

# Actelis Networks ML630



## Carrier Ethernet Over Copper™

The ML630 Ethernet Access Devices (EADs) from Actelis Networks® 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 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) techniques. This technology provides the best rate/reach performance and most resilient fiber-quality transmission, ensuring carrier-class reliability. All ML630 EAD models provide 802.1q VLAN-aware wire-speed bridging, double tagging (VLAN stacking) for end-user VLAN transparency, L2 (Ethernet priority), L3 (ToS/Diff-Serv) classification with four traffic classes, RSTP/STP, bandwidth monitoring, and Multicast/Broadcast limiting.

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 TL1 command line interface and SNMP using standard MIBs for seamless integration with third-party Network Management Systems (NMS).

The ML630 EADs provide full Carrier Ethernet over Copper access functionality, including basic traffic management and QoS application at the edge. One hundred percent compatible with Carrier Ethernet switching equipment in the CO, the ML630 provides basic bandwidth management and QoS in the at the edge, making the most efficient use of the bandwidth in the copper access network.

## Highlights

- IEEE 802.3ah Ethernet in the First Mile (EFM) 2Base-TL Solution
- MEF Certified Ethernet Capabilities
- 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

- RBOCs, PTTs, Independent Operators, Competitive Operators
- Federal, State and Local Government Agencies
- Education, Health Care, Utilities, Private Campuses

# ML630



## 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)  
ETSI TS 101 524 (Annex E)  
ANSI T1.417, T1.426  
Per-country regulatory compliant spectral modes
- 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 OA&M)  
IEEE 802.1ag

### Management

#### Protocols

- SNMP SNMP v1 and v2c
- Command Line Interface TL1
- 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

### Metro Ethernet Forum – Advanced Service Provisioning and Traffic Management

#### Quality of Service

- Classes of Service 4
- Scheduler WFQ, SP
- Classification L2 802.1p/Q priorities  
L3 ToS/DiffServ

### Applications

- EMS MetaASSIST EMS
- Craft GUI MetaASSIST View

### 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 +70°C
- Relative humidity Up to 95%, non-cond.



### Regulatory Approval/Certifications

#### Metro Ethernet Forum

- 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