

## FO converters - FL MC 2000E SM40 LC - 2891156

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FO converter with LC duplex fiber optic connection (1300 nm), for converting 100Base-TX to single 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.

### Why buy this product

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



**Ethernet IEC 61850-3**



### Key Commercial Data

Packing unit	1 STK
Weight per Piece (excluding packing)	50.000 g
Custom tariff number	85176200
Country of origin	Taiwan

### Technical data

#### Note

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

Width	30 mm
Height	130 mm
Depth	100 mm

#### Ambient conditions

Ambient temperature (operation)	-40 °C ... 75 °C
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## Technical data

### Ambient conditions

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

### General

Electrical isolation	VCC // FE // Ethernet
Latency	700 ns (Pass-through mode, 100 Mbps, static)
Test voltage data interface/power supply	500 V DC
Noise emission	EN 61000-6-4
Mounting position	On horizontal DIN rail NS 35 in acc. with EN 60715
Net weight	498 g
Housing material	Aluminum

### 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
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

### Serial interface

Interface 1	Ethernet interface, 100Base-Tx in acc. with IEEE 802.3u
Connection method	RJ45 socket, 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

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### Technical data

#### Optical interface FO

Wavelength	1310 nm
Transmission length incl. 3 dB system reserve	40 km (fiberglass with F-G 9/125 0.36 dB/km)
	36 km (fiberglass with F-G 9/125 0.4 dB/km)
	29 km (fiberglass with F-G 9/125 0.5 dB/km)
Transmission medium	Single-mode fiberglass
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	≤ 250 V AC
Max. switching current	1 A

#### Standards and Regulations

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
Shock	300 m/s <sup>2</sup> , 11 ms (IEC 60068-2)
Noise emission	EN 61000-6-4
Noise immunity	IEC 61850-3, IEEE 1613, EN 61000-6-2: 2005

### Classifications

#### eCl@ss

eCl@ss 4.1	27230207
eCl@ss 5.1	27230207
eCl@ss 6.0	27230207
eCl@ss 8.0	19179290
eCl@ss 9.0	19179290

#### ETIM

ETIM 4.0	EC000310
ETIM 5.0	EC001467

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## Approvals

### Approvals

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Approvals

UL Listed / cUL Listed / cULus Listed


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Ex Approvals

UL Listed / cUL Listed / cULus Listed

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### Approval details

UL Listed  <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> FILE E 140324	
mm <sup>2</sup> /AWG/kcmil	30-14

cUL Listed  <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> FILE E 140324	
mm <sup>2</sup> /AWG/kcmil	30-14

cULus Listed 	
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## Accessories

### Accessories

#### Patch cable

Patch cable - FL CAT5 PATCH 0,3 - 2832250

Patch cable, CAT5, assembled, 0.3 m



## FO converters - FL MC 2000E SM40 LC - 2891156

### Accessories

Patch cable - FL CAT5 PATCH 0,5 - 2832263



Patch cable, CAT5, assembled, 0.5 m

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Patch cable - FL CAT5 PATCH 1,0 - 2832276



Patch cable, CAT5, assembled, 1.0 m

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Patch cable - FL CAT5 PATCH 2,0 - 2832289



Patch cable, CAT5, assembled, 2.0 m

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Patch cable - FL CAT5 PATCH 3,0 - 2832292



Patch cable, CAT5, assembled, 3.0 m

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Patch cable - FL CAT5 PATCH 5,0 - 2832580



Patch cable, CAT5, assembled, 5.0 m

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## FO converters - FL MC 2000E SM40 LC - 2891156

### Accessories

Patch cable - FL CAT5 PATCH 7,5 - 2832616



Patch cable, CAT5, assembled, 7.5 m

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Patch cable - FL CAT5 PATCH 10,0 - 2832629



Patch cable, CAT5, assembled, 10.0 m

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### Safety locking

Security element - FL PATCH GUARD - 2891424



Lockable security element

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Key - FL PATCH GUARD KEY - 2891521



Key for lockable security element

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