

## FO converters - PSI-MOS-RS422/FO 850 E - 2708355

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FO converter with integrated optical diagnostics, alarm contact, for RS-422/RS-485 4-wire/INTERBUS up to 2 Mbps, terminal device with one FO interface (BFOC), 850 nm, for PCF/fiberglass cable (multimode)

### Your advantages

- ✓ Supply voltage 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 (INTERBUS // fiber optic ports // power supply // DIN rail connector)
- ✓ Approved for use in zone 2
- ✓ Floating switch contact for leading alarm generation in relation to critical fiber optic paths
- ✓ 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
- ✓ Automatic data rate detection for all data rates up to 2 Mbps
- ✓ Shipbuilding approval in accordance with DNV GL

RoHS



### Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4017918974053

### 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	103 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) RD, TD, full duplex
Bit distortion, input	± 35 % (permitted)
Bit distortion, output	< 6.25 %
Electrical isolation	VCC // RS-422
Test voltage data interface/power supply	1.5 kV <sub>rms</sub> (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011
Net weight	190.238 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	130 mA
Typical current consumption	120 mA (24 V DC)
Connection method	COMBICON plug-in screw terminal block

### Interfaces

Interface 1	RS-422 interface in acc. with ITU-T V.11, EIA/TIA-422, DIN 66348-1
Operating mode	full duplex
Connection method	Pluggable screw connection
Transmission medium	Copper
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 solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>

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## Technical data

### Interfaces

Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	14
Serial transmission speed	≤ 2 Mbps

### 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-422 interface
Connection method	B-FOC (ST <sup>®</sup> )

### 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, 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
Additional text	Please follow the special installation instructions in the documentation!
Designation	UL, USA/Canada

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## Technical data

### Conformance/approvals

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
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
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

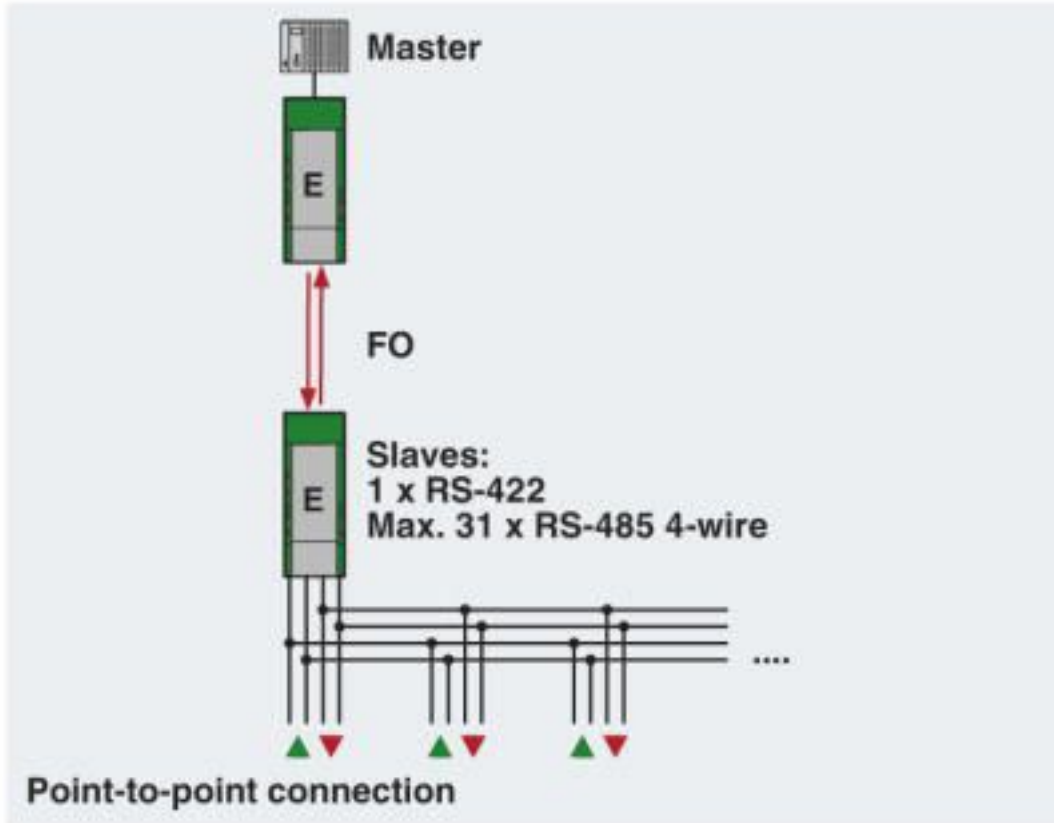
### Environmental Product Compliance

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-RS422/FO 850 E - 2708355

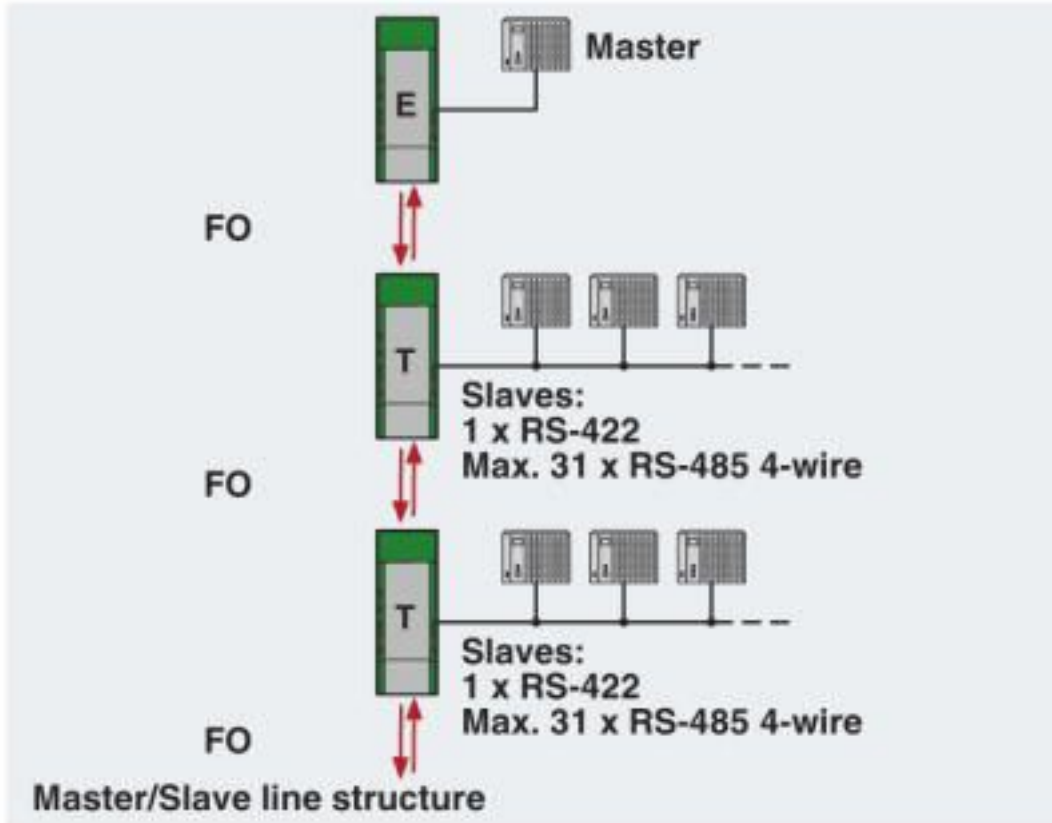
Application drawing



Point-to-point connection

# FO converters - PSI-MOS-RS422/FO 850 E - 2708355

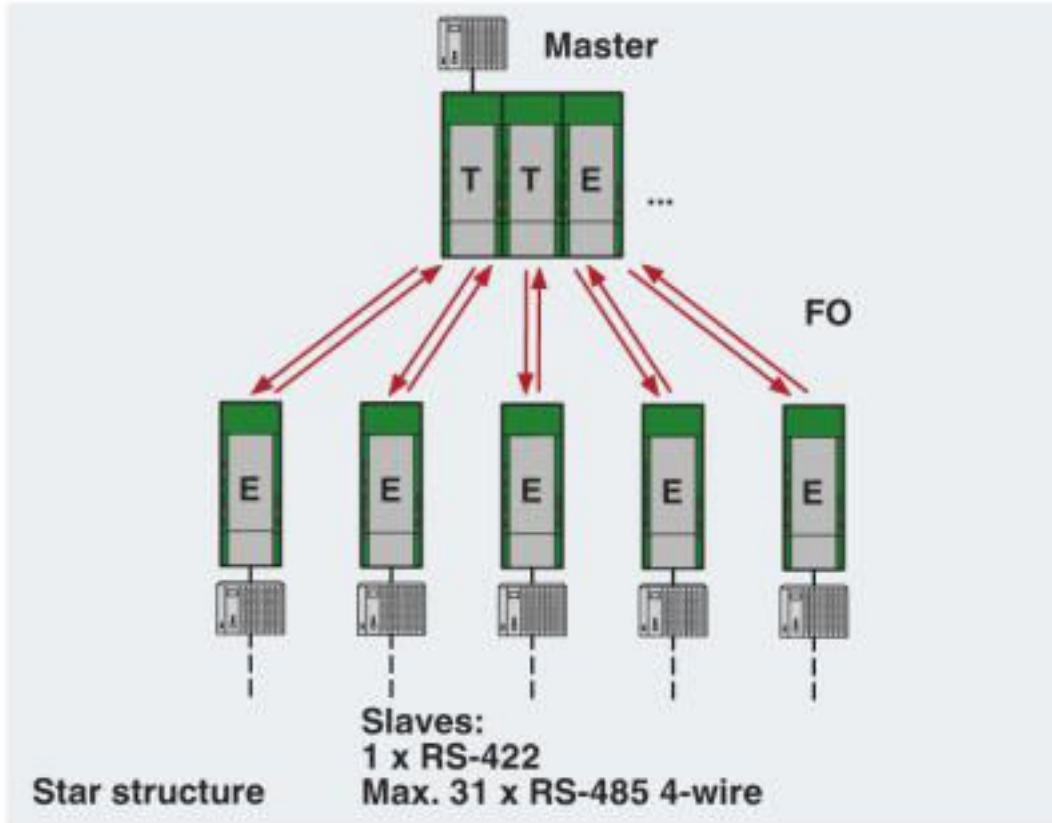
Application drawing



Master/Slave line structure

# FO converters - PSI-MOS-RS422/FO 850 E - 2708355

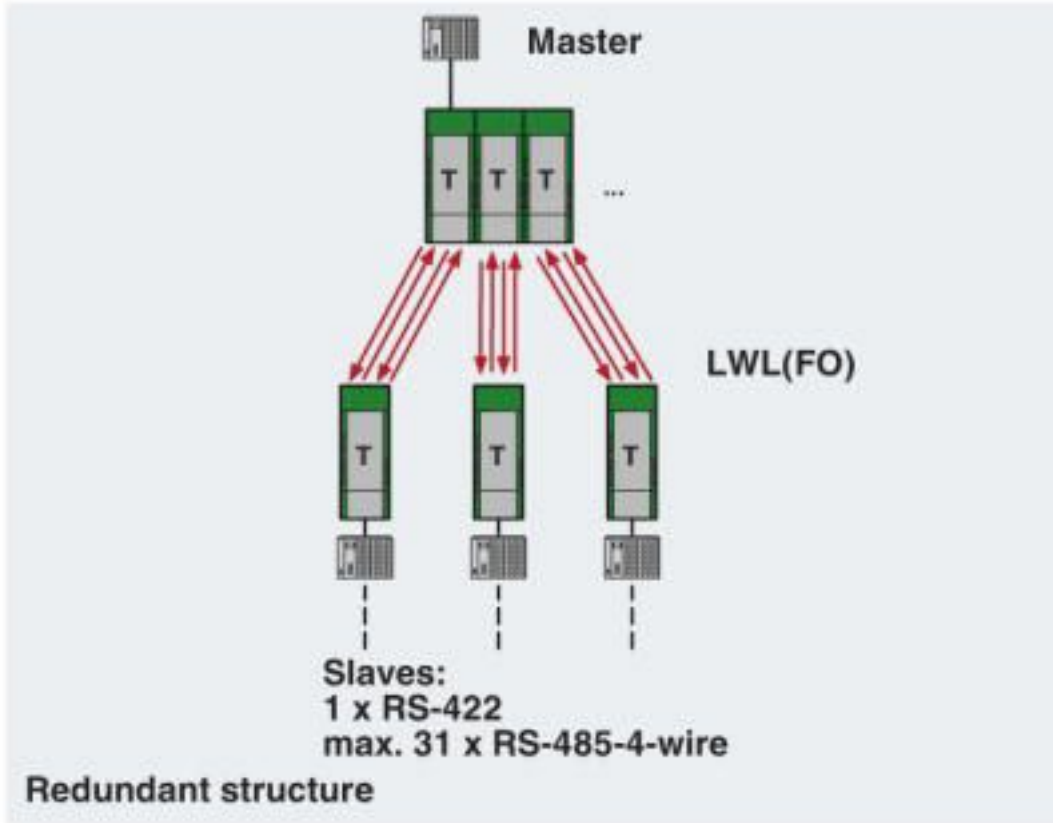
Application drawing



Star structure

# FO converters - PSI-MOS-RS422/FO 850 E - 2708355

Application drawing

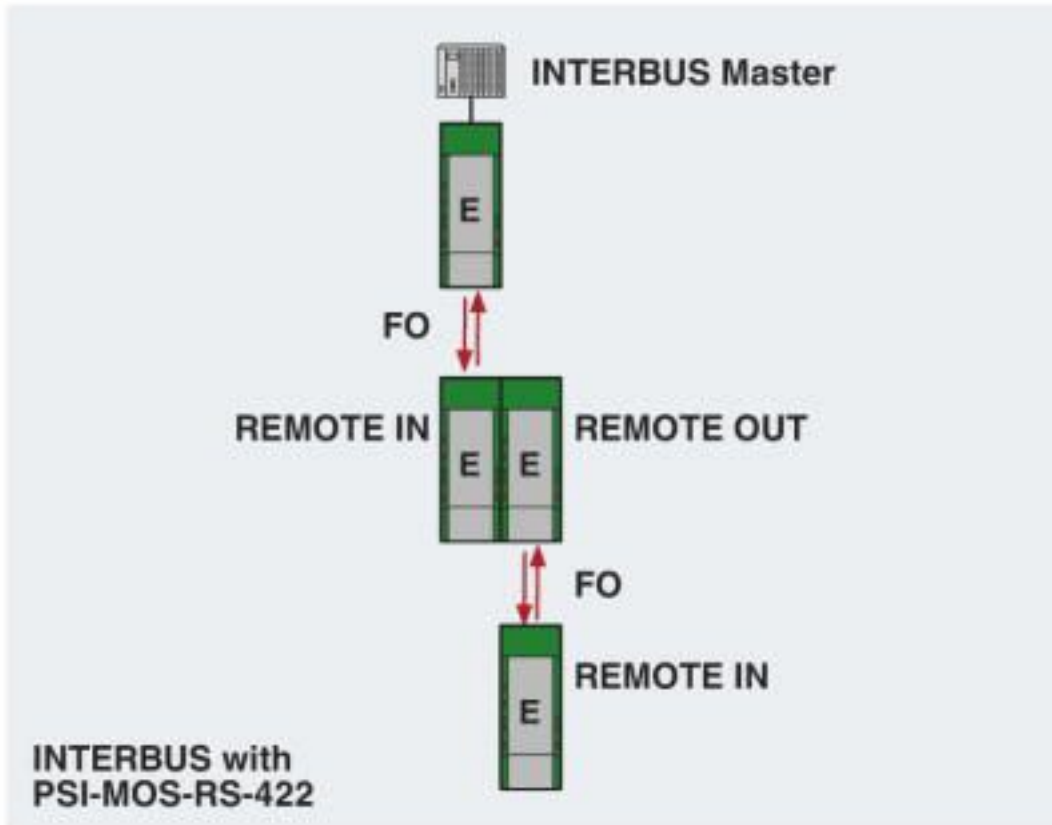


Redundant structure



# FO converters - PSI-MOS-RS422/FO 850 E - 2708355

Application drawing



INTERBUS with PSI-MOS-RS-422  
Redundant connection

## Classifications

eCl@ss

eCl@ss 10.0.1	19170132
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

# FO converters - PSI-MOS-RS422/FO 850 E - 2708355

## Classifications

### ETIM

ETIM 5.0	EC000310
ETIM 6.0	EC001467
ETIM 7.0	EC001467

### 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 / cULus Recognized

#### Ex Approvals

UL Listed / cUL Listed / cULus Listed

### Approval details

DNV GL		<a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>	TAA00001KR
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UL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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cUL Recognized		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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## FO converters - PSI-MOS-RS422/FO 850 E - 2708355

### Approvals



### Accessories

#### Accessories

#### Data cable by the meter

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

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



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

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

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



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

## FO converters - PSI-MOS-RS422/FO 850 E - 2708355

### Accessories

#### 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

##### 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 converters - PSI-MOS-RS422/FO 850 E - 2708355

### Accessories

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



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

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



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

## FO converters - PSI-MOS-RS422/FO 850 E - 2708355

### Accessories

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



Assembled FO cable, break out cable, multimode fiberglass 50/125  $\mu\text{m}$  (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.

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 converters - PSI-MOS-RS422/FO 850 E - 2708355

### Accessories

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

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

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

## FO converters - PSI-MOS-RS422/FO 850 E - 2708355

### Accessories

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



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

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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

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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

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### DIN rail connector

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.

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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.

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### Interface converter



## FO converters - PSI-MOS-RS422/FO 850 E - 2708355

### Accessories

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

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### 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

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### 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

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