PSI-MOS-PROFIB/FO 660 E - FO converters

2708290

https://www.phoenixcontact.com/in/products/2708290

PHOENIX CONTACT

FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, terminal device with one FO interface (FSMA), 660 nm, for polymer/PCF fiber 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

- Can be combined with the PSI copper repeater in a modular way using DIN rail connectors
- Supply voltage and data signals routed through the DIN rail connectors
- Connections can be plugged in via a COMBICON screw terminal block
- Automatic data rate detection or fixed data rate setting via DIP switches
- Redundant power supply
- High-quality electrical isolation between all interfaces (PROFIBUS // fiber optic ports // power supply // DIN rail connector)
- Approved for use in zone 2
- Integrated optical diagnostics for continuous monitoring of FO paths
- Intrinsically safe fiber optic interface (Ex op is) for direct connection to devices in zone 1
- Floating switch contact for advance warning of critical FO paths
- Suitable for all data rates up to 12 Mbps
- Bit retiming for any cascading depth
- Shipbuilding approval in accordance with DNV GL

Commercial Data

Item number	2708290
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	DNC
Product Key	DNC211
Catalog Page	Page 431 (C-6-2019)
GTIN	4017918973995
Weight per Piece (including packing)	246.8 g
Weight per Piece (excluding packing)	241.9 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

Utilization restriction

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

Product properties

Product type	Media converter
MTTF	243 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	178 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	110 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)
MTBF	324 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	70 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	2.4 W
Test voltage data interface/power supply	1.5 kV_{rms} (50 Hz, 1 min.)

Supply

Supply voltage range	18 V DC ... 30 V DC (via pluggable COMBICON screw terminal block)
Nominal supply voltage	24 V DC (in acc. with UL)
Typical current consumption	100 mA (24 V DC)
Max. current consumption	130 mA
	≤ 2 A (For operation in a joining station, via the DIN rail connector)
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 (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
Stripping length	7 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 dBm (980/1000 µm)
	-15.4 dBm (200/230 µm)
Transmission length incl. 3 dB system reserve	70 m (With F-P 980/1000 230 dB/km with quick mounting connector)
	400 m (With F-K 200/230 10 dB/km with quick mounting connector)
Transmission protocol	Protocol-transparent to the RS-485 interface
Connection method	F-SMA
Wavelength	660 nm
Minimum receiver sensitivity	-30 dBm
Maximum receiver sensitivity	-3 dBm (980/1000 µm)
Transmission medium	Polymer fiber
	PCF fiber

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
Transmission length	≤ 1200 m (depending on the data rate, with shielded, twisted pair data cable)
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	Copper

File format/coding	UART (11 Bit, NRZ)
Data direction switching	Automatic control
Output nominal voltage	5 V ±0.25 (50 mA)

Dimensions

Width	35 mm
Height	99 mm
Depth	106 mm

Material specifications

Material Housing	PA 6.6-FR

Cable/line

FO cable

Fiber types	980/1000 µm
	200/230 µm
	Polymer fiber
	PCF fiber

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

EAC

Identification	EAC

ATEX

Identification	☐ II 3 G Ex nA nC IIC T4 Gc X
Note	Please follow the special installation instructions in the documentation!

ATEX, FO interface

Identification	☐ II (2) G [Ex op is Gb] IIC
	☐ 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

PROFIBUS interoperability	
Note	Tested by independent PNO test laboratory (PN059-485-01)

ABB certification	
Identification	Industrial^{IT} enabled
Note	This certification is a trademark of ABB.

Corrosive gas test	
Identification	ISA-S71.04-1985 G3 Harsh Group A

Shipbuilding	
Identification	DNV GL

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

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)	
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	in accordance with VW-AUDI-Seat central standard P-VW 3.10.7 57 65 0

Air clearances and creepage distances	
Standards/regulations	DIN EN 60664-1
	VDE 0110-1
	DIN EN 50178
	EN 60950

Mounting

Mounting type	DIN rail mounting

Drawings

Application drawing

Star structure

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Application drawing

Redundant point-to-point connection

Application drawing
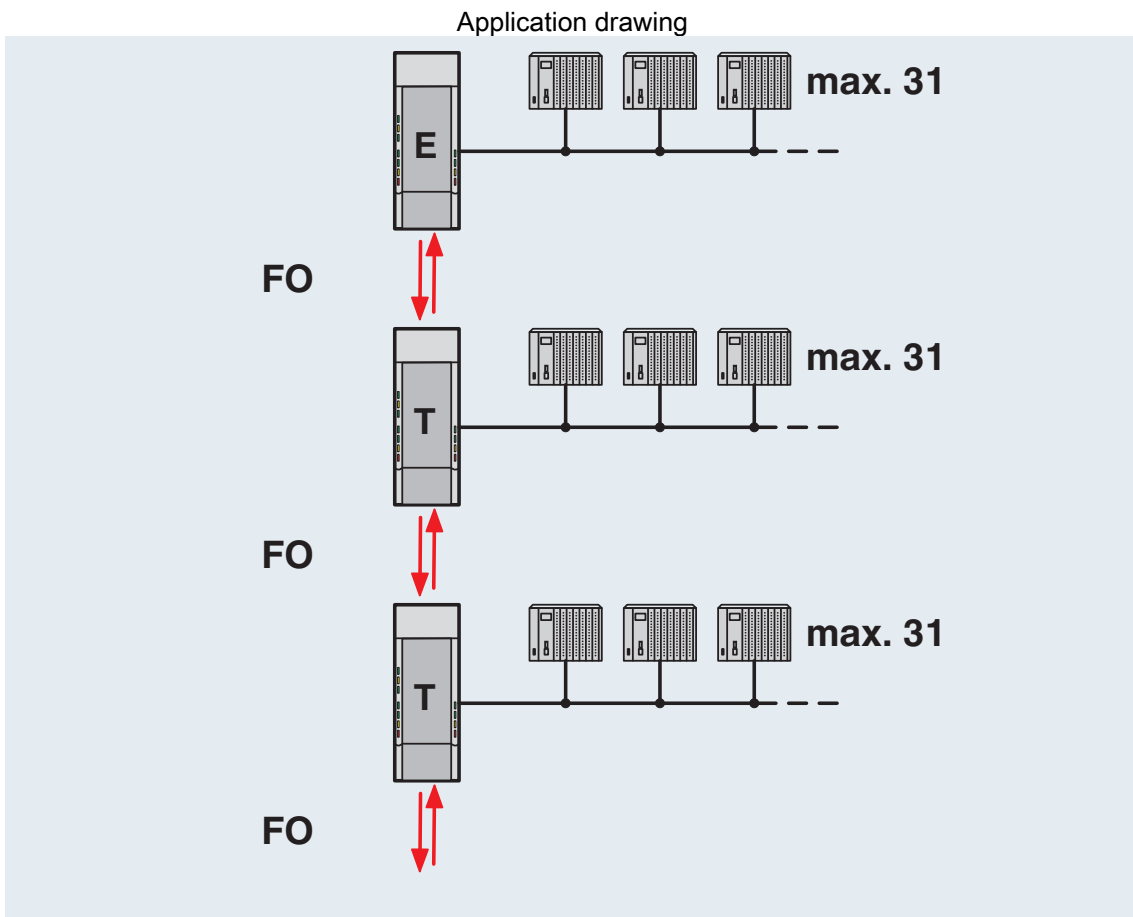
Line structure

Application drawing

PSI-MOS-PROFIB/FO 660 E - FO converters

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https://www.phoenixcontact.com/in/products/2708290
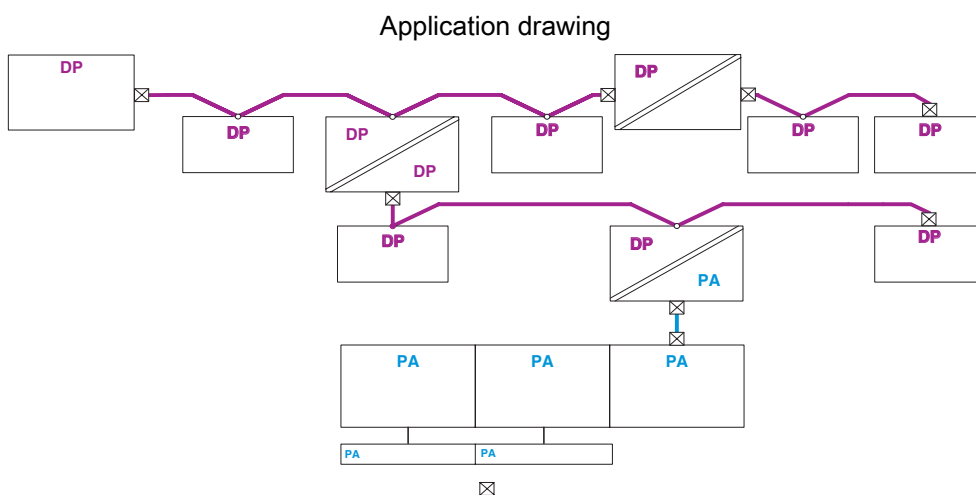
Application drawing

Point-to-point connection

Application drawing

Tree structure

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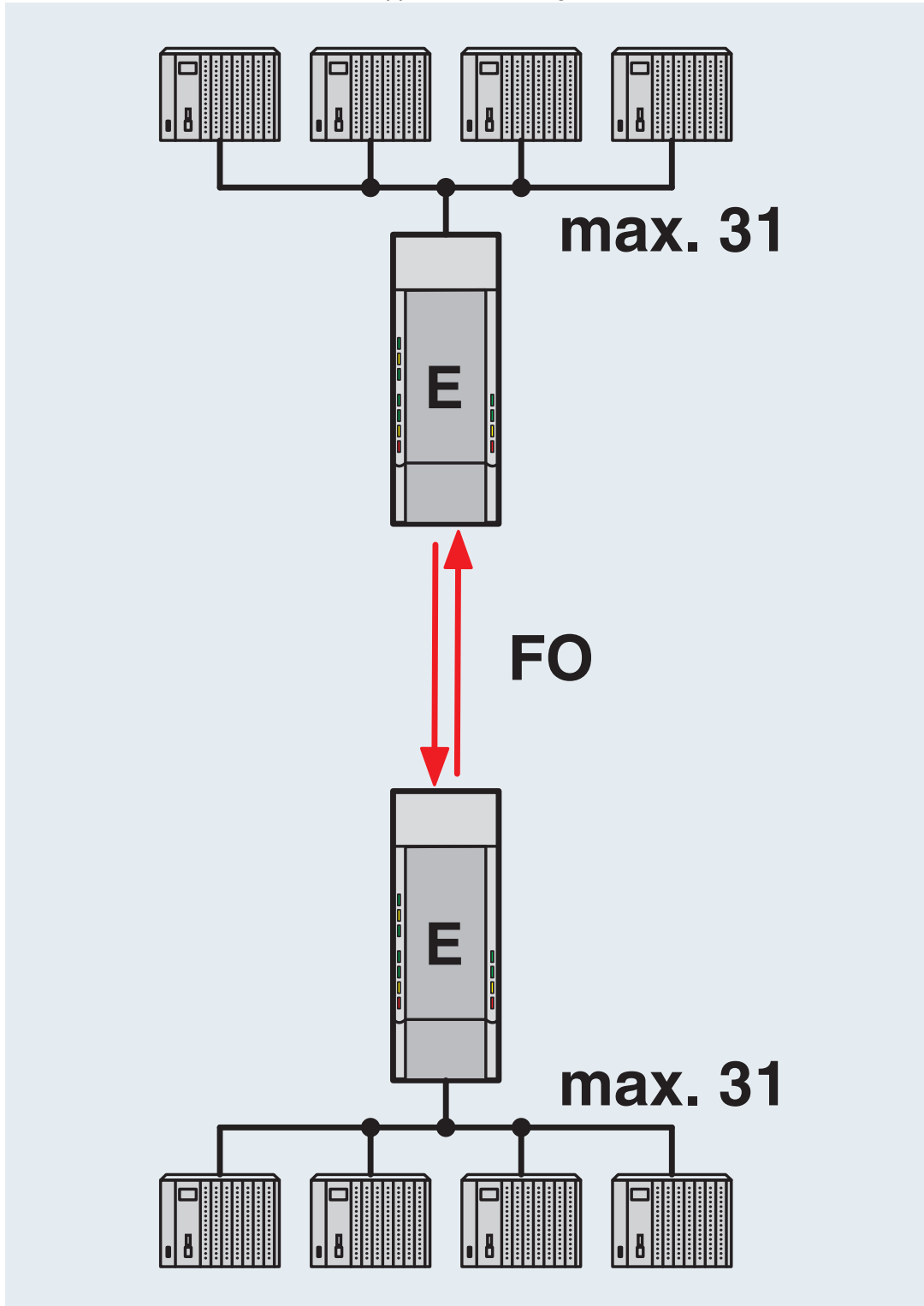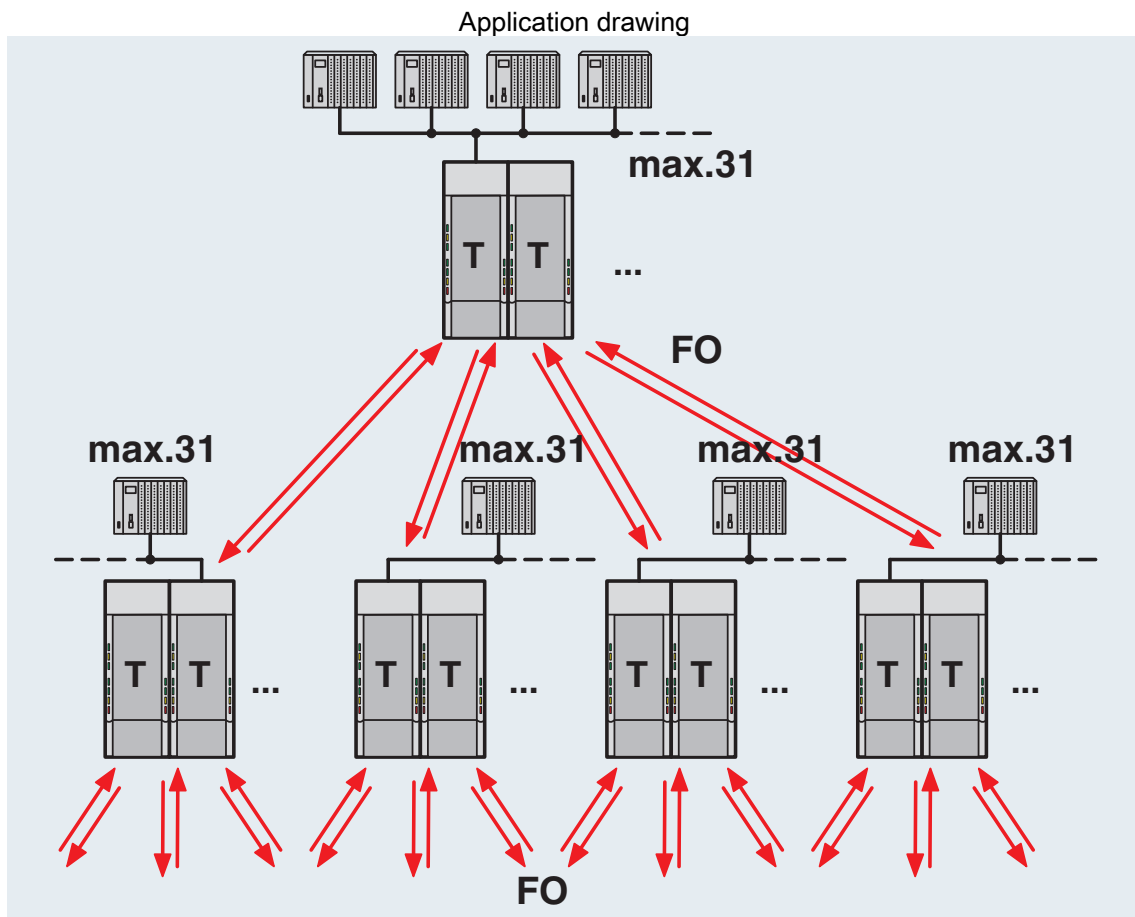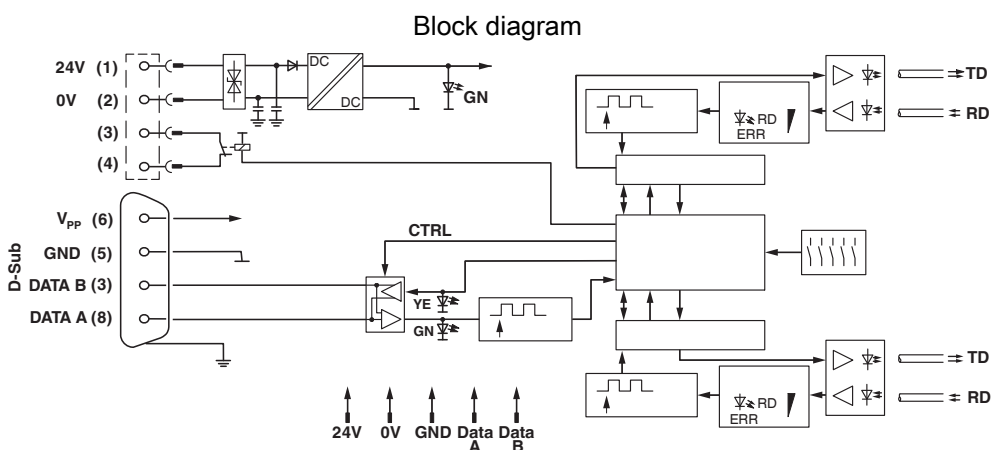
*) only with PSI-MOS.../FO...T

Application drawing
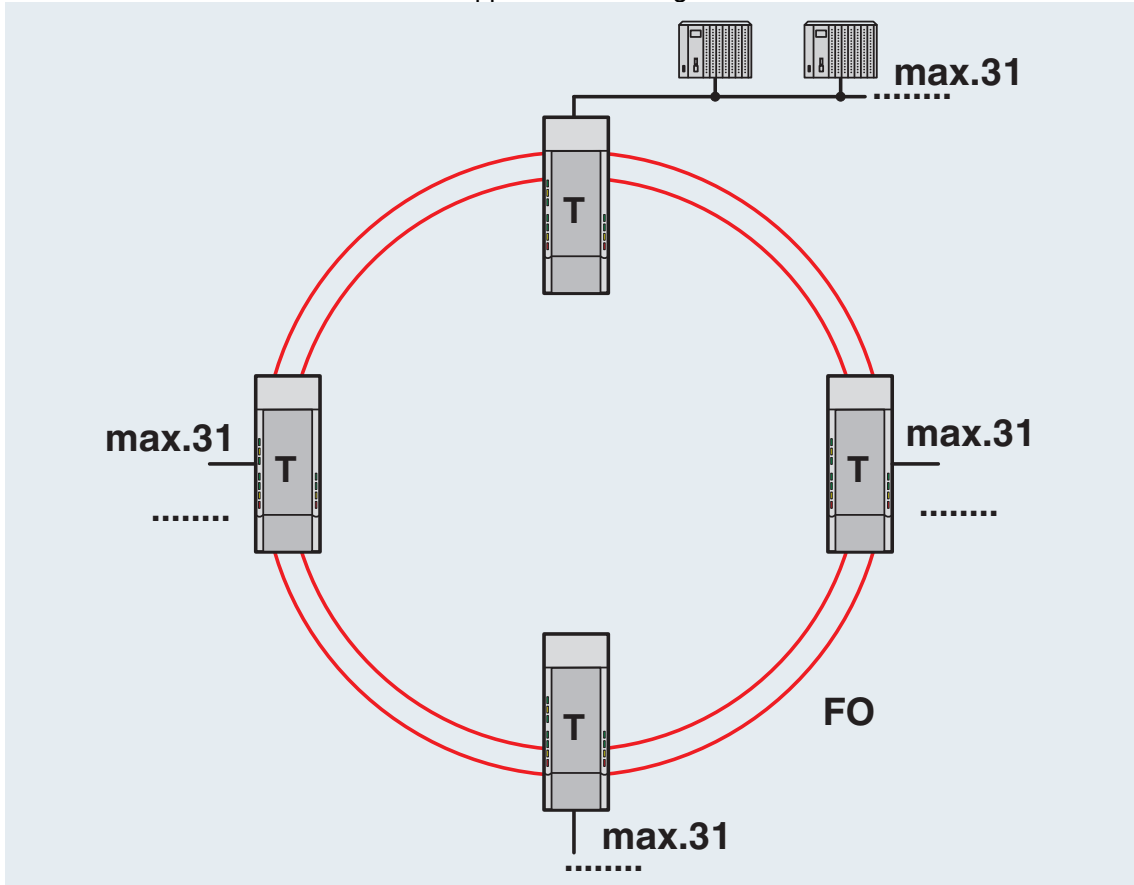
Redundant FO ring

Approvals

cUL Recognized
Approval ID: FILE E 238705

UL Recognized
Approval ID: FILE E 238705

EAC
Approval ID: EAC-Zulassung

DNV GL
Approval ID: TAA00001KR

ATEX
Approval ID: PTB 06 ATEX 2042U

ATEX
Approval ID: PxCIF06ATEX2708261X

cUL Listed
Approval ID: FILE E 199827

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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

UNSPSC

UNSPSC 21.0	43201500

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-FSMA/4-KT - FO connectors

2799720

https://www.phoenixcontact.com/in/products/2799720

FO connectors, degree of protection: IP20, number of positions: 2, MM, material: Metal, cable outlet: straight

PSM-SET-FSMA/4-HCS - FO connectors

2799487

https://www.phoenixcontact.com/in/products/2799487

FO connectors, degree of protection: IP20, number of positions: 2, MM, material: Metal, connection method: Cable connection, cable outlet: straight

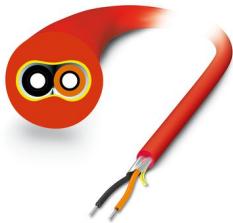# PSI-MOS-PROFIB/FO 660 E - FO converters

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PSM-LWL-KDHEAVY-980/1000 - FO cable

2744319

https://www.phoenixcontact.com/in/products/2744319

Polymer fiber cable, duplex 980 µm/1000 µm, medium-weight version for installation in stationary systems and machines, by the meter without male connector

PSM-LWL-RUGGED-980/1000 - FO cable

2744322

https://www.phoenixcontact.com/in/products/2744322

Polymer fiber cable, duplex 980µm/1000µm, heavy-weight version for installation in stationary systems and machines, by the meter without male connector

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PSM-LWL-RUGGED-FLEX-980/1000 - FO cable

2744335

https://www.phoenixcontact.com/in/products/2744335

Polymer fiber cable, duplex 980/1000 µm, heavy-weight, highly flexible version for flexible conduit applications, by the meter, without connector

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

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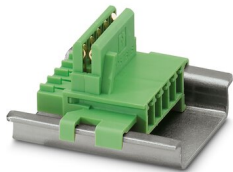
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ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - DIN rail bus connectors

2709561

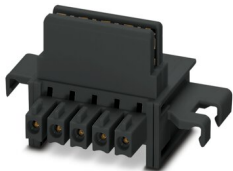https://www.phoenixcontact.com/in/products/2709561

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

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.
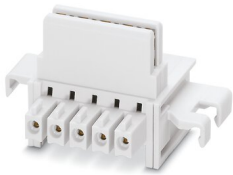
PSI-MOS-PROFIB/FO 660 E - FO converters

2708290

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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

PSM-POF-KONFTOOL - Assembly tool

2744131

https://www.phoenixcontact.com/in/products/2744131

Polymer fiber DIY case, consisting of: Stripping knife, stripping pliers, polishing wheels for F-SMA and SC-RJ quick mounting connectors, polishing pad and emery paper

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PSM-HCS-KONFTOOL - Assembly tool

2799526

https://www.phoenixcontact.com/in/products/2799526

PCF assembly kit for F-SMA quick mounting connectors, including stripping blade, stripping pliers, aramide yarn scissors, fiber stripper, microscope, fiber cleaving tool for standard HCS fibers, four F-SMA connectors for standard PCF fibers, and documentation

PSM-SET-FSMA-POLISH - Assembly tool

2799348

https://www.phoenixcontact.com/in/products/2799348

Polymer fiber polishing set, for F-SMA quick mounting connectors

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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-FSMA-LINK/2 - Fiber optic coupling

2799416

https://www.phoenixcontact.com/in/products/2799416

Coupling; set consisting of 2 couplings for connecting F-SMA plugs

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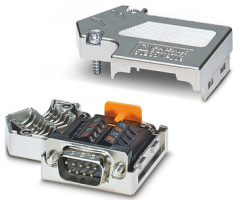https://www.phoenixcontact.com/in/products/2708290

SUBCON-PLUS-PROFIB/SC2 - D-SUB bus connector

2708232

https://www.phoenixcontact.com/in/products/2708232

D-SUB connector, 9-pos., male connector, 35° cable entry, bus system: PROFIBUS DP up to 12 Mbps, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

SUBCON-PLUS-PROFIB/PG/SC2 - D-SUB bus connector

2708245

https://www.phoenixcontact.com/in/products/2708245

D-SUB connector, 9-pos., male connector, 35° cable entry, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

PSI-MOS-PROFIB/FO 660 E - FO converters

2708290

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SUBCON-PLUS-PROFIB/AX/SC - D-SUB bus connector

2744380

https://www.phoenixcontact.com/in/products/2744380

D-SUB connector, 9-pos., male connector, axial version with two cable entries, bus system: PROFIBUS DP up to 12 Mbps, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

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-STRIP-FC/PROFIB - Stripping tool

2744623

https://www.phoenixcontact.com/in/products/2744623

Quick stripping tool for PROFIBUS cable, type Fast Connect

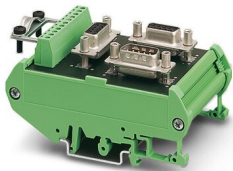## PSM PTK - Connection distributor

2760623

https://www.phoenixcontact.com/in/products/2760623

Passive RS-485 T-distributor, fitted with one 9-pin D-SUB pin strip and two 9-pin D-SUB socket strips

PSI-MOS-PROFIB/FO 660 E - FO converters

2708290

https://www.phoenixcontact.com/in/products/2708290

PSM PTK-4 - Connection distributor

2799364

https://www.phoenixcontact.com/in/products/2799364

Passive RS-485 T-distributor, fitted with one 9-pin D-SUB pin strip and five 9-pin D-SUB socket strips

PSI-REP-PROFIBUS/12MB - Repeater

2708863

https://www.phoenixcontact.com/in/products/2708863

Modular repeater for electrical isolation and range increase for PROFIBUS up to 12 Mbps, 4-way isolation, rail-mountable, supply 24 V DC

PSI-MOS-PROFIB/FO 660 E - FO converters

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https://www.phoenixcontact.com/in/products/2708290

PSM-ME-RS485/RS485-P - Repeater

2744429

https://www.phoenixcontact.com/in/products/2744429

Repeater, for potential separation and range increase in RS-485 2-wire bus systems, 3-way isolation, rail-mountable

PSM-CABLE-PROFIB/FC - Bus system cable

2744652

https://www.phoenixcontact.com/in/products/2744652

By the meter, Bus system cable, PROFIBUS (12 Mbps), shielded, PVC FR VI/PVC, violet, 2-wire (1X2XAWG22/1), color single wire: red, green, cable length: Free entry (1.0 ... 1000.0 m)

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PSI-TERMINATOR-PB-TBUS - Termination resistor

2702636

https://www.phoenixcontact.com/in/products/2702636

Active termination resistor for PROFIBUS and RS-485 bus systems, redundant power supply, routing of the supply voltage via DIN rail connector, electrical isolation, switchable termination, integrated programming interface

SUBCON-PLUS-PROFIB/90/PG/SC - D-SUB bus connector

2313708

https://www.phoenixcontact.com/in/products/2313708

D-SUB connector, 9-pos., male connector, 90° cable entry, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

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SUBCON-PLUS-PROFIB/90/PG/IDC - D-SUB bus connector

2313685

https://www.phoenixcontact.com/in/products/2313685

D-SUB connector, 9-pos., male connector, 90° cable entry, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; IDC terminal block connection

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

2902321

https://www.phoenixcontact.com/in/products/2902321

D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two M12 cable glands (B-coded) under 180° (axial). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.

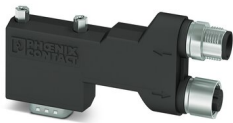# PSI-MOS-PROFIB/FO 660 E - FO converters

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SUBCON-PLUS-PROFIB/90X/M12 - D-SUB bus connector

2902729

https://www.phoenixcontact.com/in/products/2902729

D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two 90° cable entries M12 (B-coded). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator. Long version; S7-compatible.

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

2902318

https://www.phoenixcontact.com/in/products/2902318

D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two 90° M12 cable glands (B-coded). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.

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

2902320

https://www.phoenixcontact.com/in/products/2902320

D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two 35° cable entries M12 (B-coded). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.
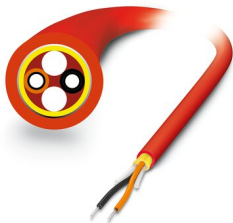
FOC-RUGGED-1012/IP20/... - FO patch cable

2901548

https://www.phoenixcontact.com/in/products/2901548

Robust POF installation cable for assembly (IP20 heads only) for installation in stationary systems and machines with individual elements made of polyamide (PA), halogen-free, ozone and UV resistant, with reinforced polyurethane (PUR) outer sheath

PSI-MOS-PROFIB/FO 660 E - FO converters

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FOC-RUGGED-FLEX-1013/IP20/... - FO patch cable

2901549

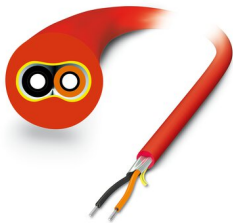https://www.phoenixcontact.com/in/products/2901549

Highly flexible POF round cable (IP20 heads only) for use in drag chains. Individual elements made from extremely wear-resistant polyamide (PA). The cable is halogen-free, ozone and UV resistant, and has a rugged polyurethane (PUR) outer sheath.

FOC-KDHEAVY-1011/IP20/... - FO patch cable

2901553

https://www.phoenixcontact.com/in/products/2901553

POF installation cable for assembly (IP20 heads only) for installation in stationary systems and machines with individual elements made of polyamide (PA), halogen-free, ozone and UV resistant, with a polyurethane (PUR) outer sheath
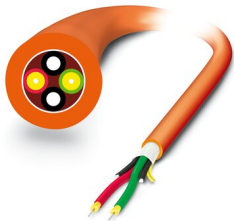
PSI-MOS-PROFIB/FO 660 E - FO converters

2708290

https://www.phoenixcontact.com/in/products/2708290

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.