

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



2708371

<https://www.phoenixcontact.com/in/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	DNC
Product Key	DNC215
Catalog Page	Page 439 (C-6-2019)
GTIN	4017918974077
Weight per Piece (including packing)	246.1 g
Weight per Piece (excluding packing)	221.1 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	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 <sub>rms</sub> (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
Connection method	COMBICON plug-in screw terminal block

### 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

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## Supply

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 (with 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
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section, rigid max.	2.5 mm <sup>2</sup>
Conductor cross section, rigid min.	0.2 mm <sup>2</sup>
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

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Depth	105 mm
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## 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 nC IIC T4 Gc X
Note	Please follow the special installation instructions in the documentation!

### ATEX, FO interface

Identification	<input type="checkbox"/> II (2) G [Ex op is Gb] IIC
	<input type="checkbox"/> II (2) D [Ex op is Db] IIIC
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

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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 61000-6-2:2005
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

Comments	Criterion A
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## Fast transients (burst)

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

Comments	Criterion B
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## Surge current load (surge)

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

Comments	Criterion B
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## Conducted interference

Standards/regulations	EN 61000-4-6
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## 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

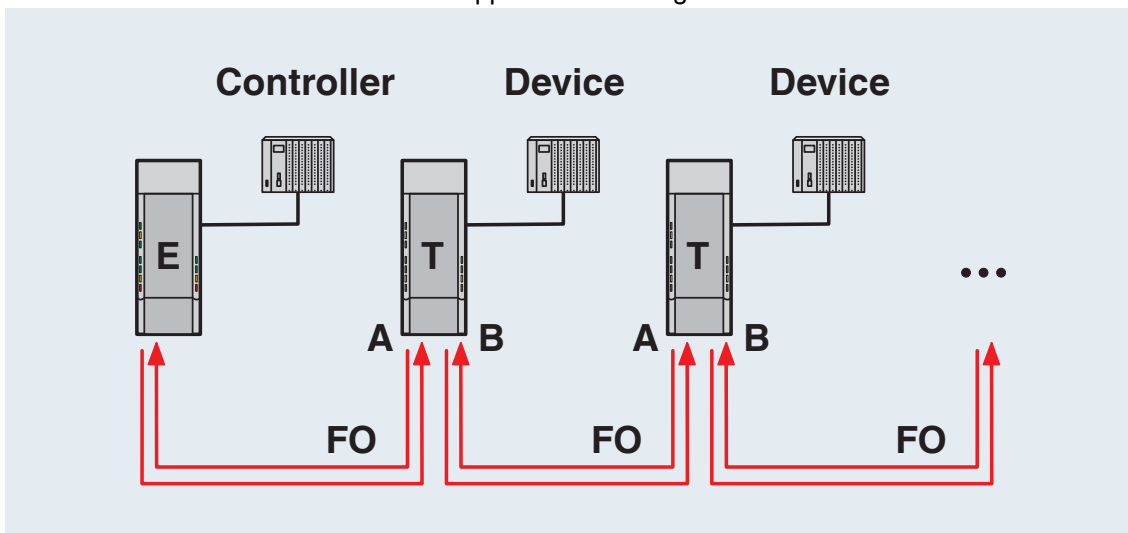
Free from substances that could impair the application of coating	in accordance with VW-AUDI-Seat central standard P-VW 3.10.7 57 65 0
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## Mounting

Mounting type	DIN rail mounting
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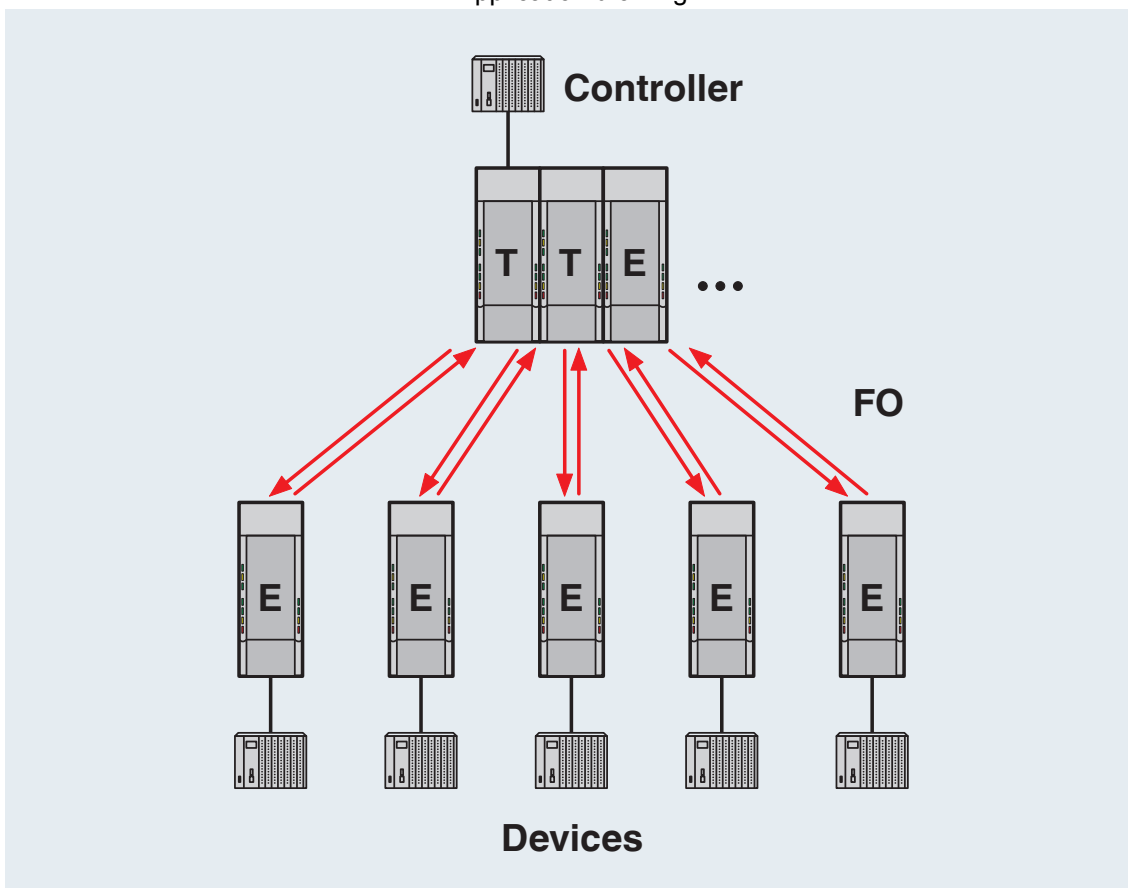
Drawings

Application drawing



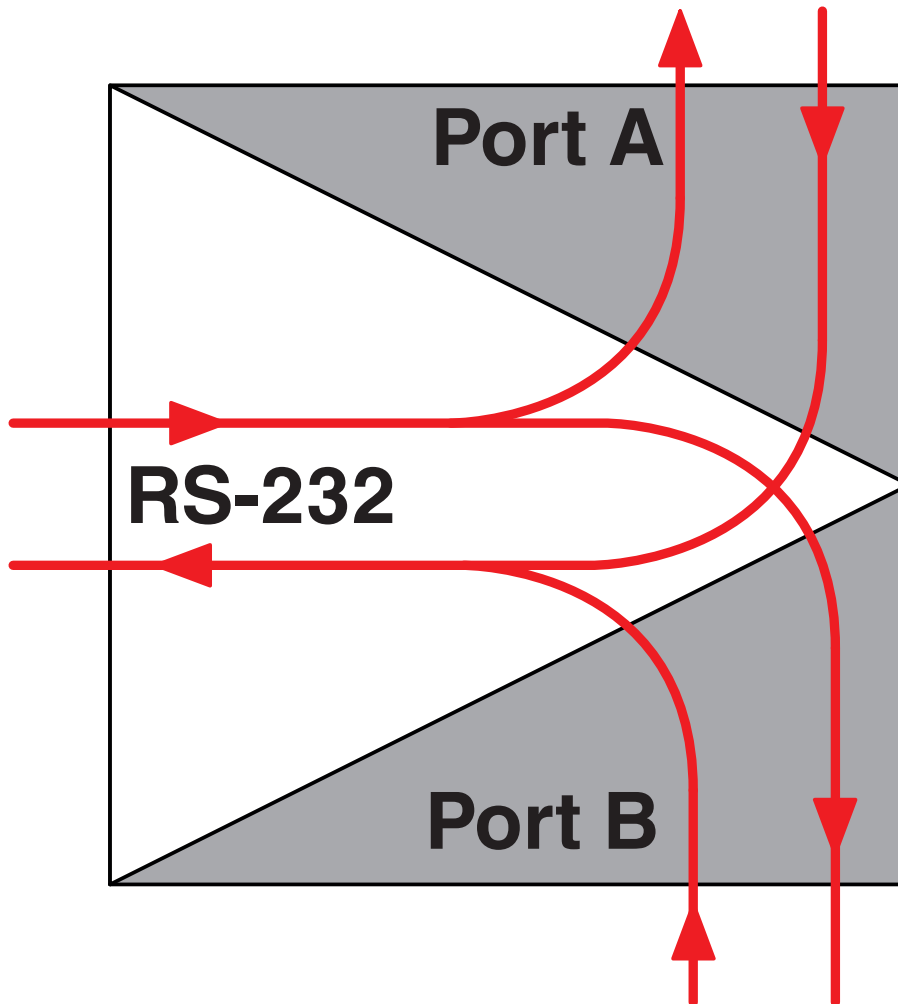
Controller-device line structure

Application drawing



Star structure

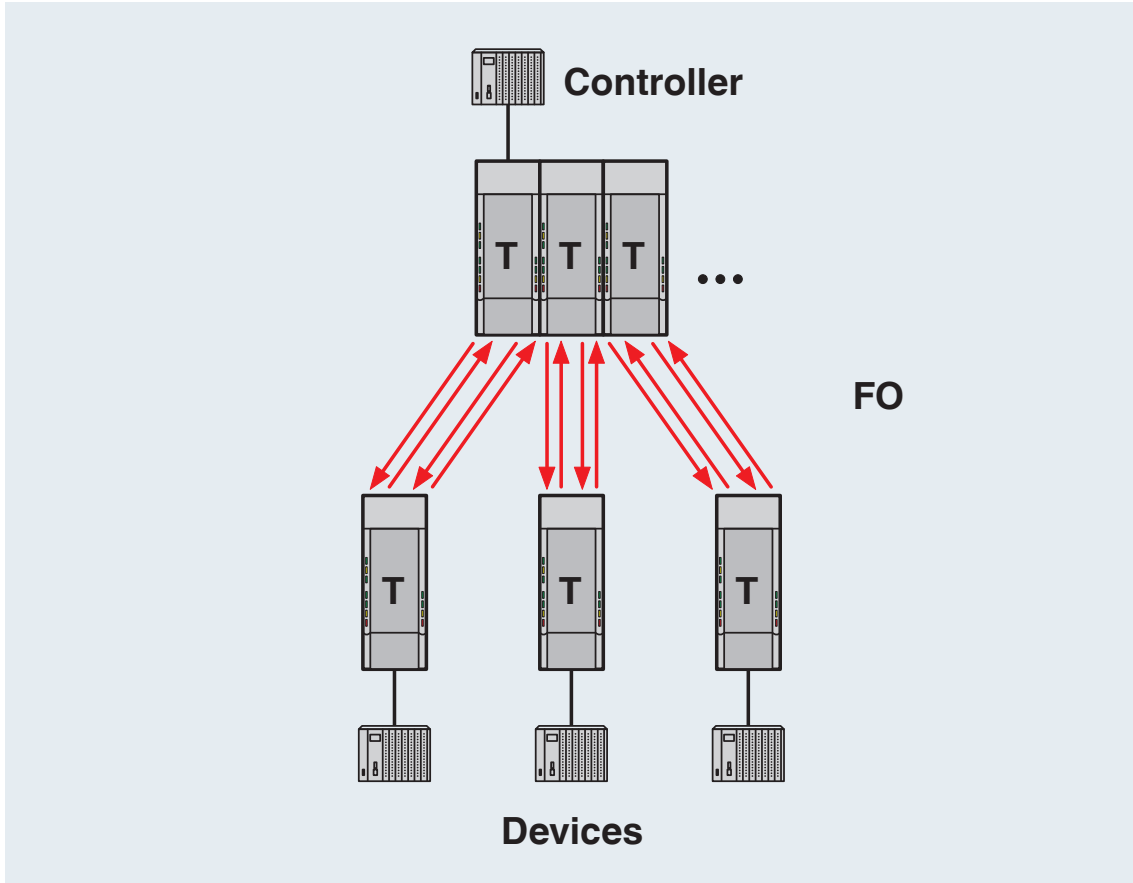
Schematic diagram



Port assignment in star structures



Application drawing



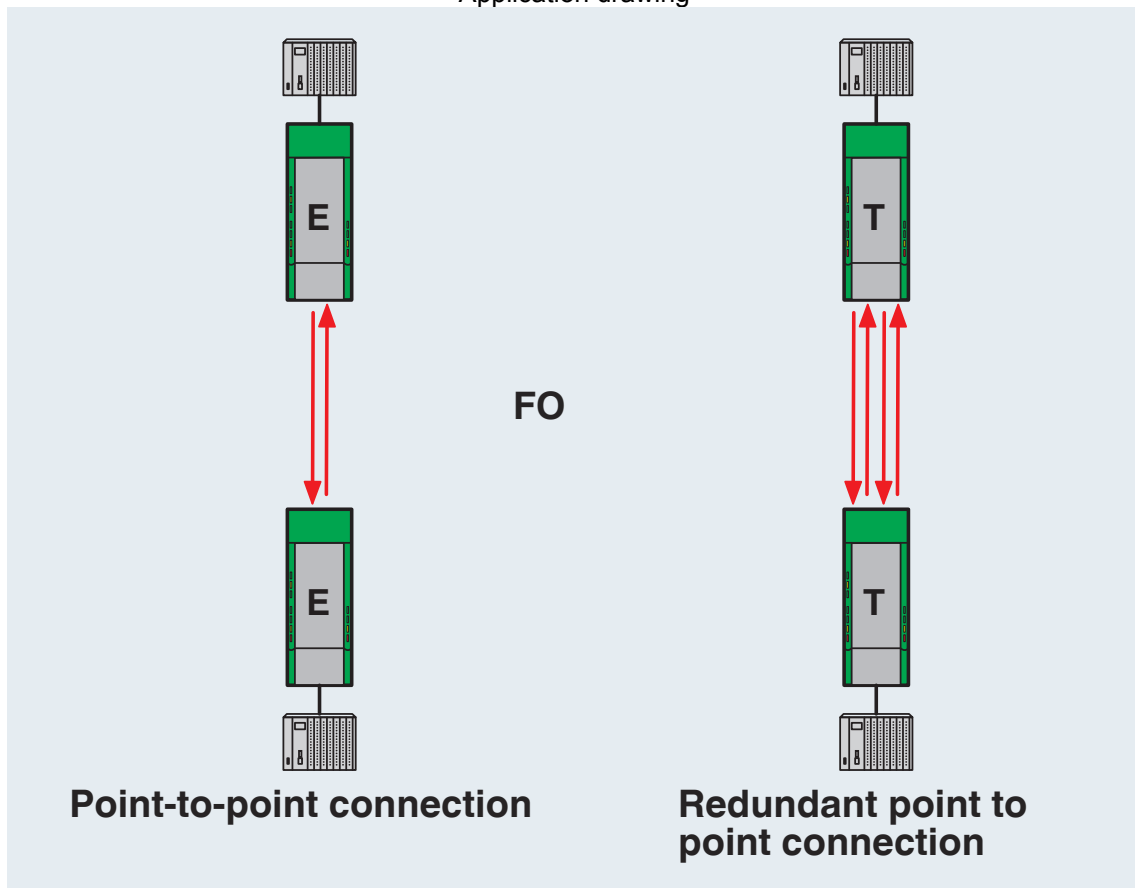
Redundant structure

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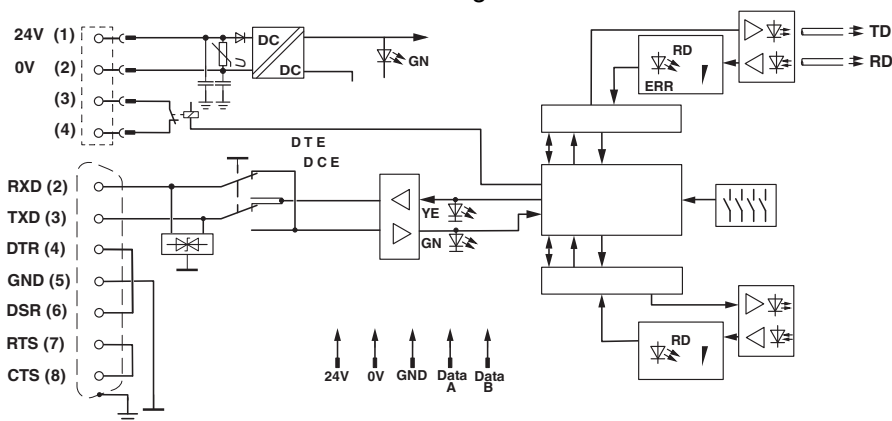
<https://www.phoenixcontact.com/in/products/2708371>

## Application drawing



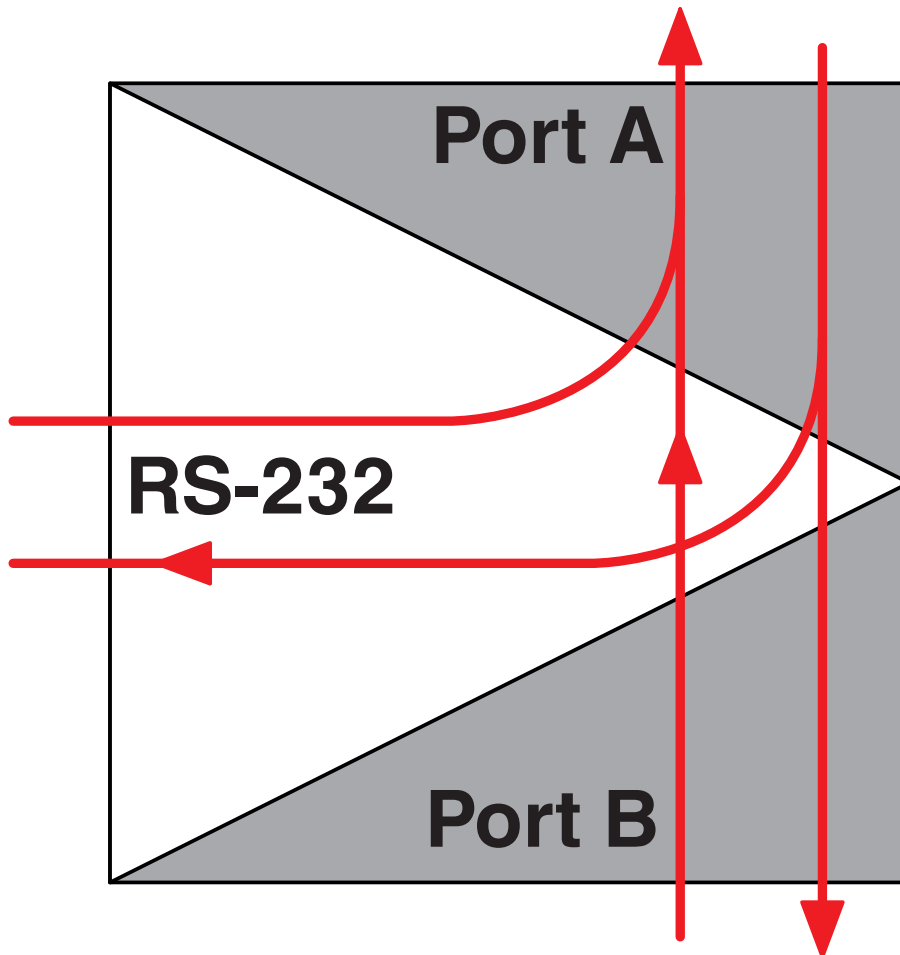
Redundant point-to-point connection

## Block diagram



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

Schematic diagram



Port assignment in a line structure

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## Approvals



**cUL Recognized**  
Approval ID: FILE E 238705



**UL Recognized**  
Approval ID: FILE E 238705



**EAC**  
Approval ID: TR TS\_D\_01871-19



**DNV GL**  
Approval ID: TAA00001KR



**ATEX**  
Approval ID: PTB 06 ATEX 2042U



**ATEX**  
Approval ID: PxCIF06ATEX2708261X



**cUL Listed**  
Approval ID: FILE E 199827



**UL Listed**  
Approval ID: FILE E 199827

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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

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

2799885

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

PCF cable, duplex 200  $\mu\text{m}$ /230  $\mu\text{m}$ , by the meter without male connector, for installation in stationary systems and machines



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

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

2799445

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



PCF cable, duplex 200/230  $\mu\text{m}$ , by the meter, without connector, for outdoor installation

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

2799322

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



Fiber glass cable, duplex 50  $\mu\text{m}$ /125  $\mu\text{m}$ , by the meter, without male connector, for installation in stationary systems and machines



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

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

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

2799432

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



Fiberglass cable, duplex 50/125  $\mu\text{m}$ , by the meter, without connector, for outdoor installation

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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

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

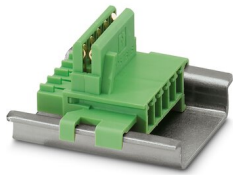
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<https://www.phoenixcontact.com/in/products/2708371>

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

2709561

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



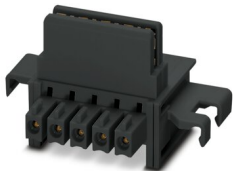
DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

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## ME 17,5 TBUS 1,5/PP000-3,81 BK - DIN rail bus connectors

2890014

<https://www.phoenixcontact.com/in/products/2890014>



DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 2-pos.

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



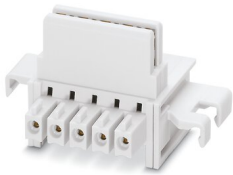
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<https://www.phoenixcontact.com/in/products/2708371>

## 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

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## 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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<https://www.phoenixcontact.com/in/products/2708371>

## 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

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

2799429

<https://www.phoenixcontact.com/in/products/2799429>

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



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## SUBCON-PLUS 9/F - D-SUB bus connector

2744241

<https://www.phoenixcontact.com/in/products/2744241>



D-SUB connector, 9-pos. female connector, two 35° cable entries, universal type for all systems, pin assignment: 1, 2, 3, 4, 5, 6, 7, 8, 9 to one screw connection terminal block

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## SUBCON-PLUS 9/M - D-SUB bus connector

2744018

<https://www.phoenixcontact.com/in/products/2744018>



D-SUB connector, 9-pos., male connector, two 35° cable entries, universal type for all systems, pin assignment: 1, 2, 3, 4, 5, 6, 7, 8, 9 to one screw connection terminal block

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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

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## PSM-KA9SUB9/BB/2METER - Data cable

2799474

<https://www.phoenixcontact.com/in/products/2799474>



RS-232 cable, 9-pos. D-SUB socket on 9-pos. D-SUB socket, 9-wire, 1:1

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

## PSM-ME-RS232/RS485-P - Interface converter

2744416

<https://www.phoenixcontact.com/in/products/2744416>



Interface converter, for converting RS-232 (V.24) to RS-422 (V.11) and RS-485, with electrical isolation, 2 channels, rail-mountable

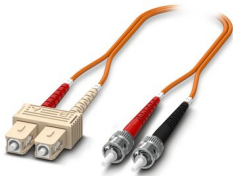
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## FOC-ST:PA-SC:PA-OM2:D01/1 - FO patch cable

1115574

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

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



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

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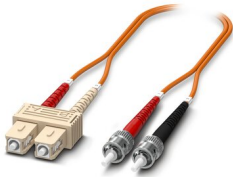
<https://www.phoenixcontact.com/in/products/2708371>

## 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



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## 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





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

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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



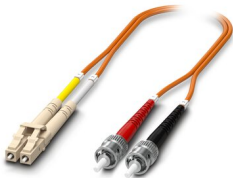
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## FOC-LC:PA-ST:PA-OM2:D01/1 - Fiber optic cable

1115588

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

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



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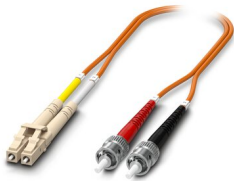
<https://www.phoenixcontact.com/in/products/2708371>

## 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



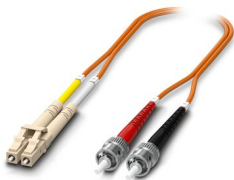
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## FOC-LC:PA-ST:PA-OM1:D01/1 - FO patch cable

1146499

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

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



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

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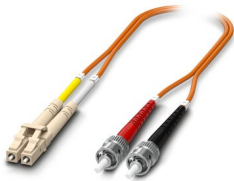
<https://www.phoenixcontact.com/in/products/2708371>

## 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



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## 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



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

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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



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## 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

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## 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.

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## 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

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



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## 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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PHOENIX CONTACT (I) Pvt. Ltd.

A-58/2, Okhla Industrial Area, Phase - II, New Delhi-110 020

+91.1275.71420

[info@phoenixcontact.co.in](mailto:info@phoenixcontact.co.in)