Model: BD-OP-MUX30

30 Voice Fiber Optical Multiplexer

User's Reference Manual

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Directory

：Introduction

Dear users:

Thank you for using our product. 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.

：Safety Information

To avoid personal injury or the product and other products connected with being damaged, you should be careful of the safety information. Make sure use the product according to the rules to prevent the occurrence of some potential harm.
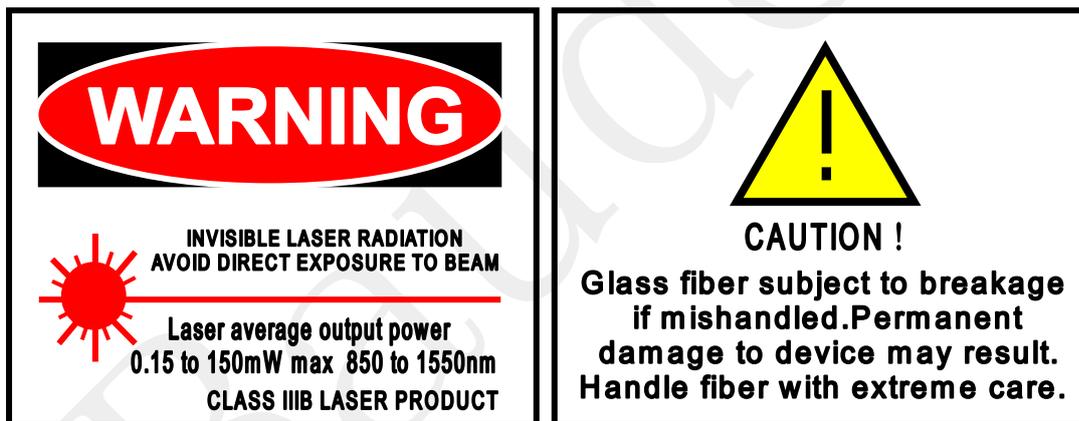
Attention:

1. Power Voltage. The device can be only used in the area where the power is AC 220V± 20%/50Hz. Please don't use in other areas.

2. Use proper power line and power. You must use the power line equipped with the products randomly. Also you can use other qualified power line with case which can protect earth terminal. The earth terminal of the outlet that is matched with power cord should be well ground connection.

3. Attention ground connection. The product is grounded by the conductor in the power line or terminal on the panel. To avoid electric shock, the ground conductor of the power line must be grounded in a good connection with the earth. **Before you connect all the optical ports of the product, you**

should be sure that the product is well grounded.

4. Take care of typical value of the ports. To avoid fire or electric shock, please pay attention to all typical values and symbols labeled in the equipment and this manual.

5. Don't venture operation. When you doubt this product cannot work properly, please consult our professionals instead of venturing operation.

6. Vibrations and Crash. This machine contains elaborate optical component, you should avoid strenuous vibrations and crash.

7. Don't open the cover of the machine and repair arbitrarily. There aren't components for users to repair in the main case of this product. If you need repair the product, please contact our company professionals. As soon as you open the cover, you will have no warranty.

:Cautions

1. The product is Class ⅢB laser device product. There is the laser radiation that your eyes cannot see in the machine. It is possible that the machine will cause some physical damage of your eyes and skin if you operate it improperly. After the machine powers up, you can't look steadily at the fiber optical input and output port or the fiber connector interface connected with the ports.

2. Keep the fiber optical connector clean, or it will cause attenuation and affect transmitting distance. When you install the product, you should dip tidy cotton with absolute ethyl alcohol to clean it.

3. The product is sensitive to static electricity. Before you contact with electric interface, you should release static electricity.

4. To prevent fire or electric shock, please don't let the product wet or damp. Don't operate in damp conditions.

5. Don't open the lid of the product to operate it.

6. Keep the surface clean and dry. You should ensure good ventilation and heat-emission.

：Overview

This device is a kind of developed point to point transmission equipment based on our company PDH fiber transmission the special-use VLSI. This device provides 30Channel telephone 1-4Channel E1 interface, 4Channel 10M/100M Ethernet interface (Line Speed 100M) and 1 expansion interface. 4Channel Ethernet interface is switch interface, can support VLAN. 1 expansion interface can be used as the transmission channel of RS232/RS485/RS422 asynchronous data, voice signal, 2/4 line E&M audio signal, switch signal, Ethernet signal (Bandwidth 2M). It has alarm function. The working is reliable, stable, and low power consumption, high integration, small size, ease of installation and maintenance.

：Features

- Based on self -copyright　IC
- Modular wide dynamic optical detector
- 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, FXO port docking with PBX, FXS port connected to the user's telephone
- Have indicator light when the device is power-off or Fiber line is broken or lose signal
- Can monitor the remote device work condition

- The transmission distance is up to 2-120Km without interruption

- AC 220V, DC-48V, DC24V can be optional

- DC-48V/DC24V power has polarity automatic detection function, you can install the device without differentiation between positive and negative polarity.

: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

◆ E1 Interface

Interface Standard: comply with protocol G.703;

Interface Rate: 2048Kbps±50ppm;

Interface Code: HDB3;

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

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

Allowed Attenuation: 0~6dBm

◆ **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

◆   **Power**

Power supply: AC180V ~ 260V ; DC –48V ; DC +24V

Power consumption: ≤7W

◆ **Working Environment**

Working temperature: -10°C ~ 60°C

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

Storage temperature: -40°C ~ 80°C

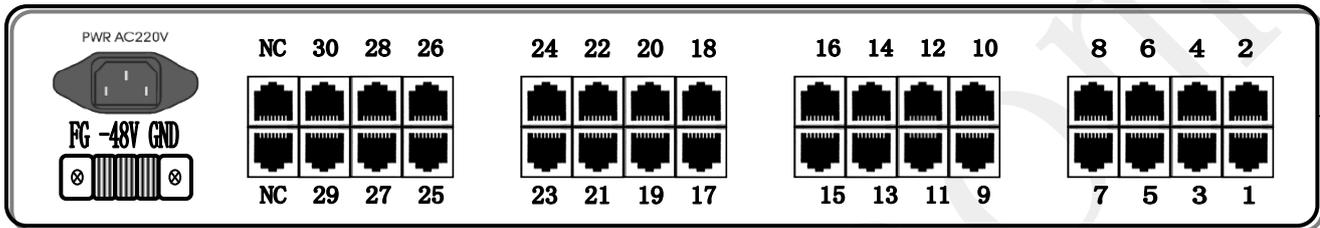Storage Humidity: 5%~95 % (no condensation)

:Panel

LPWR OLOS　　P1　P5　P9　P13 P17 P21 P25 P29
RPWR OLOF　　P2　P6　P10 P14 P18 P22 P26 P30
ROK　E3　　　P3　P7　P11 P15 P19 P23 P27
　　　E6　　　P4　P8　P12 P16 P20 P24 P28

TX　RX

Figure 1.　front panel

PWR AC220V

FG -48V GND

| NC | 30 | 28 | 26 | | 24 | 22 | 20 | 18 | | 16 | 14 | 12 | 10 | | 8 | 6 | 4 | 2 |
| NC | 29 | 27 | 25 | | 23 | 21 | 19 | 17 | | 15 | 13 | 11 | 9 | | 7 | 5 | 3 | 1 |

Figure 2. Back panel

⫶ Indicator LED

Name	Color	Condition	Description
	Indicator light as follows,		
LPWR	Green	ON	Device power is ON
		OFF	Device power is OFF
RPWR	Green	ON	The remote device power is ON
		OFF	The remote device power is OFF
ROK	Green	ON	The device is connected
OLOS	Red	ON	E1 signal lost, not receive optical signals
		OFF	E1 signal receive normally
OLOF	Red	ON	E1 signal lost
		OFF	E1 synchronous signal receive normally
E3	Red	ON	Fiber BER≥10-3
E6	Red	ON	Fiber BER≥10-6
P1-30	Green	ON	Corresponding 1-30Channel voice is busy or picking up
		ON/Flash	Caller ID display
		OFF	Corresponding 1-30Channel 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 PDH device is power off.

As follows:
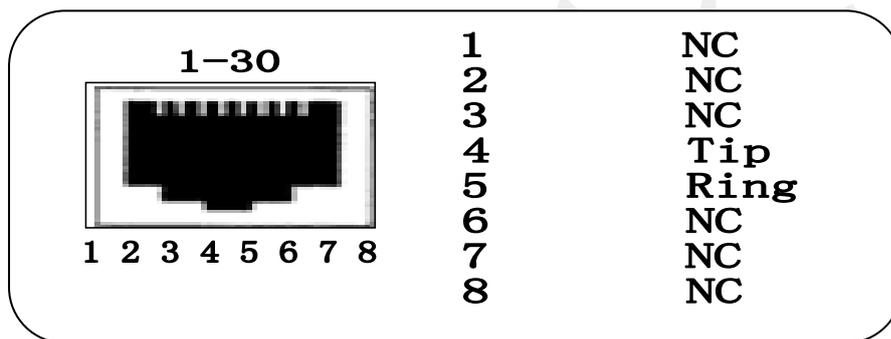
OLOS ON, RPWR OFF: The remote PDH device is power off;

OLOS ON, RPWR ON: Fiber is broken;

OLOS OFF, RPWR OFF: Normal Work

:Phone Interface

There are eight 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:

1−30		
	1	NC
	2	NC
	3	NC
	4	Tip
	5	Ring
	6	NC
1 2 3 4 5 6 7 8	7	NC
	8	NC

: 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)

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：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:

General Connection

　"FG" polarity   Connect ground

　"DC-48V" polarity   Connect power negative polarity

　"GND" 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 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 **Technology Co., Ltd.**