



**RON1510D  
1.2GHz  
RFOG Node**

**Quick Reference  
Guide**

**Revision B**

## ACT RON1510D 1.2GHz RFOG Node

### Quick Reference Guide

ACT Document Number: ACT RON1510D RFOG Node ONU QRG

Quick Reference Guide Revision B

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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.

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#### Revision History

Revision	Date	Reason for Change
A	09/04/2024	Initial release
B	05/13/2026	Update format

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## 1 Product Summary

ACT 1.2 GHz RON1510D series RFoG (RF over Glass) ONU is a cost-effective and superior performance optical network unit, which is designed and optimized to work in a DOCSIS standards-compliant, OBI free RFoG Fiber-to-the-Home (FTTH) architecture.

RON1510D provides excellent forward and reverse path performance combined with high reliability and a user-friendly layout. It is designed with 1550 nm forward-path RF signals, and 16 return-path upstream signals at 1450, 1470, 1590, 1610nm region. Each unit can be adjusted with 4 output optical wavelengths (0.5nm stepping) at these four regions electronically.

The RON1510D optical node is part of ACT overall FTTx solution suite. RON1510 features an optical AGC function in the forward path to ensure the same RF output level in every home. The return transmitter has burst mode (turns on the laser by return signal) to greatly reduce return fibers. It incorporates a low noise optical receiver and an isolated DFB optical laser to modulate the return-path signal from any set-top box (STB) or DOCSIS modem onto the fiber.

## 2 Performance Characteristics

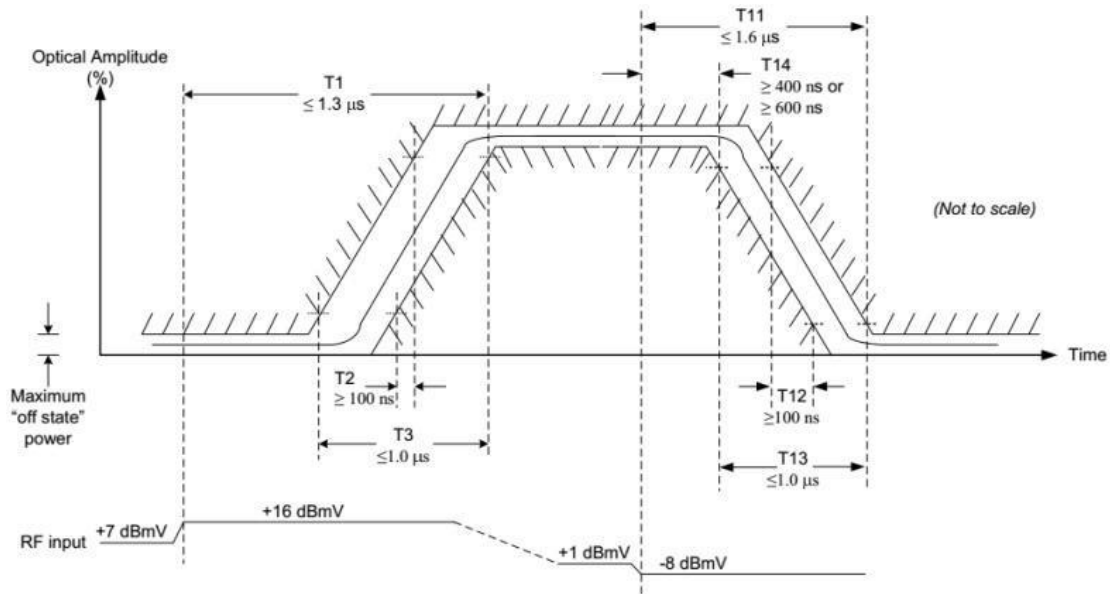
- 1.2 GHz bandwidth
- Optical AGC range adjustable -5/-6/-7/-8~0
- RF ATT: 0 to 18, 1dB step
- RF EQ: 0 to 15, 1dB step
- Output level >108dBμV
- DFB Laser power: 2mW
- Supporting burst and continuous mode
- Display and set parameters with LED
- Built-in WDM, 2 wavelengths in single fiber
- Excellent surge and ESD protection

## 3 Technical Specifications

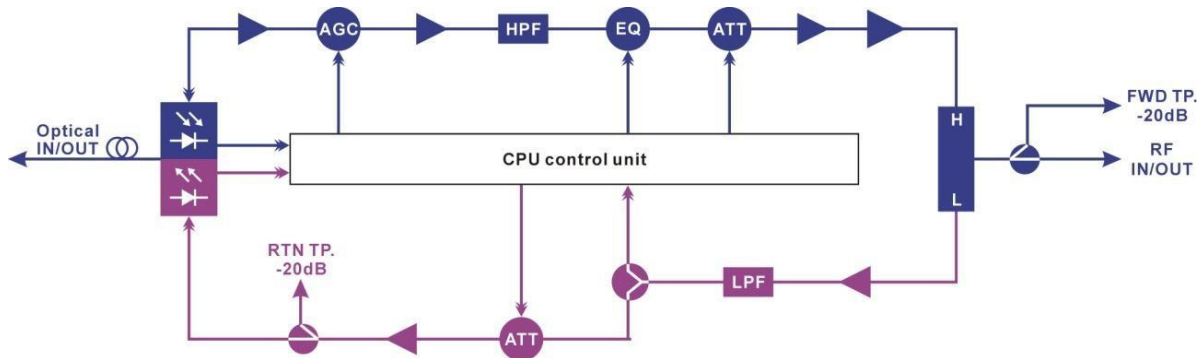
Item	Unit	Parameter
<b>Optical</b>		
Optical Return Loss	dB	>40
Optical Connector		SC/APC
WDM Wavelength	nm	Downstream : 1550±10 Upstream: 1290, 1310, 1330, 1350, 1490, 1510, 1590, 1610±5
WDM Insertion Loss	dB	Max: 0.7
<b>Downstream</b>		
Receiving Wavelength	nm	1550±10
PIN Tube Responsivity	mA/mW	>0.8
Optical Receiving Power	dBm	-8 to 0
AGC Range	dBm	-5/-6/-7/-8 to 0 adjustable
Frequency Range	MHz	85/110/258 to 1003/1218 ±1dB (85/110/258 to 862)
Flatness	dB	±1.5dB (862 to 1218)

Item	Unit	Parameter	
Reflection	dB	>18dB@40MHz, -1.5dB/oct	
ATT	dB	0 to 18, 1dB stepping	
EQ	dB	0 to 15, 1dB stepping	
Equivalent Noise Current		<6 pA/rt(Hz)	
MAX Output Level	dBμV	≥ 108	AGC: -6 to 0dBm, OMI 3.5%
C/N	dB	≥44	CENELEC 42 CH, output level:
C/CTB	dB	≥60	108dBuV EQ: 6dB, AGC: -6 to 0dBm
C/CSO	dB	≥60	optical input power: -5dBm OMI
XMOD	dB	≥63	3.5%
MER	dB	≥40	254 to 1218 MHz QAM256 , output level: 102dBμV EQ: 8dB, AGC: -6 to 0dBm
BER	—	-10 <sup>-9</sup>	optical input power: -5dBm OMI 3.5%
<b>Upstream</b>			
Output Wavelength	nm	1290, 1310, 1330, 1350, 1490, 1510, 1590, 1610±5 optional	
Laser Mode		DFB,burst/continuous	
Optical Output Power	mW	2	
Frequency Range	MHz	15 to 65/85/204	
Flatness	dB	±0.75	
Reflection	dB	>16dB	
Adjustable Attenuation	dB	0 to 18, 1dB stepping	
T1	us	≤1.3	SCTE_174_2010
T2	ns	≥100	7.1.3 below figure Note 1
T3	us	≤1.0	
T11	us	≤1.6	
T12	ns	≥100	
T13	us	≤1.0	
T14	ns	≥100	
Laser Turn-On Level	dBμV	68±1	
Laser Turn-Off level	dBμV	58±1	
NPR Dynamic Range	dB	≥16 dB @36 dB	
OMI		15%@ input level 74dBμV	
<b>Others</b>			
Supply Voltage	V	AC 90 to 265	
Waterproof Level		IP50	
F Connector		Female F connector	
Test Port	dB	20±1.5	
Surge		>4kV (EN61000-4-5, 1,2/50 μs pulse)	
Operating Temperature	°C	-20 to 55	
Storage Temperature	°C	-40 to 65	
Humidity	%	Maximum 95% non-condensing	
Power Consumption	W	<18	
Weight	Kg	2	

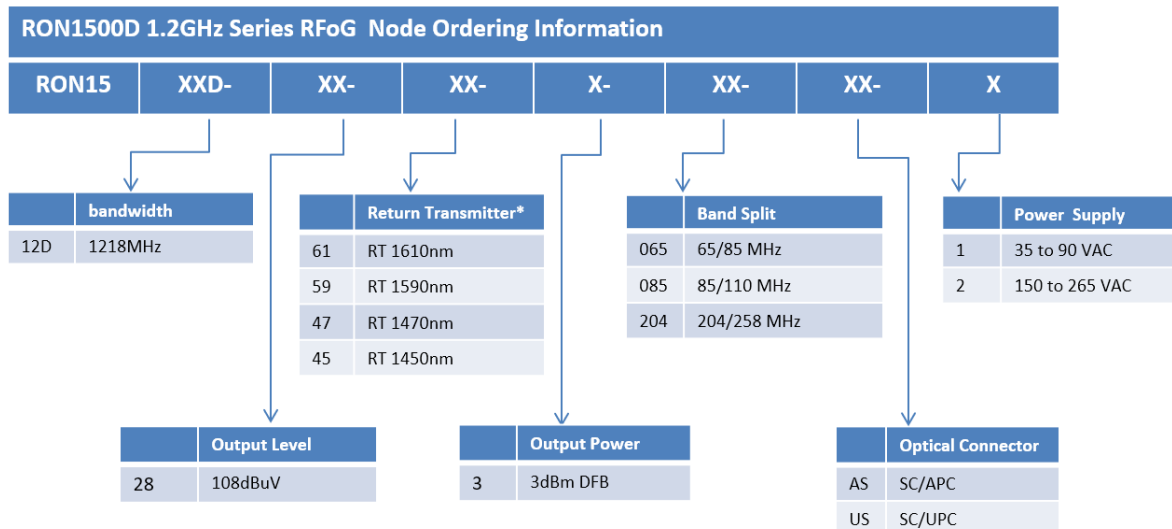
Note:



## 4 Block Diagram

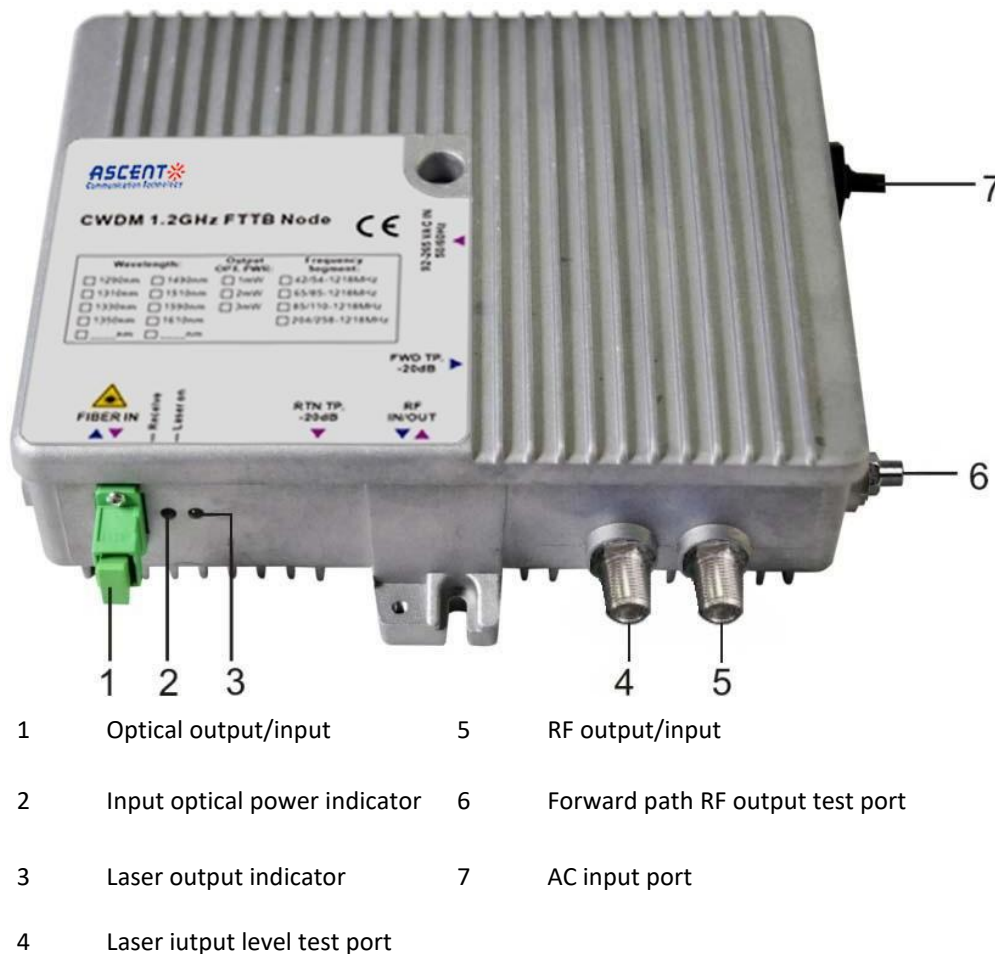


## 5 Ordering Information

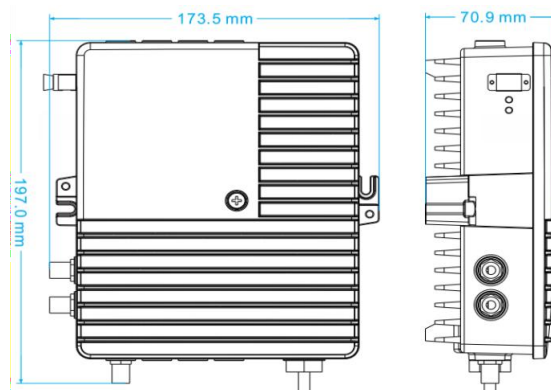


**Note:** \*Each of these return transmitters can be set electronically with four sub-wavelengths(0.5nm stepping).

## 6 Structure Description



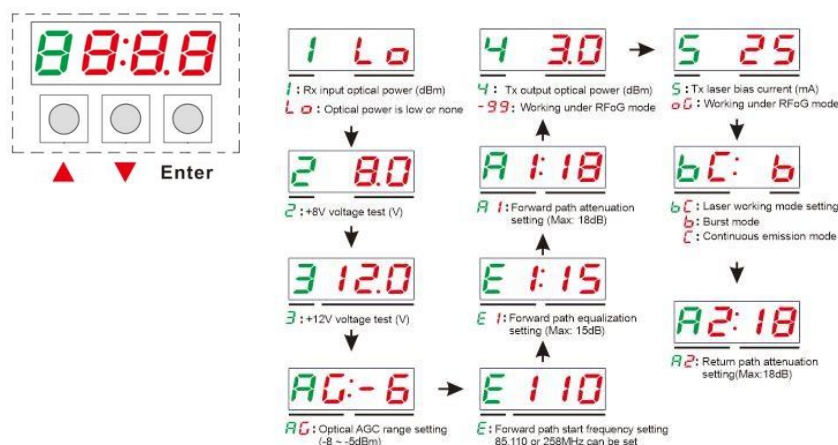
## 7 Dimension(mm)



## 8 Function Display and Operating Instruction

Enter Key: Input confirming button. Press for 3s to enter the adjusting mode.

- ▲ key: Up and adjustment.
- ▼ key: Down and adjustment.



## 9 Attention

- 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.





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