FMUX08-AD

8-Channel E&M Telephone System

Specifications &User Manual

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Thank you for using our product. In order to make your project work smoothly, please read this manual carefully before installation and pay more attention to the notices.

1. Overview

This 8CH Voice over Fiber Telephone System is designed for a point to point transmission application based on special-use VLSI. It has an alarm function. It uses advanced digital multiplexing communication solutions for clear voice and high stability.

2. Features

- 8 Channel voice access, support caller ID feature and reverse polarity billing functions
- Support various sites mutual number allocation functions
- Abundant service interfaces (FXS, FXO, 2-wire and 4-wire E/M）
- Support remote interface loop back to maintain the circuit
- Transmission distance is from MMF 550M to SMF 100Km.
- AC100-230V and DC48V power supplies
- DC48V power has polarity automatic detection function, you can install the device without differentiation between positive and negative polarity.

3. Parameters

◆ Fiber Interface: SFP Slot

Optical bandwidth: 155Mbps
Optical wavelength: 1310nm/1550nm (single-mode fibers) and 850nm/1310nm (multi-mode fibers)
Optical interface: LC or (SC/FC/ST for optional)
Sending consumption: -9dBm/-5dBm
Receiving and dispatching module: >-6dBm
Optical receiver receiving sensitivity: <-36 (BER<10):
Optical code: NRZ
Transmitting range: MM 0~2Km; SM 0~100Km for optional

◆ FXS Phone Interface RJ45

Ring voltage: 75V
Ring frequency: 25HZ
Two-line Impedance: 600 Ohm (pick up)
Return loss: 40 dB

◆ FXO PBX Interface RJ45

Ring detect voltage: 35V
Ring detection frequency: 17HZ-60HZ
Two-line Impedance: 600 Ohm (pick up)
Return loss: 40 dB

◆ EM 2/4W Interface RJ45

AD gain : 0db
DA gain : -3.5DB
line Impedance: 600 Ohm (pick up)
Return loss: 20 dB

◆ Power

Power supply: AC100V ~ 230V； DC –48V

Power consumption: ≤7W

◆ Working Environment

Working temperature: -10°C ~ 60°C

Working Humidity: 5%~95 % (no condensation)

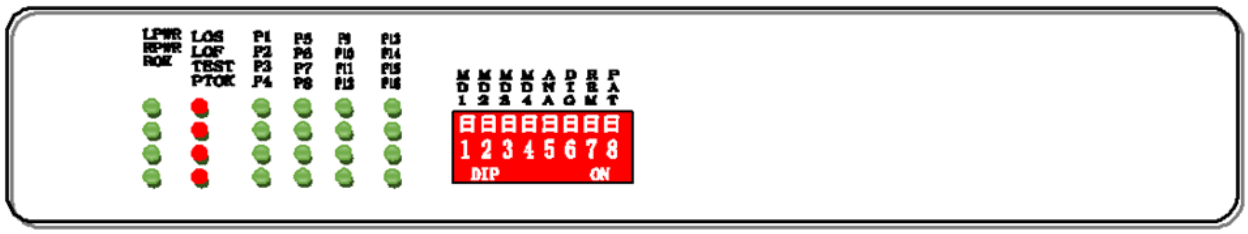
Storage temperature: -40°C ~ 80°C

Storage Humidity: 5%~95 % (no condensation)

◆ Dimensions

19 inch 1U： 483mm（Length）x 200mm（Width）x 44mm（height）

4. Panel Description



Front Panel

back Panel

5. Indicator LED

Name	Color	Status	Description
LPWR	green	on	Local power on
		off	Local power off
RPWR	green	on	Remote power on
		off	Remote power off
ROK	green	on	Remote work normal
LOS	red	on	Fiber signal lost
		off	Fiber signal normal
LOF	red	on	Fiber signal frame lost, warning signal
		off	Fiber signal normal
TEST	red	on	Device is testing when any of ANA,DIG,REM,PATT is pressed

PTOK	red	on	when Button PATT was pushed down, PBRS Code testing normal
P1-8	green	on	1-8 channel voice is under calling
		wink	1-8 channel voice Calling in
		off	1-8 channel voice is not under calling

RPWR Description:

If signal indicator light LOS is ON, there are two cases. One case is that the transmission line is broken; the other case is that the remote equipment is power off. As follows:

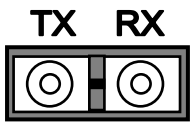
LOS ON, RPWR OFF: Remote device is power off;

LOS OFF, RPWR ON: Normal Work

5. DIP Switch

DIP1	STATUS	DESCRIPTION
1(M/S)	OFF	fiber master clock (default)
	ON	fiber slave clock
2(NC)	OFF	NC
3(MODE3): 4(MODE4)	OFF:OFF	MAX Phone number is 16
	OFF:ON	MAX Phone number is 12
	ON: OFF	MAX Phone number is 8
	ON: ON	MAX Phone number is 4
5	OFF	PCM port 1-4 type is FXO (default)
	ON	PCM port 1-4 type is FXS/E&M
6	OFF	PCM port 5-8 type is FXO (default)
	ON	PCM port 5-8 type is FXS/E&M
7	OFF	PCM port 9-12 type is FXO (default)
	ON	PCM port 9-12 type is FXS/E&M
8	OFF	PCM port 13-16 type is FXO (default)
	ON	PCM port 13-16 type is FXS/E&M

7. Fiber Interface



Fiber interface in rear panel: LC or FC/ SC for optional

"TX" is signal output interface

"RX" is signal input interface

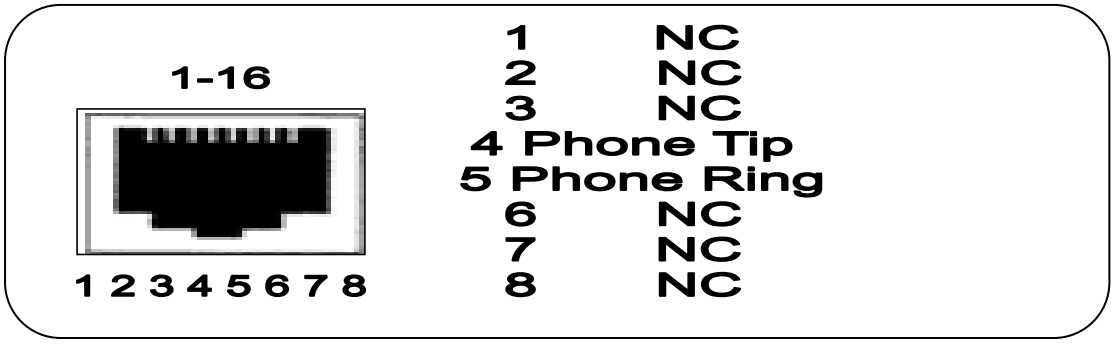
8. Telephone Interface

There are eight RJ45 connectors on back panel, support 1-2 analog telephone lines access. The device supports two interfaces: FXO and FXS. If this voice fiber multiplexer has built-in FXO modules, you can connect with Telco or PBX telephone lines. If this voice device has built-in FXS modules, you can connect with your telephone sets

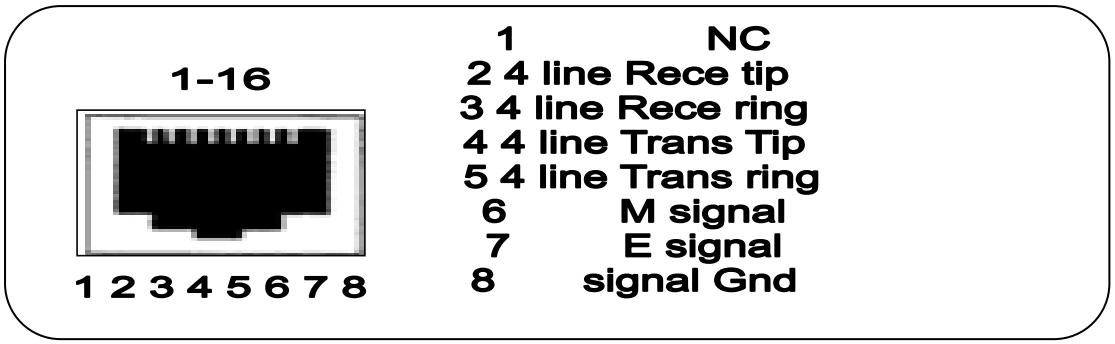
directly.

One RJ45 connector can support 2 analog telephone lines access, PIN defined as follows:

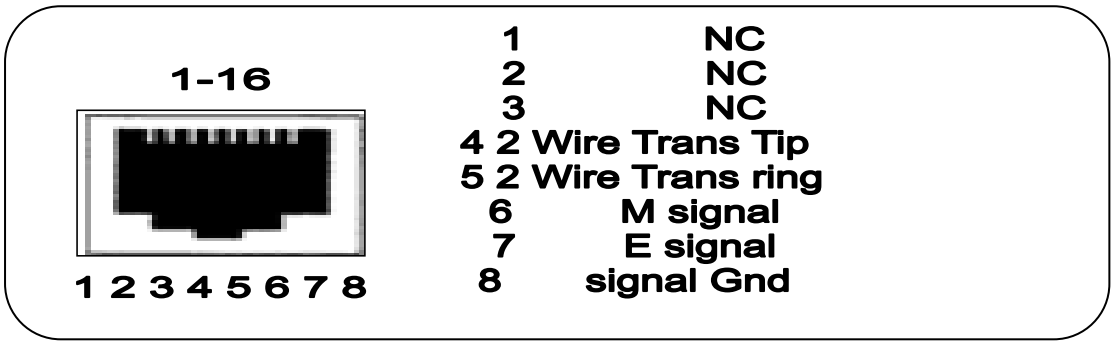
FXO/FXS Pin define:



4 wire E&M Pin define:



2 wire E&M Pin define:



9. Loop test

Loop test DIP

※There is DIP-4 switch on the panel, they are as following from the left to right.

ANA: Fiber Interface local loop, to check whether local device and its connecting circuit correct.

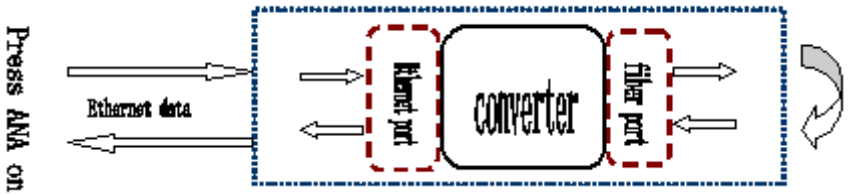


Figure 6: ANA button function

DIG: 10/100BASE-T Local loop, to check the opposite device and optical circuit

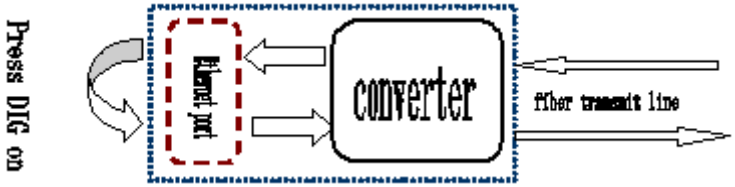


Figure 7: DIG button function

REM: Command the remote device 10/100BASE-T loopback to check optical line and both device

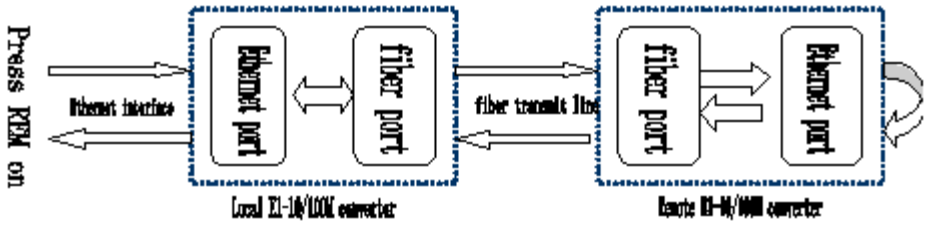


Figure 8: REM button function

PATT： Pseudo random code test: generate pseudo random code to LAN input port, and test if the signal output of LAN accord with the standard. PTOK ON if accord, OFF if not accord.

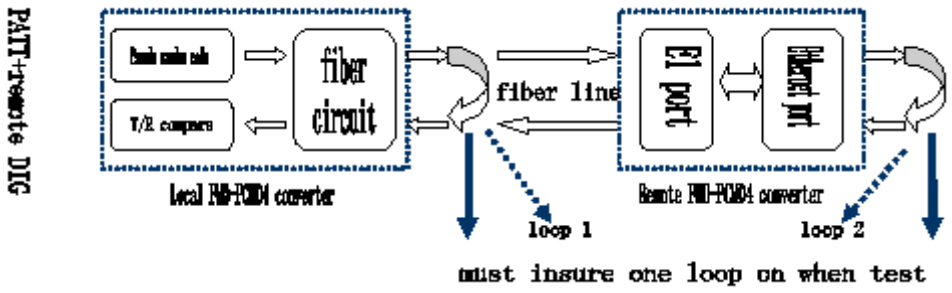


Figure 9: PATT button test

※The combination function of buttons

A: Press local **ANA** + local **PATT**:

Pseudo random code signal test local device, PTOK on, indicate local device work normally, if off or wink, indicate something wrong (please check loop 1)

B: Press remote **DIG** + local **PATT**:

Pseudo random code signal test remote device and Fiber transmit line, if on, work normal, if off or wink, indicate something wrong (please check loop 2)

C: Press local REM + local **PATT**:

PATT Pseudo random code signal test local and fiber transmit line, if PTOK on, work normally, if off or wink, indicate something wrong (please check loop 2)

B and C have same function

Note:

- When loop 1 on, can check if local device work normally, if off, then loop 2 can check fiber transmit line and ends devices
- Press any button on front panel, can stop transmit, and turn into test mode. When PATT test, must make sure line could loop, otherwise the pseudo random code can't return back.

10. Ethernet Interface

1 Channel Ethernet and 4Channel Ethernet can be optional. Support 10/100M, half/full duplex auto- negotiation and AUTO-MDIX (crossed line and straightly connected line self-adaptable)

LNK	Green	ON	Ethernet is connected
		OFF	Ethernet is not connected
SPD	Green	ON	Ethernet rate is 100M
		OFF	Ethernet rate is 10M

RJ45 Connector and Crystal head PIN order as follows:

10/100M Ethernet Interface Crystal head PIN order

✳ **Straightly connected line order**

A end Crystal head PIN		B end crystal head PIN	
Twisted Pair Color	PIN order	PIN order	Twisted Pair Color
White and Orange	1	1	White and Orange
Orange	2	2	Orange
White and Green	3	3	White and Green
Blue	4	4	Blue
White and Blue	5	5	White and Blue
Green	6	6	Green
White and Brown	7	7	White and Brown
Brown	8	8	Brown

✳ **Crossed line order**

A end Crystal head PIN		B end crystal head PIN	
Twisted Pair Color	PIN order	PIN order	Twisted Pair Color
White and Orange	1	1	White and Green
Orange	2	2	Green
White and Green	3	3	White and Orange
Blue	4	4	Blue
White and Blue	5	5	White and Blue
Green	6	6	Orange
White and Brown	7	7	White and Brown
Brown	8	8	Brown

Description: Crossed line A end "1" connects with "3"; A end "2" connects with "6".When the connected Ethernet line is very long, you should be sure that "1"and "2" "3"and"6"are a pair line of Twisted Pair.

11. AUX Interface

Can extend all kinds of data (according to your order)

12. Power

Device supports AC100-230V, DC48V and DC24V (Optional)

If you use AC power, you should connect device power input port with power socket by using random power line to provide AC power device.

If you use DC to supply power, DC-48V as an example, please connect as follows:

General Connection

"FG" polarity	Connect ground
"DC-48V" polarity	Connect power negative polarity
"DC+48V" polarity	Connect power positive polarity

Note: Device has polarity protection measures. If positive and negative polarity is connected reversely, device will not damage, function well and ease of installation and maintenance.

Installation

- Unpack, inspect the content carefully. Verify that all items are included with your carton. Contact us or local agent if there is any content missing or damaged.
- Check power supply configuration. Care about the value of voltage if use DC input.
- Take following tests before usage:
  - Check loop test buttons on back panel, to see if loose or not, PWR and LOS on, others OFF.
  - Connect one Ethernet line, LINK on, at the same time the connected device LINK also on.
  - If the device work on framed status, LOS and LOF on.
  - Press PATT button, TEST should be ON, PTOK should be OFF. Then Press ANA button, PTOK ON and LOS OFF.
  - If used in pair, when press PATT button, you may not press ANA, then press DIG or REM of remote device, PTOK should be ON.
  - FXO port connect with phone line, FXS connect with phone. Can hear alarm when phone off.
- If indicator LED works normal, un-press all switch on the back panel and power off, set clock, plug FIBER wires, then power on, the device should work normally.
- If device does not work normally, please refer to chapter 4: trouble shooting. Contact us or our local agent in time if the problem can't be solved.

Ordering Information:

- **FMUX08-AD-E&M-2W, 8 Channel 2-Wire E&M Telephone System**
- **FMUX08-AD-E&M-4W, 8 Channel 4-Wire E&M Telephone System**