

520AE-HD Series HD/SD Audio and Dolby Metadata Embedder

1. OVERVIEW	1
2. INSTALLATION	4
2.1. VIDEO CONNECTIONS	4
2.2. AES AUDIO CONNECTIONS.....	5
2.2.1. AES Inputs.....	5
2.2.2. Additional AES Inputs (520AE8-HD version only)	5
2.3. DOLBY METADATA CONNECTIONS.....	5
2.3.1. Metadata Input on 520AE4-HD Version	5
2.3.2. Metadata Input on 520AE8-HD Version	5
2.3.3. Connecting to Dolby DP570 or DP572	5
3. SPECIFICATIONS	6
3.1. SERIAL VIDEO INPUT	6
3.2. PROCESSED SERIAL VIDEO OUTPUT	7
3.3. AES AUDIO INPUTS.....	7
3.4. METADATA INPUT	7
3.5. SYSTEM PERFORMANCE	7
3.6. ELECTRICAL	7
3.7. PHYSICAL.....	7
4. STATUS INDICATORS AND DISPLAYS	8
4.1. MODULE STATUS LEDs	8
4.2. DOT-MATRIX DISPLAY	9
5. CARD EDGE MENU SYSTEM.....	9
5.1. NAVIGATING THE MENU SYSTEM	9
5.2. TOP LEVEL MENU STRUCTURE	10

5.3. DISPLAYING THE PEAK AUDIO LEVELS.....	11
5.3.1. Displaying the Peak Audio Values as Bar Graphs.....	11
5.3.1.1. Peak Audio Bar Graphs – All Versions.....	12
5.3.1.2. Peak Audio Bar Graphs – 520AE8-HD version	13
5.3.2. Displaying the Peak Audio Values as Numerical Values	13
5.4. DISPLAYING THE SIGNAL INPUT STATUS	14
5.4.1. Displaying the Status of the AES Input.....	14
5.4.2. Displaying the Video Input Format.....	15
5.4.3. Displaying the Status of the Input Embedded Audio Groups.....	15
5.4.4. Displaying the Metadata Input Status	15
5.5. CONFIGURING THE AUDIO CHANNEL ROUTING.....	15
5.5.1. Selecting the Audio Routing	16
5.5.1.1. Configuring the Audio Routing – Discrete Channel Control Mode	17
5.5.1.2. Configuring the Audio Routing – Stereo Pair Control Mode	17
5.6. CONFIGURING THE AUDIO DELAY (520AE4-HD VERSION ONLY).....	17
5.7. CONFIGURING THE HEADPHONE PARAMETERS	18
5.7.1. Setting the Headphone Volume	18
5.7.2. Selecting the Channels to Monitor with the Headphones	18
5.8. CONFIGURING THE METADATA EMBEDDER	19
5.8.1. Configuring the VANC Metadata Embedder.....	19
5.9. CONFIGURING THE AUDIO EMBEDDERS	20
5.9.1. Configuring the Incoming Audio Packet Stripper	20
5.9.2. Configuring the Audio Embedders.....	21
5.9.2.1. Selecting the Audio Group Number For Each Embedder (520AE4-HD version)	21
5.9.2.2. Enabling Specific Audio Embedder (520AE4-HD version)	21
5.9.2.3. Enabling Specific Audio Group Embedding (520AE8-HD version)	21
5.10. CONFIGURING MISCELLANEOUS PARAMETERS	22
5.10.1. Configuring the Audio Channel Control Mode	22
5.10.2. Controlling the Sample Rate Converters	23
5.10.3. Configuring the Dot Matrix Display Orientation.....	23
5.10.4. Displaying the Firmware Version	23
5.10.5. Resetting the Module to its Factory Defaults	24
5.10.6. Upgrading the Module Firmware	24
5.11. CONFIGURING THE VIDEO PARAMETERS	24
5.11.1. Selecting the Output Video Format.....	25
5.11.2. Selecting The Default Output Screen Colour.....	25
5.11.3. Configuring the Video Output in Absence of Valid Video Input	25

6. JUMPERS.....	26
6.1. SELECTING WHETHER LOCAL FAULTS WILL BE MONITORED BY THE GLOBAL FRAME STATUS.....	26
6.2. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES	26
6.3. SELECTING WHETHER THE BYPASS RELAY IS FORCED TO BYPASS MODE	27
6.4. SELECTING METADATA INPUT TERMINATION.....	27
6.5. SELECTING 2 ND LAST BNC TERMINATION	27
7. VISTALINK™ REMOTE MONITORING/CONTROL.....	27
7.1. WHAT IS VISTALINK™?	27
8. MENU QUICK REFERENCE	29
8.1. DISCRETE CHANNEL MODE MENUS.....	29
8.2. STEREO PAIR MODE MENUS.....	30

Figures:

Figure 1: 520AE4-HD Block Diagram.....	2
Figure 2: 520AE8-HD Block Diagram.....	3
Figure 3: Rear Panel Overlays	4
Figure 4: Connecting the 520AE-HD series Embedders to the Dolby DP570	6
Figure 5: Peak Level Bar Graph Displays	12
Figure 6: LED and Jumper Locations.....	26

Tables:

Table 1: Functions of Card Edge Status LEDs – 520AE4-HD	8
Table 2: Functions of Card Edge Status LEDs – 520AE4-HD	8
Table 3: Bar Graph Peak Levels	12
Table 4: 520AE4-HD Embedder Channel Names.....	16
Table 5: 520AE8-HD Embedder Channel Names.....	16

This page left intentionally blank

REVISION HISTORY

REVISION	DESCRIPTION	DATE
0.1	Preliminary Version	Jun 05

Information contained in this manual is believed to be accurate and reliable. However, Evertz assumes no responsibility for the use thereof or for the rights of third parties, which may be affected in any way by the use thereof. Any representations in this document concerning performance of Evertz products are for informational use only and are not warranties of future performance either express or implied. The only warranty offered by Evertz in relation to this product is the Evertz standard limited warranty, stated in the sales contract or order confirmation form.

Although every attempt has been made to accurately describe the features, installation and operation of this product in this manual, no warranty is granted nor liability assumed in relation to any errors or omissions unless specifically undertaken in the Evertz sales contract or order confirmation. Information contained in this manual is periodically updated and changes will be incorporated into subsequent editions. If you encounter an error, please notify Evertz Customer Service department. Evertz reserves the right, without notice or liability, to make changes in equipment design or specifications.

This page left intentionally blank

1. OVERVIEW

The 520AE-HD series Audio and Dolby Metadata embedders insert AES audio signals into a 1.5Gb/s HDTV SDI video signal (as specified in SMPTE 299M) or into a 270Mb/s serial SDTV SDI video signal (as defined by SMPTE 272M). The companion 520AD4-HD series Audio Deembedders facilitate audio demultiplexing at the destination.

The 520AE-HD series embedders are available in 2 different versions.



Throughout this manual the term “520AE-HD series” is used to refer to all versions. When features apply only to specific versions the specific version will be listed explicitly (e.g. “520AE4-HD version” or “520AE8-HD version”).

Model	AES Inputs	Metadata Input	HD/SDI Outputs	Audio Delay
520AE4-HD	4 unbalanced	1 dedicated	4	Up to 3 sec
520AE8-HD	8 unbalanced	1 shared with AES 8	1	

Before they are embedded, AES audio channel pairs may be optionally sample-rate-converted (SRC'ed) to a video-synchronous 48 kHz rate. This processing will automatically detect Dolby E / AC3 inputs and bypass the sample rate converters to maintain the integrity of the NON-PCM audio data. Also, audio channels can be independently rearranged (routed) in any desired way before embedding.

On the 520AE4-HD version, all audio channels may be independently delayed by up to 3 sec.

The 520AE-HD series embedders also embed Dolby Metadata in the vertical ancillary data space (VANC) of HDTV signals. The 520AE4-HD version has a dedicated BNC for externally supplied Metadata while 520AE8-HD version shares its Metadata input with the AES input #8.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features: (all versions)

- Supports SMPTE 292M (1.5 Gb/s) or SMPTE 259M (270 Mb/s) serial digital video signals - autodetect
- Video input relay bypass to the 1st video output, for power failure bypass protection.
- Fully configurable input audio packet annihilator (pass/delete)
- Highest performance Sample Rate Converters (to video-synchronous 48kHz) on all AES inputs, with automatic protection of Dolby streams. The conversion can be forced OFF, if so desired.
- Audio channels to be embedded are selectable from any of the input audio channels (full audio router)
- 1 Dolby Metadata input (unbalanced RS485)
- Dolby Metadata VANC embedder (selectable line, group ID, and sub-ID)
- Monitoring headphone jack with user selected stereo channel
- Card edge LEDs for module status, video and audio present
- Card edge display for miscellaneous card status & audio channel peak levels bar graphs (includes detection of PCM vs. Dolby audio streams)
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Additional Features: (520AE4-HD version)

- 4 AES unbalanced inputs
- Adjustable audio delay (up to 3 seconds)
- Embeds up to 2 audio groups
- 4 processed video outputs

Additional Features: (520AE8-HD version)

- 8 AES unbalanced inputs (last input is shared with Dolby Metadata input)
- Embeds up to 4 audio groups
- 1 processed video output

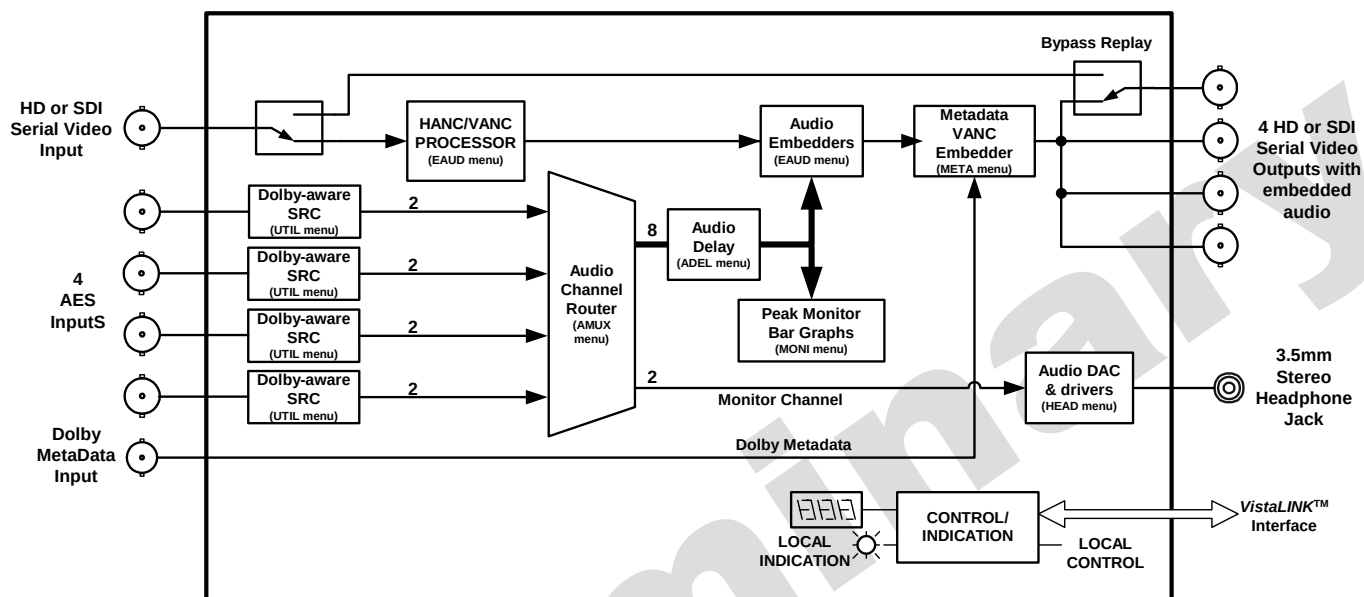


Figure 1: 520AE4-HD Block Diagram

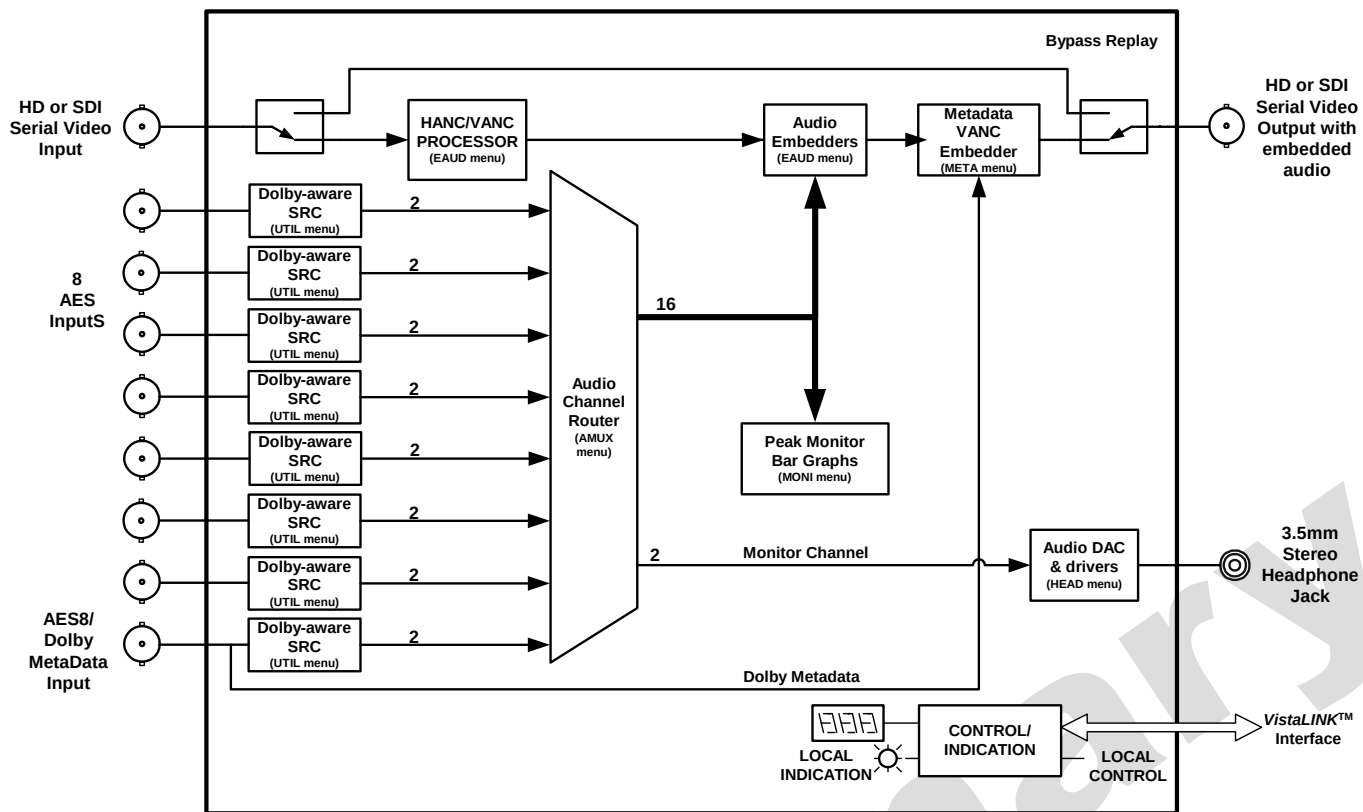


Figure 2: 520AE8-HD Block Diagram

2. INSTALLATION

The 520AE-HD series embedders come with companion rear panel overlays that can be placed over the rear panel BNC connectors to identify their function. For information on inserting the module into the frame see the 500FR chapter section 3.

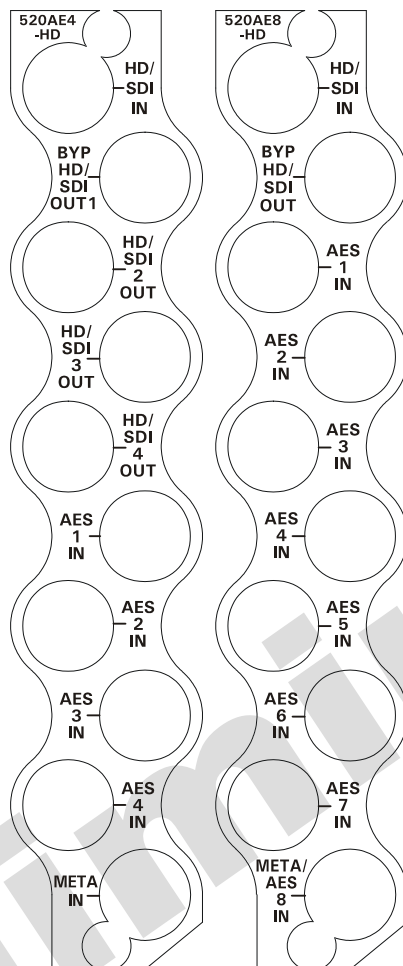


Figure 3: Rear Panel Overlays

2.1. VIDEO CONNECTIONS

HD/SDI IN

Input BNC connector for 10-bit serial digital video signals compatible with the SMPTE 292M or SMPTE 259M-C standards. The video standard is selected automatically. See section 3.1 for a list of the video standards supported.

BYP HD/SDI OUT

This output BNC connector is used to output reclocked serial component video, in the same standard as the video input. This output contains the input video with the selected input audio embedded in accordance with the SMPTE 272M or SMPTE 299M standards. The **BYP HD/SD OUT** output is protected by a bypass relay, which will activate in the event of power loss to the module.

HD/SDI OUT 2, 3, 4

On the 520AE4-HD version, these output BNC connectors have copies of the **BYP HD/SD OUT** contents. They are not bypass protected.

2.2. AES AUDIO CONNECTIONS

2.2.1. AES Inputs

AES IN 1, 2, 3, 4 These BNCs are dedicated as AES audio inputs. In the default audio routing configuration, **AES IN 1** and **2** will be embedded in audio group 1, while **AES IN 3** and **4** will be embedded in audio group 2.

2.2.2. Additional AES Inputs (520AE8-HD version only)

AES IN 5, 6, 7, 8 These BNC are dedicated as additional AES audio inputs. In the default audio routing configuration, **AES IN 5** and **6** will be embedded in audio group 3, while **AES IN 7** and **8** will be embedded in audio group 4.



The AES8 IN connector use is shared with Metadata input.

2.3. DOLBY METADATA CONNECTIONS

2.3.1. Metadata Input on 520AE4-HD Version

META IN This BNC is a dedicated input for DOLBY Metadata from a Dolby E Decoder or a Dolby Multichannel Tool. Please ensure that the on-board jumper J14 is in HI-Z position.

2.3.2. Metadata Input on 520AE8-HD Version

META / AES8 IN This BNC can be used as an input for DOLBY Metadata from a Dolby E Decoder or a Dolby Multichannel Tool. When used as such, ensure that the on-board jumper J14 is in HI-Z position. The connector can also be used as an additional AES audio input for AES pair 8.

2.3.3. Connecting to Dolby DP570 or DP572

The 520AE-HD series modules use BNC connectors for Metadata inputs. They are shipped with a DD-DB9-BNC adapter that converts the unbalanced signals on the BNCs so that they are compatible with RS-485 signals from a source of Dolby metadata such as Dolby E Decoder DP572 or Dolby Multichannel Tool DP570. Jumper J14 on the 520AE-HD series modules must also be placed in HI-Z position.

Connect the DD-DB9-BNC adapter to the **METADATA OUTPUT** DB-9 connector on the rear of the DP570. Connect a coaxial cable from the BNC on this connector to the **META/AES8 IN** BNC on the 520AE8-HD rear panel, or the **META IN** BNC on the 520AE4-HD rear panel. If you wish you may connect a straight-through 9 pin cable between the adapters and the DP570. See Figure 4 for more information.

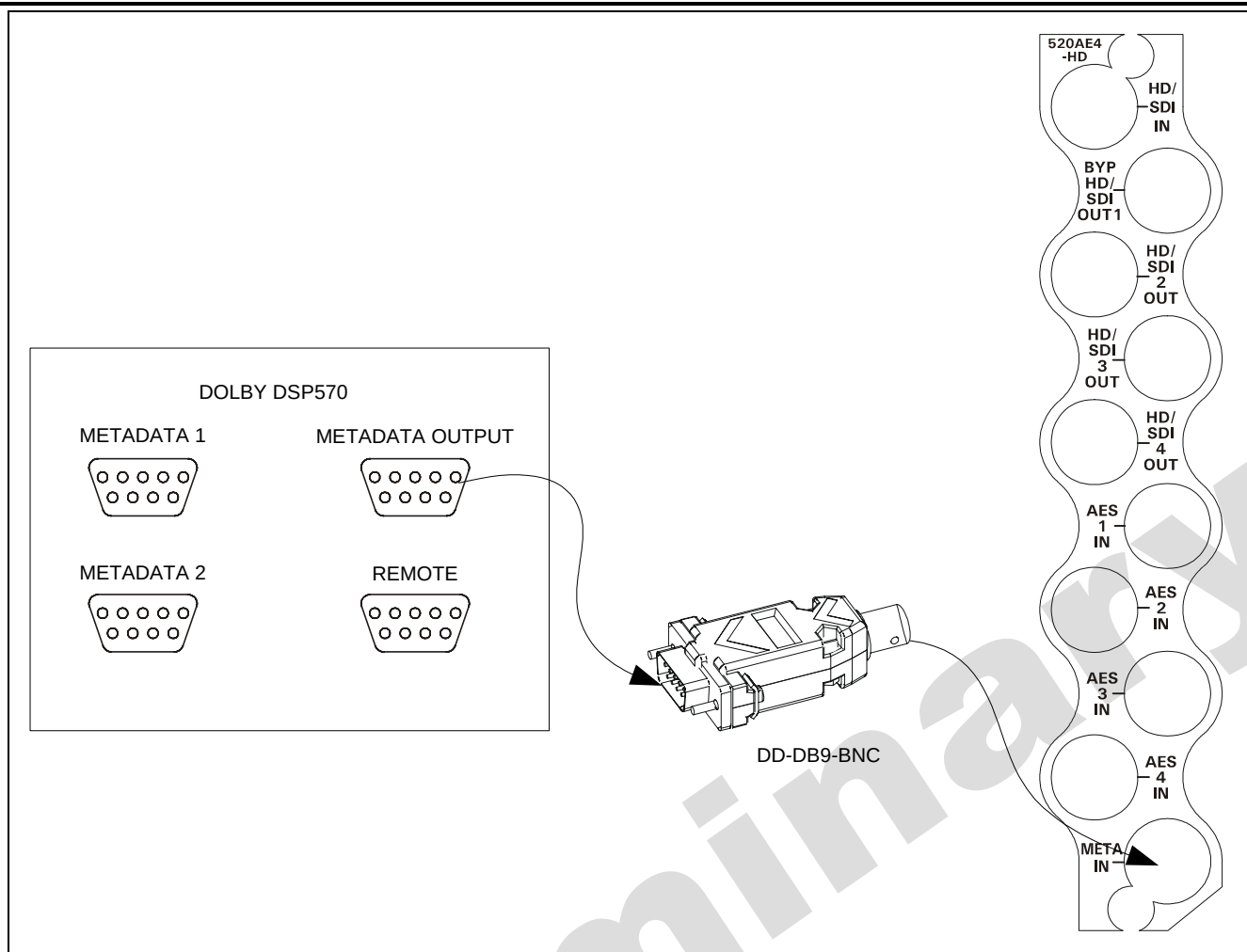


Figure 4: Connecting the 520AE-HD series Embedders to the Dolby DP570

3. SPECIFICATIONS

3.1. SERIAL VIDEO INPUT

Standard: SMPTE 292M: 1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080p/24(sF), 1080p/23.98(sF), 720p/60, 720p/59.94, 720p/50, 1035i/60, 1035i/59.94
SMPTE 259M-C (270 Mb/s) 525 or 625 line component

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 100m @ 1.5 Gb/s with Belden 1694A (or equivalent)
40m with bypass relay active and card powered up
100m with card powered down

3.2. PROCESSED SERIAL VIDEO OUTPUT

Standard:	Same as input or user controlled
Number of Outputs:	1 bypass protected on all models 3 additional non bypass protected on 520AE4-HD version
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V $\pm$ 0.5V
Overshoot:	<10% of amplitude
Wide Band Jitter:	<0.2 UI

3.3. AES AUDIO INPUTS

Standard:	SMPTE 276M single ended AES
Number of Inputs:	
520AE4-HD	4
520AE8-HD	8
Connector:	BNC per IEC 60169-8 Amendment 2
Input Level:	0.2 to 2.5 Vp-p (5 Vp-p tolerant)
Input Impedance:	75 ohm (Hi-z is jumper selectable on AES IN 7 and 8)
Return Loss:	>25dB 100kHz to 6MHz
Equalization:	Automatic to 1000m with Belden 1694A (or equivalent) @ 48 kHz AES signal
Sample Rate:	48 kHz $\pm$ 100ppm

3.4. METADATA INPUT

Type:	DOLBY E Metadata
Connector:	BNC per IEC 60169-8 Amendment 2 (shared with AES 8 IN on 520AE8-HD version)
Baud Rate:	115,200 baud

3.5. SYSTEM PERFORMANCE

Embedding Latency:	
SD Video:	to be measured
HD Video:	80 μ sec nominal
Audio Delay:	embed latency + 0 to 3 sec (520AE4-HD), embed latency only (520AE8-HD)
Video Delay:	few lines

3.6. ELECTRICAL

Voltage:	+ 12VDC
Power:	10 Watts
EMI/RFI:	Complies with FCC Part 15 Class A and EU EMC directive

3.7. PHYSICAL

Number of slots:	1
-------------------------	---

4. STATUS INDICATORS AND DISPLAYS

The 520AE-HD series embedders have 11 LED Status indicators on the main circuit board front card edge to show operational status of the card at a glance. Figure 6 show the location of the LEDs and card edge controls.

4.1. MODULE STATUS LEDS

Two large LEDs on the front of the board indicate the general health of the module

LOCAL FAULT: This Red LED will be On if a local input power fault exists (i.e.: a blown fuse). The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

MODULE OK: This Green LED will be On when the board power is good and system is configured.

There are nine small two colour LEDs on the back side of the board that indicate various status conditions of the module as shown in Table 1 and Table 2. LED 2 is located closest to the two large LEDs.

		LED Functions on 520AE4-HD			
	Description	solid RED	blinking RED	blinking GREEN	solid GREEN
LED2	Ethernet link to frame controller			Network activity	
LED3	Video input	no Video in		Video input does not match selected standard ion VIDE/VOFM menu	valid Video in
LED4	AES 1 input				AES 1 in OK
LED5	AES 2 input				AES 2 in OK
LED6	AES 3 input				AES 3 in OK
LED7	AES 4 input				AES 4 in OK
LED8	Temporary		Can't lock video clock		
LED9	Temporary		Can't lock audio clock		
LED10	Metadata reception		Metadata errors		Metadata in OK

Table 1: Functions of Card Edge Status LEDs – 520AE4-HD

		LED Functions on 520AE4-HD			
	Description	solid RED	blinking RED	blinking GREEN	solid GREEN
LED2	Ethernet link to frame controller			Network activity	
LED3	Video input	no Video in		Video input does not match selected standard ion VIDE/VOFM menu	valid Video in
LED4	AES 1 input				AES 1 in OK
LED5	AES 2 input				AES 2 in OK
LED6	AES 3 input				AES 3 in OK
LED7	AES 4 input				AES 4 in OK
LED8	AES 5/6 input			Either AES 5 or 6 OK	Both AES 5 and 6 OK
LED9	AES 7/8 input			Either AES 7 or 8 OK	Both AES 7 and 8 OK
LED10	Metadata reception		Metadata errors		Metadata in OK

Table 2: Functions of Card Edge Status LEDs – 520AE4-HD

4.2. DOT-MATRIX DISPLAY

Additional signal status monitoring and control over the card's parameters is provided via the 4-character alphanumeric display located on the card edge. What is displayed is determined by where you are in the menu system. See section 5 for information on operating the menu system.

5. CARD EDGE MENU SYSTEM

5.1. NAVIGATING THE MENU SYSTEM

The card edge rotary switch, toggle switch and pushbutton are used to navigate through the menu system to monitor or set various parameters for the module. The menu system is organized into ten top level menus. Turn the rotary switch to select one of the top level menus, then press the pushbutton to enter that menu. You can use the toggle switch to move up and down the list of available sub-menu items. Once the desired submenu name is displayed, press the pushbutton to select the bottom menu level. The dot matrix display will be dimmed when you are in the bottom level of the menu tree.

If you are in one of the Status menus the selected parameter value will be displayed. If you are in one of the control menus, use the toggle switch to adjust the parameter to its desired value. If the parameter is a numerical value, the number will increase if you lift the toggle switch and decrease if you push down on the toggle switch. If the parameter contains a list of choices, you can cycle through the list by pressing the toggle switch in either direction.

When you have stopped at the desired value, depress the pushbutton. This will update the parameter to the selected value and return to the sub-menu items (the display shows the menu item names). To change another parameter, use the toggle switch to find another parameter in that menu or turn the rotary knob to select another top level menu and continue selecting and adjusting other parameters.

Throughout the descriptions of the Menu items, default values are shown in underlined text.

5.2. TOP LEVEL MENU STRUCTURE

<i>MONI</i>	Status displays showing audio signal peak levels
<i>STAT</i>	Status displays showing input signal status items
<i>AMUX</i>	Control menu to set parameters relating to the audio channel routing
<i>ADEL</i>	Control menu to set parameters relating to the audio delay (<i>520AE8-HD only</i>)
<i>----</i>	Reserved for future use
<i>HEAD</i>	Control menu to set the card edge headphone interface
<i>META</i>	Control menu to set parameters relating to the Metadata
<i>EAUD</i>	Control menu to set parameters relating to the audio embedder
<i>UTIL</i>	Control menu to set miscellaneous parameters
<i>VIDE</i>	Control menu to set parameters relating to the video

The chart above is a brief description of the top level of the menu tree that appears when you turn the rotary knob. Selecting one of these items by pressing the pushbutton will take you down into the next menu level. The details of the each of the menus are described in the sections 5.3 to 5.10.4.

5.3. DISPLAYING THE PEAK AUDIO LEVELS

The *MONI* menu is used to show the peak values for each of the audio channels. When the *MONI* menu is entered the active display name will be shown for about 1 second, and then the value will be shown. To display the display name again press the pushbutton. To select other menu items, use the toggle switch. The chart below shows the items available in the *MONI* menu. Sections 5.3.1 and 5.3.2 give detailed information about the menu items.

1234	Displays bar graphs for peak values of discrete channels 1, 2, 3, 4 (i.e. OP1A, OP1B, OP2A, OP2B)
5678	Displays bar graphs for peak values of discrete channels 5, 6, 7, 8 (i.e. OP3A, ..., etc.)
9ABC	Displays bar graphs for peak values of discrete channels 9, 10, 11, 12 (520AE8-HD only)
DEFG	Displays bar graphs for peak values of discrete channels 13, 14, 15, 16 (520AE8-HD only)
1to8	Displays bar graphs for peak values of pairs 1/2, 3/4, 5/6, 7/8
9toG	Displays bar graphs for peak values of pairs 9/10, 11/12, 13/14, 15/16 (520AE8-HD only)
1toG	Displays bar graphs for peak values of groups 1/2/3/4, 5/6/7/8, 9/10/11/12, 13/14/15/16 (520AE8-HD only)
dB 1	Displays the peak value of discrete channel 1 (OP1A) in dBFS
dB 2	Displays the peak value of discrete channel 2 (OP1B) in dBFS
...	...
dB 8	Displays the peak value of discrete channel 8 (OP4B) in dBFS
dB 9	Displays the peak value of discrete channel 9 (OP5A) in dBFS (520AE8-HD only)
dB A	Displays the peak value of discrete channel 10 (OP5B) in dBFS (520AE8-HD only)
...	...
dB G	Displays the peak value of discrete channel 16 (OP8B) in dBFS (520AE8-HD only)

5.3.1. Displaying the Peak Audio Values as Bar Graphs

Each of the 4 sections of the dot matrix display can show a bar graph representation of the peak level for the selected channel or the average of peaks of multiple channels. Each section of the display is comprised of a 5 x 5 array of dots. Diagonal rows of dots represent one of 9 different signal peak levels as shown in Figure 5 and Table 3.

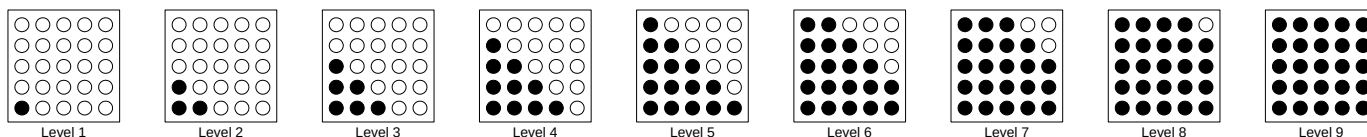


Figure 5: Peak Level Bar Graph Displays

Bar Graph Level	dBFS
Level 1	-60
Level 2	-36
Level 3	-30
Level 4	-24
Level 5	-21
Level 6	-18
Level 7	-15
Level 8	-12
Level 9	-6

Table 3: Bar Graph Peak Levels

Table 3 allows you to correlate the dot matrix display levels to the peak levels in dBFS units. The ballistics of all bar graphs follow the AES/EBU guidelines and have the attack time constant set to 0 seconds, and the decay time constant set to 1.5 seconds / 20 dB.

In 520AE4-HD, there are 3 menu items to show the peak values as 4 miniature bar graphs. In 520AE8-HD, there are 7 menu items to account for more channels and channel combinations. The different menu items allow you to show the peak values of discrete channels, channel pairs or groups.

5.3.1.1. Peak Audio Bar Graphs – All Versions

MONI
1234
See Figure 7 & Table 2

With this display you can simultaneously and graphically show the peak values for discrete channels 1 to 4 (OP1A through OP2B). Channel 1A is shown on the left (top) section and channel 2B is shown on the right (bottom) section.

MONI
5678
See Figure 7 & Table 2

With this display you can simultaneously and graphically show the peak values for discrete channels 5 to 8 (OP3A through OP4B). Channel 3A is shown on the left (top) section and channel 4B is shown on the right (bottom) section.

MONI
1to8
See Figure 7 & Table 2

With this display you can simultaneously and graphically show the peak values for pairs of channels 1 to 8 (OP1A through OP4B). Channel (1A+1B) is shown on the left (top) section and channel (4A+4B) is shown on the right (bottom) section.

5.3.1.2. Peak Audio Bar Graphs – 520AE8-HD version

MONI	With this display you can simultaneously and graphically show the peak values for discrete channels 9 to 12 (OP5A through OP6B). Channel 5A is shown on the left (top) section and channel 6B is shown on the right (bottom) section.
9ABC	
See Figure 7 & Table 2	
MONI	With this display you can simultaneously and graphically show the peak values for discrete channels 13 to 16 (OP7A through OP8B). Channel 7A is shown on the left (top) section and channel 8B is shown on the right (bottom) section.
DEFG)	
See Figure 7 & Table 2	
MONI	With this display you can simultaneously and graphically show the peak values for discrete channels 9 to 16 (OP5A through OP8B). Channel (5A+5B) is shown on the left (top) section and channel (8A+8B) is shown on the right (bottom) section.
9toG	
See Figure 7 & Table 2	
MONI	With this display you can simultaneously and graphically show the peak values for discrete channels 1 to 16 (OP1A through OP8B). Channel (1A+1B+2A+2B) is shown on the left (top) section and channel (7A+7B+8A+8B) is shown on the right (bottom) section.
1toG	
See Figure 7 & Table 2	

5.3.2. Displaying the Peak Audio Values as Numerical Values

In 520AE4-HD, there are eight display items to show the peak values for each of the 8 discrete audio channels. Accordingly, in 520AE8-HD, there are 16 display items. For the sake of simplicity in the manual only the display for discrete channel 1 will be shown.

MONI	With this display you show the peak values for channel 1 in dBFS.
dB 1	In the example on the left “1-18”, the leading “1” stands for channel 1, and the “-18” stands for peak value detected of -18 dBFS.
1-18	The numerical peak values decay around 20 dB per 1.5 second.

5.4. DISPLAYING THE SIGNAL INPUT STATUS

The *STAT* menu is used to show the status of various input signals. When the *STAT* menu is entered, the name of currently selected status will be shown. To select other status items, use the toggle switch. To display the actual status value, press the pushbutton. The chart below shows the items available in the *STAT* menu. Sections 5.4.1 to 5.4.4 give detailed information about each menu item.

<i>AES1</i>	Displays the AES 1 Input status
<i>AES2</i>	Displays the AES 2 Input status
<i>AES3</i>	Displays the AES 3 Input status
<i>AES4</i>	Displays the AES 4 Input status
<i>AES5</i>	Displays the AES 5 Input status (520AE8-HD version only)
<i>AES6</i>	Displays the AES 6 Input status (520AE8-HD version only)
<i>AES7</i>	Displays the AES 7 Input status (520AE8-HD version only)
<i>AES8</i>	Displays the AES 8 Input status (520AE8-HD version only)
<i>VIFM</i>	Displays the video input format
<i>IGRP</i>	Displays input embedded audio group status
<i>EXMT</i>	Displays the Metadata input status

5.4.1. Displaying the Status of the AES Input

There are 4 menu items to cover 4 AES input statuses in 520AE4-HD, and there are 8 menu items to cover 8 AES input statuses in 520AE8-HD. For the sake of simplicity only the menu item for AES input 1 will be shown.

<i>STAT</i>	With this display you show the status of the AES input.
<i>AES1</i>	
<i>PCM</i>	PCM stands for linear ("normal") audio,
<i>DLBE</i>	DLBE stands for Dolby E has been detected
<i>DLBD</i>	DLBD stands for Dolby AC3 (Digital) has been detected
<i>n/a</i>	

5.4.2. Displaying the Video Input Format

STAT
VIFM
none
PALB
NTSC
3i59
3i60
1s23
1s24
1i50
1i59
1i60
7p59
7p60
7p50
1p23
1p24
1p25
1p29
1p30

With this display you can show the type of the video input.

No video present
PAL-B
NTSC-M
1035i/59.94
1035i/60
1080p/23.98sF
1080p/24sF
1080i/50
1080i/59.94
1080i/60
720p/59.94
720p/60
720p/50
1080p/23.98
1080p/24
1080p/25
1080p/29.97
1080p/30

5.4.3. Displaying the Status of the Input Embedded Audio Groups

STAT
IGRP
1234

With this display you can show which embedded audio groups are present on the input video. The corresponding digit is shown for each audio group present.

5.4.4. Displaying the Metadata Input Status

STAT
EXMT
OK
n/a

With this display you can show the status of the metadata input.

OK = input Metadata present

5.5. CONFIGURING THE AUDIO CHANNEL ROUTING

The *AMUX* menu is used to control the internal routing of audio channels. When the *AMUX* menu is entered the active menu item name will be shown. The 520AE4-HD version has two embedders (A and B) that each embed one audio group (selectable). The 520AE8-HD versions have four embedders (1,2,3, and 4) each dedicated to embed one fixed audio group (respectively group 1, 2, 3, and 4). Table 4 and Table 5 show the output channel names for each embedder. These channel names are used throughout the *AMUX* menu items.

Embedded Channel			Channel/Pair Mode		Default Channel Source
			Chan	Pair	
Output channels	Embedder A channel	1A	OP1A	OP1	IP1A
		1B	OP1B		IP1B
		2A	OP2A	OP2	IP2A
		2B	OP2B		IP2B
	Embedder B channel	1A	OP3A	OP3	IP3A
		1B	OP3B		IP3B
		2A	OP4A	OP4	IP4A
		2B	OP4B		IP4B

Table 4: 520AE4-HD Embedder Channel Names

Embedded Channel			Channel/Pair Mode		Default Channel Source
			Chan	Pair	
Output channels	Embedder 1 channel	1A	OP1A	OP1	IP1A
		1B	OP1B		IP1B
		2A	OP2A	OP2	IP2A
		2B	OP2B		IP2B
	Embedder 2 channel	1A	OP3A	OP3	IP3A
		1B	OP3B		IP3B
		2A	OP4A	OP4	IP4A
		2B	OP4B		IP4B
	Embedder 3 channel	1A	OP5A	OP5	IP5A
		1B	OP5B		IP5B
		2A	OP6A	OP6	IP6A
		2B	OP6B		IP6B
	Embedder 4 channel	1A	OP7A	OP7	IP7A
		1B	OP7B		IP7B
		2A	OP8A	OP8	IP8A
		2B	OP8B		IP8B

Table 5: 520AE8-HD Embedder Channel Names

5.5.1. Selecting the Audio Routing

There are identical menu items that control the routing for each discrete (mono) channel (when the *UTIL / 2CHA* menu item is set to *CHAN*) or for each stereo pair (when the *UTIL / 2CHA* menu item is set to *PAIR*). For the sake of simplicity only the menu item for audio output channel 1A (in *CHAN* mode) and audio output stereo pair 1 (in *PAIR* mode) will be shown. See the block diagrams in Figure 1 and Figure 2 to identify where the signals are being used.

5.5.1.1. Configuring the Audio Routing – Discrete Channel Control Mode

AMUX
OP1A
IP1A
IP1B
IP2A
IP2B
IP3A
IP3B
IP4A
IP4B
IP5A (520AE8-HD only)
IP5B (520AE8-HD only)
IP6A (520AE8-HD only)
IP6B (520AE8-HD only)
IP7A (520AE8-HD only)
IP7B (520AE8-HD only)
IP8A (520AE8-HD only)
IP8B (520AE8-HD only)

When the *UTIL / 2CHA* menu item is set to *CHAN*, this menu item is used to set the input source for the discrete output channel 1A.

AES 1	IP1A
	IP1B
AES 2	IP2A
	IP2B
AES 3	IP3A
	IP3B
AES 4	IP4A
	IP4B
AES 5	IP5A (520AE8-HD only)
	IP5B (520AE8-HD only)
AES 6	IP6A (520AE8-HD only)
	IP6B (520AE8-HD only)
AES 7	IP7A (520AE8-HD only)
	IP7B (520AE8-HD only)
AES 8	IP8A (520AE8-HD only)
	IP8B (520AE8-HD only)

5.5.1.2. Configuring the Audio Routing – Stereo Pair Control Mode

AMUX
OP1
IP1
IP2
IP3
IP4
IP5 (520AE8-HD only)
IP6 (520AE8-HD only)
IP7 (520AE8-HD only)
IP8 (520AE8-HD only)

When the *UTIL / 2CHA* menu item is set to *PAIR*, this menu item is used to set the input source for the stereo output pair 1.

AES 1	IP1
AES 2	IP2
AES 3	IP3
AES 4	IP4
AES 5	IP5 (520AE8-HD only)
AES 6	IP6 (520AE8-HD only)
AES 7	IP7 (520AE8-HD only)
AES 8	IP8 (520AE8-HD only)

5.6. CONFIGURING THE AUDIO DELAY (520AE4-HD VERSION ONLY)

The *ADEL* menu is used to control the audio channel delays. When the *ADEL* menu is entered, the active menu item name will be shown. To select other menu items, use the toggle switch. There are identical menu items for each output discrete audio channel (when the *UTIL / 2CHA* menu item is set to *CHAN*) or for each output stereo audio pair (when the *UTIL / 2CHA* menu item is set to *PAIR*). For the sake of simplicity only the menu item for OP1A (1st output left channel, in *PAIR* mode) will be shown. See Table 4 for a list of the output channel names. Also, refer to Figure 1 the block diagram of the module for an illustration of the relative order of SRC, channel routing, and delay processing.

ADEL
DL1A
0sec
0 to 2

With this control you can set the audio delay for discrete output channel 1A in seconds, milliseconds and audio samples.

When you first press the pushbutton you will be prompted to enter the whole seconds part of the delay.

ADEL
DL1A
000m
000 to 999

When you press the pushbutton you will be prompted to enter the milliseconds part of the delay. When you increase the value beyond 999 the seconds will automatically increment. When you decrease the value below 000 the seconds will automatically decrement.

ADEL
DL1A
00AS
00 to 47

When you press the pushbutton you will be prompted to enter the audio samples part of the delay. When you increase the value beyond 47 the milliseconds will automatically increment. When you decrease the value below 00 the milliseconds will automatically decrement. Press the pushbutton one more time to complete the delay entry.

5.7. CONFIGURING THE HEADPHONE PARAMETERS

The *HEAD* menu is used to set the headphone parameters. When the *HEAD* menu is entered the active status display name will be shown. To select other menu items, use the toggle switch. The chart below shows the items available in the *HEAD* menu. Section 5.7.1 gives detailed information about each menu item.

HVOL
HPML
HPMR

Sets the headphone volume

Assigns the channel that will be monitored on the Left headphone

Assigns the channel that will be monitored on the Right headphone

5.7.1. Setting the Headphone Volume

HEAD
HVOL
HV00 to HV15

With this control you can set the headphone volume to one of 16 levels.

Total adjustment range is over 50 dB. Level 00 is the lowest volume and is effectively mute.

5.7.2. Selecting the Channels to Monitor with the Headphones

The *HPML* and *HPMR* menu items are used to control which channel will be monitored by the left and right headphones respectively. There are two identical menu items for each headset channel, when the *UTIL / 2CHA* menu item is set to *CHAN*: one for the left, and one for the right channel. When the *UTIL / 2CHA* menu item is set to *PAIR*, there is only one menu item selecting the source audio as a stereo pair. For the sake of simplicity only the menu item for the left headphone channel will be shown.

HEAD		When the <i>UTIL / 2CHA</i> menu item is set to <i>CHAN</i> , this menu item is selects the channel monitored by the left headphone channel.	
HMPL			
	<i>IP1A</i>	AES 1	IP1A
	<i>IP1B</i>		IP1B
	<i>IP2A</i>	AES 2	IP2A
	<i>IP2B</i>		IP2B
	<i>IP3A</i>	AES 3	IP3A
	<i>IP3B</i>		IP3B
	<i>IP4A</i>	AES 4	IP4A
	<i>IP4B</i>		IP4B
	<i>IP5A</i> (520AE8-HD only)	AES 5	IP5A (520AE8-HD only)
	<i>IP5B</i> (520AE8-HD only)		IP5B (520AE8-HD only)
	<i>IP6A</i> (520AE8-HD only)	AES 6	IP6A (520AE8-HD only)
	<i>IP6B</i> (520AE8-HD only)		IP6B (520AE8-HD only)
	<i>IP7A</i> (520AE8-HD only)	AES 7	IP7A (520AE8-HD only)
	<i>IP7B</i> (520AE8-HD only)		IP7B (520AE8-HD only)
	<i>IP8A</i> (520AE8-HD only)	AES 8	IP8A (520AE8-HD only)
	<i>IP8B</i> (520AE8-HD only)		IP8B (520AE8-HD only)

5.8. CONFIGURING THE METADATA EMBEDDER

The *META* menu is used to configure parameters related to the Dolby Metadata embedder. When the *META* menu is entered the active menu item name will be shown. To select other menu items, use the toggle switch. The chart below shows the items available in the *META* menu. Section 5.8.1 gives detailed information about the menu items.

VAEL	Selects the output VANC line for embedding
VAEI	Selects the output VANC Data ID (DID)
VAES	Selects the output VANC Secondary Data ID (SDID)
VAEN	Selects the whether VANC will be embedded on the output video

5.8.1. Configuring the VANC Metadata Embedder

There are four menu items used to configure the output VANC embedder.

META	With this control you can set the line for embedding VANC Metadata packets on the output video.
VAEL	
EL10 <i>EL01 to EL31</i>	
META	With this control you can set the Data ID for embedding VANC Metadata packets. Normally you should not have to change this from the default value. The values shown are expressed as hexadecimal numbers.
VAEI	
EI45 <i>EI50 to EI5F</i> <i>EIC0 to EICF</i>	

META
VAES
<u>ES01</u>
ES01 to ESFF

With this control you can set the Secondary Data ID for embedding VANC Metadata packets. Normally you should not have to change this from the default value. The values shown are expressed as hexadecimal numbers. When the *VAEI* menu item is set to values in the range of *C0* to *CF*, type 1 metadata packets will be generated and the *VADS* menu item is not relevant as dictated by SMPTE 291M.

META
VAEN
<u>ENBL</u>
OFF

With this control you can select whether the VANC packets will be embedded onto the output video or not.

Select *ENBL* to insert VANC Metadata packets on the output video.
Select *OFF* to disable VANC insertion.

5.9. CONFIGURING THE AUDIO EMBEDDERS

The *EAUD* menu is used to configure parameters related to the audio embedders. When the *EAUD* menu is entered the active menu item name will be shown. To select other menu items, use the toggle switch. The chart below shows the items available in the *EAUD* menu. Section 5.9.1 and 5.9.2 give detailed information about the menu items.

<i>IG1K</i>
<i>IG2K</i>
<i>IG3K</i>
<i>IG4K</i>
<i>EMAG</i>
<i>EMAE</i>
<i>EMBG</i>
<i>EMBE</i>
<i>EM1E</i>
<i>EM2E</i>
<i>EM3E</i>
<i>EM4E</i>

Selects whether to delete incoming audio group 1 from input video

Selects whether to delete incoming audio group 2 from input video

Selects whether to delete incoming audio group 3 from input video

Selects whether to delete incoming audio group 4 from input video

Selects the audio embedder A group number (520AE4-HD version only)

Selects whether audio embedder A is enabled (520AE4-HD version only)

Selects the audio embedder B group number (520AE4-HD version only)

Selects whether audio embedder B is enabled (520AE4-HD version only)

Selects whether audio group 1 embedder is enabled (520AE8-HD version only)

Selects whether audio group 2 embedder is enabled (520AE8-HD version only)

Selects whether audio group 3 embedder is enabled (520AE8-HD version only)

Selects whether audio group 4 embedder is enabled (520AE8-HD version only)

5.9.1. Configuring the Incoming Audio Packet Stripper

The SMPTE 299M and SMPTE 272M standards permit up to 4 groups of 4 discrete audio channels each to be embedded respectively into the 1.5 Gb/s and 270 Mb/s video bitstream. In order to help with the

control of what audio groups end up on the outputs of 520AE4-HD / 520AE8-HD modules, there are four menu items controlling removal of the incoming audio groups. For simplicity only the menu items to control removal of audio group 1 will be shown.

<i>EAUD</i>
<i>IG1K</i>
<i><u>KILL</u></i>
<i>PASS</i>

With this control you can set whether the audio group 1 packets will be removed from the video or passed through to the output.

Select *KILL* to remove the group 1 audio packets.

Select *PASS* to pass the group 1 packets through to the output video. Note that if a conflicting audio group is set to embed on the output, then the conflicting incoming audio packets will be removed, regardless.

5.9.2. Configuring the Audio Embedders

The SMPTE 299M and SMPTE 272M standards permit up to 4 groups of 4 discrete audio channels each to be embedded respectively into the 1.5 Gb/s and 270 Mb/s video bitstreams.

The 520AE4-HD version has two embedders (A and B) that each embed one group of audio. There are two menu items used to enable and set the group for each of the audio embedders. For simplicity only the menu items for audio embedder A will be shown.

5.9.2.1. Selecting the Audio Group Number For Each Embedder (520AE4-HD version)

<i>EAUD</i>
<i>EMAG</i>
<i><u>1</u></i>
<i>1 to 4</i>

With this control you can set the group number for embedder A.

5.9.2.2. Enabling Specific Audio Embedder (520AE4-HD version)

<i>EAUD</i>
<i>EMAE</i>
<i><u>ENBL</u></i>
<i>OFF</i>

With this control you can select whether the audio embedder A will be enabled or not.

Select *ENBL* to enable embedder A. The audio group for embedder A is set by the *EMAG* menu item. The source of audio for embedder A is selected by the menu items in Audio Mux controls *OP1A*, *OP1B*, *OP2A* and *OP2B*.

Select *OFF* to disable embedder A.

5.9.2.3. Enabling Specific Audio Group Embedding (520AE8-HD version)

The 520AE8-HD version has four embedders (1, 2, 3, and 4) each dedicated to embed one audio group (group 1, 2, 3, and 4 respectively). There is one menu item used to enable each of the audio embedders. For simplicity only the menu item for audio embedder 1 will be shown.

<u>EAUD</u>
<u>EM1E</u>
<u>ENBL</u>
<u>OFF</u>

With this control you can select whether the audio group 1 embedder will be enabled or not.

Select *ENBL* to enable audio group 1 embedder. The source of audio for audio group 1 embedder is selected by the menu items in Audio Mux controls *OP1A*, *OP1B*, *OP2A* and *OP2B*.

Select *OFF* to disable Audio Group 1 Embedder.

5.10. CONFIGURING MISCELLANEOUS PARAMETERS

The *UTIL* menu is used to configure miscellaneous parameters and to view and upgrade the card firmware. When the *UTIL* menu is entered the active menu item name will be shown. To select other menu items, use the toggle switch. The chart below shows the items available in the *UTIL* menu. Sections 5.10.1 to 5.10.6 give detailed information about the menu items.

<u>2CHA</u>
<u>SRC1</u>
<u>SRC2</u>
...
<u>SRC8</u>
<u>DISP</u>
<u>FRST</u>
<u>VERS</u>
<u>UPGR</u>

Selects whether audio routing, delay and voice over controls apply to individual channels or stereo pairs.

Selects whether the sample rate converter can be used with AES1

Selects whether the sample rate converter can be used with AES2

...

Selects whether the sample rate converter can be used with AES8

Selects the orientation of the Dot matrix display

Resets the card to its factory default condition.

Displays the firmware version of the card

Initiates firmware upgrade for the card

5.10.1. Configuring the Audio Channel Control Mode

<u>UTIL</u>
<u>2CHA</u>
<u>CHAN</u>
<u>PAIR</u>

With this control you can configure the menus so that the Audio Mux and Audio Delay controls operate on individual (discrete) channels or on stereo pairs.

Select *CHAN* to control the audio as individual channels. (example: *OP1A*, *OP1B*, *OP2A*, etc.).

Select *PAIR* to control the audio as stereo pairs. (example: pair *OP1* consisting of channels *OP1A* and *OP1B*, etc.)

NOTE: this is the only control that modifies the layout and contents of the menus.

5.10.2. Controlling the Sample Rate Converters

The 520AE-HD series modules have an audio Sample Rate Converter for each AES input that can be independently enabled or disabled. For simplicity only the menu items for the AES 1 input sample rate converter will be shown.

UTIL
SRC1
OFF
AUTO

With this control you can select whether the sample rate converter on the AES input 1 is enabled or not.

When the Sample Rate Converter is set to *OFF* the content of the AES input is preserved without any change. The AES input must be synchronous to the video source. If the input is asynchronous, samples will be dropped or repeated as required by the rate difference.

When the Sample Rate Converter is set to *AUTO* the AES input is sample rate converted to 48 kHz that is synchronous to the input video. The AES input can be either synchronous or asynchronous to the video source. The appropriate conversion method is automatically selected based on recognized contents of the AES inputs:

- PCM contents is converted using linear techniques
- Dolby E / AC3 are converted by adjusting length of inter-packets gap



The result of sample rate conversion of an asynchronous AC3 (Dolby Digital) signal is not suitable for further distribution, at least with the current generation of Dolby decoders. Make sure that your source of AC3 is synchronous with video. The sample rate conversion of PCM or Dolby E is always OK and effectively lossless.

5.10.3. Configuring the Dot Matrix Display Orientation

UTIL
DISP
VERT
HOR

With this control you can select a horizontal or vertical orientation for the displays to accommodate mounting the module in the 3RU or 1RU frames.

5.10.4. Displaying the Firmware Version

UTIL
VERS
V 1.0
B123
F456
HW 7

With this control you can display the firmware version and build number. Use the toggle switch to view the following items:

- Firmware version number.
- Firmware build number.
- FPGA revision
- Hardware build identification number

5.10.5. Resetting the Module to its Factory Defaults

UTIL
FRST
<u>NO</u>
YES

With this control you can reset the module to its factory default condition.

Select *NO* to return back to the upper menu item without affecting the presets.

Select *YES* to return the module to its factory default condition. Factory defaults are shown underlined in the menu descriptions in throughout this document.

5.10.6. Upgrading the Module Firmware

UTIL
UPGR
<u>NO</u>
YES

With this control you can initiate an upgrade of the module firmware.

Select *NO* to return back to the upper menu item without upgrading.

To upgrade the firmware, install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto the COM header J12 at the front edge of the card. Select *YES* to initiate the firmware upgrade. The module application will terminate and the boot monitor will start.

Run the upgrade as described in part 2 and part 3 of the *Upgrading Firmware* chapter in the front of the binder. Once the upgrade is completed, the card will reboot. Remove the upgrade cable. The module is now ready for normal operation.

See section 6.2 for information on upgrading the firmware when the application firmware is not running.



The Upgrade baud rate for the 520AE-HD series modules is 115,200 baud.

5.11. CONFIGURING THE VIDEO PARAMETERS

The *VIDE* menu is used to configure the output video parameters. When the *VIDE* menu is entered the active menu item name will be shown. To select other menu items, use the toggle switch. The chart below shows the items available in the *VIDE* menu. Sections 5.11.1 to 5.11.3 give detailed information about the menu items.

VOFM
COLR
VOUT

Selects the output video format

Selects the default screen colour to be used when there is no video input

Selects the behaviour of the video output when there is no video input

5.11.1. Selecting the Output Video Format

VIDE
VOFM
Auto
PALB
NTSC
3i59
3i60
1s23
1s24
1i50
1i59
1i60
7p59
7p60
7p50
1p23
1p24
1p25
1p29
1p30

With this control you can select the output video format.

Select *Auto* to let the module autodetect the video format.

PAL-B

NTSC-M

1035i/59.95

1035i/60

1080p/23.98sF

1080p/24sF

1080i/50 (1080p/25sF)

1080i/59.94 (1080p/29.97sF)

1080i/60 (1080p/30sF)

720p/59.94

720p/60

720p/50

1080p/23.98

1080p/24

1080p/25

1080p/29.97

1080p/30

Note: when the device powers up in Auto mode, the default output format is 720p/59.94 until a valid input signal is applied.

5.11.2. Selecting The Default Output Screen Colour

VIDE
COLR
<u>BLUE</u>
BLAK

With this control you can set the video output when there is no input video and the *VOUT* menu item is set to *AUTO*.

This menu setting is also used when the *VOUT* menu item is set to *COLR*.

5.11.3. Configuring the Video Output in Absence of Valid Video Input

VIDE
VOUT
<u>AUTO</u>
COLR
PASS

Select *AUTO* to output the input video when it is present and switch to the default screen colour when there is no video.

Select *COLR* to force the output video to either black or blue screen as configured in *COLR* menu item. With this control you can force the default video output for test purposes.

Select *PASS* to pass the input to the output regardless.

6. JUMPERS

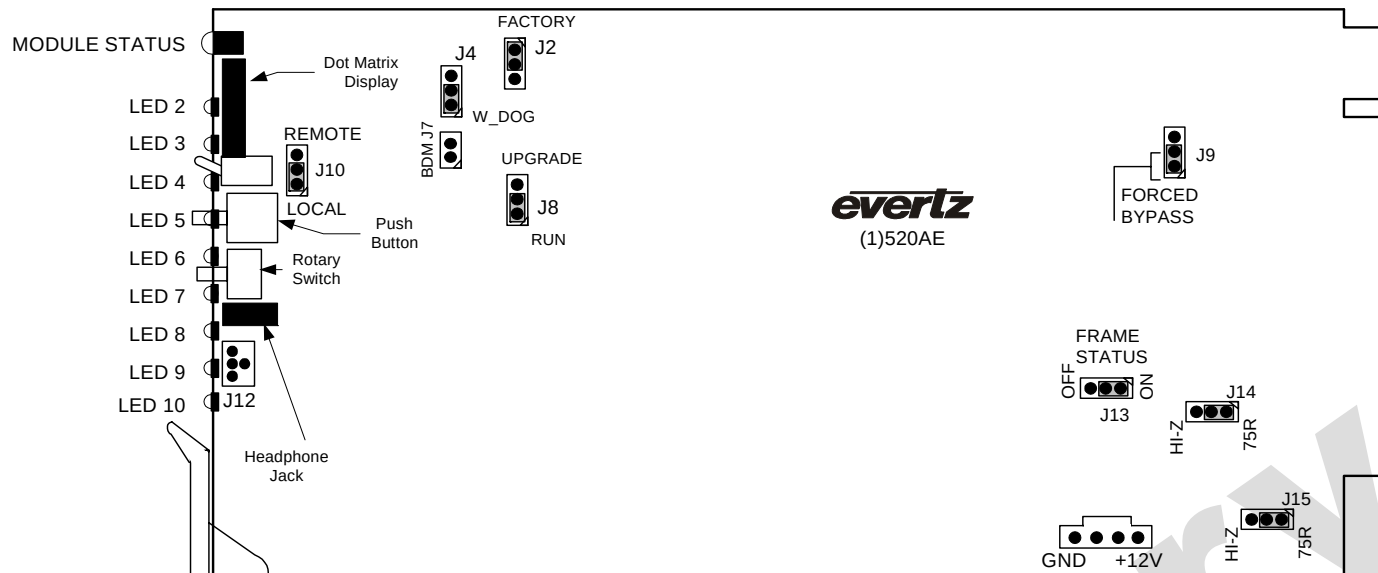


Figure 6: LED and Jumper Locations

6.1. SELECTING WHETHER LOCAL FAULTS WILL BE MONITORED BY THE GLOBAL FRAME STATUS

The FRAME STATUS jumper J13, located near the rear of the module determines whether local faults (as shown by the Local Fault indicator) will be connected to the 500FR frame's global status bus.

FRAME STATUS: To monitor faults on this module with the frame status indicators (on the power supply's FRAME STATUS LED's and on the Frame's Fault Tally output) install this jumper in the On position (away from card's display).

When this jumper is installed in the Off position (towards card's display) local faults on this module will not be monitored by the 500FR frame status.

6.2. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE The UPGRADE jumper J8 is used when firmware upgrades are being done to the module. For normal operation it should be installed in the *RUN* position. See the *Upgrading Firmware* section in the front of the binder for more information.

To upgrade the firmware in the module unit pull it out of the frame. Move Jumper J8 into the *UPGRADE* position. Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto the COM header J12 at the front edge of the card. Re-install the module into the frame. Run the upgrade as described in the *Upgrading Firmware* chapter in the front of the binder. Once the upgrade is completed, remove the module from the frame, move J8 into the *RUN* position, remove the upgrade cable and re-install the module. The module is now ready for normal operation.



The Upgrade baud rate for the 520AE-HD series modules is 115,200 baud.

6.3. SELECTING WHETHER THE BYPASS RELAY IS FORCED TO BYPASS MODE

FORCED BYPASS The FORCED BYPASS jumper J9 located at the rear of the module is used to override bypass relay logic. When it is in the FORCED BYPASS position, the bypass relay is activated and the video path through the module is bypassed.

6.4. SELECTING METADATA INPUT TERMINATION

J14 Jumper J14 located at the rear of 520AE4-HD / 520AE8-HD module is used to terminate the last BNC input.
If this BNC is used as Metadata input and this Metadata is driven by a source such as Dolby DP572 or DP570 via Evertz adaptor DD-DB9-BNC, J14 should be set to "HI-Z" (towards card's display). The setting "75R" (away from card's display) can be useful when the driving source is a native coax driver (such as METADATA output of a 520AD4-HD), and the source is located far away (3000 ft+).

If the last BNC is used as AES8 input (on 520AE8-HD version), its termination is at user's discretion ("75R" gives best reliability of reception over widest range of cable lengths).

6.5. SELECTING 2ND LAST BNC TERMINATION

J15 Jumper J15 located at the rear of 520AE4-HD / 520AE8-HD module is used to terminate 2nd last BNC input (AES IN4 on 520AE4-HD version, AES IN7 on 520AE8-HD version). It is recommended that it be kept in "75R" position.

7. VISTALINK™ REMOTE MONITORING/CONTROL

7.1. WHAT IS VISTALINK™?

VistaLINK™ is Evertz's remote monitoring and control capability over an Ethernet network using Simple Network Management Protocol (SNMP). SNMP is a standard computer network protocol that enables different devices sharing the same network to communicate with each other. For monitoring there needs to be a detecting device that automatically reports all errors to a central alarm and error logging station. We also need to be able to interrogate individual detector devices from the central station to determine the status of individual channels. Finally, we need to be able to configure devices in the network from the central station and receive feedback that the configuration has been carried out.

There are 3 components of SNMP:

1. An SNMP manager also known as a Network Management System (NMS) is a computer running special software that communicates with the devices in the network. Evertz VistaLINK™ Pro Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz VistaLINK™ enabled products.

2. Managed devices (such as 520AE4-HD), each with a unique address (OID), communicate with the NMS through an SNMP Agent. Evertz VistaLINK™ enabled 500 series modules reside in the 3RU 500FR MultiFrame and communicate with the manager via the 500FC VistaLINK™ frame controller module, which serves as the Agent.
3. A virtual database known as the Management Information Base (MIB) lists all the variables being monitored and which both the Manager and Agent understand. Please contact Evertz for further information about obtaining a copy of the MIB for interfacing to a third party Manager/NMS.

For more information on connecting and configuring the VistaLINK™ network, see the 500FC Frame Controller chapter. At the time of writing the VistaLINK™ features of the 520AE4-HD are not implemented.

Preliminary

8. MENU QUICK REFERENCE

8.1. DISCRETE CHANNEL MODE MENUS

MONI

- 1234
- 5678
- 9ABC
- DEFG
- 1TO8
- 9TOG
- 1TOG
- dB1
- dB2
- dB3
- dB4
- dB5
- dB6
- dB7
- dB8
- dB9
- dBA
- dBB
- dBC
- dBD
- dBE
- dBF
- dBG

STAT

- AES1
- AES2
- AES3
- AES4
- AES5
- AES6
- AES7
- AES8
- VIFM
- IGRP
- EXMT

AMUX

- OP1A
- OP1B
- OP2A
- OP2B
- OP3A
- OP3B
- OP4A
- OP4B
- OP5A
- OP5B
- OP6A
- OP6B
- OP7A
- OP7B
- OP8A
- OP8B

ADEL (520AE4-HD)

- DL1A
- DL1B
- DL2A
- DL2B
- DL3A
- DL3B
- DL4A
- DL4B

HEAD

- HVOL
- HPML
- HPMR

META

- VAEI
- VAEI
- VAES
- VAEN

EAUD (520AE4-HD)

- IG1K
- IG2K
- IG3K
- IG4K
- EMAG
- EMAE
- EMBG
- EMBE

EAUD (520AE8-HD)

- IG1K
- IG2K
- IG3K
- IG4K
- EM1E
- EM2E
- EM3E
- EM4E

UTIL

- 2CHA
- DISP
- VERS
- FRST
- UPGR
- SRC1
- SRC2
- SRC3
- SRC4
- SRC5
- SRC6
- SRC7
- SRC8

VIDE

- VOFM
- COLR
- VOUT

Greyed Items
only available on
520AE8-HD version

8.2. STEREO PAIR MODE MENUS

MONI

- 1234
- 5678
- 9ABC
- DEFG
- 1TO8
- 9TOG
- 1TOG
- dB1
- dB2
- dB3
- dB4
- dB5
- dB6
- dB7
- dB8
- dB9
- dBA
- dBB
- dBC
- dBd
- dBdE
- dBdF
- dBdG

STAT

- AES1
- AES2
- AES3
- AES4
- AES5
- AES6
- AES7
- AES8
- VIFM
- IGRP
- EXMT

AMUX

- OP1
- OP2
- OP3
- OP4
- OP5
- OP6
- OP7
- OP8

ADEL (520AE4-HD)

- DL1
- DL2
- DL3
- DL4

HEAD

- HVOL
- HPM

META

- VAE1
- VAEI
- VAES
- VAEN

EAUD (520AE4-HD)

- IG1K
- IG2K
- IG3K
- IG4K
- EMAG
- EMAE
- EMBG
- EMBE

EAUD (520AE8-HD)

- IG1K
- IG2K
- IG3K
- IG4K
- EM1E
- EM2E
- EM3E
- EM4E

UTIL

- 2CHA
- DISP
- VERS
- FRST
- UPGR
- SRC1
- SRC2
- SRC3
- SRC4
- SRC5
- SRC6
- SRC7
- SRC8

VIDE

- VOFM
- COLR
- VOUT

Greyed Items
only available on
520AE8-HD version

This page left intentionally blank