# WE-1550-YZC Series High-power Optical Amplifier(with PON Port)

1 Product Overview

WE-1550-YZC 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, 3RU 19 "height, compatible with EIA racks. The entire machine built-in CWDM can support 64 to 128 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
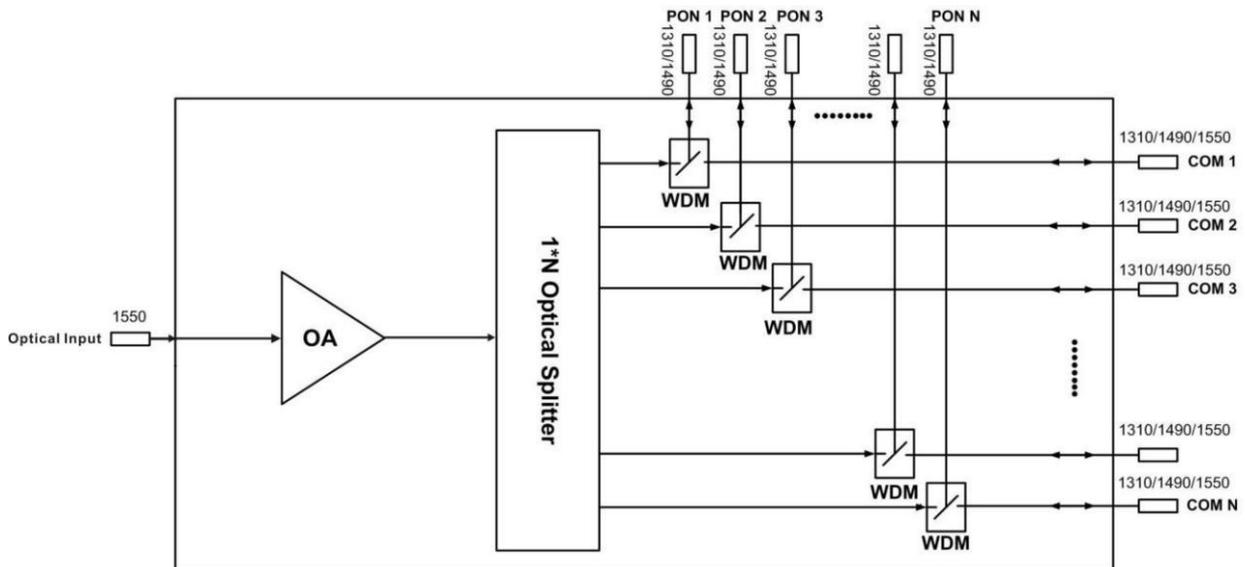
3 Technique Parameter

Item	Unit	Technique parameters	Remark
Operating bandwidth	nm	1545 - 1565	
PON passthrough wavelength	nm	1260 - 1360 & 1480 - 1500 & 1570 - 1580	
PON Insertion loss	dB	< 0.8	
Isolation	dB	> 30	
CATV Input optical power range	dBm	-10 - +10	
Number of output optical ports		64-128	
Output optical power of each port	dBm	≥20	

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 laser leakage to input power	dB	≤-30	
Pump laser leakage to output power	dB	≤-30	
Polarization related 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 port: SC/UPC or LC/UPC	
		COM port: SC/APC or LC/APC	
Power supply voltage	V	AC85V - 264V (50 -60Hz)	
Power consumption	W	≤ 225	
Operating Temperature Range	℃	-5 - +55	
Maximum operating relative humidity	%	Max 95% No Condensation	
Storage Temperature Range	℃	-30 - +70	
Maximum storage relative humidity	%	Max 95% No Condensation	
Dimension	mm	483(L)×400(W)×130(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
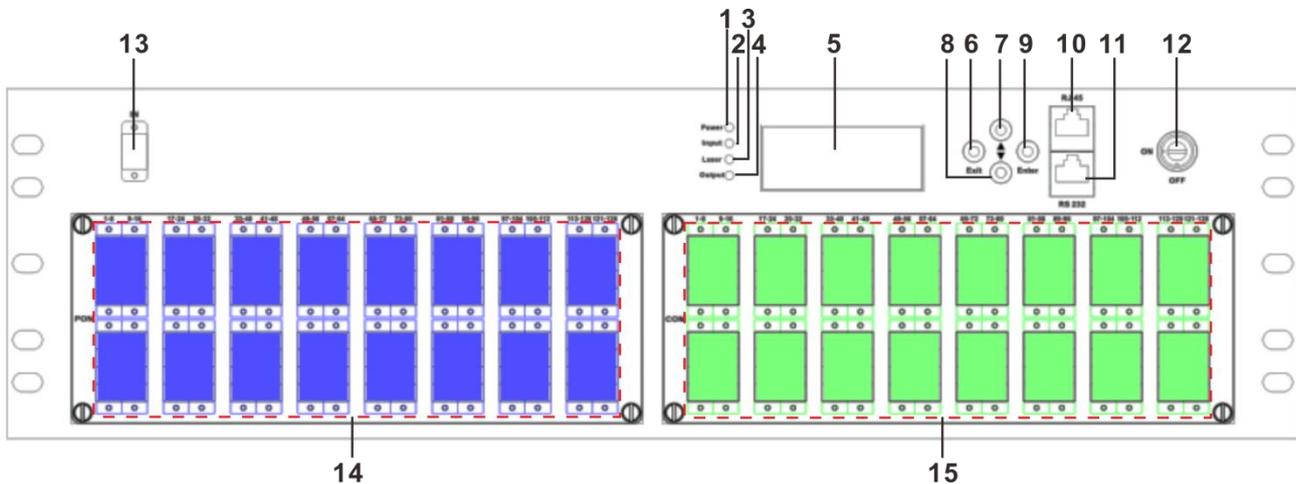
1. Power indicator: One switching power supply is working – yellow; Two switching power supplies are working – green. Abnormal—flashing red.
2. Optical input power indicator: Normal range— green.   Abnormal range—flashing red.
3. Optical output power indicator: Normal range— green.   Abnormal range—flashing red.
4. Pump working status indicator: TEC, temperature, pump power, 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
14. COM port, 64-128 ports optional. (The diagram above is a schematic diagram, please refer to the silk screen content for the actual configuration.)
15. PON port, 64-128 ports optional. (The diagram above is a schematic diagram, please refer to the silk screen content for the actual configuration.)

4.2 Rear Panel Description
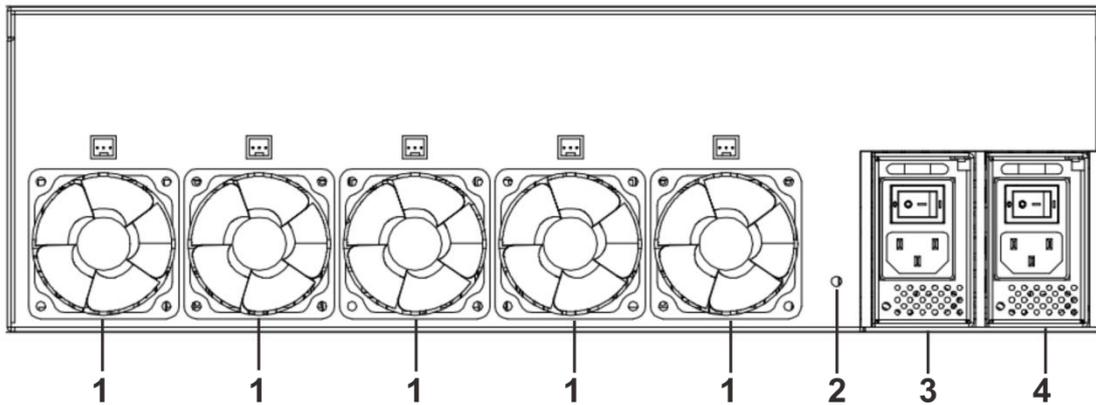
1. Fan outlet.	2. Ground stud of the chassis.
3. Power supply 1	4. Power supply 2

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	In: 0.0 M1out: 0.0 Unit: dBm M2out: 0.0	Input optical power Module 1 output optical power Unit：dBm Module 2 output optical power
Secondary Menu	Module 1	Module 1 menu
	Module 2	Module 2 menu
	Common	Common menu

5.2 ModuleX (Module1, Module2) Menu

Module X Main Page	1.Disp Parameters	Entry of Disp Parameters menu
	2.Set Parameters	Entry of Set Parameters menu
	3.Alarm Status	Entry of Alarm Status menu

Item	Descriptions
Input Power: xx.x dBm	Input power, accurate to 0.1 dBm
Output Power: xx.x dBm	Output power, accurate to 0.1 dBm
PreEDFA Power	Pre-amplify power, accurate to 0.1 dBm
Pump1 Bias: x mA	Bias current of pump1, accurate to 1 mA
Pump1 Temper: xx.x°C	Temperature of pump1, accurate to 0.1°C
Pump1 Tec: x mA	Cooling current of pump1, accurate to 1 mA
Pump2 Bias: x mA	Bias current of pump 2, accurate to 1 mA
Pump2 Temper: xx.x °C	Temperature of pump 2, accurate to 0.1°C
Pump3 Bias: x mA	Bias current of pump 3, accurate to 1 mA
Pump3 Temper: xx.x °C	Temperature of pump 3, accurate to 0.1°C
Output Power B: xx.x dBm	B output power, accurate to 0.1 dBm
+5V Read: x.x V	+5V power supply voltage , accurate to 0.1 V
System Temper: xx.x °C	The device system temperature, accurate to 0.1 °C

Item	Descriptions
Low Input Threshold	Set the low optical input power alarm threshold
High Input Threshold	Set the high optical input power alarm threshold
Set EDFA Mode	Set APC or ACC control mode of the EDFA
Set Output Power	Set the optical output power

5.3 Common menu

| 3.1 Ip Addr	Set IP address
3.2 Mask	Set subnet mask
3.3 Gateway	Set gateway
3.4 Trap1	Set trap1 address
3.5 Trap2	Set trap2 address
3.6 NTP1	Set NTP server1
3.7 NTP2	Set NTP server2
3.8 UTC	Set UTC
3.9 MAC	The MAC address of the EDFA
3.10 SN	The serial number of the EDFA
3.11 Firmware Ver	The current software version of the EDFA
3.12 Set Buzzer Enable	Set the buzzer enable or disable.
3.14 Set Restore Factory	Restore the factory configuration，set content as shown above

6.Communication Setup Descriptions

## 6.1 Communication Interface Description

1) RS232 communication interface adopts DB9 standard connector, the pin definitions as follow:

The serial communication uses the standard NRZ form, 1 starts bit, 8 data bits, 1 stop bit and the baud rate is 38400.
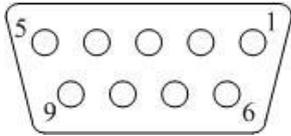
1：No Connect	2：TX	3：RX
4：No Connect	5：GND	6：No Connect
7：No Connect	8：No Connect	9：No Connect

2) LAN communication interface adopts RJ45 standard connector, the pin definitions as follow:
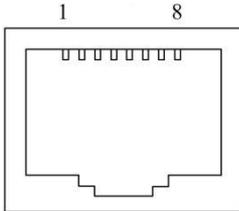
1：TX+	2：TX-	3：RX+
4：No Connect	5：No Connect	6：RX-
7：No Connect	8：No Connect	

LAN

6.2 WEB Network Management

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

Login

http://192.168.39.110

Username

Password

Login   Cancel

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

Optical Amplifier

Module1	
Input power	-0.9 dBm
Ouput power	20.0 dBm
Pump1 bias	286 mA
Pump1 temperature	24.4 °C
Pump1 tec	-225 mA
Pump2 bias	3223 mA
Pump2 temperature	33.0 °C
Pump3 bias	3255 mA
Pump3 temperature	33.0 °C
Ouput powerB	20.0 dBm
Device temperature	28.7 °C
DC +5V	4.8 V

Module2	
Input power	0.0 dBm
Ouput power	13.2 dBm
Pump1 bias	5 mA
Pump1 temperature	47.3 °C
Pump1 tec	-16 mA
Pump2 bias	32 mA
Pump2 temperature	-40.0 °C
Pump3 bias	64 mA
Pump3 temperature	-40.0 °C
Ouput powerB	18.2 dBm

Status
Settings
Network
Update
Alarm
About

There are 6 sub-interfaces:

1) Status interface：mainly describes the display menus of modules 1 and 2, including input and output optical power, pump laser operating current 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:

Optical Amplifier

Status	**Set Module1**			
Settings	Set Output power		20.0	dB
Network	LOW Input Threshold		-10.0	dBm
Update	HIGH Input Threshold		10.0	dBm
Alarm	Set Pump Status		ON ˅	
About	Set EDFA Mode		APC ˅	

Apply

Set Module2			
Set Output power		6513.6	dB
LOW Input Threshold		-10.0	dBm
HIGH Input Threshold		10.0	dBm
Set Pump Status		ON ˅	
Set EDFA Mode		APC ˅	

Apply

restore factory config		
Restore Factory		NO ˅

Apply

restart		
Restart Device		NO ˅

Apply

In this interface, you can set the relevant information for Module 1 and Module 2.

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:

Optical Amplifier

Status		IP settings	
Settings			
Network	MAC address	30:71:B2:67:1F:00	
Update	IP address	192.168.39.110	
Alarm	Subnet mask	255.255.255.0	
About	Default gateway	192.168.1.1	
		Apply	

Web password	
New UserName	
New password	
Confirm new password	
Apply	

SNMP settings	
Read-only community	public
Read-write community	public
Apply	

SNMP trap address	
Trap address1	192.168.1.77
Trap address2	192.168.1.78
Apply	

NTP settings	
UTC Offset	UTC+1:00
	UTC-12:00 ⌄

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

Optical Amplifier

Status	Update firmware
Settings	
Network	Step 1: upload new firmware file
Update	
Alarm	Select files No files selected Upload
About	
	Upload status: awaiting upload
	Step 2: once upload is successful, restart to update firmware

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

Optical Amplifier

		Active Alarm Table			
Status	No.	Time	Status	Value	Description
Settings					
Network	1	2023-7-7,6:56:34	Major	4 mA	module2 laser bias1 current too Low
Update					
Alarm	2	2023-7-7,6:56:34	Major	47.3 °C	module2 laser pump1 temperature too High
About	3	pInputPower LOLO Event	Major	64 mA	module2 laser bias2 current too Low
	4	Event	Major	-40.0 °C	module2 laser pump2 temperature too Lope=td>

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

Optical Amplifier

Status	System information	
Settings		
Network	Device model	EDFA
Update	Serial number	SN123456
Alarm	Firmware version	V1.24.100
About		

System identification	
Contact	SysContact
Name	SysName
Location	SysLocation
Edit system ID	

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.

LASER RADIATION