

1550nm Erbium-Doped Fiber Amplifier

HF300-3815C-22D

User's Manual

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1. Safety instructions

Before installing and using products, please read the following carefully. The company shall not be responsible for any loss caused by any breach of safety.

The output of the laser and erbium-doped fiber amplifier is high-power invisible radiation. When the device works, it must not look directly at its connecting ends, so as to avoid burns to the eyes and skin.

The device contains precision optical devices to avoid damage caused by severe impact. Avoid severe vibration and collision. The tail fiber is easily damaged. Please operate carefully.

The device contains electrostatic sensitive devices. Please be careful to operate and ensure good grounding and normal power supply.

It is best to use AC voltage stabilizer to supply power in areas with unstable grid voltage or poor voltage waveforms.

Special attention to optical fiber connector:

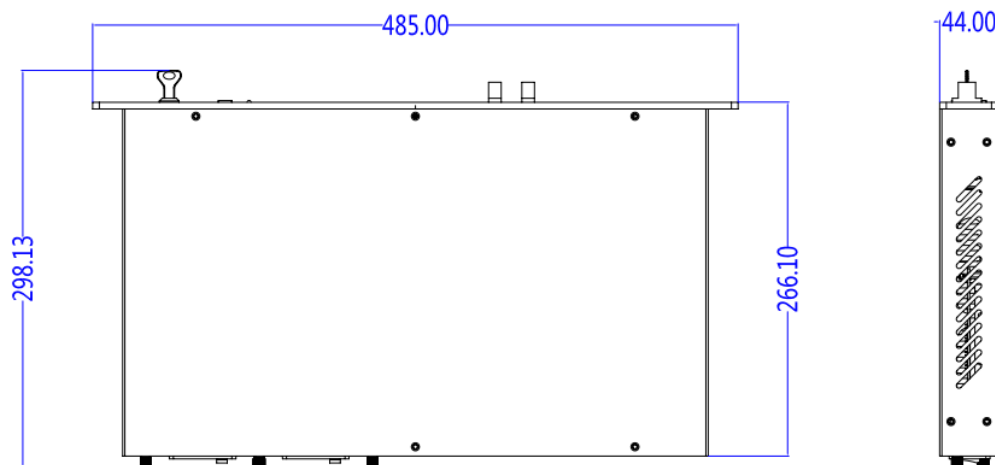
- before using device, please make sure that the connector of the input and output tail fiber is kept clean, especially if the output fiber connector has dirty goods, it is easy to burn out output tail fiber and make the output optical power become smaller. When cleaning the optical fiber end or inserting optical jumper, please shut down the input light first. If you use alcohol to clean the fiber end, only it is completely dry, you can connect fiber to use.
- the correct order of plugging and unplugging is: for plugging optical fiber, first inserting the output optical fiber and then inserting the input optical fiber. For unplugging optical fiber, first pulling out input optical fiber, and then pulling out the output optical fiber..
- this EDFA is a high precision and high stability product. In order to make the output power have high stability, please use excellent quality optical fiber . In principle, the optical fiber should be as short as possible, and do not allow the optical fiber to move random.
- When the EDFA is not used, if there is no active cable connector connected to the

input and output optical port of EDFA, please cover dust-proof cap to prevent the input and output end from being contaminated.

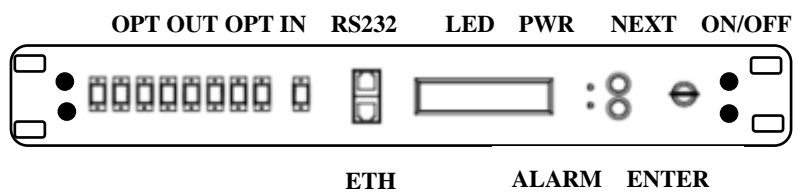
2. Production structure description

2.1 Equipment dimension

Adopting the 19" standard 1U chassis: 485mm (length) X298.13mm (width) X44mm (height). As shown in the following figure:



2.2 The front panel diagram



2.3 The rear panel diagram



3. Operation instructions

To ensure the normal operation of EDFA, you must operate in accordance with the following methods:

3.1 Connection

- Ensure that the device is well grounded;
- Measure input optical power, confirm within the EDFA input optical power range, check the input and output optical fiber connector whether is consistent with EDFA optical interface connector, and cleaning the connector ends;
- Connect input and output optical fiber.

3.2 Turn on/off procedure

- when key switch is closed, plugging the power line of rear panel, turning on power switch, at this time, the LCD screen is on and LED indicator displays green. After a moment, turn on key switch, Preheating 5-10 minutes, and EDFA enters the normal working state.
- The sequence of shutting down is opposite to the starting order. Firstly , turn off key switch, secondly, turn off power ,and unplug power line.

3.3 LED indicator description

The front panel LED indicator shows the following contents:

- Power Indicator
When connecting power, green LED is on.
- Alarm state display
When normal working, alarm led should turn off. After turn off pump laser, alarm led flash red(including key switch shutting down and all kinds of alarm state. Example for: input optical power below -5dBm)
- Alarm indicator

Various alarm status LED flash red lights.

- Remote monitor and control

When the external computer and EDFA are connected, you can view the working parameters of the device through the Web page. First, input the 192.168.1.100 (default IP address) in the browser's address bar, second, click the “enter”, and enter the login page to input the default username "**admin**", and the password "**admin**".

3.4 Button description

- NEXT

Pressing this button can view EDFA all kinds parameters from top to bottom.

When modified parameters, this button is downward value.

- ENTER

Enter next level sub-menu, when finishing modifying, please press this button to confirm change.

3.5 Display menu description

Display device manufacturer and model on power. The backlight of the LED screen will be dimmed automatically to maintain the current display information when any state keeps more than 60 seconds without being pushed. Press the “NEXT” button, and the backlight of LED screen will be turned on and displayed ① this a page. Press the “ENTER” button, the LED screen will be turned on and the current display information will be maintained.

① Display device manufacture and model. As shown below:

E	D	F	A																
					H	F	3	0	0	-	3	8	1	5	C	-	2	2	D

Press “NEXT” button, then jump ② to display.

② Display input optical power interface. If input optical power is normal, as shown below:

I	N	P	U	T		P	W	R									
												1	0	.	0	0	d B m

If input optical power is below -15.00dBm, the second line can display “NO INPUT”

I	N	P	U	T		P	W	R												
												N	O			I	N	P	U	T

Press “NEXT” button, then jump ③ to display.

③ Display output optical power interface. If output optical power is normal, as shown below:

O	U	T	P	U	T		P	W	R								
												2	2	.	0	0	d B m

If output optical power is below -7.00dBm, the second line can display “NO OUTPUT”

O	U	T	P	U	T		P	W	R												
												N	O			O	U	T	P	U	T

If output optical power is normal, press “ENTER” button, then enter output optical power setting interface, as shown below:

S	E	T	U	P		O	U	T	P	U	T		P	W	R				
													2	2	.	0	0	d B m	

Press “NEXT” button, output optical power increases 0.10dbm each time, default setting range is from 19.00 to 24.00dBm(modifiable). when more than max value, it will change into min value. Press “ENTER” button in the output optical power interface, exiting this interface and saving setting value.

Press “NEXT” button in output optical power interface, then jump ④ to display.

④ Display laser bias current interface, as shown below:

L	D		C	U	R	R	E	N	T								
													1	0	0	0	. 0 m A

Press "NEXT" button, jump ⑤ to display.

⑤ Display TEC refrigeration / thermal current interface, as shown below:

T	E	C		C	U	R	R	E	N	T							
															0	.	2 0 A

Press "NEXT" button, jump ⑥ to display.

⑥ Display laser temperature interface, as shown below:

L	D		T	E	M	P	E	R	A	T	U	R	E				
														2	5	.	0 ° C

Press "NEXT" button, jump ⑦ to display

⑦ Display alarm list interface. When no alarm, as shown below:

A	L	A	R	M		L	I	S	T								
																N	o n e

when appearing alarm information, the display priority is displayed in the following order from high to low (1. laser key off; 2. input optical power alarm, mainly included into HIHI, HI, LO, LOLO; 3. output optical power alarm, mainly included into HIHI, HI, LO, LOLO; 4. power alarm, mainly included into HIHI, HI, LO, LOLO). When a variety of alarm appears, you can switch the next alarm by pressing "ENTER" button. (laser key off alarm and output optical power alarm will not appear at the same time).

L	A	S	E	R		K	E	Y									
																O	F F

I	N	P	U	T		P	W	R		A	L	A	R	M			
																H	I H I

O	U	T	P	U	T		P	W	R		A	L	A	R	M		
																L	O L O

P	W	R		A	L	A	R	M											
																		L	O

Press "NEXT" button, jump ⑧ to display.

⑧ Display Internal temperature of the chassis interface, as shown below:

I	N	T	E	R		T	E	M	P	E	R	A	T	U	R	E	T		
														2	5	.	0	°	C

Press "NEXT" button, jump ⑨ to display.

⑨ Display power supply information interface. As shown below, when only left power working normal , displaying "PWR1"; when only right power working normal , displaying "PWR2" ,and two powers all working normal, displaying "BOTH"(The power near the side shell is "PWR2").

P	W	R		S	T	A	T	U	S											
																	P	W	R	1

Press "NEXT" button, jump ⑩ to display.

⑩ Display 3.5V voltage detection interface, as shown below:

3	.	5	V		P	W	R													
																	3	.	5	V

Press "NEXT" button, jump ⑪ to display.

11 Display 5.0V voltage detection interface, as shown below:

5	.	0	V		P	W	R													
																	5	.	0	V

Press "NEXT" button, jump ⑫ to display

12 Display serial number code interface, as shown below:

S	e	r	i	a	l		N	u	m	b	e	r								
							X	X	X	X	X	X	X	X	X	X	X	X	X	X

Press “NEXT” button, jump ⑬ to display.

13 Display manufacture date interface, as shown below:

M	a	n	u	f	a	c	t	u	r	e	D	a	t	e				
											X	X	/	X	X	/	X	X

Press “NEXT” button, jump ⑭ to display.

14 Display online time, as shown below:

O	n	l	i	n	e	T	i	m	e										
				x	x	x	x	D	a	y	s		x	x	H	o	u	r	s

Press “NEXT” button, jump ⑮ to display.

15 Display IP address interface, as shown below:

I	P		A	D	D	R													
					1	9	2	.	1	6	8	.	0	0	1	.	1	0	0

Press “NEXT” button, jump ⑯ to display.

Press “ENTER” button, enter IP address setting interface. Current modified bit will flash.

S	E	T	U	P		I	P		A	D	D	R								
						1	9	2	.	1	6	8	.	0	0	1	.	1	0	0



S	E	T	U	P		I	P		A	D	D	R							
						9	2	.	1	6	8	.	0	0	1	.	1	0	0

Press “NEXT” button, It can be circulate to increase the value of the current bit (0-9).

Press “ENTER” button, It can jump the next modified bit.

When switching the final bit, then pressing “ENTER” button, thus returning IP address interface.

16 Display subnet mask interface, as shown below:

M	A	S	K		A	D	D	R									
					2	5	5	.	2	5	5	.	2	5	5	.	0 0 0

Press “NEXT” button, jump ⑰ to display.

Press “ENTER” button, enter subnet mask setting interface. Current modified bit will flash.

S	E	T	U	P		M	A	S	K		A	D	D	R				
						2	5	5	.	2	5	5	.	2	5	5	.	0 0 0



S	E	T	U	P		M	A	S	K		A	D	D	R				
						5	5	.	2	5	5	.	2	5	5	.	0 0 0	

Press “NEXT” button, It can be circulate to increase the value of the current bit (0-9).

Press “ENTER” button, It can jump the next modified bit.

When switching the final bit, then pressing “ENTER” button, thus returning subnet mask interface.

17 Display gateway address interface, as shown below:

G	A	T	E	W	A	Y		A	D	D	R								
					1	9	2	.	1	6	8	.	0	0	1	.	0	0	1

Press “NEXT” button, jump ⑱ to display.

Press “ENTER” button, enter gateway address setting interface. Current modified bit will flash.

S	E	T	U	P		G	A	T	E	W	A	Y		A	D	D	R			
						1	9	2	.	1	6	8	.	0	0	1	.	0	0	1



S	E	T	U	P		G	A	T	E	W	A	Y		A	D	D	R		
						9	2	.	1	6	8	.	0	0	1	.	0	0	1

Press “Next” button, It can be circulate to increase the value of the current bit (0-9).

Press “ENTER” button, It can jump the next modified bit.

When switching the final bit, then pressing “ENTER” button, thus returning gateway address interface.

18 Display restore factory setting interface, as shown below:

R	E	S	T	O	R	E		F	A	C	T	O	R	Y						
														C	O	N	F	I	R	M

Press “ENTER” button, jump ① to display.

Press “ENTER” button, enter restore factory confirm interface.

																			C	A	N	C	E	L
																			A	F	F	I	R	M

Press “NEXT” button, cancel restore factory setting, and jump to restore factory setting interface.

Press “NEXT” button, confirm restore factory setting. First displaying restore factory setting success, then pressing “ENTER” button to jump restore factory setting interface.

R	E	S	T	O	R	E		F	A	C	T	O	R	Y						
														S	U	C	C	E	S	S

4. Alarm breakdown analysis

Alarm	Possible cause	Pre-warranty check
Pin<input optical power threshold, no input optical power alarm	<ol style="list-style-type: none"> 1. Optical transmitter no optical output 2. Input optical fiber connector is not connected well 3. Connector end face damaged 4. EDFA damaged 	<ol style="list-style-type: none"> 1. Check input optical power by optical power meter 2. Clean input optical connector 3. Re-plug optical connector
Pout<output optical power threshold, no input optical power alarm	<ol style="list-style-type: none"> 1. Pump don't turn on switch 2. Input optical wavelength not within 1530nm-1560nm 3. EDFA damaged 	<ol style="list-style-type: none"> 1. Check pump switch whether is on state 2. Check input optical wavelength whether is within 1550nm-1560nm 3. Check environment temperature whether is too high causing pump off automatically

Pump current change a lot, pump current alarm	<ol style="list-style-type: none"> 1. Pump laser characteristic change 2. Internal circuit detection deviation 3. Pump laser damaged 	<ol style="list-style-type: none"> 1. Check environment temperature is too high. The working temperature of chassis is within 0-50°C. Usually, when the ventilation is not good, the temperature inside the chassis is much higher than environment temperature. 2. Check the chassis Heat dissipation ventilation environment whether is good. 3. Whether the ventilation holes are blocked on both sides of the chassis. 4. Whether the EDFA is placed between the equipment with the heat source up and down, and the distance of the equipment is less than 20mm.
Pump output optical power decreases, output optical power alarm	<ol style="list-style-type: none"> 1. Internal circuit detection deviation 2. Pump laser degradation 3. Pump laser damaged 	
Pump laser refrigeration current high, TEC current alarm	<ol style="list-style-type: none"> 1. EDFA environment temperature too high 2. Pump laser refrigeration is invalid 3. Pump laser damaged 	
Pump laser temperature high, pump temperature alarm	<ol style="list-style-type: none"> 1. environment temperature too high 2. Pump laser refrigeration is invalid 	