

MULTI-CHANNEL VIDEO ENCODER SPECIFICATION

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Project Name: Multi Channel Encoder	Originator: Admir Maglajlic	
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1 INTRODUCTION

This specification document describes the specification and functional features of a “Multi-Channel Video Encoder and Multiplexer (MCVE) product. This specification document is the preliminary version and some items are yet to be TBD.

1.1 Revision History

REVISION RECORD			
Revision	Date	Originator	Revision Description
001	03-11-08	Admir Maglajlic	Initial Release
002	12-08-08	Jason Duell	Web Interface Updates
003	6-15-10	Parul Renie	Add EAS and PSIP info
004	8-5-2010	Parul Renie	Update EAS and PSIP info

1.2 Referenced Documents

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2 FUNCTIONAL DESCRIPTION

The Multi-Channel Video Encoder and Multiplexer (MCVE) was designed to provide a cost effective means to enable a TV station to convert multiple analog video and audio feeds into single ASI stream. The encoder can process one high definition (HD) channel or four standard definition channels (NTSC) with a variety of configurations. With a simple connection to the modulator you are ready to begin broadcasting. In addition, multi channel preview is also available via the DVI output connected to a digital TV/monitor. The encoder is configured through the Web Interface and Ethernet Control Port. The Ethernet port can be also used to download PSIP entries. The PSIP entries can be generated or modified using the PSIP Scheduler applet. By using the applet provided you can build your own PSIP that can be either static or dynamic

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3 BLOCK DIAGRAM

Figure 3-1 below shows an overall block diagram of the MCVE system.

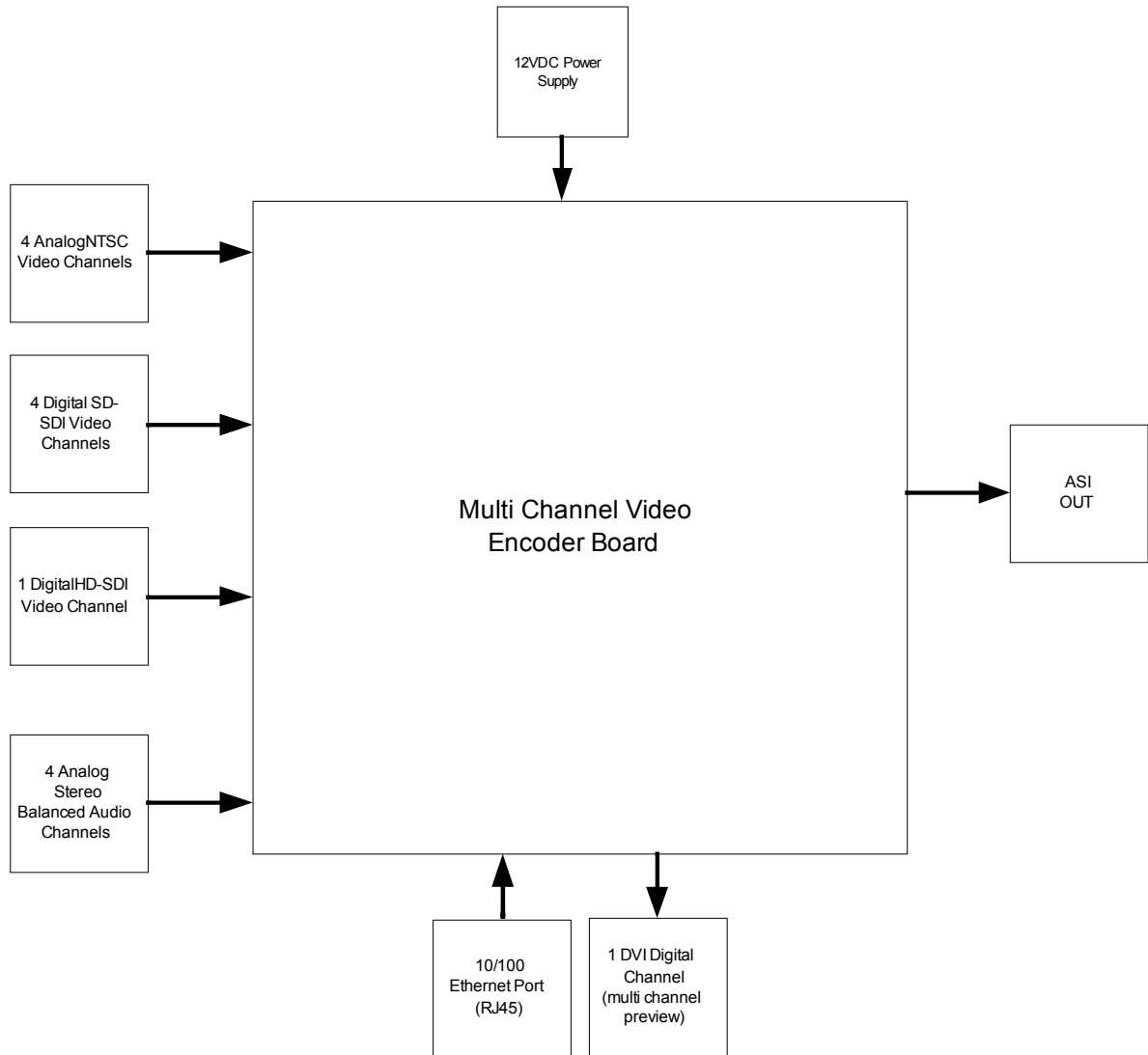
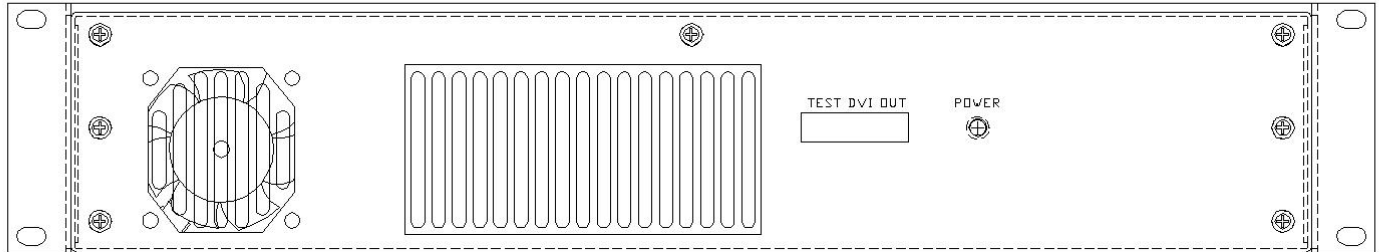


Figure 3-1: MCVE Block Diagram

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4 CONNECTIONS

Front Panel Connections/Indicators



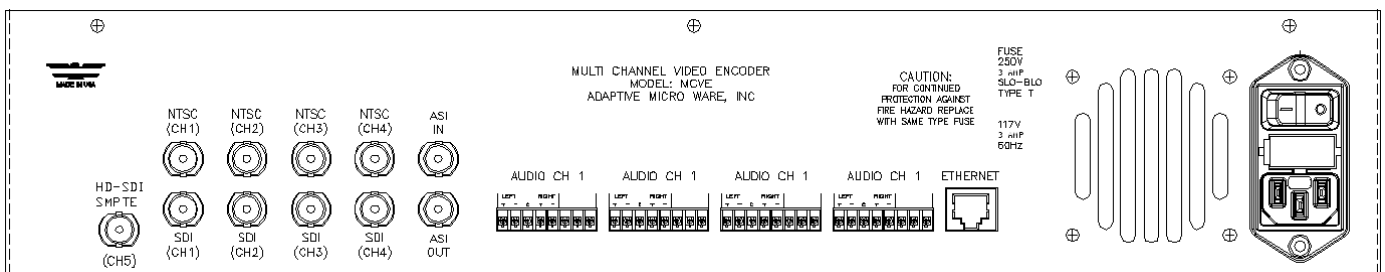
DVI TEST OUT

- Multi-Channel Preview

LED

- Green - Normal Operating Condition
Red - Fault Condition

Rear Panel Connections



HD-SDI SMPTE

-Digital Video Input Channel with embedded raw PCM audio (HD480i or HD720p or HD1080i)

NTSC (CH1-CH4)

- Analog Video Input Channels

SDI (CH1-CH4)

- Digital Video Channels (480i with embedded uncompressed PCM audio)

ASI IN

-Input Channel for Transport Stream

ASI OUT

-Transport Stream ATSC Compliant

Audio (CH1-CH4)

- Analog Stereo Balanced Audio Channels

Ethernet

-10/100 Ethernet RJ45 Port

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5 SPECIFICATION

Table 1 below shows the key features of the MCVE product.

Table 1 - MCVE Specifications

	Parameter	Specification Typical	Worst case	Units	Comments
1.0	Inputs				
	4 Analog Video Channels	NTSC	n/a	n/a	
	4 Digital Video Channels	480i SD-SDI	n/a	n/a	With embedded PCM audio
	1 Digital Video Channel	480i, 720p or 1080i HD-SDI	n/a	n/a	With embedded PCM audio (Rear Panel)
	1 ASI Channel	BNC 75 Ohm	n/a	n/a	Secondary Transport Stream (future use only)
	4 Analog Audio Channels	Stereo Type, Balanced	n/a	n/a	n/a
	HD-SDI Video Connector	BNC End Launch 75Ohm	n/a	n/a	Receptacle (Rear Panel)
	NTSC,SD-SDI Video Connectors	Dual Port BNC 75 Ohm			Black receptacle (Rear Panel)
	Stereo Balanced Audio Connectors	Single Row 8 position header	n/a	n/a	Screw Terminal (Rear Panel)
2.0	Outputs				
	1 Digital Video Channel	DVI	n/a	n/a	Multi-Channel Preview (front panel)
	1 RJ-45 Ethernet Port	10/100	n/a	Mbps	For Configuration (Rear Panel)
	1 ASI Channel	ATSC compliant MPEG-2, 19.39	n/a	Mbits/s	Transport Stream
3.0	LED Status				
	1 LED	Color: Green/Red	n/a	n/a	Green: Normal operation, RED: Fault Condition
4.0	Power				

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Superior Broadcast Products	
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	Parameter	Specification Typical	Worst case	Units	Comments
	12.0	DC	n/a	Volts	Main input to MCVE board
	5.0	DC	n/a	Volts	PCB Power supply
	2.5	DC	n/a	Volts	PCB Power supply
	3.3	DC	n/a	Volts	PCB Power supply
	1.8	DC	n/a	Volts	PCB Power supply
	1.2	DC	n/a	Volts	PCB Power supply
5.0	Closed Caption	n/a	n/a	n/a	Supported
6.0	Temperature				
7.0	0 to 45 Dimensions		n/a	°C deg.	Ambient
	3.5	n/a	n/a	inch	Height
	16	n/a	n/a	inch	Length
	19	n/a	n/a	inch	Width
8.0	Weight				
	15	n/a	n/a	lbs	Finished Product

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6 WEB INTERFACE

The integrated web interface allows users to quickly customize video encoder settings. The web interface consists of three main sections: Status, Configuration, and Mode. This chapter explains how to use each configuration page of the Multi-Channel Video Encoder web interface.

The content of many web interface pages will vary depending upon the encoder mode that is set. For example, when in four-channel mode, the Status page will display four separate panes containing information pertaining to four separate SD video channels. However, when the encoder is configured for three-channel mode, the Status page will only contain three panes of information. Other pages function in a similar manner.

6.1 Connecting to an Encoder

Any standard web browser can be used to connect to the web interface. A unit is reachable by the static IP address to which it has been assigned. Type only the IP address into the address bar of your browser (Figure 5-1) and press the 'Enter' key to initiate the connection process. The default IP address for all Multi-Channel Video Encoders is 192.168.120.56.

Note: It is important that each encoder's network settings be configured properly before connecting it to a network segment that is shared with other Multi-Channel Video Encoders or devices using static IP addresses. Networking conflicts may occur and could cause connection issues.

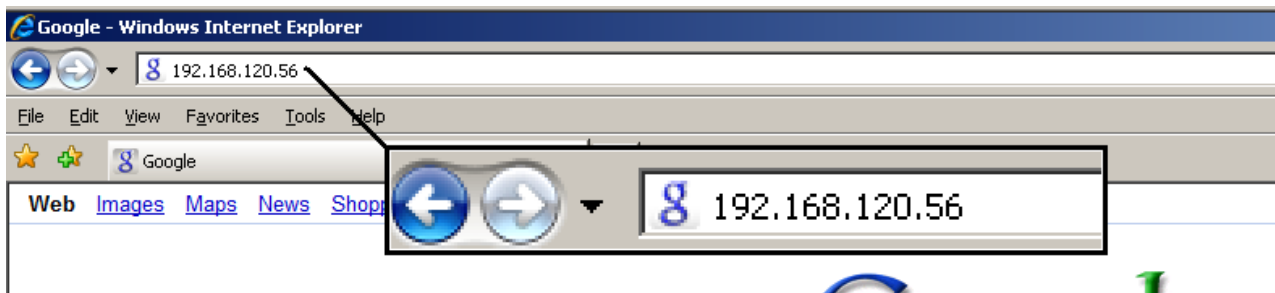


Figure 6-1: IE Browser Address Bar

6.2 Login

Once connection to the Multi-Channel Video Encoder has been established, the Login page (Figure 6-2) is displayed. There are two types of users: administrators and guests. Please see the Section 6.4.5 below labeled 'Network' for a description of users and user rights. The default administrative login is 'admin' and the password is 'pass'. The default guest login is 'guest' and the password is 'pass'.

To log into an encoder, you must type the username and password into the appropriate field. After typing in the required information, press the 'Enter' key or click on the 'Submit' button.

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Note: Cookies must be enabled in your browser in order for pages to be displayed properly. Errors may occur if cookies have been disabled or blocked.

Figure 6-2: Login

6.3 Status

After a successful login, the Status page (Figure 6-3) is displayed. The status page provides a brief overview of the hardware/firmware version, internal operating temperatures and the status/format of the video sources. The status page information can be updated by clicking the 'Refresh' button.

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Multi-Channel Video Encoder

Status	Configuration	Mode	Logout
Hardware Version: 12/08/08 Rev. 1		Internal Temperature 1: 92.9°F (Max: 150°F)	
Firmware Version: 12/08/08 Build 1		Internal Temperature 2: 87.5°F (Max: 150°F)	
SD 1			
Source Connected	Connected		
Source Enabled	Enabled		
Video Resolution	720x480		
Scan Type	Interlaced		
Frame Rate	29.97 fps		
Format	480i		
SD 2			
Source Connected	Connected		
Source Enabled	Enabled		
Video Resolution	720x480		
Scan Type	Interlaced		
Frame Rate	29.97 fps		
Format	480i		
SD 3			
Source Connected	Connected		
Source Enabled	Enabled		
Video Resolution	720x480		
Scan Type	Interlaced		
Frame Rate	29.97 fps		
Format	480i		
SD 4			
Source Connected	Connected		
Source Enabled	Enabled		
Video Resolution	720x480		
Scan Type	Interlaced		
Frame Rate	29.97 fps		
Format	480i		
<input type="button" value="Refresh"/>			

Figure 6-3: Status

6.4 Configuration

The configuration menu consists of seven tabs: Video, Transport, PSIP, Audio, Network, Date/Time and EAS Interface. Each tab allows the user to change related encoder settings.

6.4.1 Video

The Video Configuration page (Figure 6-4) gives the user the ability to individually configure settings on each of the available video channels. Each channel has a variety of configurable settings.

- Video bitrate can be adjusted on a channel-by-channel basis. However, the total bitrate of all video/audio channels (and transport stream overhead) cannot exceed 19.39Mbps.

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- Closed Caption processing may be enabled or disabled.
- The video filter may be disabled, or set to one of three filtering levels.
- GOP (Group of Picture) size is configurable between 1 and 120. This means that the first frame in a GOP will be an I-frame and remaining frames will be P-frames.
- All SD channels may be setup for Analog or Digital inputs. However, in all modes containing an HD channel, the 'Input Type' is digital only. All channels, regardless of mode, can be disabled.
- Video Input Channel can be configured. Please see Section 6.6 for more information.

Note: Video bitrates are ultimately target bitrates. This does not mean the bitrate specified will be met under all conditions. The complexity of the video greatly determines what the minimum video bitrate can be. For example, if a bitrate of 0.0 is entered, the encoder cannot realistically allocate 0 bits for the video stream. In this instance the channel should be disabled if no output is desired. Please take care when selecting video bitrates. Monitoring the video output may be necessary to ensure proper operation.

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Multi-Channel Video Encoder						
Status	Configuration	Mode	Logout			
Video	Transport	PSIP	Audio	Network	Date/Time	EAS Interface
SD 1						
Bitrate	4.2 Mbps					
Closed Caption	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled					
Video Filter Level	Disabled ▾					
GOP Size	15					
Aspect Ratio	4:3 ▾					
Input Type	<input type="radio"/> Analog <input type="radio"/> Digital <input type="radio"/> Disabled					
Video Input Channel	1 ▾					
SD 2						
Bitrate	4.2 Mbps					
Closed Caption	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled					
Video Filter Level	Disabled ▾					
GOP Size	15					
Aspect Ratio	4:3 ▾					
Input Type	<input type="radio"/> Analog <input type="radio"/> Digital <input type="radio"/> Disabled					
Video Input Channel	2 ▾					

Figure 6-4: Video Configuration

6.4.2 Transport

The Transport Configuration page (Figure 6-5) allows user to set: Program numbers, Video Program IDs, Audio Program IDs, Program Map Table (PMT) PIDs as well as Event Information Table (EIT) PIDs. All values must be entered in integer form.

Note: Some PID values are reserved and cannot be used. PID values must also be unique. Duplicate PID values are not allowed. Please see Section 6.7 for a complete list of acceptable PID values.

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Multi-Channel Video Encoder

Status Configuration Mode Logout

Video Transport PSIP Audio Network Date/Time EAS Interface

	Program #	Video PID	Audio PID	PMT PID
SD 1	1	81	82	80
SD 2	2	97	98	96
SD 3	3	113	114	112
SD 4	4	129	130	128

EIT PID A	EIT PID B	EIT PID C	EIT PID D
7424	7425	7426	7427

Save

Figure 6-5: Transport Configuration

6.4.3 PSIP

The PSIP Configuration page (Figure 6-6) allows users to set information such as the Transport Stream ID, channel names, and major/minor channel numbers.

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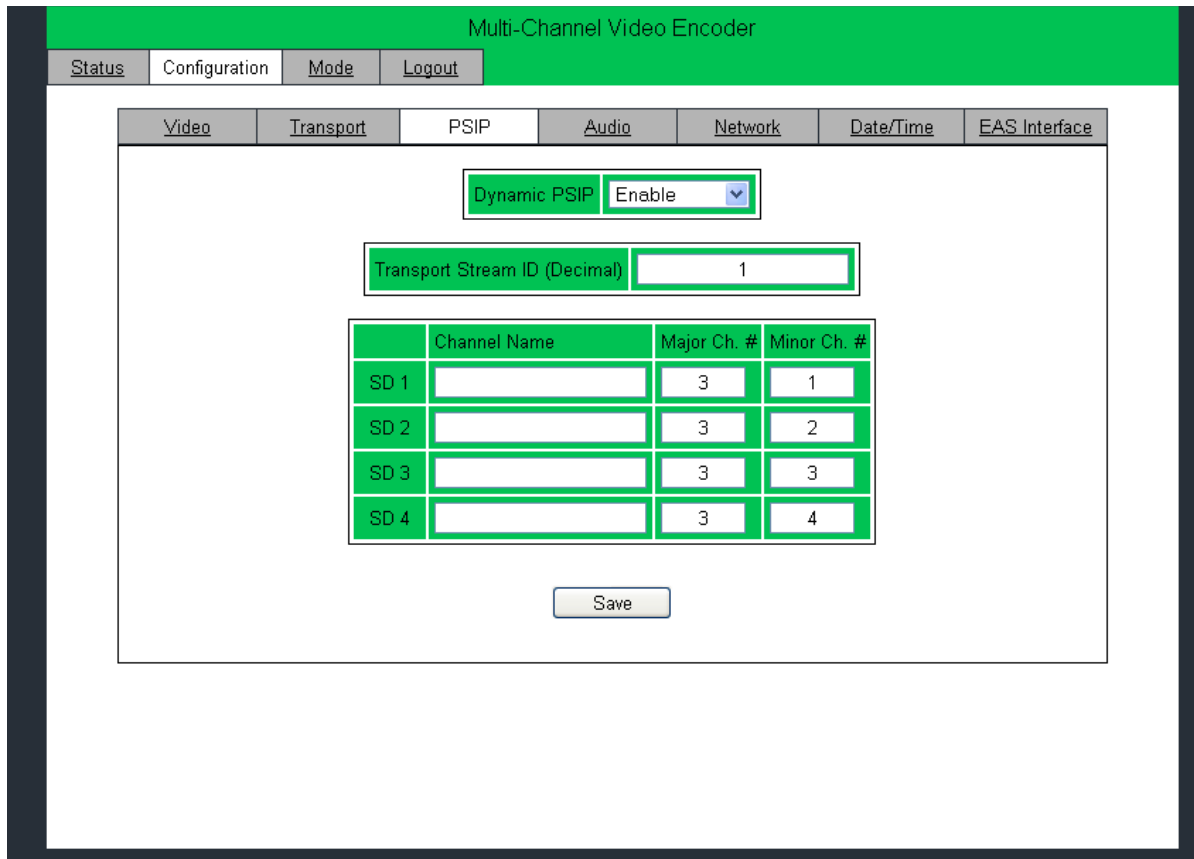


Figure 6-6: PSIP Configuration

6.4.4 Audio

The Audio Configuration page (Figure 6-7) allows the user to adjust parameters associated with the Dolby® Digital AC-3 encoded stereo audio. All channels configured with digital inputs must have their respective channel streams configured properly in order to process audio correctly. Typical values are 0 and 1, but this may vary by source. These audio stream settings are ignored for channels configured for Analog input. An 'Audio Delay' adjustment is also available to allow compensation for audio/video skew.

Dolby® Digital specific settings are configurable on this page as well. The internal Dolby® Digital encoder can be bypassed for each channel by selecting 'Enable' in the 'Encoder Bypass' section. This allows audio already encoded in Dolby® Digital format to be passed through the encoder without being processed. This can be helpful if a program has Dolby® Digital 2.0 (or 5.1) encoded audio present in the incoming digital stream.

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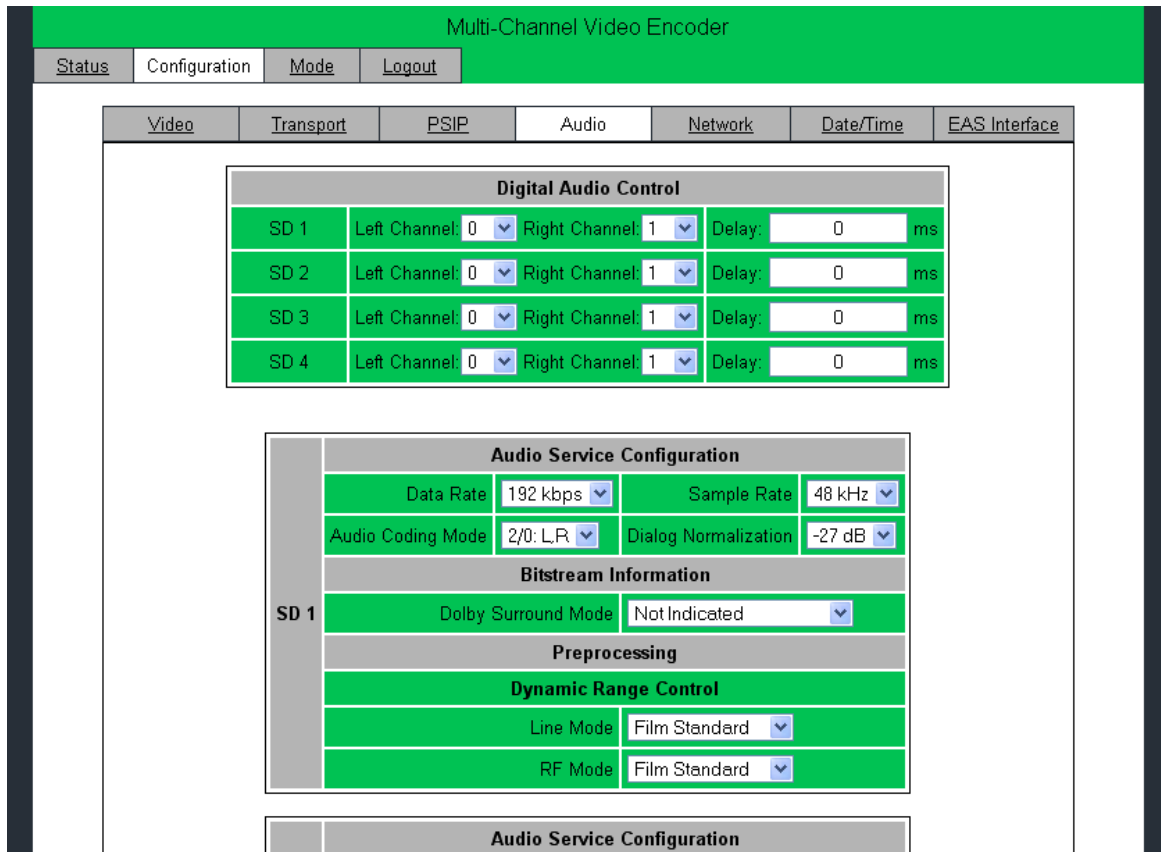


Figure 6-7: Audio Configuration

6.4.5 Network

The Network Configuration page (Figure 6-8) gives the user the ability to change the network settings associated with an encoder. A static IP address must be set. DHCP is not supported on this device. Please see your network administrator to get the appropriate settings for your network. Usernames and passwords may also be set here. There are two levels of access for this device. Administrators have full control over all available settings. Guests can view all current settings, but have limited settings control.

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Multi-Channel Video Encoder						
Status	Configuration	Mode	Logout			
Video	Transport	PSIP	Audio	Network	Date/Time	EAS Interface
				MAC Address	00:1A:0A:02:F0:01	
				Static IP Address	192.168.120.56	
				Subnet Mask	255.255.0.0	
				Gateway IP Address	192.168.120.1	
				Admin User Name	admin	
				Admin Password	pass	
				Guest User Name	guest	
				Guest Password	pass	
				Save		

Figure 6-8: Network Configuration

6.4.6 Date/Time

The Data/Time Configuration page (Figure 6-9) allows the user to set the current date and time for their encoder. Having precise settings is critical to remain compliant with ATSC standards. For this reason, automatic time configuration is recommended. However, if an internet connection is not available, the date and time can be set manually. The encoder’s current time is displayed for reference. If the encoder is configured to automatically acquire time settings from the internet, the IP Address of a time server will be required. The time server specified must support the Network Time Protocol (NTP) in order for automatic time acquisition to work properly.

Note: It may take several minutes for the Current System Time to update once the settings have changed from manual to automatic or when the system has been powered down for an extended period of time and is configured for automatic time acquisition. Clicking the ‘Refresh’ button will update the time displayed on the page. If the time fails to update properly after five minutes, validate that the IP address specified in the “Time Server IP” field is correct. Also, check your

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connection to the internet and confirm that the 'Gateway IP Address' (on the Network page) is set correctly.

Figure 6-9: Date/Time Configuration

6.4.7 EAS Interface

On the EAS Interface page the user has the option to select the EAS input channel, adjust the sensitivity of the MCVE to the EAS tones, and set the timeout value.

Only an active channel can be selected as the EAS Input. If the user changes modes and a previously active channel that is no longer active was selected as the EAS input, then EAS is disabled. The user must navigate to the EAS Interface page and select an active channel. In the Three-Channel mode, only one of the active SD channels can be selected as the EAS input. The HD channel cannot be selected since it cannot be routed to the SD channels. EAS interface is disabled in Single-Channel Mode since the external EAS encoder/decoder unit and character generator will already perform the switch. Since there is only one channel connected, the MCVE does not have to route audio or video to any other channels.

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The user also has to option of adjusting the sensitivity of the encoder to the preamble and attention tones. If the unit is not detecting the EAS tones, then the user should increase the sensitivity. On the other hand, if the unit is erroneously going into EAS, the user should decrease the sensitivity. Sensitivity changes should be done in increments of 5 and the EAS test should be performed after a sensitivity change to determine if the encoder is correctly detecting the EAS tones. The sensitivity ranges from 1-100 where 1 is least sensitive and 100 is most sensitive.

If the encoder does not detect the EAS end tones, the encoder will come out of EAS active mode once the timeout value is reached. The default value for the timeout is 90 seconds (1.5 minutes). The user has the option of adjusting the timeout value. This value must be entered in seconds.

The encoder indicates the number of times the unit has gone into EAS. This value will be erased if the unit is power cycled. The user can erase this value by pressing the "Clear" button on the webpage.

The sensitivity and timeout values entered on the webpage can be reset to the factory defaults by clicking on the "Defaults" button.

Please refer to Appendix B for more information on the EAS operation of the MCVE.

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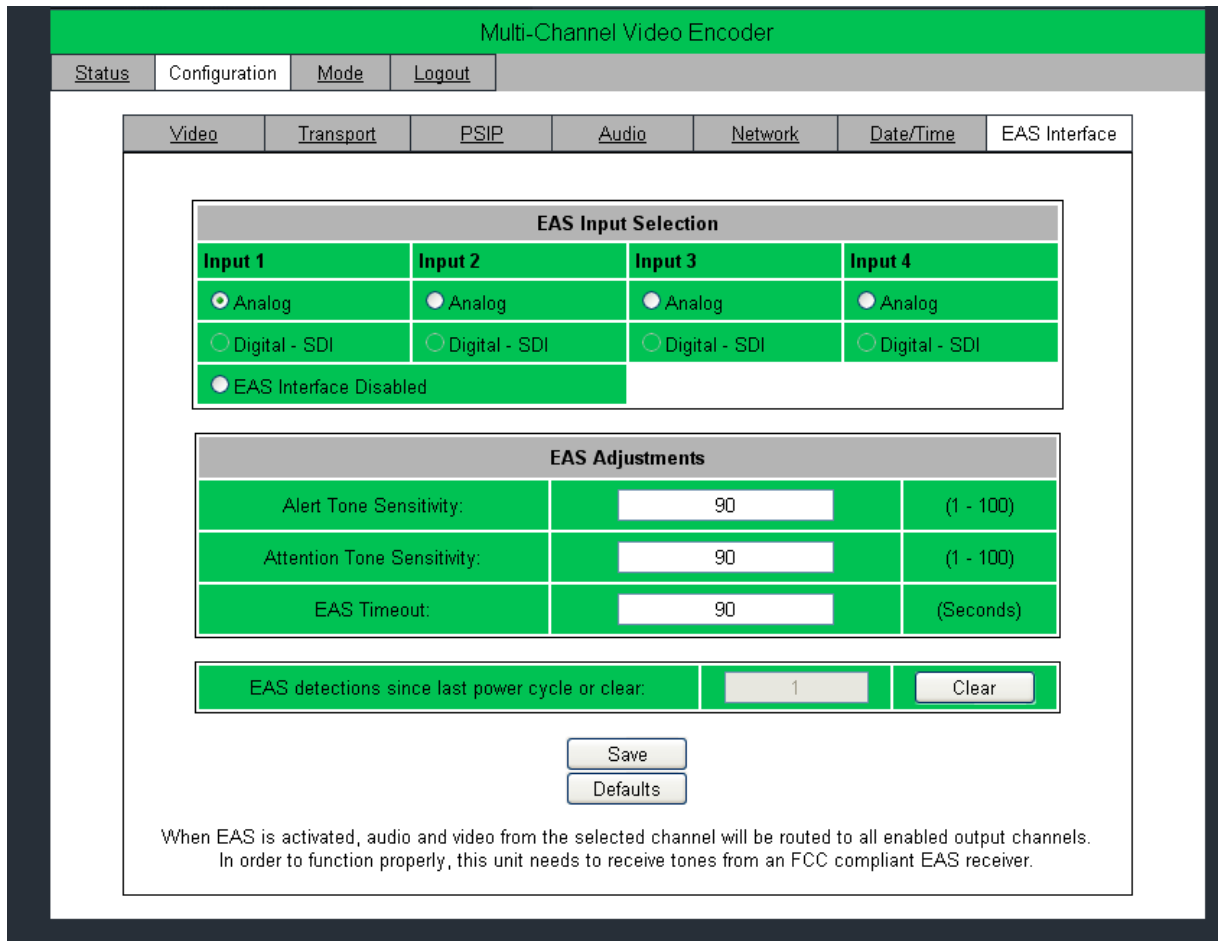


Figure 6-10: EAS

Note: For detection of EAS tones, the audio supplied should be in the correct format (Analog: professional level, balanced 600 ohm input, 0.5Vpp – 2.1Vpp , Digital: AC-3 48kHz sample rate). The MCVE does not generate or decode the EAS signal. It switches to the EAS Active mode based on the tones received from an external FCC compliant EAS device. If the unit is not detecting the EAS signal or erroneously entering the EAS Active mode, refer to the MCVE Technical Bulletin to change the EAS configuration.

6.5 Mode

There are three modes in which the encoder can be configured (Figure 6-11). These consist of Single-Channel mode, Three-Channel mode and Four-Channel mode. When the mode is changed, some

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settings are set to their defaults. These fields are: Input Type, Video Input Channel, Program Number, Channel Name, and Minor Channel Number. These settings may be reconfigured after a mode change. If the total bitrate of all channels exceeds the transport stream bitrate, video and audio bitrates will be reset to their default values.

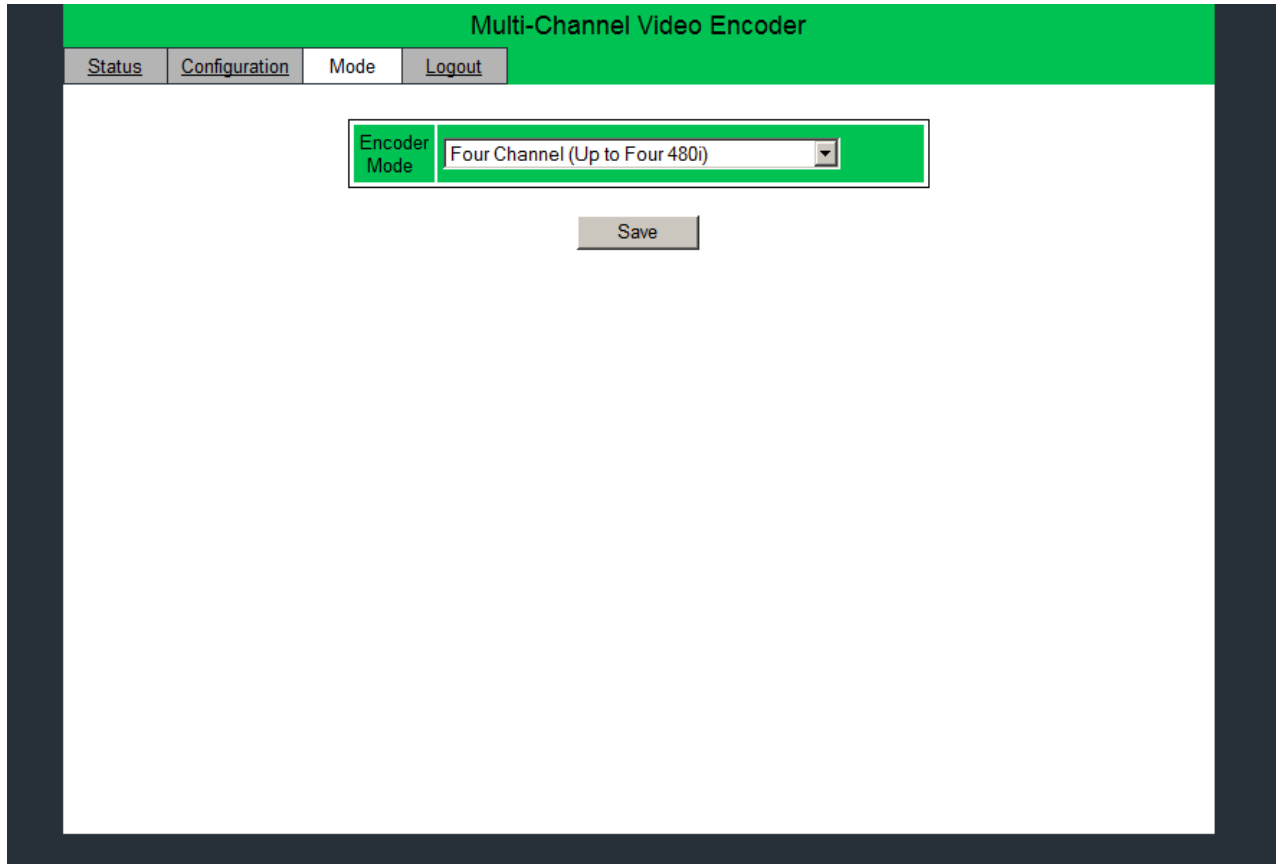


Figure 6-11: Mode

6.6 Video Input Channel

Any SD input (Analog or Digital) can be routed/duplicated to any other SD output. For example, in 4-channel mode, Channel 1's Analog input can be routed to SD 1, SD 2, SD 3, and/or SD 4 (or any other combination). As another example, in 3-channel mode, Channel 4's Digital input can be routed to SD 1 and/or SD2. Despite the flexibility of the Multi-Channel Video Encoder's routing capabilities, there are limitations.

- An HD source cannot be routed to an SD output.
- Only one Input Type can be configured for each channel. For example, if Channel 1's Analog input is routed to SD 2, Channel 1's Digital input cannot be used as another input.

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6.7 Text Field Valid Values

Name	Page	Valid Values
Video Bitrate	Video Config.	Total of all channels < 96% of 19.39Mbps
GOP Size	Video Config.	0 to 120
Program Number	Transport Config.	1 to 65535
All PID Values	Transport Config.	48 to 8176
Transport Stream ID	PSIP Config.	1 to 65535
Channel Name	PSIP Config.	All ASCII Printable Characters (0x20 to 0x7F) 7 Characters Maximum
Major Channel Numbers	PSIP Config.	1 to 99
Minor Channel Numbers	PSIP Config	1 to 99
Audio Delay	Audio Config.	-300 to 300 (ms)
IP Addresses	Network Config.	All IP Addresses conforming to standard network address spaces.
Username/Passwords	Network Config.	All ASCII Printable Characters (0x20 to 0x7F) 10 Characters Maximum
Time Server IP Address	Date/Time Config.	All IP Addresses conforming to standard network address spaces.

6.8 Maximum Connections and Timeout

The Multi-Channel Video Encoder integrated web interface will only allow one concurrent user to be logged in at any given time. During the period when someone is logged in, an error message will be displayed to other users informing them of the condition.

Each page is equipped with a 'Logout' link which will, when clicked by the user that is currently logged in, allow other users to log in. An inactivity timeout period of 5 minutes is in place so that users cannot lock themselves out of an encoder. Additionally, this adds security to the device by requiring a user to log in again after a period of inactivity.

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7 LIVE PREVIEW

The Multi-Channel Video Encoder has a live preview of all channels for the current mode. This feature requires an external monitor/TV with a DVI port. Also, the display must be capable of displaying (natively or by scaling) at least 1280x720 resolution. This feature is always enabled, so additional configuration is not necessary.

The live preview displays post-processed video and channel specific information for quick reference. Video/Audio PIDs, Video Source (Analog/Digital), Audio stream (AC-3/None), Video Format, and current Video Bitrate are available in the display.

The live preview feature is solely intended to be a monitoring tool and should not be used for any other purpose. Also, the live preview feature is a video-only preview, no dedicated audio outputs are provided.

8 PSIP FUNCTIONALITY

The Multi-Channel Video Encoder allows the user to upload PSIP information, such as program name, program duration, ratings etc. for up to five channels (one high definition (HD) and four standard definition (SD) channels). An external program, PSIP Scheduler can be used to load PSIP information onto the MCVE. Instructions on how to use the PSIP Scheduler are included in Appendix A.

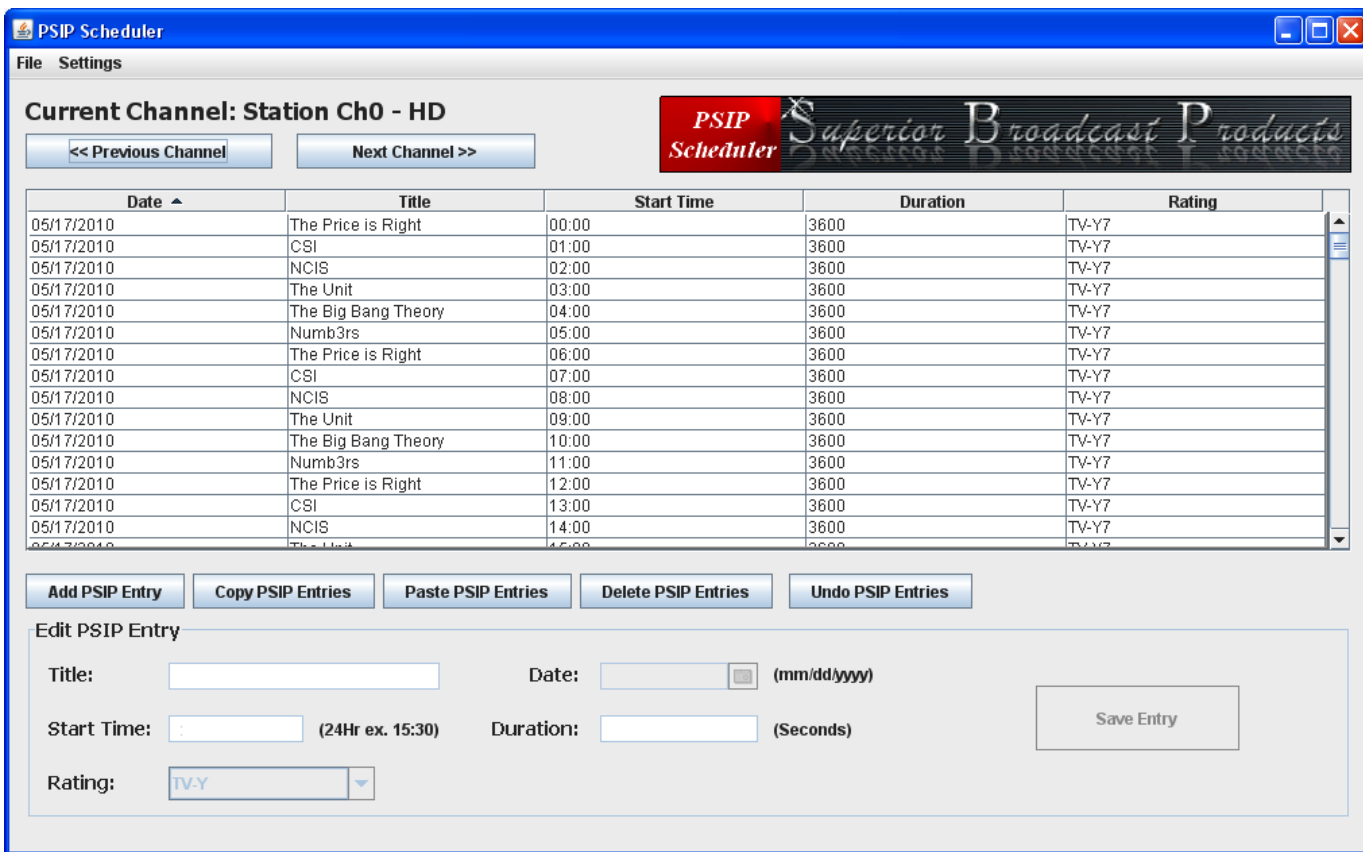
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9 APPENDIX A : PSIP SCHEDULER

PSIP Scheduler is a Java applet that allows users to import, export or upload PSIP entries to the MCVE. The user also has the ability to add, modify or remove PSIP entries for up to five channels. Channel 0 corresponds to the HD channel connected to the MCVE. Channels 1-4 are the SD channels (analog or digital) connected to the MCVE.

To run the PSIP Scheduler program, navigate to the folder containing the files for PSIP Scheduler and click on the “psip_sh.jar” file. Alternatively, to run the program from the command line, change directories to the destination folder and type the following:

```
java -jar "psip_sh.jar"
```



To import a file, click on the File menu and then click on Import PSIP Data. An imported file should be a comma delimited ASCII file with the same format as the sample psip.dat file associated with the PSIP Scheduler program. It should be noted that a leading 0 is required for the date and time for numbers less than 10. To export PSIP data to an external file, click on Export to File under the File menu.

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By default, the entries are organized by date but the user can click on the column title to organize the PSIP entries by Date, Title, Start Time, Duration, or Rating. When a PSIP entry is saved or pasted into the existing table, the entries will be reorganized by date.

To add a single PSIP entry, click on the Add PSIP Entry button. This will create an entry at the bottom of the list, based on the date of the entry. The user might have to scroll to the appropriate location to view the added entry. The new PSIP entry will have the current date and default title of Title, start time of 12:00, duration of 3600 and rating of TV-Y.

To make changes to the PSIP entry, click on the PSIP entry to select it, and then change the value in the appropriate box under the Edit PSIP Entry section. The Title must be 24 characters or less and cannot contain the ',' or '/' characters. A PSIP entry can have a maximum duration of 12 hours. If any show is longer than that, the user must add multiple PSIP entries to span the duration of the show. Changes are not automatically saved, so the user must click on the Save Entry button to save any changes made to the PSIP entry. The entries will be reorganized by date. The user might have to scroll to the appropriate location to view the entry.

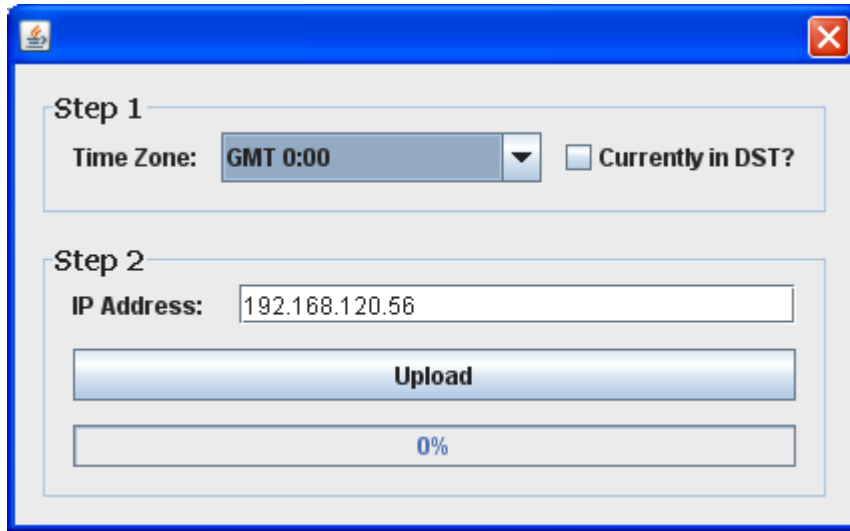
To copy a PSIP entry, select the desired PSIP entry (or entries), click on the Copy PSIP Entries button, and then click on the Paste PSIP Entries button. The copied PSIP entry will be added to the bottom of the list and the list will be reorganized by date. The user might have to scroll to the appropriate location to view the entry (or entries). Entries can be copied from one channel to another. Clicking on the Undo PSIP Entries button will remove the last pasted entries from the list. This is useful if the user accidentally pastes the entries twice.

To remove a PSIP entry, select the PSIP entry (or entries) to be removed and then click on the Delete PSIP Entries button. Click Ok on the pop up window if you are sure you want to delete the PSIP entry (or entries).

Once all changes are made to the PSIP entries, the entries should either be exported to a file or uploaded to the encoder since changes will not be saved once the PSIP Scheduler software is closed.

To upload the PSIP entries to the MCVE, click on the File menu and then click on Upload to Encoder. A pop up window (shown below) will be displayed that allows the user to adjust the time as well as enter the IP address of the MCVE.

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The application supports uploading a maximum of 2500 program entries. An upload may take several minutes to complete depending upon the number of entries. The uploaded file is stored in non-volatile memory, so even if the user power cycles the MCVE, the PSIP entries will not be erased.

To erase all PSIP entries for a channel, first the user must remove all PSIP entries for the channel, then generate only one PSIP entry with the date set in the past. Then upload the updated PSIP entries to the encoder. This is necessary because the rewrite of memory contents will be carried out only if there is a PSIP entry present for the channel.

Note: The PSIP Scheduler requires Java Version 6 Update 21 or higher. Please check the Java website to obtain the latest version. An example comma delimited ASCII file has been included with the program. All formatting must be followed in order to correctly upload the PSIP data to the encoder. Care must be taken when changing the encoder mode after PSIP data has been uploaded to the encoder. PSIP data may need to be corrected and uploaded again to match the new channel configuration. It is the user's responsibility to keep the PSIP data organized to correspond to the actual video.

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10 APPENDIX B : TYPICAL EAS SETUP

The Multi Channel Video Encoder provides EAS support when an FCC compliant Encoder/Decoder unit is connected as one of the inputs. When the EAS preamble tones are detected by the MCVE, it will switch all active channels to the user selected EAS input channel and all audio and video will come from that channel. Once the end tones are detected, the MCVE will switch back to the settings prior to the EAS active mode.

The user must ensure that the audio supplied to the encoder is in the correct format. (Analog: professional level, balanced 600 ohm input, 0.5Vpp – 2.1Vpp, Digital: AC-3 48kHz sample rate). The user must also make sure that the audio and the video correspond to the same channel. Video switching from regular broadcast to EAS alert message should be done using a character generator and audio switching from regular broadcast to EAS tones should be done using an EAS decoder. The MCVE is responsible for switching audio and video of all active channels to the user selected EAS input channel.

In a typical setup, an EAS decoder capable of audio switching will be connected to one of the four analog audio inputs of the MCVE. A character generator will be connected to the EAS decoder in order to switch the video to an alert screen. Broadcast video will be input to the character generator and the video output from the character generator will be connected to one of the SD (analog) inputs of the MCVE. The user must ensure that the same channel is used for both audio and video (e.g.: Channel 1 audio is connected to the EAS decoder and channel 1 video is connected to the character generator).

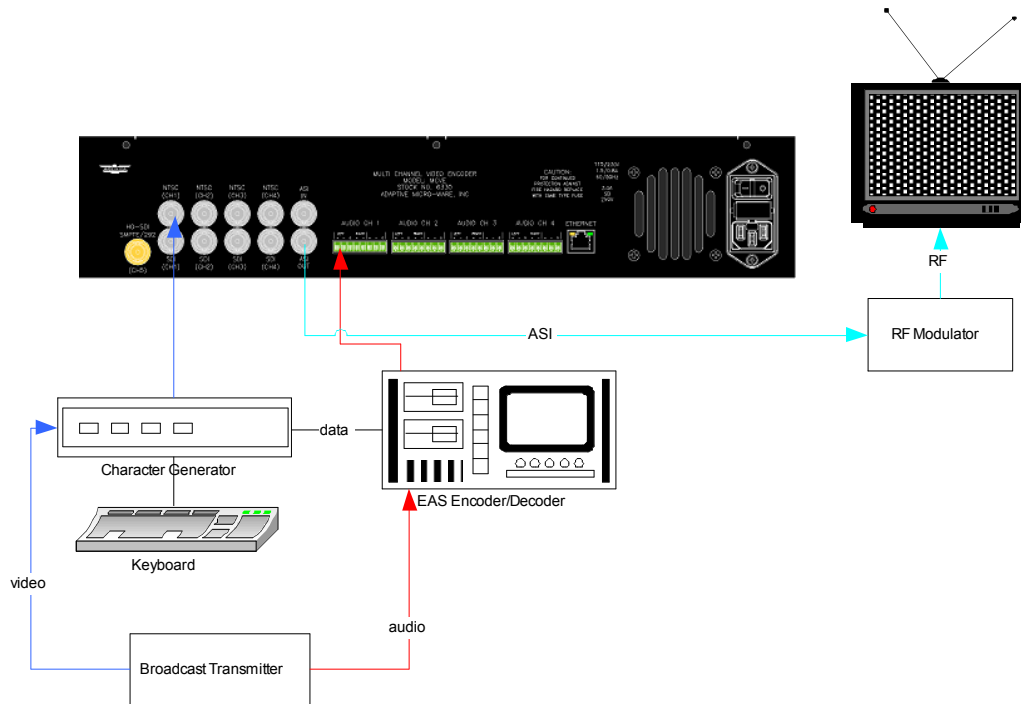


Figure 10-1: Typical EAS Setup

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11 GLOSSARY

- API -** Application Programming Interface, a set of functions or methods used to access some functionality.
- AES -** Audio Engineering Society, Organization responsible for many standards used within the audio, video DVD and broadcast industries. www.aes.org
- ASI -** Asynchronous SCSI Interface.
- BITRATE -** The amount of data being transported, measured relative to quantity over time in bits per second (thousand bits per second or Kb/s, million bits per second or Mb/s, billion bits per second or Gb/s and trillion bits per second or Tb/s).
- DVI -** Digital Visual Interface.
- EIT PID -** Event information table; the EIT is part of the DVB standard and provides schedule information for digital programming.
- GOP SIZE -** The GOP size determines total number of frames in the GOP (Group of Pictures). Current GOP sizes are for example 9 or 12.
- NTSC -** National Television Standards Committee. Video standard established by the United States (RCA/NBC) and adopted by numerous other countries: 525-line video with 3.58-MHz chroma subcarrier and 60 cycles per second.
- PMT ID -** Program Map Tables (PMTs) contain information about programs. For each program, there is one PMT. Each PMT shall be transmitted on a separate PID although technically it is not required. The PMTs describe which PIDs contain data relevant to the programs. PMTs also provide metadata about the streams in their constituent PIDs. For example, if a program contains an MPEG-2 video stream, the PMT will list this PID, describe it as a video stream, and provide the type of video that it contains. The PMT may also contain additional descriptors providing data about its constituent streams.
- PSIP-** Program and System Information Protocol. This is the digital information transmitted by a DTV station that includes the time and date, major and minor channel numbers, and program information.
- SDI -** The professional digital video connection format using a 270 Mbps transfer rate. A 10-bit, scrambled, polarity-independent interface, with common scrambling for both component ITU-R 601 and composite digital video and four groups each of four channels of embedded digital audio. SDI uses standard 75-ohm BNC connectors and coax cable.
- SMPTE -** The Society of Motion Picture and Television Engineers. An international research and standards organization. The SMPTE time code, used for marking the position of audio or video in time, was developed by this group.

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