

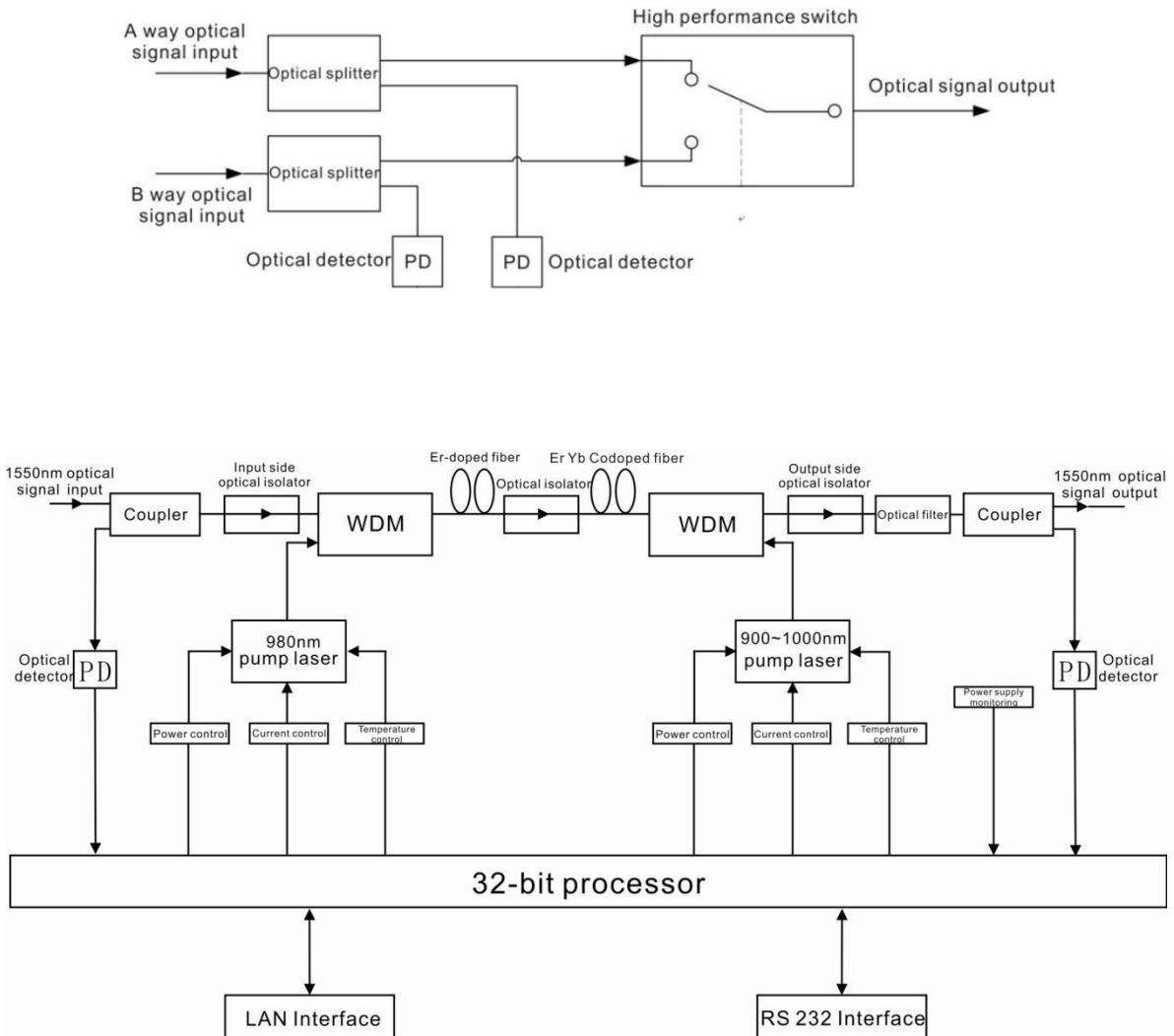
**WE-1550-RT1-SW Series High-power Optical Amplifier**



**1. Product Overview**

WE-1550-RT1-SW 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. The maximum total output power of the whole machine can reach +37dBm, and it supports up to 16 outputs, with optional optical switch, CWDM, and RF detection. 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**

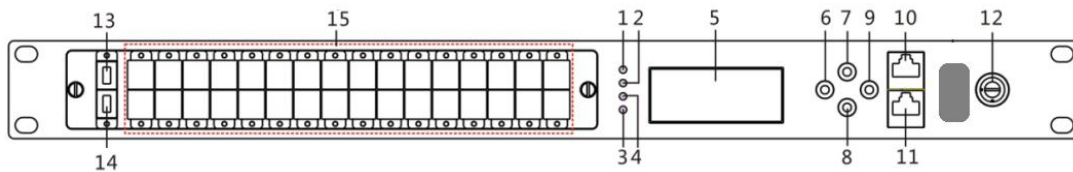


**3 Technique Parameter**

Item	Unit	Technique parameters	Remark
<b>EDFA</b>			
Operating wavelength	nm	1545 - 1565	
Optical input power range	dBm	-10 - +10	
Output power stability	dBm	±0.5	
Noise figure	dB	≤ 5.5	Optical input power:
Return loss	Input	dB	≥ 50
	Output	dB	≥ 50
Optical connector type		SC/APC , LC/APC or E/2000	
Pump leakage to input	dBm	≤ -30	
Pump leakage to output	dBm	≤ -30	
Polarization Dependent Gain	dB	<0.5	
Polarization Mode Dispersion	Ps	<0.5	
Optical power adjustable range	dB	6	Adjusting accuracy
<b>Optical Switch</b>			
Number of input ports		2	
Insertion loss	dB	≤ 1.0	
Switching time	ms	≤ 500	
Switching mode		1. The main channel is lower than the	Automatic switching
<b>General Characteristics</b>			
Power voltage	V	AC 100 ~ 240/(50-60 Hz);	
Total power consumption	W	≤ 50	
Operating temperature range	°C	-10 - +50	
Operating relative humidity	%	Max 85% no condensation	
Storage temperature range	°C	-40 - +80	
Dimensions	mm	483 (L) x 360 (W) x 44 (H)	

**4 External Function Description**

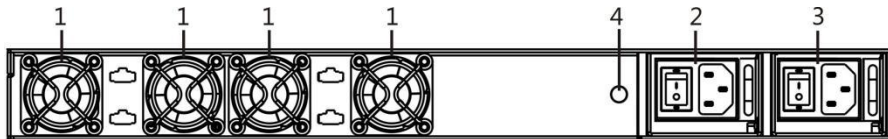
**4.1 Front Panel Description**



1. Power indicator: Dual power supplies are normal--green; single power supply is normal-- yellow; abnormal--red light flashes.
2. Optical input power indicator: The optical power of both input ports is normal--green. The optical power of one of the input ports is normal--yellow. The optical power of both input ports is abnormal--red light flashes.
3. Optical output power indicator: Optical output power is within the normal range—green; abnormal—red light flashes.
4. Pump working status indicator: All states are normal-- green; any alarm occurs among EC, temperature, pump power and so on, the red light flashes. For related fault causes, view the alarm menu in the display menu.
5. LCD screen: used to display all the parameters of the machine.

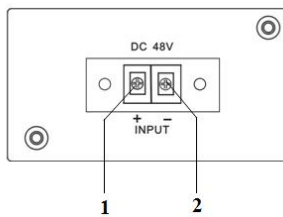
6. Display the exit or cancel key of the setup menu.
7. Display the up or increase key of the setup menu.
8. Display the down or decrease key of the setup menu.
9. Display the enter key of the setup menu.
10. RJ45 port.
11. RS232 port.
12. Pump laser switching key: used to control the working status of pump laser. "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 1: The default connector type is SC/APC. Other specification requirements are specified by the customer.
14. Optical signal input 2: The default connector type is SC/APC. Other specification requirements are specified by the customer.
- Optical signal output: Optical signal output ports. The default connector type is SC/APC. The port numbers are 4-32 optional.
- Other specification requirements are specified by the customer.
15. Optical signal output.

## 4.2 Rear Panel Description



1. Fan outlet.
2. Power supply 1.
3. Power supply 2.
4. Ground stud of the housing: used for the connection of device and ground wire.

## 4.3 DC Power Introduction



<b>1</b>	+ Positive terminal block
<b>2</b>	- Negative terminal block

## 5 Menu System

### 5.1 Main Menu

Name	Display	Description
<b>System Starting</b>	xxxxxxx	Manufacturers' logo
	xxxxxxx	Equipment model
	xxxxxxx	Start countdown / lock status
<b>Suspend Page</b>	In: xx.x out: xx.x Unit: dBm	Display the optical input / output power Unit: dBm
<b>Main Page</b>	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**

Input Power A: xx.x dBm	Input power, accurate to 0.1 dBm
Input Power B: xx.x dBm	Input power, accurate to 0.1 dBm
Output Power: xx.x dBm	Output power, accurate to 0.1 dBm
PreEDFA Power:xx.x dBm	The first stage amplification. output power, accurate to 0.1 dBm
Current Channel	Current channel A/B
Pump1 Bias: xx.x mA	Bias current of pump1, accurate to 1 mA
Pump1 Temper: xx.x ℃	Temperature of pump1, accurate to 0.1℃
Pump1 Tec: xx.x mA	Cooling current of pump1, accurate to 1 mA
Pump2 Bias: x.x mA	Bias current of pump2, accurate to 1 mA
Pump2 Temper: xx.x ℃	Temperature of pump 2, accurate to 0.1℃
+5V Read: x.x V	+5V power supply voltage , accurate to 0.1 V
System Temper: xx ℃	Housing temperature, accurate to 0.1 ℃
SN	Device serial number
IP Addr	IP address
Mask	Subnet mask
Gateway	Gateway
MAC	Physical address
Trap Addr1	trap1 address
Trap Addr2	trap2 address
NTP Addr1	NTP server1 address
NTP Addr2	NTP server2 address
UTC Offset	UTC offset
Firmware Ver	Firmware version number

**5.3 Setup Menu**

Low Input Threshold	Set low alarm threshold of optical input power, range: -10.0~10.0dBm
High Input Threshold	Set high alarm threshold of optical input power, range: -10.0~10.0dBm
Set EDFA Mode	APC or ACC
Set Output Power	Set optical output power
Set IP Addr	Set IP address
Set Mask	Set subnet mask
Set Gateway	Set gateway
Set Trap1 Address	Set trap1
Set Trap2 Address	Set trap2
Set NTP Server1	Set NTP server1 address
Set NTP Server2	Set NTP server2 address
Set UTC Offset	Set UTC offset
Set Buzzer Switch	Set buzzer switch
Restore Factory Config	Restore the factory default configuration

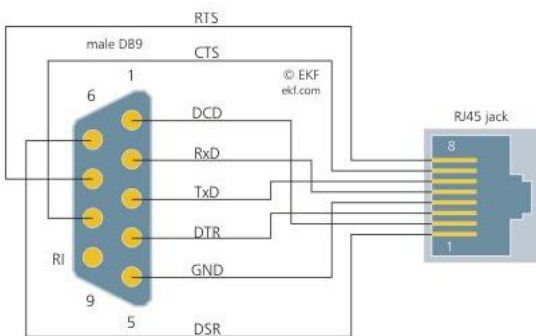
**5.4 Warning menu**

Input power: xxx	xxx= Lo/ow:	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= <i>Lolow</i> :	Very low optical output power alarm
	xxx= <i>Low</i> :	Low optical output power alarm
	xxx= <i>High</i> :	High optical output power alarm
	Xxx= <i>Hihigh</i> :	Very high optical output power alarm
System temperature: xxx	xxx= <i>Lolow</i> :	Very low device temperature alarm
	xxx= <i>Low</i> :	Low device temperature alarm
	xxx= <i>High</i> :	High device temperature alarm
	Xxx= <i>Hihigh</i> :	Very high device temperature alarm
Pump laser current: xxx	xxx= <i>Lolow</i> :	Very low current alarm of pump x
	xxx= <i>Low</i> :	Low current alarm of pump x
	xxx= <i>High</i> :	High current alarm of pump x
	Xxx= <i>Hihigh</i> :	Very high current alarm of pump x
Pump laser power: xxx	xxx= <i>Lolow</i> :	Very low power alarm of pump x
	xxx= <i>Low</i> :	Low power alarm of pump x
	xxx= <i>High</i> :	High power alarm of pump x
	Xxx= <i>Hihigh</i> :	Very high power alarm of pump x
Pump laser temperature: xxx	xxx= <i>Lolow</i> :	Very low temperature alarm of pump x
	xxx= <i>Low</i> :	Low temperature alarm of pump x
	xxx= <i>High</i> :	High temperature alarm of pump x
	Xxx= <i>Hihigh</i> :	Very high temperature alarm of pump x
Power supply voltage: xxx	xxx= <i>Lolow</i> :	Very low +5V DC power supply alarm
	xxx= <i>Low</i> :	Low +5V DC power supply alarm
	xxx= <i>High</i> :	High +5V DC power supply alarm
	Xxx= <i>Hihigh</i> :	Very high +5V DC power supply alarm
Fan	<i>Fan invalid</i>	Cooling fan is invalid

**6.Communication Setup Descriptions**

**6.1 Connection Description: RJ45 to DB-9**

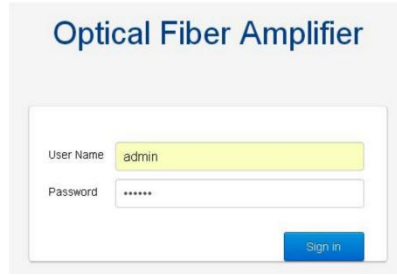


RJ-45 PIN	DB9 female PIN
1	2
2	3
6	5
3	1
4	4
5	6
7	7
8	8

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.

## 6.2 WEB Network Management

- Opening the IE browser and entering the equipment IP address leads to the following interface:
- user name: **admin** password: **123456**



- Status interface: display EDFA parameters

### Optical Amplifier

Status	status	
Settings	Input powerA	0.0 dBm
Network	Input powerB	-99.0 dBm
Spectrum	Ouput power	17.0 dBm
Update	Current Channel	A
Alarm	Pump1 bias	551 mA
About	Pump1 temperature	24.6 °C
	Pump1 tec	64 mA
	Pump2 bias	1800 mA
	Pump2 temperature	25.0 °C
	Device temperature	23.8 °C
	DC +5V	4.9 V
	Power1 Status	off
	Power2 Status	on
	Up-time	0 days 00:46:02

- Settings interface: set EDFA parameters

### Optical Amplifier

Status	settings	
Settings	Set Output power	17.0 dB (9.5~21.5)
Network	LOW Input Threshold	-5.0 dBm
Spectrum	HIGH Input Threshold	12.0 dBm
Update	Set Pump Status	ON ▾
Alarm	Set EDFA Mode	ACC ▾
About	<input type="button" value="Apply"/>	
<b>set switch</b>		
	Operating mode	Manual ▾
	Set current channel	A ▾
	Switching thresholds	-8.0 dBm (-10~+10)
<input type="button" value="Apply"/>		
<b>setting fan</b>		
	Setting the fan operation mode	Auto ▾
	Setting fan on/off	on ▾
	Setting the temperature for the automatic operation of fan	20.0 °C
<input type="button" value="Apply"/>		
<b>setting language</b>		
	Select language	English ▾
<input type="button" value="Apply"/>		
<b>restore factory config</b>		
	Restore Factory	NO ▾
<input type="button" value="Apply"/>		
<b>restart</b>		
	Restart Device	NO ▾
<input type="button" value="Apply"/>		

● Network interface: Configure network parameters

### Optical Amplifier

Status	IP settings	
Settings	MAC address	30-71-22-33-44-55
Network	IP address	192.168.77.233
Spectrum	Subnet mask	255.255.255.0
Update	Default gateway	192.168.77.1
Alarm	Apply	
About	Web password	
	UserName	admin
	New password	
	Confirm new password	
	Apply	
	SNMP settings	
	Read-only community	public
	Read-write community	public
	Apply	
	SNMP trap address	
	Trap address1	192.168.77.16
	Trap address2	192.168.77.99
	Apply	
	NTP settings	
	UTC Offset	UTC+8:00 UTC-12:00
	NTP server IP address1	202.108.6.95
	NTP server IP address2	141.82.25.201
	Apply	

● Update interface: Software online upgrade

### Optical Amplifier

Status	Update firmware	
Settings	Step 1: upload new firmware file	
Network	Selected files No files selected <span style="float: right;">Upload</span>	
Spectrum	Upload status: awaiting upload	
Update	Step 2: once upload is successful, restart to update firmware	
Alarm		
About		

● Alarm interface: Display alarm information

### Optical Amplifier

Status	Alarm log											
Settings	Alarm log size	69 entries										
Network	Erase Alarm log	Erase log										
Spectrum	Show Alarm log	Show log										
Update												
Alarm	<table border="1"> <thead> <tr> <th>No.</th> <th>Code</th> <th>Up time</th> <th>Date and Time</th> <th>Message</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		No.	Code	Up time	Date and Time	Message					
No.	Code	Up time	Date and Time	Message								
About												

● About interface: EDFA related information

### Optical Amplifier

Status	System information	
Settings	Device model	EDFA
Network	Serial number	SN123456
Spectrum	Firmware version	V1.00.254
Update		
Alarm		
About		

## 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  $<4\Omega$ , 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.



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