PHŒNIX CONTACT

FO converters - PSI-MOS-DNET/FO 850 T - 2313986

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Fiber optic converter with integrated optical diagnostics, for DeviceNet™, CAN, CANopen® up to 1000 kbps, T-coupler, interfaces: 1 x CAN, 1 x Alarm, 2 x FO (B-FOC), 850 nm, for PCF/fiberglass (multi-mode)

Product Description

The PSI-MOS-DNET... fiber optic transmission system enables DeviceNet™ and CANopen® users to benefit from simple and interference-free networking based on fiber optics. In addition, bus cable short circuits only affect the specific potential segment concerned. This increases overall availability, and improves flexibility when designing the bus topology. The use of fiber optic technology enables branch lines and star and tree structures to be created.

Thanks to extended functions, the modular devices in the PSI-MOS-DNET/FO... series support network expansion that is not dependent on the data rate.

Your advantages

☑ 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

☑ Shipbuilding approval in accordance with DNV GL

☑ Floating switch contact for leading alarm generation in relation to critical fiber optic paths

RoHS

(Ex) DeviceNet CANopen

Key Commercial Data

Packing unit	1 pc
GTIN	(barcode) 4 046356 513814
GTIN	4046356513814

Technical data

Note

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Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area

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 the manufacturer's declaration for altitude operation)
Degree of protection	IP20
Noise immunity	EN 61000-6-2

Interfaces

Interface 1	CAN interface, in accordance with ISO/IS 11898 for DeviceNet, CAN, CANopen
Operating mode	Semi-duplex
No. of ports	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 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)
Conductor cross section solid min.	0.2 mm²
Conductor cross section solid max.	2.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	2.5 mm²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	14

Optical interface FO

Transmit capacity, minimum	-14.5 dBm (50/125 µm)
	-13.3 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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Optical interface FO

	-28.1 dBm (200/230 µm)
Wavelength	850 nm
Transmission length incl. 3 dB system reserve	4200 m (with F-G 50/125 2.5 dB/km)
	3900 m (with F-G 62,5/125 3.0 dB/km)
	1800 m (with F-K 200/230 8 dB/km with quick mounting connector)
Transmission medium	PCF 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

Power supply

Nominal supply voltage	24 V DC (With UL approval)
Supply voltage range	11 V DC ... 30 V DC (via pluggable COMBICON screw terminal block)
Typical current consumption	150 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$_{rms}$ (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011
Net weight	250.3 g
Housing material	PA 6.6-FR
Color	green
MTBF	400 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	64 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
MTTF	543 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	247 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	102 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)

Conformance/approvals

Designation	CE

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Conformance/approvals

Identification	CE-compliant
Designation	EAC
Identification	EAC
Designation	ATEX
Identification	# II 3 G Ex nA IIC T4 Gc X
Additional text	Please follow the special installation instructions in the documentation!
Designation	UL, USA/Canada
Identification	508 Listed
Designation	Corrosive gas test
Identification	ISA-S71.04-1985 G3 Harsh Group A
Designation	Shipbuilding
Identification	DNV GL
Temperature	B
Humidity	A
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Type of test	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6
Test result	5g, 10...150 Hz, 2.5 h, in XYZ direction
Type of test	Shock in acc. with EN 60068-2-27/IEC 60068-2-27
Test result	15g, 11 ms period, half-sine shock pulse
Noise emission	EN 55011
Noise immunity	EN 61000-6-2
Free from substances that could impair the application of coating	according to P-VW 3.10.7 57 65 0 VW-AUDI-Seat central standard
Standards/regulations	EN 61000-4-2
Contact discharge	± 6 kV
Standards/regulations	EN 61000-4-3
	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-4-5
Signal	± 1 kV
Standards/regulations	EN 55011
	EN 61000-4-6

Environmental Product Compliance

REACh SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years

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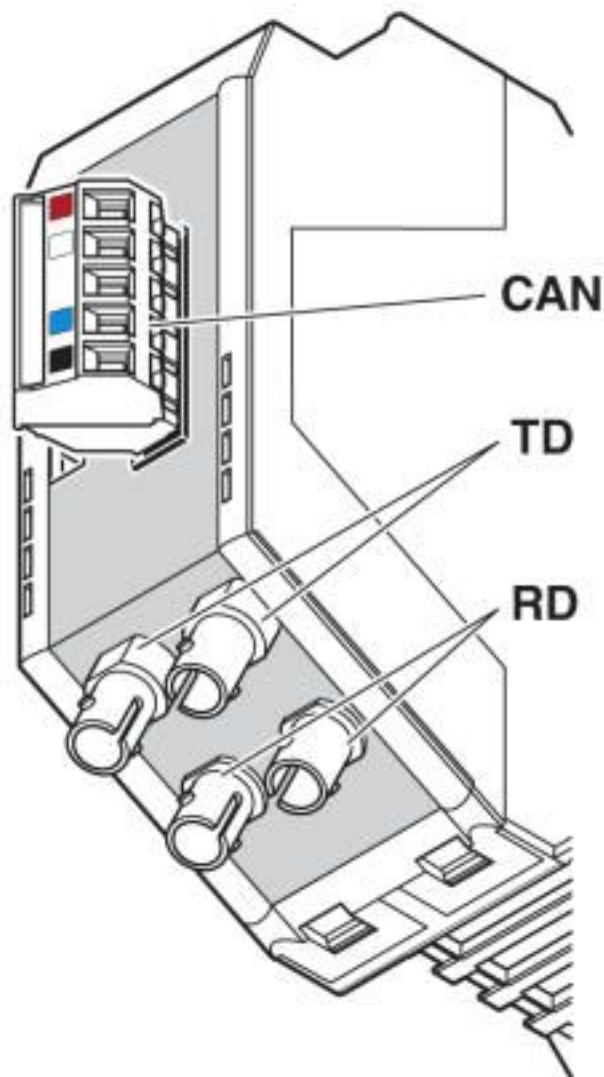
Technical data

Environmental Product Compliance

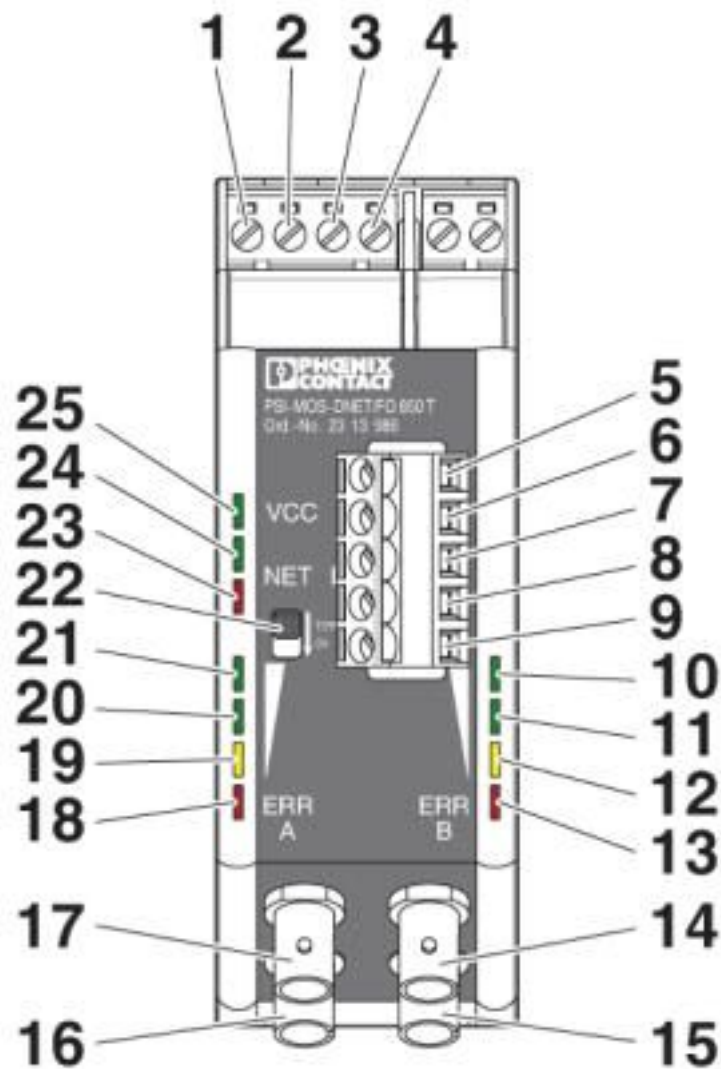|	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

Schematic diagram

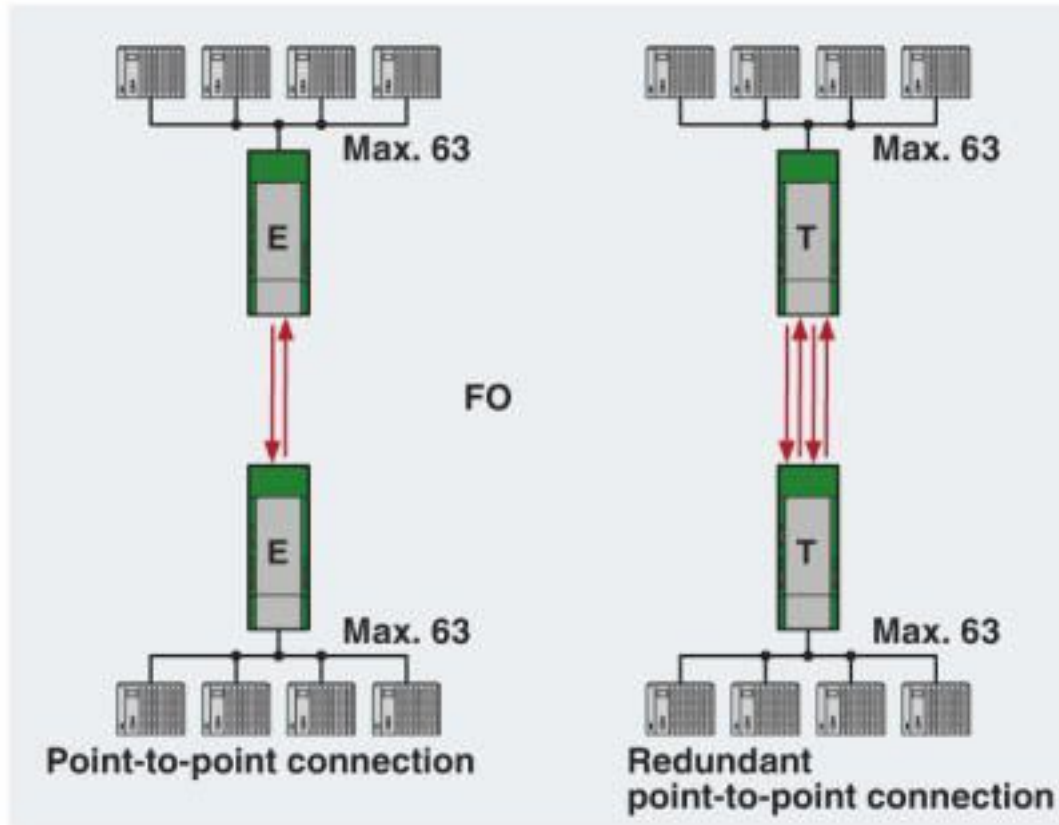Device connections

FO converters - PSI-MOS-DNET/FO 850 T - 2313986

Schematic diagram

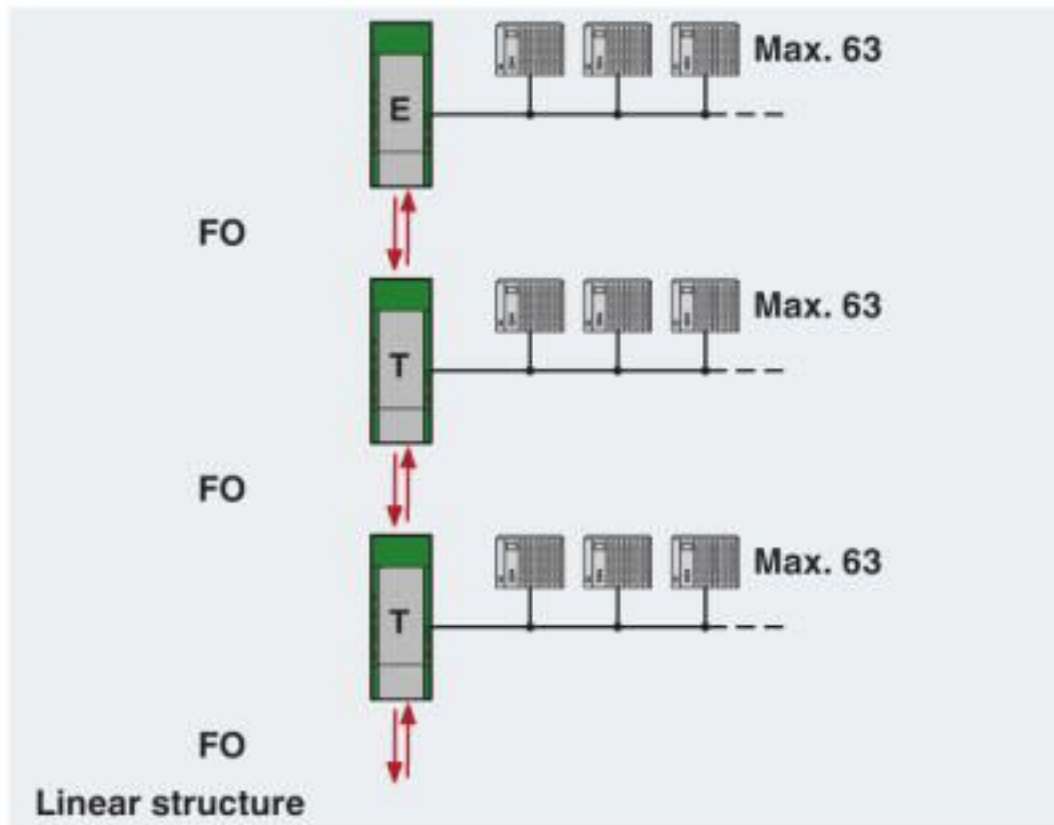Front view

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Application drawing

Point-to-point connection

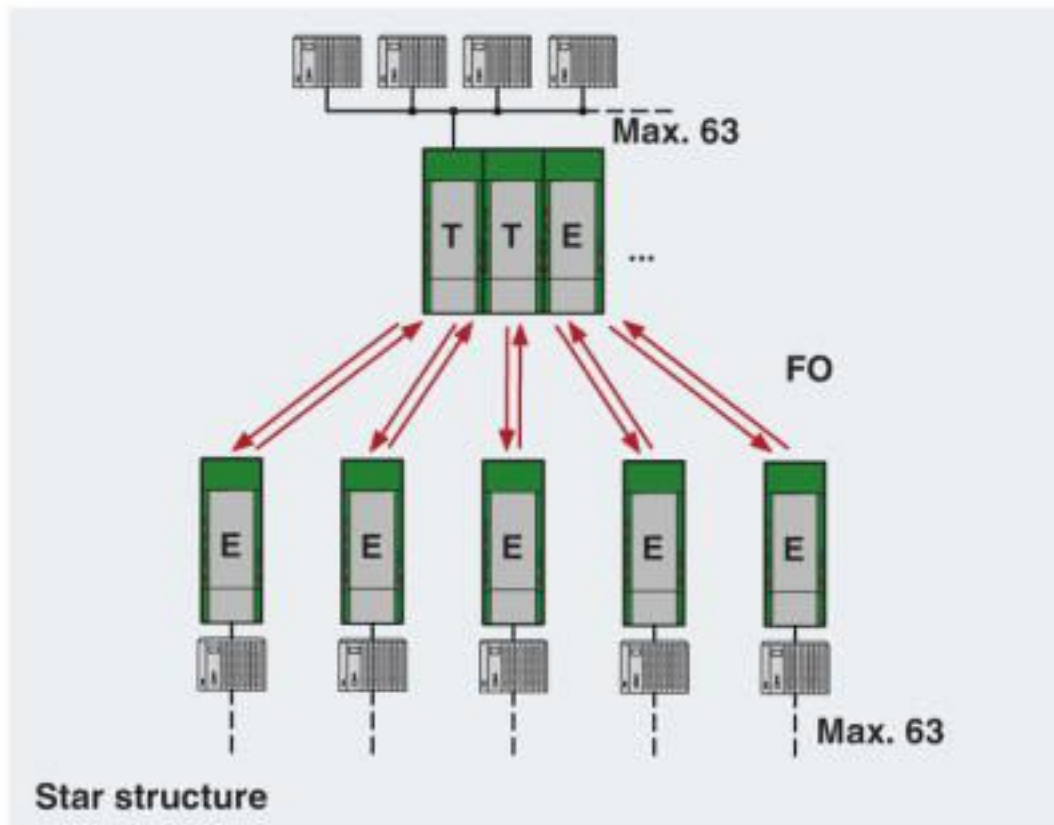# FO converters - PSI-MOS-DNET/FO 850 T - 2313986

Application drawing

Line structure

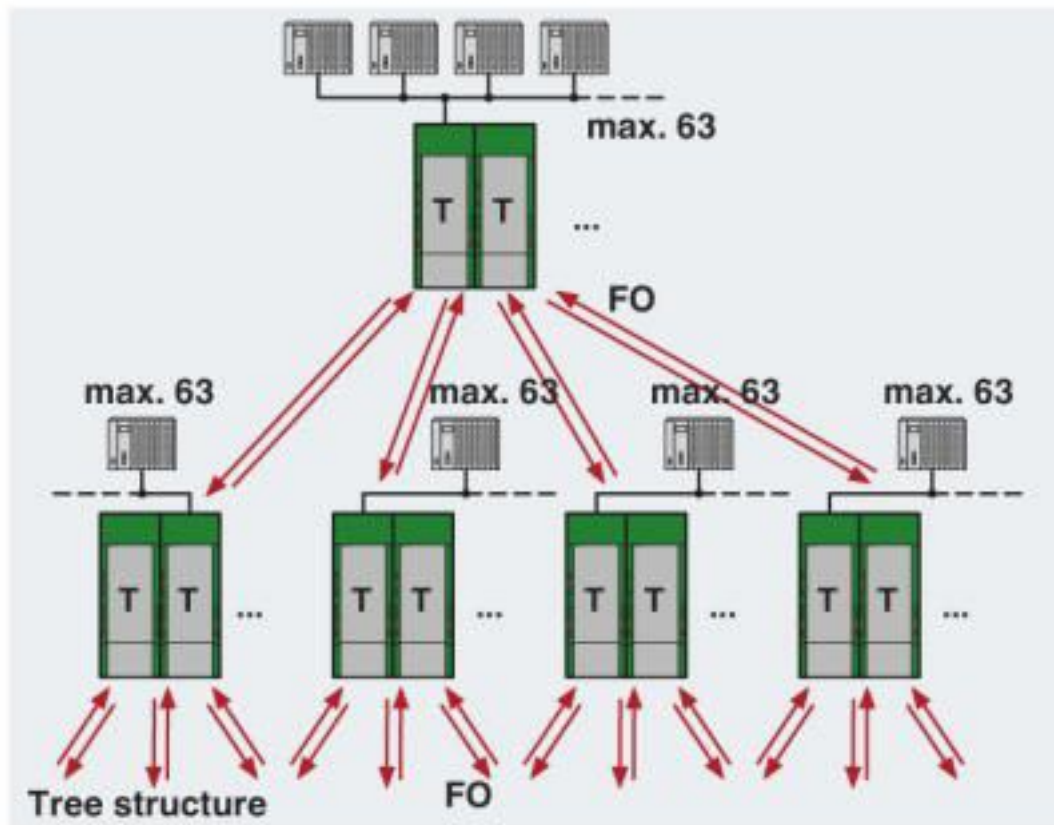# FO converters - PSI-MOS-DNET/FO 850 T - 2313986

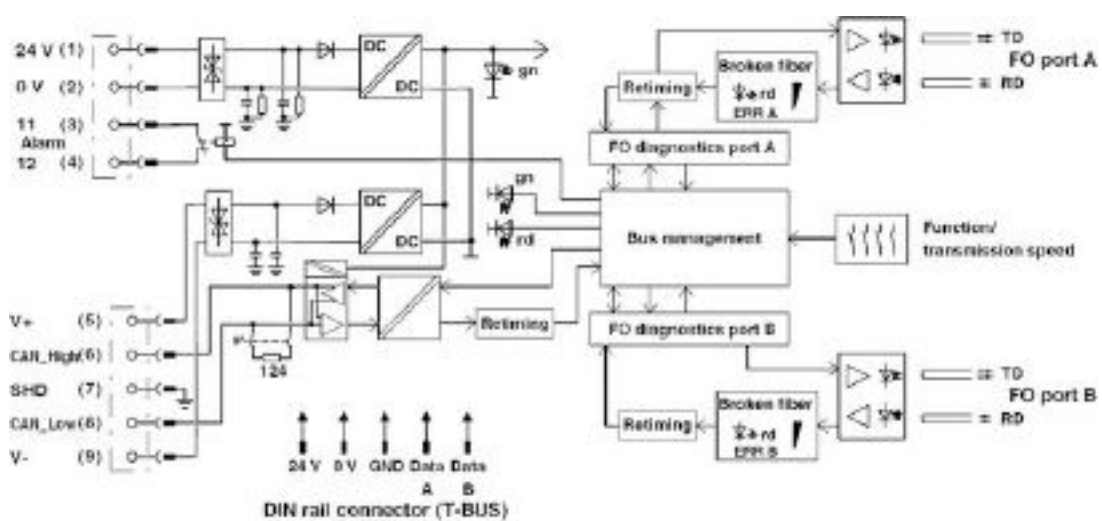Application drawing

Star structure

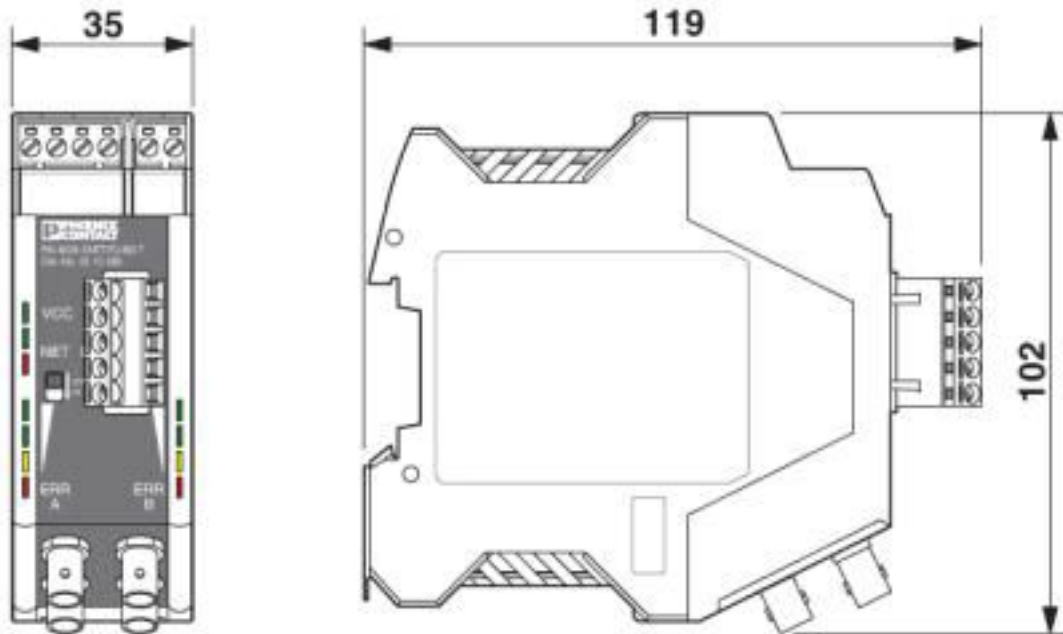# FO converters - PSI-MOS-DNET/FO 850 T - 2313986

Application drawing

Tree structure

Block diagram

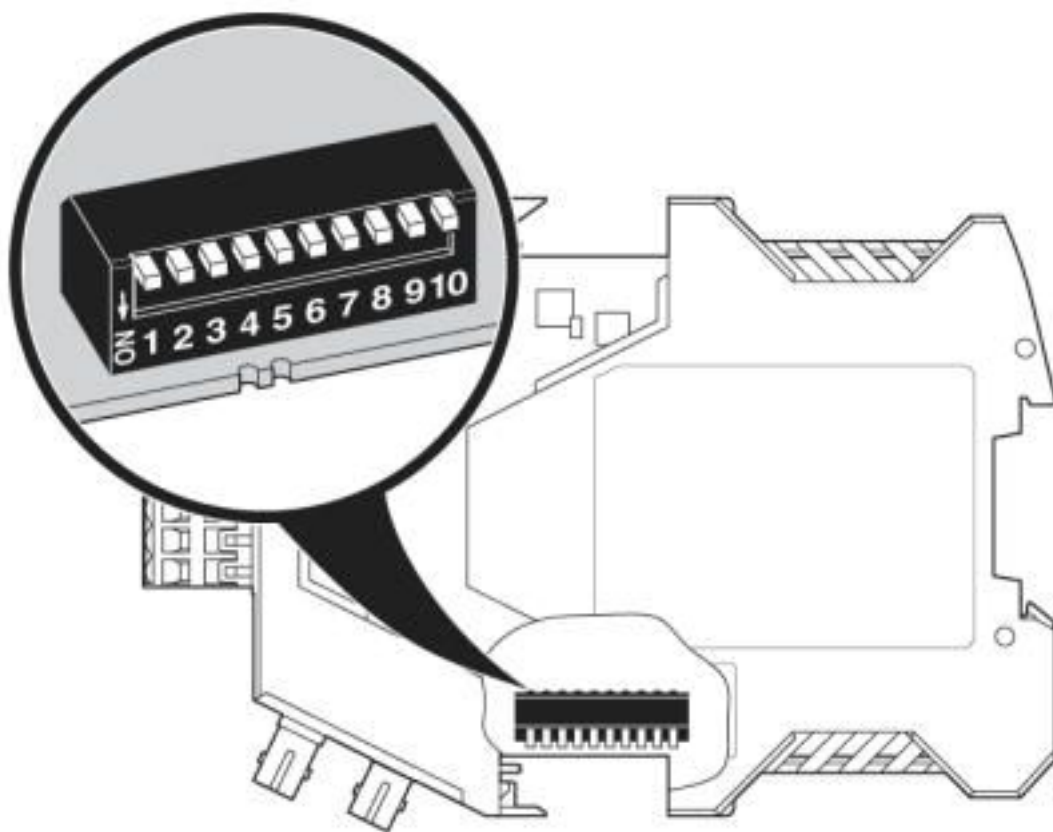# FO converters - PSI-MOS-DNET/FO 850 T - 2313986

Dimensional drawing

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Schematic diagram

DIP switches

Classifications

eCl@ss

eCl@ss 10.0.1	19170132
eCl@ss 4.0	27230200
eCl@ss 4.1	27230200
eCl@ss 5.0	27230200
eCl@ss 5.1	27230200
eCl@ss 6.0	27230200
eCl@ss 7.0	19170114
eCl@ss 8.0	19170114
eCl@ss 9.0	19170114

ETIM

ETIM 3.0	EC000236
ETIM 4.0	EC000236
ETIM 5.0	EC001467
ETIM 6.0	EC001467

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Classifications

ETIM

ETIM 7.0	EC001467

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	43201553
UNSPSC 18.0	43223323
UNSPSC 19.0	43223323
UNSPSC 20.0	43223323
UNSPSC 21.0	43223323

Approvals

Approvals

Approvals

DNV GL / UL Listed / cUL Listed / EAC / cULus Listed

Ex Approvals

ATEX

Approval details

DNV GL		https://approvalfinder.dnvgl.com/	TAA00001KR

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705

cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705

EAC			EAC-Zulassung

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Approvals

cULus Listed

Accessories

Accessories

Data cable by the meter

FO cable - PSM-LWL-HCS-RUGGED-200/230 - 2799885

PCF cable, duplex 200 µm/230 µm, by the meter without male connector, for installation in stationary systems and machines

FO cable - PSM-LWL-HCSO-200/230 - 2799445

PCF cable, duplex 200/230 µm, by the meter, without connector, for outdoor installation

FO cable - PSM-LWL-GDM-RUGGED- 50/125 - 2799322

Fiber glass cable, duplex 50 µm/125 µm, by the meter, without male connector, for installation in stationary systems and machines

FO cable - PSM-LWL-GDO- 50/125 - 2799432

Fiberglass cable, duplex 50/125 µm, by the meter, without connector, for outdoor installation

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Accessories

Bus system cable - SAC-5P-920/... - 1511504

Bus system cable, CANopen®, DeviceNet™, 4-position, PUR halogen-free, violet RAL 4001, shielded, cable length: Free entry (0.5 ... 400 m)

Data cable preassembled

FO patch cable - FL MM PATCH 1,0 LC-ST - 2989174

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: LC/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

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FO patch cable - FL MM PATCH 2,0 LC-ST - 2989271

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: LC/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 m

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FO patch cable - FL MM PATCH 5,0 LC-ST - 2901801

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: LC/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

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FO patch cable - FL MM PATCH 1,0 SC-ST - 2901809

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: SC duplex/B-FOC(ST), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

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FO converters - PSI-MOS-DNET/FO 850 T - 2313986

Accessories

FO patch cable - FL MM PATCH 5,0 SC-ST - 2901811

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: SC duplex/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

FO patch cable - FL MM PATCH 1,0 ST-ST - 2901815

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

FO patch cable - FL MM PATCH 2,0 ST-ST - 2901816

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 m

FO patch cable - FL MM PATCH 5,0 ST-ST - 2901817

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

FO patch cable - FL MM PATCH 1,0 ST-SCRJ - 2901820

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/SC-RJ, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

FO converters - PSI-MOS-DNET/FO 850 T - 2313986

Accessories

FO patch cable - FL MM PATCH 2,0 ST-SCRJ - 2901821

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/SC-RJ, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 m

FO patch cable - FL MM PATCH 5,0 ST-SCRJ - 2901822

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/SC-RJ, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

FO patch cable - FOC-HCS-RUGGED-1014/IP20/... - 2901555

Robust PCF installation cable for assembly (IP20 heads only) for installation in stationary systems and machines, aramid strain relief elements, with individual elements made from FRNC material, halogen-free, ozone and UV resistant, with a polyurethane (PUR) outer sheath

FO patch cable - FOC-HCS-RUGGED-1014/... - 1402191

rugged PCF installation cable for inner areas with highly tear-proof aramid strain-relief elements. Individual elements made from highly flexible FRNC material. The cable is halogen-free, ozone and UV resistant and has a rugged polyurethane (PUR) outer sheath.

FO patch cable - FOC-HCSO-1015/IP20/... - 2901557

Highly rugged PCF round cable (IP20 heads only) for assembly and for outdoor installation with integrated moisture barrier as well as rodent-proof scrim. Individual elements made from highly flexible FRNC material. The wire is ozone and UV resistant with a very rugged polyethylene outer sheath.

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Accessories

FO patch cable - FOC-GDM-RUGGED-1016/IP20/... - 2901558

Robust GOF installation cable for assembly (IP20 heads only) for installation in stationary systems and machines, aramid strain-relief elements, with individual elements made from FRNC material, halogen-free, ozone and UV resistant, with a polyurethane (PUR) outer sheath

FO patch cable - FOC-GDM-RUGGED-1016/... - 1402193

rugged GOF installation cable for inner areas with highly tear-proof aramid strain-relief elements. Individual elements consist of highly flexible FRNC material. The cable is halogen-free, ozone and UV resistant and has a rugged polyurethane (PUR) outer sheath.

FO patch cable - FOC-GDO-1017/IP20/... - 2901559

Highly rugged GOF round cable (IP20 heads only) for assembly and for outdoor installation with integrated moisture barrier as well as rodent-proof scrim. Individual elements made from highly flexible FRNC material. The wire is ozone and UV resistant with a very rugged polyethylene outer sheath.

Data plug

Assembly tool - PSM-HCS-KONFTOOL/B-FOC - 2708465

HCS assembly kit for B-FOC(ST) quick mounting connectors, including stripping blade, stripping pliers, aramide yarn scissors, fiber stripper, microscope, fiber cleaving tool for standard HCS and HCS GI fibers, four B-FOC(ST) connectors for standard HCS fiber, and documentation

Measuring instrument - PSM-FO-POWERMETER - 2799539

Fiber optic measuring case, consisting of an optical power meter, F-SMA, B-FOC adapters, reference fibers and operating instructions

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Accessories

Fiber optic coupling - PSM-SET-BFOC-LINK/2 - 2799429

Coupling; set consisting of 2 couplings for connecting B-FOC plugs

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FO connectors - PSM-SET-B-FOC/4-HCS - 2708481

B-FOC (ST) connector set for PCF fiber, for self assembly consisting of 4 quick mounting connectors with bend protection sleeve

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D-SUB bus connector - SUBCON-PLUS-CAN/90/PG/M12 - 2902322

D-SUB plug, 9-pos., socket, with PG-D-SUB pin, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 90°. Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.

D-SUB bus connector - SUBCON-PLUS-CAN/90/M12 - 2902323

D-SUB plug, 9-pos., socket, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 90°. Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.

D-SUB bus connector - SUBCON-PLUS-CAN/35/PG/M12 - 2902324

D-SUB plug, 9-pos., socket, with PG-D-SUB pin, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 35°. Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.

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Accessories

D-SUB bus connector - SUBCON-PLUS-CAN/35/M12 - 2902325

D-SUB plug, 9-pos., socket, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 35°. Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.

D-SUB bus connector - SUBCON-PLUS-CAN/AX/M12 - 2902326

D-SUB plug, 9-pos., socket, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 180° (axial). Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.

D-SUB bus connector - SUBCON-PLUS-CAN - 2744694

D-SUB connector, 9-pos. female connector, two cable entries < 35° to one terminal block row, bus system: CAN, CANopen®, SafetyBUS p up to 1 Mbps, termination resistor can be switched on via slide switch, pin assignment: 2, 3, 7; screw connection terminal blocks

D-SUB bus connector - SUBCON-PLUS-CAN/PG - 2708119

D-SUB connector, 9-pos. socket, cable entry < 35°, bus system: CAN, CANopen®, SafetyBUS p up to 1 Mbps, with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 2, 3, 7, 9; screw terminal blocks

D-SUB bus connector - SUBCON-PLUS-CAN/AX - 2306566

D-SUB connector, 9-pos. female connector, axial version with two cable entries, bus system: CAN, CANopen, SafetyBUS p; pin assignment: 2, 3, 7; screw connection terminal blocks

DIN rail connector

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Accessories

DIN rail bus connectors - ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - 2709561

DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

Media converter

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

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 PCF/fiberglass (multi-mode)

Power supply

Power supply unit - MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983

Primary-switched MINI POWER supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A

Screwdriver tools

Screwdriver - SZS 0,4X2,5 VDE - 1205037

Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip

Mouser Electronics

Authorized Distributor

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