

# IMXi-4

## Managed Inverse Multiplexer



### FEATURES

- Provides inverse multiplexing for transmitting a single high-speed data channel over up to four 2-wire SHDSL or E1/T1 links
- Provides high throughput of up to 8.04 Mbps at extended ranges, with automatic fallback
- User-friendly, easy-to-install, plug-and-play unit, ETSI rack installation ready
- Ethernet/Fast Ethernet bridge or router to connect LANs and VLANs over 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
- Cross-link correction
- Comprehensive diagnostics and statistics on all ports
- Compensates for differential delays of up to 200 msec

### DESCRIPTION

- The IMXi-4 Inverse Multiplexer is a user-friendly, easy-to-install, plug-and-play unit, which splits and transmits a high-speed single data channel of up to 8.04 Mbps, over up to four E1/T1 or SHDSL links. IMXi-4 spans the bandwidth gap between E1/T1 and E3/T3 services, providing increased bandwidth, where services higher than E1/T1 are either not available or too expensive.
- IMXi-4 transparently connects distant LANs over the SHDSL, E1 or T1 links, supporting IP routing or MAC bridging (user-selectable). The Ethernet/Fast Ethernet bridge with VLAN support connects 10BaseT and 100BaseT LANs and VLANs over SHDSL or E1/T1 services.
- The network line interface options are E1 (balanced or unbalanced), T1 or SHDSL. When ordered with unbalanced E1 interface, the unit is supplied with a BNC converter cable.
- 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.
- Setup, control, status, alarms and diagnostic information are provided via various management interfaces.
- Management interfaces include inband and out-of-band (SNMP) management, local management via ASCII terminal, and remote management via Telnet.
- IMXi-4 is manageable via 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. The unit supports:
  - Application layer statistics
  - Physical layer diagnostics (loopback tests, statistics).
- If links between the units are occasionally crossed, the traffic in the system is not affected, and IMXi-4 performs the 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 provided by the internal clock or receive clock (RCV) from one of the network links (1 to 4). The Automatic Receive option allows the timing link to be chosen by the system automatically; in case this link fails, the system chooses another RCV link clock.
- IMXi-4 is a compact standalone unit. A rack mount adapter kit enables installation of one or two standalone units, side by side in a 19" rack (see *Ordering*).

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### SPECIFICATIONS

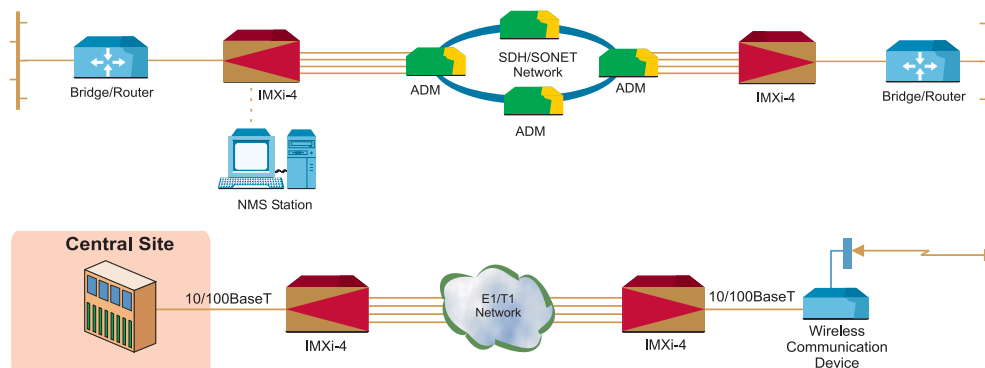
#### NETWORK INTERFACE

- **Network Ports**
  - 4 x SHDSL per ITU-T Rec. G.991.2
  - 4 x E1 or 4 x T1 per G.703, G.823, G.824
- **Line Code**
  - SHDSL: TC-PAM
  - E1: HDB3
  - T1: B8ZS
- **Line Impedance**
  - SHDSL: 135Ω
  - E1: 120Ω balanced or 75Ω unbalanced
  - T1: 100Ω balanced
- **Connectors (Per Port)**  
RJ-45
- **Maximum Payload Data Rate**
  - SHDSL: n x 2.01 Mbps (n=1 to 4 links), up to 8.04 Mbps
  - E1: n x 1.71 Mbps (n=1 to 4 links), up to 6.84 Mbps
  - T1: n x 1.37 Mbps (n=1 to 4 links), up to 5.48 Mbps
- **Ranges (on 24 AWG pair)**  
SHDSL link:
  - Up to 4 km/2.5 mi at 2.312 Mbps per link
  - Up to 8 km/5.0 mi at 0.2 Mbps per linkE1/T1 link: according to ITU G.703
- **Handshake Protocol**  
G994.1

#### LAN (USER) INTERFACE

- **Port Interface**  
10/100BaseT Ethernet

### APPLICATIONS



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

#### SUPERVISORY PORT

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

#### GENERAL

- **System Timing**
  - Internal ( $\pm 32$  ppm)
  - Receive (from any network link)
  - Automatic Receive
- **SHDSL Differential Delay**  
Up to 200 msec
- **Diagnostics**  
Remote loopbacks for the network links
- **Statistics**  
Full performance monitoring statistics for:
  - network lines, network link group and network interface
  - LAN port
  - IP router
- **Alarm Buffer**  
Stores up to 200 alarms in non-volatile memory

- **Standards**  
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
- **Environment**  
Temperature: 0°–50°C/32°–122°F  
Humidity: up to 90%, non-condensing

### ORDERING

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Managed Inverse Multiplexer

~ Specify power supply:

**AC** for 100 to 240 VAC

**48** for -48 VDC

\* Specify **ETU** for 10/100BaseT bridge or router user interface

& Specify network link technology:

**SL** for SHDSL

**E1** for E1

**T1** for T1

< Specify E1 interface type:

**B** for balanced

**U** for unbalanced

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