

# 1.2 GHz OBI-Free ONU

## LBON320ACT SERIES

LINDSAY  
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Optical Beat Interference (OBI) occurs when simultaneous optical upstream transmissions from multiple CPEs (RFoG mini nodes) interfere with each other - a condition that becomes more likely as subscriber densities increase.

In efforts to eliminate the problem of OBI from RFoG FTTH networks, Lindsay offers the OBI-free LBON320ACT RFoG premise ONU device. The LBON320ACT provides OBI elimination in networks with multiple upstream lasers in passive optical splitter networks.

The LBON320ACT device eliminates OBI without compromising network performance and allows operators to deliver higher capacity DOCSIS® 3.0 and 3.1 technologies efficiently. The device provides groups of 8 stable upstream wavelengths, separated by 0.5 nm and thermally controlled to maintain its centre wavelength over temperatures from -40°C to +60°C (-40°F to +140°F). The user can choose from 8 wavelengths from 1603.5 nm to 1616.5 nm via the interactive front panel on the ONU.

The LBON320ACT device uses an LED display to show the selected channel/wavelength of the ONU. The LED display will also show the optical receive input level in dBm. A pushbutton beside the display allows the user to select the desired wavelength. The LBON320ACT device supports 42/54 MHz, 65/85 MHz and 85/102 MHz frequency splits with the downstream frequency band out to 1218 MHz. The LBON320ACT device series comes standard with Automatic Gain Control (AGC) and burst-mode return lasers.



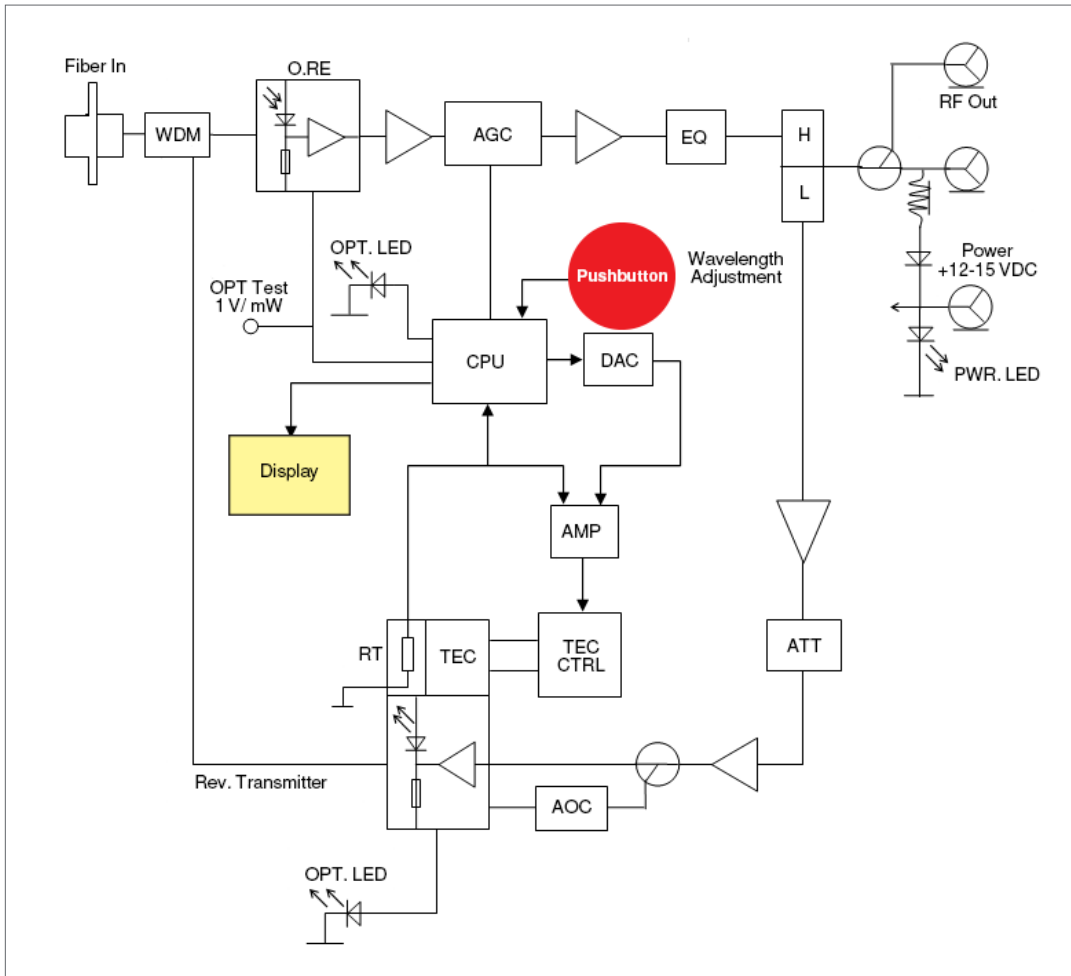
LBON320ACT  
(front angled view)

## FEATURES

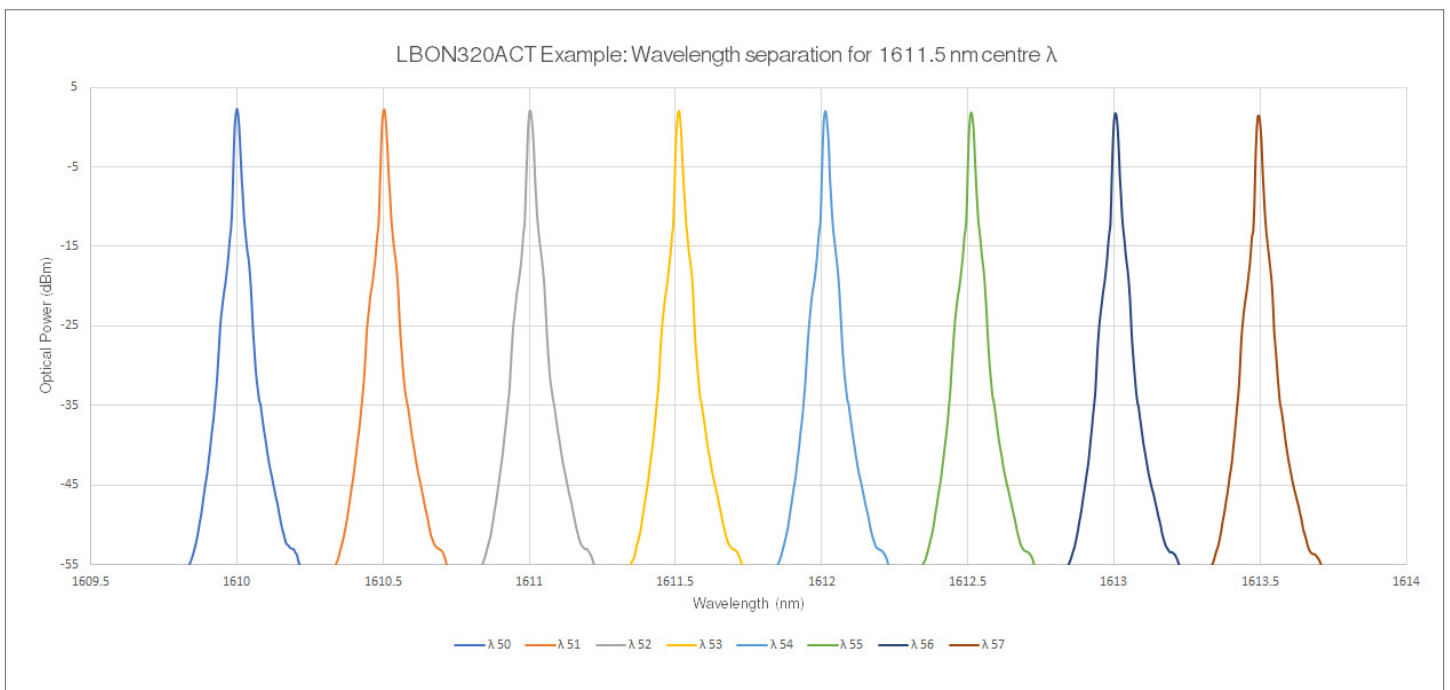
- Eliminates OBI
- User-selectable 8 wavelengths separated by 0.5 nm with the press of a button
- Thermally controlled stable DFB laser rated for -40°C to +60°C (-40°F to +140°F)
- LED display shows wavelengths & ONU status
- Input optical wavelength: 1550 nm
- Optical (AGC): -6 to +2 dBm
- Transmit wavelength: 1610 ± 6.5 nm
- Downstream bandwidth: 102-1218 MHz
- Upstream bandwidth: 5-85 MHz
- Output RF level: 20 dBmV @ 1002 MHz
- RF bi-directional test point: -20 dB
- Pwr-On, Opt I/P, Opt TX LED indicators
- Future optional split: 204/258 MHz



FUNCTIONAL SCHEMATIC



WAVELENGTH PLOT





## SPECIFICATIONS

Parameter	Specification		
	Min	Typ	Max
<b>Forward Receiver</b>			
Optical Receive Wavelength	1540-1565 nm		
Optical Input Power (optical AGC)	-6 to +2 dBm		
Optical Input Return Loss	45 dB Min		
RF Frequency Range <sup>(1)</sup>	102 MHz		1218 MHz
Flatness of Frequency Response (f = fmin to 1218 MHz)		± 1 dB	
Output Return Loss (f = fmin to 1218 MHz)	16 dB		
Reference Output Level (@ 1002 MHz (±2 dB)) <sup>(4)</sup>		20 dBmV	
Slope (RF Frequency Range (±1 dB))		6 dB	
C/N <sup>(2)</sup>	50 dB	51 dB	
CTB <sup>(2)</sup>			-65 dB
CSO <sup>(2)</sup>			-60 dB
<b>Return Transmitter</b>			
Optical Wavelength <sup>(6)</sup>	1610 ± 6.5 nm		
Optical Wavelength Separation <sup>(6)</sup>	0.5 nm		
Optical Wavelength Drift over Temperature	≤ 0.05 nm		
Optical Output Power		2 mW	
RF Input Level (total power)	20-40 dBmV		
Dynamic Input Range <sup>(3)</sup>		15 dB	
Frequency Range <sup>(1)</sup>	5 MHz		85 MHz
Flatness of Frequency Response (f = 5 to fmax MHz)		±0.75 dB	±1 dB
Input Return Loss (f = 5 to fmax MHz)	16 dB		
Optical Output Return Loss	45 dB Min		
Tx OMI <sup>(5)</sup>		35%	
Laser Turn ON Level (±1.5 dB)		15 dBmV	
Laser Turn OFF Level (±1.5 dB)		-4 dBmV	
Laser Turn ON Time		1.3 μs	
Laser Turn OFF Time		1.6 μs	
<b>Power, Environmental &amp; Physical</b>			
Total Power Consumption (with 15 VDC power pack)	≤ 5.2 W		
Operating Temperature	-40°C to +60°C (-40°F to +140°F)		
Dimensions (H x W x D)	3.4"H x 6.7"W x 1.5"D (8.6H x 17.0W x 3.8D cm)		
Weight	1.6 lb (0.7 kg)		

### NOTES:

- (1) Other diplex splits available: 42/54 MHz
- (2) -1 dBm optical input, 3.5% OMI/channel, 54 to 550 MHz analog channels, & digital compressed channels
- (3) NPR @ 30 dB. Measured using a receiver with an equivalent input noise (EIN) of < 2.5 pA/Hz0.5 with a link budget of 23 dB (20 km fiber + passive loss). NPR test performed with 80 MHz noise loading
- (4) 3.5% OMI/channel
- (5) SCTE 174 2010 with a single 39 dBmV tone. 35% ± 3 dB
- (6) Groups of 8 user-selectable optical wavelengths separated by 0.5 nm to choose from 1603.5-1616.5 nm



**ORDERING INFORMATION**

	Fwd Output Level	Total Return Input Power	Laser Type	TX Power	Optical Connector	TX Wavelength	Sub Split	Power Adapter
<b>LBON320ACT</b>	<b>xx</b>	<b>xx</b>	<b>D</b>	<b>2</b>	<b>xx</b>	<b>61</b>	<b>xx</b>	<b>xx</b>
	20 = 20 dBmV 36 = 36 dBmV	25 = 25 dBmV 30 = 30 dBmV	D = DFB	2 = 2 mW	SA = SC/APC SU = SC/UPC	61 = 1610 nm	45 = 42/54 68 = 65/85 81 = 85/102	00 = None 01 = N. America 02 = Europe

<https://www.go2mhz.com/product/1-2-ghz-obi-free-onu/>

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