

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



2313986

<https://www.phoenixcontact.com/in/products/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 1 Mbps
- Supply voltage and data signals routed through the DIN rail connectors
- Can be combined with PSI-MOS FO converters in a modular way thanks to DIN rail connectors
- Automatic data rate detection or fixed data rate setting via DIP switches
- Integrated optical diagnostics for continuous monitoring of FO paths
- High-quality electrical isolation between all interfaces (DeviceNet // fiber optic ports // power supply // DIN rail connector)
- Connections can be plugged in via a COMBICON screw terminal block
- Redundant power supply possible by means of optional system power supply unit
- Floating switch contact for advance warning of critical FO paths

Commercial Data

Item number	2313986
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DNC
Product Key	DNC213
Catalog Page	Page 433 (C-6-2019)
GTIN	4046356513814
Weight per Piece (including packing)	265.2 g
Weight per Piece (excluding packing)	245 g
Customs tariff number	85176200
Country of origin	DE

Technical Data

Notes

Utilization restriction

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

CCCex note	Use in potentially explosive areas is not permitted in China.
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Product properties

Product type	Media converter
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%)
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))

Electrical properties

Electrical isolation	VCC // CAN
Maximum power dissipation for nominal condition	3.6 W
Test voltage data interface/power supply	1.5 kV _{rms} (50 Hz, 1 min.)

Supply

Supply voltage range	11 V DC ... 30 V DC (via pluggable COMBICON screw terminal block)
Nominal supply voltage	24 V DC
Typical current consumption	180 mA (24 V DC)
Max. current consumption	≤ 2 A (For operation in a joining station, via the DIN rail connector)

Function

Status and diagnostic indicators	LEDs: VCC (supply voltage), NET (Mod/Net status), FO signal (fiber optic signal quality), ERR (broken fiber, fiber optic)
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Output data

Switching

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

Connection data

Supply

Tightening torque	0.56 Nm ... 0.79 Nm
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Interfaces

Bit distortion, input	± 35 % (permitted)
Bit distortion, output	< 6.25 %
Signal	CAN
	CANopen®
	DeviceNet™

Data: optical FO

No. of channels	2
Transmit capacity, minimum	-17.6 dBm (50/125 µm)
	-14.6 dBm (62,5/125 µm)
	-4 dBm (200/230 µm)
Transmission protocol	Protocol transparent for CAN interface
Connection method	B-FOC (ST®)
Wavelength	850 nm
Minimum receiver sensitivity	-29 dBm (50/125 µm)
	-29 dBm (62,5/125 µm)
	-28.1 dBm (200/230 µm)
Transmission medium	PCF fiber
	Multi-mode fiberglass

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)
Conductor cross section flexible max.	2.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section, rigid max.	2.5 mm²
Conductor cross section, rigid min.	0.2 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
Transmission medium	2-wire twisted pair, shielded
Transmission method	CSMA/CA

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File format/coding	Bit stuffing, NRZ
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Dimensions

Dimensional drawing	
Width	35 mm
Height	102 mm
Depth	119 mm

Material specifications

Material Housing	PA 6.6-FR
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Cable/line

FO cable

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

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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EAC

Identification	EAC
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ATEX

Identification	<input type="checkbox"/> II 3 G Ex nA IIC T4 Gc X
Note	Please follow the special installation instructions in the documentation!

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UL, USA/Canada

Identification	508 Listed
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Corrosive gas test

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

Identification	DNV GL
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DNV GL 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

Noise immunity	EN 61000-6-2
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011

Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

Contact discharge	± 6 kV
Discharge in air	± 8 kV
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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Electromagnetic HF field

Field intensity	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4
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Fast transients (burst)

Input	± 2 kV
Signal	± 2 kV
Comments	Criterion B

Surge current load (surge)

Standards/regulations	EN 61000-4-5
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Surge current load (surge)

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Input	± 0.5 kV
Signal	± 1 kV
Comments	Criterion B

Conducted interference

Standards/regulations	EN 61000-4-6
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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.

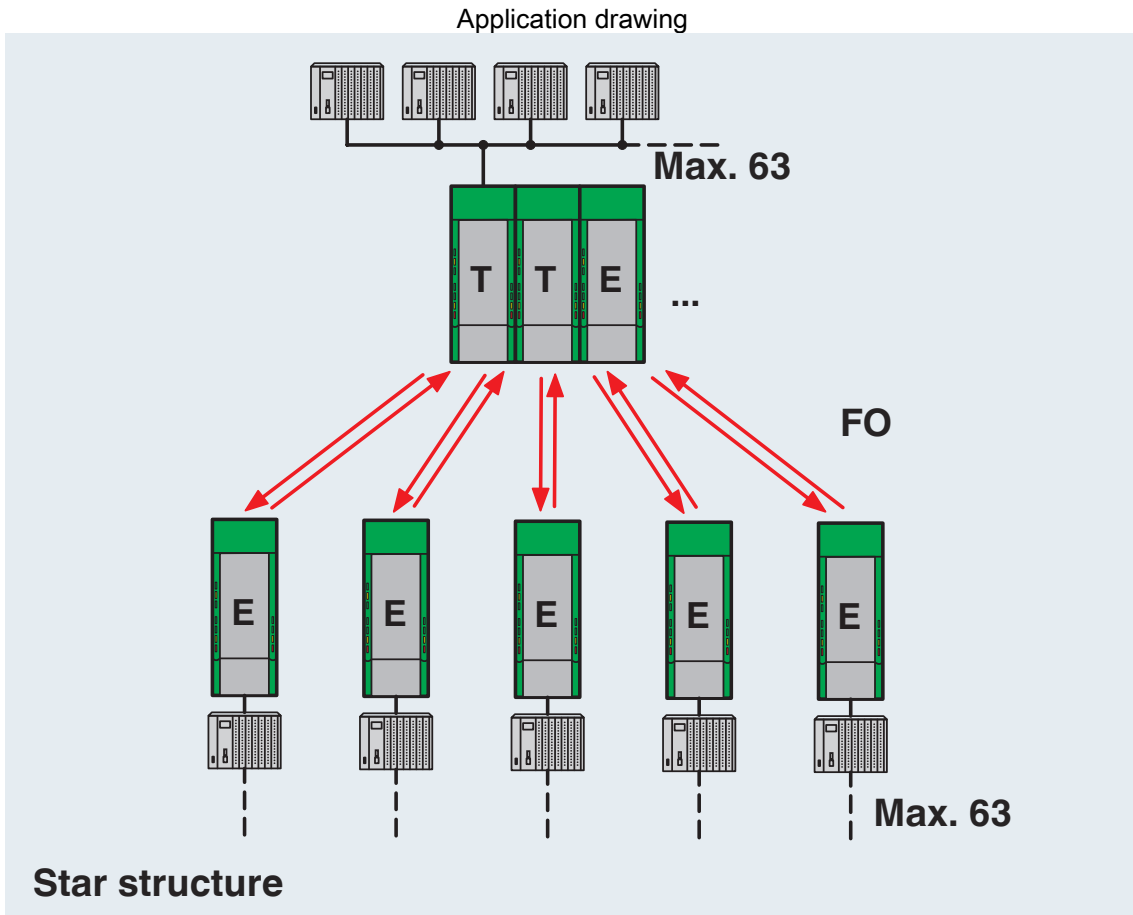
Standards and regulations

Free from substances that could impair the application of coating	in accordance with VW-AUDI-Seat central standard P-VW 3.10.7 57 65 0
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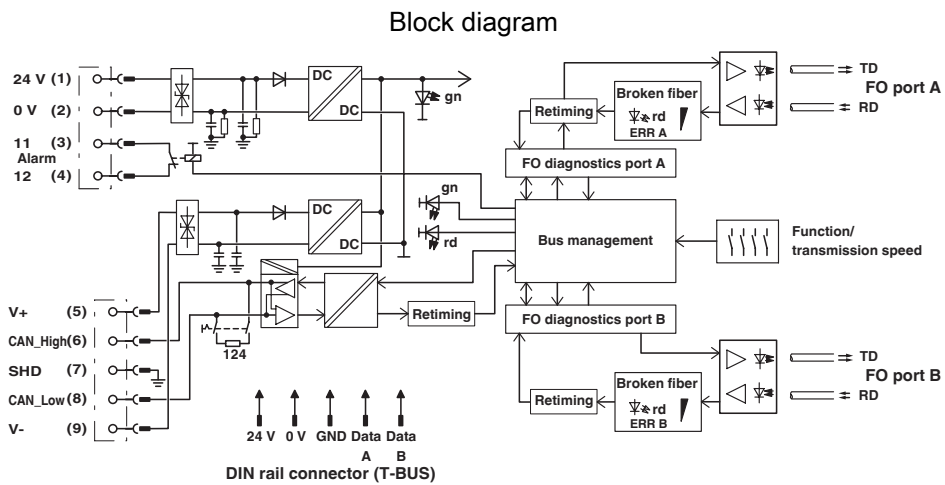
Mounting

Mounting type	DIN rail mounting
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Drawings

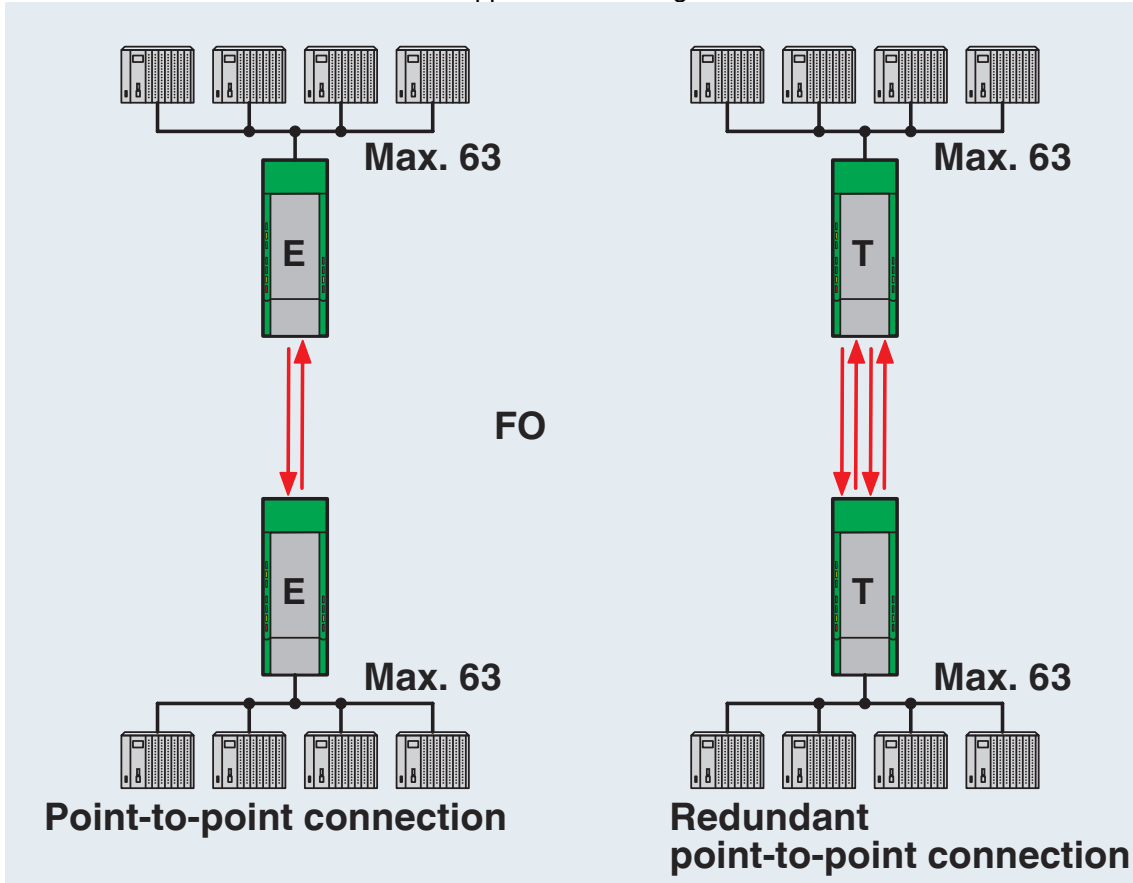


Star structure



Basic circuit diagram

Application drawing



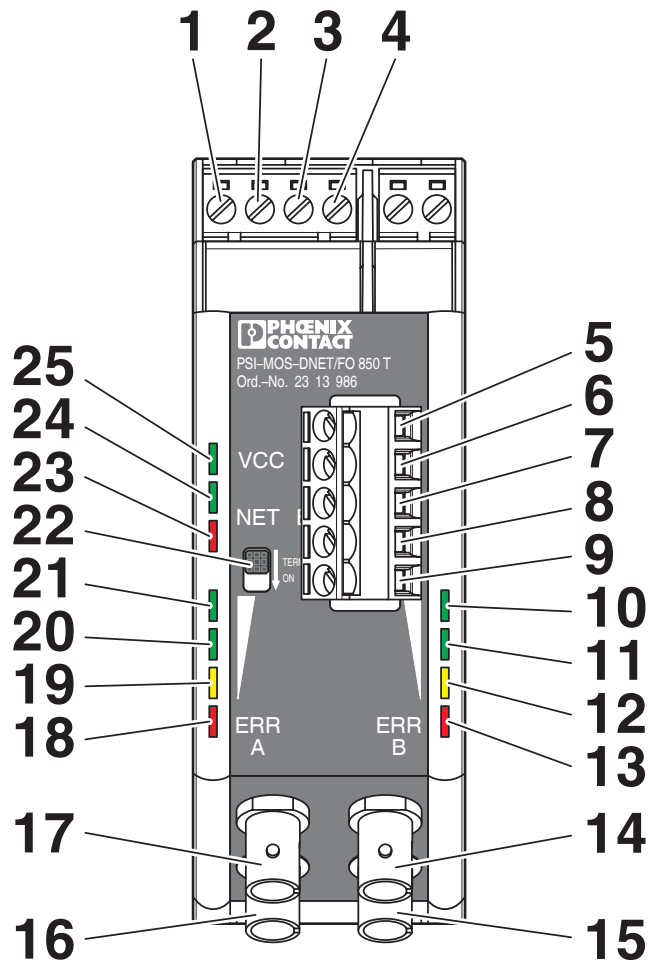
Point-to-point connection

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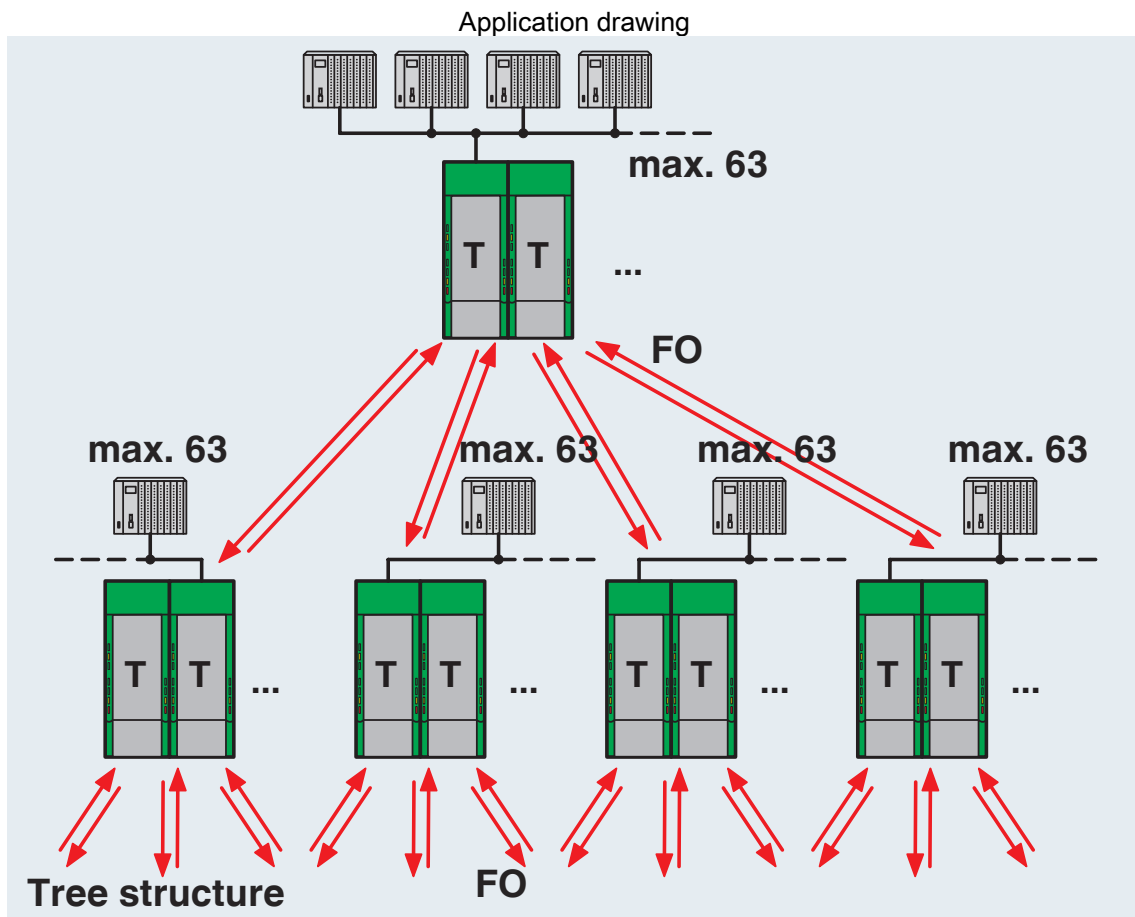
Schematic diagram



Front view

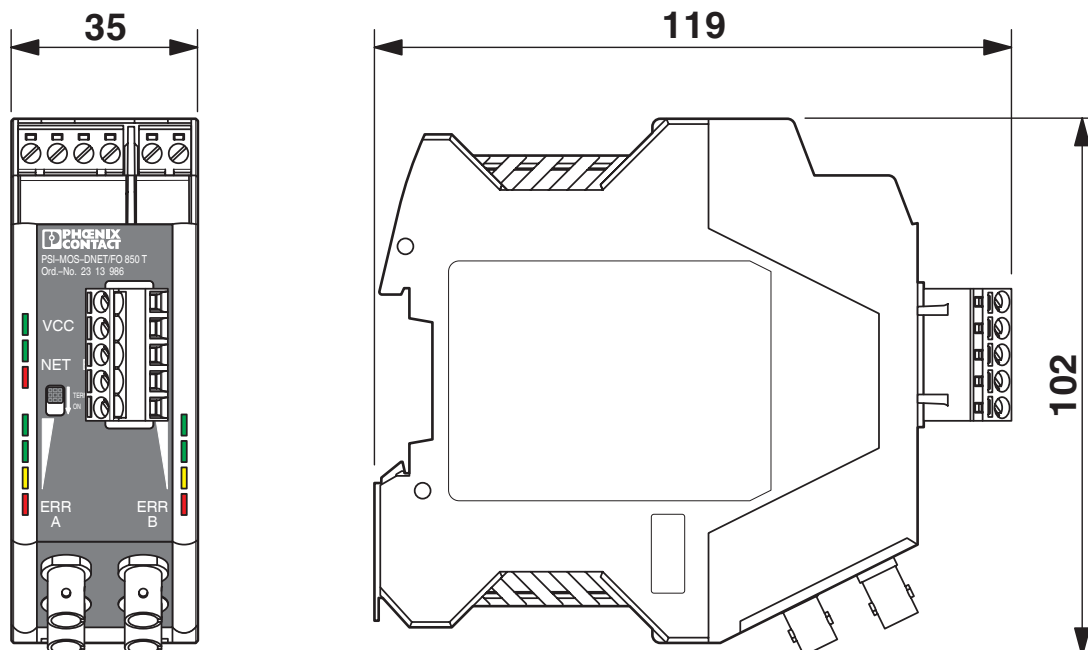
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Tree structure

Dimensional drawing



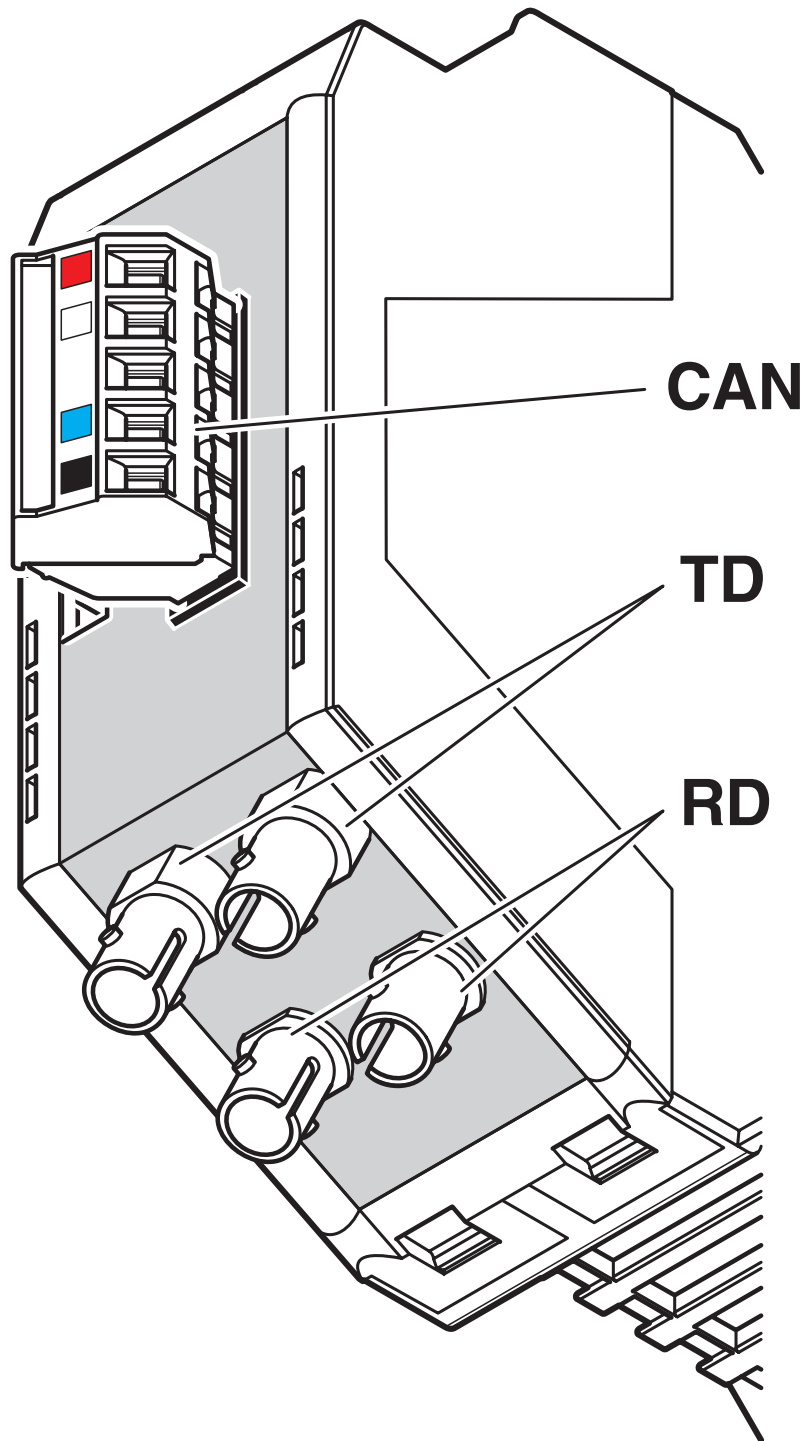
Housing dimensions

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Schematic diagram

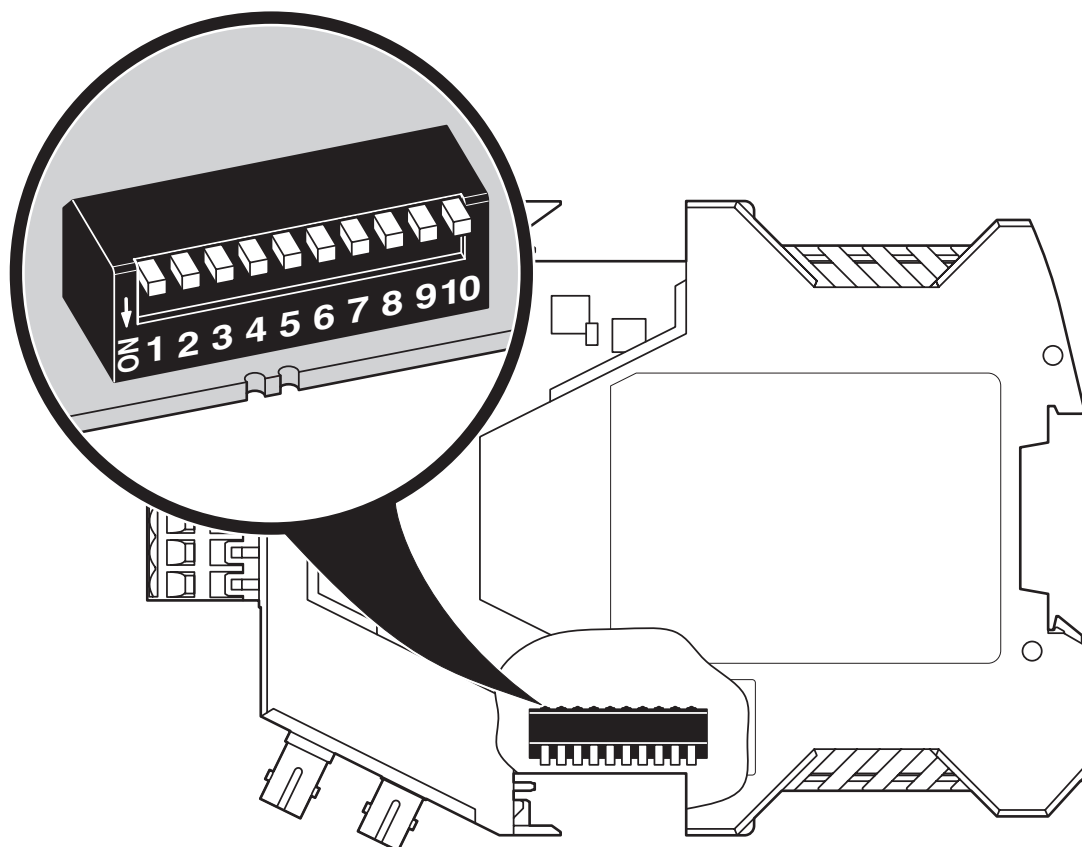


Device connections

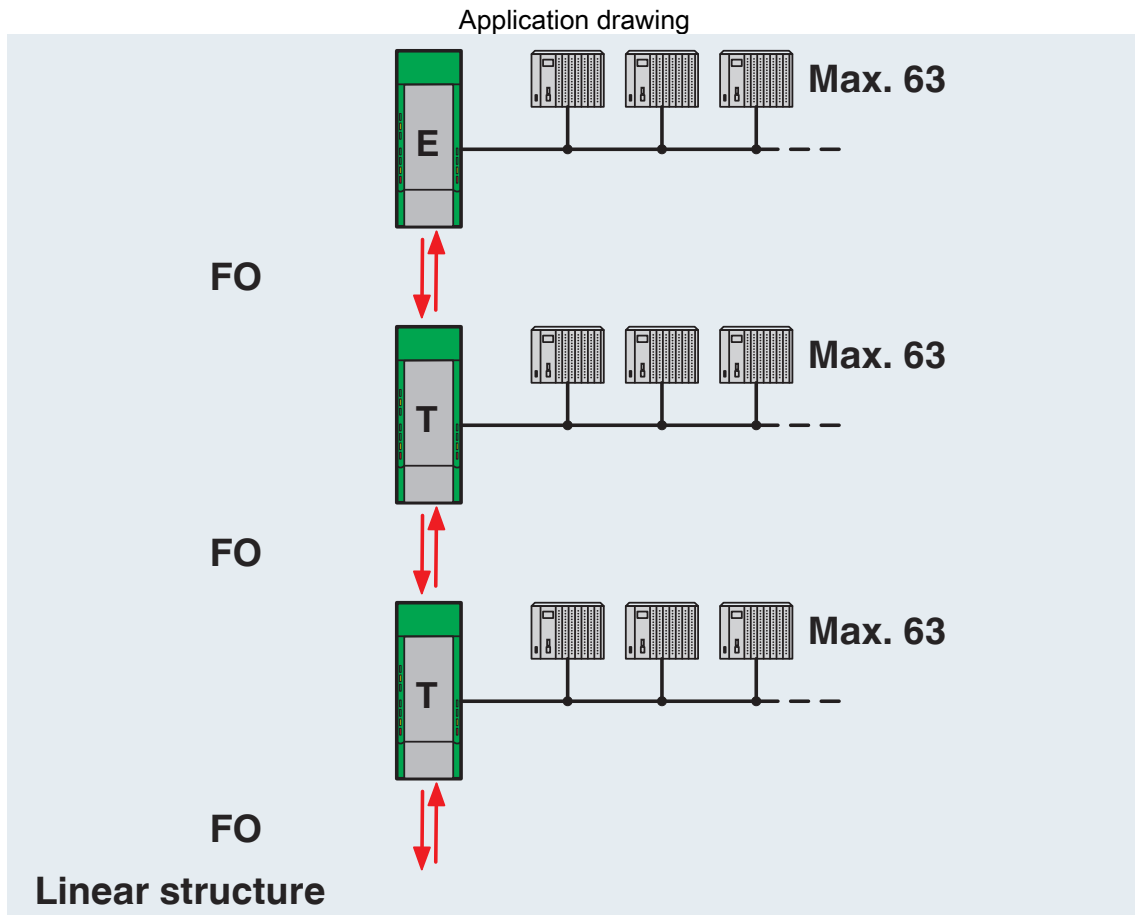
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Schematic diagram



DIP switches



Line structure

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Approvals



EAC

Approval ID: TR TS_D_01871-19



DNV GL

Approval ID: TAA00001KR



UL Listed

Approval ID: FILE E 238705



cUL Listed

Approval ID: FILE E 238705



ATEX

Approval ID: PxCIF10ATEX2313986X

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Classifications

ECLASS

ECLASS-11.0	19170411
ECLASS-12.0	19170411
ECLASS-13.0	19170411

ETIM

ETIM 8.0	EC001467
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UNSPSC

UNSPSC 21.0	43201500
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Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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Accessories

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

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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 PCF/fiberglass (multi-mode)

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

2799885

<https://www.phoenixcontact.com/in/products/2799885>



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

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

2799445

<https://www.phoenixcontact.com/in/products/2799445>



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

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

2799322

<https://www.phoenixcontact.com/in/products/2799322>



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

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

2799432

<https://www.phoenixcontact.com/in/products/2799432>



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

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

2708465

<https://www.phoenixcontact.com/in/products/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

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PSM-FO-POWERMETER - Measuring instrument

2799539

<https://www.phoenixcontact.com/in/products/2799539>



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

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

2799429

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

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SZS 0,4X2,5 VDE - Screwdriver

1205037

<https://www.phoenixcontact.com/in/products/1205037>



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

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

2708481

<https://www.phoenixcontact.com/in/products/2708481>



FO connectors, degree of protection: IP20, number of positions: 4, MM, material: Metal, connection method: Cable connection, cable outlet: straight

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QUINT4-SYS-PS/1AC/24DC/2.5/SC - Power supply unit

2904614

<https://www.phoenixcontact.com/in/products/2904614>

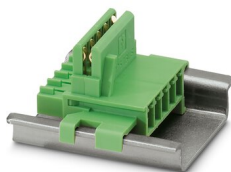


Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

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

2709561

<https://www.phoenixcontact.com/in/products/2709561>



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

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

2713645

<https://www.phoenixcontact.com/in/products/2713645>



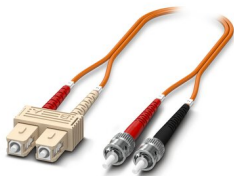
DIN rail connector, color: light grey, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

FOC-ST:PA-SC:PA-OM2:D01/1 - FO patch cable

1115574

<https://www.phoenixcontact.com/in/products/1115574>

Multi-mode OM2 duplex jumper, ST-SC, UPC polishing, length 1 m



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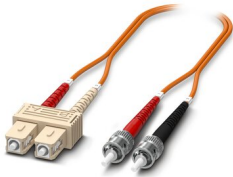
<https://www.phoenixcontact.com/in/products/2313986>

FOC-ST:PA-SC:PA-OM2:D01/2 - FO patch cable

1115573

<https://www.phoenixcontact.com/in/products/1115573>

Multi-mode OM2 duplex jumper, ST-SC, UPC polishing, length 2 m



FOC-ST:PA-ST:PA-OM2:D01/1 - FO patch cable

1115560

<https://www.phoenixcontact.com/in/products/1115560>

Multi-mode OM2 duplex jumper, ST-ST, UPC polishing, length 1 m



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FOC-ST:PA-ST:PA-OM2:D01/2 - FO patch cable

1115557

<https://www.phoenixcontact.com/in/products/1115557>

Multi-mode OM2 duplex jumper, ST-ST, UPC polishing, length 2 m

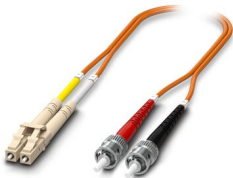


FOC-LC:PA-ST:PA-OM2:D01/1 - Fiber optic cable

1115588

<https://www.phoenixcontact.com/in/products/1115588>

Multi-mode OM2 duplex jumper, LC-ST, UPC polishing, length 1 m



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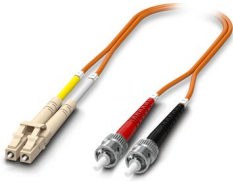
<https://www.phoenixcontact.com/in/products/2313986>

FOC-LC:PA-ST:PA-OM2:D01/2 - Fiber optic cable

1115587

<https://www.phoenixcontact.com/in/products/1115587>

Multi-mode OM2 duplex jumper, LC-ST, UPC polishing, length 2 m

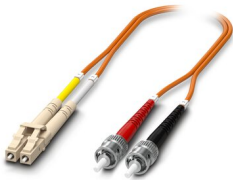


FOC-LC:PA-ST:PA-OM1:D01/1 - FO patch cable

1146499

<https://www.phoenixcontact.com/in/products/1146499>

Multi-mode OM1 duplex jumper, LC-ST, UPC polishing, length 1 m



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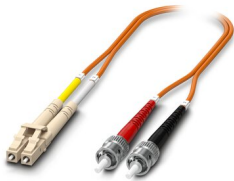
<https://www.phoenixcontact.com/in/products/2313986>

FOC-LC:PA-ST:PA-OM1:D01/2 - FO patch cable

1146508

<https://www.phoenixcontact.com/in/products/1146508>

Multi-mode OM1 duplex jumper, LC-ST, UPC polishing, length 2 m



FOC-ST:PA-ST:PA-OM1:D01/1 - FO patch cable

1146501

<https://www.phoenixcontact.com/in/products/1146501>

Multi-mode OM1 duplex jumper, ST-ST, UPC polishing, length 1 m



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FOC-ST:PA-ST:PA-OM1:D01/2 - FO patch cable

1146509

<https://www.phoenixcontact.com/in/products/1146509>

Multi-mode OM1 duplex jumper, ST-ST, UPC polishing, length 2 m



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

1511504

<https://www.phoenixcontact.com/in/products/1511504>

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



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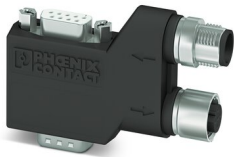
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SUBCON-PLUS-CAN/90/PG/M12 - D-SUB bus connector

2902322

<https://www.phoenixcontact.com/in/products/2902322>



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

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

2902323

<https://www.phoenixcontact.com/in/products/2902323>



D-SUB plug, 9-pos., socket, assignment: 2, 3, 5, 6, 7, 9; two 90° cable entries M12 (A-coded). Bus system: CAN, CANopen[®]. Termination resistor via separate M12 terminator. Long version; S7-compatible.

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

2902324

<https://www.phoenixcontact.com/in/products/2902324>



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

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

2902325

<https://www.phoenixcontact.com/in/products/2902325>



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

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

2902326

<https://www.phoenixcontact.com/in/products/2902326>

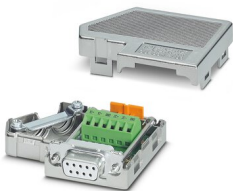


D-SUB plug, 9-pos., socket, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 180° (axial). Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.

SUBCON-PLUS-CAN - D-SUB bus connector

2744694

<https://www.phoenixcontact.com/in/products/2744694>



D-SUB connector, 9-pos. female connector, two 35° cable entries 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

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

2708119

<https://www.phoenixcontact.com/in/products/2708119>



D-SUB connector, 9-pos. socket, 35° cable entry, 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

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

2306566

<https://www.phoenixcontact.com/in/products/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

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

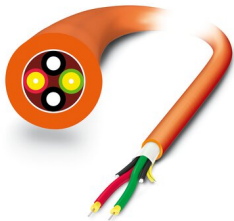
2313986

<https://www.phoenixcontact.com/in/products/2313986>

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

2901555

<https://www.phoenixcontact.com/in/products/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

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

2901557

<https://www.phoenixcontact.com/in/products/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.

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



2313986

<https://www.phoenixcontact.com/in/products/2313986>

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

2901558

<https://www.phoenixcontact.com/in/products/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

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

2901559

<https://www.phoenixcontact.com/in/products/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.

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