

# Optimux-108L

## Fiber Multiplexer for 4E1 and Ethernet



- Four E1 channels and Fast Ethernet link multiplexed over a fiber optic link
- Various fiber interfaces: multimode, single-mode (up to 120 km), and/or single-mode over single fiber
- Management via dedicated Ethernet port, SNMP management station, Telnet or Web Server
- Transparent clocking



The Optimux-108L multiplexer combines four E1 channels and an optional Ethernet link over a fiber optic uplink.

A pair of Optimux-108L units provides a simple and cost-effective solution for connectivity over distances of up to 120 km (74.5 miles).

Optimux-108L is available in two versions. The default is a fully-managed unit with the management Ethernet port. Optimux-108L can also be ordered with basic management capabilities (Optimux-108L/BM). The latter unit is equipped with DIP switches.

Optimux-108L is a compact standalone unit, available in a plastic or metal enclosure. The optional rack-mount adapter kits enable installation of one or two (side-by-side) units in a 19-inch rack.

### MARKET SEGMENTS AND APPLICATIONS

Optimux-108L transparently extends TDM and Ethernet services over fiber links.

Optimux-108L serves mobile operators for 2G/Wimax backhauling over fiber (see *Figure 1*).

Carriers and service providers can use Optimux-108L for TDM and ETH aggregation to PDH/SDH/SONET with clear migration to IP networks over fiber.

Enterprises, utility and transportation companies can use Optimux-108L for TDM and ETH services in P2P/Star topologies over dark fiber.

### OPTICAL INTERFACES

Optimux-108L features a variety of built-in optical uplink interfaces including:

- 1310 nm LED for multimode fiber
- 1310/1550 nm laser diode or long haul laser diode for extended range over single-mode fiber
- Single fiber (SF1, SF2, SF4, SF5 options) using a 1310 nm and 1550 nm laser diode transmitter with WDM technology, which enables the laser to transmit the signal at a different wavelength than the receive signal
- Single fiber (SF3 option) using SC/APC (Angle-Polished Connector) technology, with a 1310 nm laser diode for single wavelength operation.

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## Fiber Multiplexer for 4E1 and Ethernet

### TDM

Optimux-108L has four balanced or four unbalanced E1 tributary channels.

Each of the four signals of the tributary interface is transmitted independently, ensuring that each channel can be set to a different clock source.

### MANAGEMENT AND SECURITY

A fully-managed Optimux-108L can be configured and managed remotely or locally via the Ethernet management port using:

- SNMPv1 management station
- Web Server
- Telnet.

An Optimux-108L/BM can be managed remotely using one of the following:

- Remote OP-108C card in an LRS-102 or Megaplex-4100 chassis
- Fully-managed Optimux-108L unit
- Optimux-108 unit.

### MONITORING AND DIAGNOSTICS

Optimux-108L features comprehensive test and diagnostic capabilities that include local and remote loopbacks on the uplink interface and on each E1 tributary channel. The loopbacks can also be generated via the corresponding LRS-102/OP-108C or MP-4100/OP-108C card or Optimux-108 units.

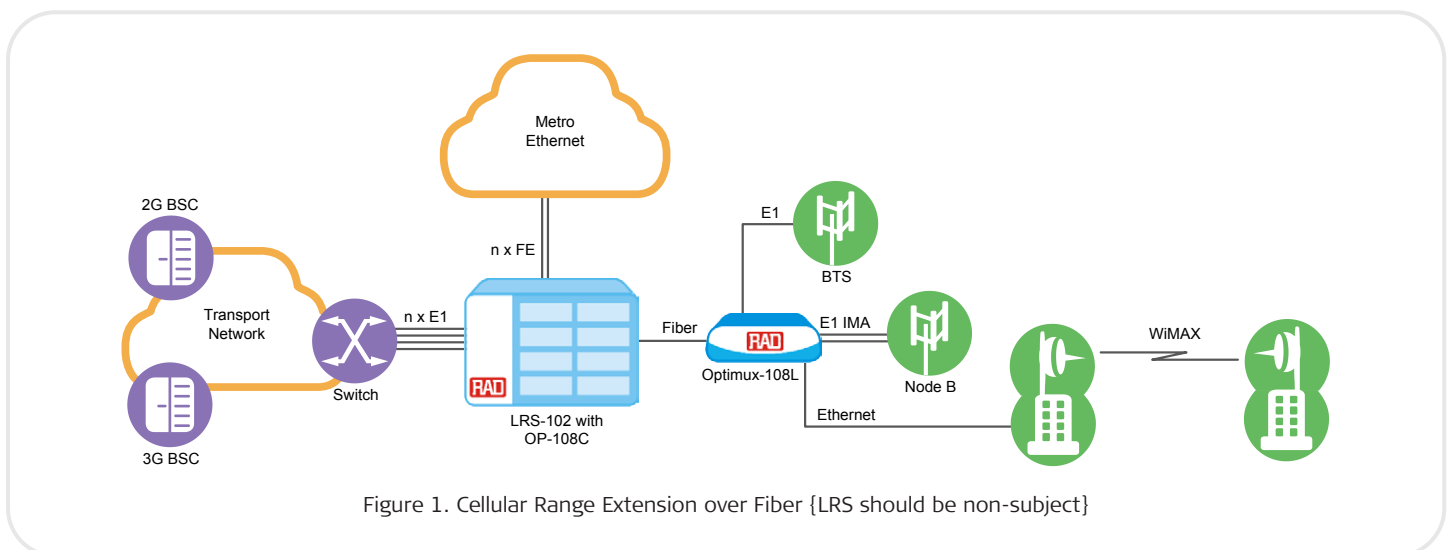
In Optimux-108L/BM, local and remote loopbacks can also be generated using the local DIP switch of the local or remote Optimux-108L unit.

To facilitate system diagnostics, Optimux-108L features LED status indicators, AIS alarm recognition, and LOS alarm recognition on the optical link and on E1 channels 1 to 4.

### POWER

Optimux-108L may be ordered with two different power supplies:

- Wide-range AC/DC power supply that can be connected to either an AC power source (100 to 240 VAC), or to a DC power source (-40 VDC to -125 VDC)
- -48 VDC on-board power supply (-40 to -57 VDC).



## Specifications

### OPTICAL INTERFACE

#### Number of Ports

One

#### Type

Fiber

#### Connectors

ST, SC, FC/PC, SC/PC

#### Note:

- SF1/SF2/SF4/SF5 options are available with SC connector only
- SF3 option is available with SC/APC connector only.

#### Compliance

G.955

### E1 INTERFACES

#### Number of Ports

4

#### Data Rate

2048 kbps

#### Line Coding

HDB3

#### Impedance

Balanced: 120Ω

Unbalanced: 75Ω

#### Compliance

ITU-T Rec. G.703, G.823,

G.742 (Optimux-108L without Ethernet USER port)

#### Connectors

Balanced: RJ-45

Unbalanced: two BNC

### ETHERNET USER INTERFACE

#### Type

10/100BaseT

#### Compliance

Ethernet: IEEE 802.3

#### Connectors

Shielded RJ-45

#### Throughput

100 Mbps

### MANAGEMENT

#### Ethernet Management Port

Type: 10/100BaseT

Connectors: Shielded RJ-45

### TIMING

Uplink: internal

E1 tributary: transferred transparently, independent for each channel

### DIAGNOSTICS

Local and remote loopbacks on uplink and on each E1 tributary link

### GENERAL

#### Environment

Operating temperature: 0° to 55°C (32° to 131°F)

Extended temperature range (metal enclosures only): -20° to 65°C (-4° to 149°F)

Humidity: Up to 90%, non-condensing

#### Front Panel Indicators

PWR

On (green): power supply is OK

Off: power supply is off or faulty

LOS/AIS LINK

On (red): Sync/signal loss on Uplink

On (yellow): AIS detected (products without user Ethernet port only)

Blinking (yellow): Loop is performed on uplink (Optimux-108L/BM only)

Off: normal operation

LOS/AIS CH1 to CH4

On (red): Signal loss on channel

On (yellow): AIS received on channel

Blinking (yellow): Loop is performed on channel (Optimux-108L/BM only)

Off: normal operation

#### Rear Panel Indicators

LINK SD

On (green): Optical signal is detected

Off: No optical signal is detected

LINK/ACT (For both MNG and USER

Ethernet ports)

On (yellow): link is up

Off: link is down

Blinking: frames are transmitted

100 (For both MNG and USER Ethernet ports)

On (green): 100 Mbps

Off: 10 Mbps

### Physical

Plastic enclosure:

Height: 4.37 cm (1.7 in)

Width: 21.7 cm (8.5 in)

Depth: 17.0 cm (6.7 in)

Weight: 0.5 kg (1.1 lb)

Metal enclosure:

Height: 4.37 cm (1.7 in)

Width: 21.5 cm (8.4 in)

Depth: 15.3 cm (6.0 in)

Weight: 0.7 kg (1.5 lb)

### Power

Wide-Range

AC: 100 to 240 VAC

DC: -48 VDC (-40 to -125 VDC)

On-board

-48 VDC (-40 to -57 VDC)

### Power Consumption

Fully-managed product:

Wide-range: 18 VA, 6W

On-board -48 VDC: 5W

Optimux-108L/BM:

Wide-range: 11 VA, 2.7W

On-board -48 VDC: 2W

### Push Button

SET DEF: returns IP Address, IP Mask and Default gateway parameters to their default values

# Optimux-108L

## Fiber Multiplexer for 4E1 and Ethernet

### Ordering

#### RECOMMENDED CONFIGURATIONS

##### OP-108L/B/ETH/SC/13L

Fiber multiplexer for 4E1 and Ethernet, balanced E1 interface

##### OP-108L/B/ETH/SC/SF1

Fiber multiplexer for 4E1 and Ethernet, balanced E1 interface, 10/100BaseT, SC connector, Tx 1310 nm WDM laser, Rx 1550 nm, single fiber

##### OP-108L/B/ETH/SC/SF2

Fiber multiplexer for 4E1 and Ethernet, balanced E1 interface, 10/100BaseT, SC connector, Tx 1550 nm WDM laser, Rx 1310 nm, single fiber

##### OP-108L/B/ETH/SC/SF4

Fiber multiplexer for 4E1 and Ethernet, balanced E1 interface, 10/100BaseT, SC connector, Tx 1310 nm WDM laser, Rx 1550 nm, long-haul

##### OP-108L/B/ETH/SC/SF5

Fiber multiplexer for 4E1 and Ethernet, balanced E1 interface, 10/100BaseT, SC connector, Tx 1550 nm WDM laser, Rx 1310 nm, long-haul

##### OP-108L/BM/B/SC/13L

Fiber multiplexer for 4E1, Basic Management, balanced E1 interface, SC connector, 1310 nm single mode laser

##### OP-108L/BM/B/ETH/SC/13L

Fiber multiplexer for 4E1 and Ethernet, Basic Management, balanced E1 interface, 10/100BaseT, SC connector, 1310 nm single mode laser

#### SPECIAL CONFIGURATIONS

Please contact your local RAD partner for additional configuration options.

#### SUPPLIED ACCESSORIES

AC power cord (when AC power supply is ordered)

DC connection kit (when DC power supply is ordered)

##### CBL-RJ45/2BNC/E1/X

Adapter cable (if unbalanced E1 interface is ordered)

#### OPTIONAL ACCESSORIES

##### RM-33-2

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

##### RM-35/P1

Hardware kit for mounting one metal unit in a 19-inch rack

##### RM-35/P2

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

##### WM-35-TYPE4

Hardware kit for wall mounting of 8.5-inch units in metal enclosure