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INSTRUCTION MANUAL

HDE-ASI

DOLBY DIGITAL PRO ENCODER

HDE ENCODER ASI

Model	Stock No.	Description
HDE-ASI	6320	HD/SD/NTSC-to-ASI Encoder

Status	Date	Document No.	Issue No.	Author
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Obsolete	Feb. 9, 2009	651222300A	1	AB

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MADE IN USA

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

Purchase Location Name:	
Purchase Location Telephone Number:	
HDE-ASI Serial Number:	

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

Correspondence regarding this publication should be addressed directly to:

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One Jake Brown Road

Old Bridge, NJ 08857

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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.

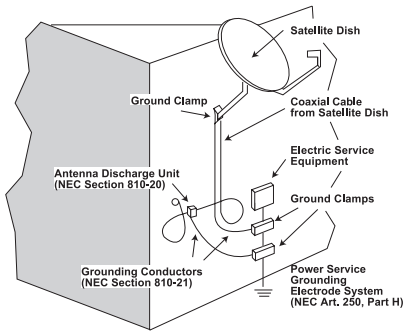
Safety Instructions

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.

Safety Instructions - continued

- 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 the cover 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.

Returning Product for Repair (or Credit)

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

Section 2 — Product Summary

2.1 Revision History & Reason

This is the seventh issue of the Instruction Manual.

The reason for this revision was to add EIA-708 closed captioning pass-through capability (Sections 2.3 and 5.3.1).

The reason for the sixth revision was to add the ability to field-upgrade the unit's software (Appendix B), and to increase the PSIP range to 999 (Section 5.3.3).

The reason for the fifth revision was to add the Dolby logo to this document.

The reason for the fourth revision was to add two new features: aspect ratio on SD programming and the "IP RESET".

The reason for the third revision was to add the UL logo to this document to indicate that the product is UL approved.

The reason for the second revision was to clarify some of the operational issues and to provide more in-depth information on how to configure and operate the unit.

2.2 Product Application & Description

Application:

The HDE-ASI encoder accepts several inputs in HD-SDI (SMPTE-292), SD-SDI (SMPTE-259M), and analog NTSC formats, and delivers one MPEG-2 Encoded output in ASI format (270 Mbps).

Three auto-detect input modes are available:

(1) 1 x HD-SDI (1080i)

(2) 1 x HD-SDI (720p) + 2 x SD-SDI/NTSC

(3) 4 x SD-SDI/NTSC

In addition to the ASI output, a multi-channel output is available via a front-panel DVI connector for preview and monitoring on a standard digital TV/monitor. Remote monitoring and configuration of the unit is accomplished via any standard Web browser.

Description:

Figure 1 below shows an overall block diagram of the HDE-ASI system.

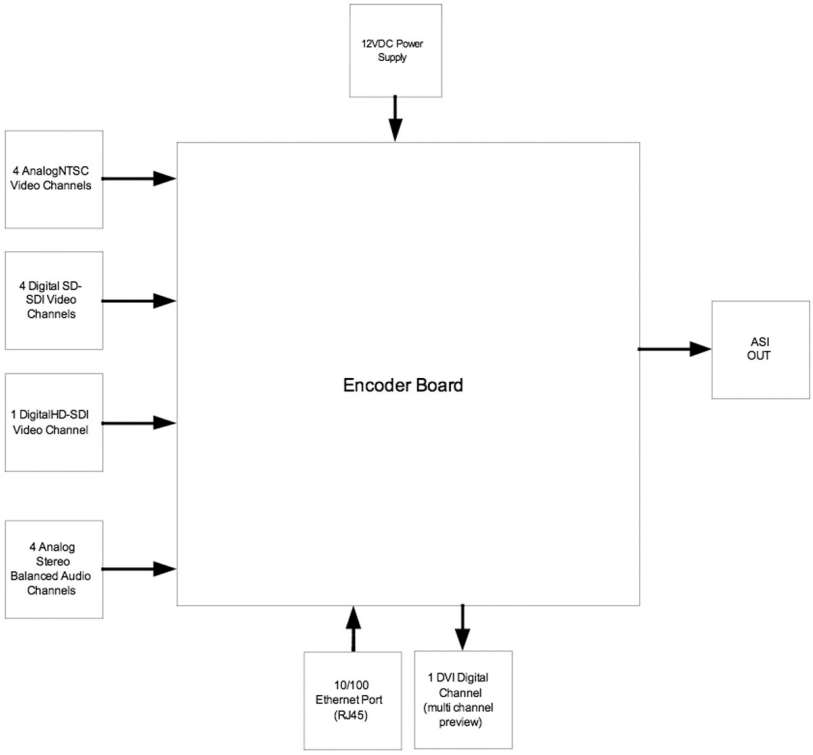
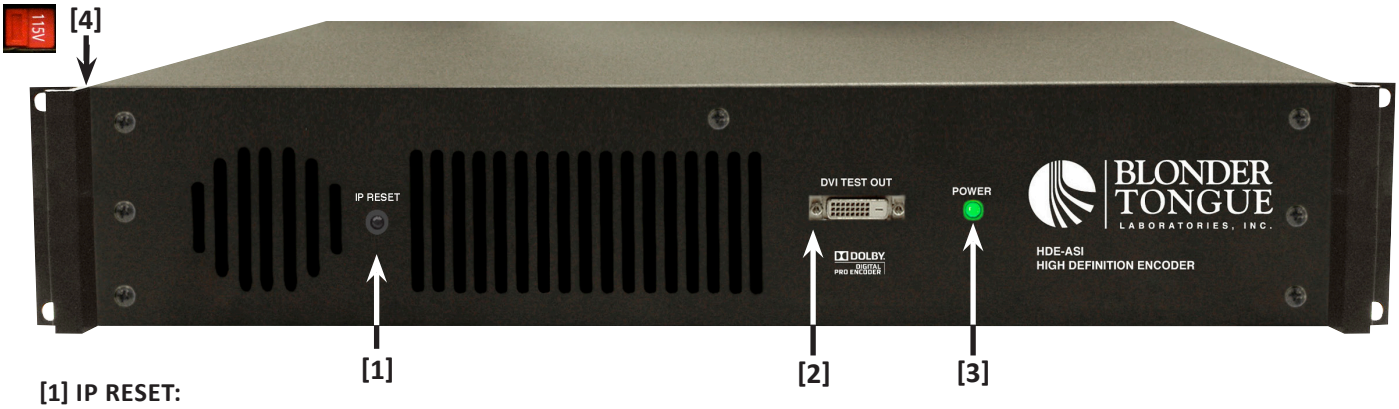


Figure 1: Overall system diagram of HDE-ASI

Below are the front and rear pictures of the unit:



[1] IP RESET:
Resets the IP address, Usernames, and Passwords to Factory default values.

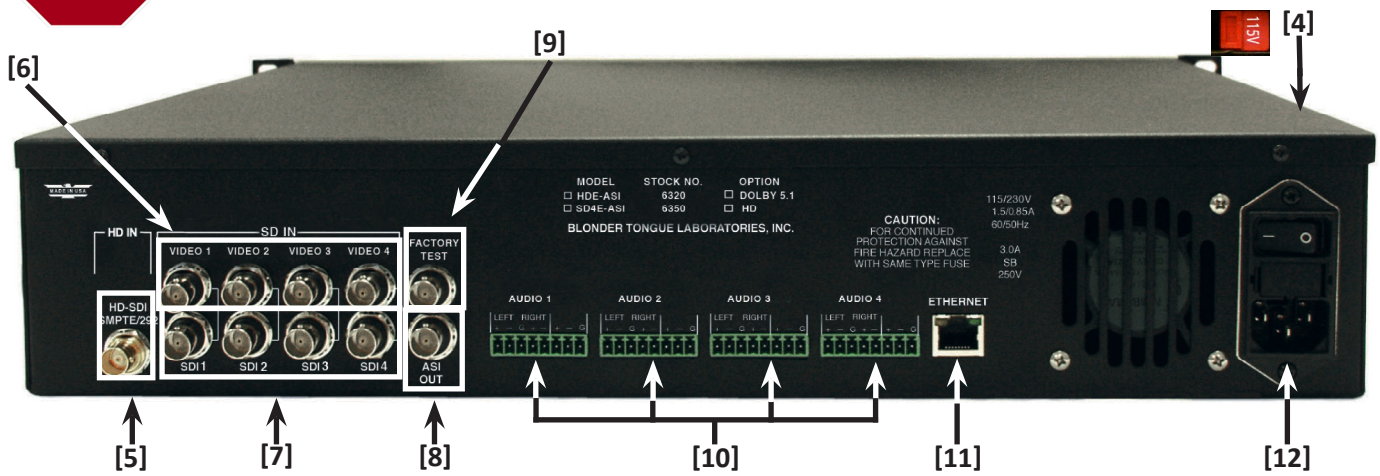
[2] DVI OUTPUT:
Multi-Channel output suitable for preview and monitoring of the ASI output

[3] POWER LED:
Green = Normal Operating Condition; Red = Fault Condition

[4] POWER SELECTOR SWITCH:
A slide-switch that allows operator to select the input power type: 115 VAC/60 Hz or 230 VAC/50 Hz.

STOP

OPERATOR MUST SELECT THE CORRECT INPUT VOLTAGE BEFORE POWERING THE UNIT.
THE FACTORY DEFAULT IS 115 VAC/60 Hz.



[5] HD-SDI SMPTE/292 INPUT (OPTIONAL-STOCK NO. 6351):
BNC connector to receive the HD-SDI input (HD480i or HD720p or HD1080i) with embedded un-compressed PCM audio.

[6] SD NTSC INPUT (1 TO 4)**:**
BNC connector to receive the analog NTSC video input. See [10] for audio input.

[7] SD SDI INPUT (1 TO 4)**:**
BNC connector to receive the SD-SDI input (HD480i) with embedded un-compressed PCM audio.

[8] ASI OUT:
BNC connector to deliver the ASI output (DVB-ASI; 50083-9; 270 Mbps).

[9] BNC "FACTORY TEST":
For factory use only.

[10] AUDIO SD (1 TO 4)**:**
Terminal connector to receive the analog balanced stereo audio for the NTSC video input. See [6] above for video input.

[11] ETHERNET:
RJ45 connector for 10/100 Ethernet interface to monitor, configure and update the unit.

[12] INPUT POWER ASSEMBLY:
ON/OFF switch and IEC C14 power inlet plug - rated 115/230 VAC; 60/50 Hz; equipped with Slo-Blo, 3.0 Amps, 250 V Fuse.

2.3 Product Specification

Input

Connector:	
HD-SDI:	1 x BNC
SDI:	4 x BNC
NTSC Video:	4 x BNC
NTSC Audio:	4 x 8-pin terminal header
Formats:	
HD-SDI:	SMPTE 292, 1.485 Gbps
SDI:	SMPTE 259M, 270 Mbps
NTSC:	Analog Video
Video & Audio	
HD-SDI:	720p, & 1080i – Embedded PCM Audio
SDI:	480i – Embedded PCM Audio
NTSC:	525 lines per frame – Analog Stereo Balanced Audio

Output

Connectors:	
ASI:	1 x BNC (rear-panel)
DVI:	1 x DVI Female (front-panel)
ASI	
Standard:	DVB-ASI; 50083-9
Data Bit Rate:	270 Mbps
DVI	
Standard:	WUXGA
Resolution:	1920x1200 pixels (16:10 Screen)
Encoding Profile	
Video:	MPEG-2 HD; ISO 13818-2; 1080i MPEG-2 SD; ISO 13818-2; 480i
Audio:	Dolby AC-3 (Standard) Dolby 5.1 (Optional)
Closed Captioning:	
Encoder Input	
HD-SDI:	EIA-608* and EIA-708* pass-through
SD-SDI:	EIA-608* pass-through
NTSC:	EIA-608 pass-through (when present in video)
	* when appropriate packets are embedded in the SDI transport stream

General

Dimensions (W x D x H):	19.0 x 16.0 x 3.5 inches (483 x 407 x 89 mm)
Power:	Operator-selectable @ 115 VAC/60 Hz or 230 VAC/50 Hz (Fuse: 3.0 amp, 250 VDC, Slo Blo)
Power Dissipation:	99 W (max)
Weight:	15 lbs (6.8 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-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Alarms/Monitoring/Control

Alarms:	Encoder over-temperature (via front-panel LED)
Local Monitoring:	Encoder fault condition (via front-panel LED) Multi-channel preview via front-panel DVI interface
Local Control:	Not Available
Remote Monitoring/Control:	GUI-based menu via Web browser

Section 3 – Installation & Power-up

3.1 Unpacking

You will find the following items in the box:

- HDE-ASI Encoder (QTY=1)
- Power Cord with IEC C13 line socket and 3-pin Type B NEMA 5 plug (QTY=1)
- A hardware bag (item 741020700A) containing the following:
  - Six-foot DVI-to-HDMI cable (QTY=1)
  - Seven-foot cross-pinned (cross-over) RJ45 Ethernet cable (QTY=1)
  - 8-position terminal block plug for analog audio (QTY=4)
  - Side-bracket mounting plate with adhesive (QTY=2)

3.2 Installation

The HDE-ASI encoder is designed to be installed in a standard 19-inch (483 mm) rack (EIA 310-D, IEC 60297, and DIN 41494 SC48D).

To install the encoder, use the two (2) side-bracket mounting plates that were provided in the hardware bag and adhere them to the mounting brackets.

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.

3.3 Power-up

**THE ENCODER IS EQUIPPED WITH A SWITCHING 115 VAC or 230 VAC POWER SUPPLY.
THE OPERATOR MUST SELECT THE CORRECT INPUT VOLTAGE BEFORE POWERING THE UNIT
VIA THE SLIDE-SWITCH ON THE SIDE PANEL. THE FACTORY DEFAULT IS 115 VAC/60 Hz.**

To power up the unit, connect the line cord to an appropriate AC outlet and turn the switch, located on the power inlet plug assembly, on. Please note that the power inlet plug is also equipped with a fuse-holder and fuse (SLO-BLO, 3AG, 3 Amps, 250V).

The "POWER" LED on the front-panel will light green.

Section 4 – Configuring the IP Interface

Before you can remotely access 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 cross-pinned RJ45 Ethernet cable that was provided in the packaging in the Ethernet interface (located in the rear of the unit). 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.

(3) Open a web browser on your computer (Internet Explorer 7 is recommended) and enter the following URL address (http://172.16.70.1). The "Login Screen" (Figure 5-2) will appear.

(4) Enter the following case-sensitive factory-default Username and Password, and click on the Submit button.

Username = Admin
Password = pass

Section 5 - Configuring the Unit

5.1 Accessing the Unit Via the Web Browser

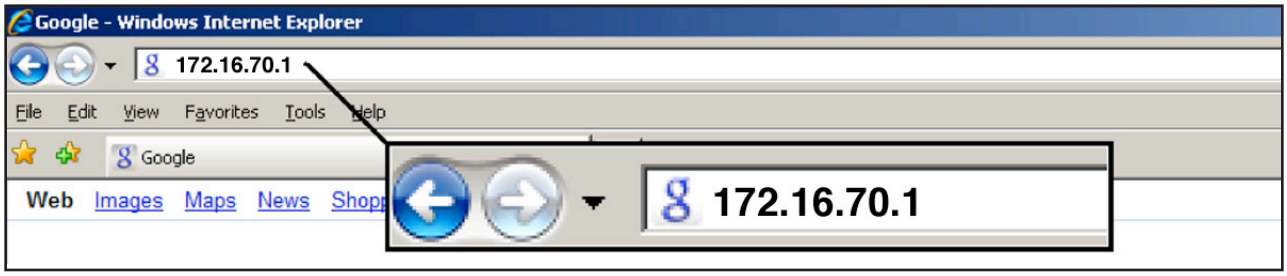


Figure 5-1: Browser Address Bar

Once connection to the HDE-ASI Encoder has been established, the Login page (Figure 5-2) is displayed. There are two types of users: administrators and guests. Please see the section below labeled **"Network"** for a description of users and user rights. The default administrative login is **"Admin"** and the password is **"pass"**. The default guests login is "**Guest**" and the password is **"pass"**. The login and password are case-sensitive.

To log into an encoder, you must type the username and password into the appropriate field. After typing in the required information, press the "Enter" key or click on the "Submit" button.

COOKIES MUST BE ENABLED IN YOUR BROWSER IN ORDER FOR PAGES TO BE DISPLAYED PROPERLY. ERRORS MAY OCCUR IF COOKIES HAVE BEEN DISABLED OR BLOCKED.

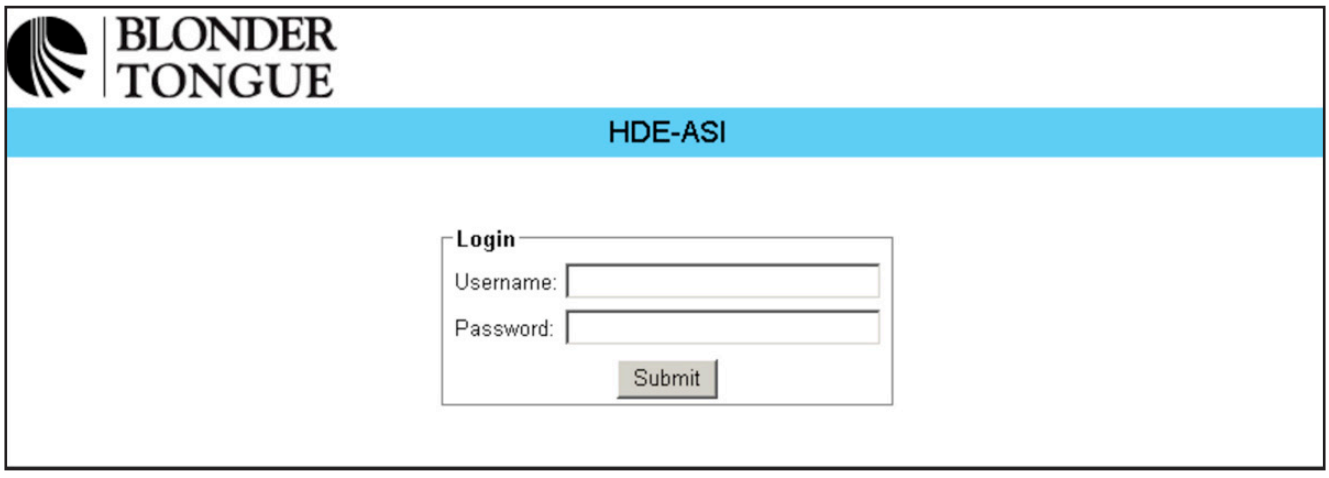


Figure 5-2: Login Screen

THE FRONT-PANEL IP RESET BUTTON, WHEN DEPRESSED FOR 10 SECONDS, WILL RESET THE IP ADDRESS, USERNAMES, AND PASSWORDS TO FACTORY DEFAULT VALUES.

5.2 Status

After a successful login, the Status page (Figure 5.3) is displayed. The status page provides a brief overview of the hardware/ firmware version, internal operating temperatures, and the status/format of the video sources. The status page information can be updated by clicking the "Refresh" button.

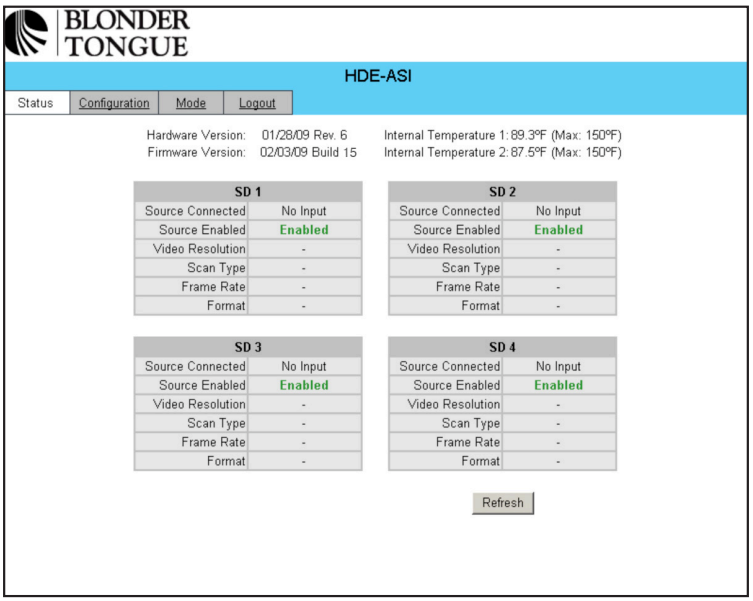


Figure 5-3: Status Tab (read-only)

The following information is displayed on the “Status Screen” for each of the individual inputs:

Source Connected: Indicates if a video source is present at the digital SD-SDI or analog NTSC A/V input connectors.

Source Enabled: Indicates if input is enabled or disabled. This value can be changed through the “Configuration > Video Screen” – See Section 5.3.2 for details.

Video Resolution: Indicates the video source resolution of the input signal.

Scan Type: Indicates the scan type of the input video.

Frame Rate: Indicates the Frame Rate of the input video.

Format: Indicates the Video format of the input video.

5.3 Configuration

The configuration menu consists of six tabs: Video, Transport, PSIP, Audio, Network and Date/Time. Each tab allows the user to change related encoder settings.

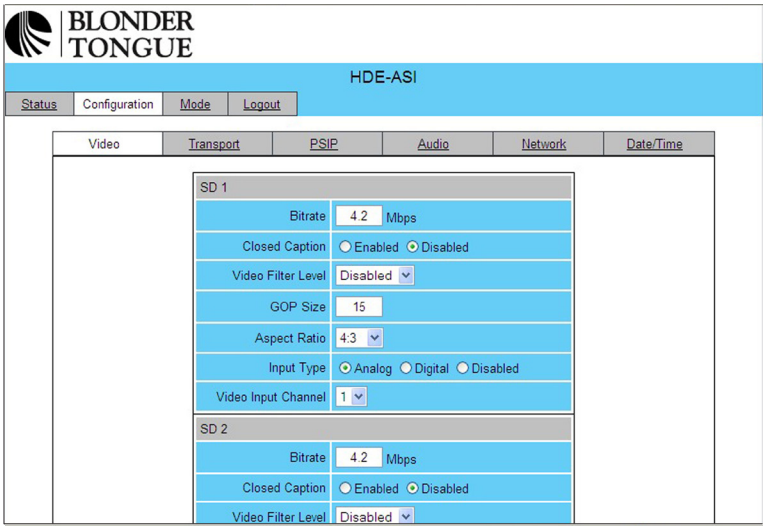


Figure 5-4: Configuration Tab (partial view)

5.3.1 Video

The Video tab(Figure 5-4) allows user to configure settings on each of the available video inputs. The following parameters can be configured for each input:

- Bitrate: is the bitrate of the input video and can be adjusted for each input video. Factory default is 4.2 Mbps. However, sum of all four input bitrates must be less than 19.392 Mbps when selecting 8VSB modulation or 38.79 Mbps when selecting QAM 256 modulation.
- Closed Caption: The EIA-608 and EIA-708 Closed Captioning pass-through capability may be enabled or disabled. Factory default value is "disabled".
- Video Filter Level: may be disabled, or set to one of the following filtering levels: Maximum, Medium, Minimum. Factory default value is "disabled".
- GOP Size: (Group of Picture) size is configurable between 1 and 120. The factory default value is 15. This means that the first frame in a GOP will be an I-frame and remaining frames will be P-frames.
- Aspect Ratio: is configurable between 4:3 and 16:9 if the input video is SD-SDI or NTSC (480i). It is 16:9 if the input video is HD (1080i or 720p).
- Input Type: can be Analog, Digital, or disabled. Factory default value is Analog. Select "Analog" if the input video is NTSC. Select "Digital" if the input video is SD-SDI (SPMTE-259M) or HD-SDI (SMPTE 292). All channels, regardless of mode, can be disabled.
- Video Input Channel: any SD input (Analog or Digital) can be assigned to any SD port. For example, when operating in the "Four-Channel" Mode (see Section 5.4 for details), channel 1's Analog input (NTSC) can be assigned to SD1, SD2, SD3, and/or SD4 port. As another example, when operating in the "Three-Channel" Mode, Channel 4's Digital input (SD-SDI) can be assigned to SD1 and/or SD2 port. Despite the flexibility of the unit's routing capabilities, the following limitations apply:

  An HD input cannot be assigned to an SD port.

  Only one "Input Type" can be assigned to each input video. For example, if channel 1's Analog input (NTSC) is assigned to the SD2 port, Channel 1's Digital input (SD-SDI) cannot be assigned to the same input port.

5.3.2 Transport Parameters

The Transport tab (Figure 5-5) allows user to configure the following parameters:

- Transport Stream Bitrate: can be adjusted to 38.70 Mbps or 19.39 Mbps. The factory default value is 38.70 Mbps.
- Modulation Mode: can be adjusted to 256-QAM, 64-QAM, and 8-VSB. The factory default value is 256-QAM.
- Broadcast Method: can be adjusted to "Terrestrial" or "Cable". The factory default value is "Cable".
- Band Control: can be adjusted to "In Band" or "Out of Band". The factory default value is "In Band".
- MPEG-2 Transport Stream parameters such as Program Numbers, Video PID (Packet Identifier), Audio PID, and PMT (Program Map Table) PID. Also, an EIT PID (Event Information Table PID) table is provided at the bottom of the page. The following limitations apply:

  Program Number - an integer from 1 to 65535
  Any PID Value - an integer from 16 to 8176

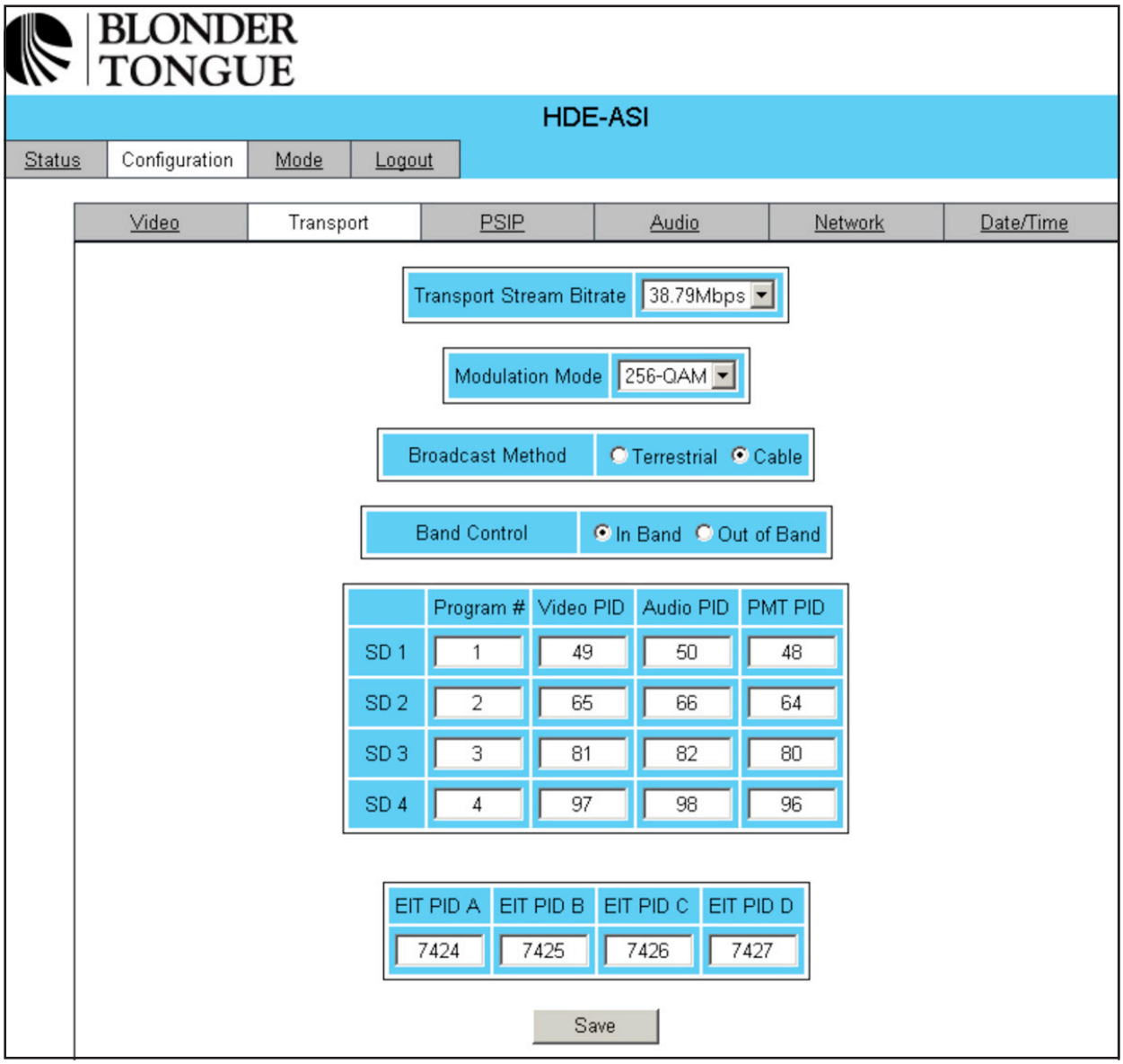


Figure 5-5: Transport Tab

IT IS NOT RECOMMENDED TO CHANGE THE FACTORY DEFAULT VALUES.
SOME PID VALUES ARE RESERVED AND CANNOT BE USED. PID VALUES MUST ALSO BE UNIQUE.
DUPLICATE PID VALUES ARE NOT ALLOWED.

5.3.3 PSIP Parameters

The Program and System Information Protocol (PSIP) is used in the ATSC digital television system for carrying metadata about each channel in the broadcast transport stream of a TV station and for publishing information about television programs so that viewers can select what to watch by title and description. The PSIP Configuration tab (Figure 5-6) allows user to enter information such as the Transport Stream ID, channel names, and major/minor channel numbers. The following limitations apply:

Transport Stream ID - an integer from 1 to 65535

Channel Name - any ASCII-printable character; 7 characters maximum

Major Channel Number - an integer from 1 to 999

Minor Channel Number - an integer from 0 to 999

Note: If one Minor Channel is configured to 0, then all other Minor Channels must be configured to 0 as well.

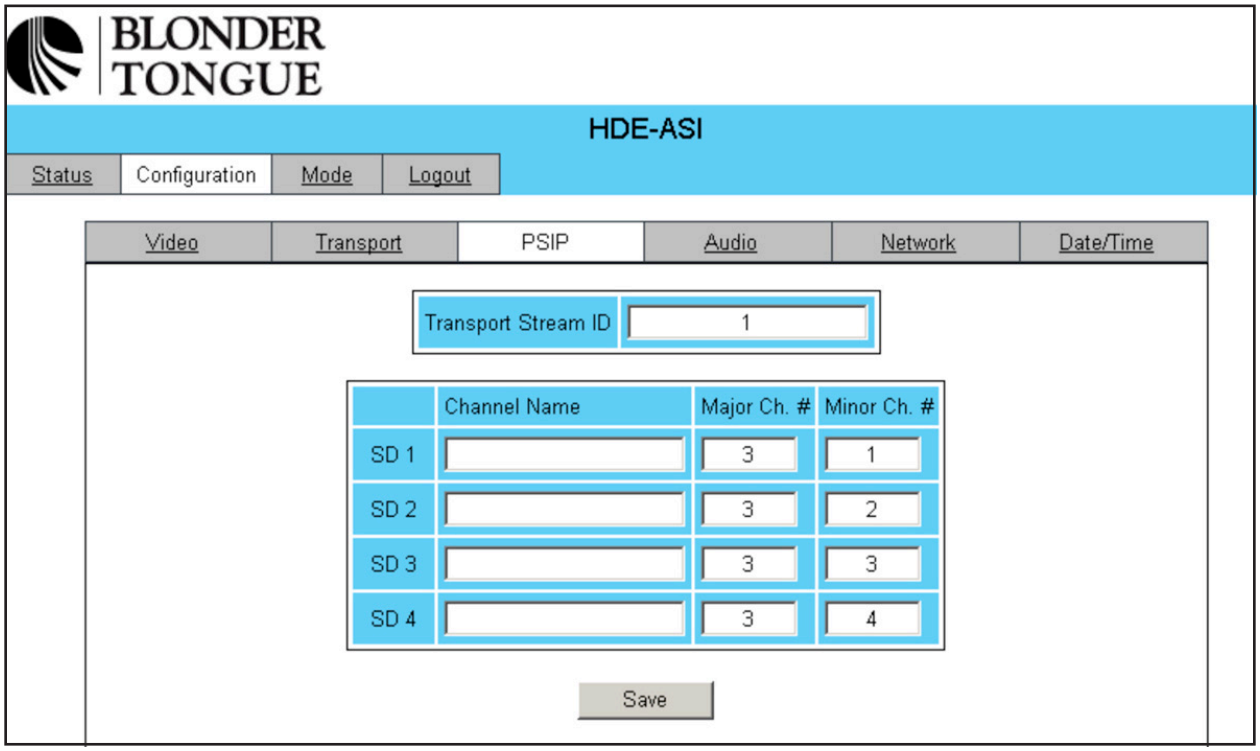


Figure 5-6: PSIP Tab

5.3.4 Audio

The Audio tab (Figure 5-7) allows user to adjust parameters associated with the Dolby® Digital AC-3 encoded stereo audio. All channels configured with digital inputs must have their respective channel streams configured properly in order to process audio correctly. Typical values are 0 and 1, but this may vary by source. These audio stream settings are ignored for channels configured for Analog input. An "Audio Delay" adjustment is also available to allow compensation for audio/video skew. The following limitations apply:

Audio Delay - an integer from -300 to 300 (ms).

Additional Information on Dolby® Digital AC-3 is provided in Appendix A.

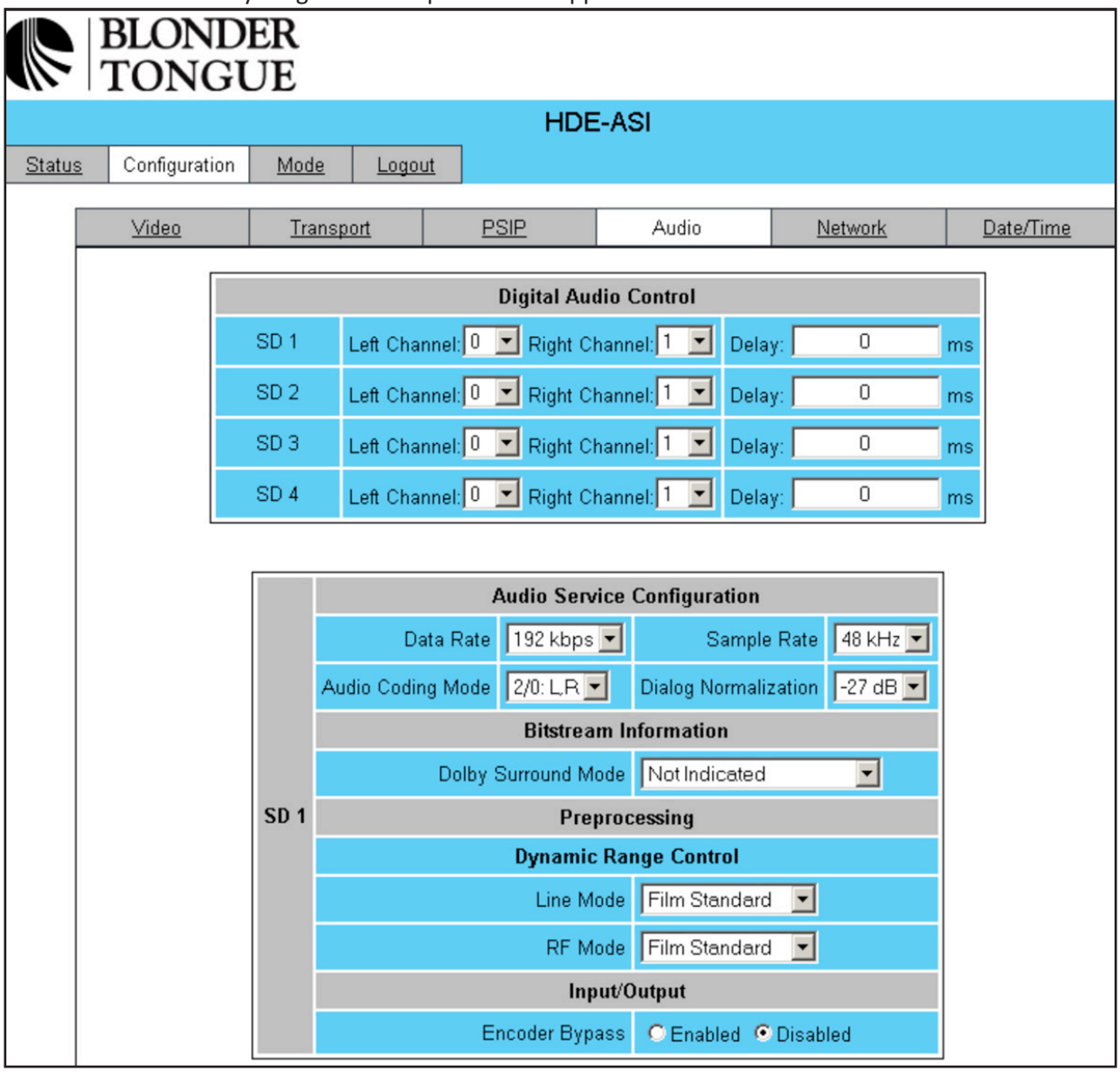


Figure 5-7: Audio Tab (partial view)

Data Rate: is the audio data rate in kbps (kilobits per second) and indicates the bitrate allocated for audio encoding. The bitrate can be changed from 96 kbps to 448 kbps. Care must be taken when increasing the audio encoding bitrate to make sure you do not exceed the maximum allowable Transport Bite Rate.

The default value of 192 kbps supports audio encoding 2/0:L,R mode which is the typical configuration for an analog stereo input. If using an SD-SDI source with expanded audio options, the data rate can be increased to accommodate the other audio encoding modes. See Dolby Encoding Guidelines for additional information.

Sample Rate: is the input sampling rate of the encoder. The SD/AV10E supports 48 kHz sampling rate.

Audio Coding Mode: also referred to as Channel mode, defines the number of main audio channels within the encoded bitstream and also indicates the channel format. The SD/AV10E supports 2/0:L,R.

2/0:L,R= audio is a dual channel (Left & Right)

Dialog Normalization: behaves as an Audio Automatic Gain Control (AGC) or Dynamic Range Control (DRC). It has the ability to take different incoming audio levels and normalize them. The ability of the Dialog Normalization depends on the configuration of the Dynamic Range Control. The SD/AV10E allows you to adjust the normalization from -1 to -31 dB. The typical value is -27 dB. This is based on the standard film audio formats which normally are between -25 and -31 dB.

Dolby Surround Mode: inserts information in the digital bitstream to indicate whether the audio is two-channel Dolby or not. The SD/AV10E allows you to select between: Not Indicated, Not Dolby Surround encoded, and Dolby Surround encoded. These values are dependent on the Audio coding mode that has been selected.

Not Indicated: the decoder makes its own determination of the audio format.

Not Dolby Surround encoded: tells the receiver the audio is not encoded in surround mode.

Dolby Surround encoded – tells the receiver the audio is encoded in surround mode.

Line Mode: is a type of Dynamic Range Compression that is typically applied to signals that will be used as direct audio feeds into a TV tuner or other receive devices.

RF Mode: is a type of Dynamic Range Compression that is typically applied to signals that will be used for retransmission on an RF carrier, and then fed into TV tuner or other receive devices at the end of the line.

There are five different values available for Line and RF:

None, Film Standard, Film Light, Music Standard, Music Light, and Speech.

The default value for both are Film Standard. Each of the values have a Null band where the audio levels will be kept between -21 and -31 dB. See Dolby Encoding Guidelines for additional information.

None: No Dynamic range controls have been assigned.

Film Standard: is suitable for movies where the very low-level sounds are not to be amplified due to other undesirable background noises that may become audible, but rather the peaks and valleys are normalized instead. It has a null bandwidth of 10 dB (-31 to -21 dB) and can add up to 6 dB of boast for low levels and attenuate high levels. The setting is used to quiet load shouting and amplifier whispers. See Dolby Encoding Guidelines for additional information.

Film Light: is similar to “Film Standard” but with a null bandwidth of 20 dB (-41 to -21 dB) and can add up to 6 dB of boast for low levels and attenuate high levels.

Music Standard: is suitable for program content that is mainly made up of music where the sound level is to be normalized (reducing the loudness) to be consistent with other programs. It has a null bandwidth of 10 dB (-31 to -21 dB) and can add up to 12 dB of boast for low levels and attenuate high levels. See Dolby Encoding Guidelines for additional information.

Music Light: is similar to “Music Standard” but with a null bandwidth of 20 dB (-41 to -21 dB) and can add up to 12 dB of boast for low levels and attenuate high levels.

Speech: is suitable for program content that is mainly made up of speech only and has a null band width of 10 dB (-31 to -21 dB) for average speech and can add up to 15 dB of boast for low levels and attenuate high levels. The setting is used to quiet load shouting and amplifier whispers. See Dolby Encoding Guidelines for additional information.

5.3.5 Network Parameters

The Network tab (Figure 5-8) allows user to change the network settings associated with an encoder. **A static IP address must be entered.** DHCP is not supported on this unit, so please see your network administrator to get the appropriate settings for your network. Usernames and passwords may also be changed/modified here. The following limitations apply:

IP Address - must conform to the standard network address form and space
Username/Password - any ASCII-printable character

There are two levels of access for this device. Administrators have full control over all available settings. Guests can view all current configurations, but have limited access to change/modify those configurations. Values shown in Figure 5-8 below are the factory default values.

To adjust the IP as well as Username and Password settings for the unit:

A hidden web page must be accessed by typing the URL of the HDE-ASI followed by a forward slash and Admin.htm, for example: http://172.16.70.1/Admin.htm

THIS WEB PAGE IS HIDDEN TO PREVENT UNWANTED MODIFICATIONS TO THE CRITICAL IP USERNAME AND PASSWORD SETTINGS. IT MAY ONLY BE ACCESSED BY USING THE ADMINISTRATOR LOG ON.

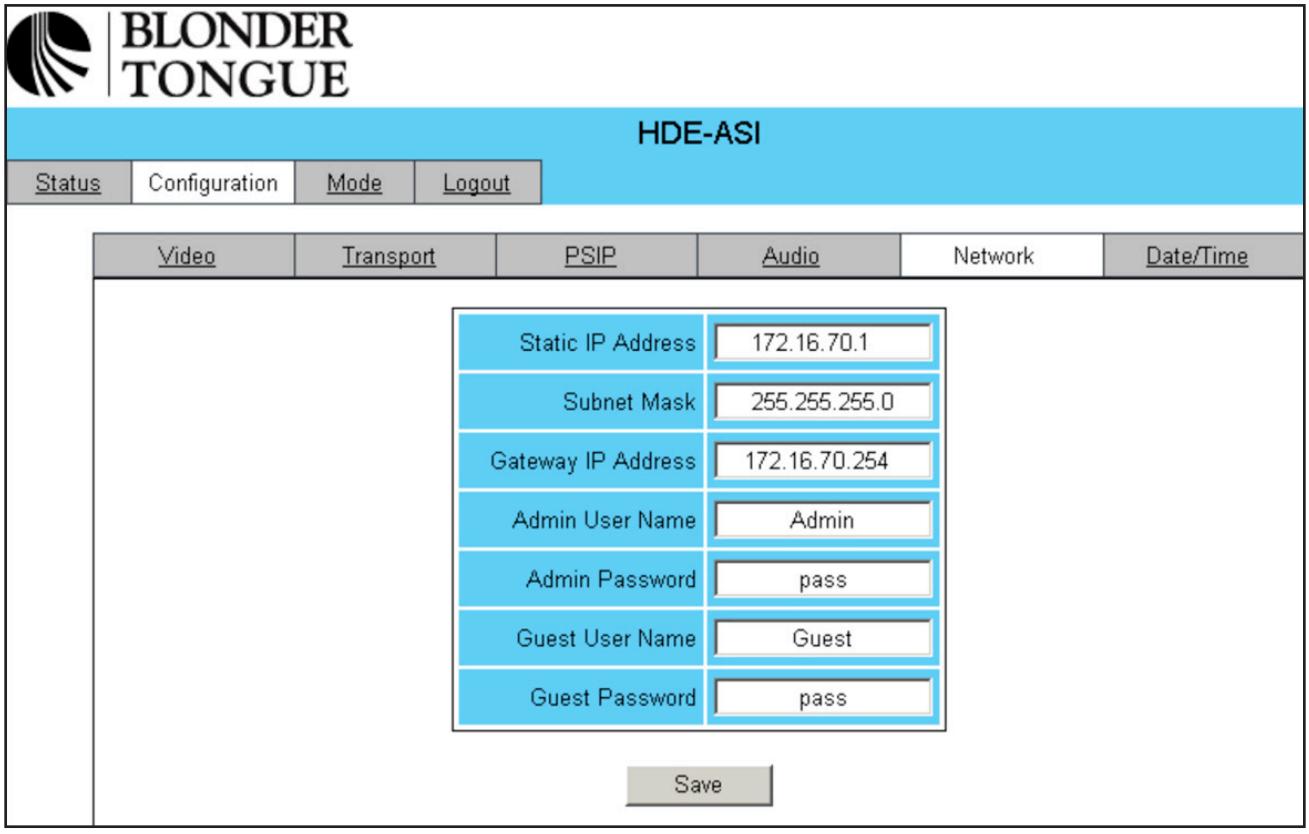


Figure 5-8: Network Tab

5.3.6 Date/Time

The Data/Time tab (Figure 5-9) allows user to set the current date and time for the encoder. 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 to use the "Automatic" option in "Configuration Method" which allows the encoder to automatically acquire time settings from a "Time Server" - you must enter the IP address of the time server. The time server specified must support the Network Time Protocol (NTP) in order for automatic time acquisition to work properly. If, however, an internet connection is not available, the date and time can be entered manually. The encoder's current time is displayed for reference. Values shown in Figure 5-9 below are the factory default values.

IT MAY TAKE SEVERAL MINUTES FOR THE CURRENT SYSTEM TIME TO UPDATE ONCE THE SETTINGS HAVE CHANGED FROM MANUAL TO AUTOMATIC OR WHEN THE SYSTEM HAS BEEN POWERED DOWN FOR AN EXTENDED PERIOD OF TIME AND IS CONFIGURED FOR AUTOMATIC TIME ACQUISITION. CLICKING THE "REFRESH" BUTTON WILL UPDATE THE TIME DISPLAYED ON THE PAGE. IF THE TIME FAILS TO UPDATE PROPERLY AFTER FIVE MINUTES, VALIDATE THAT THE IP ADDRESS SPECIFIED IN THE "TIME SERVER IP" FIELD IS CORRECT. ALSO, CHECK YOUR CONNECTION TO THE INTERNET AND CONFIRM THAT THE "GATEWAY IP ADDRESS" (ON THE NETWORK PAGE) IS SET CORRECTLY.

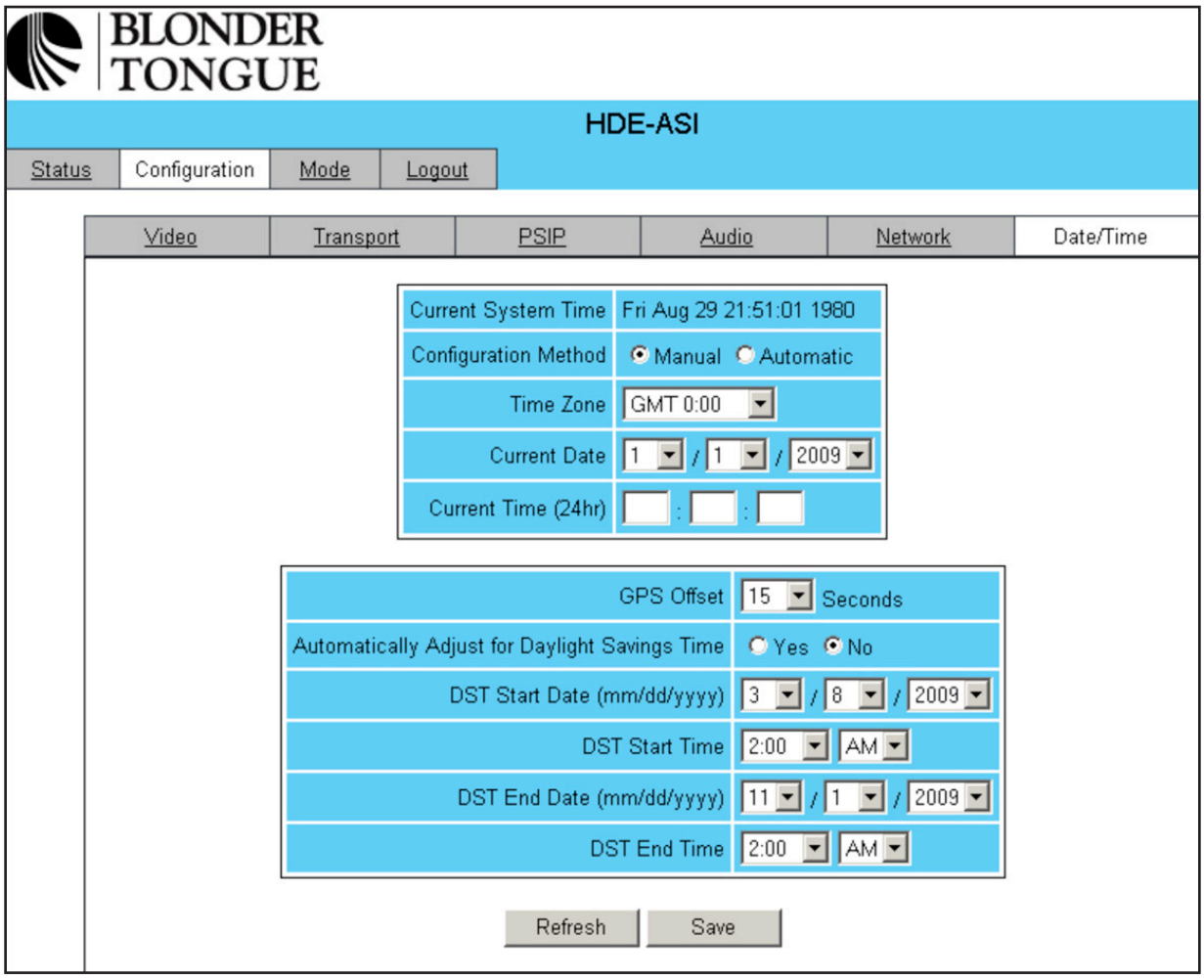


Figure 5-9: Date/Time Tab

5.4 Mode

The encoder allows the following three input modes as shown in Figure 5-10:

- Four Channel (Up to Four 480i) - the input to the encoder can be up to four (4) video in Digital SD-SDI (480i) or Analog NTSC formats. Any mix of Digital SD-SDI and Analog NTSC is allowed and auto-detected. This is the factory default value.
- Three Channel (One 720p, Up to Two 480i) - the input to the encoder can be one (1) video in Digital HD-SDI (720p) AND up to two (2) additional Digital SD-SDI (480i) or Analog NTSC formats. Any mix of Digital SD-SDI and Analog NTSC is allowed and auto-detected.
- Single Channel (HD-SDI Input) - the input to the encoder is limited to only one HD-SDI (1080i).

When the "Mode" is changed, the following parameters will be automatically modified to their factory default values:

Input Type (Section 5.3.1)

Video Input Channel (Section 5.3.1)

Program Number (Section 5.3.2)

Channel Name (Section 5.3.3)

Major/Minor Channel Number (Section 5.3.3)

You may want to re-configure these parameters as you see fit.

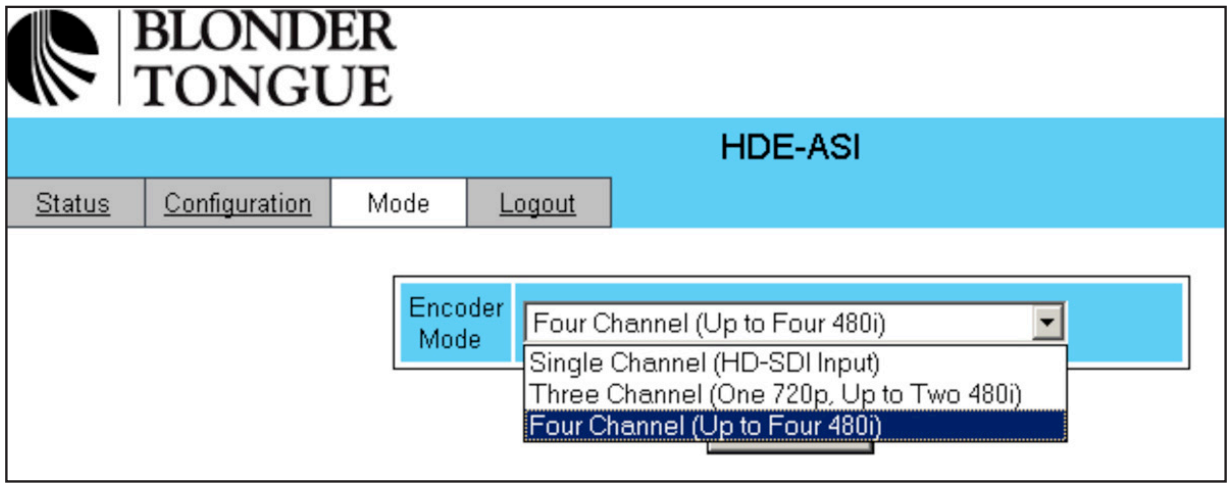


Figure 5-10: Mode

To stay within the encoding processing capability of the HDE-ASI, only the following input modes are allowed:

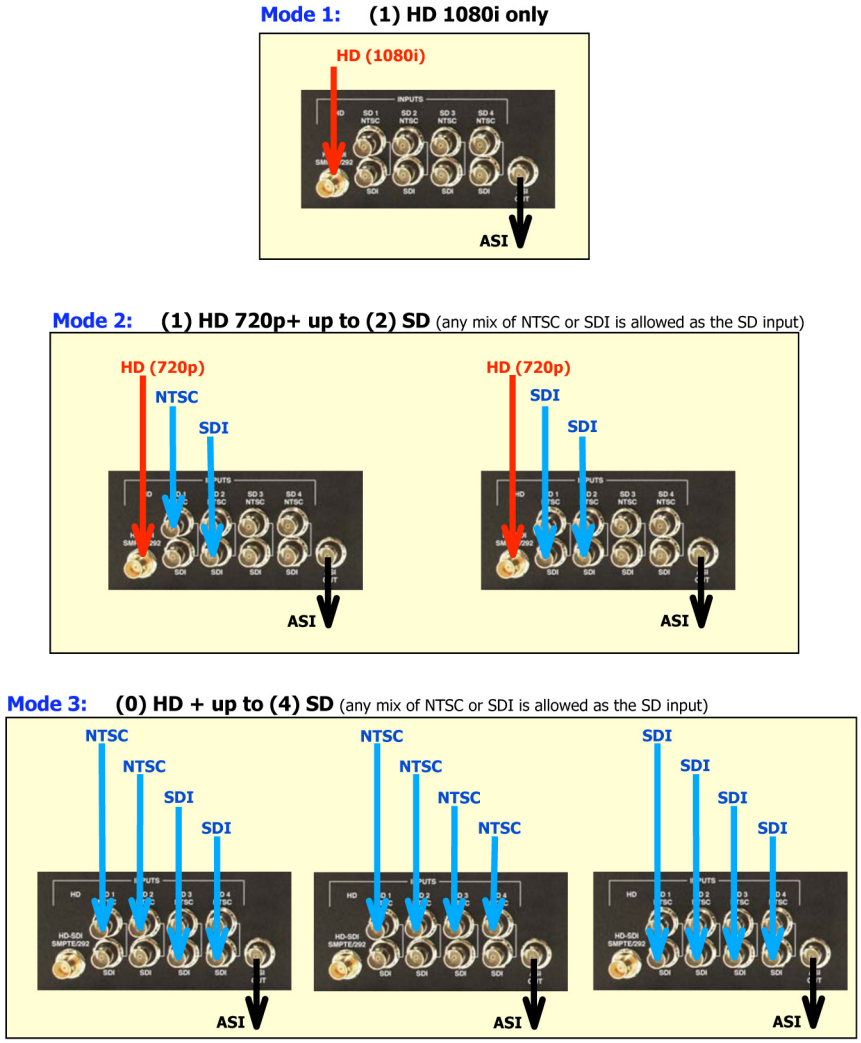


Figure 5-11: Supported Input/Output Connections

Section 6 – Live Preview via DVI interface

The encoder is equipped with front-panel DVI interface which allows live preview of all channels for the current mode. This feature requires an external monitor/TV with an HDMI/DVI port. Also, the monitor/TV must be capable of displaying (natively or by scaling) at least 1280x720 resolution. This feature is always enabled, so additional configuration is not necessary.

The live preview displays post-processed video and channel specific information for quick reference. Video/Audio PIDs, Video Source (Analog/Digital), Audio stream (AC-3/None), Video Format, and current Video Bitrate are displayed.

The live preview feature is a video-only interface and no audio is provided. It is intended to be used for verification during the initial setup and for monitoring during normal operation.

Appendix A: Dolby® Digital (AC-3)

Special Note on the Use of Dolby Trademarks
Dolby Laboratories encourages use of Dolby trademarks to identify sound tracks that are encoded with Dolby technologies. This is an effective way to inform listeners of the soundtrack format, and the use of a standard logo promotes easy recognition in the marketplace. However, as with all trademarks, Dolby trademarks may not be used without permission. Dolby Laboratories therefore provides a trademark agreement for companies that wish to use Dolby trademarks.

This agreement should be signed by the company that owns the program material being produced. Recording studios or production facilities that provide only audio production or encoding services for outside clients generally do not require a trademark license. If you would like more information on obtaining a Dolby trademark license, please contact Dolby Laboratories Licensing Corporation, or visit the Other Encoded Content portion of the Licensing and Trademark section of www.dolby.com.

Dolby® Digital (AC-3) requires that every decoder implement Dynamic Range Control (DRC). This allows the program producer to exercise control over the kind of audio compression applied within the consumer's decoder. Depending upon the device and output used, the consumer may also have control over the amount of compression applied. All this happens in the decoder after any dialnorm gain reduction has been applied.

Consumer RF Modulator
If the consumer device includes an RF modulator, Dolby® requires the decoder feeding it to use whatever compression profile has been assigned to the "RF Mode" within the encoder. The level of the signal is also raised 11 dB and peaks are limited. If Dialnorm was set correctly, dialog will be raised to a level of -20 dBFS, leaving headroom of 20 dB.

Consumer Stereo Output
For these outputs, Dolby® requires that consumer device offer compression that has been applied within the encoder to the "Line Mode". The consumer device may also optionally offer a switch for the "RF Mode" compression if the user desires less dynamic range. The device may allow scaling of the low level boost compression, but does not allow scaling of the high-level gain reduction.

Consumer 5.1 Surround Output
Devices with these outputs can, and often do, provide the consumer with a choice of compression: Line Mode ("Light"), RF Mode ("Heavy") or None. Some devices also provide a range of choices, scaling between "Line Mode" and no compression.

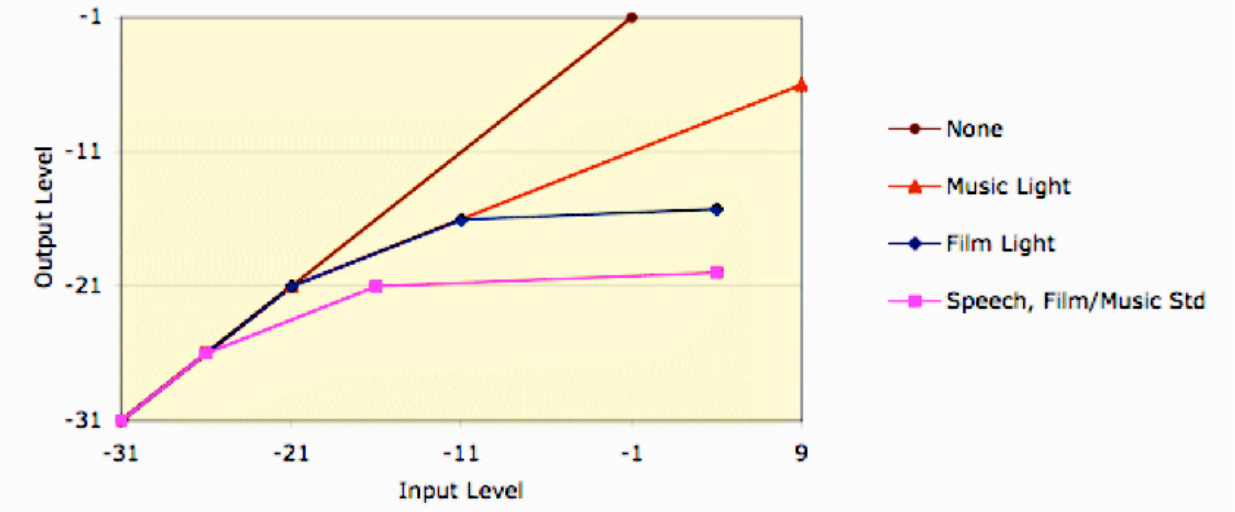
Encoder Compression Profiles
For both "Line Mode" and "RF Mode" compression, every Dolby® Digital encoder offers the choice of six different compression "profiles" as defined by Dolby®:

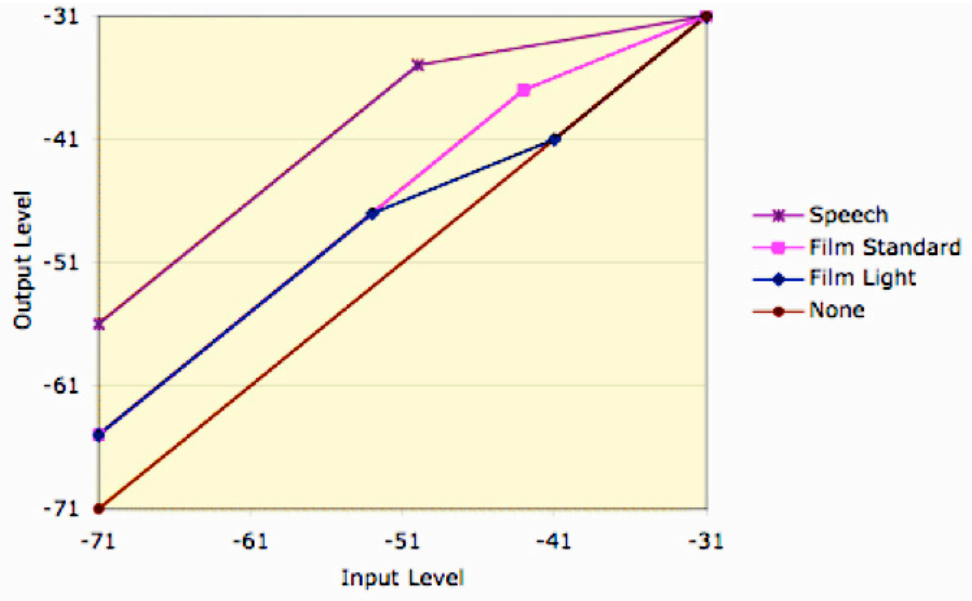
- None: No dynamic range compression is applied unless down mixing could cause overload, in which case protection [compression] is automatically applied.
- Speech: Appropriate for programs with predominantly dialogue.
- Music Light: Applies light compression to music that is already compressed and does not require excessive dynamic range restriction.
- Music Standard: Applies more compression to music that is not compressed and requires dynamic range restriction.
- Film Light: Applies light compression to a subjectively quiet film that does not require excessive dynamic range restriction.
- Film Standard: Applies more compression to a subjectively loud film that requires dynamic range restriction.

More information on these profiles can be obtained by visiting http://www.dolby.com/professional/pro_audio_engineering/dp569_01.html.

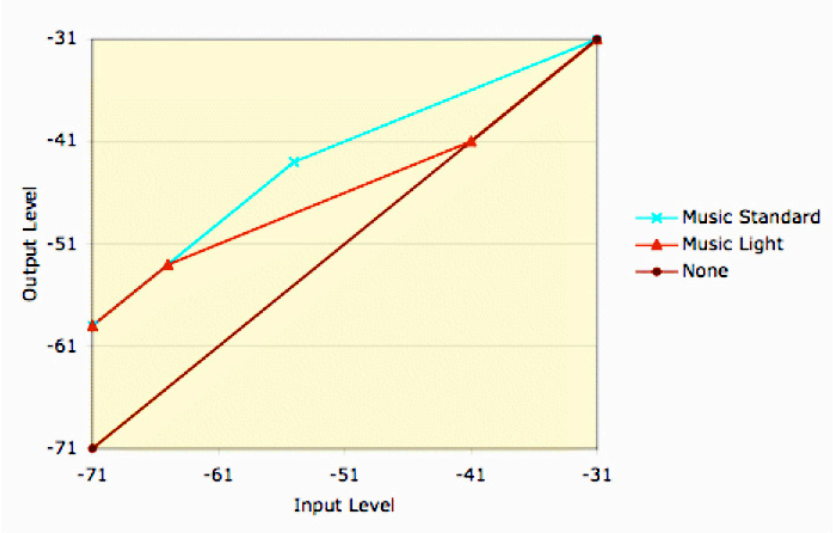
A.1 Implications

If a broadcaster chooses "none" for both "line mode" and "RF mode" within their encoder, DRC will be deactivated for all consumers. While DRC is not a multiband processor and may be more audible than a multiband broadcast limiter, it seems logical to use minimal compression prior to the Dolby® Digital system and enable moderate DRC for "line mode" and more aggressive DRC for "RF mode". This will provide the consumer with convenient automatic and manual control over the amount of compression used.





Dolby® DRC Gain Boost Profiles



A.2 Dialnorm

The purpose of dialnorm (dialog normalization) is to maintain a consistent dialog level for the listener. Dolby® Laboratories requires dialnorm implementation in every Dolby® Digital encoder and decoder.

The dialnorm metadata parameter is set in the encoder, and ranges from -31 to -1. If dialnorm is increased from -31 to -1, the decoder reduces the audio level by an equal number of decibels.

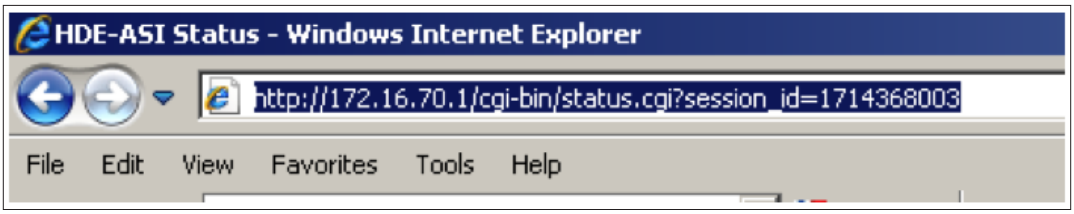
Dolby® suggests setting this parameter equal to the encoder digital input average A-weighted dialog level unique to each show. They also recognize that it may be simpler to fix dialnorm at a setting appropriate to archives, and adjust the audio mix of new productions to match. This eliminates the need to implement a complex metadata system.

Appendix B: Software Upgrade Procedure

NOTE: On-site software upgrade is applicable only to encoders that have software version 19 or higher. All other units must be returned to Blonder Tongue Service Department for upgrade.

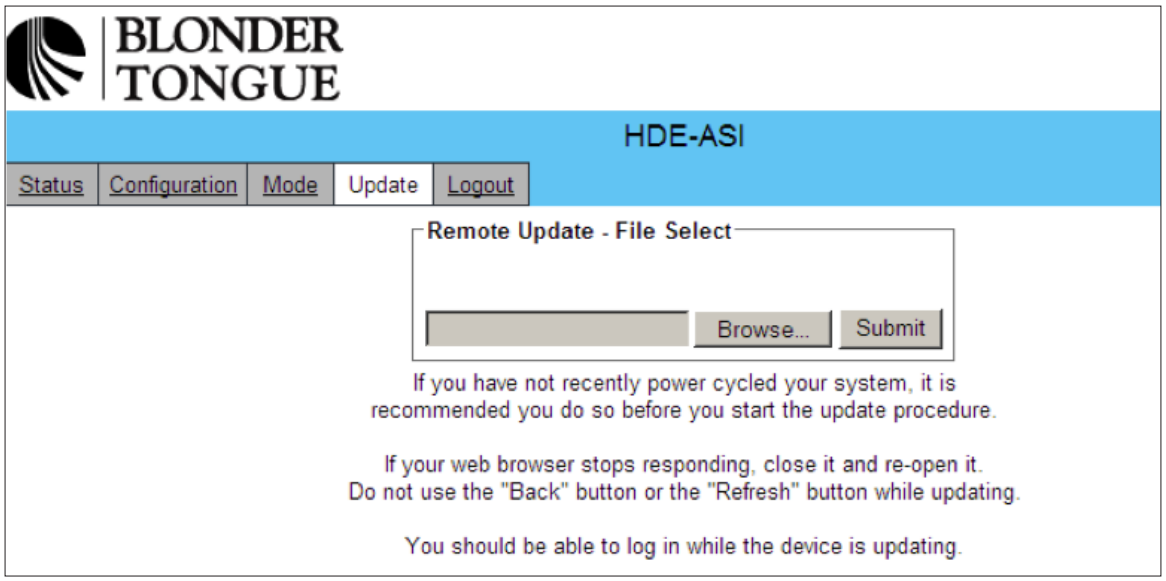
[1] Contact Blonder Tongue's Systems Engineering Department (1-800-523-6049 ext. 4217, 732-679-4000 ext. 4217) to get the information on the FTP site from where you can download the new software.

[2] Log-on to your encoder (HDE-ASI or SD4E-ASI) by using the IP address you have assigned or use the factory default IP address (712.16.70.1). A "status" URL similar to the one shown below will appear:

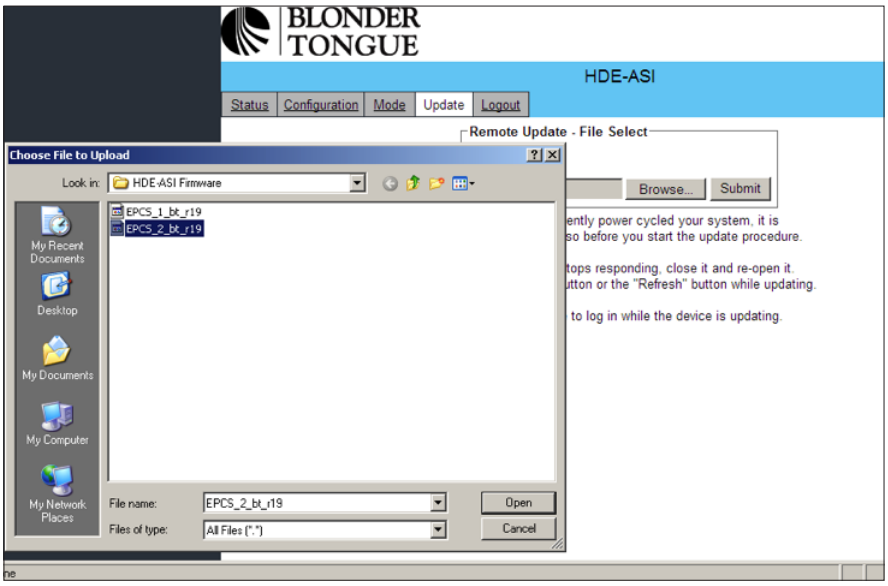


[3] Change the URL by replacing the word "status" with the word "update". Do not change or remove the "session_id". Therefore, using the example above, the revised URL should be:

[4] This will bring you to the "Remote Update" screen shown below. Read the instructions on the web-page and follow them exactly. The update process can take as long as 30 minutes for both FPGA chip-sets of the unit.



[5] Click on the “Browse” button and locate the files provided by Blonder Tongue’s Systems Engineering Department. The BIN files will be labeled **EPCS_x_x_rxx.bin**, as shown in the example below, where "x" can be a letter or a number.

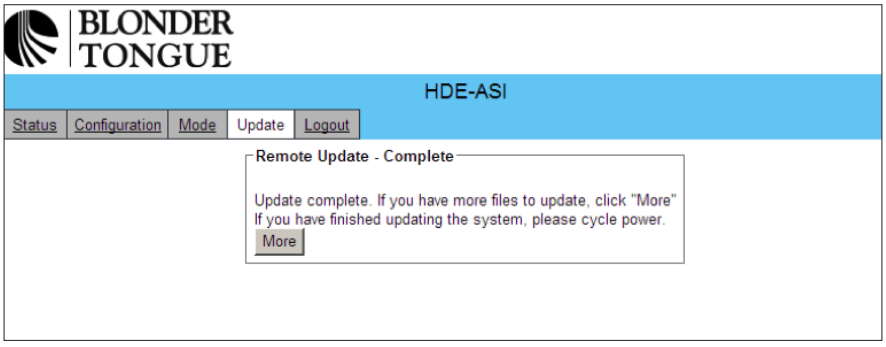


There are two “.bin” files for the two FPGA’s that need to be upgraded. Only one FPGA can be upgraded at a time. Upload the Bin file for FPGA#2 first.

Once the file for FPGA#2 has been located (EPCS_2_bt_r19.bin in the example above), select it by highlighting it and then click on “Submit” button to start the upgrade process.

The upgrade consists of four stages (File Upload, Formatting Uploaded File, Flashing Device, and Verifying Files) which will be displayed on the screen to indicate progress at each stage. Be patient and allow the upgrade to be completed without interruption.

[6] Once the upgrade of FPGA#2 is completed, the following screen will appear:



Click on the “More” button and repeat the procedure to upgrade FPGA#1.

[7] Power cycle the unit after both FPGA’s have been upgraded.

[8] Congratulations – you have completed the upgrade process. Log-on to the unit and verify the new software version on the “Status” screen.

Glossary

AES: Audio Engineering Society, Organization responsible for many standards used within the audio, video DVD and broadcast industries. www.aes.org

ASI: Asynchronous Serial Interface.

BITRATE: The amount of data being transported, measured relative to quantity over time in bits per second (thousand bits per second or kb/s, million bits per second or MB/s, billion bits per second or GB/s and trillion bits per second or TB/s).

DVI: Digital Visual Interface.

EIT PID: Event information table; the EIT is part of the DVB standard and provides schedule information for digital programming.

GOP SIZE: The GOP size determines total number of frames in the GOP (Group of Pictures). Current GOP sizes are for example 15.

NTSC: National Television Standards Committee. Video standard established by the United States (RCA/NBC) and adopted by numerous other countries: 525-line video with 3.58-MHz chroma subcarrier and 60 cycles per second.

PMT ID: Program Map Tables (PMTs) contain information about programs. For each program, there is one PMT. Each PMT shall be transmitted on a separate PID although technically it is not required. The PMTs describe which PIDs contain data relevant to the programs. PMTs also provide metadata about the streams in their constituent PIDs. For example, if a program contains an MPEG-2 video stream, the PMT will list this PID, describe it as a video stream, and provide the type of video that it contains. The PMT may also contain additional descriptors providing data about its constituent streams.

PSIP: Program and System Information Protocol. This is the digital information transmitted by a DTV station that includes the time and date, major and minor channel numbers, and program information.

SDI: The professional digital video connection format using a 270 Mbps transfer rate. A 10-bit, scrambled, polarity-independent interface, with common scrambling for both component ITU-R 601 and composite digital video and four groups each of four channels of embedded digital audio. SDI uses standard 75-ohm BNC connectors and coax cable.

SMPTE: The Society of Motion Picture and Television Engineers. An international research and standards organization. The SMPTE time code, used for marking the position of audio or video in time, was developed by this group.

Notes

Notes

Limited Warranty

Blonder Tongue Laboratories, Inc. (BT) will at its sole option, either repair or replace (with a new or factory reconditioned product, as BT may determine) any product manufactured by BT which proves to be defective in materials or workmanship or fails to meet the specifications which 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 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), with respect to iCentral™ (hardware and software) and all other software products (including embedded software) licensed from BT, (ii)) for a period of one (1) year from the date of original purchase, with respect to all MegaPort™, IPTV products, and fiber optics receivers, transmitters, couplers and integrated receiver/distribution amplifiers (including TRAILBLAZER™, RETRO-LINX™ and TWIN STAR™ products) as well as for DigiCipher ® satellite receivers, and (iii) for a period of three (3) years from the date of original purchase, with respect to all other BT products. Notwithstanding the foregoing, in some cases, the warranty on certain proprietary sub-assembly modules manufactured by third-party vendors and contained in BT products and on certain private–label products manufactured by third-parties for resale by BT are of shorter duration or otherwise more limited than the standard BT limited warranty. In such cases, BT's warranty with respect to such third-party proprietary sub-assembly modules and private-label products will be limited to the duration and other terms of such third-party vendor's warranty. In addition, certain products, that are not manufactured but are resold by BT, carry the original OEM warranty for such products. The limited warranty set forth in this paragraph does not apply to any product sold by BT, which at the time of sale constituted a Refurbished/Closeout Product.

(b) BT will at its sole option, either repair or replace (with a new or factory-reconditioned product, as BT may determine) any product sold by BT which at the time of sale constituted a refurbished or closeout item ("Refurbished/Closeout Product"), which proves to be defective in materials or workmanship or fails to meet the specifications which are in effect on the date of shipment or such other specifications as may have been expressly agreed upon in writing, for a period of ninety (90) days from the date of original purchase. Notwithstanding the foregoing, in some cases the warranty on third party software and on certain proprietary sub-assembly modules manufactured by third-party vendors and contained in BT products and on certain private–label products manufactured by third-parties for resale by BT are of shorter duration or otherwise more limited than the BT limited warranty for Refurbished/Closeout Products. In such cases, BT's warranty for Refurbished/Closeout Products constituting such third party software, third-party proprietary sub-assembly modules and private-label products will be limited to the duration and other terms of such third-party vendor's warranty. In addition, notwithstanding the foregoing, (i) certain Refurbished/Closeout Products that are not manufactured (but are resold) by BT, carry the original OEM warranty for such products, which may be longer or shorter than the BT 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 or other satisfactory proof of purchase and a brief description of the defect, must be shipped freight prepaid to: Blonder Tongue Laboratories, Inc., One Jake Brown Road, Old Bridge, New Jersey 08857.

This warranty does not cover 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) lack of reasonable care or (vi) wind, ice, snow, rain, lightning, or any other weather conditions or acts of God.

OTHER THAN THE WARRANTIES SET FORTH ABOVE, BT 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 SUPERSEDE ANY ORAL OR WRITTEN WARRANTIES OR REPRESENTATIONS MADE OR IMPLIED BY BT OR BY ANY OF BT'S EMPLOYEES OR REPRESENTATIVES, OR IN ANY OF BT'S BROCHURES MANUALS, CATALOGS, LITERATURE OR OTHER MATERIALS. IN ALL CASES, BUYER'S SOLE AND EXCLUSIVE REMEDY AND BT'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 BT IN ITS SOLE DISCRETION SHALL DETERMINE. BT 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 BT.

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 BT, the customer shall ship such allegedly non-conforming or defective goods, freight prepaid to BT for examination by BT's inspection department and verification of the defect. BT, at its option, will either repair, replace or issue a credit for products determined to be defective. BT'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 BT 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 BT. Under no circumstances are products to be returned to BT without BT's prior written authorization. BT reserves the right to scrap any unauthorized returns on a no-credit basis. Any actions for breach of a contract of sale between BT and a customer must be commenced by the customer within thirteen (13) months after the cause of action has accrued. A copy of BT's standard terms and conditions of sale, including the limited warranty, is available from BT upon request. Copies of the limited warranties covering third-party proprietary sub-assembly modules and private-label products manufactured by third-parties are also available from BT on request. DigiCipher ® is a registered trademark of Motorola Corp. (**Rev 0509)**

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