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REVISION HISTORY

REVISION	DESCRIPTION	DATE
0.1	Preliminary Version	Apr 2008
1.0	First Release	May 2008
1.1	Updated diagram in Metadata Connections section	Jan 2012

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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.

1.   OVERVIEW

The 520AD8-HD Audio De-embedder extracts embedded audio from all 4 groups as defined by SMPTE 299M from a 1.5 Gb/s serial HD input video signal or as defined by SMPTE 272M from a 270 Mb/s serial SD input video signal. The 16 channels can be routed to 8 AES outputs.

This module also de-embeds Dolby E Metadata from Vertical Ancillary data (VANC) and is provided as an output for downstream devices (i.e. Dolby Encoders, Multichannel Audio Tool, etc.).

The 520AD8-HD occupies one card slot in the 3RU frame (500FR), which will hold up to 16 1-slot modules or one slot in the 1RU frame (501FR), which will hold up to three modules. The 520AD8-HD can also fit in a standalone unit (S501FR).

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®.

Features:
- Automatic detection of video standard
- Flexible de-embedded audio router (16x16)
- 24-bit AES (from HD) and 20-bit AES (from SD)
- VANC decode and output of Dolby metadata
- Card edge display for status and miniature bar graphs for audio peak levels
- Card edge LED's for module status, video and audio signal presence, and module fault
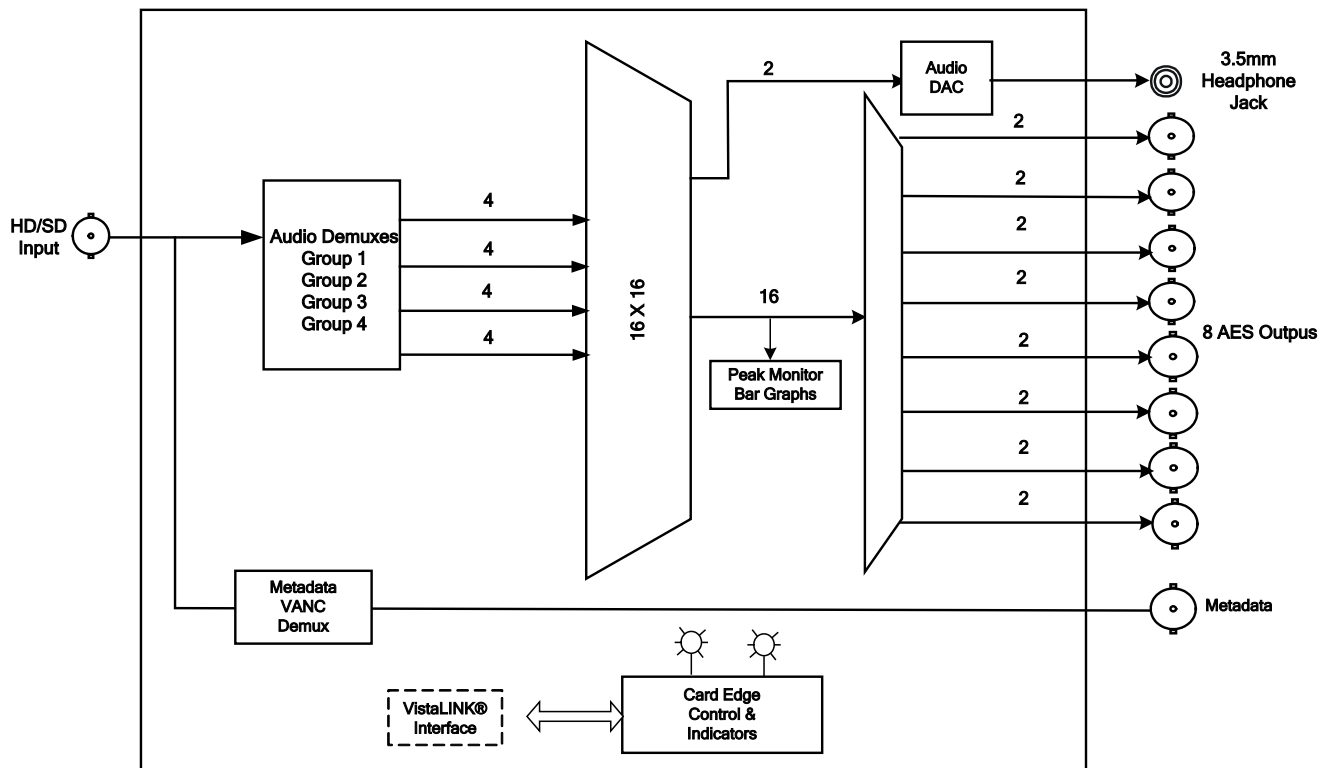
Figure 1-1: 520AD8-HD Block Diagram

2.   INSTALLATION

The 520AD8-HD comes with a companion rear panel overlay that can be placed over the rear panel BNC connectors to identify their function. For information on inserting the module into the frame see section 3 the 500FR manual.
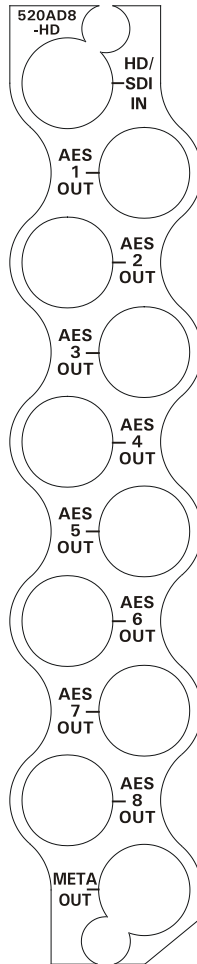
Figure 2-1: 520AD8-HD Rear Panel

2.1.   VIDEO CONNECTIONS

HD/SDI IN: The input BNC connector for 10-bit serial digital video signals compatible with the SMPTE 292M or SMPTE 259M standard. The module can automatically detect the video standard.

2.2.   AES OUTPUT AUDIO CONNECTIONS

AES OUTPUTS: Eight unbalanced AES outputs conforming to SMPTE 276M are provided on eight BNC connectors.

2.3. METADATA CONNECTIONS

The 520AD8-HD provides the ability to de-embed VANC Metadata. The 520AD8-HD can transmit Metadata to a Dolby device (such as the DP570). The 520AD8-HD is shipped with a BNC to DB9 adapter which can be used to connect the BNC metadata output to the DP570 or other Dolby device (see Figure 2-2).
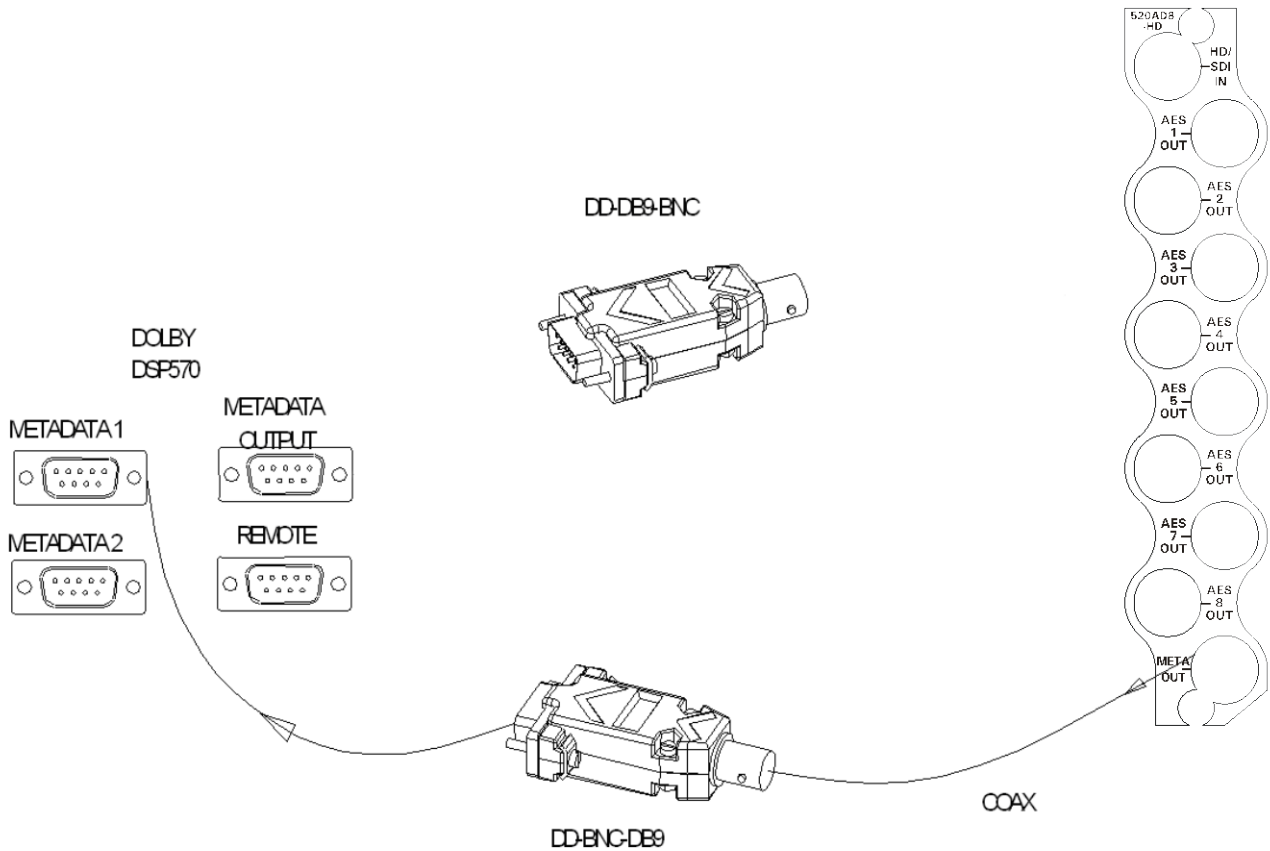
Figure 2-2: Connecting the 520AD8HD to the Dolby DP570

3. SPECIFICATIONS

3.1. SERIAL DIGITAL VIDEO INPUTS

Standards: Auto detectable and user settable.
SMPTE 292M (1.5Gb/s), 1080i/60, 1080i/59.94, 1080i/50, 1080p/30, 1080p/30(sF), 1080p/29.97, 1080p/29.97(sF), 1080p/25, 1080p/25(sF), 1080p/24, 1080p/24(sF), 1080p/23.98, 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

Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Equalization:
    SD Standards: Automatic to 300m @ 270Mb/s with Belden 1694 or equivalent cable.
    HD Standards: Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable.
Return Loss:
    SD Standards: <-15 dB up to 270Mb/s
    HD Standards: <-15 dB up to 1. 5Gb/s

3.2. EMBEDDED AUDIO INPUT

Standard: SMPTE 299M – 24-bit 48 kHz synchronous
SMPTE 272M – 20-bit 48 kHz synchronous

3.3. AES AUDIO OUTPUTS

Standard: SMPTE 276M, single ended synchronous AES
Number of Outputs: 8 unbalanced
Connectors: BNC per IEC60169-8 Amendment 2
Sampling Rate: 48 kHz
Impedance: 75 Ω
Resolution: Up to 24-bit

3.4. METADATA OUTPUT

Type: SMPTE RDD6 DOLBY E Metadata
Connector: BNC with male DB9 adaptor (DD-BNC-DB9)
Baud Rate: 115,200 baud
Signal Level: Same as RS-422

3.5. DELAY

De-embedding Latency:
    SD Standards: 140 μs nominal
    HD Standards: 600 μs nominal

3.6. ELECTRICAL

Voltage: +12VDC
Power: 7 Watts
EMI/RFI: Complies with FCC regulations for class A devices
Complies with EU EMC directive

3.7. PHYSICAL

Number of Slots:
  500 Frame Mounting: 1
  501 Frame Mounting: 1

4.   STATUS INDICATORS

The 520AD8-HD has 11 LED Status indicators on the front card edge to show operational status of the card at a glance. Figure 4-1 shows the location of the LEDs and card edge controls.
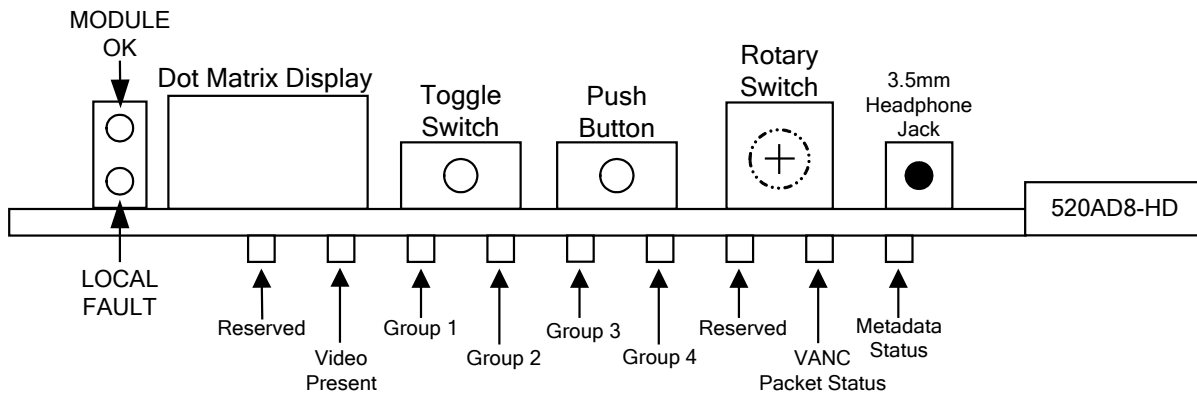
Figure 4-1: Status LED Locations

Three large LEDS on the front of the main board indicate the general health of the module.

LOCAL FAULT: This Red LED indicates poor module health and will be ON if the module fails to boot, or 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 indicates good module health. It will be ON when the module is operating normally, and the board power is good.

VIDEO PRESENT: This Green LED will be Green when there is a valid video signal present at the
(LD3)   module input. It will be Red when video is missing.

The other LEDs are:

AUDIO GROUP PRESENCE: These Green LEDs will be ON when the respective embedded audio group
(LD4 to LD7)   is present on the video input.

METADATA LEDs: The VANC packet status (LD9) LED will be GREEN and ON to indicate that the
(LD9, LD10)   selected VANC Metadata is present in the input video. The LED will be flashing RED and ON if there is an error with Metadata. The module will verify checksum and perform sanity checks on syntax of the Metadata. Any errors will cause the Metadata Status LED (LD10) to flash RED. It will be Green when the Metadata is error-free.

5. CARD EDGE CONTROLS

The 520AD8-HD can be configured by the card edge controls. There are some key control components can be found at the card edge:

1. Toggle Switch
2. 4 Character Dot Matrix Display
3. Push Button
4. Rotary Switch

Toggle Switch: This component will become active once the card has completed booting. Its primary function is to navigate through the menu system.

4 Character Dot Matrix Display: This component will become active once power is applied to the card. This component is used to relay text-based information to the user. It will be used to scroll build and card information, or display the menu options to the user.

Push Button: This component will become active once the card has completed booting. It is primarily used for navigating through the menu system.

Rotary Switch: This component will become active once the card has completed booting. It is primarily used to navigate through the menu system.

6.   CARD EDGE MENU SYSTEM

6.1.   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 sub-menu 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 <u>underlined</u> text.

6.2.   TOP LEVEL MENU STRUCTURE

Table 6-1 gives a brief description of the top level of the menu tree that appears on the card edge menu system. Selecting one of these items will take you down into the next menu level to set the value of that parameter. The details of the each of the menu items are described in sections 6.3 to 6.8.

MONI	Monitor Controls	Status displays showing audio signal peak levels
STAT	Status	Status displays showing signal input status items
AMUX	Audio Channel Routing	Control menu to set parameters relating to the audio channel routing
HEAD	Headphone Menu	Selects channels to output on the headphone jack and volume adjustment
META	Metadata	Control menu to set parameters relating to the Metadata
UTIL	Miscellaneous	Control menu to set miscellaneous parameters

Table 6-1: Top Level Menu Structure
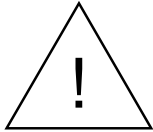
⚠ ! The parameter adjustments are **REAL TIME ADJUSTMENTS** and will affect the output audio immediately. These settings should not be adjusted when the output audio is in the broadcast chain.

6.3. MONITORING THE PEAK AUDIO LEVELS

The *MONI* menu is used to show the peak values for each of the AES output audio channels. When the *MONI* menu is entered the last selected value will be shown. To display the display name again press the pushbutton. The chart below shows the items available in the *MONI* menu. Sections 6.3.1 to 6.3.2 give detailed information about each of the menu items.

1234	Displays the bar graphs for peak values of discrete output channels 1, 2, 3, & 4. (i.e. AES output 1 and 2)
5678	Displays the bar graphs for peak values of discrete output channels 5, 6, 7, & 8. (i.e. AES output 3 and 4)
9ABC	Displays the bar graphs for peak values of discrete output channels 9, 10, 11, & 12. (i.e. AES output 5 and 6)
DEFG	Displays the bar graphs for peak values of discrete output channels 13, 14, 15, & 16. (i.e. AES output 7 and 8)
1to8	Displays the bar graphs for peak values of summed output pairs: 1+2, 3+4, 5+6, and 7+8. (i.e. AES1, AES2, AES3, and AES4)
9toG	Displays the bar graphs for peak values of summed output pairs: 9+10, 11+12, 13+14, & 15+16. (i.e. AES5, AES6, AES7, and AES8)
1toG	Displays the bar graphs for peak values of summed output groups: 1+2+3+4, 5+6+7+8, 9+10+11+12, and 13+14+15+16. (i.e. AES1+AES2, AES3+AES4, AES5+AES6, AES7+AES8)
dB 1	Displays the peak value for output channel 1 (AES1 left sub-frame) in dBFS.
dB 2	Displays the peak value for output channel 2 (AES1 right sub-frame) in dBFS.
dB 3	Displays the peak value for output channel 3 (AES2 left sub-frame) in dBFS.
…	…
dB G	Displays the peak value for output channel 16 (AES8 right sub-frame) in dBFS.

Table 6-2: Monitor Menu

6.3.1. Displaying the Peak Output 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 6-1 and Table 6-3.

Level 1   Level 2   Level 3   Level 4   Level 5   Level 6   Level 7   Level 8   Level 9
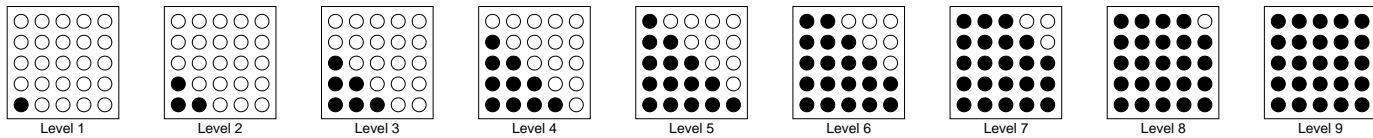
Figure 6-1: Peak Level Bar Graph Displays

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 6-3: Bar Graph Peak Levels

Table 6-3 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.

Since this module deals with up to 16 different audio channels and the display is limited to showing only 4 miniature bar graphs at a time, 7 different channel groupings are available to select which channels activity is presented: "1234", "5678", "9ABC", "DEFG", "1to8", "9toG", "1toG".

MONI
  1234
    See Figure 6-1 &
    Table 6-3

With this display you can simultaneously and graphically show the peak values for discrete channels 1 to 4 (AES1 output and AES2 output). Channel 1 (OP1A) is shown on the left (top) section and channel 4 (OP2B) is shown on the right (bottom) section.

MONI
  5678
    See Figure 6-1 &
    Table 6-3

With this display you can simultaneously and graphically show the peak values for discrete channels 5 to 8 (AES3 output and AES4 output). Channel 5 is shown on the left (top) section and channel 8 is shown on the right (bottom) section.

MONI
  9ABC
    See Figure 6-1 &
    Table 6-3

With this display you can simultaneously and graphically show the peak values for discrete channels 9 to 12 (AES5 output and AES6 output). Channel 9 is shown on the left (top) section and channel 12 is shown on the right (bottom) section.

MONI
  DEFG
    See Figure 6-1 &
    Table 6-3

With this display you can simultaneously and graphically show the peak values for discrete channels 13 to 16 (AES7 output and AES8 output). Channel 13 is shown on the left (top) section and channel 16 is shown on the right (bottom) section.

MONI
1to8
See Figure 6-1 & Table 6-3

With this display you can simultaneously and graphically show the peak values for pairs of channels 1 to 8 (AES outputs 1 through 4). Channel (1+2) is shown on the left (top) section and channel (7+8) is shown on the right (bottom) section.

The peak values are an average of the pair.

MONI
9toG
See Figure 6-1 & Table 6-3

With this display you can simultaneously and graphically show the peak values for discrete channels 9 to 16 (AES outputs 5 through 8). Channel (9+10) is shown on the left (top) section and channel (15+16) is shown on the right (bottom) section.

The peak values are an average of the pair.

MONI
1toG
See Figure 6-1 & Table 6-3

With this display you can simultaneously and graphically show the peak values for discrete channels 1 to 16 (AES outputs 1+2, 3+4, 5+6, 7+8). Channel (1+2+3+4) is shown on the left (top) section and channel (13+14+15+16) is shown on the right (bottom) section.

The peak values are an average of the group.

6.3.2. Displaying the Peak Audio Values as Numerical Values

There are 16 display items to show the peak values for each of the 16 audio output channels. For the sake of simplicity in the manual only the display for channel 1 will be shown below.

MONI
dB 1
eg.: "1-23"

With this display you show the peak values for channel 1 in dBFS.
In the example on the left "1-23", the leading "1" stands for channel 1, and the "-23" stands for peak value detected of -23 dBFS.

The numerical peak values decay around 20 dB per 1.5 second.

Examples:

5 – 60	Output channel 5 (AES 3 left) peak is –60dBFS
9 – 00	Output channel 9 (AES 5 left) peak is 0dBFS
A – 20	Output channel 10 (AES 5 right) peak is –20dBFS
G – 99	Output channel 16 (AES 8 right) peak is –99dBFS (mute

Note: When the peak value for a channel is displayed (i.e. 1 – 20), the toggle switch can be used to "quick-browse" through the peaks for all 16 channels (1 through G)

6.4. DISPLAYING THE SIGNAL INPUT STATUS

The *STAT* menu is used to show the status of various input signals. Press the push button to enter the STAT menu and the toggle switch to scroll through the menu items. The chart below shows the items available in the *STAT* menu. Sections 6.4.1 to 6.4.6 below give detailed information about each menu item.

AES1	Displays the AES 1 (1st pair of audio group 1) Input status
AES2	Displays the AES 2 (2nd pair of audio group 1) Input status
AES3	Displays the AES 3 (1st pair of audio group 2) Input status
AES4	Displays the AES 4 (2nd pair of audio group 2) Input status
AES5	Displays the AES 5 (1st pair of audio group 3) Input status
AES6	Displays the AES 6 (2nd pair of audio group 3) Input status
AES7	Displays the AES 7 (1st pair of audio group 4) Input status
AES8	Displays the AES 8 (2nd pair of audio group 4) Input status
VIFM	Displays the video input format
IGRP	Displays input embedded audio groups presence
DX1S	Displays audio group 1 de-embedder status
DX1R	Displays audio group 1 de-embedder sample rate
DX1C	Displays audio group 1 de-embedder valid channels
DX2S	Displays audio group 2 de-embedder status
DX2R	Displays audio group 2 de-embedder sample rate
DX2C	Displays audio group 2 de-embedder valid channels
DX3S	Displays audio group 3 de-embedder status
DX3R	Displays audio group 3 de-embedder sample rate
DX3C	Displays audio group 3 de-embedder valid channels
DX4S	Displays audio group 4 de-embedder status
DX4R	Displays audio group 4 de-embedder sample rate
DX4C	Displays audio group 4 de-embedder valid channels
VAPK	Displays status of Dolby Metadata packets in VANC
VAMT	Displays status of de-embedded Metadata stream

6.4.1. Displaying the Status of the Embedded Inputs

There are 8 menu items to cover 8 AES channel pairs embedded in video. AES1 in this context refers to the first channel pair in audio group 1. Consequently, AES8 refers to the second channel pair in audio group 4. For the sake of simplicity, only the menu item for AES input 1 will be shown.

STAT
AES1
PCM
DLBE
DLBD
n/a

With this display you show the status of the AES1 (1st pair of audio group 1) input.
PCM is displayed when linear ("normal") audio has been detected
DLBE is displayed when Dolby E has been detected,
DLBD is displayed when Dolby Digital (AC3) has been detected,
"n/a" is displayed when the relevant (here group 1) packets don't exist or the channel pair is marked as invalid in HD audio packets.

6.4.2. 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

6.4.3. Displaying Available Embedded Audio Groups in Input Video

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. Blinking digit indicates errors in the corresponding audio group packets. A missing group is indicated by a dash ("-") in the corresponding position.

6.4.4. Displaying the Status of the Audio De-embedders

There are identical status displays for the de-embedders for each of the 4 audio groups. For the sake of simplicity only the status displays for the group 1 de-embedder are shown.

6.4.4.1. Displaying General Status of Audio Group 1 De-embedder

STAT
DX1S
PRES
PKER
FFLO
5FER
DBER
FFHI

With this display you can show status of audio group 1 de-embedder.

PRES represents audio presence with no errors
PKER represents a packet error (checksum or parity)
FFLO represents the FIFO is empty error
5FER represents a 5 frame fault
DBER represents a DBN discontinuity error
FFHI represents a FIFO full error
---- represents No group 1 packets

6.4.4.2. Displaying the Sample Rate for Audio Group 1

STAT
DX1R
ASYN
UNKN
32K
44K1
48K

With this display you can show sample rate of audio group 1.

ASYN represents an asynchronous rate.
UNKN represents an unknown rate.
32K represents a 32 kHz sample rate
44K1 represents a 44.1 kHz sample rate
48K represents a 48 kHz sample rate.
---- represents No group 1 packets.

Sample rates are indicated in HD audio packets. When using a SD input, the sample rate of 48 kHz is assumed, however, the display will show "*UNKN*" since it is not specifically indicated in the audio packets.

6.4.4.3. Displaying the Valid Audio Channels for Audio Group 1

STAT
DX1C
1234

With this display you can show the valid audio channels in audio group 1.

1 corresponds to AES pair 1 channel A is valid PCM
2 corresponds to AES pair 1 channel B is valid PCM
3 corresponds to AES pair 2 channel A is valid PCM
4 corresponds to AES pair 2 channel B is valid PCM
---- represents No group 1 packets.

When a channel pair contains Dolby-E or Dolby Digital, it will display DE or DD respectively.

An absent or invalid channel is marked with a dash ("-"). A channel can be invalid if it is so marked by an upstream HD embedder, or if it's audio group is altogether missing.

6.4.5. Displaying the VANC Metadata Packet Status

```
STAT
  VAPK
    PRES
    n/a
```

With this display you can show the status of the VANC Metadata packets.

PRES represents the fact that Metadata packets are present with the selected DID and SDID. (This status item will show the presence of packets anywhere in the VANC data space, not just the selected line.)

"*n/a*" represents no Metadata packets present.

6.4.6. Displaying the Input VANC Metadata Status

```
STAT
  VAMT
    OK
    n/a
```

With this display you can show the status of the de-embedded Metadata data.

OK represents that Metadata appears with correct structure and checksums.

The *OK* will blink if errors are found in the Metadata.

"*n/a*" represents no Metadata is present.

6.5. CONFIGURING THE AUDIO CHANNEL ROUTING

The *AMUX* menu is used to control the internal routing of the audio channels shown in Table 6-4. When the *AMUX* menu is entered the active menu item name will be shown.

The module has four de-embedders (1, 2, 3, and 4) each dedicated to de-embed the respective audio group. Table 6-4 shows the names of de-embedded channels for each de-embedder. These channel names are used throughout the *AMUX* menu items. Sections 6.5.1 to 6.5.2 below give detailed information about each menu item.

Input channels		De-embedded *input* channel names when UTIL/2CHA control mode is...		Default *destination* channel names when UTIL/2CHA control mode is...	
		...CHAN	...PAIR	...CHAN	...PAIR
De-embedder 1 channels	1A	IP1A	IP1	OP1A	OP1
	1B	IP1B		OP1B	
	2A	IP2A	IP2	OP2A	OP2
	2B	IP2B		OP2B	
De-embedder 2 channels	1A	IP3A	IP3	OP3A	OP3
	1B	IP3B		OP3B	
	2A	IP4A	IP4	OP4A	OP4
	2B	IP4B		OP4B	
De-embedder 3 channels	1A	IP5A	IP5	OP5A	OP5
	1B	IP5B		OP5B	
	2A	IP6A	IP6	OP6A	OP6
	2B	IP6B		OP6B	
De-embedder 4 channels	1A	IP7A	IP7	OP7A	OP7
	1B	IP7B		OP7B	
	2A	IP8A	IP8	OP8A	OP8
	2B	IP8B		OP8B	

Table 6-4: Audio Routing Matrix Input and Output Channel Names

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*).

6.5.1. Configuring the Audio Routing – Discrete Channel Control Mode

For the sake of simplicity, only the menu item for audio output channel 1A (left sub frame of AES1 OUT) will be shown.

AMUX	
OP1A	
	IP1A
	IP1B
	IP2A
	IP2B
	IP3A
	IP3B
	IP4A
	IP4B
	IP5A
	IP5B
	IP6A
	IP6B
	IP7A
	IP7B
	IP8A
	IP8B

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 (left sub frame of AES1 OUT).

Refer to Table 6-4 to clarify the provenance of the listed input choices.

6.5.2. Configuring the Audio Routing – Stereo Pair Control Mode

For the sake of simplicity, only the menu item for audio output stereo pair 1 (AES1 OUT) will be shown.

AMUX	
OP1	
	IP1
	IP2
	IP3
	IP4
	IP5
	IP6
	IP7
	IP8

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 (AES1 output).

Refer to Table 6-4 to clarify the provenance of the listed input choices.

6.6. 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 6.6.1 gives detailed information about each menu item.

HVOL	Sets the headphone volume.
HPML	Assigns the channel that will be monitored on the Left headphone.
HPMR	Assigns the channel that will be monitored on the Right headphone.

6.6.1. 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.

6.6.2. Selecting the Channels to Monitor with the Headphones

The *HMPL* and *HMPR* menu items are used to control which channel will be monitored by the left and right headphones respectively. There are identical menu items for each headset channel (when the *2CHA* menu item is set to *CHAN*). When the *2CHA* menu item is set to *PAIR* there is only one menu item. For the sake of simplicity, only the menu item for the left headphone channel will be shown.

HEAD
HMPL
BK1A
BK1B
VA1A
VA1B
VA2A
VA2B
VB1A
VB1B
VB2A
VB2B

When the *2CHA* menu item is set to *CHAN* this menu item is used to select the channel that is monitored by the left headset.

Backup AES Input	Left (1A)
	Right (1B)
Audio De-embedder A	1A
	1B
	2A
	2B
Audio De-embedder B	1A
	1B
	2A
	2B

6.7.   CONFIGURING THE DOLBY METADATA DE-EMBEDDER

The *META* menu is used to configure parameters related to the Dolby Metadata. 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. Sections 6.7.1 to 6.7.3 below give detailed information about each menu item.

VADL

Selects the input VANC line for de-embedding

VADI

Selects the input VANC Data ID (DID)

VADS

Selects the input VANC Secondary Data ID (SDID)

6.7.1. Selecting VANC line for De-embedding

META
VADL
DL10
DL1 to DL31

With this control you can set the line for de-embedding VANC Metadata packets from the input video. If this control is set to line 1 (DL1) then the 520AD8-HD will scan all VANC lines for packets instead of just one line.

6.7.2. Selecting the Input VANC Data ID (DID)

META
VADI
DI45
DI50 to DI5F
DIC0 to DICF

With this control you can set the Data ID for de-embedding VANC Metadata packets.

Normally you should not have to change this from the default value. The values shown are expressed as hexadecimal numbers.
The default value of data ID 45 corresponds to the latest proposals of SMPTE RP291.

6.7.3. Selecting the Input VANC Secondary Data ID (SID)

META
VADS
DS01
DS01 to DSFF

With this control you can set the Secondary Data ID for de-embedding VANC Metadata packets.

Normally you should not have to change this from the default value. The values shown are expressed as 2 digit hexadecimal numbers. When the *VADI* menu item is set to values in the range of *C0 to CF*, type 1 Metadata packets will be de-embedded and the *VADS* menu item is not relevant as dictated by SMPTE 291M.

6.8. 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 6.8.1 to 6.8.5 below give detailed information about the menu items.

2CHA	Selects whether audio routing controls apply to individual channels or stereo pairs.
DISP	Selects the orientation of the dot-matrix display
VERS	Displays the firmware version of the card
FRST	Resets the card to its factory default condition.
UPGR	Initiates firmware upgrade for the card

6.8.1. Configuring the Audio Channel Control Mode

```
UTIL
  2CHAN
    CHAN
    PAIR
```

With this control you can control whether the audio mux controls operate on individual channels or on stereo pairs.

Select *CHAN* to process the audio as individual channels. (e.g.: OP1A, OP1B, IP5A, etc.).

Select *PAIR* to control the audio routing as stereo pairs. (Pair OP1 consisting of channels OP1A and OP1B.)

6.8.2. 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.

6.8.3. Displaying the Firmware Version

```
UTIL
  VERS
    v1.2
    b013
    f052
    hw 1
```

With this control you can display the firmware version and build number of the module. Use the toggle switch to display the different portions of the firmware version.

The first set of characters (prefixed with 'v') represents the firmware version number.
The second set of characters (prefixed with 'b') represent the firmware build number.
The third set of characters (prefixed with 'f') represent the FPGA revision
The last set of characters (prefixed with 'hw') represent the hardware build identification number.

6.8.4. Resetting the Module to its Factory Defaults

```
UTIL
  FRST
    NO
    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 <u>underlined</u> in the menu descriptions in section 6.

6.8.5. Upgrading the Module Firmware

```
UTIL
   UPGR
      NO
      YES
```

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

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

To upgrade the firmware, install the Evertz WA-S76 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.

Perform 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. Ensure the Run/Upgrade jumper (J8) has been returned to the "Run" position.

See section 7.2 for information on upgrading the firmware when the application firmware is not running.

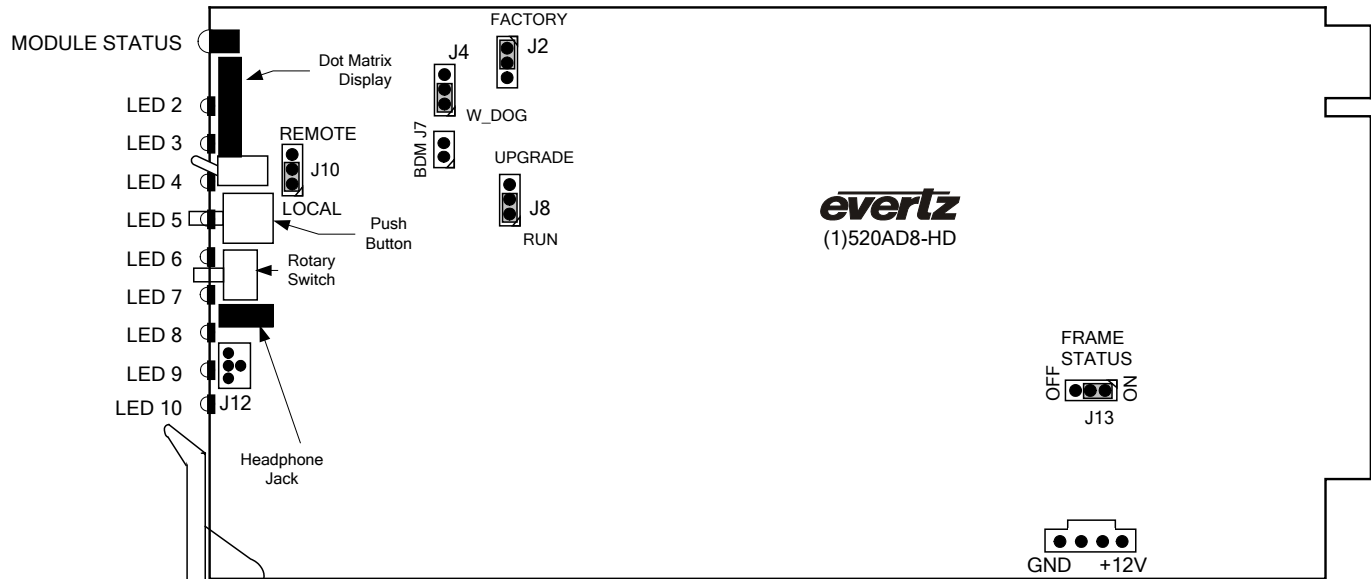**The Upgrade baud rate for the 520AD8-HD series modules is 115,200 baud.**

7. JUMPERS

Figure 7-1: Location of Jumpers – Rev B Main Board

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

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.

At the monitor faults on this module with the frame status indicators (on the PS FRAME STATUS LED's and on the Frame's Fault Tally output) install this jumper in the On position. (Default)

When this jumper is installed in the Off position, local faults on this module will not be monitored.

7.2. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

RUN/UPGRADE   The RUN/UPGRADE jumper (J8) is located near the front side of the module and is used when firmware upgrades are being done to the module. For normal operation it should be switched to the *RUN* position as shown in the diagrams above. See the *Upgrading Firmware* chapter 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 header J12 at the card edge. Re-install the module into the frame. Run the upgrade as described in *Upgrading Firmware* chapter. 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 520AD8-HD module is 115,200 baud.**

LOCAL/REMOTE   The Local/Remote jumper (J10) enables or disables remote SNMP control of the card through a 500FC frame controller module. If this jumper is in the local position remote control of the card through VistaLINK® is disabled. In the Remote position the card can be controlled remotely through SNMP as well as with the card edge.

8.   VISTALINK® REMOTE MONITORING/CONTROL

8.1.   WHAT IS VISTALINK®?

VistaLINK® is Evertz's remote monitoring and configuration platform which operates 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. VistaLINK® provides centralized alarm management, which monitors, reports, and logs all incoming alarm events and dispatches alerts to all the VLPro Clients connected to the server. Card configuration through VistaLINK® PRO can be performed on an individual or multi-card basis using simple copy and paste routines, which reduces the time to configure each module separately. Finally, VistaLINK® enables the user to configure devices in the network from a 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 fiber optic products.

2. Managed devices (such as 520AD8-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.

9. MENU QUICK REFERENCE

Monitor (MONI)
- Discrete Output Channels 1, 2, 3, and 4
- Discrete Output Channels 5, 6, 7 and 8
- Discrete Output Channels 9, 10, 11 and 12
- Discrete Output Channels 13, 14, 15 and 16
- Output Pairs AES1, AES2, AES3 and AES4
- Output Pairs AES5, AES6, AES7 and AES8
- Output Groups AES1+2, AES3+4, AES5+6 and AES7+8
- Peak Value for Output Channel 1
- Peak Value for Output Channel 2
- Peak Value for Output Channel 3
- Peak Value for Output Channel 4
- Peak Value for Output Channel 5
- Peak Value for Output Channel 6
- Peak Value for Output Channel 7
- Peak Value for Output Channel 8
- Peak Value for Output Channel 9
- Peak Value for Output Channel 10
- Peak Value for Output Channel 11
- Peak Value for Output Channel 12
- Peak Value for Output Channel 13
- Peak Value for Output Channel 14
- Peak Value for Output Channel 15
- Peak Value for Output Channel 16

Status (STAT)
- AES1 Input Status
- AES2 Input Status
- AES3 Input Status
- AES4 Input Status
- AES5 Input Status
- AES6 Input Status
- AES7 Input Status
- AES8 Input Status
- Video Input Format
- Input Embedded Audio Group Status
- Audio Group 1 De-embedder Status
- Audio Group 1 De-embedder Sample Rate
- Audio Group 1 De-embedder Valid Channels
- Audio Group 2 De-embedder Status
- Audio Group 2 De-embedder Sample Rate
- Audio Group 2 De-embedder Valid Channels
- Audio Group 3 De-embedder Status
- Audio Group 3 De-embedder Sample Rate
- Audio Group 3 De-embedder Valid Channels
- Audio Group 4 De-embedder Status
- Audio Group 4 De-embedder Sample Rate
- Audio Group 4 De-embedder Valid Channels
- Dolby Metadata Packet Status
- De-embedded Metadata Stream Status

Audio Channel Routing (AMUX)
- Output Channel 1 A
- Output Channel 1 B
- Output Channel 2 A
- Output Channel 2 B
- Output Channel 3 A
- Output Channel 3 B
- Output Channel 4 A
- Output Channel 4 B
- Output Channel 5 A
- Output Channel 5 B
- Output Channel 6 A
- Output Channel 6 B
- Output Channel 7 A
- Output Channel 7 B
- Output Channel 8 A
- Output Channel 8 B

Headphones (HEAD)
- Headphone Volume
- Left Headphone Channel Selection
- Right Headphone Channel Selection

Metadata (META)
- Input VANC Line
- Input VANC DID
- Input VANC Secondary Data ID

Utilities (UTIL)
- Individual Channels or Pairs
- Display Orientation
- Firmware Version
- Factory Reset
- Upgrade

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