

E1/T1/Voice/Datacom/Ethernet FOM MDD-FMUX01A+



With Built-in 100Mbps Ethernet Trunk Bandwidth

The FMUX01A+ is a PDH fiber optic multiplexer, featuring a fully new design concept to challenge the existing high capacity PDH. The powerful ASIC integrates 16 E1 channels, a full rate 100Mbps Ethernet channel and a clear asynchronous RS-232 data channel into one fiber optical link. And the absolute modular structure provides the most flexible combination for customer's application and keeps the expanding capacity for future upgrade. FMUX01A+ provides two slots of optical link for hot swappable optical interface cards, which can perform customer's 1+1 auto protection switch (APS) and optical interface ALS (Automatic Laser Shutdown/Reduction). The appropriate optical interface cards may be selected to support multi-mode or single-mode fiber cable operation. FMUX01A+ provides 4 slots of tributary with various plug-in modules which include 4-channel E1 module, 4-channel FXO/FXS module and 4-channel N*64K module. The maximum capacity will be up 4 plug-in modules which could be combinations with above modules, and the 100Mbps Ethernet data link is an extra channel to be multiplexed into an optical link.

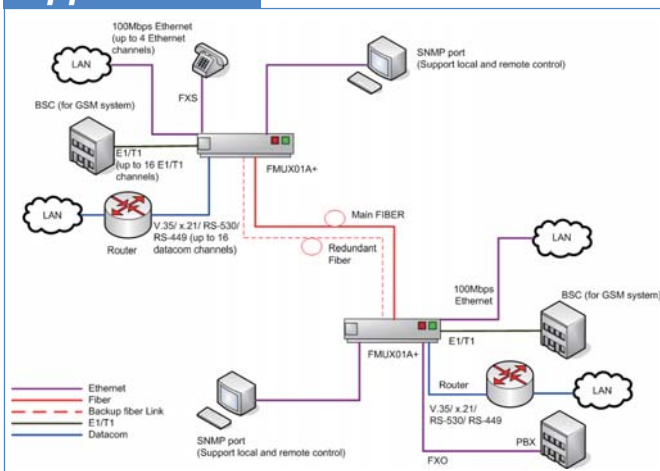
Features

- Multiplexer of 16E1 (2.048Mb/s) channels, 1*100Mbps Ethernet channel and 1*RS-232 data channel (async)
- Provides one RS-232 port for system console
- Provides one alarm output port, one order wire port
- Provides EMS which is Windows based GUI SNMP network management system when a SNMP card installed
- Provides controllable menu via LCD
- Provides 4 plug-in I/O slots, each slot uses the following service:
4-channel E1(75 ohm) Module
4-channel E1(120 ohm) Module
4-channel N*64K Module, providing up to 2.048Mbps for V.35 (or X.21, RS-232, RS-449, RS-530) DCE port
4-channel FXO voice Module
4-channel FXS voice Module
- Provides two 10/100Mbps Ethernet ports with VLAN features (on board), working in force/auto-negotiation mode
- Provides 2 plug-in I/O slots for optical interface cards

Specifications

Console Interface	Type	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	MAJ(Major Alarm), MIN(Minor Alarm), LBK(Loopback), RDI(Remote Defect Indication), PWR(Power), LCK(Optical Link Lock), RNG(Order-Wire Function), ACO(Alarm Cut Off), Ports and Channels	
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

FMUX01A+ XXX/	XXXX/	X	XX	XXX
Power Module Type	Line Card I/F Type	Fiber Redundant Type	Connector Type	Distance Connectivity
AC	0: Empty	S	SC	002: 2km
DC	A: Quad E1 BNC	R	ST	030: 30km
AC2	B: Quad E1 RJ-45		FC	050: 50km
DC2	C: Quad T1 RJ-45		LC	080: 80km
AD	D: Wire-wrap I/F for Quad E1/T1		MT	120: 120km
	E: Quad V.35			20A: 20km
	F: Quad RS-232			20B: 20km
	G: Quad RS-530			40A: 40km
	H: Quad X.21			40B: 40km
	I: Quad RS-449			60A: 60km
	J: Quad FXO			60B: 60km
	K: Quad FXS			

Interface Modules

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

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



E1/T1 (RJ-45) Interface Module



E1 (BNC) Interface Module



Datacom Interface Module

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

FXO/FXS Module	
Standards	G.711 A-law
Voice channel transparent	T.38 and Group III Fax relay at 2.4 ~14.4kbps Fax application
Distance	300m
Bandwidth	64K voice channel
Connector	RJ11*4 (4 voice channel /per unit)
Receive Level	Short haul - 15dB
Internet application	Support modem pass-through

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+-T1/RJ45	4 x G.703 T1 RJ-45
Datacom Module	FMUX01A+-Datacom	4 x N*64 (V.35 connector)
FXO Module	FMUX01A+-FXO	4 x FXO voice channel module
FXS Module	FMUX01A+-FXS	4 x FXS voice channel module
External Module	FMUX01A+-EXT/CLK	External clock module
SNMP	FMUX01A+-SNMP	Optional management module

Optical Transceiver Interface		
FMUX01A+-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