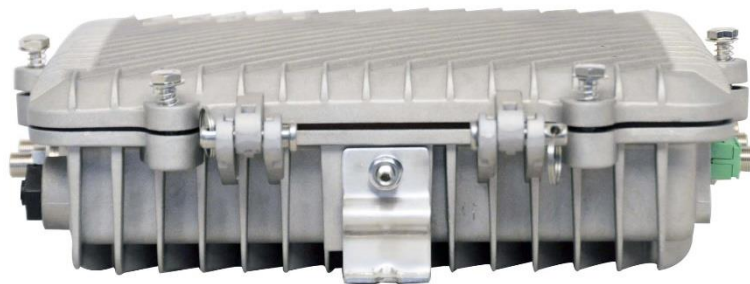




TKS1202AOR-CRP series Optical Receiver Manual



1. Product Summary

TKS1202AOR-CRP is the new modular two-output CATV optical receiver. It adopts modular design, use more flexible. Microprocessor control, digital display the parameters, the engineering debug is especially easy. It is the main equipment to build the CATV network.

2. Performance Characteristics

- High response PIN photoelectric conversion tube.
- Optimized circuit design, SMT process production, optimized signal path, make the photoelectric signal transmission smoother.
- Specialized RF attenuation chip, with good RF attenuation and equilibrium linear, high accuracy.
- GaAs amplifier device, power doubler output, with high gain and low distortion.
- Single Chip Microcomputer (SCM) control equipment working, LCD display the parameters, convenience and intuitive operation, and stable performance.
- Excellent AGC performance, when the input optical power range is $-9 \sim +2\text{dBm}$, the output level keeps unchanged, CTB and CSO basically unchanged.
- Reserved data communication interface, can connect with the Ethernet transponder, access to network management system.
- Return emission can select burst mode to sharply decrease the noise convergence and reduce the forepart receiver number.

3. Technical Parameters

3.1 Link testing conditions

The technique parameters of this manual according to the measuring method of GY/T 194-2003 < Specifications and methods of measurement on optical node used in CATV systems >, and tested in the following conditions.

Testing conditions:

1. Forward optical receive part: with 10km standard optical fiber, passive optical attenuator and standard optical transmitter composed the testing link. Set 59 PAL-D analog TV channel signal at range of 45/87MHz~550MHz under the specified link loss. Transmit digital modulated signal at the range of 550MHz~862/1003MHz, the digital modulated signal level (in 8 MHz bandwidth) is 10dB lower than analog signal carrier level. When the input optical power of optical receiver is -1dBm, the RF output level is 108dB μ V, with 8dB output tilt, measure the C/CTB, C/CSO and C/N.
2. Backward optical transmit part: Link flatness and NPR dynamic range are the link indexes which is composed of backward optical transmitter and backward optical receiver.

Note: When the rated output level is the system full configuration and the receiving optical power is -1dBm, equipment meets the maximum output level of link index. When the system configuration reduces (that is, actual transmission channels reduce), the output level of equipment will be increased.

Friendly Notice: Suggest you setting the RF signal to 6~9dB tilt output in the practical engineering application to improve the nonlinear index (behind the node) of the cable system.

3.2 Technical Parameters

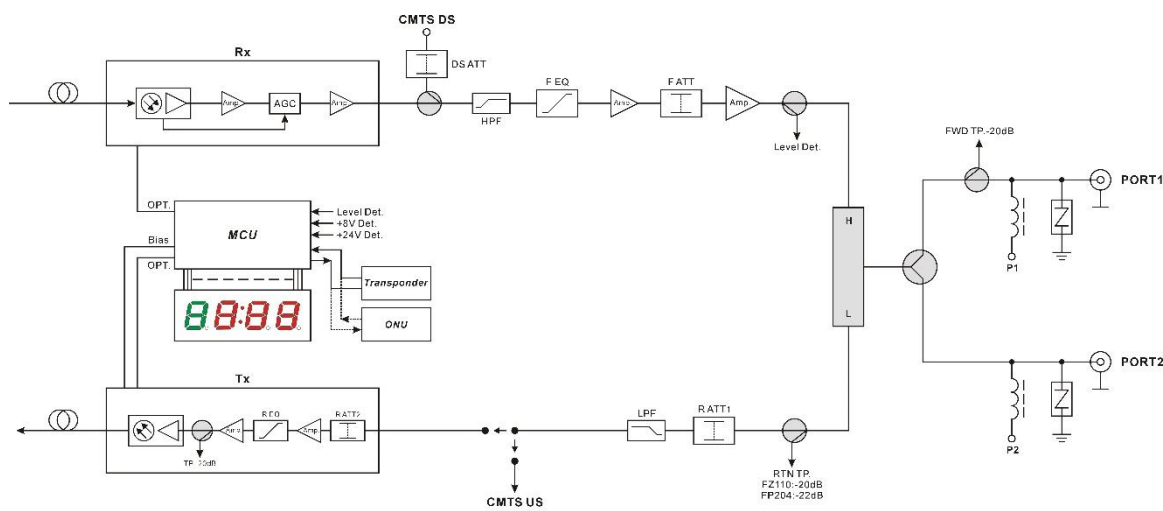
Item	Unit	Technical Parameters	
Optical Parameters			
Receiving Optical Power	dBm	- 8 ~ +2	
Optical Return Loss	dB	> 45	
Optical Receiving Wavelength	nm	1100 ~ 1600	
Optical Connector Type		SC/APC	
Fiber Type		Single Mode	
Link Performance			
C/N	dB	≥ 51 (-1dBm input)	
C/CTB	dB	≥ 65	Output Level 106dBμ VEQ 8dB 79ch PAL-D
C/CSO	dB	≥ 60	
RF Parameters			
Frequency Range	MHz	54/85/105/258 ~ 1002/1218	
Flatness in Band	dB	± 0.75	
Rated Output Level	dBμV	≥ 106	
Max Output Level	dBμV	≥ 108	
Output Return Loss	dB	54/85/105/258 ~ 550 MHz ≥ 16 550 ~ 1218MHz ≥ 14	
Output Impedance	Ω	75	
Electronic Control EQ Range	dB	0 ~ 15	
Electronic Control ATT Range	dBμV	0 ~ 20	
Return Optical Emission Part			
Optical Parameters			
Optical Transmit Wavelength	nm	DFB 1550±10nm / DFB CWDM ITU-T/6.694.2	
Output Optical Power	dBm	3	
Optical Connector Type		SC/APC	
RF Parameters			
Frequency Range	MHz	5 ~ 42/65/85/204	
Flatness in Band	dB	± 0.75	
Input Level	dBμV	70 ~ 85	
Output Impedance	Ω	75	
NPR Dynamic Range	dB	≥ 15 (NPR ≥ 30 dB), use DFB laser	
General Performance			
Supply Voltage	V	AC: 35 ~ 90V	
Operating Temperature	°C	- 40 ~ 60	
Storage Temperature	°C	- 40 ~ 65	
Relative Humidity	%	Max 95% no condensation	
Consumption	VA	≤ 20	

Dimension, LxWxH	mm	280 x 260 x 70
Net Weight	kg	2.8

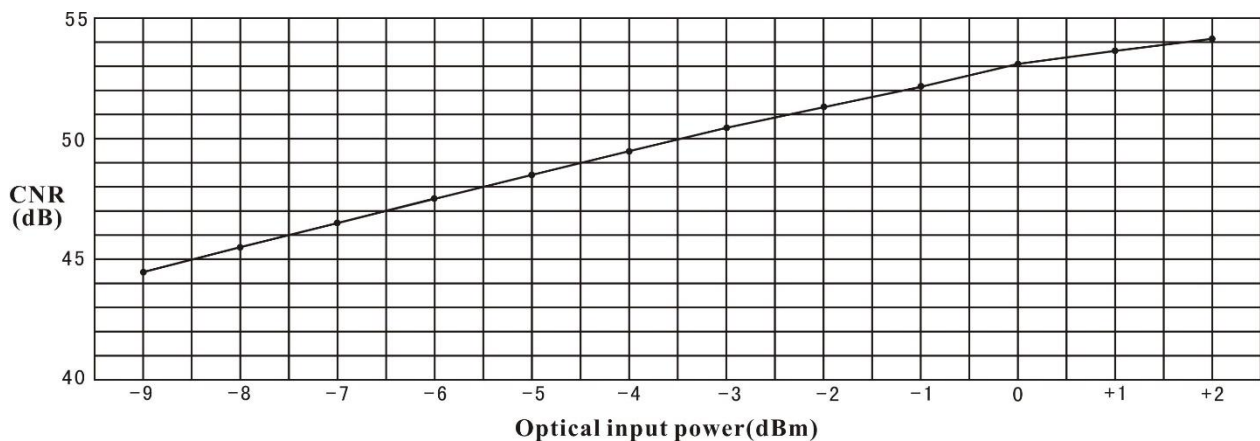
Note: The forward RF parameters are tested under the condition of using GaAs 25dB power doubler module in the last stage. Use other module, the parameters will be slightly different.

Burst Mode (Select this mode, see below)		
Optical Output Power	dBm	- 30
(Close the burst mode)		
Laser Turn On Threshold	dB μ V	≥ 70
Laser Turn Off Threshold	dB μ V	≤ 62
Laser Turn On Time (t1)	us	$0.5 \leq t1 \leq 1$
Laser Turn Off Time (t2)	us	$0.5 \leq t2 \leq 1.5$

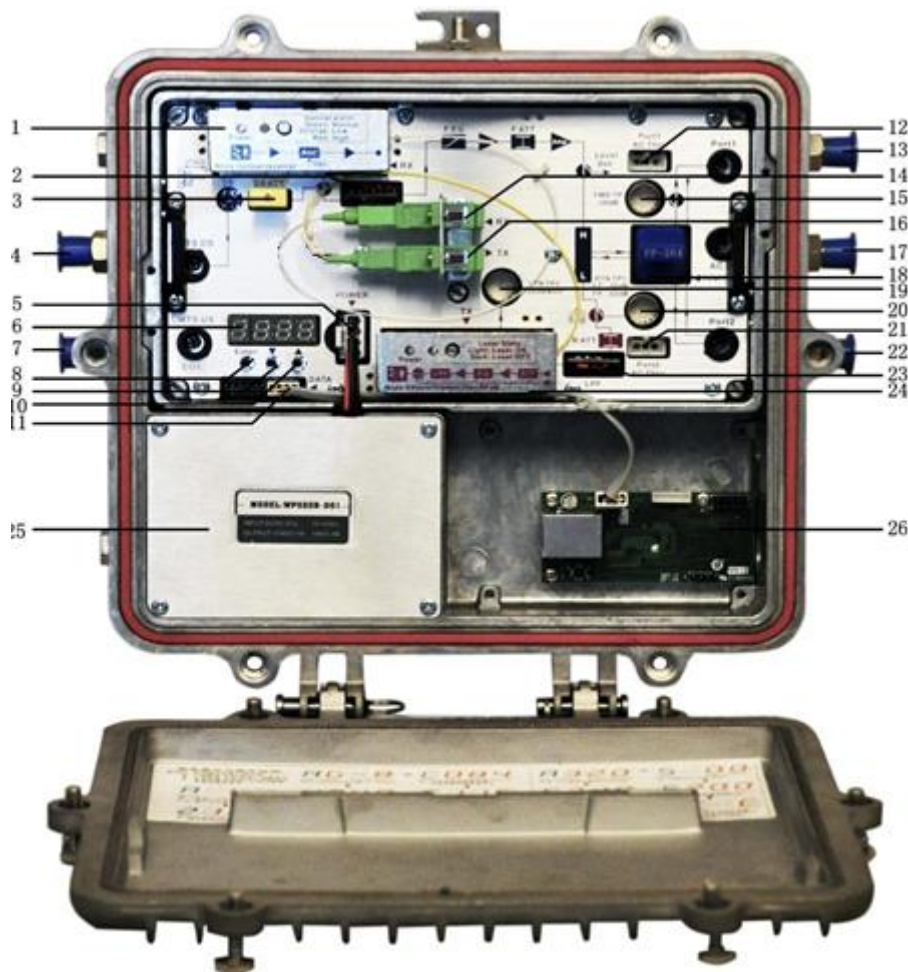
4. Block Diagram



5. Relation Table of Input Optical Power and CNR



Structure Diagram



- | | |
|--|---|
| 1. Optical receiving module | 2. HPF (high pass filter) |
| 3. DS attenuator | 4. CMTS DS port (without installing by default) |
| 5. Mainboard power supply interface | 6. Seven-segment digital tube status display |
| 7. CMTS US port/EOC signal interface (without installing by default) | 8. Control mode selectable button (Enter) |
| 9. Parameters adjustment button (Down) | 10. Parameters adjustment button (Up) |
| 11. Mainboard network management interface | 12. Power-pass inserter |
| 13. Output port 1 | 14. Optical input port |
| 15. RF output test port (-20dB) | 16. Optical output port |
| 17. AC60V input port | 18. Splitter or tap output |
| 19. Laser drive level test port (-20dB) | 20. Reverse path RF input test port (-20dB) |
| 21. Power-pass inserter | 22. Output port 2 |
| 23. LPF (low pass filter) | 24. Optical transmitter module |
| 25. Switching power supply | 26. ONU unit or transponder |