

# Flexible Transcoder

## 4xIP/4xASI to 1xASI/4xQAM/4xIP



Stock #	Model Name	Description
6582	FlexCoder	Flexible Transcoder
6591	FlexCoder-RP-2	1RU Panel for (2) FlexCoders

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

Purchase Location Name:	
Purchase Location Telephone Number:	
<b>FlexCoder</b> Serial Number(s):	

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

Correspondence regarding this publication should be addressed directly to:

Blonder Tongue Laboratories, Inc.  
One Jake Brown Road  
Old Bridge, NJ 08857 USA

Document Number: 651238600B

Printed in the United States of America.

All product names, trade names, or corporate names mentioned in this document are acknowledged to be the proprietary property of the registered owners.

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

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.

# Table of Contents

<b>SECTION 1 – GENERAL &amp; SAFETY INSTRUCTIONS.....</b>	<b>4</b>
<b>SECTION 2 – PRODUCT SUMMARY.....</b>	<b>5</b>
2.1 PRODUCT APPLICATION & FEATURES.....	5
2.2 PRODUCT SPECIFICATIONS.....	7
<b>SECTION 3 – CONNECTING TO A PC/LAPTOP.....</b>	<b>8</b>
3.1 ETHERNET ACCESS.....	8
3.2 ACCESSING THE USER INTERFACE VIA THE WEB BROWSER.....	8
<b>SECTION 4 – CONFIGURING THE STREAMS.....</b>	<b>10</b>
4.2 “MAIN > STATUS” SCREEN.....	10
4.3 “MAIN > INPUT” SCREEN.....	11
4.4 “MAIN > TS MAP” SCREEN.....	12
4.5 “MAIN > TS CONFIG” SCREEN.....	13
4.6 “MAIN > QAM CONFIG” SCREEN.....	15
4.7 “MAIN > OUTPUT” SCREEN.....	17
4.8 “MAIN > REFRESH” TAB.....	19
<b>SECTION 5 – BASIC CONFIGURATION.....</b>	<b>20</b>
5.1 “NETWORK” SCREEN.....	20
5.2 “TIME” SCREEN.....	21
5.3 “EVENT LOG” SCREEN.....	22
5.4 “ADMIN” SCREEN.....	23

## Section 1 – General & Safety Instructions



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

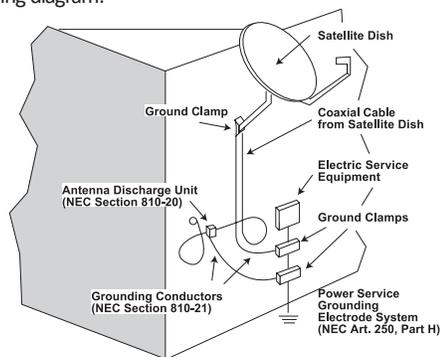
This reminder is provided to call the CATV System Installer’s attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.



You should always follow these Instructions to help ensure Against injury to yourself and damage to your equipment.

- Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature per Section 2.3.
- Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).
- Read all safety and operating instructions before you operate the unit.
- Retain all safety and operating instructions for future reference.
- Heed all warnings on the unit and in the safety and operating instructions.
- Follow all installation, operating, and use instructions.
- Unplug the unit from the AC power outlet before cleaning. Use only a damp cloth for cleaning the exterior of the unit.
- Do not use accessories or attachments not recommended by Blonder Tongue, as they may cause hazards, and will void the warranty.
- Do not operate the unit in high-humidity areas, or expose it to water or moisture.
- Do not place the unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious personal injury and damage to the unit. Install the unit only in a mounting rack designed for 19” rack-mounted equipment.
- Do not block or cover slots and openings in the unit. These are provided for ventilation and protection from overheating. Never place the unit near or over a radiator or heat register. Do not place the unit in an enclosure such as a cabinet without proper ventilation. Do not mount equipment in the rack space directly above or below the unit.
- Operate the unit using only the type of power source indicated on the marking label. Unplug the unit power cord by gripping the plug, not the cord.
- The unit is equipped with a three-wire ground-type plug. This plug will fit only into a ground-type power outlet. If you are unable to insert the plug into the outlet, contact an electrician to replace the outlet. Do not defeat the safety purpose of the ground-type plug.
- Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.

- Be sure that the outdoor components of the antenna system are grounded in accordance with local, federal, and National Electrical Code (NEC) requirements. Pay special attention to NEC Sections 810 and 820. See the example shown in the following diagram:



- We strongly recommend using an outlet that contains surge suppression or ground fault protection. For added protection during a lightning storm, or when the unit is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the lines between the unit and the antenna. This will prevent damage caused by lightning or power line surges.
- Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing the antenna, take extreme care to avoid touching such power lines or circuits, as contact with them can be fatal.
- Do not overload wall outlets or extension cords, as this can result in a risk of fire or electrical shock.
- Never insert objects of any kind into the unit through openings, as the objects may touch dangerous voltage points or short out parts. This could cause fire or electrical shock.
- 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.
- When replacement parts are required, ensure that the service technician uses replacement parts specified by Blonder Tongue. Unauthorized substitutions may damage the unit or cause electrical shock or fire, and will void the warranty.
- Upon completion of any service or repair to the unit, ask the service technician to perform safety checks to ensure that the unit is in proper operating condition.

## Section 2 – Product Summary



**NOTE:** The RFI Input Option, referenced in some sections of this user manual, is no longer available for purchase.

### 2.1 Product Application & Features

#### Application:

The **FlexCoder** is a versatile solution that combines edge QAM, off-air transcoding, and IP grooming technology into one integrated package. The unit can convert ASI to IP video streams as well as Mux and Demux ASI and IP streams. By providing a wide-range of functionality in a compact solution, the FlexCoder brings remarkable cost savings.

The FlexCoder is an ideal solution for video labs and campus environments when you need to provide a custom channel line-up for in-house distribution.

The FlexCoder is configured for a desktop installation. An optional panel is available (FlexCoder-RP-2 / stk# 6591) that will accommodate 1 or 2 FlexCoders in 1RU of a 19 inch rack or cabinet.

#### Features:

- De-multiplexes MPTS to SPTS; MPEG-2 or H.264/H.265
- Multiplexes SPTS to MPTS via IP and/or QAM outputs; MPEG-2 or H.264/H.265
- Can pass through or modify PSIP information such as major/minor channels, short names and corresponding program IDs (PIDs)
- Allows for null packet insertions or deletion supporting Constant Bit Rate (CBR)
- UDP Unicast or Multicast support
- Supports UDP delivery of IP packets
- Separate Web-based management port for local and remote control
- Supports three audio formats: AC3, AAC and MPEG-1 Layer 2, E-AC3

#### Modes of Operation

Mode	Input	Functions and Notes	Output TS Select	
1	PASS-THRU	(RJ-45) GigE Full Duplex <sup>(1)</sup> ; 4xMPTS 16 prog./3 audio each max	<ul style="list-style-type: none"> <li>• May select up to four (4) input sources to present four (4) transport streams (TS) over QAM and/or IP.</li> </ul>	<sup>(2,3)</sup> 4xQAM (16 prog. each max) <sup>(2,3)</sup> 4xMPTS (16 prog. each max)
	(BNC) 4xASI	<ul style="list-style-type: none"> <li>• Limited PSIP Manipulation, e.g. Re-PID Capability</li> <li>• May direct any one (1) of the TS to the ASI output (5th Output)</li> </ul>	1xASI (214 Mbps)	
2	DEMUX	(RJ-45) GigE Full Duplex <sup>(1)</sup> ; 4xMPTS 16 prog./3 audio each max	<ul style="list-style-type: none"> <li>• Defines 32xSPTS</li> <li>• Full PSIP Manipulation and Program Filtering Capability</li> </ul>	32xSPTS; 40 Mbps max each
	(BNC) 4xASI			
3	MUX	(RJ-45) GigE Full Duplex <sup>(1)</sup> <ul style="list-style-type: none"> <li>• 32xSPTS (3 audio each max); or</li> <li>• 4xMPTS (16 prog./3 audio each max)</li> </ul>	<ul style="list-style-type: none"> <li>• A total of 32 TS inputs can be multiplexed over a total of four (4) TS in any combination on QAM and IP.</li> <li>• Full PSIP Manipulation and Program Filtering Capability</li> </ul>	<sup>(2,3)</sup> 4xMPTS <sup>(2,3)</sup> 4xQAM
	(BNC) 4xASI	<ul style="list-style-type: none"> <li>• May direct any of the output TS to the ASI output (5th Output)</li> </ul>	1xASI	

<sup>(1)</sup> Sum of input data and output data must not exceed 1 Gbps.

<sup>(2)</sup> MPTS and QAM output TS quantity cannot exceed four (4).

<sup>(3)</sup> Once defined, a TS may be selected for presentation on either QAM or IP, or both.

## 2.1 Product Application & Description (Continued)

### Description:

Front panel connectors and indicators:



- 1 INPUT STATUS LED:** LED indicates the input status as follows:
  - Green = Input is detected and has no errors
  - Red = Input with error (Communication with QAM or over temperature condition)
- 2 POWER:**
  - LED is Green = DC power is detected.
  - LED is Off = DC power is not detected



- 3 INPUT POWER:** +12VDC 2.2A Input power from external supply.
- 4 QAM RF OUT:** "F" connector for up to four (4) QAM RF outputs.
- 5 IP RESET:** When pushed and held for about 10 seconds, the encoder temporarily resets to the default IP address, Usernames and Passwords as shipped from the factory (shown below). User settings are retained for viewing on the Admin Page.
  - IP address = 172.16.70.1
  - Username = Admin (case-sensitive)
  - Password = pass (case-sensitive)**NOTE:** The FlexCoder will revert to these user settings upon re-booting.
- 6 Remote CONTROL 100/1000:** RJ45 connector for 100/1000Base-T Ethernet interface for monitoring and configuring the unit. Only static IP address can be assigned to this interface. (Factory Default: 172.16.70.1 )
- 7 DATA 1 GIGE:** RJ45 connector for 1000Base-T Ethernet (GIGE) interface for IP data (in/out).
- 8 ASI OUT:** User can select 1 TS for ASI Output.
- 9 ASI INPUT:** BNC connectors 1 to 4 for unencrypted ASI inputs.

## 2.2 Product Specifications

### Input

<b>IP Mode</b>	<b>Connectors:</b> 1x RJ45 <b>Standard:</b> 1000Base-T Ethernet (GigE) <b>UDP/RTP:</b> Supported (user-selectable) <b>Protocols:</b> IGMPv2 / IGMPv3 Supported
<b>Stream Portfolio</b>	<b>Standard:</b> ISO/IEC 13818-1 <b>TS Packet Length:</b> 188 bytes <b>Sync Byte:</b> 0x47 <b>SPTS and MPTS:</b> Supported <b>Muxing:</b> 32 SPTS to 4 MPTS <b>Bit Rate:</b> Constant
<b>ASI</b>	<b>Connector:</b> 1x BNC Female <b>Standard:</b> DVB-ASI; EN 50083-9

### General

<b>Dimensions:</b> (W x D x H)	8.69" x 12.70" x 1.97" (220.7 mm x 322.6 mm x 50.0 mm)
<b>Power Supply:</b> <b>Power Consumption:</b>	12 VDC External Power Supply 20 W
<b>Weight:</b>	3.0 lbs (1.36 kg)
<b>Operating Temperature:</b> <b>Storage Temperature:</b>	32 to 122 °F (0 to 50 °C) -13 to 158 °F (-25 to 70 °C)
<b>Operating/Storage Humidity:</b>	0 to 95% RH @ 35 °C max, non-condensing

### Alarms/Monitoring/Control

<b>Local Monitoring:</b>	1x Power LED 1x Status LED
<b>Local Control:</b>	1x IP Reset Button
<b>Remote Monitoring/Control:</b>	GUI-based menu via web browser (1x RJ45; 10/100Base-T)

### Output

<b>QAM</b>	<b>No. of Output Modules:</b> 1x Quad-QAM (total of 4 QAM channels) <b>Connector:</b> 1x "F" Female (for combined output) <b>Modulation:</b> QAM 16, 32, 64, 128, and 256 <b>Standards:</b> ITU-T J.83; Annex A and B <b>DVB Symbol Rate:</b> Variable; up to 7 MSymbol/sec (MBAud) <b>Frequency Range:</b> 54 to 1002 MHz <b>Tuning:</b> CATV Channel Selectable (Ch. 2 to 158) <b>Channels' Bandwidth:</b> 24 MHz (4x Adjacent 6 MHz) <b>RF Level:</b> +40 dBmV (±1 dB increment) <b>RF Level Adjustment Range:</b> +35 to +42 dBmV (±1 dB increment) <b>Frequency Tolerance:</b> ± 0.5 kHz @ 77 °F (25 °C) <b>Frequency Stability:</b> ± 5 kHz over 32 to 122 °F (0 to 50 °C) <b>Amplitude Flatness:</b> ± 0.25 dB (over 6 MHz channel) <b>Phase Noise:</b> -98 dBc (@ 10 kHz) <b>Spurious:</b> -60 dBc <b>Broadband Noise:</b> -70 dBc (@ +40 dBmV output level, 5.5 MHz bandwidth) <b>Impedance:</b> 75 Ω <b>Spectral Inversion:</b> Auto Recognition <b>Carrier Suppression:</b> 45 dB <b>Return Loss:</b> 14 dB typical <b>Signal-to-Noise Ratio (SNR):</b> 40 dB typical <b>MER:</b> 39 dB typical <b>I/Q Phase Error:</b> Less than 1 degree <b>I/Q Amplitude Imbalance:</b> Less than 1%
<b>IP</b>	<b>Connectors:</b> 1x RJ45 <b>Standard:</b> 1000Base-T Ethernet (GigE) <b>UDP/RTP:</b> Supported (user-selectable) <b>Address Assignment:</b> IPv4 addresses & port numbers (user-selectable)
<b>ASI</b>	<b>Connector:</b> 1x BNC Female <b>Standard:</b> DVB-ASI; EN 50083-9



FlexCoder-RP-2 / Stock # 6591

## Section 3 – Connecting to a PC/Laptop

### 3.1 Ethernet Access

Local or remote communication with the unit is only possible through a GUI-based menu via web browser (Chrome or Firefox is recommended). Before you can communicate with the unit, you must configure your computer's IP address to be in the same subnet as the unit's default IP address. To do so, follow these steps:

- 1 Connect one end of the Ethernet cross cable (provided in the hardware bag) to the “Control 10/100” port on the unit rear-panel interface. Connect the other end of the Ethernet cable to your computer.
- 2 The factory default IP address of the Control port is **172.16.70.1**. In order to communicate with the Control port, you must first change your computer's IP address.

The following steps explain how to do this for a computer with **Windows 7, Windows 8.x** or **Windows 10** operating software:

- (a) On your computer, navigate to the “Network and Sharing Center”.  
*(Note: It can be found using the search box in the Start Menu or for Windows 8.x, the Start Screen)*
- (b) Once open, click on “Change Adapter Settings” on left hand side of the window.
- (c) Right-click on the “Local Area Connection”, and then click on the “Properties”.
- (d) A dialog box entitled “Local Area Connection Properties” will appear. In this box, double-click on the “Internet Protocol Version 4 (TCP/IPv4)”.
- (e) A dialog box entitled “Internet Protocol Version 4 (TCP/IPv4) Properties” will appear. Select the “Use the following IP address” option and enter the following addresses:  
IP address: **172.16.70.2**  
Subnet mask: **255.255.255.0**  
No need to enter a value for the Default Gateway.

Click “OK” to close the dialog box. Your computer is now ready to communicate with the unit.

### 3.2 Accessing the User Interface via the Web Browser

You must complete the steps described in Section 3.1 before proceeding as follows:

- 1 Open a web browser on your computer (Chrome or Firefox is recommended) and enter the following URL address (**http://172.16.70.1**). The “Login” screen (Figure 3.2a) will appear.
- 2 Enter the following case-sensitive factory-default Username and Password and click [SUBMIT].

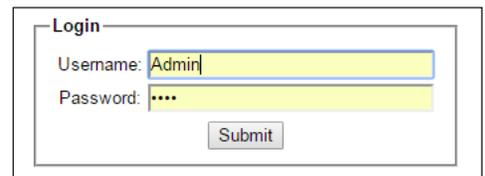


Figure 3.2a - “Login” Screen

Username = <b>Admin</b> (case-sensitive) Password = <b>pass</b> (case-sensitive)	- OR -	Username = <b>Guest</b> (case-sensitive) Password = <b>pass</b> (case-sensitive)
---	--------	---



When logged in as Admin, the user has read and write permission. Only one Admin can be logged in at a time. When logged in as Guest, the user has only read permission. Up to four Guests can be logged in simultaneously.

### 3.2 "Main > TS Map" Screen (continued)

Monitoring and configuration of the unit is achieved via a series of web pages as described in the Sections below. The following read-only information is displayed in a "Page Header" – in blue color – on top of each web page:

**ESN:** displays the unit's serial number.

**Headend name:** displays a user-defined name to make identification easier. See **Section 5.1, 8** to configure this setting.

**Temperature:** temperature of unit's chipset.

**Uptime:** displays the time elapsed since the last time the unit was turned on.

**Location:** displays a user-defined location to make identification easier. See **Section 5.1, 9** to configure this setting.



Figure 3.2b - Page Header and Navigation

As shown in Figure 3.2b, under the blue "Page Header" the following Primary tabs will appear:

- Primary tab "Main" includes the following sub-tabs: Status, Input, TS Map, TS Config, QAM Config, Output, and Refresh.
- Primary tab "Network" doesn't include any sub-tab.
- Primary tab "Time" doesn't include any sub-tab.
- Primary tab "Event Log" doesn't include any sub-tab.
- Primary tab "Logout" doesn't include any sub-tab.
- Primary tab "Admin" doesn't include any sub-tab.

Each Primary and sub-tab is described in the subsequent Sections.

## Section 4 – Configuring the Streams

### 4.2 “Main > Status” Screen

After login, the “Main > Status” screen (Figure 4.2) appears as a “read-only” screen where the following parameters are displayed:

FlexCoder Demux Mode								
ESN: 2016050137		Temperature: 105.5°F		Uptime: 1d 5h 11m 53s				
Headend Name:				Location:				
Main	Network	Time	Event Log	Logout	Admin			
Status	Input	TS Map	TS Config	QAM Config	Output	Refresh		
Input					Output			
1 Interface	2 Input Status	3 Input Bitrate	4 TSID	5 Program	6 TSO Index	7 Interface	8 Status	
IP - UDP (239.10.10.10:50000)	Transport		PID	68.05	1 (0x0001)	TSO 1	IP + ASI (239.11.11.11:50000)	Good
	P1	148						
	V: MPEG-2	149						
	A: AC-3 : eng	152						
	A: AC-3 : spa	153						
	A: AC-3 : fre	154						
	P2	164						
	V: MPEG-2	165						
	A: AC-3 : eng	168						
	A: AC-3 : spa	169						
	A: AC-3 : fre	170						
	P3	248						
	V: MPEG-2	249						
	A: AC-3 : eng	252						
	A: AC-3 : spa	253						
	P4	348						
	V: MPEG-2	349						
	A: AC-3 : eng	352						
	A: AC-3 : spa	353						
	P5	364						
	V: MPEG-2	365						
	A: AC-3 : eng	368						
	P6	448						
	V: MPEG-2	449						

Figure 4.2 - “Main > Status” Screen

The Demux Mode is the default mode as shipped from the factory. If either the Pass-Thru or Mux Modes are desired (see section 2.1, “Modes of Operation”), the mode setting must be changed. See 12 in Section 5.4 for instructions on changing modes.

#### Input Status

- 1 **Interface:** indicates the configuration of up to four input transport streams
- 2 **Input Status:** indicates the health of the input transport streams
- 3 **Input Bitrate:** indicates bit-rate of the incoming transport streams
- 4 **TSID:** the Transport Stream ID for each of the input streams
- 5 **Program:** indicates Program number for each transport stream

#### Output Status

- 6 **TSO Index:** indicates Transport Stream Output Index number for each transport stream
- 7 **Interface:** indicates the configuration of the output for each transport stream
- 8 **Status:** indicates whether the Quad-QAM RF output module is locked or not

### 4.3 “Main > Input” Screen

The “Main > Input” screen (Figures 4.3a & 4.3b) allows configuration of the following parameters:

**FlexCoder Demux Mode**  
ESN: 2016050137    Temperature: 107.3°F    Uptime: 0d 17h 41m 47s  
Headend Name:    Location:

Main    Network    Time    Event Log    Logout    Admin

Status    **Input**    TS Map    TS Config    QAM Config    Output    Refresh

Input	Source	IP Address	IP Port	RF Channel
TS1	IP - UDP	239.10.10.10	50000	7 / 177 MHz
TS2	RF	192.168.2.101	50000	7 / 177 MHz
TS3	ASI #1	192.168.2.102	50000	7 / 177 MHz
TS4	Disabled	192.168.2.103	50000	7 / 177 MHz

Save

**Units without the RFI option installed will have the “RF” source greyed out and unselectable.**

**The “RF Channel” column will only display when the unit is installed with RFI option.**

Figure 4.3a - “Main > Input” Screen (Demux & Pass-Thru)

#### A Demux & Pass-Thru Modes (Figure 4.3a)

- 1 **Source:** allows selection for each TS input (4 max) as: IP - UDP, IP - RTP, ASI #1 to #4, RF (RFI option) and Disabled
- 2 **IP Address:** input the IP Address for each transport stream
- 3 **IP Port:** input the IP Port number for each input stream
- 4 **RF Channel (RFI Option):** setting is done under “QAM Config” Tab (Section 4.6)

#### B Mux Mode (Figure 4.3b)

- 5 **Source:** Input selections for each TS (32 max) are: IP(UDP), IP(RTP), ASI #1 to #4, RF (RFI option) and Disabled.
- 6 **IP Address:** input the IP Address for each transport stream
- 7 **IP Port:** input the IP Port number for each input stream

Input	Source	IP Address	IP Port
TS1	IP - UDP	239.11.11.11	50000
TS2	IP - UDP	192.168.1.150	50001
TS3	IP - UDP	239.11.11.11	50002
TS4	IP - UDP	192.168.1.150	50003
TS5	ASI #1	192.168.2.111	50000
TS6	IP - UDP	239.11.11.11	50004
TS7	IP - UDP	239.11.11.11	50006
TS8	IP - UDP	192.168.1.150	50007
TS9	IP - UDP	239.11.11.11	50008
TS10	IP - UDP	192.168.1.150	50009
TS11	IP - UDP	239.11.11.11	50010
TS12	ASI #1	192.168.2.111	50000

Figure 4.3b - “Main > Input” Screen (Mux Mode)



Remember to click on the SAVE button to apply the new values/configurations.

### 4.4 "Main > TS Map" Screen

The "Main > TS Map" screen (Figures 4.4a & 4.4b) is a "user-configurable" screen where the following output parameters are configured and displayed for each output stream. This screen is only available for Demux and Mux modes as follows:

Figure 4.4a - "Main > TS Map" Screen (Demux Mode)

Figure 4.4b - "Main > TS Map" Screen (Mux Mode)

#### 4.4 "Main > TS Map" Screen (continued)

##### A Demux (Figure 4.4a) & Mux (Figure 4.4b) Modes

The setting parameters are the same between DEMUX and MUX modes with the exception of the number of Input and Output TS'. The DEMUX has (4) Input TS' with up to (32) Output TS' whereas the MUX Mode is the complete opposite with (32) Input and (4) Output TS's.

- 1 **Selection Control (Add):** Select the desired programs from Input TS's under the green header (#1) for each output TS (TSO#) using the "Selection Control" and click on the "Add =>" button.
- 2 **Selection Control (Remove):** to remove programs from the Output, click on the check box 2a and then click the "<= Remove" button 2b.



**NOTE:** A "Red" flag will appear when a transport stream is not detected. (See Figure 4.4b)

##### B Pass-Thru Mode

TS Map configuration is not available under this mode, please continue on to section 4.5.

#### 4.5 "Main > TS Config" Screen

The "Main > TS Config" screen (Figures 4.5a & 4.5b) is a "user-configurable" screen where the following output parameters are configured and displayed for each output stream:

ESN: 2016050137  
Headend Name:

Temperature: 107.3°F

Uptime: 1d 5h 14m 50s  
Location:

Main Network Time Event Log Logout Admin

Status Input TS Map TS Config QAM Config Output Refresh

**General TS Configuration**

User TS Bitrate 1	38.81Mbps	38.811			
User TS Bitrate 2	19.39Mbps	19.393			
User TS Bitrate 3	12.00Mbps	12.000			
User TS Bitrate 4	8.00Mbps	8.000			

**TS Output Configuration**

Re-PID:	TSID	Bitrate Select	Selected Bitrate	VCT	Modulation Mode	Out Of Band
TSO1 - IP / ASI	1	User Bitrate 1	38.811	CVCT	Reserved	Disabled
	Input PID	Output PID	Program Number	Short Ch. Name	Major Ch. Number	Minor Ch. Number
TS1 - P1	148	148	1	WNET-HD	13	1
V: MPEG-2	149	149				
A1: AC-3 : eng	152	152				
A2: AC-3 : spa	153	153				
A3: AC-3 : fre	154	154				
Estimated Bitrate: 9.26 Mb/S						

Figure 4.5a - "Main > TS Config" Screen (Demux & Mux Modes)

4.5 "Main > TS Config" Screen (continued)

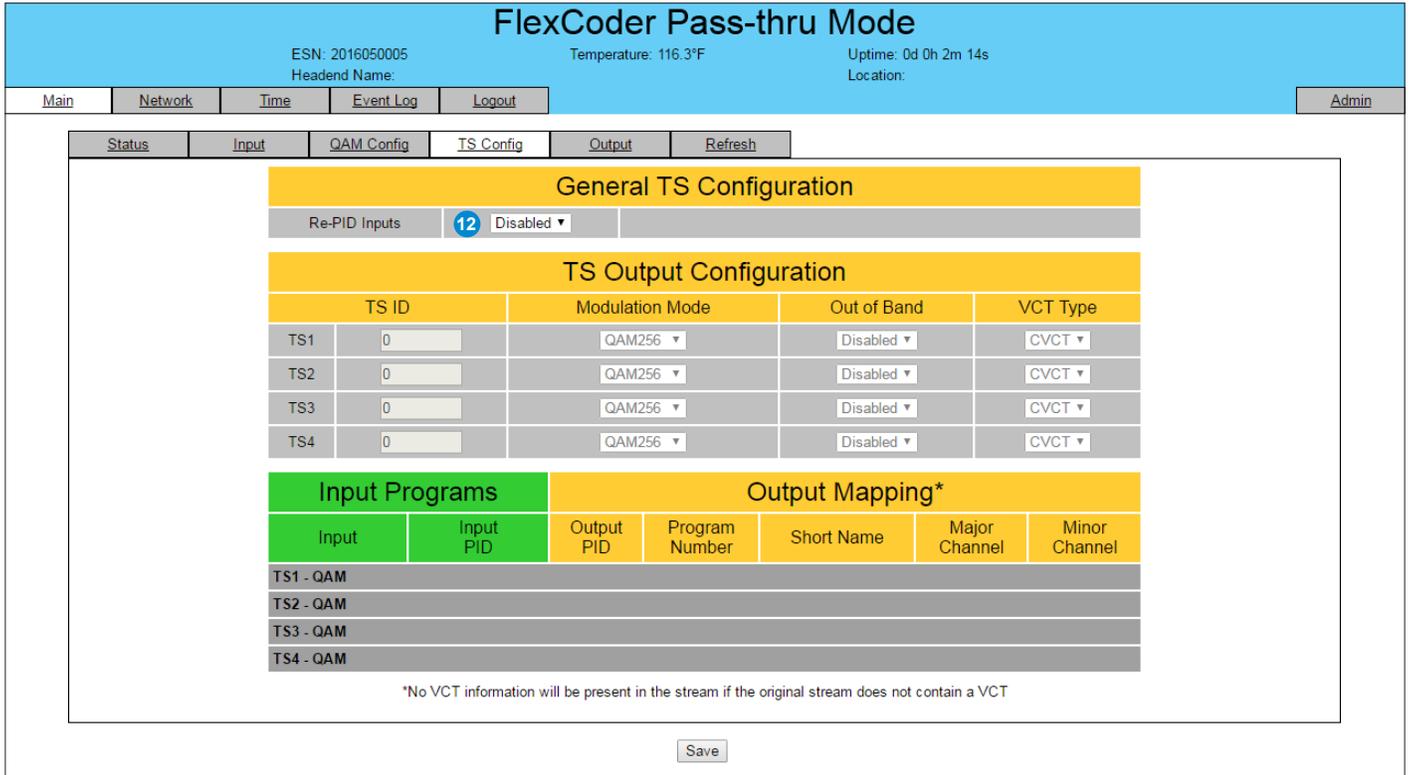


Figure 4.5b - "Main > TS Config" Screen (Pass-Thru Mode)

**A Demux & Mux Modes (Figure 4.5a)**

In the section entitled "General TS Configuration", the user can select and configure the following parameters of the output TS:

- 1 User TS Bitrate:** there are (4) user TS bitrate preset profiles. The available selections are (in Mbps): 38.81, 19.39, 12.00, 8.00, or User Defined.

In the section entitled "TS Output Configuration", the user can select and configure the following parameters of the output TS:

- 2 Re-PID (DEMUX MODE):** Options are Enable and Disable. When set to "Enable", output PID and Programs number can be changed. On MUX Mode, the PIDs can always be changed. (Factory Default: Disabled)
- 3 TS ID:** user must enter the identification number for the output TS. The range is 1 to 65535. the TS ID assigned must be unique.
- 4 Bitrate Select:** user selects from the 4 profiles set in the General TS Configuration section.
- 5 VCT:** MPEG Virtual Channel Table selections are: Off, TVCT (terrestrial) and CVCT (cable).
- 6 Modulation Mode:** user can select the modulation mode for the MPEG TS Table. Options are: Reserved, Analog, QAM64, QAM256, 8VSB, and 16-VSB.
- 7 Out of Band:** an Out of Band (OOB) is a channel which is the combination of the forward and reverse OOB channels. When a cable virtual channel is flagged as being out-of-band, it is carried on the OOB channel. Options are Enable and Disable. When Enabled, assigns the OOB bit in the TS packet and label the TS as out-of-band.
- 8 Program Number:** user-defined unique output program number for each program. PMT (Program Map Table) provides information on each program resent in the transport stream such as program number, and the list of the elementary streams (audio, video or data).

## 4.5 "Main > TS Config" Screen (continued)

---

- 9 **Short Name:** user-defined channel name. Up to 7 alphanumeric characters are permitted.
- 10 **Major Channel:** user-defined major channel number for the output program. The range is 1 to 99 for Terrestrial and 0 to 999 for Cable.
- 11 **Minor Channel:** user-defined minor channel number for the output program. The range is 1 to 99 for Terrestrial and 0 to 999 for cable.

**NOTE:** When zero (0) is entered as a minor channel, it sets the encoder to provide a one part virtual channel number as entered in the major channel field. For example, a major channel of "205" with a minor channel of "0" will be displayed as "205" on a TV. A major channel of "205" with a minor channel of "1" will be displayed on a TV as "205-1".

### B Pass-Thru Mode (Figure 4.5b)

The PASS-THRU mode is a read-only screen. In the section entitled, "**General TS Configuration**", the user can select and configure the following parameters:

- 12 **Re-PID Inputs:** Options are Enable and Disable. (Factory Default: Disabled)

"Disabled" - all information is based upon the input programs.

"Enabled" - user is permitted to modify the "TS Output Configuration" and "Output Mapping" fields. See the field descriptions above under DEMUX and MUX MODE in this section.



Remember to click on the SAVE button to apply the new values/configurations.

## 4.6 "Main > QAM Config" Screen

---

The "Main > QAM Config" screen (Figure 4.6, next page) allows configuration of the following parameters:

### A All Modes

In the section entitled, "**RF Input**", the user must have the RF Input Option (Stk# 6582-RFI) in order to select and configure the following parameters:

- 1 **Input Channel:** Drop down list of channel/frequency dependent upon MAP selection.
- 2 **QAM Mode:** Choices are 256B and 64B
- 3 **QAM Map:** Choices are: STD, HRC and IRC (QAM) and 8VSB for OTA.

### B Pass-Thru and Mux Mode Only

- 4 **Output Channel/Frequency:** user must assign an RF channel number to the first RF QAM output of the Quad-QAM module (i.e. RF channel 2, as shown in Figure 4.6). The remaining three RF QAM channels will be automatically assigned to the next adjacent channels (i.e. RF channels 3, 4, and 5). The range is NTSC channels 2 to 155.
- 5 **Output Control:** allows the user to turn each of the RF channels On/Off.

### 4.6 “Main > QAM Config” Screen (continued)

**FlexCoder Mux Mode**

ESN: 2016050005      Temperature: 116.3°F      Uptime: 0d 0h 4m 19s  
Headend Name:      Location:

Main    Network    Time    Event Log    Logout    Admin

Status    Input    TS Map    TS Config    **QAM Config**    Output    Refresh

**RF Input - Not Installed**

1	Input Channel/Frequency	3 / 63 MHz		
2	Input QAM Mode	256B		
3	Input QAM Map	STD		
	Input QAM Data Rate	5.3605 Mbaud		
	QAM Lock State	Not Installed		

**QAM Output Configuration**

4	Output Channel/Frequency	2 / 57 MHz	3 / 63 MHz	4 / 69 MHz	5 / 79 MHz
5	Output Control	Off	Off	Off	Off
6	CW Control	<input type="checkbox"/> Enable CW for QAM Module			
7	Final Output Level	40 dBmV			
8	Output QAM Mode	256B			
9	Output QAM Map	STD			
10	Output QAM Data Rate	5.3605 Mbaud			
11	Output QAM Interleaver	128-1			
12	Output QAM Alpha	12%			
13	QAM Lock State	Lock			

Save

Figure 4.6 - “Main > QAM Config” Screen

- 6 **CW Control:** allows the user to switch the QAM output mode to CW (Continuous Waveform), which activates an analog carrier at the selected channel’s center frequency comparable to the digital QAM output level. It is typically used when only an analog signal level meter is available to measure the modulator’s output during installation and servicing.



**CW Control MUST be unchecked for normal operation.**

- 7 **Final Output Level:** allows the user to select the RF output level for the QAM outputs. The range is 35 to 42 dBmV. All four QAM outputs change simultaneously. It is recommended the output level be maintained at 40 dBmV for normal operation.
- 8 **Output QAM Mode:** allows the user to select the desired QAM modulation mode. Options are: 64B, 256B, 16A, 32A, 64A, 128A, and 256A. For most applications in the USA, the recommended QAM modulation mode is 256B – it allows four HD programs, not to exceed 38.8 Mbps, per RF QAM channel.
- 9 **Output QAM Map:** allows the user to select the desired QAM Map. Options are STD, IRC, and HRC. (Default: STD)
- 10 **Output QAM Data Rate:** indicates the maximum data rate depending on the selected QAM mode, for example 5.360500 Mbaud for QAM 256B.
- 11 **Output QAM Interleaver:** indicates the interleaver value for the selected QAM mode.
- 12 **Output QAM Alpha:** indicates the Alpha value for the selected QAM mode
- 13 **QAM Lock Status:** indicates whether Quad-QAM module is working properly (locked) or not. The module may take a few seconds to lock when QAM output parameters are changed.



**Remember to click on the SAVE button to apply the new values/configurations.**

## 4.7 “Main > Output” Screen

The “Main > Output” screen (Figures 4.7a & 4.7b) shows status and allows configuration of the following parameters:

FlexCoder Demux Mode																			
ESN: 2016050137		Temperature: 107.3°F		Uptime: 1d 5h 16m 49s															
Headend Name:				Location:															
Main	Network	Time	Event Log	Logout	Admin														
Status	Input	TS Map	TS Config	QAM Config	Output	Refresh													
① Input	② TS			③	④ ⑤ Output		⑥ ⑦												
Source	TS Mapping			Bitrates	IP Type	IP Address	IP Port	ASI											
TS1 - P1 IP - UDP (239.10.10.10:50000)	TSO 1	<table border="1"> <thead> <tr><th>Transport</th><th>PID</th></tr> </thead> <tbody> <tr><td>P1 - WNET-HD</td><td>148</td></tr> <tr><td>V: MPEG-2</td><td>149</td></tr> <tr><td>A: AC-3 : eng</td><td>152</td></tr> <tr><td>A: AC-3 : spa</td><td>153</td></tr> <tr><td>A: AC-3 : fre</td><td>154</td></tr> </tbody> </table>	Transport	PID	P1 - WNET-HD	148	V: MPEG-2	149	A: AC-3 : eng	152	A: AC-3 : spa	153	A: AC-3 : fre	154	5.93 / 38.81	UDP ▼	239.11.11.11	50000	Enabled ▼
Transport	PID																		
P1 - WNET-HD	148																		
V: MPEG-2	149																		
A: AC-3 : eng	152																		
A: AC-3 : spa	153																		
A: AC-3 : fre	154																		
TS1 - P2 IP - UDP (239.10.10.10:50000)	TSO 2	<table border="1"> <thead> <tr><th>Transport</th><th>PID</th></tr> </thead> <tbody> <tr><td>P2 - KIDS</td><td>164</td></tr> <tr><td>V: MPEG-2</td><td>165</td></tr> <tr><td>A: AC-3 : eng</td><td>168</td></tr> <tr><td>A: AC-3 : spa</td><td>169</td></tr> <tr><td>A: AC-3 : fre</td><td>170</td></tr> </tbody> </table>	Transport	PID	P2 - KIDS	164	V: MPEG-2	165	A: AC-3 : eng	168	A: AC-3 : spa	169	A: AC-3 : fre	170	5.14 / 38.81	UDP ▼	192.168.1.200	50001	Disabled ▼
Transport	PID																		
P2 - KIDS	164																		
V: MPEG-2	165																		
A: AC-3 : eng	168																		
A: AC-3 : spa	169																		
A: AC-3 : fre	170																		
TS1 - P3 IP - UDP (239.10.10.10:50000)	TSO 3	<table border="1"> <thead> <tr><th>Transport</th><th>PID</th></tr> </thead> <tbody> <tr><td>P3 - WWOR-TV</td><td>248</td></tr> <tr><td>V: MPEG-2</td><td>249</td></tr> <tr><td>A: AC-3 : eng</td><td>252</td></tr> <tr><td>A: AC-3 : spa</td><td>253</td></tr> </tbody> </table>	Transport	PID	P3 - WWOR-TV	248	V: MPEG-2	249	A: AC-3 : eng	252	A: AC-3 : spa	253	9.39 / 38.81	UDP ▼	239.11.11.11	50002	Disabled ▼		
Transport	PID																		
P3 - WWOR-TV	248																		
V: MPEG-2	249																		
A: AC-3 : eng	252																		
A: AC-3 : spa	253																		
TS1 - P4 IP - UDP (239.10.10.10:50000)	TSO 4	<table border="1"> <thead> <tr><th>Transport</th><th>PID</th></tr> </thead> <tbody> <tr><td>P4 - WNBC</td><td>348</td></tr> <tr><td>V: MPEG-2</td><td>349</td></tr> <tr><td>A: AC-3 : eng</td><td>352</td></tr> <tr><td>A: AC-3 : spa</td><td>353</td></tr> </tbody> </table>	Transport	PID	P4 - WNBC	348	V: MPEG-2	349	A: AC-3 : eng	352	A: AC-3 : spa	353	12.16 / 38.81	UDP ▼	192.168.1.200	50003	Disabled ▼		
Transport	PID																		
P4 - WNBC	348																		
V: MPEG-2	349																		
A: AC-3 : eng	352																		
A: AC-3 : spa	353																		

Figure 4.7a - “Main > Output” Screen (Demux Mode)

### A Demux Mode (Figure 4.7a)

- ① **Input Source:** Displays input transport stream, program number, IP address and protocol format.
- ② **TS Mapping:** Shows the status of the transport mapping to PID mapping.
- ③ **Bitrates:** Shows the bit-rate for each output transport stream.
- ④ **IP Type:** There are two available options (RTP & UDP). Select the one that matches the protocol used by the receiving equipment.
- ⑤ **IP Address and IP Port:** The user must enter the IP Address and Port number.
- ⑥ **ASI:** One output TS (only) can be simultaneously provided as an ASI output by selecting Enabled.



Remember to click on the SAVE button to apply the new values/configurations.

#### 4.7 “Main > Output” Screen (continued)

**FlexCoder Mux Mode**  
ESN: 2016050005    Temperature: 109.1°F    Uptime: 1d 10h 32m 0s  
Headend Name:    Location:

Main    Network    Time    Event Log    Logout    Admin

Status	Input	TS Map	TS Config	QAM Config	Output	Refresh					
1 TS Mapping		2 Bitrates		3 IP Type		4 IP Address		5 QAM		6 ASI	
<b>TSO 1</b>		Transport	PID								
		P1 - WNET-HD	148								
		V: MPEG-2	149								
		A: AC-3 : eng	152								
		A: AC-3 : spa	153								
		A: AC-3 : fre	154								
		P2 - KIDS	164								
		V: MPEG-2	165								
		A: AC-3 : eng	168	29.44 / 38.81		UDP		239.20.20.20		50000	
		A: AC-3 : spa	169					Disabled		Enabled	
		A: AC-3 : fre	170								
		P3 - WWOR-TV	248								
		V: MPEG-2	249								
		A: AC-3 : eng	252								
		A: AC-3 : spa	253								
		P4 - nygov	64								
		V: MPEG-2	65								
		A: AC-3 : eng	68								
		P5 - ctuny	80								
		V: MPEG-2	81								
		A: AC-3 : eng	84								
<b>TSO 2</b>		Transport	PID								
		P4 - WNBC	348								
		V: MPEG-2	349								
		A: AC-3 : eng	352								
		A: AC-3 : spa	353								
		P5 - COZI-TV	364	35.66 / 38.81		UDP		239.20.20.20		50001	
		V: MPEG-2	365					Disabled		Disabled	
		A: AC-3 : eng	368								
		P6 - WCBS-HD	448								
		V: MPEG-2	449								
		A: AC-3 : eng	452								
		A: AC-3 : spa	453								

Figure 4.7b - “Main > Output” Screen (Mux & Pass-Thru Modes)

### B Mux & Pass-Thru Modes (Figure 4.7b)

- 1 **TS Mapping:** Shows the status of the transport mapping to PID mapping.
- 2 **Bitrates:** Shows the bit-rate for each output transport stream.
- 3 **IP Type:** There are two available options (RTP & UDP). Select the one that matches the protocol used by the receiving equipment.
- 4 **IP Address and IP Port:** The user must enter the IP Address and Port number.
- 5 **Output QAM:** Allows each QAM output to be Enabled (on) or Disabled (off).
- 6 **ASI:** One output TS (only) can be simultaneously provided as an ASI output by selecting Enabled.



Remember to click on the **SAVE** button to apply the new values/configurations.

#### **4.8 "Main > Refresh" Tab**

---

The "Main > Refresh" tab performs a browser refresh of the information on the active screen. Refresh is helpful to verify parameters have changed.

## Section 5 – Basic Configuration

### 5.1 “Network” Screen

The “Network” screen (Figure 5.1) shows status and allows configuration of the following parameters:

Main	Network	Time	Event Log	Logout										
<p>1 MAC Address - Remote Control: 00:14:39:00:78:DE</p> <p>2 MAC Address - Data: 00:14:39:00:78:DF</p> <p>3 Software Version: 1.0.0</p> <p>4 FPGA Version: 1.7</p> <p>5 QAM Output Version: 5.8</p> <p>6 Hardware Version: 1</p> <p>7 Serial Number: 2016050005</p> <p>8 Headend Name: <input type="text"/></p> <p>9 Location: <input type="text"/></p> <hr/> <p>10 Login Timeout (Minutes): <input type="text" value="30"/></p> <hr/> <p>11 Remote Control IP Address: 172.16.70.1</p> <p>12 Remote Control Subnet Mask: 255.255.255.0</p> <p>13 Remote Control Default Gateway: 172.16.70.254</p> <p>14 Data IP Address: 192.168.2.1</p> <p>15 Data Subnet Mask: 255.255.255.0</p> <p>16 Data Default Gateway: 192.168.2.254</p> <p>17 Log Destination IP: 172.16.70.2</p> <p>18 Log Destination Port: 514</p> <hr/> <p>19 Active Users:</p> <table border="0"> <tr> <td>Admin</td> <td>172.16.70.110</td> </tr> <tr> <td>none</td> <td>0.0.0.0</td> </tr> <tr> <td>none</td> <td>0.0.0.0</td> </tr> <tr> <td>none</td> <td>0.0.0.0</td> </tr> <tr> <td>none</td> <td>0.0.0.0</td> </tr> </table> <hr/> <p style="text-align: right;"><input type="button" value="Save"/></p>					Admin	172.16.70.110	none	0.0.0.0	none	0.0.0.0	none	0.0.0.0	none	0.0.0.0
Admin	172.16.70.110													
none	0.0.0.0													
none	0.0.0.0													
none	0.0.0.0													
none	0.0.0.0													

Figure 5.1 - “Network” Screen

- 1 **MAC Address - Remote Control:** indicates the MAC Address of the “100/1000 Control” Port.
- 2 **MAC Address - Data:** indicates the MAC Address of the Data Port.
- 3 **Software Version:** indicates the software version of the unit.
- 4 **FPGA Version:** indicates the current hardware version of the unit’s FPGA chipset.
- 5 **QAM Output Version:** indicates the current software version of the unit’s Quad-QAM output module.
- 6 **Hardware Version:** indicates the unit’s hardware version.
- 7 **Serial Number:** indicates the unit’s serial number.
- 8 **Headend Name:** allows user to enter a headend name to make identification easier.
- 9 **Location:** allows user to enter a location name to make identification easier.
- 10 **Login Timeout (Minutes):** indicates the period of time before the unit logs itself out if there is no activity on the web screens. Options are 5, 15, 30, or 60 minutes.

## 5.1 “Network” Screen (continued)

- 11 **Remote Control IP Address:** the static IP address that is assigned to the Control 100/1000 Port. It allows the user to access the unit via the web interface. (Factory Default: 172.16.70.1)
- 12 **Remote Control Subnet Mask:** the Subnet Mask assigned to the Control Port of the unit. It allows the user to determine which subnet the Control Port IP address belongs to. (Factory Default: 255.255.255.0)
- 13 **Remote Control Default Gateway:** the gateway address assigned to the Control Port. It allows the user to access the unit from another network via the web interface. (Factory Default: 172.16.70.254)
- 14 **Data IP Address:** the static IP address that is assigned to the Data Port.
- 15 **Data Subnet Mask:** the Subnet Mask assigned to the Data Port of the unit.
- 16 **Data Default Gateway:** the gateway address assigned to the Data Port.
- 17 **Log Destination IP:** is the IP address of the remote server, to which Syslog sends the activities recorded by the unit for monitoring and troubleshooting purposes. (Factory Default: 172.16.70.2)
- 18 **Log Destination Port:** is the Event Log Destination port to which a duplicate of the error messages created by the unit can be forwarded for monitoring and troubleshooting purposes. (Factory Default: 514, cannot be changed)
- 19 **Active Users:** displays current login names & IP addresses



Remember to click on the SAVE button to apply the new values/configurations.

## 5.2 “Time” Screen

The “Time” screen (Figure 5.2) is a “read and write” screen where the following parameters are displayed or can be configured:

Main	Network	Time	Event Log	Logout	Admin
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <p><b>1 Time Adjustments</b></p> <p>Local Time Zone: <span style="border: 1px solid #ccc; padding: 2px;">UTC 0:00</span> ▼</p> <p>GPS Leap Seconds: <span style="border: 1px solid #ccc; padding: 2px;">17</span> ▼ Seconds</p> <p style="text-align: right;"><input type="button" value="Apply Time Adjustments"/></p> </div> <div style="border: 1px solid #ccc; padding: 5px;"> <p><b>2 Daylight Saving Time</b></p> <p>DST Adjustment: <span style="border: 1px solid #ccc; padding: 2px;">Off</span> ▼</p> <p>DST Start - Local Date and Time: <span style="border: 1px solid #ccc; padding: 2px;">March</span> ▼ / <span style="border: 1px solid #ccc; padding: 2px;">13</span> ▼ / <span style="border: 1px solid #ccc; padding: 2px;">2016</span> ▼ <span style="border: 1px solid #ccc; padding: 2px;">2:00</span> ▼</p> <p>DST End - Local Date and Time: <span style="border: 1px solid #ccc; padding: 2px;">November</span> ▼ / <span style="border: 1px solid #ccc; padding: 2px;">6</span> ▼ / <span style="border: 1px solid #ccc; padding: 2px;">2016</span> ▼ <span style="border: 1px solid #ccc; padding: 2px;">2:00</span> ▼</p> <p style="text-align: right;"><input type="button" value="Apply Daylight Saving Time"/></p> </div> </div> <div style="width: 45%;"> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <p><b>3 NTP Server</b></p> <p>NTP Server IP Address: <span style="border: 1px solid #ccc; padding: 2px;">172.16.70.2</span></p> <p style="text-align: right;"><input type="button" value="Acquire NTP Time Now"/></p> </div> <div style="border: 1px solid #ccc; padding: 5px;"> <p><b>4 Set Date &amp; Time</b></p> <p>Current Local Time: <span style="border: 1px solid #ccc; padding: 2px;">Wed May 25 2016 17:05:11</span></p> <p>Current UTC Time: <span style="border: 1px solid #ccc; padding: 2px;">Wed May 25 2016 17:05:11</span></p> <p>Time Keeping Method: <span style="border: 1px solid #ccc; padding: 2px;">Manual</span> ▼</p> <p>Local Date Setting: <span style="border: 1px solid #ccc; padding: 2px;">May</span> ▼ / <span style="border: 1px solid #ccc; padding: 2px;">25</span> ▼ / <span style="border: 1px solid #ccc; padding: 2px;">2016</span> ▼</p> <p>Local Time Setting: <span style="border: 1px solid #ccc; padding: 2px;">17</span> ▼ : <span style="border: 1px solid #ccc; padding: 2px;">05</span> ▼ : <span style="border: 1px solid #ccc; padding: 2px;">11</span> ▼</p> <p style="text-align: right;"><input type="button" value="Apply Date and Time Settings"/></p> </div> </div> </div> <p style="text-align: center; margin-top: 20px;"><input type="button" value="Apply All Time Settings"/></p>					

Figure 5.2 - “Time” Screen

The “Time” screen allows you to set various time-related parameters, including the current date and time for the unit. To remain compliant with ATSC and cable standards, it is important to have the accurate date and time stamps. For this reason, it is recommended that time settings be acquired from an “NTP Server” - you must enter the IP address of the NTP Server and click “Acquire NTP Time Now”.

## 5.2 “Time” Screen (continued)

The time server specified must support the Network Time Protocol (NTP) in order for automatic time acquisition to work properly. The unit would refresh the date and time settings from the Time server every 20 minutes. If, however, an internet connection is not available, the date and time can be entered manually. The unit is capable of adjusting the Day Light Saving (DST) time settings automatically as well.

- 1 In the section entitled “**Time Adjustments**”, the local time zone based on Coordinated Universal Time (UTC) can be set.
- 2 In the section entitled “**Daylight Saving Time**”, the user can set the Daylight Saving Settings either manually or automatically using the DST Adjustment option.
- 3 In the section entitled “**NTP Server**”, the user can enter the IP address of the NTP server to acquire the time directly from the NTP Server when an internet connection is available.
- 4 In the section entitled “**Set Date & Time**”, the user can manually enter the date and time.



Remember to click on the buttons below the individual sections or the “Apply All Time Settings” to apply and save the new values/configurations.

## 5.3 “Event Log” Screen

The “Event Log” screen (Figure 5.3) is a “read and write” screen where the following parameters can be displayed or configured. The data in Event Log can be forwarded to a Syslog database.

The lines are color coded as follows:

- Red font = error message
- Blue font = informational message
- Green font = confirmation or feedback message

	Main	Network	Time	Event Log	Logout	Admin
1	Event Log Destination:		172.16.70.2			
2	Log Destination Port #:		514			
3	<input type="button" value="Clear Log"/>					
4	Lines to Display:		<input type="text" value="200"/>			
	<a href="#">Save Event Log File</a>					
5	<input type="button" value="Save Number of Displayed Lines"/>					
Event log empty or does not exist.						

**Figure 5.3 - “Event Log” Screen**

- 1 **Event Log Destination:** is the IP address of the remote server, to which Syslog sends the activities recorded by the unit for monitoring and troubleshooting purposes. (Factory Default: 172.16.70.2)
- 2 **Log Destination Port:** is the Event Log Destination port to which a duplicate of the error messages created by the unit can be forwarded for monitoring and troubleshooting purposes. (Factory Default: 514, cannot be changed)
- 3 **Clear Log:** allows the user to clear the records generated during unit’s boot-up process and operation afterward.
- 4 **Lines to Display:** allows the user to select the number of lines to be displayed. The unit supports up to 400 Mb of data or approximately 65,000 lines. The range is 1 to 65,535. The records are maintained if the unit loses power.
- 5 **Save Number of Displayed Lines:** allows the user to save the “Lines to Display” setting. Please note that the event log would be saved only on the screen and not on any database.

## 5.4 “Admin” Screen

When logged in as admin (and not guest), the “Admin” screen (Figure 5.4a) appears as a “read and write” screen where the following parameters are displayed or can be configured:

Network	Time	Event Log	Logout	Admin
1	MAC Address - Remote Control:	00:14:39:00:78:DE		
2	MAC Address - Data:	00:14:39:00:78:DF		
3	Software Version:	1.0.0.0		
4	FPGA Version:	1.7		
5	QAM Output Version:	5.8		
6	Hardware Version:	1		
7	Serial Number:	2016050005		
8	Administrator Login:	<input type="text" value="Admin"/>		
9	Current Password:	<input type="password"/>		
10	New Password:	<input type="password"/>		
11	Confirm New Password:	<input type="password"/>		
12	Guest Login:	<input type="text" value="Guest"/>		
13	Current Guest Password:	<input type="password"/>		
14	New Guest Password:	<input type="password"/>		
15	Confirm Guest Password:	<input type="password"/>		
16	<input type="button" value="Save Configuration Settings"/>	<input type="button" value="Default Unit Settings"/>		17
18	Load Settings From File:	<input type="button" value="Choose File"/> No file chosen <input type="button" value="Load &amp; Apply Configuration Settings"/>		
19	Software/Firmware Update:	<input type="button" value="Choose File"/> No file chosen <input type="button" value="Update Firmware/Software"/>		
	Restore Previous Firmware Version:	<input type="button" value="Restore Previous Firmware"/>		
20	System Mode Select (reboot only):	<input type="text" value="FlexCoder Pass-thru Mode"/>		
21	System Reboot:	<input type="button" value="Reboot Unit"/>		
22	IGMP Version Support:	<input type="text" value="IGMPv2"/>		
23	System Watchdog:	<input type="text" value="Enabled"/>		
24	Remote Control IP Address:	<input type="text" value="172.16.70.1"/>		
25	Remote Control Subnet Mask:	<input type="text" value="255.255.255.0"/>		
26	Remote Control Default Gateway:	<input type="text" value="172.16.70.254"/>		
27	Data IP Address:	<input type="text" value="192.168.2.1"/>		
28	Data Subnet Mask:	<input type="text" value="255.255.255.0"/>		
29	Data Default Gateway:	<input type="text" value="192.168.2.254"/>		
30	Event Log Destination:	<input type="text" value="172.16.70.2"/>		
31	Log Destination Port #:	<input type="text" value="514"/>		
32	Time Server IP:	<input type="text" value="172.16.70.2"/>		
33	Syslog Errors:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled		
34	Syslog Informational:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled		
35	Syslog Feedback:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled		
		<input type="button" value="Save"/>		

Figure 5.4a - “Admin” Screen



Remember to click on the SAVE button to apply the new values/configurations.

## 5.4 “Admin” Screen (continued)

- 1 **MAC Address - Remote Control:** indicates the MAC Address of the “100/1000 Control” Port.
- 2 **MAC Address - Data:** indicates the MAC Address of the Data Port.
- 3 **Software Version:** indicates the software version of the unit.
- 4 **FPGA Version:** indicates the current hardware version of the unit’s FPGA chipset.
- 5 **QAM Version:** indicates the current software version of the unit’s QAM output module.
- 6 **Hardware Version:** indicates the current hardware version of the unit.
- 7 **Serial Number:** indicates the unit’s serial number.
- 8 **Administrator Login:** is the Administrator’s login (10 characters max.). This login allows the user to make changes to any area of the unit. Login is case sensitive. (Factory Default: Admin)
- 9 **Current Password:** is the Administrator’s Current Password (10 characters max.). Password is case sensitive and will not be displayed. (Factory Default: pass)
- 10 **New Password:** used only if the user wants to change the current Administrator’s password. User must enter a new password (10 characters max.). Password is case sensitive and will not be displayed.
- 11 **Confirm New Password:** user must enter the same password as entered above. If password does not match, an error will be displayed.
- 12 **Guest Login:** is the Guest login (10 characters max.). This login allows the user to view the unit settings but does not allow any changes. Login is case sensitive. (Factory Default: Guest)
- 13 **Current Guest Password:** is the Current Guest Password (10 characters maximum). Password is case sensitive and will not be displayed. (Factory Default: pass)
- 14 **New Guest Password:** used only if the user wants to change the current Guest password. User must enter a new password (10 characters max.). Password is case sensitive and will not be displayed.
- 15 **Confirm Guest Password:** user must enter the same password as entered above. If password does not match, an error will be displayed.
- 16 **Save Configuration Settings:** allows the user to download and save the existing configuration of the unit in a .dat file format. Not recommended for basic users. Please consult the factory regarding this function.
- 17 **Default Unit Settings:** Returns the unit to the original settings as shipped from the factory.
- 18 **Load Settings from File:** Not recommended for basic users. Please consult the factory regarding this function.

**Choose File:** allows the user to select the desired Config file from any location on the computer to be uploaded to the unit.

**Load & Apply Configuration Settings:** allows the user to upload a newly created file or update an existing file.

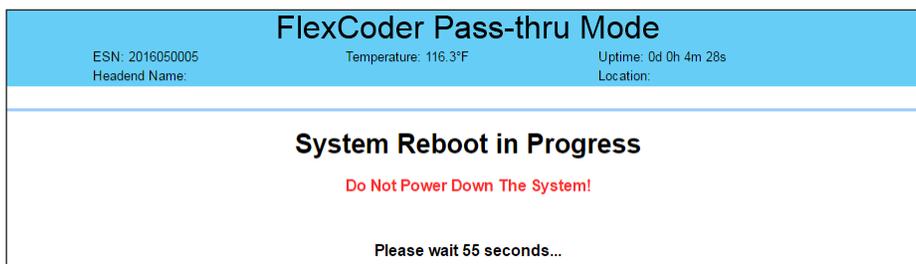


Figure 5.4b - “System Update” Screen

## 5.4 “Admin” Screen (continued)

---

- 19 **Software/Firmware Update:** To update, click “Choose File” to select the firmware update file to be applied by “Update Firmware/Software”. Typically there will be only one file to update. At this point the unit is updated and you can verify the “Software Version” from this same page to confirm a successful update. Update can also be verified on the Event Log page.
- 20 **Restore Previous Firmware Version:** returns the encoder to the last installed firmware version before the current update.
- 21 **System Mode Select (Reboot Only):** allows the user to switch between Demux, Mux and Pass-Thru modes. Changes are applied after a System Reboot. (Factory Default: Demux)
- 22 **System Reboot:** allows the user to reboot the unit.
- 23 **IGMP Version Support:** is selectable support for IGMPv2 or IGMPv3.
- 24 **System Watchdog:** options are “Enabled” and “Disabled”. When Enabled, automatically reboots the unit, if the operating system stops working.
- 25 **Remote Control IP Address:** the static IP address that is assigned to the Control 100/1000 Port. It allows the user to access the unit via the web interface. (Factory Default: 172.16.70.1)
- 26 **Remote Control Subnet Mask:** the Subnet Mask assigned to the Control Port of the unit. It allows the user to determine which subnet the Control Port IP address belongs to. (Factory Default: 255.255.255.0)
- 27 **Remote Control Default Gateway:** the gateway address assigned to the Control Port. It allows the user to access the unit from another network via the web interface. (Factory Default: 172.16.70.254)
- 28 **Data IP Address:** the static IP address that is assigned to the Data Port.
- 29 **Data Subnet Mask:** the Subnet Mask assigned to the Data Port of the unit.
- 30 **Data Default Gateway:** the gateway address assigned to the Data Port.
- 31 **Event Log Destination:** the IP address of the remote server, to which Syslog sends the activities recorded by the unit for monitoring and troubleshooting purposes. (Factory Default: 172.16.70.2)
- 32 **Log Destination Port #:** the Error Log Destination port to which a duplicate of the error messages created by the unit can be forwarded for monitoring and troubleshooting purposes. (Unmodifiable Factory Default: 514)
- 33 **Time Server IP:** the IP address for the Time Server from where the unit can obtain its clock reference (see Section 5.2 for details). (Factory Default: 172.16.70.2)
- 34 **Syslog Errors:** enable/disable encoder to forward error messages (in red font) to the Syslog. (Factory Default: Disabled)
- 35 **Syslog Informational:** enable/disable encoder to forward informational messages (in blue font) to the Syslog. (Factory Default: Disabled)
- 36 **Syslog Feedback:** enable/disable the encoder to forward feedback or confirmation messages (in green font) to the Syslog. (Factory Default: Disabled)



Remember to click on the **SAVE** button to apply the new values/configurations.





Blonder  
Tongue



SOLUTIONS FOR ALL YOUR APPLICATIONS

Encoders • EdgeQAM/IP • Transcoders • HD Solutions • OEM

# Extended Warranty Program

## STANDARD TERMS & CONDITIONS OF THE EXTENDED WARRANTY

### A. THE EXTENDED WARRANTY AGREEMENT (EWA)

If during the period following the expiration of the Blonder Tongue Manufacturers' Standard Warranty ( Copy Included) the products which constitute the subject matter of the extended warranty, manifest any manufacturing or similar such defects then Blonder Tongue shall at its option repair or replace the product. It is emphasized that the extended warranty is in effect an extension of the Blonder Tongue Warranty and covers the items stipulated in Paragraph B to the exclusion of the terms in Paragraph C of this agreement. Eligibility to purchase EW is limited to 90 days following initial shipment on selected products of sufficient value.

The product/products included in this extended warranty agreement are listed in the invoice that accompanies the EWA. Term of the extension will be \_\_\_\_\_ year(s). Purchase Order is required for extended warranty coverage.

### B. WHAT IS COVERED?

1. If a product has been determined to have failed, which falls within the Terms & Conditions of this EWA, Blonder Tongue Inc. may at its sole discretion repair, modify or replace its component parts that are defective at 100% coverage for parts and labor.
2. A loaner unit may be available on request; PO required.
3. Product is manufactured by Blonder Tongue.
4. Extended warranty period is up to and not to exceed 24 months and sold in increments of 12 months. Order # 9981 for 1 year and #9982 for 2 year extensions.
5. Return of repair or replaced product shipping costs for ground shipments.
6. Firmware upgrades at no charge with automatic notification.

### C. WHAT IS NOT COVERED?

1. The warranty does not cover any defects caused by foreign objects /connection errors .
2. Use other than by the customer at the declared address appearing in this document.
3. Failure by the end user to comply with the manufacturers' instructions for installation, maintenance or use.
4. The use of accessories which have not been approved by Blonder Tongue.
5. The application and/or use of any incorrect or abnormal electrical supply to the product.
6. Any defect in wiring or electrical connections which does not form part of the product at the time of the original purchase.
7. Neglect, misuse, or willful abuse of the product.
8. Any repairs or attempted repairs of the product by any person other than Blonder Tongue Service Department.
9. Any modification of the product by any person other than Blonder Tongue Service Department.
10. Fire, flood, war, civil disturbance, industrial action, acts of God or any other causes beyond the reasonable control of Blonder Tongue.
11. Any defect caused by lightning strike or power surges.
12. Shipping costs to return products to Blonder Tongue for warranty service.
13. Blonder Tongue will not in any circumstances be liable for any consequential loss or damages suffered by the customer whether directly or in directly related defect in the product to the extent permissible by law.
14. Repairs may not be effected without prior authorization from Blonder Tongue Laboratories.

### D. GENERAL

1. The customer shall notify Blonder Tongue Laboratories in writing within ten days of any change of his or her address.
2. Customer must provide original **purchase receipt** and **serial number** to initiate extended warranty coverage.
3. The fee paid for the warranty is not refundable under any circumstances unless cancelled within seven days of purchase.
4. The customer shall take all reasonable precautions to maintain the product is maintained in good working order.
5. The warranty contract ceases to exist if the product is replaced or a credit is given to the customer. Any monies paid for the warranty contract are forfeited and not refundable. This is only applicable when the product is out of the manufacturer's warranty.
6. The extended warranty period as stated on the Extended Warranty Agreement shall be the governing period notwithstanding any additional supplier warranty on specific components.
7. The warranty shall in no way effect the terms and conditions of the sale agreement in terms of which the customer bought the product.
8. The extended warranty is limited to the terms and conditions herein contained
9. No agreement, varying, adding to, amended, deleting, or cancelling this warranty shall be effective unless given in writing (email is acceptable) and signed by or on behalf of both parties.
10. The cost of the extended warranty is 8% of the purchase price for a 1 or 2 year extension beyond the Blonder Tongue standard warranty. e.g. A product price of \$1000 will be \$80 for the 1<sup>st</sup> year (12 mos) and additional \$80 for 2 year (24 mos) extension for a total of \$160.
11. Warranty product return postage paid to: Blonder Tongue Laboratories, Inc.

Attn: Warranty Service Dept.

1 Jake Brown Road  
Old Bridge, NJ 08857

**Contact Blonder Tongue at 800-523-6049 ext. 555 to order extended warranty service.**

# 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 three (3) years from the date of original purchase for all stock hardware products (other than those specifically referenced herein below having a shorter warranty period); (ii) for a period of one (1) year from the date of original purchase, with respect to all MegaPort™, IPTV products, test equipment and fiber optics receivers, transmitters, couplers and integrated receiver/distribution amplifiers; (iii) 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**"); (iv) 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 (iii) 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, such as CD-ROM disk, on which the software was originally delivered;

(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. Any actions for breach of a contract of sale between Seller and a customer must be commenced by the customer within thirteen (13) months after the cause of action has accrued. A copy of Seller's standard terms and conditions of sale, including the limited warranty, is available from Seller upon request. Copies of the limited warranties covering third-party proprietary sub-assembly modules and private-label products manufactured by third-parties may also be available from Seller on request. (Rev 0713)



One Jake Brown Road  
Old Bridge, NJ 08857-1000 USA  
732-679-4000 • Fax 732-679-4353  
[www.blondertongue.com](http://www.blondertongue.com)