



SOLUTIONS FOR ALL YOUR APPLICATIONS

Stock No.
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USER MANUAL

4K Modulator

4K MOD

4xIP to 4xQAM

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www.blondertongue.com



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

Purchase Location Name:	
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Unit Serial Number:	

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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

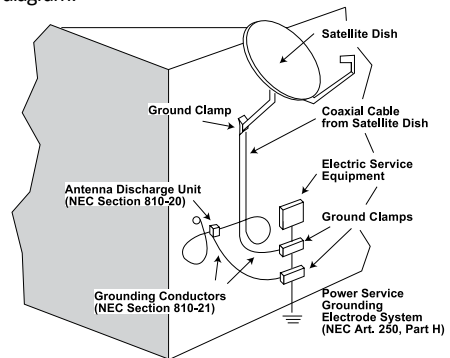
This reminder is provided to call the CATV System Installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.



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

2.1 Revision History & Reason

This is the first issue of the user manual.

2.2 Product Application & Description

Application:

The **4K Modulator** enables distribution of 4K content over RF networks by mapping transport streams containing 4K (with H.265 encoding) onto RF QAM channels. The unit accepts up to 4xSPTS in H.265, H.264 or MPEG-2 formats, and outputs 4xQAM RF channels via an IP interface.

Comprehensive remote monitoring and control is accomplished using any standard Web browser via a front-panel 100/1000 Ethernet connection.

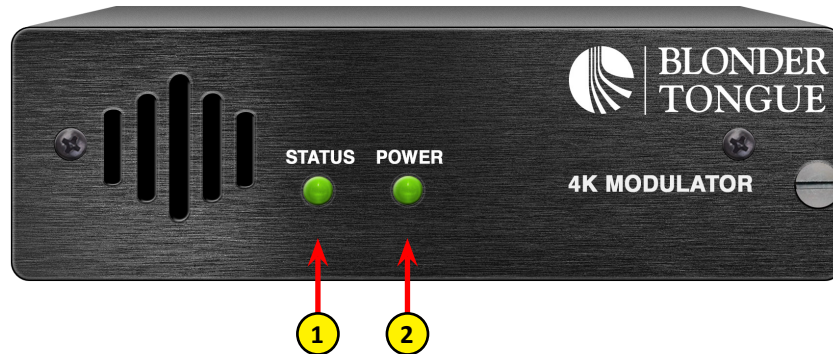
4K/UHD TV's supporting H.265 decoding on the RF inputs, can directly receive and decode 4K content. For 4K/UHD TV's without RF input H.265 decoding, Blonder Tongue offers a 4K Decoder model option to provide 4K delivery via an HDMI interface.

Features:

- Receives up to 4xSPTS via IP Interface
 - Each SPTS cannot exceed 38.8 Mbps
 - Each SPTS can contain an MPEG-2, H.264, or H.265 program
- Each SPTS maps to a separate RF QAM channel
- Small form factor – stand-alone unit, or up to three units in standard 1RU
- Web-based management port for local and remote control
- Supports Blonder Tongue's S4KD 4K Decoder

Description:

Front panel connectors and indicators:



1 INPUT STATUS LED:

LED indicate the input status as follows:

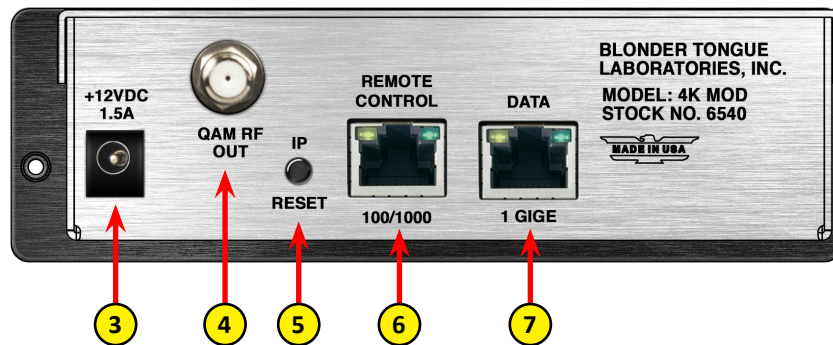
Green = Input is detected and has no errors

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 1.5A 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 defaults to the original IP address, Usernames and Passwords as shipped from the Factory (shown below).

IP address = 172.16.70.1

Username = Admin (case-sensitive)

Password = pass (case-sensitive)

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. The factory default value is 172.16.70.1.

7 DATA 1 GIGE:

RJ45 connector for 1000Base-T Ethernet (GIGE) interface for IP data input.

2.3 Product Specification

Input

IP	Connector:	RJ-45
	Standard:	1000Base-T Ethernet
	Packet Format:	4x UDP SPTS
	Protocols:	IGMPv2 Supported

General

Dimensions (W x D x H):	5.65 x 14.1 x 1.72 inches (143.5 x 358.1 x 43.7 mm)
Power:	+12 VDC External Power Supply
Power Dissipation:	16 W
Weight:	1.75 lbs (0.79 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Output

QAM	No. of Output Modules:	1x Quad-QAM (total of 4 QAM channels)
	Connector:	1x "F" Female (rear-panel; for combined output)
	Modulation:	QAM 16, 32, 64, 128, and 256
	Standards:	ITU-T J.83; Annex A and B
	DVB Symbol Rate:	Variable; up to 7 MSymbol/sec (MBaud)
	Frequency Range:	54 to 1002 MHz
	Tuning:	CATV Channel Selectable (Ch. 2 to 158)
	RF Level:	+40 dBmV
	RF Level Adjustment Range:	+35 to +42 dBmV (1 dB increments)
	Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
	Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
	Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
	Phase Noise:	-98 dBc (@ 10 kHz)
	Spurious:	-60 dBc
	Broadband Noise:	-70 dBc (@ +40 dBmV output level, 5.5 MHz bandwidth)
	Impedance:	75 Ω
Spectral Inversion:	Auto Recognition	
Carrier Suppression:	45 dB	
Return Loss:	14 dB typical	
Signal-to-Noise Ratio (SNR):	40 dB typical	
MER:	40 dB typical	
I/Q Phase Error:	Less than 1 degree	
I/Q Amplitude Imbalance:	Less than 1%	

Alarms/Monitoring/Control

Local Monitoring:	1x Power LED 1x Status LED
Local Control:	1x IP Reset button
Remote Monitoring/Control:	GUI-based menu via Web browser (1x RJ45 front-panel connector; 100/1000Base-T)

Section 3 – Communicating with the Unit

Local or remote communication with the unit is only possible through a GUI-based menu via any standard web browser. Before you can communicate with the unit, you must configure the unit's IP address to conform with your existing IP network or LAN. To do so, follow these steps:

- (1) Plug one end of the Ethernet cable that is provided in the hardware bag to unit's rear-panel RJ45 interface marked "100/1000 Remote Control". Plug the other end of the cable to your computer.
- (2) The factory default IP address of the unit is **172.16.70.1**. To be able to communicate with the unit, you must first change your computer's IP address.

The following steps explain how to do this for a computer with **Windows XP** operating software:

- (a) On your computer, open the "Control Panel"
- (b) Double-click on "Network Connections"
- (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 (TCP/IP)".
- (e) A dialog box entitled "Internet Protocol (TCP/IP) 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. Now your computer is ready to communicate with the unit.

- OR -

The following steps explain how to do this for a computer with **Windows 7** operating software:

- (a) On your computer, open the "Control Panel"
- (b) Click on "Network and Internet"
- (c) Click on the "View network status and tasks"
- (d) Click on "Change Adapter Settings" on left hand side of the window
- (e) Right-click on the "Local Area Connection", and then click on the "properties".
- (f) A dialog box entitled "Local Area Connection Properties" will appear. In this box, double-click on the "Internet Protocol Version 4 (TCP/IPv4)".
- (g) 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. Now your computer is ready to communicate with the unit.

Section 4 – Configuring the Unit

4.1 Accessing the Unit via a Web Browser

You must complete the steps described in Section 3 before proceeding as follows:

- 1 Open a web browser on your computer (Internet Explorer 7 or higher is recommended) and enter the following URL address (**http://172.16.70.1**). The “Login” Screen (Figure 4.1) will appear.

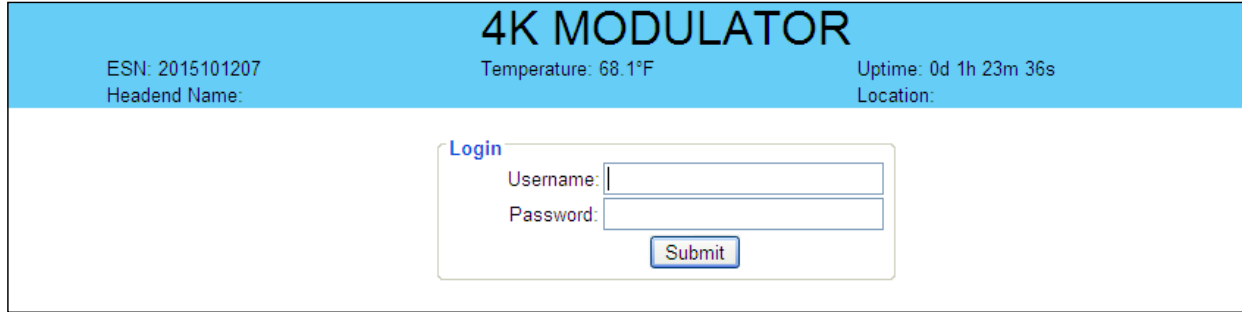


Figure 4.1 - “Login” Screen

- 2 Enter the following case-sensitive factory-default Username and Password, and click on the “Submit” button.
NOTE: When logged in as Admin, the user has read and write permission. Only one Admin can be logged in at a time.

Username = **Admin** (case-sensitive)
 Password = **pass** (case-sensitive)

When logged in as Guest, the user has read-only permission. Up to four Guests can be logged in simultaneously.

Username = **Guest** (case-sensitive)
 Password = **pass** (case-sensitive)

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: unit’s Serial number
Headend name: a user-defined field to make identification easier
Temperature: temperature of unit’s chipset.
Uptime: time elapsed since last time the unit was turned on
Location: a user-defined field to make identification easier

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:

4K MODULATOR						
ESN: 2016010300		Temperature: 91.1°F		Uptime: 0d 2h 41m 14s		
Headend Name:		Location:				
Main	Network	Time	Event Log	Logout	Admin	
Status	Input	QAM Config	TS Config	Output	Refresh	
Input				Output		
1 Interface	2 Input Status		3 Input Bitrate	4 TSID	5 Interface	6 Status
IP - UDP (239.10.10.10:50000)	Transport	PID	19.93	1 (0x0001)	RF (2 - 57 MHz)	Locked
	P2 -	32				
	V: H.265/HEVC	33				
	A: AC-3	36				
IP - UDP (239.10.10.10:50001)	Not Detected		-	-	-	-
IP - UDP (239.10.10.10:50002)	Not Detected		-	-	-	-
IP - UDP (239.10.10.10:50003)	Not Detected		-	-	-	-

Figure 4.2 - “Main > Status” Screen

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

Output Status

- 5 **Interface:** indicates the configuration of the output for each transport stream
- 6 **Status:** indicates whether the Quad-QAM RF output module is locked or not



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

4.3 “Main > Input” Screen

The “Main > Input” screen (Figure 4.3) allows configuration of the following parameters:

Input Index	Source	IP Address	IP Port
1	IP - UDP	239.10.10.10	50000
2	IP - UDP	239.10.10.10	50001
3	IP - UDP	239.10.10.10	50002
4	IP - UDP	239.10.10.10	50003

Figure 4.3 - “Main > Input” Screen

- 1 Source:** allows selection for each input as: IP UDP, IP RTP, Disabled
- 2 IP Address:** input the IP Address for each transport stream
- 3 IP Port:** input the IP Port number for each input stream



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

4.4 “Main > QAM Config” Screen

The “Main > QAM Config” screen (Figure 4.4) allows configuration of the following parameters:

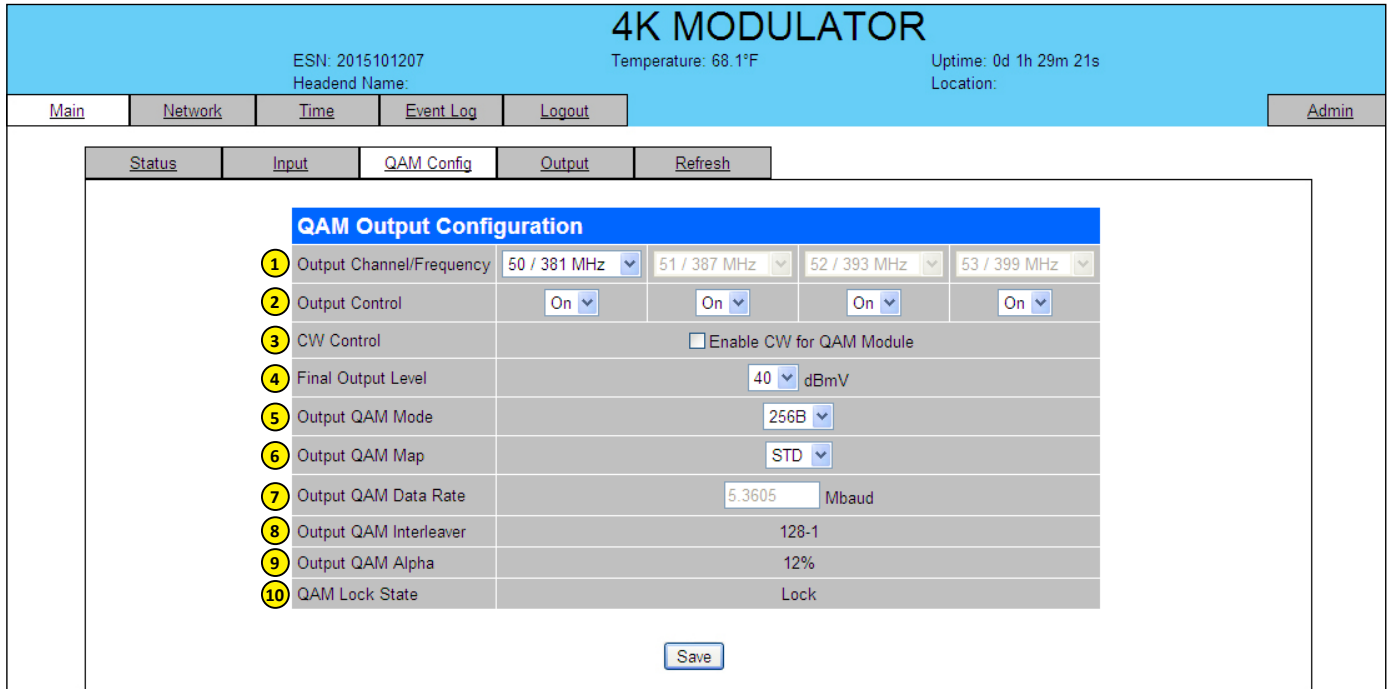


Figure 4.4 - “Main > QAM Config” Screen

4.4 “Main > QAM Config” Screen (continued)

- 1 **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 50, as shown in Figure 1.3). The remaining three RF QAM channels will be automatically assigned to the next adjacent channels (i.e. RF channels 51, 52, and 53). The range is NTSC channels 2 to 155.
- 2 **Output Control:** allows the user to turn each of the RF channels On/Off.
- 3 **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.

- 4 **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.
- 5 **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.
- 6 **Output QAM Map:** allows the user to select the desired QAM Map. Options are STD, IRC, and HRC. (Default: STD)
- 7 **Output QAM Data Rate:** indicates the maximum data rate depending on the selected QAM mode, for example 5.360500 Mbaud for QAM 256B.
- 8 **Output QAM Interleaver:** indicates the interleaver value for the selected QAM mode.
- 9 **Output QAM Alpha:** indicates the Alpha value for the selected QAM mode
- 10 **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.

4.5 "Main > TS Config" Screen

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

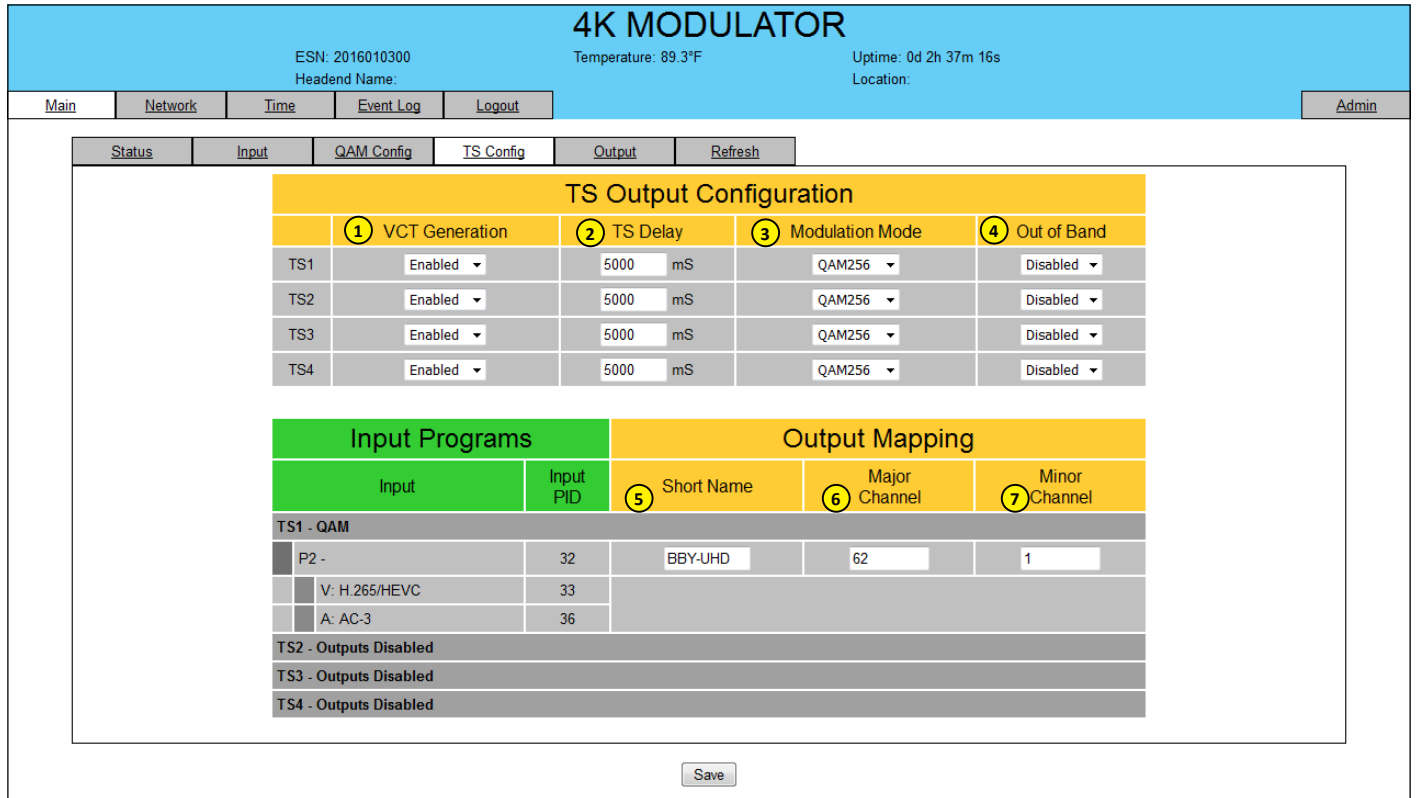


Figure 4.5 - "Main > TS Config" Screen

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

- ① **VCT Generation:** when enabled, the user is able to generate a Virtual Channel Table (VCT) on the output. Options are enabled and disabled.
- ② **TS Delay:** allows the user to adjust Transport Stream (TS) delay. Range is 900-5000 ms. Default is 5000 ms.
- ③ **Modulation Mode:** user can select the modulation mode. Options are: Reserved, Analog, QAM64, QAM256, 8VSB, and 16-VSB.
- ④ **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, assign the OOB bit in the TS packet and label the TS as out-of-band.

In the section entitled "Output Mapping", the user can configure the following parameters:

- ⑤ **Short Name:** user must enter the short name of the channel. Up to 7 alphanumeric characters are allowed.
- ⑥ **Major Channel:** user must enter the major channel number for the output program. The range is 1 to 99 for Terrestrial and 0 to 999 for Cable.
- ⑦ **Minor Channel:** user may enter 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".

4.6 “Main > Output” Screen

The “Main > Output” screen (Figure 4.6) shows status and allows configuration of the following parameters:

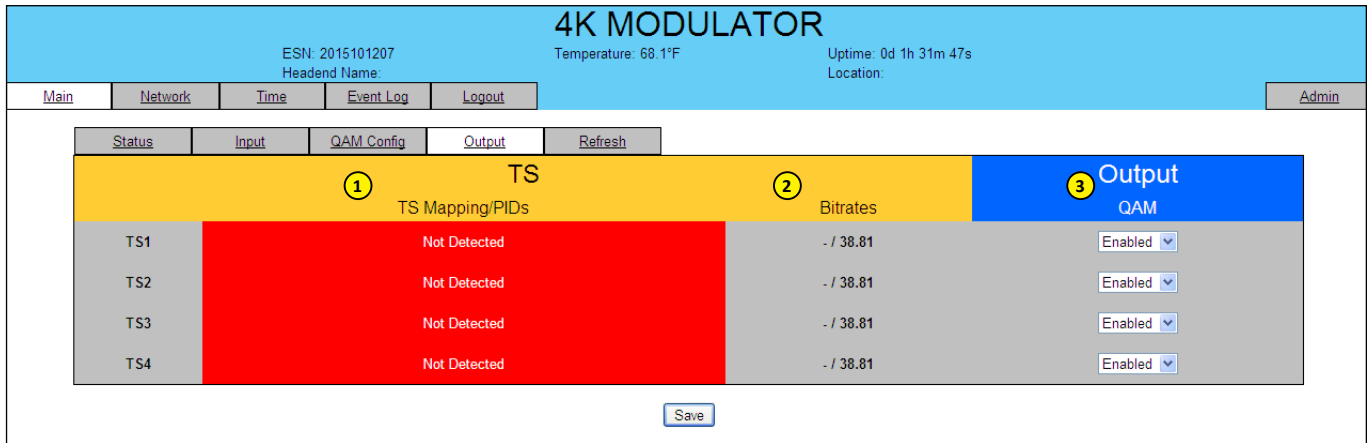


Figure 4.6 - “Main > Output” Screen

- ① **TS Mapping/PIDs:** Shows the status of the transport mapping to PIDs.
- ② **Bitrates:** Shows the bit-rate for each output transport stream.
- ③ **Output QAM:** Allows the Enable/Disable of each QAM output.



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

4.7 "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.

4.8 “Network” Screen

The “Network” screen (Figure 4.8) shows status and allows configuration of the following parameters:

4K MODULATORESN: 2015101207 Temperature: 68.1°F Uptime: 0d 1h 32m 47s

Headend Name:Location:

MainNetworkTimeEvent LogLogoutAdmin

① MAC Address - Remote Control: 00:14:39:01:00:0C

② MAC Address - Data: 00:14:39:01:00:0D

③ Software Version: 1.0.3

④ FPGA Version: 1.5

⑤ QAM Output Version: 5.8

⑥ Hardware Version: 255

⑦ Serial Number: 2015101207

⑧ Headend Name:

⑨ Location:

⑩ Login Timeout (Minutes):

⑪ Remote Control IP Address: 172.16.70.1

⑫ Remote Control Subnet Mask: 255.255.255.0

⑬ Remote Control Default Gateway: 172.16.70.254

⑭ Data IP Address: 192.168.2.1

⑮ Data Subnet Mask: 255.255.255.0

⑯ Data Default Gateway: 192.168.2.254

⑰ Log Destination IP: 172.16.70.2

⑱ Log Destination Port: 514

Figure 4.8 - “Network” Screen

4.8 “Network” 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 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.
- 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. The factory default IP address is 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. The factory default Subnet Mask is 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. The factory default Default Gateway is 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 4K Modulator for monitoring and troubleshooting purposes. The factory default value is 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. The factory default value is 514, and cannot be changed.



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

4.9 “Time” Screen

The “Time” screen (Figure 4.9) is a “read and write” screen where the following parameters are displayed or can be configured:

The screenshot displays the "4K MODULATOR" interface with the following details:

- Header:** ESN: 2015101207, Temperature: 68.1°F, Uptime: 0d 1h 35m 22s, Location: [blank].
- Navigation:** Main, Network, Time (selected), Event Log, Logout, Admin.
- 1 Time Adjustments:** Local Time Zone: UTC 0:00, GPS Leap Seconds: 17 Seconds. Button: Apply Time Adjustments.
- 2 Daylight Saving Time:** DST Adjustment: Off, DST Start: April 8 / 2015 2:00, DST End: December 1 / 2015 2. Button: Apply Daylight Saving Time.
- 3 NTP Server:** NTP Server IP Address: 172.16.70.2. Button: Acquire NTP Time Now.
- 4 Set Date & Time:** Current Local Time: Mon Oct 19 2015 16:42:09, Current UTC Time: Mon Oct 19 2015 15:42:09, Time Keeping Method: Manual, Local Date Setting: October 19 / 2015, Local Time Setting: 16:42:09. Button: Apply Date and Time Settings.
- Bottom:** Apply All Time Settings.

Figure 4.9 - “Time” Screen

The “Time” screen allows you to set various time-related parameters, including the current date and time for the 4K Modulator. 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”.

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.

4.10 “Event Log” Screen

The “Event Log” screen (Figure 4.10) 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

Figure 4.10 - “Event Log” Screen

- 1 **Event Log Destination:** is the IP address of the remote server, to which Syslog sends the activities recorded by 4K Modulator for monitoring and troubleshooting purposes. The factory default value is 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. The factory default value is 514, and 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 error log on the screen. Please note that the error log would be saved only on the screen and not on any database.

4.11 “Admin” Screen

When logged in as admin (and not guest), the “Admin” screen (Figure 4.11) appears as a “read and write” screen where the following parameters are displayed or can be configured:

4K MODULATOR

ESN: 2016010300
Headend Name:

Temperature: 91.1°F

Uptime: 0d 2h 40m 43s
Location:

Main

Network

Time

Event Log

Logout

Admin

1	MAC Address - Remote Control:	00:14:39:00:6B:BB
2	MAC Address - Data:	00:14:39:00:6B:BC
3	Software Version:	1.0.5.3
4	FPGA Version:	1.6
5	QAM Version:	5.8
6	Hardware Version:	1
7	Serial Number:	2016010300

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	Default Control:	<input type="button" value="Default Unit Settings"/>
----	------------------	--

17	Software/Firmware Update:	<input type="button" value="Browse..."/> No file selected. <input type="button" value="Update Firmware/Software"/>
18	Restore Previous Firmware Version:	<input type="button" value="Restore Previous Firmware"/>

19	System Reboot:	<input type="button" value="Reboot Unit"/>
----	----------------	--

20	System Watchdog:	<input type="text" value="Enabled"/> ▾
----	------------------	--

21	Remote Control IP Address:	<input type="text" value="172.16.70.1"/>
22	Remote Control Subnet Mask:	<input type="text" value="255.255.255.0"/>
23	Remote Control Default Gateway:	<input type="text" value="172.16.70.254"/>
24	Data IP Address:	<input type="text" value="192.168.2.1"/>
25	Data Subnet Mask:	<input type="text" value="255.255.255.0"/>
26	Data Default Gateway:	<input type="text" value="192.168.2.254"/>
27	Event Log Destination:	<input type="text" value="172.16.70.2"/>
28	Log Destination Port #:	<input type="text" value="514"/>
29	Time Server IP:	<input type="text" value="172.16.70.2"/>

30	Syslog Errors:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
31	Syslog Informational:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
32	Syslog Feedback:	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled

Figure 4.11a - “Admin” Screen

4.11 “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 maximum). 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 maximum). 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 maximum). 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 maximum). 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 maximum). 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 **Default Control:** Returns the unit to the original settings as shipped from the factory.
- 17 **Software/Firmware Update:** To update firmware, 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.

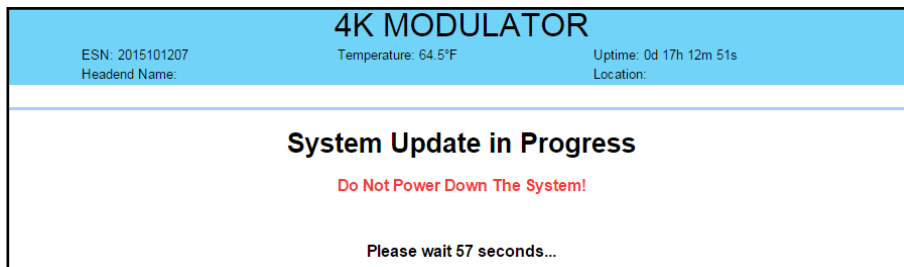


Figure 4.11b - “System Update” Screen

- 18 **Restore Previous Firmware Version:** returns the 4K Modulator to the last installed firmware version before the current update.



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

4.11 “Admin” Screen (continued)

- 19 **System Reboot:** allows the user to reboot 4K Modulator.
- 20 **System Watchdog:** options are “Enabled” and “Disabled”. when Enabled, automatically reboots the unit, if the operating system stops working.
- 21 **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)
- 22 **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)
- 23 **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)
- 24 **Data IP Address:** the static IP address that is assigned to the Data Port.
- 25 **Data Subnet Mask:** the Subnet Mask assigned to the Data Port of the unit.
- 26 **Data Default Gateway:** the gateway address assigned to the Data Port.
- 27 **Event Log Destination:** the IP address of the remote server, to which Syslog sends the activities recorded by 4K Modulator for monitoring and troubleshooting purposes. (Factory Default: 172.16.70.2)
- 28 **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)
- 29 **Time Server IP:** the IP address for the Time Server from where the unit can obtain its clock reference (see Section 4.9 for details). (Factory Default: 172.16.70.2)
- 30 **Syslog Errors:** enable/disable encoder to forward error messages (in red font) to the Syslog. (Factory Default: Disabled)
- 31 **Syslog Informational:** enable/disable encoder to forward informational messages (in blue font) to the Syslog. (Factory Default: Disabled)
- 32 **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



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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 1st 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)



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