RFoG Optical Node FTTx Solution

RON1500B Series

- 1.2GHz Mini Node
- Output 92dBuV
- 1310/CWDM Return
- SCTE 174 2010 Standard Compliant
- Continuous or Burst Mode Upstream
- Optical AGC
- Optional PON Upgrade Port
- Low Power Consumption
- LED Status Indicators

The ACT RON1500B Series is a cost-effective, high-performance RFoG optical network unit (ONU) designed and optimized for standards-compliant RFoG Fiber-to-the-Home (FTTH) networks. It enables cable operators to maximize their existing HFC infrastructure investment while continuing to deliver DOCSIS-based Internet, telephony, and Video-on-Demand services over fiber.

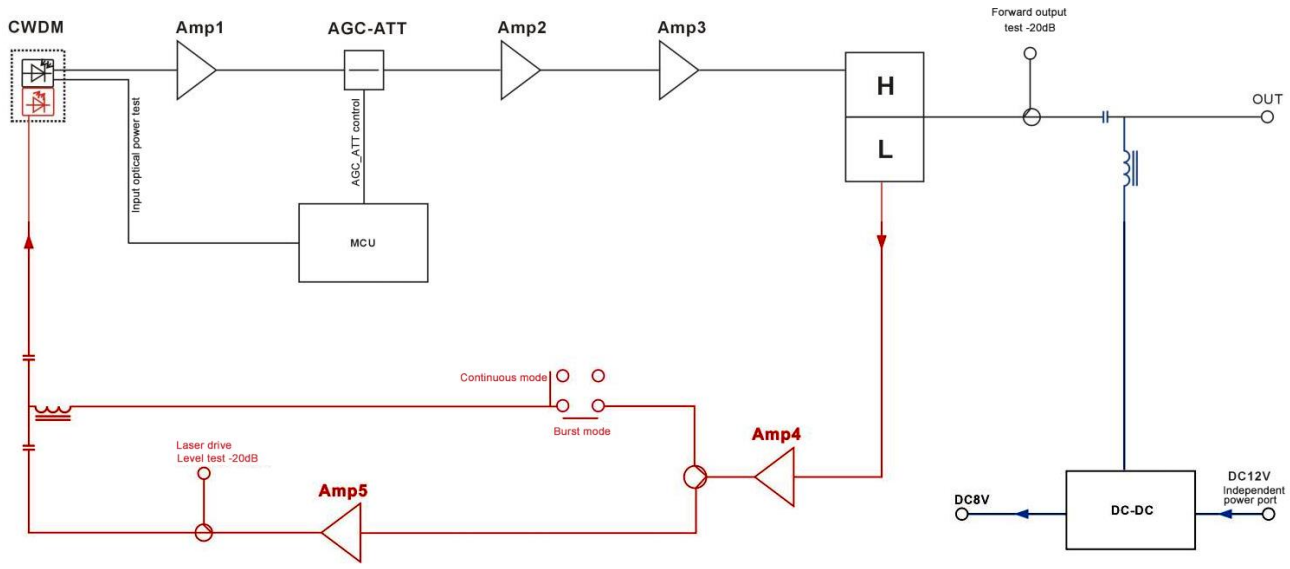
As part of ACT's comprehensive FTTx solution suite, the RON1500B optical node supports 1550 nm forward-path RF transmission and return-path upstream signals at multiple CWDM wavelengths in a 1×32 split FTTH topology. The unit features a low-noise optical receiver and an isolated DFB laser transmitter for stable upstream modulation from set-top boxes (STBs) or DOCSIS modems.

An optional PON upgrade port allows seamless convergence with next generation PON systems, providing multiple-system operators (MSOs) with a flexible migration path toward next-generation PON-based FTTH deployments. Designed for bidirectional HFC applications, the RON1500B integrates optical transmit and receive paths over a single fiber, effectively minimizing return-path noise and ensuring high-reliability signal transmission for modern CATV broadband networks.

Key Features

- Excellent AGC characteristic, when the AGC range is -8 to 0dBm, the output level remain unchanged, CTB and CSO basically unchanged.
- Optimizing circuit design, SMT production process, optimizing the whole signal path, makes the photoelectronic signal transmission more stable, RF linear indicators higher.
- Professional RF attenuator circuit, with good attenuation linear and high precision.
- GaAs amplifier device, with good index, low distortion and high reliability.
- The shell adopts aluminum die casting, cooling effect is good and the appearance is exquisite.
- The turning on mode of reverse laser can be set to continuous mode or burst mode.

Block Diagram



Specifications

Item		Technical Parameters	
Forward Optical Receiver			
Optical Parameters	AGC Range	-8dBm to 0dBm	
	Optical Return Loss	> 45dB	
	Optical Receiving Wavelength	1550+/-10nm	
	Optical Connector Type	SC/APC	
	Optical Fiber Type	Single mode	
Link Performance	C/N	≥ 51dB (Pin= -1dBm)	
	C/CTB	≥ 62dB	@Pin=-8dBm, 42ch,
	C/CSO	≥ 64dB	OMI 3.5%
RF Parameters	Frequency Range	54 MHz to 1218MHz	
	Flatness in Band	±0.75dB @-3dBm	
	Rated Output Level	≥ 92dBμV	
	Max Output Level	≥ 92dBμV	
	Output Return Loss	≥16dB	
	Output Impedance	75Ω	
Reverse Optical Transmiter			
Optical Parameters	Laser ON/OFF	<1.3sec	
	Optical Transmit Wavelength	1310nm or other standard CWDM wavelengths	
	Laser Type	DFB laser	
	Optical Output Power	0.1dBm to 0.4 dBm	
	Optical Connector Type	SC/APC	
	Laser Mode	Continuous mode or burst mode	
	Optical Power (Laser Turns Off)	-24dBm to -26dBm	
RF Parameters	Level (Laser Turns Off)	OFF: 58±1.5dBuV	
	Level (Laser Turns On)	ON: 68±1.5dBuV	
	Frequency Range	5MHz to 42MHz	
	Flatness in Band	±0.75dB	
	Input Return Loss	≥ 16dB	
	Output Impedance	75Ω	
	NPR Dynamic Range	>35dB (Input range >15dB)	
	Power Voltage	DC12V	

Item	Technical Parameters
General Performance	
ESD	2KV (RF port)
Operating Temperature	-20°C to +55°C
Storage Temperature	-30°C to +70°C
Relative Humidity	Max 95% no condensation
Consumption	≤6.5W
Dimension	154mm(L) x 116mm(W) x 26mm(H)

Ordering Information

RON1500B Series RFoG ONU Ordering Information

RON15	XXB-	XX	X-	XXX-	XX-	XX-	X

	RF Bandwidth
10B	1GHz
12B	1.2GHz

	Return Transmitter
0	No Rtn
A	1310 FP Rtn 0dBm
B	1310 FP Rtn 3dBm
C	1310 DFB Rtn 3dBm
D	1611 DFB Rtn 3dBm

	Optical Connector
AS	SC/APC
AF	FC/APC

	PON Upgrade Port
0	No Upgrade Port
P	PON Upgrade Port

	Output Level
92	92dBuV

	Band Split
42	42/54 MHz
65	65/85 MHz
204	204/258MHz

	Power Adaptor
00	None (RF Powering)
01	Australia
02	China
03	Continental Europe
04	North America

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