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Chapter 1 - Product Introduction

Product Introduction

Offering the highest-quality and most flexible encoding features of Adtec's seasoned encoder product line. The EN-80 is capable of encoding any combination of HD or SD, MPEG 2 or MPEG 4 AVC with 4:2:0 or 4:2:2 chroma and a wide selection of audio options. With the optional Newtec DVBS/S2 modulator, the EN-80 can support modulation modes from QPSK up to 32APSK while offering concurrent encoding and streaming of IP, ASI and RF outputs. The standard configuration consists of a single AC or DC power supply - dual redundant power supplies are optional.

Applications

- Digital Satellite News Gathering (DSNG)
- Contribution

Disclaimers and Notices

Trademarks: EN-80 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.

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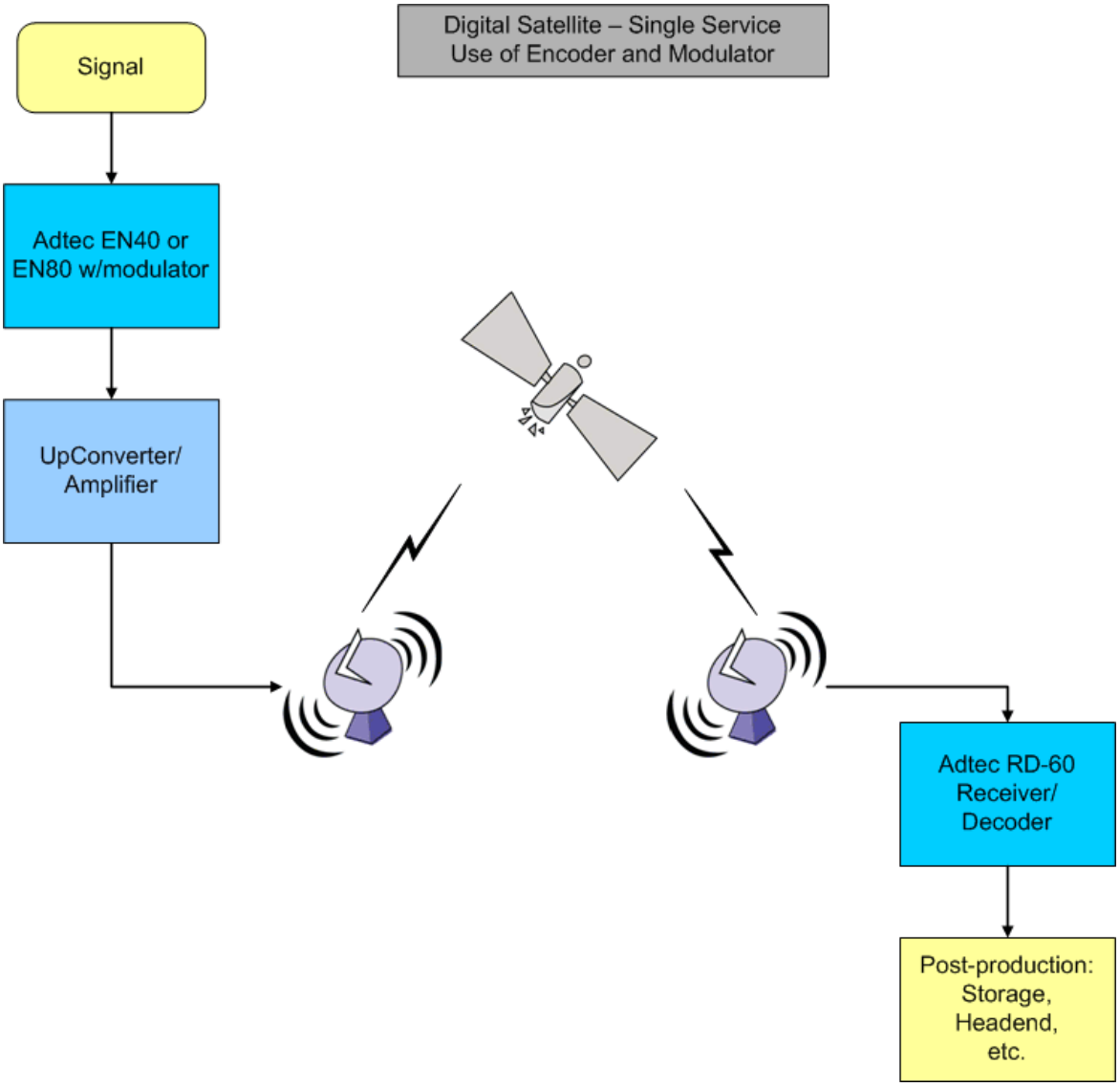
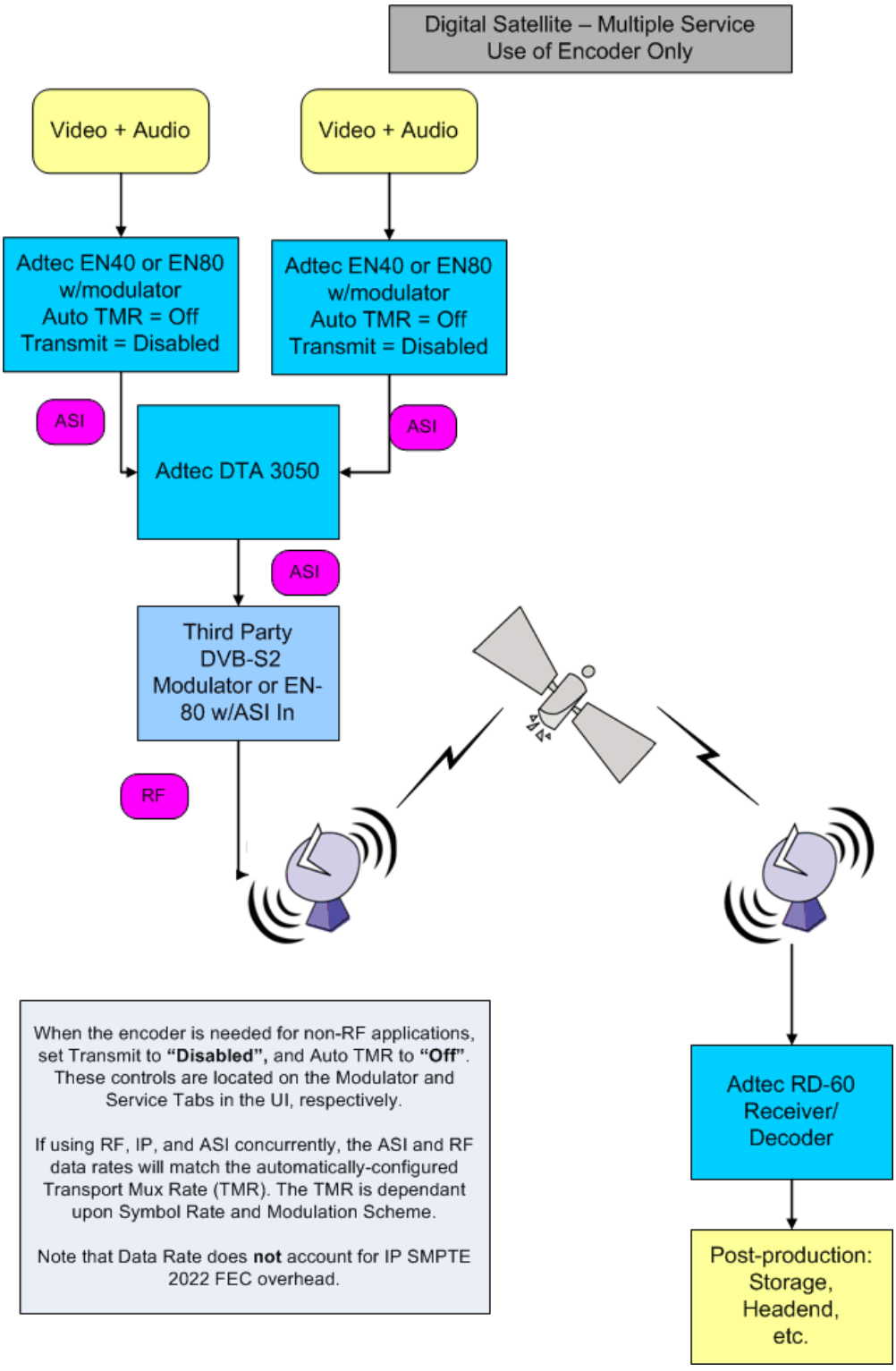
EN-80 Integration Graphics

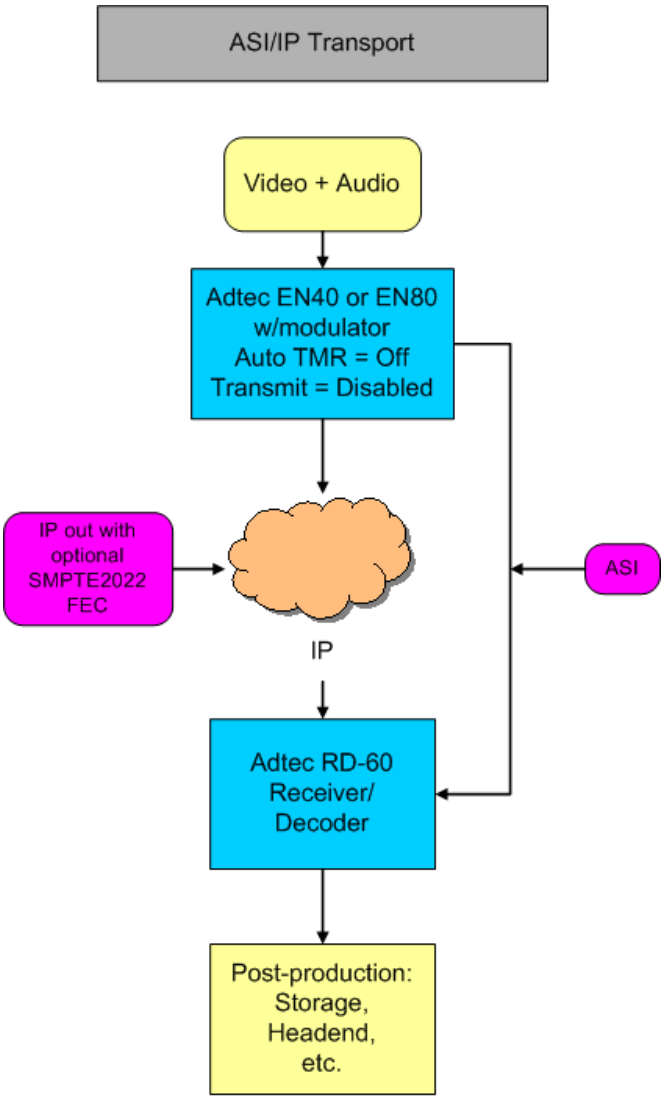
Encoder and Modulator



Encoder Only



ASI/IP



When the encoder is needed for non-RF applications, set Transmit to **"Disabled"**, and Auto TMR to **"Off"**. These controls are located on the Modulator and Service Tabs in the UI, respectively.

If using RF, IP, and ASI concurrently, the ASI and RF data rates will match the automatically-configured Transport Mux Rate (TMR). The TMR is dependant upon Symbol Rate and Modulation Scheme.

Note that Data Rate does **not** account for IP SMPTE 2022 FEC overhead.

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Electrical Device Compliance Notices

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.

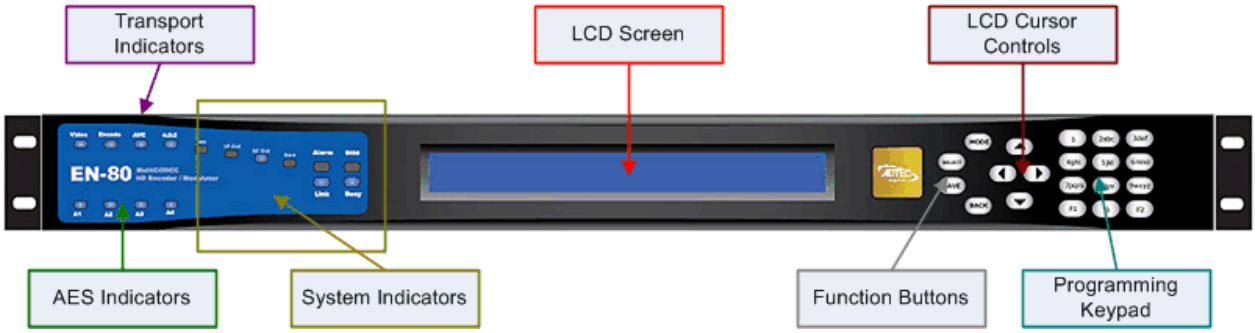
Cet appareillage numérique de la classe B répond à toutes les exigences de l'interférence canadienne causant des règlements d'équipement. L'opération est sujette aux deux conditions suivantes: (1) ce dispositif peut ne pas causer l'interférence nocive, et (2) ce dispositif doit accepter n'importe quelle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

Chapter 2 - The Device

Front Panel Diagram



Indicators

Indicator LEDs will be on, off, or flashing **blue** depending on the current state or configuration of the unit.

Transport Indicators

Indicator	Function
Video	Unit detects valid video if on. If flashing, valid video is not detected.
Encode	Unit is encoding if on; not encoding if off.
AVC	Unit is configured for MPEG4 (AVC) if on; configured for MPEG2 if off.
4:2:2	Unit is configured for 4:2:2 chroma if on; 4:2:0 if off.
HD	Unit is encoding High Definition if on; Standard Definition if off.

AES Indicators

Indicator	Function
A1 through A4	Audio Input Indicators; if audio mode is set to encode or passthru, the corresponding indicator is on, if audio mode is set to OFF, indicator is off.

System Indicators

Indicator	Function
IP Out	If IP multicast mode is set to **send**, the indicator is on.
RF Out	If transmit is set to **enable**, the indicator is on.
Bar	If Bars and Tones are selected, the indicator is on.
Alarm	If an Alarm State is present, the indicator is on.
BISS	If BISS Conditional Access is **enabled**, the indicator is on.
Link	If unit has Ethernet-connectivity, the indicator is on.
Busy	If unit has Ethernet traffic present, the indicator is flashing.

Controls

Using the **Mode**, **Select**, **Enter**, **Escape**, and directional buttons, the user can control the unit via the front panel.

Control	Function
Mode button	Cycle between top-level menus
Select	Select a specific menu or editable field within a menu
Enter	Confirm data entered into an editable field

Escape	Go back one level; pressing "Escape" on a top level menu returns to display to default status.
Cursor Arrows	Maneuver to/within an editable field/enter data
Programming Keypad	For value entry

Front Panel Log-On/Log-Off

- The device 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 has a login duration feature. This setting allows the user to specify a time frame (in minutes) until the unit will automatically log itself out.

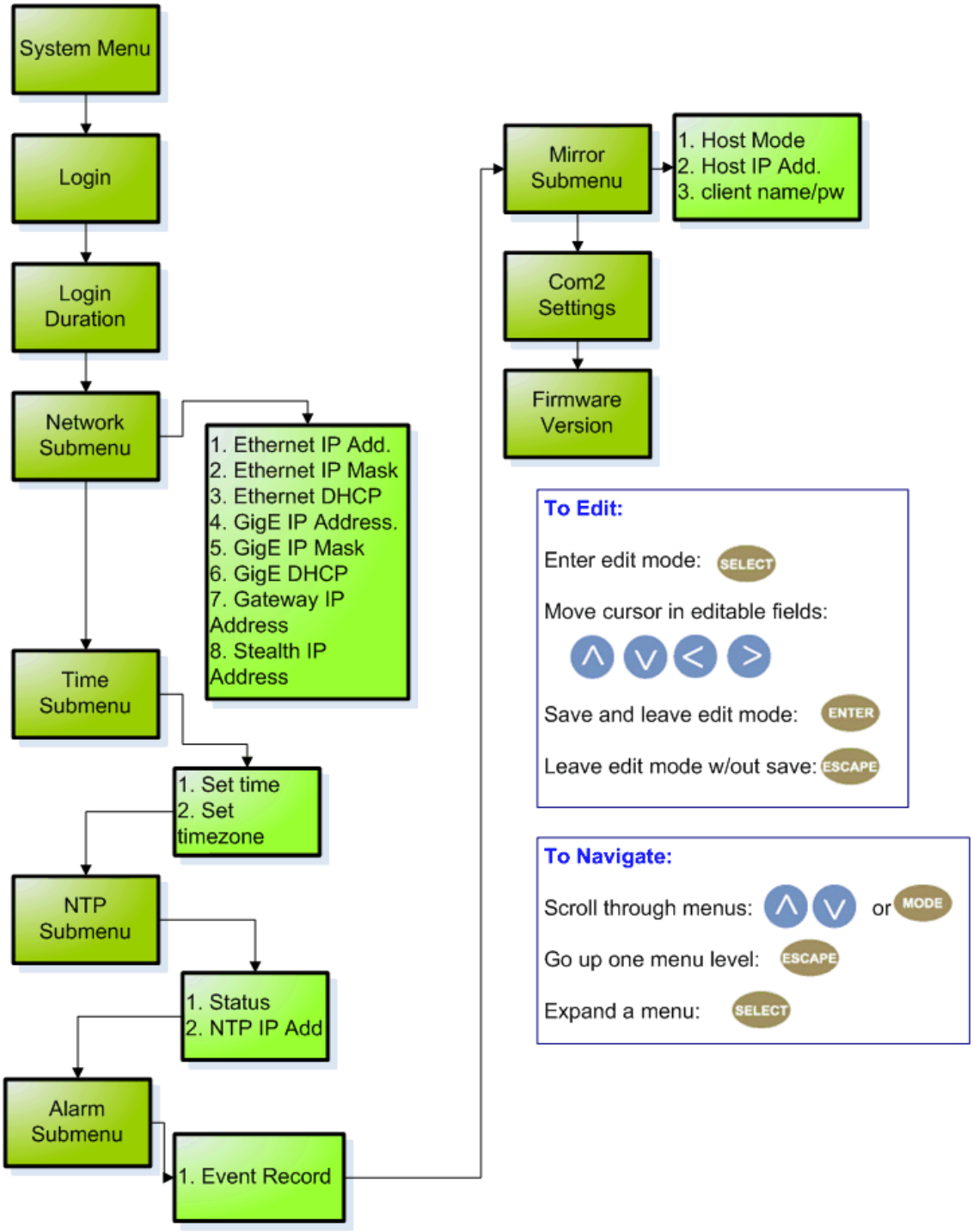
To set the duration:

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 Configurations:
0 (Zero): The unit will not automatically log out **1-9:** The duration of time before the unit logs out if no input is received.

System Menu

The following diagram represents the structure of the **System** Menu of the Adtec EN-80.



Control Descriptions

Network Menu

Item	Function	Options	ADTEC 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 0
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 0
Ethernet DHCP	Dynamic Host Configuration Protocol; allows mediaHub to self-locate network Ethernet parameters	**On** (finds own DHCP Address) **Off** (defaults to last entered IP Address) default is OFF	*.sysd DHCP eth0
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 1
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 1
GigE DHCP	Dynamic Host Configuration Protocol; allows device 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 hexadecimal 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 NIP server	none
NTP IP Address	IP address designated for Network Transfer Protocol	user-defined using **<left/right arrow>** and **<select>** buttons	*.sysd NIP

Alarm Menu

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

Mirror Menu

Item	Function	Options	Adtec API Commands
Host Mode	Designates whether the unit is mirroring another server, or serving as a stand-alone client.	MirrorClient? MirrorList Client	*.sysd HOM
Host IP Address	IP address of the server this unit is attempting to mirror or report to.	user-defined using **<left/right arrow>** and **<select>** buttons	*.sysd HIP
Client Name, Password	unit-level security for FTP connectivity	user-defined using **<left/right arrow>** and **<select>** buttons **Note:** Adtec recommends this **NOT** be changed! Default is "USER"	*.sysd CPW

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	Decoder command *.sysd com2 Encoder command *.ecmd com2

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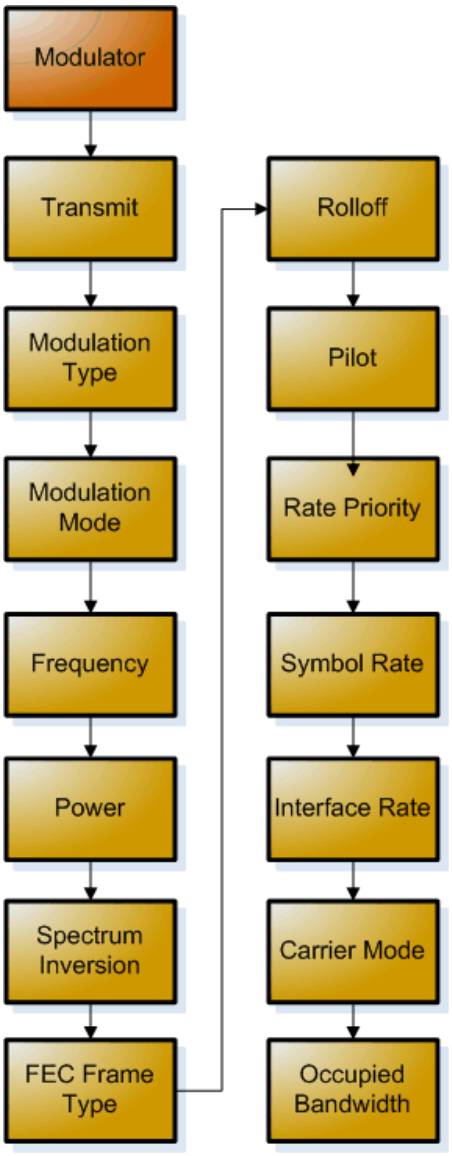
Modulator Menu

The following diagram represents the structure of the *Modulator* Menu of the Adtec EN-80. The top level of this menu (as illustrated) will be the same whether an L-Band or IF Modulator is installed.



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
Transmit	Main RF output control	Disable Enable	*.SYSD LBM Transmit [option]
Modulation Type	Selects modulation standard:	DVBS DVBS-2	*.SYSD LBM Type [option]
Modulation Mode	Selects modulation mode/FEC rate.	Determined by feature key(s).	*.SYSD LBM Mode [option]
Frequency	RF output frequency	950MHz - 1.75GHz 50MHz - 180MHz	*.SYSD LBM Frequency [value]
Power	RF output power level.	-52 to +7dBm -30 to +5dBm	*.SYSD LBM Power [option]
Spectrum Inversion	Direct spectrum mode corresponding to the INTELSAT specification IESS-308 (Rev.8 - pgs 18 & 69) and with DVB standard ETS 300 421.	Invert Normal	*.SYSD LBM SpectrumInversion? [option]
FEC Frame Type	Forward Error Correction frame type.	Short Normal	*.SYSD LBM FEC frame type [option]
Rolloff	RCRO (Root Cosine Roll-Off) factor for the matched filter at the modulator output.	20 25 30	*.SYSD LBM Rolloff [option]
Pilot	DVB-S2 Physical Layer Pilot insertion.	On Off	*.SYSD LBM Pilot [option]
Rate Priority	Determines which rate will be kept constant.	Symbol Interface	*.SYSD LBM !RatePriority [option]
Symbol Rate	The baud rate of the modulated output signal.	Range determined by Feature key.	*.SYSD LBM !SymbolRate
Interface Rate	The bit rate at the baseband interface.	Range determined by feature key	N/A
Carrier Mode	ON = normal operation Pure Carrier and Clock 4/8/16 = Calibration and Test modes	Pure Carrier On Clock/8 Clock/4 Clock/16	*.SYSD LBM
Occupied Bandwidth	Calculated bandwidth of the modulated carrier at the -26 dB points.	display only	N/A

DVB-S Modulation Modes Supported

QPSK: 1/2, 2/3, 3/4, 5/6, 7/8 8PSK: 2/3, 5/6, 8/9 16QAM 3/4, 7/8

DVB-S2 Modulation Modes Supported

QPSK 1/2	QPSK 2/5	8PSK 5/6	16APSK 5/6
QPSK 2/3	QPSK 3/5	8PSK 8/9	16APSK 8/9
QPSK 3/4	QPSK 4/5	8PSK 9/10	16APSK 9/10
QPSK 5/6	QPSK 8/9	16QAM 3/4	32APSK 3/4
QPSK 6/7	QPSK 9/10	16QAM 7/8	32APSK 4/5
QPSK 7/8	8PSK 3/5	16APSK 2/3	32APSK 5/6
QPSK 1/4	8PSK 2/3	16APSK 3/4	32APSK 8/9
QPSK 1/3	8PSK 3/4	16APSK 4/5	32APSK 9/10

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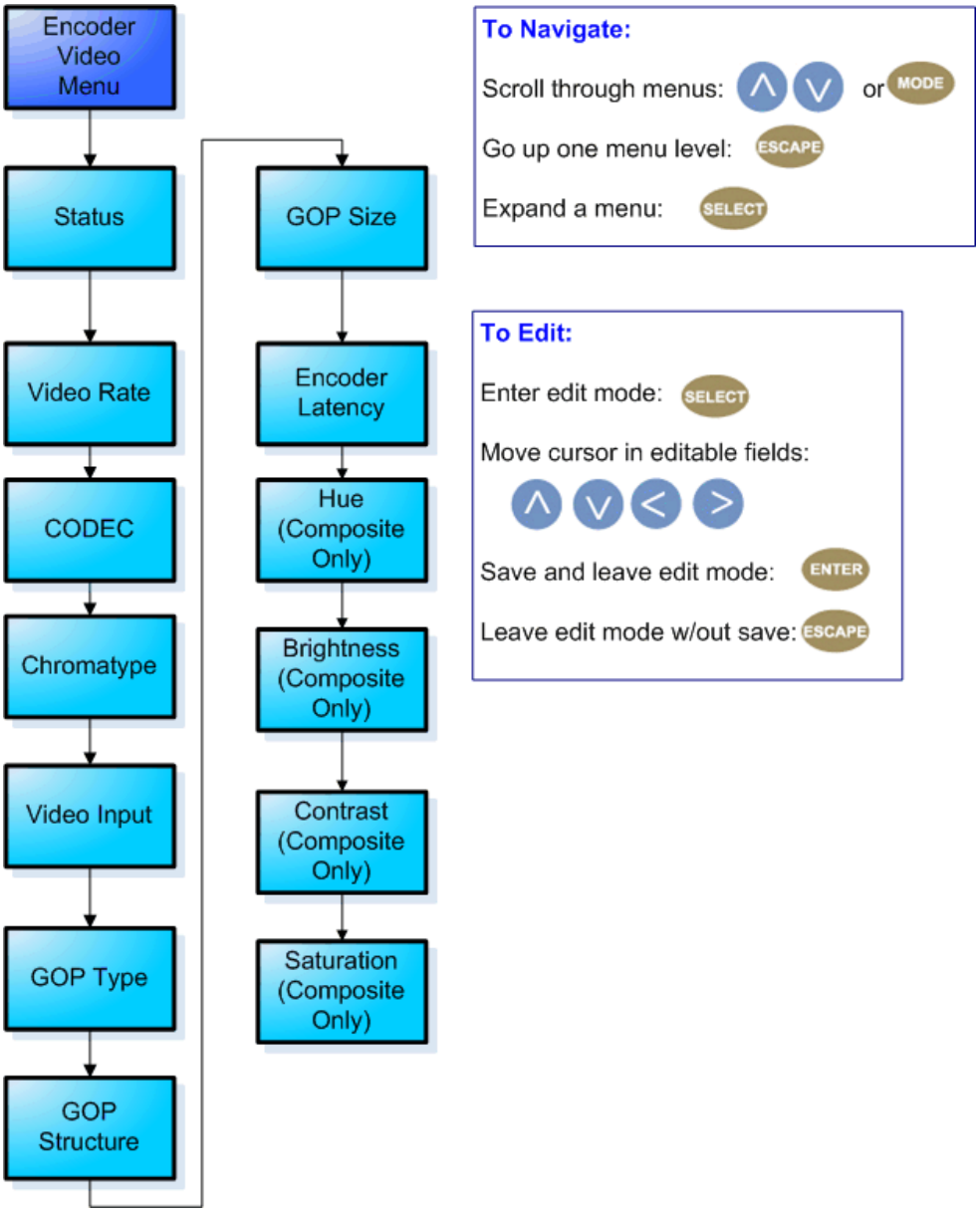
Encoder-Video Menu

The following diagram represents the structure of the **Video Encoder** Menu of the Adtec EN-80:



Definitions

Item	Function	Options	API Commands
Status	Shows current status and provides encoder control.	Encode - begins encoding Stop - stops encoding	. ECMD REC - encode .ECMD STP - stop
Video Rate	rate at which video signal is being encoded	user-defined using **<left/right arrow>** and **<select>** buttons. Review Technical Specifications for full details on acceptable ranges.	*.ECMD VRT
CODEC	type of video compression used during encode.	MPEG 2 MPEG 4 AVC	*.ECMD VEN
Chromatype	chrominance; video color-component	420 422	*.ECMD CHT
Video Input	selects type of video input	Composite SDI	*.ECMD INP
GOP Type	Group of Pictures type as open or closed GOP is expressed as one command, i.e., *.ECMD GOP [type] [structure] [size]	Open Closed	*.ECMD GOP 0 = open 1 = closed
GOP Structure	Group of Pictures structure (format)	I IP IBBP	*.ECMD GOP 3 = I 2 = IP 0 = IBBP
GOP Size	Group of Pictures size	User-defined 1-30 in increments of 1	*.ECMD GOP 1-30
Encoder Latency	adjusts encoder latency. Affected by video rate, frame size and rate, and GOP structure.	LONG: latency measures close to 1 second NORMAL: latency is approximately 1/2 second. Best option for standard transmission and contribution. LOW: latency approximately three (3) frames less than the NORMAL setting. VERYLOW: latency approximately five (5) frames less than the NORMAL setting.	*.ECMD ELA
Hue	Composite Inputs Only; sets hue; range is 0 to 1024 with a default value of 512	range = 0 to 1024	*.DCMD HUE [value]
Brightness	Composite Inputs Only; sets brightness; range is 0 to 1024 with a default value of 512	range = 0 to 1024	*.DCMD BRI [value]
Contrast	Composite Inputs Only; sets contrast; range is 0 to 1024 with a default value of 512	range = 0 to 1024	*.DCMD CON [value]
Saturation	Composite Inputs Only; sets saturation; range is 0 to 1024 with a default value of 512	range = 0 to 1024	*.DCMD SAT [value]

Note: the encoder function does not support MPEG1 Layer 3 or MP3.

Latency Notes:

- When encoding PAL video with VERYLOW latency, we recommend using IP GOP Structure if the decoder is TT 1260. Otherwise, the TT 1260 will underflow video.
- Long IBBP GOPs will produce higher latency over short IP GOPs.
- Short IP GOPs at lower bit rates produce lower quality video.

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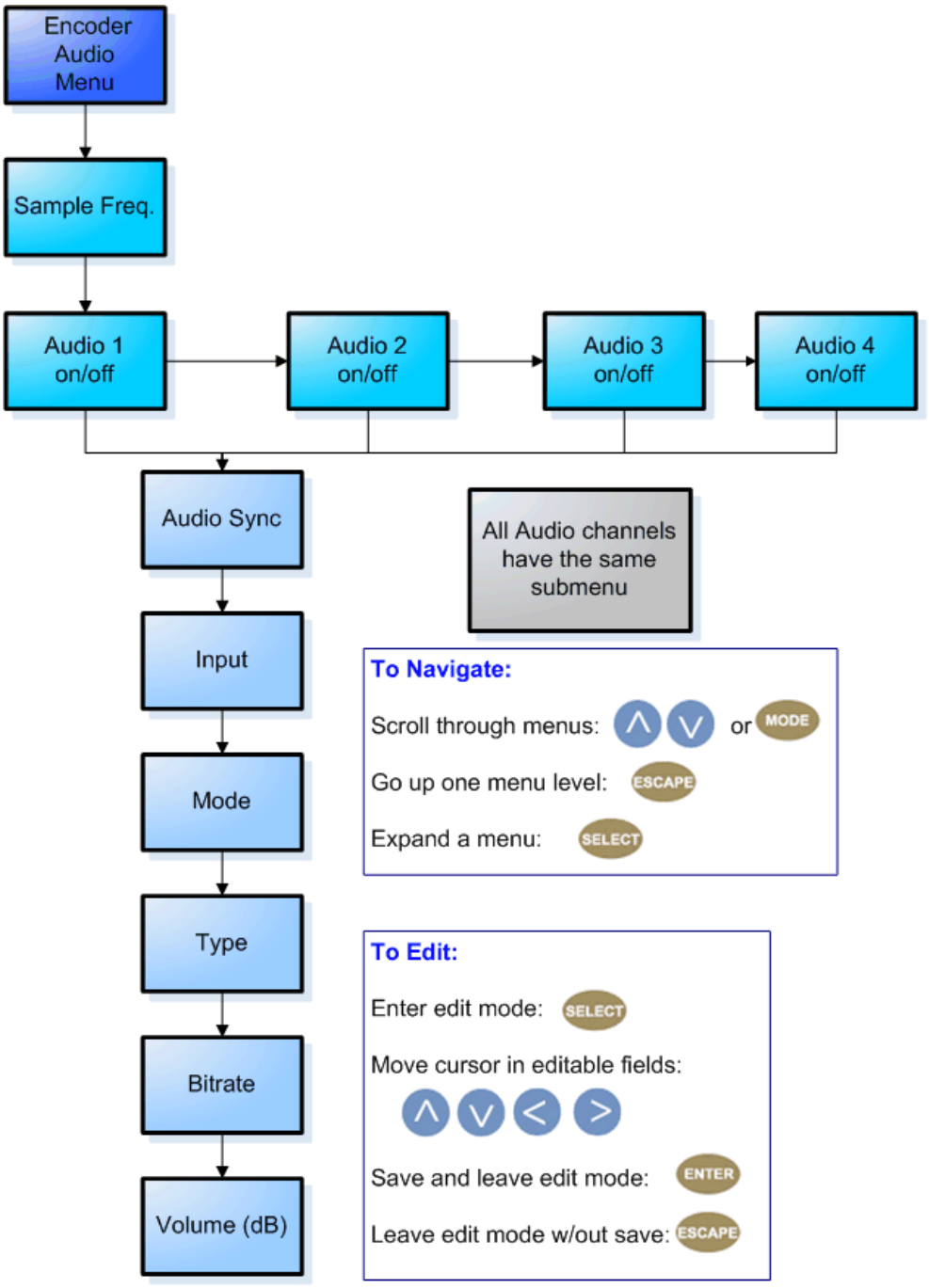
Encoder- Audio Menu

The following diagram represents the structure of the **Audio Encoder** Menu of the Adtec EN-80:



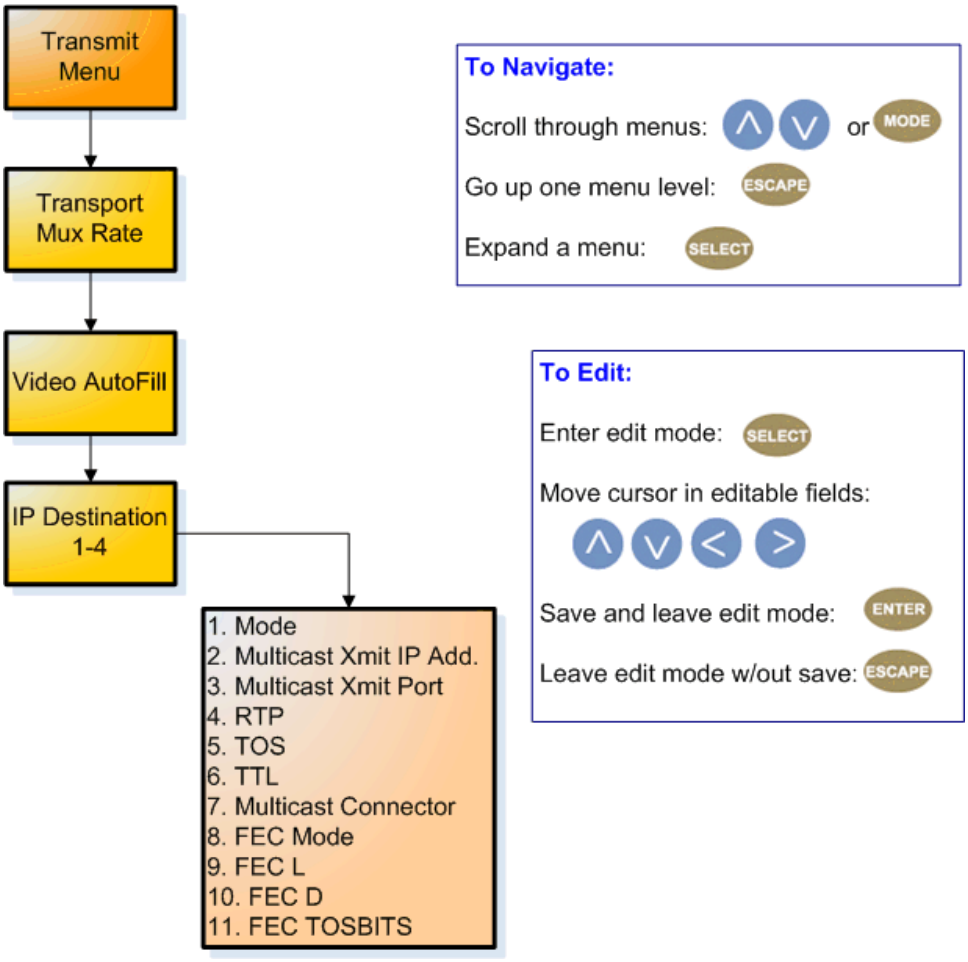
Definitions:

Item	Function	Options	API Commands
Sample Frequency	how often signal is sampled in Hz only one frequency can be selected; will set both Audio 1 and Audio 2	32000 44100 48000	*.ECMD ASF [audio]
Audio Sync	Audio sync offset in milliseconds.	The range is -800 to +800	*.ECMD AUS
Input	selects type of audio input menu is identical for Audio 1 through 4	Analog SDI AES	*.ECMD AIN [audio] Audio 1 = 0 Audio 2 = 1
Mode	specifies if the unit is encoding audio or passing it through as received	Encode Passthrough	See AMO in API Only functions
Type	type of audio signal being encoded or passed	Linear PCM Dolby Digital AC3 Musicam Layer II Dolby E	See AMO in API Only functions
Bitrate	audio codec	64000-384000 kBits/sec (Musicam encode) 64000-640000 kbits/sec (Dolby Digital/passthrough)	See AMO in API Only functions
Volume Level	volume in dB	user-defined using **<left/right arrow>** and **<select>** buttons range is -18 dBs to 8 dBs in increments of 1	*.ECMD ALV [channel] [level in dB] Audio Channel 1 = 0 Audio Channel 2 = 1

Note: the encoder function does not support MPEG1 Layer 3 or MP3.

Transmit Menu

The following diagram represents the structure of the **Transport** Menu of the Adtec EN-80:

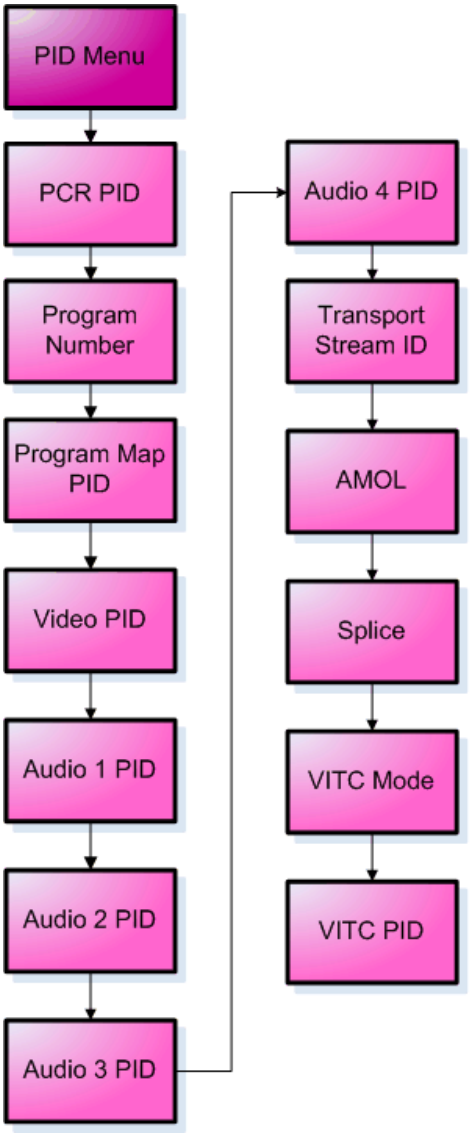


Definitions

Item	Function	Options	API Commands
Transport Mux Rate	rate, in bps, that the multiplexed signal is being handed off	max = 100000000	*.ECMD TMR
Video Autofill	ties to Transport Mux Rate; uses non-audio packet space for video	On Off	*. ECMD VAF [x] 1 = on 0 = off
IP Destination 1-4	sub-label for items below. The sub-menu repeats four (4) times for up to four multicasting IP destinations.	NONE	none
Mode	switches multicast function on and off	Off Send	*.ECMD MMO
Multicast Transmit IP Address	IP Address on which a transport stream is transmitted	user-defined using **<left/right arrow>** and **<select>** buttons	*.ECMD MSI
Multicast Transmit Port	port assignment used for transmitting a multicast	user-defined using **<left/right arrow>** and **<select>** buttons	*.ECMD MSP
RTP	allows for sequence numbering and timing; editable if Multicast Mode is set to 'Send'	On Off	*.ECMD RTP
TOS	Type of Service; selects the type of multicast that will forward the packet	Normal Minimize Cost Maximize Reliability Maximize Throughput Minimize Delay	*.ECMD TOS
TTL	Time-to-Live; specifies the number of iterations or transmissions the packet can undergo before it is discarded	user-defined using **<left/right arrow>** and **<select>** buttons	*.ECMD TTL
Multicast Connector	sets the physical connector (on the rear of the unit) to use for multicast transmit purposes on the indicated encode channel.	Ethernet !GigE	*. ECMD MCN
FEC Mode	Forward Edge Correction; selects on/off. When selected, sends two FEC RTP streams in addition to a source RTP stream enabling a receiver to reconstruct missing packets in the source stream.	On Off Available if RTP selected 'on'	*.ECMD ECR
FEC L	affects the maximum burstpacket loss that can be recovered	4-20	*.ECMD ECR
FEC D	defines latency involved in burstrecovery	4-20	*.ECMD ECR

PID Menu

The following diagram represents the structure of the **PID** Menu of the Adtec EN-80:



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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

Definitions:

Item	Function	Options	Adtec API Command
PCR PID	identifies packets which contain PCR adaptation field	user-defined 20-character hexadecimal	*. ECMD PRP
Program Number	identifies which program number in the PAT and PMT packets are associated with which video and audio PIDs 0x0001 - 0xFFFF are valid ID assignments	user-defined 20-character hexadecimal	*. ECMD PNU
Program Map PID	identifies packets containing the program map 0x0000: reserved for Program Association Table (PAT) 0x0001: reserved for conditional Access Table 0x0002 -> 0x001F: reserved 0x0020 - 0x1FFE are valid PID assignments	user-defined 20-character hexadecimal	*. ECMD PPI see reserved PIDs at left
Video PID	identifies video packets 0x0000: reserved for Program Association Table (PAT) 0x0001: reserved for conditional Access Table 0x0002 -> 0x001F: reserved 0x0020 - 0x1FFE are valid PID assignments	user-defined 20-character hexadecimal	*. ECMD VPI see reserved PIDs at left
Audio 1 PID	identifies packets containing audio AES stream 0x0000: reserved for Program Association Table (PAT) 0x0001: reserved for conditional Access Table 0x0002 -> 0x001F: reserved 0x0020 - 0x1FFE are valid PID assignments	user-defined 20-character hexadecimal	*. ECMD API [Index] [PID] 0 = channels 1,2 1= channels 3,4 see reserved PIDs at left
Audio PID 2-4 PID	see above	user-defined 20-character hexadecimal	See above
Transport Stream ID	identifies this transport stream from others in a multiplex; found in PAT packet	user-defined 20-character hexadecimal	*.ECMD TSI
AMOL	Automated Measurement of Line Ups; identifies packet which contains AMOL (NTSC) information Only applies to 525 line (NTSC) video. 0x0020 - 0x1FFE are valid PID assignments	user-defined 20-character hexadecimal	*.ECMD APQ
Splice	identifies packets which contain DVVS-255 splice information. 0x0010 - 0x1FFE are valid PID assignments	user-defined 20-character hexadecimal	*.ECMD SPI
VITC Mode	Vertical Interval Time Code (VITC); switches feature on or off. The device only passes VITC data; it does not utilize it. See the Vertical Interval Time Code article in this manual for more information.	Off On	*.ECMD BMO
VITC PID	defines the portion of the ANC PID carrying VITC data	user-defined 20-character hexadecimal	*.ECMD BPI

Note: All PID API commands can now accept Hex or Decimal values.

PCR PID Examples: PRP 1E1 (set the PID to 0x1e1 (481 decimal) PRP , 481 (set the PID to 481 (the comma is an empty placeholder) PRP 1E1 500 (set the PID to 500 (assumes 500 is different from the currently configured PID).

PID Ranges

Range	Function
0x0000	Program Association Table
0x0001	Reserved for Conditional Access Table
0x0002->0x001F	Reserved
0x0020 - 0x1FFE	valid PID assignments

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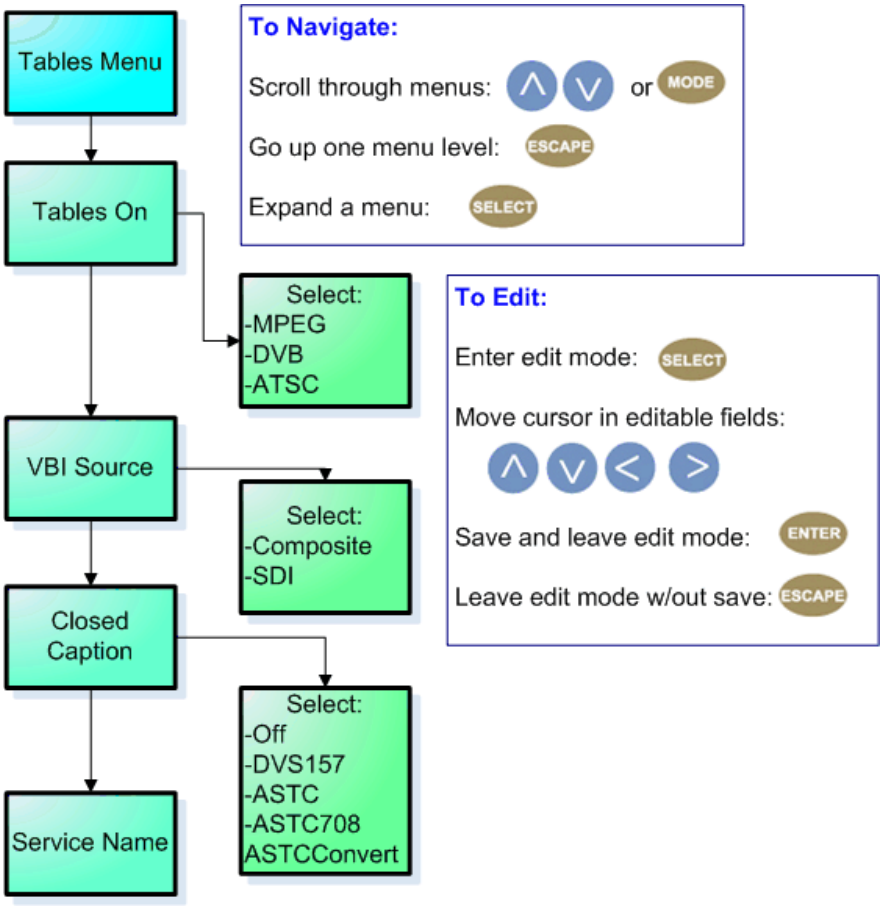
Tables Menu

The following diagram represents the structure of the **Tables** Menu of the Adtec mediaHub HD 422:

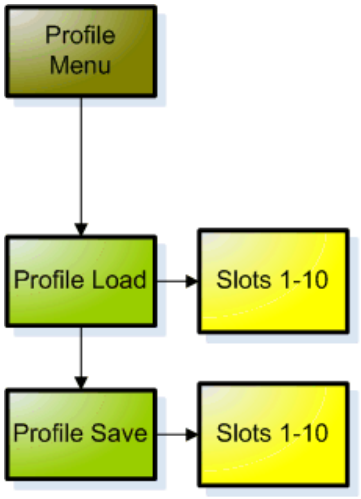


Control Descriptions

Item	Function	Options	Adtec API Command
Tables On	designates type of tables to be used	DVB MPEG ATSC	*.ECMD TON 0 = DVB 1 = MPEG 2= ATSC
VBI Source (VBS)	selects the source of Vertical Blanking Interval spacing	Composite SDI	refer to Help Notes in the web control application
Closed Caption	activates (or deactivates) closed-captioning and specifies closed-captioning standard to be used	Off DVS157 ASTC ASTC708 ASTCConvert	*.ECMD CLC [option] 0 = Off 1 = ASTC mode 2 = ASTC708 mode 4 = ASTCConvert mode note:In std-def, all modes apply. In hi-def, for EIA-708 closed caption insertion, set to ATSC.
Service Name	name of program/network or other identifier;carried in the SDT table of a transport stream	user-specified 20-character alphanumeric text string	*.ECMD SNA [name]

Profile Menu

The following diagram represents the structure of the **Profile** Menu of the Adtec EN-80:



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

Usage

- The Profile Menu can be used to store and access up to ten stored configurations (profiles).
- The device can store up to 40 profiles, but only the first ten are accessible through the front panel. The other 30 can be defined and edited using a telnet/API command session.
- The front panel enables users to load one of the top 10 saved profiles or save a profile in one of the first ten memory slots.

API Commands

There are five commands in the Profile group in the API command set. They are:

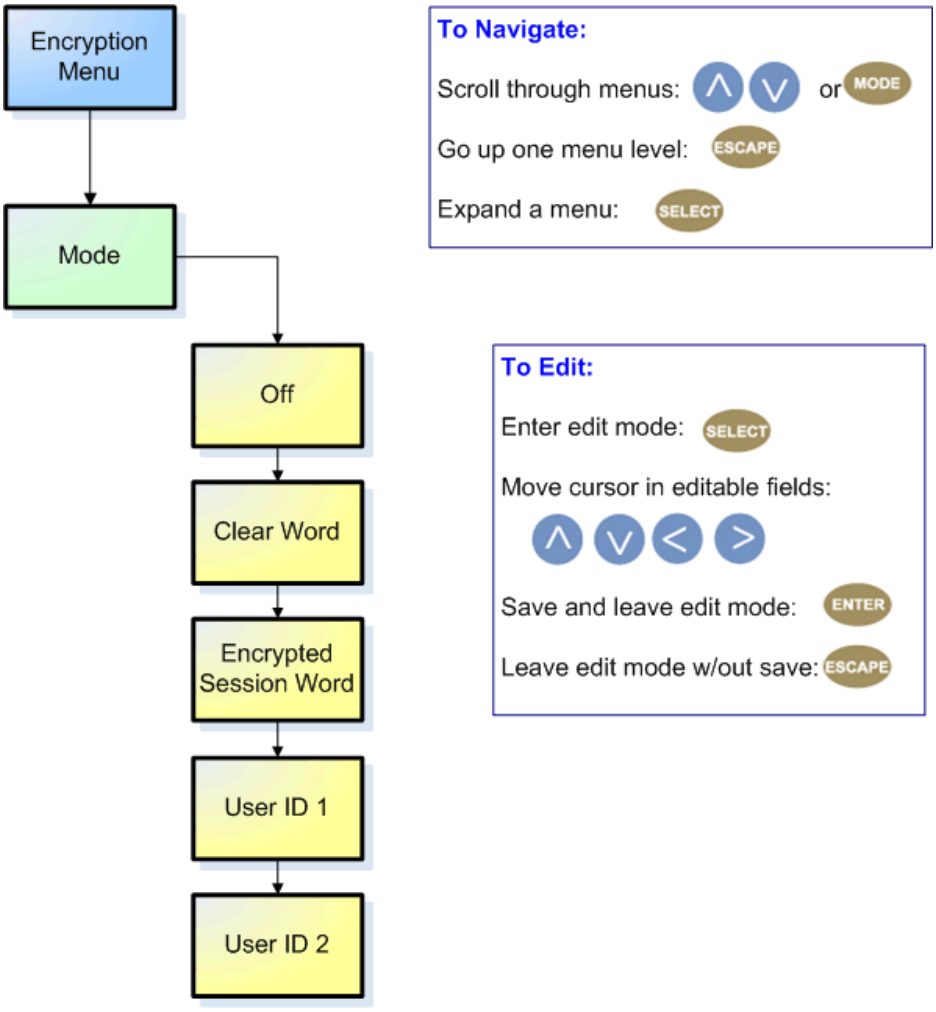
Command Handler	Command	Function
*.ECMD PROFILE	LIST	lists all stored profiles
*.ECMD PROFILE	[slot #] or [name] LOAD	loads stored profile from the designated memory slot
*.ECMD PROFILE	[slot #] SAVE	saves a profile to the designated memory slot
*.ECMD PROFILE	[slot #] DELETE	deletes the profile stored at the designated memory slot
*.ECMD PROFILE	[slot #] RENAME	renames the profile stored at the designated memory slot

Naming

When saving a profile to Slots 1-10 from the front panel, the system will default to the Service Name associated with that configuration. To input a name of the user's choice, use the Profile/Save or Profile/Rename commands in a telnet/API session.

Encryption Menu

The following diagram represents the structure of the **Encryption** Menu of the Adtec EN-80:

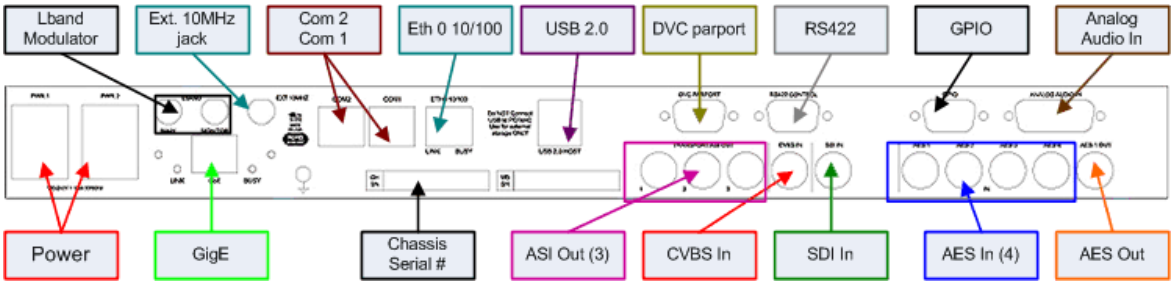


Control Descriptions:

Control	Function	API Command
Mode	select between off, BISS-1, and BISS-E encryption	*.ECMD ECR
Clear Session Word	MODE BISS 1 uses a 12-digit hexadecimal Clear Session Word.	*.ECMD EKY
Encrypted Session Word	MODE BISS E XXX]uses a 16-digit hexadecimal Encrypted Session Word	*.ECMD EKY
User ID 1	used in BISS-E Mode only; the 14-digit hexadecimal User ID used for encryption	*.ECMD EKY
User ID 2	used in BISS-E Mode only; the 14-digit hexadecimal User ID used for encryption (secondary)	*.ECMD EKY

For more information about BISS and its use in Conditional Access, see the CAS Tab article.

Back Panel



Power

Connection	Specification
Power 1	AC Power, Standard 3 pin computer power plug (Auto range 70-240 VAC Input)
Power 2	redundant AC Power, Standard 3 pin computer power plug (Auto range 70-240 VAC Input)

GigE Communications

Connection	Specification
GigE Port	Transport Stream via UDP/RTP or FTP file transfer or SMB mount
Link LED	indicates network connectivity present
Busy LED	if flashing, indicates traffic present

Communications

Connection	Specification
Com 2	RS232 Control
Com 1	RS232 Terminal
Eth 0	Ethernet 10/100 management
USB 2.0	not currently supported
DNC Par Port	9-pin parallel I/O interface for general-purpose interfacing to control systems
RS422 Control	9-pin RS422 port, used for master (deck control) or slave (non-linear editor export) configuration

Transport

Connection	Specification
ASI Out 1-3	3 mirrored 188 Byte Transport Out, up to 100 Mbps
CVBS In	75 Ohm composite video input, used for SD resolutions only
SDI In	75 Ohm terminated Input, Video & Audio (SMPTE-259M for SD and SMPTE-292M for HD) BNC
GPIO	Parallel IO interface for Start, Stop, Status, and general-purpose interfacing to control systems
AES 1-4	Compressed or uncompressed terminating (75 Ohm) digital audio inputs.
Analog Audio In	Analog Balanced (600 Ohm) audio input. Stereo pairs (ch1 and ch2)
AES Out	do **not** use

Chassis Serial Number

- Manufacturer's reference number for unit

L-Band Modulator

Connection	Specification
Main	RF output, 50 Ohm BNC, frequency range 950 MHz to 1.750 GHz, Power Level -50 to -7 dBm
Monitor	RF output, 50 Ohm BNC, fixed power level at -45 dBm
External 10 MHz jack	BNC 50 Ohm connector for external 10MHz reference input (use is not required for designed functionality)

IF-Band Modulator

Connection	Specification
Main	RF output (IF), 50 Ohm BNC-connector, frequency range 50 MHz to 180 MHz, Power Level -30 to +5 dBm
Monitor	RF output (1080MHz), 50 Ohm F-Connector, fixed power level at -45 dBm, fixed frequency at 1.08 GHz
External 10 MHz jack	BNC 50 Ohm connector for external 10MHz reference input (use is not required for designed functionality)

Connecting to the EN-80

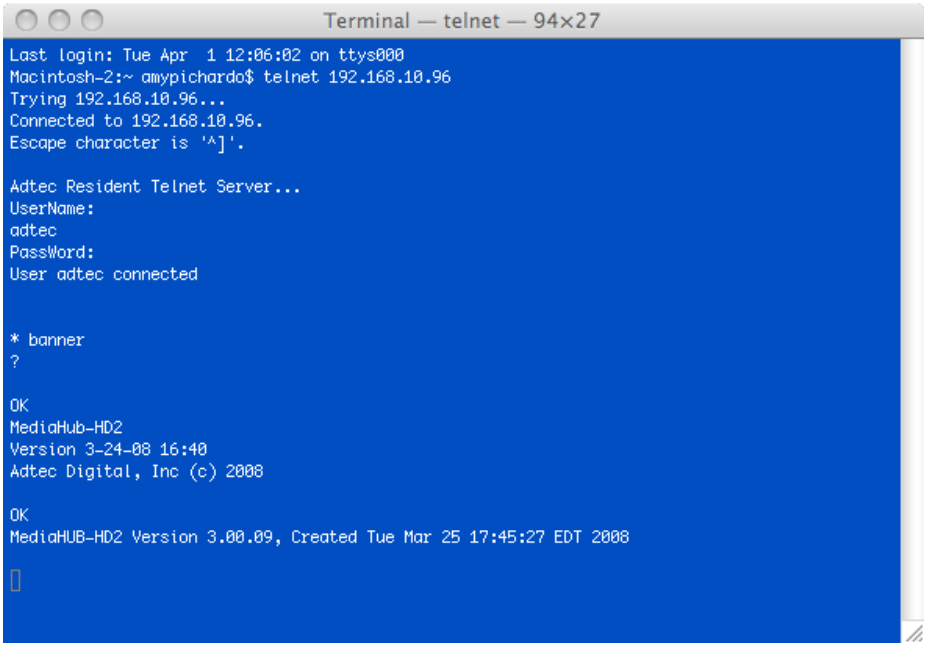
Using Telnet (standard 23 port)

To connect to your unit 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.



There are specific commands for the unit's physical operations, network integration and function, as well as the encoder's activity. Each has a unique way of accepting commands. If using telnet is your preferred method of communication to the unit, familiarize yourself with the API commands and their respective command handlers. For more information on this topic, point your browser to the IPA of your unit and look through the API notes that are described for the EN-80.

File Transfer Protocol (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

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Chapter 3 - Web-Based Control Application

Introduction to the Control Application

A web-based control software application comes pre-installed on the EN-80. Online updates will be available when future versions of this software is released along with product firmware.

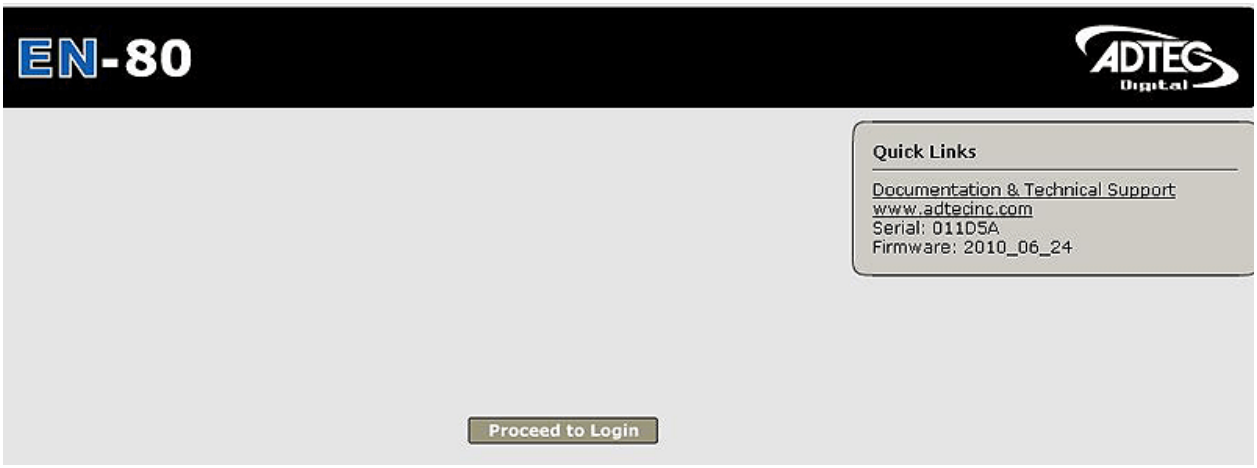
- Firefox: 3.0 (recommended)
- MS Internet Explorer: 7.0 and higher
- Safari: 3.0 and higher
- Opera: 9.0 and higher

Note for Safari users:

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

Access

Access the control 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 control 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.

Main Screen

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

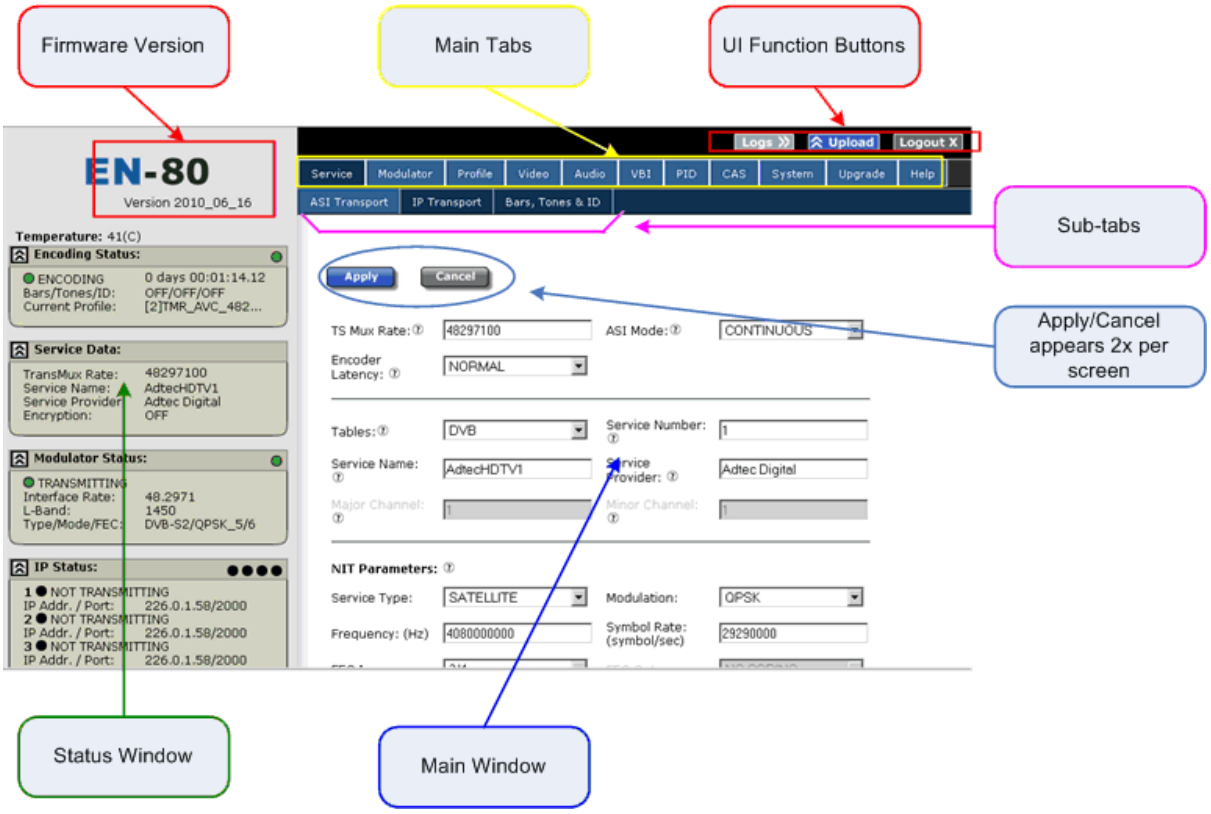
Status Window: the Status Window is fixed- it will display regardless of what function is being displayed in the Main Window. The current parameters of the unit's encode, decode, and transport functions are always in view and are updated in real time. Further detail about the Status Window is covered in a later section of this manual. The Status Window also features "Jump Buttons" that serve as a second way to access associated Menu Tabs.

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. Some of the menu tabs are further divided into sub-tabs.

Apply/Cancel: any control change must be committed via the **<Apply>** button in order to take effect.

UI Function Buttons: used for single-click access to the unit's Logs, upload firmware, or log out of the UI.

This diagram summarizes the controls and features of the UI Main Screen:

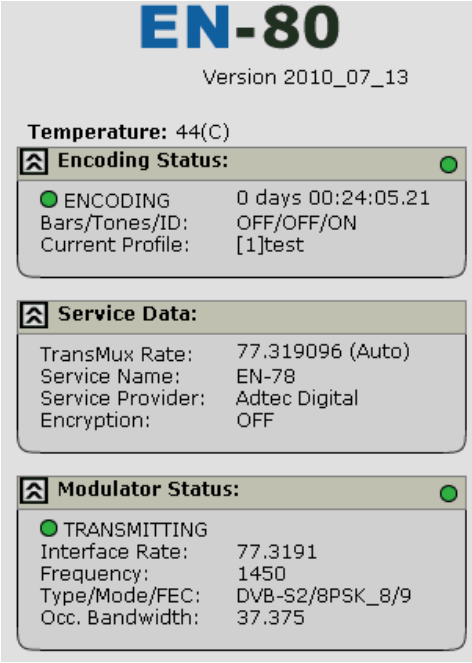


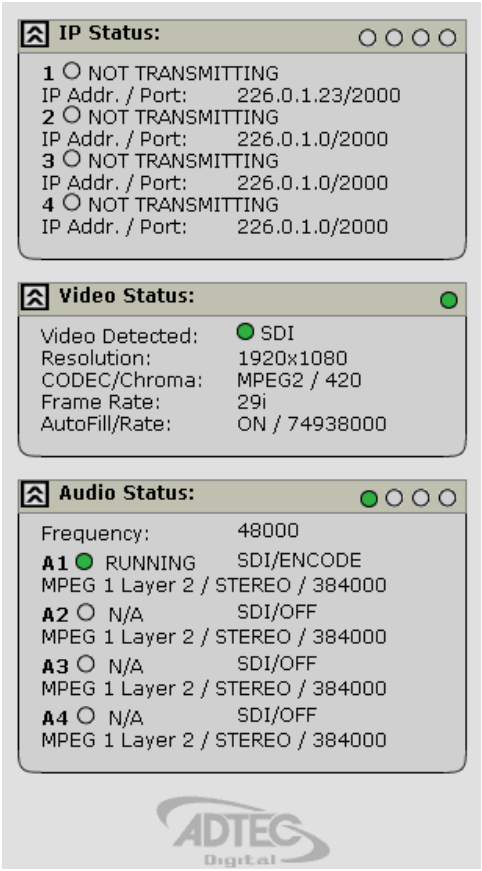
Important Note for mediaControl Users

Adtec's mediaControl software interface is **not supported** on the EN80's firmware and will not interface with the unit at all.

Status Window

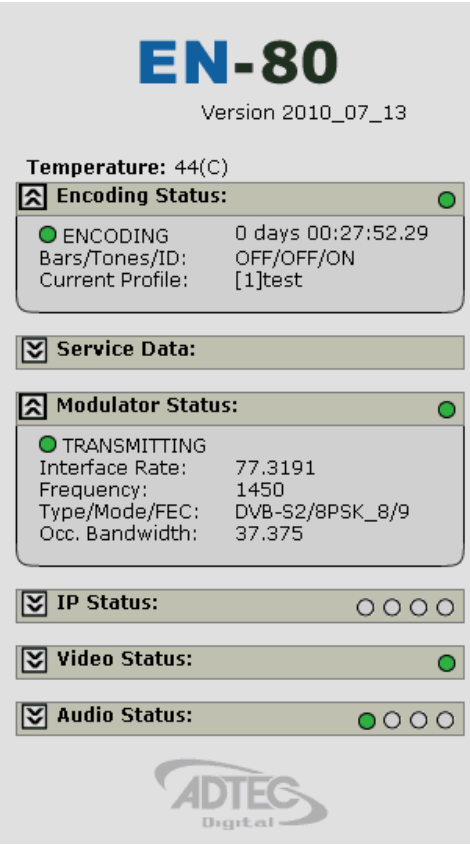
The Status Window is a fixed component of the Main Screen. The UI program queries the unit to give real-time updates to the unit's critical operating parameters. For reference purposes, the Status Window also lists the firmware version that is running on the device.





Custom View

The Status Window's view can be customized by collapsing panels you don't need. Click the the "double arrow" icon in the upper left corner of the panel to collapse it. Click again to open it back up. This screenshot shows the Status Window with the Service, IP Status, Video Status, and Audio Status panels collapsed.



Service Tab: ASI Transport

The **Service Tab** is used to set and view configuration options related to transmitting and capture rules. It is divided into three sub-tabs: ASI Transport, IP Transport, and Bars and Tones. The **ASI Transport** sub-tab controls transmission via Asynchronous Serial Interface (ASI) and sets parameters for the attendant Network Information Table (NIT).

ASI

Screenshot:

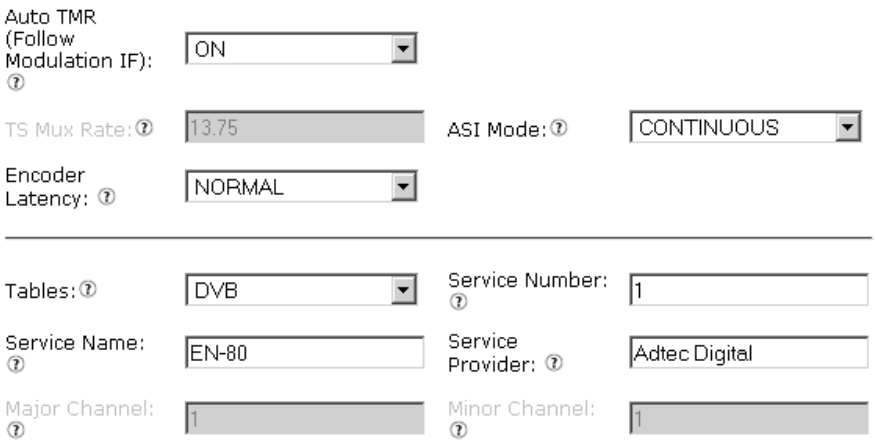


Image reduced for clarity

ASI Controls:

Control	Function	Options	API Command
Auto TMR	(Follow Modulation IF) forces Transport Mux Rate (TMR) to match the Interface Rate of the modulated signal. Only active for units with an installed modulator.	Off On	
TS Mux Rate	desired egress rate of the bitstream in bits per second max is 100,000,000 As a shortcut, the value can be entered as Mbps and the application will convert it on the fly. Example: Entering 19.4 in the text field will submit 19400000.	text field	*.ECMD TMR
ASI Mode	tell unit to send data constantly through ASI ports or cut off during periods when unit is idling When using this application for studio encoding, the ASI Mode is forced to Encode Only. Studio encoding is enabled when the Controller Interface is set to RS422 on the Studio Tab.	Continuous = 0 Encode Only = 1	*.ECMD ASM [option]
Encoder Latency	Encoder Latency offers the capability to adjust the latency. It is dependent upon the video rate, frame size/rate (NTSC,PAL,HIGH-DEF) and GOP structure. Options are: NORMAL: Should be used for distribution and standard contribution transmissions. Latency is approximately 1/2 second. LOW: Latency is approximately 3 frames less than NORMAL. VERYLOW: Latency is approximately 5 frames less than NORMAL. Use IP GOP Structure with TT 1260.	Normal Low Very Low Long	*.ECMD ELA
Tables	table format for the stream	DVB = [0] MPEG =[1] ATSC = [2]	*.ECMD TON [var]
Service Number	The Service Number (or Program Number) in PAT & PMT packets identifies which program is associated with which Video & Audio PIDs.This value should be entered in decimal format	text field; 20-character limit (incl. spaces)	*.ECMD PNU
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
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	Major Channel Number is carried in the ATSC Static PSIP table of a transport stream. Field is active when Tables control is set to ATSC.	text field; 0-999	*.ECMD MAJ
Minor Channel	Minor Channel Number is carried in the ATSC Static PSIP table of a transport stream. Field is active when Tables control is set to ATSC.	text field; 0-999	*. ECMD MIN

NIT Parameters

Screenshot:

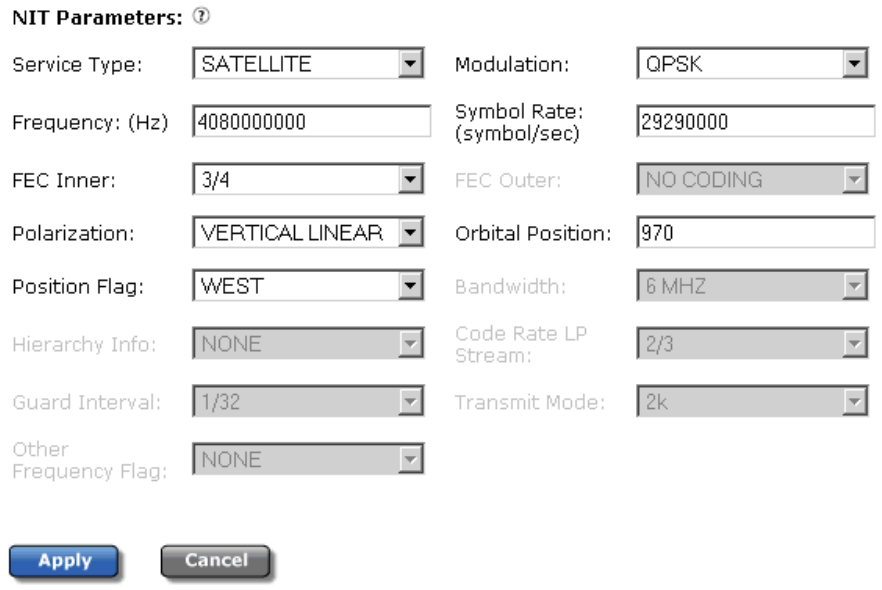


Image reduced for clarity

NIT Parameter 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
Orbital Position	orbital position of a receiving satellite	text field	*.ECMD NPR

NIT Parameters Continued

Control	Function	Options	API Command
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

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Service Tab: IP Transport

The **Service Tab** is used to set and view configuration options related to transmitting and capture rules. It is divided into three sub-tabs: ASI Transport, IP Transport, and Bars and Tones. The **IP Transport** sub-tab controls transmission over data networks using Internet Protocol(IP).

The IP Transport sub-tab has four (4) menus (labelled Destination 1 through 4) to allow for the configuration of the four possible multicast or unicast streams. All four menus feature the same controls. Only one control, group is illustrated.

Screenshot:

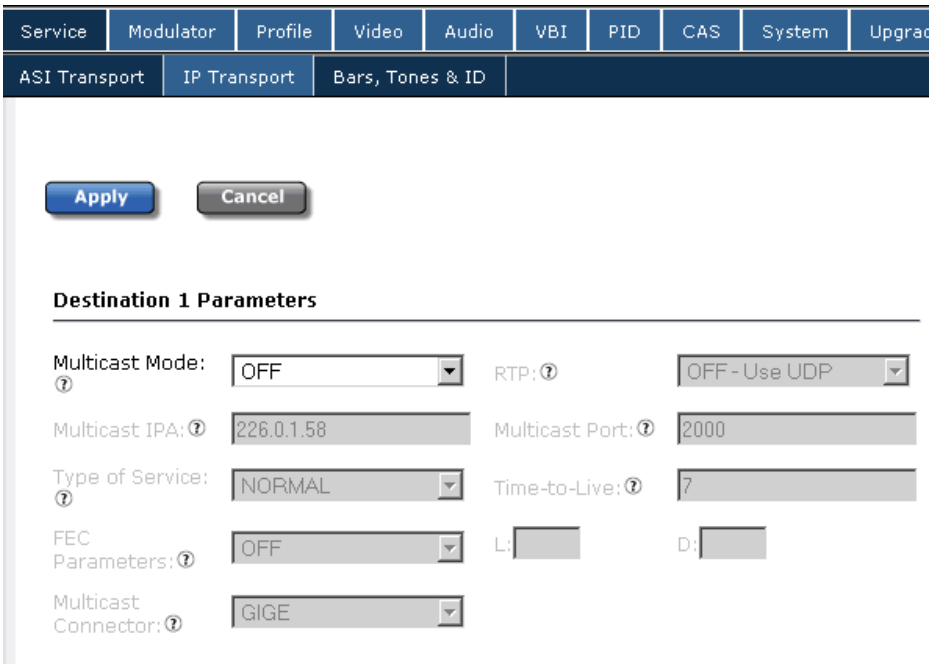

Image reduced for clarity

Controls

Control	Function	Options	API Command
Multicast Mode	enables sending of streaming MPEG over properly-configured ports Multicast can be turned OFF or set to SEND mode. SEND Mode transmits the current encode via the GigE port. Multicast group IP and Port addresses must be specified.	Off = 0 Send = 2 note*: Multicast Output via GigE (eth1)	*.ECMD MMO [option]
RTP	Turns RTP on or off RTP allows for sequence numbering and timing, which are crucial for the accurate playback of an audio or video data stream. Control is editable if Multicast Mode is set to 'Send'.	Off = [0] On = [1]	*.ECMD RTP
Multicast IPA	set the multicast send group Internet Protocol Address Control is editable if Multicast Mode is set to 'Send'.	text field (hexadecimal)	*.ECMD MSI
Multicast Port	Port number are used for sending UDP transfers in conjuction with Multicast IPA. If the port number is set to 0, then no UDP transfers will take place. 0 is default. Control is editable if Multicast Mode is set to 'Send'.	1 - 65535	*.ECMD MSP
Type of Service	used to select the type of multicast that will forward the packet	Normal Minimize Cost Maximize Reliability Maximize Throughput Minimize Delay	*.ECMD TOS
Time-to-Live	specify the number of iterations or transmissions the packet can undergo before it is discarded	text field	*.ECMD TTL
FEC Parameters	Forward Error Correction; send two FEC RTP streams in addition to a source RTP stream enabling a receiver to reconstruct missing packets in the source stream. Used in conjunction with L and D values; described below.	Off On (when RTP is also selected 'on')	*.ECMD FEP
FEC L Value	affects the maximum burstpacket loss that can be recovered	text field; 4-20	*.ECMD FEP
FEC D Value	defines latency involved in burstrecovery	text field; 4-20	*.ECMD FEP
Multicast Connector	defines connection type for IP transport of the multicast stream	Ethernet !GigE	*.DCMD MCN

Service Tab: Bars and Tones

The **Service Tab** is used to set and view configuration options related to transmitting and capture rules. It is divided into three sub-tabs: ASI Transport, IP Transport, and Bars and Tones. The **Bars and Tones** sub-tab controls the display of these elements.

Screenshot:

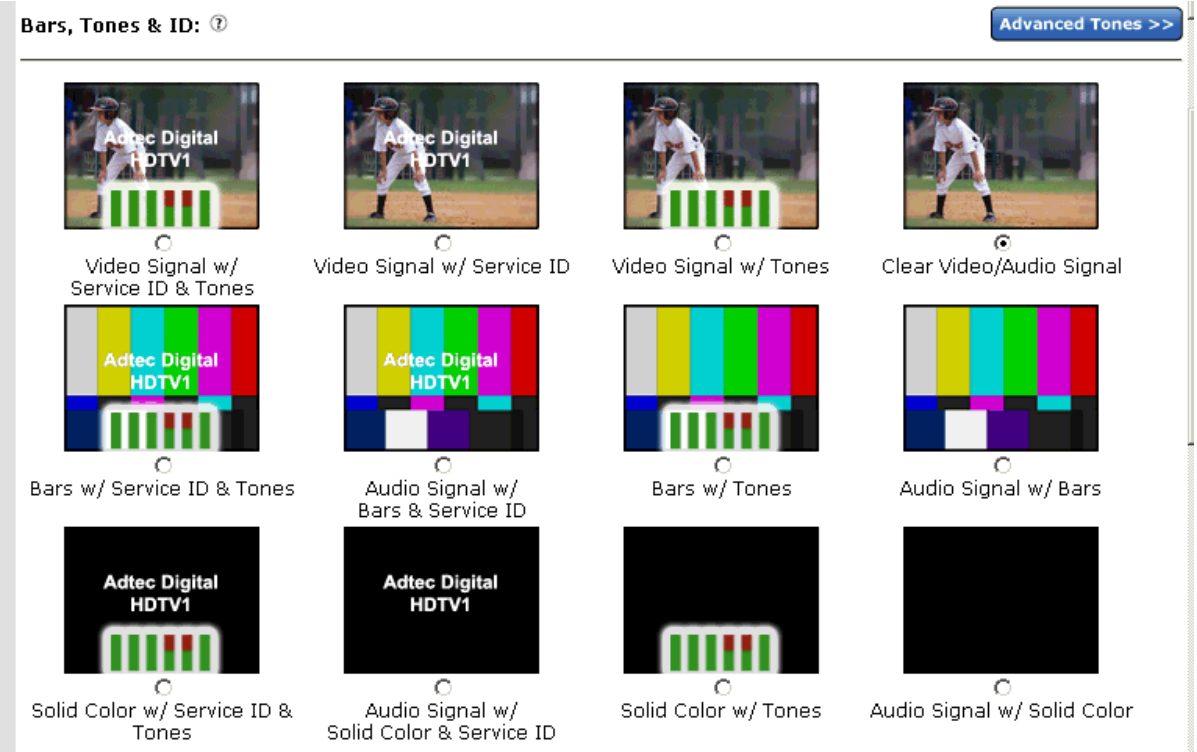

Image reduced for clarity

Controls:

Radio buttons select the type of display desired (see illustrations).

Note: A valid video input must be present in order to use Bars, Tones, and ID. At a glance, the "Video Detected" indicator on the Status Panel will alert you to the presence of a valid video input.

Advanced Tones

Clicking the "Advanced Tones" button will open the Advanced Tones window.

Screenshot:

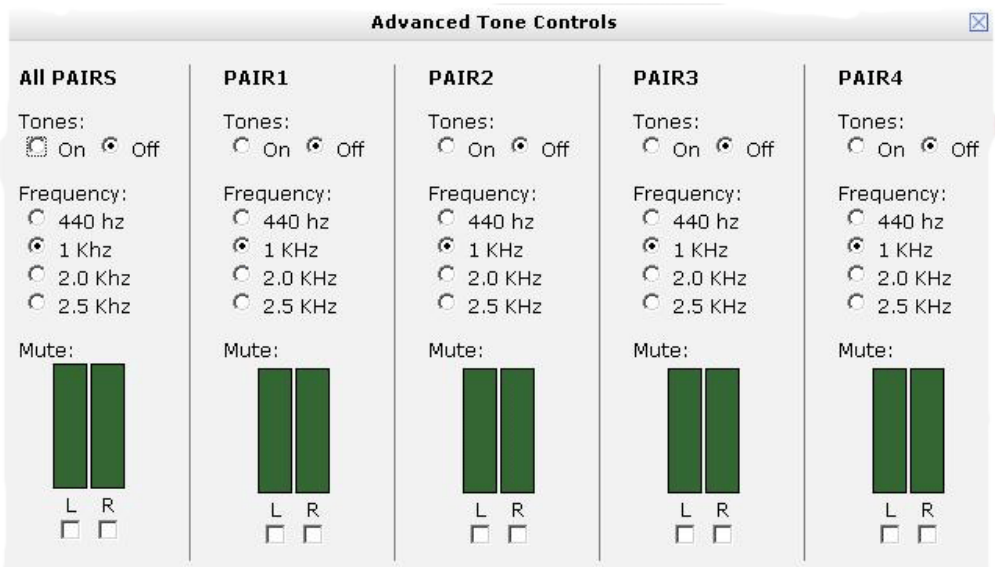

Image reduced for clarity

This panel is used to fine-tune tones by frequency and to mute the left or right stereo signal. Control can be influenced over all stereo pairs or individual pairs.

Modulator Tab

The controls on this tab govern the operation of the modulator in the unit. The EN-80 line of encoder/modulators can be purchased with three options:

- L-Band Modulator: RF output from 950 MHz to 1.750 GHz.
- IF Modulator: IF output from 50MHz to 180MHz.
- No Modulator- Encoder only.
    - ♦ There will be no Modulator Tab displayed in the UI for "Encoder only" units.

LBand Modulator

Screenshot

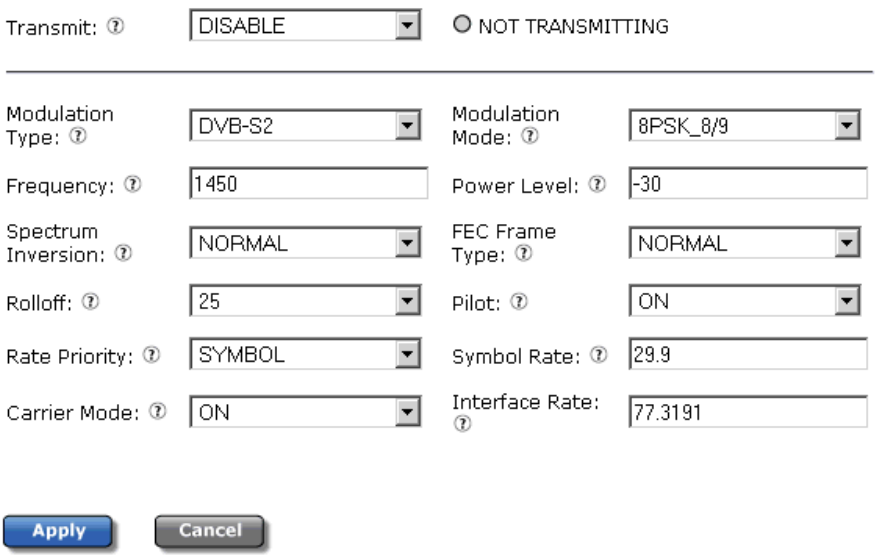

Image reduced for clarity

Controls

The Modulator controls are all arguments of the LBM API Command. For ease of reference, command equivalents are given in this table.

Control	Function	Options	API Command
Transmit	Enables or disables the Main RF output (monitor output is always enabled)	Disable Enable	*.SYSD LBM Transmit [option]
Modulation Type	Allows the selection of either DVB-S or DVB-S2 : - DVB-S2 : compatible with EN 302 307 - DVB-S : compatible with EN 300 421 for QPSK and EN 301 210 for 8PSK	DVBS DVBS-2	*.SYSD LBM Type [option]
Modulation Mode	Allows the selection of the desired modulation mode and FEC rate. The UI will only allow the selection of modes for the current Modulation Type and modulation capabilities.	see list	*.SYSD LBM Mode [option]
Frequency	Allows the selection of the desired output frequency.	50 - 180MHz or 950MHz - 1.75GHz	*.SYSD LBM Frequency [value]
Power Level	Allows the selection of RF output power.	-50 to -7dBm (L-Band) -30 to +5dBm (IF)	*.SYSD LBM Power [option]
Spectrum Inversion	Direct spectrum mode corresponding to the INTELSAT specification IESS-308 (Rev.8 - pgs 18 & 69) and with DVB standard ETS 300 421.	Invert Normal	*.SYSD LBM SpectrumInversion [option]
FEC Frame Type	DVB-S2 defines 2 Forward Error Correction frame types, **Short** and **Normal**. Short frames introduce more overhead but give a shorter encapsulation delay. Normal frames are 4 times longer than the short frames.	Short = 16200 bits or 2025 bytes Normal = 64800 bits or 8100 bytes	*.SYSD LBM FEC frame type [option]
Rolloff	RCRO (Root Cosine Roll-Off) factor for the matched filter at the modulator output. Changing the roll-off disables transmit.	20 25 30	*.SYSD LBM Rolloff [option]
Pilot	DVB-S2 Physical Layer Pilot insertion. When enabled, every 16 slots (of 90 symbols) the modulator will insert 36 unmodulated symbols to aid in receiver synchronization.	On Off	*.SYSD LBM Pilot [option]
Rate Priority	Determines which rate will be kept constant.	Symbol Interface	*.SYSD LBM !RatePriority [option]
Symbol Rate	The baud rate of the modulated output signal	text field	*.SYSD LBM !SymbolRate
Carrier Mode	Used to calibrate modulator and verify operation	Pure Carrier On Clock/8 Clock/4 Clock/16	*.SYSD LBM
Interface Rate	Displays the bit rate at the baseband interface.	display only	N/A

L-Band Modulation Modes Supported

QPSK 1/2	QPSK 2/5	8PSK 5/6	16APSK 5/6
QPSK 2/3	QPSK 3/5	8PSK 8/9	16APSK 8/9
QPSK 3/4	QPSK 4/5	8PSK 9/10	16APSK 9/10
QPSK 5/6	QPSK 8/9	16QAM 3/4	32APSK 3/4
QPSK 6/7	QPSK 9/10	16QAM 7/8	32APSK 4/5
QPSK 7/8	8PSK 3/5	16APSK 2/3	32APSK 5/6
QPSK 1/4	8PSK 2/3	16APSK 3/4	32APSK 8/9
QPSK 1/3	8PSK 3/4	16APSK 4/5	32APSK 9/10

Occupied Bandwidth

- **Occupied Bandwidth** is the -26 dB bandwidth of the signal.
  - ♦ This is calculated as the symbol rate multiplied with (1 + a), with 'a' being the selected roll-off factor.
  - ♦ Occupied Bandwidth is displayed on the "Modulator" panel of the Status Window.

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The Profile Tab

The **Profile Tab** allows you to save specific encoder configurations on your device, enabling you to quickly and easily reconfigure the device for different transport and playout requirements. There are 40 available memory "slots" for Profiles-saved configurations. An in-use profile will be noted by name on the Status Panel and repeated on this screen (**'Currently Loaded Profile'**).

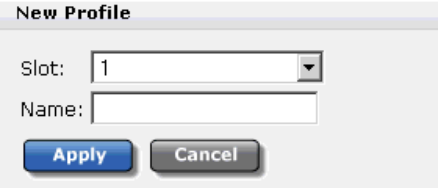

Image reduced for clarity

To create a Profile:

Step	Action
1	On **all** Menu Tabs, make the control settings desired for your saved Profile.
2	Click the **<Profile>** Menu Tab.
3	On the Profile Tab, click **<Create New Profile>**.
4	On the pop-up panel that appears, give your Profile a name in the text field, and select the memory slot you want to save it in from the drop-down menu.
5	Click **<Apply>.**

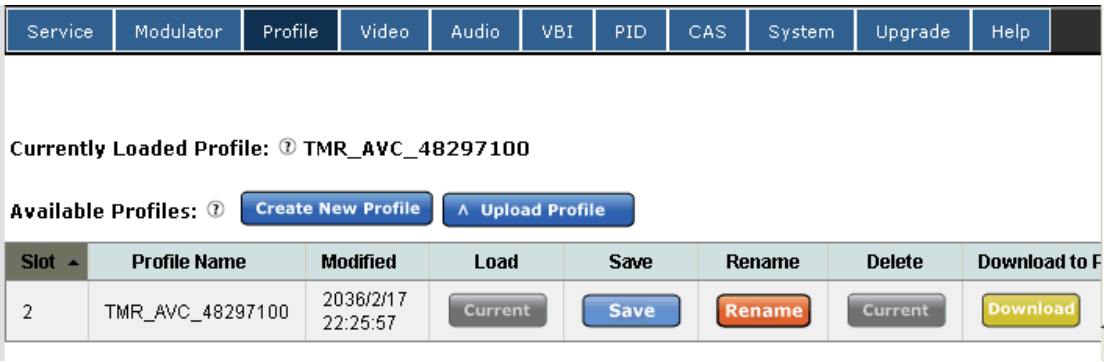

Image reduced for clarity

Control	Function	Options
Create New Profile	defines and saves new Profiles into the selected available memory slot	Virtual button
Upload	moves a valid file from your desktop to the unit; when upload is complete, the uploaded file and all of its configuaration settings become the active profile. It must be saved as a 'New Profile' or overwritten onto an exisitng profile slot in order to be retained.	Virtual button
Load	loads the selected Profile	Virtual button
Save	saves changes to existing Profiles	Virtual button
Rename	convenience button allowing the renaming of a Profile without changing the Profile's settings	Virtual button
Delete	convenience button; deletes the selected Profile and makes the slot available for re-use	Virtual button
Download to PC	moves the selected profile to your PC desktop	Virtual button

To use a saved Profile, simply click the **<Load>** button for the specific Profile you want. The unit will apply all the settings associated with that Profile.

Video Tab

The Video Tab is used to precisely control the parameters of the video being encoded by the EN-80.

Screenshot:

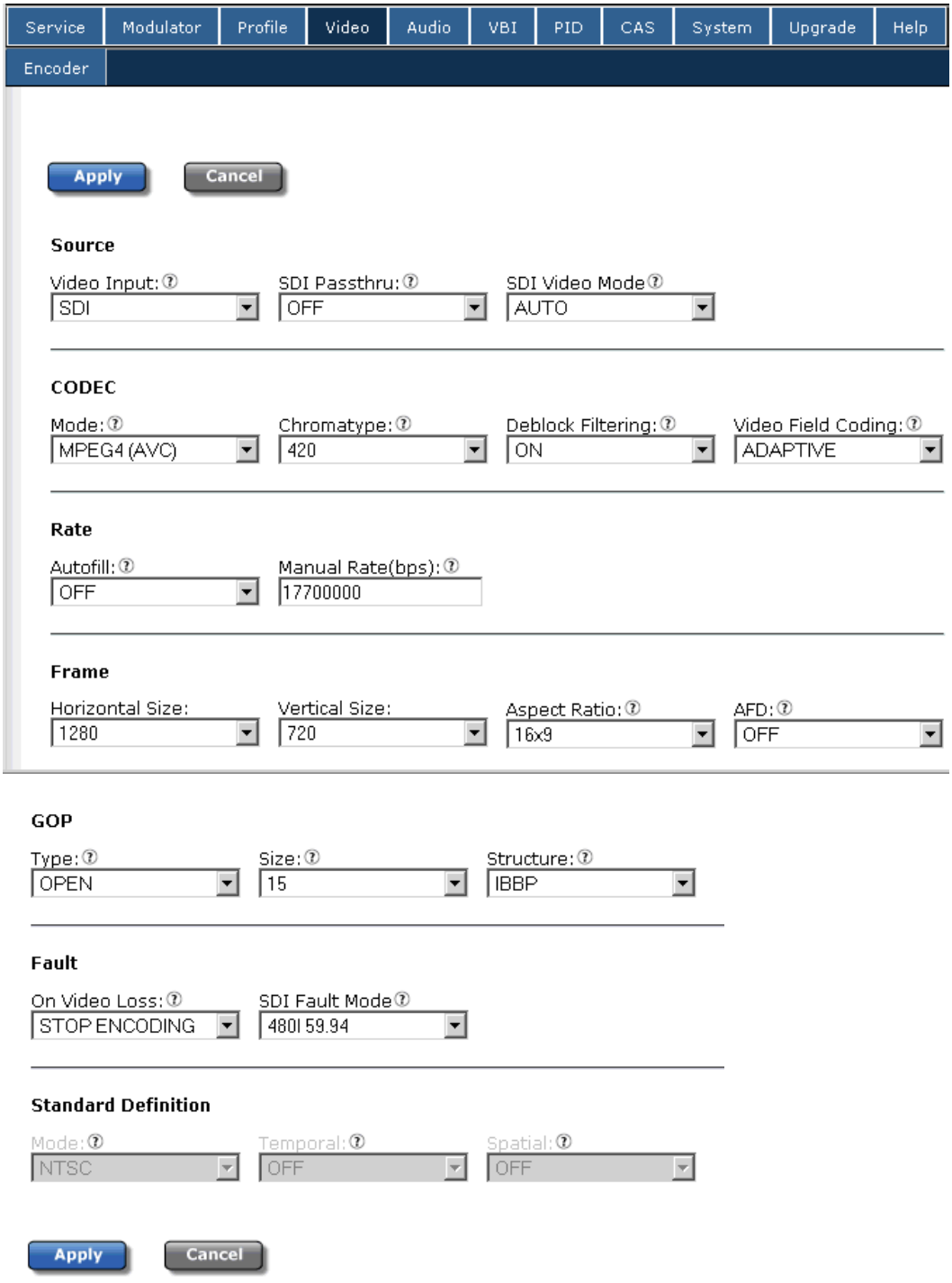

Image reduced for clarity

Source Controls:

Control	Function	Options	API Command
Video Input	type of video signal format being received, SDI or Composite. If the input is SDI, the encoder will automatically detect the resolution and frame rate of the incoming video source.	SDI = 3 Composite = 0	*.ECMD INP [type]
SDI Passthru	provides a re-clocked SDI loop for the encoder	Off = 0 On = 1	*.ECMD SPT
SDI Video Mode	allows automatic or fixed rate detection of SDI video signal	Auto SD HD 1.4G	*.ECMD SDM

CODEC Controls

Control	Function	Options	API Command
Mode	CODEC is the type of video compression used during encode	MPEG 2 MPEG4/AVC	*.ECMD VEN
Chromatype	chrominance (color information) of video component 420 mode applies to high definition or standard definition encoding. 422 mode applies only to standard definition encoding.	420 = 0 422 = 1	*.ECMD CHT
Deblock Filtering	Deblock Filtering aims to improve the appearance of decoded pictures by smoothing the sharp edges and only applies when encoding MPEG 4 / AVC	Off =0 On=1	*.ECMD DBF
Video Field Coding	Video Field Coding designates the type of interlaced-scan video coding used during encoding.	-Field mode coding (PAFF) -Frame mode coding (MBAFF) -Adaptive field/frame mode coding (PAFF/MBAFF)	*.ECMD VFC

Rate Controls

Control	Function	Options	API Command
AutoFill	if enabled, the decoder will calculate and use the max video bitrate for the current TransMuxRate setting when disabled, the decoder uses the VRT setting for the video bitrate. Please see F.A.Q. for more detail.	On = 1 Off = 0	*.ECMD VAF [state]
Manual Rate	Manual Bit Rate (Mbs/sec): rate at which bits are streamed; only available if AutoFill is set to 'Off'. **Standard Definition** encoding mode: (input is composite video, or SDI auto-detected at standard definition)700kb - 100mb bits/sec **High Definition** encoding mode: (SDI input only and auto-detected as 720p or 1080i)7000000 - 60000000 bits/sec	text field	*.ECMD VRT

Frame Controls

Control	Function	Options	API Command
Horizontal Size	horizontal pixel resolution. Auto-detected for SDI signals.	varies by encode mode	*.ECMD HSI
Vertical Size	vertical pixel resolution. Auto-detected for SDI signals.	varies by encode mode	*. ECMD VSI
Aspect Ratio	ratio of horizontal to vertical lines in the encoded image	4 x 3 = 0 16 x 9 = 1 WSS (PAL) = 2	*.ECMD ARA
AFD	Active Format Descriptor; data that can be sent in a MPEG video stream that provides information about the aspect ratio and picture characteristics within the stream	see drop-down in UI	*.ECMD AFD

GOP Controls

Control	Function	Options	API Command
Type	Group of Pictures; GOP type as open or closed An **Open** GOP uses referenced pictures from the previous GOP at the current GOP boundary. A **Closed** GOP starts with an I Frame and subsequent B Frames do not rely on I or P frames from the previous GOP. GOP is expressed as one command, i.e., *.ECMD GOP [type] [structure] [size]	Open = 1 Closed = 0	*.ECMD GOP [type] [structure] [size]
Size	GOP Size is the distance between two full image frames (I-Frames) in a GOP Structure.	1-30	*.ECMD GOP [type] [structure] [size]
Structure	Group of Pictures format; the order of interframes and the various types of picture frames that will be used.	I = 3 IP = 2 IPB = 1 IBBP = 0	*.ECMD GOP [type] [structure] [size]

Fault Controls

Control	Function	Options	API Command
On Video Loss	only available in standard definition encoding; sets unit to hold the frame until video returns or drop the frame and stream if incoming video signal is lost.	Stop = 0 Black = 1	*.ECMD RVD
SDI Fault Mode	determines the SDI video test pattern standard in the absence of a valid signal	0 = 480I59.94 1 = 576I50 2 =720P59.94 3 = 720P50 4=1080I59.94 5 = 1080I50	*.ECMD SVF

Standard Definition Controls

Control	Function	Options	API Command
Mode	select television system standards the packet will be encoded for- NTSC or PAL video. This is only available if the incoming SDI feed is standard definition, or if the input is Composite.	NTSC PAL	*.ECMD VID
Temporal	Video Filter: reduces noise in the signal's temporal domain **Note:** composite input only; handled in the video pre-processing section; and only available in standard definition	Off = 0 Weak = 1 Medium = 2 Max = 3	*.ECMD OFT [state]
Spatial	Video Filter: reduces noise in the signal's spatial domain **Note:** composite input only; handled in the video pre-processing section; and only available in standard definition	Off = 0 Weak = 1 Medium = 2 Max = 3	*.ECMD OFS [state]

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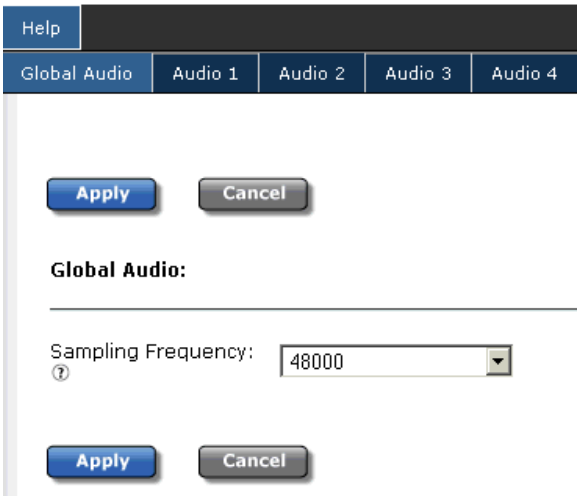
Audio Tab

The Audio Tab allows precision control over the Audio performance of the En-80. For ease of reference, the Audio Tab's controls are divided among several sub-tabs: the Global Audio sub-tab, the Inputs One and Two sub-tab, and the Inputs Three and Four sub-tab. Each will be described in detail.

Global Audio

The Audio Global sub-tab sets the sampling frequency, which will apply across all audio inputs.

Screenshot:



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Controls:

Control	Function	Options	API Command
Sampling Frequency	determines sample frequency for the unit; all audio channels will sample on the same frequency ;defines the number of samples per second taken from a continuous signal to make a discrete signal ; setting selected applies to all audio inputs	32000 44100 48000	*.ECMD ASF [freq]

Audio Tab- Inputs One and Two

Audio Inputs 1 and 2 can encode Dolby Audio and can encode in passthru mode. The control options are the same for both inputs.

Screenshot:

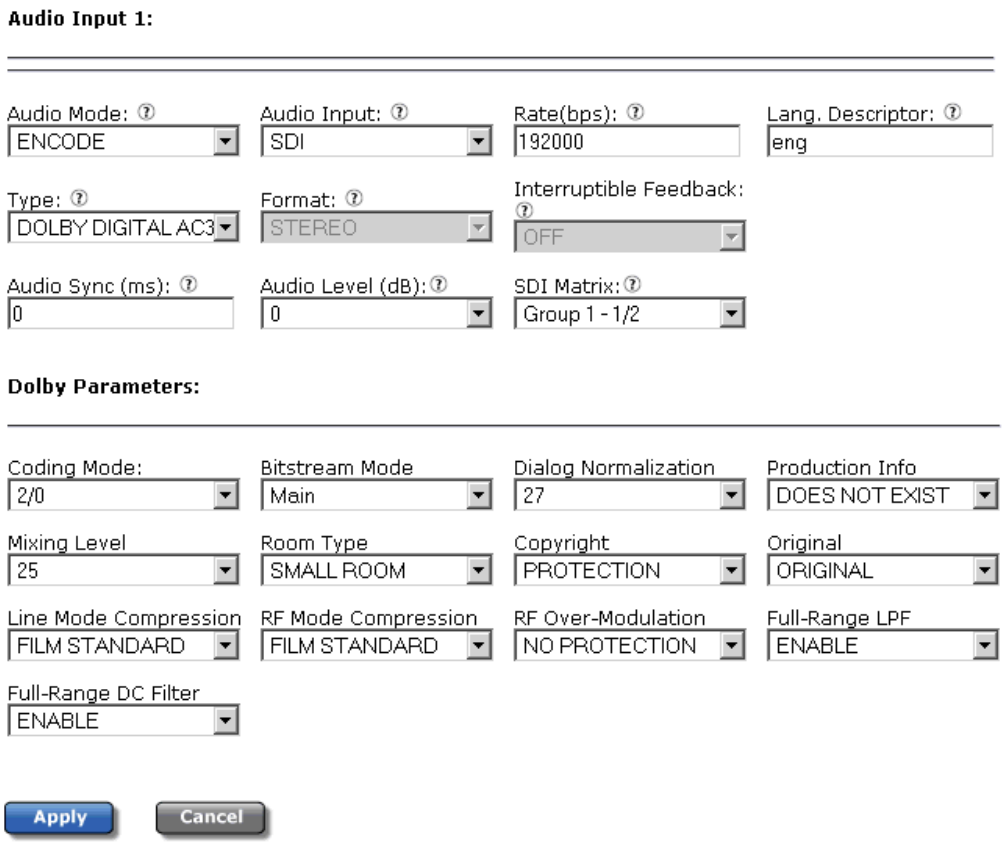

Image reduced for clarity

Controls:

Control	Function	Options	API Command
Audio Mode	sets the unit to either use the on-board DSP's to perform audio compression (encode), or accept compressed Dolby-type bitstreams at the AES input and merge them into the transport stream (passthru),or the secondary audio can be set to off (*.ecmd SAS)	Encode = 0 Passthru = 1	*.ECMD AMO [mode][type][rate]
Audio Input	selects the type of incoming audio signal to be encoded. Available on in Encode Mode. In Passthru Mode, AES or SDI input can be selected.	Analog = 0 SDI = 1 AES = 3	*ECMD AIN [type]
Rate	define the rate in Encode Mode. When in Passthru Mode, the rate is handled by the unit.	text field; user-defined 64-640 kBits/sec avail	*.ECMD AMO [mode][type][rate]
Language Descriptor	3 characters available for describing language	text field; user-defined	*.ECMD LAO
Type	selects Dolby Digital or MPEG 1 Layer 2 as the audio type in Encode Mode. In Passthru Mode, unit defaults to Dolby E / 5.1 / 2.0 Type. In Passthru Mode, SDI Dolby E can be accepted. Linear PCM/E2 is only available with AES inputs, if selected, all associated specifications will auto-apply.	-Dolby Digital AC3 = 0 -MPEG 1 Layer 2 =2 Linear PCM/E2 = 3	*.ECMD AMO [mode][type][rate]
Format	MPEG mode; can be set for Mono, Stereo, or Dualmono. Available if using Encode Mode and MPEG 1 Layer 2 Type\.	0 = Mono 1= Stereo 2= Dualmono	*.ECMD MCM
Interruptible Feedback	low-latency audio path for communications to a remote van/studio, using the same distribution path;requires a special IFB receiver. No PID reference in PMT; considered a ghost PID. Not lip-sync aligned with video.	Off On	*.ECMD AUDIOIFB
Audio Sync (ms)	audio sync offset in milliseconds (ms) with an available range of -800 ms to +800 ms	text field; user-defined	*.ECMD AUS
Audio Level	volume in decibels (dB); range of -18dB to +8dB in 1dB increments . Available only in Encode Mode	range of -18 through +8	*.ECMD ALV
SDI Audio Matrix	Per SMPTE 272/299M SDI supports embedded audio Groups 1, 2, 3, 4. This device can route channels from 2 Groups concurrently. 1 and 2 or 3 and 4. Each group has 2 channels and each channel is a stereo pair. For example, Group 1 3/4 can be routed to any of the 4 audio encoders.	Group 1 1/2 Group 1 3/4 Group 2 5/6 Group 2 7/8	*ECMD SMX

Dolby Parameters

Control	Function	Options	API Command
Coding Mode	indicates which of the main service channels are in use and controls channel ordering; analog to the 3-bit 'acmod' code.	0 = N/A 1 = 1/0 (C channel) 2 = 2/0 (L and R channels)	*.ECMD DPA [mode]
Bitstream Mode	type of service the bitstream conveys; analog to the 3-bit 'bsmod' code.	0= Main 1 = Main-Dialogue 2 = Assoc-Visually Impaired 3 = Assoc-Hearing Impaired 4 = Assoc-Dialog 5 = Assoc-Commentary 6 = Assoc-Emergency Flash 7 = Assoc-VoiceOver 8 = Main-Karaoke (where "Assoc" is "Associated Service")	*.ECMD DPA [mode]
Dialog Normalization	"levels out" volume (loudness) levels when audio from different sources is combined and reproduced, by using a subjective standard for loudness. Analog to the five-bit 'dialnorm' code. Value available indicates subjective volume in decibels below digital 100% the reproduced audio will exibit.	0-31	*.ECMD DPA [value]
Production Info	identifies if production information exists for the audio content, or does not	0 = does not exist 1 = exists	*.ECMD DPA [value]
Mixing Level	indicates absolute acoustic sound pressure level of an individual channel during the final audio mixing session; analog to the 'mixlevel' 5-bit code.	0-31	*.ECMD DPA [value]
Room Type	indicates the type and calibration of the mixing room used in the final audio mixing session; analog to the 2-bit 'roomtyp' code.	0 = not indicated 1 = large room 2 = small room 3 = rsvd	*.ECMD DPA [option]
Copyright	identifies the audio content as protected by copyright or not protected	0 = not copyright protected 1 = copyright protected	*.ECMD DPA [option]
Original	identifies the audio bitstream as original or a copy	0 = copy of an original bitstream 1 = original bitstream	*.ECMD DPA [option]
Line Mode Compression	designates preset compression for for line-mode decoding	0 = None (custom) 1 = Film Std 2 = Film Light 3 = Music Std 4 = Music Light 5 = Speech 6 = Rsvd 7 = Rsvd	*.ECMD DPA [value]
RF Mode Compression	designates preset compression for for RF-mode decoding	0 = None (custom) 1 = Film Std 2 = Film Light 3 = Music Std 4 = Music Light 5 = Speech 6 = Rsvd 7 = Rsvd	*.ECMD DPA [value]

RF Over-Modulation	on/off switch; feature protects against over-modulation when signal is decoded and then modulated onto an RF carrier	0 = disable protection 1 = enable protection	*.ECMD DPA [option]
Full-Range LPF	on/off switch; when selected, this control invokes a 120 Hz. lowpass filter to the LPF channel before beginning Dolby encoding	0 = disable 1 = enable	*.ECMD DPA [option]
Full-Range DC Filter	on/off switch; when selected, this control invokes a DC-blocking 3Hz highpass filter before beginning Dolby encoding	0 = disable 1 = enable	*.ECMD DPA [option]

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Audio Tab- Inputs Three and Four

Audio Inputs 3 and 4 are **not** capable of PASSTHRU MODE; they can only encode MPEG1 Layer 2. They also cannot encode Dolby Audio. The control options are the same for both inputs.

Screenshot:

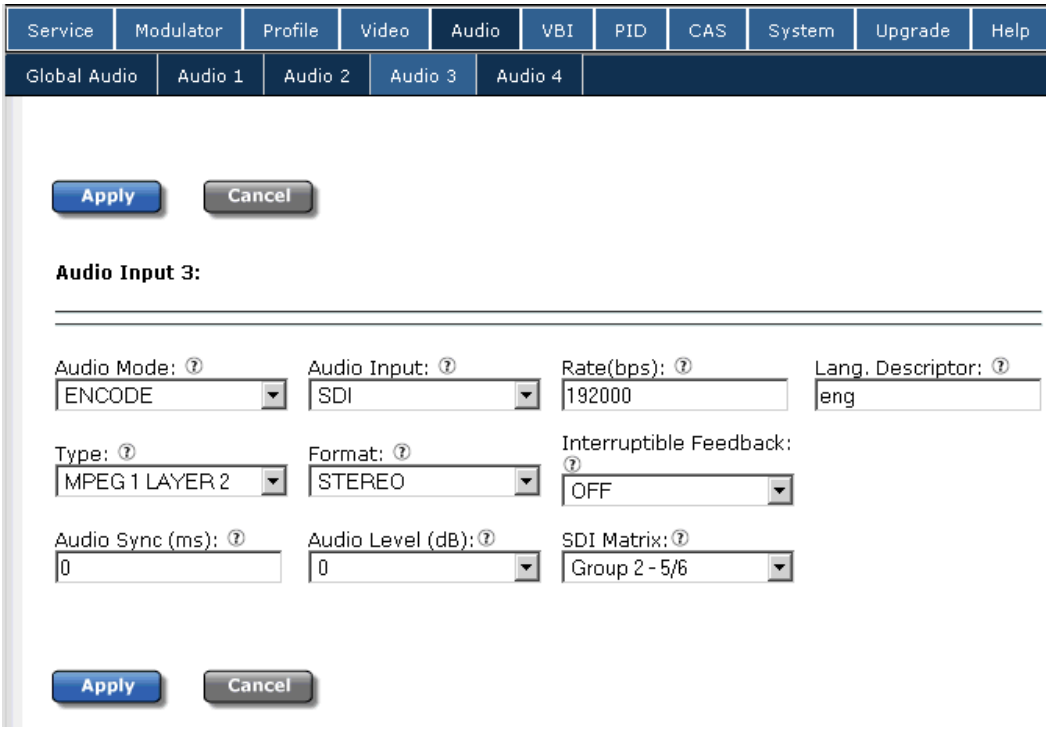

Image reduced for clarity

Controls:

Control	Function	Options	API Command
Audio Mode	sets the unit to either use the on-board DSP's to perform audio compression (encodeor the secondary audio can be set to off (*.ecmd SAS)	Encode = 0	*.ECMD AMO [mode][type][rate]
Audio Input	selects the type of incoming audio signal to be encoded. Available on in Encode Mode.	Analog = 0 SDI = 1 AES = 3	*ECMD AIN [type]
Rate	define the rate in Encode Mode.	text field; user-defined 64-640 kBits/sec avail.	*.ECMD AMO [mode][type][rate]
Language Descriptor	3 characters available for describing language	text field; user-defined	*.ECMD LAO
Type	selects the audio type in Encode Mode. Linear PCM/E2 is only available with AES inputs, if selected, all associated specifications will auto-apply.	MPEG 1 Layer 2 =2 Linear PCM/E2 = 3	*.ECMD AMO [mode][type][rate]
Format	MPEG mode; can be set for either Mono or Stereo. Available if using Encode Mode and MPEG 1 Layer 2 Type\.	0 = Mono 1= Stereo	*.ECMD MCM
Interruptible Feedback	low latency audio path for communications to a remote van or studio using the same distribution path; requires a special IFB receiver. Setting AIF to "On" will generate a PID reference in the PMT. Setting AIF to "Ghost" will not generate a PID reference.	Off On Ghost	*. ECMD AIF
Audio Sync (ms)	audio sync offset in milliseconds (ms) with an available range of -800 ms to +800 ms	text field; user-defined	*.ECMD AUS
Audio Level	volume in decibels (dB); range of -18dB to +8dB in 1dB increments . Available only in Encode Mode	range of -18 through +8	*.ECMD ALV
SDI Audio Matrix	Per SMPTE 272/299M SDI supports embedded audio Groups 1, 2, 3, 4. This device can route channels from 2 Groups concurrently. 1 and 2 or 3 and 4. Each group has 2 channels and each channel is a stereo pair. For example, Group 1 3/4 can be routed to any of the 4 audio encoders.	Group 1 1/2 Group 1 3/4 Group 2 5/6 Group 2 7/8	*.ECMD SMX

VBI Tab

The controls on this tab govern video signal components that can be inserted into the Vertical Blanking Interval.

The tab's controls are grouped into two sub-tabs: **Captions** and **Teletext**.

Both screens will display a status line which summarizes VBI waveform or Vanc Line history. The data fields are:

Field	Definition
Line Number	Video line number where the data was found
Field ID	Video field ID where the data was found (0= 1st field (odd), 1= 2nd field (even))
Count	Counter which increments everytime a matching type is found
Length	Length of data payload in bytes
DID/SDID	Combined (packed) DID/SDID values as defined below The **DID Data Identifier** word (along with the SDID, if used), indicates the type of ancillary data that the packet corresponds to. Data identifiers range from 1 to 255 (FF hex), with 0 being reserved. The **SDID (Secondary Data Identifier)** is only valid if the DID is less the 80 hex. The SDID is nominally an 8-bit value, ranging from 0 to 255. It is encoded in the same fashion as the DID.

Captions Sub-Tab

Screenshot:

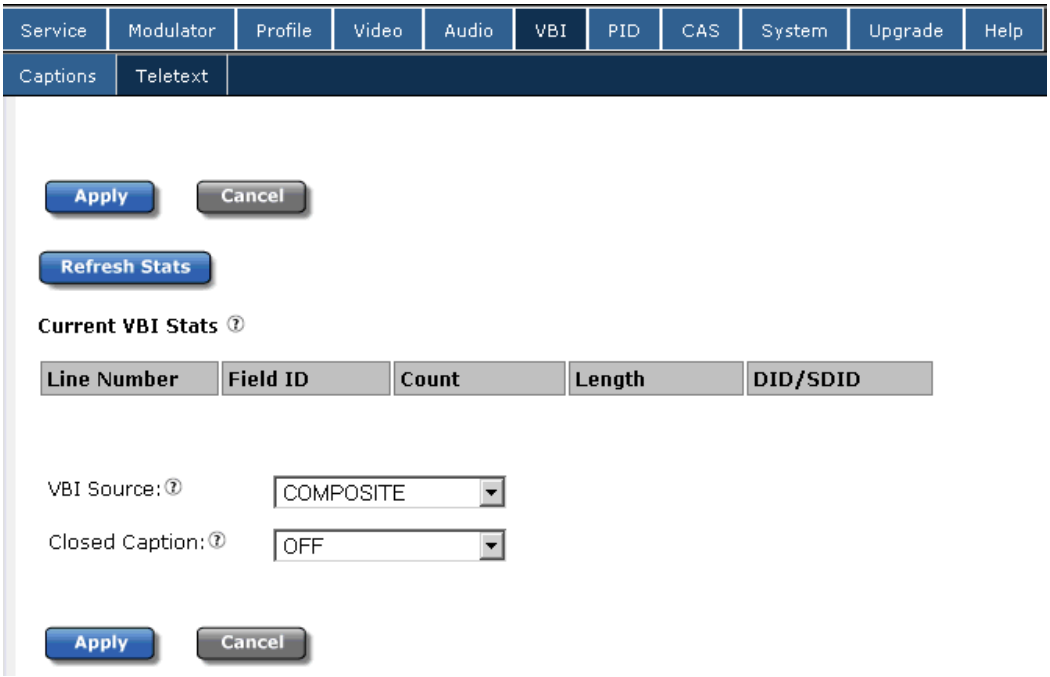

Image reduced for clarity

Controls:

Control	Function	Options	API Command
VBI Source	selects input source for VBI data	Composite SDI	*.ECMD VBS
Closed Caption	Closed Captions can be turned off for the current stream/encode or set to ATSC Mode for EIA-708 closed caption insertion. This control is available for High Definition only.	608 708 608->708 DVS157	*.ECMD CLC [selection]

Teletext Sub-Tab

Screenshot:

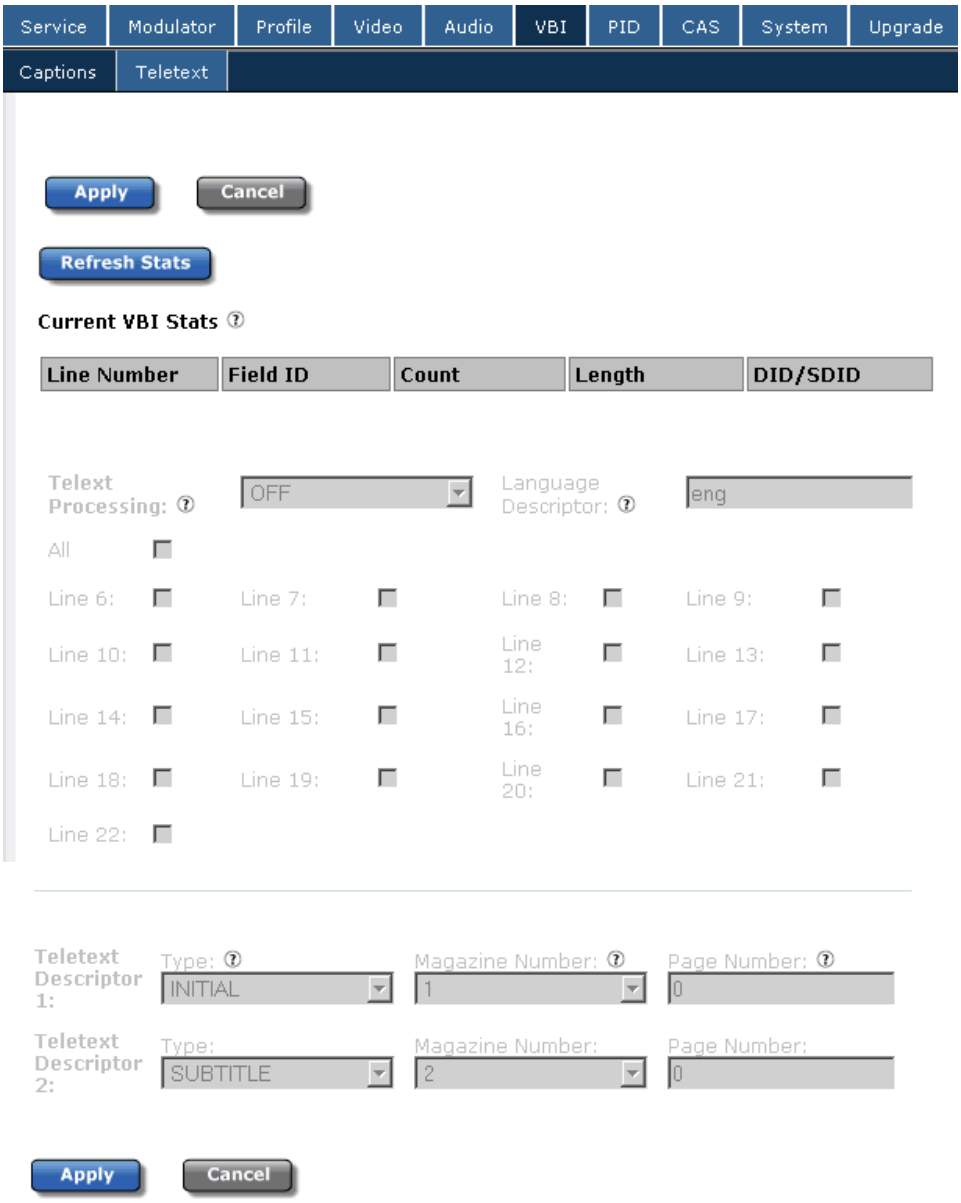

Image reduced for clarity

Controls:

Control	Function	Options	API Command
Teletext Processing	switches feature off or selects type of service	Off = 0 Eurotext = 1	*.ECMD VBP [mode]
Language Descriptor	identifies language Teletext will display in. Auto-populates from PID	Auto-populates	none
All	specifies that all lines (6-22) are carrying (passing) Teletext	check box	*.ECMD VBP
Lines 6-22	total number of lines of Teletext being passed; check the box or boxes that correspond to the lines Teletext is being carried on	check box	*.ECMD VBP
Teletext Descriptor-Type	classification of the Teletext; implemented per ETSI EN 300 468 , the Specification for Service Information (SI) in DVB systems and includes the following. Initial, Subtitle, Additional Information, Program Information and Subtitle Highlights control repeats for Teletext 2	Initial Subtitle Addlinfo PGM Sched SubtitleHI	*.ECMD TXD
Magazine Number	Teletext reference control repeats for Teletext 2	0-7	*.ECMD TXD
Page Number	Teletext reference control repeats for Teletext 2	0-225	*.ECMD TXD

There are two sets of Teletext Descriptor controls. The function of each is identical.

PID Tab

The PID tab is used to specify PID settings for programming.

Screenshot:

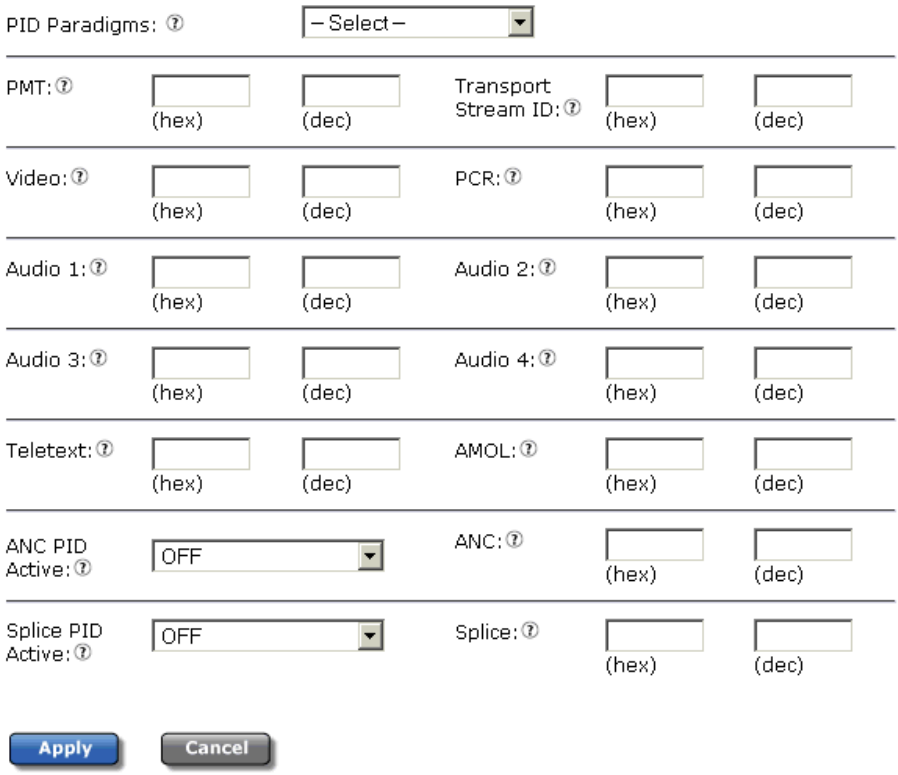

Image reduced for clarity

Controls:

Control	Function	Options	API Command
PID Paradigm	this control allows for preset PID values to be automatically loaded. Once a selection is made from the drop-down menu, all values will populate based on the PID configuration chosen.	Adtec Tandberg ATSC PGM 3 ATSC PGM 4 ATSC PGM 5 ATSC PGM 6 ATSC PGM 7 ATSC PGM 8 ATSC PGM 9 WBU-ISOG	none-GUI only
PMT	identifies packets with the Program Map Table. Program Map Tables are used to describe the properties of a single program.	user-defined hexadecimal	*.ECMD PPI
Transport Stream ID	Transport Stream identifier; used in the PAT packet to identify one stream from others within the multiplex.	user-defined hexadecimal	*.ECMD TSI
Video	identifies packets which contain video Packetized Elementary Stream (PES) data.	user-defined hexadecimal	*.ECMD VPI
PCR	identifies packets which contain the Program Clock Reference (PCR; "Master Clock") adaptation field	user-defined hexadecimal	*.ECMD PRP
Audio 1	identifies packets which contain audio content for Channels 1 and 2	user-defined hexadecimal	*.ECMD API 0
Audio 2	identifies packets which contain audio content for Channels 3 and 4	user-defined hexadecimal	*.ECMD API 1
Audio 3	identifies packets which contain audio content for Channels 5 and 6	user-defined hexadecimal	*.ECMD API 2
Audio 4	identifies packets which contain audio content for Channels 7 and 8	user-defined hexadecimal	*.ECMD API 3
Teletext	identifies packets carrying Teletext to be displayed in the Vertical Blanking Interval	user-defined hexadecimal	*.ECMD TPI
AMOL	Automated Measurement of Lineups; used in capturing viewership data	user-defined hexadecimal	*.ECMD APQ
ANC PID Active	set to ON to capture ANC (H & V) from incoming HD-SDI sources. ANC Data captured from HD-SDI source is carried per SMPTE-2038. Typically this is used to carry VITC. If VITC and LTC are carried concurrently, LTC is dropped.	Off = 0 On = 1	*.ECMD BMO
ANC	sets the Program ID (PID) for the ANC (H & V).	user-defined hexadecimal	*.ECMD BPI
Splice PIDs Active	if selected, this control allows for the definition and/or modification of the Splice PID	Off = 0 On = 1	*.ECMD RIT [selection]
Splice PIDs	identifies splice packets	user-defined hexadecimal	*.ECMD SPI

CAS Tab

The **CAS Tab** is used to control Conditional Access Services on the EN-40.

Screenshot:

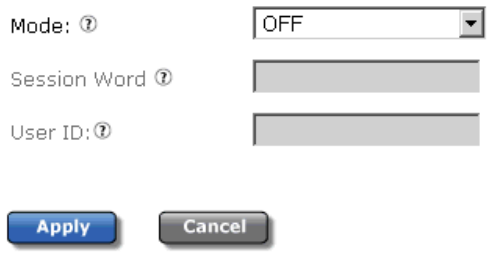

Image reduced for clarity

Controls:

Control	Function	Options	API Command
Mode	sets the unit to accept BISS-1 or BISS-E encryption keys, or switches Conditional Access off	Off = 0 BISS-1 = 1 BISS E User ID 1 = 2 BISS E USer ID 2 = 3	*.ECMD ECR [option]
Session Word	The session keys used for encryption. [MODE BISS 1] uses a 12-digit hexadecimal Clear Session Word. [MODE BISS E XXX] uses a 16-digit hexadecimal Encrypted Session Word	text field	*.ECMD EKY
User ID	appears in BISS-E Mode only; the 14-digit hexadecimal User ID used for encryption	text field	*.ECMD EKY

About BISS

The Basic Interoperable Scrambling System (BISS) works by inserting a 12-digit encrypted key into a multicast. BISS documentation refers to these encryption keys as "session words".

The Session Word is inserted at the points of transmission and reception (in this case, the EN-80).

A Conditonal Access Table (CAT) will be present in the multiplex, but this table will be empty, as no EMM stream will be present.

System Tab

The **System Tab** is used to define and control the unit's relationship to the rest of your network and to other networked devices. The System Tab screen also includes a System Uptime counter in the screen's upper-right corner, showing the elapsed time between power-up cycles.

Screenshot:

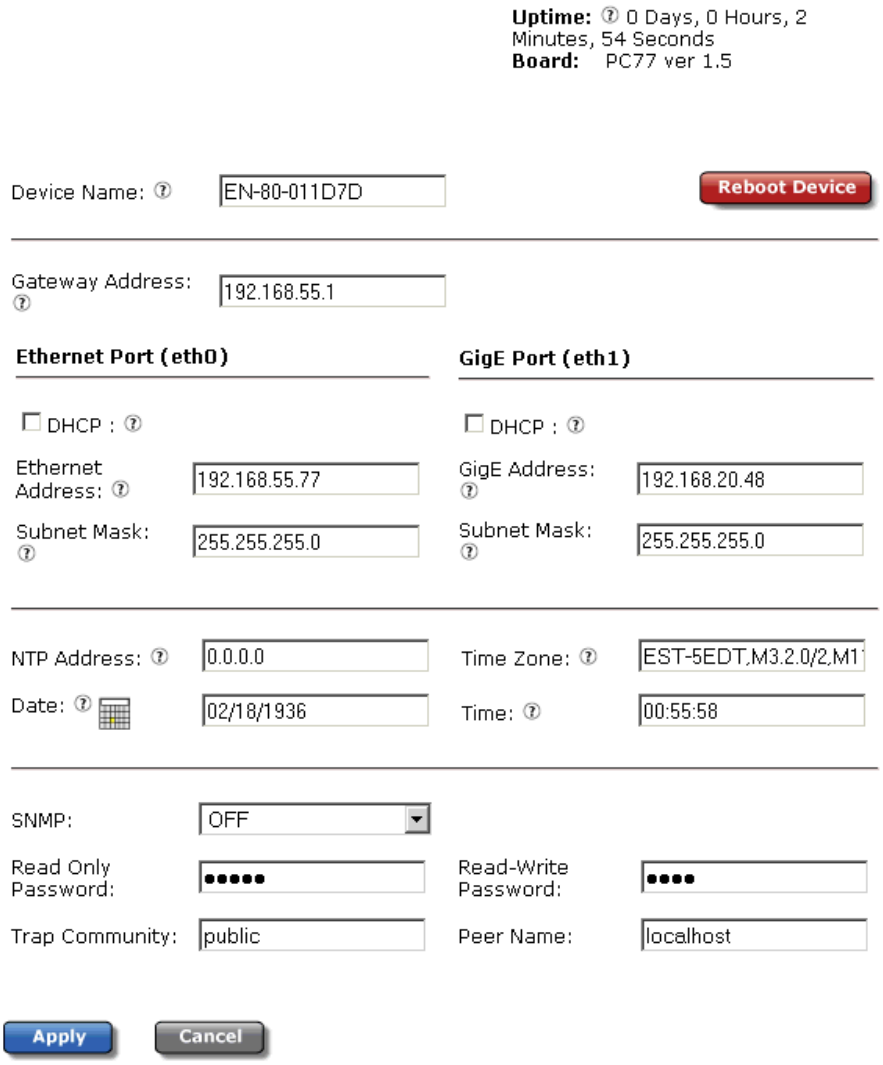

Image reduced for clarity

Power Cycle

Clicking the **Power Cycle** 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:

Image reduced for clarity

Controls:

Control	Function	Options	API Command
Name	ease-of-identification; default is name that combines the product type and the serial number of the unit. For example, "mediaHUB-HD-Pro-012345"	text field; user-defined	*.SYSD NAME
Gateway Address	the IP assignment of the gateway/router on your network; limited to one IPA on Adtec devices	text field	*.SYSD GIP
eth0 DHCP	check box, allows unit to extract it's own IP address if switched on, from a DHCP server	selected = 1 not selected = 0	*.SYSD DHC eth0
eth0 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 0
eth0 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 0
eth1 DHCP	check box, allows unit to extract it's own IP address if switched on, from a DHCP server	selected = 1 not selected = 0	*.SYSD DHC eth1
eth1GigE Address	IP address of the unit's GigE port	text field; valid IP address in form xxx.xxx.xxx.xxx	*.SYSD IPA 1
eth1 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 eht1
NTP Address	IP Address of a Network Time Protocol server	On = 1 Off = 0 used in conjunction with the server's IP address	*.SYSD NIP [state][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

Control	Function	Options	API Command
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

The Security Tab

The controls on this tab allow the setting of unit level security.

Screenshot:

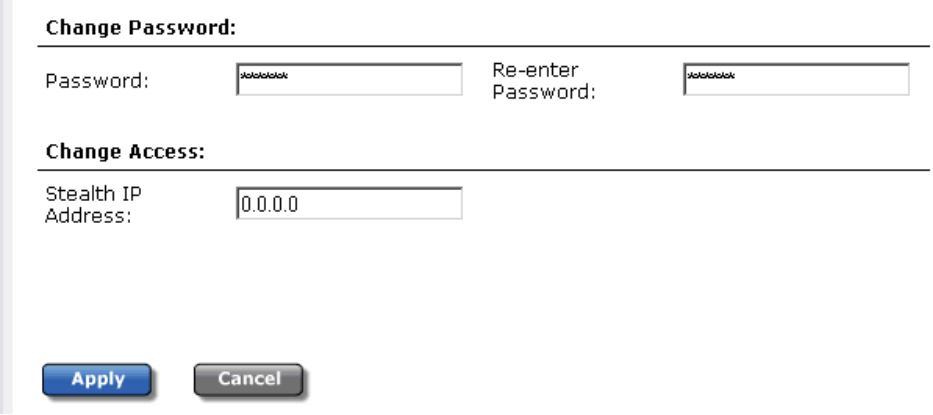

Image reduced for clarity

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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The Upgrade Tab

The Upgrade Tab is used to easily select and upgrade your unit's firmware from the available versions, and to unlock optional features available. There are two sub-tabs on this screen- Firmware and Features.

Firmware

Screenshot:

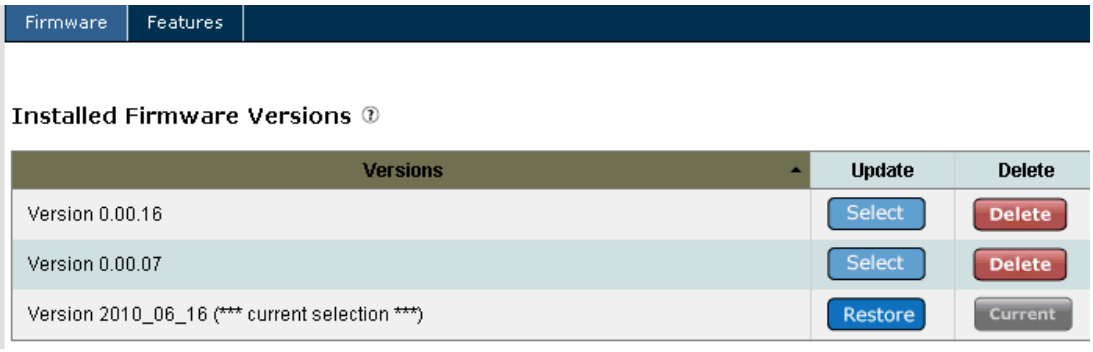

Image reduced for clarity

Installed Versions are firmware versions that have been installed on your device and can be selected as the current operating version. To select one of these versions, simply click on the **<Select>** button associated with the version. Due to the caching properties of your browser, it is necessary to clear your cache or restart the browser to make sure that the new application pages load. Click the **<Upgrade>** tab a second time to view the currently loaded versions.

Other Controls

- **Delete:** clicking the **<Delete>** button will delete that stored firmware version from your device.
- **Restore:** the **<Restore>** button only appears next to the currently installed firmware version. Clicking **<Restore>** will reset all user-defined configuration settings back to the factory defaults.
    - This **includes** the IP Address defined for the unit **and** the removal of any Feature Keys.
    - If **<Restore>** is selected, the unit will ask for a confirmation before carrying out the reset.
    - If your broswer doesn't re-direct after **<Restore>** is selected, close it and re-open it, directed to the IP Address 192.168.10.48 (the factory default IPA).

To upload new firmware versions, click on the **<Upload>** button, then click on the **<Upload>** button on the "Adtec Uploader" pop-up that appears, and select the desired firmware version by clicking it.

After the new version is uploaded, a pop-up screen will confirm its availability on the device.

Features

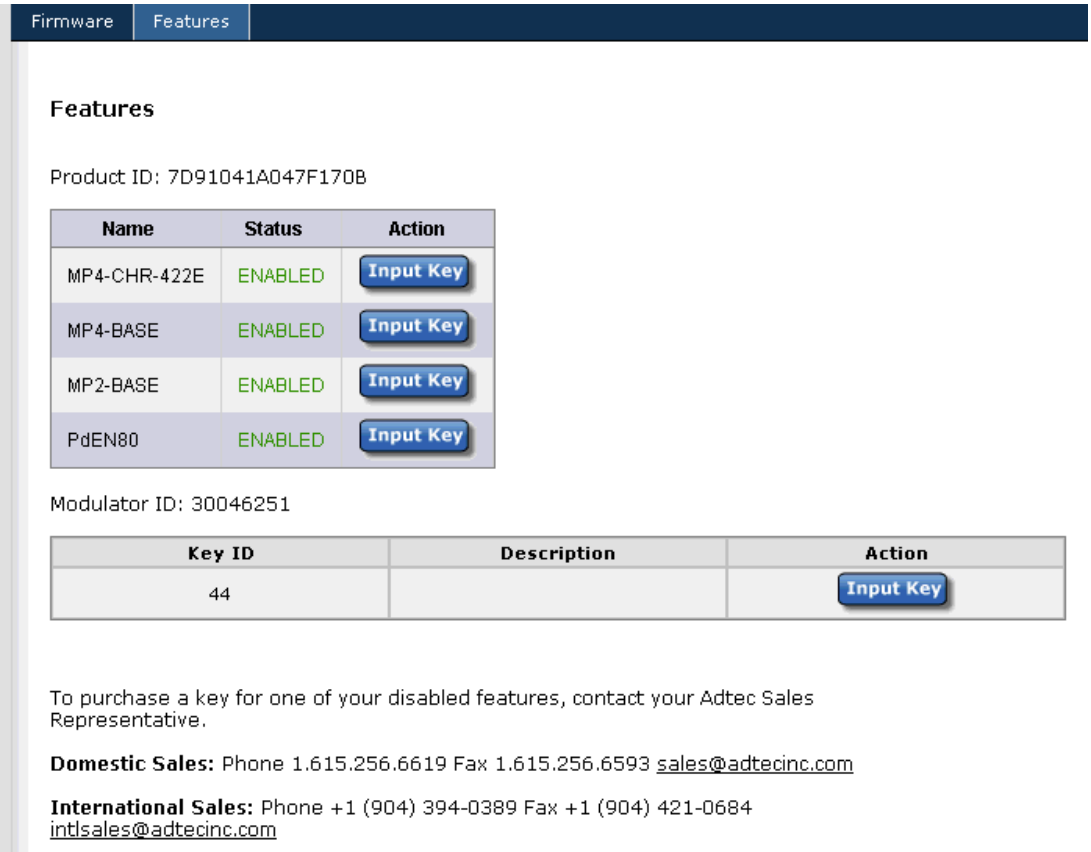

Image reduced for clarity

Clicking the **"Input Key"** button will pop-up a screen so that the key sequence can be entered. Note that the feature "PdEN80" will ship unlocked. All other features shown in the above screenshot are options.

Contact your Adtec sales representative regarding the purchase of feature keys. Check www.adtecinc.com for news regarding new features that may be available for the EN-80.

The Help Tab

The Help Tab provides access to Technical Support's contact information.

Screenshot (reduced for clarity) **:**

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Chapter 4 - Operations

Vertical Interval Time Code

Vertical Interval Time Code (VITC) consists of a pair of black and white vertical bars embedded into a video signal usually into the Vertical Blanking Interval (VBI). VITC contains 64 bits of SMPTE timecode information and is always repeated on two adjacent video lines one in each field. More than one VITC code can be carried by a video frame and recorded on different line-pairs.

The EN-80 can **pass** VITC data as part of the ANC PID. The EN-80 does **not** actually process or use VITC data.

Procedure

To turn on VITC passthrough:

Step	Action
1	On the VBI Tab in the Web GUI Control Application, configure the **"VBI Source"** for **<SDI>.**
2	On the PID Tab in the Web GUI Control Application, select the **<On>** setting for **"ANC PID Active"**.

Auto Transport Mux Rate for EN Series Encoder-Modulators

Auto Transport Mux Rate (TMR) is a feature of Adtec EN-40 and EN-80 encoders built with an optional modulator. This feature will automatically configure the overall data rate of the encoder (its TMR;Transport Mux Rate), based upon its Modulator configuration. In other words, when this feature is set to on, the Modulator's Interface Rate becomes the encoder's TMR. The TMR is a key configuration for modulator functionality, and must match the modulator interface rate. The Auto TMR feature is recommended to be set to **on** if the modulator will be in use.

The EN-80 device supports RF, ASI, and IP output concurrently, but each output type shares the same data rate (with exception of IP when used with SMPTE 2022 FEC). Non-RF applications can be used, but must be configured by de-coupling the TMR Encoder configuration from the Modulator Interface Rate configuration.

To de-couple the Encoder configuration from the Modulator configuration:

1. On the **Service Tab**, **"ASI Transport sub-tab"**, select OFF from the **"Auto TMR"** pull-down menu.

2. On the **Modulator Tab**, select DISABLED from the **"Transmit"** pull-down menu.

This will configure the device to function as a non-RF encoder for use in ASI and/or IP applications. With Auto TMR turned off, the user has control of the ASI and IP data rates by configuring the TMR value.

Chapter 5 - Appendix

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.

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