BLONDER TONGUE
LABORATORIES

USER MANUAL
VIDEO DELIVERY

MICROMOD 16

16 CHANNEL AGILE NTSC ANALOG AUDIO/VIDEO MODULATOR

STOCK #	MODEL NAME	DESCRIPTION
7800	MicroMod 16	16 Channel NTSC Agile Analog Audio/Video Modulator; 1RU

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Rev: 032525

D/N: UMD-MICM7800

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

Purchase Location Name:	
Purchase Location Telephone Number:	
MicroMod 16 Serial Number(s):	

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CROSS-REFERENCE & HYPERLINKING USAGE

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

PRODUCT AND DOCUMENTATION UPDATES

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

RETURNING PRODUCT FOR REPAIR (OR CREDIT)

A Return Material Authorization (RMA) Number is required on all products returned to Blonder Tongue, regardless if the product is being returned for repair or credit. Before returning product, please review our return policies or contact our service department for further information.

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SECTION 1 – GENERAL & SAFETY INSTRUCTIONS

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.

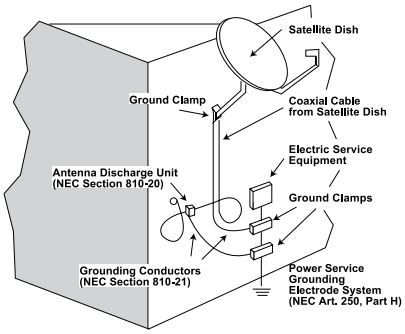
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE

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 yourselfand 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 PRODUCT APPLICATION & FEATURES

APPLICATION

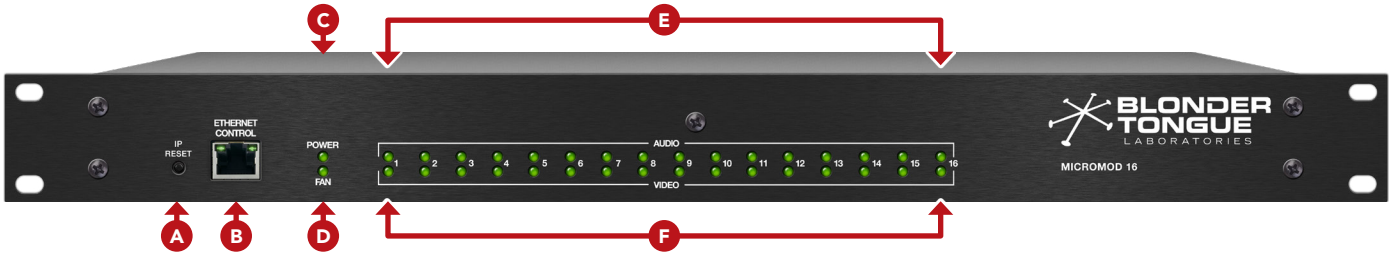
The **MicroMod 16** is the perfect solution to maximize Audio/Video modulator capabilities. This streamlined and agile analog modulator provides an impressive 16 channels in just 1 RU of rack space, offering an unparalleled advantage in terms of economy of space compared to traditional individual minimods.

The **MicroMod 16** provides NTSC channels in the range of 54 –1002 MHz, and also comes with an Audio AGC (Automatic Gain Control) solution to minimize any variations in the audio and video levels that may arise from different program sources. This modulator has a mono-only audio configuration, and comes with web-based modulation controls that allow for convenient remote access. With its advanced web user interface, it is the perfect choice for an efficient and reliable analog Audio/Video modulator.

KEY FEATURES

- 16 Channels of fully Agile NTSC Analog Audio/Video Modulation
- Audio and Video AGC automatically controls modulation levels
- Digital Filter Technology for improved performance
- Channels are Agile within any 126 MHz Band from 54 –1002 MHz
- Utilizes uniform jumper cables upon installation

2.2 PRODUCT DESCRIPTION



FRONT PANEL

A **IP Reset:** When pushed and held for 5 seconds, temporarily resets the IP address, Usernames, and Passwords to Factory Default. Activation is indicated by the Power LED blinking twice. Default values are as follows:

- **IP Address**: **172.16.70.1**
- **Username**: **Admin** *(case-sensitive)*
- **Password**: **pass** *(case-sensitive)*

PLEASE NOTE: Resetting power will revert IP and login credentials back to what has been configured by the user. The effects of activating the IP Reset feature are temporary and only last until the unit is power cycled.

B **Ethernet Control:** RJ45 connector for 1000Base-T Ethernet (GigE) Ethernet interface for monitoring and configuring the unit via standard web browser. Only a static IP address can be assigned to this interface. (Factory Default: "**172.16.70.1**")

C **Power LED:**

- **Solid Green** = AC power connected.
- **Blinking Green** = Software update underway.
- **Off** = AC power is not connected, **or** AC power is connected but the power supply is defective. Unit must be sent to factory for repairs.

D **Fan (temperature) LED:**

- Solid Red = Unit temperature is critically high.
- Solid Amber = Unit temperature is high.
- Solid Green = Unit temperature is normal.

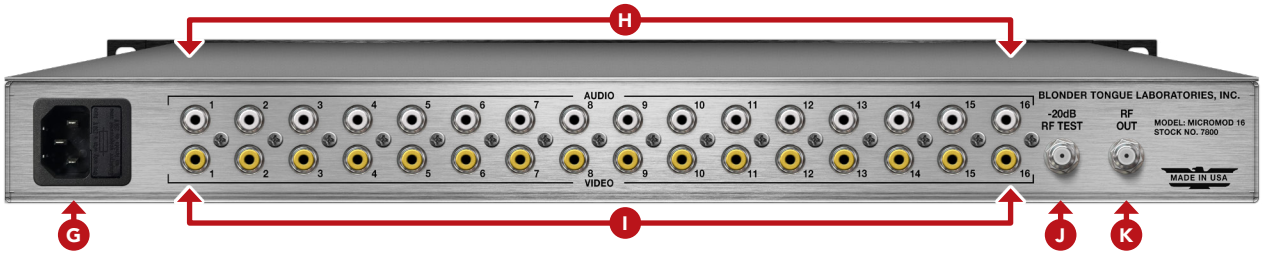
E **Audio Status LEDs # 1 to 16:**

- Green On Audio Present mode:
  - Green = input audio detected.
  - Off = input audio not detected

- Red On Audio Overmodulation mode:
  - Red = audio overmodulation.
  - Off = Modulation within limit.

- Combined Audio Present/Overmodulation mode:
  - Off = input audio not detected.
  - Green = input audio detected.
  - Red = audio overmodulation.

2.2 PRODUCT DESCRIPTION (CONTINUED)



F **Video Status LEDs # 1 to 16:**

- Off = No video input detected.
- Green = Valid input video detected.

REAR PANEL

G **Input Power Assembly & Fuse:** IEC 14 power inlet plug – rated 110-230 VAC; 0.4/0.2 A; 60/50 Hz; equipped with Slo-Blo, 3.0A, 250 V Fuse. The operation of the power assembly can be monitored through the User Interface.

H **Baseband (Composite) Audio Input # 1 to 16:** "RCA" (female) connectors for up to 16 channels of baseband Audio input.

I **Baseband (Composite) Video Input # 1 to 16:** "RCA" (female) connectors for up to 16 channels of baseband Video input.

J **-20dB RF TEST:** "F" female connector for NTSC RF output signal, 20dB lower than the actual NTSC RF output. Used for test purposes, without taking the unit out of service.

K **RF OUT:** "F" (female) connector for a single (1) NTSC RF output.

2.3 PRODUCT SPECIFICATIONS

INPUT (PER CHANNEL OF 16)	
Video Connector	16x RCA Composite (Rear Panel)
Audio Connector	16x RCA Audio, Mono (Rear Panel)
RCA INPUT	
Impedance	75 Ω
Return Loss	20dB
Input Level	1.0 volt Peak-to-Peak, +/-3dB; Automatic level controlled for 87.5% depth of modulation
Frequency Response	+/-0.5 dB Peak-to-Valley (fv-0.5 MHz to fv+4.2 MHz)
Peak-to-Peak Video-to-RMS Hum Ratio	70dB
Signal-to-Noise Ratio	60 dB (Weighted; 4 MHz bandwidth)
Differential Gain	<1.0% (87.5% depth of modulation)
Differential Phase	<1.0 degrees (87.5% depth of modulation)
Chrominance/ Luminance Delay	+/-20 nS (with 170 nS sound trap delay)
MONO AUDIO	
Input Impedance	>10K ohm, unbalanced
Input Level (for 25 kHz deviation)	0.5-4.0 V peak-to-peak; (AGC or adjustable in 0.5dB steps)
Frequency Range	50 Hz to 15 kHz
Harmonic Distortion (total)	<0.5% @ 25 kHz deviation
Signal-to-Noise Ratio	70 dB

ALARMS & MONITORING	
Local Monitoring	1x Power and Status LED (bicolor) 1x Fan Control Status LED (bicolor) 16x Video Status LED (bicolor) 16x Audio Status LED (bicolor)
Local Control	1x IP Reset Button
Remote Control	1x RJ45 (1000Base-T GbE; Front Panel) GUI-Based Menu Via Internal Web Server

OUTPUT	
Connector	1x “F” Female
-20 dB Test Point	1x “F” Female
RF OUTPUT	
Impedance	75 Ω
Return Loss	14dB
Frequency Range	54 –1002 MHz, STD CATV channels 2 –158
Power Level	+45 dBmV / channel (adjustable in 0.5 db steps, from 25 dBmV to 45 dBmV)
Broadband Noise	-65dBc @ +45dBmV output level, 4MHz bandwidth. Equivalent to –77dBc for a single channel.
Spurious Outputs	-65dBc
Aural/Visual Carrier Ratio	-11 to -20 dB (adjustable in 0.5dB steps)
4.5 MHz Aural Inter-carrier Frequency Tolerance	+/- 20 Hz, 0 to 50 C
Visual Carrier Frequency Tolerance Std. Channels	+/- 3KHz, 0 to 50 C
FCC Aeronautical Channels	+/- 3KHz, 0 to 50 C

GENERAL	
Dimensions (W x H x D)	19.0 x 1.75 x 8.5 in (483 x 45 x 216 mm)
Weight	9.5 lbs (4.31 kg)
Power	110/230 VAC, 0.35/0.175 A, 60/50 Hz
Power Consumption	40 W
Operating Temp.	32 to 122 °F (0 to 50 °C)
Storage Temp.	-13 to 158 °F (-25 to 70 °C)
Operating Humidity	0 to 95% RH @ 35 °C max, non-condensing

SECTION 3 – INSTALLATION & POWER-UP

3.1 UNPACKING

You will find the following items in the box:

- MicroMod 16 Modulator (QTY=1)
- Power Cord with IEC C13 line socket and 3-pin type “B” NEMA 5 plug (QTY=1)

3.2 INSTALLATION AND POWER-UP

The **MicroMod 16** is designed to be installed in a standard 19-inch (483 mm) rack (EIA 310-D, IEC 60297, and DIN 41494). Adequate ventilation is very important for unit installations. Some air movement is advisable in enclosed rack cabinets.

1. To install, secure the unit’s front panel to the rack by inserting four (4) machine screws, with cup washers, through the four (4) mounting holes in the front panel. A 1RU open space is recommended above the unit for ventilation.

DO NOT BLOCK THE UNIT’S AIR INTAKE OR AIR DISCHARGE OPENINGS.

Unit performance will be degraded without proper ventilation.

Excessive heat will shorten the life of the unit.

2. To power the unit up, connect the IEC line cord to the input power receptacle on the rear panel. Then connect the other end to a 120 VAC power outlet. The input power receptacle is equipped with a fuse-holder and fuse (SLO-BLO, 3.0 Amp, 250V).

For safe and reliable operation, the ground pin of the power cord must be grounded properly.

SECTION 4 – CONNECTING TO A PC/LAPTOP

4.1 ETHERNET ACCESS

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 your computer's IP address to be in the same subnet as the units default IP address. To do so, follow these steps:

1. Plug one end of the Ethernet cable into the **Control** management port located on the front-panel of the unit. Connect the other end of the Ethernet cable to your computer.
2. The factory default IP address of the control management port is **172.16.70.1**. To be able to communicate with the management port, you must first change your computer's IP address.

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

(a) On your computer, navigate to the "**Network and Sharing Center**" via the "**Control Panel**".

(b) Once open, click on "**Change Adapter Settings**" on left hand side of the window.

(c) Right-click on the local area network, and then click on "**Properties**".

(d) A "**Properties**" dialog box 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.

4.2 ACCESSING THE GATEWAY VIA THE WEB BROWSER

You must complete the steps described in Section 4.1 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**" prompt (Figure 4.2a) will appear.
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)

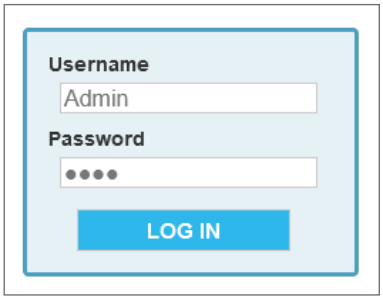


Figure 4.2a - "Login" Screen

4.2 ACCESSING THE GATEWAY VIA THE WEB BROWSER (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**" at the top of each web page:

Figure 4.2b - Page Header and Navigation

- **Name:** a user-defined field to make identification easier
- **Location:** a user-defined field to make identification easier
- **ESN:** unit's serial number
- **Uptime:** time elapsed since last time the unit was turned on
- **Version:** software version of the Controller Module.

As shown in Figure 4.2b, under the "**Page Header**" the following Navigation tabs and links will appear:

- **Left Navigation:** "**Status**", "**System**", "**Time**", "**Output: Settings**"
- **Right Navigation:** "**Log**" and "**Firmware Update**"
- In addition, in the upper right corner above the navigation, the user can access the "**Admin**" screen through a link, alongside the **[LOG OUT]** button.

Each tab for the navigation is described in the subsequent sections.

SECTION 5 – BASIC CONFIGURATION

5.1 "STATUS" TAB

"**Status**" (Figures 5.1a and 5.1b) is a "read-only" screen which displays the general health of the unit, such as temperature, fan speed and status reporting. The information is provided as a quick way to monitor the system or assist with troubleshooting issues that may arise.

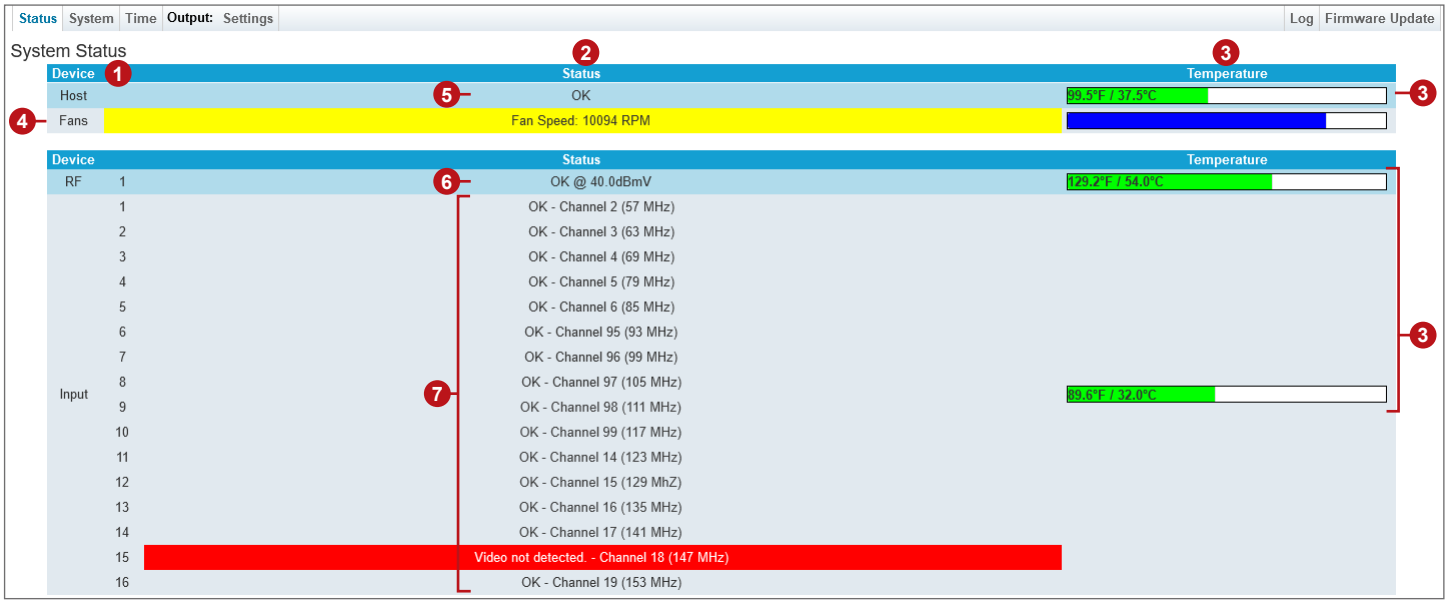


Figure 5.1a - "System Status"

The "**System Status**" page has four (4) columns of data for each system component. The data is detailed as follows:

1. **Device:** Indicates the following system components:
   - **Host** displays data for the **Micromod 16** system.
   - **Fans** displays data for each of the system fans on the chassis.
   - **RF** displays data for the single RF output.
   - **Input** displays information for each of the input streams being modulated. These will populate data as the channels are set up and enabled. When a numbered encoder is not available the row will display as empty.

2. **Status:** Indicates a status for each system component being monitored. The following section gives a breakdown of the information given in this column.

3. **Temperature:** Indicates the following in real-time (Figure 5.1b):
   - **Host:** Temperature the Host unit is currently running at. Temperatures are displayed in both Fahrenheit and Celsius.
   - **RF and Input:** Temperature the RF and Input devices are currently running at. Temperatures are displayed in both Fahrenheit and Celsius.

Figure 5.1b - Host Temperature Status Color Range

WARNING: The unit will shutdown if the high temperature limit is exceeded.

5.1 "STATUS" TAB (CONTINUED)

4 **Fans**: Revolutions Per Minute (RPM), rotational speed, of each fan in the chassis. (Figure 5.1c)

- **Fan Speed:** numerically displayed and measured in Revolutions-per-Minute (RPM).

Figure 5.1c - Fan RPM Status Range

STATUS - MESSAGES / INFORMATION

5 **Host:** Types of messages under status column for Host:

- **Ok:** indicates the host is working without errors.
- **Error:** indicates one or more errors have been detected. See the message log below or navigate to the full Log using the menu at the top.
- **Warnings:** indicates one or more warnings have been triggered. Check system log for more information.

6 **RF:** Types of messages under the status column(s).

- **Ok:** indicates RF output is working without errors and at what dBmV.
- **Error:** indicates one or more errors have been detected. See the message log below or navigate to the full Log using the menu at the top.

7 **Input:** Types of messages under the status column(s).

- **OK:** indicates the input is working. Each of the channels are shown on its own row showing what channel and frequency is assigned to each .
- **Errors:** indicates that one or more errors have been detected using a red background highlight. See the message log below or navigate to the full Log using the menu at the top.

NOTE: Listed are the most common status messages. Messages shown will give indication of what is occuring within the unit, alongside those shown under the Log screen, to assist with any required troubleshooting.

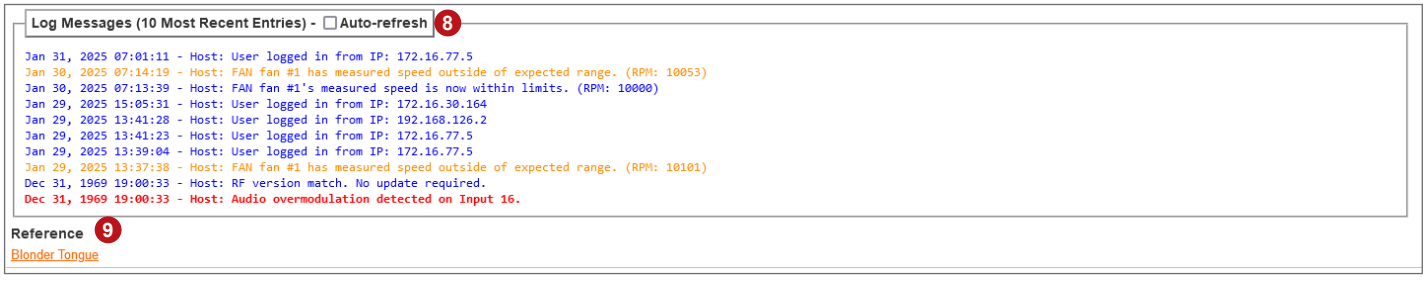


Figure 5.1b - "System Status"

OTHER INFORMATION:

8 **Log Messages:** The Log Messages sections will show the 10 most recent entries to the system log. For a full view of all messages, please see the Log tab. The user can click on the "Auto-Refresh" checkbox to enable that function. See Section 7.2 for more information on types of messages.

9 **Reference:** The reference link within this sub-section points to the Blonder Tongue website.

5.2 "SYSTEM" TAB

"**System**" (Figure 5.2) is a "read and write" screen. The general ethernet connection and user-defined identification data for the platform can be configured here.

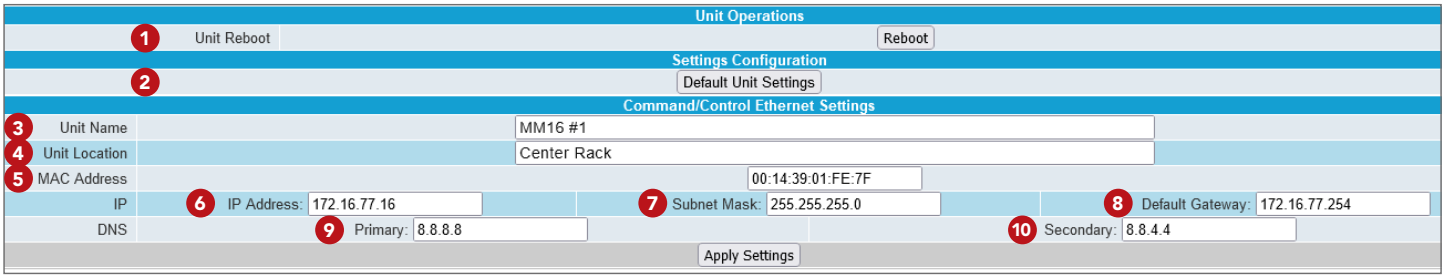


Figure 5.3 - "System Configuration" - Full View

UNIT OPERATIONS

1 Reboot Clicking this button will reboot the unit. All firmware updates will be applied upon restart.

IMPORTANT: A reboot is required after defaulting.

SETTINGS CONFIGURATION

2 Default Unit Settings Resets the unit back to the factory defaults. It is always recommended to save the existing configuration file before resetting to the default values.

COMMAND/CONTROL ETHERNET SETTINGS

3 **Unit Name:** a user-defined field to more easily identify the unit by name. The character limit is 64 alphaumeric, however if other character types are used, the display limit is decreased and may truncate.

4 **Unit Location:** a user-defined field to more easily identify the unit's location. The character limit is 64 alphaumeric, however if other characters types are used, the display limit is decreased and may truncate.

5 **MAC Address:** the Media Access Control (MAC) Address is a read-only field that serves as a unique identifer assigned to the network.

6 **IP Address:** the static IP address that is assigned to the unit, allowing the user to access it via the web interface. Pressing the IP reset button returns unit to factory default of **172.16.70.1**.

7 **Subnet Mask:** the subnet mask allows the user to access it from another network via the web interface. Factory Default is **255.255.255.0** for local subnet.

8 **Default Gateway:** the gateway address of unit, allowing the user to access it from another network via the web interface. The gateway address should be in the same subnet as IP Address.

9 **Primary DNS:** the primary Domain Name Server (DNS) hosts the controlling zone file, containing all the authoritative information for a domain.

10 **Secondary DNS:** the secondary Domain Name Server (DNS) contains read-only copies of the zone file, and gets its info from a primary server in a communication known as a zone transfer.

REMEMBER: Click on the **[APPLY SETTINGS]** button to save and apply new values/configuration changes.

5.3 "TIME" TAB

"**Time**" (Figure 5.3a, Figure 5.3b, Figure 5.3c, and Figure 5.3d) is a "read and write" screen. Time settings for the system and the event log are configured here.

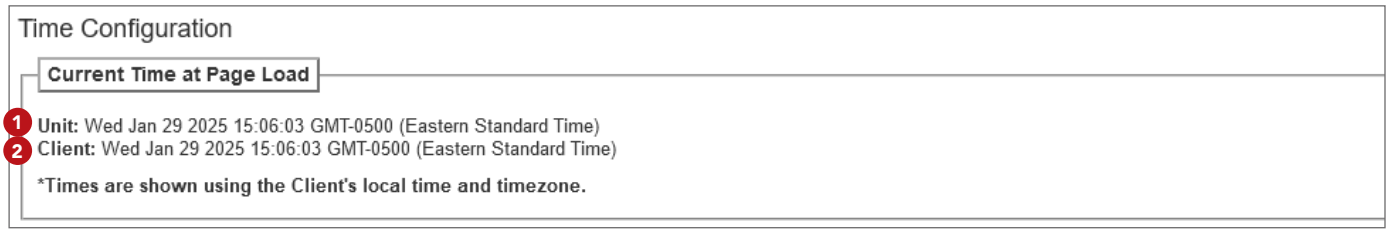


Figure 5.3a - "Current Time at Page Load"

CURRENT TIME AT PAGE LOAD

1. **Hardware or Unit Time:** read-only display of the unit's current date and time, shown in UTC format. The time is adjusted for states, territories and countries that use time change (ie. Eastern Standard Time and Eastern Daylight Time).
2. **Client or Local Browser Time:** read-only display of the current client, or local browser, date and time, shown in UTC format with time zone. The time is adjusted for states, territories and countries that use time change (ie. Eastern Standard Time and Eastern Daylight Time).

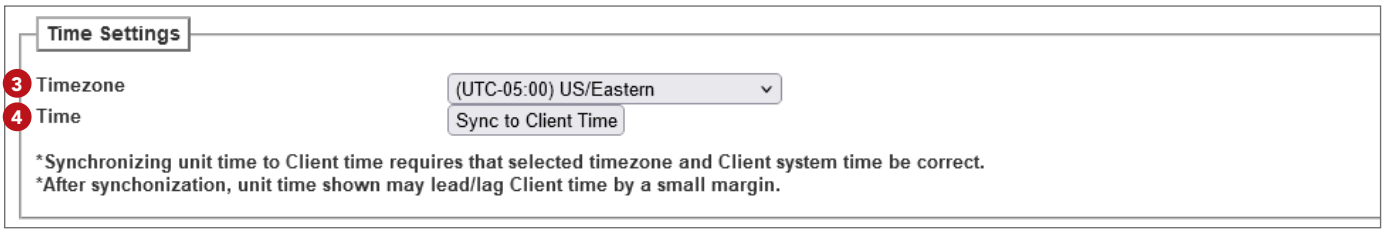


Figure 5.3b - "Time Settings"

TIME SETTINGS

4. **Time Zone:** user is able set the time zone, shown in UTC format.
3. **Time:** Clicking the button will synchronize the Hardware time to Client time. This requires that the selected time zone and client system time are correct. After synchronization, the Hardware time shown may lead or lag the Client time by a small margin.

5.3 "TIME" TAB (CONTINUED)

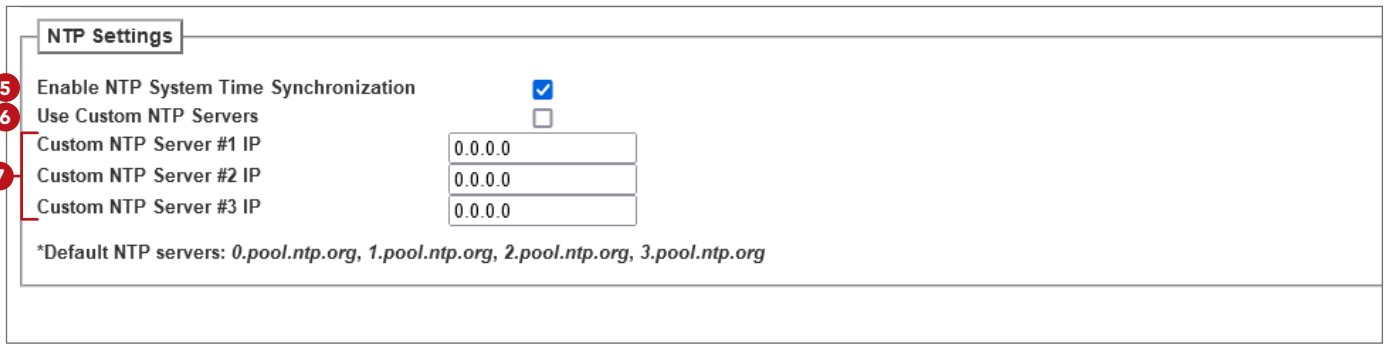


Figure 5.3c - "NTP Settings"

NTP SETTINGS

5 **Enable NTP System Time Synchronization:** Enable (☑) or Disable (☐) System Time Synchronization.

6 **Use Custom NTP Servers:** Enable (☑) or Disable (☐) the Custom NTP Servers. Network Time Protocol (NTP) uses one or more IP addresses that the platform can sync time to. When enabled, the three fields under 7 are usable.

7 **Custom NTP Server IP (#1, #2, #3):** Enter the custom NTP server IP addresses within these fields. The time servers specified must support the Network Time Protocol (NTP) in order for automated time acquisition to work properly.

NOTE: Default NTP Servers are "0.pool.ntp.org", "1.pool.ntp.org", "2.pool.ntp.org", and "3.pool.ntp.org".

REMINDER: Internet access must be present in order to access the default NTP Servers.

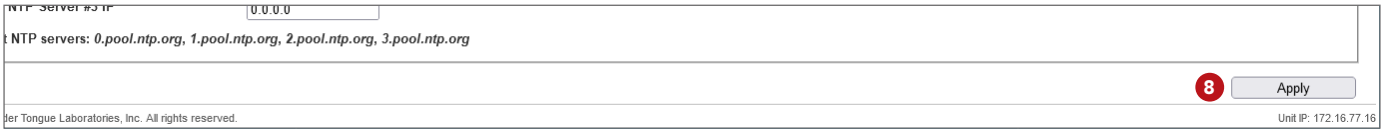


Figure 5.3d - Saving your configuration

8 Apply Click to apply and save the system configuration changes.

SECTION 6 – CONFIGURING THE OUTPUT

6.1 "OUTPUT: SETTINGS" TAB

The "**Output: Settings**" Tab (Figure 6.1a and 6.1b) allows the user to configure general output settings. In addition, individual channel settings per RF output channel and audio channel are configurable on this page.

GLOBAL OUTPUT AND CHANNEL SETTINGS

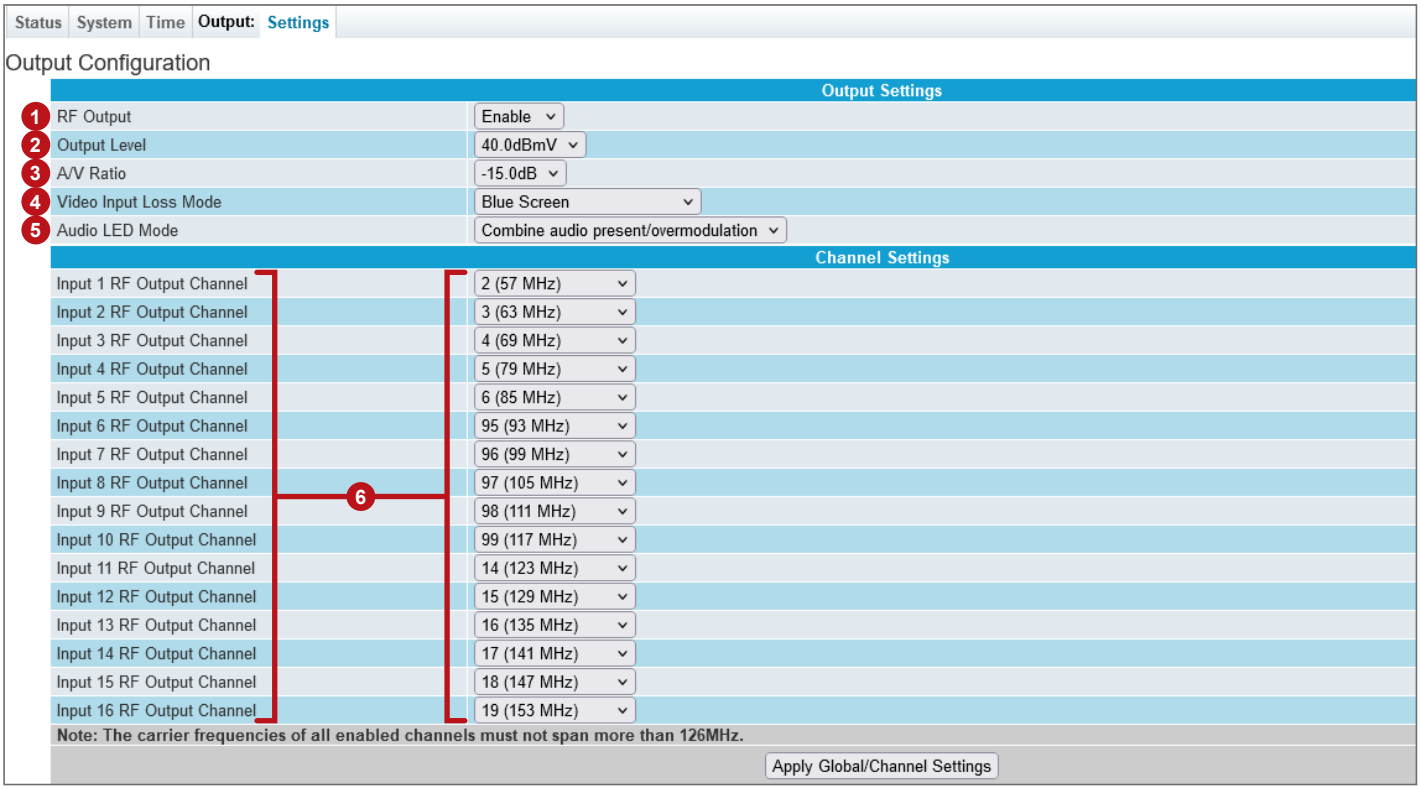


Figure 6.1a - "Encoders: Settings" Screen Overview

1. **RF Output:** Allows the user to "**Enable**" or "**Disable**" the output.
2. **Output Level:** Allows the user to set the combined RF Output Level. The range is "**25**" to "**45**", incremented by "**0.5**" dBmV. The recommended output level is 40 dBmV.
3. **A/V Ratio:** Controls amplitude of aural RF carrier relative to visual RF carrier, allowing the user to adjust the aural-to-visual carrier ratio. Options are "**-11**" to "**-20**", incremented by "**1.0**" dB. Recommended ratio is"**15.0**".
4. **Video Input Loss Mode:** Controls the behavior of output when input video signal is not present/valid. Options are "**Blue Screen**" and "**Video Modulation Disabled**" (the channel will effectively be disabled if there's no input).
5. **Audio LED Mode:** Defines the behavior of audio LEDs found on the front panel. Options are:
   - "**Green on audio present**": If an audio signal is continually detected, the LED will light green. Otherwise, it will be extinguished.
   - "**Red on audio overmodulation**": If the resulting audio output exceeds the maximum level allowed by NTSC specifications, the LED will light red. Otherwise, it will be extinguished.
   - "**Combine audio present/overmodulation**": Combines the behaviors of the other two options.

REMINDER: Click on the "Apply Global/Channel Settings" button to apply any new values and/or configurations.

6.1 "OUTPUT: SETTINGS" TAB (CONTINUED)

CHANNEL SETTINGS - INPUT RF OUTPUT CHANNELS

IMPORTANT: The carrier frequencies of all enabled channels **MUST NOT** span more than **126 MHz**.

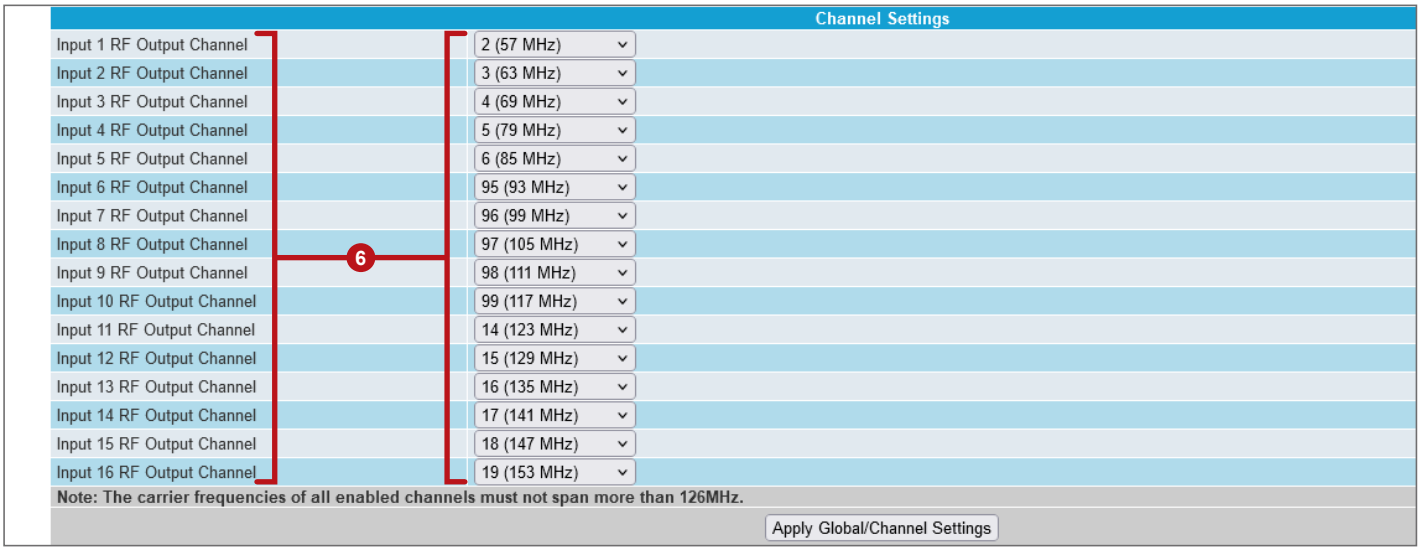
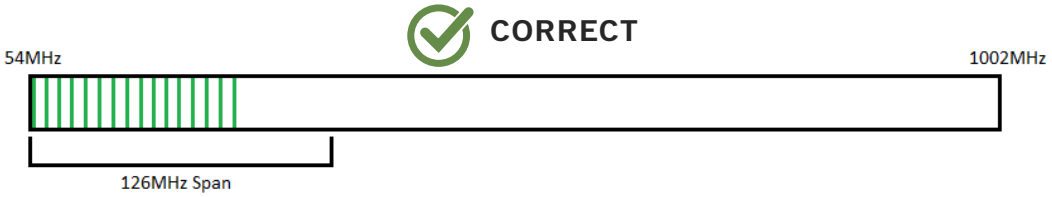


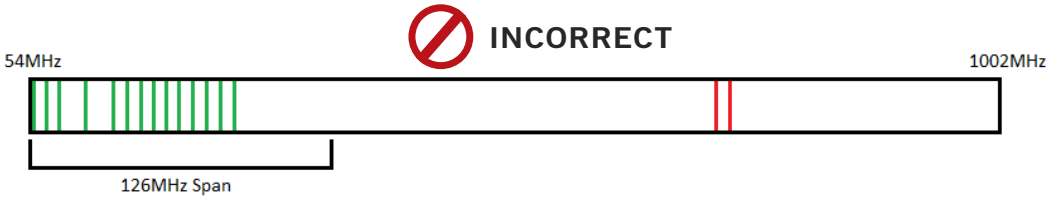
Figure 6.1a - "Encoders: Settings" Screen Overview

6 **RF Channel / Frequency:** For each output channel 1 through 16, allows the user to select the RF channel/frequency for NTSC output. The channel has the options of "**Disabled**" or can be set to a channel between **2 (57 MHz)** to **158 (999 Mhz)**, but **must** remain within a range span of no more than 126 MHz.

All 16 channels are set within the required 126MHz range span.



Only 14 channels are set within the required 126MHz span with 2 channels set outside the required span.



For further reference on how the channels correspond to the frequency, please see the "**Appendix A - CATV Channel Center Frequency Chart**" at the back of this user manual to plan out your 16 Channel assignments ahead of time in order to stay within the required range span of 126 MHz.

REMINDER: Click on the "Apply Global/Channel Settings" button to apply any new values and/or configurations.

6.1 "OUTPUT: SETTINGS" TAB (CONTINUED)

AUDIO SETTINGS - INPUT AUDIO OUTPUT CHANNELS

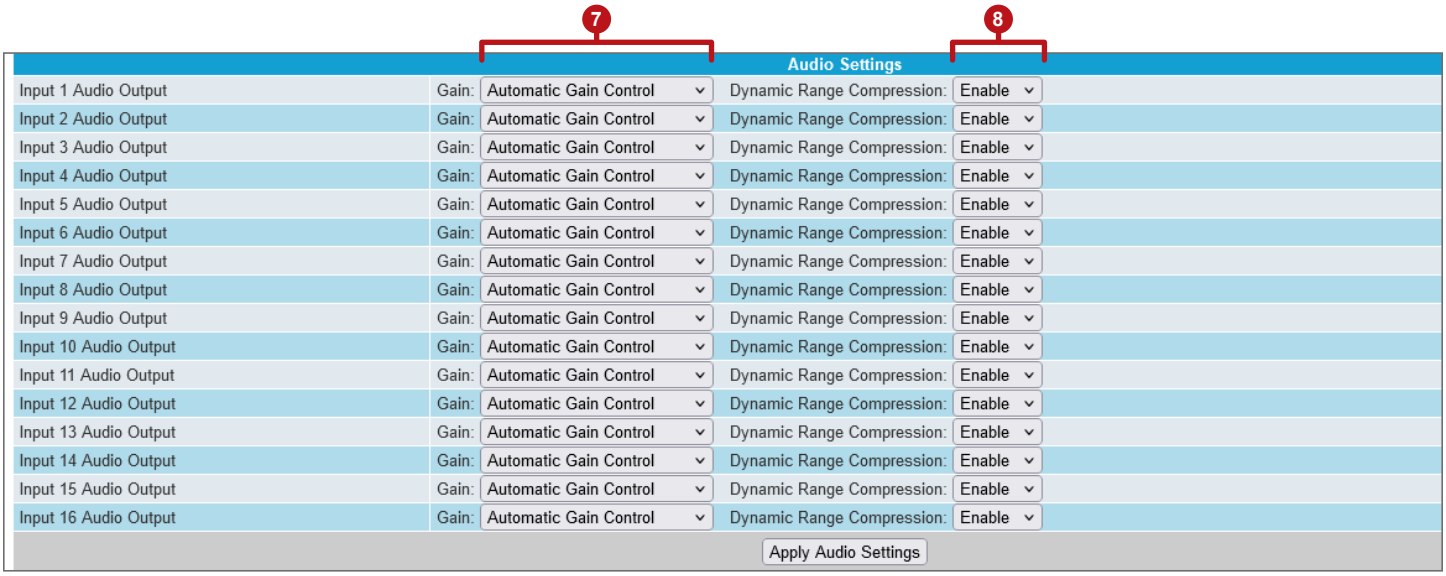


Figure 6.1b - "Encoders: Settings" Screen Overview

7 **Gain:** Sets the output audio gain. Options available for this model are "**Automatic Gain Control**" and a Manual Gain range between "**0dB - Unity**" to "**-24.0dB**" in increments of "**0.5dB**".

Please Note:

- If "**Manual Gain @ x dB**" is selected, ensure the proper carrier deviation value is selected to avoid audio overmodulation.
- If the "**Audio LED Mode**" is set to either "**Red on audio overmodulation**" or "**Combine audio present/overmodulation**", the LEDs can be utilized to identify improper audio value selections. The audio level should be set so that overmodulation is rarely indicated on the front panel LEDs.

8 **Dynamic Range Compression:** Allows the user to "**Enable**" or "**Disable**" the setting. If enabled, compresses a high dynamic range input signal (90dB or more) to something more compatible with analog NTSC audio (60dB).

REMINDER: Click on the "Apply Audio Settings" button to apply any new values and/or configurations.

SECTION 7 – UPDATE, TROUBLESHOOT, AND MAINTENANCE

7.1 "LOG" TAB

The "**Log**" (Figure 7.1) screen displays system log messages. The following is a description of the changeable parameters for this screen as well as a description of the message filter types.

Figure 7.1 - "System Log"

1. **Max Lines to Display:** allows the user to select the maximum number of lines to display starting at the most recent. (Minimum: 1, Maximum: 100,000)
2. Apply Click this button to apply changes to Max Lines to Display setting.
3. **Full Log:** To save the full event log, right-click the link and choose "Save link as..." as instructed. The log can then be saved to a user-chosen location.
4. Clear Log Click this button to clear the event log.

MESSAGE FILTERS

The following message filters can be set to enabled or disabled.

5. **Event Message Severity:** The following severity messages can be chosen individually or enable them all easily by clicking the all button.
   - **Informational:** messages appear in blue text and indicates an informational-only event was logged.
   - **Success:** messages appear in green text and indicates an event was logged where an operation was successful.
   - **Warning:** messages appear in dark orange text and indicates an event was logged pertaining to an issue that did not cause a loss of service.
   - **Error:** messages appear in bold red text and indicates an event was logged that caused or may cause loss of service.
   - **Alarm:** messages appear as **bold white text on a red background** and indicates an ongoing event was logged that is actively causing a loss of service.
6. **Host:** the user may enable or disable the event log monitoring of the Host unit.
7. **Devices:** the user may show or hide the event log monitor messages of any or all encoders.
8. **Auto Refresh:** The user is able to set the auto-refresh on this page. The log messages will display real-time as they happen.

7.2 "FIRMWARE UPDATE" TAB

The "**Firmware Update**" tab (Figures 7.2a to 7.2d) is located on the right side of the main menu. This page allows the user to review the currently installed firmware version and provides a quick and easy way to apply firmware updates.

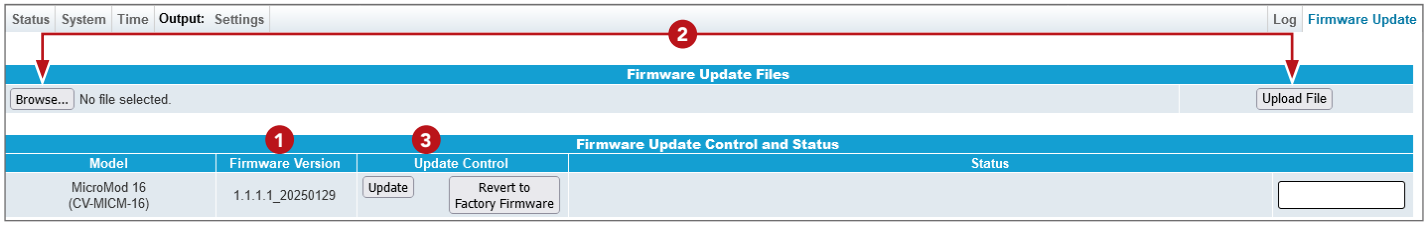


Figure 7.2a - "Firmware Update" Tab

1. Check "**Firmware Version**" to ensure you have the latest firmware. To determine if a new firmware update has been released, please go to our website at: (www.blondertongue.com/support/firmware-updates/)

   Click the "**Firmware Download Site**" linked button and then click through the following folders to view the device files: "***BLONDER TONGUE***" > "***M-***" > "***MICROMOD_16_Stk# 7800***"

   NOTE: There is a check of the file name versus product model ID to eliminate a user inadvertently updating any product models with incorrect files.

2. Under the "**Firmware Update Files**" section, the user can use Browse... and Upload File to select and send the update file(s) into the unit. See a view of the file when uploaded to the platform as shown below on Figure 7.2b.

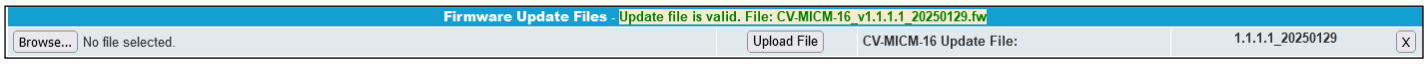


Figure 7.2b - File when uploaded

3. Update the Firmware version by clicking the Update button. The update status and progress will show under the "**Status**" columns. Below are the firmware updates as they appear while in-progress (Figure 7.2c) and upon completion (Figure 7.2d).

   Note: After clicking the "Update" button, please allow a few seconds for the file to load.

Figure 7.2c - Update In Progress

4. Once the update progress is complete, the user **MUST** reboot the unit. The most convenient method for this process is by clicking the Reboot button (Figure 7.2d) to apply and finalize the update(s).

Figure 7.2d - Completed Update

NOTE: An update can also be applied and finalized by using the reboot control through the system page.

When firmware updates are complete, the user can remove the loaded file by clicking the "X" button shown on **Figure 7.2b** next to the "Upload File" button under "Firmware Update Files".

7.3 "ADMIN" SCREEN

The "**Admin**" (Figure 7.3) settings allow a user to change or modify the Username and Password values for the unit while logged in. To access this screen, click the "admin" link at the top right corner as shown below.

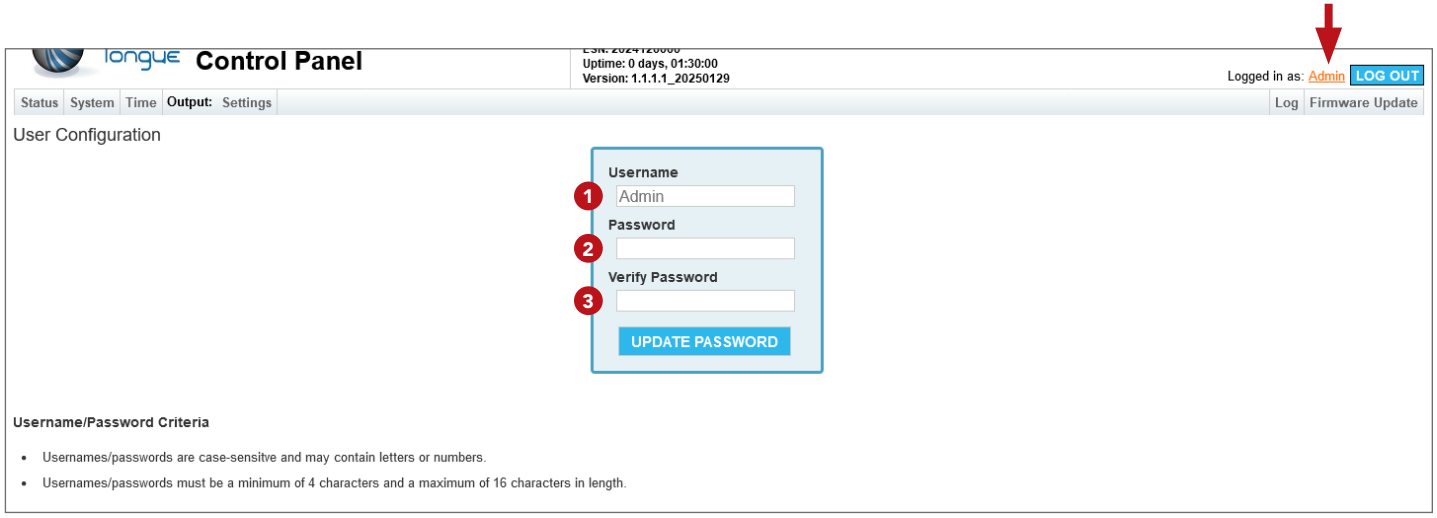


Figure 7.3 - "User Configuration"

1. **Username:** is the Administrator's login (16 characters maximum). This login allows the user to make changes to any area of the unit. (Factory Default: "Admin")
2. **Password:** is only used when changing the current Administrator's password (16 characters maximum). The password will not be displayed. (Factory Default: "pass")
3. **Verify Password:** is required when changing the current Administrator's password. It MUST match the "Password" field and will not be displayed.

PLEASE NOTE: Both the Login and Password are case-sensitive.

7.4 TROUBLESHOOTING

For any additional technical support issues, please send more information to us about your issue via our website at www.blondertongue.com/support/ or call us toll-free at 1-800-523-6049 between the hours of 9:00 AM and 5:00 PM (EST, UTC -5).

For best service on calls, please leave a voice message with a brief summary of your problems including the Product Model Name(s) which are having issues. We will have someone use this information to prepare, in advance, to assist you in advance and contact you as soon as possible during business hours.

APPENDIX A – CATV CHANNEL CENTER FREQUENCY CHART

CATV Channel Center Frequency (54 to 1002 MHz), shown in order from lowest to highest frequency.

Channel Number	Center Frequency (MHz)
2	57
3	63
4	69
5	79
6	85

Channel Number	Center Frequency (MHz)
95	93
96	99
97	105
98	111
99	117

Channel Number	Center Frequency (MHz)
14	123
15	129
16	135
17	141
18	147
19	153
20	159
21	165
22	171

Channel Number	Center Frequency (MHz)
7	177
8	183
9	189
10	195
11	201
12	207
13	213

Channel Number	Center Frequency (MHz)
23	219
24	225
25	231
26	237
27	243
28	249
29	255
30	261
31	267
32	273
33	279
34	285
35	291
36	297
37	303
38	309
39	315
41	321
42	327
43	333
44	339
45	345
46	357
47	363
48	369
49	375
50	381
51	387
52	393
53	399
54	405
55	411
56	417
57	423
58	429
59	435

Channel Number	Center Frequency (MHz)
60	441
61	447
62	453
63	459
64	465
65	471
66	477
67	483
68	489
69	495
70	501
71	507
72	513
73	519
74	525
75	531
76	537
77	543
78	549
79	555
80	561
81	567
82	573
83	579
84	585
85	591
86	597
87	603
88	609
89	615
90	621
91	627
92	633
93	639
94	645

Channel Number	Center Frequency (MHz)
100	651
101	657
102	663
103	669
104	675
105	681
106	687
107	693
108	699
109	705
110	711
111	717
112	723
113	729
114	735
115	741
116	747
117	753
118	759
119	765
120	771
121	777
122	783
123	789
124	795
125	801
126	807
127	813
128	819
129	825

Channel Number	Center Frequency (MHz)
130	831
131	837
132	843
133	849
134	855
135	861
136	867
137	873
138	879
139	885
140	891
141	897
142	903
143	909
144	915
145	921
146	927
147	933
148	939
149	945
150	951
151	957
152	963
153	969
154	975
155	981
156	987
157	993
158	999

NOTES

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NOTES

LIMITED WARRANTY

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

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

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

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

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

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

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

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

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

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