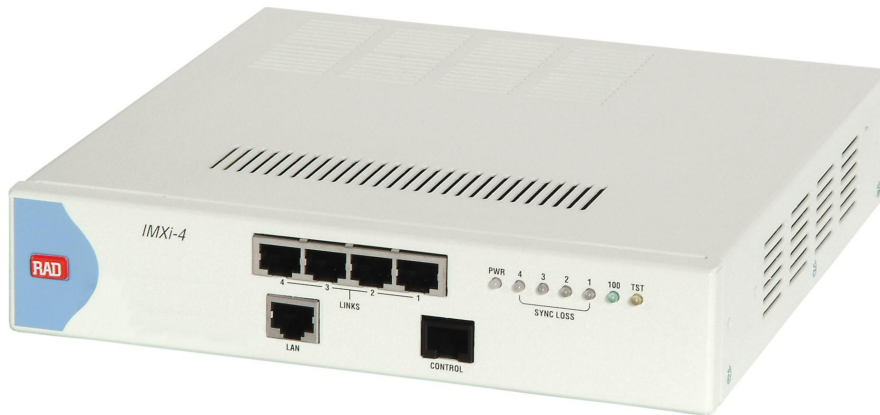


IMXi-4

Managed Inverse Multiplexer



DESCRIPTION

- The IMXi-4 inverse multiplexer is a user-friendly, easy-to-install, plug-and-play unit that splits a high-speed single data channel of up to 8.316 Mbps, and transmits it over up to four E1/T1 or SHDSL links. IMXi-4 bridges the bandwidth gap between E1/T1 and E3/T3 services. It also provides the flexibility to increase throughput from one line to up to four lines as network requirements grow.
- IMXi-4 transparently connects distant Fast Ethernet LANs over SHDSL, E1, or T1 links, and supports IP routing or user-selectable MAC bridging with VLAN support.
- Network line interface options include E1 (balanced or unbalanced), T1, or SHDSL. When an unbalanced E1 interface is ordered, a BNC converter cable is supplied with the unit.
- Unframed mode (G.703) can be configured to increase the bandwidth of each E1 link.
- E1/T1 interfaces include an integral LTU/CSU for extended range and can also emulate DSU interfaces.

FEATURES

- Transmits a single high-speed data channel over up to four 2-wire SHDSL or E1/T1 links
- High throughput, up to 8.316 Mbps at extended ranges over SHDSL
- Automatic rate fallback ensures transmission even if an individual link fails
- User-friendly, easy-to-install, plug-and-play unit, ETSI rack installation ready
- User-selectable bridge or router connects Ethernet/Fast Ethernet LANs and VLANs to E1/T1 or SHDSL services
- Inband or out-of-band (SNMP, Telnet) management and local management via ASCII terminal
- Manageable via RADview-EMS, RAD's client-server, CORBA-based Element Management System
- Built-in CSU/LTU or CSU/DSU option
- Cross-link correction
- Comprehensive diagnostics and statistics on all ports
- Compensates for differential delays of up to 200 msec
- Enables VLAN management and supports VLAN stacking and tagging
- Supports unframed mode in E1 links to increase payload bandwidth

IMXi-4

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- The automatic rate fallback feature ensures that the logical channel remains open, even if an individual link fails. IMXi-4 automatically neutralizes the failed link and the data is multiplexed at a lower rate over the remaining links. When failed links are recovered, IMXi-4 automatically returns to the original rate.
- If links between the units are crossed, the traffic in the system is not affected, and IMXi-4 performs cross-link corrections.
- IMXi-4 compensates for a differential delay of up to 200 msec between the network lines. The end-to-end delay of IMXi-4 is less than the maximum delay between the links.
- System timing is derived from the internal clock or a receive clock (RCV) from one of the network links (1 to 4). The automatic receive option allows the system to choose the timing link automatically. If this link fails, the system chooses another RCV link clock.
- Status, alarm, and diagnostic information is defined, configured, and monitored using any of the following management interfaces:
 - Inband and out-of-band (SNMP)
 - Local management via ASCII terminal
 - Remote management via Telnet
 - RADview-EMS – RAD's client-server, CORBA-based Element Management System.
- Comprehensive diagnostics and statistics on all ports and network layers enable network control and fault localization. IMXi-4 provides loopback tests, Ethernet frame counters, and IP packet statistics.
- IMXi-4 is a compact standalone unit. A rack mount adapter kit allows installation of one or two side-by-side units in a 19-inch rack (see *Ordering*).

APPLICATIONS

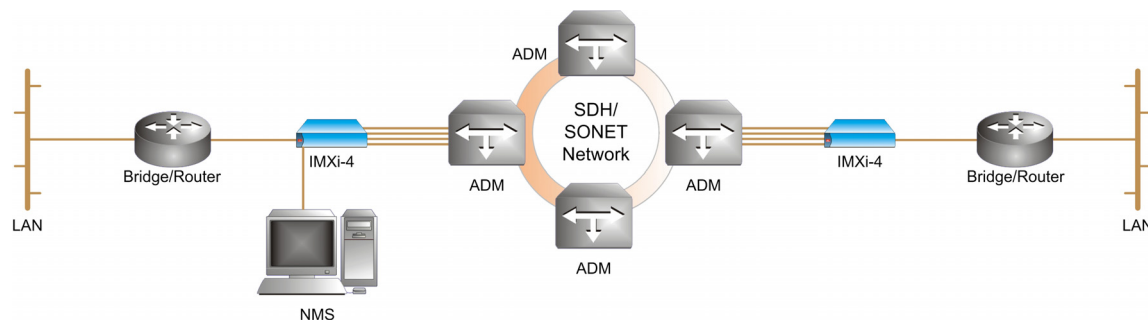


Figure 1. WAN Access through SDH/Sonet Network

Managed Inverse Multiplexer

SPECIFICATIONS

NETWORK INTERFACE

- **Ports**
 - 4 × SHDSL per ITU-T Rec. G.991.2
 - 4 × E1 or 4 × T1 per G.703, G.823, or G.824
- **Line Codes**
 - SHDSL: TC-PAM
 - E1: HDB3
 - T1: B8ZS
- **Line Impedance**
 - SHDSL: 135Ω
 - E1: 120Ω balanced or 75Ω unbalanced
 - T1: 100Ω balanced
- **Maximum Payload Data Rate**
 - SHDSL: $n \times 2.079$ Mbps (n=1 to 4 links), up to 8.316 Mbps
 - E1 framed: $n \times 1.71$ Mbps (n=1 to 4 links), up to 6.84 Mbps
 - E1 unframed: $n \times 1.84$ Mbps (n=1 to 4 links), up to 7.36 Mbps
 - T1: $n \times 1.37$ Mbps (n=1 to 4 links), up to 5.48 Mbps

- **Range (on 24 AWG pair)**
 - SHDSL link:
 - Up to 4 km (2.5 miles) at 2.312 Mbps per link
 - Up to 8 km (5.0 miles) at 0.2 Mbps per link
 - E1/T1 link: per ITU G.703
- **SHDSL Differential Delay**
 - Up to 200 msec
- **Handshake Protocol**
 - G994.1
- **Connectors (per port)**
 - RJ-45

Note: When the optional unbalanced E1 interface is ordered, adapter cable **CBL-RJ45/2BNC/E1** is supplied by RAD to convert one balanced RJ-45 connector to two unbalanced BNC connectors, (see *Ordering*).

LAN USER INTERFACE

- **Interface**
 - 10/100BaseT Ethernet
- **Services**
 - MAC bridge or IP router, user-selectable
- **Routing (optional, user-selectable)**
 - Static routing only
 - RIP ver. 1
 - RIP ver. 2
 - ARP and ping support
- **Connector**
 - RJ-45

SUPERVISORY PORT

- **Interface**
 - RS-232, asynchronous
- **Baud Rate**
 - 0.3 to 115.2 kbps, user-selectable or automatic detection
- **Connector**
 - RJ-45

Note: Cable **CBL-RJ45/D9/F/6FT** that connects the IMXi-4 management port to a terminal is supplied by RAD, (see *Ordering*).

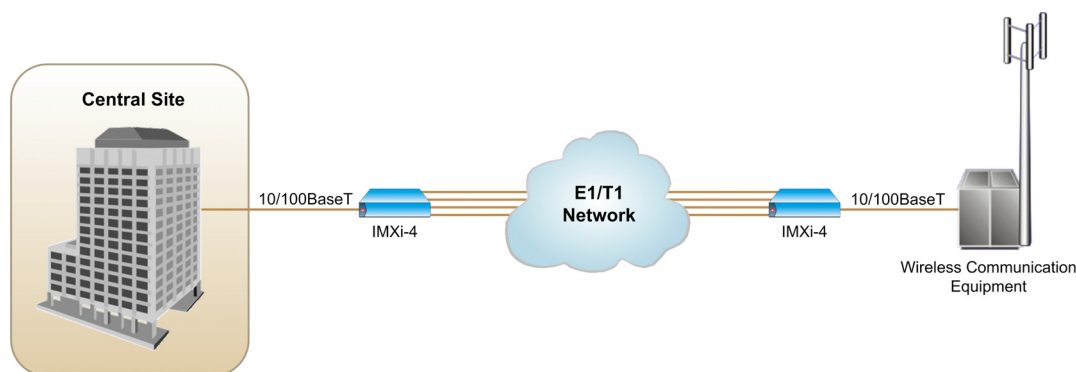


Figure 2. Connecting Customer Premises to WAN

IMXi-4

Managed Inverse Multiplexer

GENERAL

- **System Timing**
 - Internal (± 32 ppm)
 - Receive (from any network link)
 - Automatic receive
- **Diagnostics**

Remote loopbacks for the network links
- **Statistics**

Full performance monitoring statistics for:

 - Network lines, network link group, and network interface
 - LAN user port
 - IP router
- **Alarm Buffer**

Stores up to 200 alarms
- **Standards**

Conforms to RFC 1483, RFC 2684
- **Management**
 - Local management via ASCII terminal
 - Remote management via Telnet
 - SNMP management
 - RADview-EMS, RAD's CORBA-based client-server Element Management System
- **Physical**

Height: 4.37 cm (1.7 in)
Width: 21.5 cm (8.5 in)
Depth: 22.0 cm (8.7 in)
Weight: 1.0 kg (2.2 lb)
- **Power**

100 to 240 VAC, 26 VA
-48 VDC, 16W
- **Maximum Power Consumption**

4.85W
- **Environment**

Temperature: 0°–50°C (32°–122°F)
Humidity: up to 90%,
non-condensing

ORDERING

- IMXi-4/~/*/&/<**
Managed Inverse Multiplexer
- ~ Specify power supply:
AC for 100 to 240 VAC
48 for -48 VDC
- * Specify **ETU** for 10/100BaseT interface
- & Specify network link technology:
SL for SHDSL
E1 for E1
T1 for T1
- < Specify E1 interface type:
B for balanced
U for unbalanced

SUPPLIED ACCESSORIES

CBL-RJ45/2BNC/E1

Adapter cable for converting one balanced RJ-45 connector to two unbalanced BNC connectors (supplied when unbalanced E1 interface is ordered)

CBL-RJ45/D9/F/6FT

Adapter cable for connecting the RJ-45 connector to the serial communication port of a standard terminal or PC with a 9-pin D-type connector

OPTIONAL ACCESSORIES

RM-35/@

Hardware kit for mounting one or two units in a 19-inch rack

@ Specify rack mount kit type:

- P1** for mounting one unit
- P2** for mounting two units

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