



CTDI Products: End-to-End Solutions

## MicroNode™ 235 RFoG ONU

The CTDI **MicroNode 235 Forward and Return Path RFoG ONU** delivers advanced bi-directional, interactive RF services over a passive fiber optic distribution network. It is deployed with an existing PON ONT, enabling all voice, video and data services on a common fiber infrastructure. An integrated WDM provides the fiber connectivity to the BPON, GPON, or EPON ONT. It can also be deployed as a stand-alone RFoG ONU, delivering RF services today with capacity to add the adjacent PON ONT as service requirements change. The MicroNode 235 RFoG ONU provides the freedom and flexibility to work with any PON system that uses industry standard optical wavelengths, and serves as the optical transport layer for RF video, DAVIC, and DOCSIS technologies. The MicroNode RFoG ONU provides bi-directional services over extended RF frequencies (up to 1.1GHz) while being compatible with both RF headend and RF customer premises equipment and preserving today's operating processes. The 200 series of MicroNodes provides higher RF output power for multi-subscriber applications, removing the requirement for a distribution amplifier at the customer premise. CTDI's MicroNode 235 RFoG ONU: flexibility to grow your network to meet customer demand now and in the future.

### Benefits

- Reduces network costs via elimination of HFC nodes
- Allows deployment of fiber optic distribution network while leveraging existing RF and DOCSIS investments
- Compatible with industry standard BPON, GPON and EPON systems, with integrated WDM to feed a co-located PON ONT
- Compatible with existing RF headend and CPE equipment
- High performance, ultra low noise burst mode enables use of full RF spectrum for the return path, resulting in increased available bandwidth
- Low maintenance and high reliability of an all-fiber network
- Reduced power consumption via green technology

### Features

- Extended spectrum RF video
- Analog & digital video formats
- Universal HFC set top box, cable modem and headend support
- Transparent return path capability (protocol and modulation format agnostic)
- Optical AGC with positive RF up-slope
- Supports in-home applications without amplifiers
- In-home power over 75 Ohm coax cabling
- Ultra low ingress noise performance
- High RF power output, removing requirement of distribution amplifier at the customer premise





# MicroNode™ 235 RFoG ONU

## Specifications

### Physical

- 1.1" H x 4.5" W x 6" D  
2.8cm H x 11.4cm W x 15.2cm D

### Indicators/External Alarms

- Green LED power indicator
- Red LED loss of signal indicator

### Optical Interface

- 2 recessed SC/APC female fiber connector

### Customer Interface

- 75 ohm coax "F" connector

### Downstream Characteristics

- Input wavelength: 1545-1565nm
- Input power range: +1 to -6dBm
- Loss of optical power alarm: -11dBm
- RF Output @ 550MHz: +35dBmV/ch ±1dBmV
- Frequency response: 50MHz to 1.1GHz
- Flatness: ±1dB
- Up-tilt 50MHz to 1.1GHz: 6dB
- CNR @ -4dBm input power: 48
- CSO @ +1dBm input power: 60
- CTB @ +1dBm input power: 60

### Return Path Characteristics

- Class 1 laser
- Wavelength: 1610 ±10nm
- Output power: +2dBm to +4dBm
- Input dynamic range: +5dBmV to +35dBmV
- Frequency response: 5MHz to 42MHz
- Compatible with DAVIC & DOCSIS

### Flexible Installation

- Operate on a single PON fiber architecture
- Stand alone or co-resident with CTDI ONT
- Installs into any CTDI home ONT enclosure
- Powered via CTDI ONT or independent 12VDC power source
- Temperature-hardened

### Power and Environmental

- Operating temperature: -20°C to +65°C
- Humidity: 5% to 95% non-condensing
- Power input voltage: 10 to 16VDC (12VDC nominal)
- Power consumption: 5 watts

### Standards and Certifications

- UL listed, CE mark certified
- Meets or exceeds FCC part 15b
- IEC 608251:1993+A1:1997+A2:2001
- RoHS
- SCTE 55-1, 55-2
- SCTE IPS SP910

### Ordering Information

Part #	Description
MNTH235	MicroNode 235 RFoG ONU (42MHz/1610nm RP)

### Power

The following CTDI power supplies may be used to operate MicroNode 235 RFoG ONUs. Note: The MicroNode receives its power directly from the CTDI ONT when it is used in the same enclosure. No additional power supply is required in that case.

Part #	Description
PSB8000	12VDC, 24W UPS (Charger & 7.2AH battery)
PSB8002	12VDC, 24W UPS hardened (Charger & 7.2AH battery)
PSB1005	12VDC, 24W brick, plug-mounted
PSB1006	12VDC, 24W brick, international plug-mounted
PSB1007	12VDC, brick, plug-mounted, coax feed
PSB1008	12VDC, brick, international plug-mounted, 5mm barrel plug
PSB1009	12VDC, 30W hardened UPS for OSPE202 (240VAC)
PSB1010	12VDC, 30W hardened UPS for OSPE202 (120VAC)
BAT1002	12VDC, 7.2AH battery for OSPE202 and PSB8000 series

### Mounting

The MicroNode RF transceivers may be mounted directly on an interior wall or into any of the following CTDI enclosures.

Part #	Description
OSPE110	Enhanced plastic outside enclosure
OSPE120	Plastic outside enclosure with NID
OSPE202	All-in-One metal outside enclosure
OSPE301	MicroNode standard outside enclosure

## Hybrid RF PON

