ASCENT
Communication Technology

AON1212
1.2GHz 2-Port Optical Node

Quick Reference Guide

Revision 2A

ACT AON1212 1.2GHz 2-port Optical Node

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ACT Document Number: ACT AON1212 Optical Node QRG

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This document is produced to assist professional and properly trained personnel with installation and maintenance issues for the product. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice.

For more information, contact ACT: support@ascentcomtec.com

Revision History

Revision	Date	Reason for Change
A	11/10/2016	Initial release
B	08/12/2019	Update format
2A	05/12/2026	Update chapter 1, 2, 3, 5, 6,7, 8 and delete chapter 9, 10

Contents

1 Product Summary

AON1200 Series 2-port two-way Optical Node is part of ACT Deep Fiber solution, which has been designed to deliver interactive CATV, high capacity DOCSIS Data and other advanced services. The costeffective node platform helps service providers expand bandwidth of their existing HFC network while minimizing capital investment.

AON1212 is a 1.2GHz features a modular design for flexible applications. It has microprocessor control, a digital display, and an easy-to-use engineering debug interface. It has highly-optimized circuit design using SMT process production for smooth photoelectric signal transmissions. It has good RF attenuation with high accuracy with its use of a specialized RF attenuation chip. It uses GaAs technology to achieve high gains and low distortion, and has excellent AGC performance.

AON1212 node suits the last mile fiber deep access networks and also provides the optional HMS interface to support the remote monitoring capability in advanced network management system.

2 Performance Characteristics

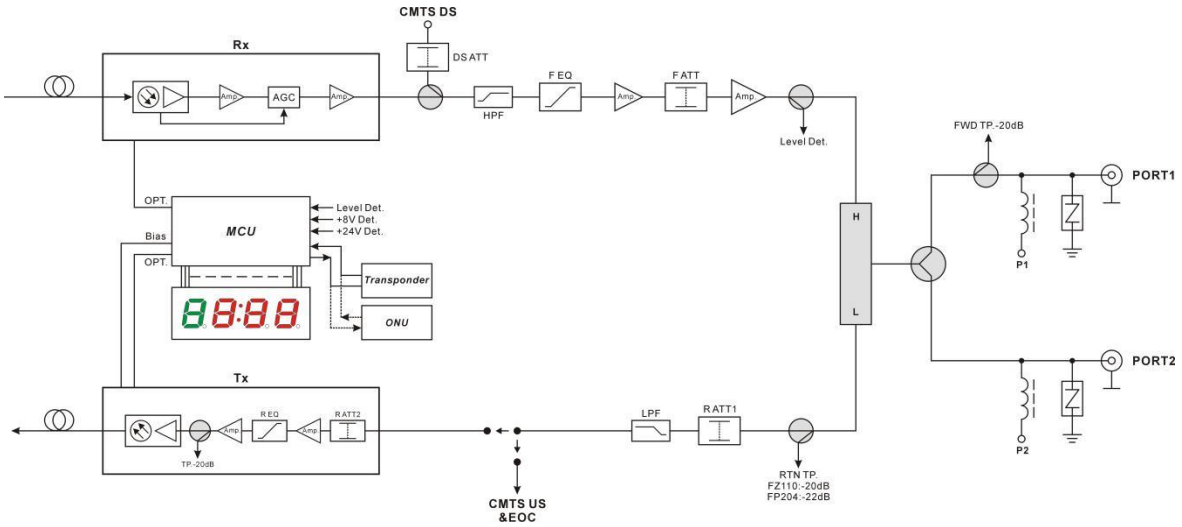
- High response PIN photoelectric conversion tube
- Optimized circuit design, SMT process production, optimized signal path, make the photoelectric signal transmission more smooth
- Specialized RF attenuation chip, with good RF attenuation and equilibrium linear, high accuracy
- GaAs amplifier device, 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 to +2dBm, the output level keep 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
- ONU module optional

3 Technical Specifications

Item	Unit	Technical Parameters	
Optical Parameters			
Receiving Optical Power	dBm	-8 to +2	
Optical Return Loss	dB	>45	
Optical Receiving Wavelength	nm	1100 to 1600	
Optical Connector Type		FC/APC, SC/APC or specified by the user	
Fiber Type		Single Mode	
Link Performance			
C/N	dB	≥51(-1dBm input)	
C/CTB	dB	≥65	Output Level 106dBμV EQ 8dB 79ch PAL-D
C/CSO	dB	≥60	
RF Parameters			
Frequency Range	MHz	54/85/105/258 to 1218	

Item	Unit	Technical Parameters	
Flatness in Band	dB	±0.75	
Rated Output Level	dBμV	≥106	
Max Output Level	dBμV	≥108	
Output Return Loss	dB	(54/85/105/258 to 550MHz)≥16/(550 to 1218MHz)≥14	
Output Impedance	Ω	75	
Electronic Control EQ Range	dB	0 to 15	
Electronic Control ATT Range	dBμV	0 to 20	
Return Optical Emission Part			
Optical Parameters			
Optical Transmit Wavelength	nm	1310±10, 1550±10 or specified by the user	
Output Optical Power	mW	0.5, 1, 2	
Optical Connector Type		FC/APC, SC/APC or specified by the user	
RF Parameters			
Frequency Range	MHz	5 to 42/65/85/204	
Flatness in Band	dB	±0.75	
Input Level	dBμV	72 to 85	
Output Impedance	Ω	75	
NPR Dynamic Range	dB	≥15(NPR≥30dB) Use DFB laser	≥10(NPR≥30dB) Use FP laser
General Performance			
Supply Voltage	V	A: AC (150 to 265)V; B: AC (35 to 90)V	
Operating Temperature	℃	-40 to 60	
Storage Temperature		-40 to 65	
Relative Humidity	%	Max 95% no condensation	
Consumption	VA	≤ 20	
Dimension	mm	280 (L) x 260 (W) x 70 (H)	
Net Weight	kg	2.8	
Burst Mode (Select this mode, see below)			
Optical Output Power (Close the burst mode)	dBm	-30	
Laser Turn On Threshold	dBμV	≥70	
Laser Turn Off Threshold	dBμV	≤62	
Laser Turn On Time (t1)	us	0.5≤ t1 ≤1	
Laser Turn Off Time (t2)	us	0.5≤ t2 ≤1.5	

4 Block Diagram



5 Ordering Information

AON1212 Series 2 Output, Fiber Deep Node Ordering Information

AON121	X-	X-	XX-	X-	X-	X

	Output
0	1 GHz
1	1.2 GHz

	Band Split
42	42/54 MHz
65	65/85 MHz

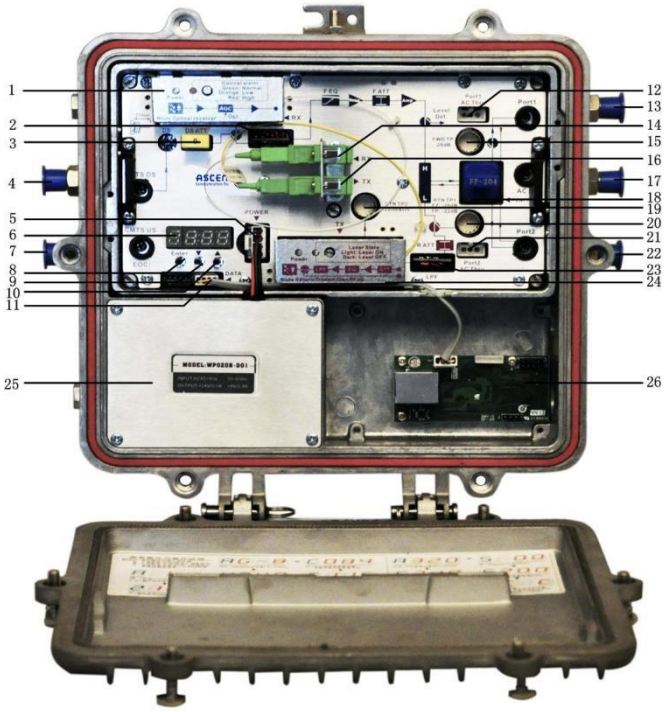
	Power Supply
1	35 V_{AC} to 90 V_{AC}
2	90 V_{AC} to 260 V_{AC}

	Return Transmitter
0	None
A	1550 DFB 3 dBm
B	1310 FP 0 dBm
C	1310 DFB 3 dBm
D	1611 CWDM 0 dBm
E	1591 CWDM 0 dBm

	Optical Connector
AS	SC/APC
AF	FC/APC

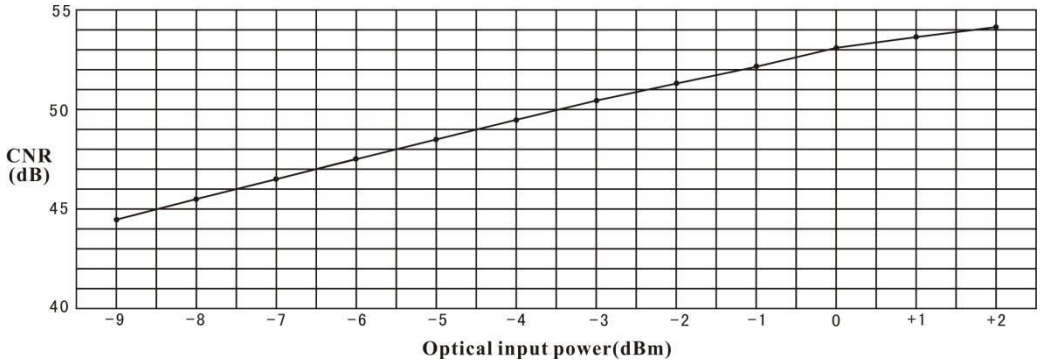
	EMS
0	No EMS

6 Structure Description

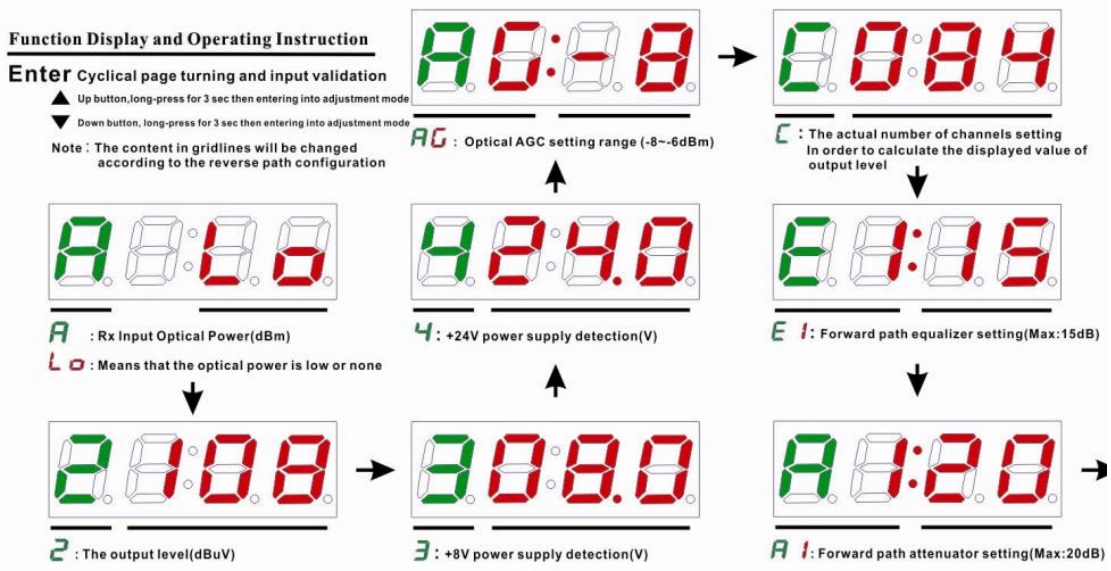


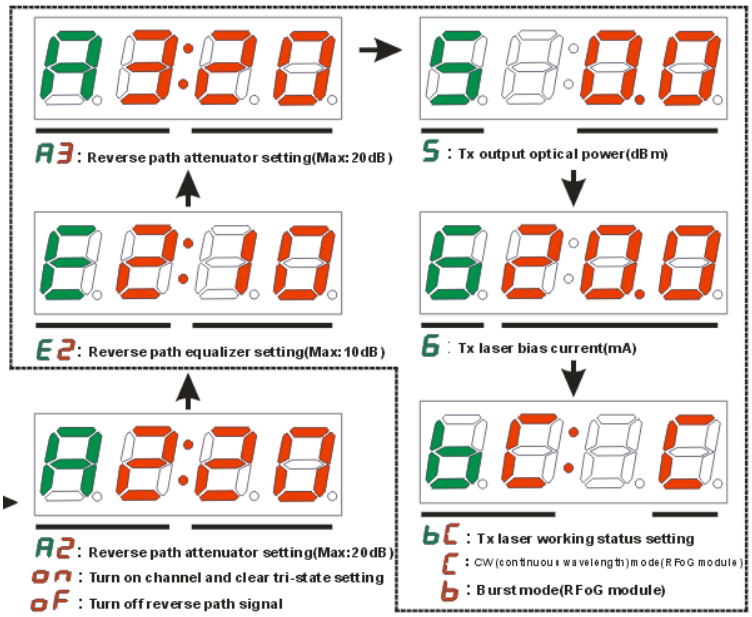
1. Optical receiving module
2. HPF(high pass filter)
3. DS attenuator
4. CMTS DS port(without installing by default)
5. Mainboard power supply interfafce
6. Seven-segment digital tube status display
7. CMTS US port/EOC signal interface(without installing by default)
8. Control mode selectable button(Enter)
9. Parameters adjustment button(Down)
10. Paramenters adjustment button(Up)
11. Mainboard network mangement interface
12. Power-pass inserter
13. Output port1
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 port2
23. LPF(low pass filter)
24. Optical transmitter module
25. Switching power supply
26. ONU unit or transponder

7 Relation Table of Input Optical Power and CNR



8 Function Display and Operating Instruction





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