THOR BROADCAST

User Manual

Erbium Doped Fiber Amplifier (EDFA)

F-EDFA-XX

A Note from Thor Broadcast about this Manual

Intended Audience

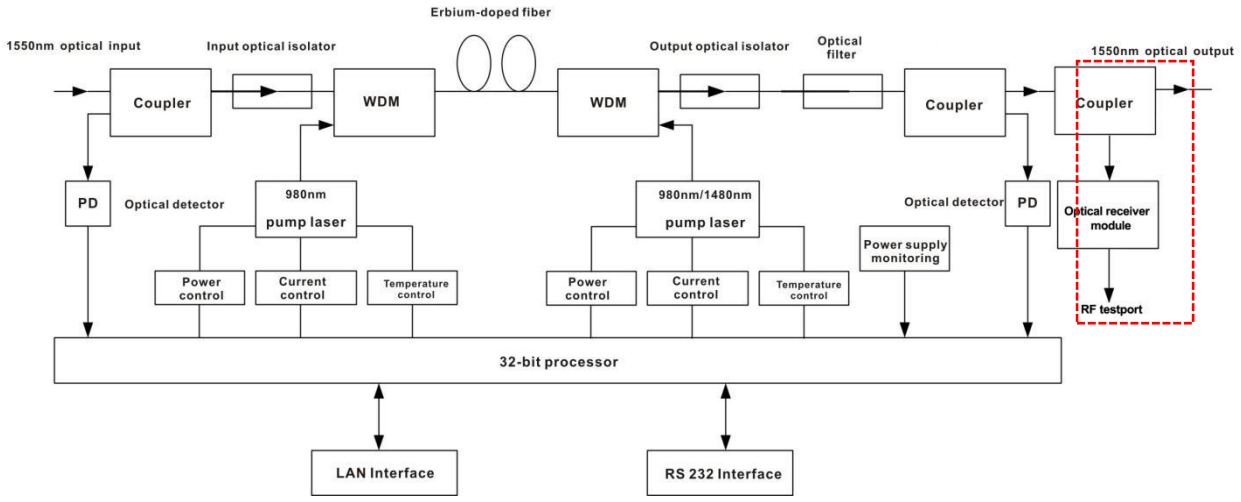
This user manual has been written to help people who have to use, integrate and to install the product. Some chapters require some prerequisite knowledge in electronics and especially in broadcast technologies and standards.

Disclaimer

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing. Thor shall have no liability for any error or damage of any kind resulting from the use of this document.

Copyright Warning

2 Block Diagram



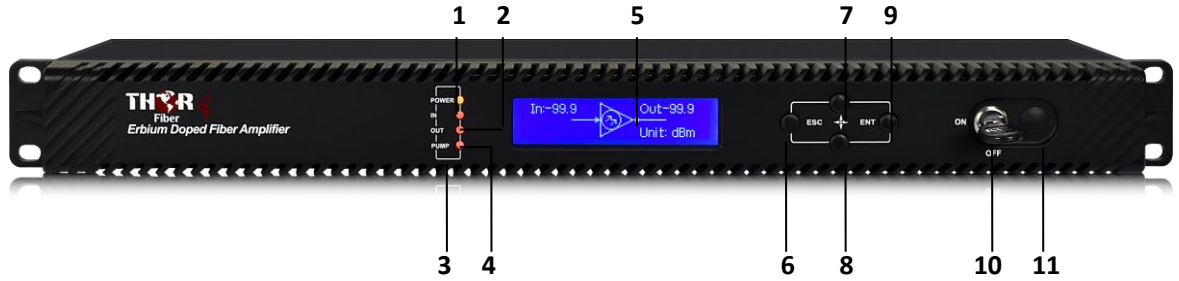
Note:The dashed box in the figure is optional.

3 Technique Parameter

Item		Unit	Technique parameter	Remark
Operating bandwidth		nm	1545 - 1565	
Input optical power range		dBm	-5 - +10	
Output optical power		dBm	13-26	
Output power stability		dBm	±0.5	
Noise figure		dB	≤ 5.0	Input optical power 0dBm
RF testport		dBuV	78 ± 2	Optional
Return loss	Input	dB	≥ 45	
	Output	dB	≥ 45	
Pump leakage power	Input	dBm	≤ -30	
	Output	dBm	≤ -30	
Optical connector type			FC，SC or LC	
Power supply voltage		V	AC100 - 250V（50-60 Hz） DC48V	
Consumption		W	< 30	
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(W)×400(D)× 44(H)	

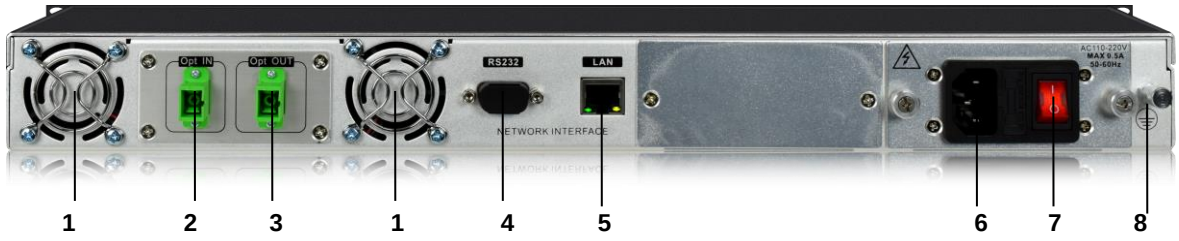
4 External Function Description

4.1 Front Panel Description



1. Power indicator: One switching power supply is working – yellow; two switching power supplies are working – green.
2. Optical input power indicator: This light turns on when the optical input power is > -10dBm.
3. Pump working status indicator: Red light means the pump is not working; Flashing red light means the machine has broken down; Green light means the pump is working normal.
4. Optical output power indicator: This light turns on when the optical output power is > +10dBm.
5. 160×32 dot-matrix LCD screen
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. Pump laser key: “ON” means the pump laser is open and “OFF” means the pump laser is closed. Ensure the key is on “OFF” position before powering on. After passing self-test, rotate the key to “ON” position according to the displayed message.
11. RF test port. （Optional）

4.2 Rear Panel Description



1. Fan outlet	2. Optical signal input	3. Optical signal output
4. RS232 interface	5. LAN interface	6. AC power input of power supply
7. Switch of power supply 1	8. Ground stud of the chassis	

5 Menu System

5.1 Main Menu

Name	Display	Description
System Starting	*F-EDFA*	Thor Fiber
	xxxxxxx	DBM of Model
	xxxxxxx	Start countdown / lock status.
Suspend Page	In: *xx.x* out: *xx.x* Unit: dBm	Display the input / output optical power
Main Page	1.Disp Parameters	Entry of parameter display menu
	2.Set Parameters	Entry of parameter setting menu
	3.Alarm Status	Entry of alarm information menu

5.2 Display Menu

Input Power: *xx.x dBm*	Input power, accurate to 0.1 dBm
Output Power: *xx.x dBm*	Output power, accurate to 0.1 dBm
Output ATT: *x.x dBm*	Output power ATT, accurate to 0.1 dBm
Pump1 Bias: *x mA*	Bias current of pump1, accurate to 1mA
Pump1 Temper: *xx.x* °C	Temperature of pump1, accurate to 0.1°C
Pump1 Tec: *x.xx A*	Cooling current of pump1, accurate to 0.01 A
Pump2 Bias: *x mA*	Bias current of pump2, accurate to 1m A
Pump2 Temper: *xx.x* °C	Temperature of pump2, accurate to 0.1°C
Pump2 Tec: *x.xx A*	Cooling current of pump2, accurate to 0.01 A
+5V Read: *x.x V*	+5V power supply voltage , accurate to 0.1 V
-5V Read: *-x.x V*	-5V power supply voltage , accurate to 0.1 V
System Temper: *xx.x* °C	Chassis temperature, accurate to 0.1°C
Serial NO.: *xxxxxxxx*	Device serial number
IP Addr: *xxx.xxx.xxx.xxx*	IP address
Mask: *xxx.xxx.xxx.xxx*	Subnet mask
Gateway: *xxx.xxx.xxx.xxx*	Gateway
Mac: *xxxxxxxxxxxx*	Physical address
Trap Addr1: *xxx.xxx.xxx.xxx*	trap1 address
Trap Addr2: *xxx.xxx.xxx.xxx*	trap2 address
Firmware Ver: Vx.xx	Firmware Version number

5.3 Setup Menu

Set Low Input Threshold	Set the input optical power low alarm threshold, range -10.0～9.9dBm
Set High Input Threshold	Set the input optical power high alarm threshold , range -10.0～10.0dBm
Set APC MODE	Set the constant optical power output function, on or off
Set Output ATT	Set the output optical power attenuation,range -4.0～

	0.5dBm
IP Addr	Set IP address
Mask	Set subnet mask
Gateway	Set gateway
Trap Addr1	Set trap1
Trap Addr2	Set trap2
Buzzer Switch	Set the switch of beeper
Restore Factory config	Restore the factory configuration， set content as shown above

5.4 Warning menu

Input Status: xxx	xxx= LOLOW: Very low input optical power alarm
	xxx= LOW: Low input optical power alarm
	xxx= HIGH: High input optical power alarm
	Xxx= HIHIGH: Very high input optical power alarm
Output Status: xxx	xxx= LOLOW: Very low output optical power alarm
	xxx= LOW: Low output optical power alarm
	xxx= HIGH: High output optical power alarm
	Xxx= HIHIGH: Very High output optical power alarm
Pump1 Bias: xxx	xxx= LOLOW: Very low bias current of pump1 alarm
	xxx= LOW: Low bias current of pump1 alarm
	xxx= HIGH: High bias current of pump1 alarm
	Xxx= HIHIGH: Very high bias current of pump1 alarm

Pump1 Temper: xxx	xxx= LOLOW: Very low temperature of pump1 alarm
	xxx= LOW: Low temperature of pump1 alarm
	xxx= HIGH: High temperature of pump1 alarm
	Xxx= HIHIGH: Very high temperature of pump1 alarm
Pump1 Tec: xxx	xxx= LOLOW: Very low cooling current of pump1 alarm
	xxx= LOW: Low cooling current of pump1 alarm
	xxx= HIGH: High cooling current of pump1 alarm
	Xxx= HIHIGH: Very high cooling current of pump1 alarm
Pump2 Bias: xxx	xxx= LOLOW: Very low bias current of pump2 alarm
	xxx= LOW: Low bias current of pump2 alarm
	xxx= HIGH: High bias current of pump2 alarm
	Xxx= HIHIGH: Very high bias current of pump2 alarm
Pump2 Temper: xxx	xxx= LOLOW: Very low temperature of pump2 alarm
	xxx= LOW: Low temperature of pump2 alarm
	xxx= HIGH: High temperature of pump2 alarm
	Xxx= HIHIGH: Very high temperature of pump2 alarm
Pump2 Tec: xxx	xxx= LOLOW: Very low cooling current of pump2 alarm
	xxx= LOW: Low cooling current of pump2 alarm
	xxx= HIGH: High cooling current of pump2 alarm
	Xxx= HIHIGH: Very high cooling current of pump2 alarm
+5V Status: xxx	xxx= LOLOW: Very low +5V DC power supply alarm
	xxx= LOW:

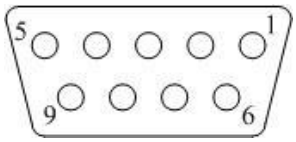
	Low +5V DC power supply alarm
	xxx= HIGH: High +5V DC power supply alarm
	Xxx= HIHIGH: Very high +5V DC power supply alarm
-5V Status: xxx	xxx= LOLOW: Very low -5V DC power supply alarm
	xxx= LOW: Low -5V DC power supply alarm
	xxx= HIGH: High -5V DC power supply alarm
	Xxx= HIHIGH: Very high -5V DC power supply alarm
Device Temper: xxx	xxx= LOLOW: Very low chassis temperature alarm
	xxx= LOW: Low chassis temperature alarm
	xxx= HIGH: High chassis temperature alarm
	xxx= HIHIGH: Very high chassis temperature alarm

6.Communication Setup Descriptions

6.1 Communication Interface Description

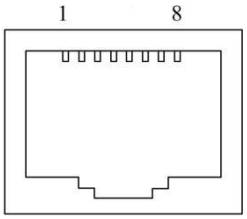
1) RS232 communication interface adopts DB9 standard connector, the pin definitions as follow:

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:

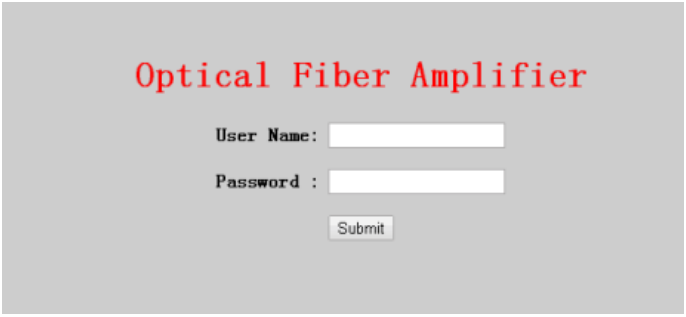


LAN

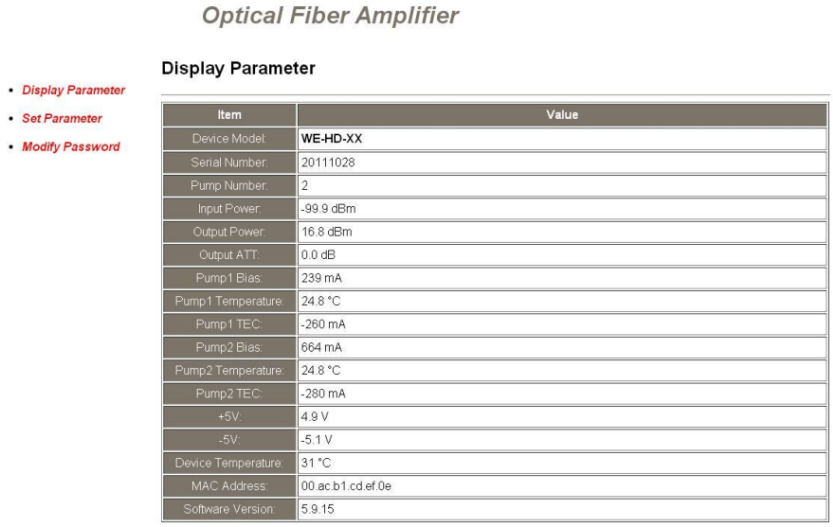
1：TX+	2：TX-	3：RX+
4：No Connect	5：No Connect	6：RX-
7：No Connect	8：No Connect	

6.2 WEB Network Management

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



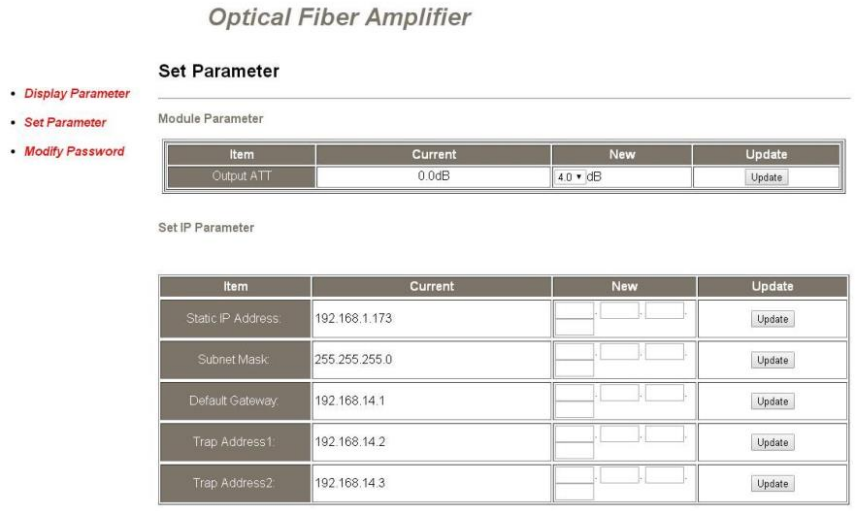
2. Enter the user name **admin** and password **123456** (factory default), to show the following interface:



There are 3 sub-interfaces:

1. **Display Parameter** interface: Describes the equipment display menu.
2. **Set Parameter** interface: Change the equipment parameters in this interface.
3. **Modify password** interface: Change the login password in this interface.

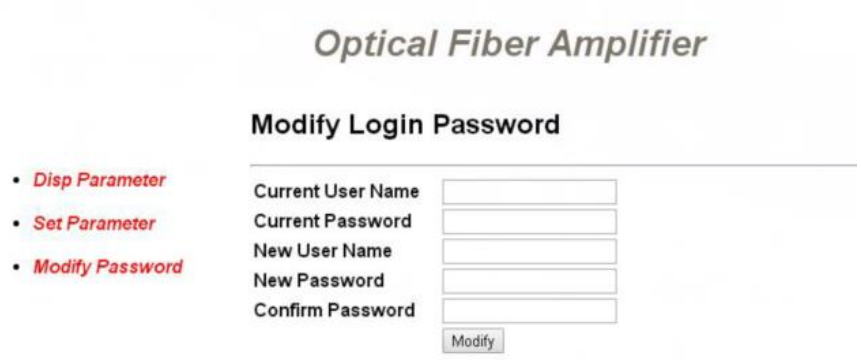
3. Click **Set Parameter** to open the following interface:



The **Item** shows the changeable parameters, **Current**—the current parameters; **New**—select or enter the new parameters; **Update**—update the parameters.

The update steps: Find the item which needs to be changed, select a new value, and click the **Update** button.

4. Click **Modify Password** to open the following interface:



7 Attention

- Ensure the package is not damaged. If the equipment is damaged due to transportation or other reasons, please check equipment thoroughly and don't turn on if it looks damaged.
- Before powering on, make sure that the ground 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, first 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.

Chapter 6 - Packing List

Erbium Doped Fiber Amplifier (EDFA)	F-EDFA-XX	1 PC
User's Manual		1 PC
Power Cord		1 PC

For Further Tech Support

1-800-521-Thor(8467)

support@thorfiber.com