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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Revision	May 06
1.1	Updated menu items	Aug 06

1. OVERVIEW

The 7772MFD-HD, HDTV Decompression Codec converts the 270Mb/s data signal from the companion 7772MFC-HD into a SMPTE 292M (1.485Gb/s) component serial digital stream with embedded or separate AES audio. Automatic detection and support of 1080i and 720p video formats is provided.

The 7772MFD-HD occupies two card slots and is housed in either the standard Evertz 3RU frame that holds up to 15 modules, Evertz 1RU frame that holds up to three modules, or Evertz Stand Alone frame that holds one module.

Features:

- Automatic detection of 1080/720 active lines
- Accepts up to four groups of embedded or external AES audio
- No compression applied to AES audio streams
- Built in Frame buffering and Genlock
- Fully hot swappable from front of frame

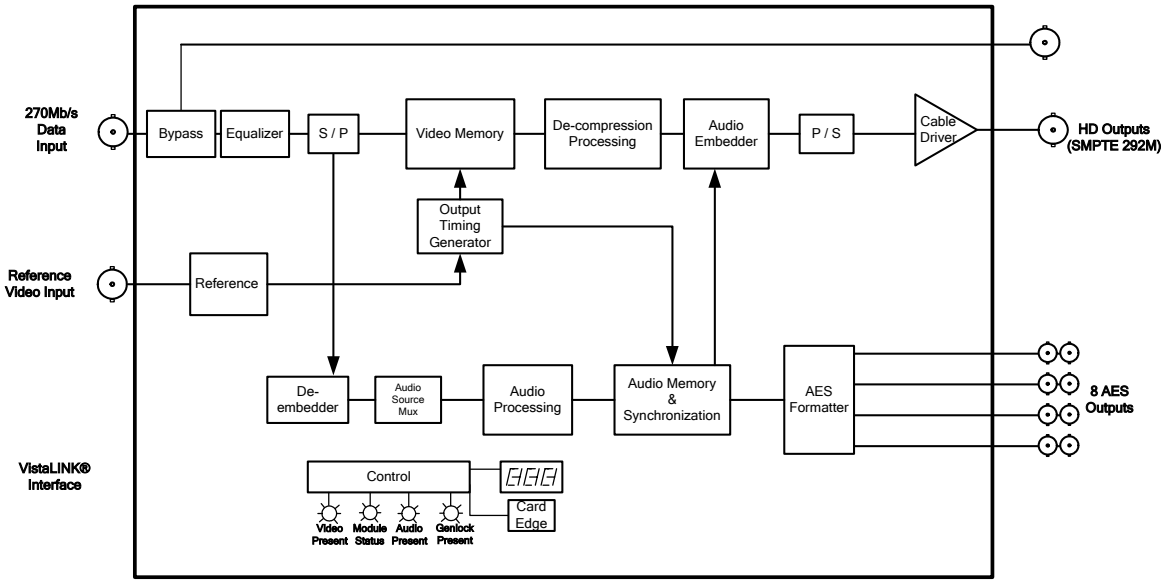

Figure 1: 7772MFD-HD Block Diagram

2. INSTALLATION

The 7772MFD-HD comes with a companion rear plate, occupying two slots in the 7700FR frame. For information on mounting the rear plate and inserting the module into the frame see the 7700FR chapter section 3.

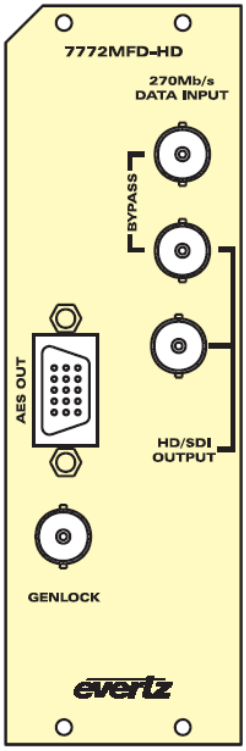

Figure 2: 7772MFD-HD Rear Panel

2.1. VIDEO CONNECTIONS

Connect the 270Mb/s data signal from the companion 7772MFC-HD, to the BNC labeled **270Mb/s DATA INPUT**. See Table 3 for a list of the video formats supported. Uncompressed HD video output, compatible with the SMPTE 292M standard, is available on the **HD/SDI OUTPUT** BNCs.

2.2. AUDIO CONNECTIONS

The 7772MFD-HD has the ability to de-embed up to four AES groups of audio (16 channels) from four groups on the compressed video input. The audio can be either re-embedded on the HD video output or output as AES audio via the DB-15 connector labeled **AES OUT**.

Name	Description	DB-15 Pin
	Reserved for Future Use	1
	Reserved for Future Use	2
	Reserved for Future Use	3
	Reserved for Future Use	4
	Reserved for Future Use	5
	Reserved for Future Use	6
AES Out 2	AES Output 2 - Unbalanced	7
	Reserved for Future Use	8
AES Out 6	AES Output 6 – Unbalanced	9
AES Out 5	AES Output 5 – Unbalanced	10
AES Out 1	AES Output 1 - Unbalanced	11
AES Out 8	AES Output 8 – Unbalanced	12
AES Out 7	AES Output 7 – Unbalanced	13
AES Out 4	AES Output 4- Unbalanced	14
AES Out 3	AES Output 3- Unbalanced	15
GND	Ground	Shell

Table 1: AES OUTPUT Audio Connector Pin Out

The 7772MFD-HD module is shipped with a breakout cables for the DB-15 connector (Evertz Part # WPAES8-BNCM-6F), which can be used to facilitate wiring the AES audio connections. The pin out of the cables is shown in Table 2.

DB-15 PIN	Wire	Ground/Shield Connection	Label Name	Connector Type	AES OUT FUNCTION
1	No Function				
2					
3					
4					
5					
6					
7	Coax	DB15 Shell	AES A2	BNC MALE	AES Out 2
8					
9	Coax	DB15 Shell	AES B2	BNC MALE	AES Out 6
10	Coax	DB15 Shell	AES B1	BNC MALE	AES Out 5
11	Coax	DB15 Shell	AES A1	BNC MALE	AES Out 1
12	Coax	DB15 Shell	AES B4	BNC MALE	AES Out 8
13	Coax	DB15 Shell	AES B3	BNC MALE	AES Out 7
14	Coax	DB15 Shell	AES A4	BNC MALE	AES Out 4
15	Coax	DB15 Shell	AES A3	BNC MALE	AES Out 3
Shell	Black		GND	WIRE	GND

Table 2: AES Audio Breakout Cable (Evertz Part # WPAES8-BNCM-6F)

The AES Audio Breakout Cable (Evertz Part # WPAES8-BNCM-6F) may have GPIO terminations labeled. Please note that GPIOs are not active on the 7772MFC-HD or 7772MFD-HD, and are reserved for future use.

2.3. GENLOCK REFERENCE

For proper synchronization of the input/output video, the module must be locked to a Genlock signal of the output video format.

It is highly recommended that a Genlock source is provided to the 7772MFC-HD and 7772MFD-HD during operation

GENLOCK This BNC is for connecting a bi-level or tri-level sync reference and is auto-detected by the module. Jumper J5 selects whether the reference input is terminated to 75 ohms or high impedance (default).

- The 7772MFC-HD should be locked to bi-level Genlock source for 720p, and bi-level or tri-level Genlock source for 1080i.
- The 7772MFD-HD can be locked to bi-level or tri-level sync for both 1080i or 720p.

3. SPECIFICATIONS

3.1. 270Mb/s DATA INPUT

Standard: SMPTE 259M-C – 270Mb/s
Video compressed in accordance with SMPTE 305M
Connector: BNC per IEC 169-8
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Return Loss: > 15 dB at 270 Mb/s

3.2. HD SERIAL VIDEO OUTPUT

Standard: 1.485 Gb/sec SMPTE 292M – standards supported are shown in Table 3.
Number of Outputs: 2
Connectors: BNC per IEC 169-8
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.2UI

HD Output					270Mb/s Input	Genlock Type
Common Name	Pixels / Active Lines	Frame Rate	Progressive /Interlace	SMPTE Standard		
1080i/59.94	1920 x 1080	29.97	I	274M	525/29.97	NTSC
720p/59.94	1280 x 720	29.97	P	296M	525/29.97	NTSC
1080i/50	1920 x 1080	25	I	274M	625/25	NTSC
720p/50	1280 x 720	25	P	296M	625/25	NTSC

Table 3: Video Output Formats

THE AUTOMATIC VIDEO FORMAT DETECTION ON THE 7772 MODULES WILL BY-PASS DVB-ASI AND SD-SDI SIGNALS WITHOUT COMPRESSION

3.3. AES AUDIO OUTPUTS

Standard: SMPTE 276M, single ended synchronous AES
Number of Outputs: 8 unbalanced
Connectors: Female High Density DB-15, breakout cable to BNC connectors supplied
Sampling Rate: 48 kHz
Impedance: 75 Ω
Resolution: Up to 24-bit

3.4. HEADPHONE AUDIO OUTPUTS

Number of Outputs: 1
Type: Stereo 3.5mm jack
Output Load: 32 Ω +
Signal Level: 100 mW max, soft adjustable over 40 dB range
THD+N: 1 %
SNR: 90 dB RMS, “A” weighted

3.5. INPUT TO HD-SDI DELAY

Delay: ≤ 3.5 frames interlaced
≤ 4.0 frames progressive

3.6. ELECTRICAL

Voltage: +12VDC
Power: 15 Watts.
EMI/RFI: Complies with FCC regulations for class A devices.
Complies with EU EMC directive.

3.7. PHYSICAL

7700 frame mounting: 2 slots
7701 frame mounting: 1 slots

4. STATUS INDICATORS AND DISPLAYS

The 7772MFD-HD modules have 17 LED Status indicators on the front card edge to show operational status of the card at a glance. Figure 3 shows the location of the LEDs and card edge controls.

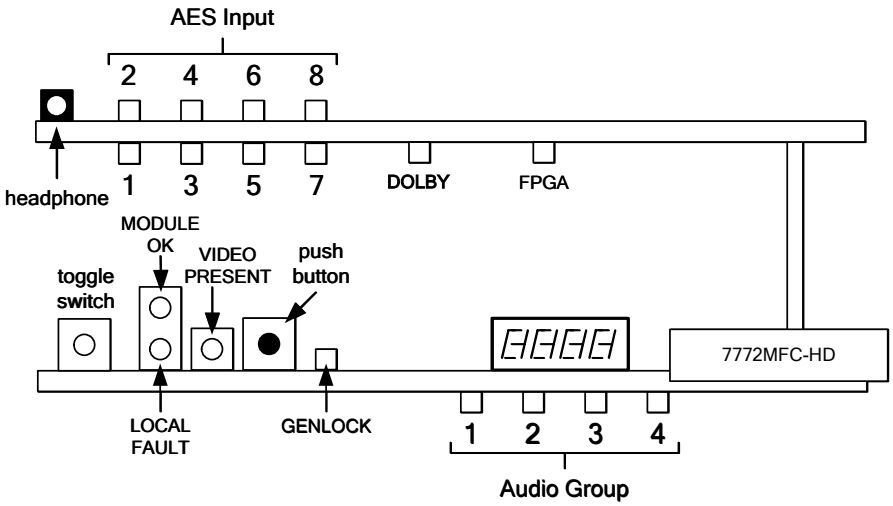

Figure 3: Status LED Locations

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 during the absence of a valid input signal, an invalid genlock, 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 a valid input signal and valid genlock is present, and the board power is good.

VIDEO PRESENT This green LED will be ON when there is a valid video signal present at the module input.

The other LEDs are:

GENLOCK This green LED will be ON when there is a signal present at the module genlock input.

DOLBY STATUS This LED will be GREEN and ON when the Dolby Decoder is processing or active. The LED will be RED and ON if there is an error with the Dolby Decoder. The LED is off when the Dolby Decoder is not active

FGPA CONFIG This LED will be RED and ON when the FPGA is loading on power up. The LED is OFF during normal module operation.

4.1. EMBEDDED AUDIO STATUS LEDS

Four LEDs located on the lower end of the main board of the module (near the card extractor) indicate which embedded audio groups are present in the input video. Audio Group LED 1 is located closest to the center of the module.

Audio Group LED	Colour	Audio Group Status
1	Off	No group 1 present on input video
	Green	Group 1 present on input video
2	Off	No group 2 present on input video
	Green	Group 2 present on input video
3	Off	No group 3 present on input video
	Green	Group 3 present on input video
4	Off	No group 4 present on input video
	Green	Group 4 present on input video

Table 4: Audio Group Status LEDs

Eight LEDs located on the sub card of the module indicate which AES input channels are present. AES input channel 1 is located top leftmost LED, and AES input channel 2 to the right.

AES Input Channel LED	Colour	AES Input Channel Status
1	Off	AES input channel 1 is not present
	Green	AES input channel 1 is present
	Yellow	AES input channel 1 is present with encoded Dolby
2	Off	AES input channel 2 is not present
	Green	AES input channel 2 is present
	Yellow	AES input channel 2 is present with encoded Dolby
3	Off	AES input channel 3 is not present
	Green	AES input channel 3 is present
	Yellow	AES input channel 3 is present with encoded Dolby
4	Off	AES input channel 4 is not present
	Green	AES input channel 4 is present
	Yellow	AES input channel 4 is present with encoded Dolby
5	Off	AES input channel 5 is not present
	Green	AES input channel 5 is present
	Yellow	AES input channel 5 is present with encoded Dolby
6	Off	AES input channel 6 is not present
	Green	AES input channel 6 is present
	Yellow	AES input channel 6 is present with encoded Dolby
7	Off	AES input channel 7 is not present
	Green	AES input channel 7 is present
	Yellow	AES input channel 7 is present with encoded Dolby
8	Off	AES input channel 8 is not present
	Green	AES input channel 8 is present
	Yellow	AES input channel 8 is present with encoded Dolby

Table 5: AES Input Channel Presence LEDs

5. CARD EDGE CONTROLS

The 7772MFD-HD module can be configured by the card edge controls. Key control components can be found at the card edge:

- Toggle Switch
- Four-Character Dot Matrix Display
- Push Button
- Four Audio LEDs

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

Four-Character Dot Matrix Display: This component will become active when 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 when the card has completed booting. It is primarily used for navigating through the menu system.

Four Audio Group LEDs: These LEDs are primarily used to indicate what groups are embedded in the input video signal during normal operation. However, when navigating the card edge menu, these LEDs are used to indicate menu depth status. For example, when at the top-level menu, all the LEDs are OFF. When the user navigates into another menu (e.g. Video Control), Audio group 1 LED turns ON. Audio group LED 1 is located closest to the centre of the module. If the user enters a sub-menu (e.g. Video Control -> Video Standard Select), then both Audio Group LEDs 1 and 2 turn ON, indicating another depth within the menu system.

NOTE: during card edge menu system navigation, if all the Audio LEDs are OFF, the user is at the Top Level menu.

The 7772MFD-HD modules are also equipped with an eight-position DIP switch. **Currently, the DIP switches are not functional, and are reserved for future use.**

6. CARD EDGE MENU SYSTEM

6.1. TOP LEVEL MENU STRUCTURE

Table 6 provides a brief description of the top level of the menu tree that appears when you enter 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 6.2 to 6.6.

VCTR	Video Control	Sets the video standard in which the module will operate, the timing offset of the video output, the loss of video mode and VANC control
ACTR	Audio Control	Sets audio controls for the module such as: Coarse and fine audio delays; Sample Rate Converter mode; C-bit control; Embedder Group enable; Demux loss of video mode; and Audio output selection
HEAD	Headphone Monitor	Sets the headphone volume level and selects the source for headphone monitoring
STAT	Status	Reports the status of the firmware, FPGA revisions, input/output video standard
MISC	Miscellaneous	Enables VistaLINK®, sets display orientation, and performs factory reset

Table 6: Top Level Menu Structure

6.2. CONFIGURING THE VIDEO CONTROLS

The *Video Control* menus are used to configure parameters associated with the module's output video timing. The chart below shows the items available in the *Video Control* menus. Following sections give detailed information about each of the menu items.

VDLY	Vertical Phase	Sets the vertical delay of the output video
HDLY	Horizontal Phase	Sets horizontal delay of the output video
FDLY	Frame Phase	Sets frame delay of the output video

Table 7: Video Controls Menu

6.2.1. Setting the Vertical Phase

Video Control
VDLY
0 to Max
0

This control selects the vertical delay of the output video signal in respect to the input video. The range of values is based on the operating (output) video standard of the module.
For the following standards, the maximum delay is 1124: 1080i/50 and 1080i/59.
For the following standards, the maximum delay is 749: 720p/50 and 720p/59.
When the frame phase is set to 0, the vertical phase has a minimal value of 25.

6.2.2. Setting the Horizontal Phase

Video Control
HDLY
0 to Max
0

This control selects the horizontal delay of the output video signal in respect to the input video.
The maximum possible delay is dependent on the operating (output) video standard.
For the following standards, the maximum horizontalPhase delay is 2639:
1080i/50
For the following standards, the maximum horizontalPhase delay is 2199:
1080i/59.94
For the following standards, the maximum horizontalPhase delay is 1649:
720p/59.94
For the 720p/50 standard, the max delay is 1979.

6.2.3. Setting the Frame Phase

Video Control
FDLY
0 to Max
0

This control selects the frame delay of the output video signal in respect to the input video.
The default value should be 0.
Depending on the operating video standard, the value mappings are:
interleace video: 0,1,2,...,12
progressive video: 0,2,4...,24
If vertical phase is set to less than 25, the 0 value can not be set here.

6.3. CONFIGURING THE AUDIO CONTROLS

The *Audio Control* menus are used to configure the audio delay; determine the mode of the sample rate converter, configure C-bit control, choose which embedded group to enable, and select the audio output. The chart below shows the items available in the *Audio Control* menus. Following sections give detailed information about each of the menu items.

ADLY	Coarse Audio Delay	Sets audio delay in frame of video increments (coarse)
ASDL	Fine Audio Delay	Sets audio delay in milliseconds (in 2048 µs increments)
SRC	SRC Mode	Sets the audio sample rate converter bypass mode
CBIT	C-Bit Control	Sets the AES channel status bit handling
EMB1	Embedder Group 1 Enable	Enables audio embedder for group 1
EMB2	Embedder Group 2 Enable	Enables audio embedder for group 2
EMB3	Embedder Group 3 Enable	Enables audio embedder for group 3
EMB4	Embedder Group 4 Enable	Enables audio embedder for group 4
AOUT	Audio output selection	Choose the audio output between AES and embedded audio

Table 8: Audio Controls Menu

6.3.1. Setting the Coarse Audio Delay

Audio Control
- *ADLY*
  - *FDLY*
  - *0 to Max*

This control adjusts the audio delay in terms of video frames (coarsely). The delay is respective the input video. The range of the parameter is based on the operating standard of the module, since this parameter follows the video frame phase.

When *FDLY* is selected then the audio delay is the same as the frame delay (see section 6.2.3).

Otherwise, the user can insert a delay of *0 to max* video frames, and the range depends on the operating video standard:

if the video is interleace, the value should be mapped to 'FollowVideoDelay',0,1,2,...,12;

if the video is progressive, the value should be mapped to 'FollowVideoDelay',0,2,4,...,24;

The default value should be 0 (means following video frame delay).

6.3.2. Setting the Fine Audio Delay

Audio Control
ASDLY
-33ms to +33ms
0

This control adjusts the audio delay (finely). This parameter is displayed in milliseconds and adjusted in approximately sample increments (approximately 20.83µs).

If *ADLY* is set to 0, then the parameter range is 0 to 33ms.

Otherwise, fine audio delay ranges from –33ms to +33ms.

6.3.3. Setting the SRC Mode

Audio Control	
SRC	
Bypass	BYPS
Enable	ON
Automatic	AUTO

This sets the bypass mode of the audio sample rate converter.

When *Enabled*, audio is sample rate converted at 48 kHz that is synchronous to the input video. Audio can be either synchronous or asynchronous to the video source.

When in *Bypass* mode, the content of the audio is preserved without any loss, and directly embedded into the input video. Audio must synchronous to the video source. If not, there may be samples that are dropped or repeated.

When set to Automatic, the sample rate converter will be automatically enabled when the module detects a PCM signal.

6.3.4. Setting the C-bit Control

Audio Control	
CBIT	
Preserve	PRO
Replace	STMP

This control determines how the AES channel status bits are handled when being routed from input to output. When set to *preserve*, the module will preserve as many bits as possible, but always change to professional 48 kHz. When set to *replace*, all the C-bit will be replaced with static channel status message that reads professional 48 kHz.

6.3.5. Enabling the Audio Embedders

There are four menu items used to enable embedder groups. The menu item for each embedder group component works in the same way so for simplicity only the menu item for *Embedder Group* 1 will be shown in the manual.

Audio Control	
EMB1	
Enable	*ON*
Disable	*OFF*

This control enables or disables audio embedder for group 1.

When *Enable* is selected, Group 1 will be embedded into the output video signal.

When *Disable* is selected, Group 1 will not be embedded into the output video signal.

6.3.6. Setting where to Output the Audio

Audio Control
AOUT
Embedded
AES
Both
None

This parameter chooses the output audio between AES and embedded audio, Both will output audio to both AES and embedded audio, None will cut off audio from both AES and embedded audio.

6.4. CONFIGURING THE HEADPHONE MONITOR

The *Headphone Monitor* menus are used to configure parameters associated with the headphone jack on the module. The chart below shows the items available in the *Headphone Monitor* menu. Sections 1.1.1 to 1.1.1 give detailed information about each of the menu items.

HVOL	Headphone volume	Sets the volume for the headphone.
HSRC	Headphone source	Selects the source for the headphone monitoring

6.4.1. Setting the Headphone Volume

Headphone Monitor
HVOL
HV00 to HV15
HV07

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.

6.4.2. Selecting the Source for the Headphone Monitoring

Headphone Monitor	
HSRC	
DMX Ch. 1 & 2	*DMX1*
DMX Ch. 3 & 4	*DMX2*
DMX Ch. 5 & 6	*DMX3*
DMX Ch. 7 & 8	*DMX4*
DMX Ch. 9 & 10	*DMX5*
DMX Ch. 11 & 12	*DMX6*
DMX Ch. 13 & 14	*DMX7*
DMX Ch. 15 & 16	*DMX8*

This selects the audio source for the headphone monitoring.

If the parameter can be set to *DMX1* to *DMX8*, and the headphone will be monitoring the incoming embedded audio.

6.5. DISPLAYING THE MODULE STATUS

The *Status* menus are used to show the status of various parameters of the 7772-MFD-HD. The chart below shows the items available in the *Status* menu. Sections 6.5.1 to 6.5.6 give detailed information about each of the menu items.

UPRV	Module Firmware	Displays the firmware revision of the module
F1RV	FPGA1 Revision	Displays the FPGA revision of the module's main board
F2RV	FPGA2 Revision	Displays the FPGA revision of the module's J2K sub board
F3RV	FPGA3 Revision	Displays the FPGA revision of the module's audio sub board
IVSD	Input Video Standard	Displays the detected input video standard
OVSD	Operating Standard	Displays the operating standard of the module

6.5.1. Checking the Module Firmware

Status
UPRV
Eg. "V1.0 BUILD 100"

The status parameter will report the firmware version that is operating on the module.

6.5.2. Checking FPGA 1 revision

Status
F1RV
Eg. "7"

The status parameter will report the revision of FPGA 1 (main board) on the module.

6.5.3. Checking FPGA 2 revision

Status
F2RV
Eg. "8"

The status parameter will report the revision of FPGA 2 (J2K sub board) on the module.

6.5.4. Checking FPGA 3 revision

Status
F3RV
Eg. "9"

The status parameter will report the revision of FPGA 3 (audio sub board) on the module.

6.5.5. Checking the Input Video Standard

Status
IVSD
Eg. "NTSC"

The status parameter will report the input video standard.
525i59(NTSC) ----------"NTSC"
625i50(PAL-B) ----------"PALB"

6.5.6. Checking the Output Video Standard

Status
OVSD
Eg. "1I59"

The status parameter will report the output video standard.
None ---------- "NONE"
625i50(PAL-B) ---------- "PALB"
525i59(NTSC) ----------"NTSC"
DVB ASI ---------- "DVBA"
1080i50 ---------- "1I50"
1080i59 ---------- "1I59"
720p50 ---------- "7P50"
720p59 ---------- "7P59"

6.6. CONFIGURING MISCELLANEOUS PARAMETERS

The *Miscellaneous* menu is used to configure miscellaneous parameters to enable VistaLINK® control, display orientation, and to perform a factory reset. The chart below shows the items available in the *Closed Captioning* menu. Sections 6.6.1 to 6.6.3 give detailed information about each of the parameters.

VLNK	VistaLINK® control enable	Enables the ability to control the module through VistaLINK®
DISO	Display Orientation	Sets the orientation of the card edge dot matrix display
FRST	Factory Resets	Resets various components of the module to their factory settings

6.6.1. Enabling VistaLINK® control of the module

Miscellaneous	
VLNK	
Enable	*RMTE*
Disable	*LCAL*

This configures the VistaLINK® control of the module.

RMTE enables VistaLINK® control of the module. The user is able to use VistaLINK® to monitor and configure the module in addition to the card edge controls.

LCAL disables VistaLINK® control of the module. The user is only able to monitor and configure the module from the card edge controls.

6.6.2. Setting Card Edge Display Orientation

Miscellaneous	
DISO	
Horizontal	*HORZ*
Vertical	*VERT*

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.

6.6.3. Resetting the Module to its Factory Defaults

Miscellaneous	
FRST	
Reset All	*ALL*
Video Control Reset	*VCR*
Audio Control Reset	*ACR*

With this control you can reset the entire module or certain functional blocks to its factory default condition.

ALL will reset the entire module to the factory settings.

VCR will reset the Video Control only to factory settings. All the other module settings will remain the same.

ACR will reset the Audio Control only to factory settings. All the other module settings will remain the same.

6.6.3.1. Resetting the Module to Factory Settings

The resetting of module and its components to factory settings behave the same way. For the sake of brevity, only the reset menu for the *Reset All* will be described.

Miscellaneous	
FRST	
ALL	
Yes	*YES*
No	*NO*

With this control you can reset the entire module to the factory settings.

YES will reset the module to the factory settings.

NO will not reset the module to factory settings.

7. JUMPERS

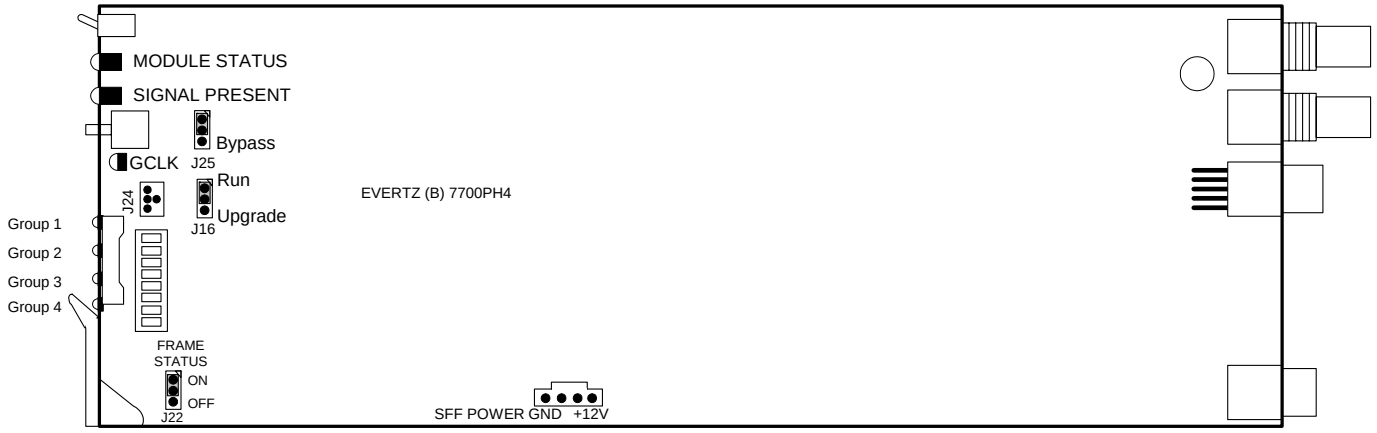

Figure 4: Location of Jumpers – Rev B Main Board

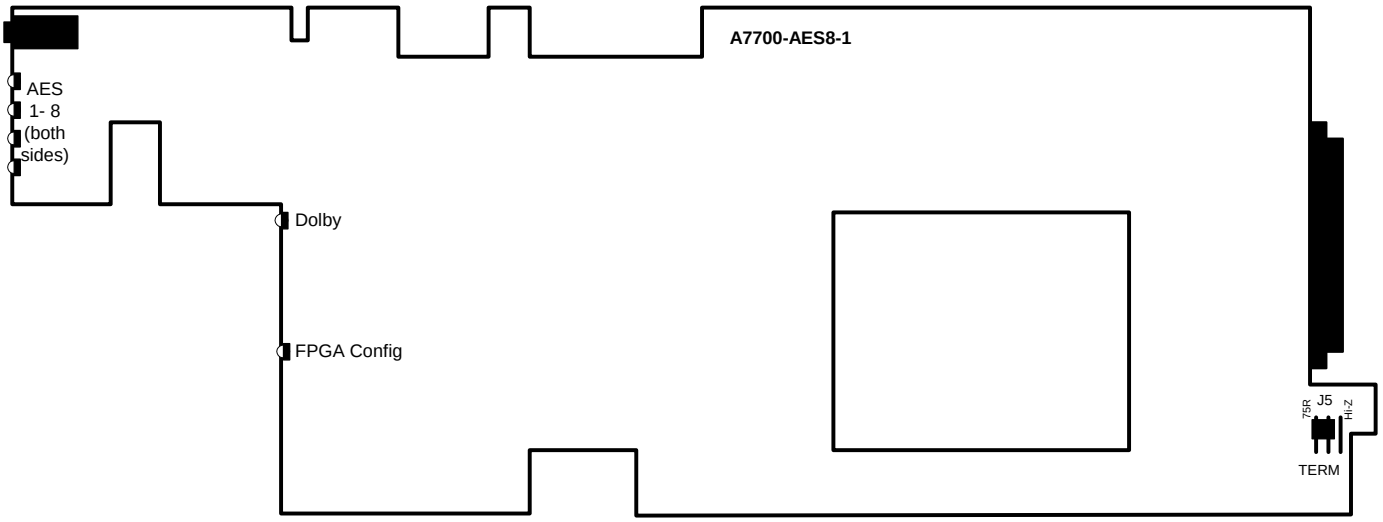

Figure 5: Location of Jumpers/LEDs – Rev. 1 Sub Board

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

FRAME STATUS

The FRAME STATUS jumper J22 located at the front of the main module determines whether local faults (as shown by the Local Fault indicator) will be connected to the 7700FR frame's global status bus.

To monitor faults on this module with the frame status indicators (on the PS FRAME STATUS LEDs 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

UPGRADE

The UPGRADE switch is located at J16 jumper location on the front side of the main 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 J16 into the *UPGRADE* position. (Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto header J24 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 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 7772MFD-HD module is 57600 baud.

7.3. SELECTING WHETHER THE GENLOCK REFERENCE INPUT IS TERMINATED

TERM

The TERM jumper J5 located at the rear of the sub board is used to terminate the genlock loop input. Then it is in the 75R position a 75 ohm terminating resistor will connect the input to ground. When it is in the HI-Z position the genlock input will be high impedance.

7.4. SELECTING WHETHER THE INPUT VIDEO IS BYPASS

BYPASS

The BYPASS jumper J25 located at the front of the module enables the bypass relay to always remain in the closed position.

8. *VISTA*LINK® REMOTE MONITORING/CONTROL

8.1. 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 VL-Fiber demo Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz *Vista*LINK® enabled fiber optic products.

2. Managed devices (such as 7772MFC-HD and 7772MFD-HD cards), each with a unique address (OID), communicate with the NMS through an SNMP Agent. Evertz VistaLINK® enabled 7700 series modules reside in the 3RU 7700FR-C MultiFrame and communicate with the manager via the 7700FC 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 *Vista*LINK® network, see the 7700FC Frame Controller chapter.

8.2. *VISTA*LINK® MONITORED PARAMETERS

The following parameters can be remotely monitored through the *Vista*LINK® interface.

Parameter	Description
Visterlink Local Remote Mode	Indicates the whether the 7772MFD-HD is under local control or *Vista*LINK® control
FPGA 1 Revision	This is the revision code of the main board FPGA
FPGA 2 Revision	This is the revision code of the J2K sub-board FPGA
FPGA 3 Revision	This is the revision code of the audio sub-board FPGA
Firmware Revision	This displays the firmware version string.
Card Type	This identifies the cardType parameter and it currently returns either '7772MFD-HD' or '7772MFX-HD-DECODER' (if 7772MFX is supported)
Input Video Standard	Indicates video standard of input signal
Operating Video Standard	Output operating video standard detection

Table 9: *Vista*LINK® Monitored Parameters

8.3. *VISTA*LINK® CONTROLLED PARAMETERS

Parameter	Description
Vertical Phase	Output video vertical phase control
Horizontal Phase	Output video horizontal phase control
Frame Phase	Output video frame phase control
Course Audio Delay	Frame based audio delay control
Fine Audio Delay	Audio sample based audio delay control
SRC Mode	The mode of sample rate converter
Cbit Control	This determines whether the c-bit is preserved or replaced
Embedder Group 1 Enable	Enable/disable audio embedder group 1
Embedder Group 2 Enable	Enable/disable audio embedder group 2
Embedder Group 3 Enable	Enable/disable audio embedder group 3
Embedder Group 4 Enable	Enable/disable audio embedder group 4
Audio Output	This selects audio output between none, AES, embedded or both
Headphone Volume	Headphone volume adjustment
Headphone Source	Source selection for headphone monitoring
Factory Reset All	Reset all configuration to factory default
Factory Reset VCR	Reset only video control configuration to factory default
Factory Reset ACR	Reset only audio control configuration to factory default

Table 10: *Vista*LINK™ Controlled Parameters

8.4. *VISTA*LINK® TRAPS

The 7772MFD-HD will raise a VistaLINK® trap for conditions listed below:

- ✓ Input Video Not Present
- ✓ Genlock Not Present

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