



30FXO/FXS+4E1+4FE+2RS232
Voice Optical Multiplexer

User's Manual

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Dear users:

Thank you for using the product of my company. In order to make your work smoothly, we give you some advice. Before you connect and operate the product, you should make sure to read this manual carefully and pay more attention to the notices.

: Overview

This device is a kind of developed point to point transmission equipment based on our company fiber transmission the special-use VLSI. It has alarm function. 1-30Channel voice and 1-4Channel serial data interfaces can be optional. Device can be built-in SNMP module, for SNMP management. The device circuit is digital circuit. The working is reliable, stable, and low power consumption, high integration, small size, ease of installation and maintenance.

: Features

- Based on self -copyright IC
- The machine is single PCB design
- Can monitor the remote alarm status
- E1 interface comply with G.703, adopts digital clock recovery and smooth phase-lock technology
- Provide 2 expansion interfaces (AUX1/2) , you can extend 1-4Channel asynchronous data, such as RS232/RS485/RS422/Manchester code; 1-8Channel switch, two/four line audio and so on
- 1-30Channel voice access, supports caller ID feature and reverse polarity billing functions

- Support various sites mutual number allocation function
- Voice port supports FXO and FXS port, EM2/4 audio interface, FXO port docking with program-controlled switchboard, FXS port connected to the user's telephone
- Desktop device supports independent SNMP network management and optical multiplexer network management cascade (optional)
- Have LED when the device is power-off or E1 line is broken or lose signal
- Can monitor the temperature and voltage (network management platform)
- Can monitor the remote equipment temperature and voltage (network management platform)
- AC 220V, DC-48V, DC24V can be optional

Parameters

➤ Fiber

Multi-mode Fiber

50/125um, 62.5/125um,

Maximum transmission distance: 5KM@62.5/125um single mode fiber, attenuation (3dbm/km)

Wave Length: 820nm

Transmitting power: -12dBm (Min) ~-9dBm (Max)

Receiver sensitivity: -28dBm (Min)

Link budget: 16dBm

Single-mode Fiber

8/125um, 9/125um

Maximum transmission distance: 40Km

Transmission distance: 40KM@9/125um single mode fiber, attenuation
(0.35dbm/km)

Wave Length: 1310nm

Transmitting power: -9dBm (Min) ~-8dBm (Max)

Receiver sensitivity: -27dBm (Min)

Link budget: 18dBm

➤ **FXS Phone Interface**

Ring voltage: 75V

Ring frequency: 25HZ

Two-line Impedance: 600 Ohm (pick up)

Return loss: 40 dB

➤ **FXO Switch Interface**

Ring detect voltage: 35V

Ring detection frequency: 17HZ-60HZ

Two-line Impedance: 600 Ohm (pick up)

Return loss: 40 dB

➤ **E1 Interface**

Interface Standard: comply with protocol G.703;

Interface Rate: 2048Kbps ±50ppm;

Interface Code: HDB3;

E1 Impedance: 75Ω (unbalance), 120Ω (balance);

Jitter tolerance: In accord with protocol G.742 and G.823

Allowed Attenuation: 0~6dBm

➤ **Power**

Power supply: AC100V ~ 260V; DC -48V; DC +24V

Power consumption: ≤ 7 W

➤ **Dimension**

19 inch 1U: 483 (L) X183 (W) X44 (H) mm

➤ **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)

Panel

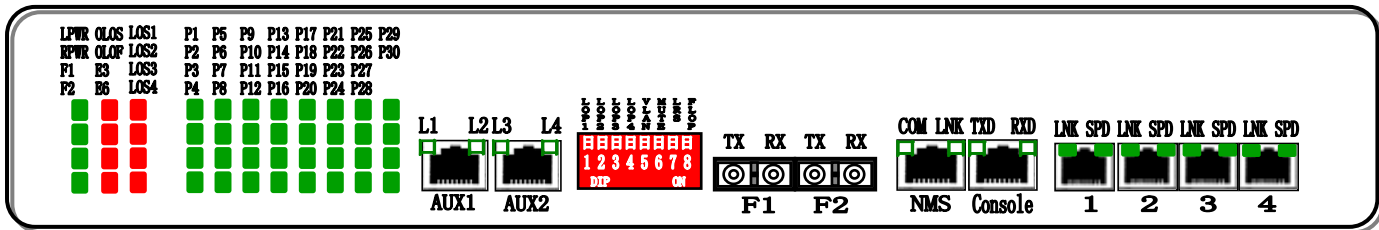


Figure 1. Front Panel

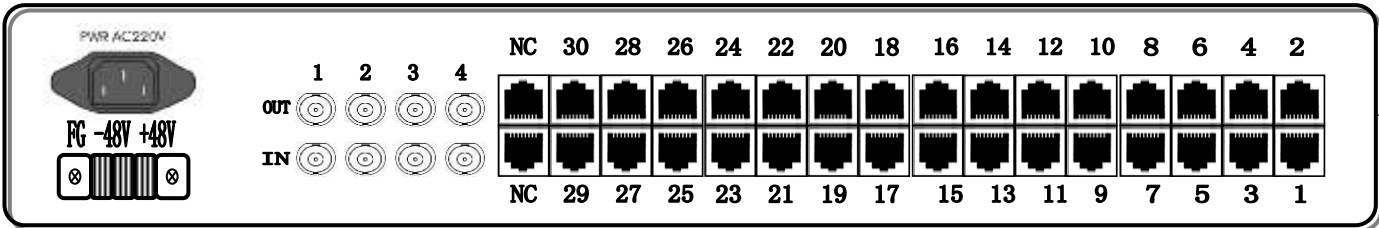


Figure 2. Back panel (75 Ohm)

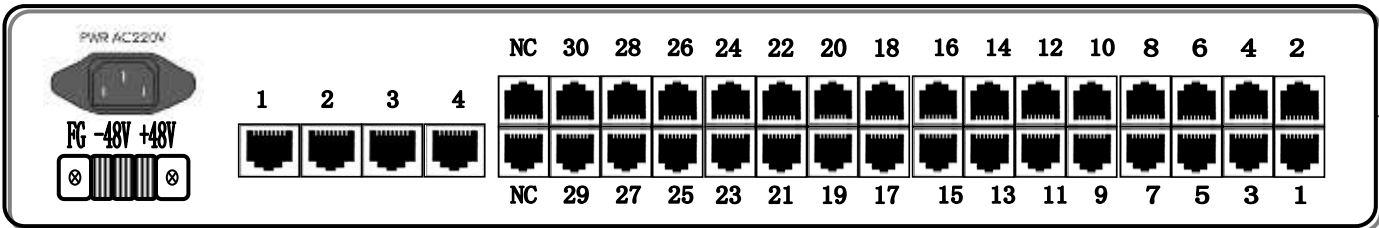


Figure 3. Back panel (120 Ohm)

:Indicator LED

Name	Condition	Description
LPWR	ON	Device power is ON
	OFF	Device power is OFF
RPWR	ON	The remote device power is ON
	OFF	The remote device power is OFF
ROK	ON	The device is connected
OLOS	ON	optical signal lost, not receive optical signals
	OFF	Optical signal Receive normally
OLOF	ON	Optical signal lost
	OFF	Optical synchronous signal Receive normally
E3	ON	Fiber BER \geq 10 ⁻³
E6	ON	Fiber BER \geq 10 ⁻⁶
LOS1-4	ON	The corresponding 1-4 Channel E1 signal lost
	OFF	The corresponding 1-4 Channel E1 signal received
P1-P30	ON	Corresponding 1-30 Channel voice is busy or picking up
	ON/Flash	Caller ID display
	OFF	Corresponding 1-30 Channel voice is not busy or no caller

RPWR Description:

If signal indicator light OLOS 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:

- OLOS ON, RPWR OFF: Remote device is power off;
- OLOS ON, RPWR ON: Fiber line is broken;
- OLOS OFF, RPWR ON: Normal Work

DIP Switch

DIP1-8

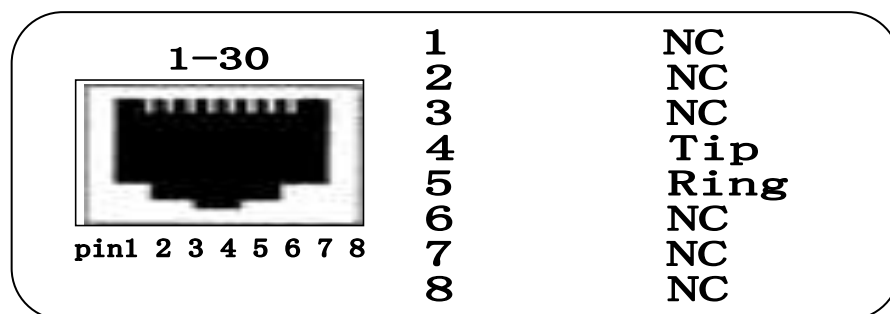
DIP1	Condition	Function
1(LOP1)	OFF	Not command 1Channel E1 loopback(Default)
	ON	Command 1Channel E1 loopback
2(LOP2)	OFF	Not command 1Channel E1 loopback(Default)
	ON	Command 1Channel E1 loopback
3(LOP3)	OFF	Not command 1Channel E1 loopback(Default)
	ON	Command 1Channel E1 loopback
4(LOP4)	OFF	Not command 1Channel E1 loopback(Default)
	ON	Command 1Channel E1 loopback
5(VLAN)	OFF	Not open VLAN isolation function(Default)
	ON	Open VLAN isolated function(valid only when choose 4 Ethernet interfaces)
6(MUTE)	OFF	Alarm sound is on(Default)
	ON	Alarm sound is off
7(L/RS)	OFF	Indicator light indicates this device work condition(Default)
	ON	Indicator light indicates the remote device work condition
8(FLOP)	OFF	Not open fiber loopback(Default)
	ON	Open fiber loopback

Telephone Interface

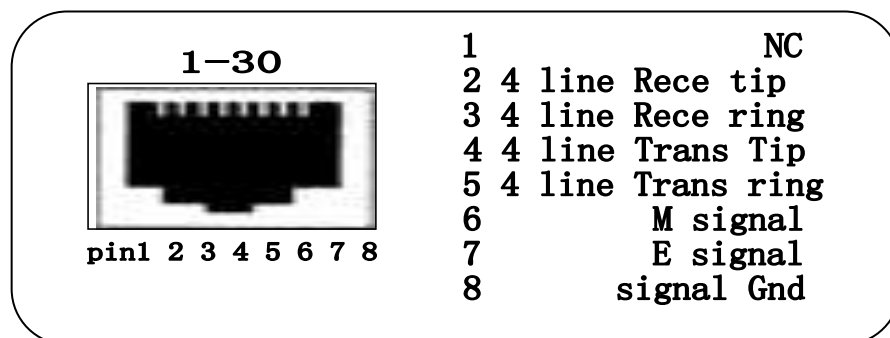
There are 30 RJ45 connectors on back panel, support 1-30 analog line telephones access. The device supports two interfaces: FXO and FXS. If this device is built-in FXO module, the interface is FXO interface, you can insert the phone line that that through switch into FXO interface. If this device is built-in FXS module, the interface is FXS interface, you can insert it into telephone directly.

One RJ45 connector can support 1Channel analog telephone access (telephone interface), PIN defined as follows:

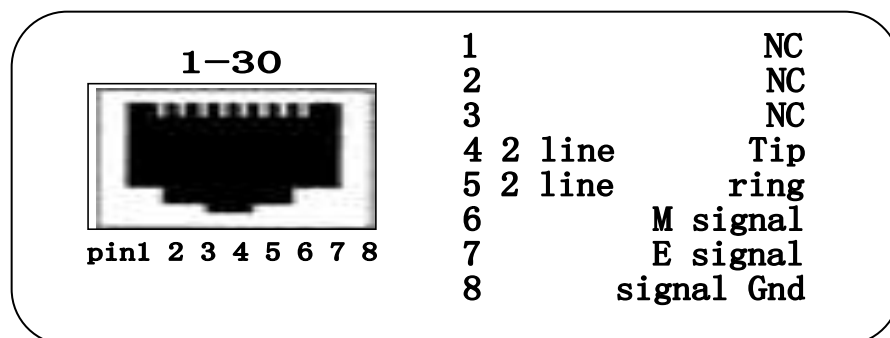
FXO/FXS Pin define:



EM 4 Pin define:



EM 2 Pin define:



Ethernet Interface

1-4Channel 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:



Represent 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
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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.

:AUX Interface

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

The RJ45 interface of L1-L4 on the back panel is 1-4Channel Data. PIN1-4 is 1Channel, PIN5-8 is 2Channel. Defined as follows:

AUX1-AUX2	
 PIN: 8 7 6 5 4 3 2 1	1 1Channel RS485-A; ;RS422-TX+ 2 1Channel RS485-B;RS232 TXD ;RS422-TX- 3 1Channel ;RS232 RXD ;RS422-RX+ 4 1Channel ;RS232 GND ;RS422-RX- 5 2Channel RS485-A; ;RS422-TX+ 6 2Channel RS485-B;RS232 TXD ;RS422-TX- 7 2Channel ;RS232 RXD ;RS422-RX+ 8 2Channel ;RS232 GND ;RS422-RX-

Fiber Interface

Physical Interface: FC/SC (Optional), single-fiber and dual-fiber (Optional).



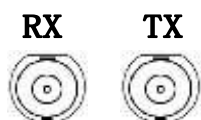
Dual-Fiber: TX-Transmit RX-Receive

Single-Fiber: Transmit and Receive (Note: 1310nm and 1550nm device used in pair)

Note: the two fiber ports are used for 1+1 redundant.

E1 Interface

75Ω-BNC Socket

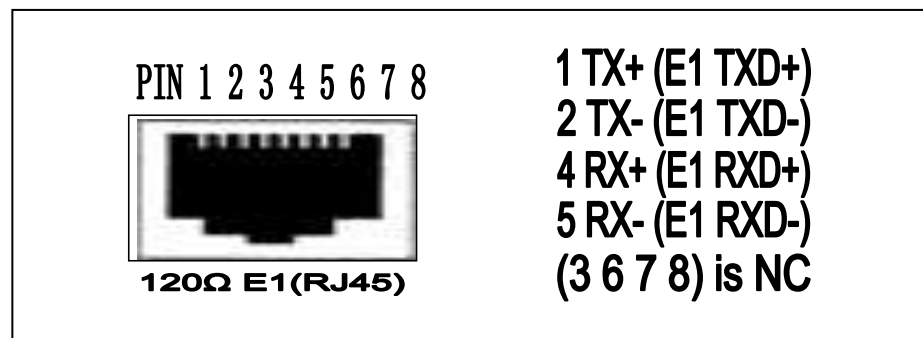


“RX” represents 5Ω (BNC) unbalance E1 input

“TX” represents 75Ω (BNC) unbalance E1 output

120Ω-RJ45 Socket

PIN defined as follows:



Power

Device supports AC220V, DC -48V and DC24V (Optional)

If you use AC220V power, you should connect device power input port with power socket by using random power line to provide AC220V power device.

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

“FG” polarity Connect ground

“-48V” polarity Connect power negative polarity

“+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. (The power contains DC48V, DC -48V, DC24V, DC -24V, and so on).

After-sales Service

The series of our Voice Fiber Optical Multiplexer products, our company promises three-years warranty. During product warranty time, our company provides free repair service, but if the following cases, we will charge the cost of materials.

1. Damage due to not complying with the manual.
2. Tear down the device without authorization, which leads to bad situations.
3. Lightning, fire and inevitable natural disasters.
4. Our products don't match with other company products because of bad design to cause damage.

Company Statement

1. As we are adopting new technology, if our product technical parameters are changed, we won't notice you.
2. The final interpretation right of this manual belongs to my company.