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.

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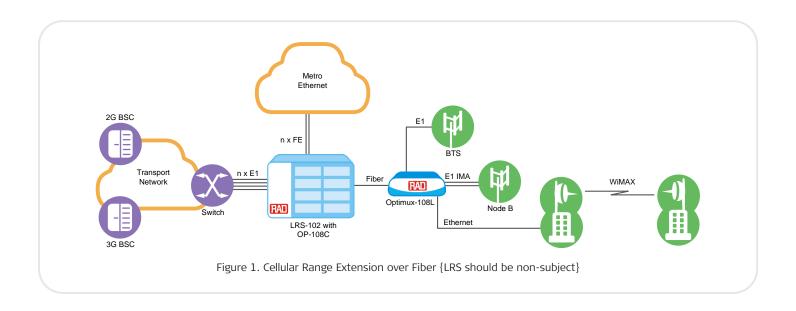
In Optimux-108L/BM, local and remote loopbacks can also be generated using the local DIP switch of the local or remote Optimux-108L unit.

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 VCD)
- -48 VDC on-board power supply (-40 to -57 VDC).

Figure 1. Cellular Range Extension over Fiber {LRS should be non-subject}

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

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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 and Ethernet, 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

RAD