Optimux-XLT1

Fiber Optic Multiplexer

OPTIMUX

FEATURES

- Integrates multiple T1, Ethernet, Fast Ethernet and high-speed data channels

- Transmission over fiber optic link

- Built-in 10/100BaseT bridge supporting IEEE 802.3x flow control and backpressure

- Supports multimode fiber, single mode fiber, and single mode over single fiber

- Range of up to 110 km (68 miles)

- Conforms to ITU G.703, G.742, G.751, G.823, G.956 and ANSI T1.102

- Optional redundant power supply

- Optional second fiber optic link provides automatic backup

- Management using ASCII terminal, Telnet host, SNMP management station or ConfiguRAD web-based remote access terminal

- Compact 1U high enclosure

DESCRIPTION

- Optimux-XLT1 provides a simple, flexible and cost-effective solution for transporting multiple T1, Ethernet, Fast Ethernet and high-speed data channels over a fiber optic link to distances of up to 110 km (68 miles). The link is available with multimode fiber, single mode fiber or single mode over single fiber.

- Provides a single fixed 10/100BaseT Fast Ethernet port, in addition to three hot-swappable channel modules. This enables a scalable solution that is flexible enough to meet the specific requirements of a broad range of applications.

- All critical components can be automatically backed up. This ensures that there is no single point of failure. An optional second link provides backup, using automatic switchover upon link failure. An optional second power supply provides power redundancy for fail-safe operation.

- Available hot-swappable channel modules:
  - Dual T1 channels
  - Quad T1 channels
  - 10BaseT Ethernet
  - 10/100BaseT Fast Ethernet (with VLAN support)
  - Quad V.35/X.21/RS-530 channels (1.544 Mbps each)
  - Single HSSI (High Speed Serial Interface) channel (6.369 Mbps).

- Various optical interfaces are available for the main links:
  - 850 nm for multimode fiber
  - 1310 nm for multimode fiber
  - 1310 and 1500 nm laser diode or long haul laser for extended range over single mode fiber
  - Single Fiber (SF1, SF2) using WDM technology (the transmit signal is at a different wavelength than the receive signal)
  - Single Fiber (SF3) using SC/APC technology, with a 1310 nm laser diode for single wavelength operation.

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- Ethernet data is transmitted using a built-in bridging function. The bridge operates at 6.369 Mbps and supports up to 1024 addresses.

- The fixed Fast Ethernet port and Fast Ethernet modules provide either 10BaseT (UTP) or 100BaseT (UTP) LAN interfaces. These interfaces can operate in half or full duplex mode, providing auto-negotiation and supporting transparent VLAN forwarding. The fixed port supports IEEE 802.3x flow control and backpressure. True net throughput is 6.369 Mbps.

- Optimux-XLT1 transmits each T1 channel independently so that the clock of each T1 channel is independent.

- The high-speed data module enables communication between DTE units using V.35, X.21 or RS-530 interfaces at data rates of 1.544 Mbps.

- The HSSI data module enables communication between DTE units, using HSSI interfaces at data rates of 6.369 Mbps.

- To facilitate system diagnostics, Optimux-XLT1 features LED status indicators, AIS alarm generation, recognition and dry contact closure upon link failure.

- The Optimux-XLT1 setup, control and diagnostics can be performed via any of the following:
  - An ASCII terminal using the supervisory port
  - Telnet using the Ethernet management ports
  - An SNMP management station via the Ethernet management ports
  - A separate dedicated Ethernet management port
  - RADview-PC NMS for the Windows environment
  - RADview-HPOV NMS for Unix platforms
  - ConfiguRAD web-based remote access terminal application.

- Optimux-XLT1 is available as a compact 1U high standalone unit that can also be mounted in a 19-inch rack.
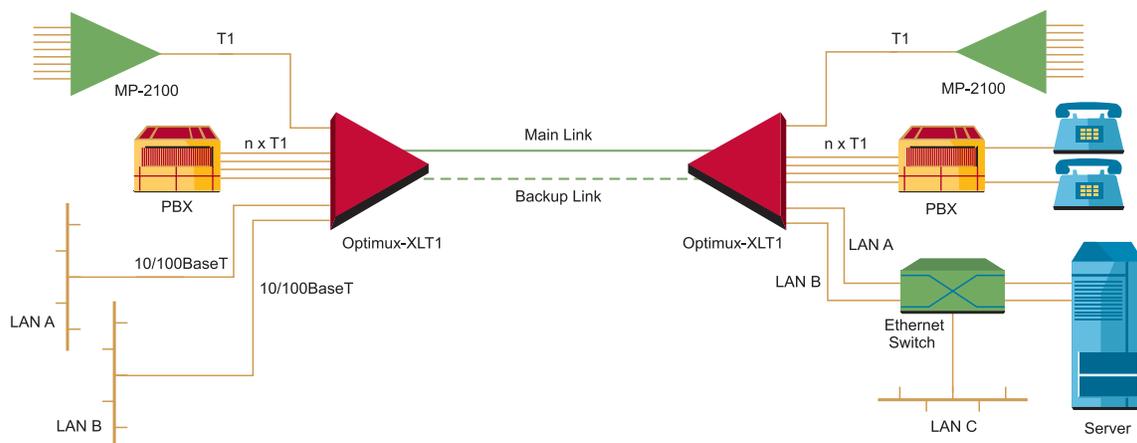
APPLICATION

Figure 1. Point-to-Point Application

Table 1. Main Link Interface Options

Module Name (Ordering Option)	Transmitter Type and Wavelength	Connector Type	Fiber Type	Optical Output Power	Receiver Sensitivity	Typical Range	
	[nm]			[dBm]	[dBm]	[km]	[miles]
OP-M/MM/SC/85 OP-M/MM/FC/85 OP-M/MM/ST/85	VCSEL, 850	SC, FC, ST	62.5/125 Multimode	-15	-28	2.5	1.55
OP-M/MM/SC/13 OP-M/MM//FC/13 OP-M/MM/ST/13	LED, 1310	SC, FC, ST	62.5/125 Multimode	-18	-31	6.5	4.0
OP-M/SM/SC/13L OP-M/SM//FC/13L OP-M/SM/ST/13L	Laser, 1310	SC, FC, ST	9/125 Single mode	-12	-31	38	23.6
OP-M/SM/SC/15L OP-M/SM//FC/15L OP-M/SM/ST/15L	Laser, 1550	SC, FC, ST	9/125 Single mode	-12	-31	68	42.2
OP-M/SM/SC/13LH OP-M/SM/FC/13LH OP-M/SM/ST/13LH	Long haul laser, 1310	SC, FC, ST	9/125 Single mode	-2	-34	70	43.4
OP-M/SM/SC/15LH OP-M/SM/FC/15LH OP-M/SM/ST/15LH	Long haul laser, 1550	SC, FC, ST	9/125 Single mode	-1	-34	110	68.3
OP-M/SF1/SC	Laser WDM, Transmit: 1310 Receive: 1550	SC	9/125 Single mode (single fiber)	-12	-30	40	24.8
OP-M/SF2/SC	Laser WDM, Transmit: 1550 Receive: 1310	SC	9/125 Single mode (single fiber)	-12	-30	40	24.8
OP-M/SF3/SC	Laser, Transmit and Receive: 1310	SC/APC	9/125 Single mode (single fiber)	-12	-27	20	12.4

Note: Typical ranges are calculated according to attenuation of 0.4 dB/km for 1310 nm, 0.25 dB/km for 1550 nm and 3.5 dB/km for 850 nm multimode modules.

Table 2. Module and Connector Types

Link Options	Type of Connector	Data Rate
2 × T1	RJ-45, 100 Ω balanced	2 × 1.544 Mbps
4 × T1	RJ-45, 100 Ω balanced	4 × 1.544 Mbps
4 × V.35/X.21/RS-530	SCSI 26-pin [*]	4 × 1.544 Mbps
1 × HSSI	SCSI 50-pin	1 × 6.369 Mbps
Ethernet 10BaseT	RJ-45	1 × 6.369 Mbps
Fast Ethernet 100BaseT	RJ-45	1 × 6.369 Mbps

[*] Interface adapter cable is supplied

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▮▮ SPECIFICATIONS

CHANNEL MODULES

- **Number of Supported Modules**
  Up to three
- **Module Types**
  See *Table 2*

LINKS

- **Number of Links**
  One link standard, second link optional for backup
- **Specifications**
  See *Table 1*

GENERAL

- **Alarms**
  Dry contact relays for major and minor alarms through a DB-9 connector
- **Control Ports**
  - CONTROL/MNG
    An RS-232 control port with a DB-9 connector for management via supervisory terminal
  - MNG-ETH
    A separate 10/100BaseT Fast Ethernet port with an RJ-45 connector for management

- **Power**
  - AC Power
    100–240 VAC; 50/60 Hz; 55 VA
  - DC Power
    24 VDC (18 to 36 VDC), 30W
    -48 VDC (-36 to -75 VDC); 30W

- **Physical**
  Height: 4.45 cm / 1.75 in
  Width: 43.2 cm / 17.0 in
  Depth: 26.8 cm / 10.5 in
  Weight   2.0   kg   /   4.4 lb

- **Environment**
  Temperature: 0° to 45°C
                32° to 113°F
  Humidity: Up to 90%,
                non-condensing

▮▮ ORDERING

OP-XLT1/*/R/#+/D
Multiplexer with built-in Ethernet port

Note: The channel modules (up to three) should be ordered seperately (see below)

* Specify power supply
  AC for 100–240 VAC
  48 for 36–75 VDC
  24 for 18–36 VDC
  AD for an AC power supply with a DC backup power supply
    (option **R** is not available when ordering this option)

R Specify **R** for second (redundant) power supply

Specify the link connector type:
  ST for ST type FO connector
  SC for SC type FO connector
  FC for FC/PC type FO connector

  Note: ST and FC options are not available with the single fiber modules.

+ Specify wavelength/transmitter type for the optical link:
  85 for 850 nm, multimode VCSEL
  13 for 1310 nm, multimode LED
  13L for 1310 nm, single mode, laser diode
  15L for 1550 nm, single mode, laser diode
  13LH for 1310 nm, single mode, long haul laser diode
  15LH for 1550 nm, single mode, long haul laser diode
  SF1 for transmit 1310 nm, receive 1550 nm
  SF2 for transmit 1550 nm, receive 1310 nm
  SF3 for 1310 nm single wavelength laser

  Note: For single fiber applications, a device with the SF1 interface should always be used opposite a device with the SF2 interface, and vice versa. The SF3 interface works oposite another SF3.

D Specify **D** for a second (redundant) link

Channel Modules

OP-XL-M/2T1 for 2 × T1
OP-XL-M/4T1 for 4 × T1
OP-XL-M/ETH for 10BaseT
OP-XL-M/FETH for 10/100BaseT
OP-XL-M/HSSI for HSSI
OP-XL-M/4/1.5M/V35
    for 4 × 1.544 Mbps V.35
OP-XL-M/4/1.5M/X21
    for 4 × 1.544 Mbps X.21
OP-XL-M/4/1.5M/530
    for 4 × 1.544 Mbps RS-530

Link Modules
Link modules can be ordered separately in order to add a redundant link to an existing unit, or to replace the original link modules. The various available OP-M modules are specified in *Table 1*.

Rack Mount
RM-11/NEW
One rack mount kit is included with each unit shipped.