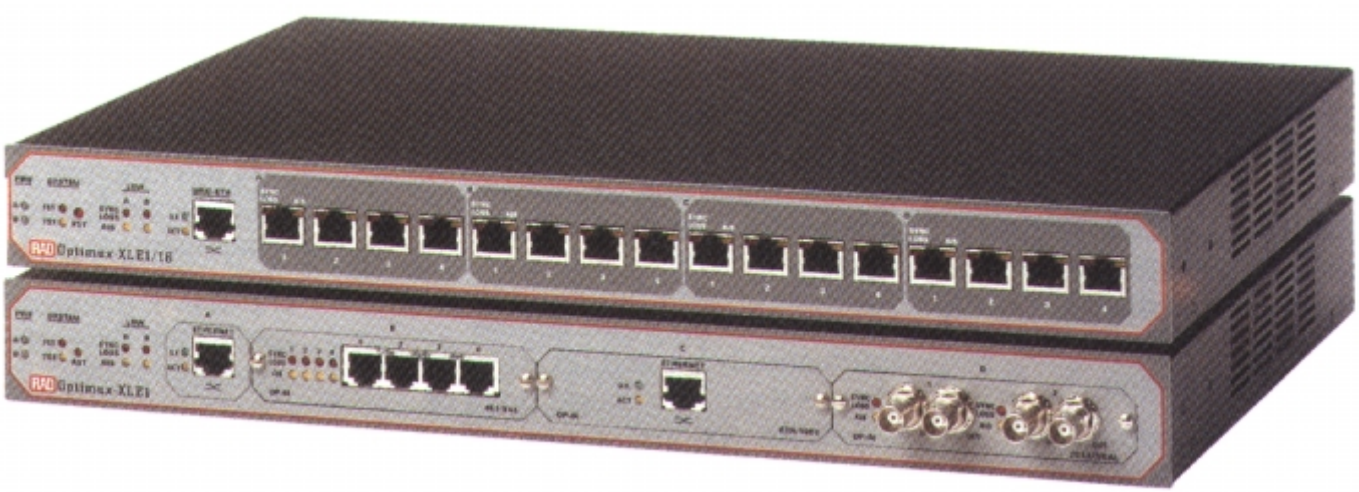
Optimux-XLE1

Multiple E1 and Ethernet Multiplexer



FEATURES

- Integrates multiple E1 and Ethernet links over a single cable
- E3 transmission over coax or fiber optic cable
- Supports multimode fiber, single mode fiber and single mode over single fiber (WDM)
- Laser diode option
- Range up to 110 km (69 miles)
- Conforms to ITU G.703, G.742, G.751, G.823, G.956
- Optional second E3 link provides automatic backup
- Station clock module for external clock
- Optional redundant power supply
- Management using ASCII terminal or SNMP management station
- Compact, 1U high enclosure

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Multiple E1 and Ethernet Multiplexer

DESCRIPTION

- Optimux-XLE1 provides a simple, flexible and cost-effective solution for transporting multiple E1 links and Ethernet at distances up to 110 km (69 miles). Two versions of the multiplexer are available: modular and non-modular.

Modular Version

- The modular version of the Optimux-XLE1 integrates up to 12 E1 channels or up to four Ethernet LANs over a single E3 link. This provides an easily upgradable solution, flexible enough to meet the specific requirements of a broad range of applications.
- The modular version supports one fixed 10BaseT Ethernet port and three additional plug-in channel modules. Available channel modules are:
  - Dual channel E1
  - Quad channel E1
  - 10BaseT Ethernet.
- Modules can be combined in various ways, ranging from four Ethernet ports to a single Ethernet port with up to 12 E1 channels.

Non-Modular Version

- The non-modular version supports 16 E1 channels, and is designed for applications requiring the full E3 bandwidth for multiple E1 connectivity.

General

- Various optical interfaces are available:
  - 850 nm for multimode fiber
  - 1300 nm for single or multi mode fiber
  - 1300 nm and 1550 nm laser diode, long haul laser or WDM laser for extended range over single mode fiber
- Two Optimux-XLE1 units can be connected over a single fiber (SF) using the WDM technology. (The transmit signal is at a different wavelength than the receive signal.)
- All critical components can be automatically backed up. This ensures there is no single point of failure. An optional second link provides backup, using automatic switch-over upon link failure. An optional second power supply provides power redundancy and fail-safe operation.
- Ethernet data is transmitted using a built-in bridging function. The bridge operates at "almost wire-speed" (8.4 Mbps) and supports up to 10,000 addresses.
- Optimux-XLE1 transmits each of the E1 channels independently, such that the clock of each E1 channel is independent. The E1 interface can be 75Ω unbalanced or 120Ω balanced.
- A single station clock module can be ordered to facilitate external clocking.
- To facilitate system diagnostics, Optimux-XLE1 features LED status indicators, AIS alarm generation, recognition and dry contact closure upon link failure. In addition, the Optimux-XLE1 setup, control and diagnostics can be performed via:
  - A supervisory port using an ASCII terminal
  - An SNMP management station via the Ethernet ports
  - A dedicated separate Ethernet management port.
- The SNMP management application offers the following options:
  - RADview-PC/TDM running in a Windows environment; or
  - RADview-HPOV/TDM for UNIX platforms.
- Optimux-XLE1 is available as a compact 1U high unit for mounting in a 19" rack.
- It is possible to add a redundant link to an existing unit or to replace the link modules by ordering E3 coax, multimode, or single mode AMC-101 modules.

APPLICATIONS

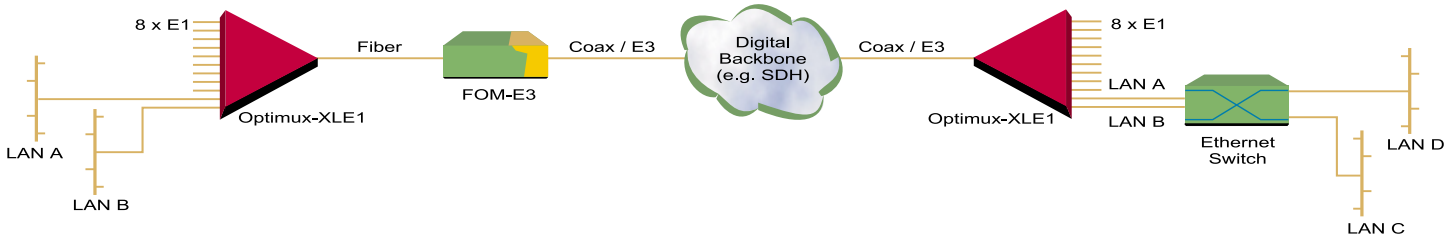

Figure 1. Access Application

Optimux-XLE1

Multiple E1 and Ethernet Multiplexer

SPECIFICATIONS

CHANNEL MODULES

- **Number of Modules (Modular Version Only)**
  Up to three
- **Module Types**

Modular Version

- 2 x E1, RJ-45 connectors, 120Ω balanced
- 2 x E1, BNC connectors, 75Ω unbalanced
- 4 x E1, mini COAX (1.0 x 2.3) connectors, 75Ω unbalanced
- 4 x E1, RJ-45 connectors, 120Ω balanced
- Ethernet 802.3, RJ-45 connector, 10BaseT port

Non-Modular Version

- 16 x E1, RJ-45 connectors, 120Ω balanced
- 16 x E1, BNC connectors, 75Ω unbalanced

E3 LINK (Main and Backup)

- **Electrical**
  Data rate: 34.368 Mbps
  Line code: HDB-3
  Impedance: 75Ω, unbalanced
  Connectors: BNC
- **Optical**
  Connectors: ST, SC or FC/PC
  Wavelength:
  850 nm multimode
  1300 nm single mode or multimode
  1300/1550 nm single mode laser diode
  1300/1550 nm single mode long haul laser diode
  1300/1550 nm laser WDM
  Output power:
  -18 dBm @ 62.5/125 µm (850 nm)
  -18 dBm @ 9/125 µm (LED 1300 nm)
  -12 dBm @ 9/125 µm (laser 1300/1550 nm)
  -2 dBm @ 69/125 µm (laser long haul)
  Receiver sensitivity (for BER = 10E-9):
  -30 dBm at 850 nm
  -32 dBm at 1300/1550 nm
  -30 dBm for single fiber
  -34 dBm for 1300/1550 nm long haul
- **Maximum Range**
  Coax version: up to 250m (75Ω)
  Fiber versions:
  850 nm up to 2.5 km
  1300 nm (LED) up to 27 km
  1300 nm (laser) up to 38 km
  1550 nm (laser) up to 68 km
  1300 nm (laser long haul) up to 60 km
  1550 nm (laser long haul) up to 110 km
- **Station Clock Module**
  Standard: ITU-T G.703
  Data rate: 2.048 MHz with 10 ppm accuracy
  Line code:
  Input – AMI, according to standard
  Square, 2V peak-to-peak amplitude minimum
  Output – AMI, according to standard
  Connectors: BNC

GENERAL

- **Alarms**
  Dry Relay contacts for Major and Minor alarms through DB-9 connector
- **Control Ports**
  CONTROL/MNG: RS-232 control port for management via supervisory terminal with DB-25 connector.
  MNG-ETH: 10BaseT separate Ethernet port for management with RJ-45 connector

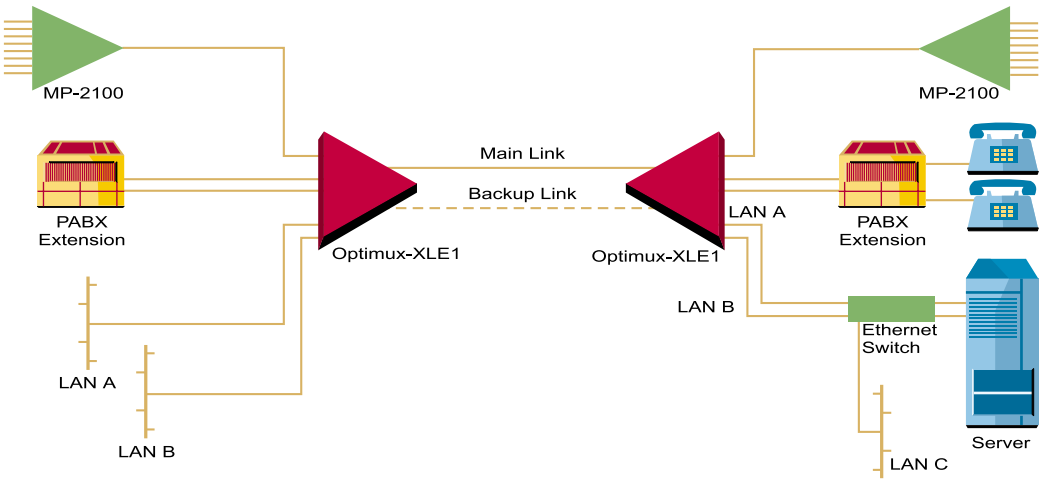

Figure 2. Point-to-Point Application

Optimux-XLE1

Multiple E1 and Ethernet Multiplexer

- **Physical**
  Height: 44.0 mm / 1.7 in
  Width: 43.2 cm / 17.0 in
  Depth: 26.8 cm / 10.5 in
  Weight: 2.0 kg / 5.0 lb
- **Power**
  90 - 260 VAC; 47-63 Hz, 20W
  36 - 72 VDC; 0.4A @ 48 VDC
  24 VDC (±10%); 0.8A @ 24 VDC
  Consumption: 20W maximum
- **Environment**
  Temperature: 0-45°C / 32-113°F
  Humidity: Up to 90%, non-condensing

ORDERING

OP-XLE1/*/R/#+/D
Multiplexer with built-in Ethernet port

Note: All channel modules should be ordered separately (see below).

OP-XLE1/16/?/*/R/#+/D
Multiplexer with 16 E1 channels

? Specify E1 connector
B for balanced (RJ-45)
U for unbalanced (mini coax)

***** Specify power supply
AC for 110-230 VAC
48 for –48 VDC
24 for 24 VDC

R Specify **R** for second redundant power supply (same as first)

#+ Specify link interface (# for connector type, followed by + for optical wavelength)

**CX** for electrical, coax connector
ST for ST type connector
SC for SC type connector
FC for FC/PC type connector

+ **85** for 850 nm, multimode
13 for 1300 nm, single mode
13L for 1300 nm, single mode, laser diode
15L for 1550 nm, single mode, laser diode
13LH for 1300nm, single mode, long haul laser diode
15LH for 1550 nm, single mode, long haul laser diode
SF1 for transmit 1300 nm, receive 1550 nm
SF2 for transmit 1550 nm, receive 1300 nm

Note: For single fiber connection (WDM) one of the devices has to be ordered with SF1 interface and the other with SF2 interface.

D Specify **D** for second redundant link (same type as first link)

Channel Modules

OP-XL-M/2E1/BAL for 2 × E1, balanced (RJ-45)

OP-XL-M/2E1/UB for 2 × E1, unbalanced (BNC)

OP-XL-M/4E1/UB for 4 × E1, unbalanced (mini coax)

OP-XL-M/4E1/BAL for 4 × E1, balanced (RJ-45)

OP-XL-M/ETH for 10BaseT Ethernet Station Clock Module

AMC-M/STC/E3 for station clock module

Link Module

It is possible to add a redundant link to an existing unit or to replace the link modules by ordering one of the following AMC-101 modules:

AMC-M/CX/34/CARD for E3 coax module

AMC-M/MM/#/85/T for 850 nm multimode module

AMC-M/SM/#/+/T for single mode modules

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