





***Please read this manual thoroughly before use.  
Retain this manual for future reference.***

### **Taikan 1550nm Erbium Doped Fiber Amplifier Owner's Manual**

This manual is intended for use by purchasers of Taikan's OA-1550 family of optical amplifiers and their qualified technicians. This document is the property of Taikan Corporation (**Taikan**) and embodies proprietary subject matter. All design, manufacture, reproduction, use and sale rights regarding these products are expressly reserved. This manual may not be reproduced without written consent from Taikan. All copyright, patent and trade secrets for this manual and product are expressly reserved by Taikan. Specifications are also subject to change without notice.

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# 1.0 INTRODUCTION



## PRODUCT SUMMARY

The OA-1550 series is a CATV booster optical amplifier with gain spectrum bandwidth of 1540-1565nm. This headend amplifier is designed for the application of single channel or 1-8 continuous ribbon channels (ITU wavelength). Generally, fiber CATV systems operate in a single wavelength without strict requirements on gain flatness. THE OA-1550 booster amplifiers are designed with a low noise figure and high-saturated output power. It is applicable for central headend, sub-headend, line relay, and other optical networks. The OA-1550 optical amplifier utilizes a top-class pump laser and OFS erbium doped optical fiber; perfect for APC, ACC and ATC control.

The housing is designed for proper ventilation and heat-dissipation thereby ensuring a longer product life and more reliable pump laser. On the rear panel a RS232 and RJ45 offer serial communication and SNMP network management port. The LCD at the front panel displays relevant parameters and warning LED lights. As a safety precaution the output laser will automatically shut off if an optical input power is not detected. Lastly output ports can be installed ON the front or rear panel depending on your desired preference.

## STANDARD FEATURES

- Erbium Doped Optical Fiber
- 1540~1563 nm Operating Wavelength
- Low Noise, High Output, High Reliability
- APC, ACC , ATC Controlled Selection
- 19" 1 U Standard Rackmount Housing
- Excellent P/P Ratio
- RS232 and RJ45 Connections
- Easy to Read LCD Screen

# 2.0 AMPLIFIER CONTROLS

## OVERVIEW:

This section of the manual gives an overview of the available menus in the OA-1550-S00 series amplifier. All instructions in Section 2.0 refer to the representation of the front panel shown in the image below. The user can scroll through the menus by using the push buttons that are on the front panel located to the right of the LCD screen.



## 2.1 THE OPERATION OF THE PANEL:

### 2.1.1 INITIAL STEPS

- A. Plug in 110V or 220V power supply
- B. Turn on the power switch in the rear panel
- C. Turn the laser key from OFF to ON. The laser status LED turns from green to red and the product enters self-diagnostic mode.
- D. After the self-diagnostic test, the amplifier will enter working status and display "Descriptor"

### 2.1.2 START-UP MAIN MENU

Press the ▲\ ▼ buttons and the following menu will be displayed in sequence.

#### Menu #1 — Descriptor

Read-only menu, displays the amplifier's model number

#### Menu #2 — S/N

Read-only menu, displays the serial-number

#### Menu #3 — INPUT

Read-only menu, displays the input optical power

#### Menu #4 — OUTPUT

Read-only menu, displays the output optical power

#### Menu #5 — BIAS1

Read-only menu, displays the current of pump

#### Menu #6 — BIAS2

Read-only menu, displays the current of pump

#### Menu #7 — TEC1

Read-only menu, displays the current of pump in cooling/heating situation

#### Menu #8 — TEC2

Read-only menu, displays the current of pump in cooling/heating situation

#### Menu #9 — TEMP1

Read-only menu, displays the temperature of pump

#### Menu #10 — TEMP2

Read-only menu, displays the temperature of pump

#### Menu #11 — +5V READS

Read-only menu, displays the voltage +5V

#### Menu #12 — UNIT TEMP

Read-only menu, tells the chassis temperature

#### Menu #13 — IP

Adjustable list, displays the SNMP IP address

#### Menu #14 — Sub

Adjustable list, displays the net mask address

#### Menu #15 — GW

Adjustable list, displays the gateway SNMP address

#### Menu #16 — TR1

Adjustable list, displays the TRAP1 SNMP address

#### Menu #17 — TR2

Adjustable list, displays the TRAP2 SNMP address

#### Menu #18 — LCD Contrast Level

Adjustable list, displays the LCD contrast level

## 2.1.3 MENU DEFINITIONS

### 1. Input power (INPUT):

Input power > +10 dBm, displays HIGHER

Input power <-10 dBm, displays LOWER

### 2. Output power (OUTPUT):

When input displays HIGHER or LOWER the output power displays NO OUTPUT.

### 3. Laser temperature °C (TEMP):

The laser temp is set at a range of 20°C~30°C. If the detected temp exceeds the range, the red light will show an alarm and the power supply of the laser will be shut off automatically

### 4. Bias (BIAS):

Bias (BIAS): Bias is the key index of the laser. If the fixed range is exceeded, the power supply of the laser will shut off automatically to protect the laser

### 5. +5V voltage (+5V READS):

>±0.5V alarm

### 6. Press ▲\▼ key to update the IP address menu. Press ▲▼ at the same time to enter the menu, press ▼ to choose the number that needs to be changed, push ▲ to update, and then press ▲▼ to enter into save and exit it.

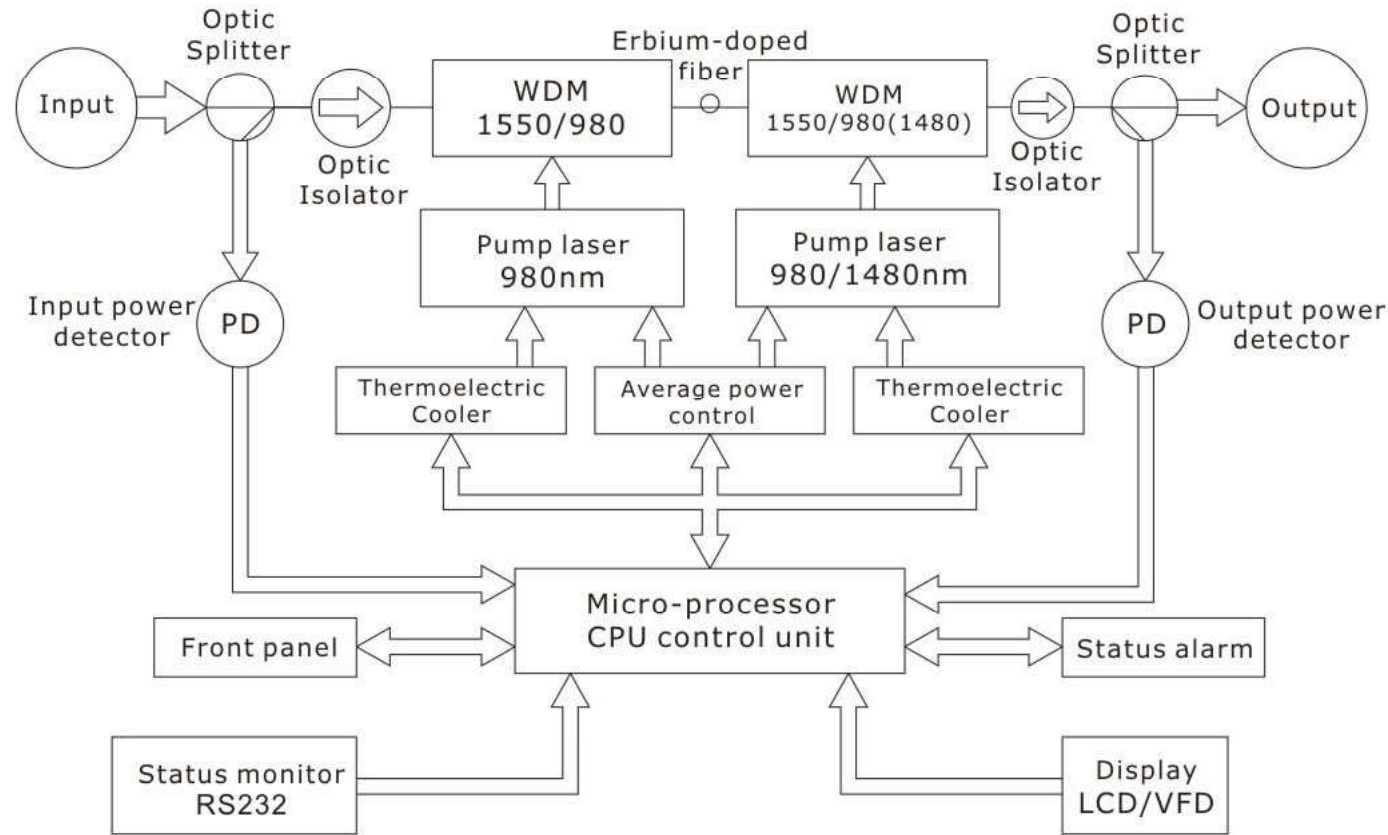
For example, to update IP: 192.168.000.015; and you want to change 5 to 6, use ▲▼ to enter the IP menu, then press ▼ to choose the place of 5, press ▲ key to change 5 to 6, and then press ▲▼ to save the amended IP:192.168.000.016

### 7. LCD Contrast Level

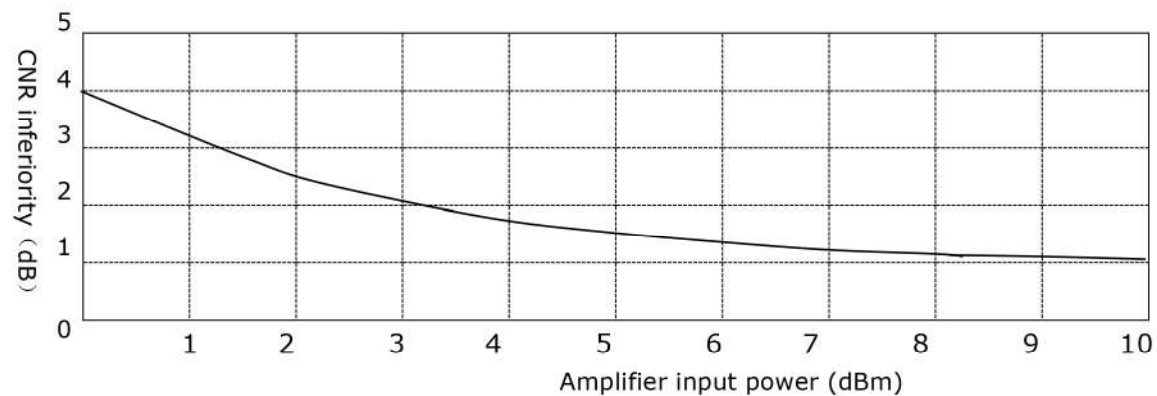
Press ▲\▼ at the same time to enter menu edit status, press ▲▼ button to increase/decrease the contrast level, and at last, press ▲\▼ button at the same time to save the modification

# 3.0 EQUIPMENT OPERATION PRINCIPALS

## 3.1 OA-1550-S00 SERIES AMPLIFIER CIRCUIT PRINCIPAL:



## 3.2 CARRIER-TO-NOISE RATION



## 4.0 DESCRIPTION OF STATUS ALARM

The working status indicator (LED) is near the power supply switch on the front panel. When it is green, the device is working properly. When the indicator light is flashing red, there is an error.

1. Connect with 110V/or 220V power supply. After the amplifier is plugged in, the display panel will show "READY; KEY OFF" with a red indicator light.
2. Turn on with the key, the digital panel will display "KEY ON". After a few seconds, the laser will turn on automatically and the indicator light will turn from red to green.
3. Pressing both ▲ ▼ displays the product's parameters.
4. If an error should occur, the red LED indicator light will flash and the laser will shut off automatically. Please refer to the front display screen for the possible error.
5. As an added safety feature the laser's power supply has time-delay function of 10 seconds.

## 5.0 OPERATION NOTICE

1. The amplifier should have proper grounding with grounding resistance  $< 4\Omega$ .
2. The amplifier is designed with a high reliability, steady voltage switch power supply. It has constant voltage overflow protection and can work in 220 VAC electric network. The microprocessor monitors the output DC voltage.
3. To ensure the reflection loss is  $\geq 45\text{dB}$ , the amplifier is installed with a SC/APC connector. Keep the connector clean when installing. It is recommended that you frequently clean the connector with degreased cotton and anhydrous alcohol.
4. Do not turn on the amplifier separately or without a protective cover at the connector end. Note: looking into the laser is dangerous and can do permanent eye damage

## 6.0 GUARANTEE AND REPAIR

1. Each unit is packaged with a Product Qualification Certificate and serial number. The amplifier carries a limited three-year warranty.
2. The pump laser is extremely delicate and only a certified technician should be allowed to repair it. The micro-processor software of the device has the function of monitoring laser status, digital display, trouble alarm, network management etc. If the LED is flashing red (Alarm), please send the product back to manufacturer for repairing. The user should not open the top cover for repair, even within guarantee period.
3. If the warranty seal on the product is broken or if the product has been tampered with a service fee may be charged.
4. Please refer to [www.taikan.com](http://www.taikan.com) for a detailed limited warranty policy.

# 7.0 TECHNICAL SPECIFICATIONS

## 7.0 GENERAL TECHNICAL SPECIFICATIONS

Performance		Index			Supplement	
		Min.	Typ.	Max.		
Optical Performance	Operation wave length range (λ)	(nm)	1540		1563	
	Input power	(dBm)	-10		+10	
	Maximum output power	(dBm)	10		26	Pin=0dBm
	Output power adjustable range	(dBm)	-6		0	OA-1550-S00/P
	Number of output ports		1		8	SC/APC
			1		16	LC/APC
	Difference of each output power	(dB)	-0.5		+0.5	OA-1550-S13
	Noise figure (Pin=0dBm)	(dB)			4	
	Polarization dependence loss	(dB)			0.3	
	Polarization dependence gain	(dB)			0.3	
	Polarization mode dispersion	(ps)			0.3	
	Input/ output isolation	(dB)	30			
	Pump power leakage	(dBm)			-30	
Echo Loss	(dB)	55			APC	
General Features	SNMP network management interface		RJ45			
	Communication interface		RS232			
	Power supply	(V)	90		265	220VAC
			30		72	-48VDC
			23		25	+24VDC
	Power consumption	(W)			50	
	Work temp.	(°C)	-5		65	
	Communication interface	(°C)	-40		80	
Operating relative humidity	(%)	5		95		
Size (W) x (D) x (H)	(mm)	483 x 368 x 44			1RU (19")	
		315 x 391 x 133			3D (12.4" desk type)	
		399 x 244 x 165			Outdoor	

## 8.0 MODEL SPECIFICATIONS

Model	Output power Max (dBm) Pin=0dBm	Noise figure (dB) Pin=0dBm	Input power range (dBm)			Function
			Min.	Typ.	Max.	
OA-1550-S13/ON	2:13	4	-10	0	10	With SNMP network management, output power is not adjustable
OA-1550-S14/ON	2:14	4.1				
OA-1550-S15/ON	2:15	4.2				
OA-1550-S16/ON	2:16	4.3				
OA-1550-S17/ON	2:17	4.5				
OA-1550-S18/ON	2:18	4.8				
OA-1550-S19/ON	2:19	5				
OA-1550-S20/ON	2:20	5.3				
OA-1550-S21/ON	2:21	5.5				
OA-1550-S22/ON	2:22	5.8				
OA-1550-S23/ON	2:23	6				
OA-1550-S24/ON	2:24	6.3				
OA-1550-S25/ON	2:25	6.5				
OA-1550-S26/ON	2:26	6.8				
OA-1550-S20/PN	2:20	5.3				With SNMP network management, the output optical power adjustable 0~ -6dB
OA-1550-S21/PN	2:21	5.5				
OA-1550-S22/PN	2:22	5.8				
OA-1550-S23/PN	2:23	6				
OA-1550-S24/PN	2:24	6.3				
OA-1550-S25/PN	2:25	6.5				
OA-1550-S26/PN	2:26	6.8				

\*Please note: For the ON model SNMP network management output optical power is not adjustable. For the PN model SNMP network management output optical power is adjustable from 0-6 dBm