DRAKE
DIGITAL

ND-24-IP

Network Decoder with HD-SDI, HDMI and Component Outputs

INSTRUCTION MANUAL

Model	Item #	Description
ND-24-IP	1002643	Network Decoder with SDI, HDMI and Component output
ND-RP-2	1002653	Rack Panel ND-24-IP
ND-24-Zixi-LIC	1002654	Zixi Link License Required for Point-to-Point Links

937-746-4556

www.rldrake.com

Rev: 042219 / 651246700D

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

Purchase Location Name:	
Purchase Location Telephone Number:	
ND-24-IP Serial Number	

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.

Firmware Updates:

For more information regarding the latest product firmware releases, please visit our website at www.rldrake.com. The Firmware Updates page is available under the "Support" menu option within the main navigation. General instructions for the FTP site, as well as updating your firmware, are provided on this page. For further assistance, you may also contact Technical Assistance at 800-523-6049 or by email: information@blondertongue.com

Product Documentation:

Download the latest User Manual (PDF) by visiting our website. Navigate to the product page by entering the full Model Name or Stock Number in the search field. Upon reaching the product page, the "User Manual" and other downloads are made available beneath the product image.
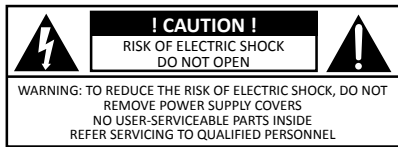
Table of Contents

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 alternating-current 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:

  a. When the power-supply cord or plug is damaged,

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

  c. If the product has been exposed to rain or water,

  d. 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,

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

  f. 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.
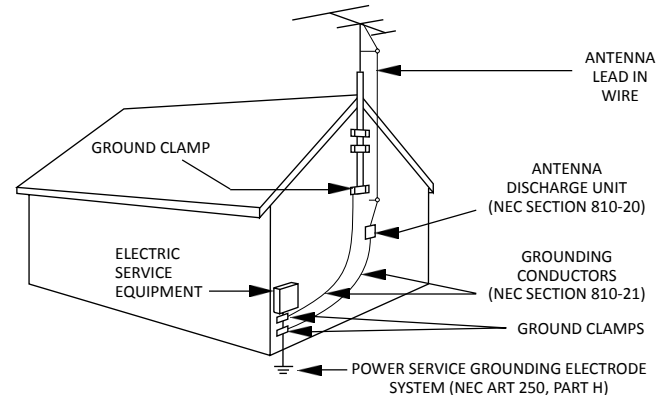
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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.

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 l'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 a 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:

  a. Quand le cordon d'alimentation ou sa fiche sont endommagés,

  b. Si des objets sont tombés dans l'appareil, ou si du liquide y a été renversé,

  c. Si l'appareil a été exposé à la pluie ou à l'eau,

  d. 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.

  e. Si l'appareil a été échappé ou endommagé de n'importe quelle façon, et

  f. 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.
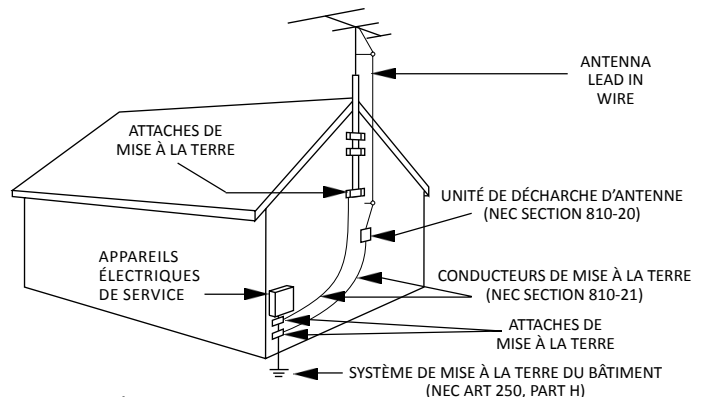
Le point d'exclamation à l'intérieur d'un triangle équilatéral est destiné à alerter l'utilisateur sur la présence d'opérations d'entretien importantes au sujet desquelles des renseignements se trouvent dans le manuel d'instructions.

AVERTISSEMENT: AFIN D'ÉVITER TOUT RISQUE D'INCENDIE OU D'ÉLECTROCUTION, NE PAS EXPOSER CET APPAREIL À LA PLUIE OU À L'HUMIDITÉ. NE PAS OUVRIR LE BOÎTIER, CONFIER TOUS TRAVAUX À DU PERSONNEL TECHNIQUE QUALIFIÉ.

CAUTION: POUR PREVENIR LES CHOCS ELECTRIQUES, NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

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

NOTE AUX INSTALLATEURS DE SYSTÈME DE CATV:

CE RAPPEL EST FOURNI POUR PORTER À L'ATTENTION DES INSTALLATEURS DE SYSTÈME DE CATV, L'ARTICLE 820 - 40 DU NEC QUI DONNE DES DIRECTIVES POUR UNE MISE À LA TERRE APPROPRIÉE ET, EN PARTICULIER, SPÉCIFIE QUE LE CÂBLE DE MISE À LA TERRE DEVRAIT ÊTRE RACCORDÉ AU SYSTÈME DE MISE À LA TERRE DU BÂTIMENT LE PLUS PRÈS POSSIBLE DE L'ENTRÉE DU CÂBLE.

General Description & Features

INTRODUCTION

The **ND-24-IP** is a low cost professional MPEG-2 and H.264 decoder that is capable of receiving content from off-air, clear QAM, and IP sources. The ND-24-IP is capable of simultaneously outputting video content in SDI, HDMI and component formats. SDI outputs are available in 3G-SDI, HD-SDI, or SD-SDI formats.

The unit can be used as a stand-alone high quality decoder, or used in conjunction with other IP encoders, to provide an end-to-end IP video delivery solution over a managed network.

When the ND-24-IP decoder is used with Drake's PEG encoder (with Zixi option) and a Zixi Link License, it can provide a point-to-point reliable IP video transport from anywhere in the world with an internet connection. The ND-24-IP can also be used in a point-to-multipoint application, where the ND-24-IP would decode the IP based Zixi protocol stream from a Zixi Broadcaster.

FEATURES

- Simultaneous SDI/HDMI/Component HD + Composite SD Outputs
- Decoding content from Off-Air, Clear QAM, and IP sources
- Supports both MPEG-2 and H.264 content
- LCD screen
- Closed Captioning
- VBR or CBR
- IGMPv2 and IGMPv3
- IP Security Camera Decoding (VLC Compatible)

ND-RP-2 (stk # 1002653) - Rack Panel for two (2) ND-24-IP Decoders

Specifications

ND-24-IP • Item # 1002643

Network Decoder with HD-SDI, HDMI and Component Outputs

INPUT

IP Mode

Connectors:	RJ-45
Standard:	100/1000Base-T Ethernet
UDP/RTP:	Supported
Protocols:	IGMPv3/IGMPv2 Supported

Stream Portfolio

SPTS and MPTS:	Null Packet Deletion
Bit Rate:	Variable and Constant

8VSB Mode

Connectors:	1x "F" Female
Standard:	ATSC Digital Television A/53E
Tuning Range:	UHF (Ch.14-69), VHF (Ch.2-13)
Data Rate:	19.392 MHz
Bandwidth:	6 MHz
Power Level:	-20 to +20 dBmV
Impedance:	75 Ω

QAM Mode

Connectors:	1x "F" Female
Standard:	ITU-T J.83; Annex A and B (64 & 256 QAM)
Tuning Range:	CATV Ch. 2-158 (STD, HRC, IRC)
Data Range:	38.8 Mbps (QAM 256); 26.97 Mbps (QAM 64) – Auto Detect
Bandwidth:	6 MHz
Power Level:	-15 to 20 dBmV (@ QAM 256), -20 to 20 dBmV (@ QAM 64)
Impedance:	75 Ω

ALARMS/MONITORING/CONTROL

Local

Monitoring:	Front-panel LCD screen
Control:	Front-panel Navigational Key-pad

Remote

Monitoring/ Control:	GUI-based menu via Web browser (1x RJ45 rear-panel connector; 100/1000Base-T)

OUTPUT

3G/HD/SD-SDI

Connectors:	1x BNC
Standards:	SMPTE 424M (3G), SMPTE 292M (HD) & SMPTE 259M (SD)
Video Resolution:	480i, 720p, 1080i, & 1080p
Audio:	Embedded PCM

HDMI

Connectors:	1x HDMI
Video Resolution:	480i, 720p, 1080i, & 1080p
Audio:	Embedded PCM

Composite

Connectors:	1x RCA for Video (Y)
Video Resolution:	480i
Audio:	2x RCA for Analog Audio (L,R)

Component

Connectors:	3x RCA for Video (Y, Pb, Pr)
Video Resolution:	480i, 720p, & 1080i
Video Aspect Ratio:	4:3 & 16:9
Audio:	2x RCA for Analog Audio (L,R)

Digital Audio (SPDIF)

Connectors:	1x RCA

GENERAL

Mechanical

Dimensions:	8.69 x 8.0 x 1.97 inches (220.7 x 203 x 50.0 mm)
Unit Weight:	1.87 lbs (0.85 kg)
Unit & Power Transformer Weight:	2.18 lbs (0.99 kg)
Shipping Weight:	2.6 lbs (1.18 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Power

Power:	100-240 VAC 50/60 Hz / 5 VDC @ 2.5 A; External Power Supply
Power Consumption:	10 W

Front and Rear Panel Operation
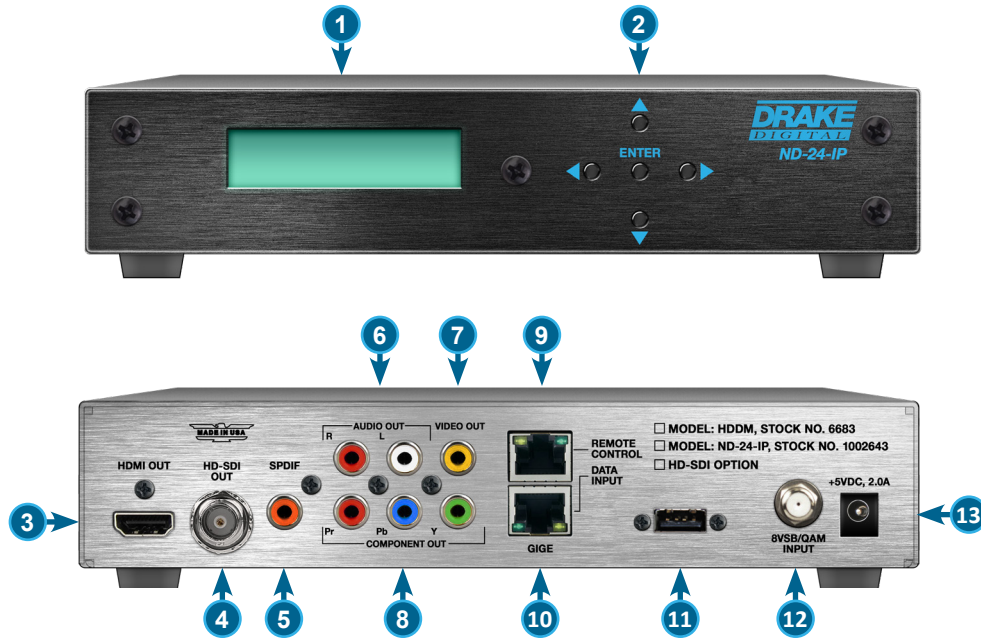
FRONT PANEL

1   **LCD Display:** used for Network Settings (as shown under "Front-Panel Configuration")

2   **Controls:** used for Network Settings (as shown under "Front-Panel Configuration")

REAR PANEL

3   **HDMI Out:** HDMI A/V Output

4   **HD-SDI Out:** HD/SD SDI Output *[1]

5   **SPDIF:** S/PDIF Digital Audio Output

6   **Audio Out:** Analog L+R Audio Output

7   **Video Out:** Composite Analog Video Output *[1]

8   **Component Out:** Component Video Output

9   **Remote Control:** GigE Ethernet Port for User Interface

10   **Data Input:** GigE Ethernet Port for IP Input

11   **Expansion Port** (not used)

12   **8VSB/QAM Input:** Digital Tuner Input

13   **+5VDC, 2.0A:** DC supplied from included AC adapter.

*(1) Note - Current firmware allows for SD-SDI or composite video. When the video resolution is 480i and SD-SDI is set to "Enable", you'll get SD-SDI, but NOT composite. If SD-SDI is set to "Disable", you'll get composite, but not SD-SDI.   If the video resolution is anything other than 480i, this has no effect.

Installation & Power-Up

Unpacking

You will find the following items in the box:

- ND-24-IP Network Decoder (QTY = 1)
- ND-24-IP Quick Guide
- ND-24-IP AC Adapter (QTY = 1)

Installation

The ND-24-IP is designed to be mounted in the close proximity to a 120 VAC – 60 Hz power plug.

| For safe and reliable operation, do not block airflow. |

Power-Up

Plug the AC Adapter into the back of the ND-24-IP unit at the input marked "+5VDC, 2.0A" and then into an AC power plug (120 VAC – 60 HZ).

Front-Panel Configuration

Display Menu Navigation

KEY	NAME	FUNCTION
▲▼	UP / DOWN ARROWS	Moves the item selection cursor, indicated on-screen by a right-arrow symbol, up and down between menu items on the LCD display.
◀▶	LEFT / RIGHT ARROWS	Moves the item selection cursor, indicated on-screen by a right-arrow symbol, left and right through menu items on the LCD display.
●	ENTER	Enters the selected menu item, which can be a sub-menu, a read-only status (e.g. "*Display MAC*"), or an editable parameter (e.g. "*Edit Address*").

In addition to the described functions of the keys above, there are additional functions which they serve while configuring or going through the menu on the LCD display.

Menu Items: the **LEFT ARROW** key acts as "*Back*" button, returning to the previous level in the hierarchy.

Read-Only Items: the **LEFT ARROW** key acts as "*Back*" button, returning to the previous menu level.

Editable Items: the **LEFT** and **RIGHT ARROW** keys will move the cursor left and right, the **UP** and **DOWN ARROW** keys will modify the value at the cursor, and the **ENTER** key will accept the new value and return to the previous menu.

Front-Panel Configuration

Configuring the Network

The ND-24-IP has two-rear panel network ports, labeled Remote Control and Data Input, nd are only configurable through the LCD. To begin network configuration, press **ENTER** on the front panel and select "***Network Settings***".

The following options will appear:

> `> Control (eth1)`

> `> Data (eth0)`

Select the port you wish to configure using the up and down arrows.

> `> Edit Network Cfg (eth#)`
(where "**#**" specifies the port.)

IMPORTANT: The Control Port (Management Port) and the Data Port **MUST** be on different subnets.

* Changes will not be applied until backing out of the "***Edit XXX (ethX)***" menu for an interface, at which point you will be prompted to confirm changes. Selecting "***No***" at the prompt will retain existing settings for that interface.

** Edit Address/Netmask/Gateway options will not be displayed if DHCP is enabled on the interface.

```
Network Settings
|
|-- Control (eth1)
|    |
|    |- Edit Cfg (eth1)*
|    |   |- Enable DHCP
|    |   |- Edit Address**
|    |   |- Edit Netmask**
|    |   |- Edit Gateway**
|    |
|    |- Display IP
|    |- Display MAC
|    |- Display Netmask
|
|-- Data (eth0)
|    |
|    |- Edit Data (eth0)*
|    |   |- Enable DHCP
|    |   |- Edit Address**
|    |   |- Edit Netmask**
|    |   |- Edit Gateway**
|    |
|    |- Display IP
|    |- Display MAC
|    |- Display Netmask
```

Display Menu Hierarchy

The LCD Menu is accessed through the front panel. The directional arrows both navigate through the menus as well as allow input of specific parameter settings. The following hierarchy is sectioned by Main Menu options:

ND-24-IP STATUS

The ND-24-IP Status display menu and sub-menus allow the user to view the current settings without logging into the unit through the web.

ND-24-IP Status	Tuner	Locked, Chan. Broadcast xx, SNR xx, Constell (QAM/8VSB)
	Multicast	Multicast Port xxx, IP Addr xxx.xxx.xxx.xxx
	Unicast	Port xxxx
	RTSP	(URL Setting), input stream, rtsp://root:pass@xxx.xxx.xxx.xxx, media/webpage
	SDP	
	RTP with SDP	Mode ABCD xxxxxxxx

Front-Panel LCD Menu - "ND-24-IP Status"

NETWORK SETTINGS

The Network Settings display menu and sub-menus provide a method for the user to set up the Data and Control ports. The user can then access the unit from the web control panel to continue setup of the unit. See the "**Configuring the Network**" section for more information on configuring the unit's network settings.

Front-Panel Configuration

Network Settings	Control (eth1)	Edit Network Cfg	Enable DHCP	Enable DHCP YES NO
			Edit Address	Set Address 172.016.130.033
			Edit Netmask	Set Netmask 255.255.255.000
			Edit Gateway	Set Gateway 172.016.130.254
		Display IP	IP Address (eth1) 172.16.130.33	
		Display MAC	MAC Address (eth1) 0:14:39:0:99:4E	
		Display Netmask	Netmask (eth1) 255.255.255.0	
	Data (eth0)	Edit Network Cfg	Enable DHCP	Enable DHCP YES NO
			Edit Address	Set Address 172.076.255.118
			Edit Netmask	Set Netmask 255.255.255.000
			Edit Gateway	Set Gateway 172.076.255.254
		Display IP	IP Address (eth0) 72.76.255.118	
		Display MAC	MAC Address (eth0) 0:14:39:0:99:4D	
		Display Netmask	Netmask (eth1) 255.255.255.0	

Front-Panel LCD Menu - "Network Settings"

VIDEO SETTINGS

The Video Settings display menus provide a method for the user to select the Video Format and Enable/Disable the SD/SDI.

Video Settings	*Enable SDSDI	Enable SD/SDI YES NO
	*Select Video Format	Auto
		1080p60
		1080p59.94
		1080p30
		1080p29.97
		1080i60
		1080i59.94
		720p60
		720p59.94
		480i60
		480i59.94

Front-Panel LCD Menu - "Video Settings"

SOURCE SETTINGS

The Source Settings display menu and sub-menus provide a method for the user to set up the Channel Plan, Channel Number and Modulation settings. The user is able to set up the source further through the web control panel.

Front-Panel Configuration

	Display Source Type	Source Type Tuner		
		Edit Tuner Cfg	*Change Channel	Set Chan 2
			*Select Channel Plan	STD, IRC, HRC Broadcast
			*Select Modulation	QAM 8VSB
	Tuner Cfg	Display Lock Status	Tuner Lock Status Locked	
		Display Power	Tuner Power Status -41.0 dB	
		Display Symbol Rate	Tuner Symbol Rate 5.360000	
		Display BERPER	Tuner BER PER 0.000000	
		Display Mode	Tuner Mode QAM	
		Display SNR	Tuner SNR 39	
		Display Constellati	Tuner Constellation QAM256	
		Display Channel	Tuner Channel 2	
Source Settings		Display Plan	Tuner Plan STD	
	Unicast Cfg	Edit Unicast Cfg	*Edit Port	Set Unicast Port 50000
		Display Port	Unicast Port 50000	
		Edit Multicast Cfg	*Edit Multicast Grou	Set Multicast Group 239.010.010.010
			*Edit Port	Set Multicast Port 50000
			*Select IGMP	IGMPv2 IGMPv3
	Multicast Cfg	Display Port	Multicast Port 50000	
		Display MCast Group	Multicast Group 239.10.10.10	
		Display IGMP	IGMP Version IGMPv2	
		Display Source 1	Multicast Source 1 172.xx.xx.xx	
		Display Source 2	Multicast Source 1 172.xx.xx.xx	
	RTSP Cfg	Display URL	URL "Text"	
	RTPSDP Cfg	Display SDP Text	"Text"	

Front-Panel LCD Menu - "Source Settings"

Front-Panel Configuration

SOURCE SETTINGS - ZIXI (OPTIONAL)

The settings for Zixi (optional) source are read-only through the LCD display menu. To set the push port or pull port shown on the display menu, see the "**Player Control**" section in this manual under "**Zixi Push**".

Source Settings *(Zixi - Optional)*	Zixi Push Cfg	Display Port	Zixi Push Port 2088	
		Display Stream ID	Zixi Push Stream ID decoder	
	Zixi Pull Cfg	Display Port	Zixi Pull Port 2089	
		Display Stream ID	Zixi Pull Stream ID decoder	
		Display Remote ID	Zixi Remote ID decoder	
		Display Hostname	Zixi Hostname 172.xx.xx.xx	

Front-Panel LCD Menu - "Source Settings" (Zixi - Optional)

SYSTEM SETTINGS

RESET PASSWORD: Resets the decoder to the default password of "**pass**" and the default username as "**admin**". Both password and username are case-sensitive.

FACTORY DEFAULT ALL: When selected the unit will revert back to the default settings of:

Username = admin (case-sensitive)
Password = pass (case-sensitive)
IP address = 172.16.80.1

System Settings	Reset Password			
	Factory Default All			

Front-Panel LCD Menu - "System Settings"

Login Setup

To begin setup, connect the appropriate input and output video cables and plug in the ND-24-IP power cable.

ETHERNET ACCESS:

Local or remote communication with the unit is only possible through a GUI-based menu via any standard web browser. Chrome or Firefox is recommended and for IE, use IE11 minimum. Before you can communicate with the unit you must configure your computer's IP address to be on the same subnet as the ND-24-IP's Control IP address. To do so, follow these steps:

Connect an Ethernet cable from your computer to the Control GigE port on the rear panel of the ND-24-IP.

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

    a) On your computer, navigate to the "**Network and Sharing Center**".
       (Note: Can be found using the search box in the Start Menu or for Windows 8+, the Start Screen)

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

    c) Right-click on the "**Local Area Connection**", and then click on the "**Properties**".

    d) A dialog box entitled "**Local Area Connection Properties**" will appear. In this box, double-click on the "**Internet Protocol Version 4 (TCP/IPv4)**".

    e) A dialog box entitled "**Internet Protocol Version 4 (TCP/IPv4) Properties**" will appear. Select the "**Use the following IP address**" option and enter the following addresses:

        IP address: same subnet as Control IP (eg.172.16.80.xxx where xxx is a different value than the one used for ND-24-IP)
        Subnet mask: 255.255.255.0
        No need to enter a value for the **Default Gateway** for local access.

    Click OK to close the dialog box. Now your computer is ready to communicate with the unit.

⚠️ Webpage Timeout - User will be automatically logged out after 30 minutes of inactivity on webpages.

Open a web browser on your computer and enter the URL address (**Control IP Address**). Once the ND-24-IP web page has been loaded, you will see a login dialog popup.

Enter the username and password and click LOGIN. The factory default username is "**admin**" (all lower case) and password is "**pass**" (all lower case).

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

Player Control

The "Player Control" configurable settings are determined by the selected "Source Type" (Figure 1) .
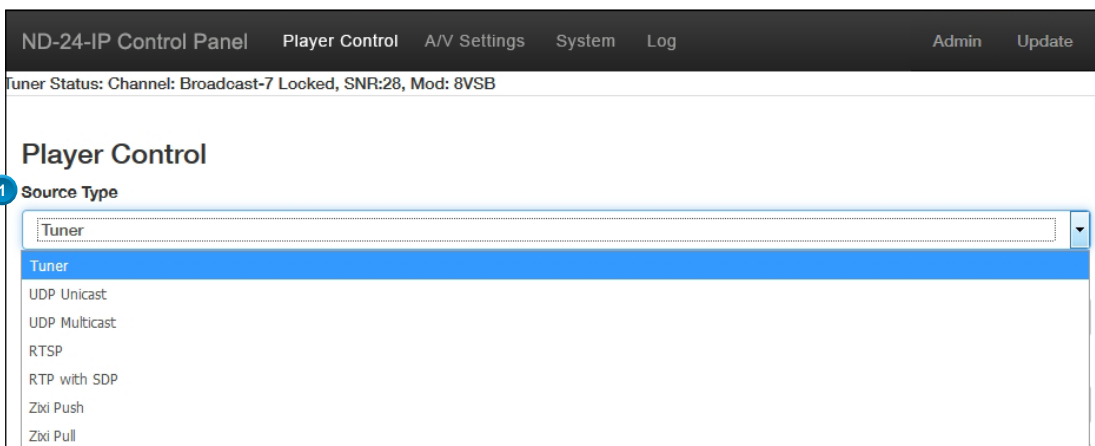
Figure 1 - "Player Control" - Source Type selections

1   **Source Type:** As shown above, source type options available are Tuner, UDP Unicast, UDP Multicast, RTSP, RTP with SDP, Zixi Push, and Zixi Pull. The following sections explain configuring the source types in more detail.

PLAYER CONTROL: INPUT
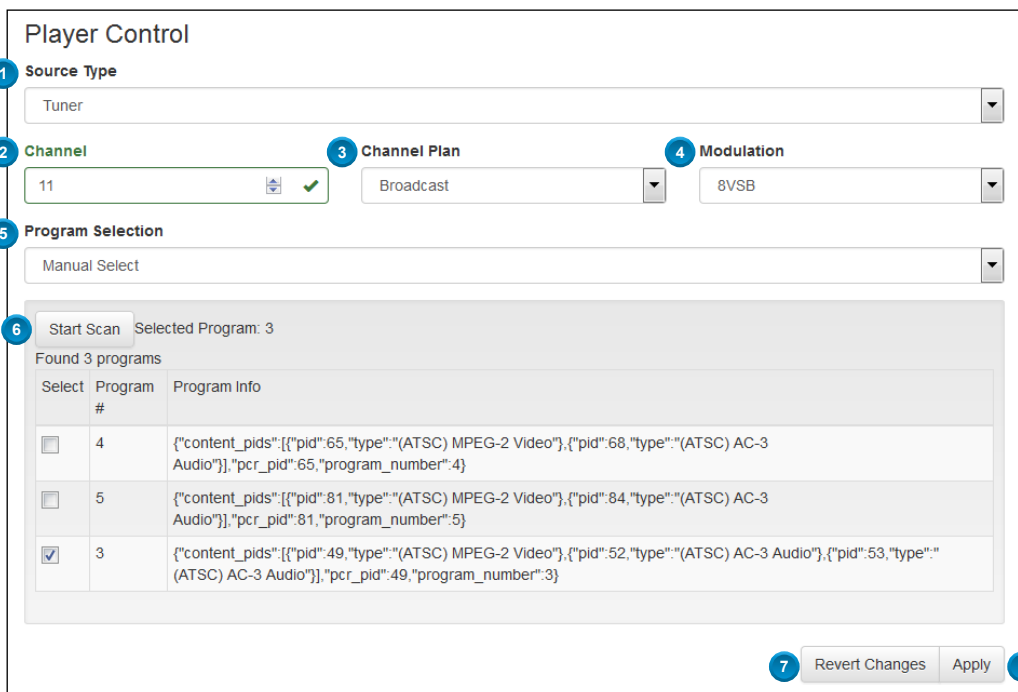
Figure 2 - "Player Control" - Tuner

1   **Source Type:** Tuner

2   **Channel:** RF channel to receive. Channels are dependent on "Channel Plan" (**3**). Use up-down buttons or direct channel entry for desired channel.

3   **Channel Plan:** CATV (STD,IRC,HRC) channel range 2 to 158. Broadcast channel range 2 to 69.

4   **Modulation:** Select QAM for CATV or 8VSB for Broadcast channel plans.

Player Control

(5) Program Selection:

> Auto - Selects the first program in the PAT table
>
> Program Number - User enters the desired program number to receive.
>
> Manual Select - When selected "**Start Scan**" button (**6**) will be displayed.

(6) Start Scan: Available only when in Manual Select Program mode. Clicking on the scan button will display all available programs. Select the desired program by checking the respective Select box.

(7) Revert Changes: Returns to previous settings after the last "**Apply**".

(8) Apply: Enters the current displayed settings into the decoder.

PLAYER CONTROL: UDP UNICAST

Figure 3a - "Player Control" - UDP Unicast

(1) Source Type: UDP Unicast

(2) UDP Port: Enter in port number to be used.

(3) Program Selection:

> Auto - Selects the first program in the PAT table
> Program Number - User enters the desired program number to receive.
> Manual Select - When selected "**Start Scan**" button (**4**) will be displayed.

Clicking on the "**Start Scan**" button will display all available programs. Select the desired program by checking the respective Select box.

Figure 3b - "Program Selection" - Start Scan

(5) Revert Changes: Returns to previous settings after the last "Apply".

(6) Apply: Enters the current displayed settings into the decoder.

Player Control

PLAYER CONTROL: UDP MULTICAST

Figure 4a - "Player Control" - UDP Multicast

1   **Source Type:** UDP Multicast

2   **Multicast Group:** Enter IP address

3   **Port:** Enter in port number to be used.

4   **IGMP Version:** Supports either IGMPv2 or IGMPv3

5   **Program Selection:**

Auto - Selects the first program in the PAT table
Program Number - User enters the desired program number to receive.
Manual Select - When selected "Start Scan" button (**6**) will be displayed.

Clicking on the "Start Scan" button will display all available programs. Select the desired program by checking the respective Select box.

Figure 4b - "Program Selection" - Start Scan

7   **Revert Changes:** Returns to previous settings after the last "Apply".

8   **Apply:** Enters the current displayed settings into the decoder.

Player Control

PLAYER CONTROL: RTSP

Figure 5a - "Player Control" - RTSP

① **Source Type:** RTSP

② **URL:** Enter URL address in RTSP protocol format.

    Formatting of the URL: ***rtsp://user:pass:@<ipaddress>/camera info***

    "rtsp" - The type of protocol to enable streaming of the IP output of camera.

    "user:pass" - The login and password information for the camera (refer to camera manual).

    "<ipaddress>/" - Insert the IP address of the camera.

    "Camera info" - This is related to each camera (refer to camera manual).

③ **Program Selection:**

    Auto - Selects the first program in the PAT table
    Program Number - User enters the desired program number to receive.
    Manual Select - When selected "**Start Scan**" button (**④**) will be displayed.

    Clicking on the "**Start Scan**" button will display all available programs. Select the desired program by checking the respective Select box.

Figure 5b - "Program Selection" - Start Scan

⑤ **Revert Changes:** Returns to previous settings after the last "**Apply**".

⑥ **Apply:** Enters the current displayed settings into the decoder.

Player Control

PLAYER CONTROL: RTP WITH SDP

Figure 6a - "Player Control" - RTP with SDP

1 **Source Type:** RTP with SDP

2 **SDP Text:** SDP (Session Description Protocol) profile text here in order to use with RTP (Real-time Transport Protocol) Source Type.

3 **Program Selection:**

Auto - Selects the first program in the PAT table
Program Number - User enters the desired program number to receive.
Manual Select - When selected "**Start Scan**" button (**4**) will be displayed.

Clicking on the "**Start Scan**" button will display all available programs. Select the desired program by checking the respective Select box.

Figure 6b - "Program Selection" - Start Scan

5 **Revert Changes:** Returns to previous settings after the last "**Apply**".

6 **Apply:** Enters the current displayed settings into the decoder.

Player Control

PLAYER CONTROL: ZIXI PUSH

If a Zixi Link License is not pre-installed with the unit for point-to-point links over the public internet, a separate Zixi Link License (Model: ND-24-Zixi-LIC; P/N: 1002654) will be required.

Figure 7 - "Player Control" - Zixi Push Input

① **Source Type:** Zixi Push will display in drop down menu only after the License Key has been entered.

② **Zixi Port:** specify Zixi Port

③ **Channel/Stream ID:** must match either a PEG encoder ID for point-to-point or Zixi server stream ID for broadcast applications

④ **Password:** must match either a PEG encoder password for point-to-point or Zixi server stream password for broadcast applications

⑤ **Program Selection:**

Auto - Selects the first program in the PAT table
Program Number - User enters the desired program number to receive.
Manual Select - When selected "**Start Scan**" button (**⑥**) will be displayed.

⑥ **Start Scan:** Available only when in Manual Select Program mode. Clicking on the scan button will display all available programs. Select the desired program by checking the respective Select box.

⑦ **Revert Changes:** Returns to previous settings after the last "**Apply**".

⑧ **Apply:** Enters the current displayed settings into the decoder.

Video Settings

Figure 8a - "A/V Settings" Tab
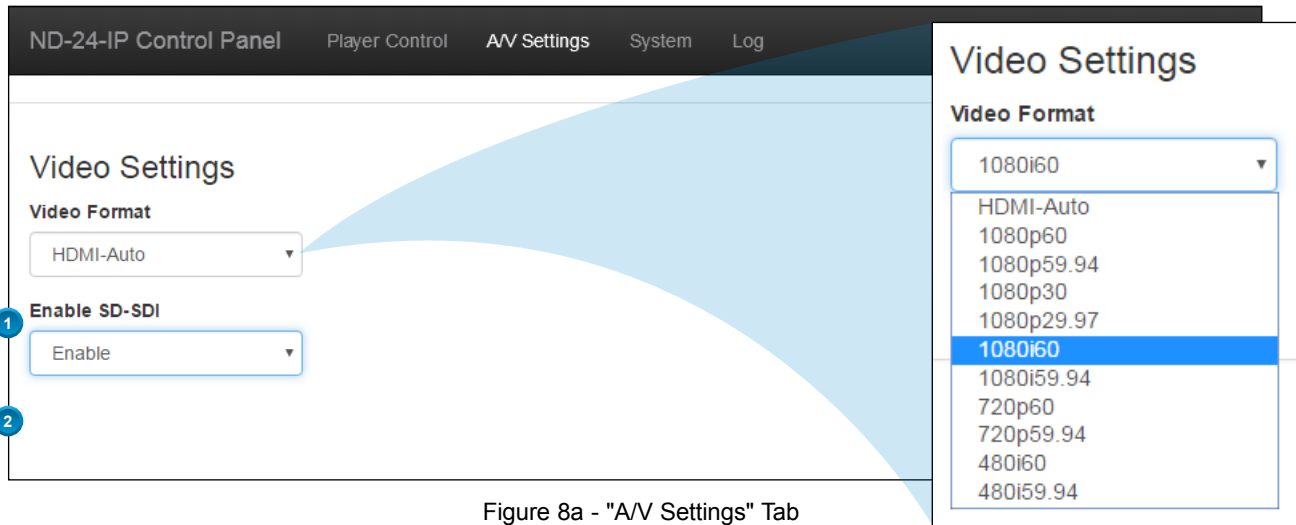
① **<u>Video Format:</u>** Used to select the video format from the following options: HDMI Auto, 1080p60, 1080p59.94, 1080p30, 1080p29.97, 1080i60, 1080i59.94, 720p60, 720p59.94, 480i60 or 480i59.94

> ⚠ HDMI Auto should **<u>NOT</u>** be selected when using HD-SDI Output. **Reason**: The HDMI Auto Setting upscales the input stream to Maximum resolution (1080P). This shuts off the HD-SDI Output as it does not do 3G-SDI.

② **<u>Enable SD-SDI:</u>** Enable or Disable.

> *Note: To get composite 480i output, please set resolution to 1080i59.94. The composite output will be down-converted to 480i.*

> *Note: Current firmware allows for SD-SDI or composite video. When the video resolution is 480i and SD-SDI is set to "Enable", you'll get SD-SDI, but NOT composite. If SD-SDI is set to "Disable", you'll get composite, but not SD-SDI.   If the video resolution is anything other than 480i, this has no effect.*

System Information

"System Information" is predominately a "read-only" screen providing key information on the decoder.

SOFTWARE FEATURES

1 **Built-In Features:** Field will display "**Zixi**" if Link License is pre-installed from factory.

2 **License Key:** User can enter a Zixi Link License key (ordered separately #6674) for Zixi point-to-point links. To enter, user clicks on the pencil icon next to "**License Key**". User can then enter the key in the field and click the "**Apply**" button to install. After this is done, Zixi Push will then be an option on the Player Control tab's Source Type pull down menu.

3 **Add-on Features:** Indicates installed add-on features. "**Zixi**" will display here after the license key has been entered.

SOFTWARE VERSION

4 **Version:** Indicates currently installed software version name.

5 **Unique Build ID:** A machine-generated unique identifier for each software release.

6 **Debug:** A value of 0 indicates production software. A non-zero value indicates a testing / engineering software release.

7 **Date:** Timestamp generated when producing a software release image.

HARDWARE INFO

8 **Serial Number:** Indicates unit serial number.

9 **Model Name:** Indicates the unit's model name.

10 **Hardware Version:** May be used to distinguish between hardware variants in future versions of the product.

11 **Control Port MAC:** Indicates MAC address of the "**Remote Control**" ethernet port.

12 **Data Port MAC:** Indicates MAC address of the "**Data Input**" ethernet port.

13 **Capabilities:** Numeric code that indicates optional software and hardware.

14 **Board Rev:** Indicates revision of the main circuit board.

15 **Board Number:** Indicates the part number of the main circuit board in the product. May be of use in resolving customer support or warranty issues.

DATA CONTROL PORT INFO

16 **Netmask:** indicates the subnet mask address assigned to the "**Data Input**" port of the unit.

17 **Address:** indicates the static IP address assigned to the "**Data Input**" port of the unit, which allows the user to access it via the web interface.

REMOTE CONTROL PORT INFO

18 **Netmask:** indicates the subnet mask address assigned to the "**Remote Control**" port of the unit.

19 **Address:** indicates the static IP address assigned to the "**Remote Control**" port of the unit, which allows the user to access it via the web interface.

> ⚠️ IMPORTANT: The Remote Control Port and the Data Control Port **MUST** be set on different subnets.

ND-24-IP UPTIME

20 **Uptime:** Displays time elapsed since unit was last powered on.

System Information

Figure 9 - "System Info" Tab (Read-Only)

REBOOT DECODER

21 **Reboot System:** Select "**Reboot System**" to reboot the decoder.

System Log

The "Log" tab (Figure 10) is a "read-only" screen which documents and displays all unit activity.

Figure 10 - "Log" Tab (Read-Only)

Admin Page

The "Admin" tab (Figure 11) allows the user to change or update the login credentials for the unit. Alpha-numeric + symbols are acceptable for use in both username and password.

Figure 11 - "Admin" Tab

1 **Change Username:** This section is used to change the Administrator's username (16 characters maximum). The username is used to log into the unit and allows the user to make changes to any area without going through the front-panel LCD. To initate the change, all 3 fields in this section must be entered correctly. (Factory Default: "**admin**")

First enter the administrator's current username, then type in a new username where it says "**Enter New Username**". The username is case-sensitive.

Once the second step is complete, the user must enter the same username exactly as entered in the second step above in the field "**Enter New Username Again**" in order to to confirm the change. If the username doesn't match, an error message will be displayed.

2 **Change Password:** This section is used to change the Administrator's password (16 characters maximum). The password is used to log into the unit and allows the user to make changes to any area without going through the front-panel LCD. To initate the change, all 3 fields in this section must be entered correctly. (Factory Default: "**pass**")

First enter the administrator's current password, then type in a new password where it says "**Enter New Password**". The password is case-sensitive and will not be displayed.

Once the second step is complete, the user must enter the same password exactly as entered in the second step above in the field "**Enter New Password Again**" in order to to confirm the change. If the password doesn't match, an error message will be displayed.

3 Click Submit Change to apply your login credential changes.

⚠ All fields **MUST** be populated in order for any changes to be set upon clicking "Submit Change".
Unchanged fields **MUST** be re-entered.

Update

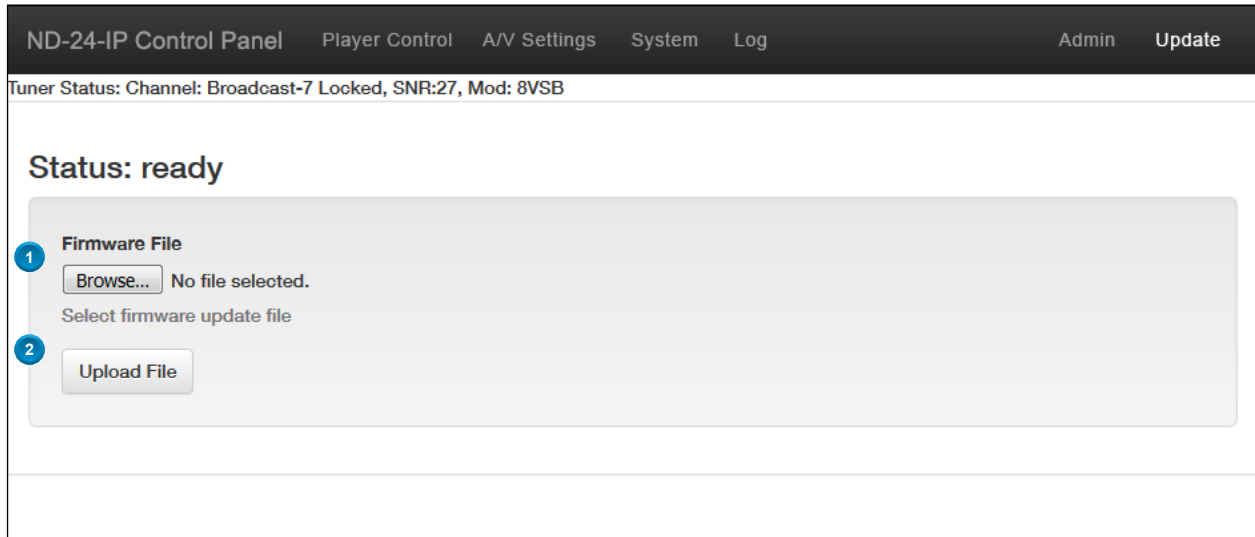The "Update" tab (Figure 12) allows the user to update the unit's firmware.

Figure 12 - "Update" Tab

1. **Firmware File:** download firmware update file and select
2. **Upload File:** press to initiate firmware update

Limited Warranty

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

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

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

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

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

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

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

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

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

OTHER THAN THE WARRANTIES SET FORTH ABOVE, SELLER MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND, EXPRESS OR IMPLIED, AS TO THE CONDITION, DESCRIPTION, FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR AS TO ANY OTHER MATTER, AND SUCH WARRANTIES SET FORTH ABOVE SUPERSEDE ANY ORAL OR WRITTEN WARRANTIES OR REPRESENTATIONS MADE OR IMPLIED BY SELLER OR BY ANY OF SELLER'S EMPLOYEES OR REPRESENTATIVES, OR IN ANY OF SELLER'S BROCHURES MANUALS, CATALOGS, LITERATURE OR OTHER MATERIALS. IN ALL CASES, BUYER'S SOLE AND EXCLUSIVE REMEDY AND SELLER'S SOLE OBLIGATION FOR ANY BREACH OF THE WARRANTIES CONTAINED HEREIN SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT F.O.B. SHIPPING POINT, AS SELLER IN ITS SOLE DISCRETION SHALL DETERMINE. SELLER SHALL IN NO EVENT AND UNDER NO CIRCUMSTANCES BE LIABLE OR RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, PUNITIVE, DIRECT OR SPECIAL DAMAGES BASED UPON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT LIABILITY OR OTHERWISE OR ANY OTHER LEGAL THEORY, ARISING DIRECTLY OR INDIRECTLY FROM THE SALE, USE, INSTALLATION OR FAILURE OF ANY PRODUCT ACQUIRED BY BUYER FROM SELLER.

All claims for shortages, defects, and non-conforming goods must be made by the customer in writing within five (5) days of receipt of merchandise, which writing shall state with particularity all material facts concerning the claim then known to the customer. Upon any such claim, the customer shall hold the goods complained of intact and duly protected, for a period of up to sixty (60) days. Upon the request of Seller, the customer shall ship such allegedly non-conforming or defective goods, freight prepaid to Seller for examination by Seller's inspection department and verification of the defect. Seller, at its option, will either repair, replace or issue a credit for products determined to be defective. Seller's liability and responsibility for defective products is specifically limited to the defective item or to credit towards the original billing. All such replacements by Seller shall be made free of charge f.o.b. the delivery point called for in the original order. Products for which replacement has been made under the provisions of this clause shall become the property of Seller. Under no circumstances are products to be returned to Seller without Seller's prior written authorization. Seller reserves the right to scrap any unauthorized returns on a no-credit basis. **(Rev 1121)**

R.L. DRAKE HOLDINGS, LLC

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