

**PRELIMINARY**

SUBJECT TO CHANGE

# 4 Channel HD-SDI Video Encoder

## MPEG-2 / H.264 (AVC) / H.265 (HEVC)



Stock #	Model Name	Description
6734	NXG-SDI4	4 Channel SDI Encoder Module

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

Purchase Location Name:	
Purchase Location Telephone Number:	
NXG-SDI4 Module Serial Number:	

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

Correspondence regarding this publication should be addressed directly to:

Blonder Tongue Laboratories, Inc.  
One Jake Brown Road  
Old Bridge, NJ 08857 USA

Document Number: 651xxxxxA

Printed in the United States of America.

All product names, trade names, or corporate names mentioned in this document are acknowledged to be the proprietary property of the registered owners.

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

Dolby, Dolby Audio, Pro Logic, and the double-D symbol are trademarks of Dolby Laboratories.

### 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

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” download link will be located beneath the product image. **Firmware Updates** are available under “Tech Support” in the “Resources” section of the website. General instructions for the FTP site, as well as updating your firmware, are provided on this page.

### Returning Product for Repair (or Credit)

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

# Table of Contents

<b>SECTION 1 – GENERAL &amp; SAFETY INSTRUCTIONS.....</b>	<b>4</b>
<b>SECTION 2 – PRODUCT SUMMARY .....</b>	<b>5</b>
2.1 PRODUCT APPLICATION & FEATURES.....	5
2.2 MODULE SPECIFICATION .....	6
<b>SECTION 3 – MODULE STATUS AND GENERAL MANAGEMENT .....</b>	<b>7</b>
3.1 “4CH SDI ENCODE MODULE: STATUS” TAB .....	7
3.2 “4CH SDI ENCODE MODULE: SYSTEM” TAB .....	8
<b>SECTION 4 – CONFIGURING THE ENCODERS.....</b>	<b>9</b>
4.1 “ENCODE: STATUS” SCREEN.....	9
4.2 “ENCODE: SETTINGS” SCREEN.....	10
<b>SECTION 5 – FIRMWARE UPDATES .....</b>	<b>11</b>
<b>SECTION 6 – TROUBLESHOOTING.....</b>	<b>12</b>

## Section 1 – General & Safety Instructions



The STOP sign symbol is intended to alert you to the presence of REQUIRED operating and maintenance (servicing) instructions that if not followed, may result in product failure or destruction.



The YIELD sign symbol is intended to alert you to the presence of RECOMMENDED operating and maintenance (servicing) instructions.



The LIGHTNING flash symbol is intended to alert you to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electrical shock.

**TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER FROM THIS UNIT.**  
**NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

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

### NOTE TO CATV SYSTEM INSTALLER

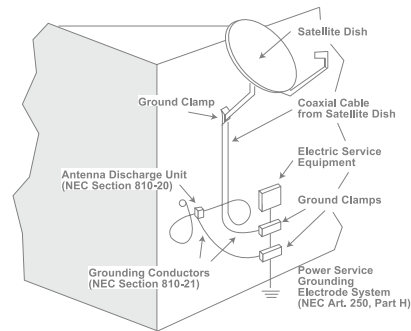
This reminder is provided to call the CATV System Installer’s attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.



You should always follow these Instructions to help ensure Against injury to yourself and damage to your equipment.

- Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature per Section 2.3.
- Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).
- Read all safety and operating instructions before you operate the unit.
- Retain all safety and operating instructions for future reference.
- Heed all warnings on the unit and in the safety and operating instructions.
- Follow all installation, operating, and use instructions.
- Unplug the unit from the AC power outlet before cleaning. Use only a damp cloth for cleaning the exterior of the unit.
- Do not use accessories or attachments not recommended by Blonder Tongue, as they may cause hazards, and will void the warranty.
- Do not operate the unit in high-humidity areas, or expose it to water or moisture.
- Do not place the unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious personal injury and damage to the unit. Install the unit only in a mounting rack designed for 19” rack-mounted equipment.
- Do not block or cover slots and openings in the unit. These are provided for ventilation and protection from overheating. Never place the unit near or over a radiator or heat register. Do not place the unit in an enclosure such as a cabinet without proper ventilation. Do not mount equipment in the rack space directly above or below the unit.
- Operate the unit using only the type of power source indicated on the marking label. Unplug the unit power cord by gripping the plug, not the cord.
- The unit is equipped with a three-wire ground-type plug. This plug will fit only into a ground-type power outlet. If you are unable to insert the plug into the outlet, contact an electrician to replace the outlet. Do not defeat the safety purpose of the ground-type plug.
- Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.

- Be sure that the outdoor components of the antenna system are grounded in accordance with local, federal, and National Electrical Code (NEC) requirements. Pay special attention to NEC Sections 810 and 820. See the example shown in the following diagram:



- We strongly recommend using an outlet that contains surge suppression or ground fault protection. For added protection during a lightning storm, or when the unit is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the lines between the unit and the antenna. This will prevent damage caused by lightning or power line surges.
- Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing the antenna, take extreme care to avoid touching such power lines or circuits, as contact with them can be fatal.
- Do not overload wall outlets or extension cords, as this can result in a risk of fire or electrical shock.
- Never insert objects of any kind into the unit through openings, as the objects may touch dangerous voltage points or short out parts. This could cause fire or electrical shock.
- Do not attempt to service the unit yourself, as opening or removing covers may expose you to dangerous voltage and will void the warranty. Refer all servicing to authorized service personnel.
- Unplug the unit from the wall outlet and refer servicing to authorized service personnel whenever the following occurs:
  - The power supply cord or plug is damaged;
  - Liquid has been spilled, or objects have fallen into the unit;
  - The unit has been exposed to rain or water;
  - The unit has been dropped or the chassis has been damaged;
  - The unit exhibits a distinct change in performance.
- When replacement parts are required, ensure that the service technician uses replacement parts specified by Blonder Tongue. Unauthorized substitutions may damage the unit or cause electrical shock or fire, and will void the warranty.
- Upon completion of any service or repair to the unit, ask the service technician to perform safety checks to ensure that the unit is in proper operating condition.

## Section 2 – Product Summary

### 2.1 Product Application & Features

#### Application:

The **NXG-SDI4** module will encode up to 4 channels in MPEG-2, H.264 (AVC), or H.265 (HEVC) video to IP SPTS onto the NXG mainframe backplane for further NXG processing with optional QAM modulation, DRM/CAS, or IPTV multicast or unicast output.

The **NXG-SDI4** will accept 4 SD-/HD-/3G-SDI input sources. All major resolutions are supported, 480i up to 1080p60. The NXG-SDI4 will also encode audio to AC3 (Dolby Digital), AAC, and MP3 formats.

#### Key Features:

- Encode SD-/HD-/3G-SDI sources for custom IP & RF distribution
- 4 channels of locally sourced content via 4 SDI inputs
- Encoding to H.265 (HEVC), H.264 (AVC), or MPEG-2
- Dolby® Digital Audio (AC3), AAC, and MP3 support
- High video encoding quality levels at low bit rates

#### Description:

##### **a** STATUS LED:

LED is Off = Indicates the module is not correctly connected or receiving power.

LED is Green = Indicates the module is running without errors.

LED is Red = Indicates that one or more errors have been detected.

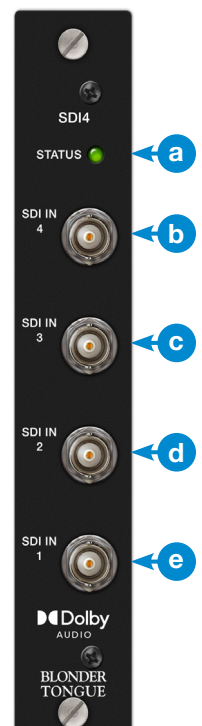
LED is Amber = Indicates that one or more warnings have been detected.

**b** **SDI IN 1:** BNC SDI connector used for SD and HD content input.

**c** **SDI IN 2:** BNC SDI connector used for SD and HD content input.

**d** **SDI IN 3:** BNC SDI connector used for SD and HD content input.

**e** **SDI IN 4:** BNC SDI connector used for SD and HD content input.



## 2.2 Module Specification

<b>Input</b>	
Connector	4x BNC SDI
<b>SD-SDI</b>	
Bit Rate	270 Mbps
Video Resolution	480i (59.94, 60 FPS)
<b>HD-SDI</b>	
Bit Rate	1.485 & 1.485/1.001 Gbps
Video Resolution	720p (29.97, 30, 59.94, 60 FPS) 1080i (59.94, 60 FPS) 1080p (29.97, 30, 59.94, 60 FPS)
<b>3G-SDI</b>	
Bit Rate	2.97 & 2.97/1.001 Gbps
Video Resolution	1080p (29.97, 30, 59.94, 60 FPS)
Level	A/B
<b>Audio</b>	
Input Format	PCM Raw (L-PCM, IEC-60958, @ up to 192 kHz)

<b>Alarms &amp; Monitoring</b>	
Front Panel	1x Status LED (Bicolor)

<b>Output Encoding</b>	
UDP	SPTS to NXG Mainframe Backplane
TS Format	ISO 13818-1 SPTS on UDP/IP
<b>Video</b>	
Video Format	MPEG-2, H.264 (AVC), H.265 (HEVC)
Video Resolution	1080p (29.97, 30, 59.94, 60 FPS) 1080i (59.94, 60 FPS) 720p (29.97, 30, 59.94, 60 FPS) 480i (29.97, 30, 59.94, 60 FPS)
Video Bit Rates	2 Mbps to 19 Mbps (0.1 Mbps increments)
<b>Audio</b>	
Audio Codecs	Dolby® Digital AC3, AAC, MP3
Audio Bit Rates	128, 192, 256, 384 Kbps

<b>General</b>	
Dimensions (W x H x D)	1.15 x 7.0 x 15.5 in (29 x 178 x 394 mm)
Power	DC via NXG Mainframe Backplane
Power Consumption	20 W
Weight	2.0 lbs (0.9 kg)
Operating Temp.	32 to 122 °F (0 to 50 °C)
Storage Temp.	-13 to 158 °F (-25 to 70 °C)
Operating Humidity	0 to 95% RH @ 35 °C max, non-condensing

## Section 3 – Module Status and General Management

### 3.1 “4Ch SDI Encode Module: Status” Tab

The “4Ch SDI Encode Module: Status” tab (Figure 3.1a) displays the general health and module information at a glance. The information is provided as a quick way to monitor the module or assist with troubleshooting issues that may arise.

4Ch SDI Encode Module: Status   System   Encode: Status   Settings			
System Status			
<b>Status</b>			
1	Status	OK	
2	Temperature	100.3°F / 38.0°C	
<b>Information</b>			
3	Model Number	NXG-SDI4	
4	Serial Number	2021100693	
5	Software Version	1.0.0.0_20211007	
7	Front-end Version	3	
8	Slot Location	4	
9	Device	10 Status	11 Temperature
	EC1	Encoding...	99.5°F / 37.5°C
	EC2	Encoding...	92.5°F / 33.6°C
	EC3	Encoding...	100.3°F / 38.0°C
	EC4	Encoding...	92.5°F / 33.6°C

Figure 3.1a - “4Ch SDI Encode Module: Status” Tab

In the section entitled “**Status**”, the following parameters about the module health are displayed:

- 1 **Module Status:** Indicates the current status of the module. Status Levels shown below:
  - Ok** - No issues at the current time
  - Updating** - an update is in-progress via the Master Controller's Firmware Update page.
  - Error** - One or more errors have occurred. Check system log for more information on error(s).
  - Warnings** - One or more warnings have been triggered. Check system log for more information.
- 2 **Temperature:** Indicates the temperature of the module.

In the section entitled “**Information**”, the following module-specific information is shown below:

- 3 **Model Number:** Indicates the model number of the module installed.
- 4 **Serial Number:** Indicates the serial number of the module installed.
- 5 **Software Version:** Indicates the software version of the module. To update software, please see “**Section 5 - Firmware Updates**”.
- 6 **Front-end Version:** Indicates the firmware version of the SDI input device. This may be updated during a normal software update.
- 7 **Slot Location:** Indicates the slot location on the platform chassis where the module is currently installed into.

In the **Encoder Device** section, the following encoder-specific information is displayed:

- 8 **Device:** Indicates the encoders **EC1 - EC4** displays information for each module encoder input. These will populate other data once set up and enabled. When a numbered encoder is not available the row will display as empty.
- 9 **Encoders:** Indicates a status for each module encoder input being monitored with the following message types:
  - **Encoding...**: indicates the EC is actively encoding.
  - **Error:** indicates that one or more errors have been detected. See the NXG System Log using the menu at the top.

### 3.1 “4Ch SDI Encode Module: Status” Tab (continued)

- 10 **Temperature:** Indicates the temperature each module encoder input is currently running at. The temperatures are displayed in both Fahrenheit and Celsius. (Figure 3.1b)



Figure 3.1b - Encoder Temperature Status Range

### 3.2 “4Ch SDI Encode Module: System” Tab

The “4Ch SDI Encode Module: System” Tab (Figure 3.2) allows the user to manage the module configuration through the following controls:

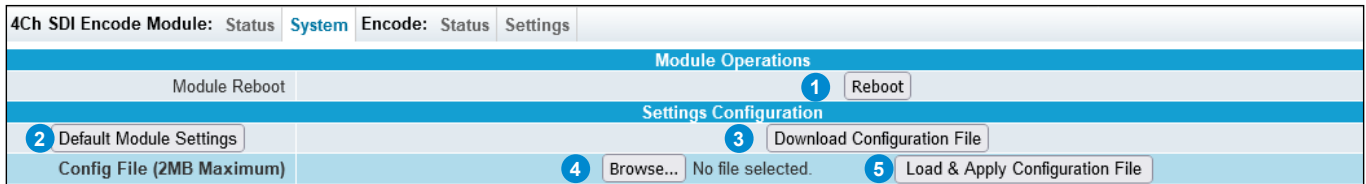


Figure 3.2 - “4Ch SDI Encode Module: System” Tab

The Module “**Operations**” section allows the user to reboot the module from this screen.

- 1 **Reboot** Click this button to reboot the module.

The Module “**Settings Configuration**” section allows the user to back-up and re-load the configuration settings.

- 2 **Default Module Settings** Resets the module back to the Factory defaults. It is always recommended to save the existing configuration file before resetting to the default values .
- 3 **Download Configuration File** Downloads the current module configuration file.
- 4 **Browse... No file selected.** Browse and select a Configuration File (2 MB maximum file size)
- 5 **Load & Apply Configuration File** After choosing file, click this to load and apply the configuration file.



## Section 4 – Configuring the Encoders

### 4.1 “Encode: Status” Screen

The “Encode: Status” Tab (Figure 4.1) is a “read-only” screen which indicates the status of each encoder. A visual status of the pipeline is also shown on the left side. When hovering over an encode block, the corresponding status table, to the right, highlights.

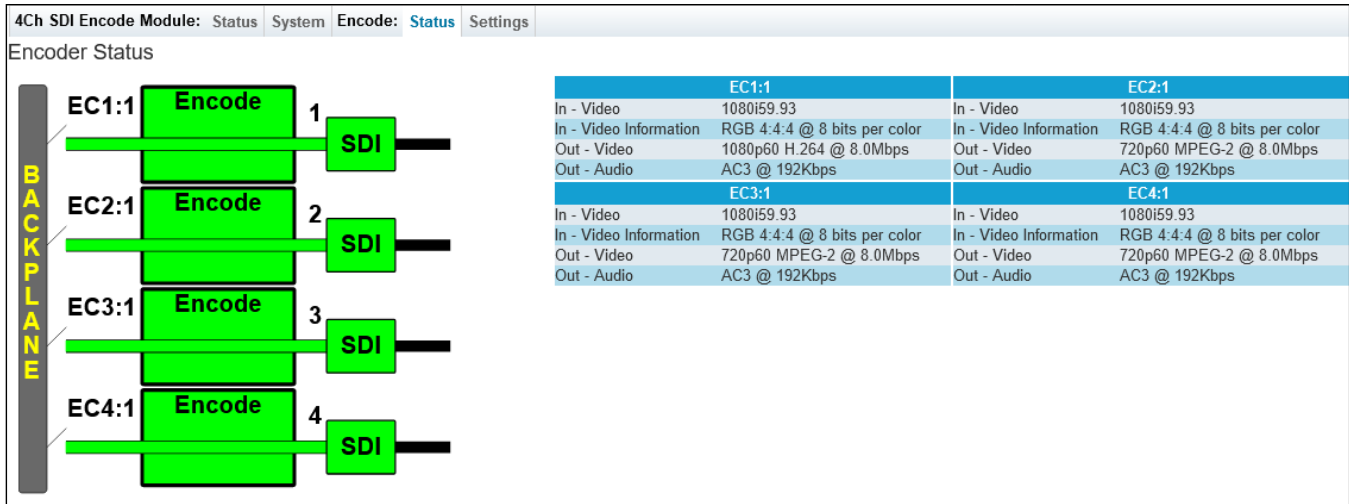


Figure 4.1 - “Encode: Status” Screen

#### Encoder Status States

- Light Gray (Red Question Mark):** The encoder has not been detected yet.
- Light Gray:** The encoder is disabled.
- Dark Gray (Orange Arrow):** The encoder is idle or starting up.
- Green:** The encoder is active.
- Red:** The encoder has failed.

#### SDI Status States

- Black:** The SDI has no connection.
- Green:** The SDI is connected and sending a signal.
- Red:** The SDI is connected and has an error.

## 4.2 “Encode: Settings” Screen

The “Encode: Settings” Tab (Figure 4.2) allows the user to configure each encoder (EC) and displays status information about the input and output streams. A visual status of the pipeline is also shown on the left side. When hovering over an encode block, the corresponding status table, to the right, highlights.

EC1:1	EC2:1
EC3:1	EC4:1
Video/Audio Pipeline Settings	
1 Pipeline Control	Enable
2 Output Resolution	1080p60
3 Output Video Encoding Format	H.264/AVC
4 Output Video Bitrate	8.0Mbps
5 Output Audio Encoding Format	AC3 (2.0)
6 Output Audio Bitrate	192Kbps
7 Output Audio Gain	0 - Unity
8 Output Stream Name	

Figure 4.2 - “Encode: Settings” Screen

To begin configuration on a transcoder, click on a tab (on the right side) to open the “Video/Audio Pipeline Settings”, as shown above. The configurable options are as follows:

- 1 **Pipeline Control:** Allows the user to “Enable” or “Disable” the encode.
- 2 **Output Resolution:** Sets the output video resolution. Options available for this model are “480i60”, “480p30”, “480p60”, “720p30”, “720p60”, “1080i60”, “1080p30”, and “1080p60”.
- 3 **Output Video Encoding Format:** Sets the output video encoding format. Options available for this model are “MPEG-2”, “H.264/AVC”, and “H.265/HEVC”.
- 4 **Output Video Bitrate:** Sets the output video bitrate in Mbps. Options available for this model are “2.0” to “19.0”, incremented by “0.1” Mbps.
- 5 **Output Audio Encoding Format:** Sets the output audio encoding format. Options available for this model are “Passthru”, “AC3 (2.0)”, “AAC”, and “MP3”.
- 6 **Output Audio Bitrate:** Sets the output audio bitrate. Options available for this model are “128Kbps”, “192Kbps”, and “256Kbps”.
- 7 **Output Audio Gain:** Sets the output audio gain. Options available for this model are “Mute” and a range between “-7 (minimum)” to “+7 (maximum)”.
- 8 **Output Stream Name:** The user may enter a name for the stream. If a name is omitted, a default naming formula will be used SLOT\_ECX:Y (eg. "2\_EC1:1"). Up to 16 alphanumeric characters are allowed.



Remember to click on the “Apply” button to apply the new values/configurations.

## Section 5 – Firmware Updates

The “**Firmware Update**” tab (Figures 5a, 5b, 5c, and 5d) is part of the Master Controller Module interface and is used for all installed modules. It is located on the right side of the main menu allowing the user to review currently installed firmware versions and provides a quick and easy way to apply any new updates.

Firmware Update Files			
Browse... No file selected.		Upload File	
Firmware Update Control and Status			
Module	Firmware Version	Update Control	Status
Master Controller (NXG-CNTRL)	1.4.0.1_20211022	Update	
24 Prog CableCARD In (NXG-CCQD-24)	1.1.1.3_20210107	Update	
8Ch Transcode (NXG-CV8)	1.0.5.3_20211005	Update	
4Ch SDI Encode (NXG-SDI4)	1.0.0.0_20211007	Update	

Figure 5a - “Firmware Update” Tab

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

Click the “Download Firmware Updates” link and then scroll down to the “NeXgen Gateway” folder to view the NXG module folders.

**Note:** There is a check of the file name versus module ID to eliminate a user inadvertently updating any modules with incorrect files. Multiple module updates can be performed simultaneously after uploading the files.

- 2 Under the “**Firmware Update Files**” section, the user can use **Browse...** and **Upload File** to select and send the module update file(s) into the NXG Platform. See a view of the file when uploaded to the platform as shown below on Figure 5b.

Firmware Update Files			
Browse... No file selected.	Upload File	NXG-SDI4 Update File:	1.0.0.0 20181105 [X]

Figure 5b - File when uploaded

- 3 Update the Firmware version by clicking the **Update** button. The update status and progress will show under the “**Status**” columns. Below are the firmware updates as they appear while in-progress (Figure 5c) and upon completion (Figure 5d). After the update is complete, the user **MUST** reboot the module to finish applying the updates.

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

Module	Firmware Version	Update Control	Status
4Ch SDI Encode (NXG-SDI4)	1.0.0.0_20211007	3 Update	Updating System Files [Progress Bar]

Figure 5c - Update In Progress

- 4 Once the update progress is complete, the user **MUST** reboot the unit. The most convenient method for this process is by clicking the **Reboot** button (as shown on Figure 5d) in order to apply and finalize the update.

Module	Firmware Version	Update Control	Status
4Ch SDI Encode (NXG-SDI4)	1.0.0.0_20211007	4 Reboot	Update Complete [Green Bar]

Figure 5d - Completed Update

**Please Note:** An update can be applied and finalized by using the reboot control through the NXG-SDI4 system page, the master controller system page, or by power-cycling a module (ie. pulling the module out of a NXG system).



When firmware updates are complete, the user can remove the loaded file by clicking the **[X]** button shown on Figure 5b next to the “Upload File” button under “Firmware Update Files”.

## **Section 6 – Troubleshooting**

For technical support please contact us at 1-800-523-6049 between the hours of 8am and 5pm EST.

**NOTES**

---

**NOTES**

---

**NOTES**

---

# Limited Warranty

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