

## Switch - FL SWITCH LM 4TX/1FX SM - 2989828

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Ethernet Lean Managed Switch with four 10/100 Mbps RJ45 ports and one 10/100 Mbps FX-SC single-mode port

### Product description

The compact lean managed switches (LM) make it possible to set up flexible and economical managed Ethernet networks in an automation environment. Its huge range of connection variants and extended temperature range of -40 °C to +70 °C enable it to perfectly cover the requirements of industrial applications. The integrated software allows networks to be redundantly set up, diagnosed and monitored using IT standard protocols.

### Product Features

- Web-based management, SNMP
- Compact housing
- Comprehensive fiber optic versions
- Configuration can be stored externally
- 40°C ... +70°C ambient temperature
- Configurable alarm contact



Ethernet



### Key commercial data

Packing unit	1 PCE
GTIN	 4 046356 342391
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	45 mm
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## Technical data

### Dimensions

Height	99 mm
Depth	112 mm

### Interfaces

Interface 1	Ethernet (RJ45)
No. of ports	4 (RJ45 ports)
Connection method	RJ45
Note on connection method	Auto negotiation and autocrossing
Transmission physics	Copper
Transmission speed	10/100 MBit/s
Transmission length	100 m (per segment)
Interface 2	Ethernet FO
No. of ports	1 (SC single-mode)
Connection method	SC
Transmission physics	Single mode fiberglass
Transmission speed	100 MBit/s (full duplex)
Transmission length	36000 m (fiberglass with F-G 9/125 0.36 dB/km)
Transmission length	32000 m (fiberglass with F-G 9/125 0.4 dB/km)
Transmission length	26000 m (fiberglass with F-G 9/125 0.5 dB/km)
Wavelength	1300 nm
Interface 5	Serial (V.24 (RS-232))
Connection method	V.24 (RS-232-C), 6-pos. MINI-DIN socket (PS/2)

### Function

Basic functions	Store-and-forward-Switch normkonform IEEE 802.3 2, Prioritätsklassen nach IEEE802.1 P, TCP/IP-Protokoll, BootP-fähig, Port-Mirroring, integrierte Web-Server-Funktion, Multicast Filtering, IGMP Snooping, VLAN, Rapid Spanning Tree (RSTP), DHCP Server, PTCP Filter
Supported browsers	Internet Explorer 5.5 or higher
Redundancy	Rapid Spanning Tree 802.1w, Fast Ring Detection
Status and diagnostic indicators	Per Ethernet 2 status LEDs: LINK and status activity, 100, full duplex, supply voltage $U_{S1}$ and $U_{S2}$ (redundant supply voltage)

### Network expansion parameters

Cascading depth	Network, linear, and star structure: any
Maximum conductor length ((twisted pair)	100 m

### Supply voltage

Supply voltage	24 V DC
Residual ripple	3.6 V <sub>pp</sub> (within the permitted voltage range)
Supply voltage range	18.5 V DC ... 30.5 V DC

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### Supply voltage

Typical current consumption	400 mA (at $U_s = 24$ V DC)
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### General

Mounting type	DIN rail
Type AX	Block design
Weight	230 g
Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	30 % ... 95 % (no condensation)
Permissible humidity (storage/transport)	30 % ... 95 % (no condensation)
Air pressure (operation)	80 kPa ... 108 kPa (2000 above sea level)
Air pressure (storage/transport)	70 kPa ... 108 kPa (3000 above sea level)
Noise emission	EN 61000-6-3/-4
Noise immunity	EN 61000-6-2:2005

### Mechanical tests

Type of test	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6
Test result	Operation/Storage/Transport: 5 g, 150 Hz, Criterion 3

### Conformity with EMC directives

Developed in acc. with standard	IEC 61000-6.2
Test standard	IEC 61000-4-2 (ESD)
Test result	Criterion B
Test standard	IEC 61000-4-3 (immunity to radiated interference)
Test result	Criterion A
Test standard	IEC 61000-4-4 (burst)
Test result	Criterion B
Test standard	IEC 61000-4-5 (surge)
Test result	Criterion B
Test standard	IEC 61000-4-6 (immunity to conducted interference)
Test result	Criterion A

## Classifications

### ETIM

ETIM 2.0	EC000734
ETIM 3.0	EC000734
ETIM 4.0	EC000734

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### ETIM

ETIM 5.0	EC000734
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### UNSPSC

UNSPSC 11	43172015
UNSPSC 12.01	43201410
UNSPSC 13.2	43201410
UNSPSC 6.01	43172901
UNSPSC 7.0901	43201404

### eCl@ss

eCl@ss 4.0	27250501
eCl@ss 4.1	27250501
eCl@ss 5.0	19030117
eCl@ss 5.1	19030117
eCl@ss 6.0	19170106
eCl@ss 7.0	19170106

## Approvals

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#### Approvals

UL Listed / cUL Listed / GL / BV / DNV / GL-SW / UL Listed / cUL Listed / GL / BV / DNV / GL-SW / GL / cULus Listed

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#### Ex Approvals

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#### Approvals submitted

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#### Approval details

UL Listed 
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## Approvals

cUL Listed 

GL

BV

DNV

GL-SW

UL Listed 

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GL

BV

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GL

cULus Listed 

## Accessories

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### Accessories

#### Assembly

End clamp - E/NS 35 N - 0800886



End clamp, width: 9.5 mm, color: gray

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#### Cable/conductor

Connecting cable - PRG CAB MINI DIN - 2730611



Connecting cable, for connecting the controller to a PC (RS-232) for PC Worx, 3 m in length

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Patch cable - FL CAT5 PATCH 0,3 - 2832250



Patch cable, CAT5, assembled, 0.3 m

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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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### Accessories

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Patch cable - FL CAT5 PATCH 1,5 - 2832221



Patch cable, CAT5, assembled, 1.5 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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Patch cable - FL CAT5 PATCH 7,5 - 2832616



Patch cable, CAT5, assembled, 7.5 m

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### Accessories

Patch cable - FL CAT5 PATCH 10,0 - 2832629



Patch cable, CAT5, assembled, 10.0 m

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Patch cable - FL CAT6 PATCH 12,5 - 2891369



Patch cable, CAT6, pre-assembled, 12.5 m

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Patch cable - FL CAT6 PATCH 15,0 - 2891372



Patch cable, CAT6, pre-assembled, 15.0 m

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Patch cable - FL CAT6 PATCH 20,0 - 2891576



Patch cable, CAT6, pre-assembled, 20.0 m

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Fiber optic cables - VS-PC-2XGOF-50-SCRJ/SCDU-1 - 1654400



Assembled fiber optic cable, break-out cable, fiberglass multi-mode 50/125  $\mu\text{m}$ , SCRJ/IP20 on SC-duplex/IP20, for installation inside control cabinets, length: 1 m

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### Accessories

#### FO patch cable - FL MM PATCH 1,0 LC-SC - 2989161



Assembled fiber optic cable, break-out cable, fiberglass multi-mode 50/125  $\mu\text{m}$ , connector: LC/SC duplex, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

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#### FO patch cable - FL MM PATCH 2,0 LC-SC - 2989268



Assembled fiber optic cable, break-out cable, fiberglass multi-mode 50/125  $\mu\text{m}$ , connector: LC/SC duplex, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 m

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#### FO patch cable - FL MM PATCH 5,0 LC-SC - 2901800



Assembled FO cable, break out cable, multi-mode fiberglass 50/125  $\mu\text{m}$ , plug: LC / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 m

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#### FO patch cable - FL MM PATCH 1,0 SC-SC - 2901805



Assembled FO cable, break out cable, multi-mode fiberglass 50/125  $\mu\text{m}$ , connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 1 m

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#### FO patch cable - FL MM PATCH 2,0 SC-SC - 2901807



Assembled FO cable, break out cable, multi-mode fiberglass 50/125  $\mu\text{m}$ , connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 2 m

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### Accessories

#### FO patch cable - FL MM PATCH 5,0 SC-SC - 2901808



Assembled FO cable, break out cable, multi-mode fiberglass 50/125 µm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 m

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#### FO patch cable - FL MM PATCH 1,0 SC-ST - 2901809



Assembled FO cable, break out cable, multi-mode fiberglass 50/125 µm, connector: SC Duplex / B-FOC, protection type: IP20, for installation in cable ducts or control cabinets, length: 1 m

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#### FO patch cable - FL MM PATCH 2,0 SC-ST - 2901810



Assembled FO cable, break out cable, multi-mode fiberglass 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 2 m

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#### FO patch cable - FL MM PATCH 5,0 SC-ST - 2901811



Assembled FO cable, break out cable, multi-mode fiberglass 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 m

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#### FO patch cable - FL MM PATCH 1,0 SC-SCRJ - 2901812



Assembled FO cable, break out cable, multi-mode fiberglass 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 1 m

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### Accessories

FO patch cable - FL MM PATCH 2,0 SC-SCRJ - 2901813



Assembled FO cable, break out cable, multi-mode fiberglass 50/125 µm, connector: SC Duplex / SCRJ, protection type: IP20, for installation in cable ducts or control cabinets, length: 2 m<sup>^</sup>

FO patch cable - FL MM PATCH 5,0 SC-SCRJ - 2901814



Assembled FO cable, break out cable, multi-mode fiberglass 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 m

### Female insert

Fiber optic coupling - VS-SCRJ-GOF-KU - 1654358



SCRJ coupling insert, duplex, for VS-PP-19-1HE-16-F patch panel and VS-TO...F...terminal outlets and VS-SI-FP-2F front plate, can be used for glass multi-mode, HCS and polymer fiber types

### Plug/Adapter

RJ45 plug-in connector - FL PLUG RJ45 GR/2 - 2744856



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 set with gray bend protection sleeve.

RJ45 plug-in connector - FL PLUG RJ45 GN/2 - 2744571



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.

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### Accessories

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#### Software

Software - FL SWT - 2831044



Factory Manager, multilingual, configuration and diagnostics software for ETHERNET networks in automation

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Software - FL SNMP OPC SERVER - 2832166



SNMP-OPC server, German and English, for monitoring and configuration of SNMP-capable equipment in HMI and SCADA systems

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#### Tools

Assembly tool - FL CRIMPTOOL - 2744869



Crimping pliers, for assembling the RJ45 plugs FL PLUG RJ45..., for assembly on site

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Dust protection - FL RJ45 PROTECT CAP - 2832991



Dust protection caps for RJ45 socket

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## Switch - FL SWITCH LM 4TX/1FX SM - 2989828

### Accessories

Patch panels - FL PF 2TX CAT5E - 2891165



Patch field with two RJ45 CAT5e network connections

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Patch panels - FL PF 8TX CAT5E - 2891178



Patch field with eight RJ45 CAT5e network connections

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