

THRPR Optical Receiver Operation and Maintenance Manual



1. Product overview

THRPR optical receiver is the new 1GHz dual switching optical receiver. With the characteristics of wide power receiving range, high output level and low power consumption, it is compact and easy to install, which is ideal to construct high-performance NGB network.

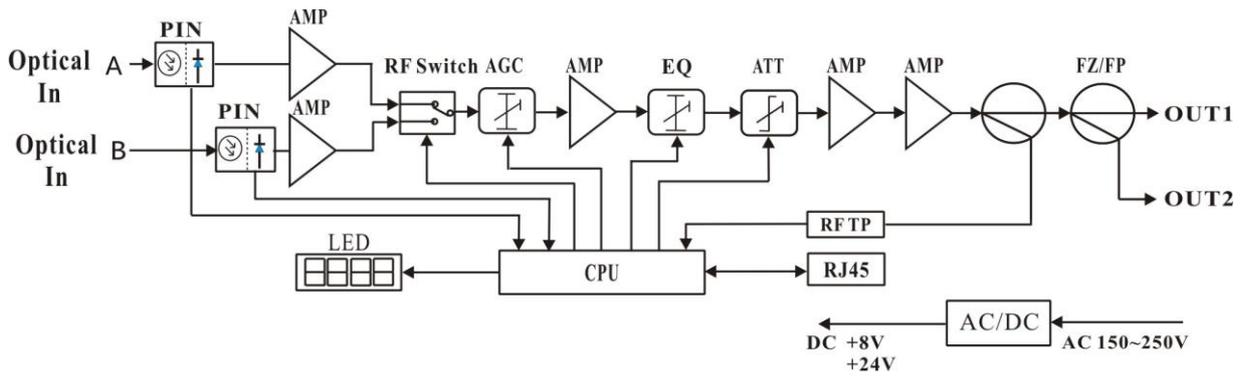
2. Performance Characteristics

- Adopt advanced optical AGC technique, optical AGC control range: 0dBm~-8/-7/-6dBm adjustable.
- Dual optical signal input, back up for each other; support automatic switch according to the pre-set switching threshold, or manual forced switch.
- Forward path operating frequency is extended to 1GHz. RF amplifier adopts high-performance and low power consumption GaAs chip, the maximum output level is up to 118dB μ V.
- EQ and ATT both use professional electrically controlled circuit to make the control more accurate and the operation more convenient.
- Built-in Ethernet transponder, support remote network management (optional);
- Support WEB network management.

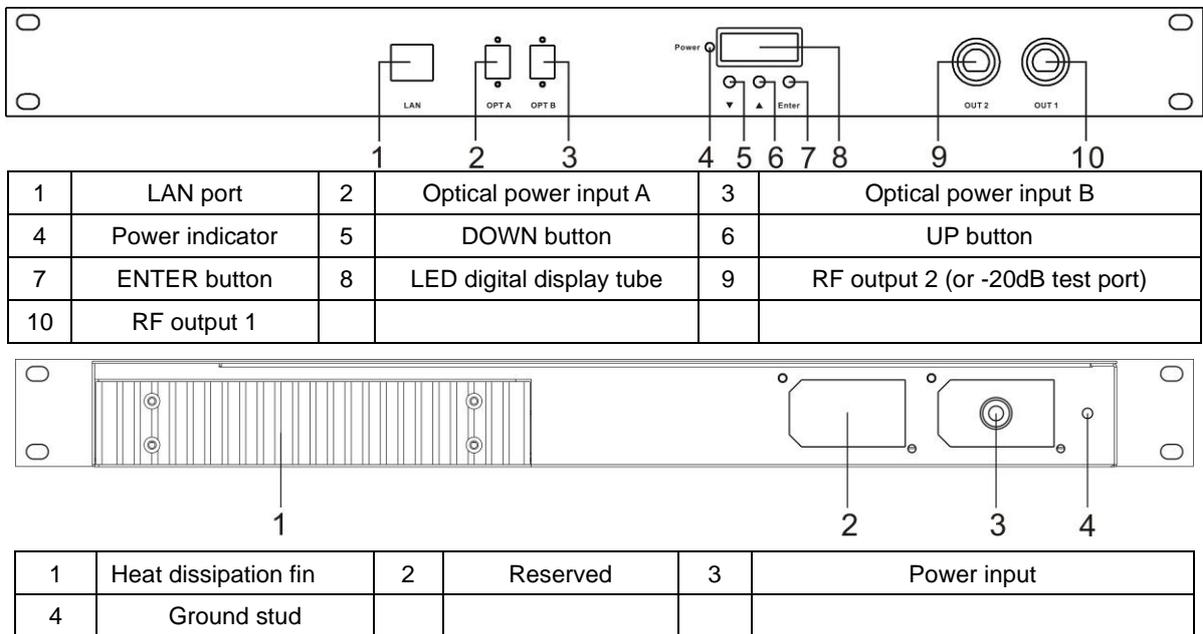
3. Technique Parameters

	Item	Unit	Parameter	
Optical	Optical receiving power	dBm	-10 ~ +2	
	Optical AGC control range	dBm	0 ~ -8/-7/-6 (adjustable)	
	Optical return loss	dB	>45	
	Optical receiving wavelength	nm	1100 ~ 1600	
	Optical connector type		SC/APC or specified by the user	
	Fiber type		Single mode	
RF	Frequency range	MHz	45 ~862/1003	
	Flatness in band	dB	\pm 0.75	
	Rated output level	dB μ V	\geq 114 (AGC range -6 ~ 0dBmFZ110)	
	Output return loss	dB	\geq 16	
	C/N	dB	\geq 51	EQ 5dB, output level 114dB μ V (FZ110) 42 ch analog signal -1dBm receive
	C/CTB	dB	\geq 65	
	C/CSO	dB	\geq 63	
	Isolation	dB	\geq 70	between optical channel A&B
	Output impedance	Ω	75	
	Electrical control EQ range	dB	0~15	
Electrical control ATT range	dB	0~20		
General	Power voltage	AC	150~250V	
	Operating temperature	$^{\circ}$ C	-40~60	
	Consumption	W	\leq 15	
	Dimension	mm	483 (L) * 205 (W) * 44 (H)	

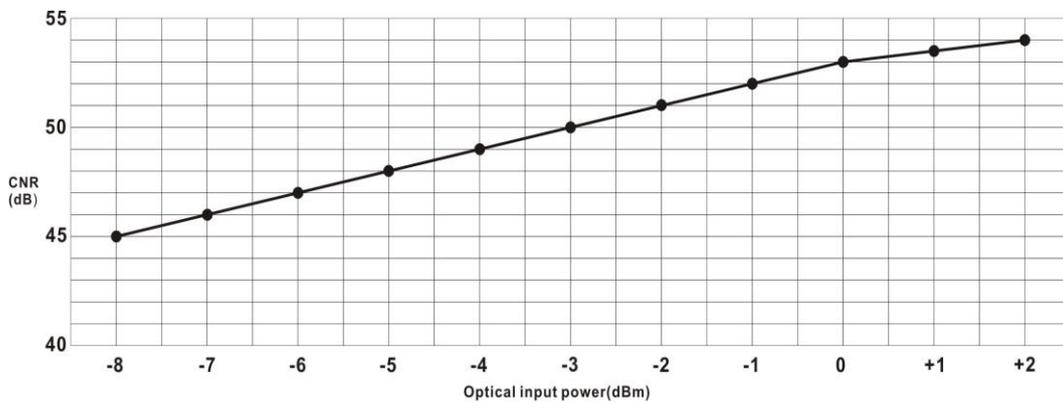
4. Block Diagram



5. Structure Description



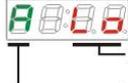
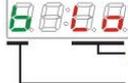
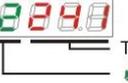
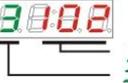
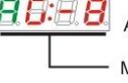
6. Relation Table of Optical Power Input and CNR



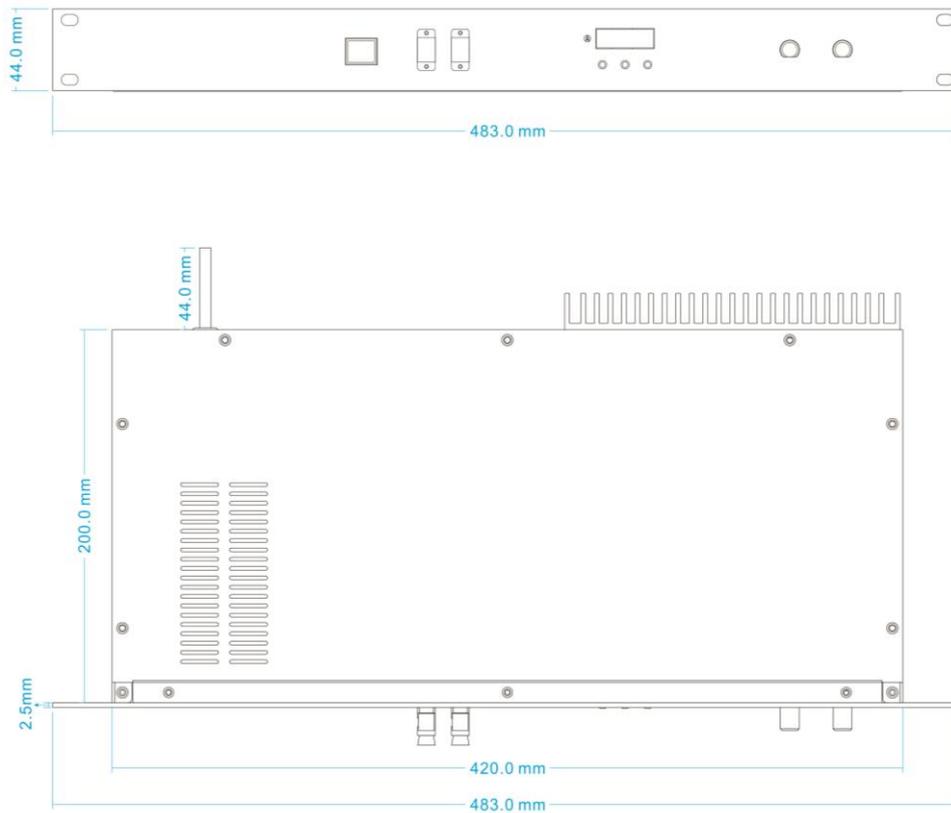
7. Function Display and Operating Instruction

Total twelve modes to cycle.

The following is the detailed instructions:

- ModeA:**  A way optical input power(unit dBm)
Lo : Means that the A way optical power is low or none
A : Means that the displayed data is the A way optical input power
- ModeB:**  B way optical input power(unit dBm)
Lo : Means that the B way optical power is low or none
b : Means that the displayed data is the B way optical input power
- Mode CH:**  The actual operating channel under the current system.
CH: Operating channel
- Mode F:**  Set the automatic switching threshold of A/B way (dBm)
 (Set range +1 ~ -12dBm)
 Means the automatic switching threshold of A/B way is -6dBm
 If need adjustment, press the ▲ or ▼ button for a few seconds until the data flicker. Then can be adjusted by▲ or ▼button and press "Mode" to confirm.
 Note: This menu works only under the automatic switching mode, no work under the manually force switching mode.
- Mode SI:**  Switching mode setting
 Means the automatic A way priority switching mode
 If need adjustment, press the ▲ or ▼ button for a few seconds until the letter flicker. Then can be adjusted by▲ or ▼ button and press "Mode" to confirm.
AF : Automatic A way priority switching mode: When A and B ways signal are both larger than the threshold, default A way priority.
bF : Automatic B way priority switching mode: When A and B ways signal are both larger than the threshold, default B channel priority.
A : Manual mode, forced to the A way;
b : Manual mode, forced to the B way;
- Mode1:**  The actual value of +8V working voltage
1 : Means that the displayed data is the actual voltage of +8V
- Mode2:**  The actual value of +24V working voltage
2 : Means that the displayed data is the actual voltage of +24V
- Mode E1:**  RF equilibrium, if need adjustment, press the ▲ or ▼ button for a few seconds until the data flicker. Then can be adjusted by▲ or ▼ button and press "Mode" to confirm. The maximum range is 15dB.
E1: EQ mode, means that the controlled and displayed data is the RF channel equilibrium.
- Mode A1:**  RF attenuation, if need adjustment, press the ▲ or ▼ button for a few seconds until the data flicker. Then can be adjusted by▲ or ▼ button and press "Mode" to confirm. The maximum range is 20dB.
A1: ATT mode, means that the controlled and displayed data is the RF channel attenuation.
- Mode C:**  The actual number of channels enter into the current network system.
 If need adjustment, press the ▲ or ▼ button for a few seconds until the data flicker. Then can be adjusted by▲ or ▼button and press "Mode" to confirm. The maximum number is 200.
C : The menu is used to display the actual number of channels enter into the current network system, in order to calculate the RF output level more accurately.
- Mode3:**  RF output level (unit dBuV)
3 : Means that the displayed data is the RF output level under the current system.
- Mode AG:**  AGC range adjustment (adjustment range -6~-8dBm)
 Means that the AGC range under the current system is 0~-8dBm
 If need adjustment ,press the ▲ or ▼ button for a few seconds until the data flicker. Then can be adjusted by▲ or ▼button and press "Mode" to confirm.
 For example, adjust to -6, means that the AGC range is 0~-6 dBm
 Note: AGC range per reduce 1 dBm, the output level is raised by 2 dBuV.

8. Dimension



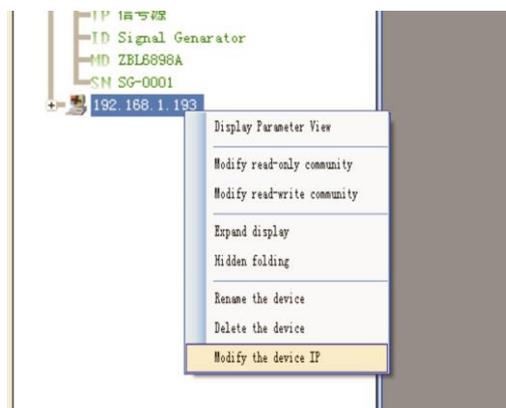
9. NMS setup instructions

If you have configured the network management transponder, the following settings are needed:

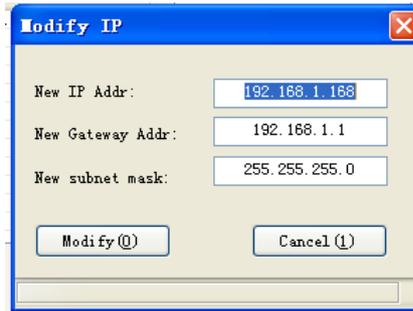
Transponder IP setup instruction:

Network management directly modify:

1. Default IP is 192.168.1.168, default gateway is 192.168.1.1, default subnet mask is 255.255.255.0
2. Connect the computer and transponder (can be directly connected), and change the computer IP to 192.168.1.XXX (XXX is any number from 0 to 255 except 168); start upper computer network management software, then search the device and log in.
3. Right-click device icon and choose "modify the device IP".



4. Enter new IP address, gateway and subnet mask.



5. Click modify, then exit, it is done. There will show new IP address and gateway on operational logbook.

Log Number	Log Type	Log Contents	Login time
1752	ChangIPAddress	Modify equipment192.168.1.168 IP address: New IP: 192.168.1.167;New gateway:192.168.1.1	2009-9-9 12:39:03

6. Reboot the transponder, the new IP take effect (Click the reboot button in the network management software or power on again)



10. Clean and maintenance method of the optical fiber active connector

In many times, we consider the decline of the optical power as the equipment faults, but actually it may be caused as the optical fiber connector was polluted by dust or dirt. Inspect the fiber connector, component, or bulkhead with a fiberscope. If the connector is dirty, clean it with a cleaning technique following these steps:

- 10.1 Turn off the device power supply and carefully pull off the optical fiber connector from the adapter.
- 10.2 Wash carefully with good quality lens wiping paper and medical absorbent alcohol cotton. If use the medical absorbent alcohol cotton, still need to wait 1~2 minutes after wash, let the connector surface dry in the air.
- 10.3 Cleaned optical connector should be connected to optical power meter to measure output optical power to affirm whether it has been cleaned up.
- 10.4 When connect the cleaned optical connector back to adapter, should notice to make force appropriate to avoid china tube in the adapter crack.
- 10.5 The optical fiber connector should be cleaned in pairs. If optical power is on the low side after clean, the adapter may be polluted, clean it. (Note: Adapter should be carefully operated, so as to avoid hurting inside fiber.
- 10.6 Use compressed air or degrease alcohol cotton to wash the adapter carefully. When use compressed air, the muzzle aims at china tube of the adapter, clean the china tube with compressed air. When use degrease alcohol cotton, insert directions need be consistent, otherwise can't reach a good clean effect.