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 EFM*plus*™ 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

Actelis
Networks

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