GL800x

Fiber-Grade Multi Gbps over Existing Infrastructure

The GL800x hybrid fiber-copper NID (Network Interface Device) from Actelis® is an advanced intelligent Ethernet service delivery unit. Using the existing fiber or copper network and supporting various VDSL profiles including 35B, as well as G.fast 106 and 212 Mhz, the GL800x can support bonding up to 16 pairs / 8 HSLs and 5 Gbps of Ethernet traffic at fiber quality. GL800x has four optional SFP interfaces supporting 2x 2.5GE and 2x 1GE ports. It offers CE 2.0 services on all its ports and HSLs.

The GL800x can be deployed as a point-to-point backhauling solution for connectivity to Multiple Dwelling Units (MDUs), or as an NID for business or residential use. The GL800x offers up to 5 Gbps high-speed connectivity, utilizing fiber or bonded VDSL 17A/35B/G.fast 106/212 Mhz. It can be connected as a RT to a 3rd party DSLAM/DPU which supports bonding for backhaul, to another GL800x NID, or over fiber to any standard Ethernet switch. It can also be used as an aggregator directly distributing VDSL/G.fast services.

In addition to best-in-class rate and reach capabilities, GL800x NIDs offer the highest link resilience and best-in-class customer Quality of Experience (QoE) through their unique implementation of SRA (Seamless Rate Adaptation) and Impulse Noise Protection (INP), and complying with G.inp for unsurpassed bonded link reliability. All GL800x NIDs are hardened and compact devices.

Some GL800x models also support 256-bit MACSEC encryption to ensure cybersecurity. With its superior performance, extensive functionality and low cost, the GL800x offers immediate CE 2.0 service delivery, and allows for further utilization of the existing network infrastructure.

The GL800x is interoperable with any standard Ethernet switch, router or hub. Compliant with Metro Ethernet Forum (MEF) CE 2.0 specifications, GL800x seamlessly integrates into carrier Ethernet networks. Equipped with six 100/1000Base-T Ethernet interfaces, two GE and two 2.5GE Small Form Factor (SFP) ports, and up to 8 HSLs, the GL800x allows assignment of a service/customer per port.

Service providers utilizing the GL800x intelligent can offer CE 2.0 based services with comprehensive bandwidth control and traffic management features. The GL800x's flexible service provisioning using Ethernet Virtual Connections (EVCs), along with its advanced mapping and Hierarchical Quality of Service (H-QoS) capabilities, allows carriers to maximize the efficiency of the access bandwidth on all their ports and configurations. Service Level Agreements (SLAs) can be easily enforced per each subscriber enabling service providers to safely aggregate multiple services or multiple subscribers, on the same Ethernet access uplink or backhauling link. For higher density two GL800x can be stacked in one RU 19" sleeve.

GL800x provides 802.1q VLAN-aware wire-speed bridging, double tagging (VLAN stacking) for end-user VLAN transparency, VLAN translation, L2, L3 and L4 classification with eight traffic classes, RSTP/STP, ERPS, bandwidth monitoring, Multicast/Broadcast limiting, as well as IGMP snooping for video distribution applications.

The GL800x provides proactive and dynamic tools for enhanced trouble shooting and monitoring capabilities. Advanced Carrier-class OAM, including EFM OAM per 802.3ah , CFM (802.1ag) and , Y.1731 are supported by the product, offering both physical link as well as service level end to-end advanced troubleshooting mechanisms.

The GL800x 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, Telnet and SNMP using standard MIBs for seamless integration with third-party Network Management Systems.

Highlights

- Up to 5Gbps, Bonding up to 16 pairs VDSL2/G.fast
- High density switch - 10 Ethernet and 8 HSLs ports.
- MEF CE 2.0 compliant, H-QoS
- Cutting-edge encryption 256bit encryption - MACsec, multiport
- Rapid Service Deployment
- Superior Rate, Reach & Reliability
- Synchronous Ethernet over multiple ports
- Low Delay and Jitter for Voice and Video Transmission
- Carrier Class OAM, including Y.1731, CFM, EFM OAM
- Hardened, Extended Temp to +74°C
- Worldwide Spectral Compliancy
- FCC, UL, CE
- Environmentally Hardened

Applications

- High-speed Network Terminator
- MDU/MTU Backhaul
- DSLAM Backhaul
- WiFi and Cellular Backhaul (Radio Access Network)
- Enterprise or Residential high-speed connectivity
- Fast Internet Access
- Metro Ethernet Extension
- Private Campus Network Intra-Connection
- 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

Actelis Networks™

GL800x

Specifications

Interfaces

Ethernet (Network/User)

- **10/100/1000 Base-T:** 6 ports
  Connector: RJ45, Auto-MDIX
- **100/1000Base-FX:** 2 ports
  1000/2500Base-FX: 2 ports (option)
  Connector: SFP based, MSA compliant

High Speed Link (Bonded Copper Pairs)

- **Protocol:** IEEE 802.3ah, ITU-T G.998.2 G.bond, G.993.5 Vectoring
- **G.fast profile: up to 212 MHz with fallback to VDSL2**
- **DMT Multimode:** G.993.2 (VDSL2) supporting multiple VDSL profiles including 35B (annex Q) with auto line code selection, ITU-T G.9700 and G.9701 (G.fast)
- **Impulse Noise Protection:** G.INP (ITU-T G.998.4) and Interleaved modes for bonded links
- **Bandwidth:** Up to 2.5Gbps per HSL (2x2.5Gbps + 6x 1Gbps)
- **Number of Copper Pairs per unit:** 8 or 16
  Connector: RJ45 (per modem/pair)
  For the 16 pairs, 2 pairs per connector
- **End-to-end Delay:** 2-4 ms (Fast mode)

Synchronization

- **Clock Source:** Synchronous Ethernet per G.8261, G.8262 (6 ports)
- **Clock Quality:** EEC-option1, EEC-option2
- **Clock APS:** Automatic Protection Switch from Primary to Secondary per GR-1244-CORE

Management (Out-of-Band)

- **One of the RJ45 ports can be used for management**
- **Craft EIA RS-232 (DCE) Connector:** DB9

Ethernet Bridge Features

- **Bridging:** IEEE 802.1q
- **Forwarding Database size:** 16K MAC addresses
- **MTU:** 1518 – 2048K Bytes (configurable per system)
- **TPID:** up to 4 settable per inner/outer tag
- **Aging:** Configurable
- **MAC Limiting and Filtering**
- **Multicast/Broadcast Control**
- **Port based VLAN Stacking** (Q-in-Q)
- **Conditional VLAN Stacking**
- **VLANs: 4K,** supports **VLAN translations**
- **RSTP, STP:** IEEE 802.1d/w
- **Link Aggregation:** IEEE 802.3, L2/L3 balancing
- **Provider Bridges:** IEEE 802.1ad
- **LLDP**: IEEE 802.1ab
- **IGMP Snooping:** RFC 4541, V1/V2 RFC 1112/2236
- **ERPS:** ITU-T G.8032
- **EFM OAM:** IEEE 802.3ah clause 57 inc. Dying Gasp
- **CFM/MEF OAM:** IEEE 802.1ag , ITU Y.1731

Quality of Service Features

- **Classes of Service** (queues per port): 8
- **Two Levels Hierarchical Scheduler (H-QOS),** up to 64 queues per port, WFQ, SP, Hybrid
- **Bandwidth Control:** 32 profiles, 2 rate, 3 color metering (CIR, CBS, EIR, EBS)
- **EVCs:** 32 Services
- **Classification:** 128 rules (Port/VLAN/L2 L3/L4)
- **Shaping:** per queue/port
- **Color Mode Awareness** by COS or DEI
- **CoS Marking**: by COS or DEI, per Service

Management

Applications

- **EMS:** MetaASSIST EMS
- **Craft GUI:** MetaASSIST View

Protocols

- IPV4 and IPV6
- **DHCP Client:** RFC 2132
- **ACS Client, CWMP:** TR-069
- **Command Line Interface:** TL1, CLI
- **Remote Access:** Telnet
- **SNMP:** V3, V2C, V1
- **Radius Authentication:** RFC 2865
- **Secure Access (option):** SSH v2
- **Time Synchronization:** SNTP v3
- **Web Access**: HTTP
- **File transfer:** FTP, TFTP
- **Syslog:** RFC 3164
- **FIPS 140-2**

Front Panel Indicators (LEDs)

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

Alarm Contacts

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

Physical

- **Dimensions Height:** 1.6" / 40 mm (1U)
  Depth: 9.5" / 240 mm, **Width:** 8.4" / 213 mm
- **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 ,
  Up to 45 Watt (per model)
  AC: 90-264 VAC, 47-63 Hz, up to 45 Watt

Environmental

- **Operating Temp:** -40° to +65°C
- **Storage Temp:** -40° to +74°C
- **Relative humidity:** Up to 95%, non-cond.

Regulatory and Compliance

Metro Ethernet Forum

- CE 2.0

Safety

- UL 60950, CSA C22.2 60950
- EN 60950-1, IEC 60950-1

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

CE

- EMC and Safety

Environmental

- GR-63-CORE
- ETSI ETS 300 019

Security - NIST

- FIPS 140-2

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