SHDSL EFM Line Card for MXK

MXK-EFM-SHDSL-24-NTP, MXK-EFM-SHDSL-24-NTWC

802.3ah compliant extended-rate SHDSL EFM (2Base-TL) line card for MXK

✓ *Seamless migration from pre-standard Ethernet based SHDSL to full 802.3ah compliance using 2Base-TL and Ethernet OAM.*

✓ *Works in the MXK chassis alongside the most flexible family of line cards in the industry*

✓ *Compatible with all SHDSL Network Extender products as well as new EFM-compliant Ethernet Access Devices.*

✓ *Industry-leading MTM traffic management provides IP QoS, traffic shaping, and dynamic bandwidth allocation to support video, VoIP, and other applications.*

✓ *Supports Loop Bonding using EFM or pre-standard bonding for maximum deployment flexibility.*

✓ *Automatic loop bonding with hitless adds & drops for reliable and resilient bonded connections.*

The MXK EFM SHDSL line card (MXK-EFM-SHDSL-24) has been designed to deliver high-speed Ethernet services over SHDSL. The line card provides high-density, EFM-compliant SHDSL aggregation with advanced features such as Zhone's Multimedia Traffic Management (MTM) and fully integrated OAM features for advanced management of Ethernet lines. Supporting both 802.3ah EFM standards as well as Zhone's proprietary Ethernet bonding technologies, the MXK EFM SHDSL line card is the most flexible Ethernet aggregation product available; the dual-mode operation supports all Network Extender SHDSL modems, while at the same time providing a clean aggregation point for new Ethernet Access Devices such as Zhone's EtherXtend 802.3ah compliant EFM modems (ETHX-3444 and ETHX-3484).

The MXK-EFM-SHDSL-24-NTP provides 24 individual single copper pair SHDSL lines, allowing for data rates ranging from 144Kbps up to 5.7Mbps symmetrical bandwidth per port. The MXK-EFM-SHDSL-24 also supports loop bonding (either EFM bonding or Ethernet Loop Bonding), which allows the service provider to bond multiple copper pairs together for bandwidths of over 22Mbps per end user (using the ETHX-3444 CPE) and over 45Mbps to a single end user (using the ETHX-3484 CPE). The MXK-EFM-SHDSL-24-NTP provides network timing for remote devices as well as power on each loop.

The MXK-EFM-SHDSL-24-NTWC provides network timing for remote devices as well as wetting current on each loop.

Technical Specifications

Interfaces

- 24 extended-rate (5.7Mbps) SHDSL Interfaces (front panel-50 Pin Amphenol)

Standards Support

- ITU G.991.2 G.SHDSL
- ITU G.994.1 G.handshake
- IEEE 802.3 Ethernet
- IEEE 802.3ah Ethernet in the First Mile (2Base-TL)
- IEEE 802.3ah OAM
- IEEE 802.1Q/p

Protocol Support

- Multicast IGMP v1 / v2
- Host-based routing for per-interface single IP address assignments
- Network-based routing for per-interface IP subnet address assignments
- IP host and gateway support
- RFC 1483/2684 encapsulation
- DHCP server (RFC 2131, 2132), DHCP Relay
- Bridging 802.1D support
- VLAN 802.1Q support
- Dense / sparse multicast support
- Integrated access control and content protection

Management

- ZMS (Zhone Management System) via SNMPv2c for GUI and CORBA IDL machine interface
- Terminal for Command Line Interface (CLI)
- Out-band IP via 10/100 Ethernet or V.24 serial for async terminal

Bandwidth/Distance

- Data rates provisionable up to 5.7Mbps symmetrical
- Distances up to 24,000ft/7,320m

Regulatory Compliance

- Safety: UL 60950-1; CSA 60950-1; EN 60950-1
- Emissions: EN 55022A*; PART 15A (FCC)
- Immunity: GR-1089-CORE, Issue 3*; SR-3580, Issue 1*; ATT-TP-76200, Issue 14*; VZ.TPR.9205, Issue 3*
- Environmental: GR-63-CORE, Issue 3*
- *In process

Operating Requirements

- Temperature: -40ºC to 65ºC
- Non operating temperature: -40ºF to 158ºF (-40ºC to 70ºC)
- Humidity: Up to 85%, non-condensing
- Altitude: -200ft to 16,500ft (-60m to 5,000m)

Ordering Information

MXK-EFM-SHDSL-24-NTP	24 port EFM SHDSL line card with network timing and line power for MXK 319, 819 & 823 chassis
MXK-EFM-SHDSL-24-NTWC	24 port EFM SHDSL line card with network timing and wetting current for MXK 319, 819 & 823 chassis

For more information about Zhone and its products, please visit the Zhone Web site at www.zhone.com or e-mail info@zhone.com

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