

PSI-MOS-RS232/FO 660 E - FO converters



2708368

<https://www.phoenixcontact.com/us/products/2708368>

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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 (FSMA), 660 nm, for polymer/PCF fiber cable

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	2708368
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN06
Product key	DNC215
Catalog page	Page 439 (C-6-2019)
GTIN	4017918974060
Weight per piece (including packing)	238.2 g
Weight per piece (excluding packing)	233.3 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	1093 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	485 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	91 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	2.4 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	120 mA

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

Supply

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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), Rx/D, Tx/D, full duplex

Data: optical FO

No. of channels	1
Transmit capacity, minimum	-4.6 dBm (980/1000 µm) -16.6 dBm (200/230 µm)
Transmission length incl. 3 dB system reserve	100 m (F-P 980/1000 230 dB/km with quick mounting connector) 800 m (F-K 200/230 10 dB/km with quick mounting connector)
Transmission protocol	Transparent to protocol for RS-232 interface
Connection method	F-SMA
Wavelength	660 nm
Minimum receiver sensitivity	-31.2 dBm
Transmission medium	Polymer fiber PCF fiber

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
Single conductor/terminal point, rigid	0.2 mm² ... 2.5 mm²
Single-wire/terminal point, flexible	0.2 mm² ... 2.5 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

Dimensions

Width	35 mm
Height	99 mm
Depth	105 mm

Material specifications

Color (Housing)	green (RAL 6021)
Material (Housing)	PA 6.6-FR

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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)

Approvals

CE

Certificate	CE-compliant
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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

KC approval for South Korea

Certificate	KCC-REI-PCK-FL2708368
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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

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

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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

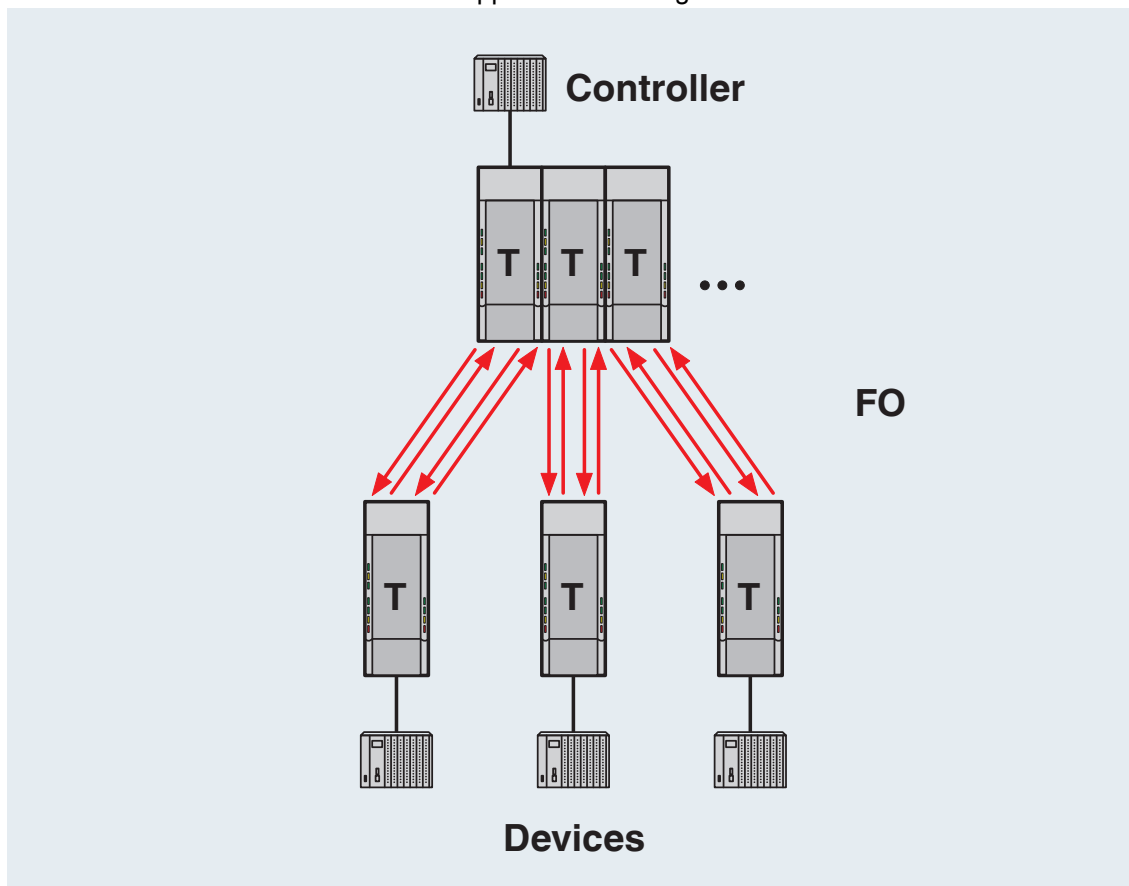
Free from substances that could impair the application of coating	in accordance with VW-AUDI-Seat central standard P-VW 3.10.7 57 65 0
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Mounting

Mounting type	DIN rail mounting
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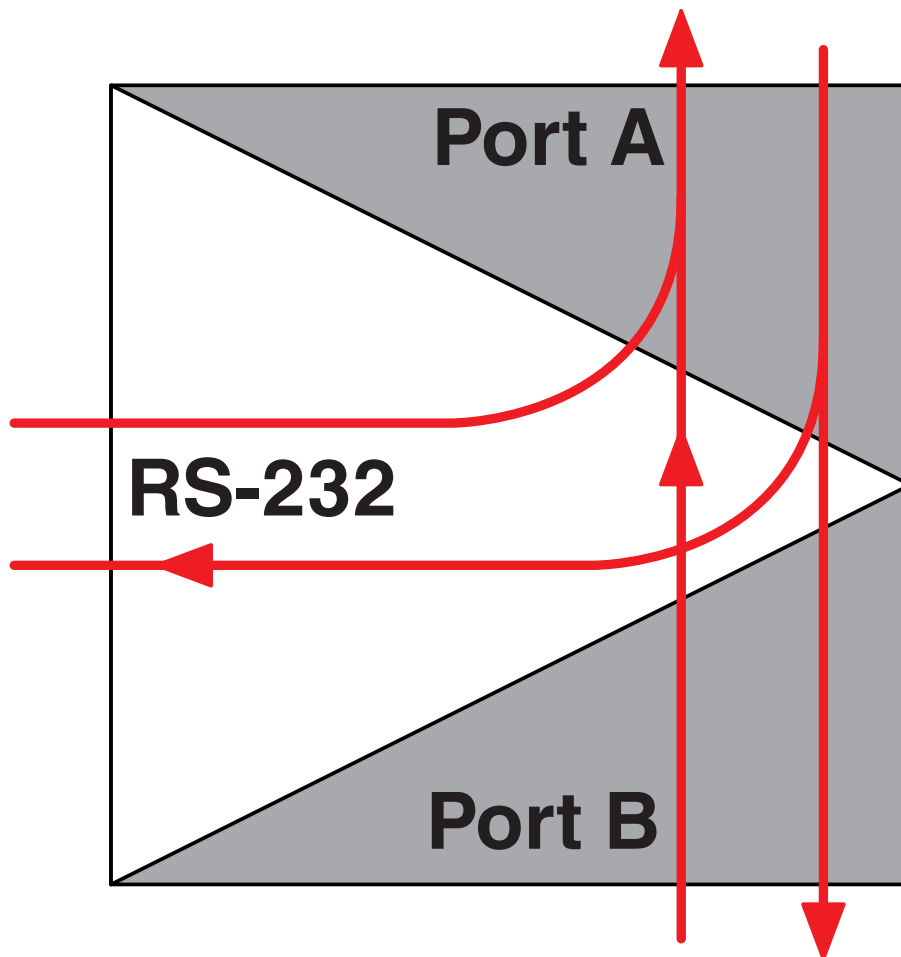
Drawings

Application drawing



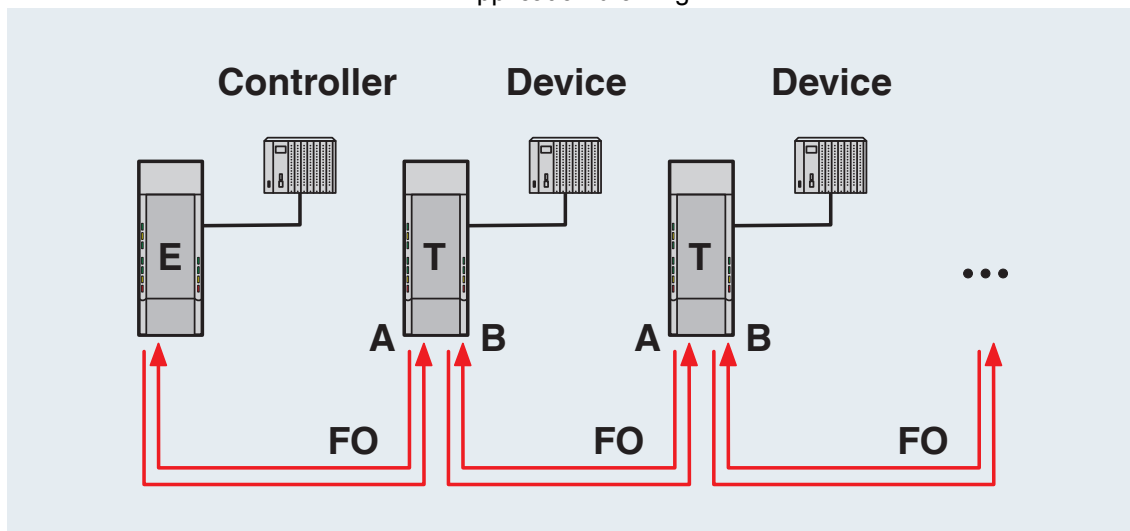
Redundant structure

Schematic diagram



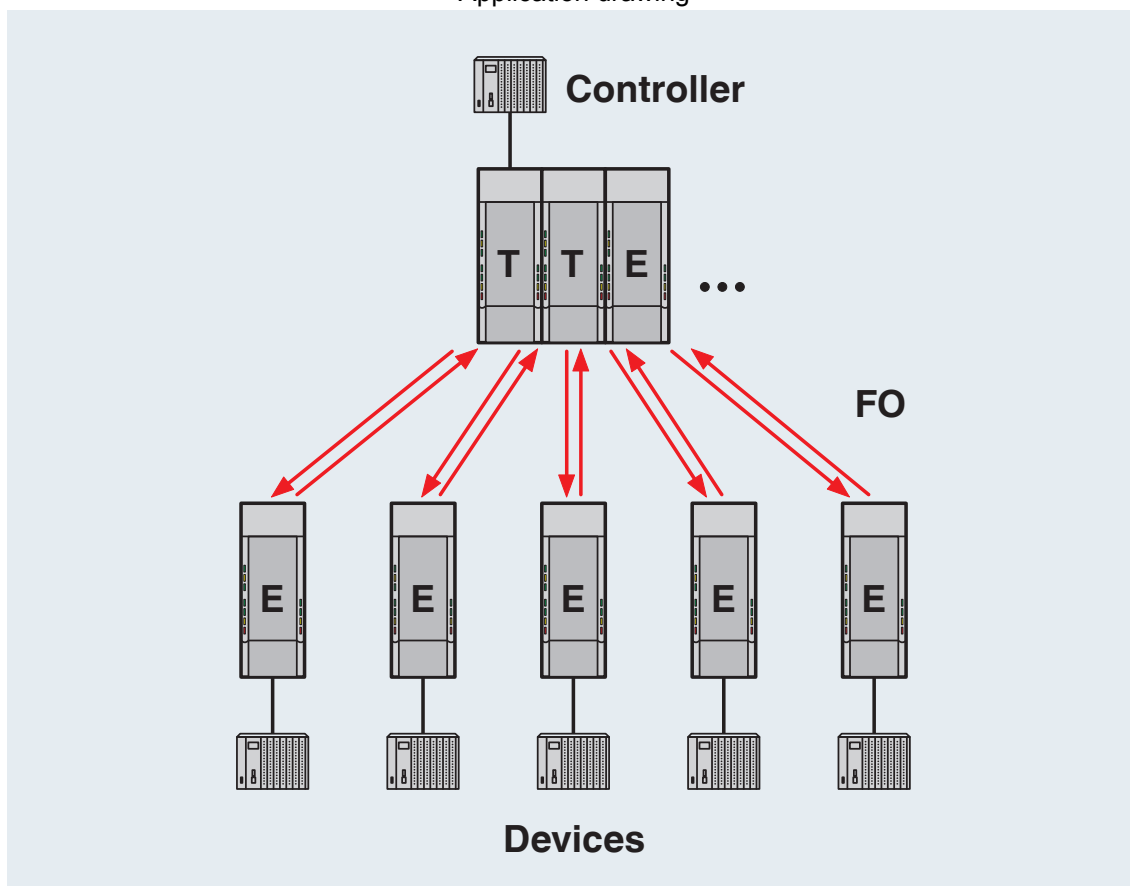
Port assignment in a line structure

Application drawing



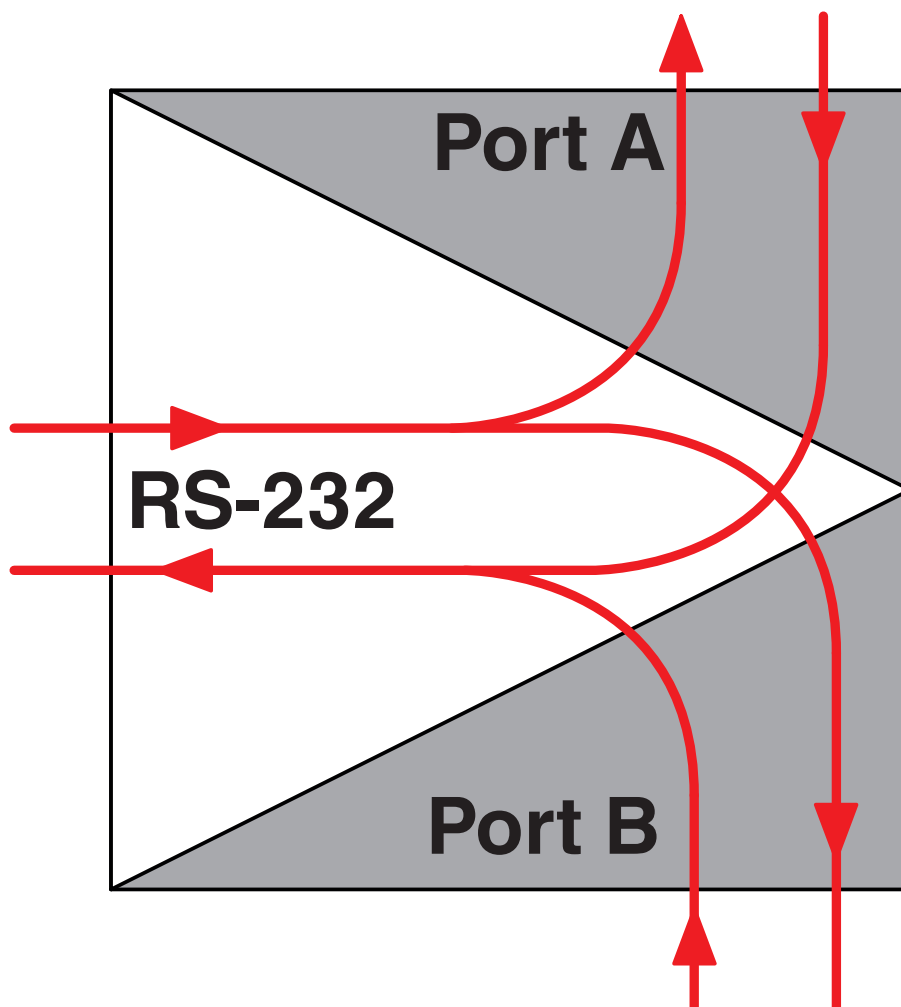
Controller-device line structure

Application drawing



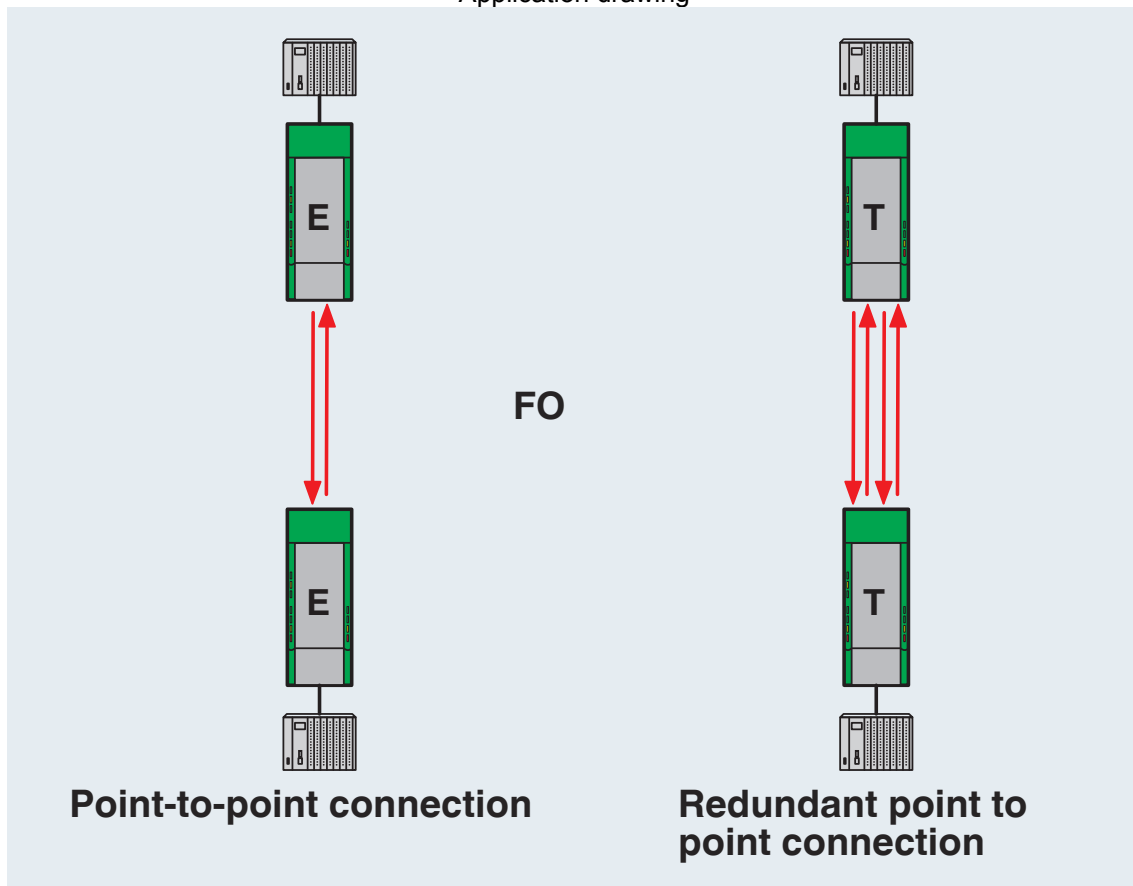
Star structure

Schematic diagram



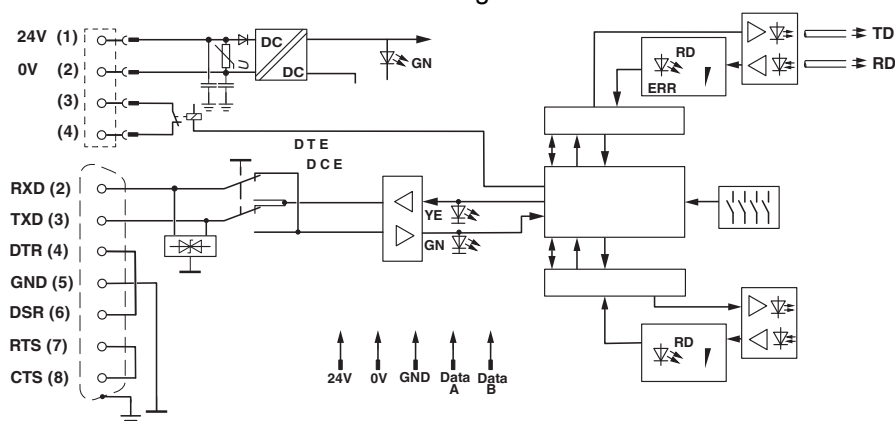
Port assignment in star structures

Application drawing



Redundant point-to-point connection

Block diagram



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

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2708368>



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



KC
Approval ID: KCC-REI-PCK-FL270836

UAE-RoHS

Approval ID: 23-02-63194



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

cULus Recognized

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Classifications

ECLASS

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

ETIM

ETIM 9.0	EC001467
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UNSPSC

UNSPSC 21.0	43201500
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 7(a), 7(c)-I
China RoHS	
Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	1a269874-d899-4b90-936b-bb96ad4cbfb3

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Accessories

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

2799720

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

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



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FL FOC PN-B-980/1000 - FO cable

2313397

<https://www.phoenixcontact.com/us/products/2313397>



PROFINET polymer fiber cable, duplex 980 μm /1000 μm , heavy-weight design, 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/us/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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FL FOC PN-C-FLEX-980/1000 - FO cable

2313407

<https://www.phoenixcontact.com/us/products/2313407>

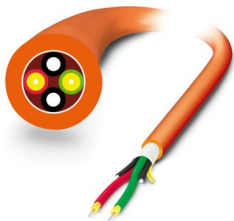


PROFINET polymer fiber cable, duplex, 980/1000 μm , heavy-weight highly flexible design, for flexible cable conduit applications, by the meter, without connector

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

2799885

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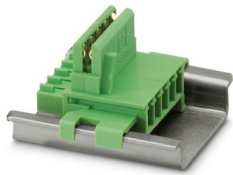


ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - DIN rail bus connectors

2709561

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

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

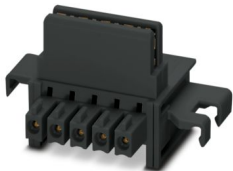


ME 17,5 TBUS 1,5/PP000-3,81 BK - DIN rail bus connectors

2890014

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

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



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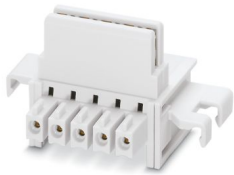
<https://www.phoenixcontact.com/us/products/2708368>



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

2713645

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



DIN rail connector, color: light grey, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, product range: TBUS5-17,5..., 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/us/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/us/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/us/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/us/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/us/products/2799416>

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



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

2744241

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

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

2744018

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



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

PSM-KA9SUB9/BB/2METER - Data cable

2799474

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



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

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

2744416

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

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

1402191

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