

Optimux-108L

Fiber Multiplexer for 4 E1 and Ethernet



Fiber Multiplexer Transmitting Any Traffic over Fiber

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

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UPLINK INTERFACES

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

- 850 nm VCSEL (Vertical Cavity Surface Emitting Laser) for multimode fiber
- 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 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.

TRIBUTARY INTERFACES

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

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.

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).

PHYSICAL

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.

TYPICAL 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 may use Optimux-108L for TDM and ETH services in P2P/Star topologies over dark fiber.

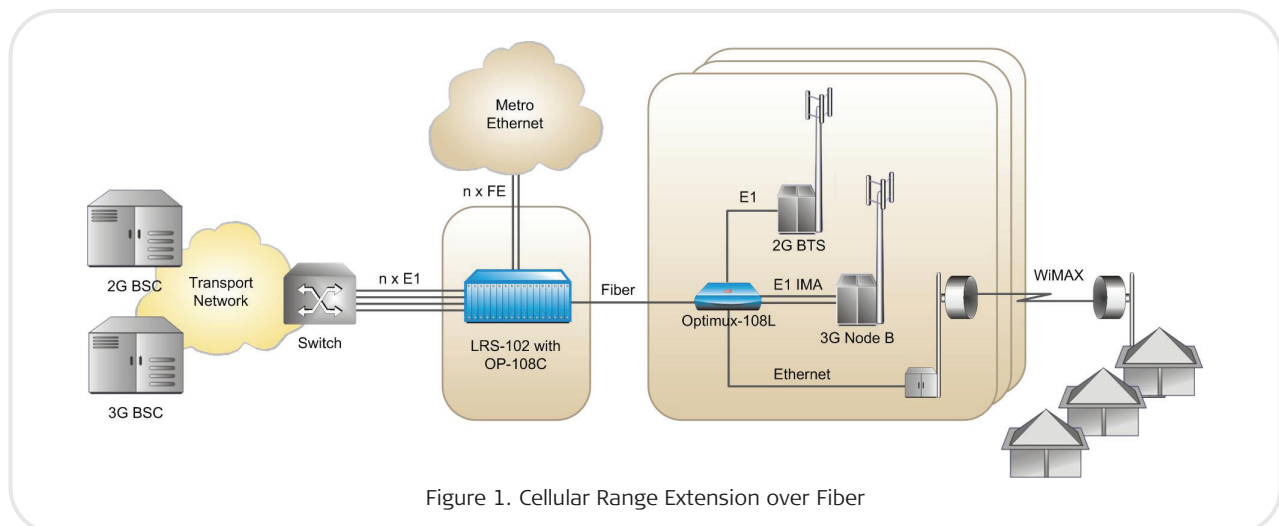


Figure 1. Cellular Range Extension over Fiber

Specifications

UPLINK INTERFACE

Number of Links

One

Type

Fiber

Connectors

ST, SC, FC/PC, or SC/PC, ordered option (SF1/SF2 options only available with SC) (SF3 option only available with SC/APC)

Compliance

G.955

TRIBUTARY INTERFACES

Number of E1 Channels

4

Data Rate

2048 kbps

Line Code

HDB3

Impedance

Balanced: 120Ω

Unbalanced: 75Ω

Connectors

Balanced: RJ-45

Unbalanced: two BNC

MNG-ETH INTERFACE

Type

10/100BaseT

Connector

Shielded RJ-45

USER-ETH INTERFACE

Type

10/100BaseT

Connector

Shielded RJ-45

Throughput

100 Mbps

INDICATORS AND PUSH BUTTONS

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

Push Button

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

GENERAL

Compliance

E1: ITU-T Rec. G.703, G.823, G.742 (Optimux-108L without Ethernet USER port)

Ethernet: IEEE 802.3

Fiber optic: G.955

Diagnostics

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

Timing

Uplink: internal

E1 tributary: transferred transparently, independent for each channel

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

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)

Environment

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

Ordering

STANDARD CONFIGURATIONS

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

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

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

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

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

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SPECIAL CONFIGURATIONS

OP-108L/~/*/?/\$/^!/!/#/+

Legend

- ~ Power supply (Default = Wide-range AC/DC power supply):
48 Dedicated on-board DC power supply
- * Ethernet management port (Default=with management port):
BM No Ethernet management port
- ? Enclosure (Default=plastic enclosure):
ME Metal enclosure
- \$ Extended temperature support (with metal enclosure only):
H Extended Temperature
- ^ E1 connector:
B Balanced (RJ-45)
U Unbalanced (BNC)
- ! User port (Default=No user port):
ETH 10/100BaseT Ethernet
- # Uplink interface connector:
ST ST type connector
FC FC/PC type connector
SC SC type connector

Note: SF1, SF2, SF3 single fiber options are available with SC connector only.

- + Wavelength:
85L 850 nm, multimode, VCSEL
13 1310 nm, multimode, LED
Note: Available with ST and SC connectors only.
13L 1310 nm, single mode, laser diode
15L 1550 nm, single mode, laser diode
13LH 1310 nm, single mode, long-haul laser diode
15LH 1550 nm, single mode, long-haul laser diode
SF1 Transmit 1310 nm laser (WDM), receive 1550 nm
SF2 Transmit 1550 nm laser (WDM), receive 1310 nm
SF3 Transmit and receive at 1310 nm laser diode

Note: For single fiber applications, a device with SF1 interface is always used opposite a device with SF2 interface, and vice versa. An SF3 interface works only opposite another SF3 interface.

SUPPLIED ACCESSORIES

- AC power cord
- DC adapter plug

OPTIONAL ACCESSORIES

RM-33-2

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

RM-35/@

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








Legend

- @ Rack mount kit (Default=both kits):
P1 Mounting one unit
P2 Mounting two units

WM-35-TYPE4

Hardware kit for mounting 8.5-inch units in metal enclosure

Table 2. Optimux Comparison Table

Feature	OP-108L	OP-108/106	OP-134/125	OP-1032/1025	OP-45/45L	OP-1551	OP-1553
							
Uplink	Fiber Optic	Fiber Optic	E3, Fiber Optic	Fiber Optic	T3, Fiber Optic	Copper, STM-1/OC-3	Copper, STM-1/OC-3
Bandwidth (Mbps)	108	108/106	34/25 or 134/125	Proprietary	45	155	155
Number of trunks	4 E1	4 E1/4 T1	16 E1/16 T1	16 E1/16 T1	21 E1/28 T1	21/42/63 E1 28/56/84 T1	3 E3/3 T3
Special features	Reduced power consumption cost-effective	Redundant, hot-swappable uplinks	Full bandwidth, Ethernet license activation	3xGbE User interfaces	Ring support (Optimux-45)	Full redundancy	Full redundancy
Card version for LRS-102/MP-4100	Works with OP-108C	✓	Works with OP-34C/OP-25C	–	–	–	–

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