

Point to Point Solution FOM Series FMUX01A



Fiber Optical E1/ T1/ Datacom/ Ethernet Multiplexer

The FMUX01A is a single unit (1U), 19" rack mountable, E1/T1, Datacom & Ethernet Bridge Multiplexer that transmits up to 16 channels over a single fiber optic link. The FMUX01A features a modular design that provides a wide variety of customized user configurations. The optical fiber interface modules are available in single mode or multi-mode fiber connections and a number of connector types. The FMUX01A chassis is available in five different power configurations: single AC, single DC, dual AC, dual DC or AC+DC. The AC supplies operate from 90-260VAC while DC supplies operate from 36-72VDC or 20-60VDC

From the rear of the chassis, one to four quad E1 or T1 line cards, datacom (V.35, X.21, RS-530), or Ethernet Bridge cards are supported. All line cards provide completely transparent transmission of E1, T1, datacom, or Ethernet regardless of frame mode or timeslot assignment. Optional hardware cards are also available for external clock and SNMP. The standard FMUX01A configuration may be viewed or set via the front panel LCD/menu keys, serial VT-100 terminal connection or Telnet/SNMP with SNMP option.

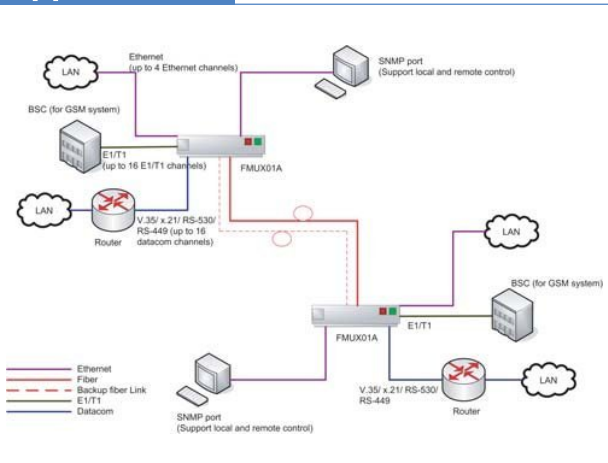
Features

- Alarm relay contacts provided which can offer major and minor alarms with audible and visible alarm output
- Auto Laser Shutdown (ALS) to prevent hazardous laser radiation to personnel
- Channel Capacity : 4,8,12 or 16 channels
- Configuration data is automatically stored into flash to avoid any loss caused by power disruption and will be restored immediately by the system at startup
- End to end propagation delay is less than 2 u sec
- Management : Local side can be managed via Keypad or Terminal. Remote side can be managed inband via keypad or Terminal. Telnet & SNMP local and remote management with optional SNMP
- Real Time Clock (RTC) run by backup battery to avoid time setting loss caused by power disruption
- Redundant Fiber 1+1 Protection, the switching time between is less than 50 m sec
- Supports embedded optical BERT
- Supports E1/ T1/ Datacom Local and Remote Loop-Back.
- Supports hot-swapping of a optical module; will not affect or interrupt the operation and communication
- TFTP remote software upgradeable (for SNMP option)

Specifications

Craft interface	Interface	RS-232D(RJ-45) Asynchronous
	Bit rate	19200,8,N,1
Power	AC	90 — 260 VAC
	DC	36 — 72 VDC
		20 — 60 VDC *optional
Environment	Temperature	0 — 55°C (Operating)
		0 — 70°C (Storage)
	Humidity	10 — 95% non condensing
Power Consumption	40W	
LEDs	Power 1 & 2, Optical 1 & 2 (for optical signal and link status) Minor & Major Alarms, Far End & Near End Error System Failure, E1 & T1 (for signal status)	
Dimensions(WxDxH)	438mm x 43mm x 250 mmmm	
Weight	3.58Kg (empty chassis without any I/F & optical module); 4.5Kg (with 4 I/F & 2 optical modules)	
System Performance(BER)	<= 10-11	
Alarm	4 relay contacts	
Compliance	FCC, Part 15, Sub B (Class A) European standard EN55022: 1994/A1 : 1995/A2 : 1997 Class A, EN61000-3-2:1995, EN61000-3-3:1995 and EN50082-1:1997	
MTBF	57350 hours	

Application



Ordering Info - Unit

FMUX 01A- Power Module Type	Line Card I/F Type	Fiber Redundant Type	Connector Type	Distance Connectivity
AC	0: Empty	S:standard	SC	002: 2km
DC	A: Quad E1 BNC	R:redundant	ST	030: 30km
AC2	B: Quad E1 RJ-45		FC	050: 50km
DC2	C: Quad T1 RJ-45		LC	080: 80km
AD	D: Quad V.35		MT	120: 120km
	E: Quad RS-232			20A: 20km
	F: Quad RS-530			20B: 20km
	G: Single port Fast Ethernet 10/100			40A: 40km
	H: Quad X.21			40B: 40km
	I: Quad RS-449			60A: 60km
	J: Wire-Wrap I/F for Quad E1/T1			60B: 60km
	K: Quad High-speed V.35			
	L: Quad High-Speed RS-530			

*20A must be coupled with 20B
*40A must be coupled with 40B

*60A must be coupled with 60B

Interface Modules



E1/T1 RJ-45 I/F



E1 BNC I/F



E1/T1 Wire-Wrap I/F



Ethernet I/F



Datacom I/F

Fiber Optical Module

Ports	1 + 1 ports (redundant)
Fiber Cable	9/ 125 um for single mode ; 50/ 125 or 62.5/ 125 for multi-mode
System Power Gain	> 25dB@1*10 ⁻¹⁰
Wavelength Range	1280 — 1550nm
Connector	FC/PC

The switching time between is less than 50m sec

E1 Interface Module

Standards	ITU-T G.703, G.704, G.706, G.732
Ports	4 ports
Framing	Unframed (clear channel)
Data rate	2.048 Mbps ±50 ppm
Line code	HDB3/AMI
Receive Level	Short haul - 15dB
Line impedance	75 ohms ±5%/ 120 ohms ±5%
Connector	RJ-45 for 120 ohms BNC for 75 ohms Wirewrap for 120 ohms

T1 Interface Module

Standards	ITU-T G.703, G.704, AT&T TR-62411, ANSI T1.403
Ports	4 ports
Framing	Unframed (clear channel)
Data rate	1.544 Mbps ±50 ppm
Line code	B8ZS / AMI
Receive Level	Short haul - 15dB
Line impedance	100 ohms ±5%
Connector	RJ-45 Wirewrap

Ethernet Interface Module

Standard	IEEE 802.3 / 802.3u
Ports	1 port
Data rate	10/100Mbps; Half Duplex 20/200Mbps; Full duplex
Filtering and Forwarding	60000 frames per second
Delay	1 frame
WAN Protocol	Raw HDLC
Connector	Shielded RJ-45

Datacom Interface Module

Standard	N/A
Card Type	V.35/ RS-530 (Include X.21 and RS-449)/ RS-232 I/F
Bit rate	n x 64K, n = 1 to 32 V.35 & RS-530 up to 2Mbps RS-232 up to 128Kbps (SYNC)
Line code	NRZ
Clock Mode	Transparent, Recovery External (From data port) Internal (From oscillator)
Control Signal	CTS always On or follows RTS DSR constantly ON, except during test loops (RS-530 DSR always connect to DTR) DCD constantly ON, except during fiber signal loss
Test Loops	Local loop back, Remote loop back, V.54
Connector	Type Uses HD-68 pin D type Female with adapter cables

NEW !!

High-speed Datacom Interface Module

Standard	N/A
Card Type	V.35/ RS-530
Bit rate	n x 64K/ n x 256K, n = 1 to 32 V.35 & RS-530 up to 8Mbps
Line code	NRZ
Clock Mode	Transparent, Recovery External (From data port) Internal (From oscillator)
Control Signal	CTS always On or follows RTS DSR constantly ON, except during test loops (RS-530 DSR always connect to DTR) DCD constantly ON, except during fiber signal loss
Test Loops	Local loop back, Remote loop back, V.54
Connector	Type Uses HD-68 pin D type Female with adapter cables



AC+DC

E1 I/F

Datacom I/F

T1 I/F

Ethernet I/F

Ordering Info - Modules

For Individual Purchase of Extra Modules

E1/T1 Interface Card	FMUX01A-E1/BNC	4 x G.703 E1 BNC
	FMUX01A-E1/RJ45	4 x G.703 E1 RJ-45
	FMUX01A-T1RJ45	4 x G.703 T1 RJ-45
	FMUX01A-E1/ Wire-Wrap	4 x G.703 wire-wrap
Ethernet Interface Card	FMUX01A-Ethernet	1 x 10/100 Mbps Ethernet Bridge
External Clock	FMUX01A-EXT/CLK	External clock
SNMP	FMUX01A-SNMP	support console RS-232 port and 10/100Base-T Ethernet port, with SNMP MIB file
GUI	FMUX01A-GUI	GUI, support WIN 95, 98, 2000, XP
EMS	FMUX01A-EMS	EMS, server-client architecture with MS-SQL database

Optical Transceiver Interface

FMUX01-A-X/	XX	XXX
Fiber Redundant	Connector Type	Distance Connectivity
S: standard	SC	002: 2km
R: redundant	ST	030: 30km
	FC	050: 50km
	LC	080: 80km
	MT	120: 120km
		20A: 20km
		20B: 20km
		40A: 40km
		40B: 40km
	60A: 60km	
	60B: 60km	