


## FL SWITCH LM 4TX/2FX-E

Order No.: 2891660

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Ethernet lean managed switches with four RJ45 ports, 10/100 Mbps, with auto crossing and auto negotiation and two glass fiber SC FO ports (multimode), 100 Mbps (100BASE-FX), SNMP management, redundancy via Rapid Spanning Tree (IEEE 802.1w) and Fast Ring Detection, multicast filtering, VLAN, IGMP snooping, 24 V DC power supply, redundant

### Commercial data

|                          |  |
|--------------------------|--|
| GTIN (EAN)               | <br>4 046356 281447 |
| sales group              | K000   |
| Pack                     | 1 pcs.   |
| Customs tariff           | 85176200   |
| Catalog page information | Page 182 (AX-2009)   |

### Product notes

WEEE/RoHS-compliant since:  
03/27/2008

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### 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.

## Technical data

### Interfaces

|                      |  |
|----------------------|--|
| Interface            | Ethernet (RJ45)  |
| No. of ports         | 4 (RJ45 ports)   |
| Type of connection   | RJ45 female connector, auto negotiation                  |
| Transmission physics | Copper   |
| Transmission speed   | 10/100 MBit/s (RJ45)                                     |
| Interface            | Fiber optic interface                                    |
| No. of ports         | 2 (SC multimode)   |
| Type of connection   | SC duplex  |
| Transmission length  | 11000 m (glass fiber with F-G 62.5/125 0.7 dB/km F1000)  |
|                      | 6400 m (glass fiber with F-G 50/125 0.7 dB/km F1200)     |
|                      | 3000 m (glass fiber with F-G 62.5/125 2.6 dB/km F600)    |
|                      | 2800 m (glass fiber with F-G 50/125 1.6 dB/km F800)      |
| Interface            | Serial (V.24 (RS-232))                                   |
| Type of connection   | V.24 (RS-232-C), 6-pos. MINI-DIN female connector (PS/2) |

### Function

|                                  |   |
|----------------------------------|---|
| Basic functions                  | Store-and-forward switch, IGMP v2, GMRP   |
| 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                                  |
| Typical current consumption | 400 mA (at $U_S = 24$ V DC)                              |

### General data

|        |       |
|--------|-------|
| Weight | 230 g |
| Width  | 45 mm |

|  |   |
|--|---|
| Height                                   | 99 mm                                     |
| Depth                                    | 112 mm                                    |
| 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                         |

### Certificates / Approvals



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

### Accessories

| Item                   | Designation        | Description                          |
|------------------------|--------------------|--------------------------------------|
| <b>Cable/conductor</b> |                    |                                      |
| 2832250                | FL CAT5 PATCH 0,3  | Patch cable, CAT5, assembled, 0.3 m  |
| 2832263                | FL CAT5 PATCH 0,5  | Patch cable, CAT5, assembled, 0.5 m  |
| 2832276                | FL CAT5 PATCH 1,0  | Patch cable, CAT5, assembled, 1.0 m  |
| 2832221                | FL CAT5 PATCH 1,5  | Patch cable, CAT5, assembled, 1.5 m  |
| 2832629                | FL CAT5 PATCH 10,0 | Patch cable, CAT5, assembled, 10.0 m |
| 2832289                | FL CAT5 PATCH 2,0  | Patch cable, CAT5, assembled, 2.0 m  |
| 2832292                | FL CAT5 PATCH 3,0  | Patch cable, CAT5, assembled, 3.0 m  |
| 2832580                | FL CAT5 PATCH 5,0  | Patch cable, CAT5, assembled, 5.0 m  |
| 2832616                | FL CAT5 PATCH 7,5  | Patch cable, CAT5, assembled, 7.5 m  |

**Female insert**

|         |                |   |
|---------|----------------|---|
| 1654358 | VS-SCRJ-GOF-KU | 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 |
|---------|----------------|---|

**General**

|         |                            |  |
|---------|----------------------------|--|
| 0800886 | E/NS 35 N                  | End clamp, width: 9.5 mm, color: gray  |
| 2891165 | FL PF 2TX CAT5E            | Patch field with two RJ45 CAT5e network connections  |
| 2891178 | FL PF 8TX CAT5E            | Patch field with eight RJ45 CAT5e network connections  |
| 2832991 | FL RJ45 PROTECT CAP        | Dust protection caps for RJ45 female connector   |
| 2832865 | FL SEC PAC 4TX             | Layer1 security elements for four RJ45 network connections for use with patch boxes and panels   |
| 1654400 | VS-PC-2XGOF-50-SCRJ/SCDU-1 | Assembled fiber optic cable, break-out cable, glass fiber multi-mode 50/125 µm, SCRJ/IP20 on SC-duplex/IP20, for installation inside control cabinets, length: 1 m |

**Plug/Adapter**

|         |                   |   |
|---------|-------------------|---|
| 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 set with gray bend protection sleeve. |
| 2730611 | PRG CAB MINI DIN  | Connection cable, to connect Remote Field Controllers to a PC (RS-232) for PC WORX, 3 m in length   |

**Software**

|         |                    |  |
|---------|--------------------|--|
| 2832166 | FL SNMP OPC SERVER | SNMP-OPC server, German and English, for monitoring and configuration of SNMP-capable equipment in HMI and SCADA systems |
| 2831044 | FL SWT             | Factory Manager, multilingual, configuration and diagnostics software for ETHERNET networks in automation                |

**Tools**

|         |              |   |
|---------|--------------|---|
| 2744869 | FL CRIMPTOOL | Crimping pliers, for assembling the RJ45 connectors FL PLUG RJ45..., for assembly on site |
|---------|--------------|---|

**Address**

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