



## INSTRUCTION MANUAL

# EQAM-420A

## *EdgeQAM 420A*

Model	Stock No.	Description
EQAM-420A-1-16	6522A-1-16	EdgeQAM-420A equipped with 1 Quad-QAM output module (accepts 16 unencrypted HD programs)
	6522A-1-16P*	Same as above but with Pro:Idiom™ encrypted output
EQAM-420A-2-32	6522A-2-32	EdgeQAM-420A equipped with 2 Quad-QAM output modules (accepts 32 unencrypted HD programs)
	6522A-2-32P*	Same as above but with Pro:Idiom™ encrypted output
EQAM-420A-PIL	6522-PIL*	Software option to add Pro:Idiom™ encryption

\* Available to Pro:Idiom™ licensees only

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

Purchase Location Name:	
Purchase Location Telephone Number:	
EQAM-420A Serial Number:	

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

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## Section 1 — General & Safety Instructions



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



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



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

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

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

### NOTE TO CATV SYSTEM INSTALLER

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

## Safety Instructions

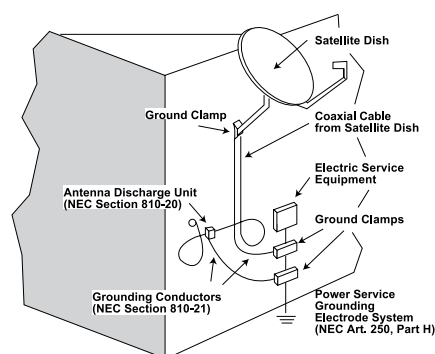


**YOU SHOULD ALWAYS FOLLOW THESE INSTRUCTIONS TO HELP ENSURE  
AGAINST INJURY TO YOURSELF AND DAMAGE TO YOUR EQUIPMENT.**

- 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.

## Safety Instructions - continued

- 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.

### 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.

## Section 2 — Product Summary

### 2.1 Revision History & Reason

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This is the third issue of this Instruction Manual.

The reason for this revision was to add the requirements for the EQAM-420A to operate in Multi Program Transport Stream (MPTS) mode.

### 2.2 Product Application & Description

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#### Application:

EQAM-420A (EdgeQAM – 420A) is designed to allow CATV operators to aggregate multiple SDTV/HDTV programs received in IP format and to deliver them over a standard coaxial distribution network.

The EQAM-420A is capable of accepting unencrypted (clear) 1000Base-T Ethernet (GbE) streams in one of the following two modes:

Mode 1: up to thirty-two (32) MPEG-2/H.264 Single Program Transport Streams (SPTS)

Mode 2: up to eight (8) MPEG-2/H.264 Multi Program Transport Streams (MPTS), each MPTS with maximum six (6) programs not to exceed 38.8 Mbps.

The input streams are aggregated in up to eight (8) QAM RF channels in the 54-996 Mhz range. The EQAM-420A can be configured with one or two QAM output modules, each capable of delivering four (4) adjoining QAM channels. Each QAM channel can contain up to four (4) programs.

The EQAM-420A allows the operator to maintain the QAM RF output unencrypted, or to encrypt it with Pro:Idiom™ against content piracy.



**To utilize the Pro:Idiom™ encryption feature, the input streams must meet the Pro:Idiom™ requirements. All QAM RF outputs will be encrypted regardless of the number of output modules present or the number of QAM RF channels assigned on each module.**

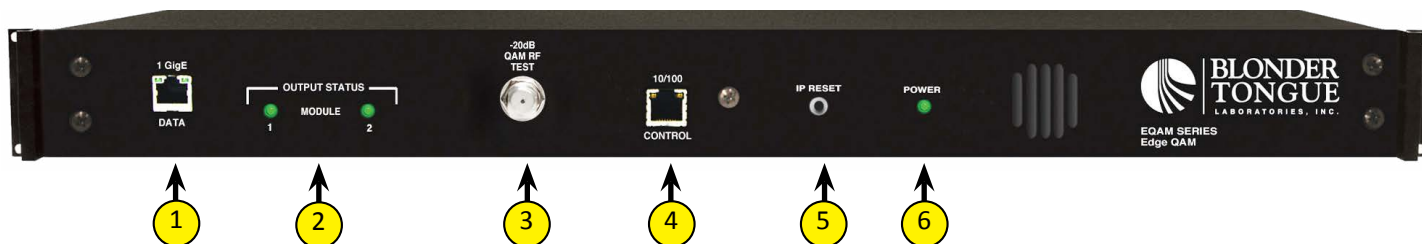
Comprehensive remote monitoring and control is accomplished using any standard Web browser via a front-panel 10/100BaseT Ethernet connection.

#### Features:

- Mode 1: Accepts up to thirty-two (32) MPEG-2/H.264 Single Program Transport Streams (SPTS)
- Mode 2: Accepts up to eight (8) Multi Program Transport Streams (MPTS), each MPTS with maximum six (6) programs and not to exceed 38.8 Mbps
- Configurable with one or two modules, each with four (4) adjacent QAM channels, for a total of eight (8) QAM channels
- Comprehensive GUI-based menu for remote monitoring and control via standard Web browsers
- User-selectable QAM 16, 32, 64, 128, and 256 modulation modes
- Provides a front-panel RF test point (at 20dB below primary QAM output)
- Provides SNMPv2 for product and network management
- Accepts variable and constant bitrate streams
- Provides Null packet insertion and deletion

**Description:**

Below are the front and rear pictures of the unit:



- 1 DATA (1 GigE):**  
RJ45 connector for 1000Base-T Ethernet (GbE) interface for input IP streams – typically from a GigE switch.
- 2 OUTPUT STATUS MODULE LEDs:**  
LED is Off = corresponding Quad-QAM RF module is not present.  
LED is Green = corresponding Quad-QAM RF module is (i) present, or (ii) present but not configured, or (iii) present, configured correctly, and providing QAM output(s).  
LED is Red = corresponding Quad-QAM RF module is (i) present but not configured correctly, or (ii) present configured correctly, but not providing QAM output(s).
- 3 -20dB QAM RF TEST:**  
"F" female connector for RF QAM output signal, 20dB lower than the actual RF QAM output. Used for test purposes, without disconnecting the unit.
- 4 10/100 CONTROL:**  
RJ45 connector for 10/100Base-T Ethernet interface for monitoring and configuring the unit via any standard web browser. Only static IP address can be assigned to this interface. **The factory default value is 172.16.70.1.**
- 5 IP RESET:**  
When pushed and held for about 10 seconds, followed by a power cycle, resets the IP address, Usernames, and Passwords to Factory default values as follows:  
**IP address = 172.16.70.1**  
**Username = Admin (case-sensitive)**  
**Password = pass (case-sensitive)**
- 6 POWER:**  
LED is Off = indicates (i) AC power is not connected, or rear panel power switch is Off, or (ii) AC power is connected but the power supply is defective, or (iii) AC power is connected and power supply is working properly but the motherboard's chipset has not been configured properly. The unit must be sent to Blonder Tongue for repair for conditions (ii) and (iii).  
LED is Green = AC power is detected and motherboard's chipset has been configured successfully.



**7 INPUT POWER ASSEMBLY AND SWITCH:**

IEC 14 power inlet plug – rated 115-230 VAC; 0.7A; 60/50 Hz; equipped with Slo-Blo, 3.0 Amps, 250 V Fuse.

**8 QAM OUTPUT:**

"F" female connector for QAM RF output (clear or Pro:Idiom™ encrypted). The unit can be configured with up to 2 output modules, each module providing 4 adjacent QAM RF channels (24MHz-wide).



**2.3 Product Specification**

**INPUT**

<b>IP</b>	<b>Connector:</b>	1x RJ-45
	<b>Standard:</b>	1000Base-T Ethernet
	<b>UDP/RTP:</b>	Supported (user-selectable)
<b>Stream Portfolio</b>	<b>SPTS &amp; MPTS:</b>	Null Packet Deletion & Addition Mixing of input streams
	<b>Bitrate:</b>	Variable and Constant

**OUTPUT**

<b>QAM</b>	<b>No. of Output Modules:</b>	1 or 2 Quad-QAM
	<b>Connector:</b>	1x "F" Female (rear-panel; for combined outputs)
	<b>Modulation:</b>	QAM 16, 32, 64, 128, and 256
	<b>Standards:</b>	ITU-T J.83; Annex A and B
	<b>DVB Symbol Rate:</b>	Variable; up to 7 MSymbol/sec (MBaud)
	<b>Frequency Range:</b>	54 to 996 MHz
	<b>Tuning:</b>	CATV Channel Selectable (CH. 2 to 157)
	<b>Channels' Bandwidth:</b>	24 MHz (4x Adjacent 6MHz)
	<b>No. of Programs:</b>	Variable (not to exceed 38.8 Mbps)
	<b>RF Level:</b>	+35 dBmV, ± 1 dB increment
	<b>RF Level Adjustment Range:</b>	+30 to +37 dBmV, 1 dB increment
	<b>Frequency Tolerance:</b>	± 0.5 kHz @ 77 °F (25 °C)
	<b>Frequency Stability:</b>	± 5 kHz over 32 to 122 °F (0 to 50 °C)
	<b>Amplitude Flatness:</b>	± 0.25 dB (over 6 MHz channel)
	<b>Phase Noise:</b>	-98 dBc (@ 10 kHz)
	<b>Spurious:</b>	-60 dBc
	<b>Broadband Noise:</b>	-70 dBc (@ +35 dBmV output level, 5.5 MHz bandwidth)
	<b>Impedance:</b>	75 Ω
	<b>Spectral Inversion:</b>	Auto Recognition
	<b>Carrier Suppression:</b>	45 dB
	<b>Return Loss:</b>	14 dB typical
	<b>Signal-to-Noise Ratio (SNR):</b>	40 dB typical
	<b>MER:</b>	39 dB typical
	<b>I/Q Phase Error:</b>	Less than 1 degree
	<b>I/Q Amplitude Imbalance:</b>	Less than 1%

**REQUIREMENTS FOR PRO:IDIOM™ OUTPUT**

<b>SPTS</b>	<b>No. of programs:</b>	1 program (not to exceed 38.8 Mbps)
	<b>Null Packets:</b>	Required (as per Pro:Idiom™ requirements)
	<b>Stream ID:</b>	User- assigned (as per Pro:Idiom™ requirements)
	<b>Audio:</b>	Dolby AC-3 compliant
<b>MPTS</b>	<b>No. of programs:</b>	Max. 6 programs per MPTS (not to exceed 38.8 Mbps)
	<b>Null Packets:</b>	Required (as per Pro:Idiom™ requirements)
	<b>Stream ID:</b>	User- assigned (as per Pro:Idiom™ requirements)
	<b>Audio:</b>	Dolby AC-3 compliant

**GENERAL**

<b>Dimensions (W x D x H):</b>	19.0 x 18.125 x 1.75 inches (483 x 460 x 44 mm)
<b>Power:</b>	115-230VAC, 60/50Hz
<b>Power Dissipation:</b>	38 W
<b>Weight:</b>	18 lbs (5.9 kg)
<b>Operating Temperature:</b>	32 to 122 °F (0 to 50 °C)
<b>Storage Temperature:</b>	-13 to 158 °F (-25 to 70 °C)
<b>Operating Humidity:</b>	0 to 95% RH @ 35 °C max, non-condensing
<b>Storage Humidity:</b>	0 to 95% RH @ 35 °C max, non-condensing

**ALARMS/MONITORING/CONTROL**

<b>Local Monitoring:</b>	2x Output Status Module LEDs 1x "F" Female RF Test Port 1x Power LED
<b>Local Control:</b>	1x IP Reset button
<b>Remote Monitoring/Control Interface:</b>	GUI-based menu via standard Web Browsers (1x RJ45 front-panel connector; 10/100Base-T)
<b>SNMP v2:</b>	Error Log to Remote Server Ambient Temperature QAM Lock

## Section 3 – Installation & Power-up

### 3.1 Unpacking

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You will find the following items in the box:

- EQAM-420A (QTY=1)
- Power Cord with IEC C13 line socket and 3-pin Type B NEMA 5 plug (QTY=1)
- Blonder Tongue part# 741021800 containing Ethernet cross cable (QTY=1; see Section 4 for details)

### 3.2 Installation

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The EQAM-420A is designed to be installed in a standard 19-inch (483 mm) rack (EIA 310-D, IEC 60297, and DIN 41494 SC48D). To install the unit, secure the unit's front panel to the rack by inserting four (4) machine screws, with cup washers, through the four (4) mounting holes in the front panel.



**Do not block the unit's air intake or air discharge openings.**



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

### 3.3 Power-up

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To power up the unit, connect the line cord to a 115/230 VAC – 60/50 Hz outlet. Please note that the power inlet plug is also equipped with a fuse-holder and fuse (SLO-BLO, 3.0 Amp, 250V).



**EQAM-420A and the GigE Switch are considered as elements of an integrated solution. When a power cycle or re-boot is deemed necessary for one element, it may be necessary to power cycle one or all of the other elements as well.**

## Section 4 – Communicating with the Unit

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 the unit's IP address to conform with your existing IP network or LAN. To do so, follow these steps:

- (1) Plug one end of the Ethernet cross cable that is provided in the hardware bag to unit's front-panel RJ45 interface marked "10/100 Control". Plug the other end of the cable to your computer.
- (2) The factory default IP address of the unit is **172.16.70.1**. To be able to communicate with the unit, you must first change your computer's IP address.

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

- (a) On your computer, open the "Control Panel"
- (b) Double-click on "Network Connections"
- (c) Right-click on the "Local Area Connection", and then click on the "properties".
- (d) A dialog box entitled "Local Area Connection Properties" will appear. In this box, double-click on the "Internet Protocol (TCP/IP)".
- (e) A dialog box entitled "Internet Protocol (TCP/IP) Properties" will appear. Select the "Use the following IP address" option and enter the following addresses:  
**IP address: 172.16.70.2**  
**Subnet mask: 255.255.255.0**  
No need to enter a value for the Default Gateway.

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

- OR -

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

- (a) On your computer, open the "Control Panel"
- (b) Click on "Network and Internet"
- (c) Click on the "View network status and tasks"
- (d) Click on "Change Adapter Settings" on left hand side of the window
- (e) Right-click on the "Local Area Connection", and then click on the "properties".
- (f) A dialog box entitled "Local Area Connection Properties" will appear. In this box, double-click on the "Internet Protocol Version 4 (TCP/IPv4)".
- (g) 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. Now your computer is ready to communicate with the unit.



**The 10/100 Control and Data (1 GigE) Ports (see 4 & 1 of Section 2.2 for details) should never be assigned IP addresses belonging to the same subnet, and never be connected to the same unmanaged switch. If using a managed switch, ensure the "10/100 Control" port is configured such that it does not receive any multicast traffic.**

## Section 5 – Quick Configuration

### 5.1 Accessing the Unit via a Web Browser

You must complete the steps described in Section 4 before proceeding as follows:

- (1) Open a web browser on your computer (Internet Explorer 7 or higher is recommended) and enter the following URL address (**http://172.16.70.1**). The "Login Screen" (Figure 5.1) will appear.

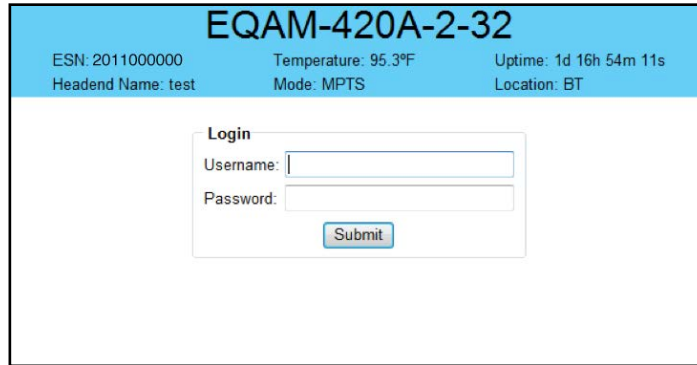


FIGURE 5.1 – Login Screen

- (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. When logged in as Guest, the user has only read permission. Up to four Guests can be logged in simultaneously.

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

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

- OR -

Username = **Guest** (case-sensitive)

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

Monitoring and configuration of the unit is achieved via a series of web pages as described in the Sections below. The following read-only information is displayed in a "page header" – in blue color – on top of each web page:

**ESN:** unit's Serial number

**Headend name:** a user-defined field to make identification easier

**Temperature:** temperature of unit's chipset – SNMP trap threshold is set at 140° F.

**Uptime:** time elapsed since last time the unit was turned on

**Location:** a user-defined field to make identification easier

As shown in Figure 6.1, under the blue "page header" the following Primary tabs will appear:

- Primary tab "**Main**" includes the following sub-tabs: Status, Stream Info (applicable to MPTS Mode only), QAM Config, Diagnostics, Mode, and Refresh.
- Primary tab "**Network**" doesn't include any sub-tab.
- Primary tab "**Management**" includes the following sub-tabs: SNMP Traps, and Refresh.
- Primary tab "**Time**" doesn't include any sub-tab.
- Primary tab "**Error Log**" doesn't include any sub-tab.
- Primary tab "**Config**" doesn't include any sub-tab.
- Primary tab "**Logout**" doesn't include any sub-tab.

Each Primary and sub-tab is described in the subsequent Sections.

## 5.2 Quick Configuration via “Config” File

If the same input/output configuration is desired to be duplicated among several units, or for it to be protected against unintentional changes, it is possible to upload a “Config” file onto unit which will configure the input and output of the unit accordingly. Section 6.11 describes how to create the “Config” file and how to upload it onto the unit.



When utilizing the “Config” file feature, operator must also select an appropriate “Configuration Mode” (see 11 of Section 6.7.1 for details).



When EQAM-420A is operating in "Automatic" Configuration Mode (see 11 of Section 6.7.1 for details), the user must update the respective config file while switching between the SPTS and MPTS modes.

## Section 6 – Detailed Configuration

You must complete the steps described in Section 4 and 5.1 before proceeding as follows:

### 6.1 "Main > Mode" Screen

The “Main > Mode” screen” (Figure 6.1) is a “user-configurable” screen where the following parameters are configured and displayed:

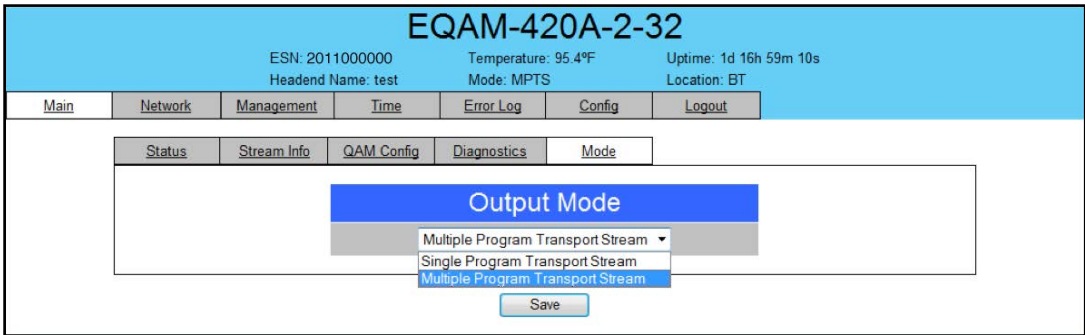


Figure 6.1 - "Main > Mode" Screen

In the section entitled “**Output Mode**” under the blue header, the user can select the mode of output for the unit.

This is the first necessary step when configuring the unit for the first time. The type of the input streams that can be used, i.e Single Program Transport Stream (SPTS) or Multi Program Transport Stream (MPTS) depends on the Output Mode selected. The drop down box allows the user to select one of the two Output Modes available:

#### Mode 1: Single Program Transport Stream (SPTS)

Allows the unit to accept up to 32 SPTS in unencrypted (clear) IP format. Therefore, the unit can accept up to 32 programs in IP (1000Base-T Ethernet) format.

#### Mode 2: Multi Program Transport Stream (MPTS)

Allows the unit to accept up to 8 MPTS in unencrypted (clear) IP format, each MPTS with maximum six (6) programs and not to exceed 38.8 Mbps.



Remember to click on the SAVE button to apply the new values/configurations.

## 6.2 "Main > Status" Screen

The "Main > Status" screen (Figure 6.2.1 & 6.2.2) is a "read only" screen where the following parameters are displayed:

EQAM-420A-2-32

ESN: 2011000000    Temperature: 95.5°F    Uptime: 1d 16h 59m 48s  
Headend Name: test    Mode: MPTS    Location: BT

Main    Network    Management    Time    Error Log    Config    Logout

Status    Stream Info    QAM Config    Diagnostics    Mode    Refresh

Stream Input				QAM Output (35dBmV)	
Stream	Name	IP	Bitrate	RF Chan.	Status
1 UDP://225.16.70.20:50001	prog1	33.7Avg/38.8Max	33.7Avg/38.8Max	50 / On	Locked
2 UDP://225.16.70.20:50002	prog2	6.6Avg/8.4Max	6.6Avg/8.4Max	51 / On	
3 UDP://225.16.70.20:50003	prog3	6.9Avg/9.5Max	6.9Avg/9.5Max	52 / On	
4 UDP://225.16.70.20:50004	prog4	6.5Avg/9.6Max	6.5Avg/9.6Max	53 / On	
5 UDP://172.16.180.75:50000	prog5	-Avg/-Max	-Avg/-Max	54 / On	Locked
6 UDP://172.16.180.76:50000	prog6	-Avg/-Max	-Avg/-Max	55 / On	
7 UDP://239.16.180.70:50000	prog7	7.1Avg/7.6Max	7.1Avg/7.6Max	56 / On	
8 UDP://239.16.180.71:50000	prog8	7.1Avg/7.6Max	7.1Avg/7.6Max	57 / On	

Edit

Figure 6.2.1 - "Main > Status" Screen when operating in MPTS Mode

EQAM-420A-2-32

ESN: 2011000000    Temperature: 95.8°F    Uptime: 1d 17h 35m 27s  
Headend Name: test    Mode: SPTS    Location: BT

Main    Network    Management    Time    Error Log    Config    Logout

Status    QAM Config    Diagnostics    Mode    Refresh

Stream Input				QAM Output (35dBmV)	
Stream	Name	IP	Bitrate	RF Chan.	Status
1 UDP://239.16.180.50:50000	prog1	-Avg/-Max	-Avg/-Max	50-1 / On	Locked
2 UDP://239.16.180.51:50000	prog2	-Avg/-Max	-Avg/-Max	50-2 / On	
3 RTP://239.16.180.52:50000	prog3	-Avg/-Max	-Avg/-Max	50-3 / On	
4 RTP://239.16.180.53:50000	prog4	-Avg/-Max	-Avg/-Max	50-4 / On	
5 RTP://239.16.180.54:50000	prog5	-Avg/-Max	-Avg/-Max	51-1 / On	
6 UDP://239.16.180.55:50000	prog6	2.8Avg/7.5Max	2.8Avg/7.5Max	51-2 / On	
7 UDP://239.16.180.56:50000	prog7	-Avg/-Max	-Avg/-Max	51-3 / On	
8 UDP://239.16.180.57:50000	prog8	-Avg/-Max	-Avg/-Max	51-4 / On	
9 UDP://239.16.180.58:50000	prog9	-Avg/-Max	-Avg/-Max	52-1 / On	
10 UDP://239.16.180.59:50000	prog10	-Avg/-Max	-Avg/-Max	52-2 / On	
11 UDP://239.16.180.60:50000	prog11	2.6Avg/6.2Max	2.6Avg/6.2Max	52-3 / On	Locked
12 UDP://239.16.180.61:50000	prog12	2.6Avg/5.1Max	2.6Avg/5.1Max	52-4 / On	
13 UDP://239.16.180.62:50000	prog13	2.5Avg/5.4Max	2.5Avg/5.4Max	53-1 / On	
14 UDP://239.16.180.63:50000	prog14	2.6Avg/4.6Max	2.6Avg/4.6Max	53-2 / On	
15 UDP://239.16.180.64:50000	prog15	-Avg/-Max	-Avg/-Max	53-3 / On	
16 UDP://239.16.180.65:50000	prog16	2.5Avg/5.1Max	2.5Avg/5.1Max	53-4 / On	
17 UDP://239.16.180.66:50000	prog17	-Avg/-Max	-Avg/-Max	54-1 / On	
18 UDP://239.16.180.67:50000	prog18	-Avg/-Max	-Avg/-Max	54-2 / On	
19 UDP://239.16.180.68:50000	prog19	-Avg/-Max	-Avg/-Max	54-3 / On	
20 UDP://239.16.180.69:50000	prog20	2.4Avg/5.3Max	2.4Avg/5.3Max	54-4 / On	
21 UDP://239.16.180.70:50000	prog21	3.0Avg/7.5Max	3.0Avg/7.5Max	55-1 / On	Locked
22 UDP://239.16.180.71:50000	prog22	3.0Avg/7.5Max	3.0Avg/7.5Max	55-2 / On	
23 UDP://239.16.180.72:50000	prog23	-Avg/-Max	-Avg/-Max	55-3 / On	
24 UDP://172.16.180.75:50000	prog24	-Avg/-Max	-Avg/-Max	55-4 / On	
25 UDP://172.16.180.76:50000	prog25	-Avg/-Max	-Avg/-Max	56-1 / On	
26 No IP Assigned	-	-	-	56-2 / On	
27 No IP Assigned	-	-	-	56-3 / On	
28 No IP Assigned	-	-	-	56-4 / On	
29 UDP://225.16.70.20:50001	prog26	27.4Avg/38.8Max	27.4Avg/38.8Max	57-1 / On	
30 UDP://225.16.70.20:50002	prog27	5.8Avg/9.3Max	5.8Avg/9.3Max	57-2 / On	
31 UDP://225.16.70.20:50003	prog28	5.9Avg/10.7Max	5.9Avg/10.7Max	57-3 / On	
32 UDP://225.16.70.20:50004	prog29	5.5Avg/9.6Max	5.5Avg/9.6Max	57-4 / On	

Edit

Figure 6.2.2 - "Main > Status" Screen when operating in SPTS Mode

In the section entitled “Stream Input” under the green header, the following parameters about each source IP stream are displayed:

- 1 **Stream:** indicates the method of encapsulation used, i.e UDP (User Datagram Protocol) or RTP (Real-Time Transport Protocol), the IP address, and port number (see Section 6.2.1 for details).
- 2 **Name:** indicates the name of the stream (see Section 6.2.1 for details).
- 3 **IP:** indicates the status of the source IP stream as follows:  
Green = input IP is streaming  
Red = input IP is not streaming
- 4 **Bitrate:** indicates the average and maximum bitrate of the IP stream in Megabits per second (Mbps).



When the unit is operating in SPTS mode, ensure the sum of the Bitrates of the IP streams assigned to a QAM RF channel (eg: Ch. 50-1, 50-2, 50-3, & 50-4) does not exceed 38.8Mbps to avoid pixelation issues.



When the unit is operating in MPTS mode, ensure the Bitrate of the IP stream assigned to a QAM RF channel (eg: Ch.51) does not exceed 38.8 Mbps to avoid pixelation issues.

In the section entitled “QAM Output” under the blue header, the following parameters are displayed:

- 5 **RF Channel:** indicates (i) the RF channel number of the QAM output, and (ii) whether the output QAM is on or off.
- 6 **Status:** indicates whether the Quad-QAM RF output module is locked or not.
- 7 **Edit:** using the Edit button, a new screen will appear where the user can edit the information in 1 and 2 above (see Section 6.2.1 for details).



When operating in SPTS Mode, up to 32 rows of input streams will be displayed under the "Stream Input".



When operating in MPTS Mode, up to 8 rows of input streams will be displayed under the "Stream Input".

### 6.2.1 "Main > Status > Edit" Screen

The "Main > Status > Edit" screen (Figure 6.2.3) is a "read and write" screen where the same information as the "Main > Status" screen is displayed, but the following parameters can be updated:

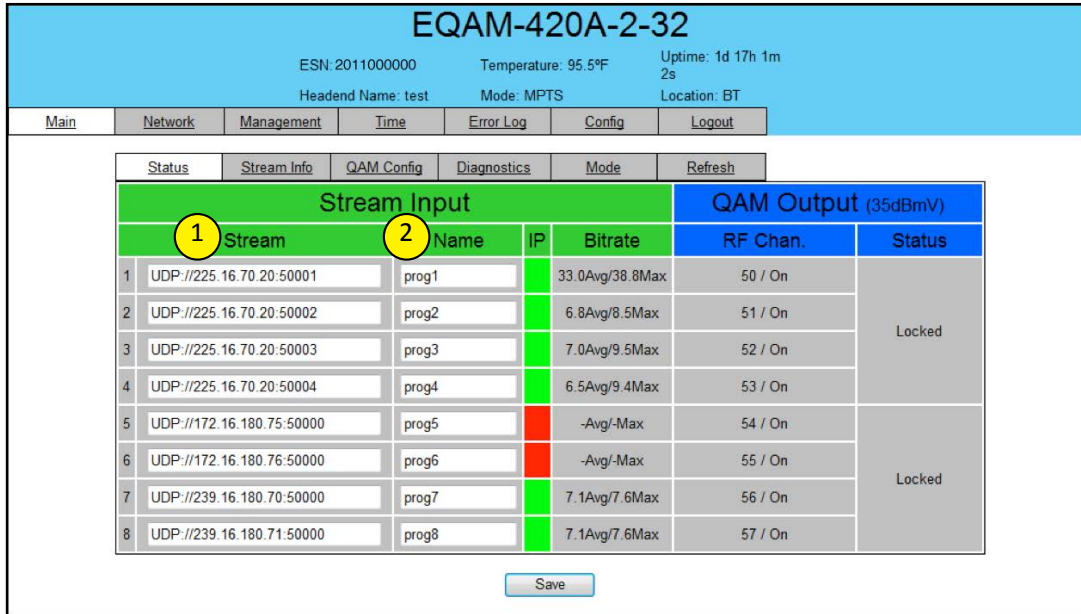


Figure 6.2.3 - "Main > Status > Edit" Screen when operating in MPTS Mode

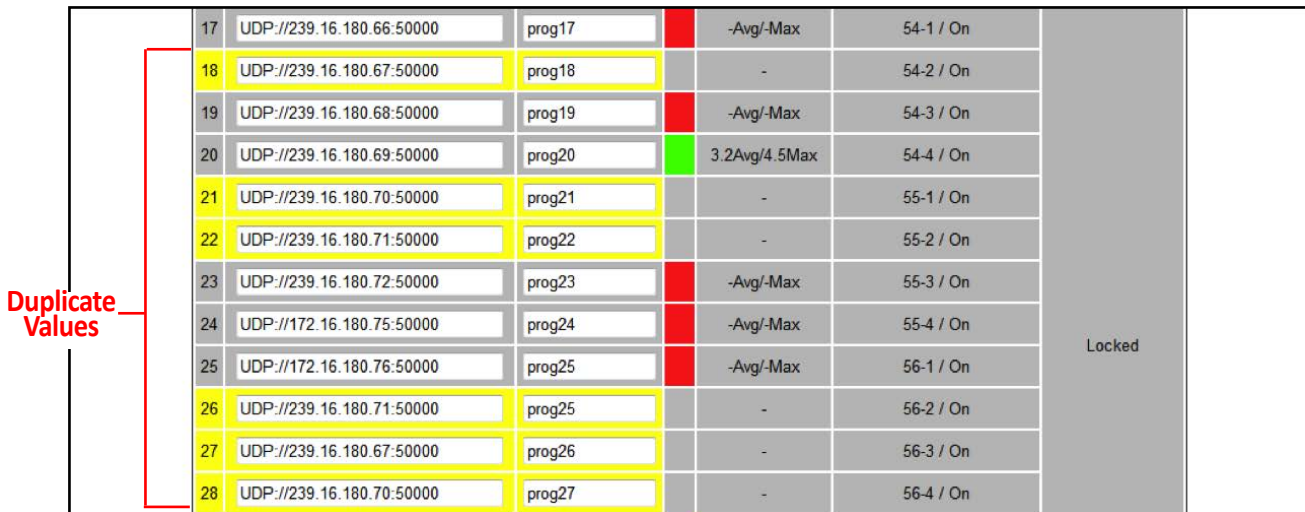


Figure 6.2.4 - "Main > Status > Edit" Screen when operating in SPTS Mode



- 1 Stream:** the user must update the source IP stream information in the following format:  
xxx://yyy.yyy.yyy.yyy:zzzzz  
where,  
xxx = the protocol / encapsulation method of the source (IP) stream. The only acceptable protocols are UDP or RTP.  
yyy.yyy.yyy.yyy = IP address of the source stream.  
zzzzz = port number of the source stream.

**Example 1:** Assume that the source stream is (i) using UDP protocol, (ii) in Multicast format, (iii) provided from IP address 225.16.70.20, and (iv) on port 50001. Then the address must be entered as: UDP://225.16.70.20:50001.

**Example 2:** Assume that the source stream is (i) is using RTP protocol, (ii) in Multicast format, (iii) provided from IP address 239.16.180.67, and (iv) on port 50000. Then the address must be entered as: RTP://239.16.180.67:50000.

**Example 3:** Assume that the source stream is (i) using UDP protocol, (ii) in Unicast format, (iii) provided from IP address 172.160.80.70, and (iv) on port 50000. Then the address must be entered as: UDP:// 172.160.80.70:50000.



The address entered here **MUST** be identical to the address of the source stream, or else the unit cannot recognize the source (IP) stream. No duplicate IP addresses are allowed. If duplicate IP addresses are entered, then the duplicate IP addresses will be highlighted in yellow as shown in Figure 6.2.4.



The IP address range for a Muticast stream must be between 224.0.0.0 and 239.255.255.255. The unit will consider any address outside of this range to be a Unicast address.

- 2 Name:** once the Stream information in **1** above is updated, the unit auto-detects the name of the source stream if assigned by the source. The user, however, is allowed to edit/update the current stream name. Up to 10 alphanumeric characters are allowed.



Remember to click on the **SAVE** button to apply the new values/configurations.

### 6.3 "Main > Stream Info" Screen

The "Main > Stream Info" screen (Figure 6.3) is a "read only" screen where the following parameters about the source IP streams are displayed:



The "Main > Stream Info" screen will be visible only if the user has selected the "MPTS" Mode on the "Main > Mode" screen (see Section 6.1 for details).

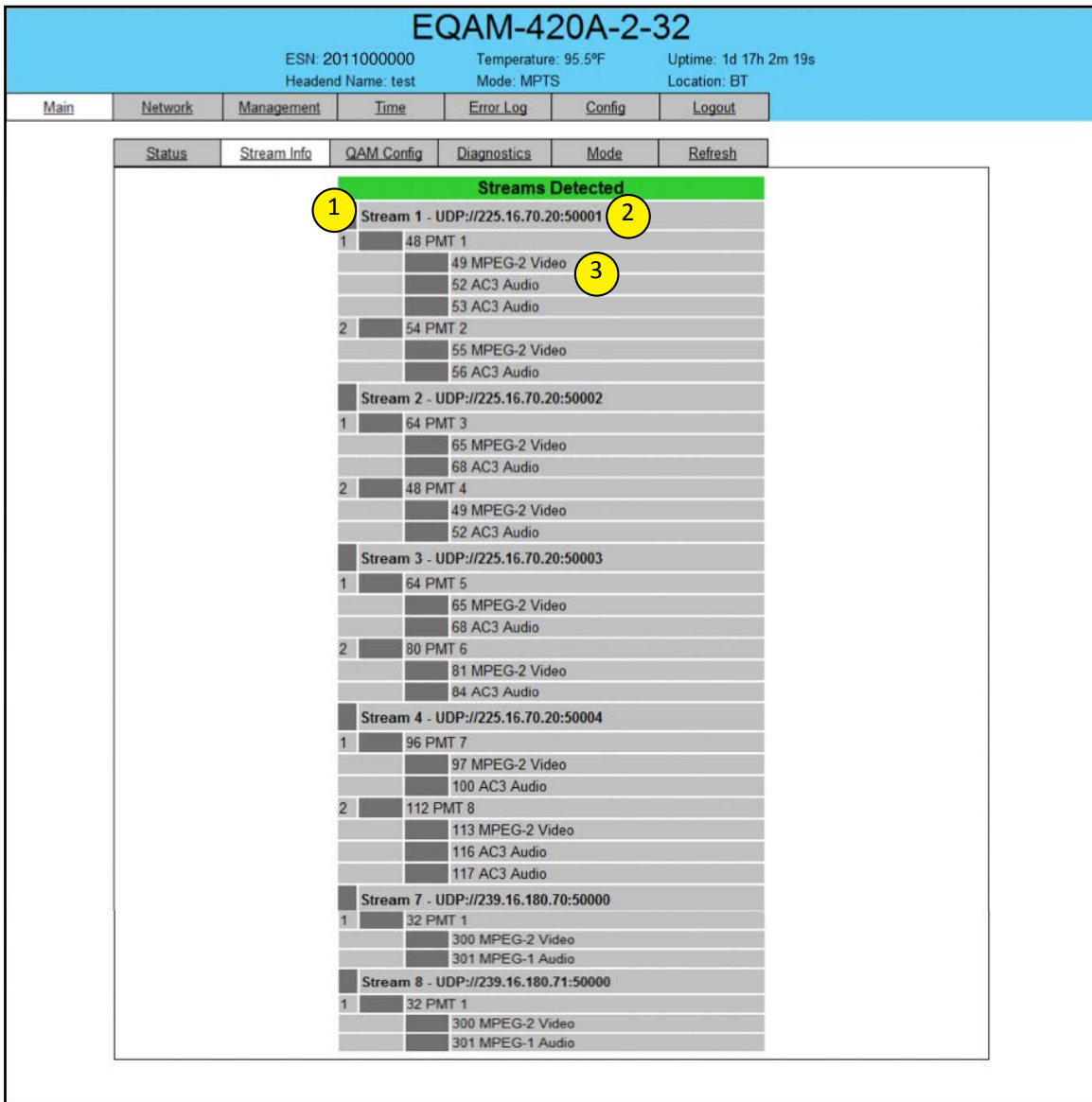


Figure 6.3 - "Main > Stream Info" Screen when operating in MPTS Mode

- 1 **Stream #:** indicates the Stream ID number of the incoming source IP MPTS.
- 2 **<encapsulation:// ip address: port number>:** indicates the following information about the source IP stream:
  - encapsulation = indicates the encapsulation method used, i.e UDP or RTP
  - ip address = indicates the IP address of the source stream. The IP address can be a unicast or multicast address.
  - port number = indicates the port number of the source stream.

3 Indicates the program information and number of programs in the MPTS; for example, as shown below,

Stream #4 is a UDP stream with multicast address 225.16.70.20 and port number 50003, which contains two programs 1, and 2. For program 1 (96 PMT 6) the following information is displayed:

- 96 – indicates the Program MAP Table (PMT) of the program.
- 6 – indicates the Program Number as assigned by the source unit.
- 97 **MPEG-2 Video** – indicates that the Video elementary stream of the program has PID 97.
- 100 **AC3 Audio** – indicates that the Audio elementary stream of the program has PID 100.

Stream 4 - UDP://225.16.70.20:50003		
1		96 PMT 6
		97 MPEG-2 Video
		100 AC3 Audio
2		112 PMT 7
		113 MPEG-2 Video
		116 AC3 Audio
		117 AC3 Audio

### 6.4 "Main > QAM Config" Screen

The "Main > QAM Config" screen (Figure 6.4.1 & 6.4.2) is a "read and write" screen where the following parameters are displayed or can be configured:

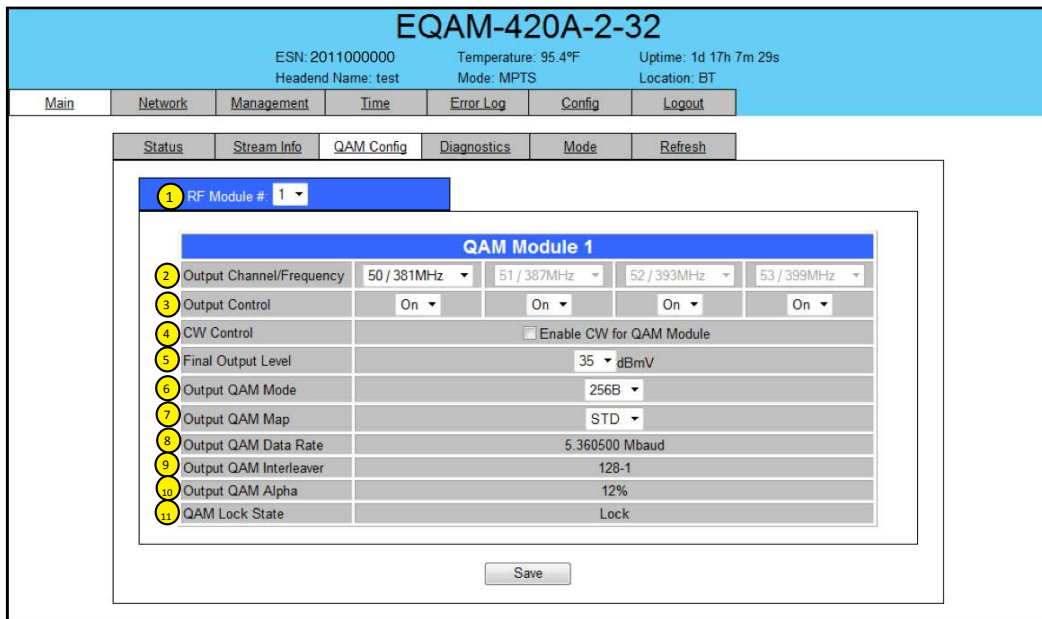


Figure 6.4.1 - "Main > QAM Config" Screen when operating in MPTS Mode

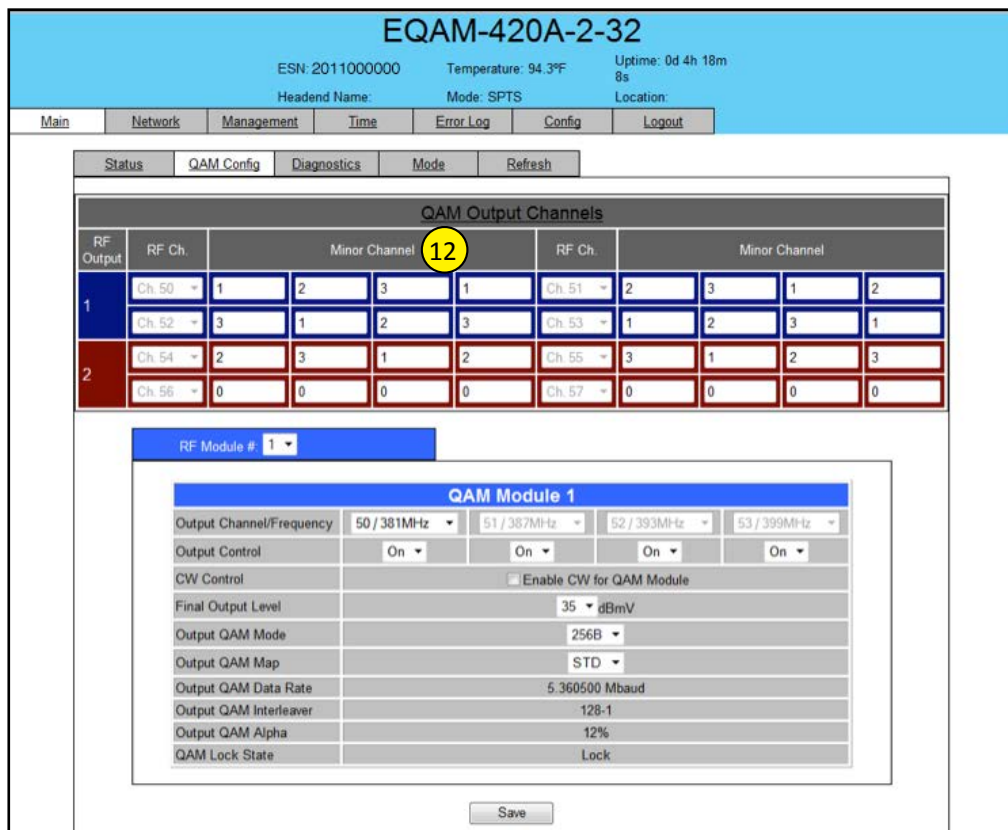


Figure 6.4.2 - "Main > QAM Config" Screen when operating in SPTS Mode

- 1 **RF Module #:** must select the Quad-QAM output RF module number 1 or 2.
- 2 **Output Channel/Frequency:** must assign an RF channel number to the first RF QAM output of the Quad-QAM module (i.e. RF channel 50, as shown in Figure 6.4.1). The remaining three RF QAM channels will be automatically assigned to the next adjacent channels (i.e. RF channels 51, 52 and 53). The range is NTSC channels 2 to 155.



The RF Channel number will be displayed on TV only if the source stream does not carry any virtual channel number.

- 3 **Output Control:** must turn each of the RF channels On/Off.
- 4 **CW Control:** allows the user to switch the QAM output mode to CW (Continuous Waveform) which activates an analog carrier at the selected channel's center frequency; this is typically used in frequency alignment of the system.
- 5 **Final Output Level:** must select the QAM RF output level for the combined output. The range is 23 to 37 dBmV. It is recommended to maintain the output level at 35 dBmV for normal operation.
- 6 **Output QAM Mode:** must select the desired QAM modulation mode. Possible options are: 64B, 256B, 16A, 32A, 64A, 128A, and 256A. For most applications in the USA, the recommended QAM modulation mode is 256B – it allows four HD programs, not to exceed 38.8 Mbps, per RF QAM channel.
- 7 **Output QAM Map:** must select the desired QAM Map. Possible options are STD, IRC, and HRC.
- 8 **Output QAM Data Rate:** indicates the maximum data rate depending on the selected QAM mode, for example 5.360500 Mbaud for QAM 256B.
- 9 **Output QAM Interleaver:** indicates the interleaver value for the selected QAM mode.
- 10 **Output QAM Alpha:** indicates the Alpha value for the selected QAM mode
- 11 **QAM Lock Status:** indicates whether Quad-QAM module is working properly (locked) or not. The module may take a few seconds to lock when QAM output parameters are changed.
- 12 **Minor Channel:** must enter the minor channel number for the output program. The range is 1 to 99 for Terrestrial and 1 to 999 for Cable. The Minor Channel option will be visible only when the unit is operating in the SPTS Mode (see Figure 6.4.2 for details).



When utilizing the Pro:Idiom encryption feature, the MPTS input streams are required to be paired together (i.e. MPTS#1&2, 3&4, 5&6, 7&8), with each pair having the following identical assignments:

- Program Map Table (PMT) PIDs
- Program number
- Elementary stream PIDs
- Number and type of Elementary streams

Other requirements include:

- Maximum six (6) programs per MPTS
- PMT not to exceed one transport stream packet
- Not using the restricted range of PIDs (see Pro:Idiom™ documentation for range)



Remember to click on the SAVE button to apply the new values/configurations.

## 6.5 "Main > Diagnostics" Screen

The "Main > Diagnostics" screen (Figure 6.5) is a screen for monitoring and diagnosis where the following parameters are displayed:

#	Stream	IP	Ping	Oversubscription	TS Sync Errors	Clear Errors
1	225.16.70.20	Green	Ping	-	0	
2	225.16.70.20	Green	Ping	-	0	
3	225.16.70.20	Green	Ping	-	0	
4	225.16.70.20	Green	Ping	-	0	
5	172.16.180.75	Red	Ping	Failed	0	
6	172.16.180.76	Red	Ping	-	0	
7	239.16.180.70	Green	Ping	-	0	
8	239.16.180.71	Green	Ping	-	0	

Figure 6.5 - "Main > Diagnostics" Screen

- 1 #: indicates the sequential number of the incoming IP addresses recognized by the unit.
- 2 **Stream:** indicates the incoming IP address (see 1 of Section 6.2.1 for details).
- 3 **IP:** indicates the status of the source IP stream as follows:  
Green = input IP is streaming  
Red = input IP is not streaming
- 4 **Ping:** allows the user to ping the source IP address to verify connection. The column next to the Ping button will display "Passed" or "Failed". This feature is applicable to Unicast streams only and not available for Multicast streams.
- 5 **TS Sync Error:** is a Transport Stream Sync Error counter that increments by one if the 47 hex byte (also known as the sync byte) is not present in the Transport Stream. The error count can be ignored if there are no problems with the video service.

However, if there are problems with the video service, it can be used for diagnostic purposes as follows:

- (i) Clear the counter using the "Clear Errors" button (see 6 of Figure 6.5).
- (ii) Refresh the screen using the "Refresh" tab (see 7 of Figure 6.5), and note the Error count. Refresh again and note the new Error count.
- (iii) A large increment in the Error count indicates that the unit may be experiencing a problem with receiving the source stream.

## 6.6. "Main > Refresh" Screen

---

The "Main > Refresh" tab can be clicked while you are on any of the following sub-tab screens: "Status", "Stream Info" (available only when the unit is operating in MPTS Mode), "QAM Config", "Diagnostics", and "Mode". When clicked, it will update all relevant fields/parameters of the active screen as that information is retrieved from the EQAM-420A in a real-time basis.

### 6.7. "Network" Screen

The "Network" screen (Figure 6.6) is a "read and write" screen where the following parameters are displayed or can be configured:

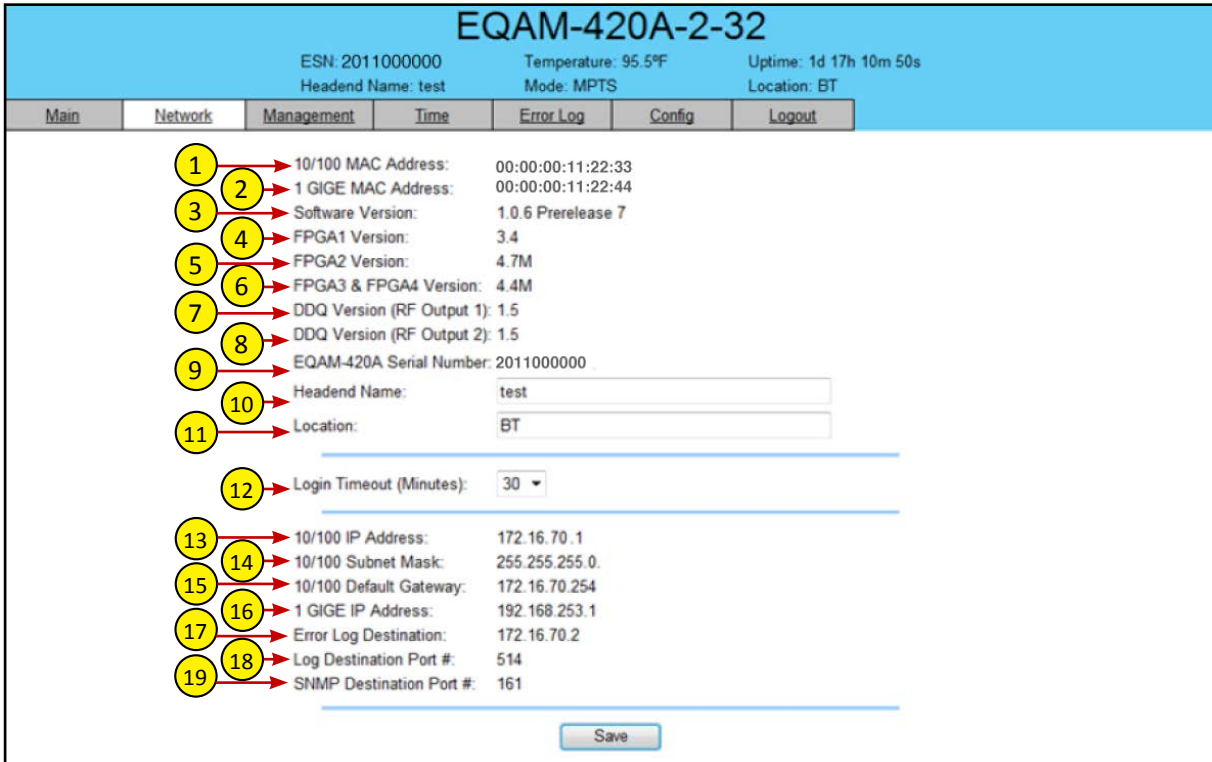


Figure 6.6 - "Network" Screen



- 1 **10/100 MAC Address:** indicates the MAC Address of the “10/100 Control” Port.
- 2 **1 GIGE MAC Address:** indicates the MAC Address of the “1 GigE/DATA” Port.
- 3 **Software Version:** indicates the software version of the unit.
- 4 **FPGA1 Version:** indicates the current hardware version of the unit’s FPGA1 chipset.
- 5 **FPGA2 Version:** indicates the current hardware version of the unit’s FPGA2 chipset.
- 6 **FPGA3 & FPGA4 Version:** indicates the current hardware version of the unit’s FPGA3 &4 chipsets.
- 7 **DDQ Version (RF Output 1):** indicates the current software version of the unit’s Quad-QAM output module #1.
- 8 **DDQ Version (RF Output 2):** indicates the current software version of the unit’s Quad-QAM output module #2.
- 9 **EQAM-420A Serial Number:** indicates the unit’s serial number.
- 10 **Headend Name:** allows user to enter a headend name to make identification easier.
- 11 **Location:** allows user to enter a location name to make identification easier.
- 12 **Login Timeout (Minutes):** indicates the period of time before the unit logs itself out if there is no activity on the web screens. Range is 5, 15, 30, or 60 minutes.



Remember to click on the **SAVE** button to apply the new values/configurations.

- 13 **10/100 IP Address:** see 14 of Section 6.7.1 for details.
- 14 **10/100 Subnet Mask:** see 15 of Section 6.7.1 for details.
- 15 **10/100 Default Gateway:** see 16 of Section 6.7.1 for details.
- 16 **1 GIGE IP Address:** see 17 of Section 6.7.1 for details.
- 17 **Error Log Destination:** see 18 of Section 6.7.1 for details.
- 18 **Log Destination Port:** see 19 of Section 6.7.1 for details.
- 19 **SNMP Destination Port:** see 23 of Section 6.7.1 for details.

### 6.7.1 "Admin.html" Hidden Screen

To change/modify the IP network parameters, as well as the Username and Password values for the unit, you must be logged in to the unit as "Admin" to access a hidden screen shown in Figure 6.6.1 by typing the URL of the unit followed by a forward slash and Admin.html, for example: **http://172.16.70.1/Admin.html**.

## EQAM-420A-2-32

ESN: 2011000000  
Headend Name: test
Temperature: 95.9°F  
Mode: MPTS
Uptime: 1d 20h 13m 52s  
Location: BT

Main	Network	Management	Time	Error Log	Config	Logout
------	---------	------------	------	-----------	--------	--------

10/100 MAC Address: 00:00:00:11:22:33  
 1 GIGE MAC Address: 00:00:00:11:22:44  
 EQAM-420A Serial Number: 2011000000

---

1 Login:

2 Current Password:

3 New Password:

4 Confirm New Password:

5 Guest Login:

6 Current Guest Password:

7 New Guest Password:

8 Confirm Guest Password:

---

9 Database Control:

10 Config File Control:

---

11 Configuration Mode:

---

12 System Watchdog:

13 System Reboot:

---

14 10/100 IP Address:

15 10/100 Subnet Mask:

16 10/100 Default Gateway:

17 1 GIGE IP Address:

18 Error Log Destination:

19 Log Destination Port #:

20 SNMP R/W Community Name:

21 SNMP Read Community Name:

22 SNMP Destination:

23 SNMP Destination Port #:

24 Time Server IP:

---

25 Stuffing Packet Payload Data:

---

26 Syslog Errors:  Enabled  Disabled

27 Syslog Informational:  Enabled  Disabled

28 Syslog Feedback:  Enabled  Disabled

---

Figure 6.6.1 - "Admin.html" Hidden Screen

The following parameters can be modified:

- 1 **Login:** is the Administrator's login (10 characters maximum). This login allows the user to make changes to any area of the unit. The factory default Login is "Admin". Login is case sensitive.
- 2 **Current Password:** is the Administrator's Current Password (10 characters maximum). The factory default password is "pass". Password is case sensitive and will not be displayed.
- 3 **New Password:** used only if the user wants to change the current Administrator's password. Must enter a new password (10 characters maximum). Password is case sensitive and will not be displayed
- 4 **Confirm New Password:** must enter the same password as entered in 3 above. If password entered in 3 & 4 does not match, an error will be displayed.
- 5 **Guest Login:** is the Guest login (10 characters maximum). This login allows the user to view the unit settings but does not allow any changes. The factory default Guest Login is "Guest". Login is case sensitive.
- 6 **Current Guest Password:** is the Current Guest Password (10 characters maximum). The factory default Guest password is "pass". Password is case sensitive and will not be displayed.
- 7 **New Guest Password:** used only if the user wants to change the current Guest password. Must enter a new password (10 characters maximum). Password is case sensitive and will not be displayed.
- 8 **Confirm Guest Password:** must enter the same password as entered in 7 above. If password entered in 7 & 8 does not match, an error will be displayed
- 9 **Database Control:** allows the user to remove all of the IP addresses and stream names that have been previously entered.



**Service will be disrupted if the database is flushed.**

- 10 **Config File Control:** allows the user to remove the Config File (see Section 5.2 and 6.11 for details).
- 11 **Configuration Mode:** allows the user to select one of the following two modes:
  - Manual:** allows the user to make setup/configuration changes from any of the primary/sub tab screens.
  - Automatic:** Prompts EQAM-420A to retrieve the "Config" file (see Sections 5.2 and 6.11 for details) from its memory every 30 minutes and verify its current configuration against the "Config" file. Any mismatch among the two configurations will be automatically updated to the configuration specified in the "Config" file.



**While the unit is operating in Automatic Mode, and if the current Config file is deleted or updated, then the QAM minor channels (see 12 of Section 6.4 for details) will be defaulted to 'zero' and will have to be updated manually using the "QAM Config" Screen (see Section 6.4 for details).**

**NOTE:** To make permanent changes to EQAM-420A's configuration that are different from those currently specified in the "Config" file, follow the steps below:

- Change the Configuration mode to Manual.
- Make desired configuration changes via the primary/sub-tab screens.
- Click on the "Commit Changes to Config File" button to write the recent changes to the "Config" file.
- Change the Configuration mode back to Automatic.



**When utilizing the "Config" file feature, operator must also select an appropriate "Configuration Mode".**

- 12 **System Watchdog:** automatically resets unit's Operating System if or when it is required.
- 13 **System Reboot:** allows the user to reboot EQAM-420A.
- 14 **10/100 IP Address:** is the static IP address that is assigned to the unit. It allows the user to access the unit via the web interface. The factory default IP address is 172.16.70.1.
- 15 **10/100 Subnet Mask:** is the Subnet Mask address of the unit. It allows the user to access the unit from another network via the web interface. The factory default Subnet Mask is 255.255.255.0.
- 16 **10/100 Default Gateway:** is the gateway address of unit. It allows the user to access the unit from another network via the web interface. The factory default Subnet Mask is 172.16.70.254.
- 17 **1 GIGE IP Address:** is the static IP address assigned to the Gigabit Ethernet (GigE) port. The factory default value is 192.168.253.1.



Make sure the IP address assigned to 10/100 IP Address and 1 GigE IP Address (see 15 & 17 above) are in different network address ranges or sub-networks.

Example: If the 10/100 IP Address = 172.16.70.100,  
10/100 Subnet Mask = 255.255.255.0, and  
1 GigE IP Address = 172.16.70.110,

then you will not be able to communicate with the unit as the 10/100 Remote Control and Data (1 GigE) ports (see 4 & 1 of Section 2.2 for details) belong to the same subnet.

Therefore, assign 1 GigE IP Address = 192.168.253.1 or 172.16.100.98 to ensure that the 10/100 Remote Control and Data (1 GigE) ports belong to different address ranges (when using 192.168.253.1) or subnets (when using 172.16.100.98).

- 18 **Error Log Destination:** is the IP address of the remote server, to which Syslog sends the activities recorded by EQAM-420A for monitoring and troubleshooting purposes. The factory default value is 172.16.70.2.
- 19 **Log Destination Port #:** is the Error Log Destination port to which a duplicate of the error messages created by the unit can be forwarded for monitoring and troubleshooting purposes. The factory default and recommended value is 514.
- 20 **SNMP R/W Community Name:** is the password for the read/write SNMP communication that allows operator to view and edit "get" or "set" parameters of the EQAM-420A. The factory default value is "pass".
- 21 **SNMP Read Community Name:** is the password for the read-only SNMP communication that allows operator to view the "get" parameter of the EQAM-420A. The factory default value is "pass".
- 22 **SNMP Destination:** This is the IP address for the SNMP server. The factory default value is 172.16.70.2.
- 23 **SNMP Destination Port #:** is the SNMP destination Port from which the operator can monitor different parameters of the EQAM-420A unit when used in conjunction with an SNMP server. The factory default value, which cannot be modified, and industry standard is 161.
- 24 **Time Server IP:** is the IP address for the Time Server from where the unit can obtain its clock reference (see Section 6.9 for details). The factory default value is 172.16.70.2.
- 25 **Stuffing Packet Payload Data:** is the number of bits of null packets that can be inserted in the data. The range is 00 to FF.
- 26 **Syslog Errors:** is to enable/disable EQAM-420A to forward error messages (in red font) to an SNMP syslog. The factory default value is disabled.
- 27 **Syslog Informational:** is to enable/disable EQAM-420A to forward information messages (in blue font) to an SNMP syslog. The factory default value is disabled.
- 28 **Syslog Feedback:** is to enable/disable EQAM-420A to forward feedback or confirmation messages (in green font) to an SNMP syslog. The factory default value is disabled.



Remember to click on the **SAVE** button to apply the new values/configurations.

## 6.8 "Management" Screen

The "Management" screen (Figure 6.7) is a "read and write" screen consisting of two sub-tab screens where the following parameters are displayed or can be configured:

The screenshot shows the EQAM-420A-2-32 Management screen. At the top, it displays the device ID, ESN (2011000000), Temperature (96.0°F), Uptime (1d 17h 29m 8s), Headend Name (test), Mode (MPTS), and Location (BT). Below this is a navigation menu with tabs for Main, Network, Management, Time, Error Log, Config, and Logout. The Management tab is active, showing a sub-tab for SNMP Trap and a Refresh button. The main content area contains a table with three rows, each representing a different trap type. The first row is QAM Lock, the second is Temperature, and the third is Error Log. Each row has a Control column with radio buttons for Enabled and Disabled, and a Status column showing OK. A Save button is located at the bottom of the table.

Trap	Control	Status
1 QAM Lock	<input type="radio"/> Enabled <input type="radio"/> Disabled	OK
2 Temperature	<input type="radio"/> Enabled <input type="radio"/> Disabled	OK
3 Error Log	<input type="radio"/> Enabled <input type="radio"/> Disabled	OK

Figure 6.7 - "Management" Screen

- 1 **SNMP Trap > QAM Lock:** monitors the combined QAM output of the EQAM-420A and, if enabled, forwards any relevant error messages to the SNMP server as configured in the "Admin.html" Hidden Screen (see 22 & 23 of Section 6.7.1 for details).
- 2 **SNMP Trap > Temperature:** monitors the internal temperature of the EQAM-420A and, if enabled and when the internal temperature of the unit exceeds 140°F, forwards any relevant error messages to the SNMP server as configured in the "Admin.html" Hidden Screen (see 22 & 23 of Section 6.7.1 for details).
- 3 **SNMP Trap > Error Log:** monitors the Error Log of the EQAM-420A and, if enabled, forwards any relevant error messages to the SNMP server as configured in the "Admin.html" Hidden Screen (see 22 & 23 of Section 6.7.1 for details).



Remember to click on the SAVE button to apply the new values/configurations.

## 6.9 "Time" Screen

The "Time" screen (Figure 6.8) allows you to set the current date and time for the EQAM-420A. To remain compliant with ATSC and cable standards, it is important to have the accurate date and time stamps. For this reason, it is recommended to use the "Automatic" option which allows the unit to automatically acquire time settings from a "Time Server" - you must enter the IP address of the time server (see 24 of Section 6.7.1 for details). The time server specified must support the Network Time Protocol (NTP) in order for automatic time acquisition to work properly. The unit would refresh the date and time settings from the Time server every 20 minutes. If, however, an internet connection is not available, the date and time can be entered manually. The unit is capable of adjusting the Day Light Saving (DST) time settings automatically, provided the "Automatically Adjust for Daylight Savings Time" in Figure 6.8 is selected "Yes".

EQAM-420A-2-32						
ESN: 2011000000		Temperature: 96.1°F		Uptime: 1d 17h 30m 31s		
Headend Name: test		Mode: MPTS		Location: BT		
Main	Network	Management	Time	Error Log	Config	Logout
Current System Time				Fri May 4 08:54:29 2012		
Current Date (mm/dd/yyyy)				1 / 1 / 2012		
Current Time (24hr)				: : :		
Configuration Method				<input checked="" type="radio"/> Manual <input type="radio"/> Automatic		
Automatically Adjust for Daylight Savings Time				<input type="radio"/> Yes <input checked="" type="radio"/> No		
DST Start Date (mm/dd/yyyy)				3 / 10 / 2012		
DST Start Time				2:00		
DST End Date (mm/dd/yyyy)				11 / 3 / 2012		
DST End Time				2:00		
				<input type="button" value="Refresh"/> <input type="button" value="Save"/>		

Figure 6.8 - "Time" Screen

## 6.10 "Error Log" Screen

The "Error Log" screen (Figure 6.9) is a "read and write" screen where the following parameters can be displayed or configured. The data in Error Log can be forwarded to a SysLog database – (see 26, 27, & 28 of section 6.7.1 for details). The lines are color coded as follows:

Red font = error message

Blue font = information message

Green font = confirmation or feedback message

Figure 6.9 - "Error Log" Screen

- 1 **Error Log Destination:** see 18 of Section 6.7.1 for details.
- 2 **Log Destination Port:** see 19 of Section 6.7.1 for details.
- 3 **SNMP Destination Port:** see 23 of Section 6.7.1 for details.
- 4 **Clear Log:** allows the user to clear the records generated during unit's boot-up process and operation afterward. The records are cleared if the unit loses power.
- 5 **Lines to Display:** allows the user to select the number of lines to be displayed. The unit supports up to 400 Mb of data or approximately 65,000 lines. The range is 1 to 65,535.
- 6 **Save Number of Displayed Lines:** allows the user to save the error log on the screen. Please note that the error log would be saved only on the screen and not on any database.

## 6.11 "Config" Screen

The "Config" screen (Figure 6.10.1) allows the user to browse, select, and download/update the "Config" file.

EQAM-420A-2-32						
ESN: 2011000000		Temperature: 95.8°F		Uptime: 1d 17h 33m 10s		
Headend Name: test		Mode: MPTS		Location: BT		
Main	Network	Management	Time	Error Log	Config	Logout
Select Configuration File: <input type="text"/> <input type="button" value="Browse..."/> <input type="button" value="Submit"/>						
Download Configuration File: Right-click and choose "Save-as"... <a href="#">Config File</a>						

Figure 6.10.1 - "Config" Screen



When utilizing the "Config" file feature, operator must also select an appropriate "Configuration Mode" (see Section 6.7.1 for details).

"Config" File allows the user to automatically assign an incoming stream to a virtual RF channel number. To create a "Config" file, the following two requirements must be met and followed:

**Requirement #1:** The "Config" file must contain as many lines as the number of virtual RF channels that the EQAM-420A is equipped for. For example,

(i) EQAM-420A equipped with one Quad-QAM RF module

**Operating in SPTS Mode:** "Config" file must contain 16 lines regardless of the actual number of active incoming streams or outgoing QAM channels.

**Operating in MPTS Mode:** "Config" file must contain 4 lines regardless of the actual number of active incoming streams or outgoing QAM channels.

(ii) EQAM-420A equipped with two Quad-QAM RF modules

**Operating in SPTS Mode:** "Config" file must contain 32 lines regardless of the actual number of active incoming streams or outgoing QAM channels.

**Operating in MPTS Mode:** "Config" file must contain 8 lines regardless of the actual number of active incoming streams or outgoing QAM channels.

**Requirement #2:** The syntax that MUST be followed to create the "Config" file is X,Y,Z,A,B where,

X = the protocol of the incoming stream. 0 indicates UDP; 1 indicates RTP.

Y = IP address of the incoming stream. Multicast addresses must be from 224.0.0.0 to 239.255.255.255. All other IP addresses will be considered Unicast by the EQAM-420A.

Z = the port number of the incoming stream.

A = the name of the incoming stream, not to exceed 10 alpha-numeric characters.

B = the virtual RF channel number at which the TV must be tuned to display the incoming stream.



For example, referring to Figure 6.10.2 which depicts a typical "Config" file created in Notepad format:

- The first line indicates that the incoming stream is (i) in UDP format, (ii) received from IP address 239.16.180.50, (iii) on port 50000, (iv) will be entitled prog1, and (v) can be viewed on virtual RF channel number 50-1.
- The fourth line indicates that the incoming stream is (i) in RTP format, (ii) received from IP address 239.16.180.53, (iii) on port 50000, (iv) will be entitled prog4, and (v) can be viewed on virtual RF channel number 50-4.
- The 26th line indicates that there is no incoming stream (IP address is 0.0.0.0, and the port number is 0), but the entry is required because of the Requirement #1 described above.

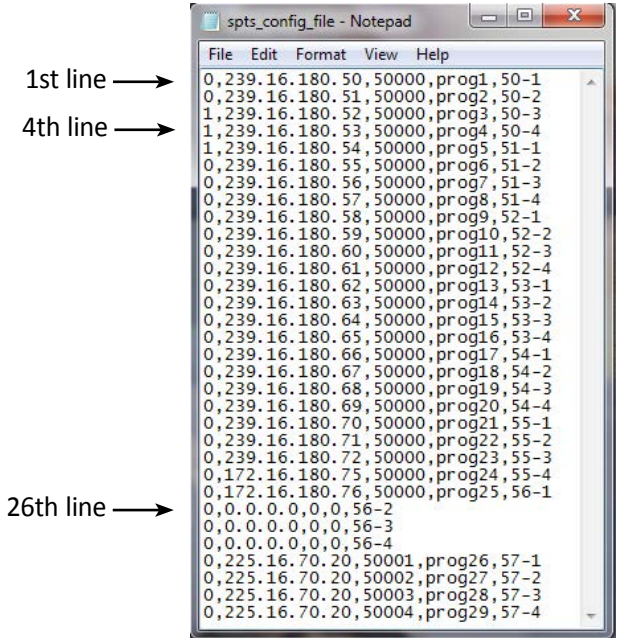


Figure 6.10.2 - "STPS Config" File

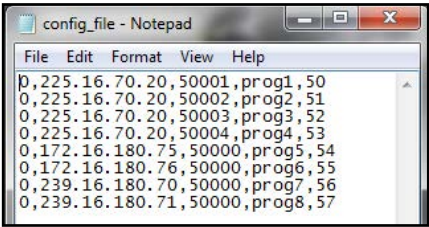


Figure 6.10.3 - "MPTS Config" File



When EQAM-420A is operating in "Automatic" Configuration Mode (see 11 of Section 6.7.1 for details), the user must update the respective config file while switching between the SPTS and MPTS modes.

## Appendix A: Updating the Software Remotely

### General background:

There are two different PROMs that need to be programmed in EQAM-420A. They are called PROM1 and PROM2. Please note not every software update requires both PROMs to be programmed. However, program both PROMs unless you get a written notice with Release notes to do otherwise.

The total procedure takes about 10 minutes if you follow the steps below.

Step 1: FTP two files from your PC to EQAM-420A.

Step 2: a) Update PROM1 with the specific command line.

b) Update PROM2 with the specific command line.

### Step 1 : FTP two Files to EQAM-420A:

FTP both files (EPCS\_1\_ver#.bin and EPCS\_2\_ver#.bin) into the EQAM-420A server board (there are many ways to do this).

- NOTE:**
- a) The EPCS\_1\_ver#.bin is to program PROM1 and EPCS\_2\_ver#.bin is to program PROM2.
  - b) All the commands are case sensitive
  - c) It is recommended to copy the EPCS\_1\_ver#.bin and EPCS\_2\_ver#.bin files in the root directory. i.e, My Computer > C:

From a command (DOS) prompt (you must be in the same folder as the EPCS files) enter:

**ftp -A 172.16.70.1**

At the FTP prompt enter the following commands:

{Please ensure that you have entered the "bin" command to confirm that you are FTPing the files as binary files.}

**bin**

**put EPCS\_1\_ver#.bin**

**put EPCS\_2\_ver#.bin**

**bye**

The above four commands may be automated by entering them in an ASCII text file (called ftpcmd, recommended but can be any name) and executing the following:

**ftp -A -s:ftpcmd 172.16.70.1**

You can place the ftp command above in a batch file (.bat) then double click on the .bat file to perform the entire download process.

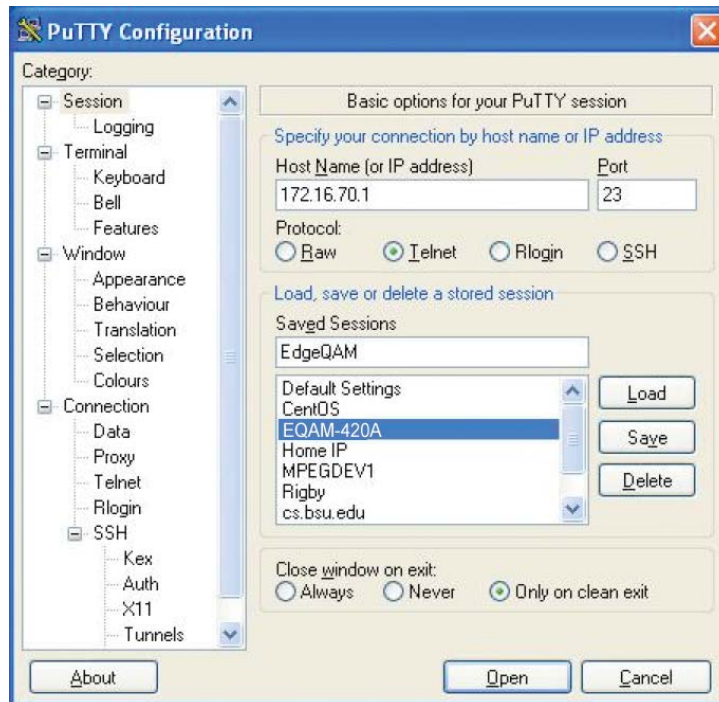
### Telnet to EQAM-420A:

There are two ways to telnet to the EQAM-420A:

- (1) Use Command line and type in “telnet IP address “ for example “telnet 172.16.70.1”
- (2) Use the Terminal program such as Putty to telnet.

Use a terminal program such as Putty to telnet into the server board (can use Linux, DOS prompt, Putty, etc)

You can save your configurations so it’s very quick and easy to telnet into the board again.



**Figure 6.11**

After you telnet into the server board you must login into the unit with the following credentials:

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

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

Then cd to the /home/ftp directory where the EPCS\_x.bin files have been placed.

```
cd home/ftp
```

```
ls
```

**Step 2: Update PROM1 and/or PROM2:**

Now you can use the field update utility (epcs) to program the EPCS PROMs. This is a custom utility that resides in EQAM-420A.



Care should be taken at this time, if miss spelled characters or letters are typed by accident, or you have missed to type the bin command in Step 1, this could cause the EQAM-420A Flash memory to be corrupted and the unit needs to be sent back to Blonder Tongue for repair.

Ready: Please read the rest of this page once before typing the commands.

Update FPGA1 by programming EPCS1:

**epcs -e1 EPCS\_1\_ver#.bin**

Update FPGA2 by programming EPCS2: (if necessary)

**epcs -e2 EPCS\_2\_ver#.bin**

**NOTE:** Both EPCS PROMS can be programmed concurrently using two different terminal sessions (logins). If you get errors during programming then **DO NOT TURN OFF THE EQAM-420A**, just repeat the epcs commands again.

The server board should now configure itself on power-up.

Two choices to reset the EQAM-420A:

(1) Reset switch in the back of the unit.

(2) Use Telnet and type "epcs -c" this will automatically reboot the EQAM-420A without a need for resetting with power switch.

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To obtain service under this warranty, the defective product, together with a copy of the sales receipt or other satisfactory proof of purchase and a brief description of the defect, must be shipped freight prepaid to: Blonder Tongue Laboratories, Inc., One Jake Brown Road, Old Bridge, New Jersey 08857.

This warranty does not cover damage resulting from (i) use or installation other than in strict accordance with manufacturer's written instructions, (ii) disassembly or repair by someone other than the manufacturer or a manufacturer-authorized repair center, (iii) misuse, misapplication or abuse, (iv) alteration, (v) lack of reasonable care or (vi) wind, ice, snow, rain, lightning, or any other weather conditions or acts of God.

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