

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

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 pc
Weight per Piece (excluding packing)	171.2 g
Custom tariff number	85176200
Country of origin	Germany

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

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Ambient conditions

Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Altitude	5000 m (For restrictions see manufacturer's declaration)
Degree of protection	IP20
Noise immunity	EN 61000-6-2:2005

General

Electrical isolation	VCC // Ethernet
Test voltage data interface/power supply	1500 V
	1.5 kV _{rms} (50 Hz, 1 min.)
Standards/regulations	EN 60950-1
Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC (valid until 19.04.2016) / 2014/30/EU (valid from 20.04.2016)
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 % (5 days a week, 8 hours a day))
	446 Years (SN 29500 standard, temperature 40 °C, operating cycle 34.25 % (5 days a week, 12 hours a day))
	202 Years (SN 29500 standard, temperature 40°C, operating cycle 100 % (7 days a week, 24 hours a day))
Conformance	CE-compliant
ATEX	# II 3 G Ex nA nC IIC T4 Gc X (Please follow the special installation instructions in the documentation!)
UL, USA / Canada	508 recognized

Power supply

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	Protection against polarity reversal
Connection method	Plug-in screw terminal block (COMBICON), redundancy possible

Serial interface

Interface 1	Ethernet interface, 10/100BASE-T(X) in acc. with IEEE 802.3u
Connection method	RJ45 socket, shielded

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Serial interface

Transmission medium	Copper
Transmission length	100 m (twisted pair, shielded)
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
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)
	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

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Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC (valid until 19.04.2016) / 2014/30/EU (valid from 20.04.2016)
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 61000-4-3
	EN 61000-4-4
	EN 61000-4-6
Designation	Air clearances and creepage distances
Standards/regulations	EN 60950-1
Conformance	CE-compliant
ATEX	# II 3 G Ex nA nC IIC T4 Gc X
UL, USA / Canada	508 recognized

Classifications

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
eCl@ss 8.0	19170114

ETIM

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

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Classifications

UNSPSC

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

Approvals

Approvals

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UL Recognized / cUL Recognized / EAC / cULus Recognized


Ex Approvals

ATEX


Approvals submitted

Approval details

UL Recognized 

cUL Recognized 

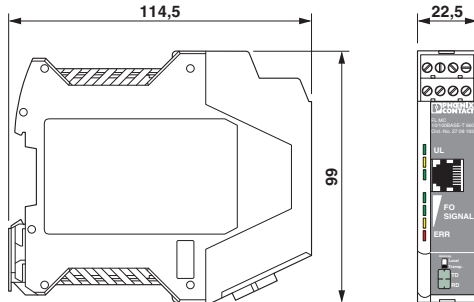
EAC

cULus Recognized 

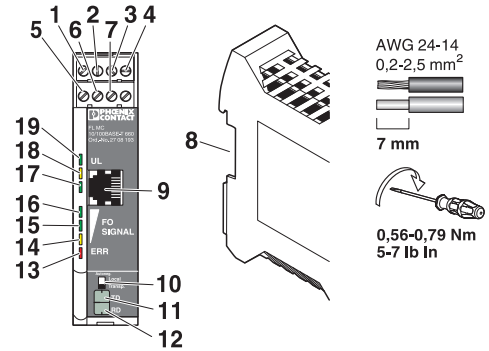
Drawings

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Dimensional drawing

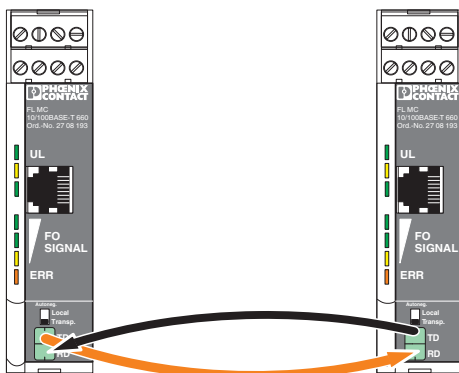


Schematic diagram

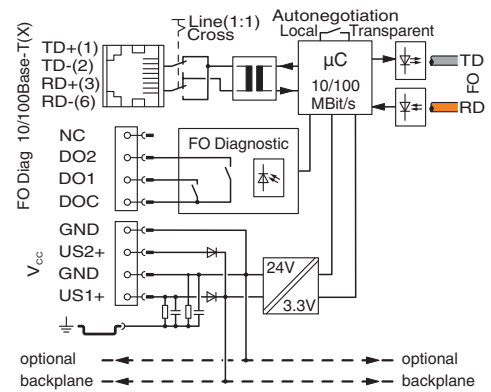


Front view

Schematic diagram



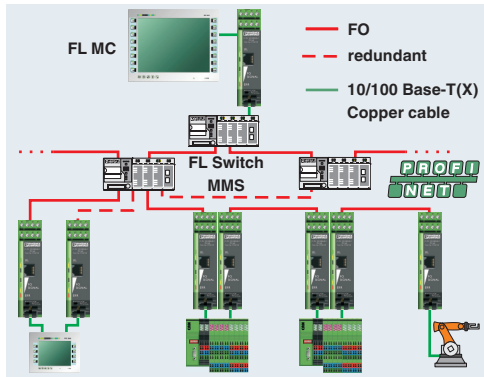
Block diagram



Connection of the cables

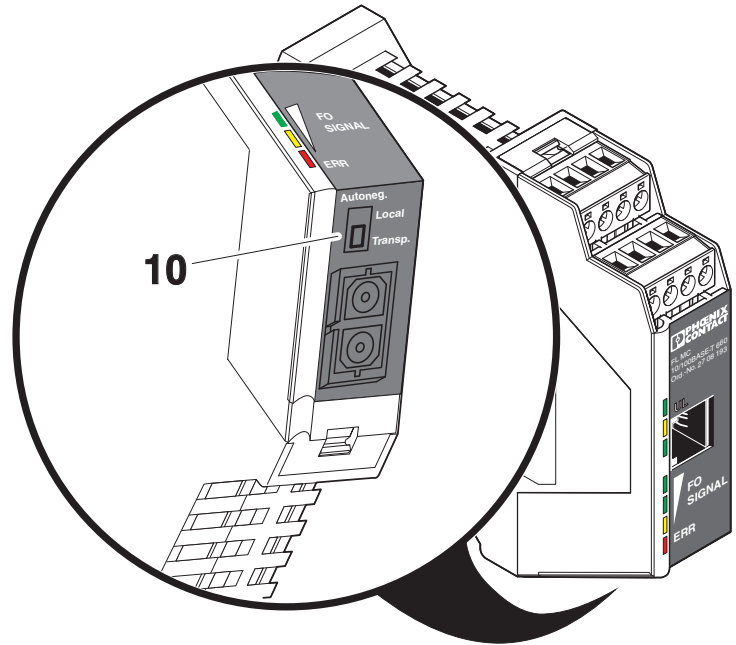
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Functional drawing



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

Schematic diagram



Mode selector switch