

FL SWITCH LM 4TX/2FX SM


Order No.: 2891916



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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 (single mode), 100 Mbps (100BASE-FX), SNMP management, redundancy via Rapid Spanning Tree (IEEE 802.1w) and Fast Ring Detection, VLAN, multicast filtering, IGMP snooping.



| Commercial data | |
|--------------------------|---|
| GTIN (EAN) |  4 046356 092487 |
| sales group | K000 |
| Pack | 1 pcs. |
| Customs tariff | 85176200 |
| Catalog page information | Page 97 (AX-2011) |

Product notes

WEEE/RoHS-compliant since:
02/11/2008



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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

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| Interface 1 | Ethernet |
| No. of ports | 4 (RJ45 ports) |
| Connection method | RJ45 female connector, auto negotiation |
| Transmission physics | Copper |
| Transmission speed | 10/100 MBit/s |
| Interface 2 | Fiber optic interface |
| No. of ports | 2 (SC single-mode) |
| Connection method | SC duplex |
| Transmission length | 36000 m (glass fiber with F-G 9/125 0.36 dB/km) |
| | 32000 m (glass fiber with F-G 9/125 0.4 dB/km) |
| | 26000 m (glass fiber with F-G 9/125 0.5 dB/km) |
| Wavelength | 1300 nm |
| Interface 3 | Serial (V.24 (RS-232)) |
| Connection method | V.24 (RS-232-C), 6-pos. MINI-DIN female connector (PS/2) |

Function

| | |
|----------------------------------|--|
| Basic functions | Store and forward switch complies with IEEE 802.3 2 priority classes in acc. with IEEE802.1 P TCP/IP protocol, BootP-capable, port mirroring, integrated web server function, multicast filtering, IGMP snooping, Rapid Spanning Tree (RSTP) |
| 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

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| Supply voltage | 24 V DC |
| Residual ripple | 3.6 V _{PP} (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

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| Width | 45 mm |
| Height | 99 mm |
| Depth | 112 mm |
| Mounting type | DIN rail |
| Type AX | Block-oriented |
| 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 |

Conformity with EMC directives

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|---------------------------------|--|
| 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 |

Certificates / Approvals



Certification

BV, CUL, DNV, GL, UL

Accessories

| Item | Designation | Description |
|------------------------|-------------------------|---|
| Cable/conductor | | |
| 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 |
| 2891369 | FL CAT6 PATCH 12,5 | Patch cable, CAT6, pre-assembled, 12.5 m |
| 2891372 | FL CAT6 PATCH 15,0 | Patch cable, CAT6, pre-assembled, 15.0 m |
| 2891576 | FL CAT6 PATCH 20,0 | Patch cable, CAT6, pre-assembled, 20.0 m |
| 2989161 | FL MM PATCH 1,0 LC-SC | Assembled fiber optic cable, break-out cable, glass fiber multi-mode 50/125 µm, connector: LC/SC duplex, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 meter |
| 2901805 | FL MM PATCH 1,0 SC-SC | Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 1 meter |
| 2901812 | FL MM PATCH 1,0 SC-SCRJ | Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 1 meter |
| 2901809 | FL MM PATCH 1,0 SC-ST | Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / B-FOC, protection type: IP20, for installation in cable ducts or control cabinets, length: 1 meter |
| 2989268 | FL MM PATCH 2,0 LC-SC | Assembled fiber optic cable, break-out cable, glass fiber multi-mode 50/125 µm, connector: LC/SC duplex, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 meter |
| 2901807 | FL MM PATCH 2,0 SC-SC | Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters |
| 2901813 | FL MM PATCH 2,0 SC-SCRJ | Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / SCRJ, protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters |

| | | |
|---------|--------------------------------|--|
| 2901810 | FL MM PATCH 2,0 SC-ST | Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 2 meters |
| 2901800 | FL MM PATCH 5,0 LC-SC | Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, plug: LC / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters |
| 2901808 | FL MM PATCH 5,0 SC-SC | Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / SC-Duplex, protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters |
| 2901814 | FL MM PATCH 5,0 SC-SCRJ | Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters |
| 2901811 | FL MM PATCH 5,0 SC-ST | Assembled FO cable, break out cable, multi-mode glass fiber 50/125 µm, connector: SC Duplex / B-FOC (ST), protection type: IP20, for installation in cable ducts or control cabinets, length: 5 meters |
| 2730611 | PRG CAB MINI DIN | Connection cable, to connect Remote Field Controllers to a PC (RS-232) for PC WORX, 3 m in length |
| 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 |

Female insert

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|---------|----------------|---|
| 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

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|---------|---------------------|---|
| 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 |

Plug/Adapter

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|---------|-------------------|---|
| 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. |

Software

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|---------|--------------------|--|
| 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

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

Address

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