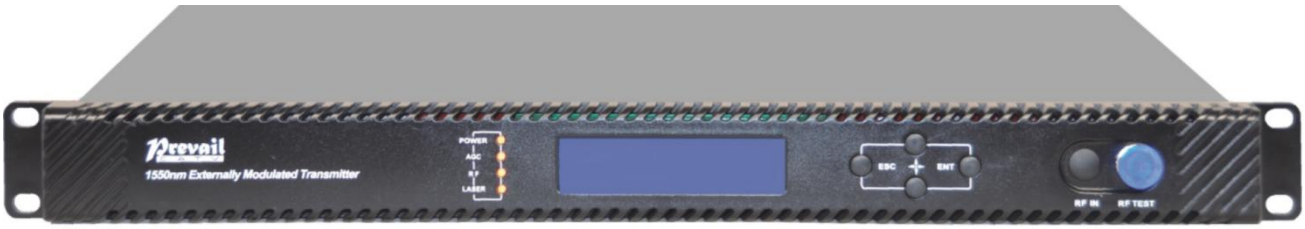
PREVAIL

WT-1550-EM20 1550nm External Modulated Optical Transmitter



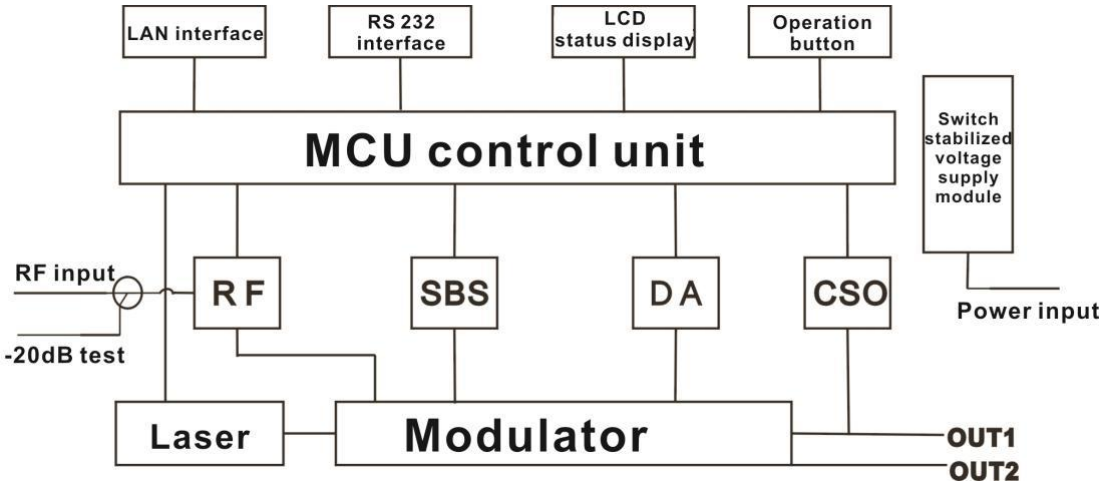
1. Product Overview

WT-1550-EM20 series optical transmitter adopt top-international brand external modulated laser and external modulator, Prevail patent pre-distortion circuit and SBS control circuit. Overall indexes reach to well-known brand types level, and price is inexpensive.We have sold thousands of products over the years.The products save plenty of costs for operator's network construction and get many users' good reputation.

2. Features

- This 1550nm optical transmitter can be used in long-distance transmission.
- Double microwave source SBS control, +13～+19dBm adjustable, 0.5dB step.
- Adopt the DFB laser and LiNbO3 external modulator.
- support Ethernet transponder
- support WEB and SNMP network management.
- Hot backup dual power modules

3. Block Diagram



4. Technical Parameters

4.1 Optical Parameters

Item	Unit	Value
Optical Wavelength	nm	1545～1560 (or specified by the user)
Side-mode Suppression ratio	dB	>30
Relative Intensity Noise	dB/Hz	<-160
Wavelength Adjustment Range	GHz	+/-50GHz
Optical Power	dBm	2x5, 2x6, 2x7, 2x8, 2x9, 2x10
SBS Threshold Value	dBm	+13～+19 (Continuously adjustable)
Laser Linewidth	MHz	0.3

4.2 Model Test Indicators

Test Model	C42	D59	D84
Channel Plan	CENELEC42	PAL D59	PAL D84
Channel Number TV/FM/QAM64	42/0/0	59/0/0	84/0/0
Bandwidth Noise	5	5	5
CNR Tx/Rx	55.0	54.0	52.5
CNR Link 1	54.0	53.5	52.0
CNR Link 2	53.0	52.5	50.5
CNR Link 3	50.5	50.5	49.0
CSO Tx/Rx and Link 1	64	64	64
CSO Link 2	63	64	64
CSO Link 3	62	62	62
CTB	62	62	62

4.3 Test Condition

	First stage EDFA	First paragraph fiber length	Second stage EDFA	Second paragraph fiber length	RX	SBS (dBm)
Tx/Rx	No	No	No	no	0dBm	13.5
Link 1	No	35km	no	no	0dBm	13.5
Link 2	16dBm	65km	no	no	0dBm	16
Link 3	13dBm	50km	13dBm	50km	0dBm	13.5

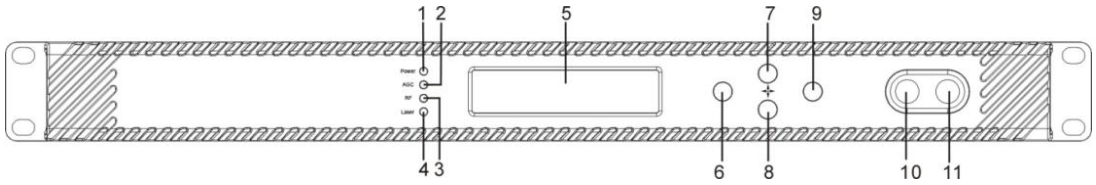
4.4 Technical Data Sheet

Item	Unit	Technical Parameters
RF range	MHz	47～1003
RF flatness	dB	±0.75
RF return loss	dB	>16
RF input impedance	Ω	75
RF input connector type		F type
Input level range	dBμV	80±5
AGC control range	dB	+3～-3
MGC adjustable range	dB	0~15
Optical connector		SC/APC, FC/APC

Operating temperature	℃	-5～45
Storage temperature	℃	-30～+70
Power Source Specification	V	90～265VAC
		36～72VDC
Consumption	W	≤60
Dimension	mm	483(L) × 455(W) × 44(H)
Total Weight	kg	5.5

5.External Function Description

5.1 Front Panel

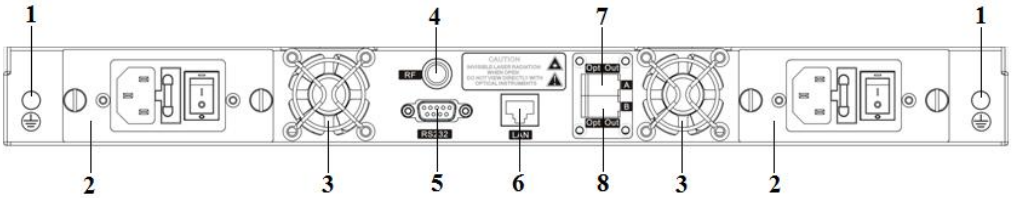


1	Power indicator	**2**	AGC indicator	**3**	RF indicator
4	Laser indicator	**5**	LCD	**6**	ESC key
7	UP key	**8**	DOWN key	**9**	Enter key
10	RF input port (optional)	**11**	-20dB RF input test port		

5.1.1 Indicator Description

Power indicator	One power supply	LED yellow
	Two power supplies	LED green
AGC indicator	AGC mode	LED green
	MGC mode	LED off
RF indicator	Normal	LED green
	Abnormal	LED flash red
Laser indicator	Bias current, cooling current and output power are all normal	LED green
	At least one of bias current, cooling current and output power is abnormal	LED flash red

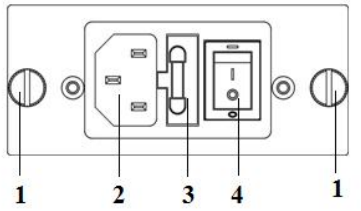
5.2 Rear Panel



1	Ground stud	**2**	Power module	**3**	Fan
4	RF input port (or on the front panel, optional)	**5**	RS232 interface	**6**	LAN interface
7	Optical output interface A (or on the front panel, optional)	**8**	Optical output interface B (or on the front panel, optional)		

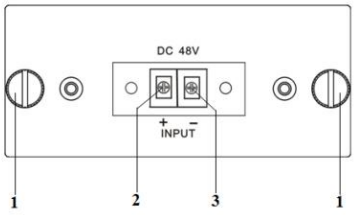
5.3 Power Module

5.3.1 220V Power Module



1	Mounting screws
2	220V power outlet
3	Fuse
4	Power switch

5.3.2 48V Power Module



1	Mounting screws
2	+ Positive terminal block
3	- Negative terminal block

6 Menu System

6.1 Main Menu

Display	**Comments**
1.Disp Parameters	Menu one: Display parameters
2.Set Parameters	Menu two: Set parameters
3.Alarm Status	Menu three: Alarm status

6.2 Display Menu

Display	**Comments**	**Display**	**Comments**
Laser Output	Output optical power	+24V Read:	+24V monitor voltage
Laser Bias	Laser current	+12V Read:	+12V monitor voltage
RF CSO	CSO monitor voltage	-12V Read:	-12V monitor voltage
Laser Cooling	Cooling current	LASER:	Laser status
OMI(rms)	Total modulation degree	SBS Module Temp:	SBS module temperature
RF Mode	RF control mode	BOX Temp:	Overall temperature
AGC	Adjusted value with AGC mode	MCU Temp:	MCU temperature
MGC	Adjusted value with MGC mode	S/N:	Serial number
+5V Read:	+5V monitor voltage	Version:	Version number
-5V Read:	-5V monitor voltage	Work Time:	Work time

6.3 Set Menu

Display		Comments	Remarks
Set RF MODE		Set RF control mode	MGC and AGC two modes selectable
Set AGC	Set MGC	Set RF adjusted value	Adjustable range 0~15dB with MGC mode Adjustable range -3~+3dB with AGC mode
Set SBS Suppression		Set SBS value	Range 13~19dBm, 0.5dB stepping
Set ITU		Set optical wavelength	Range ±50GHz
Set Channel Distance		Set channel distance	6MHz, 7MHz, 8MHz
Set LASER		Set laser status	ON/OFF
Set IP Address		Set IP address	
Set Mask		Set subnet mask	
Set Gateway		Set gateway	
Set Trap1 Address		Set trap1 address	
Set Trap2 Address		Set trap2 address	
Set Buzzer Alarm		Set buzzer alarm	ON/OFF
Restore Factory Cfg		Restore factory settings	

6.4 Alarm Menu

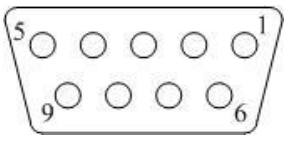
The displayed alarm content		Comment
RF IN Status	HIGH（LOW）	The RF input signal is high (low)
Laser Bais	HIGH（LOW）	The laser bias current is high (low)
Laser TEC	HIGH	The laser cooling current is high
OutPutPower Status	HIGH（LOW）	The output optical power is high (low)
-5V Status	HIGH（LOW）	The -5V voltage is high (low)
+5V Status	HIGH（LOW）	The +5V voltage is high (low)
+12V Status	HIGH（LOW）	The +12V voltage is high (low)
-12V Status	HIGH（LOW）	The -12V voltage is high (low)
+24V Status	HIGH（LOW）	The +24V voltage is high (low)
Laser	OFF	The laser is off
CSO Initialization failed		The CSO initialization is failed
Power invalid	LEFT（RIGHT ）	The left (right) power is invalid

7. Communication Setup Descriptions

7.1 Communication Interface Description

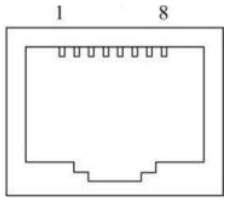
1) RS232 communication interface adopts DB9 standard connector, the pin definitions as follow:

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:

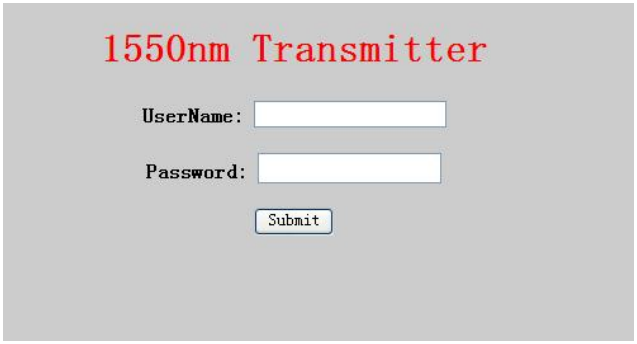


LAN

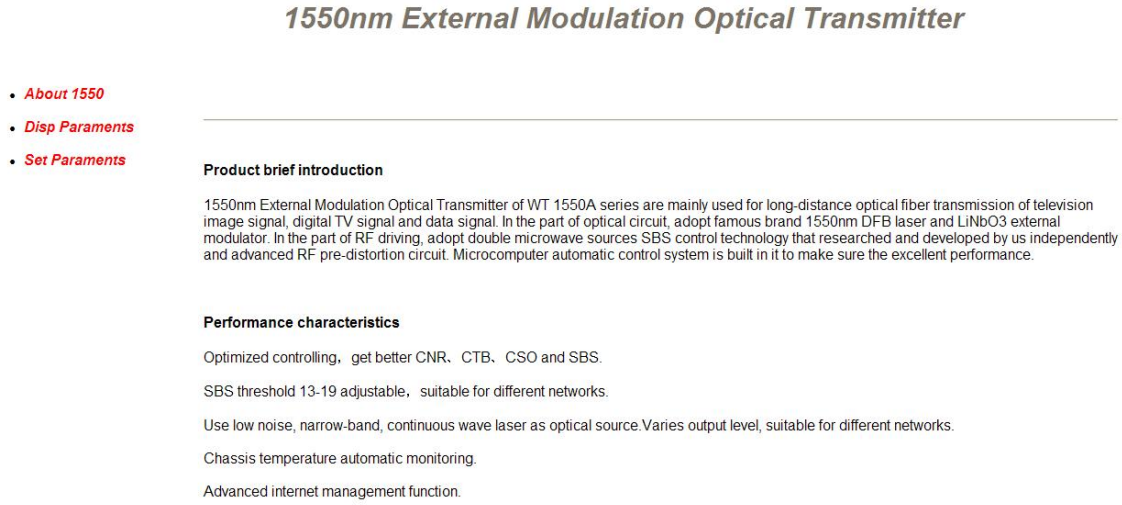
1：TX+	2：TX-	3：RX+
4：No Connect	5：No Connect	6：RX-
7：No Connect	8：No Connect	

7.2 WEB Network Management

1. Open the IE browser, type the IP address and enter the interface as follows:



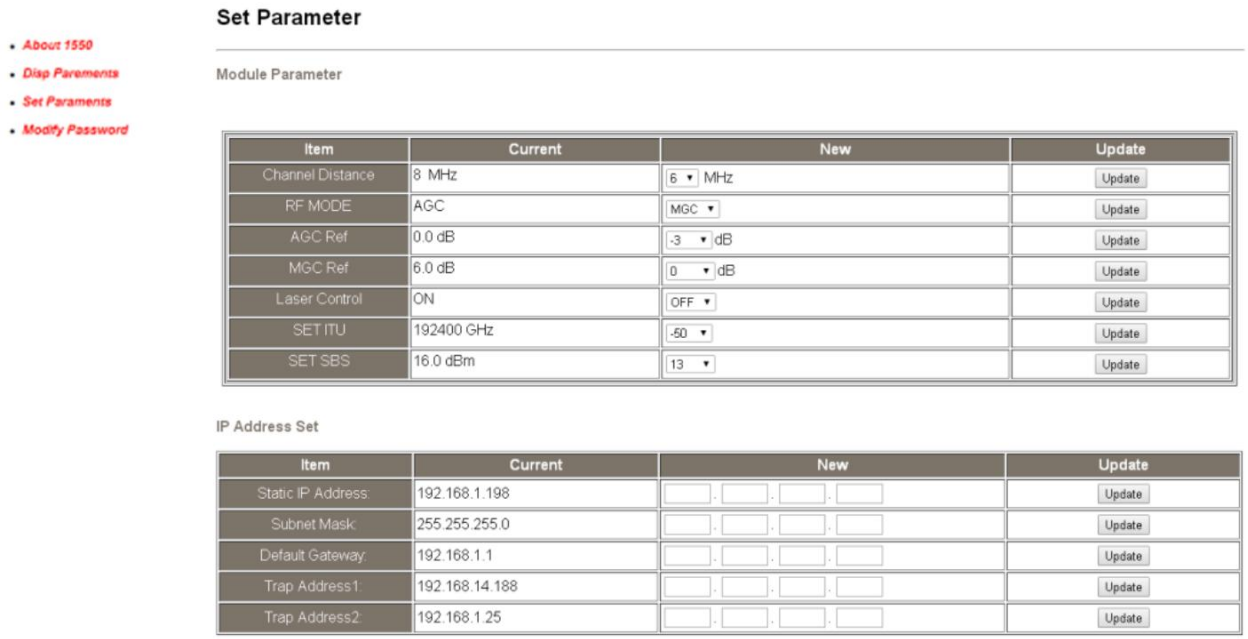
2. Type the user name **admin** and the password **123456** (factory default), enter the following interface:



There are 3 sub-interfaces:

1) About1550 interface: Mainly described the basic information of the equipment.
2) Disp Paraments interface: Mainly described the display menu of the equipment.
3) Set Paraments interface: Change the device parameters in this interface.

3. Click Set Paraments to enter Set Paraments interface as follows:



The Item and Items columns list the parameters that can be changed, the Current column lists the present parameter values, the New column can select or type the new parameter values, and the Update column can update the parameters.
The steps to change the parameters: find the item in the Item column, select the new parameter values in the New column, and click the corresponding Update button to update the parameters.
The change steps in the Items are the same, but finally need to click the Restart Device button to take effect.

8. Attention

- 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 transmitter 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.

9. Installation

- Installation must be operated by professional technicians.
- Mounting the equipment in the standard 19 inch equipment rack.The fixing screws must be tightened after the equipment is installed in place.
- Reliably ground the equipment. The ground terminal is on the rear panel.Visually inspect each key (button) on the front panel to ensure that each button can move freely.
- Screw on the matched RF cable.
- Correctly clean the optical connector and connect the optical fiber.
- Connect an Ethernet cable.
- After all the steps are completed, make sure that the machine is intact and powered on.

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Hangzhou Prevail Optoelectronic Equipment Co., Ltd

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