

# FL MC 10/100BASE-T/FO G1300

Order No.: 2708164



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FO converter, for converting 10/100BASE-T(X) to multimode glass fiber, (1300 nm), SC duplex FO connection, rail-mountable, supply 24 V DC



**E**thernet



Commercial data	
GTIN (EAN)	4 017918 932701
sales group	H650
Pack	1 pcs.
Customs tariff	85176200
Catalog page information	Page 529 (IF-2009)



WEEE/RoHS-compliant since: 01/31/2007



### http://

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## **Technical data**

### Serial interface

Interface 1	Ethernet interface, 10/100BASE-T(X) in acc. with IEEE 802.3u
Transmission length	100 m (twisted pair, shielded)
Connection method	RJ45 female connector, shielded

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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), 100 Mbps (green)
Serial transmission speed	10/100 Mbps
Optical interface FO	
Transmit capacity, minimum	min23.5 dBm ((50/125 μm) dynamic in link mode (average))
	min20 dBm ((62,5/125 μm) dynamic in link mode (average))
	min20.5 dBm ((50/125 μm) static)
	min17 dBm ((62,5/125 μm) static)
Transmit capacity, maximum	max14 dBm ((50/125 μm) dynamic in link mode (average))
	max14 dBm ((62,5/125 µm) dynamic in link mode (average))
	max11 dBm ((50/125 μm) static)
	max11 dBm ((62,5/125 μm) static)
Minimum receiver sensitivity	min31.00 dBm (dynamic in link mode (average))
	min28.00 dBm (static)
Wavelength	1300 nm
Transmission length incl. 3 dB system reserve	6.4 km (with F-G 50/125 0,7 dB/km F 1200)
	2.8 km (with F-G 50/125 1,6 dB/km F 800)
	10 km (with F-G 62,5/125 0,7 dB/km F 1000)
	3 km (with F-G 62.5/125 2.6 dB/km F 600)
	2 km (with 2GK200/230 GI-HCS)
Connection method	SC duplex
Power supply	
Nominal supply voltage	24 V DC ±20 % (via pluggable COMBICON screw terminal block
	24 V DC ±5% (as an alternative or redundant, via backplane bus contact and system current supply)
Typical current consumption	≤ 95 mA (24 V DC)
Protective circuit	Protection against polarity reversal
Connection method	Plug-in screw terminal block (COMBICON), redundancy possible
General data	
Width	22.5 mm
Height	99 mm
Depth	114.5 mm

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Ambient temperature (operation)	0 °C 55 °C
Electrical isolation	(VCC // Ethernet)
Test voltage data interface/power supply	1500 V
	1.5 kV <sub>rms</sub> (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC directive 89/336/EC
Noise emission	EN 50081-2
Noise immunity	EN 61000-6-2:2005
Degree of protection	IP20
Net weight	120 g
Housing material	PA V0, color green
Color	green
MTBF	595 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	156 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
ATEX	Ex II 3 G Ex nAC IIC T4 X
UL, USA / Canada	Class I, zone 2, AEx nc IIC

**Certificates / Approvals** 



Certification CUL, UL

Certification Ex: CUL-EX LIS, UL-EX LIS

Accessories		
Item	Designation	Description
Cable/conduc	ctor	
2744830	FL CAT5 FLEX	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
2744814	FL CAT5 HEAVY	CAT5-SF/UTP cable (J-02YS(ST)C HP 2 x 2 x 24 AWG), heavyduty installation cable, 2 x 2 x 0.22 mm², solid conductor, shielded, outer sheath: 7.8 mm diameter, inner sheath: 5.75 mm $\pm$ 0.15 mm diameter

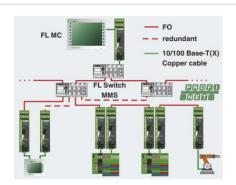
2989161         FL MM PATCH 1,0 LC-SC         Assembled fiber optic cable, break-out cable, glass fiber multimode 50/125 μm, connector: LC/SC duplex, degree of protection IP20, for installation in cable ducts or control cabinets, length: 1 meter           2901805         FL MM PATCH 1,0 SC-SC         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 1 meter           2901812         FL MM PATCH 1,0 SC-SCRJ         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / B-FDC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 1 meter           2901809         FL MM PATCH 1,0 SC-ST         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / B-FDC, protection type: IP20, for installation in cable ducts or control cabinets, length: 1 meter           2901809         FL MM PATCH 2,0 LC-SC         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: LC/SC duplex, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 meter           2901807         FL MM PATCH 2,0 SC-SC         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters           2901810         FL MM PATCH 2,0 SC-SCRJ         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, lengt			
S0/125 \( \text{Im}\) connector: SC \( \text{Duplex}\) / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 1 meter	2989161	FL MM PATCH 1,0 LC-SC	mode 50/125 $\mu$ m, connector: LC/SC duplex, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1
S0/125 μm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 1 meter	2901805	FL MM PATCH 1,0 SC-SC	$50/125~\mu m,$ connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 1
50/125 μm, connector: SC Duplex / B-FOC, protection type: IP20, for installation in cable ducts or control cabinets, length: 1 meter	2901812	FL MM PATCH 1,0 SC-SCRJ	$50/125~\mu m$ , connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 1
mode 50/125 μm, connector: LC/SC duplex, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 meter           2901807         FL MM PATCH 2,0 SC-SC         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters           2901813         FL MM PATCH 2,0 SC-SCRJ         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / SCRJ, protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters           2901810         FL MM PATCH 2,0 SC-ST         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters           2901800         FL MM PATCH 5,0 LC-SC         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, plug: LC / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters           2901808         FL MM PATCH 5,0 SC-SC         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters           2901814         FL MM PATCH 5,0 SC-SCRJ         Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters           2901811         FL MM PATCH 5,0 SC-ST         Assembl	2901809	FL MM PATCH 1,0 SC-ST	50/125 μm, connector: SC Duplex / B-FOC, protection type: IP20,
50/125 µm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters  2901813  FL MM PATCH 2,0 SC-SCRJ  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / SCRJ, protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters  2901810  FL MM PATCH 2,0 SC-ST  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters  2901800  FL MM PATCH 5,0 LC-SC  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, plug: LC / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  2901808  FL MM PATCH 5,0 SC-SC  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  2901814  FL MM PATCH 5,0 SC-SCRJ  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  2901811  FL MM PATCH 5,0 SC-ST  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters	2989268	FL MM PATCH 2,0 LC-SC	mode 50/125 $\mu$ m, connector: LC/SC duplex, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2
50/125 μm, connector: SC Duplex / SCRJ, protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters  2901810  FL MM PATCH 2,0 SC-ST  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters  2901800  FL MM PATCH 5,0 LC-SC  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, plug: LC / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  2901808  FL MM PATCH 5,0 SC-SC  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  2901814  FL MM PATCH 5,0 SC-SCRJ  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  2901811  FL MM PATCH 5,0 SC-ST  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters	2901807	FL MM PATCH 2,0 SC-SC	50/125 $\mu$ m, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 2
50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters  2901800 FL MM PATCH 5,0 LC-SC Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, plug: LC / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  2901808 FL MM PATCH 5,0 SC-SC Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  2901814 FL MM PATCH 5,0 SC-SCRJ Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  2901811 FL MM PATCH 5,0 SC-ST Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters	2901813	FL MM PATCH 2,0 SC-SCRJ	50/125 μm, connector: SC Duplex / SCRJ, protection type: IP20,
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50/125 μm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  2901814  FL MM PATCH 5,0 SC-SCRJ  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters  PL MM PATCH 5,0 SC-ST  Assembled FO cable, break out cable, multi-mode glass fiber 50/125 μm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5	2901800	FL MM PATCH 5,0 LC-SC	50/125 μm, plug: LC / SC-Duplex, protection type: IP20, for
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50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5	2901814	FL MM PATCH 5,0 SC-SCRJ	50/125 $\mu$ m, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5
	2901811	FL MM PATCH 5,0 SC-ST	50/125 $\mu$ m, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5

1402193	FOC-GDM-RUGGED-1016/	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.
2901558	FOC-GDM-RUGGED-1016/ IP20/	rugged GOF installation cable (IP20 heads only) 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.
1402194	FOC-GDO-1017/	Highly rugged GOF round cable 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.
2901559	FOC-GDO-1017/IP20/	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.
2799322	PSM-LWL-GDM-RUGGED- 50/125	Glass fiber cable, duplex 50/125 $\mu m$ , by the meter, without connector, for indoor installation
2799432	PSM-LWL-GDO- 50/125	Glass fiber cable, duplex 50/125 $\mu m$ , by the meter, without connector, for outdoor installation
General		
2707437	ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	DIN rail connector for current transducers, gold-plated contacts, for DIN rail mounting, 5-pos.
2866983	MINI-SYS- PS-100-240AC/24DC/1.5	DIN rail power supply unit, primary-switched mode, slim design, output: 24 V DC / 1.5 A
Plug/Adapte	er	
2744571	FL PLUG RJ45 GN/2	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.
2744856	FL PLUG RJ45 GR/2	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 so with gray bend protection sleeve.
Tools		
2744869	FL CRIMPTOOL	Crimping pliers, for assembling the RJ45 connectors FL PLUG RJ45, for assembly on site

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## Diagrams/Drawings

## Functional drawing



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

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