

FO converters - PSI-MOS-RS422/FO 660 T



2708384

<https://www.phoenixcontact.com/pc/products/2708384>

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FO converter with integrated optical diagnostics, alarm contact, for RS-422/RS-485 4-wire/INTERBUS up to 2 Mbps, T-coupler with two FO interfaces (FSMA), 660 nm, for polymer/PCF fiber cable

Your advantages

- Supply voltage routed through via 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 (INTERBUS // FO ports // supply // DIN rail connector)
- Approved for use in zone 2
- Floating switch contact for advance warning of critical FO paths
- 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
- Automatic data rate detection for all data rates up to 2 Mbps

Commercial Data

Item number	2708384
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	DNC216
Catalog Page	Page 437 (C-6-2019)
GTIN	4017918974084
Weight per Piece (including packing)	263.9 g
Weight per Piece (excluding packing)	197.98 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	861 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	338 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	137 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)
MTBF	284 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	52 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))

Electrical properties

Electrical isolation	VCC // RS-422
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
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
	42 V AC
Limiting continuous current	0.46 A

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Connection data

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	INTERBUS
Transmission channels	2 (1/1) RD, TD, full duplex

Data: optical FO

Transmit capacity, minimum	-4.6 dBm (980/1000 µm)
	-16.6 dBm (200/230 µm)
Transmission length incl. 3 dB system reserve	100 m (With F-P 980/1000 230 dB/km with quick mounting connector)
	800 m (With F-K 200/230 10 dB/km with quick mounting connector)
Transmission protocol	Transparent to protocol for RS-422 interface
Connection method	F-SMA
Wavelength	660 nm
Minimum receiver sensitivity	-31.2 dBm
Transmission medium	Polymer fiber
	PCF fiber

Data: RS-422 interface in acc. with ITU-T V.11, EIA/TIA-422, DIN 66348-1

Serial transmission speed	≤ 2 Mbps
Connection method	Pluggable screw connection
Transmission length	≤ 1000 m (depending on the data rate, with shielded, twisted data cable)
Termination resistor	220 Ω
	100 Ω
	220 Ω
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section solid min.	0.2 mm ²
Max. AWG conductor cross section, flexible	14
Min. AWG conductor cross section, flexible	24
Single-wire/terminal point, solid AWG max.	14
Single-wire/terminal point, solid AWG min.	24
Transmission medium	Copper
File format/coding	UART (11 Bit, NRZ)

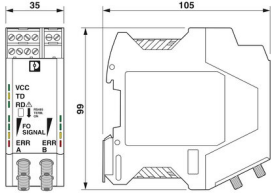
Dimensions

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Dimensional drawing	
Width	35 mm
Height	99 mm
Depth	103 mm

Material specifications

Material	PA 6.6-FR (Housing)
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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)
Permissible humidity (operation)	30 % ... 95 % (non-condensing)

Approval data

CE

Certificate	CE-compliant
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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

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!

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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

Corrosive gas test

Identification	ISA-S71.04-1985 G3 Harsh Group A
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EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011
Noise immunity	EN 61000-6-2:2005

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)

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
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Voltage	10 V
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Emitted interference

Standards/regulations	EN 55011
Comments	Class A, industrial applications
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

Mounting

Mounting type	DIN rail mounting
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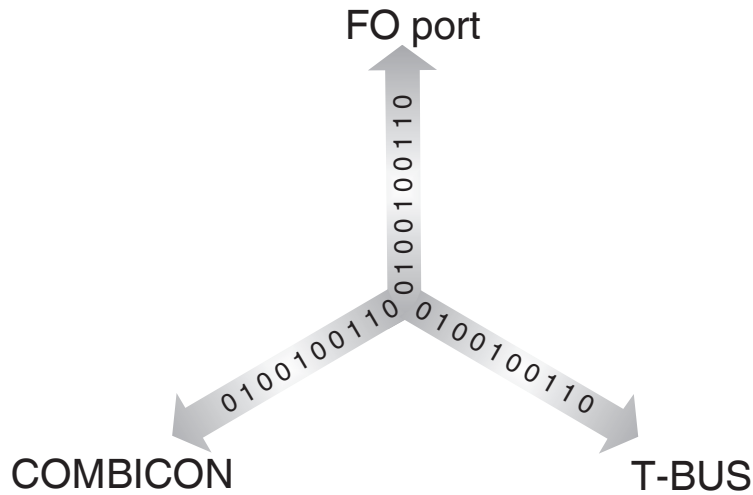
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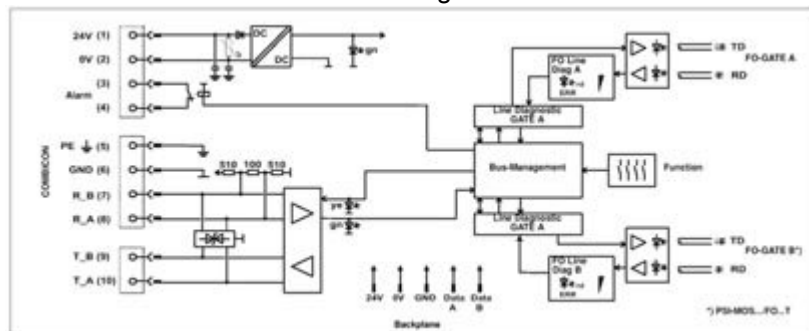
Drawings

Schematic diagram



Port assignment in star structures

Block diagram

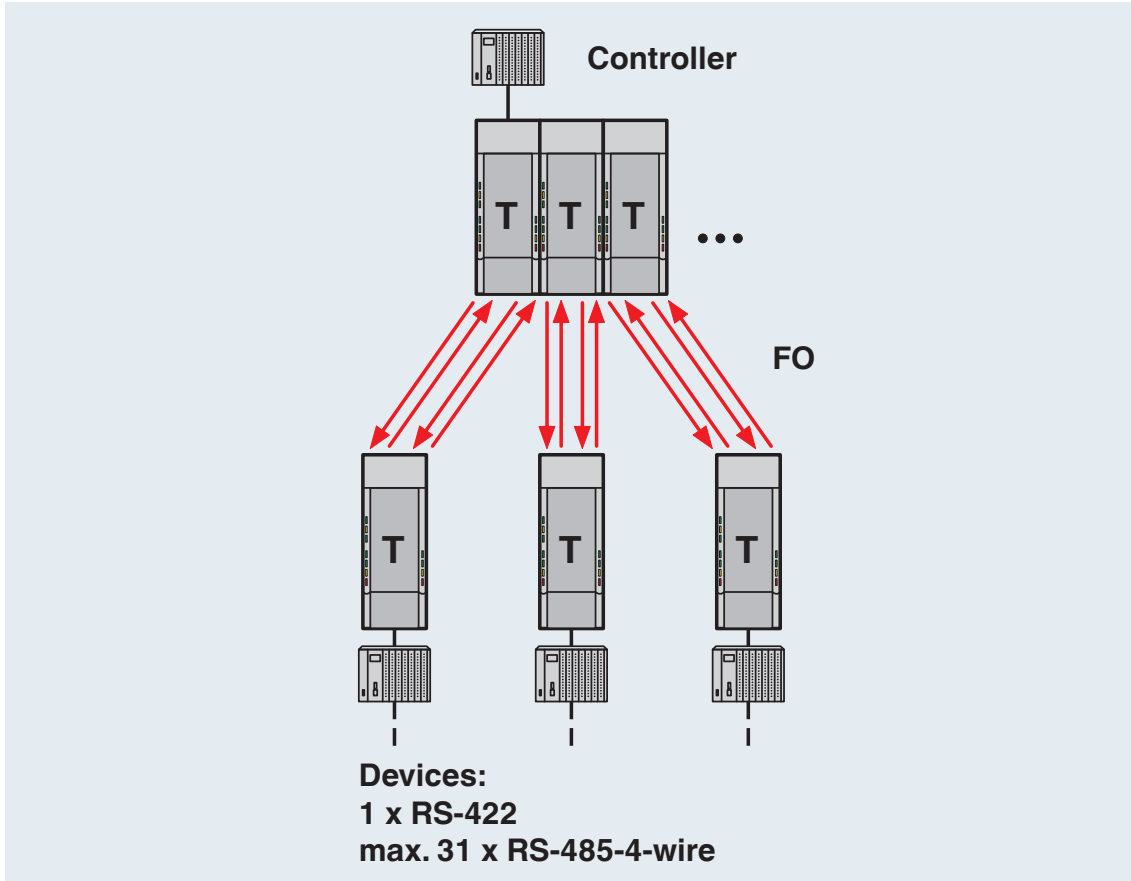


*) only with PSI-MOS.../FO...T

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Application drawing



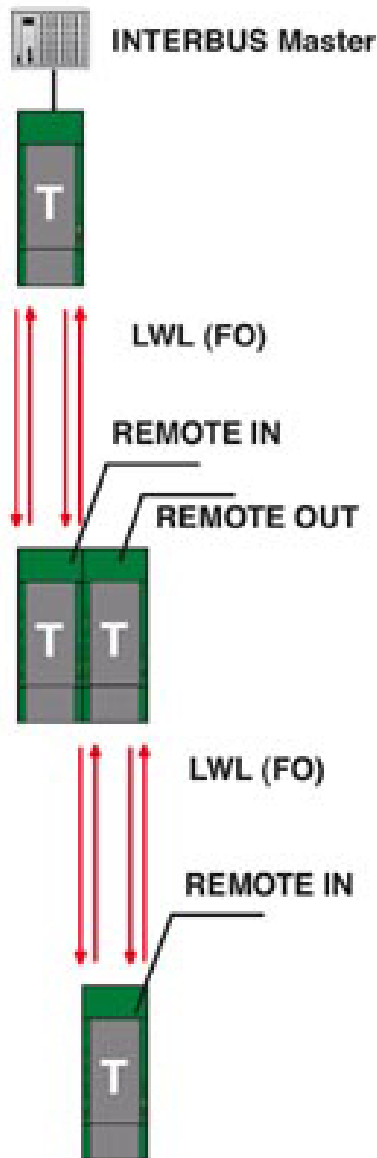
Redundant structure

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Application drawing



INTERBUS with PSI-MOS-RS-422
Redundant connection

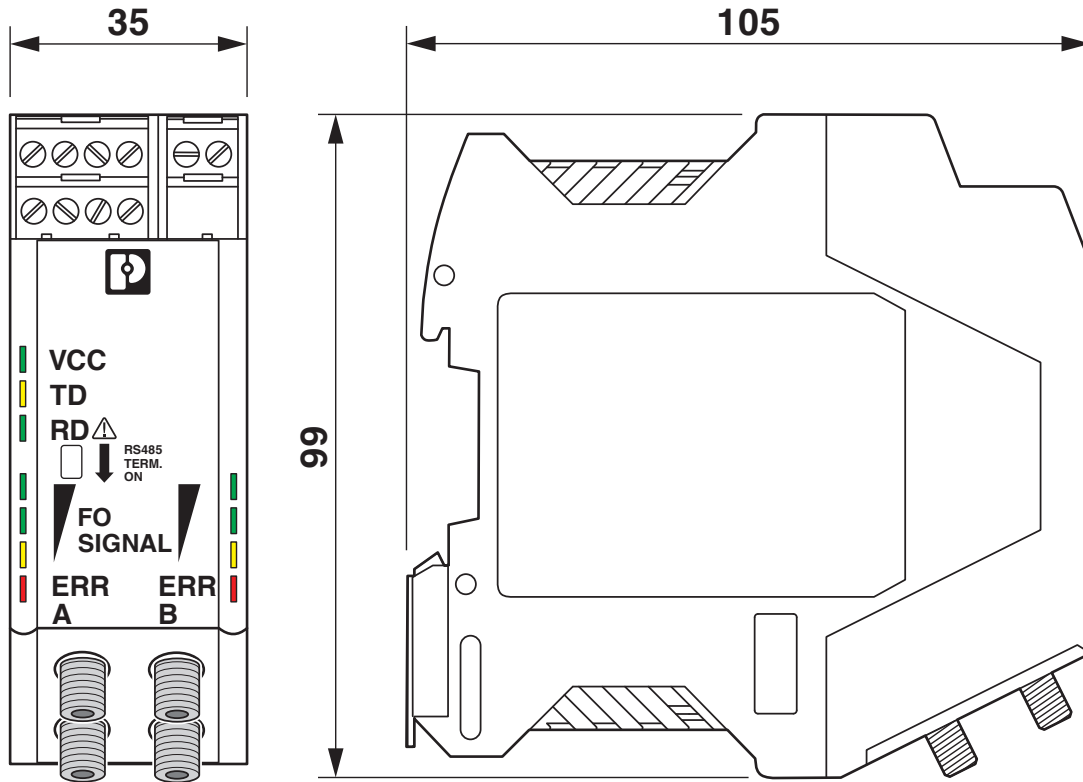
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Dimensional drawing

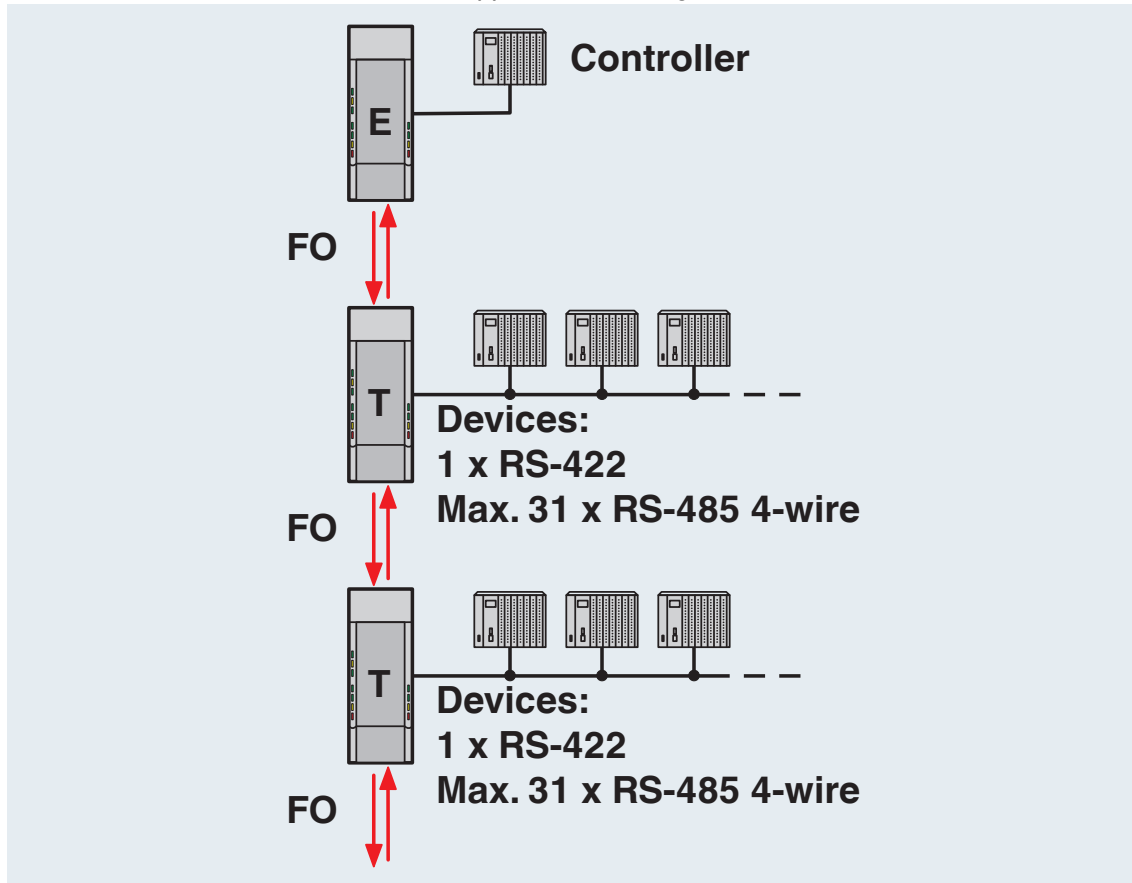


Housing dimensions

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Application drawing

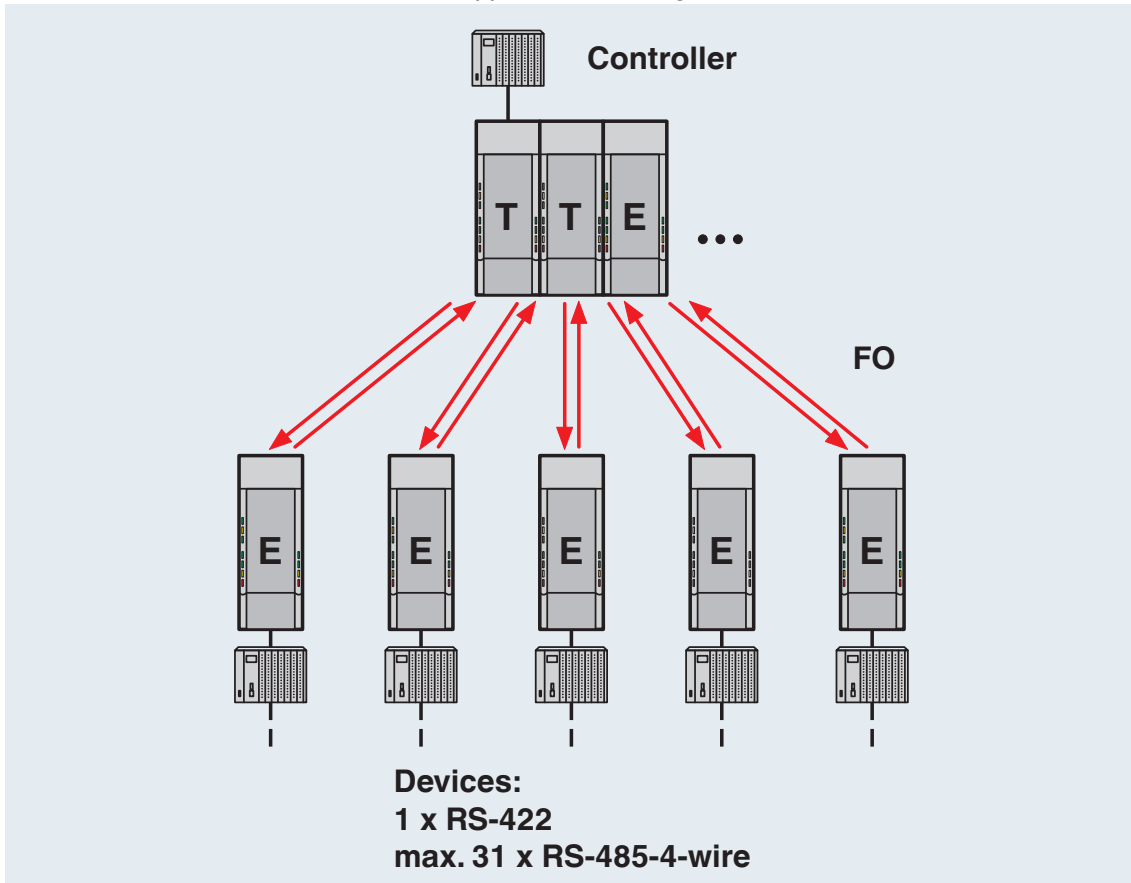


Controller-device line structure

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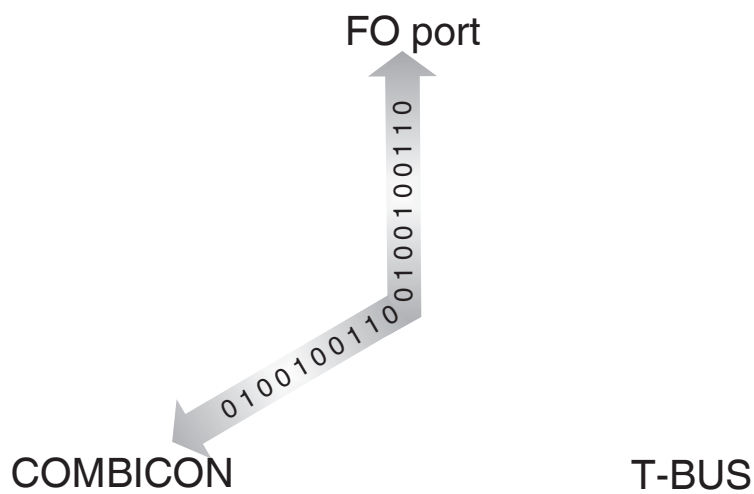
<https://www.phoenixcontact.com/pc/products/2708384>

Application drawing



Star structure

Schematic diagram

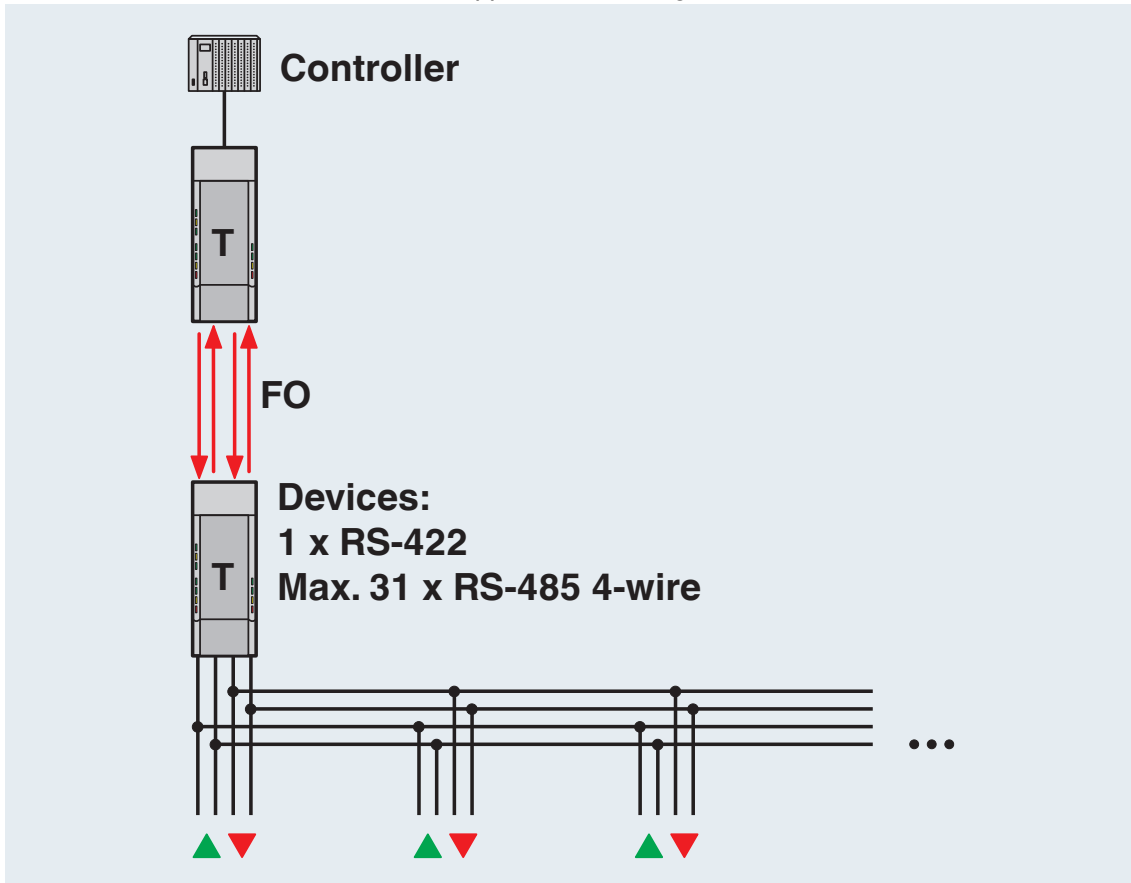


Port assignment for point-to-point connections

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Application drawing

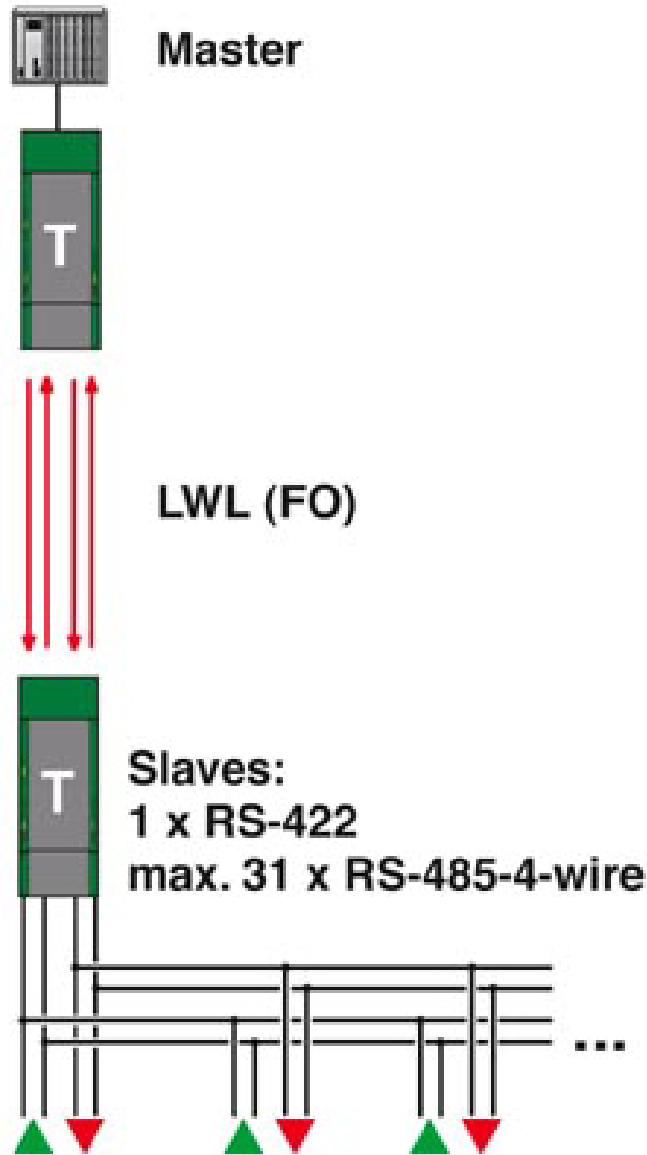


Redundant point-to-point connection

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Application drawing

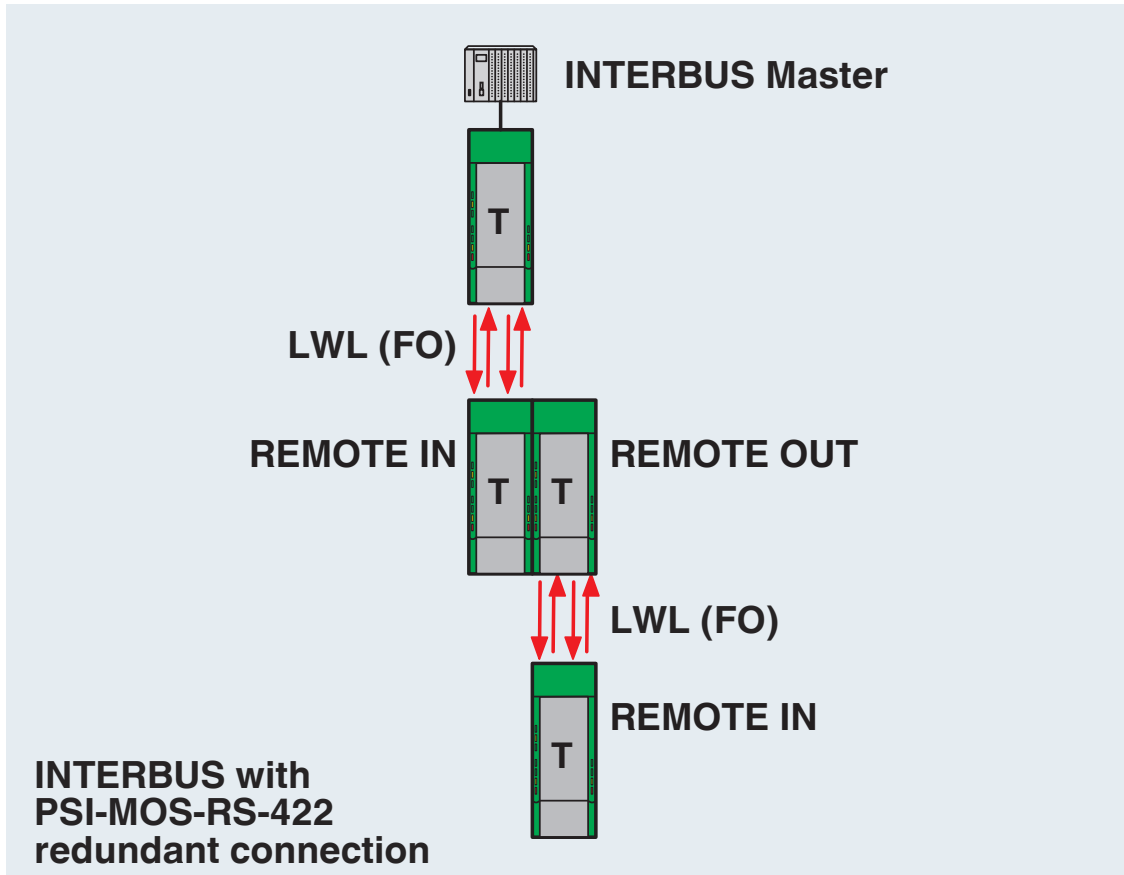


Redundant point-to-point connection

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<https://www.phoenixcontact.com/pc/products/2708384>

Functional drawing



INTERBUS with PSI-MOS-RS-422
Redundant connection

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<https://www.phoenixcontact.com/pc/products/2708384>

Approvals



cUL Recognized
Approval ID: FILE E 238705



UL Recognized
Approval ID: FILE E 238705



ATEX
Approval ID: PTB 06 ATEX 2042U

Nominal Voltage U_N

Nominal Current I_N

Cross Section AWG

Cross Section mm^2

-

-



ATEX
Approval ID: PxCIF06ATEX2708261X



cUL Listed
Approval ID: FILE E 199827



UL Listed
Approval ID: FILE E 199827

cULus Recognized

cULus Listed

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Classifications

ECLASS

ECLASS-9.0	19170114
ECLASS-10.0.1	19170132
ECLASS-11.0	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

FO connectors

FO connectors - PSM-SET-FSMA/4-KT - 2799720

<https://www.phoenixcontact.com/pc/products/2799720>

F-SMA plug set for polymer fiber, for self assembly consisting of 4 quick mounting connectors with bend protection sleeve



FO connectors

FO connectors - PSM-SET-FSMA/4-HCS - 2799487

<https://www.phoenixcontact.com/pc/products/2799487>

F-SMA plug set for PCF fiber, for self assembly consisting of 4 quick mounting connectors with bend protection sleeve



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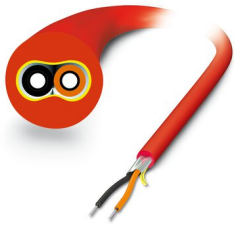
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FO cable

FO cable - PSM-LWL-KDHEAVY-980/1000 - 2744319

<https://www.phoenixcontact.com/pc/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

FO cable

FO cable - PSM-LWL-RUGGED-980/1000 - 2744322

<https://www.phoenixcontact.com/pc/products/2744322>



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

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FO cable

FO cable - PSM-LWL-RUGGED-FLEX-980/1000 - 2744335

<https://www.phoenixcontact.com/pc/products/2744335>



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

FO cable

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

<https://www.phoenixcontact.com/pc/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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FO cable

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

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



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

Power supply unit

Power supply unit - QUINT4-SYS-PS/1AC/24DC/2.5/SC - 2904614

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



Primary-switched power supply unit, QUINT POWER, Screw connection, DIN rail mounting, input: 1-phase, output: 24 V DC / 2.5 A

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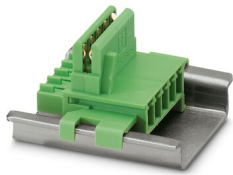
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DIN rail bus connectors

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

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

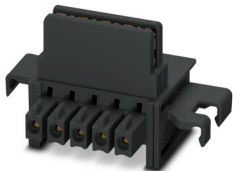


DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

DIN rail bus connectors

DIN rail bus connectors - ME 17,5 TBUS 1,5/PP000-3,81 BK - 2890014

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



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

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Assembly tool

Assembly tool - PSM-POF-KONFTOOL - 2744131

<https://www.phoenixcontact.com/pc/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

Assembly tool

Assembly tool - PSM-HCS-KONFTOOL - 2799526

<https://www.phoenixcontact.com/pc/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

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Assembly tool

Assembly tool - PSM-SET-FSMA-POLISH - 2799348

<https://www.phoenixcontact.com/pc/products/2799348>



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

Measuring instrument

Measuring instrument - PSM-FO-POWERMETER - 2799539

<https://www.phoenixcontact.com/pc/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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Fiber optic coupling

Fiber optic coupling - PSM-SET-FSMA-LINK/2 - 2799416

<https://www.phoenixcontact.com/pc/products/2799416>

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



D-SUB bus connector

D-SUB bus connector - SUBCON-PLUS 9/F - 2744241

<https://www.phoenixcontact.com/pc/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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D-SUB bus connector

D-SUB bus connector - SUBCON-PLUS 9/M - 2744018

<https://www.phoenixcontact.com/pc/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

Screwdriver

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

<https://www.phoenixcontact.com/pc/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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Interface converter

Interface converter - PSM-ME-RS232/RS485-P - 2744416

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

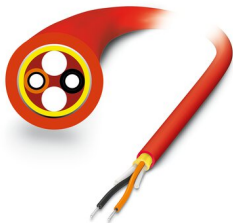


Interface converter, for converting RS-232 (V.24) to RS-422 (V.11) and RS-485, with electrical isolation, 2 channels, rail-mountable

FO patch cable

FO patch cable - FOC-RUGGED-1012/IP20/... - 2901548

<https://www.phoenixcontact.com/pc/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

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FO patch cable

FO patch cable - FOC-RUGGED-FLEX-1013/IP20/... - 2901549

<https://www.phoenixcontact.com/pc/products/2901549>

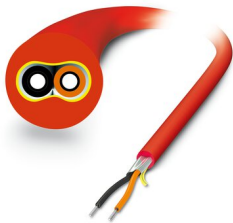


Highly flexible POF round cable (IP20 heads only) for use in drag chains. Individual elements made from extremely wear-resistant polyamide (PA). The cable is halogen-free, ozone and UV resistant, and has a rugged polyurethane (PUR) outer sheath.

FO patch cable

FO patch cable - FOC-KDHEAVY-1011/IP20/... - 2901553

<https://www.phoenixcontact.com/pc/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

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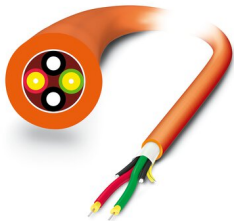
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FO patch cable

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

<https://www.phoenixcontact.com/pc/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

FO patch cable

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

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

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FO patch cable

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

<https://www.phoenixcontact.com/pc/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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