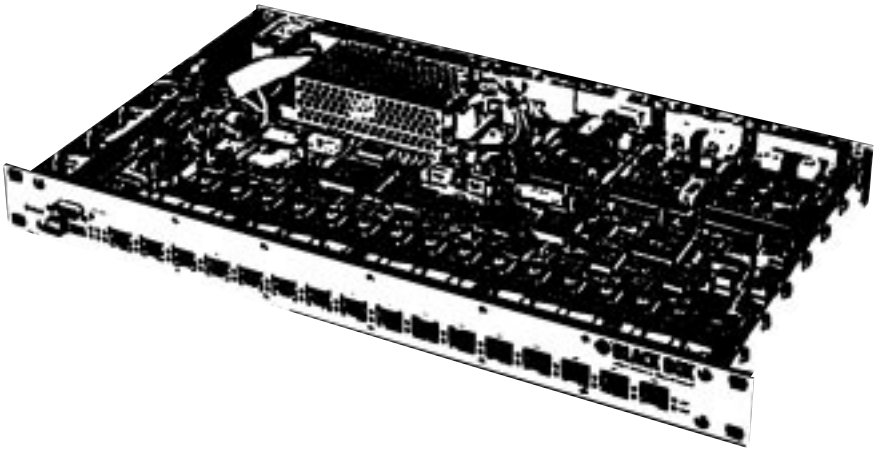
BLACK BOX®
NETWORK SERVICES

16-Channel FO-MUX



Key Features

- Modular FO link: 850 or 1300 nm MM, 1300 or 1550 nm SM
- Optional FO or E3 CU module for back-up
- 16 interface ports: G.703/G.704 E1/T1
- Integrated SNMP agent
- Transmission distances up to 90 km
- Redundant power supply available
- 19" rack mountable

The demand for leased line bandwidth is increasing and E1/T1 interfaces have become common in the telecommunication world. For an efficient use of this interface the BLACK BOX Fiber Optic Multiplexer 16-Channel FO-MUX enforces the distribution of leased lines in carrier networks. Besides the cost effective use of fibers they offer a reasonable alternative to high-priced SDH equipment and are easier to install and operate.

Each of the 16 interfaces supports structured G.703 E1/T1 channels. The individual architecture of each channel concerning loops, LEDs and clock source (internal or external) guarantees high flexibility and independence from the central network clock.

Besides its fiber optic interface module the 16-Channel FO-MUX offers a second line port being able to accommodate another fiber optic module for backup or even a E3 copper module allowing the connection to existing SDH net-works. In point-to-point applications the unit can cover distances up to 90 km on fiber optic cables without any regeneration.

Together with the VT100 management the 16-Channel FO-MUX has an integrated SNMP agent which is outband accessible via SLIP/PPP (V.24). The inband access via one 64K timeslot of the E3 link or of each E1/T1 port is also possible. The 16-Channel FO-MUX is a rack mountable 19" standalone unit with optional redundant power supply.

Specifications

General Characteristics
- Multiplexing/demultiplexing of 16 E1/T1 channels onto E3 coax or fiber optic link
- Two hot-swappable E3 link modules
- 16 G.703 E1/T1 channels
- Secondary E3 link provides automatic backup
- Integrated SNMP agent
- LED for TXD, RXD, Power FO sync and loopback status

Size — 45 x 482 x 275 mm (H x W x D)

FO Link Interface
Hot-swappable FO link interface module
Connectors — ST, SC or FC-PC
MM LED — 850 or 1300 nm
SM — 1300 nm (LED) or 1550 nm (Laser)
Laser or High Power — Laser for extended range (optional)
WDM Fiber — Doubler (optional)

Optional E3 Cu Link Interface
- Hot-swappable E3 link interface module
- BNC connector
- 75 Ω Coax cable

Management Functions
- Diagnostic, control and monitoring with loops (V.54) and BERT
- Integrated SNMP management
- Management access via serial interface: VT 100 terminal (9600/19200 bd async.), SNMP via SLIP/PPP
- Remote / inband management of distant multiplexer or 19" rack via dedicated 64 kbps channel with SNMP or TELNET
- Supports MIB II and various RFCs e.g. with SNMP or HP Openview etc.

DTE Port Specification
E1 or T1 functionality selectable via management
Clock modes — internal, external or remote
E1 interface Framing — G.703/G.704
Data Rates — n x 64 Kbps (n=1...31) or 2048 Kbps
Coding — HDB3
Connector — RJ45, 120 Ω balanced

T1 interface Framing — G.703/ANSI T1 ESF or D4,
Data Rates — n x 56 Kbps (n=1...24) or 1544 Kbps
Coding — AMI or B8ZS
Connector — RJ45, 120 Ω balanced

Optical Data

	850 nm MM LED	1300 nm MM LED	1300 nm SM LED	1300 nm SM Laser	1550 nm SM DFB Laser
Output power (selectable)	-14 or -17 dBm	-18 or -20 dBm	-14 or -18 dBm	-5 or -12 dBm	-3 or -12 dBm
Receiver operation range	-16...-29 dBm	-18...-29 dBm	-14...-30 dBm	-14...30 dBm	14...30 dBm
Fiber optic budget	12 dB	8 dB	16 dB	25 dB	27 dB
Max. distance @ fiber type @ fiber att.	up to 1 km* 62.5/125 µm 3.6 dB/km	up to 5 km* 62.5/125 µm 1.6 dB/km	up to 40 km* 9/125 µm 0.4 dB/km	up to 60 km* 9/125 µm 0.4 dB/km	up to 90 km* 9/125 µm 0.3 dB/km

(*) due to dispersion

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Ordering information

ITEM	CODE
16-Channel FO-MUX, 1 x 220V	MDSP1600AE
16-Channel FO-MUX, 2 x 48 VDC	MDSP1600AE-2DC
FO-Module, MM, ST, 1300mm	MDSPE3C-MM-ST
FO-Module, SM, ST, 1300nm	MDSPE3C-SM-ST
FO-Modul, SM, ST, 1300nm, Laser	MDSPE3C-SML-ST
FO-Module, SM, SC, 1550nm	MDSPE3C-SM-SC
FO-Modul, SM, SC, 1550nm, DFB-Laser	MDSPE3C-SMHL-SC
Copper-Module, G.703/E3, BNC	MDSPE3C-BNC