DRAKE PEG PLUS

MPEG-2 OR H.264 DIGITAL VIDEO PEG CHANNEL ENCODER

STOCK #	MODEL NAME	DESCRIPTION
1002613B	Drake PEG PLUS	MPEG-2 or H.264 HD PEG Encoder with HD-SDI or Composite Input and IP Output; Zixi output protocol available
1002644B	Drake PEG-RP-2	Rack Mount Panel for (2) PEG PLUS units

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

Purchase Location Name:	
Purchase Location Telephone Number:	
PEG PLUS Serial Number(s):	

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

CROSS-REFERENCE & HYPERLINKING USAGE

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

PRODUCT AND DOCUMENTATION UPDATES

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

RETURNING PRODUCT FOR REPAIR (OR CREDIT)

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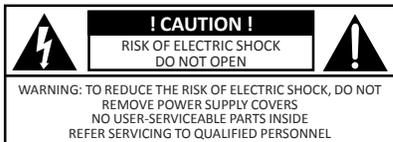
TABLE OF CONTENTS

SECTION 1 – IMPORTANT SAFETY INSTRUCTIONS

1. **Read Instructions** - All the safety and operating instructions should be read before the product is operated.

2. **Retain Instructions** - The safety and operating instructions should be retained for future reference.

3. **Heed Warnings** - All warnings on the product and in the operating instructions should be adhered to.

4. **Follow Instructions** - All operating and use instructions should be followed.

5. **Cleaning** - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleansers. Use a damp cloth for cleaning.

6. **Attachments** - Do not use attachments that are not recommended by the product manufacturer as they may cause hazards.

7. **Water and Moisture** - Do not use this product near water—for example, near a bathtub, wash bowl, kitchen sink or laundry tub; in a wet basement; or near a swimming pool; and the like.

8. **Accessories** - Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

9. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

10. **Ventilation** - Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or similar surface. This product should not be placed in a built-in installation such as bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

11. **Power Sources** - This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

12. **Grounding or Polarization** - This product may be equipped with a polarized alternatingcurrent line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. Alternate Warnings—If this product is equipped with a three-wire grounding-type plug, a plug having a third (grounding) pin, the plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

13. **Power-Cord Protection** - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

14. **Outdoor Antenna Grounding** - If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.

15. **Lightning** - For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

16. **Power Lines** - An outside antenna system should not be located in the vicinity of overhead power lines, other electric light or power circuits, where it can fall into such power lines or circuits.

17. **Overloading** - Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

18. **Object and Liquid Entry** - Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

19. **Servicing** - Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20. **Damage Requiring Service** - Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    ❏ When the power-supply cord or plug is damaged,

    ❏ If liquid has been spilled, or objects have fallen into the product,

    ❏ If the product has been exposed to rain or water,

    ❏ If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation,

    ❏ If the product has been dropped or damaged in any way, and

    ❏ When the product exhibits a distinct change in performance—this indicates a need for service.

21. **Replacement Parts** - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutes may result in fire, electric shock or other hazards.

22. **Safety Check** - Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

23. **Wall or Ceiling Mounting** - The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

24. **Heat** - The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

CAUTION STATEMENT

WARNING: TO PREVENT FIRE OR ELECTRICAL SHOCK DO NOT EXPOSE TO RAIN OR MOISTURE

! CAUTION !
RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT
REMOVE POWER SUPPLY COVERS
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED PERSONNEL

An appliance and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the appliance and cart combination to overturn.

The lightning flash with arrow head symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
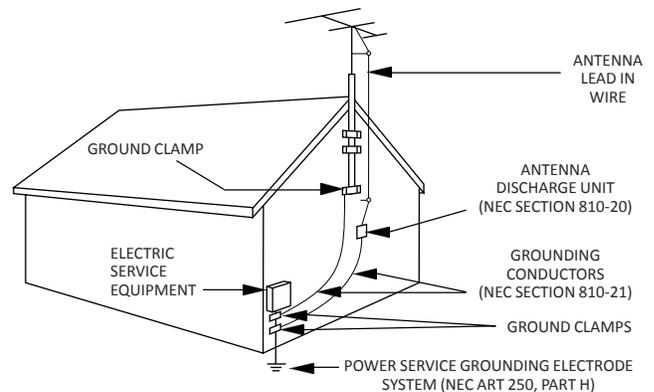
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT OPEN THE CABINET, REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

FIGURE A

Example of antenna grounding as per National Electrical Code, ANSI/NFPA 70

ANTENNA LEAD IN WIRE

GROUND CLAMP

ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)

ELECTRIC SERVICE EQUIPMENT

GROUNDING CONDUCTORS (NEC SECTION 810-21)

GROUND CLAMPS

POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)

NEC - NATIONAL ELECTRIC CODE

NOTE TO CATV SYSTEM INSTALLERS:

THIS REMINDER IS PROVIDED TO CALL THE CATV SYSTEM INSTALLER'S ATTENTION TO ARTICLE 820 - 40 OF THE NEC WHICH 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.

SECTION 1 – IMPORTANTES DE SÉCURITÉ

1. **Lire les directives** - Toutes les directives de sécurité et d'utilisation devraient être lues avant de mettre l'appareil en opération.

2. **Conserver les directives** - Les directives de sécurité et d'utilisation devraient être conservées pour consultation future.

3. **Tenir compte des avertissements** - Tous les avertissements apparaissant sur l'appareil et dans les consignes d'utilisation devraient être respectés.

4. **Suivre les directives** - Toutes les directives d'opération et d'utilisation devraient être suivies.

5. **Nettoyage** - Débrancher l'appareil de la prise électrique murale avant le nettoyage. Ne pas utiliser de nettoyants liquides ou aérosols. Employer un linge humide pour le nettoyage.

6. **Fixation** - Ne pas utiliser d'autres fixations que celles recommandées par le manufacturier; elles pourraient être source de dangers.

7. **Eau et humidité** - Ne pas utiliser cet appareil près de l'eau. Par exemple, près d'une baignoire, d'un bac de lavage, d'un évier de cuisine ou d'une cuvette de lessivage; dans un sous-sol humide; ou à proximité d'une piscine; et autres environnements similaires.

8. **Accessoires** - Ne pas installer cet appareil sur un chariot, un socle, un trépied, un support ou une table instables. L'appareil pourrait tomber, entraînant des blessures graves à un enfant ou à un adulte, et des dommages importants à l'appareil. Employer seulement avec un chariot, un socle, un trépied, un support, ou une table recommandés par le fabricant ou vendu avec l'appareil. Toute installation de l'appareil devrait être conforme aux directives du manufacturier et devrait utiliser des accessoires d'installation recommandés par celui-ci.

9. Un chariot supportant l'appareil devrait être déplacé avec précaution. Les arrêts brusques, la force excessive et les surfaces inégales peuvent renverser le chariot.

10. **Ventilation** - Des fentes et ouvertures dans le châssis sont prévues pour la ventilation de l'appareil, pour en assurer la fiabilité d'opération et le protéger contre la surchauffe. Ces ouvertures ne doivent pas être bloquées ou recouvertes. Ces ouvertures ne devraient jamais être bloquées en plaçant l'appareil sur un lit, un sofa, une couverture, ou une surface semblable. Cet appareil ne devrait pas être installé dans un meuble encastré comme une bibliothèque ou une étagère à moins de lui fournir une ventilation adéquate ou que l'installation soit conforme aux directives du manufacturier.

11. **Sources d'alimentation électrique** - Cet appareil devrait être utilisé seulement avec le type d'alimentation électrique inscrite sur l'étiquette. Si vous n'êtes pas certain du type d'alimentation électrique fourni à votre maison, consultez le vendeur de l'appareil ou les entreprises d'énergie locale. Pour des appareils alimentés par une batterie ou d'autres sources, se référer aux consignes d'utilisation.

12. **Mise à la terre ou Polarisation** - Cet appareil est équipé avec un cordon d'alimentation à trois fils. Il est à brancher sur une prise ayant un connecteur a la terre. Assurez-vous que la connection a la terre ne manque pas.

13. **Protection du cordon d'alimentation** - Les cordons d'alimentation devraient être disposés de façon à ce qu'on ne puisse marcher dessus ou qu'ils soient susceptibles d'être coincés par des articles placés sur ou contre eux. Une attention particulière doit être portée aux fiches, prises de courant, et aux points où ils sortent de l'appareil.

14. **Mise à la terre de l'antenne extérieure** - Si un système extérieur d'antenne ou de câble est relié à l'appareil, s'assurer que le système d'antenne ou de câble est muni d'une mise à la terre afin de fournir une certaine protection contre les surtensions et les charges d'électricité statique. L'article 810 du code électrique national, ANSI/NFPA 70, fournit l'information nécessaire en ce qui concerne la mise à la terre appropriée du mât et de la structure porteuse, la mise à la terre du câble de connexion à une unité de décharge d'antenne, le calibre des conducteurs de mise à la terre, la location de l'unité de décharge d'antenne, le raccordement aux électrodes de mise à la terre et les spécifications pour les électrodes de mise à la terre. Voir la figure A.

15. **Foudre** - Pour une protection supplémentaire de cet appareil pendant un orage électrique, ou quand il est laissé sans surveillance et inutilisé pendant de longues périodes, le débrancher de la prise électrique murale et déconnecter le système d'antenne ou de câble. Ceci préviendra les dommages à l'appareil dus à la foudre et aux surtensions.

16. **Lignes électriques** - Un système d'antenne extérieur ne devrait pas être situé à proximité de lignes électriques aériennes ou de tout autre circuit électrique, où il pourrait tomber sur de tels circuits ou lignes électriques. Lors de l'installation d'un système d'antenne extérieur, d'extrêmes précautions devraient être prises afin de prévenir tout contact avec des lignes ou circuits électriques. Entrer en contact avec de tels circuits ou lignes électriques pourrait être fatal.

17. **Surcharge** - Ne pas surcharger les prises de courant murales, les rallonges électriques ou les prises de courant intégrées. Un risque d'incendie ou de choc électrique pourrait résulter d'une telle surcharge.

18. **Insertion d'objet ou de liquide** - Ne jamais insérer d'objet par les ouvertures de cet appareil. Il pourrait toucher des points de voltage dangereux ou court-circuiter des pièces, ce qui pourrait résulter en incendie ou en choc électrique. Ne jamais verser de liquide sur l'appareil.

19. **Entretien** - Ne pas essayer de faire soi-même l'entretien de cet appareil. En ouvrir ou en retirer les couvercles pourrait vous exposer à des voltages dangereux ou à d'autres dangers. Confier tout entretien à un personnel de service qualifié.

20. **Dommage exigeant un entretien** - Débrancher cet appareil de la prise de courant électrique et confier l'entretien au personnel de service qualifié dans les éventualités suivantes:

    ❏ Quand le cordon d'alimentation ou sa fiche sont endommagés,
    ❏ Si des objets sont tombés dans l'appareil, ou si du liquide y a été renversé,
    ❏ Si l'appareil a été exposé à la pluie ou à l'eau,
    ❏ Si l'appareil ne fonctionne pas normalement en suivant les consignes d'utilisation. Ajuster seulement les commandes qui sont mentionnées dans le guide d'opération. Un mauvais ajustement des autres commandes pourrait causer des dommages à l'appareil et souvent exiger un travail supplémentaire de la part d'un technicien qualifié pour remettre l'appareil en état normal d'opération.
    ❏ Si l'appareil a été échappé ou endommagé de n'importe quelle façon, et
    ❏ Quand l'appareil montre un changement notable de performance – ceci indique qu'un entretien est nécessaire.

21. **Pièces de rechange** - Si des pièces de rechange sont nécessaires, s'assurer que le technicien de service a employé des pièces de rechange spécifiques du manufacturier ou ayant les mêmes caractéristiques que les pièces originales. L'utilisation de pièces de rechange non autorisées pourrait résulter en incendie, choc électrique ou autres dangers.

22. **Vérification de sécurité** - À la suite de toute réparation ou entretien de cet appareil, demander au technicien de service d'exécuter des vérifications de sécurité afin de s'assurer que l'appareil est en condition normale de fonctionnement.

23. **Montage au mur ou au plafond** - L'appareil ne devrait être monté au mur ou au plafond qu'uniquement de la façon recommandée par le manufacturier.

24. **Chaleur** - L'appareil devrait être situé loin de sources de chaleur telles que des radiateurs, des registres de chaleur, des fourneaux, ou d'autres appareils (y compris amplificateurs) produisant de la chaleur.

ATTENTION DÉCLARATION

AVERTISSEMENT: Afin d'éviter tout risque d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité.

⚡	**! AVERTISSEMENT !** RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR	⚠

ATTENTION: POUR RÉDUIRE LE RISQUE D'ÉLECTROCUTION, NE PAS ENLEVER LE DOS DE L'APPAREIL NI OUVRIR LE BOÎTIER. AUCUNE PIÈCE N'EST RÉPARABLE PAR L'UTILISATEUR À L'INTÉRIEUR. SE RÉFÉRER UNIQUEMENT À DES TECHNICIENS QUALIFIÉS POUR L'ENTRETIEN.

Une combinaison de l'appareil et chariot doit être déplacé avec précaution. Des arrêts brusques, une force excessive et des surfaces inégales peuvent causer la combinaison de l'appareil et le chariot.

Le symbole de l'éclair à l'intérieur d'un triangle équilatéral est destiné à alerter l'utilisateur sur la présence d'une "tension dangereuse" non isolée dans le boîtier du produit. cette tension est suffisante pour provoquer l'électrocution de personnes.
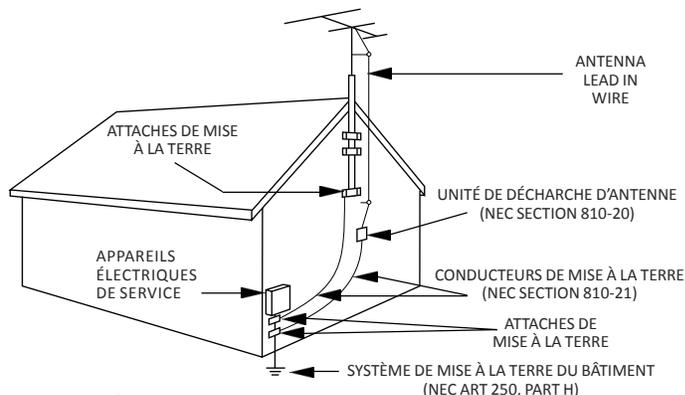
Le point d'exclamation à l'intérieur d'un triangle équilatéral est destiné à alerter l'utilisateur sur la présence d'opérations d'entretien importantes au sujet desquelles des renseignements se trouvent dans le manuel d'instructions.

WARNING:	TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT OPEN THE CABINET, REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

CAUTION:	TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

FIGURE A

Exemple de mise à la terre d'antenne selon le Code Électrique National, ANSI/NFPA 70

ANTENNA LEAD IN WIRE

ATTACHES DE MISE À LA TERRE

UNITÉ DE DÉCHARCHE D'ANTENNE (NEC SECTION 810-20)

APPAREILS ÉLECTRIQUES DE SERVICE

CONDUCTEURS DE MISE À LA TERRE (NEC SECTION 810-21)

ATTACHES DE MISE À LA TERRE

SYSTÈME DE MISE À LA TERRE DU BÂTIMENT (NEC ART 250, PART H)

NEC - CODE ÉLECTRIQUE NATIONAL

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SECTION 2 – PRODUCT SUMMARY

2.1 PRODUCT APPLICATION & FEATURES

APPLICATION

The **PEG PLUS** is a stand-alone digital video PEG channel encoder capable of encoding two HD or SD streams of the same content in either MPEG-2 or MPEG-4/H.264 formats. The encoder features a single SD/HD-SDI or composite video input, and an IP-encapsulation output via a single SFP Ethernet port.

Audio options include selectable SDI PCM-embedded audio or analog left/right audio, offering compression choices of Dolby® Digital, MPEG1-Layer 2 stereo, or AAC stereo. A separate RJ45 10/100 Ethernet port is provided for control and monitoring.

Utilize the Zixi output protocol, a UDP-based video-optimized platform, for smooth streaming of H.264 content over unmanaged networks, including the public internet. This robust solution equips professional broadcasters, sports networks, and service providers to effortlessly ingest and transport broadcast-quality video through standard IP networks.

KEY FEATURES

▸ Built-in watchdog timer with system reboot capability

▸ VLAN and QoS support for streaming and traffic management

▸ Unicast and multicast capabilities

▸ ATSC PSIP tables support

▸ User-defined PID configuration

▸ DVB Service information table generation (NIT+SDT)

▸ Field-upgradable firmware

▸ Separate Management port and streaming port

▸ Configuration and shutdown control via HTTP server UI and programmable API

PEG-RP-2 with (2) PEG PLUS units (sold separately)

MODEL	STOCK#	DESCRIPTION
Drake PEG-RP-2	1002644B	Rack Mount Panel for (2) PEG PLUS units

2.2 PRODUCT DESCRIPTION

FRONT PANEL

A **Control:** RJ45 connector for 10/100Base-T 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**")

B **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)*
▶ **Subnet Mask**: **255.255.255.0**   ▶ **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.

C **Power Status:** If the LED is Green, the AC power is detected. If the LED is Off, it will indicate one of the following:

▶ 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 **Input Status:** LED is illuminated when input video is being received from the HD/SD SDI or Composite input.

E **Encoding Status:** LED is illuminated when the internal encoder is operational.

F **Output Status:** LED is illuminated when the copper or optical SFP is connected to a network.

REAR PANEL

G **NTSC Composite Video/Audio In:** Analog video with Left and Right Audio.

H **HD-SDI In:** Digital video HD/SD SDI input.

I **SFP Ethernet Output:** Optical or Copper SFP IP video and audio output. (SFP sold separately)

J **5VDC Power Port:** Accepts 5 volt (VDC) power to the unit.

2.3 PRODUCT SPECIFICATIONS

INPUT	
Video Inputs	1x RCA Composite; 1x BNC SD/HD-SDI
Audio Inputs	1x BNC SDI (PCM-Embedded Audio); 2x RCA (L, R) - Analog Audio
Supported	Closed Caption (embedded only); Audio Gain Adjustment
Control	1x Front Panel RJ45 (10/100)

VIDEO	
Video Resolution	480i (640x480 / 720x480 @ 30 FPS) 720p (1280x720 @ 60 FPS) 1080i (1920x1080 @ 30 FPS) AUTO-SCAN for Input Resolution

AUDIO	
Audio Format	L-PCM (IEC-60958) at up to 192 kHz

GENERAL	
Dimensions (W x H x D)	8.7 x 2.0 x 7.6 in (221 x 51 x 193 mm)
Form Factor	Desktop (rack panel sold separately)
Power Requirements:	**External Power Supply** Input 100/120VAC, 60Hz Output +5VDC @ 4.0A
Power Dissipation	35 W
Weight	1.5 lbs (0.68 kg)
Temperature Rating	32 to 122 °F (0 to 50 °C)

ALARMS & MONITORING	
Local Monitoring	1x Power LED (bicolor) 1x Input LED (bicolor) 1x Encoding LED (bicolor) 1x Output LED (bicolor)
Local Control	1x IP Reset Button
Remote Monitor/ Control	1x RJ45 (10/100 Base-T) GUI-based menu via standard web browser

OUTPUT	
Connectors	1x SFP Module Port (Plug-In sold Separately)

SPTS STREAM PROTOCOLS	
Standard	ISO/IEC 13818-1 Systems
Profiles	Single
Encoding Type	CBR or Capped VBR
Streams Supported	2
Video Bitrate	2 Mbps to 19 Mbps (0.1 Mbps increments)
Packet Format	UDP SPTS (2x HD or SD streams)
Zixi	UDP Transport Stream Protocol

ENCODED VIDEO	
Video Resolution	1080p (30 FPS); 1080i (60 FPS); 720p (30, 60 FPS); 480i (30, 60 FPS)
Video Format	MPEG-2; H.264 (AVC)
Video Adjustments	Brightness, Contrast, Hue, Saturation
H.264 Profile Support	Baseline, Main, High

ENCODED AUDIO	
Audio Formats	Dolby® Digital AC3, AAC, or MPEG1-Layer 2
Audio Output Bitrates	128, 192, 224, or 384 Kbps

SECTION 3 – INSTALLATION & POWER-UP

3.1 UNPACKING

You will find the following items in the box:

▶ PEG PLUS Encoder Unit (QTY = 1)

▶ Power Adapter (QTY = 1)

3.2 INSTALLATION AND POWER-UP

The PEG PLUS Encoder is designed to be mounted on a desktop in close proximity to a 120 VAC, 60Hz power outlet.

> **!** **DO NOT BLOCK THE UNIT'S AIR INTAKE OR AIR DISCHARGE OPENINGS.**
> Unit performance will be degraded without proper ventilation. For safe and reliable operation, do not place objects within 1 inch of the unit that blocks the airflow. Excessive heat will shorten the life of the unit.

A 1RU (1.75") open space must be provided above the PEG PLUS encoders when mounted in a 19 inch rack or cabinet to allow air flow for encoder heat dissipation. The PEG-RP-2 accessories or a standard 19" rack shelf can be used for mounting 2 PEG PLUS encoder modules in 1RU.

Adequate ventilation is very important for unit installations. Some air movement is advisable, especially if mounted within enclosed rack cabinets.

1 To install using a PEG-RP-2 rack mount accessory, remove the front plates of up to 2 PEG PLUS units, via the front-panel screws. Align and attach the PEG-RP-2 front plate using the same screws. Secure the unit's front panel a 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.

2 Plug the Power Adapter into a power plug (120 VAC, 60Hz). Plug the power pin into the back of the PEG unit at the input marked "DC Power".

> **!** For safe and reliable operation, only use the power adapter supplied with the PEG PLUS Encoder.

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**".

(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.

> ⚠ **IMPORTANT:** The front-panel Control Port (Management Port) and the rear-panel SFP Port **MUST** be on different subnets. See "Networking Section"

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 "**Log In**" button.

When logged in as administrator, the user has read and write permission. Please note that only one administrator can be logged in at a time.

NOTE: If you have any issues connecting to the PEG PLUS encoder, we recommend clearing the cache in the browser's settings.

Figure 4.2a - "Login" Screen

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

Monitoring and configuration of the unit is achieved via a series of web pages as described in the Sections below:
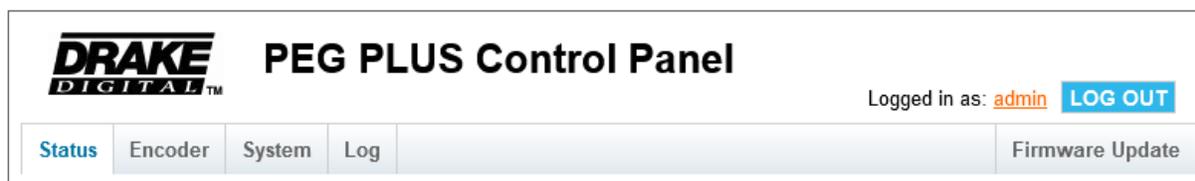
Figure 4.2b - Unit Navigation

▶ **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**", "**Encoder**", "**System**", and "**Log**"
▶ **Right Navigation:** "**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 "**Left**" and "**Right**" Navigation is described in the subsequent sections.

SECTION 5 – BASIC CONFIGURATION

5.1 "STATUS"

"**Status**" (Figures 5.1a and 5.1b) is a "read-only" screen. The information is provided as a quick way to monitor the system or assist with troubleshooting issues that may arise.

Figure 5.1a - "Status" Tab (Read-Only)

SYSTEM INFORMATION

1 **CPU Usage:** Indicates the total usage of CPU resources and the encoder CPU usage.

2 **Serial Number:** Indicates serial number of PEG PLUS encoder

3 **Hardware Version:** Indicates the hardware version of the PEG PLUS encoder

4 **Software Version:** Indicates the software version of the unit

5 **Unit Name and Location:** Indicates user-defined unit constants set under the "System Tab: Networking" section.

6 **Up-Time:** Indicates the uptime of the unit expressed in days, hours, minutes, and seconds.

7 **System Time (UTC):** The system time can be synced up with the browser time by using the controls under the System menu and will be displayed in UTC time format.

5.1 "STATUS" (CONTINUED)

INPUT STATUS BOX

(8) Status: Indicates the status of the input.

(9) Firmware Version: Indicates the current firmware version.

(10) SDI Input and Format: Input indicates if the video is present and locked. Format indicates resolution (see Figure 5.1b).

(11) Composite Input and Format: Input indicates if the video is present and locked. Format indicates resolution (see Figure 5.1b).

(12) Active Video Source: Indicates the current active video source(s) and resolution (see Figure 5.1b).

(13) Active Audio Source: Indicates if there is embedded audio on the stream(s).

PEG PLUS supports resolutions of:
- ➥ **480i** (640x480/720x480 @ 30 FPS)
- ➥ **720p** (1280x720 @ 60 FPS)
- ➥ **1080i** (1920x1080 @ 30, 59.94, & 60 FPS)

Figure 5.1b

ZIXI STREAM STATUS BOX

(14) Status: Indicates the status of the input.

(15) Host IP: User defined IP address or host name. The public IP address of the device (Decoder or Broadcaster) you are streaming to.

(16) Conn. Up Time: Indicates the uptime of connection.

(17) Reconnects: Indicates the number of reconnections.

(18) Bitrate: Indicates the transport stream bitrate of the encoder.

(19) Tx Bytes: Indicates the transmit bytes being sent.

ZIXI Stream 0 Status

Status:	connected
Host IP:	172.16.182.6
Conn. Up Time:	0D 00:01:40
Reconnects:	0
Bitrate:	6.94 Mbps
Tx Bytes:	76.57 MB

Figure 5.1c

5.2 "SYSTEM" > "NETWORKING"

The "**System**" Tab > "**Networking**" page, titled "**System Configuration**", (shown in figures 5.2a, 5.2b, 5.2c, 5.2d, and 5.2e) is a "read and write" screen. The general ethernet connection and user-defined identification data for the platform can be configured here.

Figure 5.2a - "System" Tab - Networking - SFP Configuration

SFP VIDEO NETWORK SETTINGS

1   **Mac Address:** read-only field that indicates the MAC Address of the "SFP Output" Port.

2   **DHCP Enable:** Sets "**Enable**" or "**Disable**" for the SFP Output. When "**Disabled**", the IP address, Subnet Mask, and Default Gateway fields are set manually.

3   **IP Address:** the static IP address that is assigned to the SFP Network Output. (Default: "172.16.80.1")

4   **Subnet Mask:** the subnet mask address of the SFP Network Output.

5   **Default Gateway:** the gateway address of the SFP Network Output.

6   **HTTP Server Enable:** When "Enabled", this will allow management capability on the same SFP port (SFP port IP Address) as the streaming video.

7   **VLAN Enable:** Enables or Disables VLAN.

8   **VLAN Tag:** allows the user to set the defined VLAN Tag for the unit.

SFP CONTR0L-ONLY VLAN SETTINGS

9   **SFP Control-Only VLAN Settings:** Enables or disables VLAN Settings for Control-Only.

5.2 "SYSTEM" > "NETWORKING" (CONTINUED)

Figure 5.2b - "System" Tab - Networking - Control Port Ethernet Settings

CONTROL PORT ETHERNET SETTINGS

10 **MAC Address:** the Media Access Control (MAC) Address is a read-only field that serves as a unique identifer assigned to the "**Control 100/1000**" Port.

11 **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**.

12 **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.

13 **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.

IMPORTANT: The front-panel Control Port (Management Port) and the rear-panel SFP Port MUST be on different subnets.

Figure 5.2c - "System" Tab - Networking - DNS Settings

DNS SETTINGS

14 **DNS Mode:** Options are "**DHCP Provided**" or "**Manual mode**". When in manual mode, enter Primary, Secondary name servers and/or Search Domains in the space provided.

15 **Name Servers:** Read-only field that indicates conversion from domain names to IP addresses.

By default, the DHCP Provided option under DNS mode will have the system time automatically set up. To set system time you will need to set the IP address of your local DNS server by configuring DNS Mode to "**Manual**" (see Figure 5.3d). The encoder will then resolve the standard NTP server pool DNS entry and sync the system time.

Directions for 3 methods are provided on the next page for setting up the System UTC time.

5.2 "SYSTEM" > "NETWORKING" (CONTINUED)

Figure 5.2d - "System" Tab - Networking - DNS Settings (Manual Mode)

Setting the UTC Time:

Method 1A:

▶ Set DHCP enable on SFP Video

▶ Enable HTTP Server

▶ Set DNS settings to DHCP Provided

Method 1B:

▶ Set DHCP to disable on SFP Video

▶ Enter your desired IP Address and a valid gateway

▶ Enable HTTP Server

▶ Set DNS Settings to Manual

▶ Under Primary DNS, enter your network DNS

▶ If none is available, you can use google DNS of 8.8.8.8, but your gateway must be able to reach the internet.

Method 1C:

▶ Set valid IP under control port settings and a valid gateway

▶ Set DNS Settings to Manual

▶ Under Primary DNS, enter your network DNS

▶ If none is available, you can use google DNS of 8.8.8.8, but your gateway must be able to reach the internet.

5.2 "SYSTEM" > "NETWORKING" (CONTINUED)

Figure 5.2e - "System" Tab - Networking - Unit Description

UNIT DESCRIPTION

14 **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.

15 **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.

Figure 5.2f - "System" Tab - Networking - SNMP Settings

SNMP SETTINGS

10 **SNMP Settings:** provides Simple Network Management Protocol (SNMP) monitoring for the unit. Settings include: Trap Target IP, Trap Target Port, and System Contact.

> ⚠ **PLEASE NOTE:** The SNMP feature was **ONLY** available for the PEG-NE24-IP-C (1002613A) encoder. This feature is **NOT** active or supported within the PEG PLUS (1002613B) encoder.

Figure 5.2g - "System" Tab - Networking - Web Settings

WEB SETTINGS

11 **Web Settings:** User Timeout - Range is 5 to 30 minutes (increments of 5)

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

5.3 "SYSTEM" > "SAVE / RESTORE"

The "**System**" Tab > "**Save/Restore**" page, titled "**Save and Restore Settings**", (shown in <u>Figure 5.3</u>) enables the user to import and export configuration settings in the PEG PLUS encoder.
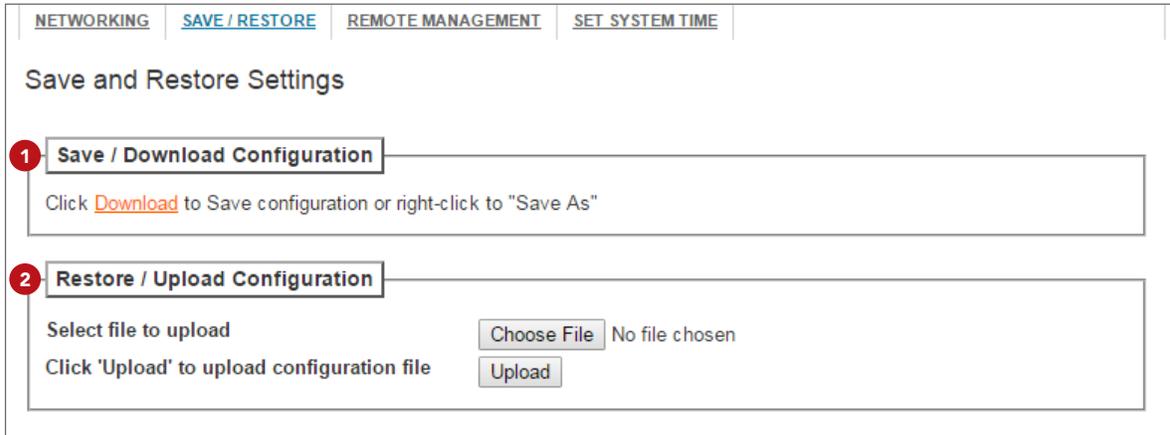

Figure 5.3 - "System" Tab - Save and Restore Settings

1 Click "<u>Download</u>" to save current configuration settings through a downloaded file.

2 To upload a saved configuration file, select the file to upload and then click the "Upload" button.

> **!** **IMPORTANT:** A reboot is required after defaulting or applying a configuration file. See "<u>Admin Panel</u>" section.

5.4 "SYSTEM" > "REMOTE MANAGEMENT"

The PEG PLUS encoder can be remote-managed by using SSH tunneling. Secure Socket Shell (SSH) is a network protocol that provides administrators with a secure way to access a remote computer over an unsecured network such as the Internet.
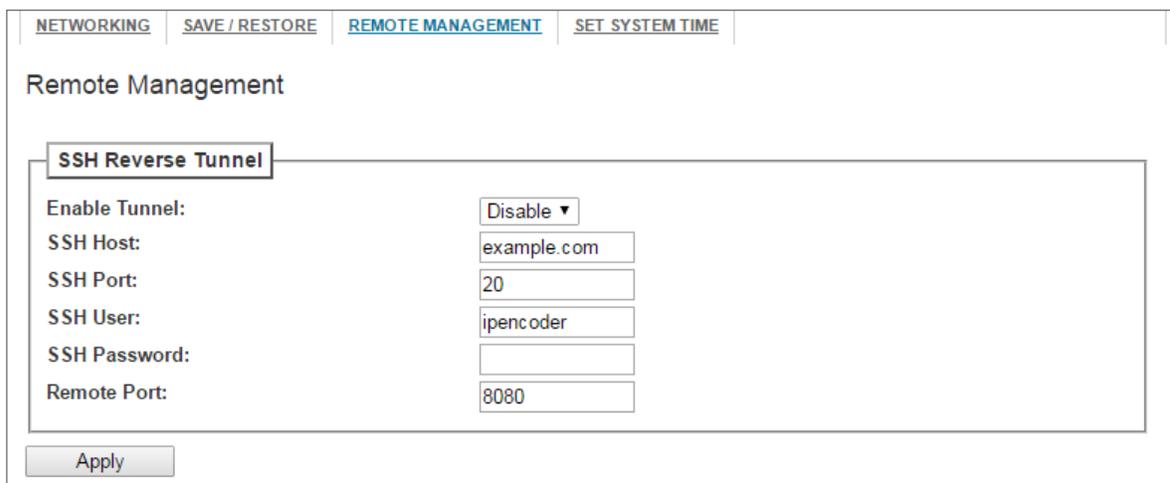

Figure 5.4 - "System" Tab - Remote Management

5.4 "SYSTEM" > "REMOTE MANAGEMENT" (CONTINUED)

BASIC SETUP WITH SSH TUNNELING:

1 Configure an account on an ssh server (that's accessible to the PEG unit), and enable password logins for that account

2 Configure the ssh server's IP (or resolvable hostname, if applicable) in the PEG's "SSH Host" field

3 Configure the ssh server's ssh TCP port in the PEG's "SSH Port" field ('standard' is 22)

4 Enter the username and password for the ssh server account in the PEG's "SSH User" and "SSH Password" fields

5 Enter the port number of the remote (ssh server side) tunnel termination

6 Point a web browser at the ssh server's "Remote Port" configured in step 5 (for instance: "http://SSH_SERVER_NAME:REMOTE_PORT")

5.5 "SYSTEM" > "TIME CONFIGURATION"

The System Time can be synced up to the current Browser time by using the "Set Encoder Time" button on this page. The time will be shown in UTC format.
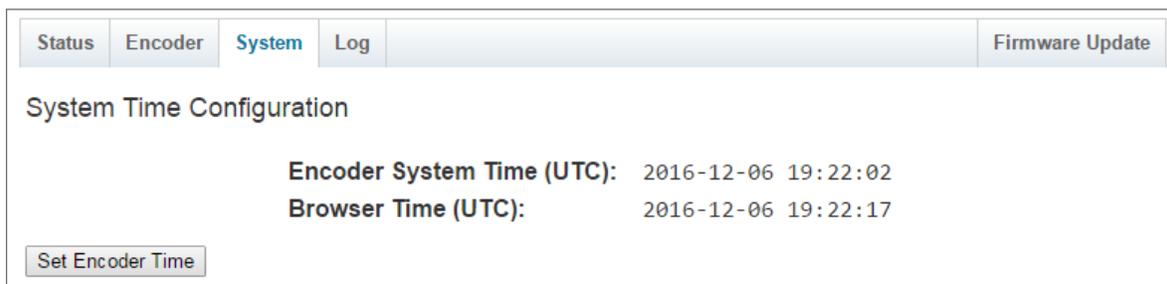

| Status | Encoder | System | Log | | Firmware Update |

System Time Configuration

Encoder System Time (UTC): 2016-12-06 19:22:02
Browser Time (UTC): 2016-12-06 19:22:17

Set Encoder Time

Figure 5.5 - "System" Tab - System Time Configuration

SECTION 6 – CONFIGURING THE ENCODER

6.1 "ENCODER" > "A/V INPUT"

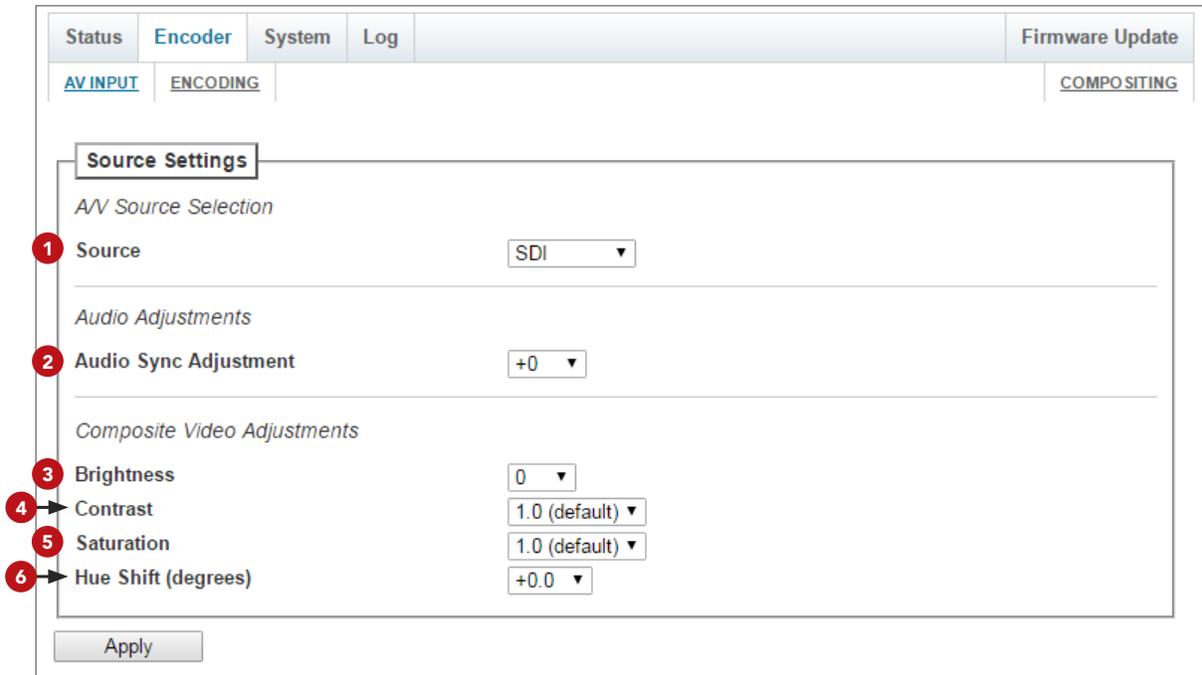The "**Encoder**" **>** "**A/V Input**" screen allows the user to configure the source settings.

Figure 6.1 - "Encoder" Tab - AV Input

A/V SOURCE SELECTION

1 **Source:** Video input selection of SDI or Composite

AUDIO ADJUSTMENTS

2 **Audio Sync Adjustment:** Audio/video lip-sync adjustment used to adjust the audio to video synchronization. For example, you may need to delay or lag the audio if the video input is SDI and the audio source is analog. Range is +/- 500ms.

COMPOSITE VIDEO ADJUSTMENTS

3 **Brightness:** Range is +/- 30 (increments of 1)

4 **Contrast:** Range is 0.3 to 2.0 (increments of 0.1)

5 **Saturation:** Range is 0 to 2.0 (increments of 0.1)

**6** **Hue Shift (degrees):** Range is -89.6 to +85.4 (increments of 0.3)

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

6.2 "ENCODER" > "ENCODING"

The "**Encoder**" > "**Encoding**" screen allows the user to configure the encoder settings and displays status information about the input and output streams.

6.2.1 "ENCODING" > AUDIO ENCODER SETTINGS

Figure 6.2.1 - "Encoder" Tab - Encoding - Audio Encoder Settings
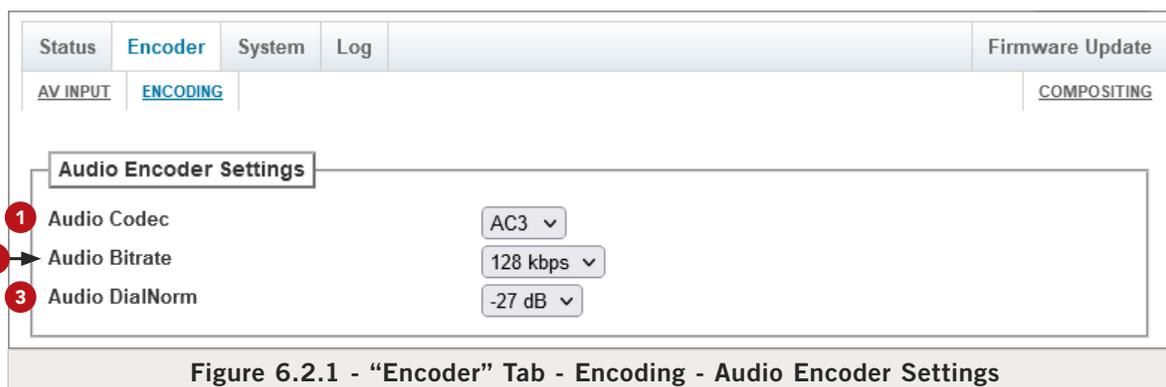
1 **Audio Codec:** Options are: **MP2** for MPEG-1 Audio Layer 2, **AC-3** for Dolby Digital (AC-3), or **AAC** (Advanced Audio Coding)

2 **Audio Bitrate:** Options are: **128**, **192**, **224**, or **384 Kbps**.

3 **Audio DialNorm:** 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 encoder 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.

6.2.2 "ENCODING" > STREAM 1: MPEG-4/AVC HD

VIDEO ENCODE

1 **Video Bitrate, HD Input:** Range is **3.5** to **13.0** (incremented by 0.1)

> *NOTE: Once an input is applied, only the detected resolution (SD or HD) will be displayed. Both SD & HD video bitrates are displayed only when no input is detected.*

2 **Video Bitrate, SD Input:** Range is **1** to **4** (incremented by 0.1)

3 **Aspect Ratio, SD Input:** Sets the aspect ratio if an SD input is present. Options are: "**Auto**", "**4 x 3**" (4:3), and "**16 x 9**" (16:9)

4 **P-Frames per GOP:** Specifies total number of P frames in a Group-of-Pictures (GOP). Options are from **1** to **5**, **9**, **14**, and **29**.

5 **B-Frames per I/P-Frame:** Specifies number of B frames between each I or P frame in a GOP. Range is **0** to **3**.

> *NOTE: When streaming H.264 HD stream the default P-Frame per GOP is 14 and the default B-Frame between I/IP is 3, which gives you a default Total GOP Length of 60.*

6.2.2 "ENCODING" > STREAM 1: MPEG-4/AVC HD (CONTINUED)

Figure 6.2.2 - "Encoder" Tab - Encoding - Stream 1: MPEG-4/AVC HD

TRANSPORT STREAM

6 **Transport Bitrate, HD Input**: Range is 4.125 to 25 (incremented by 0.125)

7 **Transport Bitrate, SD Input**: Range is 0.625 to 25 (incremented by 0.125)

> *NOTE: TS Bitrate must be greater than 0.400 Mbps + audio bitrate + video bitrate.*

8 **Transport Stream ID:** Configures the transport stream ID number used Program Specific Information (PSI) tables in the stream. Range is 1 - 65,535.

9 **Program Number:** Configures the MPEG Program used in all PSI tables for this stream. Range is 1 - 65,535.

10 **PMT PID:** Configures the Packet Identifier (PID) used to transmit all Program Map Tables in the stream.

11 **Video PID:** Configures the PID used to transmit Video and associated data.

12 **Audio PID:** Configures the PID used to transmit audio and associated data.

> *NOTE: All PIDs are displayed in Hex format. If you type a decimal format into the field, the GUI will automatically convert your decimal format to a Hex value. PIDs are expressed in both decimal & hex formats to the right of the entry field.*

13 **Service Info Type**: Default value is "**None**"

If set to "**DVB/SI**", the following fields are enabled:

  ▶ DVB Network Name - user-specified field for the "Network Name" in the DVB NIT table.
  ▶ DVB Service Name and DVB Provider Name - user-specified field for these fields in the DVB SDT table.

If set to "**ATSC/PSIP**", the following fields are enabled:

  ▶ VCT Short Name: 7-letter name for the channel.
  ▶ Major Channel Number - Specifies the Major Channel Number in the VCT. Range is 1 - 999.

6.2.2 "ENCODING" > STREAM 1: MPEG-4/AVC HD (CONTINUED)

▶ Minor Channel Number - Specifies the Minor channel number in the VCT. Range is 1 - 999.

6.2.3 "ENCODING" > STREAM 2: MPEG-4/AVC SD

Figure 6.2.3 - "Encoder" Tab - Encoding - Stream 1: MPEG-4/AVC SD

VIDEO ENCODE

1 **Video Bitrate**: Range is 1 to 4 (incremented by 0.1)

2 **P-Frames per GOP**: Specifies total number of P frames in a Group-of-Pictures (GOP). Options are 0, 1, 2, 3, 4, 5, 9, 14, and 29.

3 **B-Frames per I/P-Frame**: Specifies number of B frames between each I or P frame in a GOP. Range is 1.3 to 4.

> *NOTE: When streaming MPEG-SD stream the default P-Frame per GOP is 4 and the default B-Frame between I/IP is 2, which gives you a default Total GOP Length of 15.*

TRANSPORT STREAM

4 **Transport Bitrate, SD Input**: Range is 0.625 to 25 (incremented by 0.125)

> *NOTE: TS Bitrate must be greater than 0.400 Mbps + audio bitrate + video bitrate.*

5 **Transport Stream ID:** Configures the transport stream ID number used Program Specific Information (PSI) tables in the stream. Range is 1 - 65,535.

6 **Program Number:** Configures the MPEG Program used in all PSI tables for this stream. Range is 1 - 65,535.

7 **PMT PID:** Configures the Packet Identifier (PID) used to transmit all Program Map Tables in the stream.

8 **Video PID:** Configures the PID used to transmit Video and associated data.

9 **Audio PID:** Configures the PID used to transmit audio and associated data.

> *NOTE: All PIDs are displayed in Hex format. If you type a decimal format into the field, the GUI will automatically convert your decimal format to a Hex value. PIDs are expressed in both decimal & hex formats to the right of the entry field.*

6.2.3 "ENCODING" > STREAM 2: MPEG-4/AVC HD (CONTINUED)

10 **Service Info Type**: Default value is "**None**"

If set to "**DVB/SI**", the following fields are enabled:

▶ DVB Network Name - user-specified field for the "Network Name" in the DVB NIT table.

▶ DVB Service Name and DVB Provider Name - user-specified field for these fields in the DVB SDT table.

If set to "**ATSC/PSIP**", the following fields are enabled:

▶ VCT Short Name: 7-letter name for the channel.

▶ Major Channel Number - Specifies the Major Channel Number in the VCT. Range is 1 - 999.

▶ Minor Channel Number - Specifies the Minor channel number in the VCT. Range is 1 - 999.

6.2.4 "ENCODING" > STREAM 3: MPEG-2 HD

Figure 6.2.4 - "Encoder" Tab - Encoding - Stream 3: MPEG-2 HD

VIDEO ENCODE

1 **Video Bitrate, HD Input:** Range is **3.5** to **13.0** (incremented by 0.1)

> *NOTE: Once an input is applied, only the detected resolution (SD or HD) will be displayed. Both SD & HD video bitrates are displayed only when no input is detected.*

2 **Video Bitrate, SD Input:** Range is **1** to **4** (incremented by 0.1)

3 **Aspect Ratio, SD Input:** Sets the aspect ratio if an SD input is present. Options are: "**Auto**", "**4 x 3**" (4:3), and "**16 x 9**" (16:9)

4 **GOP Length:** Group-of-Pictures (GOP) length. Range is **1** to **127** (incremented by 1), with the default value being **15.**

6.2.4 "ENCODING" > STREAM 3: MPEG-2 HD (CONTINUED)

(5) **Automatic Input Video Filtering:** Specifies

(6) **Input Video Filtering Level:** Specifies

TRANSPORT STREAM

(7) **Transport Bitrate, HD Input**: Range is 4.125 to 25 (incremented by 0.125)

(8) **Transport Bitrate, SD Input**: Range is 0.625 to 25 (incremented by 0.125)

> *NOTE: TS Bitrate must be greater than 0.400 Mbps + audio bitrate + video bitrate.*

(9) **Transport Stream ID:** Configures the transport stream ID number used Program Specific Information (PSI) tables in the stream. Range is 1 - 65,535.

(10) **Program Number:** Configures the MPEG Program used in all PSI tables for this stream. Range is 1 - 65,535.

(11) **PMT PID:** Configures the Packet Identifier (PID) used to transmit all Program Map Tables in the stream.

(12) **Video PID:** Configures the PID used to transmit Video and associated data.

(13) **Audio PID:** Configures the PID used to transmit audio and associated data.

> *NOTE: All PIDs are displayed in Hex format. If you type a decimal format into the field, the GUI will automatically convert your decimal format to a Hex value. PIDs are expressed in both decimal & hex formats to the right of the entry field.*

(14) **Service Info Type**: Default value is "**None**"

If set to "**DVB/SI**", the following fields are enabled:

▸ DVB Network Name - user-specified field for the "Network Name" in the DVB NIT table.

▸ DVB Service Name and DVB Provider Name - user-specified field for these fields in the DVB SDT table.

If set to "**ATSC/PSIP**", the following fields are enabled:

▸ VCT Short Name: 7-letter name for the channel.

▸ Major Channel Number - Specifies the Major Channel Number in the VCT. Range is 1 - 999.

▸ Minor Channel Number - Specifies the Minor channel number in the VCT. Range is 1 - 999.

6.2.5 "ENCODING" > STREAM 4: MPEG-2 SD

VIDEO ENCODE

(1) **Video Bitrate, SD Input:** Range is **1** to **4** (incremented by 0.1)

(2) **Aspect Ratio, SD Input:** Sets the aspect ratio if an SD input is present. Options are: "**Auto**", "**4 x 3**" (4:3), and "**16 x 9**" (16:9)

(3) **GOP Length:** Group-of-Pictures (GOP) length. Range is **1** to **127** (incremented by 1), with the default value being **15.**

(4) **Automatic Input Video Filtering:** Specifies

(5) **Input Video Filtering Level:** Specifies

6.2.5 "ENCODING" > STREAM 4: MPEG-2 SD (CONTINUED)

Figure 6.2.4 - "Encoder" Tab - Encoding - Stream 4: MPEG-2 SD

TRANSPORT STREAM

7 **Transport Bitrate, SD Input**: Range is 0.625 to 25 (incremented by 0.125)

> *NOTE: TS Bitrate must be greater than 0.400 Mbps + audio bitrate + video bitrate.*

8 **Transport Stream ID:** Configures the transport stream ID number used Program Specific Information (PSI) tables in the stream. Range is 1 - 65,535.

9 **Program Number:** Configures the MPEG Program used in all PSI tables for this stream. Range is 1 - 65,535.

10 **PMT PID:** Configures the Packet Identifier (PID) used to transmit all Program Map Tables in the stream.

11 **Video PID:** Configures the PID used to transmit Video and associated data.

12 **Audio PID:** Configures the PID used to transmit audio and associated data.

> *NOTE: All PIDs are displayed in Hex format. If you type a decimal format into the field, the GUI will automatically convert your decimal format to a Hex value. PIDs are expressed in both decimal & hex formats to the right of the entry field.*

13 **Service Info Type**: Default value is "**None**"

    If set to "**DVB/SI**", the following fields are enabled:

        ▶ DVB Network Name - user-specified field for the "Network Name" in the DVB NIT table.

        ▶ DVB Service Name and DVB Provider Name - user-specified field for these fields in the DVB SDT table.

    If set to "**ATSC/PSIP**", the following fields are enabled:

        ▶ VCT Short Name: 7-letter name for the channel.

        ▶ Major Channel Number - Specifies the Major Channel Number in the VCT. Range is 1 - 999.

        ▶ Minor Channel Number - Specifies the Minor channel number in the VCT. Range is 1 - 999.

6.2.6 "ENCODING" > IP OUTPUT 1 & 2

Figure 6.2.6 - "Encoder" Tab - Encoding - IP Output 1 (shown)

IP OUTPUT 1 AND 2

The settings for both IP Outputs call for the same types of information. Both will allow assignment of a single input stream to be set up and enabled for output.

1 **Enable Output**: Options are: Enable or Disable

2 **Source Stream**: Each IP Output can be set to one of the following: Stream 1, Stream 2, Stream 3 or Steam 4.

3 **Destination IP / Hostname**: Destination unicast or multicast IP address or Hostname determined by the downstream network device.

4 **Destination Port**: Destination port assigned to the IP or Hostname of the IP Output

5 **TTL (Time to Live)**: TTL is an upper bound on the time that an IP packet can exist in an IP network. The value is set by the sender of the packet, and reduced by every host on the route to packet's final destination. If the Time to Live reaches zero before the packet arrives at its final destination, then the packet is discarded. The purpose of this field is to avoid an undeliverable packet from circulating on an IP network perpetually. The range is 1 to 255 and is incremented by 1. (Factory Default: "128").

6 **DiffServ / DSCP**: Configures the value of the differentiated services code point (DSCP) field in the IPv4 header for the video output stream. The format of this field is specified by IETF RFC2474, but actual values are specified by several related RFCs. The encoder does not support explicit congestion notification (ECN) which makes use of the lower 2 bits of this header field. (See Figure 4f for available options)

6.2.7 "ENCODING" > ZIXI OUTPUT: STREAM 1 & 2

When setting up the Zixi option version of the encoder, the user will first need to insert the License Key within the Admin Panel (see page 33). Once this is done, the Zixi Output sections for Stream 1 and 2 will show up as follows in the Encoder Tab: Encoding Screen, under the IP Output sections (See Figure 6.2.7):

To begin setting up the Zixi Outputs:

1 Click on the plus (+) sign next to each Output section title (See Figure 6.2.7a) in order to expand the section.

2 All settings may now be seen (See Figure 6.2.7b). To close the section again, simply click the minus (-) sign in the title.
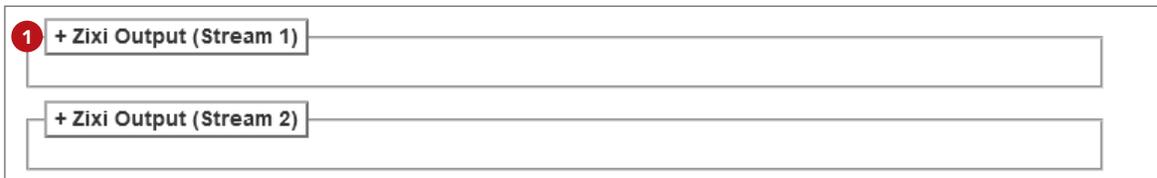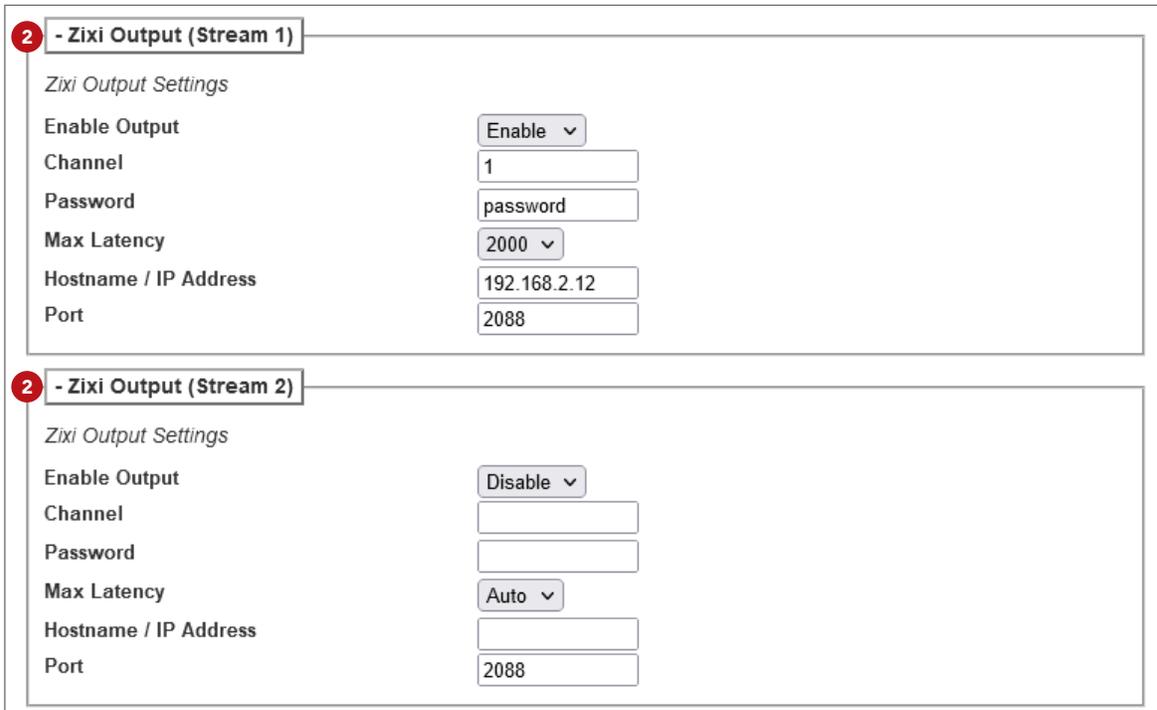

Figure 6.2.7a - Zixi Output Streams (Collapsed)

Figure 6.2.7b - Zixi Output Streams (Expanded)

6.2.8 "ENCODING" > ZIXI OUTPUT SETTINGS

Figure 6.2.8 - "Encoder" Tab - Encoding - Zixi Output Settings

ZIXI OUTPUT SETTINGS

The following options can now be set for both Zixi Output Stream 1 and Stream 2:

Enable Output: Options are: **Enable** or **Disable**

Channel: Used to prevent unauthorized connections but does not encrypt the stream. The encoder's password MUST match the decoder's password. Note: An empty field is equivalent to no password.

Password: Used to prevent unauthorized connections but does not encrypt the stream. The encoder's password MUST match the decoder's password. Note: An empty field is equivalent to no password.

Max Latency: Used to set maximum allowed latency of the stream over the Zixi protocol. Units are in milliseconds and are numeric values ranging from 100 to 5000 in increments of 100. Default option is "Auto".

 ▶ Setting Max Latency to a low value means more forward error correction (FEC) is needed to guarantee stream delivery.

 ▶ Setting Max Latency to a higher value allows the Zixi layer to use re-transmission instead of / in addition to FEC.

 NOTE: In general, higher latency yields lower CPU load on the encoder and less overhead on the data rate.

Hostname / IP Address: User-defined IP address or host name.

Port: The UDP port used for communicating from the encoder-to-broadcaster. Default port used by Zixi broadcasters is "2088".

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

6.3 "ENCODER" > "COMPOSITING"

Compositing allows for an overlay of a static image upon loss of video input. It supports PNG file format and displays only when an image file has been uploaded.

PLEASE NOTE:

▶ "Overlay for No Input (480i)," image resolution must be 720x480.
▶ "Overlay for (720p)," image resolution must be 280x720.
▶ "Overlay for (1080i)," image resolution must be 1920x1080.

Figure 6.3 - "Encoding" > "Compositing"

SECTION 7 – UPDATE, TROUBLESHOOT, AND MAINTENANCE

7.1 "LOG"

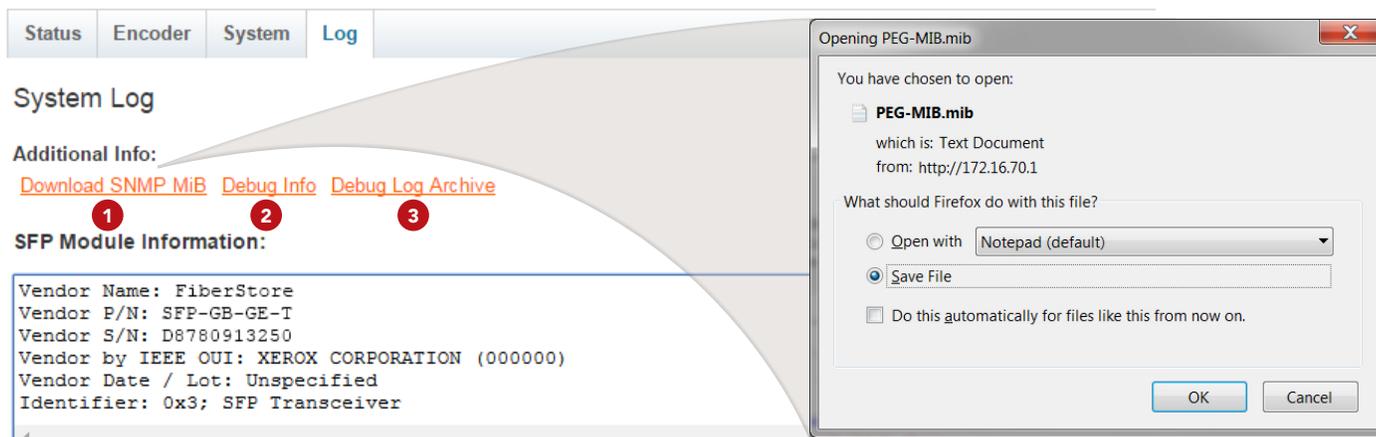The "**Log**" (Figure 7.1a) screen displays system log messages.
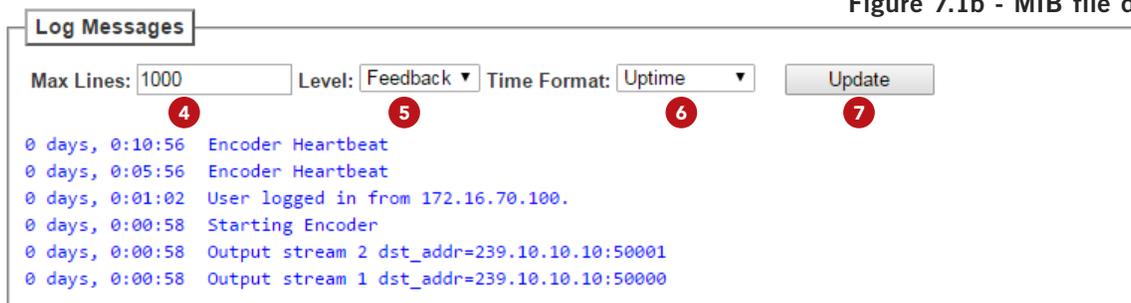

Figure 7.1b - MIB file download prompt

Figure 7.1a - Zixi Output Streams (Expanded)

ADDITIONAL INFO

1 **Download SNMP MiB**: Click on the link to save the encoder's ".mib" file.

2 **Debug Info**: Link to a text-only view of Debug Info

3 **Debug Log Archive**: Downloadable tar.gz archive file of the Debug Log.

SFP MODULE INFORMATION

Read-Only information about the installed module, including vendor information and S/N (Serial Number).

LOG MESSAGES

4 **Max Lines to Display**: Sets the maximum number of lines to display starting at the most recent.

5 **Level**: Available options are are Error, Info, Feedback, Debug and All.

6 **Time Format**: Available options are Uptime or Time-of-Day.

7 Press the "Update" button to apply the settings.

7.2 "ADMIN"

The "**Admin**" (Figure 7.3) screen contains the **User Settings**, allowing 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. In addition, the **System Controls** and **Licensed Features** for Zixi are found within this section.

Figure 7.2 - "Admin" Screen - User Settings

USER SETTINGS

1 **Admin Username**: is the Administrator's login (10 characters maximum). This login allows the user to make changes to any area of the unit. Login is case sensitive. (Factory Default: "**admin**")

2 **Current Password**: is the Administrator's Current Password (10 characters maximum). Password is case sensitive and will not be displayed. (Factory Default: "**pass**")

3 **New Password**: used only if the user wants to change the current Administrator's password. Must enter a new password (10 characters maximum). Password is case sensitive and will not be displayed.

4 **Confirm Password**: must enter the same password as entered in **3**. If password doesn't match, an error message will be displayed.

5 **Guest Username**: is the Guest login (10 characters maximum). This login allows the user to view the unit settings but does not allow any changes. Login is case sensitive. (Factory Default: "**guest**")

6 **Current Password**: is the Current Guest Password (10 characters maximum). Password is case sensitive and will not be displayed. (Factory Default: "**pass**")

7 **New Password**: used only if the user wants to change the current Guest password. Must enter a new password (10 characters maximum). Password is case sensitive and will not be displayed.

7.2 "ADMIN" (CONTINUED)

8 **Confirm Password**: must enter the same password as entered in **3**. If password doesn't match, an error message will be displayed.

> ⚠ **REMINDER**: Click on the "Apply" button to apply any new values and/or configurations.

9 **System Controls**

Apply System Defaults | Reboot

Figure 7.2 - "Admin" Screen - System Controls

SYSTEM CONTROLS

9 **System Controls**: used to return settings to **System Defaults** or to **Reboot** the unit if applying settings through an import of a configuration file (See System Tab > "**Save/Restore**" section).

10 **Licensed Features**

Enabled Add-On Features:

- Zixi, Dual-Stream
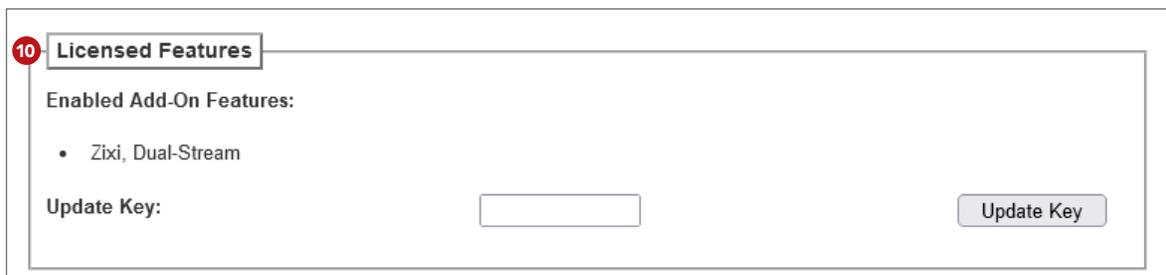
Update Key: [   ] Update Key

Figure 7.2 - "Admin" Screen - Licensed Features

LICENSED FEATURES

10 **Licensed Features**: To enable optionally purchased add-on features (such as Zixi), type in the License Key number provided by Drake and then press the "**Update Key**" button.

7.3 "FIRMWARE UPDATE"

The "**Firmware Update**" tab (Figures 7.3) is located on the right side of the main menu by providing a quick and easy way to apply firmware updates. The page enables upload of the newest available firmware for the PEG PLUS and deploys firmware to the unit.

1 Check the "**Software Version**" (as found under the "**Status**" tab seen above) to ensure the unit has the latest firmware installed. To determine if a new 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: "*.RL DRAKE*" > "*P-*" > "*PEG Plus_Stk# 1002613B*"

> **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.

If a newer version exists, download it to your local machine and navigate back to the "**Firmware Update**" tab.
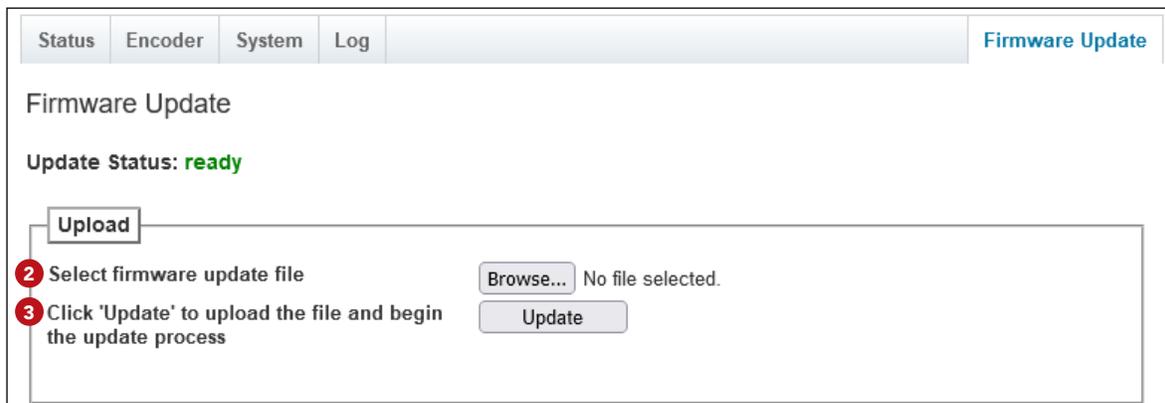

Figure 7.3 - "Admin" Screen - User Settings

2 **Select Firmware Update File:** Click Browse... to select the update file for installation into the unit.

3 **Update:** Initiate the firmware version update by clicking Update button.

> **NOTE:** After clicking the "**Update**" button, please allow some time for the file to load and install. White the firmware update tab is actively updating, the logging information and instructions are shown. Once the update is complete, the unit will automatically reboot.

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.

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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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