ASCENT
Communication Technology

RON1526 Optical Node Solution

Quick Reference Guide

Revision C

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ACT Document Number: ACT RON1526 Quick Reference Guide

User Guide Revision C

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	03/31/2016	Initial Release
B	08/29/2025	Update format
C	09/12/2025	Clean Typo

Table of Contents

1 Overview

ACT 2.6GHz RON1526 series RFoG (RF over Glass) ONU is a cost effective, superior performance optical network unit, which is designed and optimized to work in a standards-compliant RFoG Fiber-to-the-Home (FTTH) architecture network. The wide RF spectrum supports both CATV spectrum and Satellite IF spectrum up to 2.6 GHz.

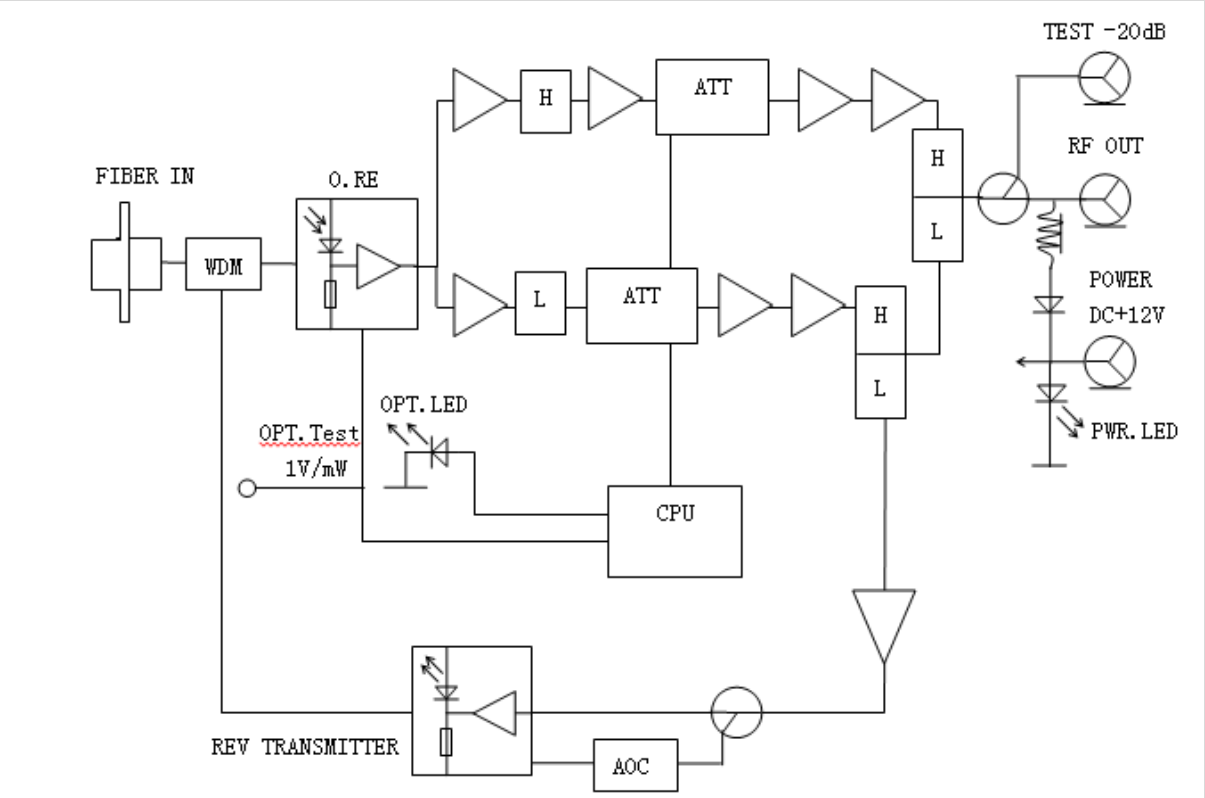
Implementing RFoG ONU makes it possible for cable operators to protect their existing network investments and continue the deployment of DOCSIS-compliant cable modems for internet and VoIP delivery, together with Video on Demand systems.

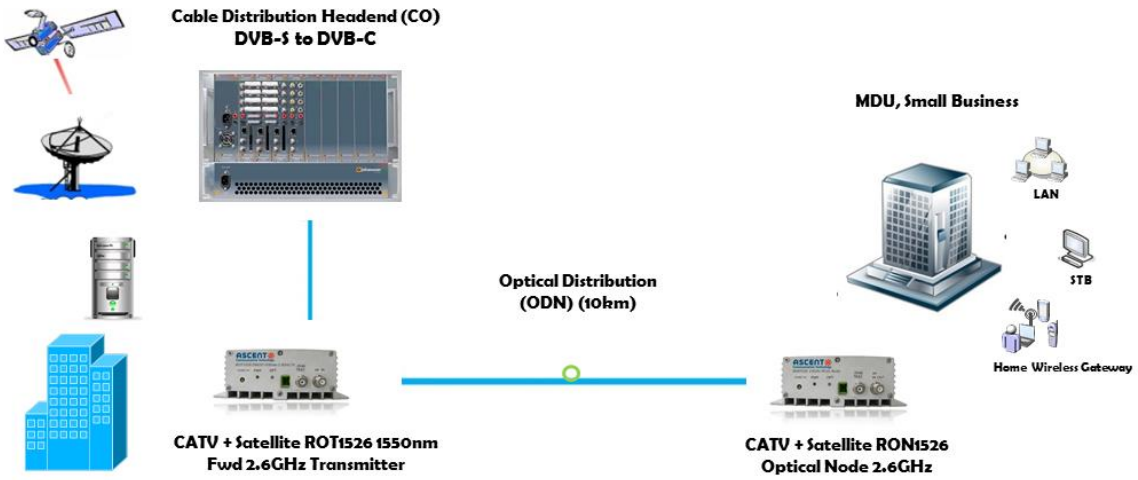
The RON1526 optical node is part of Ascent's overall FTTx solution suite, and it is designed with 1550 nm forward-path RF signals, and return path upstream signals at either 1310 nm or 1610 nm in a 1 x 32 split FTTH network topology. It incorporates a low noise optical receiver and an isolated DFB optical laser to modulate the return-path signal from any set-top box (STB) or DOCSIS modem onto the fiber. An optional PON upgrade port combines these up and downstream signals across a 1310/1490 nm EPON/GPON network, providing MSOs with a transitional platform to migrate from existing HFC systems to PON FTTH networks.

2 Key Features

- 2.6 GHz RF Spectrum
- Small form-factor and low power consumption
- SCTE174 2010 standards compliant
- High performance and cost effective RFoG ONU solution for FTTX Network
- Optical automatic gain control (AGC)
- Active Carrier Suppression (ACS) to allow up to 32 units to function within a PON HFC network compatible with DOCSIS 1, 2 or 3 standards
- In-built return path transmitter suits set-top box systems where pay-per-view and other various return path information sent via RF
- Powered directly using the power adaptor or via F-type connectors
- 75.5 MHz FSK modulation remote control CATV/SAT-IF/Return
- Compact and sturdy enclosure fits easily in wiring closets or network termination boxes.

3 Block Diagram



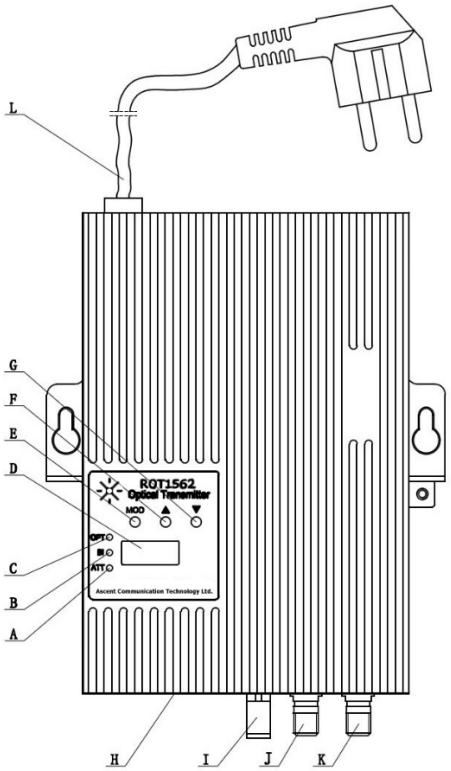


4 Specifications

RON1526 RFoG Optical Network Unit

Downstream Specifications (Receiver)	
Wavelength	1550 ± 10nm
Optical Input Power	-8 to -1 dBm
Optical AGC Range	-8 to -1 dBm
Optical AGC Accuracy	±3dB (CATV), ±4 dB (SAT-IF)
CATV RF Bandwidth	47 MHz to 862 MHz
SAT-IF RF Bandwidth	950 MHz to 2602 MHz
Reference Output Level	95 dBμV (OMI 7% Analog) 85 dBμV (OMI 2.2% SAT-IF)
RF Flatness	±2.5 dB CATV, ±3.0 dB SAT-IF
RF Return Loss	14 dB Typical CATV, 10 dB Typical SAT-IF
RF Input Impedance	75 Ω
RF Test Point	-20 dB ± 2.0 CATV, ±3.0 SAT-IF
Link Performance	
CNR	51 dB CATV, 28 dB SAT-IF @-1 dBm input (OMI 3.5%)
CTB	-60 dBc
CSO	-57 dBc
XMOD	-55 dB
Upstream Specifications (Optional RTN Transmitter)	
Optical Wavelength	1310 nm ± 20 nm, 1610 nm ± 10 nm
RF Bandwidth	5 MHz to 65 MHz, 10 MHz to 50 MHz
Output Power	3 dBm
RF Input Level	20 dBmV to 40 dBmV
RF Input Level On/Off threshold	>10 dBmV / <-4 dBmV
Laser Turn On Time	Typical 1.0 μs (<1.3 μs)
Laser Turn Off Time	Typical 1.2 μs (<1.6 μs)
RF Return Loss	14 dB Typical
Optical Return Loss	45 Min
General Specifications	
Optical Connector	SC/APC, FC/APC, SC/UPC
Operating Temperature	-20 °C to 55 °C
Storage Temperature	-40 °C to 85 °C
Power Supply	100 V AC to 240 V AC
Operating Relative Humidity	5 % to 95 %
Power Consumption	7 W
Dimensions (W × D × H)	210 mm × 156 mm × 50 mm
Weight	0.93 kg

5 Product Diagram



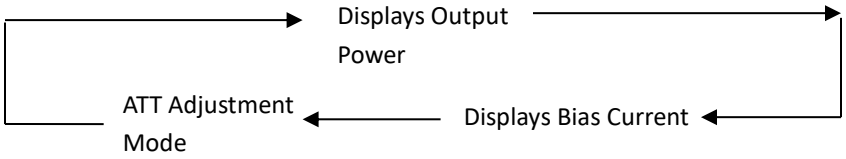
A: ATT Adjustment Mode Indicator: This red light indicates the transmitter is in RF attenuation mode.

B: Bias Current Mode Indicator: This red light indicates that the transmitter is in laser bias current mode.

C: Optical Power Mode Indicator: This red light indicates that the transmitter is in optical power output mode.

D: Display: Used to display all parameters for the device.

E: Settings button. Every press, the data display will change modes and the corresponding indicator light will light up.



F, G: Up and down adjustment keys: when entering ATT adjustment mode, you can adjust the ATT up or down, using these keys.

H: LAN communication interface (RJ45 interface): IEEE802.3 10Base-T interface for local network management.

I: Optical signal output. When the device is working properly, the port has an invisible laser beam. The port should not be looked at with a naked eye, so as not to cause accidental injury.

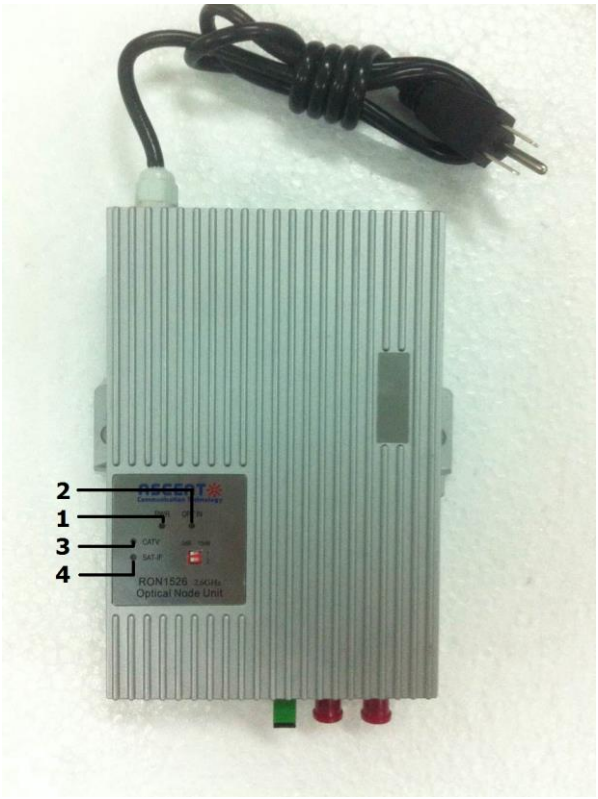
J: RF monitoring port.

K: RF input port.

L: Power cord: Supplies power to the device.

Plug in the power, the machine will automatically run a self-test. The digital display will flash. After completion of the self-test the system enters into a working state. Press the settings button to enter the various modes.

6 LED Indicators



LED	Item	Color	Description
1	PWR	Green	Indicator is always ON when device is on. Indicator is OFF when device is not receiving power.
2	OPT IN	Green	Indicator is ON when input optical power ≥-9 dBm. Indicator is OFF when input optical power <-9 dBm.
3	CATV	Green/Yellow	Indicator is GREEN when CATV output level is attenuated by 0 dB. Indicator is YELLOW when CATV output level is attenuated by 15 dB. Indicator is OFF when CATV output is turned off.
4	SAT-IF	Green/Yellow	Indicator is GREEN when SAT-IF output level is attenuated by 0 dB. Indicator is YELLOW when SAT-IF output level is attenuated by 15 dB. Indicator is OFF when SAT-IF output is turned off.

7 Operation Instructions

1. The power supply for the device is AC 100 V to 240 V / 50Hz.

2. Use the optical power meter to check whether the receiving power is in accordance with design requirements (typical value is -1 dBmW).

3. After cleaning, connect the optical fiber to the flange of the optical receiver. Use the LED indicator light to check if the input optical power is normal. When the green LED is not ON, the input optical power is too low or the optical power is not enough. Note that an overly high input optical power may damage the optical receiver.

4. Forward output attenuation 0/15 dB is optional. Can also be set up for CATV and SAT-IF output attenuation.

5. FSK remote control can be used to turn on or off the CATV, SAT-IF.

8 Warnings

1. All electric power components and optical transmitter should be given a good grounding connection.

2. The electric power of RON1526 should be 100 V AC to 240 V AC with a regulated AC power supply.

3. The RF signal should not be connected until the optical transmitter arrives at its normal working point. The amplitude of the RF signal should follow the instructions in the test report of the optical transmitter. An abnormal RF signal power will overload the laser and damage it.

4. RON1526 should be stored in ESD protected conditions (such as within an ESD protection container) and cannot be stored with corrosive cargo. The storage temperature should be kept within -20 °C to +55 °C.

5. Forced cooling should be added when multiple RON1526 units are mounted on the same rack.

6. Do not open or repair any part of RON1526. Doing so will void the warrantee.

7. RON1526 requires good ventilation to work properly.

8. The optical output should be covered with a dustproof cover if the transmitter won't be used for an extended period of time.

When failure occurs, RON1526 should be sent to the manufacturer in a timely manner. Do not open or attempt to repair any part of the transmitter by yourself, doing so will void the warrantee.

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Specifications and product availability are subject to change without notice.

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