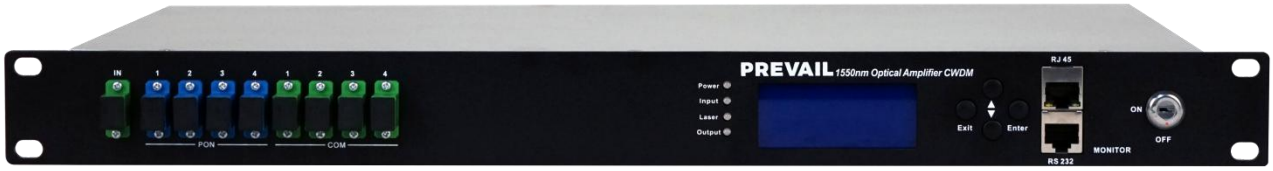
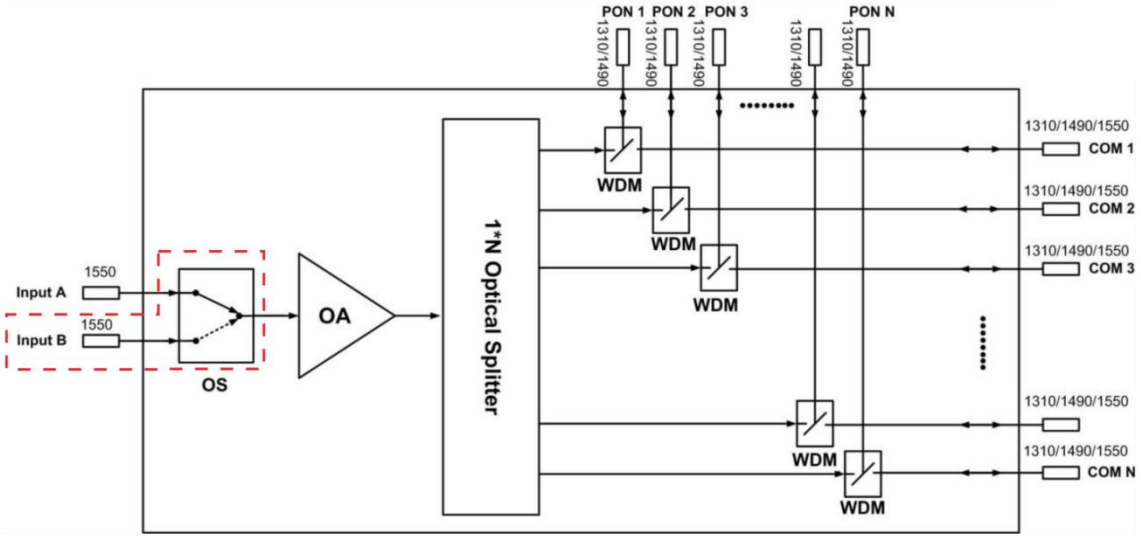
WE-1550-YL-JD Series High-power Optical Amplifier(with PON Port)



1 Product Overview

WE-1550-YL-JD optical amplifier uses well-known high-performance erbium-ytterbium co-doped double-clad fiber and low-noise pump laser. It has a reliable circuit design and efficient heat dissipation design. This device adopts a modular design internally and it has high integration. Ultra wide input optical power range, 1RU 19 "height, compatible with EIA racks. The entire machine built-in CWDM can support 32 outputs. It provides SNMP protocol network management software and WEB network management, suitable for amplified transmission of downstream 1550nm optical signal in FTTH network.

2 Block diagram



■ Note: The red dashed box above indicates the optional part

3 Technique Parameter

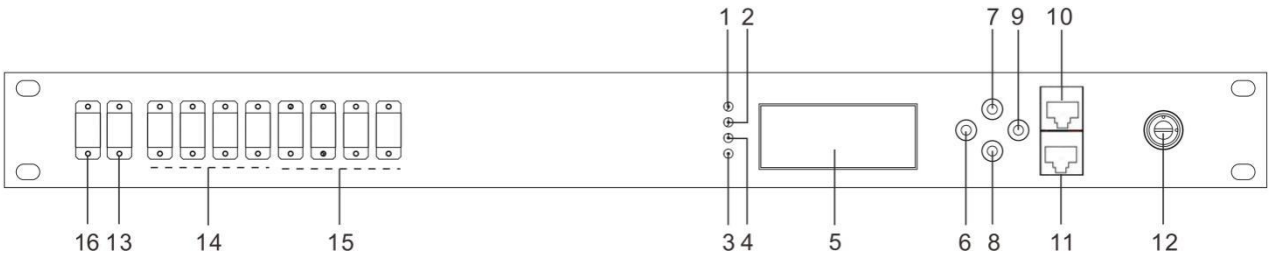
Item	Unit	Technical Parameters	Notes
Optical Switch (Optional)			
Optical Switching time	ms	≤ 500	
Insertion Loss	dB	≤1.3	
WDM			
CATV Pass Through Wavelength	nm	1545 - 1565	
PON Pass Through Wavelength	nm	1260 - 1360 & 1480 - 1500 & 1570 - 1580	Optional（Note1）
PON Insertion Loss	dB	< 0.8	
Isolation	dB	> 30	
EDFA			
CATV Input Optical Power Range	dBm	-5 - +10	
Maximum Output Optical Power	dBm	≤31	
Output power stability	dBm	≤±0.5	

Noise figure		dB	≤ 6.0	Optical input power 0dBm, λ=1550nm
Return loss	Input	dB	≥ 50	
	Output	dB	≥ 50	
Pump Leakage to Input Power		dB	≤-30	
Pump Leakage to Output Power		dB	≤-30	
Polarization Dependent Gain		dB	< 0.2	
Polarization Mode Dispersion		Ps	< 0.3	
Adjustable Range of Optical Power		dB	3	
Optical Connector Type			INPUT port：SC/APC	
			PON ports：SC/UPC or LC/UPC	
			COM ports：SC/APC or LC/APC	
Power Supply Voltage		V	AC 100V - 250V（50-60 Hz） DC -36V~-72V	
Total Power Consumption		W	≤ 40	
Operating Temperature Range		°C	-5 - +45	
Maximum Operating Relative Humidity		%	Max. 95% no condensation	
Storage Temperature Range		°C	-30 - +70	
Maximum Storage Relative Humidity		%	Max. 95% no condensation	
Dimension		mm	483(L)×275(W)×44(H)	

Note 1: The default wavelength is GEPON (1260nm – 1360nm&1480nm – 1500nm). If you need XGPON wavelength (1260nm – 1360nm&1480nm – 1500nm&1570nm – 1580nm), please make a note when ordering.

4 External Function Description

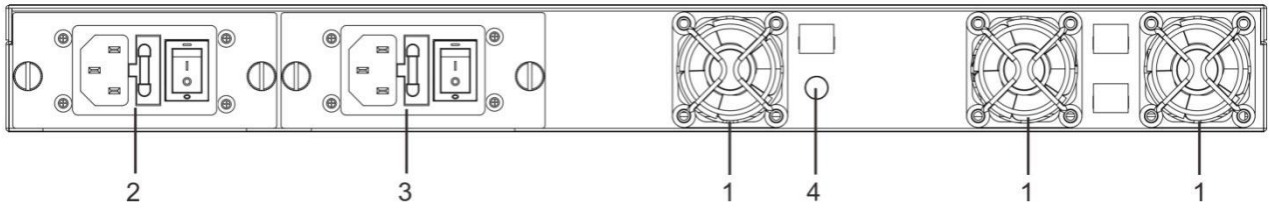
4.1 Front Panel Description



1. Power indicator: One switching power supply is working – yellow; Two switching power supplies are working – green. Abnormal—flashing red.
2. Optical input power indicator: Normal range— green. Abnormal range—flashing red.
3. Optical output power indicator: Normal range— green. Abnormal range—flashing red.
4. Pump working status indicator: Pump bias, pump temperature, any alarm appears—flashing red. It indicates that the machine has fault Pump laser is working normally— green.
5. 160×32 dot-matrix LCD screen: displays all the parameters of the device.
6. Display the exit or cancel key of the setup menu.
7. Display the up or increase key of the setup menu.
8. Display the down or decrease key of the setup menu.

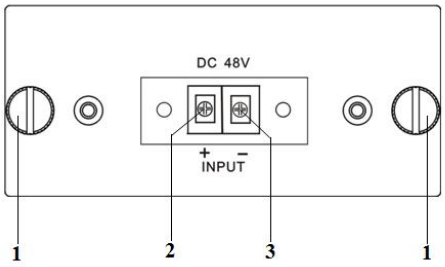
9. Display the enter key of the setup menu.
10. RJ45 interface.
11. RS232 interface.
12. Pump laser switching key: “ON” means the pump laser is open and “OFF” means the pump laser is closed. Ensure the key is on “OFF” position before power on. After passing self-test, rotate the key to “ON” position according to the displayed message.
13. Optical signal input A
14. PON port, max. 16 ports optional. (The diagram above is a schematic diagram, please refer to the silk screen content for the actual configuration.)
15. COM port, max. 16 ports optional. (The diagram above is a schematic diagram, please refer to the silk screen content for the actual configuration.)
16. Optical signal input B (Only the model with optical switch has this port.) (Optional)

4.2 Rear Panel Description



1. Fan outlet.	2. Power supply 1
3. Power supply 2	4. Ground stud of the chassis.

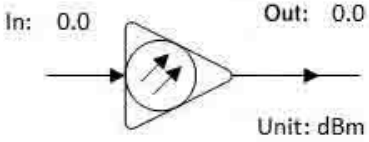
4.3 DC Power Introduction



1	Mounting screws
2	+ Positive terminal block
3	- Negative terminal block

5 Menu System

5.1 Main Menu

Name	Display	Description
System Starting	xxxxxxx	Manufacturers’ logo
	xxxxxxx	Equipment model
	xxxxxxx	Start countdown / lock status
Suspend Page		Input optical power Output optical power Unit：dBm
Secondary Menu	1.Disp Parameters	Entry of parameter display menu
	2.Set Parameters	Entry of parameter setup menu

	3.Alarm Status	Entry of alarm information menu

5.2 Display Menu

Item	Descriptions
1.1 Input Power: xx.x dBm	Input power, accurate to 0.1 dBm
1.2 Output Power: xx.x dBm	Output power, accurate to 0.1 dBm
1.3 Pump Bias: x mA	Bias current of pump, accurate to 1 mA
1.4 Pump Temper: xx.x℃	Temperature of pump, accurate to 0.1°C
1.5 +5V Read: x.x V	+5V power supply voltage , accurate to 0.1 V
1.6 System Temper: xx.x ℃	The device system temperature, accurate to 0.1 °C
1.7 S/N: xxxxxxxx	Device serial number
1.8 IP Address: xxx.xxx.xxx.xxx	IP address
1.9 Mask:xxx.xxx.xxx.xxx	Subnet mask
1.10 Gateway:xxx.xxx.xxx.xxx	Gateway
1.11 Mac: xxxxxxxxxxxx	Physical address
1.12 Trap Addr1: xxx.xxx.xxx.xxx	trap1 address
1.13 Trap Addr2: xxx.xxx.xxx.xxx	trap2 address
1.14 NTP Addr1	NTP address1
1.15 NTP Addr2	NTP address2
1.16 UTC Offset	UTC time
1.17 Firmware Ver: Vx.xx.x.x	Firmware version number

5.3 Setup Menu

2.1 Low Input Threshold	Set the low optical input power alarm threshold, range -5.0～10.0dBm
2.2 High Input Threshold	Set the high optical input power alarm threshold , range -5.0～10.0dBm
2.3 Set EDFA mode	Set APC or ACC
2.4 Set Output Power	Set the output optical power
2.5 Set IP Address	Set IP address
2.6 Set Mask	Set subnet mask
2.7 Set Gateway	Set gateway
2.8 Set Trap Address1	Set trap1
2.9 Set Trap Address2	Set trap2
2.10 Set NTP Server1	Set NTP server1
2.11 Set NTP Server2	Set NTP server2
2.12 Set UTC Offset	Set UTC offset
2.13 Set Buzzer Enable	Set alarm buzzer switch
2.14 Restore Factory	Restore the factory configuration，set content as shown above

5.4 Warning menu

Input power: xxx	xxx= LOLOW:	Very low optical input power alarm
	xxx= LOW:	Low optical input power alarm
	xxx= HIGH:	High optical input power alarm
	xxx= HIHIGH:	Very high optical input power alarm
Output power: xxx	xxx= LOLOW:	Very low optical output power alarm
	xxx= LOW:	Low optical output power alarm

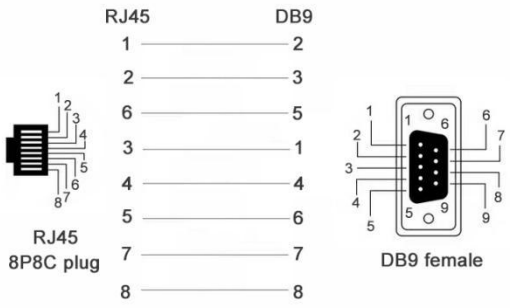
	xxx= HIGH:	High optical output power alarm
	xxx= HIHIGH:	Very high optical output power alarm
System temperature: xxx	xxx= LOLOW:	Very low system temperature alarm
	xxx= LOW:	Low system temperature alarm
	xxx= HIGH:	High system temperature alarm
	xxx= HIHIGH:	Very high system temperature alarm
Pump laser current: xxx	xxx= LOLOW:	Very low bias current of pump laser alarm
	xxx= LOW:	Low bias current of pump laser alarm
	xxx= HIGH:	High bias current of pump laser alarm
	xxx= HIHIGH:	Very high bias current of pump laser alarm
Pump laser Temperature: xxx	xxx= LOLOW:	Very low temperature of pump laser alarm
	xxx= LOW:	Low temperature of pump laser alarm
	xxx= HIGH:	High temperature of pump laser alarm
	xxx= HIHIGH:	Very high temperature of pump laser alarm
Power supply voltage: xxx	xxx= LOLOW:	Very low +5V power supply alarm
	xxx= LOW:	Low +5V power supply alarm
	xxx= HIGH:	High +5V power supply alarm
	xxx= HIHIGH:	Very high +5V power supply alarm
Fan	Fan invalid	Failure of any one or multiple fans
Invalid power	Left	Left power supply failure
	Right	Right power supply failure

6.Communication Setup Descriptions

6.1 Communication Interface Description

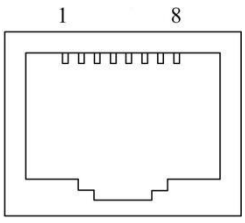
1) Connection Description: RJ45 to DB-9 :

The communication is asynchronous, and the byte frame format is: 1 start bit, 8 data bits, 1 stop bit, no parity; baud rate: 38400 bps.



	RJ45 connector	DB9 female connector
NO.	1	2
	2	3
	6	5
	3	1
	4	4
	5	6
	7	7
	8	8

2) LAN communication interface adopts RJ45 standard connector, the pin definitions as follow:

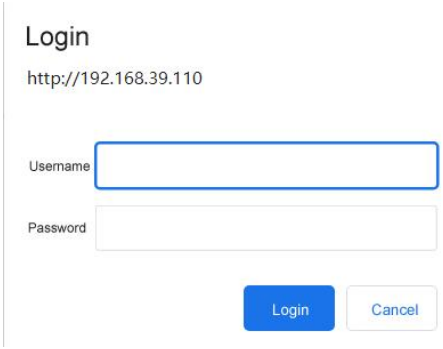


LAN

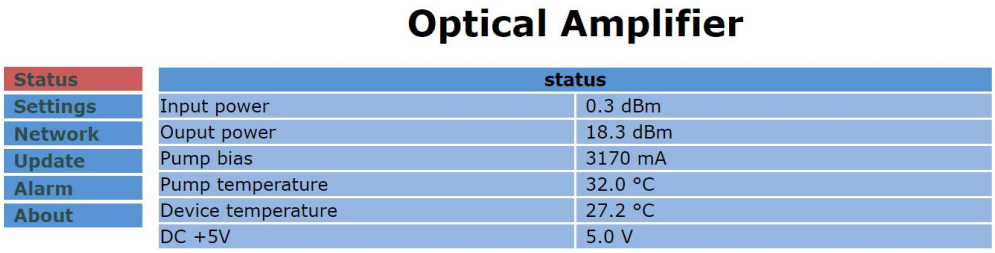
1：TX+	2：TX-	3：RX+
4：No Connect	5：No Connect	6：RX-
7：No Connect	8：No Connect	

6.2 WEB Network Management

(1)Opening the IE browser and entering the equipment IP address leads to the following interface:



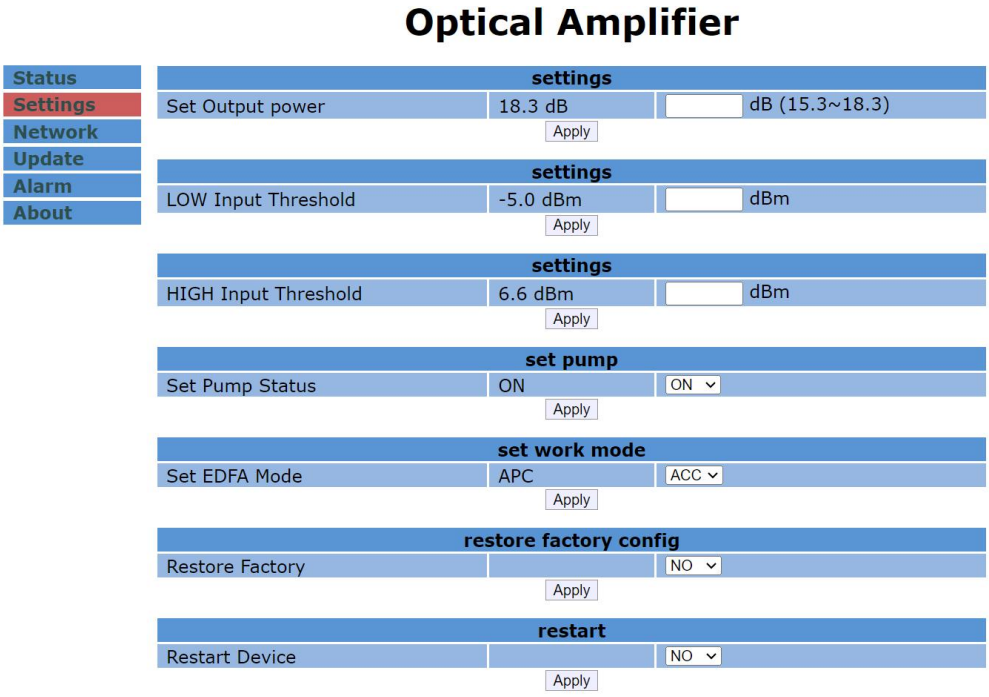
(2)Enter the user name admin and password 123456 (factory default), to show the following interface:



There are 6 sub-interfaces:

1) Status interface：mainly describes the display menus input and output optical power, pump laser operating bias and temperature, etc.
2) Settings interface：some relevant parameters of the device can be set through this interface.
3) Network interface：can set the network configuration parameters.
4) Update interface：can upgrade the firmware files.
5) Alarm interface：can obtain the real-time alarm information by reviewing the alarm log tables.
6) About interface：can review the basical information of the EDFA.

(3)Click **Setting** to open the following interface:

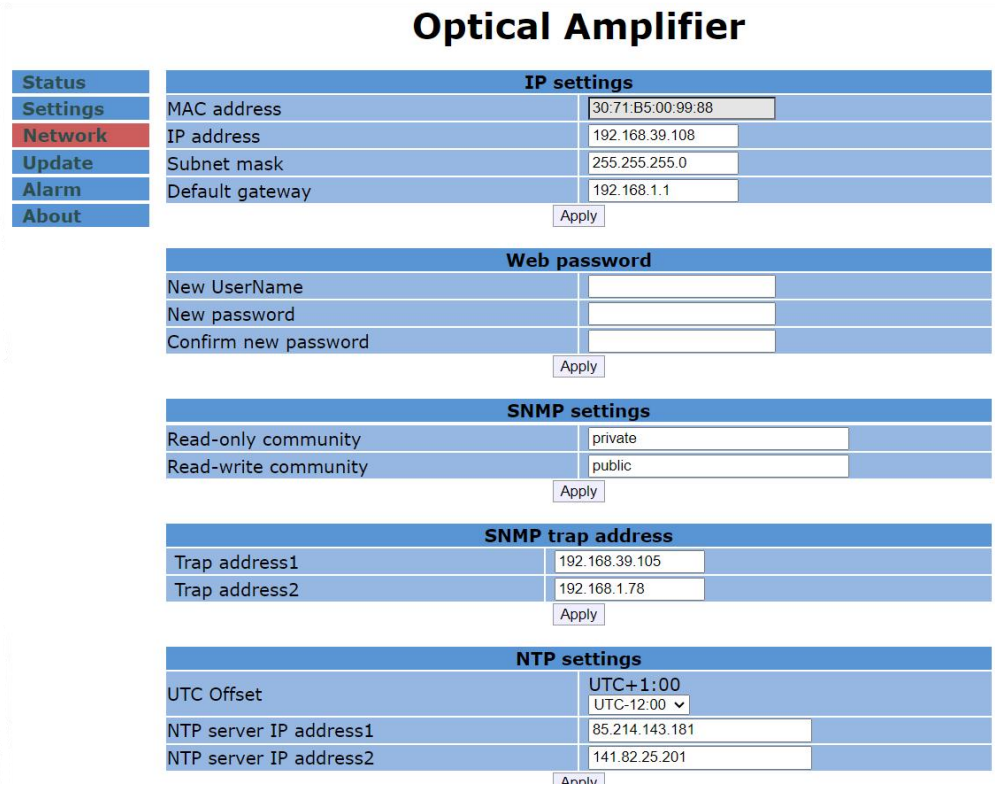


In this interface, you can set the relevant information as above.

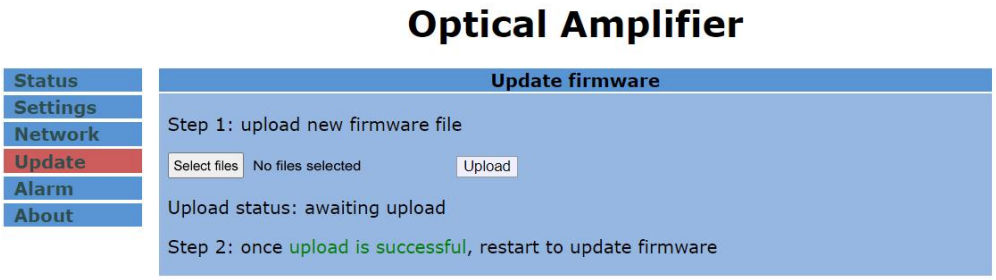
The interface displays the current device value, which can be selected or modified according to actual needs. Click Apply to confirm the update of new parameters.

Steps to change parameters: Find the item that needs to be changed in the item column, then select or enter a new value in the corresponding column, and finally click the corresponding Apply to update the parameters.

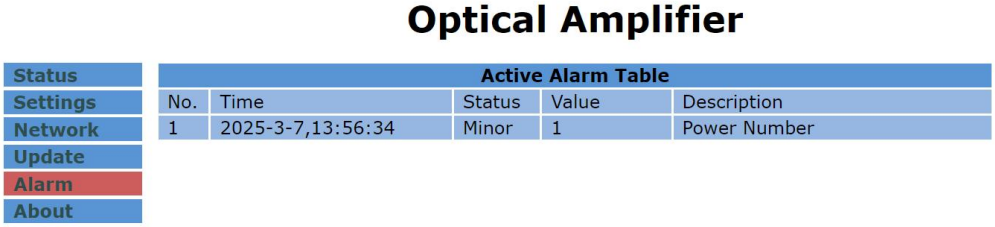
(4)Click **Network** to open the following interface:



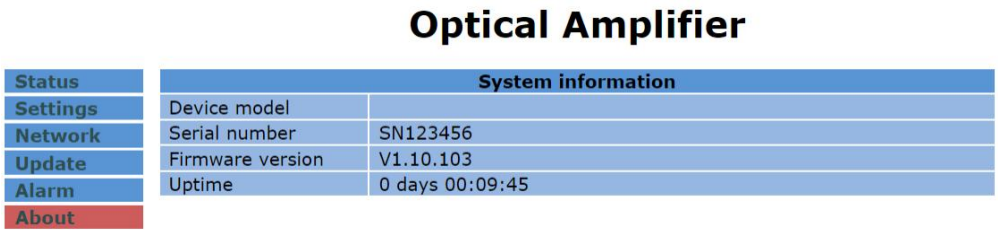
(5)Click **Update** to open the following interface:



(6)Click **Alarm** to open the following interface:



(7)Click **About** to open the following interface:



7 Attention

- Ensure the package is not defaced. If the equipment is damaged due to transportation or other reasons, please don't electrify to avoid worse damage.
- Before powering on, make sure that the grounding terminals of the chassis and power socket are reliably grounded, and the grounding resistance should be ＜4Ω, which can effectively protect against surges and static electricity.
- Optical amplifier is a highly technical professional equipment,its installation and debugging must be operated by professional technicians. Read this manual carefully before operating to avoid damage to equipment caused by fault operation or accident harm to the operator.
- When installing and debugging optical equipment, invisible laser beams may be emitted inside the fiber connector.Avoiding permanent harm to the body and eye, the fiber connector should not aim at the human body and human should not look directly at the fiber connector with the naked eye!
- There must be no shielding outside the ventilation holes of the device. Poor ventilation will cause the index to decrease, and in serious cases will cause damage to the device.
- When cleaning the fiber end face, you must confirm that the optical source is turned off.
- When the fiber connector is not in use, put a dust cover to avoid dust pollution and keep the end surface of the optical fiber clean.
- When installing the fiber connector, apply appropriate force to avoid damage to the adapter. Otherwise, the output optical power may decrease.