

## EC-NE600-EFM-4

### Hardened G.SHDSL.bis EFM Ethernet Extender/ Repeater

#### KEY FEATURES:

- Extending Ethernet-based, ATM Services to first mile sites with existing traffic, transportation, and enterprise copper infrastructures
- EFM Bonding for over 55 Mbps (4 pairs, TC-PAM 128), Point-to-Point
- Flexible and Rapid Service Deployment
- Flexible configuration as CPE or CO
- Embedded Internet Device Support System (EIDSS) for IOT applications
- Low Delay, Jitter, and Packet Loss for delay sensitive applications
- Comprehensive and easy OAM & P functions in provisioning and management
- Impedance: 135 ohms
- QoS feature for guaranteed Ethernet service
- Future-proof Ethernet traffic management and QoS features
- Supports TC-PAM 16/32/64/128



#### DESCRIPTION:

The NE-600-EFM Network Extender is designed to provide bonded high-speed Ethernet in the First Mile services using g.SHDSL.bis on existing copper infrastructure. It is a bridge-mode modem that delivers Ethernet services with symmetrical bandwidth at rates up to 15.3 Mbps/ pair. The NE-600-EFM ensures high reliability, low OPx, and maximum throughput. EFM copper bonding technology enables the delivery of higher bandwidth at longer distances over multiple copper pairs – an excellent alternative where fiber is not economically feasible and other technology such as T1 or T3 is not able to meet bandwidth requirements.

This "Ethernet-pure" solution provides a seamless integration today for tomorrow's networks. The NE600 extends the reach of Ethernet services using bonded copper pairs for an aggregate bandwidth of over 61Mbps (TC-PAM 128) using only 4 pairs.

Designed using standards-based EFM technology (2BASE-TL), deployment of Ethernet services using the NE600 is quick and simple. Typically used in point-to-point connections between offices, the NE600 provides symmetrical connectivity that is ideal for enterprises to deliver business-class Ethernet service. User-friendly Ethernet makes it possible to save unnecessary truck rolls and minimize training costs leading to reduced risk and quick ROI.

The NE600 operates in either EFM mode or ATM mode. It is designed to deliver business class Ethernet Service under EFM mode while providing the flexibility to be compatible with an existing DSLAM infrastructure under ATM mode. The NE600 management is supported by a comprehensive Industrial Command Line Interface (ICLI), Telnet, user-friendly GUI-based Web Browser, and SNMP. The NE600 provides future-proof features meeting Ethernet Quality of Service (QoS) and Class of Service (CoS) requirements by utilizing 802.1q VLAN capabilities, four levels of priorities, traffic flow control, and rate control. This traffic management and QoS features enable service providers to offer highly profitable and value-added services to a vast majority of business and institutional sites.

The Embedded Internet Device Support System (EIDSS) option allows the user to easily setup an integral terminal server without any additional hardware and also deploy many other secure IoT applications.

#### STANDARDS:

- ITU-T G.991.2
- IEEE 802.3ah PAF
- IEEE 802.3 10/100Base-T
- IEEE 802.1q VLAN

#### INTERFACE:

- 4 – WAN (G.SHDSL.bis) Ports (4 pairs)
- 2 – LAN Ports
- 10/100M SFP Fiber Port Configurations
- 1 – Management Port
- 1 – Console Port
- 1 – Power Input Barrier Jack

#### PROTOCOLS:

- 802.1d Transparent Bridging
- Up to 2K MAC Address learning bridge

#### LAN FEATURES:

- 4-port switching Hub
- 10/100BASE-T auto-negotiation & sensing
- Auto MDI/MDI-X
- Embedded Internet Device Support System, EIDSS (option)

#### WAN FEATURES:

- ITU-T G.991.2
- 2BASE-TL
- EFM bonding (IEEE 802.3ah PAF)
- Support of Annex A , Annex B , Annex AF, and Annex BG
- Secure Access (option) SSHv2

#### DATA RATE CONFIGURATIONS:

- N x 64 Kbps using TC-PAM 16/32  
5.696Mbps (1 pair)  
11.392Mbps (2 pairs)  
22.784Mbps (4 pairs)
- N x 64 Kbps using TC-PAM 64/128  
15.296 Mbps (1 pair)  
30.592 Mbps (2 pairs)  
61.184 Mbps (4 pairs)

#### MANAGEMENT:

- Easy to use web-based GUI for quick setup, configuration, and management
- Menu-driven Industrial Command Line Interface (ICLI ) for local console, SSH, and Telnet access
- Password protected management and access control list for administration
- SNMP v1/v2 (RFC1157/1901/1905) agent and MIB II (RFC1213/1493)
- EFM OAM (IEEE 802.3ah)
- Software upgrade via web-browser/TFTP

#### ATM MODE:

- Framing ATM, 64B/65B
- 1 PVC
- AAL5
- VC multiplexing and SNAP/LLC
- Ethernet over ATM (RFC 2684/1483)

**VLAN SUPPORT:**

- IEEE 802.1q VLAN Tagging
- Port Based VLAN
- Up to 8 802.1q VLANs (ID Range 1~4094)
- VLAN Stacking (Q-in-Q)

**QoS SUPPORT:**

- Rate limiting by rule-based/port-based
- Traffic classification based on port/802.1p/DSCP
- WRR (Weighted Round Robin)/ SPQ (Strict Priority Queuing) scheduling algorithm

**APPLICATIONS:**

- Metro Ethernet Extensions
- Transparent LAN Services
- Fast Internet Access
- Leased Lines Replacement
- Point-to-Point (EFM Extender)
- Drop and Continue (EFM Repeater)
- Cellular/WiFi Backhaul (to the RAN, Core)

**LED INDICATORS:**

- LAN : Link/Act, 10/100 per port
- WAN: Link per loop
- System: Power, Alarm, MGMT

**POWER SUPPLY:**

- -40/-60 VDC, 12/24 VDC

**DRY CONTACT ALARM INDICATIONS:**

Critical or Major fault (power input failure) activates (closes) the dry contact alarm output

**ENVIRONMENT:**

- Operating Temperature: -40°C ~ 74°C
- Operating Humidity: 98% (Non-Condensing)

**DIMENSIONS:**

8.75 x 1.68 x 9.24 inches (WxHxD); 1U High, 1/2 Rack Width

**CERTIFICATIONS:**

FCCA

Specifications are subject to change without notice.

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