

3M Services GmbH

Industrial DIN Rail EAD

QuFast 68\$D: / ML68\$D:

Industrial CPE / Switch

The ML680DF Industrial Ethernet Access Switch from Actelis Networks™ is a small, hardened, fanless fiber fed add/drop device delivering up to 1 Gbps of high-speed Ethernet where you need it.

The ML680DF is part of Actelis' ML680 family of access switching products designed for industrial, intelligent traffic network, surveillance, pipeline and utility applications. Complementing the ML684D, which supports both bonded copper and fiber, the ML680DF is a cost optimized, fiber-fed only version with east and west fiber connections that allow multiple sensors or cameras at various locations to be connected in a linear add/drop chain or ring topology.

The ML680DF offers 1 Gbps of full Ethernet switching capabilities, supporting add/drop of traffic to up to six Ethernet client ports at each site while passing the remainder through to other locations. Featuring an extremely small factor, fanless design, and DIN rail mounting, the ML680DF is ideal for deployment in almost any traffic, utility, telco or industrial cabinet, pedestal or vault. Environmentally hardened and featuring a robust, field-proven design, the unit is NEMA 4 extended temperature compliant and K.21/K.45 rated for protection against over voltage and over current conditions, ensuring high reliability and trouble-free operation.

Fully interoperable with any standard Ethernet switch, router or hub, the ML684DF is compliant with Metro Ethernet Forum (MEF) specifications enabling seamless integration into existing Carrier Ethernet networks. Each unit supports two 100/1000Base-FX Small Form Factor (SFP) ports and up to six 10/100Base-T ports that can be used as network or client interfaces to which any service, device, customer or network can be assigned.

The ML680DF provides 802.1q VLAN-aware wire-speed bridging, double tagging (VLAN stacking) for end-user VLAN transparency, and L2 Ethernet 802.1p prioritization and L3 ToS/Diff-Serv classification with four traffic classes enable appropriate traffic handling. Multicast/Broadcast limiting, port isolation and IGMP snooping to enable efficient link utilization. RSTP/STP and ERPSv2 ring support and 802.3ad Link Aggregation allow for ring as well as chain topologies and redundancy.

The ML684DF provides proactive and dynamic tools for enhanced trouble shooting and monitoring capabilities. Advanced Carrier-class EFM OAM, including 802.3ah, 802.1ag (CFM) and Y.1731 enabling both physical link as well as service level end-to-end advanced troubleshooting mechanisms.

The MetaASSIST™ View graphical craft application and the MetaASSIST EMS multi-platform Element Management System offer in-and out-of-band management of the ML680DF. Management protocols include standard TL1 command line interface and SNMP using standard MIBs for seamless integration with third-party Network Management Systems (NMS).



Highlights

- Small form factor, no fan, DIN raiiling
- Environmentally hardened
- IEEE 802.3ah Ethernet in the First Mile (EFM)
- CE 1.0
- Rapid Service Deployment
- Superior Rate, Reach & Reliability
- Low Delay and Jitter for Voice and Video Transmission
- Carrier-Class OAM
- Worldwide Spectral Compliancy
- FCC, UL, CE, NEMA 4

Applications

- Telemetry
- IP-based Traffic Controllers
- Smart Grid Sensors
- Dynamic Message Signs
- HD Video Cameras & Streaming
- Vehicle Detection
- Smart Parking
- Emergency Response
- Supports & Complements City Wi-Fi Access



Specifications

Interfaces

Ethernet (Network/User) -

- **10/100Base-T:** 6 ports, Connector: RJ45, Auto-MDIX
- **100/1000Base-FX:** 2 ports Connector: SFP Based, MSA compliant

Management (Out-of-Band)

- **10/100Base-T** Connector: RJ45, Auto-MDIX
- **Craft:** EIA RS-232 (DCE) Connector: RJ45

Alarm Contacts

- Terminal Block, 2 Input, 1 Output

LAN Protocols

- **Dynamic Bridging:** IEEE 802.1, 8K MAC addresses
- **Discovery Mechanisms:** LLDP
- **VLAN Tagging:** IEEE 802.1Q
- **Double Tagging:** Q-in-Q
- **ERPSv2:** G.8032/Y.1344 (single ring)
- **RSTP, STP:** IEEE 802.1d
- **Link Aggregation:** IEEE 802.3ad
- **Provider Bridges:** IEEE 802.1ad
- **IGMP snooping:** IGMP V1/V2
- **OAM:** IEEE 802.3ah clause 57 (EFM OAM), IEEE 802.1ag, ITU Y.1731, Ethernet loopback with MAC swap

Advanced Service Provisioning & Traffic Management

Quality of Service

- **Classes of Service:** 4
- **Scheduler:** WFQ, SP
- **Classification:** L2 802.1p/Q priorities, L3 ToS/Diff Serv

Management Applications

- **EMS:** MetaASSIST EMS
- **Craft GUI:** MetaASSIST View

Management Protocols

- **SNMP:** V3, V2C, V1
- **IP addresses:** IPV4 and IPV6
- **Command Line Interface:** TL1, CLI
- **Remote Access:** Telnet
- **Secure Access (option):** SSH v2
- **Time Synchronization:** SNTP v3
- **Web Access:** HTTP
- **File transfer:** FTP, TFTP
- **User Authentication:** RADIUS and/or local passwords

Front Panel Indicators (LEDs)

- Power
- Status
- Alarm
- **ACT (Activity) per Ethernet port**
- **LNK (Link) per Ethernet**

Physical

- **Dimensions:** Height: 5.95" / 151 mm, Depth: 5.1" / 130 mm, Width: 2.3" / 58 mm
- **Weight:** 1.76 lbs / 0.8 kg
- **Mounting:** Din Rails, Wall Mount
- **Power DC:** -24/-48 VDC nominal, 6 Watt
- **AC:** 90-264 VAC

Environmental

- **Operating Temp.** -40° to +74°C
- **Storage Temp.** -40° to +75°C
- **Relative humidity:** Up to 95%, non condensing

Regulatory Approval/Certifications

Metro Ethernet Forum

- CE 1.0 - MEF 9, 14

Safety

- UL 60950, CSA C22.2 60950
- EN 60950, IEC 60950

EMC

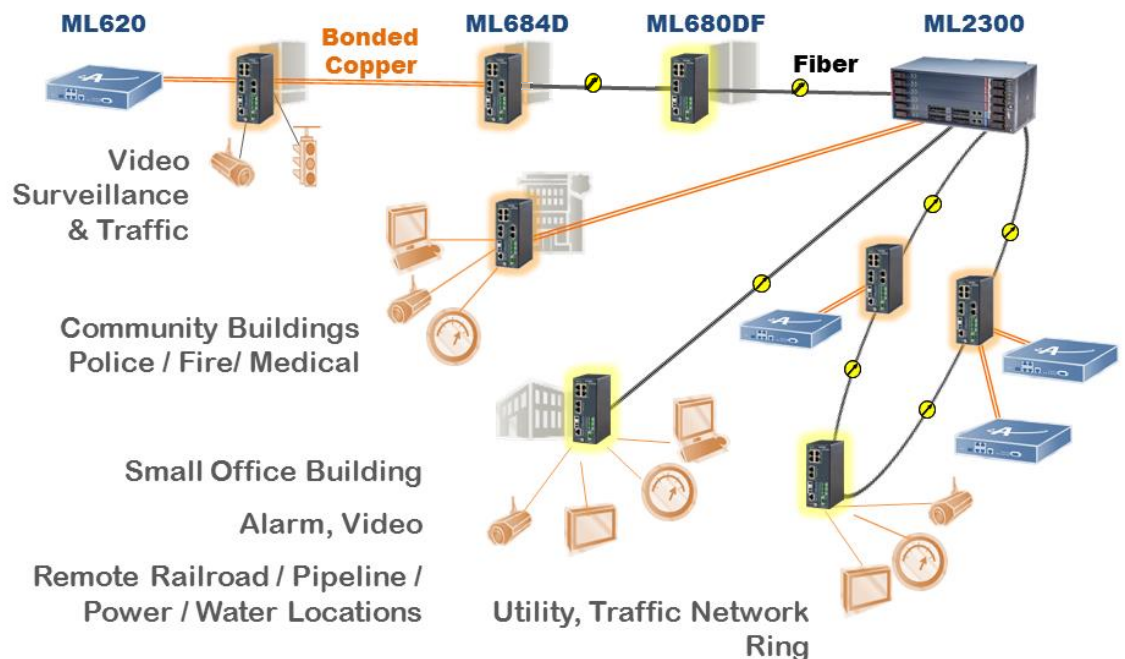
- FCC Part 15 Class A
- ICES-003 Class A
- ETSI EN 300 386 Class A
- ETSI ETS 300 132-2
- ITU-T K.21, K.45

CE

- EMC and Safety

Environmental

- ETSI ETS 300 019
- NEMA 4 Thermal



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