FIBT-1310 SERIES
1310nm FIBER OPTIC TRANSMITTERS

STOCK #	MODEL NAME	DESCRIPTION
7603 06	FIBT-1310-06	6 dBm Output, 1310 nm; Single-Mode; DFB Laser; SNMP
7603 10	FIBT-1310-10	10 dBm Output, 1310 nm; Single-Mode; DFB Laser; SNMP
7603 135	FIBT-1310-135	13.5 dBm Output, 1310 nm; Single-Mode; DFB Laser; SNMP
7603 15	FIBT-1310-15	15 dBm Output, 1310 nm; Single-Mode; DFB Laser; SNMP

Rev: 082223

P/N: 651247900A

BLONDER TONGUE LABORATORIES, INC. | ISO 9001:2015 CERTIFIED | WWW.BLONDERTONGUE.COM

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(s):	

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Reverse engineering or disassembly is prohibited.

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

The latest user documentation (PDF) and Firmware Updates can be obtained by visiting our website. Navigate to the product page by entering the full Model Name in the search field. **Firmware Updates** can also be directly accessed under the "Support" section of the website. If you cannot find your product model on the website, please reach out to Tech Support through our support request form.

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 review our return policies or contact our service department for further information.

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SECTION 1 – GENERAL & SAFETY INSTRUCTIONS

WARNING INVISIBLE LASER RADIATION
AVOID DIRECT EYE EXPOSURE TO BEAM
Class 1 Laser Product IEC 60825-1: 2014
Wavelength: 1.31μm   Max Output: 31mW
ATTENTION LASER RADIATION INVISIBLE EVITER
UNE EXPOSITION DIRECTE DES YEUX AU FAISCEAU

HAZARD

LEVEL 1

IEC 60825-2:2004

WARNING

**CLASS 3B LASER
INVISIBLE RADIATION
WHEN OPENED**

**AVOID DIRECT EYE
EXPOSURE TO BEAM**

ATTENTION

**LASER DE CLASSE 3B
RAYONNEMENT INVISIBLE
À L'OUVERTURE**

**ÉVITER LES YEUX DIRECTS
EXPOSITION AU FAISCEAU**

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.

STOP

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 PRODUCT APPLICATION & FEATURES

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 **FIBT-1310** is built with a directly modulated DFB laser, providing low noise and high linearity performance. The RF AGC and pre-distortion circuit ensures 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.

KEY 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:
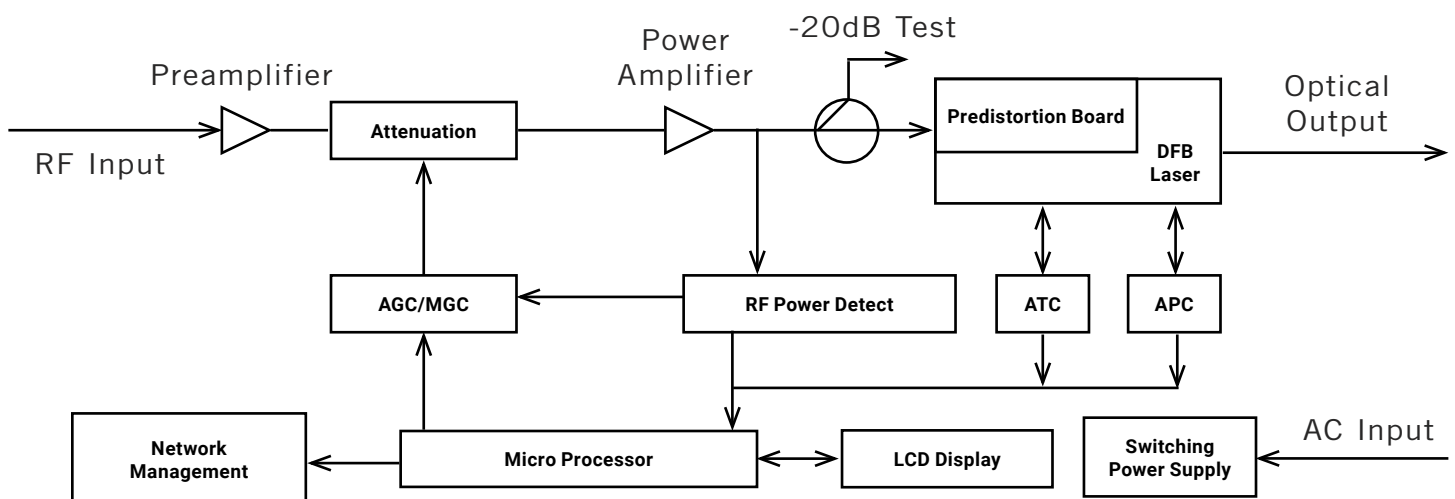
2.2 PRODUCT DESCRIPTION

FRONT PANEL:

A **-20dB RF Test:** "F" connector for RF testing @ 20dB lower than the actual RF drive level to the laser. (**MOD Level** Setting)

B **UP:** scrolls the LCD display UP, or increases the setting value. See Section 5.1 for more information.

C **DOWN:** scrolls the LCD display DOWN, or decreases the setting value. See Section 5.1 for more information.

D **ENTER:** MGC/AGC mode and MGC Attenuation select. See Section 5.1 for more information.

E **LCD MONITOR:** Displays status parameters, product model, serial number and other information about the transmitter. See Section 5.1 for parameters.

F **Status LED:** Indicates the status of the unit for troubleshooting, as follows:

  ▶ **OFF** = indicates the unit is not correctly connected or receiving power.

  ▶ **GREEN** = Normal Operation; indicates the unit is operating normally and is running without errors.

  ▶ **AMBER** = The RF Input Level is too low. See Section 5.2 for more information.

  ▶ **RED** = Warning; indicates that one or more errors have been detected. Check the LCD message to troubleshoot the problem. See Section 5.2 for more information.

BACK PANEL:

G **Case Grounding Nut**: Provided for optionally connecting the transmitter to the ground.

H **RF IN**: "F" connector (75Ω). RF input signal level range should be between 15 dBmV and 25 dBmV for AGC operation.

! **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!

2.2 PRODUCT DESCRIPTION (CONTINUED)

I **OPTICAL OUT:** Optical signal output port, SC/APC.

J **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.

K **LAN network management port:** Use for connecting transmitter with Ethernet-basing SNMP network management server. Default IP address is "*10.10.10.254*"

L **WAN network management port:** Use for connecting transmitter with Ethernet-basing SNMP network management server. See Section 6 for more information. Default setting is *Static IP*.

M **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	
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) & 15 dBm (31 mW)
Laser Type	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.
Beam Divergence Angle:	8° max
Connector	SC/APC (a FC/APC connection adapter is sold separately for applications requiring it) **Model**: FC Adapter; **Stock#** 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
Operating Humidity	< -65 dBc

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

3.2 PRODUCT SPECIFICATIONS (CONTINUED)

ALARMS & MONITORING	
Local Monitoring	1x Status Tri-Color LED (Red, Green, Amber)
Local Control	**Display**: LCD **Navigation**: 3 Buttons for LCD (Up/Down/Enter)
Remote Monitor/Control	**SNMP**: RJ45 Connector @ 100/1G

GENERAL	
Dimensions (W x H x D)	19.0 x 1.75 x 15.31 in (483 x 44 x 369 mm)
Weight	7.0 lbs (3.18 kg)
POWER	
Power Supply	100-240 VAC 50/60 Hz
Power Consumption	15 W
ENVIRONMENTAL	
Operating Temperature Range	32 to 113 °F (0 to 45 °C)
Relative Humidity	0 to 95%, non-condensing

3.3 OPTICAL LINK C/N TABLE

OPTICAL LOSS (dB)	6	7	8	9	10	11	12	13	14	15	16	17
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-1310-13.5								52.3	51.3	50.4	49.5	
FIBT-1310-15										51.9	50.9	49.9

SECTION 4 – INSTALLATION & POWER-UP

4.1 UNPACKING & PREPARATION

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.

Blonder Tongue

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.

AGC Status

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

S/N:1234567890123456

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.

MOD Level=43dBmV

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. **②**

If "**MGC**" is selected in   , 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.

AGC ATT= 5dB

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.

5.1 LCD PARAMETER FUNCTIONS (CONTINUED)

> **!** **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.

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.

```
INPUT RF=20dBmV
```

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

```
Bias=65mA
```

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

```
TEMP=25.4
```

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

```
POWER=31.0mW
```

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

```
FIBT-1310-15
```

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 WAN adapter.

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.

ADJUSTING THE DEFAULT IP NETWORK AND SNMP AGENT SETTINGS

The FIBT transmitter supports Telnet and web page 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 IP address 192.168.1.20 into a web brower, such as Chrome.

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

Username = **admin** (case-sensitive)
Password = **admin** (case-sensitive)

6.2 WEB PAGE SETUP (RECOMMENDED)

1] Enter 192.168.1.20 in the browser address bar.

2] The default user name and password are admin. The successful landing page will have the following Blonder Tongue header at the top.

6.3 SETTING PRIVATE IP ADDRESS

The user can change the FIBT IP address of the LAN network port on the following page:

The user can also change the FIBT IP address of the WAN network port in the same Internet Settings section, within the following page:

6.4 OPTICAL SETTING PAGES

Under "**Optical setting**", the "**Basic Info**" page displays the basic parameters of the optical transmitter device (OTD), including LD parameters, RF parameters, device model, SN, and working mode. The parameters must be consistent with those displayed on the front panel of the device. The information cannot be modified.

Parameter Settings and **SNMP Threshold Settings** are the pages through which the manufacturer sets the parameters for proper operation for the optical signal of the optical transmitter and the SNMP NMS, unless the user is allowed not to modify these parameters.

6.5 CONSOLE MANAGEMENT (RS232)

The FIBT transmitter provides console management with RS232 port. When the machine is powered on, the RS232 port will print out some firmware module loading information and network default information, which can be used as reference for machine development or maintenance. The RS232 Interface is:

ITEM	VALUE
Interface	RS232
Type	DB9-Female
Rate	57600bps
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.

6.6 PARAMETERS IN SNMP

SNMP software with transmitter MIB can read the parameters from FIBT optical transmitter. The following output is an example of parameters after loading transmitter MIB.

```
————SNMP query started————
1: sysDescr.0 Linux Blonder Tongue 3.10.14+ #200 SMP Tue Apr 25 09:31:26 CST 2023 mips
2: sysObjectID.0 enterprises.8072.3.2.10
3: sysUpTime.0 9:06:53.08
4: sysContact.0 root@localhost
5: sysName.0 Blonder Tongue
6: sysLocation.0 Unknown

————SNMP query started————
1: propertyIdent.1.1.1.12.1.3.6.1.4.1.17409.1.3.1.13.0 commonInternalTemperature.0
2: propertyIdent.1.1.1.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 otdDriveLevel.1
3: propertyIdent.1.1.1.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 otdInputRFLevel.1
4: propertyIdent.1.1.1.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 otdLaserTemp.1
5: propertyIdent.1.1.1.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 otdLaserCurrent.1
6: propertyIdent.1.1.1.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 otdOpticalOutputPower.1
7: propertyIdent.1.1.1.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 otdTecCurrent.1
8: propertyIdent.1.1.2.12.1.3.6.1.4.1.17409.1.3.1.13.0 FF
9: propertyIdent.1.1.2.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 FF
10: propertyIdent.1.1.2.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 FF
11: propertyIdent.1.1.2.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 FF
12: propertyIdent.1.1.2.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 FF
13: propertyIdent.1.1.2.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 FF
14: propertyIdent.1.1.2.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 FF
15: propertyIdent.1.1.3.12.1.3.6.1.4.1.17409.1.3.1.13.0 1
16: propertyIdent.1.1.3.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 1
17: propertyIdent.1.1.3.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 1
18: propertyIdent.1.1.3.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 1
19: propertyIdent.1.1.3.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 1
20: propertyIdent.1.1.3.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 1
21: propertyIdent.1.1.3.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 1
```

6.6 PARAMETERS IN SNMP (CONTINUED)

```
22: propertyIdent.1.1.4.12.1.3.6.1.4.1.17409.1.3.1.13.0 400
23: propertyIdent.1.1.4.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 110
24: propertyIdent.1.1.4.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 90
25: propertyIdent.1.1.4.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 400
26: propertyIdent.1.1.4.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 150
27: propertyIdent.1.1.4.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 400
28: propertyIdent.1.1.4.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 1000
29: propertyIdent.1.1.5.12.1.3.6.1.4.1.17409.1.3.1.13.0 350
30: propertyIdent.1.1.5.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 105
31: propertyIdent.1.1.5.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 85
32: propertyIdent.1.1.5.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 350
33: propertyIdent.1.1.5.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 145
34: propertyIdent.1.1.5.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 350
35: propertyIdent.1.1.5.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 800
36: propertyIdent.1.1.6.12.1.3.6.1.4.1.17409.1.3.1.13.0 50
37: propertyIdent.1.1.6.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 90
38: propertyIdent.1.1.6.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 75
39: propertyIdent.1.1.6.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 100
40: propertyIdent.1.1.6.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 25
41: propertyIdent.1.1.6.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 50
42: propertyIdent.1.1.6.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 -800
43: propertyIdent.1.1.7.12.1.3.6.1.4.1.17409.1.3.1.13.0 10
44: propertyIdent.1.1.7.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 85
45: propertyIdent.1.1.7.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 70
46: propertyIdent.1.1.7.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 50
47: propertyIdent.1.1.7.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 20
48: propertyIdent.1.1.7.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 10
49: propertyIdent.1.1.7.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 -1000
50: propertyIdent.1.1.8.12.1.3.6.1.4.1.17409.1.3.1.13.0 1
51: propertyIdent.1.1.8.13.1.3.6.1.4.1.17409.1.6.3.1.4.1 1
52: propertyIdent.1.1.8.13.1.3.6.1.4.1.17409.1.6.3.1.5.1 1
53: propertyIdent.1.1.8.13.1.3.6.1.4.1.17409.1.6.3.1.8.1 10
54: propertyIdent.1.1.8.13.1.3.6.1.4.1.17409.1.6.3.1.9.1 1
55: propertyIdent.1.1.8.13.1.3.6.1.4.1.17409.1.6.3.1.10.1 1
56: propertyIdent.1.1.8.13.1.3.6.1.4.1.17409.1.6.3.1.11.1 1
57: alarmLogNumberOfEntries.0 1
58: alarmLogLastIndex.0 1
59: commonIdent.1.1.0 FIBT LOGICALID
60: commonIdent.1.2.0 Blonder Tongue
61: commonIdent.1.3.0 IBT-1310-10
62: commonIdent.1.4.0 617203302300
63: commonIdent.1.5.0 OEM Version
64: commonIdent.1.6.0 08
65: commonIdent.1.7.0 1
66: commonIdent.1.8.0 2
67: commonIdent.1.9.0 192.168.1.20
68: commonIdent.1.10.0 1
69: commonIdent.1.11.0 public
70: commonIdent.1.12.0 1
71: commonIdent.1.13.0 25
72: commonIdent.1.14.0 30
73: commonIdent.1.15.0 10
74: commonIdent.1.16.0 1
75: commonIdent.1.17.0 1
76: commonIdent.1.18.0 otdIdent
77: commonIdent.1.19.0 FIBT
78: commonIdent.3.1.1.0 1
79: commonIdent.3.1.2.0 1
80: commonIdent.3.1.3.0 2
81: commonIdent.3.1.4.0 1
```

6.6 PARAMETERS IN SNMP (CONTINUED)

```
82: commonIdent.3.1.5.0 16
83: commonIdent.3.1.6.0 16
84: commonIdent.3.1.7.1.1.1 1
85: commonIdent.3.1.7.1.2.1 192.168.0.1
86: commonIdent.3.1.7.1.3.1 public
87: commonIdent.3.1.7.1.4.1 2
88: commonIdent.3.2.1.0 1
89: commonIdent.3.2.2.1.1.1 1
90: commonIdent.3.2.2.1.2.1 FIBT
91: commonIdent.3.2.2.1.3.1 OEM Version Vendor
92: commonIdent.3.2.2.1.4.1 IBT-1310-10
93: commonIdent.3.2.2.1.5.1 617203302300
94: commonIdent.3.2.2.1.6.1 OEM Version
95: commonIdent.3.2.2.1.7.1 08
96: commonIdent.3.2.2.1.8.1 1
97: commonIdent.3.2.2.1.9.1 1
98: commonIdent.3.2.2.1.10.1 192.168.1.20
99: commonIdent.3.2.2.1.11.1 1
100: commonIdent.3.2.2.1.12.1 25
101: commonIdent.3.2.2.1.13.1 1
102: commonIdent.3.2.2.1.14.1 1
103: commonIdent.3.2.2.1.15.1 otdldent
104: commonIdent.3.2.2.1.16.1 41427
105: commonIdent.3.2.2.1.17.1 FIBT
106: commonIdent.3.2.2.1.18.1 20180608
107: commonIdent.3.2.2.1.19.1 Version V1.0-DDC
108: otdVendorOID.0
109: otdSlotNumber.0 1
110: otdIndex.1 1
111: otdLaserWavelength.1 1310nm
112: otdLaserType.1 cooled DFB
113: otdDriveLevel.1 0
114: otdInputRFLevel.1 0
115: otdInputRFAttenuationRange.1 0
116: otdInputRFAttenuation.1 0
117: otdLaserTemp.1 254
118: otdLaserCurrent.1 520
119: otdOpicalOutputPower.1 1050
120: otdTecCurrent.1 0
121: otdAGCControl.1 on(2)
122: otdConfigurationDriveLevel.1 0
123: otdConfigurationRFAttenuation.1 0
124: otdConfigurationRFChannels.1 60
125: otdFansNumber.0 0
126: otdNumberDCPowerSupply.0 0
127: otdDCPowerSupplyMode.0 alonesupply(3)
——————SNMP query finished——————
Total # of Requests = 13
Total # of Objects = 128
```

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® 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

▶ **NEVER TOUCH THE FIBER END FACE OF THE CONNECTOR.**

▶ 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

8.1 TROUBLESHOOTING: LCD AND ALARMS

ERROR CONDITION	LCD MESSAGE DISPLAY	AUDIBLE ALARM
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 adapter	Clean contaminated fiber active connector adapter (Section 7)
	Damaged ceramic ferrule in adapter	Swap the damaged adapter
After connecting to network, all carrier channels have obvious noise point.	Low received optical power, causing poor C/N.	Clean fiber active connector or adapter (Section 7)
	RF input level too low for sufficient laser modulation	Check RF input levels to transmitter. (15-25 dBmV)
	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 (15-25 dBmV)

8.2 TROUBLESHOOTING: TECHNICAL SUPPORT

For any additional technical support issues, please send more information to us about your issue via our website at www.blondertongue.com/support/ or call us toll-free at 1-800-523-6049 between the hours of 8:00 AM and 5:00 PM (EST, UTC -5).

NOTES

NOTES

LIMITED WARRANTY

Seller will at its sole option, either repair or replace (with a new or factory reconditioned product, as Seller may determine) any product manufactured or sold (or in the case of software, licensed) by Seller which is defective in materials or workmanship or fails to meet the applicable specifications that are in effect on the date of shipment or such other specifications as may have been expressly agreed upon in writing: (i) for a period of one (1) year (and for all BIDA products a period of eight (8) years) from the date of original purchase for all stock hardware products (ii) for a period of one (1) year from the date of original purchase (or such shorter period of time as may be set forth in the license agreement specific to the particular software being licensed from Seller) with respect to all software products licensed from Seller (other than Core Product Software) that is (a) developed for a specific function or application, (b) complimentary to and does not function without the Core Product Software, and (c) listed with a specific model number and stock number in Seller's Price List ("Non-Core Software"); (iii) for a period of ninety (90) days from the date of original purchase, with respect to non-serialized products and accessories, such as parts, sub-assemblies, splitters and all other products sold by Seller (other than Core Product Software and Refurbished/Closeout Products) not otherwise referred to in clauses (i) through (ii) above. The warranty period for computer programs in machine-readable form included in a hardware product, which are essential for the functionality thereof as specifically stated in the published product specifications ("**Core Product Software**") will be coincident with the warranty period of the applicable hardware product within which such Core Product Software is installed.

Software patches, bug fixes, updates or workarounds do not extend the original warranty period of any Core Product Software or Non-Core Software. Notwithstanding anything herein to the contrary,

(i) Seller's sole obligation for software that when properly installed and used does not substantially conform to the published specifications in effect when the software is first shipped by Seller, is to use commercially reasonable efforts to correct any reproducible material non-conformity (as determined by Seller in its sole discretion) by providing the customer with: (a) telephone or e-mail access to report non-conformance so that Seller can verify reproducibility, (b) a software patch or bug fix, if available or a workaround to bypass the issue if available, and (c) where applicable, replacement or damaged or defective external media.

(ii) Seller does not warrant that the use of any software will be uninterrupted, error-free, free of security vulnerabilities or that the software will meet the customer's particular requirements; and the customer's sole and exclusive remedy for breach of this warranty is, at Seller's option, to receive (a) suitably modified software, or part thereof, or (b) comparable replacement software or part thereof;

(iii) Seller retains all right, title and interest in and to, and ownership of, all software (including all Core Product Software and Non-Core Software) including any and all enhancements, modifications and updates to the same; and

(iv) in some cases, the warranty on certain proprietary sub-assembly modules manufactured by third-party vendors and contained in Seller's products, third party software installed in certain of Seller's products, and on certain private—label products manufactured by third-parties for resale by Seller, will be of shorter duration or otherwise more limited than the standard Seller limited warranty. In such cases, Seller's warranty with respect to such third-party proprietary sub-assembly modules, third-party software and private-label products will be limited to the duration and other terms of such third-party vendor's warranty, if any. In addition, certain products, that are not manufactured by Seller, but are resold by Seller, may carry the original OEM warranty for such products, if any. The limited warranty set forth above does not apply to any product sold by Seller, which at the time of sale constituted a Refurbished/Closeout Product, the limited warranty for which is provided in the following paragraph.

Seller will at its sole option, either repair or replace (with a new or factory-reconditioned product, as Seller may determine) any product sold by Seller which at the time of sale constituted a refurbished or closeout item ("Refurbished/Closeout Product"), which is defective in materials or workmanship or fails to meet the applicable specifications that are in effect on the date of shipment of that product or fails to meet such other specifications as may have been expressly agreed upon in writing between the parties, for a period of ninety (90) days from the date of original purchase. Notwithstanding the foregoing, in some cases the warranty on certain proprietary sub-assembly modules manufactured by third-party vendors and contained in Seller products, third party software installed in certain of Seller's products, and on certain private—label products manufactured by third-parties for resale by Seller will be of shorter duration or otherwise more limited than Seller limited warranty for Refurbished/Closeout Products. In such cases, Seller's warranty for Refurbished/Closeout Products constituting such third-party proprietary sub-assembly modules, third party software, and private-label products will be limited to the duration and other terms of such third-party vendor's warranty, if any. In addition, notwithstanding the foregoing, (i) certain Refurbished/Closeout Products that are not manufactured (but are resold) by Seller, may carry the original OEM warranty for such products, if any, which may be longer or shorter than Seller's limited warranty for Refurbished/Closeout Products. All sales of Refurbished/Closeout Products are final.

To obtain service under this warranty, the defective product, together with a copy of the sales receipt, serial number if applicable, or other satisfactory proof of purchase and a brief description of the defect, must be shipped freight prepaid to Seller at the following address: One Jake Brown Road, Old Bridge, New Jersey 08857.

This warranty does not cover failure of performance or damage resulting from (i) use or installation other than in strict accordance with manufacturer's written instructions, (ii) disassembly or repair by someone other than the manufacturer or a manufacturer-authorized repair center, (iii) misuse, misapplication or abuse, (iv) alteration, (v) exposure to unusual physical or electrical stress, abuse or accident or forces or exposure beyond normal use within specified operational or environmental parameters set forth in applicable product specifications, (vi) lack of reasonable care or (vii) wind, ice, snow, rain, lightning, or any other weather conditions or acts of God.

OTHER THAN THE WARRANTIES SET FORTH ABOVE, SELLER MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND, EXPRESS OR IMPLIED, AS TO THE CONDITION, DESCRIPTION, FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR AS TO ANY OTHER MATTER, AND SUCH WARRANTIES SET FORTH ABOVE SUPERSEDE ANY ORAL OR WRITTEN WARRANTIES OR REPRESENTATIONS MADE OR IMPLIED BY SELLER OR BY ANY OF SELLER'S EMPLOYEES OR REPRESENTATIVES, OR IN ANY OF SELLER'S BROCHURES MANUALS, CATALOGS, LITERATURE OR OTHER MATERIALS. IN ALL CASES, BUYER'S SOLE AND EXCLUSIVE REMEDY AND SELLER'S SOLE OBLIGATION FOR ANY BREACH OF THE WARRANTIES CONTAINED HEREIN SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT F.O.B. SHIPPING POINT, AS SELLER IN ITS SOLE DISCRETION SHALL DETERMINE. SELLER SHALL IN NO EVENT AND UNDER NO CIRCUMSTANCES BE LIABLE OR RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, PUNITIVE, DIRECT OR SPECIAL DAMAGES BASED UPON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT LIABILITY OR OTHERWISE OR ANY OTHER LEGAL THEORY, ARISING DIRECTLY OR INDIRECTLY FROM THE SALE, USE, INSTALLATION OR FAILURE OF ANY PRODUCT ACQUIRED BY BUYER FROM SELLER.

All claims for shortages, defects, and non-conforming goods must be made by the customer in writing within five (5) days of receipt of merchandise, which writing shall state with particularity all material facts concerning the claim then known to the customer. Upon any such claim, the customer shall hold the goods complained of intact and duly protected, for a period of up to sixty (60) days. Upon the request of Seller, the customer shall ship such allegedly non-conforming or defective goods, freight prepaid to Seller for examination by Seller's inspection department and verification of the defect. Seller, at its option, will either repair, replace or issue a credit for products determined to be defective. Seller's liability and responsibility for defective products is specifically limited to the defective item or to credit towards the original billing. All such replacements by Seller shall be made free of charge f.o.b. the delivery point called for in the original order. Products for which replacement has been made under the provisions of this clause shall become the property of Seller. Under no circumstances are products to be returned to Seller without Seller's prior written authorization. Seller reserves the right to scrap any unauthorized returns on a no-credit basis. **(Rev 1121)**

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