YUV2QAM

Dual Channel High Definition Encoder
with Integrated QAM Modulator

USER GUIDE

ADTEC Digital
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Table of Contents

Table of Contents

Chapter 1 - Overview

Product Introduction

The YUV2QAM is a dual-channel, high- and standard-definition MPEG 2 Broadcast Distribution Encoder with QAM modulation and RF up-conversion built in. Its primary application is for use with clear QAM distribution to ATSC televisions. The YUV2QAM automatically detects video and audio, encodes, multiplexes and generates program information (PSIP); then modulates and up-converts two channels for distribution via coax. Closed captioning and support for Emergency Alert (EAS) are standard.

Applications

Applications include private cable, hospitality, medical, education and cable television systems.

Manual/Firmware Version

This manual corresponds to version **1.01.00** of the YUV2QAM firmware.

Disclaimers and Notices

Trademarks:

YUV2QAM is a trademark of Adtec Digital. Dolby and the double-D symbol are registered trademarks of Dolby Laboratories. Other product and company names may be trademarks or registered trademarks of their respective companies.

The information in this document is subject to change without notice.

Operations and Applications

Features

High and Standard Definition Dual Encoding: The YUV2QAM automatically detects two channels of video and audio via component inputs, then encodes and multiplexes the signal into a multiple program transport stream with either DVB or ATSC table compliance.

Automatic video detection: Video rates are automatically adjusted based on component video input resolution, audio passthrough or encode and QAM modulation target.

QAM modulation and RF up-conversion: For cable television applications, the unit modulates the signal using QAM Annex A or B.

Non-RF Outputs: YUV2QAM supports GigE and ASI outputs.

ASI Output: ASI (75 Ohm source per EN500083-9).

GigE output: MPEG2 IP Transport via UDP, RTP, or SMPTE 2022 FEC Multicast/Unicast Egress.

Program Information: The YUV2QAM is compliant with the ATSC A69 Program and System Information Protocol (PSIP).

Closed captioning and EAS: Support for closed captioning and Emergency Alert (EAS) is standard.

Flexible Operation: Configuring, controlling and monitoring the YUV2QAM is easy, using the integrated front-panel keypad with LCD display, and the on-board, browser-based control application.

Applications

- ATSC Distribution
- DVB Distribution
- Private Cable
- Hospitality
- Medical
- Education
- Cable Television MSOs

Chapter 2 - Getting Started

Installation Instructions

Safety Warnings and Cautions

For your safety and the proper operation of the device:

- This unit must be installed and serviced by suitably qualified personnel only.
- Disconnect all power before servicing the unit.
- Do not expose this device to rain or other moisture. Clean only with a dry cloth.
- If not installed in an equipment rack, install the product securely on a stable surface.
- Install the product in a protected location where no on can step or trip over the supply cord, and where the supply cord will not be damaged.
- If a system is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than the room ambient temperature.
- Consideration should be given to installing the unit in an environment compatible with the maximum recommended ambient temperature of 50 degrees Celcius (122 degrees Fahrenheit).
- Install the unit in a rack so that the amount of airflow required for safe operation is not compromised.
    - ♦ The recommended clearance on the top and sides of the unit is at least ½ “ (one half inch/one centimeter).
- Mounting of the unit in a rack should be such that no hazardous condition is achieved due to uneven mechanical loading.
- Use only a grounded electrical outlet when connecting the unit to a power source.
- Reliable earth grounding of rack-mount equipment should be maintained.
    - ♦ Particular attention should be given to supply connection other than direct connections to the branch circuit (e.g., use of power strips).

Lithium Battery Safety Statement

⚠ Lithium Battery Safety Statement ⚠
Caution: Lithium battery inside. Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by battery manufacturer. (US)
Attention: Contient une pile de lithium. Risque d'explosion dans le cas où la pile ne serait pas correctement remplacée. Remplacer uniquement avec une pile semblable ou equivalente au type de pile recommandé par le fabricant. (FR)
Forsigtig: Indeholder lithiumbattterier. Risiko for eksplosion, hvis batteriet udskiftes forkert. Må kun udskiftes med samme eller tilsvarende type, som anbefalet af fabikanten. (DK)
Varoitus: Tämä tuote käyttää laservaloa. Skannerissa on jokin seuraavista tarroista. Lue Huomio-kohta. (FI)
Vorsicht: Enthält Lithium-Batterie. Bei unsachgemäßem Ersatz besteht Explosionsgefahr. Nur durch gleichen oder vom Hersteller empfohlenen Typ ersetzen. (DE)
Attenzione: Batteria al litio. Pericolo di esplosione qualora la batteria venga sostituita in maniera scorretta. Sostituire solo con lo stesso tipo o equivalente consigliato per il fabbricante. (IT)
Atenção: Contém pilha de lítio. Há perigo de explosão no caso de uma substituição incorreta. Substitua somente pelo mesmo tipo, ou equivalente, recomendado pelo fabricante. (PT)
Varning: Innehåller litiumbatteri. Fara för explosion om batteriet är felaktigt placerat eller av fel typ. Använd endast samma eller motsvarande typ batterier rekommenderade av tillverkaren. (SE)
Advarsel: Innmontert Lithium batteri. Eksplosjonsfare ved feil montering av batteri. Benytt kun batteri anbefalt av produsent. (NO)

Cuidado:
Pila de litio adentro. Peligro de explosión si la pila se reemplaza incorrectamente. Reemplace solamente con el mismo tipo o equivalente recomendado por el fabricante. (ES)

Oppassen:
Bevat Lithium-batterij. Incorrrecte plaatsing van batterij kan leiden tot explosiegevaar. Alleen vervangen door hetzelfde of door fabrikant aanbevolen gelijkwaardig type. (NL)

Προσοχή: Υπάρχει μπαταρία από λίθιο εσωτερικά. Υπάρχει κίνδυνος έκρηξης εάν η μπαταρία αντικατασταθεί με λανθασμένο τρόπο. Αντικαταστήστε μόνο με τον ίδιο ή ισοδύναμο τύπο που συνιστάται από τον κατασκευαστή. (GR)	경고: 본 제품은 레이저 광선을 사용합니다. 다음 라벨 중 하나가 스캐너에 제공됩니다. 주의 사항을 읽어 주십시오. (KR)
警告: この製品はレーザー光線を使用します。次のラベルのうち1つがスキャナーに貼られています。 注意事項をお読みください。(JP)	**Dikkat:** İçinde lityum bataryası bulunur. Bataryanýn yanlýþ deðiþtirilmesi patlama tehlikesi yaratýr. Aynýsýyla veya üreticinin önerdiði eþdeðer tiple deðiþtirin. (TR)
警告: 本产品使用激光。 下列一个标签将随扫描仪一道提供。 请阅读“当心”一栏的内容。(CN)	

Legend:

Chinese	CN	Italian	IT
Danish	DK	Japanese	JP
Dutch	NL	Korean	KR
English	US	Norwegian	NO

Compliance Notices

FCC:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications to this device not expressly approved by Adtec Digital could void the user’s authority to operate the equipment.

Industry Canada:

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Operation is subject to the following two conditions:(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

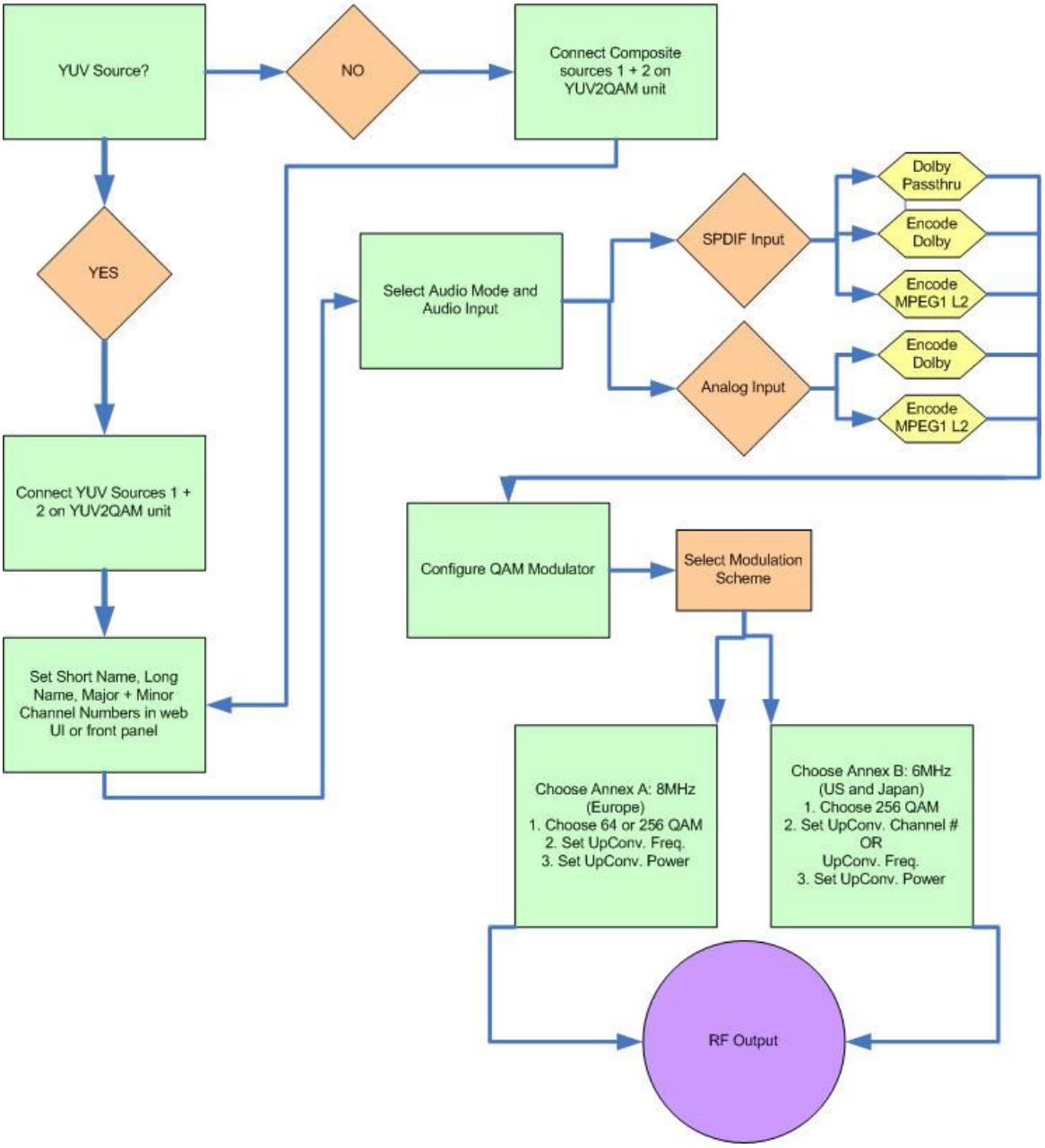
Cet appareillage numérique de la classe B répond à toutes les exigences de l'interférence canadienne causant des règlements d'équipement. L'opération est sujette aux deux conditions suivantes: (1) ce dispositif peut ne pas causer l'interférence nocive, et (2) ce dispositif doit accepter n'importe quelle interférence reçue, y compris l'interférence qui peut causer l'opération peu désirée.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Adtec Digital cannot accept responsibility for any failure to satisfy the protection requirements resulting from a user modification of the product. This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22 / EN 55022.

General Use Diagram

This flowchart illustrates the basic integration and operation of the YUV2QAM unit:



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Front Panel

The Function Buttons and Directional Keypad of the YUV2QAM are used to configure and monitor the signal input and output of the device.

Panel Diagram

Controls and Indicators

Channel 1 & 2 Status Indicator LEDs

Indicator	Function
Encode	**Not Lit** - no activity **Green**- encoding **Yellow**- transitioning
Video	**Not Lit** - no video (audio only) **Green**- video present **Yellow**- Format Not Supported **Red**- No Video Present
SD	**Green**- SD Resolution Detected
HD	**Green**- 1080i Resolution Detected **Yellow**- 720p Resolution Detected
EAS	**Green**- indicates EAS is enabled

QAM Status Indicator LEDs

Indicator	Function
A/B/C	A = 8 MHz B = 6 MHz
256	Default for Annex B, can be selected for Annex A
128	not currently used
64	can be selected for Annex A only, at this time

System/Function Status Indicator LEDs

Indicator	Function
Power	**Green:** Power is on. **Off:** Power is off
Alarm	**Off:** no alarm **Yellow:** minor alarm **Red:** major alarm
Link	**Off:** no link detected **Green:** link active
Busy	**Off:** no traffic **Green Flashing:** traffic
EAS	**Green:** Active, Audio + Video **Yellow:** Active, audio only

LCD Display

- Displays Status Snapshot; when Programming Function Buttons are used, shows Menus and available options and data fields.

Programming Function Buttons

Control	Function
Mode	Cycles through the available menus
Select	selects a menu or sub-menu
Enter	enter a value placed into a menu field
Escape	return one level within a menu or to the main menu

Directional Keypad

- Arrow keys control the cursor on the LCD display and are used to page through the options in a menu/sub-menu and to place entries in fields.

Unit Security

Rules:

- The YUV2QAM is always logged in on startup.
- If the device has logged out due to accident, or a login duration timer being set (see below), you will need to log back in.

To log in from a logged-out status:

Step	Action
1	Press **<Select>**
2	Press **<Up>** arrow
3	Press **<Select>**
4	Press **<Enter>**
5	Press **<Right>** arrow
6	Press **<Enter>**

The front panel also has a login duration capability. This setting allows you to specify a time frame in which the unit will automatically log itself out if it receives no control inputs via the front panel or API session.

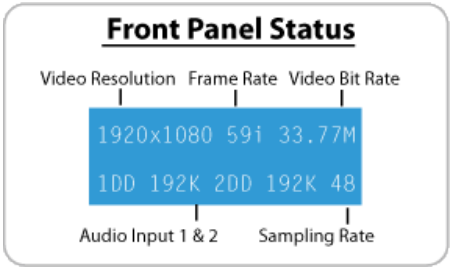
To set the duration:

Step	Action
1	Press **<Mode>** until you see the System Menu.
2	Press **<Select>.**
3	Press the **<Down>** arrow.
4	Press **<Select>.**
5	Using the **<Up>** and **<Down>** arrows, select the value you wish.
6	Press **<Enter>** to save your selection.

Possible Values:
0 (Zero): The unit will not auto-log-out **1-9:** The number of minutes until log out if no input is received.

LCD Status Display

The default top view on the LCD reads "System Banner", followed by the unit's firmware version. To view a status message similar to the following image, press the **<Down>** arrow key once for Channel One, and twice for Channel Two.



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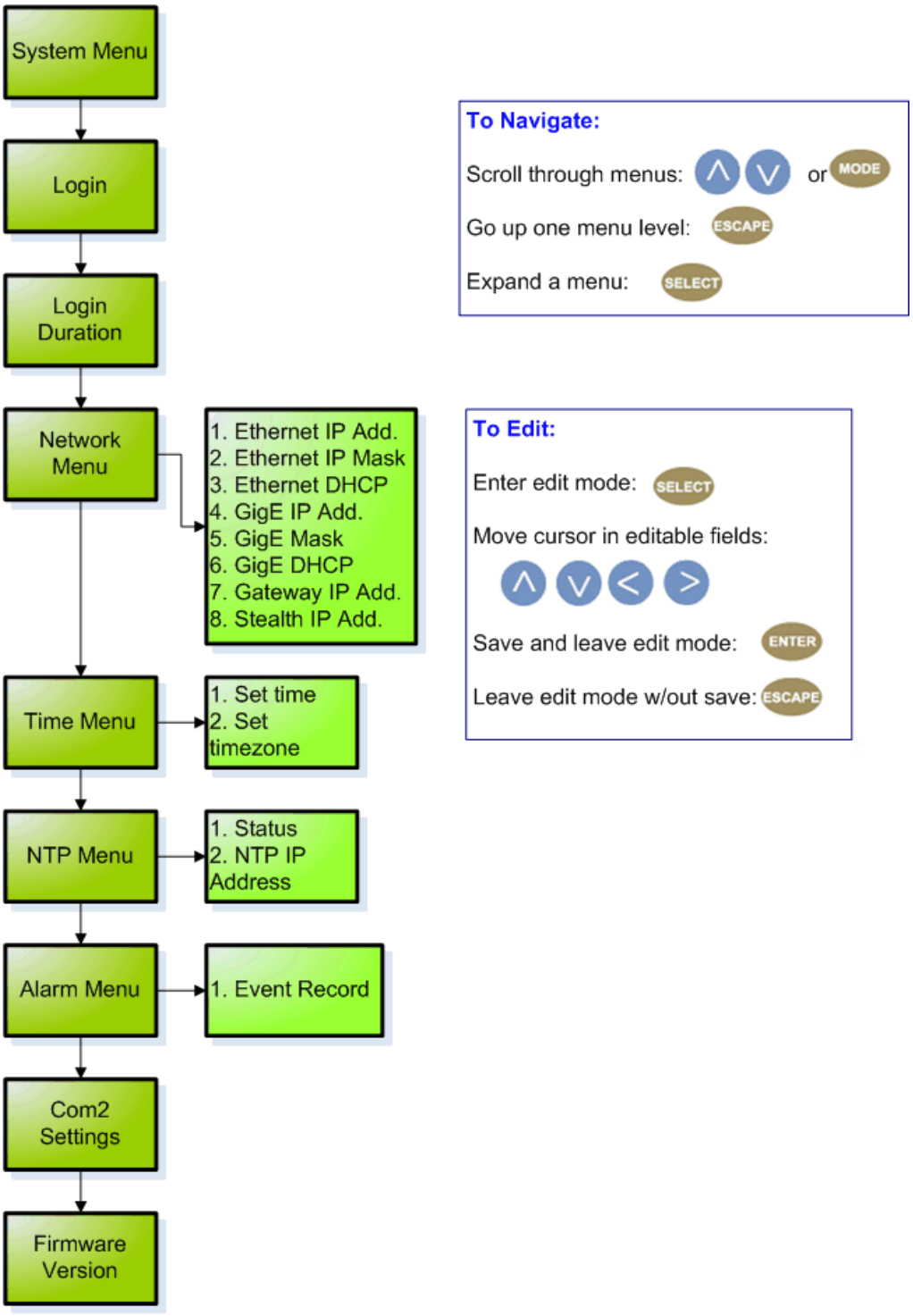
System Menu

The following diagram illustrates the structure and flow of the **System Menu** on the Adtec YUV2QAM device:



Network Sub-menu

Item	Function	Options	API Command
Ethernet IP Address	IP address of unit on your network	user-defined using **<left/right arrow>** and **<select>** buttons default is 192.168.10.48	*.sysd IPA
Ethernet Mask	Defines the unit relative to the rest of your network	user-defined using **<left/right arrow>** and **<select>** buttons default is 255.255.255.0	*.sysd IPM
Ethernet DHCP	Dynamic Host Configuration Protocol; allows the device to self-locate network Ethernet parameters	**On** (finds own DHCP Address) **Off** (defaults to last entered IP Address) default is OFF	*.sysd DHCP
GigE IP Address	route of traffic in/out on IPTV	user-defined using **<left/right arrow>** and **<select>** buttons default is 192.168.20.48	*.sysd IPA eth1
GigE Mask	defines unit relative to the rest of an IPTV network	user-defined using **<left/right arrow>** and **<select>** buttons default is 255.255.255.0	*.sysd IPM eth1
GigE DHCP	Dynamic Host Configuration Protocol; allows mediaHub to self-locate network GigE parameters	**On** (finds own DHCP Address) **Off** (defaults to last entered IP Address) default is OFF	*.sysd DHCP eth1
Gateway IP Address	traffic director for off-LAN resources	user-defined using **<left/right arrow>** and **<select>** buttons default is 192.168.10.1	*.sysd GIP
Stealth IP Address	security feature that allows only the designated Stealth IP Address to communicate with the unit for FTP and other services. This control allows one-point override access to the Stealth IP Address.	user-defined using **<left/right arrow>** and **<select>** buttons	*.sysd SIP

Time Menu

Item	Function	Options	Adtec API Commands
Time	specifies system time	user-defined using **<left/right arrow>** and **<select>** buttons	*.sysd TIM
Timezone	specifies time zone unit operates in	user-defined using **<left/right arrow>** and **<select>** buttons	*.sysd TIZ

NTP Menu

Item	Function	Options	Adtec API Commands
NTP Status	Network Transfer Protocol	Defines whether or not your unit is in sync with the designated NTP server	*.sysd NIP STATUS
NTP IP Address	IP address for Network Transfer Protocol server	user-defined using **<left/right arrow>** and **<select>** buttons; default = 048.130.103.064	*.sysd NIP

Alarm Menu

Item	Function	Options
Event Record	Log of events outside of operating parameters	scroll up and down to view log items

Com2 Menu

Item	Function	Options	Adtec API Commands
Com2 Settings	RS-232 terminal monitor for communicating with the internal host motherboard for diagnostics	115200 8 1 NONE 57600 8 1 NONE 38400 8 1 NONE 19200 8 1 NONE 9600 8 1 NONE default is 38400 8 1 None	*.sysd com2

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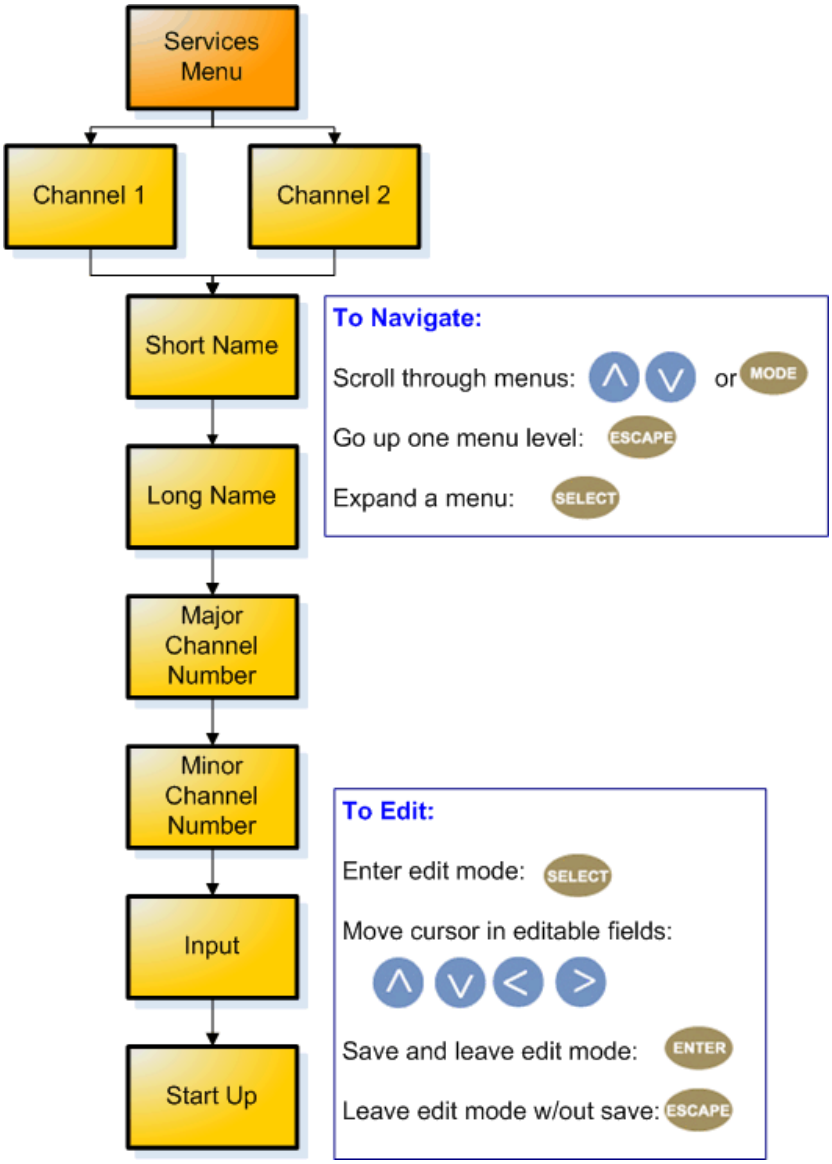
Services Menu

The following diagram illustrates the structure and flow of the **Services Menu** on the Adtec YUV2QAM device:



Controls

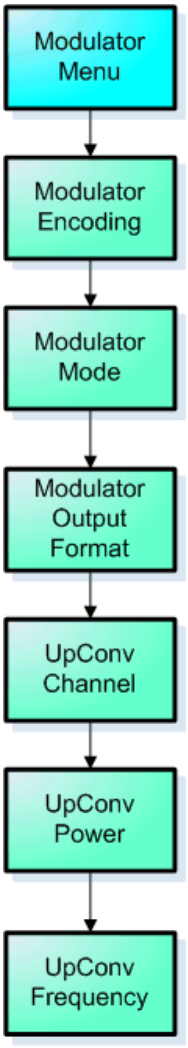
Control	Function	Options	API Command
Short Name	also known as Service Name; name of the program or event, carried in the SDT table of a transport stream	text field; 20-character limit (incl. spaces)	*.ECMD# SNA
Long Name	also known as Service Provider; name of the party offering the program or event, carried in the SDT table of a transport stream	text field; 20-character limit (incl. spaces)	*.ECMD# SPR
Major Channel Number	sets major channel number for ATSC	text field; 0-999 available see note below table	*.ECMD# MAJ
Minor Channel Number	sets minor channel number for ATSC	text field; 0-999 available	*.ECMD# MIN
Input	selects input type	YUV Composite	*.ECMD# INP
Start Up	control sets the unit to begin encoding on start up, rather than wait for the setting of the Status control	On Off	*.ECMD# STU

The same options are available for both Channels 1 and 2.

Important: setting the Major Channel Number to zero (0) will equate to setting a single-part channel number.

Modulator Menu

The following diagram illustrates the structure and flow of the **QAM/RF Modulator** on the Adtec YUV2QAM device:



To Navigate:

Scroll through menus: ^ v or MODE

Go up one menu level: ESCAPE

Expand a menu: SELECT

To Edit:

Enter edit mode: SELECT

Move cursor in editable fields: ^ v < >

Save and leave edit mode: ENTER

Leave edit mode w/out save: ESCAPE

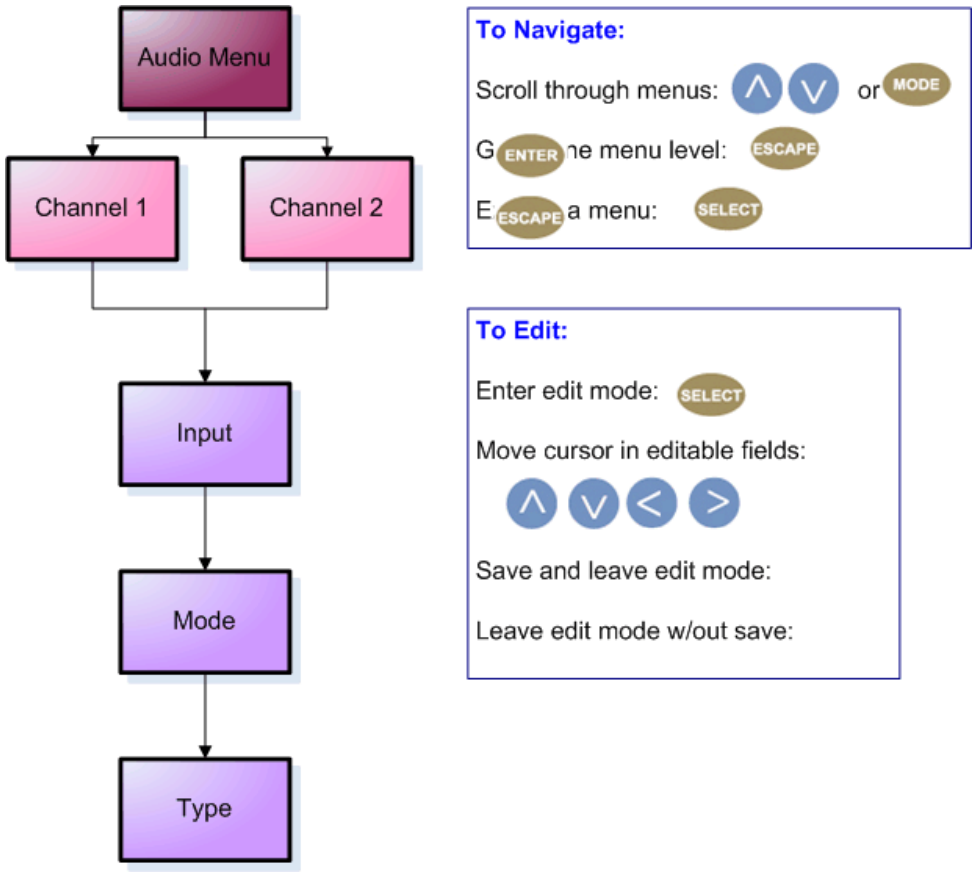
Controls

Control	Function	Options	API Command
Modulator Encoding	encoding standards being applied. Annex A is used world-wide; Annex B is used in North America.	Annex A Annex B	*.ECMD# QAM MOD_ENCODING
Modulator Mode	rate of data transfer within the encode	64 256	*.ECMD# QAM MOD_MODE
Modulator Output Format	selects between normal and inverted output	Normal Inverted	*.ECMD# QAM MOD_INVERT
UpConversion Channel	Congruent with the new EIA (North America) channel plan - valid range is 2 through 135 inclusive.	text field; values are 2-133	*.ECMD# QAM UPCON_CHANNEL_NUM
UpConversion Power	RF output power in dBmV	45 dBmv to 61 dBmv	*.ECMD# QAM UPCON_POWER_LVL
UpConversion Frequency	Center frequency of the QAM RF output. Direct entry of center frequency corresponding to the new EIA (North America) channel plan will return a valid channel number in the channel field. Entering frequencies that do not correspond to the EIA (North Ameica) channel plan will return a value of (-1) in the channel field, however, the RF output frequency will be as entered. Valid range of frequencies is 50 to 862MHz inclusive.	50 to 862 MHz	*.ECMD# QAM UPCON_OUTPUT_FREQ

Note: If using API Commands, you must specify which encoder the command applies to by substituting '0' (for Encoder 1) or '1' (for Encoder 2) in place of the '#' symbol in the commands above. For more information, see the "API Commands" article in this manual. QAM Configurations are global configurations that will automatically be applied when configuration is sent to either encoder.

Audio Menu

The following diagram illustrates the structure and flow of the **Audio Menu** on the Adtec YUV2QAM device:



Controls

Control	Function	Options	API Command
Input	determines type of audio input being received	SPDIF Analog	*.ECMD# AIN
Mode	determines if unit is encoding PCM audio into MPEG audio	Encode = [0] Passthru = [1] Off = [2]	*.ECMD# AMO SEE AMO in API documentation
Type	selects if audio is being encoded or passed through unaltered	MusicCam = [2] Dolby Digital = [0]	*. ECMD# AMO SEE AMO in API documentation

The same menu options are available for both Channel 1 and Channel 2.

Note: If using API Commands, you must specify which encoder the command applies to by substituting '0' (for Encoder 1) or '1' (for Encoder 2) in place of the '#' symbol in the commands above. For more information, see the "API Commands" article in this manual.

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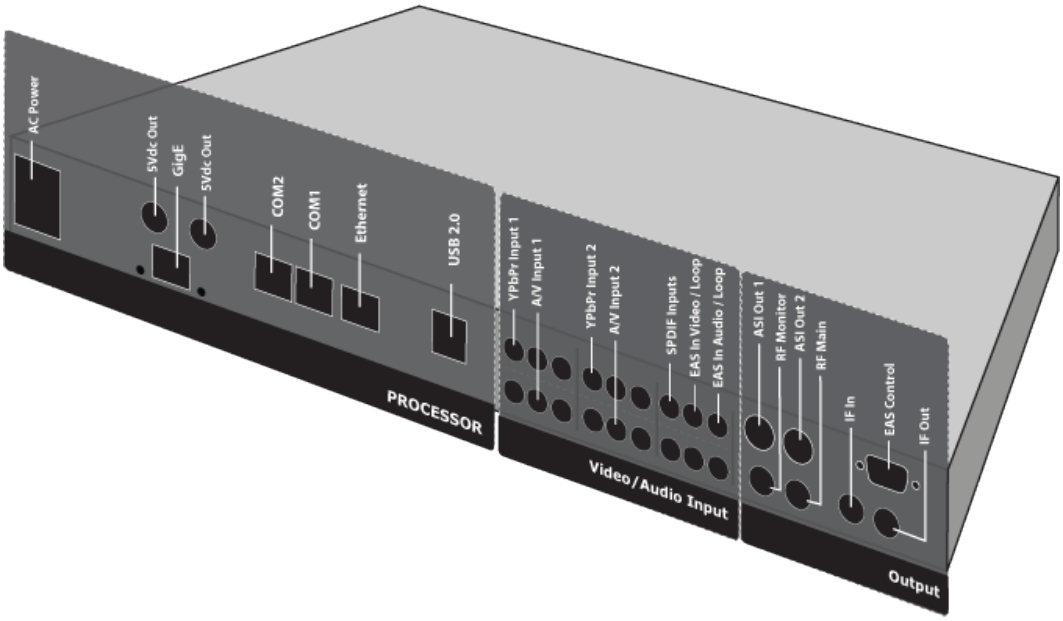
Back Panel Diagram

The back panel contains the ports and connection points for the device.

Illustration



Ports and Connections

Processor

Connection	Function
AC Power	AC Power- standard 3-pin plug (70-240 VAC 50-60 Hz), 5Vdc Power (x2) - External Power Only
GigE	GigeE Interface- MPTS Output over RTP/UDP
COM2	API Serial Communication Interface
COM1	Serial Port used for Troubleshooting
Ethernet	10/100 base T-Ethernet interface
USB 2.0	Not currently supported

Video/Audio Input

Connection	Function
RCA YPbPr 1	RCA 75- Ohm Input
A/V Input 1	RCA 75- Ohm Input
RCA YPbPr 2	RCA 75- Ohm Input
A/V Input 2	RCA 75- Ohm Input
EAS In Video	RCA 75- Ohm
EAS In Audio L&R	Vertical single RCA jack

Output

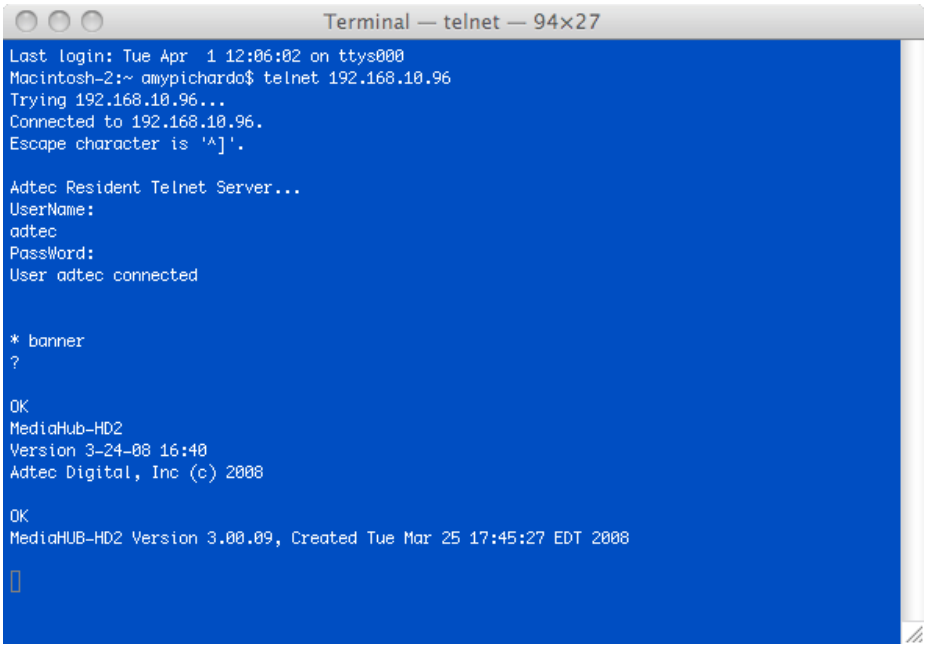
Connection	Function
ASI Out	BNC 75 ohm, Asynchronous Serial Interface (EN 50083-9)
RF Main	F-style RF female jack; freq. 50 to 862 Mhz, 48 dBmV to 55 dBmV in 2.0 db increments
IF In	F-style RF female jack; freq. 44 Mhz
IF Out	F-style RF female jack; freq. 44 Mhz
EAS Control	9-pin interface- to enable EAS, short pin 5 to pin 7

Connecting via Telnet

* Using Telnet (standard 23 port)* To connect to your device using a terminal session, you will need to set the IP address of the unit. See earlier instructions on setting the IP via the front panel.
Using a terminal window, complete the following:

Step	Action
1	Type 'telnet x.x.x.x' in a terminal window, without quotes, where x.x.x.x is the IP address of the unit.
2	Press **<Enter>**.
3	When prompted for a username, enter **adtec**.
4	When prompted for a password, enter **none**.

Once you see "User 'adtec' connected", the session is open and you may issue API commands to the unit.



For the YUV2QAM device, there are specific commands for the modulator, encoder, and the unit's operating system. Each has a unique way of accepting commands. If using telnet is your preferred method of communication to your device, familiarize yourself with the API commands and their respective command handlers. For more information on this, point your browser to the IPA of your unit and look through the API notes that are described for the device.

Connecting via FTP

FTP connections can be made to the adtec device using any ftp client.

Host: <ipa of the unit>

Default Username: adtec

Default Password: none

Port: 21

FTP is only useful for collecting logs from the device.

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Chapter 3 - Using the On-Board Control Interface

Web Interface Introduction

Adtec Digital has deployed a web-based configuration and control (C&C) software application for our products. The program is optimized to work with the following browser versions:

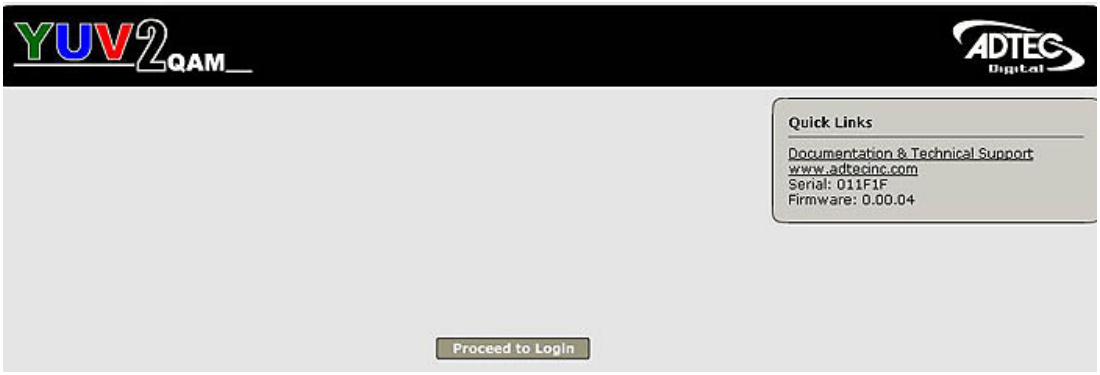
- Firefox: 3.5 (recommended)
- MS Internet Explorer: 8.0 and higher
- Safari: 3.0 and higher
- Google Chrome: 5.0 and higher

Note for Safari users:

- The C&C program is designed to use the Bonjour Zero Configuration Protocol.
    - ♦ When using Safari, click on the " ^^ " symbol to open a networked devices list.
    - ♦ Select the device to point the browser to that device's IPA.

Access

Access the C&C application by pointing your web browser to the unit's IP address. The following screen (image reduced for clarity) will appear:



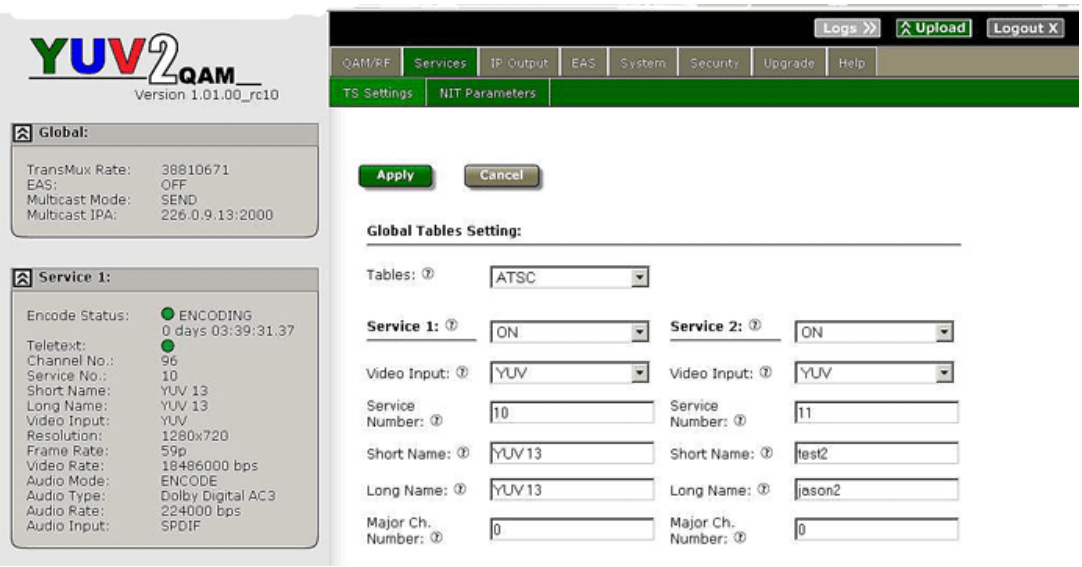
Links to the unit's Release Notes and a link to Adtec's Technical Support contact page are also located on this screen.

Login

Log in to the C&C application by clicking the **"Proceed to Login"** button and typing in the user name **'adtec'** and the password **'none'** in the pop-up box that appears.

C&C Screen

Once you are logged in, the C&C Screen will appear (some screen elements omitted for clarity):



The C&C Screen has two operating windows, the **Status Window** and the **Main Window**:

Status Window: the Status Window is fixed on the left-hand side of the screen- it will display regardless of what function is being displayed in the Main Window. The current status parameters of the unit's are always in view and are updated in real time.

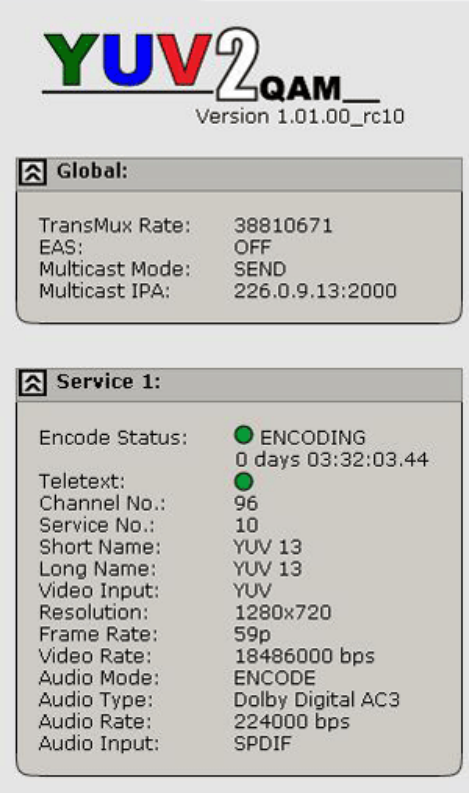
Main Window: the Main Window is used to access the device's controls and operating settings. The **Main Menu Tabs** determine which function is being controlled in the Main Window. Each Main Menu Tab is covered in more detail in further sections of this manual.

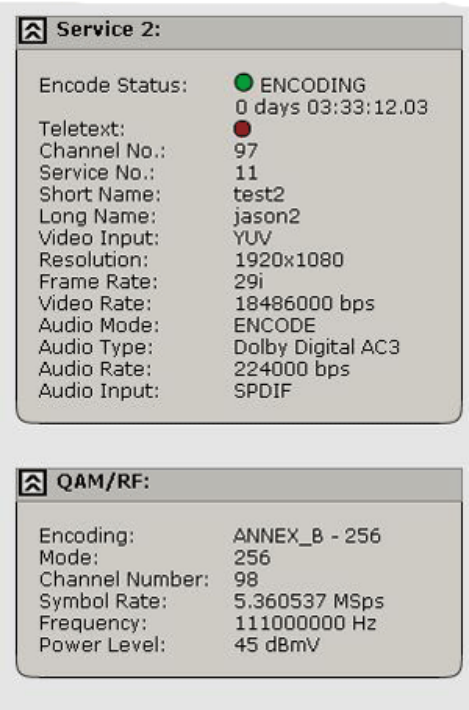
The screen also lists the product name and firmware version number that is running.

Help Notes are available for the controls on each tab; click on the "Question Mark" symbol next to the control name for a pop-up screen explaining the control.

Status Window

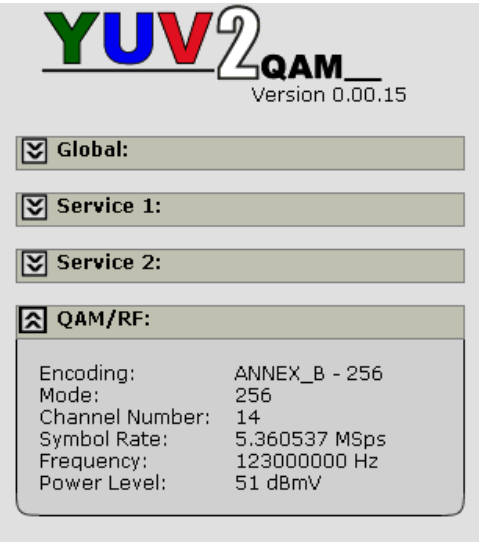
The Status Window contains four Status Displays: Global, Service 1, Service 2, and QAM/RF.





Status Window, continued

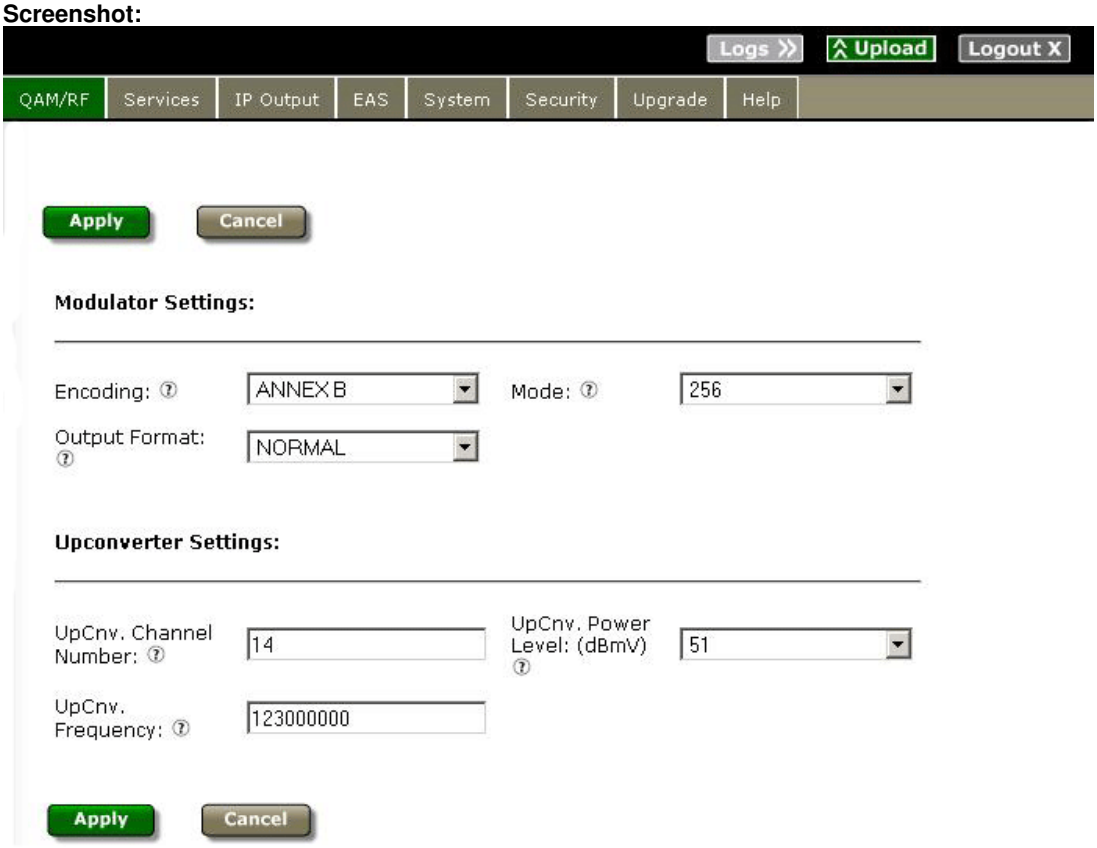
The double-arrow buttons in the upper left of each Status Display are collapse buttons, which allows you to customize the information being displayed in the Status Bar according to your needs. In the screenshot below, all of the Status Displays except for **QAM/RF** have been collapsed.



QAM/RF Tab

The QAM/RF Tab is used to set QAM modulation settings being produced by the unit.

Screenshot:



Controls

Control	Function	Options	API Command
Encoding	encoding standards being applied. Annex A is used world-wide; Annex B is used in North America.	Annex A Annex B	*.ECMD# QAM MOD_ENCODING
Mode	constellation type	64 256	*.ECMD# QAM MOD_MODE
Output Format	selects between normal and inverted output	Normal Inverted	*.ECMD# QAM MOD_INVERT
UpConverter Channel Number	EIA/NCTA Channel Number; selects RF Channel from 2-135 inclusive	text field	*.ECMD# QAM_UPCON_CHANNEL_NUM
UpConverter Power Level	RF output power in dBmV	45-61 dBmV	*.ECMD# QAM UPCON_POWER_LVL
UpConverter Output Frequency	set the frequency for output from the UpConverter	text field; valid range 50 to 862 MHz	*.ECMD# QAM UPCON_OUTPUT_FREQ

Note: If using API Commands, you must specify which encoder the command applies to by substituting '0' (for Encoder 1) or '1' (for Encoder 2) in place of the '#' symbol in the commands above. For more information, see the "API Commands" article in this manual.

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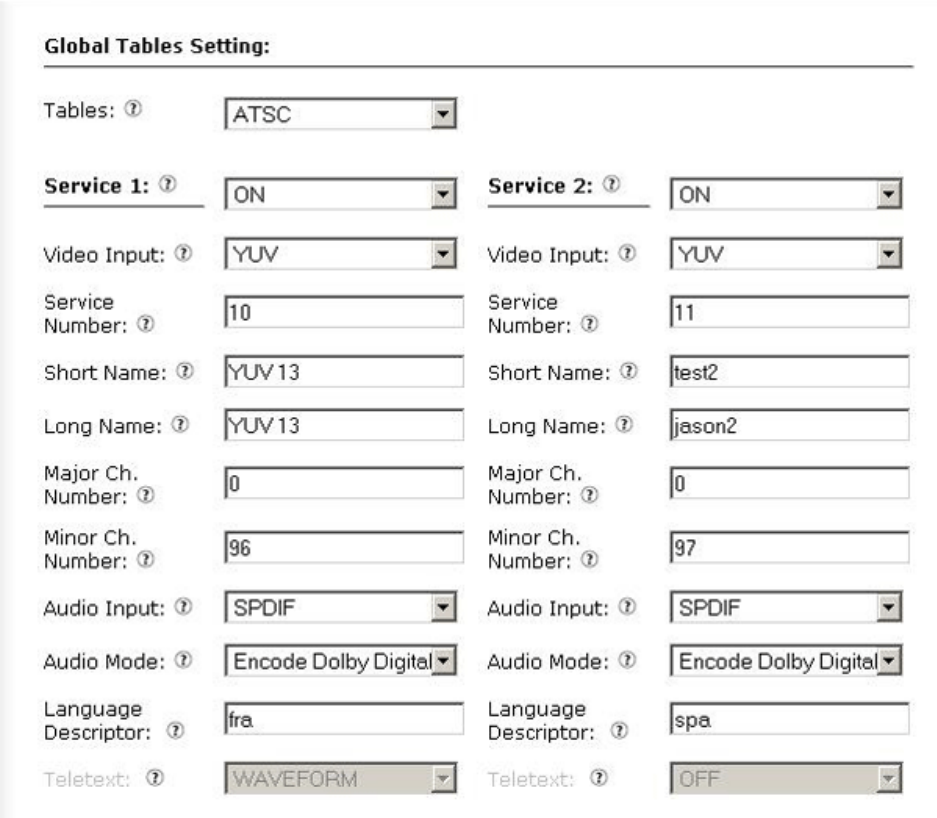
Services Tab

The Services Tab contains the controls that govern the dual encoders.

The control options are the same for Channels 1 and 2 in each Table format (DVB, ATSC, and MPEG). Each channel can be set independently, but Tables settings are global and apply to **both** channels.

ATSC

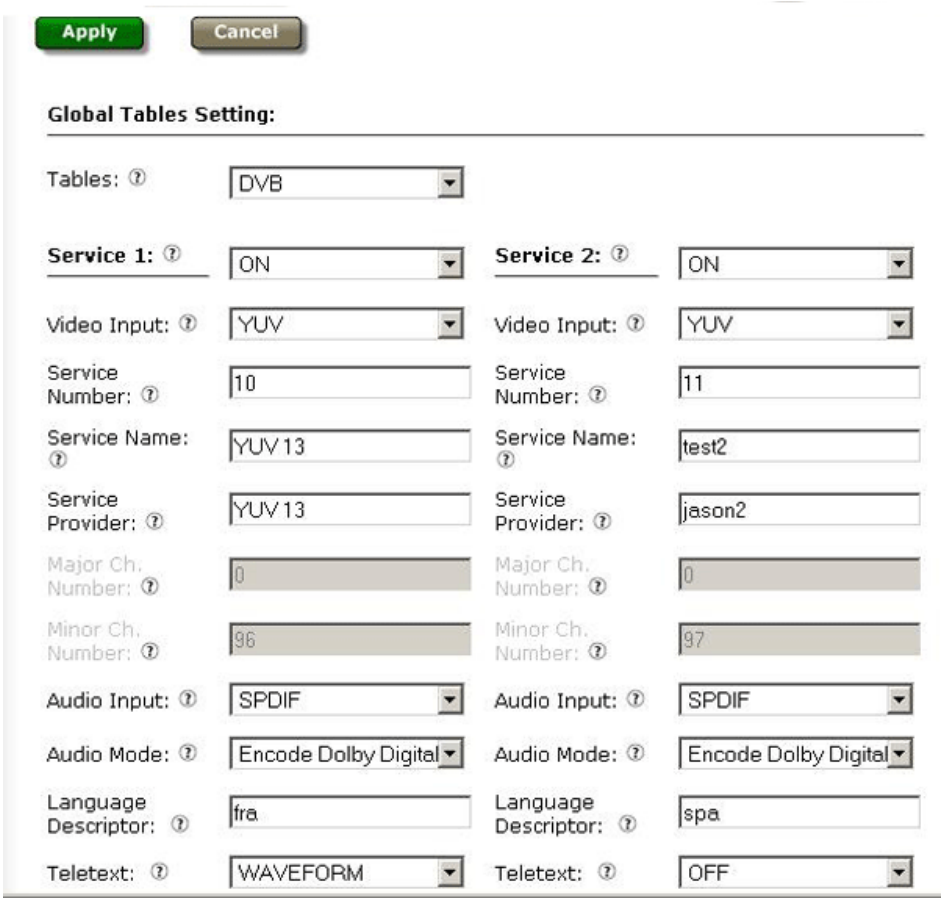


Main Window shown

Controls:

Control	Function	Options	API Command
Global Tables	sets Tables format for all content moving through the unit	DVB MPEG ATSC	*.ECMD# TON
Service 1 or 2	an on/off drop-down menu, selects whether the channel is active or not.	Off On	*ECMD STU
Video Input	type of video signal being received, either YUV or Composite. If the input is YUV, the encoder will automatically detect the resolution and frame rate of the incoming video source.	YUV Composite	*.ECMD# INP
Short Name	also known as Service Name; name of the program or event, carried in the SDT table of a transport stream.	text field	*.ECMD# SNA
Long Name	also known as Service Provider; name of the party offering the program or event, carried in the SDT table of a transport stream.	text field	*.ECMD# SPR
Major Channel Number	sets major channel number for ATSC	text field	*.ECMD# MAJ
Minor Channel Number	sets minor channel number for ATSC	text field	*.ECMD# MIN
Audio Input	select incoming audio type: SPDIF (orange connector) or ANALOG (red and white RCA connectors). This choice can only be selected for the video channel you are working with.	SPDIF Analog	*.ECMD AIN
Audio Mode	sets unit to ENCODE (compress the audio from an LPCM stream) or PASSTHRU (accept compressed Dolby embedded SPDIF and passthrough). The passed audio will be time-aligned and multiplexed into the transport stream. Dolby Digital is required for ATSC compliant receivers. Note: Set to ENCODE Dolby Audio if the embedded SPDIF audio is LPCM or set to PASSTHROUGH Dolby Audio if the embedded SPDIF audio is a compressed Dolby bitstream.	-Encode MPEG 1 layer 2 -Encode Dolby Digital -Pass Dolby Digital	*.ECMD# AMO
Language Descriptor	three-character code which designates the language used in the audio track for that channel	text field	*. ECMD# LAO

DVB



Main Window shown

Controls:

Control	Function	Options	API Command
Global Tables	sets Tables format for all content moving through the unit	DVB MPEG ATSC	*.ECMD# TON
Service 1 or 2	an on/off drop-down menu, selects whether the channel is active or not.	Off On	*ECMD STU
Video Input	type of video signal being received, either YUV or Composite. If the input is YUV, the encoder will automatically detect the resolution and frame rate of the incoming video source.	YUV Composite	*.ECMD# INP
Service Number	also called Program Number; in PAT & PMT packets, this identifies which program is associated with which Video & Audio PIDs. This value should be entered in decimal format.	text field	*.ECMD PNU
Service Name	name of the program or event, carried in the SDT table of a transport stream.	text field	*.ECMD# SNA
Service Provider	name of the party offering the program or event, carried in the SDT table of a transport stream.	text field	*.ECMD# SPR
Audio Input	select incoming audio type: SPDIF (orange connector) or ANALOG (red and white RCA connectors). This choice can only be selected for the video channel you are working with.	SPDIF Analog	*.ECMD AIN
Audio Mode	sets unit to ENCODE (compress the audio from an LPCM stream) or PASSTHRU (accept compressed Dolby embedded SPDIF and passthrough). The passed audio will be time-aligned and multiplexed into the transport stream. Dolby Digital is required for ATSC compliant receivers. Note: Set to ENCODE Dolby Audio if the embedded SPDIF audio is LPCM or set to PASSTHROUGH Dolby Audio if the embedded SPDIF audio is a compressed Dolby bitstream.	-Encode MPEG 1 layer 2 -Encode Dolby Digital -Pass Dolby Digital	*.ECMD# AMO
Language Descriptor	three-character code which designates the language used in the audio track for that channel	text field	*. ECMD# LAO
Teletext	controls the insertion of Teletext into the Vertical Blanking Interval. Teletext processing is globally enabled with the mode setting and lines 6-22 inclusive. If Teletext is not required, leave this control OFF to avoid empty TTX overhead.	Off Waveform NP47	*.ECMD VPB

NIT Parameters

When DVB is selected, and the button is clicked, a sub-tab becomes available containing settings and parameters for populating the Network Information Table.

Main Window shown

Controls

Control	Function	Options	API Command
Service Type	type of network carrier	Cable Satelllite Terrestrial	*.ECMD NPR
Modulation	type of modulation being applied Service Type is **cable**: 16, 32, 64, 128, 256 Service Type is **satellite**: QPSK Service Type is **terrestrial**: QPSK, 16QAM, 64QAM	see at left	*.ECMD NPR
Frequency	frequency of the signal measured in Hertz (Hz.)	text field	*.ECMD NPR
Symbol Rate	gross bit rate of the signal measured in Symbols per Second (symbols/sec.)	text field	*.ECMD NPR
FEC Inner	Forward Error Correction; extra data added to the inner 'edge' of the packet that can be used to detect errors on the receiving end	1/2 3/4 5/6 7/8 8/9 No Coding	*.ECMD NPR
FEC Outer	Forward Error Correction; extra data added to the outer 'edge' of the packet that can be used to detect errors on the receiving end	1/2 3/4 5/6 7/8 8/9 No Coding	*.ECMD NPR
Polarization	orientation of the transmitter that will send the encoded packet	Horizontal Linear Vertical Linear Left Circular Right Circular	*.ECMD NPR

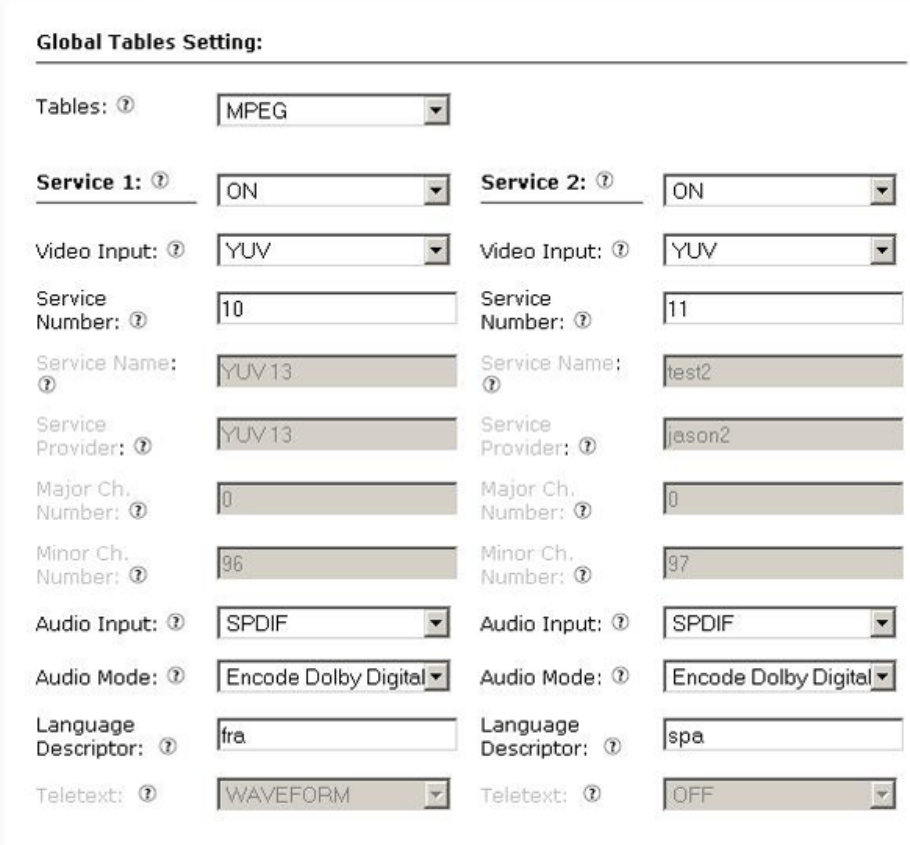
NIT Parameters, con't.

Control	Function	Options	API Command
Orbital Position	orbital position of a receiving satellite	text field	*.ECMD NPR
Position Flag	designates if the receiving satellite is in the eastern or western phase of its orbit	East West	*.ECMD NPR
Bandwidth	measure of the volume of information contained in the packet in megaHertz	8 MHZ 7 MHZ 6 MHZ	*.ECMD NPR
Hierarchy Info	specifies if the transmission is hierarchical	None 1 2 3 4	*.ECMD NPR
Code Rate LP Stream	Low Priority Code Rate	1/2 3/4 5/6 7/8	*.ECMD NPR
Guard Interval	time intervals used to maintain the "distinctness" of transmissions such as packets in a bitstream. Expressed as fractions of a symbol period. 1/32 = lowest protection/highest data rate; 1/4 = highest protection/lowest data rate.	1/32 1/16 1/8 1/4	*.ECMD NPR
Transmit Mode	specifies number of carriers in an OFDM frame	2k 8k	*.ECMD NPR
Other Frequency Flag	indicates whether other frequencies are in use	None 1 or more	*.ECMD NPR

MPEG

The screen for MPEG tables is largely the same as the DVB Tables screen. Additionally, when set to MPEG, the options for Service Name, Service Provider, Major Channel Number, Minor Channel Number, and Teletext will be unavailable.

Services- MPEG Screen:



The EAS Tab

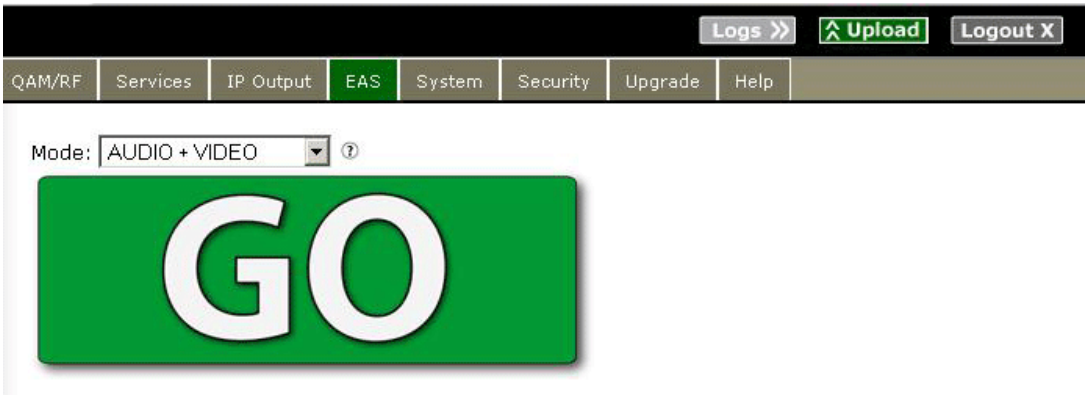
Starting EAS

The YUV2QAM unit can pass Emergency Alert System broadcasts quickly, and can stop them just as quickly. On the EAS tab, select the mode for passing of EAS transmissions. then click the prominent **<Go>** virtual button, illustrated below.

Mode Pull-down Menu Options

Option	Function
Off	EAS function disabled
audio + video	pass EAS broadcasts over audio and video streams
audio only	pass EAS broadcasts over audio stream only
video only	pass EAS broadcasts over video stream only

Screenshot



Main Window shown

Stopping EAS

When EAS is being passed, the screen will shift to display a **Stop** virtual button. To stop passing the EAS broadcast instantly, simply click the equally-prominent **<Stop>** button, illustrated below. Your YUV2QAM will return to the last action programmed.

Stop Button

Main Window shown

Additonal Information

LED Indicators

- If the YUV2QAM is encoding video EAS, the "EAS" LED will light **green**.
- If the YUV2QAM is encoding audio EAS only, the "EAS" LED will light **yellow**.

Important Multi-Unit EAS Application Note

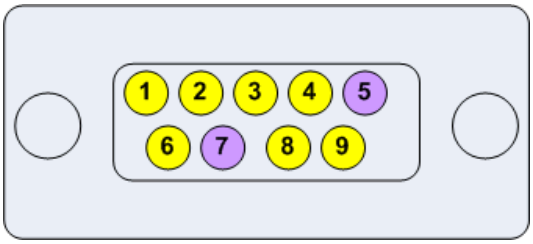
The YUV2QAM supports automatic switching of EAS to **all units** automatically, via XCP commands.

The EAS Functionality functions according to the following rules:

- XCP is Adtec's own 'X Communication Protocol' that uses network broadcast packets for 'unit to unit' communication. If the YUV2QAM units can't communicate via the local area network, automatic switching will not occur.
- All units must have XCP enabled (The XCP configuration is turned ON by default. For troubleshooting or test purposes, the user may verify or change the XCP configuration).
- All units must be on the same local ethernet network.
- If a user activates EAS mode on any single unit, the EAS active mode is broadcast to all other YUV2QAM units on the ethernet network. All units with 'XCP=ON' will receive the message and go into EAS mode.
- If a user de-activates EAS mode on any single unit, the EAS disable mode is broadcast to all other YUV2QAM units on the ethernet network. All units with 'XCP=ON' will receive the message and go out of EAS mode.

EAS Pinout

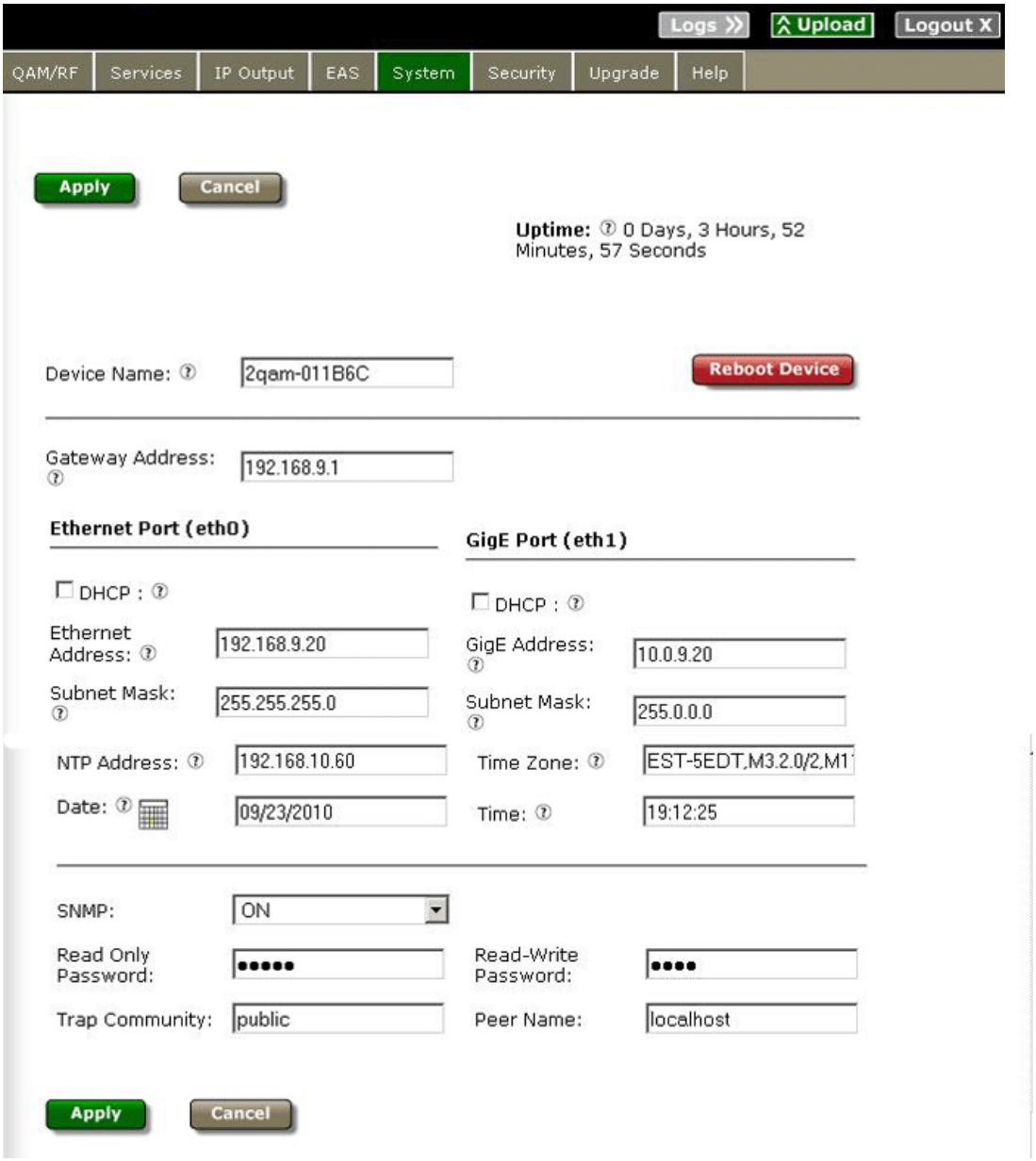
To enable EAS in VIDEO+AUDIO via the 9-Pin GPIO, short pin 5 to pin 7.



System Tab

The controls on the System Tab are used to integrate the unit into a network.

Screenshot:



Reboot Device Button

Clicking the **Reboot Device** button performs a complete power-down/power-up cycle on the device. A pop-up warning screen gives you the option of continuing or canceling the action. Cycling the power to the device will stop all encoding; the power-down/power-up cycle takes approximately 45 seconds to complete.

Warning screen:

Controls:

Control	Function	Options	API Command
Device Name	ease-of-identification; default is name that combines the product type and the serial number of the unit. For example, "YUV2QAM-012345"	text field; user-defined	*.SYSD NAME
Gateway Address	IP address of the gateway/router on your network; limited to one IPA on Adtec devices	text field in format xxx.xxx.xxx.xxx	*.SYSD GIP
Ethernet Port DHCP	if selected, allows DHCP server to assign an IP address from pool	check box: selected = 1 not selected = 0	*.SYSD DHC eth0
Ethernet Port Ethernet Address	IP address of the unit's Control-Ethernet port 10/100mbps	text field; valid IP address in form xxx.xxx.xxx.xxx	*.SYSD IPA
Ethernet Port Subnet Mask	Subnet mask address of the unit's Control-Ethernet port	text field; valid IP address in form xxx.xxx.xxx.xxx	*.SYSD IPM

System Tab Controls, continued

Control	Function	Options	API Command
GigE Port DHCP	if selected, allows DHCP server to assign an IP address from pool	check box: selected = 1 not selected = 0	*.SYSD DHC eth1
GigE Port Address	IP address of the unit's GigE port	text field; valid IP address in form xxx.xxx.xxx.xxx	*.SYSD IPA eth1
GigE Port Subnet Mask	Subnet mask address of the unit's Control-Ethernet port	text field; valid IP address in form xxx.xxx.xxx.xxx	*.SYSD IPM eth1
NTP Address	IP Address of a Network Time Protocol server	index only zero is applicable at this time	*.SYSD NIP [index][IPA]
Time Zone	designate operating time zone of unit for timekeeping and internal scheduling Will auto-populate if unit is connected to an NTP Server.	text field- will auto-populate from NTP server if NTP enabled	*.SYSD TIZ
Date	set the date for the unit for timekeeping and internal scheduling Will auto-populate if unit is connected to an NTP Server.	text field- will auto-populate from NTP server if NTP enabled	*.SYSD TIM
Time	set system time for unit for timekeeping and internal scheduling Will auto-populate if unit is connected to an NTP Server.	text field- will auto-populate from NTP server if NTP enabled	*.SYSD TIM
SNMP	Simple Network Management Protocol; allows management of the unit by another networked device; activates SNMP Agent.	Off On	*.SYSD SNMP
Read-Only Password	password used by the management device to read data from a network element	text field	*.SYSD SNMPVAR ROCOMMUNITY
Read-Write Password	password used by the management device to read data from a network element and issue commands to the network element	text field	*.SYSD SNMPVAR RWCOMMUNITY
Trap Community	community name where data captured by agent is sent for access by the management device	text field	*.SYSD SNMPVAR TRAPCOMMUNITY
Peer Name	the trap destination for the management device, specified by host name or IP address	text field; valid IP address in form xxx.xxx.xxx.xxx	*.SYSD SNMPVAR PEERNAME

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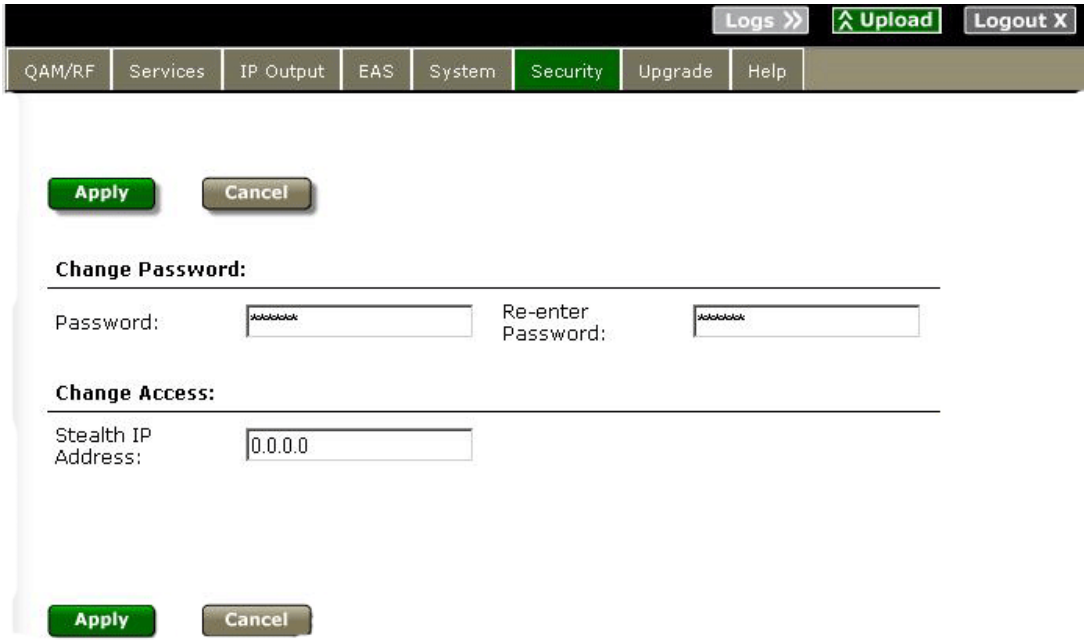
Security Tab

The settings on this tab control the implementation of unit-level security.

Screenshot:



Controls:

Control	Function	Options	API Command
Password	set unit-level password to limit access	text field	*.SYSD CPW
Re-enter Password	confirm password	text field	*.SYSD CPW
Stealth IP Address	security feature that allows only the designated Stealth IP Address to communicate with the unit for FTP and other services. This control allows one-point override access to the Stealth IP Address.	user-defined hexadecimal	*.SYSD SIP

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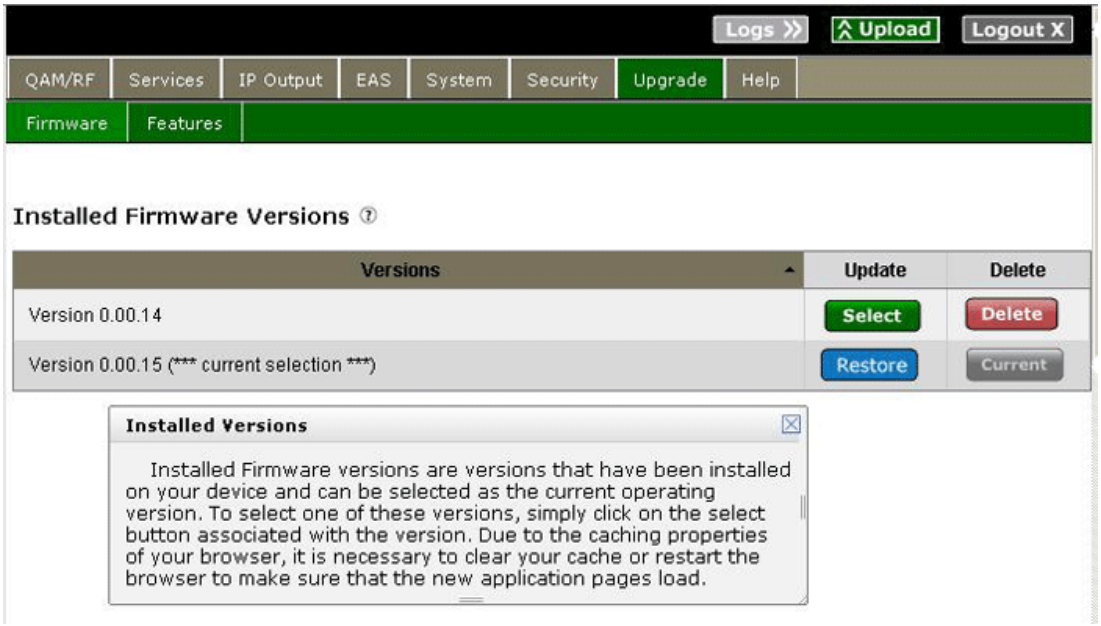
Upgrade Tab

The Upgrade Tab is used to easily select and upgrade your unit's firmware from the available versions. There are two sub-tabs: **Firmware** and **Features**.

Firmware Tab



The **Help Note** for Installed Firmware Versions (illustrated above) defines this tab's function and requirements.

Other Controls

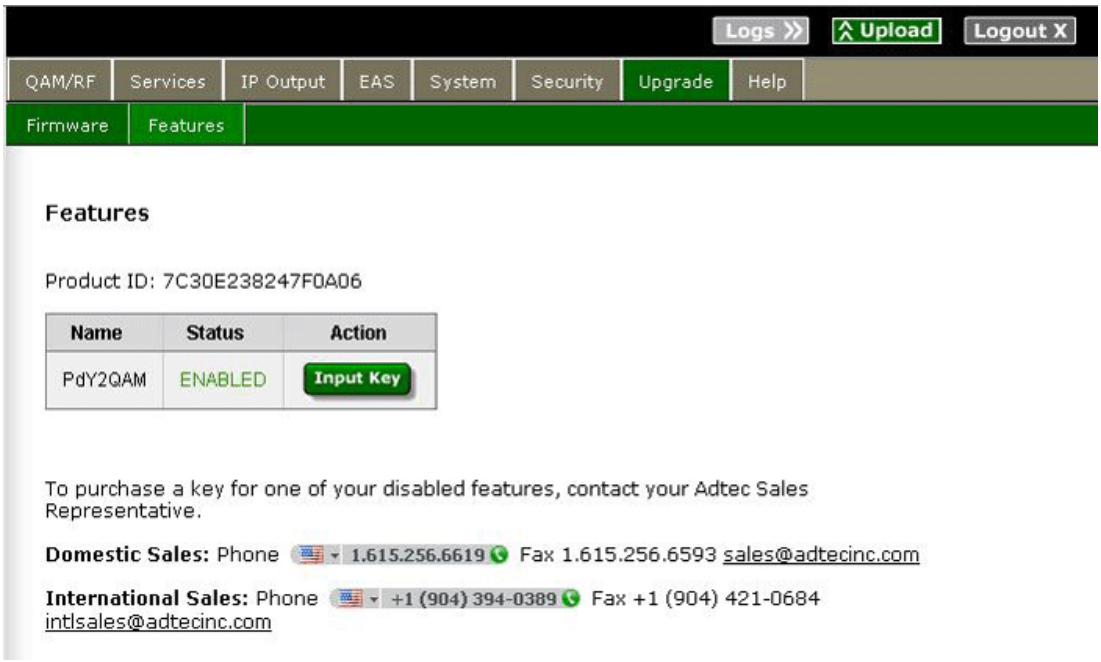
- **Delete:** clicking the **<Delete>** button will delete that stored firmware version from your device.

Uploading

To upload new firmware versions, click on the **<Upload>** button in the top navigation bar next to Log Out. A pop-up screen will allow you to browse for the firmware file by clicking Upload within the pop-up screen. After the new version is uploaded, its availability on the device will display under "available versions". After the new version is uploaded, Click **<Install>** to extract the firmware. It will then be available under **Installed Versions**.

Features Tab

The Features screen (image reduced for clarity):



The Features tab shows optional features that you have purchased for use on your unit. To purchase additional feature keys, contact your Adtec sales representative.

Help Tab

The Help Tab provides another access point to Technical Support's contact information, and to links for the onboard User's Manual, Release Notes, and API information.

Screenshot:

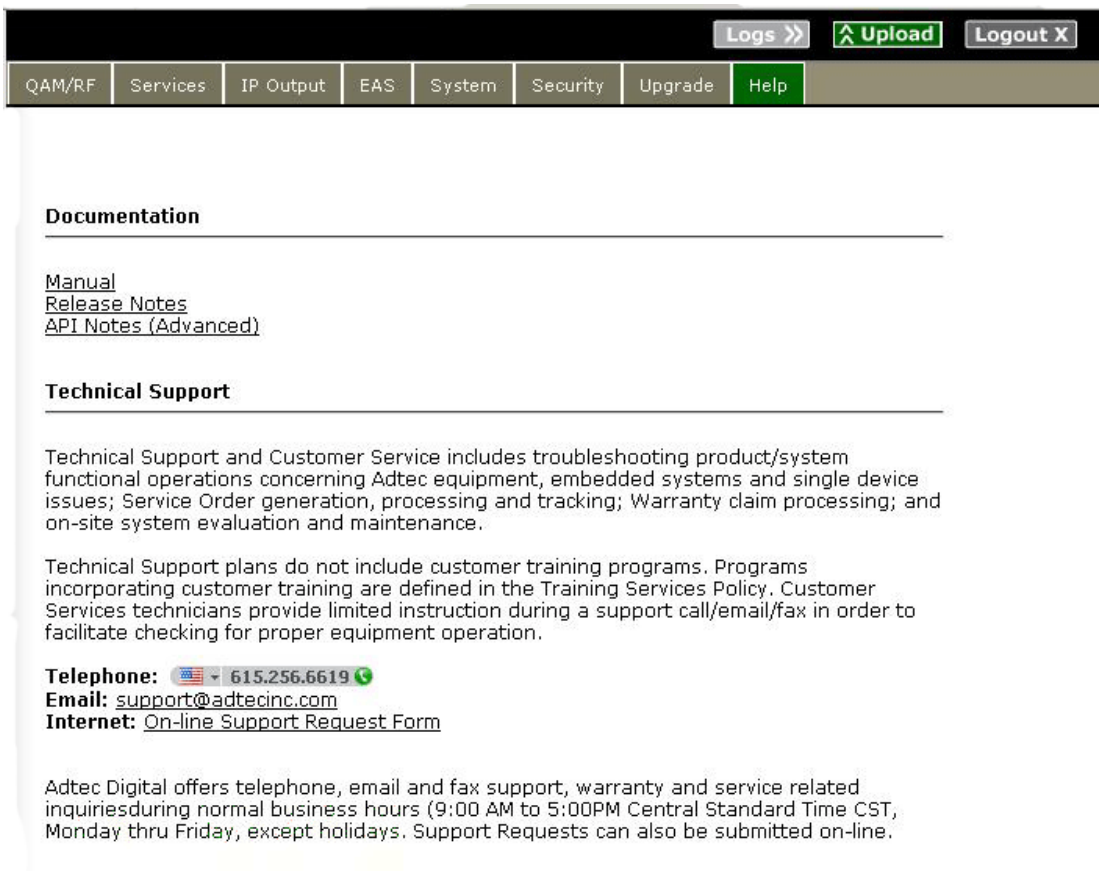


Image reduced for clarity; only Main Window shown.

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Chapter 4 - How-To Guides

Manual Firmware Upgrades

You can upgrade your Adtec device's firmware via built-in web-based application, described in the Upgrade Tab section, or via a Telnet/FTP session, described in this article.

To update your Adtec device 's firmware via a Telnet session, perform the following:

Manual Upgrade Process

Step	Action
1	Obtain the desired firmware version file from www.adtecftp.com note*: Firmware releases are found in the Public Folders -> Firmware -> Release -> section of the website, in a folder marked with the product name. username: adtecftp password: adtecftp2231 note**: Windows Internet Explorer renames adtec firmware file extensions to .gz . When saving please add a t within the extension to read .tgz if IE has renamed your file.
2	Using your favorite FTP client to upload the firmware file to the device. If you are unfamiliar with FTP you may use a 'My Computer' window and type in the address bar, ftp://adtec:none@192.168.10.48 where 192.168.10.48 should be replaced with the IP Address of YOUR device. You may then drag and drop the firmware file into the hd0 folder.
3	Open a Telnet session and enter the IP address of the unit you are going to update. note*: If you are unfamiliar with telnet, open a command prompt window (windows: start -> run.., mac: macintosh hd -> applications -> utilities -> terminal) and type: telnet 192.168.10.48
4	Enter the username as ' **adtec** ' and the password as ' **none** '.
5	Enter the following in sequence: *.ecmd stop
6	*.sysd vrn search - from the results, look for the pathname of recently uploaded firmware file
7	*.sysd vrn install [pathname of the .tgz file] ex: *.sysd version install /media/hd0/yuv2qam-v1.00.12.nfcms.tgz

Using API Commands

The Adtec YUV2QAM device is unique in that it handles two physical encoders. To accomodate commands for controlling both encoders, you will need to specify which encoder you are working with for **each** command you issue.

Please make the following adjustments:

- Instead of using *.ecmd as noted the API descriptions, you will need to use.
  - ♦ ***.ecmd0** to specify the **first** encoder.
  - ♦ ***.ecmd1** to specify the **second** encoder.

Example: (*.ecmd0 TRA) will give you the transport status of the first encoder.

QAM Channels and Frequencies

The bold-faced and shaded listings in this table represent the recommended operating range for this product.

The table reads vertically, from RF Channel 2 to Channel 135.

RF Channel	Center Freq.	RF Channel	Center Freq.	RF Channel	Center Freq.	RF Channel	Center Freq.	RF Channel	Center Freq.
2	57.0	29	255.0	**61**	**447.0**	**93**	**639.0**	**130**	**831.0**
3	63.0	30	261.0	**62**	**453.0**	**94**	**645.0**	**131**	**837.0**
4	69.0	31	267.0	**63**	**459.0**	**100**	**651.0**	**132**	**843.0**
5	79.0	32	273.0	**64**	**465.0**	**101**	**657.0**	**133**	**849.0**
6	85.0	33	279.0	**65**	**471.0**	**102**	**663.0**	**134**	**855.0**
95	93.0	34	285.0	**66**	**477.0**	**103**	**669.0**	**135**	**861.0**
96	99.0	35	291.0	**67**	**483.0**	**104**	**675.0**		
97	105.0	36	297.0	**68**	**489.0**	**105**	**681.0**		
98	111.0	37	303.0	**69**	**495.0**	**106**	**687.0**		
99	117.0	38	309.0	**70**	**501.0**	**107**	**693.0**		
14	123.0	39	315.0	**71**	**507.0**	**108**	**699.0**		
15	129.0	40	321.0	**72**	**513.0**	**109**	**705.0**		
16	135.0	41	327.0	**73**	**519.0**	**110**	**711.0**		
17	141.0	42	333.0	**74**	**525.0**	**111**	**717.0**		
18	147.0	43	339.0	**75**	**531.0**	**112**	**723.0**		
19	153.0	44	345.0	**76**	**537.0**	**113**	**729.0**		
20	159.0	45	351.0	**77**	**543.0**	**114**	**735.0**		
21	165.0	46	357.0	**78**	**549.0**	**115**	**741.0**		
22	171.0	47	363.0	**79**	**555.0**	**116**	**747.0**		
7	177.0	48	369.0	**80**	**561.0**	**117**	**753.0**		
8	183.0	49	357.0	**81**	**567.0**	**118**	**759.0**		
9	189.0	50	381.0	**82**	**573.0**	**119**	**765.0**		
10	195.0	51	387.0	**83**	**579.0**	**120**	**771.0**		
11	201.0	52	393.0	**84**	**585.0**	**121**	**777.0**		
12	207.0	53	399.0	**85**	**591.0**	**122**	**783.0**		
13	213.0	54	405.0	**86**	**597.0**	**123**	**789.0**		
23	219.0	55	411.0	**87**	**603.0**	**124**	**795.0**		
24	225.0	56	417.0	**88**	**609.0**	**125**	**801.0**		
25	231.0	57	423.0	**89**	**615.0**	**126**	**807.0**		
26	237.0	58	429.0	**90**	**621.0**	**127**	**813.0**		
27	243.0	**59**	**435.0**	**91**	**627.0**	**128**	**819.0**		
28	249.0	**60**	**441.0**	**92**	**633.0**	**129**	**825.0**		

Manually Setting Teletext

As of firmware version 1.01.00, Teletext must be manually set on the Adtec YUV2QAM device.

Open a terminal window and enter **<telnet xxx.xxx.xxx.xxx>**, where xxx.xxx.xxx.xxx is the IP address of your YUV2QAM. Press **<Enter>**; when prompted, type **<Adtec>** for the user name, and **<none>** for the password.

You can now control the unit via API commands.

Processing Teletext

The command for enabling and configuring Teletext Processing is **ECMD PTX [Mode] [Line_EN]**.

Modes - there are two modes that can be set as arguments when using the PTX command:

Mode	Argument Value
Off	0
Waveform	1

Line_EN: Which VBI lines the Teletext will ride on must be specified. The notation format for this is **"0-0x1ffff"**, given in hexadecimal form with bitfields.

- Bit positions: specify as follows:
  - d0 = Line 6 (use 0 to disable, 1 to enable)
  - d1 = Line 7 (use 0 to disable, 1 to enable)
  - d2 through d16 corresponds to the remaining VBI lines, with d16 representing Line 22.

Setting Teletext PIDs

The command for Teletext PID settings is **ECMD TPI [argument]**. There are two arguments associated with this command: **PIDx** is the hexadecimal PID value. **PIDd** is the decimal PID value. Available ranges for these settings are:

PIDx Range	PIDd Range
0x0020 - 0x1FFE	32 - 8190

The full command string would read like this: ECMD TPI [PIDx] [PIDd].

This command is documented in the API Guide found on your device. To access this Guide, point a browser session to your device's IP address and this string: media/hd0/media. The API Guide can also be accessed from the **"Help"** tab of the browser-based UI interface.

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Appendix

Technical Specifications

Automatic Rate Adjustment Range

- 720 P: 12-23 Mbs
- 1080i: 14-25 Mbs
- NTSC/PAL: 15Mbs fixed

(HD rates are calculated based on video input resolution, video complexity and QAM target) **Component Input**

- Connector: RCA 75 Ohm:
- Interface: RCA YPbPr, RCA unbalanced L+R audio
- Supported Audio: Dolby Digital 2.0 (AC3) dual stream encoders included; MPEG1 Layer 2 dual stream encoders included, Dolby E Dolby 5.1, and Dolby Digital 2.0 (AC3) passthrough

Analog/CC/Teletext Input

- Connector: RCA 75 Ohm Interface
- Interface:
    - ♦ Terminated Input for:
        - ◊ EIA-608 CC signal reception w/ up convert to EIA-708 for DTV compliance
        - ◊ Teletext passthrough
        - ◊ Wide Screen Signaling (WSS)

Emergency Alert System (EAS) Input Video:

- Connector: RCA 75 Ohm
- Interface: Terminated NTSC or PAL D1 Composite Input with loop

Audio:

- Connector: Vertical single RCA jack
- Interface: mono audio channel with loop

EAS Triggering

- Interface:
    - ♦ GPI
    - ♦ Web UI
    - ♦ XCP

ASI Output

- Connectors: two (2) BNC, 75 Ohm
- Interface: Asynchronous Serial Interface (EN 50083-9)
- Packet Format: 188 byte packets
- Data rate: Based on modulation target
- Syntax: MPTS

IP Output

- Connector: RJ45 Electrical Ethernet
- Interface: Internet Protocol
- Data Rate: Based on modulation target
- Syntax: MPTS

RF Output

- Connector: F-style RF female jack
- Frequency: 50 to 862 Mhz
- Bandwidth:

- 6 Mhz Annex B
- 8 Mhz Annex A

- Main Power: 45dBmV to 56dBmV, in 2 dB increments
- Monitor Power: -10 dBmV from Main

IF Output Connector: F-style RF female/jack Frequency: Selectable 44 MHz (USA) and 36.125MHz (Europe) **Signal Specifications**

- Modulation Schemes supported:
  - Annex A
  - Annex B
- MER: 38.0 dB minimum (average).
- QAM constellations:
  - Annex A: 64, 256
  - Annex B: 256

Physical

- Operating Temp.: 0 to +50 °C/+32 to +122°F
- Power Supply (nominal): 100 - 240 VAC
- Power Consumption (nominal): 33.6 W (120V @ 280mA)
- Weight: 6 lbs
- Measurements: (H X W X D) 1.73” X 19” X 13.322”

User Interface

- Front Panel Controls
- Browser-based Web Interface

Contacting Customer Support

Adtec Digital's Support Services

Technical Support and Customer Service includes troubleshooting product/system functional operations concerning Adtec equipment, embedded systems and single device issues; Service Order generation, processing and tracking; Warranty claim processing; and on-site system evaluation and maintenance. Technical Support plans do not include customer training programs. Programs incorporating customer training are defined in the Training Services Policy. Customer Services technicians provide limited instruction during a support call/email/fax in order to facilitate checking for proper equipment operation.

Telephone and Email Support

- **Telephone:** 615-256-6619 ext. 166
- **Email:** support@adtecinc.com
- **Internet:** www.adtecinc.com/supportrequest/

Adtec Digital offers telephone, email and fax support, warranty and service related inquiries during normal business hours: 9:00am to 5:00pm Central Standard Time (CST), Monday through Friday, holidays excepted. Support Requests can also be submitted on-line.

All inquiries will be processed in the order in which they are received and by the criteria outlined in the Call Response Order. Inquiries and inquiry responses made after 5:00 PM (CST) weekdays, Saturday, Sunday or on an Adtec-recognized holiday will be processed the next business day in the order received.

Callers on hold and returned calls will be prioritized by the following criteria:

- Priority-24 Subscription Customers
- Standard-Priority Subscription Customers
- All customers that have purchased Installation & Training, within 90 days of the installation
- Adtec Certified Operators (ACO)
- Limited Level Support, Warranty & Service Requests
- Multi-device system installations that have purchased Installation & Training from Adtec
- Distributors
- System Integrators
- Multi-device systems
- Single device users

Information needed for Support

To help expedite the troubleshooting process, please be prepared to provide the following information to the support representative:

- **Product(s) affected:** please provide a list of the Adtec Products involved including the Revision Number for each affected product.
- **Description of the Problem:** please include a detailed description of the problem. Include the approximate time and day the problem occurred, the spot ID of the material being inserted and what the operator reported about the incident. It is also helpful to note any recent changes to the system. More information is always better than too little information.
- **Your Contact Data:** please include contact information so we can reach you to discuss how to fix the problem, additional troubleshooting steps that are required or to gather more complete information regarding the problem. Please include your facility name (or call letters), your name, title, email address, telephone number, hours of work, and other contact persons if you are not available.

Advanced Support Plans

In addition to our basic Inquiry Response Policy, Adtec offers two advanced levels of priority inquiry support: **Standard-Priority** and **Priority-24**. The Standard-Priority & Priority-24 plans provide guaranteed* response times with the Priority-24 plan offering after hours and holiday support. Standard-Priority support is included with the Adtec Certified Operator (ACO) training. Contact Adtec Sales to upgrade your current support plan.

Standard-Priority Support Plan Description

Customers can improve upon our normal call processing times and can expedite inquiry support responses through our subscription Standard-Priority service plan. Under this plan all telephone inquiries are guaranteed* a telephone response of no more than 4 hours after they are received (within the designated hours of operation). Telephone inquiries received by 4:00 PM (CST) on weekdays- excluding Adtec holidays- are guaranteed a same-day telephone response. However, inquiry responses may be made after hours until 8:00 PM (CST). Email and fax inquiries are limited in scope to normal business hours, excluding holidays. Standard-Priority customers are entitled to a 10% discount on site visit and training charges after the initial system/product installation and training. Standard-Priority customers also receive a 3-day turnaround time guarantee* on warranty and non-warranty repairs on Adtec manufactured equipment, excluding Studio Encoders.

Priority - 24 Support Plan (24 Hour) Description

In addition to our Standard-Support plan, after hours, weekend and holiday support is available with the **Priority-24** support plan. This plan is a subscription only service available for service inquiries 24 hours a day, 7 days a week. All telephone inquiries are guaranteed* a telephone response time of no more than 2 hours. Email and fax inquiries are limited in scope to normal business hours, excluding holidays. Calls after 5:00 PM will be forwarded to a Customer Services representative on call. **Priority-24** customers are entitled to a 25% discount on site visit and training charges, after the initial system/product installation and training. **Priority-24** customers also receive a 1- day turnaround time guarantee* on warranty and non-warranty repairs on Adtec-manufactured equipment, **excluding** Studio Encoders.

Plan Comparisons

Feature/ Plan Name	Priority-24	Standard Priority	Limited
Hours	24 Hours/Day; 7 Days/Week	9:00 AM – 5:00 PM, (U.S.Central Standard Time), ExcludesWeekends & Holidays	
Call Response Time	Same day- 2 hours (1st in order of call list)	Same Day: 4 Hours (2nd in order of call list)	48 Hours
Discounted Site Visits	25%	10%	None
Discounted Training	25%	10%	None
Repair Service	Guaranteed* 1 Day Turnaround	3 Day Turnaround	None

* A one-month free service extension will be awarded if Adtec fails to meet its service guarantee.
Contact Digisat International for Adtec Support pricing at digisat.org

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