

FO converters - PSI-MOS-RS232/FO 850 E - 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 via DIN rail connectors
- ✓ Connections can be plugged in using 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
- ✓ Integrated optical diagnostics for continuous monitoring of fiber optic paths
- ✓ Intrinsically safe fiber optic interface (Ex op is) for direct connection to devices in zone 1
- ✓ Floating switch contact for leading alarm generation in relation to critical fiber optic paths
- ✓ Automatic data rate detection for all data rates up to 115.2 kbps
- ✓ Shipbuilding approval in accordance with DNV GL



Key Commercial Data

Packing unit	1 pc
GTIN	 4 017918 974077
GTIN	4017918974077

Technical data

Note

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

Width	35 mm
Height	99 mm
Depth	105 mm

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Technical data

Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	30 % ... 95 % (non-condensing)
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
Degree of protection	IP20
Noise immunity	EN 61000-6-2:2005

General

Transmission channels	2 (1/1), RxD, TxD, full duplex
Bit distortion, input	± 35 % (permitted)
Bit distortion, output	< 6.25 %
Electrical isolation	VCC // V.24 (RS-232)
Test voltage data interface/power supply	1.5 kV _{rms} (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011
Net weight	221.1 g
Housing material	PA 6.6-FR
Color	green
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))

Power supply

Nominal supply voltage	24 V DC (With UL approval)
Supply voltage range	18 V DC ... 30 V DC
Max. current consumption	120 mA
Typical current consumption	120 mA (24 V DC)
Connection method	COMBICON plug-in screw terminal block

Interfaces

Interface 1	V.24 (RS-232) interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1
Connection method	D-SUB 9 plug
Transmission medium	Copper
Transmission length	≤ 15 m
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	14
Serial transmission speed	115.2 kbps (NRZ)

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Technical data

Optical interface 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)
Minimum receiver sensitivity	-33.2 dBm
Wavelength	850 nm
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 medium	PCF fiber
	Multi-mode fiberglass
Transmission protocol	Transparent to protocol for RS-232 interface
Connection method	B-FOC (ST®)

Digital outputs

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

Conformance/approvals

Designation	CE
Identification	CE-compliant
Designation	EAC
Identification	EAC
Designation	ATEX
Identification	# II 3 G Ex nA nC IIC T4 Gc X
Additional text	Please follow the special installation instructions in the documentation!
Designation	ATEX
Identification	# II (2) G [Ex op is Gb] IIC
	# II (2) D [Ex op is Db] IIIC
Certificate	PTB 06 ATEX 2042 U
Additional text	Please follow the special installation instructions in the documentation!
Designation	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
Designation	Corrosive gas test
Identification	ISA-S71.04-1985 G3 Harsh Group A
Designation	Shipbuilding

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Technical data

Conformance/approvals

Identification	DNV GL
Temperature	B
Humidity	A
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Type of test	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6
Test result	5g, 10...150 Hz, 2.5 h, in XYZ direction
Type of test	Shock in acc. with EN 60068-2-27/IEC 60068-2-27
Test result	15g, 11 ms period, half-sine shock pulse
Noise emission	EN 55011
Noise immunity	EN 61000-6-2:2005
Free from substances that could impair the application of coating	according to P-VW 3.10.7 57 65 0 VW-AUDI-Seat central standard
Connection in acc. with standard	CUL
Standards/regulations	EN 61000-4-2
Contact discharge	± 6 kV
Standards/regulations	EN 61000-4-3
	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-4-5
Signal	± 1 kV
Standards/regulations	EN 55011
	EN 61000-4-6
Shock	15g in all directions in acc. with IEC 60068-2-27
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz

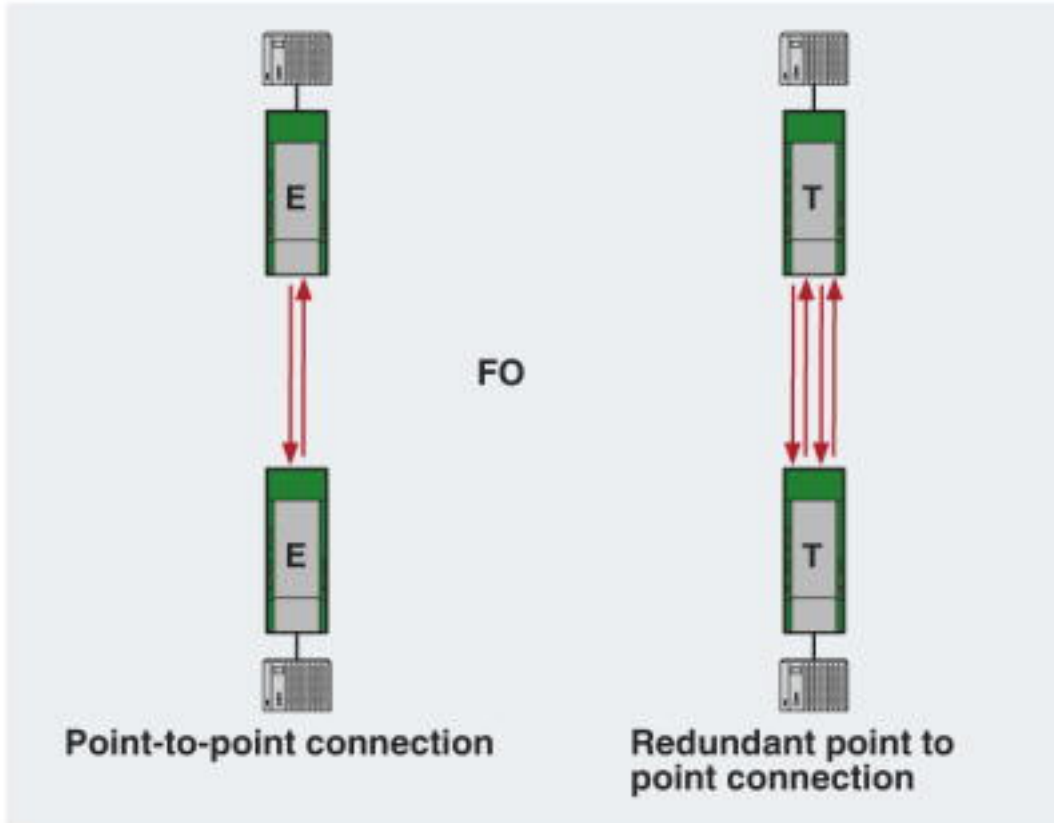
Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

FO converters - PSI-MOS-RS232/FO 850 E - 2708371

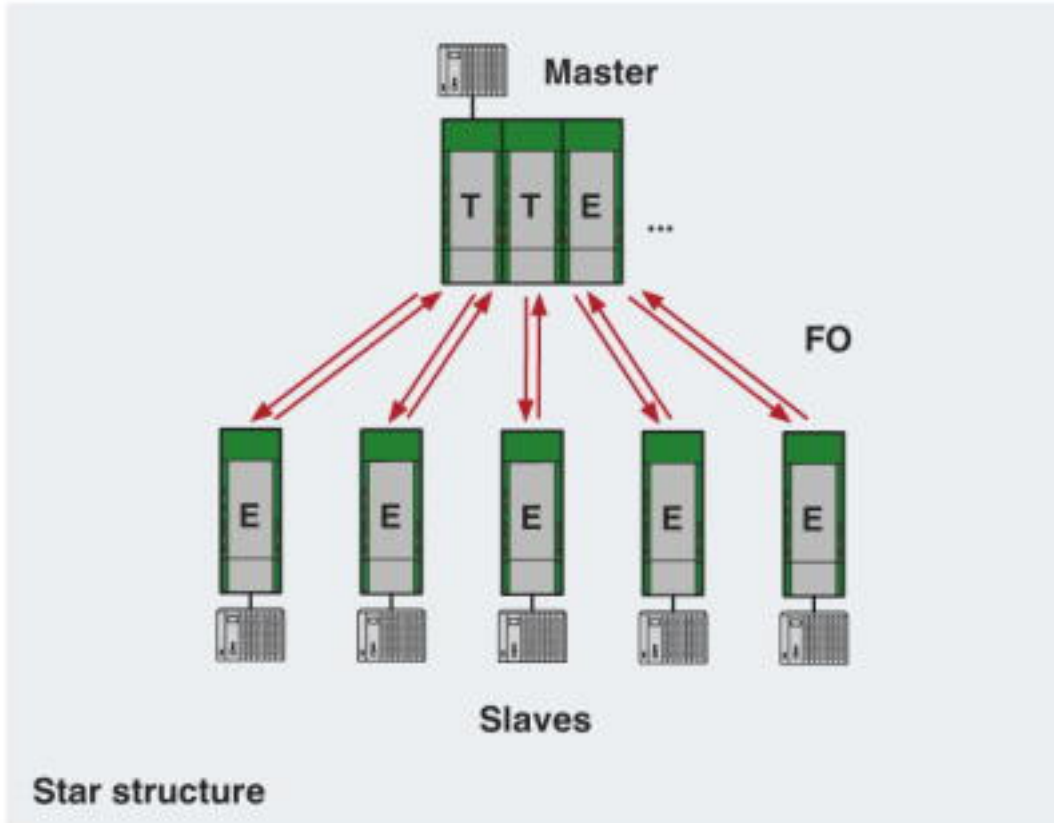
Application drawing



Redundant point-to-point connection

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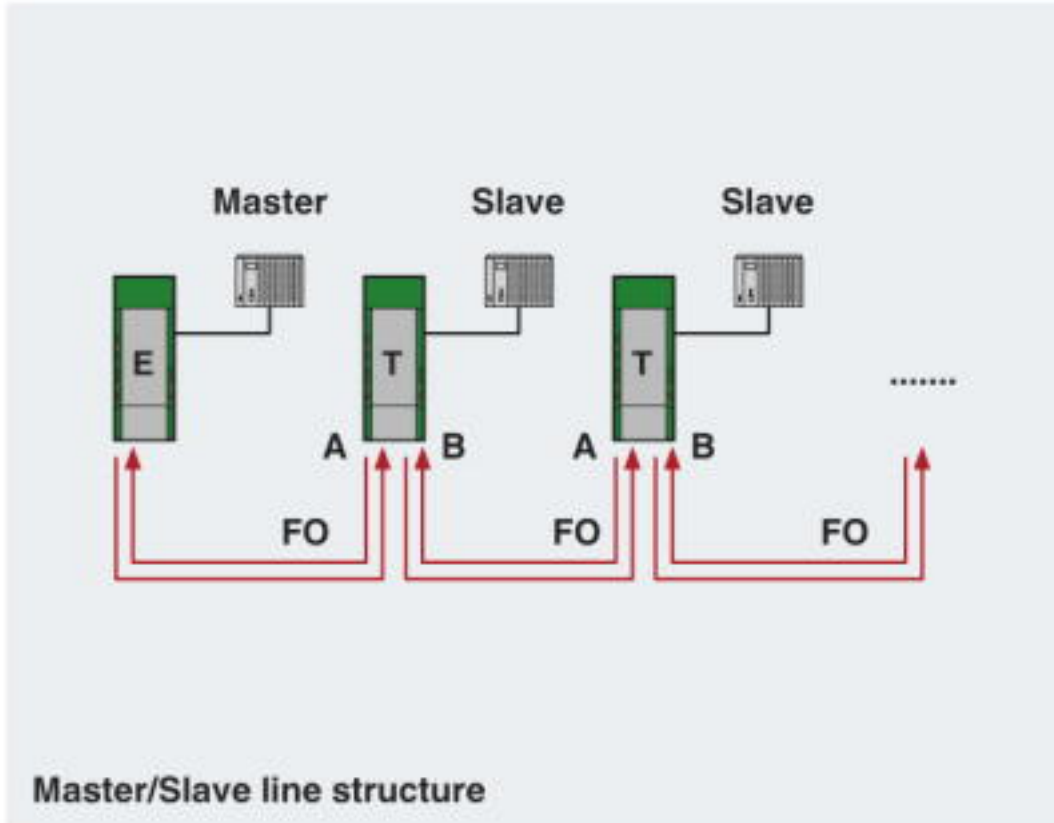
Application drawing



Star structure

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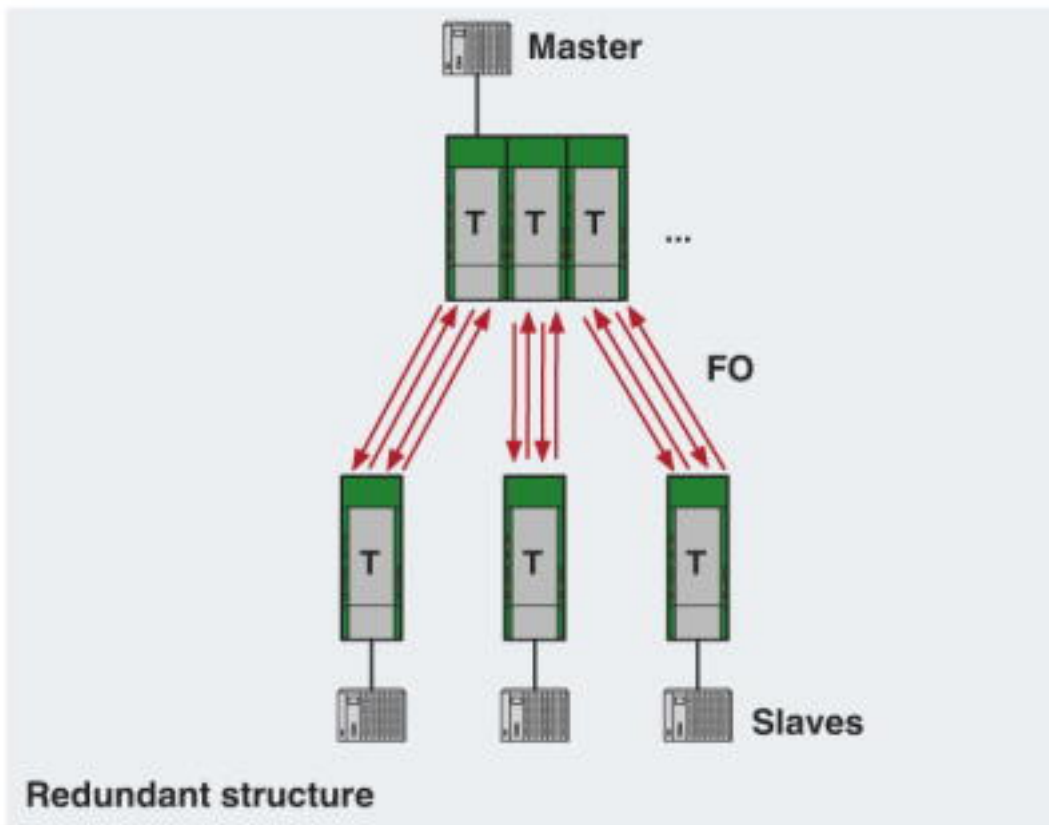
Application drawing



Master/Slave line structure

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Application drawing



Redundant structure

Classifications

eCl@ss

eCl@ss 4.0	27230200
eCl@ss 4.1	27230200
eCl@ss 5.0	27230200
eCl@ss 5.1	27230200
eCl@ss 6.0	19179200
eCl@ss 7.0	19179290
eCl@ss 8.0	19179290
eCl@ss 9.0	19170114

ETIM

ETIM 2.0	EC001423
ETIM 3.0	EC001423
ETIM 4.0	EC001423
ETIM 5.0	EC000310
ETIM 6.0	EC001467

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Classifications

ETIM

ETIM 7.0	EC001467
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UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	43222604
UNSPSC 18.0	43223323
UNSPSC 19.0	43223323
UNSPSC 20.0	43223323
UNSPSC 21.0	43223323

Approvals

Approvals

Approvals

DNV GL / UL Recognized / cUL Recognized / EAC / EAC / cULus Recognized

Ex Approvals

UL Listed / cUL Listed / cULus Listed

Approval details

DNV GL		https://approvalfinder.dnvgl.com/	TAA00001KR
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UL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
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cUL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705
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EAC			EAC-Zulassung
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Approvals



Accessories

Accessories

Adapter cable

Data cable - PSM-KA9SUB9/BB/2METER - 2799474



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

Data cable by the meter

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



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

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



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

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

FO cable - PSM-LWL-GDO- 50/125 - 2799432



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

Data cable preassembled

FO patch cable - FL MM PATCH 1,0 LC-ST - 2989174



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: LC/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

FO patch cable - FL MM PATCH 2,0 LC-ST - 2989271



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: LC/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 m

FO patch cable - FL MM PATCH 5,0 LC-ST - 2901801



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: LC/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

FO patch cable - FL MM PATCH 1,0 SC-ST - 2901809



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: SC duplex/B-FOC(ST), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

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Accessories

FO patch cable - FL MM PATCH 5,0 SC-ST - 2901811



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: SC duplex/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

FO patch cable - FL MM PATCH 1,0 ST-ST - 2901815



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

FO patch cable - FL MM PATCH 2,0 ST-ST - 2901816



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 m

FO patch cable - FL MM PATCH 5,0 ST-ST - 2901817



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

FO patch cable - FL MM PATCH 1,0 ST-SCRJ - 2901820



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/SC-RJ, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

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Accessories

FO patch cable - FL MM PATCH 2,0 ST-SCRJ - 2901821



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/SC-RJ, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 m

FO patch cable - FL MM PATCH 5,0 ST-SCRJ - 2901822



Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/SC-RJ, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

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

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

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

FO patch cable - FOC-GDM-RUGGED-1016/... - 1402193



rugged GOF installation cable for inner areas with highly tear-proof aramid strain-relief elements. Individual elements consist of highly flexible FRNC material. The cable is halogen-free, ozone and UV resistant and has a rugged polyurethane (PUR) outer sheath.

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

Data plug

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



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

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



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

DIN rail connector

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Accessories

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



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

Interface converter

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



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

Power supply

Power supply unit - MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983



Primary-switched MINI POWER supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A

Screwdriver tools

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



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

FO connectors - PSM-SET-B-FOC/4-HCS - 2708481



B-FOC (ST) connector set for PCF fiber, for self assembly consisting of 4 quick mounting connectors with bend protection sleeve

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Accessories

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

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

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

Measuring instrument - PSM-FO-POWERMETER - 2799539



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

Fiber optic coupling - PSM-SET-BFOC-LINK/2 - 2799429



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

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