

# 1310nm Directly Modulated Optical Transmitter



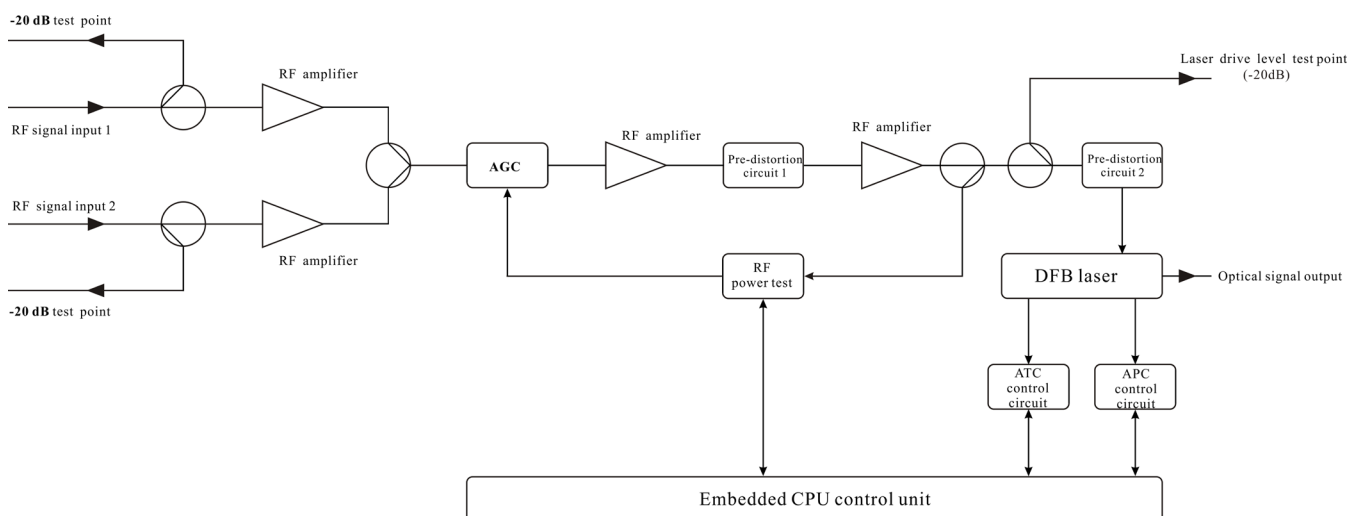
## 1. Product Overview

The 1310 downstream optical transmitter supports 860/1003/1218Mhz band and the DOCSIS 3.1 standard. The output optical power is from +6 dBm to +15 dBm available. It can be used for optical fiber transmission of downstream analog TV signals, digital television signals and CMTS data signals in HFC network. Two-way input signals with high-isolation for a variety of broadcast and insertion applications. It has patented pre-distortion circuit, high CNR and low distortion.

## 2. Performance Characteristics

- Support 870/1003/1218Mhz band and the DOCSIS 3.1 standard.
- AGC and MGC gain control modes are optional.
- DFB coaxial or butterfly-typed laser is available.
- Output optical power is from +6dBm to +15dBm optional.
- Patent pre-distortion technology, good CNR, CSO, and CTB indicators are high.
- Two inputs with isolation up to 50dB.
- Dual power supply hot backup, a variety of power feed options; AC100-240V and DC48V are optional.
- LED status indication in the front panel.
- Laser output power, bias current and cooling current are detected in real time.

## 3. Block Diagram



## 4. Technique Parameters

Item	Unit	Parameter
<b>Optical Part</b>		
Output optical wavelength	nm	1310 ± 20
Output optical power	mW	4 ~ 31 (+6dBm ~ +15dBm)
Laser type	—	DFB laser
Optical modulation mode	—	Direct optical intensity modulation
Optical connector type	—	SC/APC or FC/APC
Optical return loss	dB	> 45
<b>RF Part</b>		
Frequency range	MHz	47 ~ 870/1003/1218
Flatness in band	dB	± 0.75
RF input impedance	dB	-20±1
Input test port	dB	-20±1
Laser drive level test port	dB	≥ 16
Input return loss	dB	≥ 50
C/N	dB	≥ 52 550MHZ 59CH analog signal 77dBuV/CH
C/CTB	dB	≥ 67 550-870MHZ 40CH digital signal 67dBuV/CH
C/CSO	dB	≥ 62 -1dBm optical receiving power. 0KM fiber
RF input level	dBuV	80±5
Adjusting range under AGC mode	dB	± 5
MGC attenuation range	dB	0 ~ 15
<b>Others</b>		
Operating temperature	°C	-5 ~ + 45
Storage temperature	°C	-20 ~ + 65
Maximum power consumption	W	≤15
Weight	Kg	5.5

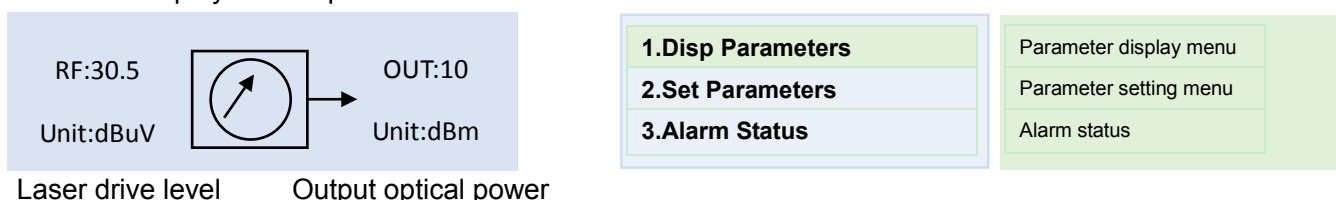
## 5. Operation instructions of the display menu

▲▼ key: The cursor can be moved left or right or up and down, and the selected module or menu is highlighted.

Enter key: Press **Enter** to enter the next submenu or set the parameters in the submenu. Press **Enter** to confirm.

ESC key: Exit or return to the previous menu.

The menu displayed after power on: Press **Enter** to enter the first level submenu:



### Disp Parameters, the second level submenu:

Laser Output	xx dBm	Laser output optical power
Laser Bias	xx mA	Laser bias current
Laser Temp	xx °C	Internal temperature of the laser
Tec Cooling	xx A	Laser cooling current
RF Channel Number	xx	Transmission channel numbers
Laser RF	xx dBuV	Laser drive level
RF Control Mode	AGC	RF control mode
AGC Ref	x dB	AGC offset (in AGC mode)
MGC ATT	x dB	MGC attenuation (in MGC mode)
+5V Read	x v	+5V monitoring voltage
-5V Read	x v	-5V monitoring voltage
+24V Read	x v	+24V monitoring voltage
Wave Length	1310	Equipment wavelength
S/N		Serial number
BOX Temperature	xx °C	Current internal temperature
IP Address		Equipment IP address
Subnet Mask		Equipment subnet mask
Net Gateway		Equipment gateway
Mac		Equipment MAC address
SoftWare Version		Equipment software version number

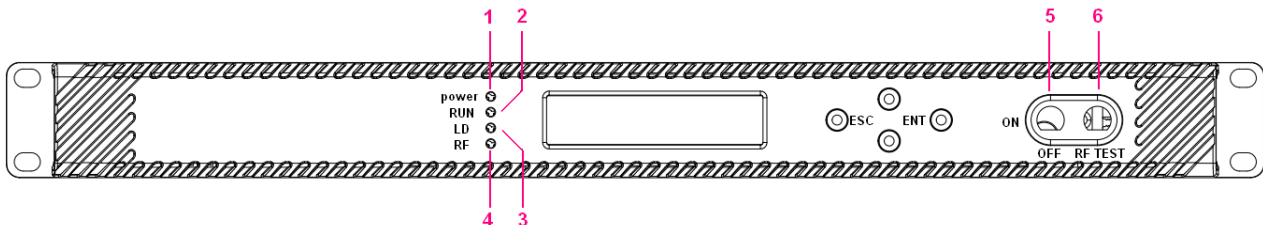
### Set Parameters, the second level submenu:

SetLaserOutputUnit	dBm	Optical power unit: dBm, mW optional
Set BuzzerAlarm	ON	Buzzer alarm: ON, OFF optional
SetChannel Number	XX	Number of channels: 0-100 optional
SetRF ControlMode	AGC	RF control mode: AGC, MGC optional
Set AGC Ref	XX dB	AGC offset: ±5dB optional
Set MGC ATT	XX dB	MGC attenuation: 0-15 optional
Set IP Addr		Set the equipment IP address
Set Subnet Mask		Set the subnet mask
Set GateWay		Set the gateway
Restore Factory Config		Reset to the default

## Alarm Status, the second level submenu:

Laser RF	Laser level alarm: The default normal range is 80~110dBuV, which can be set through the network management.
Laser Temp	Laser temperature alarm: The default normal range is 25±10°C, which can be set through the network management.
Laser Bias	Laser bias current alarm: The default normal range is 20~90mA, which can be set through the network management.
Laser Output	Output optical power alarm: The default normal range is 2 to 25 mW, which can be set through the network management.
Laser TEC	Laser cooling current: The default normal range is -1.5~1.5A, which can be set through the network management.
+5V Alarm	+5V alarm: The default normal range is 5±1V, which can be set through the network management.
-5V Alarm	-5V alarm: The default normal range is -5±1V, which can be set through the network management.
+24V Alarm	+24V alarm: The default normal range is 24±2V, which can be set through the network management.

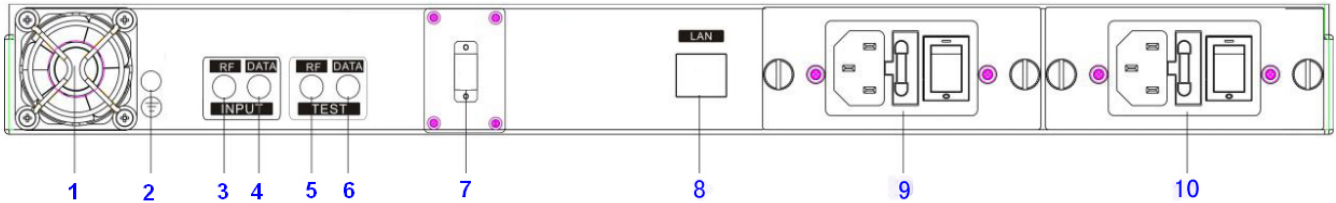
## 6. Structure Description



Front panel

1	Power indicator
2	Device running indicator: This indicator will flash by 1Hz frequency after the device start running normally.
3	Laser working status indicator: Steady green light: The laser is operating normally. Steady red light: The laser is not turned on. Blinking red light: The device has a parameter alarm. You can view the alarm in the Alarm Status, the second level submenu.
4	Laser drive level indicator: Steady green light: Drive level is normal. Blinking red light: Drive level alarm. You can view the alarm in the Alarm Status, the second level submenu.
5	Laser switch: ON: The laser is on.

	<p>OFF: The laser is off.</p> <p>Keep the laser off before the device is powered on, and turn on the laser after the self-inspection is completed when power on.</p>
<b>6</b>	Laser drive level test port: -20dB



**Rear panel**

<b>1</b>	Fan	<b>7</b>	Optical signal output
<b>2</b>	Ground stud, ensure good grounding before power on	<b>8</b>	LAN interface
<b>3</b>	RF input 1	<b>9</b>	Power module 1, hot swappable
<b>4</b>	RF input 2	<b>10</b>	Power module 2, hot swappable
<b>5</b>	RF input 1 test port -20dB		
<b>6</b>	RF input 2 test port -20dB		

## 7. Attention

- Insure the package is not defaced. If you think the equipment has been damaged, please don't electrify to avoid worse damage or do harm to the operator.
- Before the equipment is power on, make sure the housing and the power socket is reliably grounded. The grounding resistance should be  $<4\Omega$ , so as to effectively protect against surges and static electricity.
- Optical transmitter is professional equipment. Its installation and debugging must be operated by special technician. Read this manual carefully before operating to avoid damage to equipment caused by fault operation or accident harm to the operator.
- While the optical transmitter is working or debugged, there is an invisible laser beam from the optical output adapter on the front panel. Avoiding permanent harm to the body and eye, the optical output should not aim at the human body and people should not look directly at the optical output with the naked eye!
- When the fiber connector is not in use, it should be put on the dust jacket to avoid dust pollution and keep the fiber tip clean.

