

**Fiber Optics
Products**



The FIBT-1310 (Fiber Optic Transmitter) is an ideal solution to seamlessly transport extremely high speed digital data over single mode optical fiber. The product is specifically designed to transport data streams which maintain conformance with the DOCSIS 3.1 standards and/or were generated utilizing high order quantization techniques, such as QAM 1024, 8PSK, and COFDM.

The FIBT-1310 is built with a directly modulated DFB laser, providing low noise and high linearity performance. The RF AGC and pre-distortion circuit insures the optimum laser drive level for the best overall CNR, CSO, and CTB operation. The transmitter is available in power output levels ranging from +3 dBm (2 mW) to +15 dBm (31 mW) to satisfy various system topologies and supports an increased band-edge to 1218 MHz for DOCSIS 3.1 applications.

Laser output power, unit temperature, and RF input level are accurately monitored by a built-in microprocessor and shown on the front panel LCD display, in addition to the unit function messages. Remote status monitoring is provided through SNMP network management.



Features

- 47 to 1218 MHz RF bandwidth for DOCSIS 3.1 compatibility
- High performance and low power consumption GaAs technology
- 1310 nm DFB laser in 6 output power levels (3, 6, 10, 12, 13.5, and 15 dBm)
- RF AGC for optimum laser performance
- LCD front panel status display with built-in microprocessor
- SNMP network management for remote monitoring
- ETL certified

Ordering Information

Model	Stock #	Description
FIBT-1310-03	7603 03	Fiber Optic Transmitter, Single-mode, DFB Laser; 1310 nm, +3 dBm Output
FIBT-1310-06	7603 06	Fiber Optic Transmitter, Single-mode, DFB Laser; 1310 nm, +6 dBm Output
FIBT-1310-10	7603 10	Fiber Optic Transmitter, Single-mode, DFB Laser; 1310 nm, +10 dBm Output
FIBT-1310-12	7603 12	Fiber Optic Transmitter, Single-mode, DFB Laser; 1310 nm, +12 dBm Output
FIBT-1310-135	7603 135	Fiber Optic Transmitter, Single-mode, DFB Laser; 1310 nm, +13.5 dBm Output
FIBT-1310-15	7603 15	Fiber Optic Transmitter, Single-mode, DFB Laser; 1310 nm, +15 dBm Output

Accessories

Model	Stock #	Description
FC/APC Adapter	7607	SC/APC Male to FC/APC Female Connector Adapter

Optical

Operating Wavelength:	1310 nm ± 20 nm
Optical Power Output:	3 dBm (2 mW), 6 dBm (4 mW), 10 dBm (10 mW), 12 dBm (16 mW), 13.5 dBm (22 mW) & 15 dBm (31 mW)
Laser Type:	Class 1 DFB (directly modulated; Hazard Level 1).
Beam Divergence Angle:	8° max.
Connector:	SC/APC; For applications requiring a FC/APC connector an adapter, sold separately, is required.
	Model: FC Adapter; Stk.#: 7607 Description: SC/APC-Male to FC/APC-Female

RF

Connector:	F Female
Frequency Range:	47-1218 MHz
Input Level:	15-25 dBmV
Flatness:	±1.0 dB
Impedance:	75 Ω
Return Loss:	≥ 16 dB
AGC Range:	0-15 dB
MGC Range:	0-15 dB

Link Performance*

CNR:	≥ 51 dB (see table below)
CSO:	<-62 dBc
CTB:	<-65 dBc

* 77 CW carriers (50~550 MHz) and digital channels (550 MHz~1218 MHz, RF level 10 dB lower) at -1 dBm optical input into a Blonder Tongue FTTB receiver.

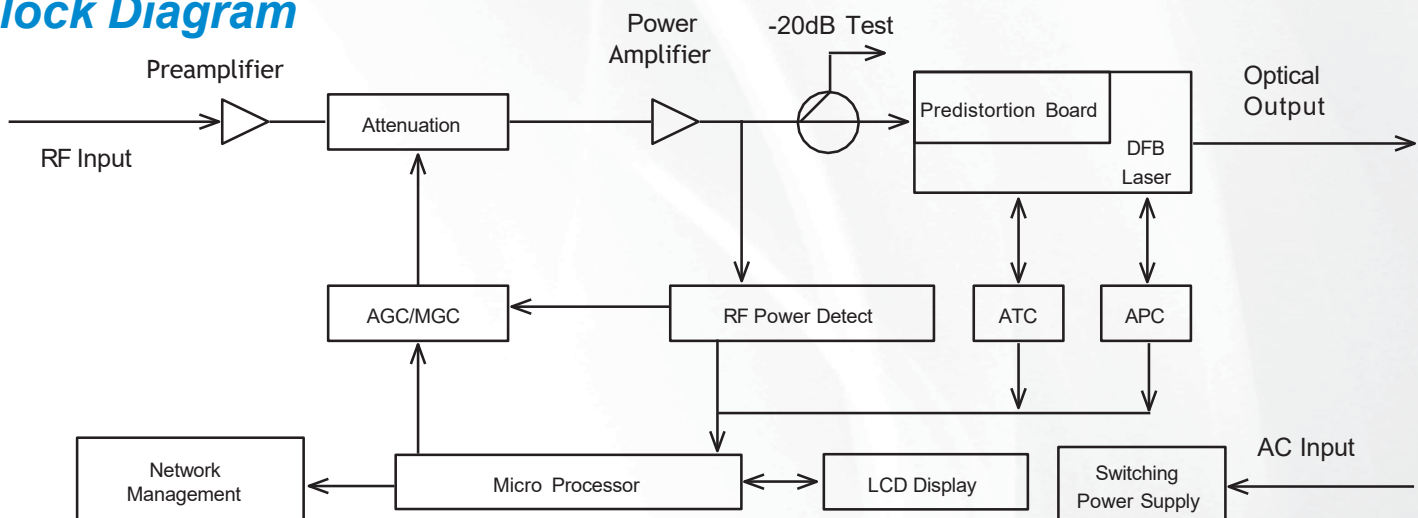
General

Dimensions (W x H x D):	19" x 1.75" x 15.31" (483 mm x 44 mm x 389 mm)
Shipping Weight:	7.0 lbs (3.18 kg)
Power	Power Supply: 100-240 VAC 50/60 Hz Power Consumption: 15 W
Operating Temperature Range:	32 to 113 °F (0 to 45 °C)
Relative Humidity:	95% non-condensing
Indicators/Controls	Status: Tri-color LED Red/Green/Orange Front Panel Display: LCD Navigation: Buttons: Up, Down, Enter for LCD SNMP: RJ45 Connector @10 Mbps

Optical Link C/N Table

Optical Loss (dB)	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
FIBT-1310-03	52.0	51.0	50.0	49.0	48.0										
FIBT-1310-06				52.0	51.0	50.1	49.1	48.1							
FIBT-1310-10								51.9	51.0	50.1	49.1	48.2			
FIBT-1310-12										51.9	51.0	50.1	49.1	48.0	
FIBT-1310-135											52.3	51.3	50.4	49.5	
FIBT-1310-15													51.9	50.9	49.9

Block Diagram



The FIBT-1550-10 (Fiber Optic Transmitter) is an ideal solution to seamlessly transport extremely high speed digital data over single mode optical fiber. The product is specifically designed to transport data streams which maintain conformance with the DOCSIS 3.1 standards and/or were generated utilizing high order quantization techniques, such as QAM 1024, 8PSK, and COFDM.

The FIBT-1550-10 transmitter is built with a directly modulated DFB laser, providing low-noise and high-linearity performance. The RF AGC and pre-distortion circuit insures the optimum laser drive level for the best overall CNR, CSO, and CTB operation.

Laser output power, unit temperature, and RF input level are accurately monitored by a built-in microprocessor and shown on the front panel LCD display, in addition to unit function messages. Remote status monitoring is provided through SNMP network management.



Features

- 47 to 1218 MHz RF Bandwidth for DOCSIS 3.1 Compatibility
- High Performance and Low Power Consumption GaAs Technology
- 1550 nm, +10 dBm DFB Laser
- RF AGC for Optimum Laser Performance
- LCD Front Panel Status Display with Built-in Microprocessor.
- SNMP Network Management for Remote Monitoring
- ETL Certified

Ordering Information

Model	Stock #	Description
FIBT-1550-10	7605	Fiber Optic Transmitter, Single-mode, DFB Laser; 1550 nm, +10 dBm Output

Accessories

Model	Stock #	Description
FC/APC Adapter	7607	SC/APC Male to FC/APC Female Connector Adapter



Optical

Operating Wavelength:	1550 nm ± 20 nm
Optical Power Output:	10 dBm (10 mW)
Laser Type:	Class 1 Cooled DFB (directly modulated; Hazard Level 1)
Beam Divergence:	8° max.
Connector:	SC/APC; For applications requiring a FC/APC connector an adapter, sold separately, is required.
	Model: FC Adapter; Stk.#: 7607
	Description: SC/APC-Male to FC/APC-Female

RF

Connector:	F Female
Frequency Range:	47-1218 MHz
Input Level:	15-25 dBmV
Flatness:	±1.0 dB
Impedance:	75 Ω
Return Loss:	≥ 16 dB
AGC Range:	0-15 dB
MGC Range:	0-15 dB

General

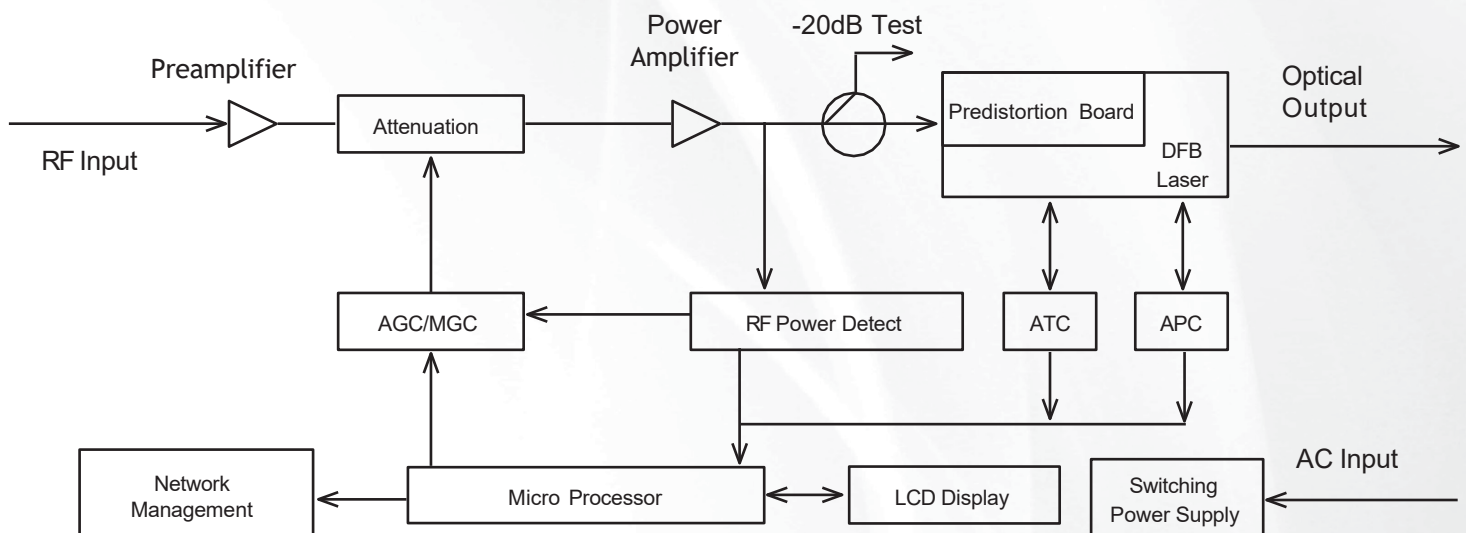
Dimensions (W x H x D):	19" x 1.75" x 15.31" (483 mm x 44 mm x 389 mm)
Shipping Weight:	7.0 lbs (3.18 kg)
Power	
Power Supply:	100-240 VAC 50/60 Hz
Power Consumption:	15 W
Operating Temperature Range:	32 to 113 °F (0 to 45 °C)
Relative Humidity:	95% non-condensing
Indicators/Controls	
Status:	Tri-color LED Red/Green/Orange
Front Panel Display:	LCD
Navigation:	Buttons: Up, Down, Enter for LCD
SNMP:	RJ45 Connector @10 Mbps

Link Performance*

CNR:	≥ 51 dB
CSO:	<-62 dBc
CTB:	<-65 dBc

* 77 CW carriers (50-550 MHz) and digital channels (550 MHz-1218 MHz, RF level 10 dB lower) at -1 dBm optical input into a Blonder Tongue FTTB receiver.

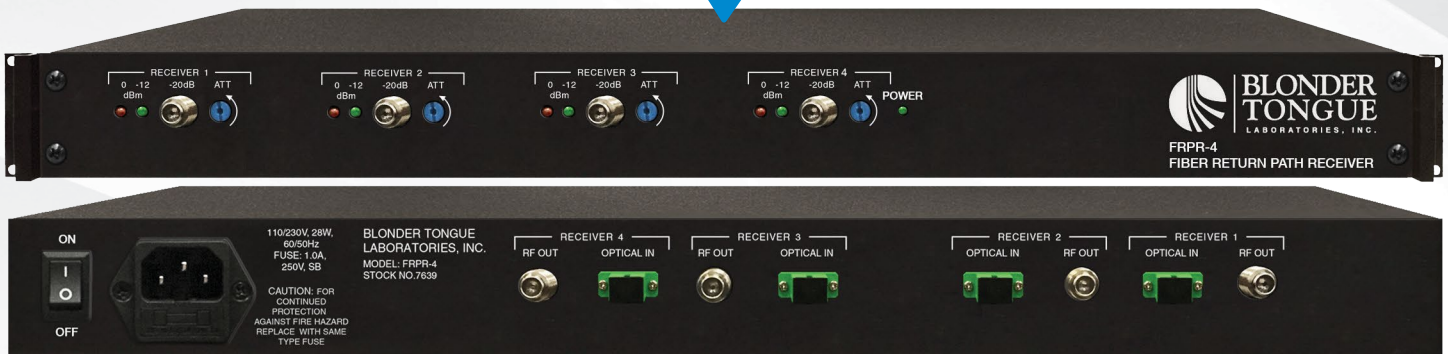
Block Diagram



The FRPR Series (Fiber Optic Return Path Receivers) is a rack-mounted fiber optic return path receiver. The 1RU chassis contains two (2) or four (4) independent optical return path receivers all supporting a bandwidth from 5-204 MHz.

The FRPR is a high-density, full-featured receiver that utilizes high-performance photodiodes and hybrid amplifiers for cable modem up-stream signals. Optical input indicators and front panel -20 dB RF test ports are provided on each receiver for set-up and testing. A front panel RF attenuator on each receiver section allows the user to adjust the RF output level.

2x or 4x Optical Input
1100~1650nm



2x or 4x 5-204 MHz
RF Output
(FRPR-4 Shown)



Features

- Full-featured Return Path Receiver with bandwidth of 5-204 MHz
- Compatible with 1310 nm, 1550 nm, and all CWDM and DWDM wavelengths
- Band pass filter suppresses noise
- -20 dB RF Test Ports for real-time monitoring
- Universal AC power
- 20 dB continuously variable RF attenuator

Ordering Information

Model	Stock #	Description
FRPR-2	7639 2	Fiber Optic Return Path Receiver; 2 Receivers; 2x Optical In to 2x RF Out
FRPR-4	7639 4	Fiber Optic Return Path Receiver; 4 Receivers; 4x Optical In to 4x RF Out

Input

Optical Characteristics (with SM 9/125µm SM Fiber)	
Operating Wavelength:	1100 to 1650 nm
Recommended Opt. Input Power:	-10 to 0 dBm
Optical Input Power:	-15 to +2 dBm
Optical Return Loss:	> 45 dB
Optical Connector (Std.):	SC/APC

Output

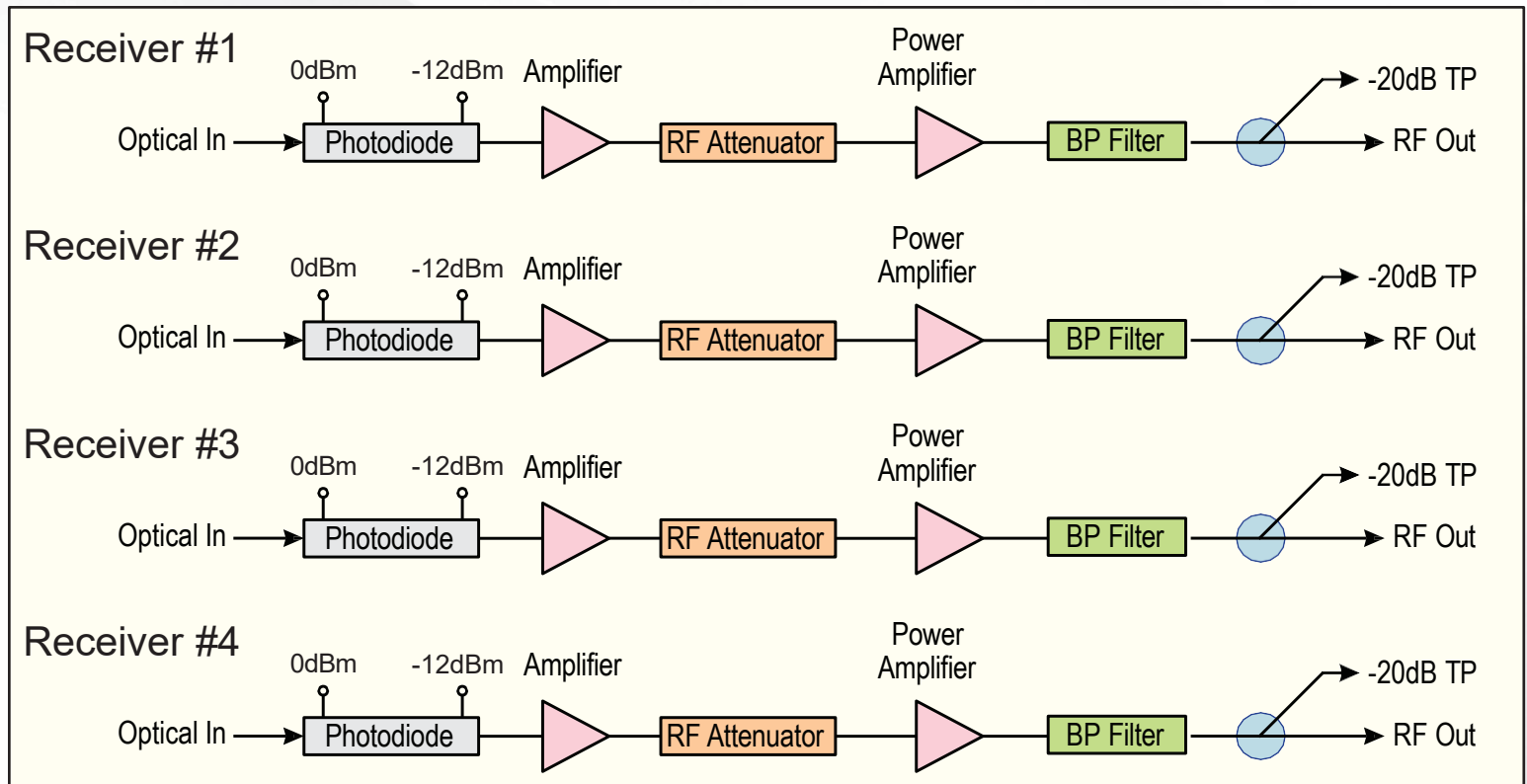
Frequency Range:	5 to 204 MHz
RF Output Level:	>30 dBmV at -8 dBm Optical and 0 dB Attenuation
Pass Band Flatness:	±0.75 dB
RF Adjustment Range:	-20 to 0 dB
RF Test Port:	-20 dB
Noise Power Ratio:	>15 (DFB)
Return Loss:	16 dB
Impedance ("F" Connector):	75 Ω

General

Dimensions (W x H x D):	19" x 1.75" x 10.5" (483mm x 44mm x 267mm)
Weight:	5.35 lbs. (2.42 kg)
Power Supply Voltage:	100 to 240 VAC
Frequency:	50 to 60 Hz
Power Consumption:	24 W (Stk#. 7639 4); 13 W (Stk#. 7639 2)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-40 to 149 °F (-40 to 65 °C)
Humidity:	5 to 95% RH, non-condensing



Block Diagram (FRPR-4 Shown)



The FTTB-1218-1W (One-Way Indoor Optical Node) converts the optical signal received from the headend into a +28 dBmV RF output with a -1 dBm optical input. The compact housing includes an optical receiver and wide bandwidth RF amplifier having a frequency range of 54-1218 MHz.

The FTTB-1218-1W node has one optical input, one RF output, one -20 dB RF test port, and one 12 VDC power socket. Optical input status of the node can be easily verified by the tri-color LED indicator.

Additionally, the node also features a calibrated DC test point for accurately determining the received optical input level with a common DC voltmeter, eliminating the need for a fiber power meter.



Features

- 1218 MHz Low Noise GaAs Amplifier
- 28 dBmV RF Output at -1 dBm Optical Input
- High-Linearity Photodiode
- Die-Cast Aluminum Housing for Indoor Installation
- Tri-color LED Indicating Optical Input Status
- Optical Input Power DC Test Point
- -20 dB RF Test Port
- Convenient 12 VDC Powering



Ordering Information

Model	Stock #	Description
FTTB-1218-1W	7620	One-Way Indoor Optical Node; 54-1218 MHz; 28 dBmV Output

Accessories

Model	Stock #	Description
FC/APC Adapter	7607	SC/APC Male to FC/APC Female Connector Adapter

Specifications

Optical and RF Performance

Optical	Input Optical Wavelength: 1210 ~ 1650 nm Optical Input Connector: SC/APC; Single Mode Optical Return Loss: 50 dB Optical Input Power: -8 ~ +2 dBm Recommended Optical Input: -4 ~ +2 dBm Forward Optical Power Test Point: 1V/mW
RF	RF Bandwidth: 54 ~ 1218 MHz RF Output Level: 28 dBmV ±1.0 dBmV (-1 dBm optical input) RF Flatness: ± 0.75 dB RF Return Loss: >16 dB RF Output Impedance: 75 Ω RF Test Port: -20 dB CNR: ≥ 51 dB at -1.0 dBm CSO: <-62 dBc at 77 CW carriers CTB: <-65 dBc at 77 CW carriers

Test Conditions

FORWARD PATH: 77 CW carriers (54~550 MHz) and digital channels (550 MHz~1218 MHz, RF level 10 dB lower) at -1 dBm optical input (10 km fiber + optical attenuator).

Alarms and Monitoring

Optical Input Tri-Color LED	Green: Normal: > -4 dBm to < +3 dBm Orange: Low: < -4 dBm Red: High: > +3 dBm
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Optical vs RF Levels

Optical Input Power Level (dBm)	Approx. RF Output Level (dBmV)	Received Power DC Test Point (V)
-8	14	0.16
-6	18	0.25
-4	22	0.40
-2	26	0.63
-1	28	0.79
0	30	1.00
+1	32	1.26
+2	34	1.58

Note: DC voltage Test point vs Optical input power (calibrated at 1310 nm optical input)

General

Connectors	Fiber Port: 1x Optical Receiver Input RF Port: 1x F-Female -20 dB RF Test Port: 1x F-Female DC Socket: 1x DC Adaptor Socket
Chassis Dimensions: (L x W x H)	5.0" x 3.5" x 1.25" (127 mm x 89 mm x 32 mm)
Weight:	0.6 lbs (0.27 kg)
Power	Power Supply: 12V 0.5A DC Adaptor, UL Certified Power Consumption: ≤3 W
Working Temperature: Storage Temperature: Humidity:	-4 to 140 °F (-20 to +60 °C) -40 to 185 °F (-40 to +85 °C) 5%~95% Non-condensing

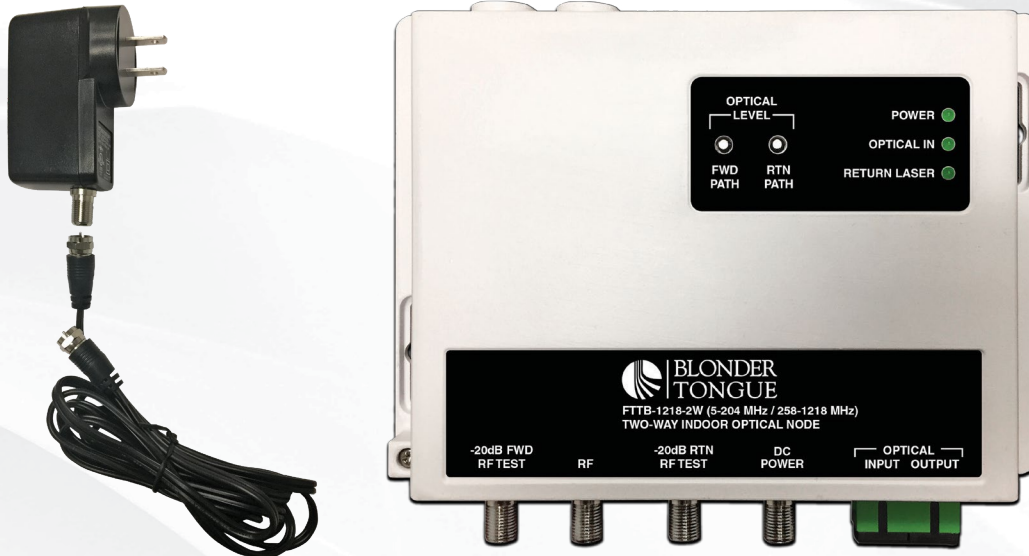


FTTB-1218-2W Series

Two-Way Indoor Optical Node with DOCSIS 3.1 Support

The FTTB-1218-2W Series (Two-Way Indoor Optical Node) converts the optical signal received from the headend into a +36 dBmV RF output. The compact housing includes an optical receiver, RF AGC, RF amplifier, and return path optical transmitter. Three (3) frequency splits are available to satisfy standard 5-42 MHz, 5-85 MHz, or 5-204 MHz returns for increased return bandwidths required in DOCSIS 3.1 applications.

The FTTB-1218-2W Series has one tri-color LED indicating the optical input status, one bi-color LED indicating return transmitter status as well as calibrated DC test points for receive and transmit optical power.



Features

- 1218 MHz Forward RF Bandwidth for DOCSIS 3.1 Compatibility
- Three (3) Frequency Splits Available for All DOCSIS 3.1 Applications
- RF AGC Maintaining +36 dBmV Output with Optical Input Range from -4 to +3 dBm
- High Performance and Low Power Consumption GaAs Technology
- 1310 nm 3.0 dBm DFB Return Path Transmitter
- Die-cast Aluminum Housing for Indoor Installation
- Tri-color LED Indicating Optical Input Status
- Bi-color LED Indicating Return Laser Transmitter Output Status
- Forward and Return -20 dB RF Test Ports (One Each)
- Local/Remote 18 VDC Powering from F Connector

Ordering Information

Model	Stock #	Description
FTTB-1218-2W-42	7630 42	Two-Way Indoor Optical Node; 1218 MHz; 36 dBmV Output w/AGC; 42/54 MHz Split
FTTB-1218-2W-85	7630 85	Two-Way Indoor Optical Node; 1218 MHz; 36 dBmV Output w/AGC; 85/105 MHz Split
FTTB-1218-2W-204	7630 204	Two-Way Indoor Optical Node; 1218 MHz; 36 dBmV Output w/AGC; 204/258 MHz Split

Accessories

Model	Stock #	Description
FC/APC Adapter	7607	SC/APC Male to FC/APC Female Connector Adapter



Specifications



Optical and RF Performance

Optical	Input Optical Wavelength: 1210 ~ 1650 nm Optical Input Connector: SC/APC; Single Mode Optical Return Loss: 50 dB Optical Input Power: -6 ~ +3 dBm AGC Effective Optical Input Range: -4 ~ +3 dBm Forward Optical Power Test Point: 1V/mW
RF	RF Bandwidth: 54 ~ 1218 MHz (42/54 MHz Diplexer) 105 ~ 1218 MHz (85/105 MHz Diplexer) 258 ~ 1218 MHz (204/258 MHz Diplexer) AGC RF Output Level: +36 dBmV AGC RF Output Stability Range: ± 1.5 dB RF Slope (54~1218 MHz): 6 dB RF Slope (105~1218 MHz): 6 dB RF Slope (258~1218 MHz): 6 dB RF Flatness: ± 0.75 dB (Relative to Slope) RF Return Loss: >16 dB RF Output Impedance: 75 Ω RF Test Port: -20 dB CNR: ≥ 51 dB at -1.0 dBm CSO: <-62 dBc at 77 CW carriers CTB: <-65 dBc at 77 CW carriers

Optical and RF Performance

Optical	Optical Wavelength: 1310 nm DFB Laser (Uncooled) Optical Output Connector: SC/APC Optical Output Power: 3 dBm ± 1 dB Optical Return Loss: 50 dB
RF	RF Bandwidth: 5 ~ 42 MHz / 85 MHz / 204 MHz RF Input Level: 17 dBmV RF Flatness: ± 1 dB RF Return Loss: > 16 dB RF Test Port: -20 dB NPR: > 25 dB

Test Conditions

FORWARD PATH: 77 CW carriers (54~550 MHz) and digital channels (550~1218 MHz, RF level 10 dB lower) at -1 dBm optical input (10 km fiber + optical attenuator).

RETURN PATH: return path specs are measured in transmitter and receiver composed link.

Optical vs RF Levels

Optical Input Power (dBm)	Received Power DC Test Point (V)
-4	0.40
-2	0.63
-1	0.79
0	1.00
+1	1.26
+2	1.58
+3	2.00

Note: DC voltage Test point vs Optical input power (calibrated at 1310 nm optical input)

Alarms and Monitoring

Optical Input Tri-Color LED	Green: Normal: > -4 dBm to < +3 dBm Orange: Low: < -4 dBm Red: High: > +3 dBm
Return Path Laser Bi-Color LED (Laser Output Power)	Green: < +3 dBm Red: > +3 dBm

General

Connectors	Fiber Ports: 2x SC/APC Female (Optical Input/Output) RF Port: 1x F-Female -20 dB RF Test Ports: 1x F-Female Forward; 1x F-Female Return 18 VDC Port: 1x F-Female for DC power input
Chassis Dimensions: (L x W x H)	6.85" x 4.9" x 1.22" (174 mm x 124 mm x 31 mm)
Weight:	1.0 lbs (0.50 kg)
Power	Power Supply: 18V 1.3A DC Adaptor, UL Certified Power Consumption: ≤ 7 W
Working Temperature:	-4 to 140 °F (-20 to +60 °C)
Storage Temperature:	-40 to 185 °F (-40 to +85 °C)
Humidity:	5%~95% Non-condensing

The FTTB-1218-L1W (One-Way Indoor Optical Node) converts the optical signal received from the headend into dual +44 dBmV RF outputs with automatic gain control (AGC) over an optical input range of -4 dBm to +3 dBm.

The compact housing includes an optical receiver with an LCD display, control keys, RF AGC, adjustable attenuator, adjustable slope, and RF amplifier providing high RF output and excellent performance up to 1218 MHz bandwidth.



Features

- Optical and RF Parameters Configured via User-Friendly LCD Menu with Three Key Navigation
- 1218 MHz Forward RF Bandwidth
- High Performance and Low Power Consumption GaAs Technology
- Dual +44 dBmV RF Outputs with Automatic Gain Control (AGC)
- Variable Attenuator and Slope Controls
- Die-Cast Aluminum Housing for Indoor Installation
- -20 dB RF Test Port
- One 18 VDC "F" Connector Input Port for Local/Remote Powering

Ordering Information

Model	Stock #	Description
FTTB-1218-L1W	7621	One-Way Indoor Optical Node; 54-1218 MHz; Dual 44 dBmV Output w/ AGC

Accessories

Model	Stock #	Description
FC/APC Adapter	7607	SC/APC Male to FC/APC Female Connector Adapter

Specifications



Optical and RF Performance

Optical	Input Optical Wavelength: 1210~1650 nm Optical Input Connector: SC/APC, Single Mode Optical Return Loss: 50 dB Optical Input Power: -6 dBm ~ +3 dBm AGC Effective Optical Input Range: -4 dBm ~ +3 dBm
RF	RF Bandwidth: 54 ~ 1218 MHz RF Output Level: Dual 44 dBmV; 0 dB attenuation & slope AGC RF Output Stability Range: RF Flatness: ± 1.5 dB ± 0.75 dB RF Return Loss: >16 dB RF Output Impedance: 75 Ω RF Test Port: -20 dB CNR: ≥ 51 dB at -1.0 dBm CSO: <-62 dBc at 77 CW carriers CTB: <-65 dBc at 77 CW carriers

Test Conditions

FORWARD PATH: 77 CW carriers (54~550 MHz) and digital channels (550~1218 MHz, RF level 10 dB lower) at -1 dBm optical input (10 km fiber + optical attenuator).

RETURN PATH: return path specs are measured in transmitter and receiver composed link.

General

Connectors	Fiber Port: 1x SC/APC Female RF Ports: 2x F-Female -20 dB RF Test Port: 1x F-Female 18 VDC Port: 1x F-Female for DC power input
Chassis Dimensions: (L x W x H)	6.85" x 4.9" x 1.54" (174 mm x 124 mm x 39 mm)
Weight:	1.18 lbs (0.54 kg)
Power	Power Supply: 18V 1.3A DC Adaptor, UL Certified Power Consumption: ≤ 9 W
Working Temperature:	-4 to 140 °F (-20 to +60 °C)
Storage Temperature:	-40 to 185 °F (-40 to +85 °C)
Humidity:	5% ~ 95% Non-condensing

LCD Control and Monitoring

User-Adjustable Controls	Equalizer: 0-15 dB (1 dB step) Attenuator: 0-15 dB (1 dB step)
Monitoring [1]	Optical Input Level: < -4.0 dBm or > +3.0 dBm RF Output Level: < 10.0 dBmV or > 50.0 dBmV AGC Attenuator: 0-15 dB (Status Only)
System Status	Power: < +16.5V or > +19.5V (18V ± 1.5 V) Temperature: < -40.0° C or > +80.0° C
System Information:	Model Serial Number Firmware Version

[1] Monitoring alerts will display when the following specifications are out of range.



FTTB-1218-L2W Series

Two-Way Indoor Optical Node with DOCSIS 3.1 Support

The FTTB-1218-L2W Series (Two-Way Indoor Optical Node) converts the optical signal received from the headend into a +44 dBmV RF output, while sending upstream cable modem signals over a second fiber back to the headend. Three frequency splits are available to satisfy standard 5-42 MHz, 5-85 MHz, or 5-204 MHz returns for increased bandwidths required for DOCSIS 3.1 applications.

The compact housing includes an optical receiver with an LCD display, control keys, RF AGC, adjustable attenuator, adjustable slope, RF amplifier and a return path optical transmitter.



Features

- Optical and RF Parameters Configured via User-Friendly LCD Menu with Three Key Navigation
- Three (3) Frequency Splits Available for All DOCSIS 3.1 Applications
- 1218 MHz Forward RF Bandwidth
- RF AGC Maintaining +44 dBmV Output
- High Performance and Low Power Consumption GaAs Technology
- 1310 nm 3.0 dBm DFB Return Path Transmitter
- Aluminum Die Cast Housing for Indoor Installation
- Forward and Return -20 dB RF Test Ports (one each)
- One 18 VDC "F" Connector Input Port for Local/Remote Powering

Ordering Information

Model	Stock #	Description
FTTB-1218-L2W-42	7631 42	Two-Way Indoor Optical Node; 1218 MHz; 44 dBmV Output w/AGC; 42/54 MHz Split
FTTB-1218-L2W-85	7631 85	Two-Way Indoor Optical Node; 1218 MHz; 44 dBmV Output w/AGC; 85/105 MHz Split
FTTB-1218-L2W-204	7631 204	Two-Way Indoor Optical Node; 1218 MHz; 44 dBmV Output w/AGC; 204/258 MHz Split

Accessories

Model	Stock #	Description
FC/APC Adapter	7607	SC/APC Male to FC/APC Female Connector Adapter



Forward Path Receiver

Optical	Input Optical Wavelength: Optical Input Connector: Optical Return Loss: Optical Input Power: AGC Effective Optical Input Range:	1210 ~ 1650 nm SC/APC; Single Mode 50 dB -6 ~ +3 dBm -4 ~ +3 dBm
RF	RF Bandwidth: RF Output Level: AGC RF Output Stability Range: RF Flatness: RF Attenuation: RF Slope (54~1218 MHz): RF Return Loss: RF Output Impedance: RF Test Port: CNR: CSO: CTB:	54~1218 MHz (42/54 MHz Diplexer) 105~1218 MHz (85/105 MHz Diplexer) 258~1218 MHz (204/258 MHz Diplexer) 44 dBmV; 0 dB attenuation & slope ± 1.5 dB ± 0.75 dB without slope 0-15 dB (1 dB step) 0-15 dB (1 dB step) >16 dB 75 Ω -20 dB ≥51 dB @ -1 dBm <-60 dBc @ 77 CW carriers <-60 dBc @ 77 CW carriers

LCD Control & Monitoring

User-Adjustable Controls	Forward Path	Equalizer: Attenuator:	0-15 dB (1 dB step) 0-15 dB (1 dB step)
	Return Path	Attenuator: Diplexer Band* Options:	0-15 dB (1 dB step) 42/54 MHz 85/105 MHz 204/258 MHz
Monitoring [1]	Forward Path	Optical Input Level: RF Output Level: AGC Attenuator: Return Path	< -4.0 dBm or > +3.0 dBm < 10.0 dBmV or > 50.0 dBmV 0-15 dB (Status Only)
	Optical Output Level: LD Bias:	< -1.0 dBm or > +4.0 dBm Status Only	
System Status	Power: Temperature:	< +16.5V or > +19.5V (18V ±1.5V) < -40.0° C or > +80.0° C	
	System Information:	Model Serial Number Firmware Version	

[1] Monitoring alerts will display when the following specifications are out of range.

Return Path Receiver

Optical	Optical Wavelength: Optical Output Connector: Optical Output Power: Optical Return Loss:	1310 nm DFB Laser (Uncooled) SC/APC 3 dBm ± 1 dB 50 dB
RF	RF Bandwidth: RF Input Level: RF Flatness: RF Return Loss: RF Test Port: NPR:	5 ~ 42 MHz / 85 MHz / 204 MHz 17 dBmV ± 1 dB > 16 dB -20 dB > 25 dB

Test Conditions

FORWARD PATH: 77 CW carriers (54~550 MHz) and digital channels (550~1218 MHz, RF level 10 dB lower) at -1 dBm optical input (10 km fiber + optical attenuator).

RETURN PATH: return path specs are measured in transmitter and receiver composed link.

General

Connectors	Fiber Ports: RF Port: -20 dB RF Test Ports: 18 VDC Port:	2x SC/APC Female (Optical Input/Output) 1x F-Female 1x F-Female Forward; 1x F-Female Return 1x F-Female for DC power input
Chassis Dimensions:	(L x W x H)	6.85" x 4.9" x 1.54" (174 mm x 124 mm x 39 mm)
Weight:		1.55 lbs (0.70 kg)
Power	Power Supply: Power Consumption:	18V 1.3A DC Adaptor, UL Certified ≤ 9 W
Working Temperature: Storage Temperature: Humidity:		-4 to 140 °F (-20 to +60 °C) -40 to 185 °F (-40 to +85 °C) 5% - 95% Non-condensing