

## FO converters - PSI-MOS-DNET/FO 850 E - 2313999

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Fiber optic converter with integrated optical diagnostics, for DeviceNet™, CAN, CANopen® up to 1000 kbps, termination device, interfaces: 1 x CAN, 1 x Alarm, 1 x FO (B-FOC), 850 nm, for HCS/fiberglass (multi-mode)

### Product Features

- ✓ Data rates of up to 1000 kbps
- ✓ Supply voltage and data signals routed through via 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
- ✓ Integrated optical diagnostics for continuous monitoring of fiber optic paths
- ✓ High-quality electrical isolation between all interfaces (DeviceNet // fiber optic ports // power supply // DIN rail connector)
- ✓ Connections can be plugged in using a COMBICON screw terminal block
- ✓ Redundant power supply possible by means of optional system power supply unit
- ✓ Approved for use in zone 2
- ✓ Intrinsically safe fiber optic interface (Ex op is) for direct connection to devices in zone 1
- ✓ Floating switch contact for leading alarm generation in relation to critical fiber optic paths



CANopen



DeviceNet

### Key commercial data

|                                      |           |
|--------------------------------------|-----------|
| Packing unit                         | 1 pc      |
| Weight per Piece (excluding packing) | 240.0 GRM |
| 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 |
|-------------------------|---|

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## Technical data

### Dimensions

|        |        |
|--------|--------|
| Width  | 35 mm  |
| Height | 102 mm |
| Depth  | 119 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) |
| Degree of protection                    | IP20   |
| Noise immunity                          | EN 61000-6-2   |

### Serial interface

|  |  |
|--|--|
| Interface 1                            | CAN interface, in accordance with ISO/IS 11898 for DeviceNet, CAN, CANopen |
| Operating mode                         | Semi-duplex  |
| No. of channels                        | 2 (CAN_High / CAN_Low)   |
| Connection method                      | COMBICON plug-in screw terminal block                                      |
| File format/coding                     | Bit stuffing, NRZ  |
| Transmission medium                    | 2-wire twisted pair, shielded  |
| Transmission method                    | CSMA/CA  |
| Transmission length                    | ≤ 5000 m (Dependent on the data rate and the protocol used)                |
| Number of INTERBUS 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)                                |
| 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 stranded min.  | 0.2 mm <sup>2</sup>  |
| Conductor cross section stranded max.  | 2.5 mm <sup>2</sup>  |
| Conductor cross section AWG/kcmil min. | 24   |
| Conductor cross section AWG/kcmil max  | 14   |

### Optical interface FO

|                              |                         |
|------------------------------|-------------------------|
| Transmit capacity, minimum   | -13.5 dBm (50/125 μm)   |
|                              | -12.3 dBm (62,5/125 μm) |
|                              | -10.2 dBm (200/230 μm)  |
| Minimum receiver sensitivity | -28.1 dBm (50/125 μm)   |
|                              | -28.1 dBm (62,5/125 μm) |

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### Technical data

#### Optical interface FO

|   |   |
|---|---|
|   | -28.1 dBm (200/230 μm)  |
| Wavelength                                    | 850 nm  |
| Transmission length incl. 3 dB system reserve | 1800 m (with F-K 200/230 8 dB/km with quick mounting connector) |
|   | 4600 m (with F-G 50/125 2.5 dB/km)                              |
|   | 4200 m (with F-G 62,5/125 3.0 dB/km)                            |
| Transmission medium                           | HCS fiber   |
|   | Multi-mode fiberglass   |
| Transmission protocol                         | Protocol transparent for CAN interface                          |
| Connection method                             | B-FOC (ST®)   |

#### Digital outputs

|                             |              |
|-----------------------------|--------------|
| Output name                 | Relay output |
| Number of outputs           | 1            |
| Contact type                | N/O contact  |
| Minimum switching voltage   | 11 V DC      |
| Maximum switching voltage   | 30 V DC      |
| Limiting continuous current | 500 mA       |

#### Power supply

|                             |   |
|-----------------------------|---|
| Nominal supply voltage      | 24 V DC   |
| Supply voltage range        | 11 V DC ... 30 V DC (via pluggable COMBICON screw terminal block) |
| Typical current consumption | 130 mA (24 V DC)  |

#### General

|  |   |
|--|---|
| Bit distortion, input                    | ± 35 % (permitted)  |
| Bit distortion, output                   | < 6.25 %  |
| Electrical isolation                     | VCC // CAN  |
| Test voltage data interface/power supply | 1.5 kV <sub>rms</sub> (50 Hz, 1 min.)   |
| Electromagnetic compatibility            | Conformance with EMC Directive 2004/108/EC  |
| Noise emission                           | EN 55011  |
| Net weight                               | 180 g   |
| Housing material                         | PA 6.6-FR   |
| Color                                    | green   |
| MTBF                                     | 253 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))    |
|  | 38 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day)) |
| MTTF                                     | 831 Years (SN 29500 standard, temperature 25°C, operating cycle 21 % (5 days a week, 8 hours a day))    |

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### Technical data

#### General

|                  |  |
|------------------|--|
|                  | 378 Years (SN 29500 standard, temperature 40 °C, operating cycle 34.25 % (5 days a week, 12 hours a day))                      |
|                  | 155 Years (SN 29500 standard, temperature 40°C, operating cycle 100 % (7 days a week, 24 hours a day))                         |
| Conformance      | CE-compliant   |
| ATEX             | # II (2) D [Ex op is Db] IIIC (PTB 06 ATEX 2042 U) (Please follow the special installation instructions in the documentation!) |
|                  | # II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U) (Please follow the special installation instructions in the documentation!)  |
|                  | # II 3 G Ex nA IIC T4 Gc X (Please follow the special installation instructions in the documentation!)                         |
| UL, USA / Canada | 508 listed   |

### Classifications

#### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27230207 |
| eCl@ss 4.1 | 27230207 |
| eCl@ss 5.0 | 27230207 |
| eCl@ss 5.1 | 27230207 |
| eCl@ss 6.0 | 27230207 |
| eCl@ss 7.0 | 27230207 |
| eCl@ss 8.0 | 27143136 |

#### ETIM

|          |          |
|----------|----------|
| ETIM 3.0 | EC000236 |
| ETIM 4.0 | EC000236 |
| ETIM 5.0 | EC001467 |

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30211506 |
| UNSPSC 7.0901 | 39121008 |
| UNSPSC 11     | 39121008 |
| UNSPSC 12.01  | 39121008 |
| UNSPSC 13.2   | 43201553 |

### Approvals

#### Approvals

## FO converters - PSI-MOS-DNET/FO 850 E - 2313999

### Approvals

Approvals

UL Listed / cUL Listed / DNV / cULus Listed

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Ex Approvals


ATEX


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Approvals submitted


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### Approval details

UL Listed 

cUL Listed 

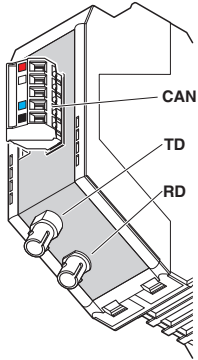
DNV

cULus Listed 

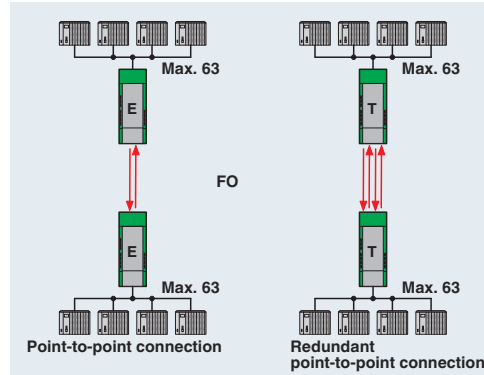
### Drawings

# FO converters - PSI-MOS-DNET/FO 850 E - 2313999

Schematic diagram



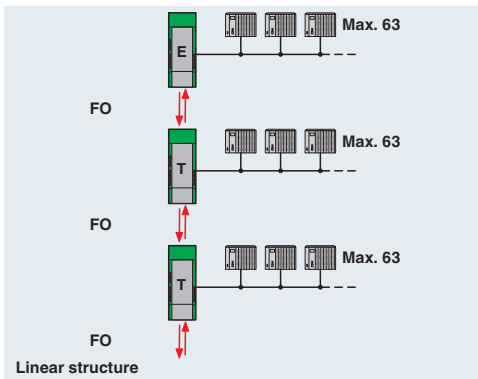
Application drawing



Device connections

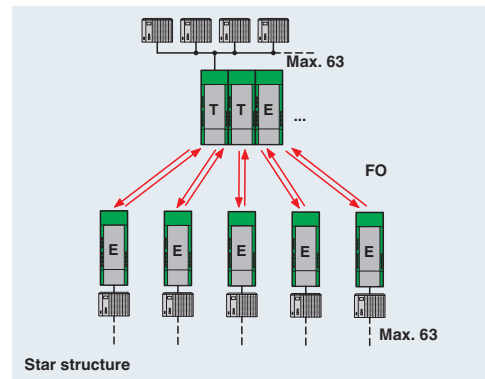
Point-to-point connection

Application drawing



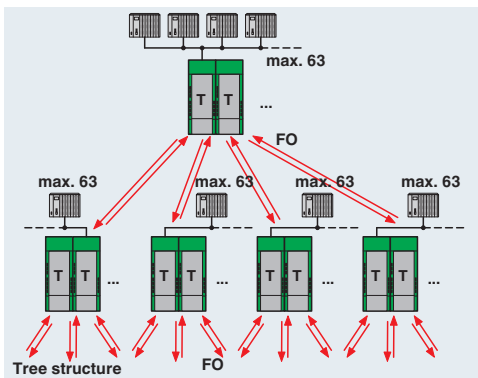
Line structure

Application drawing



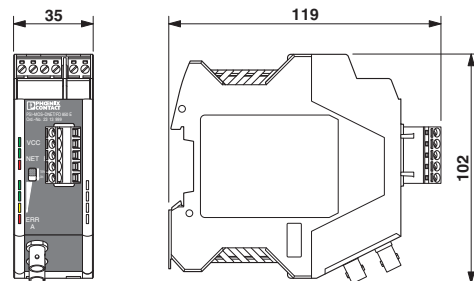
Star structure

Application drawing



Tree structure

Dimensioned drawing



# FO converters - PSI-MOS-DNET/FO 850 E - 2313999

Block diagram

