

## FO converters - FL MC 10/100BASE-T/FO-660 - 2708193

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FO converter, for converting 10/100Base-T to polymer and HCS fiber, (660 nm), SCRJ FO connection (PROFINET standard), rail-mountable, supply 24 V DC

### Product Features

- Backplane bus contact (TBUS), enabling alternative or redundant 24 V power supply
- Link through function for easy connection monitoring. The availability of the connected cable connection and devices is monitored and indicated.
- Choice between local or transparent auto negotiation function for maximum transmission capacity



### Key commercial data

Packing unit	1 PCE
GTIN	 4 017918 973957
Custom tariff number	85176200
Country of origin	GERMANY

### Technical data

#### Dimensions

Width	22.5 mm
Height	99 mm
Depth	114.5 mm

#### Serial interface

Interface 1	Ethernet interface, 10/100BASE-T(X) in acc. with IEEE 802.3u
Connection method	RJ45 socket, shielded
Transmission medium	Copper
Transmission length	100 m (twisted pair, shielded)
Auto-negotiation modes	Optionally transparent via TP and FO (default) or locally on TP

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## Technical data

### Serial interface

Link through	Link down is automatically forwarded to the second connection
MDI-/MDI-X switchover	Built-in switch for line (1:1) and crossover connection
Signal LEDs	Activity (yellow), link status (green, UL flashing), 100 Mbps (green)
Serial transmission speed	10/100 Mbps

### Optical interface FO

Transmit capacity, minimum	min. -8 dBm ((980/1000 µm) static)
Transmit capacity, minimum	min. -19 dBm ((200/230 µm) static)
Transmit capacity, maximum	max. -2 dBm ((980/1000 µm) static)
Transmit capacity, maximum	max. -11 dBm ((200/230 µm) static)
Minimum receiver sensitivity	min. -23.00 dBm ((980/1000 µm) static)
Minimum receiver sensitivity	min. -26.80 dBm ((200/230 µm) static)
Wavelength	660 nm
Transmission length incl. 3 dB system reserve	70 m (Polymer fiber with F-P 980/1000 230 dB/km at 10 Mbps)
Transmission length incl. 3 dB system reserve	300 m (HCS fiber with F-K 200/230 8 dB/km at 10 Mbps)
Transmission length incl. 3 dB system reserve	50 m (Polymer fiber with F-P 980/1000 230 dB/km at 100 Mbps)
Transmission length incl. 3 dB system reserve	100 m (HCS fiber with F-K 200/230 8 dB/km at 100 Mbps)
Transmission length incl. 3 dB system reserve	300 m (HCS GI fiber with F-GK 200/230 at 100 Mbps)
Transmission length incl. 3 dB system reserve	400 m (HCS GI fiber with F-GK 200/230 at 10 Mbps)
Transmission medium	Polymer fiber
Connection method	SCRJ

### Switching output ODL

Name	Two floating relay outputs
Maximum switching voltage	max. 60 V AC/DC
Switching current	1 A

### Power supply

Supply voltage range	18 V DC ... 30 V DC (via pluggable COMBICON screw terminal block)
Supply voltage range	23 V DC ... 25 V DC (as an alternative or redundant, via backplane bus contact and system current supply)
Typical current consumption	≤ 100 mA (24 V DC)
Protective circuit	Protection against polarity reversal
Connection method	Plug-in screw terminal block (COMBICON), redundancy possible

### General

Ambient temperature (operation)	-20 °C ... 60 °C
Permissible humidity (operation)	10 % ... 95 % (no condensation)
Altitude	5000 m (For restrictions see manufacturer's declaration)
Electrical isolation	(VCC // Ethernet)

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### Technical data

#### General

Test voltage data interface/power supply	1500 V
Test voltage data interface/power supply	1.5 kV <sub>rms</sub> (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
Noise emission	EN 50081-2
Noise immunity	EN 61000-6-2:2005
Degree of protection	IP20
Net weight	125 g
Housing material	PA V0, color green
Color	green
MTBF	564 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
MTBF	136 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
ATEX	# II 3 G Ex nA nC IIC T4 Gc X
UL, USA / Canada	508 recognized

### Classifications

#### ETIM

ETIM 2.0	EC000739
ETIM 3.0	EC000310
ETIM 4.0	EC000310
ETIM 5.0	EC000310

#### UNSPSC

UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008
UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008

#### eCl@ss

eCl@ss 4.0	27230207
eCl@ss 4.1	27230207
eCl@ss 5.0	27230207
eCl@ss 5.1	27230207
eCl@ss 6.0	27230207
eCl@ss 7.0	27230207

## FO converters - FL MC 10/100BASE-T/FO-660 - 2708193

### Approvals

#### Approvals

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#### Approvals

UL Recognized / cUL Recognized / cULus Recognized

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#### Ex Approvals


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#### Approvals submitted

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#### Approval details

UL Recognized 

cUL Recognized 

cULus Recognized 

### Accessories

#### Accessories

#### Cable/conductor

Cable - FL CAT5 HEAVY - 2744814



CAT5-SF/UTP cable (J-02YS(ST)C HP 2 x 2 x 24 AWG), heavy-duty installation cable, 2 x 2 x 0.22 mm<sup>2</sup>, solid conductor, shielded, outer sheath: 7.8 mm diameter, inner sheath: 5.75 mm ± 0.15 mm diameter

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### Accessories

Network cable - FL CAT5 FLEX - 2744830



CAT5-SF/UTP cable (J-LI02YS(ST)C H 2 x 2 x 26 AWG), light-duty, flexible installation cable 2 x 2 x 0.14 mm<sup>2</sup>, stranded, shielded, outer sheath: 5.75 mm ± 0.15 mm diameter

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



Polymer fiber cable, duplex 980/1000 µm, medium-weight version for permanent indoor installation, by the meter, without connector

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



HCS cable, duplex 200/230 µm, by the meter, without connector, for indoor installation

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



Polymer fiber cable, duplex, 980 µm/1000 µm, heavy version for permanent indoor installation, sold by the meter without connectors

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



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

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### Accessories

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



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

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FO cable - FL FOC PN-B-980/1000 - 2313397



PROFINET polymer fiber cable, duplex, 980/1000  $\mu\text{m}$ , heavy-weight design, for permanent indoor installation, by the meter, without connector

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FO cable - FL FOC PN-C-FLEX-980/1000 - 2313407



PROFINET polymer fiber cable, duplex, 980/1000  $\mu\text{m}$ , heavy-weight highly flexible design, for flexible cable conduit applications, by the meter, without connector

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FO cable - FL FOC PN-C-HCS-GI - 2313504



HCS GI cable for indoor installation, duplex, 200/230  $\mu\text{m}$ , sold by the meter with connectors, particularly suitable for Ethernet applications due to the high bandwidth, rugged PUR outer cable sheath, 8 mm outside diameter, color: green

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FO cable - FL FOC PN-B-HCS - 2901234



HCS cable, duplex, 200/230  $\mu\text{m}$ , sold by the meter with connectors, for indoor installation, type B, PVC outer cable sheath, 7 mm outside diameter, PROFINET certified, color: green

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## FO converters - FL MC 10/100BASE-T/FO-660 - 2708193

### Accessories

FO cable - FL FOC PN-C-FLEX - 2313494



PROFINET polymer fiber cable, duplex, 980/1000 µm, heavy highly-stranded version for drag chain applications, sold by the meter with connector

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### Plug/Adapter

RJ45 plug-in connector - FL PLUG RJ45 GR/2 - 2744856



RJ45 connector, shielded, with bend protection sleeve, 2 pieces, gray for straight cables, for assembly on site. For connections that are not crossed, it is recommended that you use the connector set with gray bend protection sleeve.

RJ45 plug-in connector - FL PLUG RJ45 GN/2 - 2744571



RJ45 connector, shielded, with bend protection sleeve, 2 pieces, green for crossed cables, for assembly on site. For connections that are crossed, it is recommended that the connector set with green bend protection sleeves is used.

FO plug-in connectors - PSM-SET-SCRJ-DUP/2-HCS - 2313070



SCRJ connector set for HCS fiber, for self assembly, consisting of 2 duplex quick mounting connectors with bending protection

FO plug-in connectors - PSM-SET-SCRJ-DUP/2-POF - 2708656



SCRJ connector set for polymer fiber, for self assembly, consisting of 2 duplex quick mounting connectors with bending protection

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### Accessories

RJ45 plug-in connector - VS-08-RJ45-5-Q/IP20 - 1656725



RJ45 plug-in connector, IP20, CAT5e, 8-pos., with QUICKON fast connection technology, for 26 ... 23 AWG 1-wire and 7-wire conductors, for 4.5 mm ... 8.0 mm cable diameter, labeling: TIA 568 B, color: gray

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### Tools

Assembly tool - FL CRIMPTOOL - 2744869



Crimping pliers, for assembling the RJ45 plugs FL PLUG RJ45..., for assembly on site

Assembly tool - PSM-HCS-KONFTOOL/SC-RJ - 2708876



HCS assembly kit for SCRJ quick mounting connectors, including stripping blade, stripping pliers, aramide yarn scissors, fiber stripper, microscope, fiber cleaving tool for standard HCS and HCS GI fibers, and documentation

FO accessories - VS-SCRJ-POF-POLISH - 1656673



Refilling set for VS-SCRJ-POF-KONFTOOL-POLISH, consisting of two polishing discs and a polisher

Assembly tool - PSM-POF-KONFTOOL - 2744131



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



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## Accessories

Cable - ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - 2707437



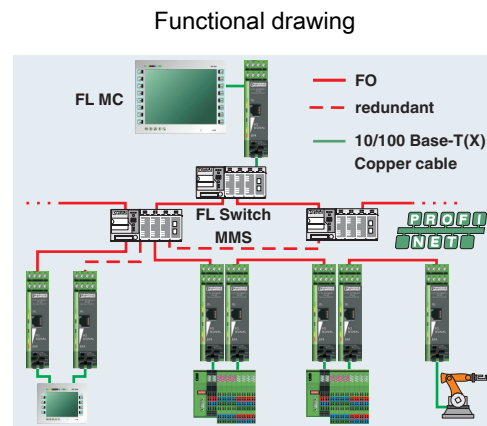
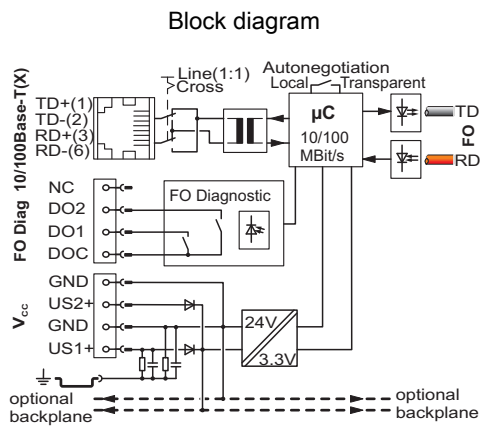
DIN rail connector for current transducers, gold-plated contacts, for DIN rail mounting, 5-pos.

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



DIN rail power supply unit, primary-switched mode, slim design, output: 24 V DC / 1.5 A

## Drawings



Star, linear, and redundant ring structure in combination with modular switches