

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

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

Your advantages

- ✓ Backplane bus contact, 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 pc
GTIN	 4 017918 973957
GTIN	4017918973957

Technical data

Note

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

Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C
Ambient temperature (storage/transport)	-30 °C ... 70 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation)
Degree of protection	IP20

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Technical data

Ambient conditions

Noise immunity	EN 61000-6-2:2005
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General

Electrical isolation	VCC // Ethernet
Test voltage data interface/power supply	1500 V
	1.5 kV _{rms} (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 50081-2
Net weight	120.1 g
Housing material	PA V0
Color	green
MTBF	564 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	136 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
MTTF	885 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	446 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	202 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)

Power supply

Nominal supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC (via pluggable COMBICON screw terminal block)
	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	Reverse polarity protection
Connection method	Plug-in screw terminal block (COMBICON), redundancy possible

Interfaces

Interface 1	Ethernet interface, 10/100Base-T(X) in accordance with IEEE 802.3
No. of ports	1
Connection method	RJ45 socket, shielded
Transmission medium	Copper
Transmission length	100 m (shielded twisted pair)
Auto-negotiation modes	Optionally transparent via TP and FO (default) or locally on TP
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)

Optical interface FO

Transmit capacity, minimum	min. -8 dBm ((980/1000 μm) static)
	min. -19 dBm ((200/230 μm) static)
Transmit capacity, maximum	max. -2 dBm ((980/1000 μm) static)

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Optical interface FO

	max. -11 dBm ((200/230 μm) static)
Minimum receiver sensitivity	min. -23 dBm ((980/1000 μm) static)
	min. -26.8 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)
	300 m (PCF fiber with F-K 200/230 8 dB/km at 10 Mbps)
	50 m (Polymer fiber with F-P 980/1000 230 dB/km at 100 Mbps)
	100 m (PCF fiber with F-K 200/230 8 dB/km at 100 Mbps)
	300 m (HCS GI fiber with F-GK 200/230 at 100 Mbps)
	400 m (HCS GI fiber with F-GK 200/230 at 10 Mbps)
Transmission medium	Polymer fiber
	PCF fiber
Connection method	SC-RJ

Function

Status and diagnostic indicators	UL (communications power, green)
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Digital outputs

Output name	Relay output
Number of outputs	2
Contact type	N/O contact
Maximum switching voltage	60 V AC/DC
Max. switching current	1 A

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Type of test	Free fall in acc. with IEC 60068-2-32
Test result	1 m
Type of test	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6
Test result	5g, 150 Hz, 1.5 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 50081-2
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 (Test Level 3)
Standards/regulations	EN 61000-4-3
Frequency range	80 MHz ... 3 GHz (Test Level 3)
Standards/regulations	EN 61000-4-4
Comments	Criterion B

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Standards and Regulations

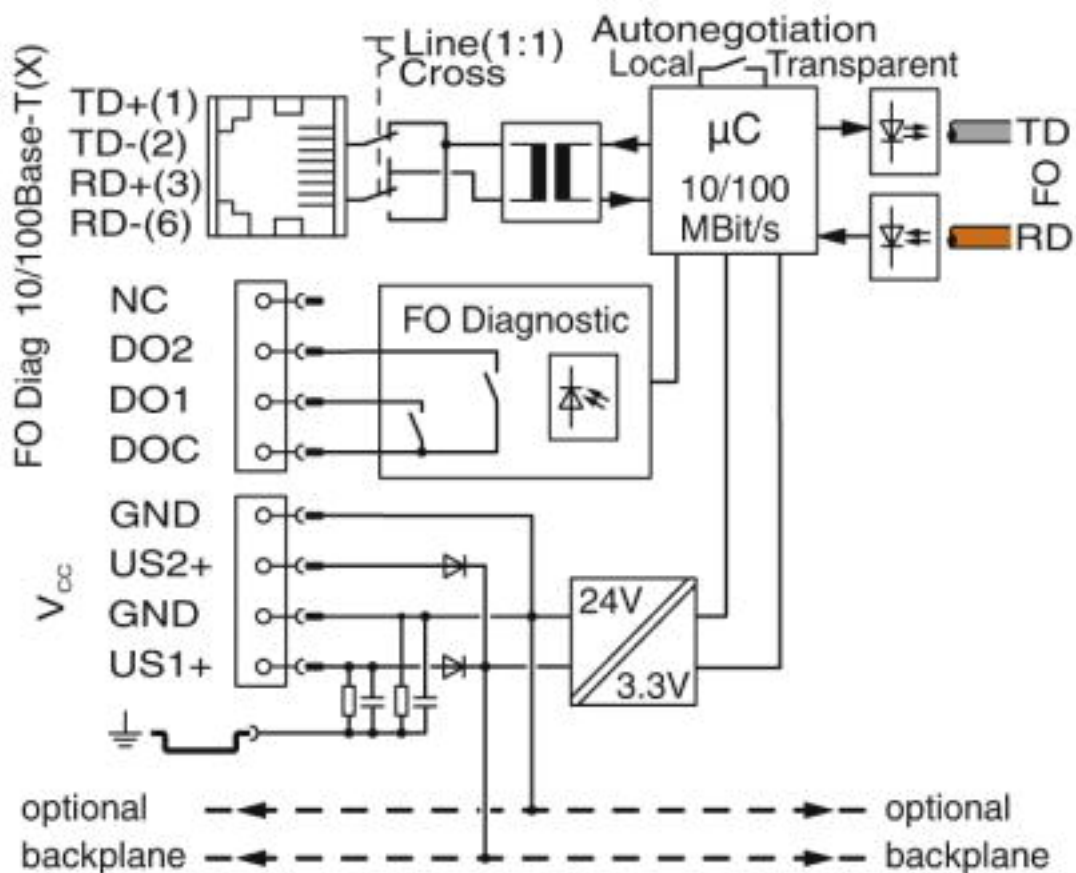
Standards/regulations	EN 61000-4-5
Signal	± 2 kV
Standards/regulations	EN 55011
	EN 61000-4-6
Frequency range	0.15 MHz ... 80 MHz

Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

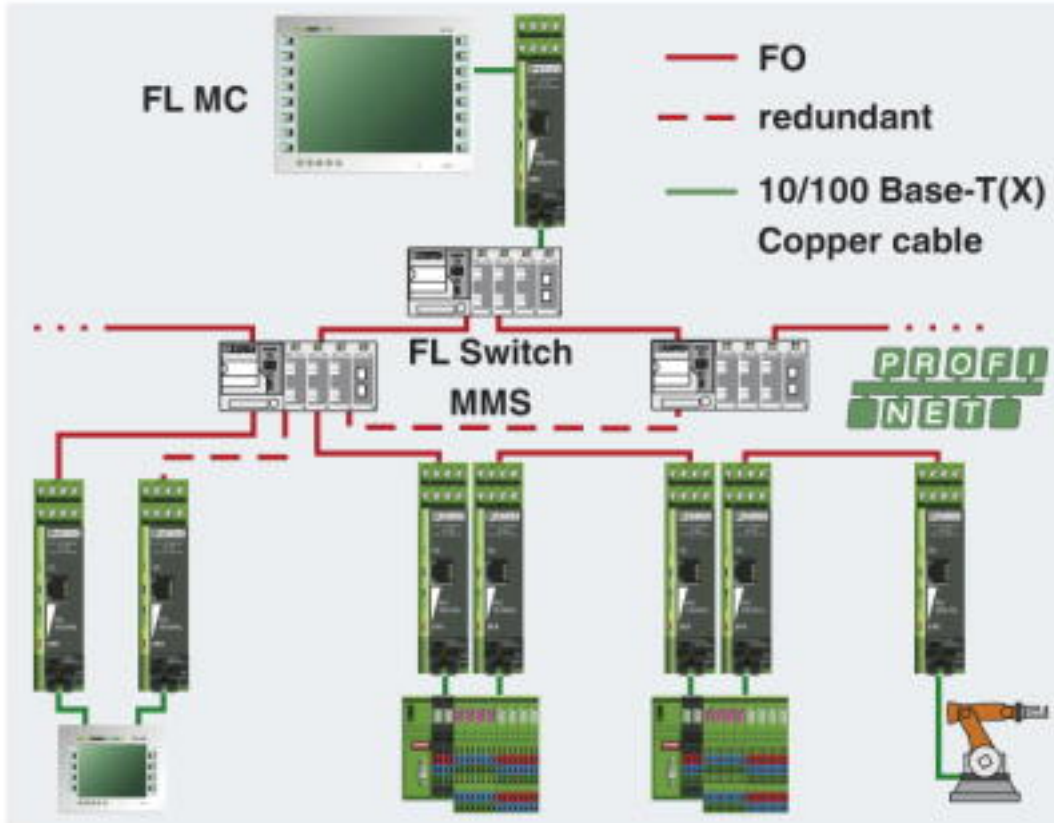
Drawings

Block diagram



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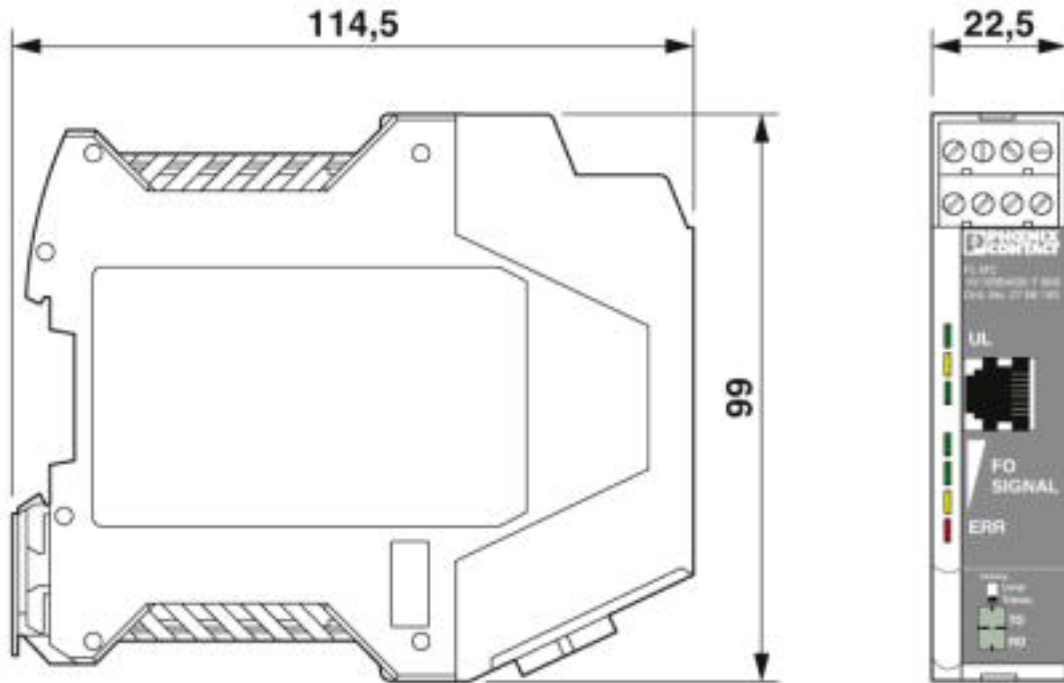
Functional drawing



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

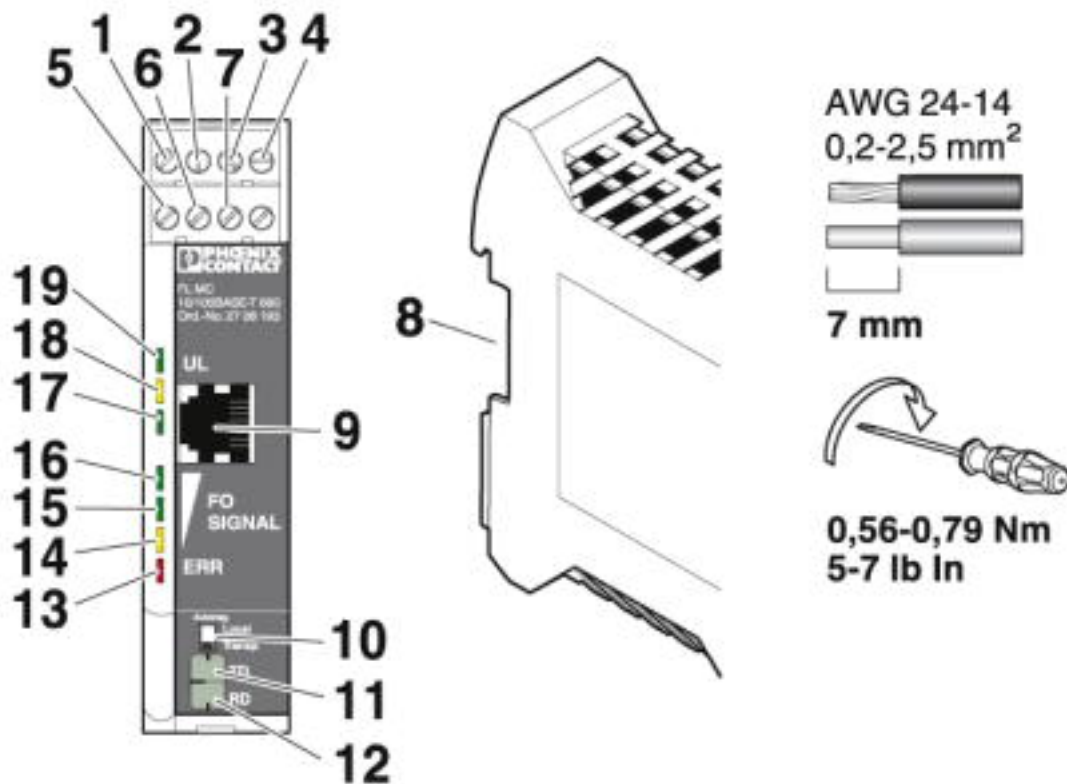
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Dimensional drawing



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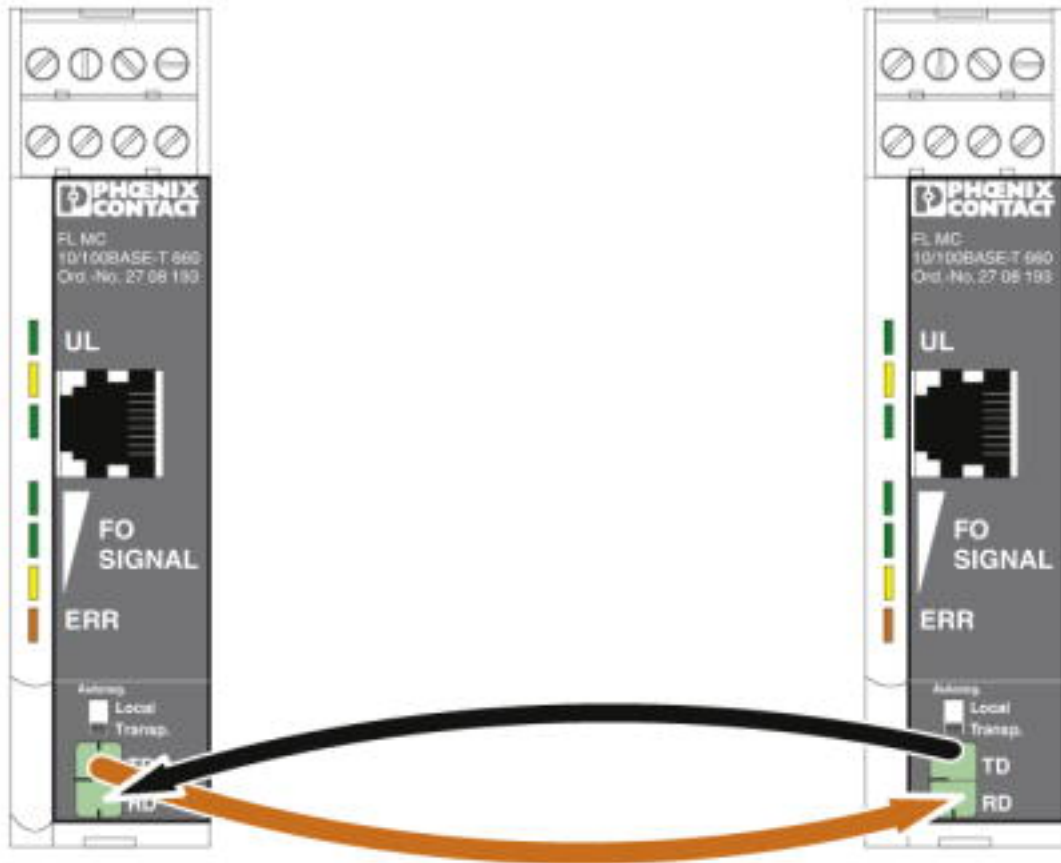
Schematic diagram



Front view

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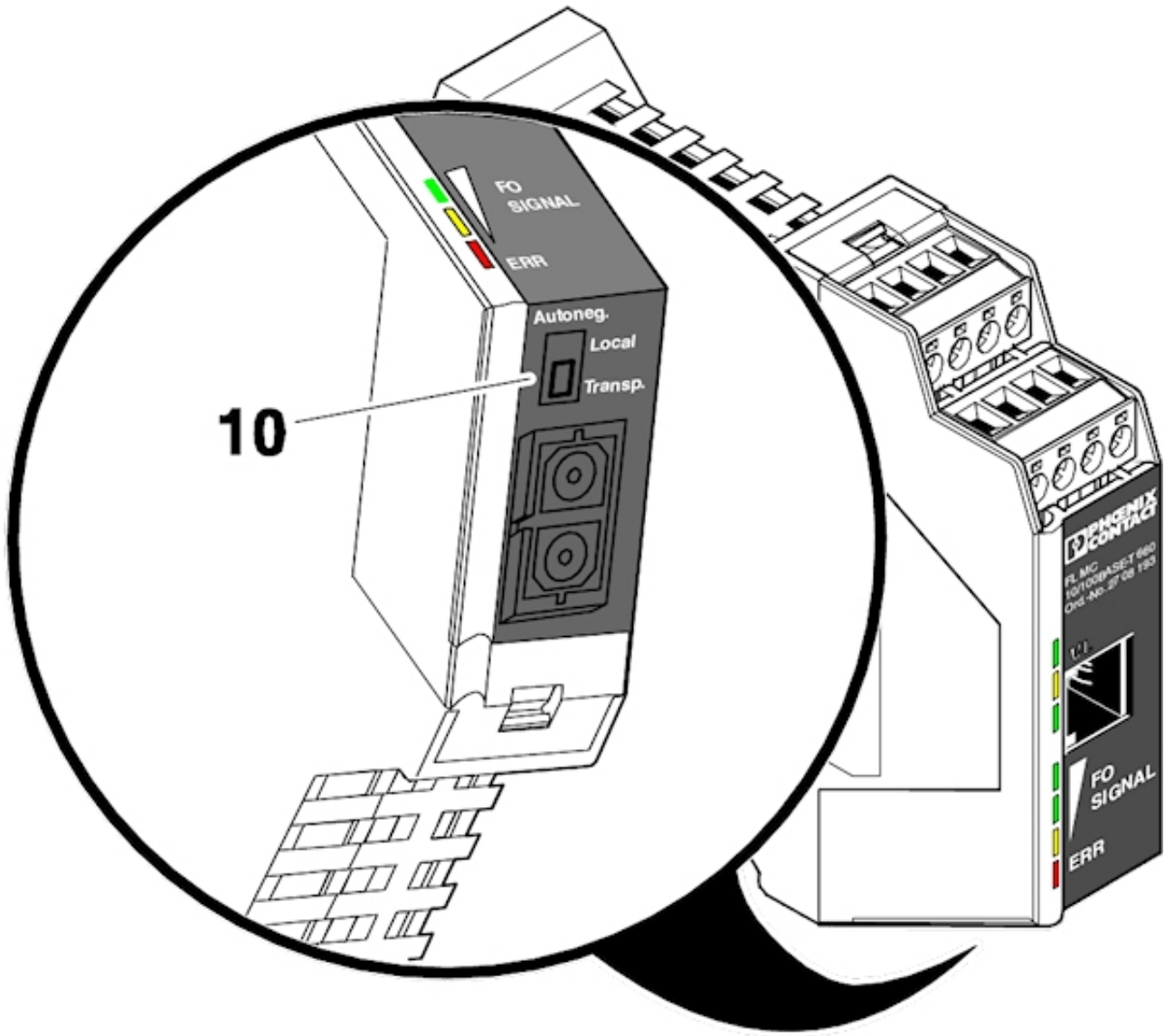
Schematic diagram



Connection of the cables

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Schematic diagram



Mode selector switch

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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	27230200
eCl@ss 7.0	19170114
eCl@ss 8.0	19170114
eCl@ss 9.0	19170114

ETIM

ETIM 2.0	EC000739
ETIM 3.0	EC000310
ETIM 4.0	EC000310
ETIM 5.0	EC001467
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	39121008

Accessories

Accessories

Connector set

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



SC-RJ connector set for PCF fiber, for self-assembly, consisting of 2 duplex quick mounting connectors with bend protection, for a single wire diameter of 2.9 mm

Data cable by the meter

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Accessories

Network 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 mm², solid conductor, shielded, outer sheath: 7.8 mm diameter, inner sheath: 5.75 mm ± 0.15 mm diameter

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 mm², stranded, shielded, outer sheath: 5.75 mm ± 0.15 mm diameter

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



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

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Accessories

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

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



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

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

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



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

Data plug

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



RJ45 connector, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: PA, connection method: IDC fast connection, connection cross section: AWG 26- 23, cable outlet: straight, color: traffic grey A RAL 7042

DIN rail connector

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Accessories

DIN rail bus connectors - ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - 2707437



DIN rail connector, number of positions: 5, pitch: 3.81 mm, pin layout: Linear pinning, Articles with gold-plated contacts, bus connectors for connecting with electronic housings

Plug

RJ45 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 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.

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

Assembly tool - FL CRIMPTOOL - 2744869



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

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Accessories

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



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

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



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

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



Refilling set for VS-SC-RJ-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 SC-RJ quick mounting connectors, polishing pad and emery paper

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PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstr. 8
32825 Blomberg
Germany
Tel. +49 5235 300
Fax +49 5235 3 41200
<http://www.phoenixcontact.com>