

E1, E2, E3 optical converters and multiplexers

FEATURES

- ITU-T compliant copper interfaces
- Choice of standard optical interfaces
- Transparent Operation
- Detailed LED indicators per channel
- Service Channels for remote management
- Easy troubleshooting
- Quick Installation



OVERVIEW

The LE series product family from LaserBit Communications offers a cost effective, flexible and highly reliable solution for transmitting up to 16 independent ITU-T G.703 (E1) channels over one duplex fiber optic cable. These devices give fully transparent connection for users at E1 (2.048 Mbps) level. All channels are independent and can carry structured or unstructured traffic choosing either AMI or HDB3 coding.

PRODUCT DESCRIPTION

The family consists of three basic models. The LE-E1 series of products are E1 to fiber media converters that allow equipment with G.703 copper interface to connect to and transfer data via optical networks. The LE-E2 series of multiplexers provide connection for four independent E1 channels and transfer the data using standard fiber optic interface. Both equipment can be installed stand-alone or can be fitted into a 19" standard rack. The LE-E3 is a chassis-based modular multiplexer that offers multiple E1 or E2 connectivity up to 16 x E1 or 4 x E2 (or mixed) channels over a duplex fiber optic cable. The modular design allows the users to build a system based on their need and leave space for the future expansion. The 19" rack is the standard format and the 21" rack mount version is optional for two sets of LE-E3 equipment for space saving. All members of the family are designed to be extremely flexible yet easy to use. For this purpose the E1 interfaces are equipped both with balanced (UTP) and unbalanced (COAX) interfaces on all devices. On the optical side both multimode and single mode interfaces are available. Each E1 port have individual LED indicators (on all models) for extended status and alarm reporting. Local and remote loop back modes provides useful help in troubleshooting. The selectable AIS handling gives further flexibility when integrating the equipment into an existing system. Every model can be ordered with an optional Service Channel feature, which transmits one voice channel, one RS-232 channel and 2x24 alarm contact points on top of the data stream. This solution makes the equipment ideal for applications where alarm and status monitoring or remote management is required. Besides the AC Power Supply, the devices can be ordered with 48 VDC PSU for Telco applications.

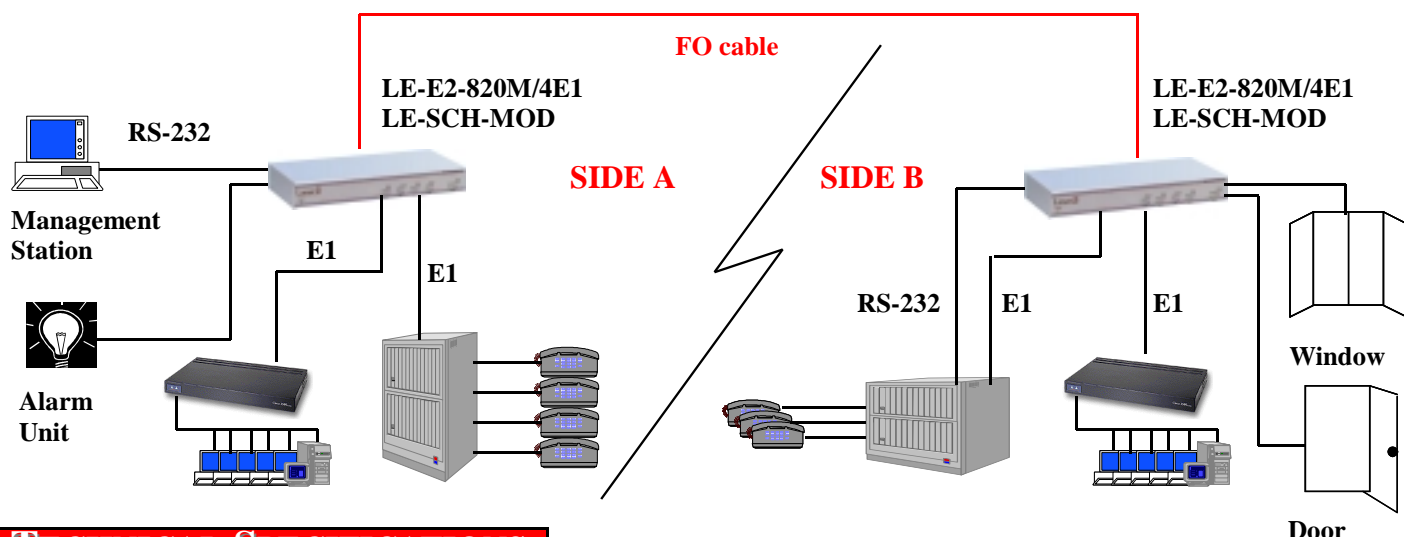
INVESTMENT PROTECTION

By utilizing industry standard interfaces, the **LaserBit** converters and multiplexers protect the customers' investments in long-term projects. The ITU-T compliant interfaces provide interoperability with other telecom products thus seamless integration into telecom networks. The continuously growing number of fiber optic applications guarantee that the **LaserBit** devices perfectly fit in today's and tomorrow's network topologies.

APPLICATIONS

Typical applications for the **LaserBit** converters and multiplexers:

- Optical Interconnection of telephone exchanges (PABX to PABX)
- Tributary and higher order channel bounding and/or distribution in telecom networks
- Interconnection and management of remote telecom equipment using service channels



TECHNICAL SPECIFICATIONS

Model	LE-E1 series		LE-E2 series		LE-E3 series	
Number of Interfaces	1 x E1 coax/UTP, 1 x SC optical		4 x E1 coax/UTP, 1 x SC optical		Up to 16 x E1 coax/UTP, 1 x SC optical or 1x E3 coax	
Electrical & Optical Characteristics						
Electrical E1 Interfaces	75 Ω unbalanced (BNC coaxial) and 120 Ω balanced (RJ-45 UTP)					
Electrical E2 Interfaces	-		-		75 Ω unbalanced (BNC coaxial)	
Electrical E3 Interfaces	-		-		75 Ω unbalanced (BNC coaxial)	
Optical Interfaces	1300 nm SC multimode	1300 nm SC single mode	1300 nm SC multimode	1300 nm SC single mode	1300 nm SC multimode	1300 nm SC single mode
Optical TX Power	-18 dBm	-6 dBm	-18 dBm	-6 dBm	-18 dBm	-6 dBm
Optical RX Sensitivity	-30 dBm	-34 dBm	-30 dBm	-34 dBm	-30 dBm	-34 dBm
Nominal bit rate	2.048 Mbps					
Nominal bit rate	8.196 Mbps					
Nominal bit rate	34.368 Mbps					
BER	$< 10^{-9}$					
Line code	AMI / HDB3					
Power						
Power Supply	110/230 VAC or 48 VDC					
Environment						
Operating Temperature	0 to 50 $^{\circ}$ C					
Storage Temperature	-20 to 50 $^{\circ}$ C					
Humidity	0 to 95 % non condensed					
Physical						
Dimensions (WxDxH)	435x206x44 (1U)		435x206x44 (1U)		448x313x89 (2U)	

ORDERING INFORMATION

Order Code	Description
LE-E1-1300M/1E1	E1 Interface Converter - One Coax/UTP - G.703 Interface, Wavelength 1300nm multimode
LE-E1-1300S/1E1	E1 Interface Converter - One Coax/UTP - G.703 Interface, Wavelength 1300nm single mode
LE-E2-1300M/4E1	E2 System with - Four Coax/UTP - G.703 Interface (E1), Wavelength 1300nm multimode
LE-E2-1300S/4E1	E2 System with - Four Coax/UTP - G.703 Interface (E1), Wavelength 1300nm single mode
LE-E3-Base	E3 Modular Basic System
LE-E3-Exp/4E1	E1 modular interface for LE-E3-Base, 4 x Coax/UTP - G.703 Interface (E1)
LE-E3-Exp/E2	E2 modular interface for LE-E3-Base, 1 x Coax - G.703 Interface (E2)
LE-E3-Exp/E3	E3 trunk interface for LE-E3-Base, 1 x Coax - G.703 Interface (E3)
LE-E3-Exp/MUX	Multiplexer module for LE-E3-Base
LE-E3-Exp/1300MM	FO modular interface for LE-E3-Base, 1300 nm multimode, SC connector
LE-E3-Exp/1300SM	FO modular interface for LE-E3-Base, 1300 nm single mode, SC connector
LE-SCH-Mod	Service channel module with 1-Voice, One RS232 @36.4 Kb FDX and 2x24 alarm contact points