

ML630 Ethernet Access Device

The ML630 Ethernet Access Devices (EADs) from Actelis® enable delivery of high-speed carrier Ethernet services over existing copper and fiber infrastructure. The ML630s are intelligent, compact EADs that deliver up to 100 Mbps of symmetrical Ethernet traffic with fiber quality over existing copper pairs.

The ML630 supports 8 copper pairs with optional SFP fiber configurations. The ML630 EAD can be deployed in a Point-to-Point configuration, optional copper Add-Drop chain, or as the CPE in a Point-to-Multi-Point configuration with Actelis' EFM switches. With its superior performance, extensive functionality and low cost, the ML630 EAD platforms offer rapid service delivery and allow for complete utilization of the existing network infrastructure.

The ML630 EAD platforms are interoperable with any standard Ethernet switch, router or hub. Compliant with Metro Ethernet Forum (MEF) specifications, ML630 EAD systems seamlessly integrate into carrier Ethernet Networks. Equipped with 4 10/100Base-T Ethernet interfaces and an optional 100/1000Base-FX Small Form Factor (SFP) port, the ML630 EAD platform allows assignment of a service or a customer per port.

The ML630 EAD models let service providers create an intelligent Ethernet access edge with bandwidth limiting per ingress port and traffic shaping on the Ethernet access uplink (HSL). The ML630 is fully compliant with the MEF 9 and 14 specifications.

Powered by Actelis Networks' award-winning EFMplus™ technology, the rate, reach and reliability are increased significantly using advanced Dynamic Spectrum Management (DSM) and Dynamic Rate Boost (DRB) techniques. This technology doubles the rate/reach in real-world field deployments. Combined with Actelis industry-leading XR239 EFM repeaters, the reach can be extended even further. All ML630 EAD models provide 802.1q VLAN-aware wire-speed bridging, double tagging (VLAN stacking) for end-user VLAN transparency, L2 (Ethernet priority) and L3 (ToS/Diff-

Serv) classification with four traffic classes, RSTP/STP, bandwidth monitoring, and Multicast/Broadcast limiting.

The ML630 EADs provide proactive and dynamic tools for enhanced trouble shooting and monitoring capabilities. Advanced Carrier-class EFM OAM, including 802.3ah, CFM (802.1ag) and Y.1731 (ITU), are incorporated, offering both physical link as well as service level end-to-end advanced troubleshooting mechanisms.

The ML630 EAD platforms can be managed In- and Out-of-Band by the MetaASSIST™ View graphical craft application and via the multi-platform Element Management System, MetaASSIST EMS. The management protocols include standard command line interface and SNMP using standard MIBs for seamless integration with third-party Network Management Systems (NMS).



Highlights

- IEEE 802.3ah Ethernet in the First Mile (EFM) 2Base-TL Solution
- CE 1.0 - MEF 9, 14
- Rapid Service Deployment
- Superior Rate, Reach & Reliability
- Low Delay and Jitter for Voice and Video Transmission
- Worldwide Spectral Compliancy
- OSMINE, NEBS III, FCC, UL, CE
- Environmentally Hardened

Applications

- Transparent LAN Service
- Fast Internet Access
- Metro Ethernet Extension
- Private Campus Network Intra-Connection
- MDU/MTU Backhaul
- DSLAM Backhaul
- WiFi and Cellular Backhaul (Radio Access Network)
- Leased Lines Replacement

Markets Served

- ILECs, CLECs, IOCs, PTTs, and Alternative Carriers
- Federal, State and Local Government Agencies
- Education, Health Care, Utilities, and Private Campuses



Specifications

Interfaces

Ethernet (Network/User)

- **10/100Base-T:** 4 ports,
Connector: RJ45, Auto-MDIX
- **100/1000Base-FX:** 1 port (option),
Connector: SFP based, MSA compliant

High Speed Link (Bonded Copper Pairs)

- **Protocol:** IEEE 802.3ah 2Base-TL
- **Line code:** ITU-T G.991.2 rev. 2
- **Bandwidth:** Up to 100 Mbps (symmetrical)
- **Number of Copper Pairs:** 8, Connector: RJ45 (per modem/pair)
- **End-to-end Delay:** 2-4 ms (typical)
- **Spectral Compliance:** ITU-T G.991.2 (Annex A, B, F, G) ETSI TS 101 524 (Annex E) ANSI T1.417, T1.426 Per-country regulatory compliant spectral modes
- **Spectral Friendliness:** Dynamic Spectral Shaping (DSS)
- **Cross-talk Cancellation:** Dynamic Rate Boost (DRB)
- **Sealing Current:** 48VDC/1.5mA nominal

Management (Out-of-Band)

- **10/100Base-T: Connector:** RJ45, Auto-MDIX
- **Craft:** EIA RS-232 (DCE), **Connector:** DB9

LAN Protocols

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

Management

Protocols

- **SNMP:** SNMP V3, V2C, V1
- **IP addresses:** IPV4 and IPV6
- **Command Line Interface:** TL1, Industry Standard CLI
- **Remote Access:** Telnet
- **Secure Access (option):** SSH v2
- **Time Synchronization:** SNTP v3
- **Web Access:** HTTP
- **File transfer:** FTP, TFTP
- **IEEE 802.3ah EFM OAM:** Dying Gasp
- **User Authentication:** RADIUS and/or local passwords

Applications

- EMS: MetaASSIST EMS
- Craft GUI: MetaASSIST View

Advanced Service Provisioning and Traffic Management

Quality of Service

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

Front Panel Indicators (LEDs)

- Power
- Status
- Alarm
- MLP per modem/pair
- ACT (Activity)
- LNK (Link) per Ethernet/HSL port

Alarm Contacts

- **Terminal Block:** 2 Input, 1 Output

Physical

- **Dimensions:** Height: 1.6" / 40mm (1U), Depth: 11.0" / 280mm, Width: 8.4" / 213mm
- **Weight:** 3.75 lbs / 1.7 Kg
- **Mounting Rack:** 2 units in 19", 23" or ETSI racks
Desktop, Wall Mount
- **Power DC:** -48/-60 VDC nominal, 13.5-17 Watt (per model) **AC:** 90-264 VAC, 47-63 Hz, 17-21 Watt (per model)

Environmental

- **Operating Temp:** -40° to +65°C*
- **Storage Temp:** -40° to +75°C
- **Relative humidity:** Up to 95%, non-cond.

*Tested in accordance with NEMA temperature requirements

Regulatory Approval/Certifications

Metro Ethernet Forum

- CE1.0 - MEF 9, 14

Safety

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

EMC

- FCC Part 15 Class B
- ICES-003 Class B
- ETSI EN 300 386 Class B
- ETSI ETS 300 132-2
- ITU-T K.20, K.21

NEBS

- Level III (GR-1089-CORE, GR-63-CORE)

CE

- EMC and Safety

Environmental

- GR-63-CORE
- ETSI ETS 300 019



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