

FO converters - FL MC 2000E LC - 2891056

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FO converter with LC duplex fiber optic connection (1300 nm), for converting 100Base-TX to multi-mode fiberglass. Auto MDI(X) function. Comprehensive link diagnostics. DIN rail mountable, 12 ... 57 V DC supply. Meets IEC 61850-3 and IEEE 1613 standards.

Your advantages

- Network structure according to IEC 61850
- IEEE 1613
- Auto MDI/MDI-X switch-over
- Link fault pass through (LFPT) function for easy connection monitoring
- Data transfer rates of 100 Mbps



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 763141
GTIN	4046356763141

Technical data

Dimensions

Width	30 mm
Height	130 mm
Depth	100 mm

Ambient conditions

Ambient temperature (operation)	-40 °C ... 75 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	5 % ... 95 % (non-condensing)
Altitude	4850 m
Degree of protection	IP20
Noise immunity	IEC 61850-3, IEEE 1613, EN 61000-6-2: 2005

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Technical data

General

Electrical isolation	VCC // FE // Ethernet
Latency	700 ns (Pass-through mode, 100 Mbps, static)
Test voltage data interface/power supply	1500 V AC (500 V AC, 1 minute)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 61000-6-4
Mounting position	On horizontal DIN rail NS 35 in acc. with EN 60715
Net weight	315 g
Housing material	Aluminum
MTTF	95.3 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
Conformance	CE-compliant
UL, USA/Canada	Class I, Div. 2, Groups A, B, C, D

Power supply

Nominal supply voltage	24 V DC
	48 V DC
Supply voltage range	12 V DC ... 57 V DC
Typical current consumption	110 mA (24 V DC)
Connection method	Plug-in screw terminal block (COMBICON), redundancy possible
Conductor cross section flexible max.	2.50 mm ²
Conductor cross section flexible min.	0.20 mm ²
Conductor cross section solid max.	2.50 mm ²
Conductor cross section solid min.	0.20 mm ²
Max. AWG conductor cross section, flexible	12
Min. AWG conductor cross section, flexible	24
Conductor cross section AWG max.	12
Conductor cross section AWG min.	24

Interfaces

Interface 1	Ethernet interface, 100Base-Tx in acc. with IEEE 802.3u
No. of ports	1
Connection method	RJ45 jack, shielded
Transmission medium	Copper
Transmission length	100 m (twisted pair, shielded)
Link through	Link fault pass through
MDI-/MDI-X switchover	Auto-MDI(X)
Signal LEDs	LNK/ACT, 100
Data flow control/protocols	IEC 61850-3, IEEE 1613
Serial transmission speed	100 Mbps

Optical interface FO

Wavelength	1310 nm
Transmission length incl. 3 dB system reserve	8 km (fiberglass with F-G 62.5/125 0.7 dB/km F1000)

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Technical data

Optical interface FO

	3.3 km (fiberglass with F-G 62.5/125 2.6 dB/km F600)
	9.6 km (fiberglass with F-G 50/125 0.7 dB/km F1200)
	5.3 km (fiberglass with F-G 50/125 1.6 dB/km F800)
Transmission medium	Multi-mode fiberglass
	GI-HCS fiber
Connection method	LC duplex

Digital outputs

Output name	Relay output
Output description	Alarm output
Number of outputs	1
Contact type	N/C contact
Maximum switching voltage	24 V DC
Max. switching current	100 mA

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, 150 Hz, Criterion 3
Type of test	Shock in acc. with EN 60068-2-27/IEC 60068-2-27
Test result	30g, 11 ms half-sine shock pulse
Noise emission	EN 61000-6-4
Noise immunity	IEC 61850-3, IEEE 1613, EN 61000-6-2: 2005
Standards/regulations	EN 61000-4-2
	EN 61000-4-3
	EN 61000-4-4
Comments	Criterion A
Standards/regulations	EN 61000-4-5
	EN 61000-4-6
Shock	300 m/s ² , 11 ms (IEC 60068-2)
Conformance	CE-compliant
UL, USA/Canada	Class I, Div. 2, Groups A, B, C, D

Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 10;
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Classifications

eCl@ss

eCl@ss 10.0.1	19170132
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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	19179200
eCl@ss 7.0	19179290
eCl@ss 8.0	19179290
eCl@ss 9.0	19170114

ETIM

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	43222604
UNSPSC 18.0	43223323
UNSPSC 19.0	43223323
UNSPSC 20.0	43223323
UNSPSC 21.0	43223323

Approvals

Approvals

Approvals

UL Listed / cUL Listed / EAC / cULus Listed

Ex Approvals

UL Listed / cUL Listed / cULus Listed

Approval details

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Approvals

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
mm²/AWG/kcmil		30-14	

cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
mm²/AWG/kcmil		30-14	

EAC		RU *- DE.A*08.B.00731
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cULus Listed	
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Accessories

Accessories

Data cable preassembled

Patch cable - NBC-R4AC-R4AC-IE8A/.../... - 1411854



Patch cable, degree of protection: IP20, number of positions: 8, 10 Gbps, CAT6_A, cable outlet: straight

Patch cable - NBC-R4AC/10G-R4AC/10G-94F/2,0 - 1408360



Patch cable, CAT6_A, 4-pair, shielded, connection not crossed (line), assembled at both ends with RJ45/IP20 connectors, outer sheath material: PUR, length: 2.0 m

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Accessories

Patch cable - NBC-R4AC/10G-R4AC/10G-94F/3,0 - 1408365



Patch cable, CAT6_A, 4-pair, shielded, connection not crossed (line), assembled at both ends with RJ45/IP20 connectors, outer sheath material: PUR, length: 3.0 m

End block

End clamp - E/NS 35 N - 0800886



End clamp, width: 9.5 mm, color: gray

Mounting rail adapter

DIN rail adapter - FL DIN RA - 2891053



The FL DIN RA is installed in a standard, 19-inch rack (EIA-310-D, IEC 60297-3-100) to allow DIN rail mounted equipment to be rack mounted.

Patch cable

Patch cable - FL CAT5 PATCH 0,5 - 2832263



Patch cable, CAT5, assembled, 0.5 m

Patch cable - FL CAT5 PATCH 1,0 - 2832276



Patch cable, CAT5, assembled, 1 m

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Accessories

Patch cable - FL CAT5 PATCH 2,0 - 2832289



Patch cable, CAT5, assembled, 2 m

PCB plug

Printed-circuit board connector - MSTB 2,5/ 8-ST - 1754562



PCB connector, nominal current: 12 A, rated voltage (III/2): 320 V, nominal cross section: 2.5 mm², number of positions: 8, pitch: 5 mm, connection method: Screw connection with tension sleeve, color: green, contact surface: Tin

Protective cap

Dust protection - FL RJ45 PROTECT CAP - 2832991



Dust protection caps for RJ45 socket

Surge protection for information technology

Surge protection device - DT-LAN-CAT.6+ - 2881007



Surge protection in accordance with Class E_A (CAT6_A), for Gigabit Ethernet (up to 10 Gbps), token ring, FDDI/CDDI, ISDN, and DS1. Suitable for Power over Ethernet (PoE+) "Mode A" and "Mode B". RJ45 attachment plug with separate grounding cable and ground connection snap-on foot for NS 35 DIN rails.

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