

# 1310nm Fiber Optic Transmitters



Stock #	Model Name	Description
7603 03U	FIBT-1310-03U	3 dBm / 1310 nm; Uncooled DFB Laser; SNMP
7603 06	FIBT-1310-06	6 dBm / 1310 nm; DFB Laser; SNMP
7603 06U	FIBT-1310-06U	6 dBm / 1310 nm; Uncooled DFB Laser; SNMP
7603 10	FIBT-1310-10	10 dBm / 1310 nm; DFB Laser; SNMP
7603 10U	FIBT-1310-10U	10 dBm / 1310 nm; Uncooled DFB Laser; SNMP
7603 12	FIBT-1310-12	12 dBm / 1310 nm; DFB Laser; SNMP
7603 15	FIBT-1310-15	15 dBm / 1310 nm; DFB Laser; SNMP

We recommend that you write the following information in the spaces provided below.

Purchase Location Name:	
Purchase Location Telephone Number:	
FIBT-1310 Series Serial Number:	

The information contained herein is subject to change without notice. Revisions may be issued to advise of such changes and/or additions.

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### Cross-Reference & Hyperlinking Usage

This guide makes use of hyperlinks for the Table of Contents, some cross-reference linking between sections, and external hyperlinking to web addresses. This has been done to assist the reader in finding the information they are seeking in a much quicker way. In addition to hyperlinking, the Table of Contents also makes use of the bookmarking feature present in the Adobe Reader application.

### Product and Documentation Updates

Download the latest User Manual (PDF) by visiting our website. Navigate to the product page by entering the full Model Name or Stock Number in the search field. Upon reaching the product page, the “User Manual” download link will be located beneath the product image. **Firmware Updates** are available under “Tech Support” in the “Resources” section of the website. General instructions for the FTP site, as well as updating your firmware, are provided on this page.

### Returning Product for Repair (or Credit)

**A Return Material Authorization (RMA) Number is required on all products returned to Blonder Tongue, regardless if the product is being returned for repair or credit.** Before returning product, please contact the Blonder Tongue Service Department at 1-800-523-6049, Ext. 4256 or visit our website: [www.blondertongue.com](http://www.blondertongue.com) for further information.

### Troubleshooting

For technical support please contact us at 1-800-523-6049 between the hours of 8am and 5pm EST.

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## Section 1 — General & Safety Instructions



**WARNING:**  
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. The optical emissions from the units are laser-based and present eye hazards. Avoid Exposure and follow all safety precautions.

	The STOP sign symbol is intended to alert you to the presence of REQUIRED operating and maintenance (servicing) instructions that if not followed, may result in product failure or destruction.
	The YIELD sign symbol is intended to alert you to the presence of RECOMMENDED operating and maintenance (servicing) instructions.
	The LIGHTNING flash symbol is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock.

TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER FROM THIS UNIT. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE**

**NOTE TO CATV SYSTEM INSTALLER**  
This reminder is provided to call the CATV System Installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

This product is designated for use in restricted locations. It is strongly advised that you **ALWAYS** follow these safety instructions to help ensure against injury to yourself and damage to your equipment.

### 1.1 Safety Precautions

- The optical emissions from the units are laser-based Class IIIb, and may present eye hazards if improperly used. **NEVER USE ANY KIND OF OPTICAL INSTRUMENT TO VIEW THE OPTICAL OUTPUT OF THE UNIT.**
- As always, be careful when working with optical fibers. Fibers can cause painful injury if they penetrate the skin.

### 1.2 Laser Safety Procedures

- **ALWAYS** read the product data sheet and the laser safety label before powering the product. Note the operating wavelength, optical output power, and safety classifications.
- If safety goggles or other eye protection are used, be certain that the protection is effective at the wavelength(s) emitted by the device under test **BEFORE** applying power.
- **ALWAYS** connect a fiber to the output of the device **BEFORE** power is applied. Power should never be applied without an attached fiber output. If the device has a fiber output, a connector should be attached that is connected to a fiber. This ensures that all light is confined within the fiber waveguide, virtually eliminating all potential hazard.
- **NEVER** look in the end of a fiber to see if light is coming out. **NEVER!** Most fiber optic laser wavelengths (1310 nm and 1550 nm) are totally invisible to the unaided eye and will cause permanent damage. Shorter wavelength lasers (e.g. 780 nm) are visible and are very damaging. Always use instruments, such as an optical power meter, to verify light output.
- **NEVER, NEVER, NEVER** look into the end of a fiber on a power device with **ANY** sort of magnifying device. This includes microscopes, eye loupes, and magnifying glasses. This **WILL** cause permanent, irreversible burn on your retina.
- **ALWAYS** double check that power is disconnected before using such devices. If possible, completely disconnect the unit from any power source.
- If you have questions about laser safety procedures, please call Blonder Tongue before powering your product.
- Do not attempt to service the unit yourself, as opening or removing covers may expose you to dangerous voltage and will void the warranty. Refer all servicing to authorized service personnel.
- Unplug the unit from the wall outlet and refer servicing to authorized service personnel whenever the following occurs:
  - The power supply cord or plug is damaged;
  - Liquid has been spilled, or objects have fallen into the unit;
  - The unit has been exposed to rain or water;
  - The unit has been dropped or the chassis has been damaged;
  - The unit exhibits a distinct change in performance.

## Section 2 — Product Summary

### 2.1 Revision History & Reason

This is the first release of this manual.

### 2.2 Product Application & Description

#### Application:

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 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.

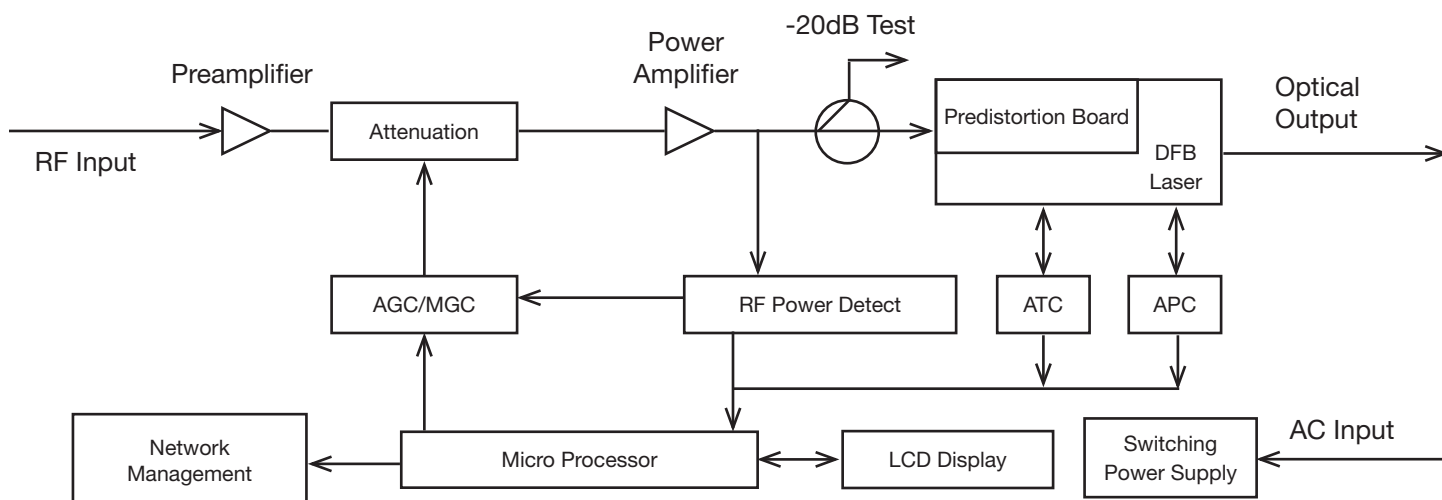
The **FIBT-1310** is built with a directly modulated DFB laser, providing low noise and high linearity performance. The RF AGC and pre-distortion circuit insures the optimum laser drive level for the best overall CNR, CSO, and CTB operation.

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:

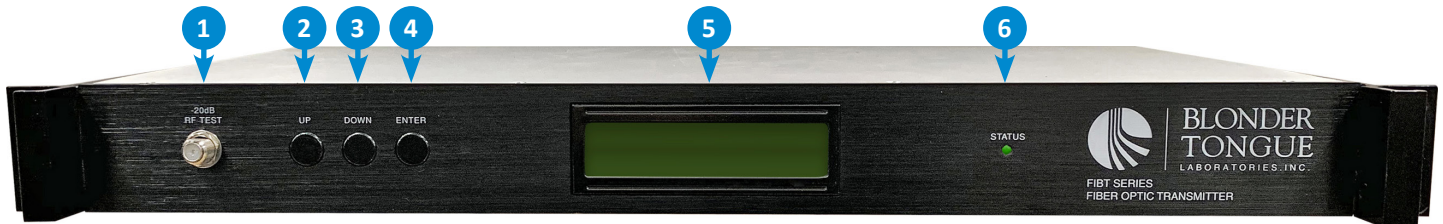
- 47 to 1218 MHz RF bandwidth for DOCSIS 3.1 compatibility
- High performance and low power consumption GaAs technology
- 1310nm DFB laser in 5 output power levels (3, 6, 10, 12, 15 dBm)
- RF AGC for optimum laser performance
- LCD front panel status display with built-in microprocessor
- SNMP network management for remote monitoring
- ETL certified

#### Function Block Diagram:



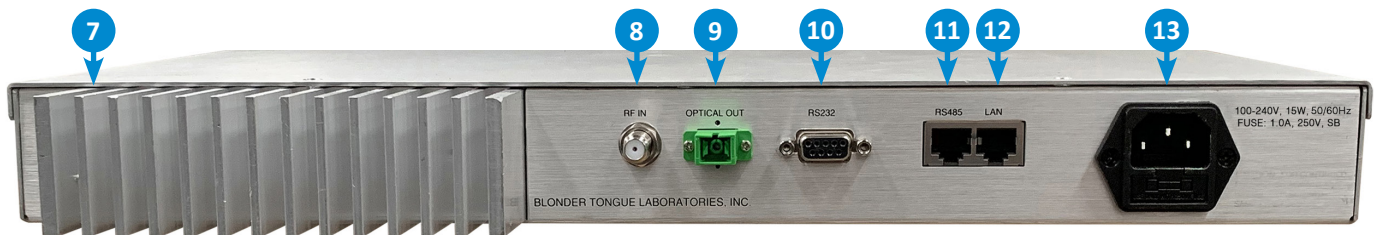
## Description:

Unit front and rear panel connectors and indicators:



## FRONT PANEL:

- 1 -20dB RF Test:** "F" connector for RF testing @ 20dB lower than the actual RF drive level to the laser. (**MOD Level Setting**)
- 2 UP:** scrolls the LCD display UP, or increases the setting value. See [Section 5.1](#) for more information.
- 3 DOWN:** scrolls the LCD display DOWN, or decreases the setting value. See [Section 5.1](#) for more information.
- 4 ENTER:** MGC/AGC mode and MGC Attenuation select. See [Section 5.1](#) for more information.
- 5 LCD Monitor:** Displays status parameters, product model, serial number and other information about the transmitter. See [Section 5.1](#) for parameters.
- 6 STATUS LED:** indicates the status of the unit for troubleshooting, as follows:
  - Green:** Normal Operation
  - Red:** Warning. Check LCD message to troubleshoot problem. See [Section 5.2](#) for more information.
  - Orange:** RF Input Level is too low. See [Section 5.2](#) for more information.



## REAR PANEL:

- 7 Case Grounding Nut:** Provided for optionally connecting the transmitter to the ground.
- 8 RF IN:** "F" connector (75Ω). RF input signal level range should be between 15 dBmV and 25 dBmV for AGC operation.
- 9 OPTICAL OUT:** Optical signal output port, SC/APC.



**CAUTION:** There are invisible laser emissions from Fiber output when the laser is active! It would be dangerous to point this port toward the human body, especially eyes, when equipment has power running through it!

- 10 RS232:** this standard network management port is used for connecting equipment with RS-232 port in network management server. See [Section 6](#) for more information.
- 11 RS485:** this standard network management port is used for connecting equipment with RS-485 port on network management server. See [Section 6](#) for more information.
- 12 LAN:** this standard network management port is used for connecting transmitter with Ethernet-based SNMP network management server. See [Section 6](#) for more information.
- 13 INPUT POWER:** IEC 14 power inlet plug - rated 100/240 VAC, 15W, 50/60 Hz; equipped with Slo-Blo, 1.0A, 250 V fuse.

## Section 3 – Specifications

### 3.1 Link Test Condition

Test link consists of FIBT transmitter, 10Km single mode fiber, optical attenuator and FTTB Blonder Tongue optical receiver. Input RF channels are 77 CW carriers (50~550 MHz) and digital channels (550 MHz~1218 MHz, RF level 10 dB lower) at -1 dBm optical input.

### 3.2 Product Specifications

#### Optical

<b>Operating Wavelength:</b>	1310 nm ± 20 nm
<b>Optical Power Output:</b>	3 dBm (2 mW), 6 dBm (4 mW), 10 dBm (10 mW), 12 dBm (16 mW) & 15 dBm (31 mW)
<b>Laser Type:</b>	Class 1 DFB (directly modulated; Hazard Level 1). The 3 dBm model is built with an uncooled laser. The 6 & 10 dBm models are available with either a cooled or uncooled laser. The 12 & 15 dBm models employ only cooled lasers.
<b>Beam Divergence Angle:</b>	8° max.
<b>Connector:</b>	SC/APC (For applications requiring a FC/APC connector an adapter, sold separately, is required)  Model: FC Adapter, Description: SC/APC-Male to FC/APC-Female, Stock # 7607

#### Link Performance\*

<b>CNR:</b>	≥ 51 dB (see table below)
<b>CSO:</b>	<-62 dBc
<b>CTB:</b>	<-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.

#### RF

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

#### General

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

### 3.3 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-1310-15													51.9	50.9	49.9

## Section 4 – Installation & Power-up

### 4.1 Unpacking & Preparation

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You will find the following items in the box:

- FIBT-1310 Series 1RU transmitter (QTY=1)
- Power Cord with IEC C13 line socket and 3-pin Type B NEMA 5 plug (QTY=1)



**CAUTION:** If any of the equipment appears to have been damaged, do **NOT** connect it to a power source. This will only cause additional damage to the unit. Contact Technical Support for further instructions.

You will need the following tools and supplies for installation:

- An optical power meter
- A digital multimeter
- An RF signal meter or spectrum analyzer
- A standard fiber test jumper
- Denatured or 99% pure isopropyl alcohol and lint-free fiber optic cleaning wipes.

### 4.2 Installation

---

The FIBT-1310 Series transmitters are designed to be installed into any standard 1RU 19" rack. Verify that the power source to the rack is turned OFF before installing the unit into the rack.

- 1 Mount and secure the unit's front panel to the rack by inserting four (4) machine screws, with cup washers, through the four (4) mounting holes in the front panel. Ground the case immediately afterward.
- 2 Check input voltage using a digital multimeter in accordance with power requirement. After you are satisfied with the results, plug in the power cable.

**NOTE:** When the unit is first plugged in, it will briefly beep one time. This indicates that the transmitter has successfully initialized.

- 3 Check the message on the LCD and the status of the front panel LED indicator. Push the **UP** and **DOWN** buttons to check each parameter, insuring that the transmitter is operating normally.

**NOTE:** If there is no RF input, the status LED will be a steady orange and the LCD will display "**INPUT RF IS LOW**" at [Section 5.1](#), **6**.

- 4 Connect standard fiber test cable to the transmitter's optical output. Measure the optical output power and confirm that it is approximately the same as the value displayed on the LCD.

When measuring the optical power, make sure that the optical power meter is set for the 1310nm wavelength and that the fiber test connector is clean.

- 5 Measure the input RF level with an RF signal meter or a spectrum analyzer, making sure the RF signal is in the AGC range of the transmitter. At this time, you can connect the RF signals to the RF IN port of the FIBT. The front panel Status LED should be Green and the LCD will display the RF input level as "**INPUT RF=XXdBmV**".
- 6 Re-measure the optical output power to ensure that it is normal. Remove the standard fiber test jumper and optical power meter, then connect the FIBT to the network.



## Section 5 - Front Panel Configuration

### 5.1 LCD Parameter Functions

You must complete the steps described in [Section 4](#) before proceeding. Where **UP**, **DOWN**, or **ENTER** is mentioned, use the associated buttons on the front panel.

Note: The LCD backlighting is activated for approximately 5 seconds after pressing the **UP**, **DOWN**, or **ENTER** buttons.

- 1 **Start Screen:** Upon power-up, “Blonder Tongue” will appear on the LCD, indicating the top of the LCD menu. The following screens are in descending order and are accessed by pressing the **DOWN** button.



- 2 **AGC Status:** **AGC/MGC** (Automatic/Manual Gain Control): Pressing **ENTER** will toggle between AGC and MGC mode. The menus below will display parameters and allow changes based on the gain control mode selected.



- 3 **S/N:** displays the serial number of the unit.



- 4 **MOD Level=XXdBmV:**

If “**AGC**” is selected in [2](#), the LCD displays the modulation level being applied to the laser. This menu also allows the user to change the modulation level in 1dB increments over a range of 30 to 45 dBmV.



To change the value, press **ENTER**. When the LCD displays “*Please Install...*” the user can scroll through the range using the **UP/DOWN** buttons. When the desired value has been reached, press the **ENTER** button to apply the change.

If “**MGC**” is selected in [2](#), the LCD displays the modulation level being applied to the laser and does not allow changes.

- 5 **AGC/MGC ATTEN=XXdB:**

If “**AGC**” is selected in [2](#), the LCD displays the AGC attenuation. This is controlled internally and is not user-adjustable.



If “**MGC**” is selected in [2](#), the LCD displays the MGC attenuation. This is user-adjustable in 1dB increments over a range of 0 to 15 dB.

NOTE: Changing this attenuator will also change the MOD level described in [4](#). Example: A 2dB increase MGC attenuation will automatically apply a 2dB decrease in MOD level.

The user may adjust the **MOD Level** by 1 or 2 dB to suit their system. The higher the MOD level, the better the CNR and the worse the CSO/CTB. The lower the MOD level, the worse the CNR and the better the CSO/CTB.



**NOTE: Factory MOD Level is set for optimum CSO/CTB/CNR. It is recommended to record this setting prior to changing MOD Level.**

To change the value, press **ENTER**. When the LCD displays “*Please Install...*” the user can scroll through the range using the **UP/DOWN** buttons. When the desired value has been reached, press the **ENTER** button to apply the change.

## 5.1 LCD Parameter Functions (continued)

Warning: On some FIBT models, selecting too low an attenuator value can result in excessive MOD level. When this happens, the status LED will flash red and an audible alarm will sound until a safe level is established. Also, the MOD Level screen will display “**MOD Level is High**”.

- 6 INPUT RF:** indicates the RF Input Level in dBmV. Note: the internal power detector is calibrated for 77 CW carriers, and accuracy may vary depending on users frequency plan.



The following table is a guideline for the number of input carriers vs. recommended RF input levels:

Number of Input Carriers	110	77	40
Recommended RF Input Level	17dBmV	20dBmV	25dBmV

- 7 Bias:** indicates the bias current of the laser



- 8 TEMP:** indicates the internal temperature of the laser in degrees Celsius (°C).



- 9 Power:** indicates the optical output power in milliwatts (mW).



- 10 FIBT-1310-XX:** indicates the model name, with “XX” indicating the output power level in dBm.



## 5.2 Alarm Indicators

The following chart details system warnings for troubleshooting purposes.

Error Condition	Mode	LCD Message Display	Status LED	Audible Alarm
RF Input Level Too High	ACG	MOD Level = XXdBmV INPUT RF = XXdBmV	Flashes RED at ≈1sec Intervals	Beeper sounds in-sync with status LED
	MCG	MOD Level Is High INPUT RF = XXdBmV		
RF Input is Too Low	ACG	MOD Level = XXdBmV INPUT RF IS LOW	Orange (Red+Green) Steady On	None
	MCG			
Excessive MOD Level	MCG	MOD Level Is High	Flashes RED at ≈1sec Intervals	Beeper sounds in-sync with status LED

## Section 6 - System & SNMP Management

Simple Network Management Protocol (SNMP) is an Internet-standard protocol for collecting and organizing information about managed devices on IP networks and for modifying that information to change device behavior. Devices that typically support SNMP include routers, switches, servers, workstations, printers, modem racks and more.

When the built-in RJ-45 Ethernet adapter is connected to an IP network, operators can remotely access device settings via Telnet and SNMP for managing and monitoring the FIBT. This can be handled by a command line interface (CLI). A MIB Browser can be used to access and read the settings and parameters. Readily available SNMP software can provide a graphical user interface to performing these functions.

FIBT uses SNMP v2 and can be accessed through either the LAN adapter or the serial RS232 connector.

For best security practices, we recommend not connecting to the SNMP connectors if the operator is not going to use SNMP to manage the device.

### 6.1 Agent Settings and Console Management

Before using the SNMP features in FIBT, operators need to ensure it can be accessed. This may require adjusting the IP network settings.

The FIBT-1310 transmitter Ethernet Interface hardware and TCP/IP features are as follows:

Item	Value
Interface Type	RJ45
Speed Rate	10Mbit/s
Default IP Address (SNMP Management)	192.168.1.20
Default Mask	255.255.255.0
Default Gateway	192.168.1.1

#### Adjusting the default IP network and SNMP agent settings

The FIBT transmitter supports Telnet management. When FIBT is connected with a computer via RJ-45 (RS485), the computer IP address should be next to "192.168.1.20". After both units are successfully linked, the user can enter the command line in a DOS, or "cmd", prompt window:

```
telnet 192.168.1.20 (where "192.168.1.20" is the default IP address of the FIBT)
```

After successful connection, the user name and password are required.

Username = <b>admin</b> (case-sensitive) Password = <b>12345</b> (case-sensitive)
--

## 6.1 Agent Settings and Console Management (continued)

Operators are able to modify IP network settings, via Telnet from a CLI, using the following commands:

Commands	Parameter	Description	Appendix
Exit	/	Exit the management console	
Carrier Return	/	Indicates the command was entered	
Admin	/	Only valid for the username prompt	The device has only one username: admin
12345	/	Only valid for the password prompt	The device has only one password: 12345
Logout	/	Logs user out of the console; login prompt appears again	
Help	/	Shows the help window	
?	/	Same as command: "help"	
Ver	/	Shows the version of the unit	
Set	IP xxxxxxxx Gateway xxxxxxxx Mask xxxxxxxx	Set IP Address Set Gateway Address Set Mask	"xxxx" being the address or mask. Example: 192.168.1.2 255.255.255.0
Show	/	Show basic information of the unit	
Set	Model "xxxxxxx" Model	Set the Model View the Model	When setting the model, the string must include quotation mark with a max string length of 12.
Set	Location "xxxxxxx" Location	Sets the location of the unit View the Location	When setting the location, the string must include quotation mark with a max string length of 12.
Reboot	/	Reboot the unit	

### Notice:

- All commands will be uppercased, as the commands are not case-sensitive.
- The unit only supports one Telnet session at a time.
- The unit will disconnect the Telnet session after it has been idle for 5 minutes
- The user can close the Telnet session in 2 ways:
  1. Input the "quit" command
  2. Either **Ctrl-X** or **Ctrl-D** or **Ctrl-C** are OK to close a session
- If the Telnet session was closed abnormally, the user should wait for 5 minutes before reconnecting to the unit with Telnet again

## 6.2 Accessing via MIB Browser

The SNMP software, with transmitter MIB, can read the parameters from the FIBT optical transmitter. The following screens are examples of parameters after loading the transmitter MIB.

```

Query results
***** SNMP QUERY STARTED *****
1: sysDescr.0 (octet string) FIBT SNMP Agent V1.0
2: sysObjectID.0 (object identifier) nscrtvHFCemsTree
3: sysUpTime.0 (timeticks) 0 days 00h:00m:15s.00th (1500)
4: sysContact.0 (octet string) Blonder Tongue
5: sysName.0 (octet string) FIBT SNMP Agent
6: sysLocation.0 (octet string) New Jersey,USA
7: sysServices.0 (integer) 72
8: analogParameterOID.12.1.3.6.1.4.1.17409.1.3.1.13.0 (object identifier) commonInternalTemperature.0
9: analogParameterOID.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 (object identifier) otdOpicalOutputPower.1
10: analogParameterOID.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 (object identifier) otdLaserTemp.1
11: analogParameterOID.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 (object identifier) otdLaserCurrent.1
12: analogParameterOID.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 (object identifier) otdDriveLevel.1
13: analogParameterOID.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 (object identifier) otdTecCurrent.1
14: analogParameterOID.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (object identifier) otdInputRFLevel.1
15: alarmEnable.12.1.3.6.1.4.1.17409.1.3.1.13.0 (octet string) FF (hex)
16: alarmEnable.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 (octet string) FF (hex)
17: alarmEnable.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 (octet string) FF (hex)
18: alarmEnable.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 (octet string) FF (hex)
19: alarmEnable.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 (octet string) FF (hex)
20: alarmEnable.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 (octet string) FF (hex)
21: alarmEnable.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (octet string) FF (hex)
22: analogAlarmState.12.1.3.6.1.4.1.17409.1.3.1.13.0 (integer) aasNominal(1)
23: analogAlarmState.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 (integer) aasNominal(1)
24: analogAlarmState.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 (integer) aasNominal(1)
25: analogAlarmState.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 (integer) aasNominal(1)
26: analogAlarmState.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 (integer) aasNominal(1)
27: analogAlarmState.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 (integer) aasNominal(1)
28: analogAlarmState.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (integer) aasLOLO(5)
29: analogAlarmHIHI.12.1.3.6.1.4.1.17409.1.3.1.13.0 (integer) 80
30: analogAlarmHIHI.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 (integer) 400
31: analogAlarmHIHI.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 (integer) 400
32: analogAlarmHIHI.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 (integer) 150
33: analogAlarmHIHI.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 (integer) 110
34: analogAlarmHIHI.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 (integer) 1000
35: analogAlarmHIHI.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (integer) 90
36: analogAlarmHI.12.1.3.6.1.4.1.17409.1.3.1.13.0 (integer) 70
37: analogAlarmHI.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 (integer) 350
38: analogAlarmHI.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 (integer) 350
39: analogAlarmHI.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 (integer) 145
40: analogAlarmHI.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 (integer) 105
41: analogAlarmHI.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 (integer) 800
42: analogAlarmHI.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (integer) 85
43: analogAlarmLO.12.1.3.6.1.4.1.17409.1.3.1.13.0 (integer) 10
44: analogAlarmLO.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 (integer) 50
45: analogAlarmLO.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 (integer) 100
46: analogAlarmLO.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 (integer) 25
47: analogAlarmLO.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 (integer) 90
48: analogAlarmLO.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 (integer) -800
49: analogAlarmLO.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (integer) 75
50: analogAlarmLOLO.12.1.3.6.1.4.1.17409.1.3.1.13.0 (integer) 5
51: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 (integer) 10
52: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 (integer) 50
53: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 (integer) 25
54: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 (integer) 90
55: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 (integer) -800
56: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (integer) 75

```

## 6.2 Accessing via MIB Browser (continued)

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52: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 (integer) 50
53: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 (integer) 20
54: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 (integer) 85
55: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 (integer) -1000
56: analogAlarmLOLO.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (integer) 70
57: analogAlarmDeadband.12.1.3.6.1.4.1.17409.1.3.1.13.0 (integer) 1
58: analogAlarmDeadband.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 (integer) 1
59: analogAlarmDeadband.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 (integer) 10
60: analogAlarmDeadband.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 (integer) 1
61: analogAlarmDeadband.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 (integer) 1
62: analogAlarmDeadband.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 (integer) 1
63: analogAlarmDeadband.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (integer) 1
64: discreteParameterOID.12.1.3.6.1.4.1.17409.1.3.1.12.0.2 (object identifier) commonTamperStatus.0
65: discreteAlarmValue.12.1.3.6.1.4.1.17409.1.3.1.12.0.2 (integer) 2
66: discreteAlarmEnable.12.1.3.6.1.4.1.17409.1.3.1.12.0.2 (integer) enableMajor(2)
67: discreteAlarmState.12.1.3.6.1.4.1.17409.1.3.1.12.0.2 (integer) dasNominal(1)
68: currentAlarmOID.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (object identifier) otdInputRFLevel.1
69: currentAlarmState.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (integer) caasLOLO(5)
70: currentAlarmValue.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 (integer) 0
71: alarmLogNumberOfEntries.0 (integer) 4
72: alarmLogLastIndex.0 (integer) 4
73: alarmLogIndex.1 (integer) 1
74: alarmLogIndex.2 (integer) 2
75: alarmLogIndex.3 (integer) 3
76: alarmLogIndex.4 (integer) 4
77: alarmLogInformation.1 (octet string) 00.00.00.01.05.02.06.0E.2B.06.01.04.01.81.88.01.01.06.03.01.0A.01.02.01.00 (hex)
78: alarmLogInformation.2 (octet string) 00.00.00.01.05.02.06.0E.2B.06.01.04.01.81.88.01.01.06.03.01.09.01.02.01.00 (hex)
79: alarmLogInformation.3 (octet string) 00.00.00.01.05.02.06.0E.2B.06.01.04.01.81.88.01.01.06.03.01.08.01.02.01.00 (hex)
80: alarmLogInformation.4 (octet string) 00.00.00.01.05.02.06.0E.2B.06.01.04.01.81.88.01.01.06.03.01.05.01.02.01.00 (hex)
81: commonNELogicalID.0 (octet string) FIBT LOGICALID
82: commonNEVendor.0 (octet string) Blonder Tongue
83: commonNEModelNumber.0 (octet string) BT-1310-12
84: commonNESerialNumber.0 (octet string) 063112101800
85: commonNEVendorInfo.0 (octet string) OEM Version
86: commonNEStatus.0 (octet string) 08 (hex)
87: commonReset.0 (integer) reset(1)
88: commonAlarmDetectionControl.0 (integer) detectionEnabled(2)
89: commonNetworkAddress.0 (ipaddress) 192.168.1.20
90: commonCheckCode.0 (integer) 0
91: commonTrapCommunityString.0 (octet string) public
92: commonTamperStatus.0 (integer) intact(1)
93: commonInternalTemperature.0 (integer) 25
94: commonTime.0 (integer) 17
95: commonVarBindings.0 (integer) 10
96: commonResetCause.0 (integer) other(1)
97: commonCraftStatus.0 (integer) disconnected(1)
98: commonDeviceOID.0 (object identifier) otdIdent
99: commonDeviceID.0 (octet string) FIBT
100: commonAgentBootWay.0 (integer) bootDefault(1)
101: commonAgentReset.0 (integer) reset(1)
102: commonAgentMaxTraps.0 (integer) 2
103: commonAgentTrapMinInterval.0 (integer) 1
104: commonAgentTrapMaxInterval.0 (integer) 16
105: commonTrapAck.0 (null) null
106: commonAgentTrapIndex.1 (integer) 1
107: commonAgentTrapIndex.2 (integer) 2
108: commonAgentTrapIndex.3 (integer) 3
109: commonAgentTrapIndex.4 (integer) 4
110: commonAgentTrapIndex.5 (integer) 5
111: commonAgentTrapIndex.6 (integer) 6
112: commonAgentTrapIndex.7 (integer) 7
113: commonAgentTrapIndex.8 (integer) 8
114: commonAgentTrapIP.1 (ipaddress) 192.168.0.1

```

## 6.2 Accessing via MIB Browser (continued)

```
115: commonAgentTrapIP.2 (ipaddress) 192.168.0.1
116: commonAgentTrapIP.3 (ipaddress) 192.168.0.1
117: commonAgentTrapIP.4 (ipaddress) 192.168.0.1
118: commonAgentTrapIP.5 (ipaddress) 192.168.0.1
119: commonAgentTrapIP.6 (ipaddress) 192.168.0.1
120: commonAgentTrapIP.7 (ipaddress) 192.168.0.1
121: commonAgentTrapIP.8 (ipaddress) 192.168.0.1
122: commonAgentTrapCommunity.1 (octet string) public
123: commonAgentTrapCommunity.2 (octet string) public
124: commonAgentTrapCommunity.3 (octet string) public
125: commonAgentTrapCommunity.4 (octet string) public
126: commonAgentTrapCommunity.5 (octet string) public
127: commonAgentTrapCommunity.6 (octet string) public
128: commonAgentTrapCommunity.7 (octet string) public
129: commonAgentTrapCommunity.8 (octet string) public
130: commonAgentTrapStatus.1 (integer) commonAgentTrapDisable(2)
131: commonAgentTrapStatus.2 (integer) commonAgentTrapDisable(2)
132: commonAgentTrapStatus.3 (integer) commonAgentTrapDisable(2)
133: commonAgentTrapStatus.4 (integer) commonAgentTrapDisable(2)
134: commonAgentTrapStatus.5 (integer) commonAgentTrapDisable(2)
135: commonAgentTrapStatus.6 (integer) commonAgentTrapDisable(2)
136: commonAgentTrapStatus.7 (integer) commonAgentTrapDisable(2)
137: commonAgentTrapStatus.8 (integer) commonAgentTrapDisable(2)
138: commonDeviceNum.0 (integer) 1
139: commonDeviceSlot.1 (integer) 1
140: commonDevicesID.1 (octet string) FIBT
141: commonDeviceVendor.1 (octet string) OEM Version Vendor
142: commonDeviceModelNumber.1 (octet string) BT-1310-12
143: commonDeviceSerialNumber.1 (octet string) 063112101800
144: commonDeviceVendorInfo.1 (octet string) OEM Version
145: commonDeviceStatus.1 (octet string) 08 (hex)
146: commonDeviceReset.1 (integer) reset(1)
147: commonDeviceAlarmDetectionControl.1 (integer) detectionEnabled(2)
148: commonDeviceMACAddress.1 (ipaddress) 192.168.1.20
149: commonDeviceTamperStatus.1 (integer) intact(1)
150: commonDeviceInternalTemperature.1 (integer) 25
151: commonDeviceResetCause.1 (integer) other(1)
152: commonDeviceCraftStatus.1 (integer) disconnected(1)
153: commonDevicesOID.1 (object identifier) otdIdent
154: commonDeviceAcct.1 (integer) 16
155: commonDeviceName.1 (octet string) FIBT
156: commonDeviceMFD.1 (octet string) 20180608
157: commonDeviceFW.1 (octet string) Version V1.0-DDC
158: otdVendorOID.0 (object identifier) otdIdent
159: otdSlotNumber.0 (integer) 1
160: otdIndex.1 (integer) 1
161: otdLaserWavelength.1 (octet string) 1310 nm
162: otdLaserType.1 (null) null
163: otdDriveLevel.1 (integer) 60
164: otdInputRFLevel.1 (integer) 60
165: otdInputRFAttenuationRange.1 (integer) 0
166: otdInputRFAttenuation.1 (integer) 0
167: otdLaserTemp.1 (integer) 251
168: otdLaserCurrent.1 (integer) 520
169: otdOpicalOutputPower.1 (integer) 163
170: otdTecCurrent.1 (integer) 0
171: otdAGCCControl.1 (integer) on(2)
172: otdConfigurationDriveLevel.1 (integer) 0
173: otdConfigurationRFAttenuation.1 (integer) 0
174: otdConfigurationRFChannels.1 (integer) 60
175: otdFansNumber.0 (integer) 0
176: otdNumberDCPowerSupply.0 (integer) 0
177: otdDCPowerSupplyMode.0 (integer) alonesupply(3)
***** SNMP QUERY FINISHED *****
```



### 6.3 RS232 Adapter

The FIBT-1310 transmitter provides console management with RS232 port. “**Console Management**” can be accessed over Telnet through a command line interface (CLI). The RS232 Interface is as follows:

Item	Value
Interface	RS232
Type	DB9-Female
Rate	9600bps
Data Bit	8
Stop Bit	1
Parity	None
Data Flow Control	None

**Notice:**

- Open the Hyper Terminal of the computer and set the COM port parameter as above.
- Press the Return key three (3) times to enter into the “user” and “password” prompt window.
- Input the username “admin” and password “12345”.
- All commands listed in [Section 6.2](#) are accepted.

## Section 7 – Cleaning and Maintenance

### 7.1 Cleaning the Unit(s)

---

If the units need to be cleaned, avoid the use of all solvents and use low-pressure clean air to remove loose dirt. Use low-pressure clean air to clear the connectors of any debris. Dirty or scratched connector end faces will greatly reduce the unit's performance. Foam-tipped swabs may be saturated with denatured alcohol\* and inserted into the optical port for cleaning. **DO NOT INSERT A DRY SWAB INTO THE OPTICAL PORT AS THIS MAY DAMAGE THE FIBER END FACE.** Many fiber optic installations experience degraded performance due to dirty optical connector end faces. The following procedure should be used to properly clean the optical connector end faces.

### 7.2 Cleaning the Connector(s)

---

#### Required Cleaning Equipment:

- Kimwipes<sup>®</sup> or any lens-grade, lint-free tissue. The type sold for eyeglasses work quite well.
- Denatured Alcohol.  
**NOTE:** Use only industrial grade 99% pure isopropyl alcohol. Commercially available isopropyl alcohol is for medicinal use and is diluted with water and a light mineral oil. Industrial grade isopropyl alcohol should be used exclusively.
- 30X Magnifier.
- Canned Dry Air.

#### Directions for Cleaning:

- 1) Fold the tissue twice so it is four layers thick.
- 2) Saturate the tissue with alcohol.
- 3) First clean the sides of the connector ferrule. Place the connector ferrule in the tissue, and apply pressure to the sides of the ferrule. Rotate the ferrule several times to remove all contamination from the ferrule sides.
- 4) Now move to a clean part of the tissue. Be sure it is still saturated with alcohol, and it is still four layers thick. Put the tissue against the end of the connector ferrule. Put your fingernail against the tissue so that it is directly over the ferrule. Now gently scrape the end of the connector until it squeaks. It will sound like a crystal glass that has been rubbed when it is wet.
- 5) Use the magnifier to verify the quality of the cleaning. If it isn't completely clean repeat the steps with a clean tissue.
- 6) Mate the connector immediately! Don't let the connector lie around and collect dust before mating.
- 7) Air can be used to remove lint or loose dust from the port of a transmitter or receiver to be mated with the connector. Never insert any liquid into the ports.

### 7.3 Connector Handling

---

- 1) **NEVER TOUCH THE FIBER END FACE OF THE CONNECTOR.**
- 2) Connectors not in use should be covered over the ferrule by a plastic dust cap. It is important to note that the inside of the ferrule dust caps contains a sticky gelatinous residue that is the by-product of the making of the dust cap. This residue will remain on the ferrule end after the cap is removed. Therefore it is critical that the ferrule end be cleaned thoroughly **BEFORE** it is mated to the intended unit.

## Section 8 – Troubleshooting

SYMPTOM	CAUSE	ACTION
No LCD or LED display after turning on the power.	No input power or a problem with the internal switching power supply.	Check input AC voltage to the power supply (100-240 VAC), if the voltage is normal, usually the cause is the internal switching power supply. Contact Technical Support.
After turning on power, LCD monitor and LED normal, but optical output power low.	Check jumper quality	Swap to a good test jumper
	Contaminated optical active connector or adaptor	Clean contaminated fiber active connector or adaptor ( <a href="#">Section 7</a> )
	Damaged ceramic ferrule in adaptor	Swap the damaged adaptor
After connecting to network, all carrier channels have obvious noise point.	Low received optical power, causing poor C/N.	Clean fiber active connector or adaptor ( <a href="#">Section 7</a> )
	RF input level too low for sufficient laser modulation	Check RF input levels to transmitter. (15-25dBmV)
	System link path C/N too low.	Check link loss
	Back-reflection from bad or dirty optical connectors	Use only angled (SC/APC) optical connectors or fusion splice where necessary.
After connecting to network, only some carrier channels have a degraded SNR	Some channels SNR too low	Check the individual channel signal C/N or SNR Check the flatness of the RF input
After connecting to the network, some carrier channels have obvious ripple, beats, lines or distortions.	Optical input power to receiver is too high.	Check input power at optical receiver and pad, if necessary.
	RF modulation is too high.	Check the optical transmitter modulation level parameter and re-adjust if too high.
	RF input drive to transmitter is too high.	Make sure the RF input level is within the range (15-25dBmV)

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