|---|---|
| Connection method | COMBICON plug-in screw terminal block |
| 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 |
| Conductor cross-section, flexible [AWG] | 24 ... 14 |
| Stripping length | 7.00 mm |
| Tightening torque | 0.56 Nm ... 0.79 Nm |

Interfaces

| | |
|------------------------|---|
| Bit distortion, input | ± 35 % (permitted) |
| Bit distortion, output | < 6.25 % |
| Bit delay | < 1 bit (DIP 7 = OFF, standard operation) |
| | 11 bit (DIP 7 = ON, redundancy operation) |
| Signal | PROFIBUS |

Data: optical FO

| | |
|---|--|
| No. of channels | 1 |
| Transmit capacity, minimum | -3.4 dBm (50/125 µm, multimode fiberglass) |
| | -4.7 dBm (62.5/125 µm, multimode fiberglass) |
| | -5.5 dBm (9/125 µm, singlemode fiberglass) |
| Transmission length incl. 3 dB system reserve | 25 km (With F-G 50/125 0.7 dB/km at 1300 nm) |
| | 22 km (with F-G 62.5/125 0.8 dB/km at 1300 nm) |
| | 45 km (With F-E 9/125 0,4 dB/km at 1300 nm) |
| Transmission protocol | Protocol-transparent to the RS-485 interface |
| Connection method | SC duplex |
| Wavelength | 1300 nm |
| Minimum receiver sensitivity | -25.5 dBm (Multi mode) |
| | -26.5 dBm (Singlemode) |
| Maximum receiver sensitivity | 0 dBm |
| Transmission medium | Multi-mode fiberglass |
| | Single-mode fiberglass |

Data: PROFIBUS acc. to IEC 61158, RS-485 2-wire, half duplex, automatic control

| | |
|---------------------------|---|
| Serial transmission speed | ≤ 12 Mbps |
| Connection method | D-SUB-9 female connector |
| Tightening torque | 0.4 Nm |
| Transmission length | ≤ 1200 m (depending on the data rate, with shielded, twisted pair data cable) |
| Transmission medium | 2-wire twisted pair, shielded |
| File format/coding | UART (11 Bit, NRZ) |
| Data direction switching | Automatic control |
| Output nominal voltage | 5 V DC ±0.25 (50 mA) |

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Dimensions

| | |
|---------------------|--|
| Dimensional drawing |  |
| Width | 35 mm |
| Height | 105 mm |
| Depth | 106 mm |

Material specifications

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

Cable/line

FO cable

| | |
|-------------|-------------|
| Fiber types | 50/125 µm |
| | 62.5/125 µm |
| | 9/125 µm |
| | Fiberglass |

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

Approvals

CE

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

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ATEX

| | |
|----------------|---|
| Identification | ⊕ II 3 G Ex ec IIC T4 Gc |
| Certificate | UL 21 ATEX 2550X |
| Note | Please follow the special installation instructions in the documentation! |

IECEX

| | |
|----------------|--------------------|
| Identification | Ex ec IIC T4 Gc |
| Certificate | IECEX ULD 21.0013X |

UL, USA/Canada

| | |
|----------------|------------------------------------|
| Identification | Class I, Zone 2, AEx ec IIC T4 Gc |
| | Ex ec IIC T4 Gc X |
| | Class I, Div. 2, Groups A, B, C, D |

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 61000-6-2:2005 |

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

| | |
|-----------------|-------------|
| Field intensity | 10 V/m |
| Comments | Criterion A |

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)

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

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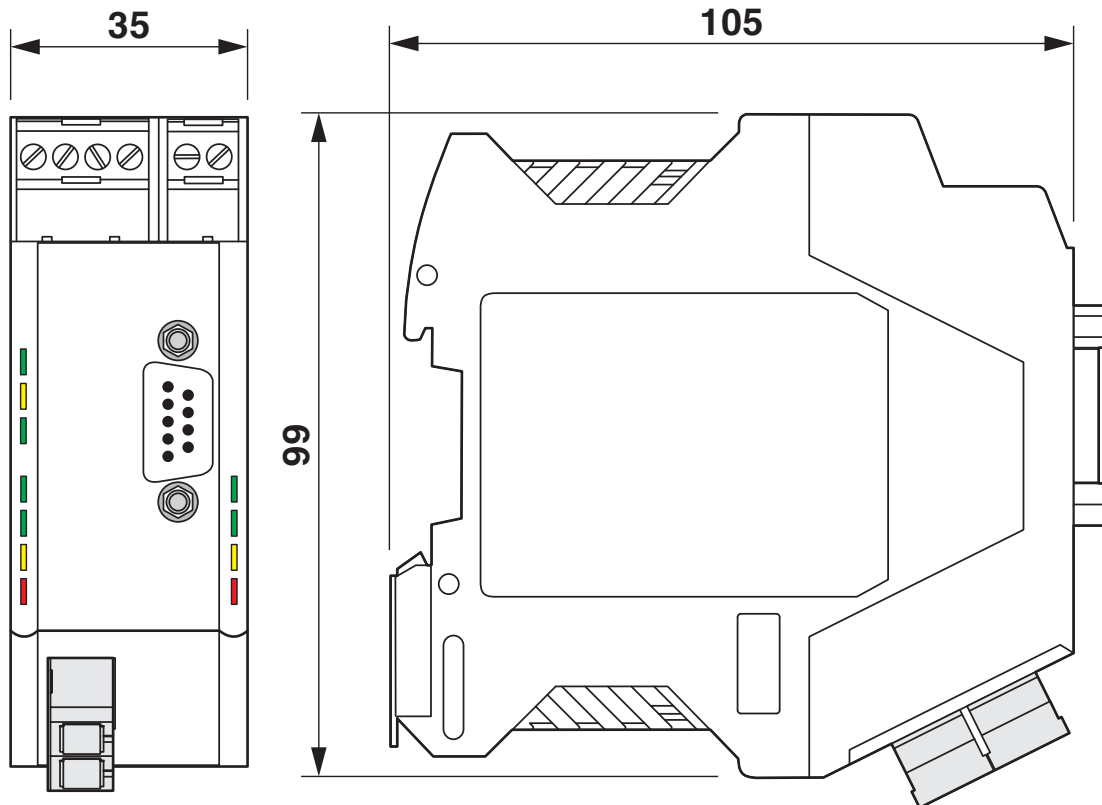


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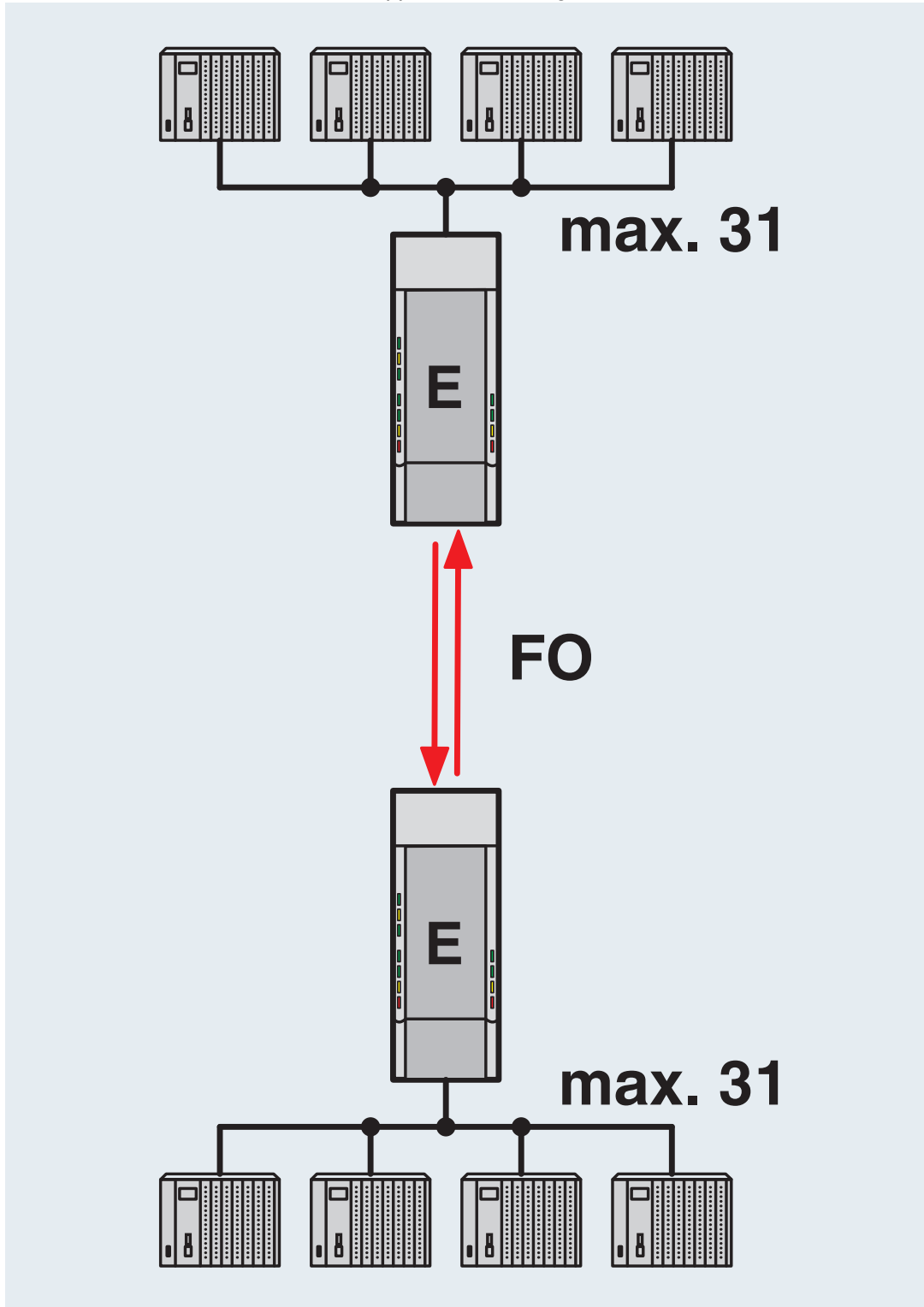
Drawings

Dimensional drawing



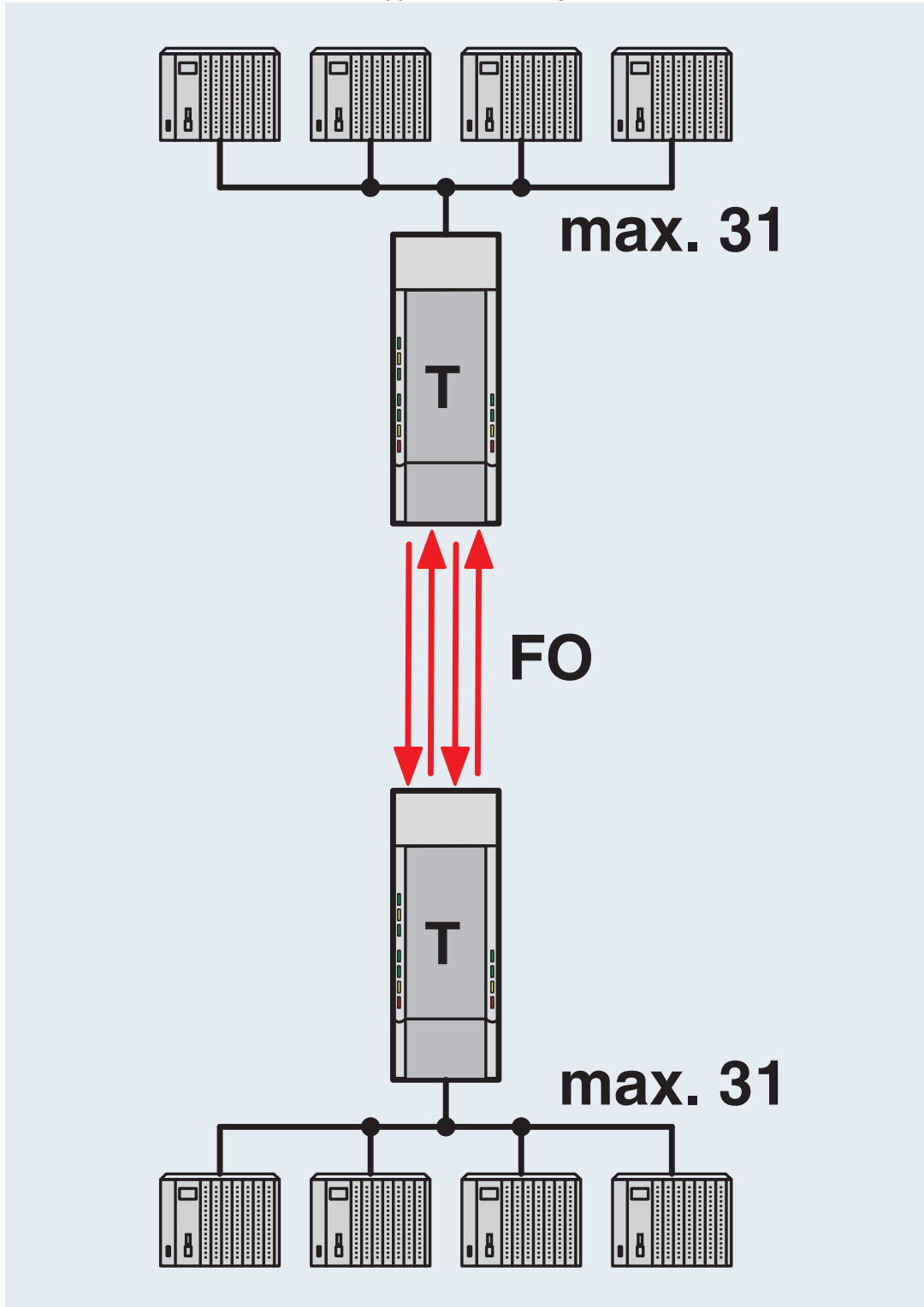
Housing dimensions

Application drawing



Point-to-point connection

Application drawing



Redundant point-to-point connection

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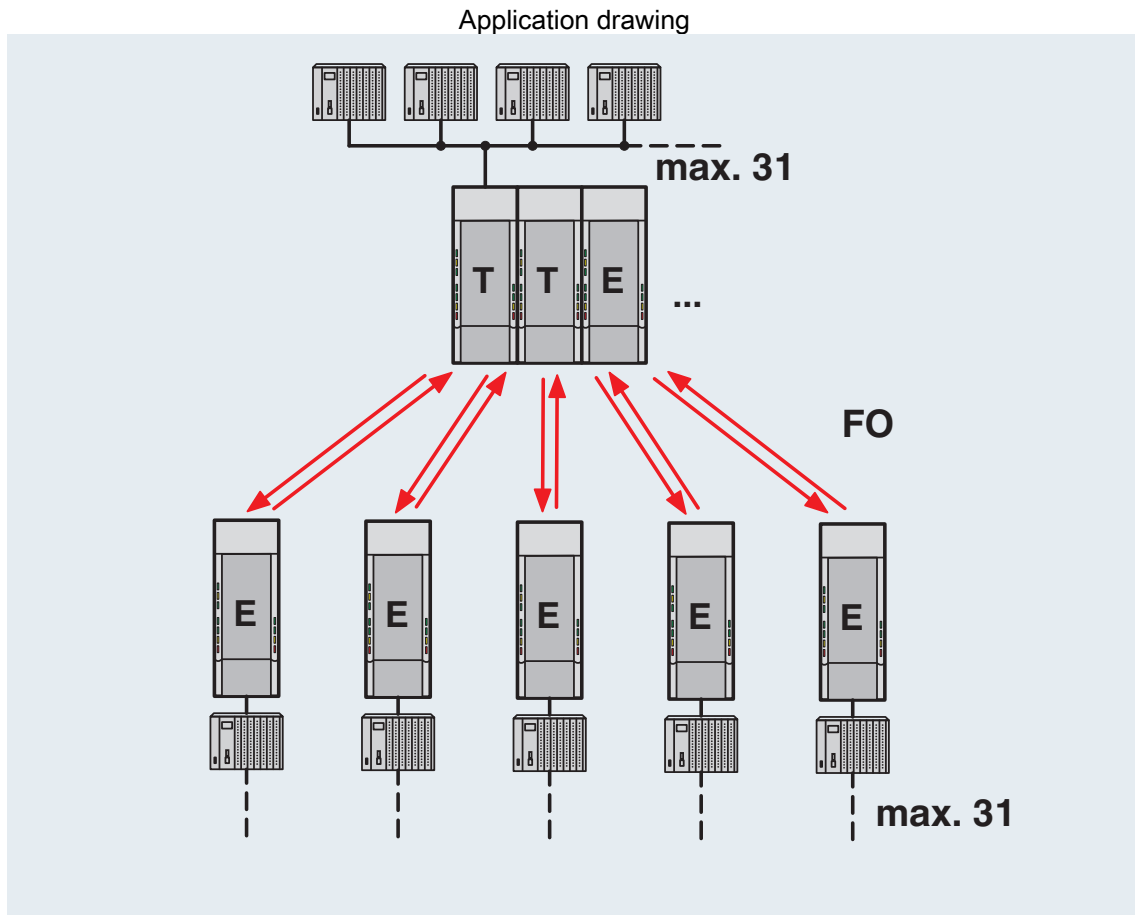


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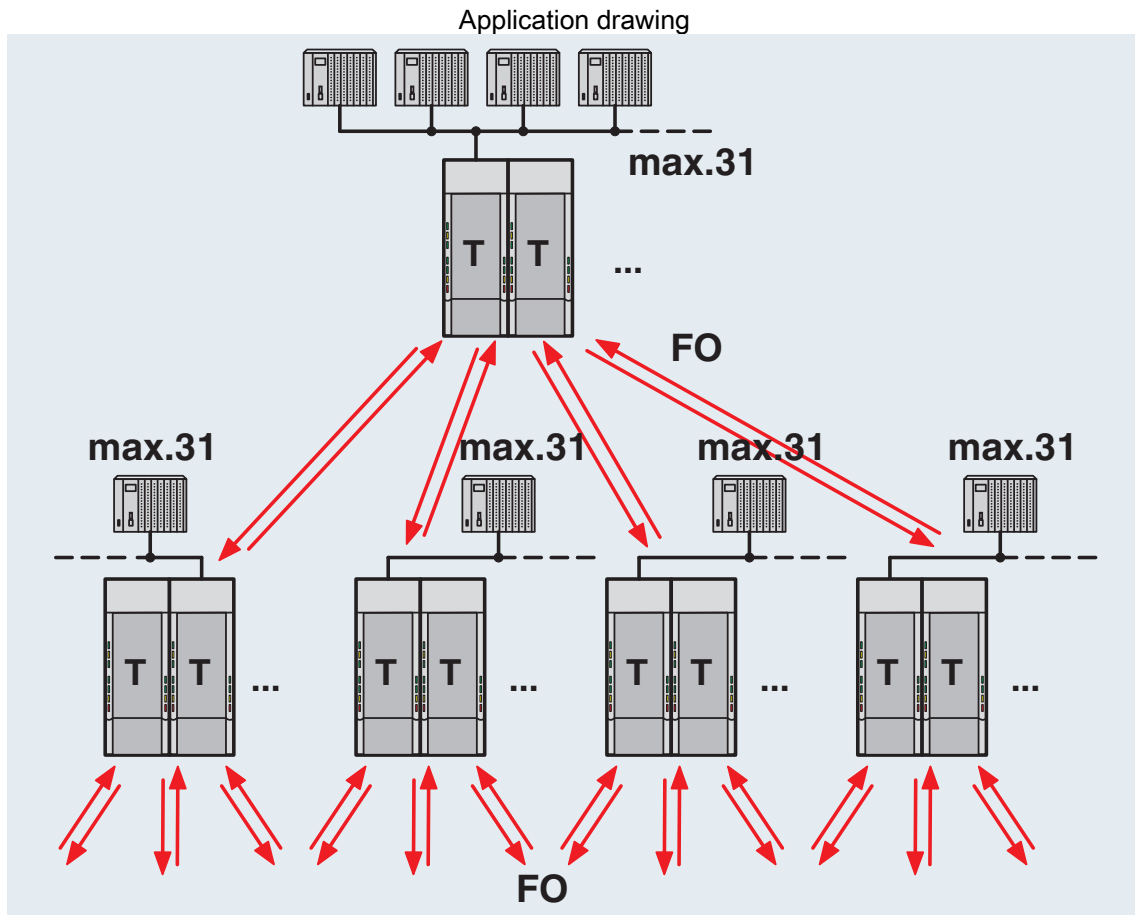
<https://www.phoenixcontact.com/us/products/2708559>



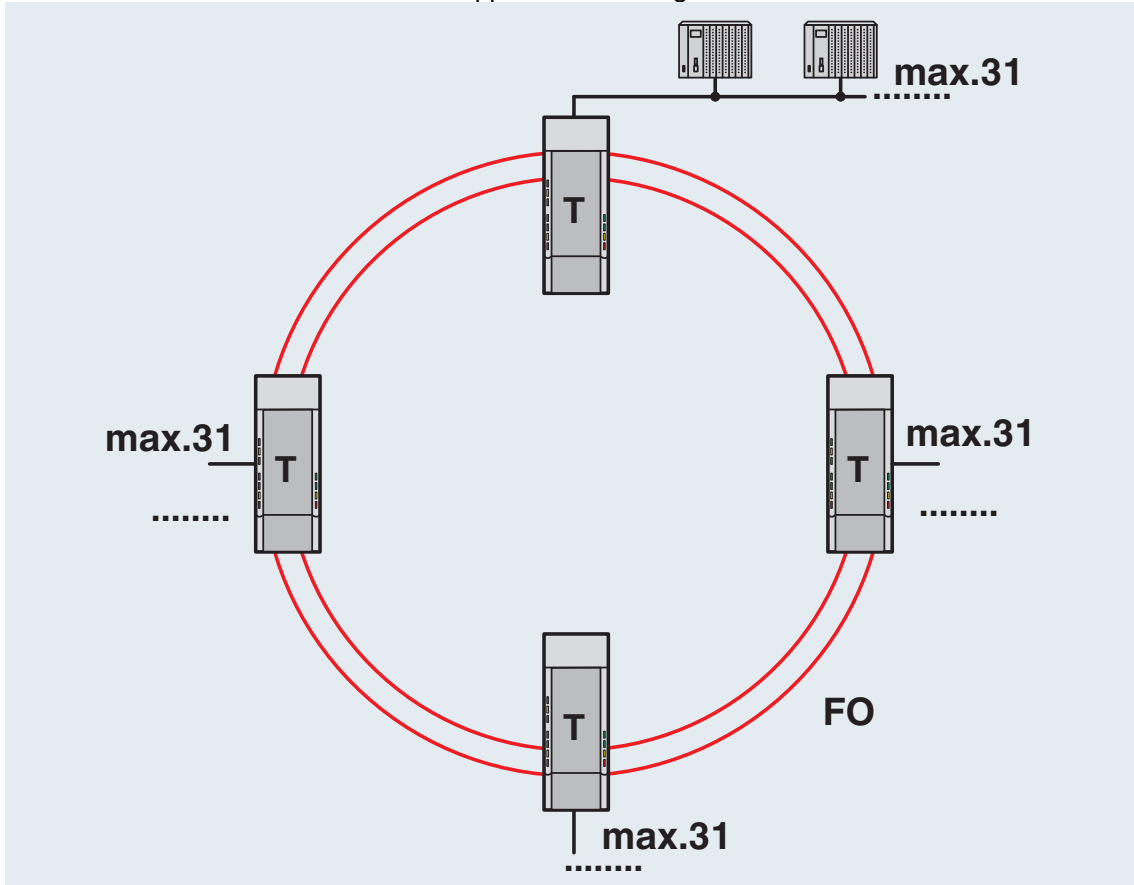
Line structure



Star structure



Application drawing



Redundant FO ring

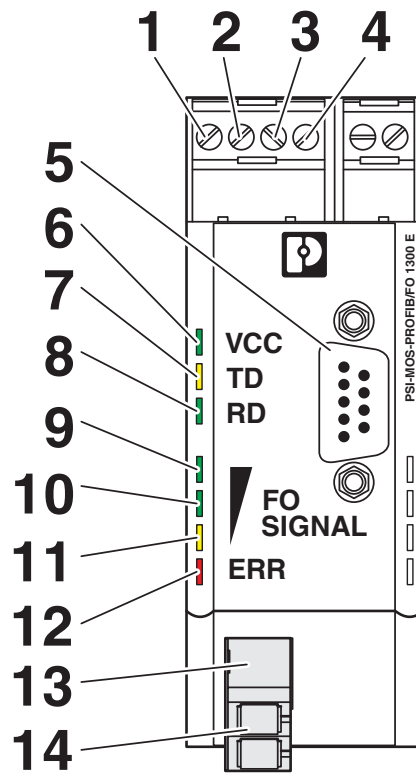
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Schematic diagram



Front view

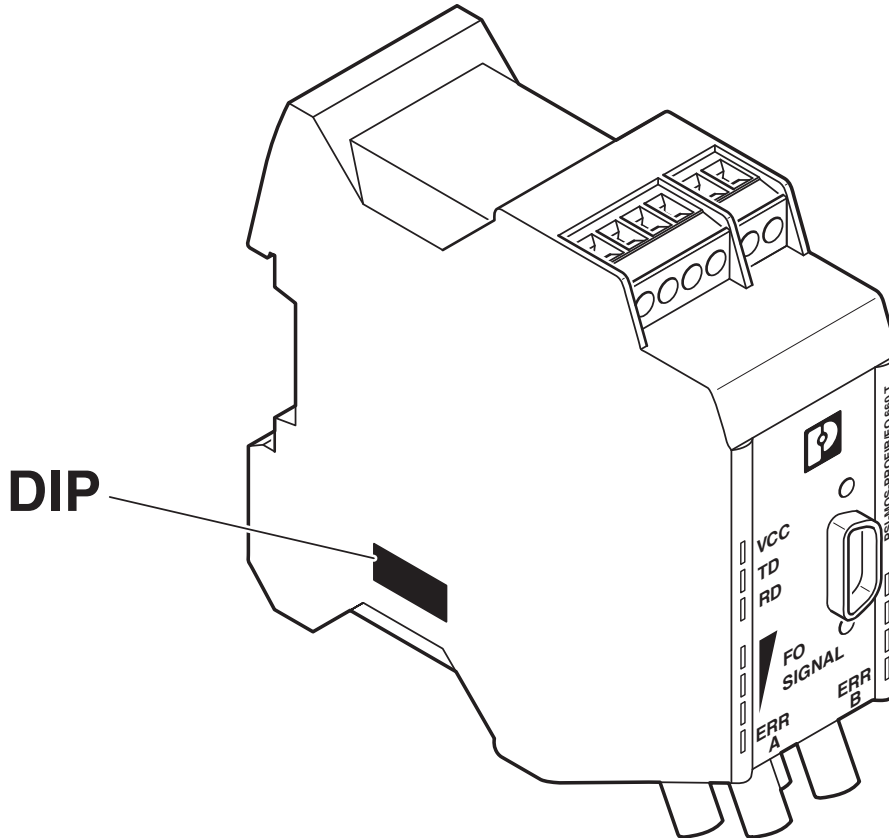
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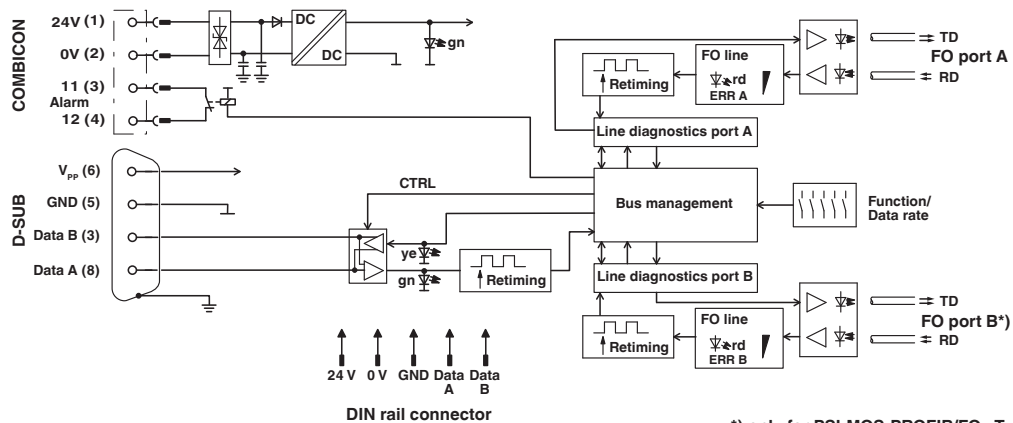
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Schematic diagram



Position of DIP switches

Block diagram



*) only for PSI-MOS-PROFIB/FO...T

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

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Approvals

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cULus Listed

Approval ID: E238705



cULus Recognized

Approval ID: E238705



cUL Listed

Approval ID: E199827



UL Listed

Approval ID: E199827



IECEx

Approval ID: IECEx ULD 21.0013X



ATEX

Approval ID: UL 21 ATEX 2550X

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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 | 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) |
| | 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol(CAS: 119-47-1) |
| SCIP | ad357f1a-af6e-43d8-a870-7a03e9033bb4 |

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