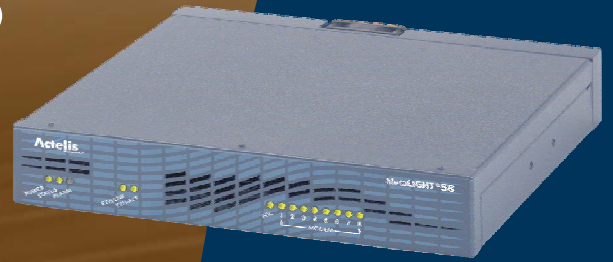


Actelis Networks[®]

ML50



Carrier Ethernet over Copper[™]

The Actelis Networks ML50 is a compact point-to-point Ethernet in the First Mile (EFM) platform, delivering symmetrical Ethernet services to remote subscribers, over multiple voice grade copper pairs, within the Customer Service Area (CSA).

The ML50 allows service providers and enterprises to use the existing copper infrastructure to deliver up to 45 Mbps Ethernet service. It achieves unprecedented rate, reach and reliability on any grade of available copper and installs within minutes, enabling immediate deployment of broadband services.

Available in 1, 2, 4 or 8 copper pair configurations, the ML50 can be operated in a Point-to-Point configuration, or as the CPE in a Point-to-Multi-Point configuration with the ML130 or MI1300 serving as a Central Office aggregation switch.

The ML50 is interoperable with any standard Ethernet switch, router or hub, providing standard 10/100Base-T Ethernet interfaces towards the network/customer. The ML50 is aligned with Metro Ethernet Forum (MEF) recommendations and is certified to MEF 9 requirements. Actelis systems seamlessly integrate into Carrier Ethernet Networks.

With its compact design, the ML50 optimizes an existing copper network and reduces the cost and deployment time to deliver high-performance broadband services. It enables a low-risk approach and dramatically improves ROI and user satisfaction. Because fiber trenching is not required with Actelis systems, capital expenditures to deliver broadband services are greatly reduced.

Implementing the standard IEEE 802.3ah-2004 (EFM) long reach Ethernet-over-copper specification, the ML50 bonds up to 8 copper pairs together to create a 2Base-TL aggregated link. Powered by Actelis Networks' EFMplus[™] technology, the ML50 utilizes Dynamic Spectral Management (DSM) techniques to increase the rate/reach performance and to significantly improve the noise resiliency of the 2Base-TL link, enabling fiber-quality transmission over the copper pairs.

The ML50 supports current and evolving Ethernet Quality of Service (QoS) requirements, and has the highest available packet throughput efficiency.

The ML50 provides 802.1q VLAN-aware wire-speed bridging, double tagging (VLAN stacking) for end-user VLAN transparency, L2 (Ethernet priority) and L3 (ToS/DiffServ) classification with four traffic classes, RSTP/STP, bandwidth monitoring and HSL rate limiting.

The ML50 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 3rd party Network Management Systems (NMS).

Highlights

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

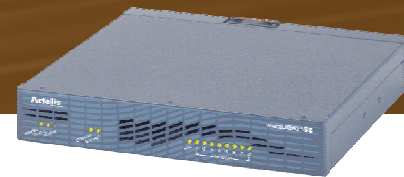
Applications

- 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

- RBOC's, PTT's, Independent Operators, Competitive Operators
- Federal, State and Local Government Agencies
- Education, Health Care, Utilities, Private Campuses

Actelis Networks® ML50



Specifications

Interfaces

Ethernet (Network/User)

- 10/100Base-T Connector: 2 ports RJ45, Auto-MDIX

High Speed Link (Bonded Copper Pairs)

- Protocol IEEE 802.3ah 2Base-TL
- Linecode ITU-T G.991.2 rev. 2
- Bandwidth 1-45 Mbps (symmetrical)
- Number of Copper Pairs 1-8
- Connector: RJ45 (per pair)
- End-to-end Delay 2-4 ms (typical)
- Spectral Compliancy ITU-T G.991.2 (Annex A, B, F) ETSI TS 101 524 (Annex E) ANSI T1.417, T1.426 NICC ND1602 (ANFP) BIPT BRUO 2005
- Sealing (Wetting) Current 48V/4mA nominal

Management (Out-of-Band)

- 10/100Base-T Connector: RJ45, Auto-MDIX
- Craft Connector: EIA RS-232 (DCE) Db9

LAN Protocols

- Dynamic Bridging IEEE 802.1, 2K MAC addresses
- VLAN Tagging IEEE 802.1Q
- Double Tagging Q-in-Q
- RSTP, STP IEEE 802.1d

Quality of Service

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

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

Applications

- EMS MetaASSIST EMS
- Craft GUI MetaASSIST View

Front Panel Indicators (LEDs)

- Power
 - Status
 - Alarm
 - HSL
 - Modem
 - ACT (Activity)
 - LNK (Link)
- per modem Ethernet port

Alarm Contacts

- 1 Output
- 1 Input (via MGMT port)

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



OSMINE

- NMA, TIRKS

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

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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