TABLE OF CONTENTS

Figures:

Tables:

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Original Version	May 06
1.1	Fixed formatting and typos	May 08

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1. OVERVIEW

The 520DD-AESU series card is a compact Dolby-E / Dolby Digital (AC3) decoder and processor. There are two AES inputs provided. One selected input is processed by the on-card Dolby Decoder. If the channel contains Dolby-E or Dolby Digital (AC3), it will yield up to 8 discrete audio channels and the associated Metadata (Dolby-E only). Dolby-E is also capable of carrying LTC data embedded within its stream. This LTC can be selected as an output, instead of the Metadata.

The remaining AES input can be configured as a backup channel, in case of the loss of Dolby content on the primary input, or as the source of voice-over.

Up to 8 selected discrete channels may be independently delayed up to 3 seconds, overlaid with the desired amount of voice-over, and directed to 4 unbalanced AES outputs.

For ease of lip-sync management and click-less editing, Dolby-E data is organized in blocks with lengths matching the associated video frame. The decoder requires corresponding genlock input to enable proper decoding of Dolby-E signals. A composite or tri-level signal is accepted. It is not needed for Dolby Digital (AC3) or PCM processing.

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:

- 2 AES inputs with selectable functions
- On-board Dolby Decoder module
- 6 AES outputs
- Dolby Metadata output (RS422/485 with adaptor from BNC to DB9)
- Flexible output router: anything-to-anything
- 8 processed channels with independently adjustable audio delay (up to 3 seconds) and independent voice-over addition
- Output audio sample clock configurable to follow either AES input 1, AES input 2, or Genlock input.
- Headphone jack with monitoring stereo down-mix
- Card edge LEDs for quick appraisal of module and input signal status
- Card edge display for more detailed status & audio channel peak level bar graphs
- VistaLINK® -enabled for remote monitoring via SNMP (using VistaLINK® PRO) when installed in 500FR frame with 500FC VistaLINK® Frame Controller

520 DD-AESU data routing (numbers show discrete audio channels)

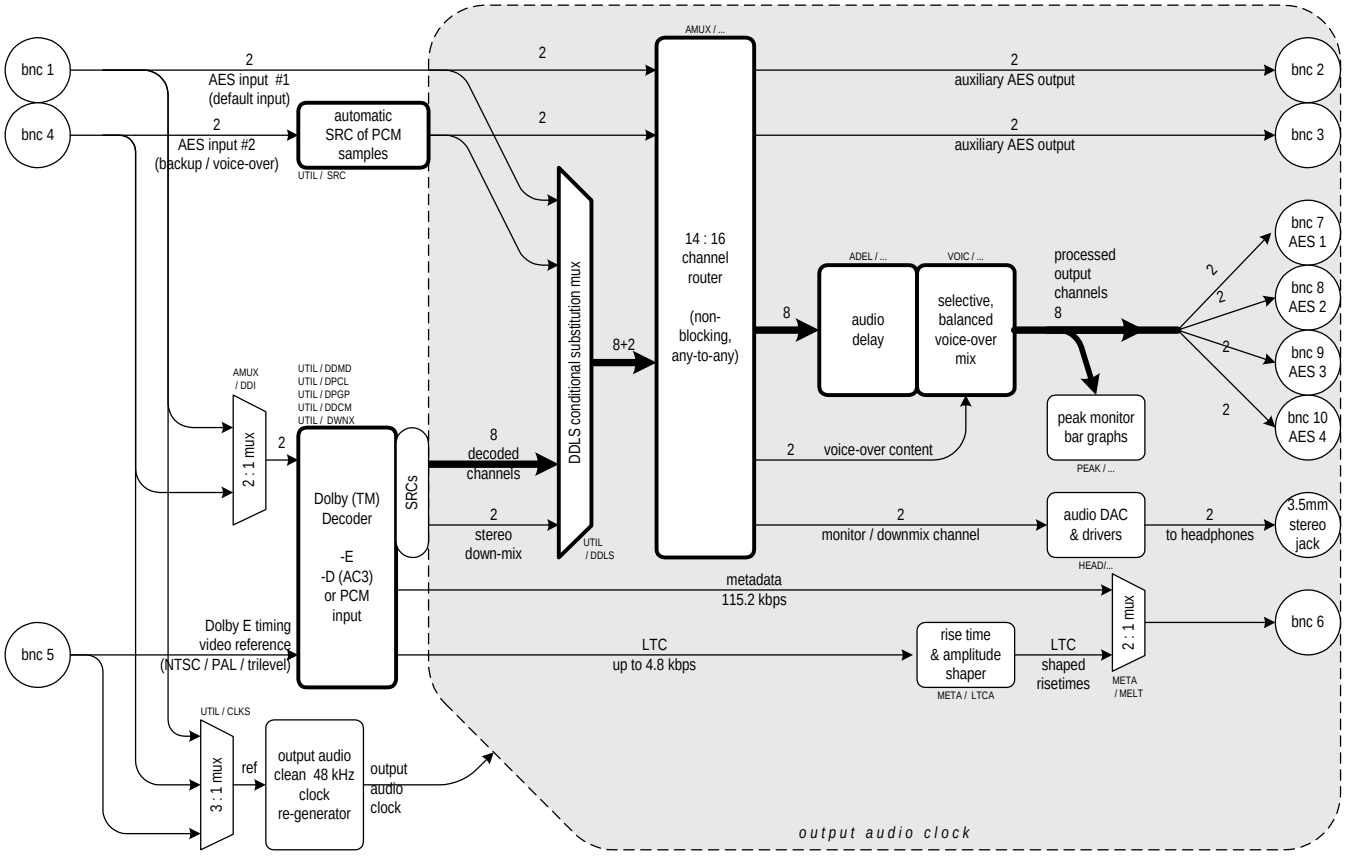

Figure 1-1: 520DD-AESU Block Diagram

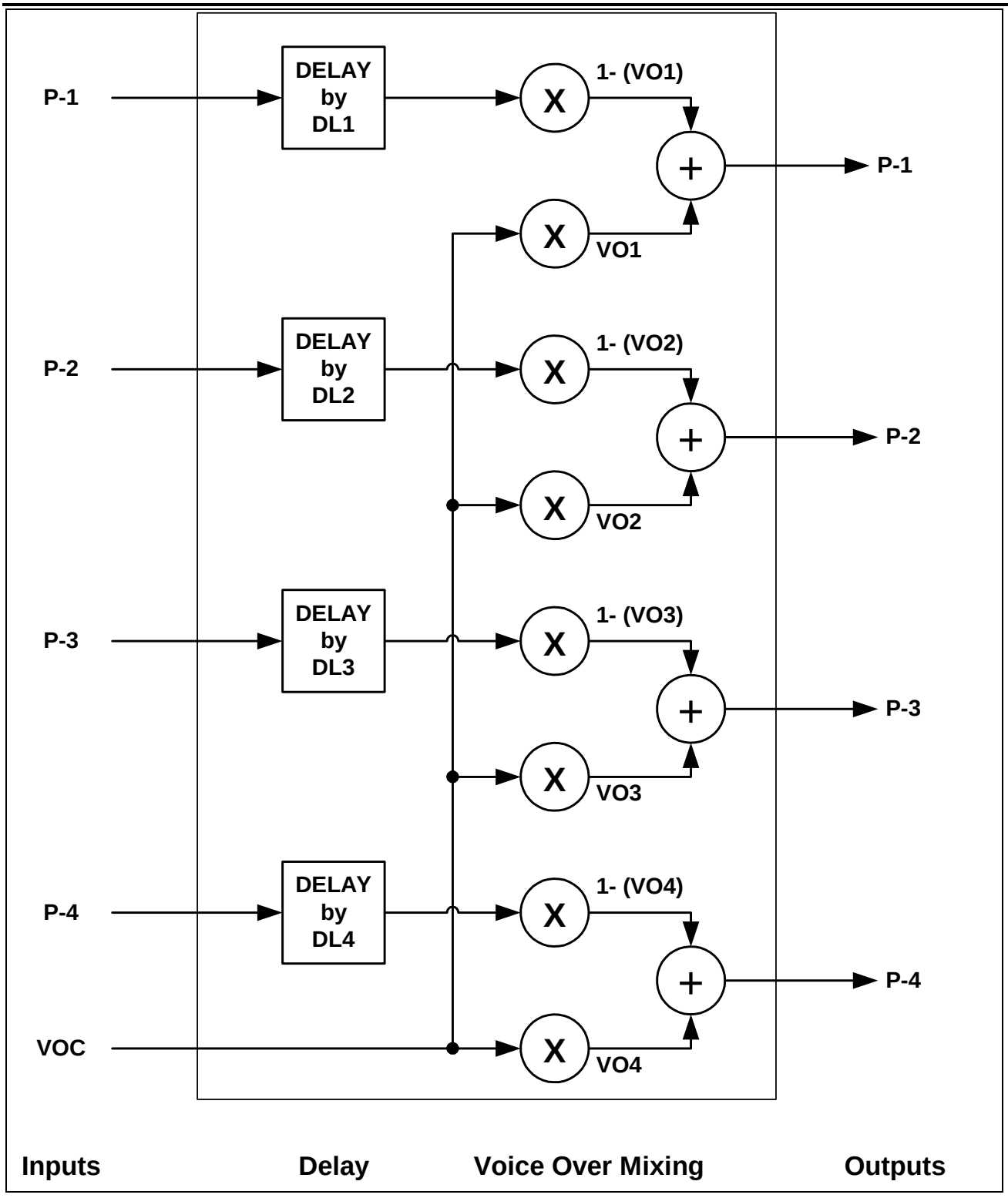

Figure 1-2: Audio Delay and Voiceover Block Diagram

Figure 1-2 shows an expanded view of how the audio delay and voice over mixing occurs when in Pair mode. For Channel mode there are separate delay and voice over mixing controls for each individual channel.

2. INSTALLATION

The 520DD-AESU 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 the 500FR chapter section 3.

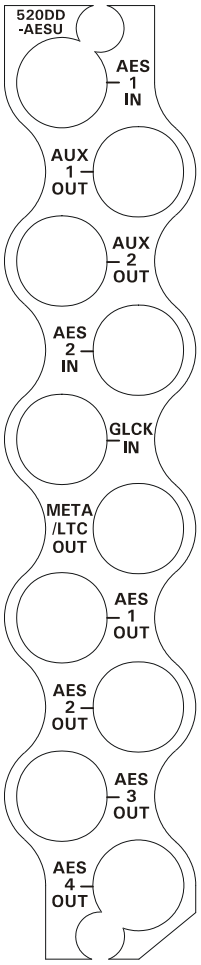

Figure 2-1: Rear Panel Overlays

2.1. AES AUDIO CONNECTIONS

2.1.1. AES Inputs

AES 1 IN This BNC is typically configured as the input to the Dolby Decoder.

AES 2 IN This BNC is an alternate AES audio input and can be used as a source of substitute PCM content in case of the loss Dolby on AES 1 IN, or as the source of voice-over audio. This input has a SRC unit in its signal path to handle asynchronous PCM. It will be automatically bypassed when Dolby content is detected, but if desired, it can be forced OFF.

2.1.2. AES Outputs

There are six BNC connectors containing unbalanced AES that can be assigned from any of the available internal and external sources. The audio sources for the AES1 to AES4 outputs are assigned by using the P1 to P4 sub-menu items on the *AMUX* menu (see section 5.5.). These outputs will be processed by user adjustable audio delay & voice-over. The audio sources for the AUX1 and AUX2 outputs are assigned by using the AX1 and AX2 sub-menu items on the *AMUX* menu. These outputs will not be processed any further.

2.2. GENLOCK CONNECTIONS

GLCK IN Input BNC connector for a genlock reference signal compatible with the video frame rate in use. This genlock signal is used to reference the Dolby E decoder to the video frames.

2.3. METADATA CONNECTIONS

2.3.1. Metadata Output

META/LTC OUT: This BNC can be configured as a Dolby Metadata to drive downstream Dolby Encoders. It can also be configured as an LTC output from the on-board Dolby Decoder.

2.3.2. Connecting to a Dolby DP570

The 520DD-AESU series modules use BNC connectors for Metadata output. They are shipped with an adapter (DD-BNC-DB9) that converts the unbalanced signals on the BNCs so that they are compatible with the DP570 RS-485 signals.

Connect the DD-BNC-DB9 adapter to the *METADATA 1 INPUT* DB-9 connector on the rear of the DP570. Connect a coaxial cable from the BNC on this connector to the **META/LTC OUT IN** BNC on the 520DD-AESU rear panel.

If you wish you may connect a straight through 9 pin cable between the adapters and the DP570. See Figure 2-2 for more information.

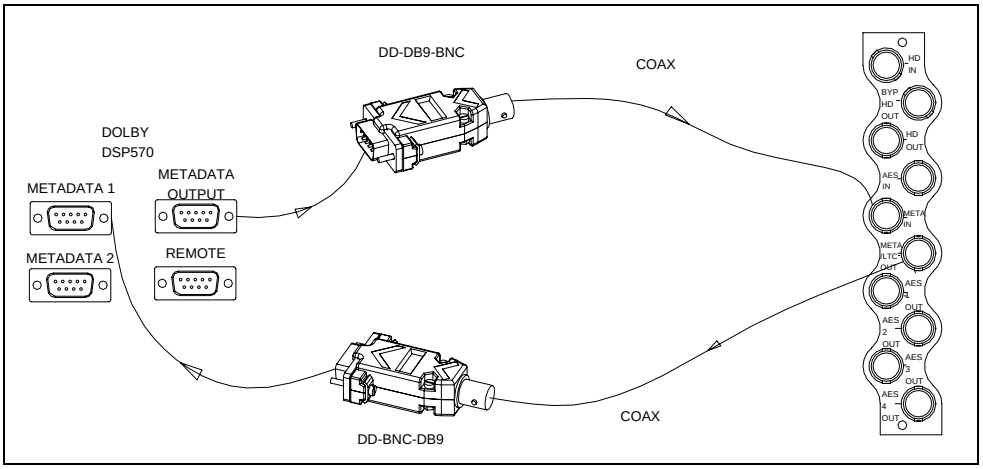

Figure 2-2: Connecting the 520DD-AESU to the Dolby DP570

3. SPECIFICATIONS

3.1. AES AUDIO INPUTS

Standard: SMPTE 276M single ended AES
Number of Inputs: 2
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
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48 kHz AES signal
Sample Rate: 48 kHz ± 100ppm

3.2. AES AUDIO OUTPUT

Standard: SMPTE 276M, single ended AES
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Sample Rate: 48 kHz
Impedance: 75 ohm
Delay: Up to approximately 3 seconds (user adjustable)
Resolution: Up to 24-bit

3.3. METADATA OUTPUT

Type: DOLBY E Metadata
Connector: 1 BNC per IEC 60169-8 Amendment 2
Baud Rate: 115,200 baud

3.4. GENLOCK INPUT (520DD-AESU)

Type: NTSC, PAL black, or any tri-level, all auto detect
Connector: 1 BNC per IEC 60169-8 Amendment 2
Impedance: hi-Z or 75 ohm jumper configurable
Return Loss: >40 dB to 5 MHz, >30 dB to 10 MHz

3.5. HEADPHONE OUTPUT

Connector: 3.5mm stereo jack
Load: expecting 32 ohm headphones
Max levels: 0 dBFS will result in 0.50 V pk-pk (0.18 Vrms) @ hi-Z

3.6. SYSTEM PERFORMANCE

Decoding Latency:
Dolby-E with ...: 600μsec nominal
Dolby-E with ...: 1 frame worth
Audio User Delay: 0 to 3 sec

3.7. ELECTRICAL

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

3.8. PHYSICAL

Number of slots: 1

4. STATUS INDICATORS AND DISPLAYS

The 520DD-AESU has 11 LED Status indicators on the main circuit board front card edge to show operational status of the card at a glance. Figure 6-1 and Figure 6-2 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.

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

		LED Function				
	Description	**OFF**	**solid RED**	**blinking RED**	**blinking GREEN**	**solid GREEN**
LED2	Ethernet link to frame controller	No network activity			Network activity	
LED10	Video input		No video in	*build 2 h/w:* cannot lock to video input	Video input does not match selected standard	Valid video in
LED9	Audio demux A		No packets in demux A group	Audio demux A error		Valid demux A packets
LED3	Audio demux B		No packets in demux B group	Audio demux B error		Valid demux B packets
LED4	DD-AESU: backup AES input		No AES at backup AES input			Receiving backup AES
	DD-AESU: backup AES / ext META input		Not receiving AES nor Metadata at AES/META input	Receiving faulty Metadata at AES/META input		Receiving ext meta or backup AES
LED5	Output video PLL	*build 1 h/w:* always OFF	*build 2 h/w:* output video clock is free run	*build 2 h/w:* output video clock should, but can't lock	-	*build 2 h/w:* output video clock is locked
LED8	Output audio PLL	*build 1 h/w:* audio clock has no reference	-	audio clock can not lock	-	Internal audio clock is locked
LED7	DD-AESU: ext Metadata reception		No ext metadata	ext meta reception errors		Receiving ext Metadata
	DD-AESU: genlock input		No genlock	Frame rate is incompatible with received Dolby stream		Valid genlock in
LED6	DD-AESU: Cat No 552	-	-	Missing decoder, faulty Dolby bit-stream, or unknown decoder error	PCM stream is fed to the decoder	Decoder has valid Dolby bit-stream

Table 4-1: Status LED Functions

4.2. DOT-MATRIX DISPLAY

Additional signal and status monitoring and control over the card's parameters is provided via the 4-digit alphanumeric display located on the card edge. The rotary switch is used to select whether you are displaying status from the card (status mode) or setting control parameters for the card (control mode). 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 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.

5.2. TOP LEVEL MENU STRUCTURE

PEAK	Status displays showing audio signal peak levels
STAT	Status displays showing signal input status items
AMUX	Control menu to set parameters relating to the audio channel routing
ADEL	Control menu to set parameters relating to the audio delay
VOIC	Control menu to set parameters relating to the audio voice over
HEAD	Control menu to set the headphone volume
META	Control menu to set parameters relating to the Metadata and LTC
EAUD	Control menu to set parameters relating to the audio de-embedder and embedder
UTIL	Control menu to set miscellaneous parameters
VIDE	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 5.11.7.

5.3. DISPLAYING THE PEAK AUDIO LEVELS

The *PEAK* menu is used to show the peak values for each of the audio channels. When the *PEAK* 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 *PEAK* menu. Sections 5.3.1 and 5.3.3 give detailed information about the menu items.

PAIR	Displays Bar graphs showing the peak values for pairs 1/2, 3/4, 5/6, and 7/8
1234	Displays Bar graphs showing the peak values for channels 1, 2, 3 and 4
5678	Displays Bar graphs showing the peak values for channels 5, 6, 7 and 8
dB 1	Displays the peak value for channel 1 in dBFS
dB 2	Displays the peak value for channel 2 in dBFS
…	
dB 8	Displays the peak value for channel 8 in dBFS

5.3.1. Displaying the Stereo Pair Peak Audio Values as Bar Graphs

PEAK
PAIR
See Table 5-1 & Figure 5-1

With this display you will show the peak values for the stereo pairs as 4 miniature bar graphs.

Each section of the dot matrix display shows a bar graph representation of the peak level for one of the audio pairs. Pair 1 (the sum of channel 1 and 2) is shown on the left (top) section and pair 4 (the sum of channel 7 and 8) is shown on the right (bottom) section. 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 5-1 and Table 5-1.

Table 5-1 allows you to correlate the dot matrix display levels to the peak levels in dBFS units. The ballistics of the bar graph display 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.

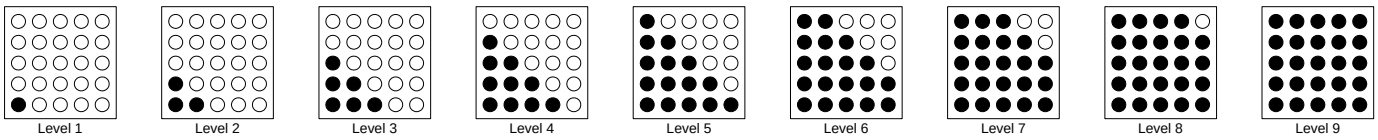

Figure 5-1: Peak Level Bar Graph Displays

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 5-1: Bar Graph Peak Levels

5.3.2. Displaying the Individual Channel Peak Audio Values as Bar Graphs

There are two display items to show the peak values for groups of 4 channels. For the sake of simplicity in the manual only the display for channels 1 to 4 will be shown.

PEAK
1234
See Table 5-1 & Figure 5-1

With this display you show the peak values for channels 1 to 4 as 4 miniature bar graphs.

Each section of the dot matrix display shows a bar graph representation of the peak level for one of the audio channels. Channel 1 (Pair 1/2) is shown on the left (top) section and channel 4 is shown on the right (bottom) section. 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 5-1 and Table 5-1.

Table 5-1 allows you to correlate the dot matrix display levels to the peak levels in dBFS units. The ballistics of the bar graph display 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.

5.3.3. Displaying the Peak Audio Values as Numerical Values

There are eight display items to show the peak values for each of the 8 audio channels. For the sake of simplicity in the manual, only the display for channel 1 will be shown.

PEAK
dB 1
See Table 5-1 & Figure 5-1

With this display you show the peak values for channel 1 in dBFS.

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 active status display name will be shown for about 1 second, and then the value will be shown. To display the status display name again press the pushbutton. To select other status items, use the toggle switch. The chart below shows the items available in the *STAT* menu. Sections 5.4.1 to 5.4.12 give detailed information about each menu item.

AESB	Displays the AES B Input status
GENL	Displays the GLCK Input status (520DD-AESU only)
DDPC	Displays the Dolby Decoder Program Config (520DD-AESU only)
DDBF	Displays the Dolby Decoder Bitstream Format (520DD-AESU only)
VIFM	Displays the video input format
IGRP	Displays input embedded audio group status
DXAS	Displays audio de-embedder A status
DXAR	Displays audio de-embedder A rate
DXAC	Displays audio de-embedder A valid channel status
DXBS	Displays audio de-embedder B status
DXBR	Displays audio de-embedder B rate
DXBC	Displays audio de-embedder B valid channel status
EXMT	Displays the externally processed Metadata input status
VAPK	Displays VANC packets status
VAMT	Displays VANC Metadata input status

5.4.1. Displaying the Status of the AES Input

STAT *AESB* *OK* *n/a*	With this display you show the status of the AES input.

5.4.2. Displaying the Status of the Genlock Input

STAT	With this display you can show the type of the Genlock input.
GLCK	
none	No genlock present
PALB	PAL-B
NTSC	NTSC-M
3i59	1035i/59.94
3i60	1035i/60
1s23	1080p/23.98sF
1s24	1080p/24sF
1i50	1080i/50
1i59	1080i/59.94
1i60	1080i/60
7p59	720p/59.94
7p60	720p/60
1p23	1080p/23.98
1p24	1080p/24
1p25	1080p/25
1p29	1080p/29.97
1p30	1080p/30

5.4.3. Displaying the Program Configuration Detected by the Dolby Decoder

STAT	With this display you can show the program configuration of the Dolby Decoder as shown below:
DDPC	
5.1	5.1
51+2	5.1+2
5111	5.1+1+1
2222	2+2+2+2
222	2+2+2
8X1	1+1+1+1+1+1+1+1
6X1	1+1+1+1+1+1
3/2L	3/2 L
3/2	3/2
3/1	3/1
2/0+	2/0 (dsumod=10)
2/0	2/0 (dsumod=0x)
1+1	1+1
1/0	1/0
PCM	PCM Audio
OTHR	other

5.4.4. Displaying the Bitstream Format Detected by the Dolby Decoder

STAT	With this display you can show the bitstream format detected by the Dolby Decoder as shown below.
DDBF	
DD32	Dolby D 32 bit
D16A	Dolby D 16 bit Channel 1
D16B	Dolby D 32 bit Channel 2
D16	Dolby D 32 bit Channel 1 & 2
DE24	Dolby E 24 bit
DE20	Dolby E 20 bit
DE16	Dolby E 16 bit
PCM	PCM Audio

5.4.5. Displaying the Video Input Format

STAT	With this display you can show the type of the video input.
VIFM	
none	No video present
PALB	PAL-B
NTSC	NTSC-M
3i59	1035i/59.94
3i60	1035i/60
1s23	1080p/23.98sF
1s24	1080p/24sF
1i50	1080i/50
1i59	1080i/59.94
1i60	1080i/60
7p59	720p/59.94
7p60	720p/60
1p23	1080p/23.98
1p24	1080p/24
1p25	1080p/25
1p29	1080p/29.97
1p30	1080p/30

5.4.6. Displaying the Status of the Input Embedded Audio Groups

STAT	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.
IGRP	
1234	

5.4.7. Displaying the Status of the Audio De-embedders

There are three identical menus for audio De-embedder A and B Status. For the sake of simplicity in the menus, only the status displays for De-embedder A are shown below:

STAT	With this display you can show status of audio de-embedder A.
DXAS	
PRES	Audio present – no errors
PKER	Packet error
FFLO	FIFO empty error
FFHI	FIFO full error
SYER	Sync error
----	No packets

5.4.8. Displaying the Sample Clock Rate Detected by the Audio De-embedders

STAT	With this display you can show sample rate of audio de-embedder A.
DXAR	
ASYN	Asynchronous
UNKN	Unknown
32K	32 kHz
44K1	44.1 kHz
48K	48 kHz

5.4.9. Displaying the Valid Audio Channels Detected by the Audio De-embedders

STAT	With this display you can show the valid audio channels detected by audio de-embedder A. When a channel pair contains valid PCM audio it will display a number as shown below.
DXAC	
1234	1 corresponds to AES pair 1 channel A 2 corresponds to AES pair 1 channel B 3 corresponds to AES pair 2 channel A 4 corresponds to AES pair 2 channel B When a channel pair contains Dolby-E or Dolby Digital, it will display E or D respectively. An invalid channel is marked with a dash (-). A channel can be invalid if it is so marked by an upstream HD embedder, or if its audio group is missing altogether.

5.4.10. Displaying the External Metatdata Input Status

STAT	With this display you can show the status of the externally processed metadata input.
EXMT	
OK	*OK* = External Metadata present
n/a	

5.4.11. 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 = Metadata packets 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.)

5.4.12. Displaying the Input VANC Metadata Status

STAT
VAMT
OK
n/a

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

OK = Metadata packets are de-embedding correctly.

5.5. CONFIGURING THE AUDIO CHANNEL ROUTING

The *AMUX* menu is used to control the internal routing of the audio channels shown in Table 5-2. When the *AMUX* menu is entered the active menu item name will be shown. The chart below shows the items available in the *AMUX* menu. Section 5.8.1 gives detailed information about each menu item.

AESO	Sets whether the processed or unprocessed audio is available on the AES outputs.
P-1A, P-1B, etc	Assigns the input source for each output. There are menu items for each output channel (or pair in *PAIR* mode). See Table 5-2 for a list of the outputs.

5.5.1. Configuring the AES Output Source MUX

AMUX
AESO
PRIM
SEC

With this control you can control the AES Output source MUX.

Select *PRIM* to have the processed primary audio outputs (that are embedded into the output video) available on the AES output BNCs.

Select *SEC* to have the unprocessed secondary audio outputs available on the AES output BNCs. The secondary outputs have no user delay or voice over added.

5.5.2. Selecting the Audio Routing

There are identical menu items that control the routing for each channel (when the *2CHA* menu item is set to *CHAN*) or for each stereo pair (when the *2CHA* menu item is set to *PAIR*). Not all of the input sources are available for each output. (e.g. Dolby Inputs are not available on Dolby output menu items). For the sake of simplicity, only the menu item for Primary Output 1A (Primary Output pair 1 in *PAIR* mode) will be shown. See Table 5-2 for a list of the output channel names.

Output Name		Display		Default Channel Source	
		Channel	Pair	520DD-AESU	520DD-AESU
Dolby Decoder input (520DD-AESU only)	Left (1A)	DDIA	DDI	----	BK1A
	Right (1B)	DDIB		----	BK1B
Primary Outputs (PRIM sources for AESO mux)	1A	P-1A	P-1	VA1A	DD1A
	1B	P-1B		VA1B	DDIB
	2A	P-2A	P-2	VA2A	DD2A
	2B	P-2B		VA2B	DD2B
	3A	P-3A	P-3	VB1A	DD3A
	3B	P-3B		VB1B	DD3B
	4A	P-4A	P-4	VB2A	DD4A
	4B	P-4B		VB2B	DD4B
Voice-over	Left (A)	VOCA	VOC	BK1A	BK1A
	Right (B)	VOCB		BK1B	BK1B
Secondary Outputs (SEC sources for AESO mux)	1A	S-1A	S-1	VA1A	VA1A
	1B	S-1B		VA1B	VA1B
	2A	S-2A	S-2	VA2A	VA2A
	2B	S-2B		VA2B	VA2B
	3A	S-3A	S-3	VB1A	VB1A
	3B	S-3B		VB1B	VB1B
	4A	S-4A	S-4	VB2A	VB2A
	4B	S-4B		VB2B	VB2B

Table 5-2: Audio Mux Output Channel Names

5.5.2.1. Configuring the Audio Routing – Channel Mode

AMUX
- *P-1A*
  - *DD1A*
  - *DD1B*
  - *DD2A*
  - *DD2B*
  - *DD3A*
  - *DD3B*
  - *DD4A*
  - *DD4B*
  - *DDMA*
  - *DDMB*
  - *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 set the input source for the Primary Output channel 1A.

Dolby Decoder Output	1A	(520DD-AESU only)
	1B	(520DD-AESU only)
	2A	(520DD-AESU only)
	2B	(520DD-AESU only)
	3A	(520DD-AESU only)
	3B	(520DD-AESU only)
	4A	(520DD-AESU only)
	4B	(520DD-AESU only)
Dolby Decoder Monitor Downmix	Left (1A)	(520DD-AESU only)
	Right (1B)	(520DD-AESU only)
Backup AES Input	Left (1A)	
	Right (1B)	
Audio De-embedder A	1A	
	1B	
	2A	
	2B	
Audio De-embedder B	1A	
	1B	
	2A	
	2B	

5.5.2.2. Configuring the Audio Routing – Pair Mode

AMUX
- *P-1*
  - *DD1*
  - *DD2*
  - *DD3*
  - *DD4*
  - *DDM*
  - *BK1*
  - *VA1*
  - *VA2*
  - *VB1*
  - *VB2*

When the 2CHA menu item is set to PAIR this menu item is used to set the input source for the Primary Output stereo pair 1.

Dolby Decoder Output	1A & 1B	(520DD-AESU only)
	2A & 2B	(520DD-AESU only)
	3A & 3B	(520DD-AESU only)
	4A & 4B	(520DD-AESU only)
Dolby Decoder Monitor Downmix	L(1A) & R(1B)	(520DD-AESU only)
Backup AES Input	Left (1A) & Right (1B)	
Audio De-embedder A	1A & 1B	
	2A & 2B	
Audio De-embedder B	1A & 1B	
	2A & 2B	

5.6. CONFIGURING THE AUDIO DELAY

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 primary output channel (when the *2CHA* menu item is set to *CHAN*) or for each primary output stereo pair (when the *2CHA* menu item is set to *PAIR*). For the sake of simplicity only the menu item for Primary Output 1A (Primary Output pair 1 in *PAIR* mode) will be shown. See Table 5-2 for a list of the output channel names. See Figure 1-2 for an expanded block diagram of the audio delay processing.

ADEL
- *DL1A*
  - *0sec*
  - *0 to 2*

With this control you can set the audio delay for Primary Output 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 AUDIO VOICE OVER

The *VOIC* menu is used to set the audio voice over gain (amount of voice over to apply) for each audio channel. When the *VOIC* 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 primary output channel (when the *2CHA* menu item is set to *CHAN*) or for each primary output stereo pair (when the *2CHA* menu item is set to *PAIR*). For the sake of simplicity only the menu item for Primary Output 1A (Primary Output pair 1 in *PAIR* mode) will be shown. See Table 5-2 for a list of the output channel names. See Figure 1-2 for an expanded block diagram of the voice over processing.

VOIC *VO1A* *-0.00 to –50.0* *mute*	With this control you can set the amount of voice over to add to output Primary Output 1A. When set to *mute* there will be no voice over on this channel The gain settings are adjustable in 0.1 dB steps.

5.8. 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 5.8.1 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

5.8.1. Setting the Headphone Volume

HEAD *HVOL* *HV00 to HV15*	With this control you can set the headphone volume to 1 of 16 levels. Total adjustment range is over 50 dB. Level 00 is the lowest volume and is effectively mute.

5.8.2. 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*
    - *DD1A*
    - *DD1B*
    - *DD2A*
    - *DD2B*
    - *DD3A*
    - *DD3B*
    - *DD4A*
    - *DD4B*
    - *DDMA*
    - *DDMB*
    - *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.

Dolby Decoder Output	1A	(520DD-AESU only)
	1B	(520DD-AESU only)
	2A	(520DD-AESU only)
	2B	(520DD-AESU only)
	3A	(520DD-AESU only)
	3B	(520DD-AESU only)
	4A	(520DD-AESU only)
	4B	(520DD-AESU only)
Dolby Dec Monitor Downmix	Left (1A) (520DD-AESU only - default)	
	Right (1B) (520DD-AESU only)	
Backup AES Input	Left (1A)	
	Right (1B)	
Audio De-embedder A	1A (default for 520DD-AESU)	
	1B	
	2A	
	2B	
Audio De-embedder B	1A	
	1B	
	2A	
	2B	

5.9. CONFIGURING THE METADATA/LTC

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 5.9.1 to 5.9.6 give detailed information about the menu items.

MELT	Selects what is output on the META/LTC output BNC
LTCA	Sets the output level of the LTC
METO	Selects the type of Metadata output on the META/LTC BNC
METV	Selects the type of Metadata output in VANC
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)
VAKL	Selects whether to delete specified VANC packets
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 whether VANC will be embedded on the output video

5.9.1. Selecting What Is Output on the META/LTC Output BNC

META
- *MELT*
  - *META*
  - *LTC*

With this control you can select the type of output on the **META/LTC** BNC.

META selects Metadata from the Dolby Decoder or VANC packets from the input video.

LTC selects LTC decoded from the Dolby Decoder.

5.9.2. Selecting What Is Output on the META/LTC Output BNC

META
- *LTC*
  - *AMP5*
  - *AMP1*
  - *…*
  - *AMP8*

With this control you can set the level of the LTC output on the META/LTC BNC when the *MELT* menu item is set to *LTC.* The output level can be set to one of 8 levels from 0.4 to 4.0 V p-p.

The scale is linear and the AMP1 level corresponds to 0.4 V p-p

5.9.3. Selecting What Type of Metadata is Output on the META/LTC Output BNC

- *META*
  - *METO*
    - *DOLB*
    - *VANC*
    - *EXT*

With this control you can set the type of Metadata output on the META/LTC BNC when the *MELT* menu item is set to *META.*

Select *DOLB* to output Metadata from the Dolby Decoder. This menu item is the default and is available on the 520DD-AESU only.

Select *VANC* to output Metadata from the input VANC packets. This menu choice is the default on the 520DD-AESU version.

Select *EXT* to output Metadata from the external META input.

5.9.4. Selecting What Type of Metadata is Inserted into VANC

- *META*
  - *METV*
    - *DOLB*
    - *VANC*
    - *EXT*

With this control you can set the type of Metadata inserted into VANC data by the embedder when the *VAEN* menu item is set to *ENBL.*

Select *DOLB* to insert Metadata from the Dolby Decoder. This menu item is the default and is available on the 520DD-AESU only.

Select *VANC* to insert Metadata from the input VANC packets.

Select *EXT* to insert Metadata from the external META input.

5.9.5. Configuring the VANC Metadata De-embedder

There are four menu items used to configure the input VANC de-embedder.

- *META*
  - *VADL*
    - *DL10*
    - *DL1 to DL31*

With this control you can set the line for de-embedding VANC Metadata packets from the input video.

- *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.

- *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 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.

META
VAKL
KILL
PASS

With this control you can set whether the VANC packets matching the *VADI* and *VADS* menu item values will be removed from the video or passed through to the output.

Select *KILL* to remove the VANC packets

Select *PASS* to pass the packets through to the output video

5.9.6. Configuring the VANC Metadata Embedder

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

META
VAEL
EL10
EL01 to EL31

With this control you can set the line for embedding VANC Metadata packets on the output video.

META
VAEI
EI45
EI50 to EI5F
EIC0 to EICF

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.

META
VAES
ES01
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
ENBL
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. The source of data for the VANC packets is set by the *METV* menu item. (See section 5.9.4.)

Select *OFF* to disable VANC insertion.

5.10. CONFIGURING THE AUDIO DE-EMBEDDERS AND EMBEDDERS

The *EAUD* menu is used to configure parameters related to the audio embedders and de-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 5.10.1 and 5.10.2 give detailed information about the menu items.

DXAG	Selects the audio de-embedder A group number
DXAK	Selects whether to delete de-embedder A group from input video
DXBG	Selects the audio embedder B group number
DXBK	Selects whether to delete de-embedder B group from input video
EMAG	Selects the audio embedder A group number
EMAE	Selects whether audio embedder A is enabled
EMBG	Selects the audio embedder B group number
EMBE	Selects whether audio embedder B is enabled
GLOK	Selects whether the audio de-embedders and embedders operate in group lock mode or not

5.10.1. Configuring the Audio De-Embedders

The SMPTE 299M and SMPTE 272M standards permit up to 4 groups of 4 audio channels to be embedded into the 1.5 Gb/s video bitstream. The 520DD-AESU series modules have two de-embedders that each de-embed one group of audio. There are two menu items used to configure each of the audio de-embedders. For simplicity only the menu items for audio de-embedder A will be shown.

5.10.1.1. Selecting the Audio Group That Will Be De-embedded

EAUD
- *DXAG*
  - *1*
  - *1 to 4*

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

5.10.1.2. Selecting Whether Selected Audio Groups Will Be Deleted Or Passed

EAUD
- *DXAK*
  - *KILL*
  - *PASS*

With this control you can set whether the audio packets in the group matching the DXAG menu item value will be removed from the video or passed through to the output.

Select *KILL* to remove the audio packets.

Select *PASS* to pass the packets through to the output video.

5.10.2. Configuring The Audio Embedders

The SMPTE 299M and SMPTE 272M standards permit up to 4 groups of 4 audio channels to be embedded into the 1.5 Gb/s video bitstream. The 520DD-AESU series modules have two embedders that each embed one group of audio. There are two menu items used to configure each of the audio embedders. For simplicity only the menu items for audio embedder A will be shown.

5.10.2.1. Selecting the Audio Group that Will Be Embedded

EAUD
- *EMAG*
  - *1*
  - *1 to 4*

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

5.10.2.2. Selecting Whether the Audio Embedder is Enabled

EAUD
- *EMAE*
  - *ENBL*
  - *OFF*

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 set by the menu items for Audio Mux controls *P-1A, P-1B, P-2A* and *P-2B*.

Select *OFF* to disable Embedder A.

5.10.3. Selecting AES Locked Group Mode

For audio that is synchronous to video there is exactly 8008 audio samples (48kHz sampling rate) in 5 frames of 59.94Hz video. Most audio embedders will spread these samples as evenly as possible throughout the 5 frames of video. Because the 8008 samples do not divide evenly into 5 frames of video, there is a sequence that only repeats every 5 frames. In all video standards it is possible for the phase of the audio being embedded by two separate embedders to be out of phase with respect to each other. In order to transport 8 channels of audio (4 AES pairs) through an embedded link with exactly the same delay on each channel, both the embedder and the de-embedder must lock the FIFOs of both groups of audio together. Failing to do so will cause a phase difference between the audio from the two groups.

EAUD
- *GLOK*
  - *LOCK*
  - *INDP*

With this control you can select whether the de-embedders and embedders will be operated separately or locked together for embedding related audio (such as 5.1 surround sound).

Select *LOCK* to enable *Locked group* mode. The De-embedder and Embedder FIFOs are locked together maintaining the phase relationship between all 4 AES channel pairs in the embedded audio.

Select *INDP* to enable *Independent group* mode. De-embedder1/embedder 1 and de-embedder2/embedder2 are operated independently of each other as if two separate devices were used. The FIFOs are not locked together and the output phases of the two groups of embedded audio do not have any specific relationship to each other.

5.11. 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 5.11.1 to 5.11.3 provide detailed information about the menu items.

DDMD	Selects the Dolby Decoder mode (520DD-AESU only).
DDTM	Selects the video sync source for the Dolby Decoder (520DD-AESU only)
DDLS	Selects the source for the audio mux when there is no signal from the Dolby Decoder (520DD-AESU only).
2CHA	Selects whether audio routing, delay and voice over controls apply to individual channels or stereo pairs.
SRC	Selects whether the sample rate converters are used or not.
DISP	Selects the orientation of the Dot matrix display.
FRST	Resets the card to its factory default condition.
VERS	Displays the firmware version of the card.
UPGR	Initiates firmware upgrade for the card.
DPCL	Selects Dolby Decoder output latency.
DPGP	Configures Dolby Decoder Program Play feature.
DDCM	Configures Dolby Decoder Dynamic Range Processing.

5.11.1. Selecting the Dolby Decoder Mode (520DD-AESU only)

UTIL	With this control you can select the Dolby Decoder mode.
DDMD	
ALL	Decodes all Dolby formats and passed PCM inputs through:
D-D	Only Dolby Digital is decoded
D-E	Only Dolby E is decoded
MUTE	Mutes output regardless of input contents

5.11.2. Selecting the Sync Source for the Dolby Decoder (520DD-AESU only)

UTIL	With this control you can select the source of sync for the Dolby Decoder.
DDTM	
GL	Select *GL* to use the GLCK video input as the source of sync.
VIN	Select *VIN* to use the video input as the source of sync.
VOUT	Select *VOUT* to use the video output as the source of sync.

5.11.3. Selecting the Action on Loss of Signal from the Dolby Decoder (520DD-AESU only)

UTIL
DDLS
DMUX
DOLB
AESB

With this control you can select the audio source to use when the input for the Dolby Decoder is not a Dolby encoded stream. This control affects all the sources that are set to take their inputs from the Dolby Decoder (DD1A, DD1B, etc.).

Select *DMUX* to automatically switch the input sources to the de-embedder outputs.

Select *DOLB* to always keep the input sources as the Dolby Decoder. When the Dolby Decoder is given a PCM stream, its output will be the PCM audio on pair 1 and silence on the remaining pairs.

Select *AESB* to automatically switch the input sources to the AES input for pair 1 and silence for pairs 2, 3 and 4.

5.11.4. Configuring the Audio Channel Mode

UTIL
2CHAN
CHAN
PAIR

With this control you can control whether the audio mux, delay and voice over controls operate on individual channels or on stereo pairs.

Select *CHAN* to process the audio as individual channels. (P-1A, P-1B, P-2A, etc.).

Select *PAIR* to process the audio as stereo pairs. (Pair P-1 consisting of channels P-1A and P-1B, etc.)

5.11.5. Controlling the Sample Rate Converters

UTIL
SRC
OFF
AUTO

With this control you can select whether the sample rate converter on the External AES input 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 selected based on recognized contents of the AES inputs.

The result of sample rate conversion of an asynchronous AC3 (Dolby Digital) signal is not suitable for direct embedding or AES output, but it can be used with the on board Dolby decoder. The conversion of PCM or Dolby E is always OK and effectively lossless.

5.11.6. 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.

5.11.7. Displaying the Firmware Version

UTIL *VERS* *V 1.3* *B236* *F365* *HW 2*	With this control you can display the firmware version and build number. Firmware version number. Firmware build number. FPGA revision Hardware build identification number

5.11.8. 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 underlined in the menu descriptions in section 5.

5.11.9. Upgrading the Module Firmware

UTIL *UPGR* *NO* *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 J2 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 complete, 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 520DD-AESU series modules is 115,200 baud.

5.11.10. Configuring the Dolby Decoder (520DD-AESU only)

5.11.10.1. Setting Up the Dolby Decoder Delay

- *UTIL*
  - *DPCL*
    - *MIN*
    - *1FRM*

With this control you can setup the Dolby Decoder decoded outputs latency.

Select *MIN* to configure the Dolby Decoder for the minimum possible decoding delay.

Select *1FRM* to configure the Dolby Decoder for a decoding delay equivalent to 1 frame of video.

5.11.10.2. Setting Up the Dolby Decoder Program Play Feature

- *UTIL*
  - *DPGP*
    - *NO*
    - *YES*

With this control you can setup the Dolby Decoder “Program Play” feature for Dolby E.

Select *No* to configure the Dolby Decoder Program Play for normal (synchronous) operation.

Select YES to configure the Dolby Decoder Program Play to enable proper decoding of Dolby-E stream coming from a VTR that has been sped up by up to 15%. Additional pitch-shift processing is applied and output latency is forced to min. NOTE: The Dolby-E stream has to be input via the external ("backup") AES input.

5.11.10.3. Setting Up the Dolby Decoder Dynamic Range Compression

- *UTIL*
  - *DDCM*
    - *BYPS*
    - *RF*
    - *LINE*

With this control you can setup the Dolby Decoder dynamic range compression for AC3 (Dolby Digital only).

Select *BYPS* to configure the Dolby Decoder to bypass dynamic range processing. Program levels are unaltered.

Select *RF* to configure the Dolby Decoder to adjust the dynamic range using a RF (or ‘strong”) dynamic range compression profile.

Select *LINE* to configure the Dolby Decoder to adjust the dynamic range using a LINE (or ‘light”) dynamic range compression profile.

5.12. CONFIGURING THE VIDEO PARAMETERS

The *VIDE* menu is used to configure the 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 5.12.1 to 5.12.4 give detailed information about the menu items.

VOFM	Selects the video format
VDFR	Sets additional frames of video delay
VDLN	Sets additional lines of video delay
VDSM	Sets additional samples of video delay
COLR	Selects the video output colour to be used when there is no video input
VOUT	Selects the behaviour of the video output when there is no video output

5.12.1. Selecting the Output Video Format

VIDE	With this control you can select the output video format.
VOFM	
Auto	Select *Auto* to let the module to autodetect the video format.
PALB	PAL-B
NTSC	NTSC-M
3i59	1035i/59.95
3i60	1035i/60
1s23	1080p/23.98sF
1s24	1080p/24sF
1i50	1080i/50 (1080p/25sF)
1i59	1080i/59.94 (1080p/29.97sF)
1i60	1080i/60 (1080p/30sF)
7p59	720p/59.94
7p60	720p/60
1p23	1080p/23.98
1p24	1080p/24
1p25	1080p/25
1p29	1080p/29.97
1p30	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.

5.12.2. Configuring the Video Delay

VIDE	With this control you can set the video delay in frames.
VDFR	
DFR0	
0 to 7	

VIDE
VDLN
0
0 to max lines

With this control you can set the video delay in lines.

When you increase the value beyond the maximum line number for the video standard in use, the frames will automatically increment. When you decrease the value below 0 the frames will automatically decrement.

VIDE
VDSM
0
0 to max samples

With this control you can set the video delay in samples.

When you increase the value beyond the maximum samples per line of the video standard in use the lines will automatically increment. When you decrease the value below 0 the lines will automatically decrement.

5.12.3. Configuring the Default Output When There is No Video Input

VIDE
COLR
BLUE
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.*

5.12.4. Forcing the Video Output to a Default Flat Screen

VIDE
VOUT
AUTO
COLR
PASS

With this control you can force the default video output for test purposes.

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

Select *COLR* to force the output video to either black or blue screen as configured using the *COLR* menu item.

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

6. JUMPERS

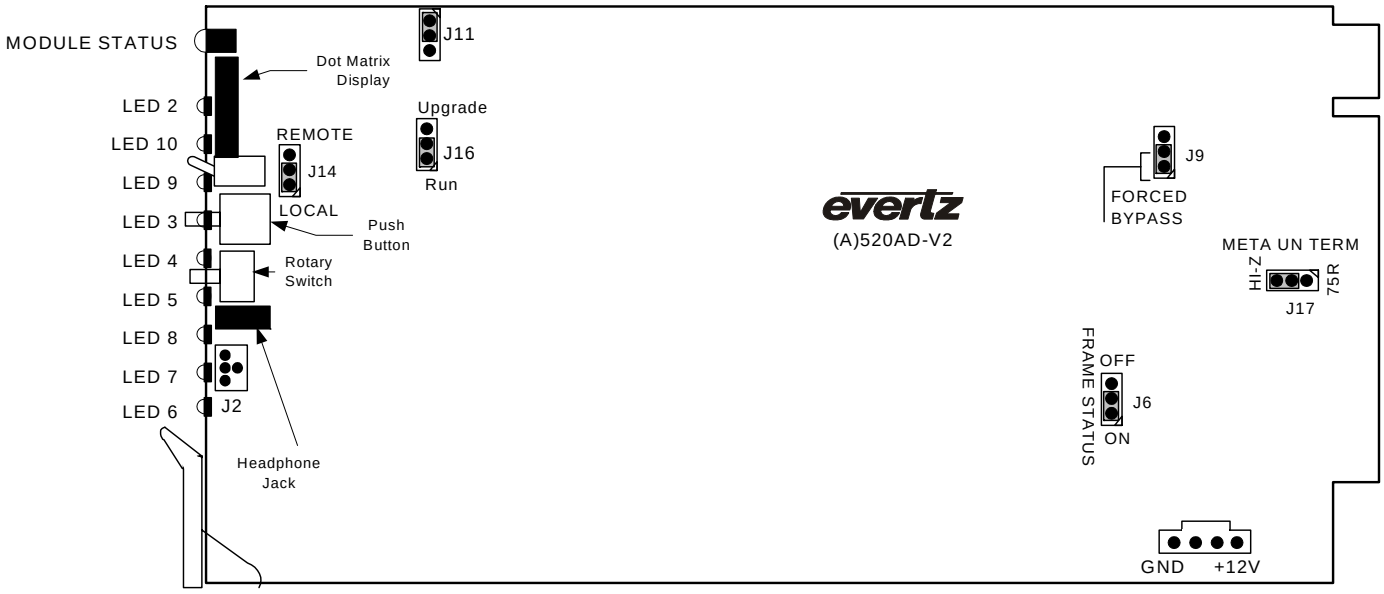

Figure 6-1: 520DD-AESU LED and Jumper Locations

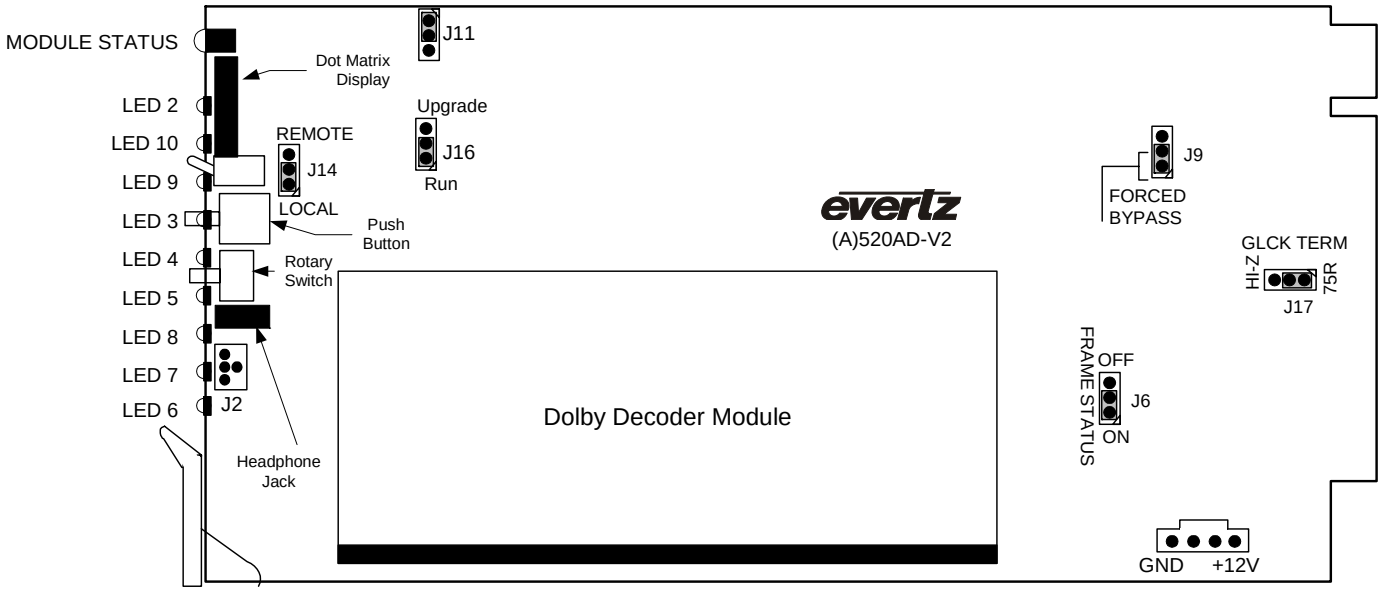

Figure 6-2: 520DD-AESU LED and Jumper Locations

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

The FRAME STATUS jumper J6, 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.

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

6.2. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE The UPGRADE jumper J16 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 J16 into the *UPG* position. Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto the COM header J2 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 complete, remove the module from the frame, move J16 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 520DD-AESU series modules is 115,200 baud.

6.3. SELECTING WHETHER THE GENLOCK REFERENCE INPUT IS TERMINATED (520DD-AESU VERSION ONLY)

GLCK TERM The GLCK TERM jumper J17 located at the rear of the module is used to terminate the genlock input on the 520DD-AESU cards. When it is in the 75R position, a 75 ohm terminating resistor will be connected from the input to ground. When it is in the HI-Z position, the genlock input will be high impedance.

6.4. SELECTING WHETHER THE METADATA INPUT IS TERMINATED (520DD-AESU VERSION ONLY)

META IN TERM The META IN TERM jumper J17 located at the rear of 520DD-AESU module is used to terminate METADATA input. When the external metadata is driven by a source such as Dolby DP572 or DP570 using the supplied Evertz adaptor DD-DB9-BNC, J17 should be set to HI-Z. The setting 75R can be useful when the driving source is a native coax driver (such as MATADATA output of another 520DD-AESU), and the source is located far away (more than 3000 ft).

6.5. 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 terminate the genlock input. When it is in the FORCED BYPASS position the bypass relay is activated and the video path through the module is bypassed.

7. *VISTA*LINK® REMOTE MONITORING/CONTROL

7.1. WHAT IS *VISTA*LINK®?

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 *Vista*LINK® Pro Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz *Vista*LINK® enabled products.

2. Managed devices (such as 520DD-AESU), 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, 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 *Vista*LINK® network, see the 500FC Frame Controller chapter. At the time of writing the *Vista*LINK® features of the 520DD-AESU are not implemented.

8. MENU QUICK REFERENCE

8.1. INDIVIDUAL CHANNEL MODE

PEAK
- PAIR
- 1234
- 5678
- dB1
- dB2
- dB3
- dB4
- dB5
- dB6
- dB7
- dB8

STAT
- AESB
- GENL
- DDPC
- DDBF
- VIFM
- IGRP
- DXAS
- DXAR
- DXAC
- DXBS
- DXBR
- DXBC
- EXMT
- VAPK
- VAMT

AMUX
- AESO
- DD1A
- DD1B
- P-1A
- P-1B
- P-2A
- P-2B
- P-3A
- P-3B
- P-4A
- P-4B
- VOCA
- VOCB
- S-1A
- S-1B
- S-2A
- S-2B
- S-3A
- S-3B
- S-4A
- S-4B

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

VOIC
- VOC1A
- VOC1B
- VOC2A
- VOC2B
- VOC3A
- VOC3B
- VOC4A
- VOC4B

HEAD
- HVOL
- HPML
- HPMR

META
- MELT
- LTCA
- METO
- METV
- VADL
- VADI
- VADS
- VAKL
- VAEL
- VAEI
- VAES
- VAEN

EAUD
- DXAG
- DXAK
- DXBG
- DXBK
- EMAG
- EMAE
- EMBG
- EMBE
- GLOK

UTIL
- DDMD
- DDTM
- DDLS
- 2CHA
- SRC
- DISP
- VERS
- FRST
- UPGR
- DPCL
- DPGP
- DDCM

VIDE
- VOFM
- VDFR
- VDLN
- VDSM
- COLR
- VOUT

Grayed Items
only available on
520DD-AESU version

8.2. STEREO PAIR MODE

PEAK
- PAIR
- 1234
- 5678
- dB1
- dB2
- dB3
- dB4
- dB5
- dB6
- dB7
- dB8

STAT
- AESB
- GENL
- DDPC
- DDBF
- VIFM
- IGRP
- DXAS
- DXAR
- DXAC
- DXBS
- DXBR
- DXBC
- EXMT
- VAPK
- VAMT

AMUX
- AESO
- DD1
- P-1
- P-2
- P-3
- P-4
- VOC
- S-1
- S-2
- S-3
- S-4

ADEL
- DL1
- DL2
- DL3
- DL4

VOIC
- VOC1
- VOC2
- VOC3
- VOC4

HEAD
- HVOL
- HPM

META
- MELT
- LTCA
- METO
- METV
- VADL
- VADI
- VADS
- VAKL
- VAEL
- VAEI
- VAES
- VAEN

EAUD
- DXAG
- DXAK
- DXBG
- DXBK
- EMAG
- EMAE
- EMBG
- EMBE
- GLOK

UTIL
- DDMD
- DDTM
- DDLS
- 2CHA
- SRC
- DISP
- VERS
- FRST
- UPGR
- DPCL
- DPGP
- DDCM

VIDE
- VOFM
- VDFR
- VDLN
- VDSM
- COLR
- VOUT

Grayed Items only available on 520DD-AESU version

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