

XTENDR™ HFC Repeater

XT SERIES

LINDSAY
BROADBAND

Lindsay's XTENDR HFC repeater is designed for easy extensions of existing HFC networks. The XTENDR device provides a suitable migration path and cost-effective connection of customers in rural areas using fiber optics without overbuilding the coaxial footprint of the HFC plant.

The XTENDR device includes a forward optical transmitter with an optional optical amplifier providing high output power to convert downstream RF signals to optical, and reverse optical receivers to convert upstream optical signals to RF. Customers that previously could not be reached with the traditional HFC network can now be served by using the HFC repeater in combination with Lindsay's LBN series of mini RFoG nodes at the customer premise.

Up to 16 rural subscribers can be reached within a distance of 20 km (65,000' / 12.5 mi) using this device. Many other designs can be implemented to serve up to 32 rural subscribers from a single device.

The return receivers in the device are DOCSIS® 3.1 capable, 204 MHz upstream bandwidth, wideband (1240 nm to 1620 nm; except 1540-1560 nm) multi diode receivers. Available diplex filter splits are 42/54, 85/102 or 204/258 MHz. The maximum downstream bandwidth is 1218 MHz.

The XTENDR device can be mounted on a strand or a pole and is outdoor-rated for operation from -40°C to +60°C (-40°F to +140°F). The device comes in an IP65 outdoor-rated housing and can be powered locally through a dedicated powering port, or remotely by combining power on the RF port with 40-90 VAC HFC power. Power consumption is less than 18 watts.

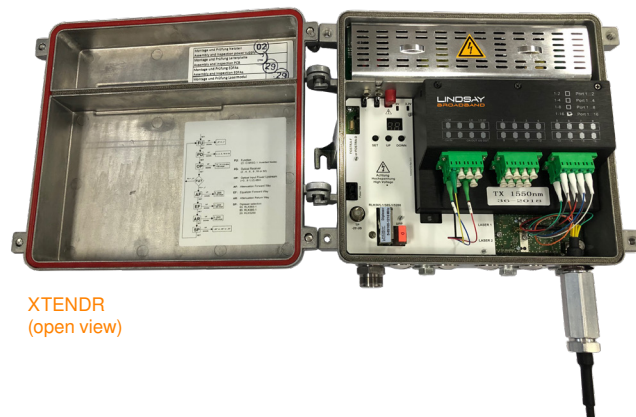
Lindsay offers end-to-end solutions for extending your existing HFC network including designing your network using our XTENDR HFC repeater, optical passives, and RFoG CPEs.



XTENDR
(front angled view)

FEATURES

- 1218 MHz bandwidth & a variety of diplex filter split options to choose from (42/54, 85/102, 204/258 MHz plug-in diplex filter)
- 1550 nm DFB forward transmitter with an optional built-in EDFA for high output power per port
- Multi-diode return receivers eliminate OBI
- Available in 2, 4, 8 or 16 port configurations
- Electronic adjustable slope & attenuation for upstream & downstream RF
- 40-90 VAC HFC local powering through dedicated power port, or remote powering via RF port
- Can easily connect up to 16 rural subscribers over a span of 20 km (65,000'/12.5 mi)
- Test point for easy setup & troubleshooting
- Perfect in combination with Lindsay's LBN series mini nodes as CPE
- IP 65 outdoor enclosure & rated for outdoor temperatures -40°C to +60°C (-40°F to +140°F)
- Low power consumption
- Strand, pole or wall mounting
- High density LC/APC optical connectors



XTENDR
(open view)



SPECIFICATIONS

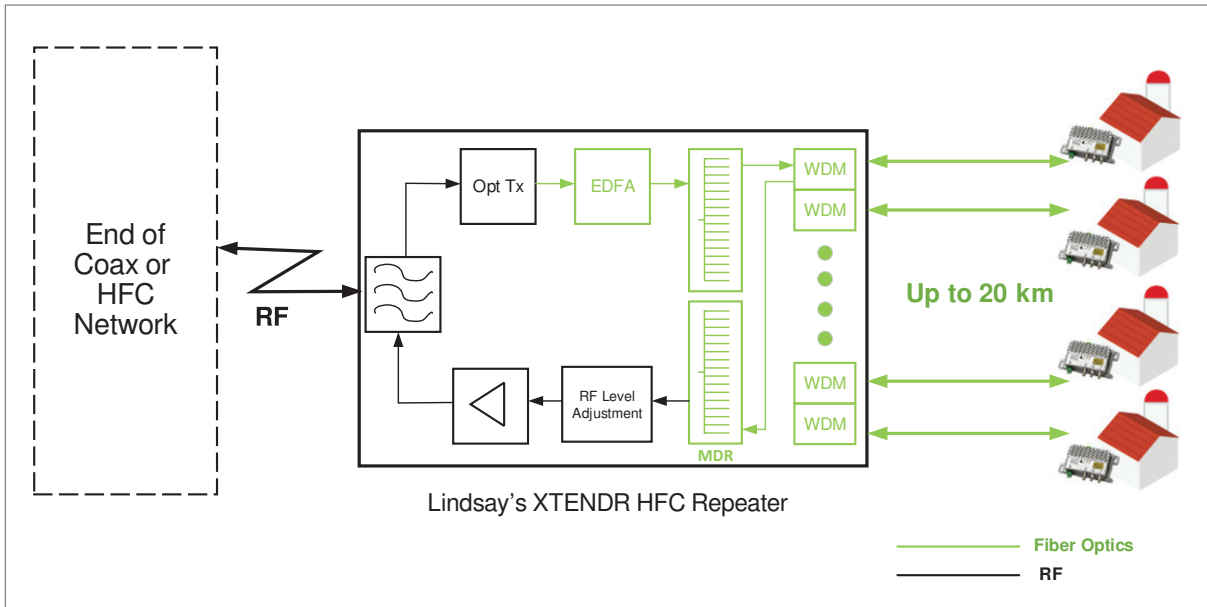
Parameter	Specification	
Downstream Optical Transmitter		
Optical Output Wavelength	1550 ± 10 nm	
Without EDFA		
Optical Output Power (per port)	2 ports	4 dBm ± 0.5 dB
	4 ports	1 dBm ± 0.5 dB
	8 ports	-2 dBm ± 0.5 dB
	16 ports	-5 dBm ± 0.5 dB
With EDFA		
Optical Output Power (per port)	2 ports	12 dBm ± 0.5 dB
	4 ports	9 dBm ± 0.5 dB
	8 ports	6 dBm ± 0.5 dB
	16 ports	3 dBm ± 0.5 dB
Optical Return Loss	≤ 45 dB	
RF Input Level	10-15 dBmV per channel	
RF Bandwidth ⁽¹⁾	FH-1218 MHz	
RF Return Loss	14 dB < 1000 MHz; 12 dB ≥ 1000 MHz	
Flatness	± 1 dB	
RF Attenuator	0-20 dB	
Slope	0-20 dB	
CTB ⁽²⁾	> 65 dBc	
CSO ⁽²⁾	> 60 dBc	
CNR ⁽²⁾	> 50 dB	
Upstream Active Combiner with Return Receiver		
Optical Input Wavelength ⁽³⁾	1240-1620 nm	
Optical Input Power	-9 to +3 dBm	
Optical Return Loss	≤ 45 dB	
Optical Receiver Diode Type	PIN	
Frequency Range	12-FL MHz	
RF Return Loss	16 dB	
RF Output Level ⁽⁴⁾	≥ 35 dBmV	
Flatness	± 1 dB Max	
Test Point for OMI Control ⁽⁴⁾	10 dBmV ± 2 dB	
Adjustable RF Attenuator	0-25 dB	
Power, Environmental & Physical		
Total Power Consumption	with EDFA	≤ 18 W
	without EDFA	≤ 15 W
Rated Operating Voltage	40-90 HFC	
Operating Temperature	-40°C to +60°C (-40°F to +140°F)	
IP Class	IP 65	
Dimensions (H x W x D)	4.8"H x 10.3"W x 8.6"D (12.2H x 26.0W x 22.0D cm)	
Weight	7.0 lb (3.2 kg)	

NOTES:

- (1) Available options: FL = 42, 85, 204 MHz & FH = 54, 102, 258 MHz
- (2) Analog channels up to 550 MHz; digital channels @ -6 dB above 550 MHz; 3.5% OMI; -1 dBm RX at ONU
- (3) Except 1540-1560 nm
- (4) 10% OMI per channel



APPLICATION DIAGRAM



ORDERING INFORMATION

XT	Optical Split	Downstream IP/Upstream OP	RF Split	Downstream Optical Amp	Optical Connector	Powering
-	xx	RF	xx	xx	LA	xxx
	02 = 2 ports	RF	45 = 42/54 MHz	00 = no EDFA	LA = LC/APC	HFC = 40-90 VAC
	04 = 4 ports		81 = 85/102 MHz	OA = 17 dBm EDFA		
	08 = 8 ports		22 = 204/258 MHz			
	16 = 16 ports					

Optional Accessories

Part #	Description
XT-DF-42-54	XTENDR plug-in diplexer, 5-42/54-1218 MHz
XT-DF-85-102	XTENDR plug-in diplexer, 5-85/105-1218 MHz
XT-DF-204-258	XTENDR plug-in diplexer, 5-204/258-1218 MHz
XT-CS-xx	XTENDR cable simulator plug, 1218 MHz (xx = dB value; available values = 3,6,9,12,15)
XT-SMB	XTENDR strand mount bracket (1 pair)
XT-F-7.5	XTENDR 7.5 amp fuse
See matrix below	Optical service cables

XT-SC	# of Fibers	Cable Length (meters)	Connector
-	x	xx	LA
	2	10 = 10 m	LA = LC/APC
	4	15 = 15 m	
	8	30 = 30 m	
		50 = 50 m	