



# ML510Dx

## Industrial Gigabit Ethernet Managed Switch

**The ML510Dx Industrial Ethernet Switches from Actelis Networks® are hardened, fanless fiber fed switches able to support up to 14 high speed gigabit interfaces per device and optionally PoE - ML5114D, ML5114DP**

The ML510Dx is part of Actelis' DIN Rail family of access switching products designed for industrial, intelligent traffic network, surveillance, pipeline and utility applications. Complementing the ML684Dx, which supports both bonded copper and fiber, the ML510Dxx is a cost optimized, fiber-fed only unit supporting multiple one gigabit Ethernet connections that allow multiple sensors or cameras at various locations to be connected in a linear chain, MSTP/RSTP/STP mesh or Fast healing ring configurations.

The ML510Dx offers 1 Gbps of full Ethernet switching capabilities, supporting add/drop of traffic to up to 14 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 ML510Dx is ideal for deployment in almost any traffic, utility, or industrial cabinet, pedestal or vault.

Environmentally hardened with redundant power inputs, and featuring a robust, field-proven design, the unit is NEMA 4 extended temperature compliant and protected against over voltage and over current conditions, ensuring high reliability and trouble-free operation.

Interoperable with any standard Ethernet switch, router or hub ML510Dx devices seamlessly integrate into any Ethernet network. Equipped with up to ten 10/100/1000Base-T Ethernet interfaces and up to four 100/1000Base-FX Small Form Factor (SFP) port. ML5114DP offers also multiple PoE interfaces that can be used to enable power and data connectivity to camera, sensors etc. The ML5114DP\* supports 8 PoE ports including 2 x 30/60W; 6 x 30W.

Actelis has comprehensive mechanisms that include high level authentication, advanced encryption capabilities, as well as sophisticated filtering and access control using layer 2 processes.

Actelis ML510Dx offers an all-embracing level of security initiating from the physical layer through switching and up to the management and access layers. This gives you a significantly strong and resilient solution and enables transmissions which have the highest level of immunity with notably lower vulnerability to hacking attempts.

The ML510Dx provides 802.1q VLAN-aware wire-speed bridging, double tagging (VLAN stacking) for end-user VLAN transparency, L2 (Ethernet priority) classification with eight queues per port, fast healing rings, MSTP/RSTP/STP, Dynamic Link Aggregation, bandwidth monitoring, Multicast/Broadcast limiting, as well as IGMP bandwidth snooping for video distribution applications.

The ML510Dx can be managed through Actelis' MetaASSIST EMS multi-platform Element Management System. Various user interfaces/protocols are supported including a WEB based GUI, Cisco Like CLI as well as SNMP MIBs enabling seamless integration with third-party Network Management Systems (NMS).



ML5114D

### Highlights

- Small form factor, no fan, DIN raiing
- Environmentally hardened
- Drop and Continue, RSTP/STP mesh or v2 ring
- Eight PoE ports
- Enhanced Security - Low vulnerability to hacking
- Rapid Service Deployment
- Low Delay and Jitter for Voice and Video Transmission

### 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

## ML510D: ML5114D, ML5114DP\*

### Specifications

#### Interfaces

##### Ethernet (Network/User) -

- **10/100/1000Base-T:** Up to 10 ports  
Connector: RJ45, Auto-MDIX  
8 ports are PoE ports \*
- **100/1000Base-FX:** Up to 4 ports  
Connector: SFP Based, MSA compliant multimode (mm) and single mode (sm)

##### Management (out-of-band)

- **Console/Craft:** RS-232, Terminal emulator, Baud rate: 115200bps  
Connector: DB9

##### Alarm Contacts

- Terminal Block, 2 Output (Normally Open)

#### LAN Protocols

- Ethernet operating mode: Store & forward, L2 wire-speed/non-blocking
- MAC addresses: 8K
- Jumbo frames: 9K Bytes
- Flow control: IEEE 802.3x (Full Duplex) and Back-Pressure(Half Duplex)
- Max VLANs: 1024
- VLAN Types: Port-based VLANs
- VLAN Tagging: IEEE 802.1Q
- Double Tagging: Q-in-Q IEEE 802.1ad
- Multicast: IGMP V1/V2 up to 255 multicast groups, IGMP snooping and querying, Throttling and filtering.
- Discovery Mechanisms: LLDP IEEE 802.1ab

##### Redundancy

- **Ring:**  
Fast failover protection rings  
Link loss recovery < 20ms,  
Single & Multiple rings supported
- **Spanning Tree Protocol:**  
STP - IEEE 802.1D,  
RSTP IEEE 802.1w,  
MSTP IEEE 802.1s
- **Port Trunk with LACP:**  
Static or Dynamic

#### Traffic Management and QoS

- Priority IEEE 802.1p QoS
- Queues per port: 8
- Traffic Shaper: port-based shaping
- Scheduler: SPQ, WRR

#### Management Applications

- EMS: MetaASSIST EMS

#### Security Protocols

- **Port security:** IP and MAC-based access control
- **Authentication:** IEEE 802.1X
- **Storm Control:** Multicast/Broadcast/Flooding Storm Control

#### Management Protocols

##### User Management interfaces

- Command line interface: Cisco-like CLI
- WEB-GUI
- SNMP: V3, V2C, V1
- Telnet

##### Secure Access

- HTTPs, SSH, Radius Client

##### File Transfer upgrade and Restore

- HTTP/TFTP for Configuration backup/update, SW/ FW Update

##### Diagnostic Syslog

- Per VLAN mirroring
- Ethernet Copper connection diagnostic tool

##### MIBs

- RFC 1757 RMON 1,2,3,9; RFC 2674 Q-Bridge MIB, RFC-1213 MIB-II; RFC-1493 Bridge MIB; RFC 2233 IF MIB

##### DHCP

- Client, Server, Snooping, Relay Agent with option Option 82

##### NTP

#### Front Panel Indicators (LEDs)

- Alarm
- ACT (Activity) /LINK per Ethernet/SFP port
- Speed per Ethernet/SFP port
- Power A
- Power B

#### Physical

- **Dimensions:**  
Height: 6.0" / 154 mm,  
Depth: 4.3" / 109 mm, Width: 2.3" / 60 mm
- **Weight:** 2.3 lbs / 1.5 kg
- **Mounting:** Din Rails, Wall mounting

#### Power

- DC (integrated): 12-58 VDC, 17 Watt  
Redundant dual inputs
- **PoE ports:** 2 x 30/60W; 6 x 30W, Total 240 Watt

#### Environmental

- **Operating Temp.** -40° to +75°C
- **Storage Temp.** -40° to +85°C
- **Relative humidity:** Up to 95%, non condensing

#### Regulatory Compliance/Certifications

##### Safety

- UL 60950, CSA C22.2, EN61010-1, UL 508

##### Hazardous Locations

- UL/cUL Class I, Division 2, Groups A, B, C, and D

##### EMC

- FCC Part 15, CISPR 22 (EN55022) Class A
- IEC61000-4-2, -3, -4, -5, -6 (Level 3)

##### CE

- EMC and Safety

##### Vibration, shock & freefall

- IEC68-2-6, -27, -32

##### RoHS and WEEE

- RoHS (Pb free) and WEEE compliant

