



NXG-EDGE MAX KIT

FLEXIBLE EDGE VIDEO DELIVERY PLATFORM



STOCK #	MODEL NAME	DESCRIPTION
6739	NXG-EDGE MAX Kit	1x Mainframe Chassis (3RU, 4 module slot, 15Gb Capacity IP Backplane), 1x Controller Module (Controls Entire NXG Platform), 2x Power Supplies (required for Redundancy; Hot-Swappable)

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

Purchase Location Name:	
Purchase Location Telephone Number:	
NXG-EDGE MAX Serial Number(s):	

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Document Number: UMD-NXG6739-SYS

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SECTION 1 – GENERAL & SAFETY INSTRUCTIONS



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



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



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

TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER FROM THIS UNIT.

NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

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

NOTE TO CATV SYSTEM INSTALLER

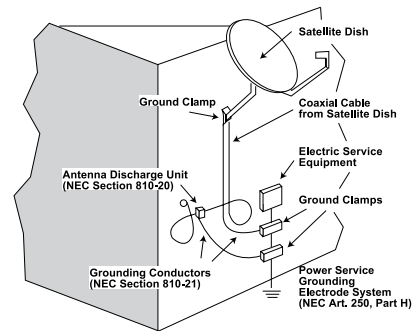
This reminder is provided to call the CATV System Installer’s attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.



You should always follow these instructions to help ensure against injury to 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-EDGE MAX System Kit is the 3 RU version of the NXG Platform, designed and priced for Edge video delivery. Each System Kit comes equipped with a mainframe chassis, controller module including IP input or output capability, and enterprise-class hot-swappable power supplies. Customers can purchase up to 4 existing NXG input, output, or processing modules to create individually customized solutions for each deployment.

APPLICATIONS AND CONFIGURATIONS

- ▶ IP Edge QAM from SFP+ or Gigabit Ethernet Sources for Fiber-to-the-Premises (FTTP) Solutions with RF Properties
- ▶ QAM to IP with Multicast or Unicast Support for Low-Density RF Endpoints
- ▶ IP to IP with Multicast Translation or Unicast Termination for Fiber-to-the-Premises (FTTP) Solutions with IP Properties
- ▶ Wide Range of DRM & Encryption/Decryption Options Provide Flexibility at both Initial Install and Future Requirements Changes

KEY FEATURES

- ▶ 3RU form factor Chassis Supports 4 NXG modules + IP Edge Controller
- ▶ IP Routing and Traffic using Linux-based Monitoring and Control System
- ▶ System Configuration and Remote Management
- ▶ SFP+, Gigabit Ethernet, or QAM Content Input with Optional Module

ADDITIONAL FEATURES

Master Controller Module:

- ▶ Four (4) RJ45 GigE for IP Input or Output & Control
- ▶ One (1) 10 GigE SFP+ data port for distribution of IP streams and remote monitoring & control
- ▶ System Configuration and Traffic Management
- ▶ Alarm Summary and Event Logs
- ▶ System Status of all Deployed NXG Modules
- ▶ Import, Export, and Edit of Configuration Files
- ▶ Remote Firmware Updates to all Modules
- ▶ Supports Fully-Redundant Configurations in IP-based Installations
- ▶ Supports Fully-Redundant Configurations in QAM-based Installations with Additional HW
- ▶ SNMP Support

The Master Controller Module is an Industrial Ethernet Switch Supporting:

- ▶ Configurable for Integration with Complex Networks
- ▶ Full Management of Layer 2 and Layer 3 Forwarding
- ▶ 802.1q VLAN Switch with 32K MACs and 4K VLANs

Mainframe:

- ▶ 20 Gbps Capacity; 2.5 Gb Bi-directional to each individual NXG Module
- ▶ 4 Module Slots Configurable to Your Application
- ▶ Front and Side to Back Airflow

Power Supplies (AC):

- ▶ Internal Fan for Heat Dissipation
- ▶ Status LEDs
- ▶ Hot-Swappable

2.2 PRODUCT SPECIFICATIONS

MASTER CONTROLLER SPECIFICATIONS

INPUT / OUTPUT		ALARMS / MONITORING / CONTROL	
DATA PORTS		Status	LED Indicators for Power, Temperature, Fans, and all network connections
Gigabit Ethernet	4x RJ45 GigE for IP Input or Output & Control	Remote Monitoring / Control	GUI-based menu via web browser, automated e-mail system alarms, and SNMP traps for asynchronous alarms
SFP+	1x 10 GigE SFP+ data port for distribution of IP streams and remote monitoring & control		

MAINFRAME SPECIFICATIONS

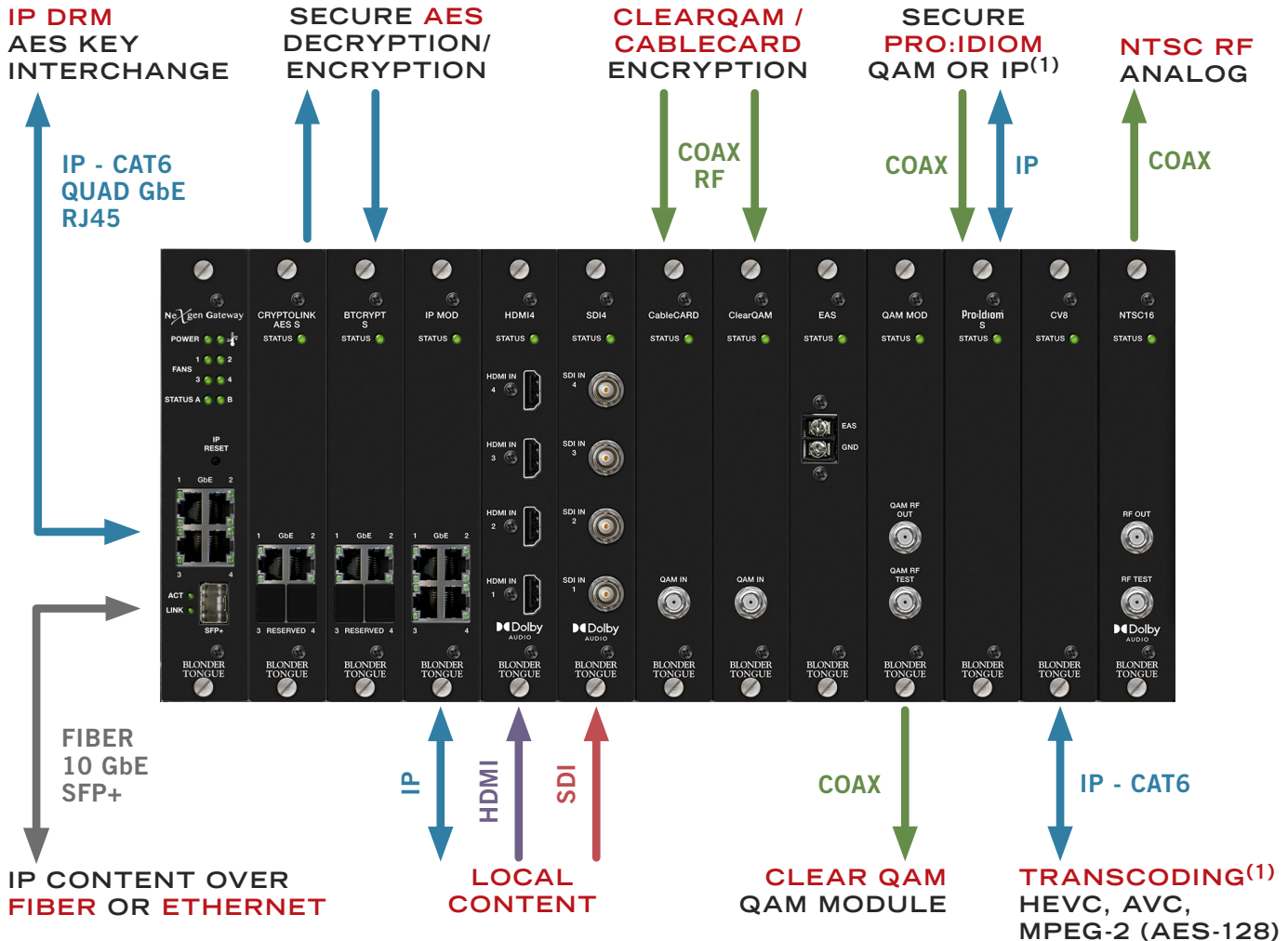
GENERAL - MAINFRAME BACKPLANE	
Dimensions (W x H x D)	19.0 x 5.25 x 14.5 in (483 x 134 x 368 mm)
Weight	14.5 lbs (6.57 kg)
Power	100-240 VAC
Power Consumption	16 W (Master Controller Only)
Operating Temp.	32 to 122 °F (0 to 50 °C)
Storage Temp.	-13 to 158 °F (-25 to 70 °C)
Operating / Storage Humidity	0 to 95% RH @ 35 °C max, non-condensing

POWER MODULE SPECIFICATIONS

GENERAL - POWER SUPPLY UNIT	
Dimensions (W x H x D)	2.15 x 1.57 x 9.0 in (54.5 x 40 x 228 mm)
Weight	1.8 lbs (0.81 kg)
Power In Out	100-240 VAC; 9A; 50/60 Hz 12 VDC; 54.2A; 650 W Max
Power Consumption	450 W (Each Power Supply)
Operating Temp.	23 to 122 °F (-5 to 50 °C)
Storage Temp.	40 to 158 °F (-40 to 70 °C)
Operating/Storage Humidity	5 to 96% RH @ 45 °C max, non-condensing

2.3 SYSTEM OVERVIEW

The following diagram displays an overview with a number of current modules shown that can be installed into a NXG System. The diagram does not represent all current or future module options or combinations. See Appendix A for a more comprehensive list of available modules.



(1) Modules input and/or output through the backplane.

(2) IP Modules available as SPTS or MPTS versions. CableCARD not shown.

This diagram is used solely as a reference to display the flow of various input, output, and processing modules and their content types into a chassis.

Please note that the installation and use cases of the NXG EDGE MAX are different from those of a 12-slot chassis, as illustrated in the following pages.

2.4 PRODUCT MODULE DESCRIPTION

MASTER CONTROLLER MODULE

- A Power LED:**
- ▶ Blinking Red/Off = Voltages/currents are abnormal or 1 power supply AC is now plugged in.
 - ▶ Solid Green = Voltages/currents are normal
- B Temperature LED:**
- ▶ Solid Red = Master Controller temperature is critically high.
 - ▶ Solid Amber = Master Controller temperature is high.
 - ▶ Solid Green = Master Controller temperature is normal.
- C Fans LEDs 1 through 4:**
- ▶ Blinking Red/Off = Overcurrent event
 - ▶ Blinking Red/Off = Critically Low RPM
 - ▶ Solid Red = Outside of exceeded acceptable speed range (too fast)
 - ▶ Solid Amber = Outside of nominal speed range (slightly too fast or slightly too slow)
 - ▶ Solid Green = Speed is good
- D Status A LED (Module Update):**
- ▶ Default State = Off
 - ▶ Blinking Green/Amber = Update in Progress
 - ▶ Solid Red = Update Failed
 - ▶ Solid Amber = Update Warning; Master Controller Update File not Found.
 - ▶ Solid Green = Update Completed
- E Status B LED (IP Reset):**
- ▶ Default State = Off
 - ▶ Off/Green/Off then reverts to previous state = IP Reset Event
- F IP Reset:** When pushed and held for 5 seconds, temporarily resets the IP address, username, and password to the factory default values of:
- ▶ **IP Address:** **172.16.70.1**
 - ▶ **Subnet Mask:** **255.255.255.0**
 - ▶ **Username:** **Admin** (case-sensitive)
 - ▶ **Password:** **pass** (case-sensitive)

PLEASE NOTE: The user-configured IP address, Login, and Password will still be present and unchanged in the system settings, and will revert back once the unit has been rebooted/power-cycled.



IMPORTANT: When using IP Reset, **AFTER** obtaining the user-configured information, including the IP address, within the NXG user interface, **REBOOT** the unit to disable the default factory IP address and login credentials once more.

- G GbE #1 through 4:** RJ45 ports for 1000Base-T Ethernet (GigE) interface; used for for the following: IP input/ outputs, Control Management, EAS Triggers, and Guide Data.



RECOMMENDATION: The “GbE 1” port is generally considered a “safe” port. As noted before, when the IP Reset button is pressed, the default port configuration will override any front port or IP I/O settings until the unit is rebooted. It is **strongly recommended** that users do not utilize “GbE 1” for anything other than command/control functions.

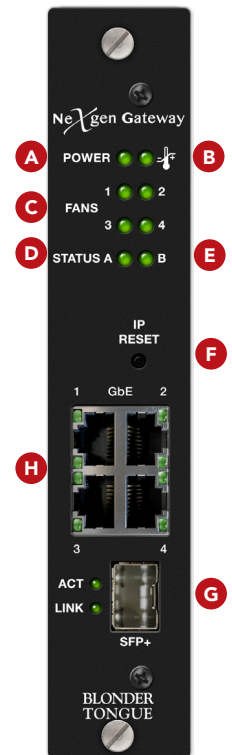


Figure 2.4a
Controller
Module

2.4 PRODUCT MODULE DESCRIPTION (CONTINUED)

H SFP+: 10 GbE data port used for distribution of IP streams and remote monitoring & control.

POWER MODULES

I Right LED (AC) / Left LED (DC):

- ▶ Off = power not detected (Note: Check utility power input)
- ▶ Solid Green = power detected and operating normally



IMPORTANT: When inserting the power modules into the chassis, the green tab **MUST** be located on the bottom left side. Slowly push the module into place until you hear a click. Once done, proceed with the second power module the same way.

(See **Section 3.2** for more information)



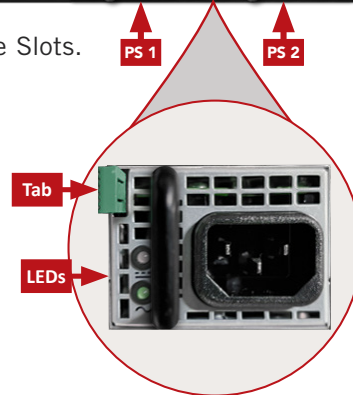
Figure 2.4b
Power Supply
Modules

2.5 PRODUCT PLATFORM BACKPLANE DESCRIPTION

The following diagram displays all base platform parts and the slot numbers. Slot numbers are used in the navigation menu titled “**Modules**” and the “**Status**” tab, as well as various areas within each module. See “**Section 5.1**” for further information.



Figure 2.5 - NXG base platform and Numbered Module Slots.



NOTE: This manual provides instruction for the NXG-CTRL (Master Controller) module. For instruction on additional NXG Modules, please refer to the module manuals for instruction.

Please see **Appendix A** for a growing list of modules.

SECTION 3 – INSTALLATION & POWER-UP

3.1 UNPACKING

The following items are included in the kit:

- ▶ NXG-EDGE MAX Chassis (QTY=1)
- ▶ NXG-EDGE MAX Master Controller (QTY=1)
- ▶ NXG-PS Hot-Swappable Power Supplies (QTY=2)
- ▶ Blank Front Panels (QTY=1 bag of 5 each)
- ▶ Anti-static wrist strap (QTY=1)



Modules are user-installed circuit boards with exposed parts and contacts. In order to prevent possible damage, **FIRST** install the chassis into a grounded equipment rack. Attach the provided wrist strap to the chassis and then to your wrist. Once grounding is complete, modules can be safely removed from their anti-static bags to proceed with installation.

3.2 INSTALLATION AND POWER-UP

The NXG-EDGE MAX Chassis is designed to be installed in a standard 19-inch (483 mm) rack (EIA 310-D, IEC 60297, and DIN 41494 SC48D). Adequate ventilation is very important for NXG-EDGE MAX chassis and module installations. The chassis airflow is from front to back, utilizing a filter on the intake at the bottom. Some air movement is advisable in enclosed rack cabinets.



Blank Panels **MUST** be installed in all of the unused slots within the chassis to ensure proper cooling and airflow. **DO NOT** block the chassis air intake or air discharge openings.

Excessive heat will shorten the life of components and individual module(s). Power supply performance will also be degraded without proper ventilation.

- 1 To install, secure the chassis' front panel to the rack by inserting four (4) machine screws, with cup washers, through the four (4) mounting holes in the front panel (rack screws not provided).
- 2 Identify the Power Supply slots by locating the **PS 1** and **PS 2** slots on the front of the unit, positioned on the lower left side (as shown in figure 2.5 on page 9).

Orient and align each power supply module so that the LEDs and the green tab are on the left side. The green tab should be facing the vents and the master controller slot (refer to Figures 2.5 and 3.2 for proper orientation).

Once properly aligned, carefully insert the module into the corresponding PS 1 or PS 2 slot. Slowly pushing the module into place until you hear a click. Once done, proceed with the second power module the same way.

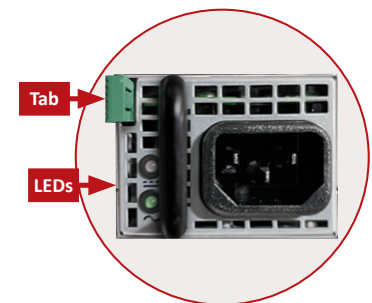


Figure 3.2 - Power Supply Installation Positioning



NOTE OF CAUTION: When inserting ANY modules into the chassis, the modules **MUST** be oriented the proper direction and then you may proceed to slowly push the module into place until you hear a click. If installed upside down and pushed in forcefully, the modular unit(s) **MAY** become damaged.

3.2 INSTALLATION AND POWER-UP (CONTINUED)

- 3 Attach the AC power cord to each power supply, and connect the cords to an appropriate 120-240V, 50/60Hz AC power source.



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

- 4 Install the Master Controller (packed separately) by sliding the module into the card slot on the bottom left slot within the chassis. The module should be installed 90 degrees clockwise so that “Blonder Tongue” on the bottom is pointed to the left.



IMPORTANT: The Master Controller (MC) module **MUST** be installed in the empty slot as directed in #4. The system will not work if the MC module is installed to any other slot.

- 5 Install the appropriate input, output, or processing modules for your NXG application into any of the 4 module slots. All modules should be installed 90 degrees clockwise so that “Blonder Tongue” on the bottom is pointed to the left.

When possible, space the modules apart to maximize airflow.

SECTION 4 – CONNECTING TO A PC/LAPTOP

4.1 ETHERNET ACCESS

Local or remote communication with the unit is only possible through a GUI-based menu via any standard web browser. Before you can communicate with the unit, you must configure your computer's IP address to be in the same subnet as the units default IP address. To do so, follow these steps:

- 1 Plug one end of the Ethernet cable into **Port 1** (typical) front-panel interface of the Master Controller module. Plug the other end of the Ethernet cable to your computer.
- 2 The factory default IP address of the Master Controller management port is **172.16.70.1**. To be able to communicate with the management port, you must first change your computer's IP address.

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

- (a) On your computer, navigate to the “**Network and Sharing Center**”.
- (b) Once open, click on “**Change Adapter Settings**” on left hand side of the window.
- (c) Right-click on the local area network, and then click on “**Properties**”.
- (d) A “**Properties**” dialog box will appear. In this box, double-click on the “**Internet Protocol Version 4 (TCP/IPv4)**”.
- (e) A dialog box entitled “**Internet Protocol Version 4 (TCP/IPv4) Properties**” will appear. Select the “**Use the following IP address**” option and enter the following addresses:
 - ▶ IP address: **172.16.70.2**
 - ▶ Subnet mask: **255.255.255.0**
 - ▶ No need to enter a value for the Default Gateway.

Click **OK** to close the dialog box. Your computer is now ready to communicate with the unit.

4.2 ACCESSING THE GATEWAY VIA THE WEB BROWSER

You must complete the steps described in Section 4.1 before proceeding as follows:

- 1
- Open a web browser on your computer (Chrome or Firefox is recommended) and enter the following URL address (**http://172.16.70.1**). The “Login” prompt (Figure 4.2a) will appear.
- 2
- Enter the following case-sensitive factory-default Username and Password, and click on the “Submit” button.

NOTE: When logged in as Admin, the user has read and write permission. Only one Admin can be logged in at a time.

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

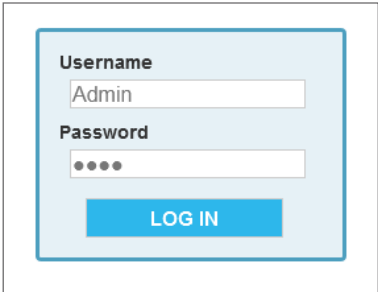


Figure 4.2a - “Login” Screen

Monitoring and configuration of the unit is achieved via a series of web pages as described in the Sections below. The following read-only information is displayed in a “**Page Header**” at the top of each web page:



Figure 4.2b - Page Header and Navigation

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

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

- **Left Navigation:** “**Status**”, “**Streams**”, “**System**”, “**Front Panel**”, “**Time**”, “**Notification**”, “**SNMP**”, and “**IP I/O**”
- **Right Navigation:** “**Log**” and “**Firmware Update**”
- **Modules Navigation:** This includes tabs to the remaining 4 module slots. The tabs will give access to any installed module in the numbered slot. To review how the physical slots are numbered, please see the product diagram in **Section 2.3**.
- In addition, in the upper right corner above the navigation, the user can access the “**Admin**” screen through a link, alongside the **[LOG OUT]** button.

Each tab for the “**Left**” and “**Right**” Navigation is described in the subsequent sections. For instructions on configuring any of the additional modules that can be installed and are under the secondary “**Modules**” navigation bar, please see the manuals provided for each module.

SECTION 5 – PLATFORM CONFIGURATION

5.1 “STATUS” TAB

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

1		2		3		4	
Slot	Description	Temperature		Modules		Status	
MC	Mast. Cont. Edge Max	87.3°F / 30.7°C 75.8°F / 24.3°C				OK	
Eth	Front Panel Ethernet	-		GbE 1 GbE 2 GbE 3 GbE 4 SFP+			
1	IP MPTS In	119.9°F / 48.8°C				OK	
2	-					-	
3	EAS Processor	114.5°F / 45.8°C				OK	
4	32Ch QAM Modulator	137.9°F / 58.8°C				OK	
PS 1	Power Supply	105.8°F / 41.0°C 105.8°F / 41.0°C 82.4°F / 28.0°C 96.8°F / 36.0°C				Input Voltage: 107.5 V, Input Current: 1.2 A Output Voltage: 12.1 V, Output Current: 9.9 A Output Power: 116 W, Input Power: 128 W Fan Speed: 10880 RPM	
PS 2	Power Supply	109.4°F / 43.0°C 109.4°F / 43.0°C 84.2°F / 29.0°C 96.8°F / 36.0°C				Input Voltage: 108.0 V, Input Current: 1.1 A Output Voltage: 12.1 V, Output Current: 9.4 A Output Power: 115 W, Input Power: 118 W Fan Speed: 10720 RPM	
Fans	System Fans					Fan Speed: 3111 RPM, PWM Duty Cycle: 100% Fan Speed: 2934 RPM, PWM Duty Cycle: 100%	

Figure 5.1 - “System Status”

The “Status” tab has four (4) columns of data for each module or component. The data is detailed as follows:

- 1 **Slot:** Indicates the module slot number or system component.
 - ▶ **MC** is the Master Controller Module
 - ▶ **Eth** displays data for the Front Panel ethernet ports (4x) and the SFP+ port (1x).
 - ▶ **1-4** are the empty slots that are available for module installation. These will populate other data as modules are installed within, otherwise the other columns of data remain empty for each slot.
 - ▶ **PS1** and **PS2** both display data pertaining to the two power supply modules.
 - ▶ **Fans** displays data for each of the four system fans on the chassis.
- 2 **Description:** Indicates the module or system component name. For the installed modules on slot 1-12, there will also be links to each module’s individual status page. When placing the cursor over the installed module description links, the following information appears on hover:
 - ▶ **Model** displays the Model Name of the installed Module.
 - ▶ **Serial #** displays the Serial Number of the installed Module.
 - ▶ **Uptime** displays the length of time that the module has been running since reboot.

5.1 “STATUS” TAB (CONTINUED)

- 3
- Temperature:** Indicates one of the following, depending on the slot or component, in real-time:
 - ▶ **Master Controller:** Temperature the Master Controller (MC) is currently running at. The temperatures are measured in both Farenheit and Celsius.
 - ▶ **Modules:** Temperature each module is currently running at. The temperatures are measured in both Farenheit and Celsius.
 - ▶ **Power Supplies:** Power Supply has 4 different temperature readings set up from 4 different areas within the module. The following locations of each power supply are measured: Output Temperature, PFC Temperature, Inlet Temperature, Outlet Temperature. The temperatures are measured in both Farenheit and Celsius.
 - ▶ **Fans:** Revolutions Per Minute (RPM), rotational speed, of each fan in the chassis.

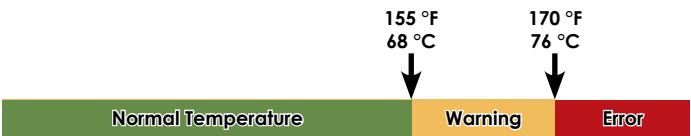


Figure 5.1b - MC Temperature Status Range

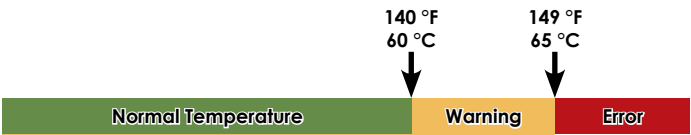


Figure 5.1c - Module Temperature Status Range



Figure 5.1d - Fan RPM Status Range

- 4
- Status:** Indicates a status for each module or system component being monitored. The following section gives a breakdown of each type of information given in this column.

STATUS - MESSAGES / INFORMATION

- 5
- Master Controller and Modules 1-4:** Types of messages under status column.
 - ▶ **Ok:** indicates the module is working without errors.
 - ▶ **Error:** indicates that one or more errors have been detected. See the message log below or navigate to the full Log using the menu at the top.



Figure 5.1e - “Front Panel Ethernet” Status Indicators

- 6
- Front Panel Ethernet:** Indicates the rudimentary status of the Master Controller's front panel Ethernet and SFP+ ports. The color coding is as shown (see Figure 5.1e):

Link status is indicated by the color of the center section for a particular port representation.

- ▶ **Green:** linked
- ▶ **Gray:** not linked

Existing port allocation is indicated by the color of the border for a particular port representation.

- ▶ **Black:** port available for allocation
- ▶ **Orange:** port currently allocated to a module

5.1 “STATUS” TAB (CONTINUED)

Hovering over the active front panel ports will provide additional information about that port:

GbE #: which module port is assigned to, speed and if full duplex is available

SFP+: which module port is assigned to, speed, link type, manufacturer, serial number, part number.

- 7 Power Supply:** each power supply lists 7 different power measurements which are monitored real-time. These numbers are used for diagnosis in troubleshooting power issues. They are as follows:

- ▶ Input Voltage
- ▶ Input Current
- ▶ Output Voltage
- ▶ Output Current
- ▶ Output Power
- ▶ Input Power
- ▶ Fan Speed

- 8 Fans:** Types of messages under status column for each fan.

- ▶ **Fan Speed:** numerically displayed and measured in Revolutions-per-Minute (RPM).
- ▶ **PWM Duty Cycle:** Pulse-Width Modulation (PWM) indicates if the fan is working at 100% speed or lower, by percentage.

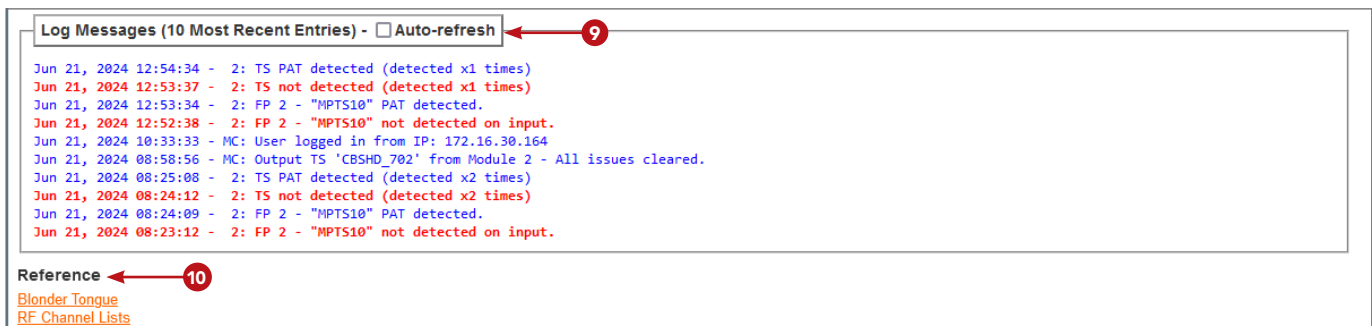


Figure 5.1f - “Log Messages” and “Reference”

- 10 Log Messages:** The Log Messages sections will show the 10 most recent entries to the system log. For a full view of all messages, please see the Log tab. This section gives the most recent descriptions of messages including information, error, warning, and so on. The user can click on the “Auto-Refresh” checkbox to enable that function. See **Section 5.6** for more information on types of messages.
- 11 Reference:** The two reference links under this section point to the Blonder Tongue website and a screen showing the RF Channel Lists.

5.2 “STREAMS” TAB

“Streams” (Figure 5.2) is a read-only screen which displays information on each stream configured within each module on the platform.

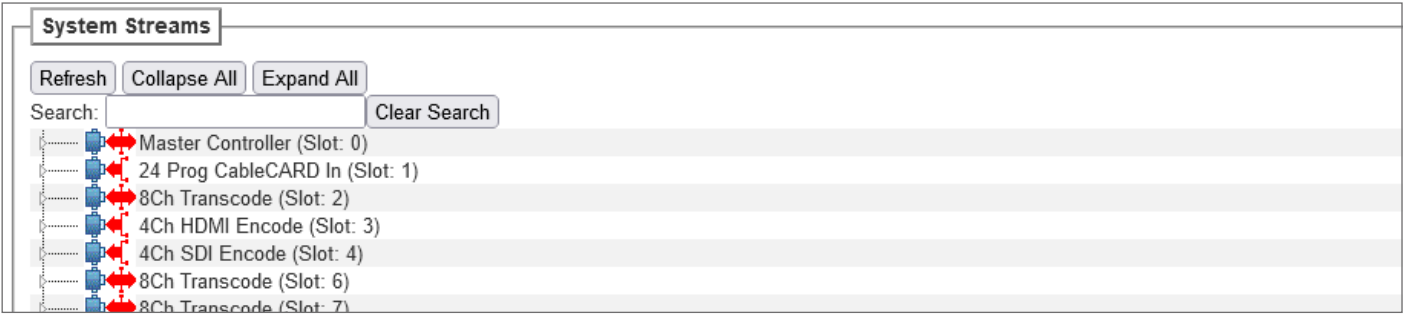


Figure 5.2a - “System Stream Information”

- 1

Module Name (Slot: #): Indicates the module's short name and what slot it is installed into within the platform.
- 2

Stream: Displays the Source Stream Name.
- 3

Short Name (Virtual Channel): Indicates the 7-letter name for the channel and its virtual channel number (ie. 7.1).
- 4

Program Number: the MPEG Program used in all PSI tables for this stream. Range is 1 - 65,535.
- 5

Average Bitrate: The bitrate is calculated over a period of time to give you the average bitrate of that program in Mbps
- 6

Peak Rate: The peak bitrate consistently shows the maximum bitrate of that program in Mbps.

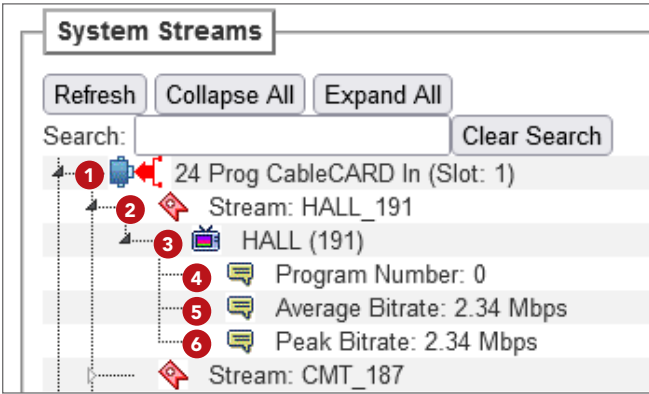


Figure 5.2b - Module and Stream Details

5.3 “SYSTEM” TAB

“System” (Figure 5.3) is a “read and write” screen. The general ethernet connection and user-defined identification data for the platform can be configured here.

UNIT OPERATIONS

- 1

Reboot

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

SETTINGS CONFIGURATION

- 2

Default Unit Settings

 Clicking this button will apply the system settings to the factory defaults.

COMMAND/CONTROL ETHERNET SETTINGS

- 3

Unit Name: a user-defined field to make identification easier.
- 4

Unit Location: a user-defined field to make identification easier.
- 5

Account: a user-defined field to set service account information for the unit.
- 6

Contact Information: a user-defined field to set field support service contact information for the unit.

5.3 “SYSTEM” TAB (CONTINUED)

Unit Operations					
1	Unit Reboot	<input type="button" value="Reboot"/>			
Settings Configuration					
2	<input type="button" value="Default Unit Settings"/>				
Command/Control Ethernet Settings					
3	Unit Name	NexGen Main #2			
4	Unit Location	Center			
5	Account				
6	Contact Information				
7	MAC Address	00:14:39:00:AE:73			
8	IP Address:	172.16.77.46	9	Subnet Mask:	255.255.255.0
10	Default Gateway:	172.16.77.254			
11	Primary:	172.16.1.248	12	Secondary:	172.16.1.253
13	SSH Access	<input type="button" value="Enable"/> <input type="button" value="Disable"/>			
User Interface IP Access Restriction List					
14	Configuration File	<input type="button" value="Browse..."/> No file selected. <input type="button" value="Upload & Apply"/> <input type="button" value="Download Current"/>			
15	Access Restrictions	<input type="button" value="Disabled"/> ▾			
16	IP Address Range 1	Beginning:	0.0.0.0	End:	0.0.0.0
	IP Address Range 2	Beginning:	0.0.0.0	End:	0.0.0.0
	IP Address Range 3	Beginning:	0.0.0.0	End:	0.0.0.0
	IP Address Range 4	Beginning:	0.0.0.0	End:	0.0.0.0
	IP Address Range 5	Beginning:	0.0.0.0	End:	0.0.0.0
	IP Address Range 6	Beginning:	0.0.0.0	End:	0.0.0.0
	IP Address Range 7	Beginning:	0.0.0.0	End:	0.0.0.0
	IP Address Range 8	Beginning:	0.0.0.0	End:	0.0.0.0
	IP Address Range 9	Beginning:	0.0.0.0	End:	0.0.0.0
	IP Address Range 10	Beginning:	0.0.0.0	End:	0.0.0.0
HTTPS SSL Key/Certificate Upload					
17	User-supplied SSL Key	<input type="button" value="Browse..."/> No file selected. <input type="button" value="Upload"/>			
18	User-supplied SSL Certificate	<input type="button" value="Browse..."/> No file selected. <input type="button" value="Upload"/>			
19	SSL Key/Certificate Operations	<input type="button" value="Delete User-supplied SSL Data"/> *Rebooting is required for any/all SSL changes to take effect			
IP I/O Ethernet Settings					
20	IP I/O Feature	<input type="button" value="Enabled"/> ▾			
	MAC Address	00:14:39:F0:AE:73			
21	Front Port Allocations	<input type="button" value="Dedicate SFP+ Port"/> ▾			
22	General Purpose	IP Address:	192.168.4.2	Subnet Mask:	255.255.255.0
		Default Gateway:	192.168.4.254		
		IGMP Version:	IGMPv2 ▾		
23	Dedicated Front Port	IP Address:	192.168.10.46	Subnet Mask:	255.255.255.0
		Default Gateway:	192.168.10.254		
		IGMP Version:	IGMPv2 ▾		
<input type="button" value="Apply Settings"/>					

Figure 5.3 - “System Configuration” - Full View

- 7 MAC Address:** the Media Access Control (MAC) Address is a read-only field that serves as a unique identifier assigned to the network.
- 8 IP Address:** the static IP address that is assigned to the unit, allowing the user to access it via the web interface. Pressing the IP reset button returns unit to factory default of **172.16.70.1**.
- 9 Subnet Mask:** the subnet mask allows the user to access it from another network via the web interface. Factory Default is **255.255.255.0** for local subnet.
- 10 Default Gateway:** the gateway address of unit, allowing the user to access it from another network via the web interface. The gateway address should be in the same subnet as IP Address.
- 11 Primary DNS:** the primary Domain Name Server (DNS) hosts the controlling zone file, containing all the authoritative information for a domain.
- 12 Secondary DNS:** the secondary Domain Name Server (DNS) contains read-only copies of the zone file, and gets its info from a primary server in a communication known as a zone transfer.
- 13 SSH Access:** the user can “Enable” or “Disable” SSH access to the unit.

5.3 “SYSTEM” TAB (CONTINUED)

USER INTERFACE IP ACCESS RESTRICTION LIST (IP WHITELIST)

This feature allows a user to restrict access to the Master Controller's web-based GUI by through an **IP Whitelist**. The IP Whitelist settings may be configured via the User Interface IP Access Restriction List section on the System of page or by a Configuration File upload available under the aforementioned heading. Restrictions imposed by this feature will only apply to the web-based GUI. Other features (SSH access) are not limited by the IP Whitelist functionality.

User Interface IP Access Restriction List

14

Configuration File

Browse...

No file selected.

Upload & Apply

Download Current

15

Access Restrictions

Disabled

16

IP Address Range 1

Beginning: 0.0.0.0

End: 0.0.0.0

IP Address Range 2

Beginning: 0.0.0.0

End: 0.0.0.0

IP Address Range 3

Beginning: 0.0.0.0

End: 0.0.0.0

IP Address Range 4

Beginning: 0.0.0.0

End: 0.0.0.0

IP Address Range 5

Beginning: 0.0.0.0

End: 0.0.0.0

IP Address Range 6

Beginning: 0.0.0.0

End: 0.0.0.0

IP Address Range 7

Beginning: 0.0.0.0

End: 0.0.0.0

IP Address Range 8

Beginning: 0.0.0.0

End: 0.0.0.0

IP Address Range 9

Beginning: 0.0.0.0

End: 0.0.0.0

IP Address Range 10

Beginning: 0.0.0.0

End: 0.0.0.0

Figure 5.3a - “System Configuration” - User Interface IP Access Restriction List

- 14

Configuration File: Allows the user to “**Upload & Apply**” a configuration file detailing the IP Whitelist range. Clicking the “Download Current” button will retrieve the current IP Whitelist settings.
- Comments within the file will guide users to making modifications to the feature's settings. The Master Controller does not allow full configuration via a Configuration File like other modules. This Configuration File is meant only to configure the IP Whitelist feature. Applying an IP Whitelist Configuration File will **DISABLE** the feature. The user must then manually enable the feature once they have determined the uploaded settings are correct.
- 15

Access Restrictions: Control allows a user to “**enable**” or “**disable**” the access restriction feature. When enabled, the IP Whitelist will check incoming requests to determine if a connecting device falls within any of the ten (10) IP range(s) specified on

16

.
- 16

IP Address Range 1 - 10: the administrative user may set up to ten (10) IP range(s) to a Whitelist which will allow users to access the unit when the “**Access Restrictions**” are set to **enable**.

If a device is not within the allowed IP range, a user will receive an **HTTP 401** response (“Unauthorized”). IP restrictions also include any/all API functionality targeted toward the Master Controller itself. Also, modules that directly access networks outside of the NXG system are unaffected by the IP Whitelist restrictions.



WARNING: It is possible for a user to disallow their own access through misconfiguration. In such instances, the IP Reset button can be used to temporarily disable the IP Whitelist functionality. Once the IP Reset has been activated, the web-based GUI is accessible by all IP addresses.



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

5.3 “SYSTEM” TAB (CONTINUED)

HTTP SSL KEY/CERTIFICATE UPLOAD

- 17 User-supplied SSL Key:** a user-supplied SSL key can be uploaded to the unit.
- 18 User-supplied SSL Certificate:** a user-supplied SSL certificate can be uploaded to the unit.
- 19 SSL Key/Certificate Operations:** the user can delete the current SSL data from the machine.

HTTPS SSL Key/Certificate Upload			
17	User-supplied SSL Key	Browse... No file selected.	Upload
18	User-supplied SSL Certificate	Browse... No file selected.	Upload
19	SSL Key/Certificate Operations	Delete User-supplied SSL Data *Rebooting is required for any/all SSL changes to take effect	

Figure 5.3b - “System Configuration” - HTTPS SSL Key/Certificate Upload



NOTE: Rebooting is required in order for any/all SSL changes to take effect.

IP I/O ETHERNET SETTINGS

- 20 IP I/O Feature:** This feature allows a user to “**Enable**”/“**Disable**” the configuration of sending or receiving IP transport streams through the Master Controller's IP ports. The feature can be configured for one of three (3) modes of operation through the front port allocations:

- ▶ Combines with command/control network using all unallocated Master Controller front ports.
- ▶ Combined with the existing command/control network using a dedicated Master Controller front port.
- ▶ Separated from the existing command/control network using a dedicated Master Controller front port.

IP I/O Ethernet Settings					
20	IP I/O Feature	Enabled ▾			
	MAC Address	00:14:39:F0:AE:73			
21	Front Port Allocations	Dedicate SFP+ Port ▾			
22	General Purpose	IP Address: 192.168.4.2	Subnet Mask: 255.255.255.0	Default Gateway: 192.168.4.254	IGMP Version: IGMPv2 ▾
23	Dedicated Front Port	IP Address: 192.168.10.46	Subnet Mask: 255.255.255.0	Default Gateway: 192.168.10.254	IGMP Version: IGMPv2 ▾
Apply Settings					

Figure 5.3c - “System Configuration” - IP I/O Ethernet Settings

- 21 Front Port Allocations:** The front port allocations selections can be set up as follows:

- ▶ **General Purpose:** This setting assigns the integrated IP I/O device's network to use the IP Address, Subnet Mask, and Default Gateway settings under the General Purpose setting heading. This allows the integrated IP I/O device to be accessible on any of the Master Controller's front Ethernet ports that are not currently allocated to another device (e.g. NXG-CCQD-24) in the system.
- ▶ **General Purpose + Dedicate [GbE #, SFP+] Port:** This combination of settings assigns the integrated IP I/O device's network to use the IP Address, Subnet Mask, and Default Gateway settings under the General Purpose setting heading **as well as** those under the Dedicated Front Port setting heading. This allows the integrated IP I/O device to be accessible on two separate networks simultaneously without inadvertently bridging the two networks. The dedicated port chosen must not currently be allocated to another device (e.g. NXG-CCQD-24) in the system.
- ▶ **Dedicate [GbE #, SFP+] Port:** This setting assigns the integrated IP I/O device's network to use the IP Address, Subnet Mask, and Default Gateway settings under the Dedicated Front Port setting heading. This allows the integrated IP I/O device to be accessible on a dedicated and isolated front Ethernet port that is not currently allocated to another device (e.g. NXG-CCQD-24) in the system.

5.3 “SYSTEM” TAB (CONTINUED)

- 22 General Purpose:** User can set up the “IP Address”, “Subnet Mask”, and “Default Gateway” of the Command/Control Port.
- 23 Dedicated Front Port:** User can set up the “IP Address”, “Subnet Mask”, and “Default Gateway” of the Dedicated Front Port for IP I/O use.

NOTE: The IGMP version (v2 or v3) may be configured independently for “combined” versus “dedicated” port configurations.



RECOMMENDATION: The “GbE 1” port is generally considered a “safe” port. As noted before, when the IP Reset button is pressed, the default port configuration will override any front port or IP I/O settings until the unit is rebooted. It is **strongly recommended** that users do not utilize “GbE 1” for anything other than command/control functions.



NOTE: See **SECTION 5.4** for additional Front Panel configuration and **SECTION 6** for additional configuration of the IP I/O settings in order to set up Input or Output streams.

5.4 “FRONT PANEL” TAB

The “**Front Panel**” (Figure 5.4) tab displays the status on each configured Master Controller port and allows additional configuration to set the modes for each port.

Front Panel Configuration Settings					
1 Status	GbE 1	GbE 2	GbE 3	GbE 4	SFP+
2 Mode	General Purpose / UI Access	General Purpose / UI Access	General Purpose / UI Access	General Purpose / UI Access	Isolate for Module Use Only
Multicast Output Mode	Snooping	Snooping	Snooping	Flood	Flood
Assignments	-	-	-	-	NXG-IP-MPTS
Apply Settings					

Figure 5.4 - “Front Panel” - Port Mode Configuration

- 1 Status:** Indicates the status of each front-panel port on the Master Controller module. (See **6** of **SECTION 5.1** for a description of each status color.)
- 2 Mode:** Allows the user to select one of 2 modes available, as follows.
- ▶ **General Purpose / UI Access:** identifies the port for general purpose usage and/or access to the User Interface (UI). This mode is used most of the time. An exception to this is made for backward compatibility for specific uses of certain modules (ex. NXG-CCQD-24) in which case the module may automatically grab this port for its own use.
 - ▶ **Isolate for Module Use Only:** This mode sets the port aside so that modules may gain exclusive access to it. In this mode, the port can not be used to access to the UI. Multiple modules may “connect” and use the port simultaneously.
- 3 Multicast Output Mode:** Allows the user to select one of 2 modes available, as follows.
- ▶ **Snooping:** IGMP enabled; mrouter (multicast router) port disabled.
 - ▶ **Flood:** IGMP enabled; mrouter port enabled.

Note: Select flooding on a port when connected to your core switch. This will allow all multicast traffic to the port, the external switch will handle the IGMP functions

5.4 “FRONT PANEL” TAB (CONTINUED)

- 4 **Assignments:** Displays the assigned module based off of specific module settings which support this feature. See the individual module settings and manuals in order to set this up.



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

5.5 MODULE CONFIGURATION

After the hardware installation of any modules, go through the control panel and set up each module slot tab to configure your NXG application. Please refer to the individual user manuals of each module for in-depth configuration instructions.



5.6 “TIME” TAB

“Time” (Figure 5.4a, Figure 5.5b, Figure 5.4c, and Figure 5.4d) is a “read and write” screen. Time settings for the system and the event log are configured here.

Time Configuration

Current Time at Page Load

1 NeXgen: Mon Dec 20 2021 08:50:22 GMT-0500 (Eastern Standard Time)
2 Client: Mon Dec 20 2021 08:50:22 GMT-0500 (Eastern Standard Time)

*Times are shown using the Client's local time and timezone.

Figure 5.4a - “Current Time at Page Load”

CURRENT TIME AT PAGE LOAD

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

5.6 “TIME” TAB (CONTINUED)

Time Settings

3 Timezone (UTC-05:00) US/Eastern ▼

4 Time Sync to Client Time

*Synchronizing NeXgen time to Client time requires that selected timezone and Client system time be correct.
*After synchronization, NeXgen time shown may lead/lag Client time by a small margin.

Figure 5.4b - “Time Settings”

TIME SETTINGS

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

NTP Settings

5 Enable NTP System Time Synchronization ☒

6 Use Custom NTP Servers ☐

7 Custom NTP Server #1 IP 0.0.0.0

Custom NTP Server #2 IP 0.0.0.0

Custom NTP Server #3 IP 0.0.0.0

*Default NTP servers: 0.pool.ntp.org, 1.pool.ntp.org, 2.pool.ntp.org, 3.pool.ntp.org

Figure 5.4c - “NTP Settings”

NTP SETTINGS

- 5 **Enable NTP System Time Synchronization:** Enable (☒) or Disable (☐) System Time Synchronization.
- 6 **Use Custom NTP Servers:** Enable (☒) or Disable (☐) the Custom NTP Servers. Network Time Protocol (NTP) uses one or more IP addresses that the platform can sync time to. When enabled, the three fields under 7 are usable.
- 7 **Custom NTP Server IP (#1, #2, #3):** Enter the custom NTP server IP addresses within these fields. The time servers specified must support the Network Time Protocol (NTP) in order for automated time acquisition to work properly.

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



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



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

5.7 “NOTIFICATION” TAB

The “**Notification**” (Figure 5.5a, Figure 5.5b, Figure 5.5c and Figure 5.5d) settings on this screen are configurable and used for system events by sending out notifications to one or more email addresses.

Figure 5.5a - “Notification Configuration”

NOTIFICATION CONFIGURATION

- 1 Enable Notifications:** Enable (☒) or Disable (☐) the notifications feature.
- 2 Event Severity Threshold:** allows the user to choose the level of severity of event messages to send via email. The levels goes from least to greatest as follows: Info, Success, Warning, Error, Alarm.
- 3 Max Events Per Message:** the user can choose to send 1 message per event or group together multiple event messages in one email message notification. (Minimum: 1 event, Maximum: 250 events)
- 4 Max Event Window:** this sets the intervals, between emailed notifications, should there be any depending on the severity threshold. This setting is measured in seconds. (Minimum: 30, Maximum: 600)

The Max Events Per Message and the Max Event Window both determine how often and how many messages are sent via notification. The system is set up to send whichever of the two settings occurs first. For example, if the max events per message is set to 100 and the max event window is set at 300 (5 minutes) the system will send out an email either after 5 minutes has occurred OR as soon as the notification amount reaches 100.

Figure 5.5b - “Server/Account Settings”

SERVER/ACCOUNT SETTINGS

- 5 SMTP Server:** the user can set the outgoing SMTP email server address here.
- 6 SMTP Port:** the user can set the outgoing SMTP port. The factory default is “25”.

Each network is set up differently and there may be a firewall in place. Contact your IT department to obtain the ports numbers available to use for SMTP. The most commonly used ports are as follows:

SMTP ports: 25 or 465 or 587 or 2525

- 7 Secure (Use SSL):** allows the user to set Enable (☒) or Disable (☐) SSL secure setting depending on the requirements of the SSL server.

5.7 “NOTIFICATION” TAB (CONTINUED)

- 8
- Direct (Bypass MTA):** to bypass the Mail Transfer Agent (MTA), the user can set this to Enable (☒) in order to utilize direct-to-MX mailing without the use of an SMTP server.
- 9
- Username:** set the username of the account for SMTP server authentication in order to send outgoing emails.
- 10
- Password:** set the password of the account for SMTP server authentication in order to send outgoing emails.

Notification Message Settings

11

Send Messages To

nxg-admin@example.com

12

Send Messages From

notify@example.com

13

Send Messages CC

nxg-admin2@example.com

14

Message Subject

NeXgen Event Notifications

*Separate all e-mail addresses by commas.

Figure 5.5c - “Notification Message Settings”

NOTIFICATION MESSAGE SETTINGS

- 11
- Send Messages To:** set the email for the primary receipient(s) to receive notifications. More than one address must be separated with commas.
- 12
- Send Messages F rom:** the user can use any e-mail address to indicate where the messages are being sent from.
- 13
- Send Messages CC:** set the email address for any additional users to receive notifications. More than one address must be separated with commas.
- 14
- Message Subject:** user-defined message subject header for easier recognition of notification.

15

Test Settings

16

Apply

Figure 5.5d - “Save Settings”

- 15
- Test Settings

Sends a test email to ensure all settings are working properly.
- 16
- Apply

Click to apply and save the system configuration changes.

5.8 “SNMP” TAB

The “**SNMP**” (Figure 5.6) settings on this screen are configurable and used for system events by sending out notifications to one or more email addresses.

SNMP Configuration allows the user to configure the IP of an SNMP server and enable SNMP traps providing alerts. Devices enabled for using the Simple Network Management Protocol (SNMP) send out various SNMP messages to convey information. SNMP traps are a particular kind of message including information on alerts and problems.

Setup of SNMP is provided as an additional method of monitoring system alarms. To use the SNMP feature, it is assumed that the user or Network Administrator already has knowledge in setting up and using an SNMP server.

The figure shows a web-based configuration interface titled "SNMP Configuration". It contains a tab labeled "SNMP Settings". Below the tab are five numbered fields: 1. Primary SNMP Server (text input), 2. Secondary SNMP Server (text input), 3. Enable SNMP Traps (checkbox, checked), 4. SNMP Trap Port (text input with value 65535), and 5. SNMP Alert Community (text input). At the bottom left is a button labeled "Test Trap Settings" (numbered 6), and at the bottom right is an "Apply" button (numbered 7).

Figure 5.6 - “SNMP Configuration”

Once the SNMP server is set up, the user can enter the settings described below to set up the SNMP server IP address(es) and enable the SNMP traps on the NXG platform.

- 1 **Primary SNMP Server:** enter an IPv4 or IPv6 address of the primary server running an SNMP service.
- 2 **Secondary SNMP Server:** enter an IPv4 or IPv6 address of the secondary server running an SNMP service.
- 3 **Enable SNMP Traps:** set this to Enable (☒) in order to use the SNMP Traps. SNMP traps include information on alerts and problems. These alerts include the error time and an OID that helps identify the error. Each trap will contain a text string describing more details about the event.
- 4 **SNMP Trap Port:** enter the SNMP Trap Port for the SNMP server. The default port is typically 162.
- 5 **SNMP Alert Community:** enter the community name for the trap destination. The community name is a string that acts like a password for the network servers and consists of only printable ASCII characters.
- 6 **Test Trap Settings** Sends a test to the SNMP server to ensure all settings are working properly.
- 7 **Apply** Click to apply and save the configuration changes.

SECTION 6 - IP INPUT/OUTPUT CONFIGURATION

The “**IP I/O**” tab works in a very similar way to a discrete NXG-IP series module with some notable differences. The functionality **only** supports input (ingress) or output (egress) of single program transport streams. Both ingress and egress cannot be done concurrently. In addition, Multicast is not supported for output to Master Controller front panel ethernet ports that are not bound to the IP I/O functionality.

Selection to configure support for input or output mode is found on IP I/O’s “**System**” tab (see Section 6.2).



REMINDER: To configure the front panel ports, please review **15** of Section 5.3.

6.1 “IP I/O: STATUS” SUB-TAB

The “**IP I/O: Status**” sub-tab (Figure 6.1a) displays the IP I/O interface general health and information at a glance. This information is provided as a quick way to monitor the IP I/O interface or assist with troubleshooting issues that may arise.

Status	Streams	System	Front Panel	Time	Notification	SNMP	IP I/O	Log
Modules: IP MPTS In (1) Slot 2 EAS Proc (3) 32 QAM Out (4)								
<div><div>Status</div><div>Input</div><div>System</div></div>								
Module Status								
1		Module Status					Ok	
2		Module Temperature					110.9 °F	
Detected Issues								
3		No issues detected						
Module Information								
4		Serial Number					2023120650	
5		Software Version					1.5.0.7_20230210	
6		Backplane Firmware Version					2.8	
7		Slot Location					Embedded in Master Controller	
8		Model Number					NXG-MC-IP	

Figure 6.1a - “Status” Tab - No Detected Issues

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 “**Detected Issues**”, the module will display if any issues arise. The problem will be shown here and the color will correlate to the urgency of the issue.

- 3** When there are no issues, the text will say “No issues detected” (See Figure 5.7.1a) and remain black text color. When there is an Error, then the text will change to **red** and indicate what is causing the error (see Figure 5.7.1b)

Detected Issues
FP 4 not linked, but has inputs or outputs assigned.

Figure 6.1b - “Status” Tab - Detected Issue

6.1 “IP I/O: STATUS” SUB-TAB (CONTINUED)

Module Information		
4	Serial Number	2023120650
5	Software Version	1.5.0.7_20230210
6	Backplane Firmware Version	2.8
7	Slot Location	Embedded in Master Controller
8	Model Number	NXG-MC-IP

Figure 6.1a - “Status” Tab - No Detected Issues

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

- 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 Backplane Firmware Version:** Indicates the backplane firmware version for this module. Backplane version is only needed for tech support and software debugging.
- 7 Slot Location:** Indicates the slot location on the platform chassis where the module is currently installed into.
- 8 Model Number:** Indicates the model number of the module installed.

6.2 “IP I/O: SYSTEM” SUB-TAB

Figure 6.2 - “System” Tab

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

- 1** **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 .
- 2** **Download Module Configuration File** Downloads the current module configuration file.
- 3** **Browse... No file selected.** Browse and select a Configuration File.
- 4** **Load & Apply Module Configuration File** After choosing file, click this to load and apply the configuration file.
- 5** **Module Functionality:** this setting allows the user to configure the IP I/O function to be either “**Input Only**” or “**Output Only**”.

6.3 “IP I/O: INPUT” MODE SUB-TAB

The “**Input**” mode allows a user to add and assign input streams to the selected IP port.



NOTE: Clicking the arrow ( collapsed;  expanded) beside each program will show or hide further choices or read-only data.

Figure 6.3 - “Input” Tab - Full View (SPTS Shown)

6.3.1 ADD INPUT STREAMS CONFIGURATION

The following parameters are configurable for the selected Interface IP Port's input.

- 1 Interface:** The dedicated port can be selected and is used to assign streams to. Dedicated ports are configured in **Section 5.3** as noted before.
- 2 IP Input:** Assigned IP address for the stream
- 3 Port:** Assigned port for the stream
- 4 Stream Name:** User-defined name for the stream being added. The name length limit is 16 characters.

Figure 6.3.1a - “Add Input Streams Configuration”

IGMP CONFIGURATION FIELDS

Configuration for the following fields can be enabled through the FP Config tab described in Section 4.

- 5 IGMPv3 Source IP 1:** Source IP #1 address
- 6 IGMPv3 Source IP 2:** Source IP #2 address

Note: If the port is set to IGMPv2, Source IP 1 and Source IP 2 will not be available to set up. When in IGMPv2, the input for these settings will be disabled and grayed out. (example: Figure 6.3.1b)

- 7 Add** Once configuration details have been completed, the user can click to add the Input Stream to the IP Port.

Figure 6.3.1b - View with IGMPv2 set on FP Config Tab

6.3.2 AVAILABLE RESOURCES

The “**Available Resources**” table displays, in real-time, the remaining available resources after factoring out the current assigned streams. The resources being monitored are as follows:



- 1 **TS In:** Displays the remaining Transport Stream (TS) available that may be input. A total of 512 streams maybe input. As streams are added to input, the number will decrease.
- 2 **BW In:** Displays the remaining bandwidth (Mb/S) for each linked port. As streams are added to Input, this number will also go down. If the Port is not linked, “No Link” will show in these fields.
- 3 **Module BW:** Displays the current unused bandwidth (Mb/S) on the 2500 Mb/S link to the backplane switch.


Available Resources	
# TS	467
Media BW	2126.2 Mb/S

Figure 6.3.2 - “Input” Tab - Full View (SPTS Shown)

6.3.3 INPUT STREAM LIST VIEW

The Input Stream list view appears below the configuration area and the search functions. It displays both a method of choosing configured streams to remove (see Section 6.3.4) and additional details for the streams which have been configured and added to the Inputs.

-  **IP Port #:** Displays the programs which have been added to the IP Port #. (Note: IP Port #2 is shown as an example)
-  **Source Stream:** Displays the Source Stream Name. Empty checkboxes (☐) are selectable to remove configured input streams, as detailed below.

When the line is expanded, the following data () for each program is shown:

- 1 **Input IP:** Input IP address the stream is assigned to.
- 2 **Input Port:** Input Port the stream is assigned to.
- 3 **Peak Bitrate:** The peak bitrate consistently shows the maximum bitrate of that program.
- 4 **Average Bitrate:** The bitrate is calculated over a period of time to give you the average bitrate of that program.

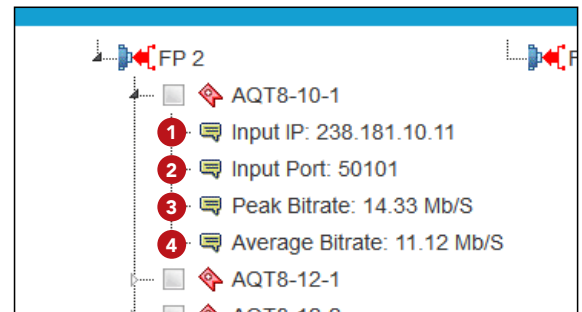



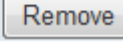
Figure 6.3.3a - Input Stream List View (SPTS)

6.3.4 REMOVE CONFIGURATION

The “**Remove Configuration**” table provides a way of removing configured streams from the IP Input.

Streams: Displays the number of selected configured streams that the user wishes to remove. To select a stream, as noted in Section 6.3.3, checking the empty box (☐) allows the user to select one or more programs to be removed from the Input configuration.

Once all streams are selected, the click the  button and all configured streams will instantly be removed in real-time.

Remove Configuration	
# Streams	
0	



CAUTION: The remove function is instantaneous, there will be no warning before the function is completed, so ensure that a copy of the current configuration is saved. This can be done through the Status tab.

6.3.5 INPUT STREAM SEARCH FUNCTIONS

The list of streams which have been configured and added will show below the configuration area.

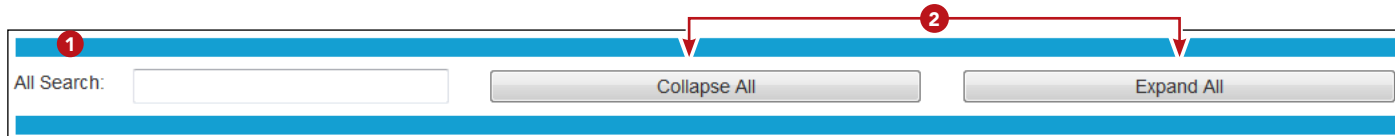




Figure 6.3.5 - Input Stream List Search Functions

- 1 The **“Search”** function is provided as a way to easily find a program within a list. This standard function is real-time, acting as a filter to isolate matches as the user types into the input field.
- 2 The **“Collapse All”** and **“Expand All”** buttons are also provided, in addition to the search function, in order to further filter data.

6.4 “IP I/O: OUTPUT” MODE SUB-TAB

The **“Output”** mode allows the user to add and assign output streams to the selected IP port.

NOTE: Clicking the arrow ( collapsed;  expanded) beside each program will show or hide further choices or read-only data.

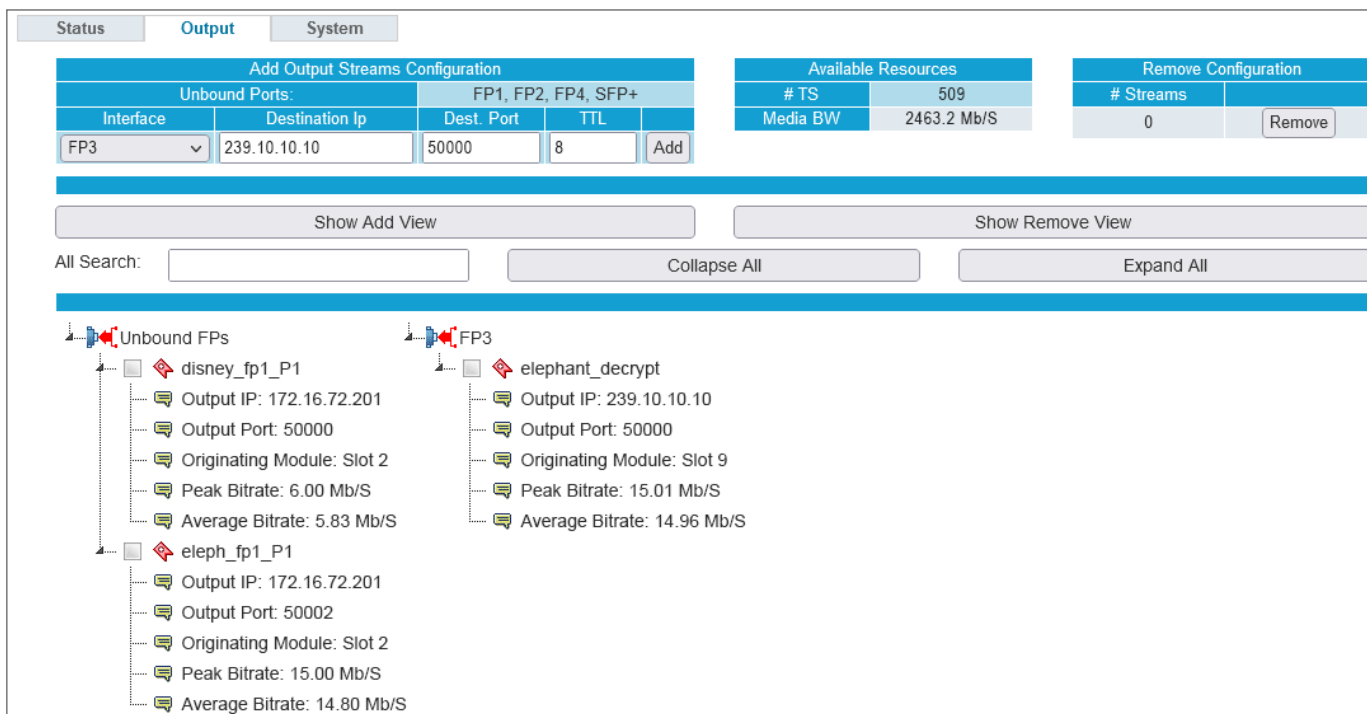


Figure 6.4 - “Output” Tab - Full View

6.4.1 ADD OUTPUT STREAMS CONFIGURATION

The following parameters are configurable for the selected Interface IP Port's output.

- 1 **Interface:** The dedicated port can be selected and is used to assign streams to. Dedicated ports are configured in **Section 5.3** as noted previously.

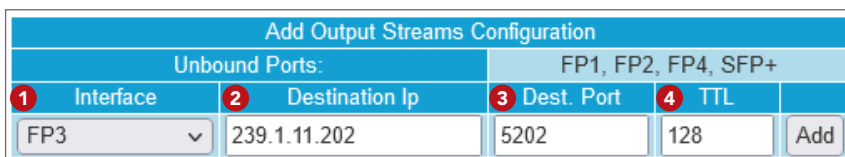


Figure 6.4.1a - “Add Output Streams Configuration”

6.4.1 ADD OUTPUT STREAMS CONFIGURATION (CONTINUED)

- 2 Destination IP:** User must enter the IP address of the receiving equipment. Multicast IP is only supported on the master controller front panel ethernet port to which the IP I/O functionality is bound
- 3 Destination Port:** User must enter the IP Port of the receiving equipment. The range is 1 to 65535.
- 4 Time-to-Live (TTL):** A limit setting on the time that an IP packet can exist in an IP network. The value is set by the sender of the packet, and is reduced by every host on the route to packet's final destination. If the Time to Live reaches zero before the packet arrives at its final destination, then the packet is discarded. The purpose of this field is to avoid an undeliverable packet from circulating on an IP network perpetually. The range is 1 to 255. (Factory Default: "128")



Figure 6.4.1b - View modes

- 5** Select **"Show Add View"** to select the programs to add to Output.

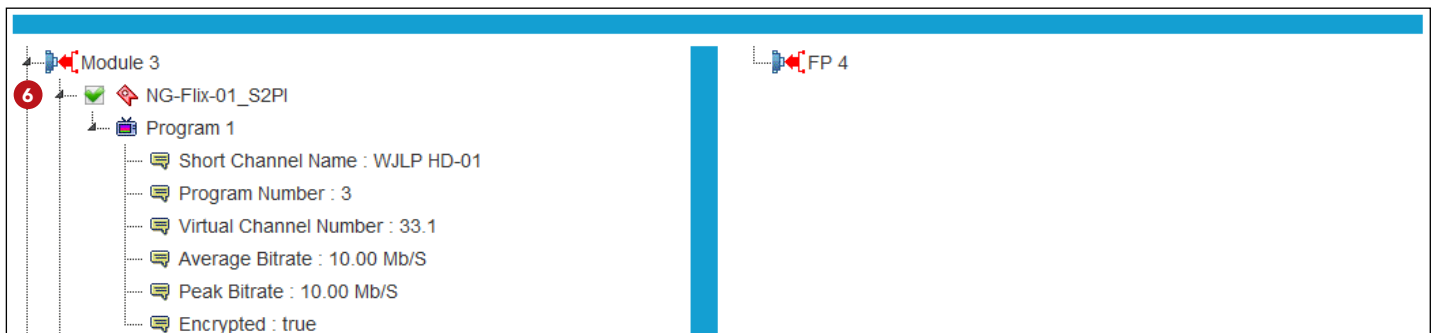


Figure 6.4.1c - Add View - Selecting a stream

- 6** In **"Add View"**, the installed modules will display the streams that have been sent to the backplane. The user can select programs from these various modules to add to Output on the chosen IP Port. To select, check the box (☒) next to the programs to add to the IP Output. After configuration details have been completed and the streams have been selected, the user can click **Add** to add the Input Stream to the IP Port.

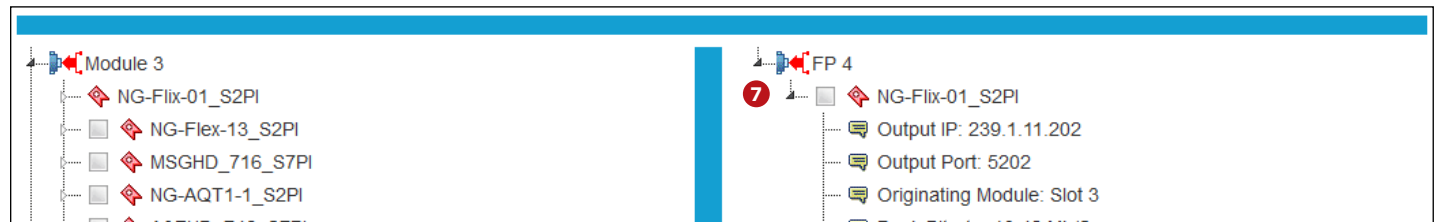


Figure 6.4.1d - Add View - After adding a stream

- 7** Once the streams have been added, they will show up on the right column of **"Add View"** mode.

6.4.2 AVAILABLE OUTPUT RESOURCES

The “**Available Resources**” table displays, in real-time, the remaining available resources after factoring out the current assigned streams to the IP Output. The resources being monitored are as follows:

- 1 **# TS:** Displays the total remaining available Transport Streams (TS). Up to 512 transport streams are supported for output through the Master Controller’s front panel ethernet ports. As streams are added to Output, this number will go down.
- 2 **Media BW:** Displays the remaining bandwidth (Mb/S) that the module is allowed, once the input bandwidth has been subtracted.


Available Resources	
1 # TS	512
2 Media BW	2500.0 Mb/S


Figure 6.4.2 - “Available Resources”


6.4.3 STREAM LIST VIEWS

The Output Stream list views appear below the configuration area and the search functions. The Add View displays a method of choosing streams to add and remove while the Remove view displays only the method of choosing configured streams to remove (see Section 6.4). Both views also allow viewing of additional details for the streams which have been configured and added to the Inputs.

ADD VIEW (LEFT COLUMN) - EXPANDED

 **Module (#):** Displays programs sourced from all input modules within the NXG platform. Example shown in Section 4: Pro:Idiom IP (3).

 **Source Stream:** Displays the Source Stream Name. Empty checkboxes (☐) are selectable to remove configured input streams, as detailed in Section 6.4.

When the line is expanded, the following data () for each program is shown:

- 1 **Short Channel Name:** 7-letter name for the channel.
- 2 **Program Number:** Configures the MPEG Program used in all PSI tables for this stream. Range is 1 - 65,535.
- 3 **Virtual Channel Number:** Channel number assigned to a program within the Virtual Channel Table (VCT).
- 4 **Average Bitrate:** The bitrate is calculated over a period of time to give you the average bitrate of that program.
- 5 **Peak Bitrate:** The peak bitrate consistently shows the maximum bitrate of that program.
- 6 **Encrypted:** Indicates if the channel is encrypted.

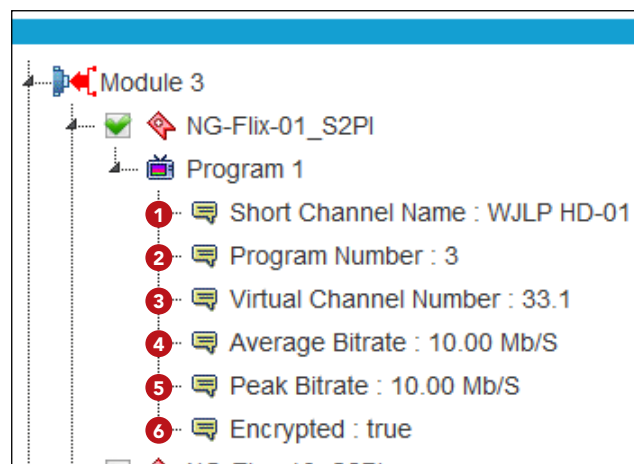




Figure 6.4.3a - Add View - Left Column


ADD VIEW (RIGHT COLUMN) / REMOVE VIEW - EXPANDED

The following view of information shows when program selections are expanded both under the “Add View” and the “Remove View”.

 **IP Port #:** Displays the programs which have been added to the IP Port #. (Note: IP Port #4 is shown as an example)

6.4.3 STREAM LIST VIEWS (CONTINUED)

 **Source Stream:** Displays the Source Stream Name. Empty checkboxes (☐) are selectable to remove configured input streams, as detailed below.

When the line is expanded, the following data () for each program is shown:

- 1 **Output IP:** Output IP address that the stream is assigned to.
- 2 **Output Port:** Output Port that the stream is assigned to.
- 3 **Originating Module:** Module Slot Number that the stream is originating from.
- 4 **Peak Bitrate:** The peak bitrate consistently shows the maximum bitrate of that program.
- 5 **Average Bitrate:** The bitrate is calculated over a period of time to give you the average bitrate of that program.

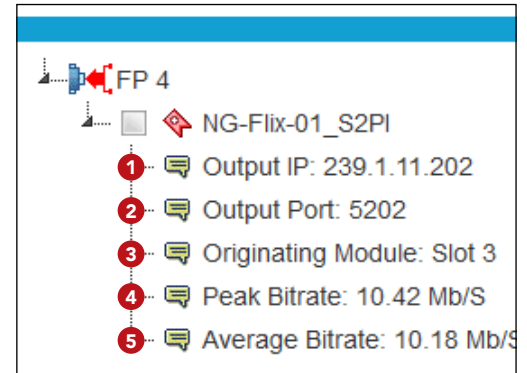


Figure 6.4.3b - Add View (Right Column) / Remove View - Expanded

6.4.4 REMOVE CONFIGURATION

The “**Remove Configuration**” table provides a way of removing configured streams from the IP Output.

Streams: Displays the number of selected configured streams that the user wishes to remove. To select a stream, as noted in Section 6.4.3, under the Remove View in particular, the user is able to check the empty box (☐) to select one or more programs to be removed from the Output configuration.

Remove Configuration	
# Streams	
0	<input type="button" value="Remove"/>

Once all streams are selected, then click the button and all configured streams will instantly be removed in real-time.



CAUTION: The remove function is instantaneous, there will be no warning before the function is completed, so ensure that a copy of the current configuration is saved. This can be done through the Status tab.

6.4.5 OUTPUT STREAM SEARCH FUNCTIONS

The list of streams which have been configured and added will show below the configuration area.

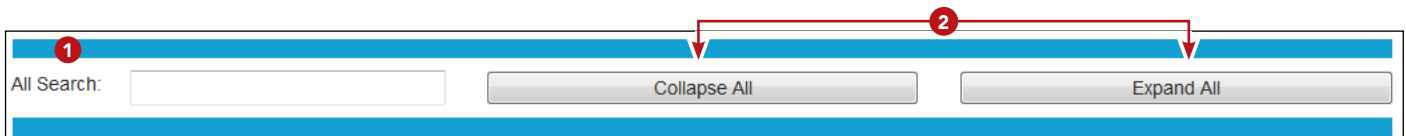


Figure 6.4.5 - Output Stream List Search Functions

- 1 The “**Search**” function is provided to find a program within a list. This standard function is real-time, acting as a filter to isolate matches as the user types into the input field.
- 2 The “**Collapse All**” and “**Expand All**” buttons are also provided, in addition to the search function, to further filter data.

SECTION 7 – UPDATE, TROUBLESHOOT, AND MAINTENANCE

7.1 “LOG” TAB

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

The screenshot shows the 'System Log' interface. At the top, there is a 'Max Lines to Display' input field set to '10000' with an 'Apply' button next to it. Below this is a 'Clear Log' button. A 'Message Filter' section contains checkboxes for 'Informational', 'Success', 'Warning', 'Error', and 'Alarm', all of which are checked. There is also an 'All' button. Below the message filter, there are checkboxes for 'Master Controller' and 'Slots' (1, 2, 3, 4), all of which are checked. There are also 'All', 'Installed', and 'None' buttons. At the bottom, there is a 'Log Messages' section with an 'Auto-refresh' checkbox. The log messages themselves are displayed in a list, with colors indicating severity: blue for informational, green for success, dark orange for warning, and red for error or alarm. The messages include timestamps and descriptions of events such as 'Found NXG-IP-MPTS in Slot #2', 'Power Up or Services Restarted', and 'TS not detected'.

Figure 7.1 - “System Log”

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

MESSAGE FILTER

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

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

7.2 “FIRMWARE UPDATE” TAB

The “**Firmware Update**” tab (Figures 7.2a, 7.2b, 7.2c, and 7.2d) 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 quickly update installed module(s).

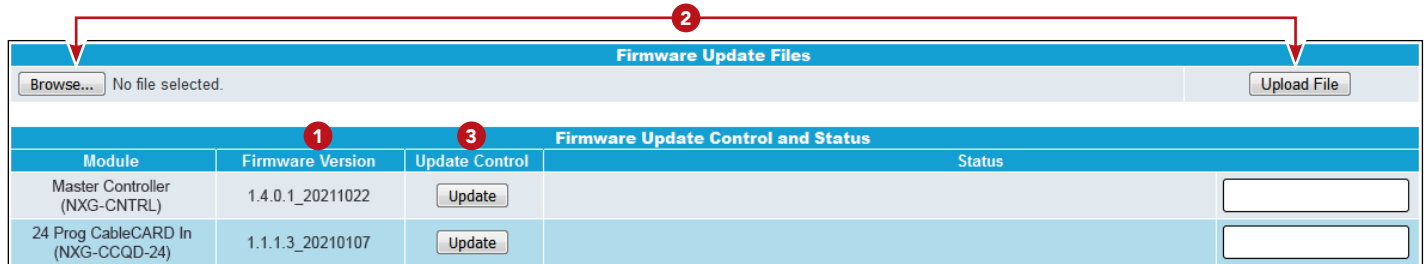


Figure 7.2a - “Firmware Update” Tab

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

Click the “**Firmware Download Site**” linked button and then click through the following folders to view the list of NXG modules: “**BLONDER TONGUE**” > “**N**” > “**NEXGEN GATEWAY**”

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 and 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 7.2b.



Figure 7.2b - File when uploaded

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

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

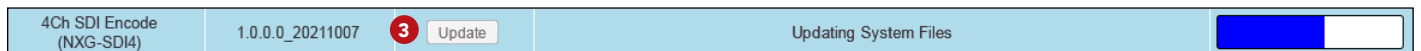


Figure 7.2c - Update In Progress

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



Figure 7.2d - Completed Update

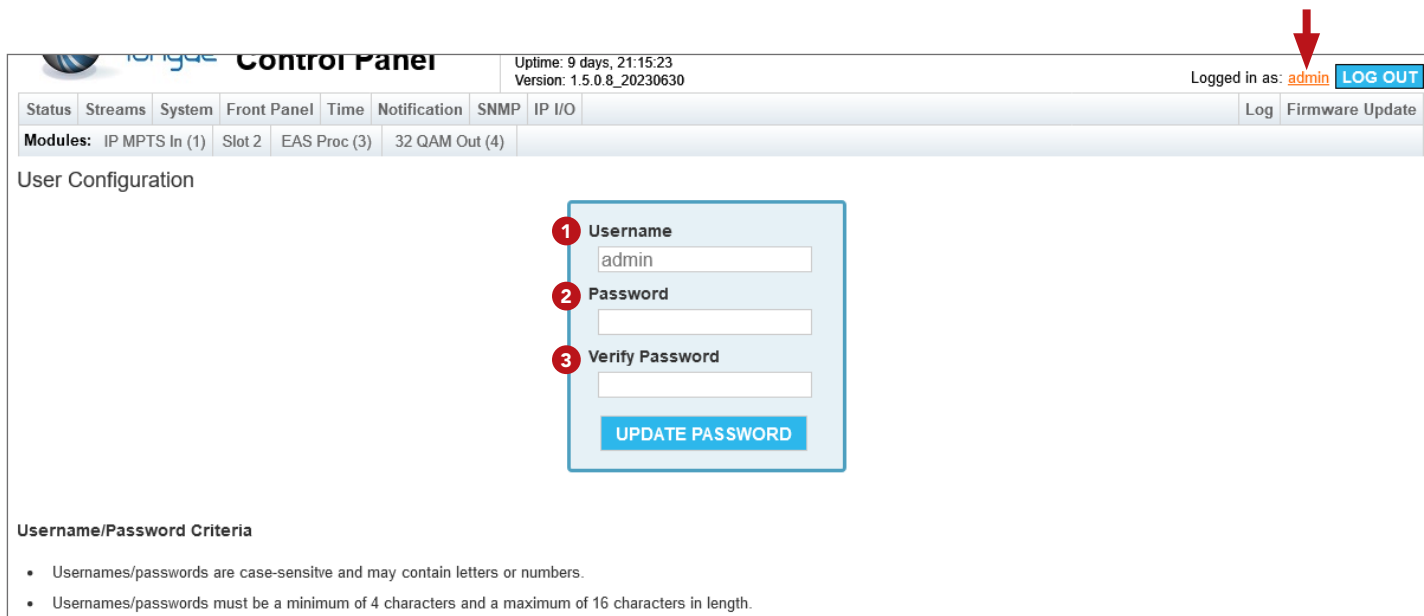
PLEASE NOTE: An update can be applied and finalized by using the reboot control through the module system page, the master controller system page, or by power-cycling a module (ie. pulling the module out of a NXG system).



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

7.3 “ADMIN” SCREEN

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



The screenshot shows the 'Control Panel' interface. At the top right, it says 'Logged in as: admin' with a 'LOG OUT' button. A red arrow points to the 'Admin' link. The main content area is titled 'User Configuration' and contains a form with three numbered fields: 1. Username (containing 'admin'), 2. Password, and 3. Verify Password. Below these fields is a blue 'UPDATE PASSWORD' button. At the bottom, there is a section titled 'Username/Password Criteria' with two bullet points: 'Usernames/passwords are case-sensitive and may contain letters or numbers.' and 'Usernames/passwords must be a minimum of 4 characters and a maximum of 16 characters in length.'

Figure 7.3 - “User Configuration”

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



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

7.4 TROUBLESHOOTING

For any additional technical support issues, please send more information to us about your issue via our website at www.blondertongue.com/support/ or call us toll-free at 1-800-523-6049 between the hours of 8:00 AM and 5:00 PM (EST, UTC -5).

APPENDIX A – NXG PLATFORM MODULES

The following tables show modules that work with the NXG Platform. Shown in each column are the **Model Name**, the **Long Name**, the **Short Name**, and the **SKU number (#)**. Descriptions of where these can be seen within the web Graphic User Interface (GUI) are shown below.

Model Name: displayed on Status page when hovering over module **Long Name** shown under the “**Description**” column. Also shown on the Firmware Updates page under the “**Module**” column. Also shown in some module status pages as “**Model Number**”.

Long Name: displayed on Status page under the “Description” column. Also shown on the Firmware Updates page under the “Module” column.

Short Name: Displayed on the “Modules:” tab navigation at the top of the web GUI.

SKU #: Module's SKU/Part Number useful for searching on the website, product documentation, and ordering.

Table 1: NXG modules available for purchase.

Last Updated: 07/19/2024

MODEL NAME	LONG NAME (STATUS DESCRIPTION AND FIRMWARE UPDATES)	SHORT NAME (MODULE TABS)	SKU #
NXG-CNTRL	Master Controller	MC	6781
NXG-CNTRL EDGE	Master Controller	MC	6781 EDGE
NXG-PS	Power Supply	PS 1 / PS 2	6782
NXG-32CH-QM	32Ch QAM Modulator	32 QAM Out	6785
NXG-QAM32-PRO:IDIOM-PT	32Ch QAM PI PT	QAM32 PIPT	6785 1
NXG-CCQD-24	24 Prog CableCARD In	CableCARD	6788
NXG-CQAM-32	32 Prog Clear QAM In	ClearQAM32	6777A
NXG-IP	IP SPTS In/Out	IP SPTS I/O	6798
NXG-IP-MPTS	IP MPTS In	IP MPTS In	6798 M
NXG-PI-IP-S	Pro:Idiom for IP	P:I IP	6793 S
NXG-PI-QAM-S	Pro:Idiom for QAM	P:I QAM	6793 QS
NXG-CRYPTOLINK-AES-S	IP AES Decrypt	CL AES	6798 2S
NXG-CRYPTOLINK-INNOVATIVE-S	InnoCryption decrypt	InnoCrypt	6798 4S
NXG-CRYPTOLINK-TIVO	IP TiVo Decrypt	CL TiVo	6774 4
NXG-BTCRYPT-S	IP BTCRYPT	IP BTCRYPT	6776 S
NXG-EAS	EAS Processor	EAS Proc	6778
NXG-EPG	EPG	EPG	6790
NXG-CV8	8Ch Transcode	Transcode	6774
NXG-HDMI4	4Ch HDMI Encode	HDMI Enc.	6774 2
NXG-NTSC16	16Ch NTSC Modulator	NTSC Out	6733
NXG-SDI4	4Ch SDI Encode	SDI Enc.	6734

APPENDIX A – NXG PLATFORM MODULE LIST (CONTINUED)

Table 2: NXG modules no longer available for purchase.

Last Updated: 11/18/2022

MODEL NAME	LONG NAME (STATUS DESCRIPTION AND FIRMWARE UPDATES)	SHORT NAME (MODULE TABS)	SKU #
NXG-CQAM-24	24 Prog Clear QAM In	ClearQAM	6777
NXG-PI-IP	Pro:Idiom for IP	P:I IP	6793
NXG-PI-QAM	Pro:Idiom for QAM	P:I QAM	6793Q

LIMITED WARRANTY

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

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

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

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

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

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

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

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

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

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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)**



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