

# FO converters - FL MC EF 1300 SM SC - 2902856

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FO converter with SC duplex fiber optic connection (1300 nm), for converting 10/100Base-T(X) to single-mode fiberglass (9/125 μm). Auto negotiation and auto MDI(X) function. Comprehensive link diagnostics. DIN-rail mountable, 18 ... 30 V DC supply.

## Product Features

- Transmission ranges up to 36 km
- Auto negotiation
- Auto MDI/MDI-X switch-over
- Link fault pass through (LFP) and far end fault (FEF) functions for easy connection monitoring
- Data rates 10/100 Mbps

Ethernet



## Key commercial data

package_quantity	1
GTIN	4046356689212

## 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)	-40 °C ... 65 °C
Ambient temperature (operation)	-25 °C ... 55 °C (With UL approval)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	30 % ... 95 % (no condensation)
Permissible humidity (storage/transport)	30 % ... 95 % (no condensation)
Altitude	5000 m (For restrictions see manufacturer's declaration)
Altitude	2000 m (With UL approval)
Degree of protection	IP20

## General

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### Technical data

#### General

<b>Electrical isolation</b>	according to IEEE 802.3
<b>Electrical isolation</b>	(VCC // FE // Ethernet)
<b>Test voltage data interface/power supply</b>	1.5 kV <sub>rms</sub> (50 Hz, 1 min.)
<b>Standards/regulations</b>	EN 60950-1
<b>Electromagnetic compatibility</b>	Conformance with EMC Directive 2004/108/EC
<b>Net weight</b>	120 g
<b>Housing material</b>	PA 6.6-FR
<b>Color</b>	green
<b>MTBF</b>	284 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
<b>MTBF</b>	74 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
<b>MTTF</b>	1400 Years (SN 29500 standard, temperature 25°C, operating cycle 21% (5 days a week, 8 hours a day))
<b>MTTF</b>	599 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25% (5 days a week, 12 hours a day))
<b>MTTF</b>	101 Years (SN 29500 standard, temperature 40°C, operating cycle 100% (7 days a week, 24 hours a day))
<b>Conformance</b>	CE-compliant
<b>ATEX</b>	# II 3 G Ex nA IIC T4 Gc X
<b>UL, USA / Canada</b>	Class I, Zone 2, AEx nA IIC T4
<b>UL, USA / Canada</b>	Class I, Zone 2, Ex nA IIC T4 Gc X

#### Power supply

<b>Supply voltage range</b>	18 V DC ... 30 V DC (Screw connection)
<b>Supply voltage range</b>	18 V DC ... 30 V DC (as an alternative or redundant, via backplane bus contact and system current supply)
<b>Typical current consumption</b>	< 100 mA (24 V DC)
<b>Protective circuit</b>	Protection against polarity reversal
<b>Connection method</b>	Plug-in screw terminal block (COMBICON), redundancy possible
<b>Conductor cross section stranded max.</b>	2.50 mm <sup>2</sup>
<b>Conductor cross section stranded min.</b>	0.20 mm <sup>2</sup>
<b>Conductor cross section solid max.</b>	2.50 mm <sup>2</sup>
<b>Conductor cross section solid min.</b>	0.20 mm <sup>2</sup>
<b>Max. AWG conductor cross section, stranded</b>	14
<b>Min. AWG conductor cross section, stranded</b>	24
<b>Conductor cross section AWG/kcmil max</b>	14
<b>Conductor cross section AWG/kcmil min.</b>	24

#### Serial interface

<b>Interface 1</b>	Ethernet interface, 10/100BASE-T(X) in acc. with IEEE 802.3u
<b>Connection method</b>	RJ45 socket, shielded
<b>Transmission medium</b>	Copper
<b>Transmission length</b>	100 m (twisted pair, shielded)

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## Technical data

### Serial interface

Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section stranded min.	0.2 mm <sup>2</sup>
Conductor cross section stranded max.	2.5 mm <sup>2</sup>
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	14
Auto-negotiation modes	Auto
Link through	Link fault pass through
Basic functions	Store-and-forward media converter
MDI-/MDI-X switchover	Auto-MDI(X)
Signal LEDs	Activity, link status, 10/100 Mbps

### Optical interface FO

Transmit capacity, minimum	≥ -15 dBm ((9/125 μm) dynamic in link mode (average))
Transmit capacity, maximum	≤ -8 dBm ((9/125 μm) dynamic in link mode (average))
Minimum receiver sensitivity	min. -31 dBm (dynamic in link mode (average))
Maximum receiver sensitivity	-7 dBm (dynamic in link mode (average))
Wavelength	1300 nm
Transmission length incl. 3 dB system reserve	36 km (With F-E 9/125 0.36 dB/km)
Transmission length incl. 3 dB system reserve	32 km (With F-E 9/125 0.4 dB/km)
Transmission length incl. 3 dB system reserve	26 km (With F-E 9/125 0.5 dB/km)
Transmission medium	Single-mode fiberglass
Connection method	SC duplex

## 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	27230207

### ETIM

ETIM 3.0	EC000310
ETIM 4.0	EC000310
ETIM 5.0	EC001467

### UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008

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## classifications

### UNSPSC

<b>UNSPSC 11</b>	39121008
<b>UNSPSC 12.01</b>	39121008
<b>UNSPSC 13.2</b>	39121008

## approvals

ATEX / UL Listed / cUL Listed / cULus Listed / UL Listed / cUL Listed / cULus Listed /

### Approval details

ATEX	
Nominal voltage UN	
Nominal current IN	
mm <sup>2</sup> /AWG/kcmil	

UL Listed
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cUL Listed
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cULus Listed
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## FO converters - FL MC EF 1300 SM SC - 2902856

accessories

### Connector set

FL PLUG RJ45 GR/2 - 2744856



FL PLUG RJ45 GN/2 - 2744571



### Data cable by the meter

FL CAT5 HEAVY - 2744814



FL CAT5 FLEX - 2744830



### Universal tools

FL CRIMPTOOL - 2744869



## FO converters - FL MC EF 1300 SM SC - 2902856

accessories

### DIN rail connector

ME 22,5 TBUS 1,5/ 5-ST-3,81 GN - 2707437



ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - 2709561



### Power supply

MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983



### Data cable preassembled

FL SM PATCH 1,0 LC-SC - 2989190



FL SM PATCH 2,0 LC-SC - 2989297



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### accessories

FL SM PATCH 5,0 LC-SC - 2901827



FL SM PATCH 1,0 SC-SC - 2901829



FL SM PATCH 2,0 SC-SC - 2901830



FL SM PATCH 5,0 SC-SC - 2901831



FL SM PATCH 1,0 SC-ST - 2901832



FL SM PATCH 2,0 SC-ST - 2901833



# FO converters - FL MC EF 1300 SM SC - 2902856

accessories

FL SM PATCH 5,0 SC-ST - 2901834



## Data plug

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



## Drawings

Block diagram

