Figures

Tables

REVISION HISTORY

REVISION	DESCRIPTION	DATE
0.1	Preliminary Version	Dec 03
0.2	Added Section 5.1.3 for preset controls Added Section 5.1.4 for C-bit Modes	Mar 04
1.0	Release of manual, Add GPI Preset Mode	Sep 04
1.1	Updated reference to Dolby E /AC3 delay capabilities	Oct 06

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1. OVERVIEW

The 7720AM-AES4 Audio Mixer accepts 4 AES/EBU digital audio inputs (eight channels) and synchronously mixes all four channels and routes them to any of four AES output channels. The 7720AM-AES4 performs channel swapping, over mixes, stereo or mix downs and on-air breakaways. All processing is at 24-bit resolution.

A non-PCM data mode is provided in order to pass Dolby-E or AC3 data. In this mode, channel swapping and delay is supported (mixing is not) with the requirement that the inputs are 48kHz synchronous and locked (a reference is required to be used in this mode)

Features:

- 24-bit audio processing for high fidelity
- Flexible sample rate of 28 kHz to 108kHz (will be resampled to 48kHz locked to reference on output)
- Audio Sample Rate Converters can be disabled
- GPI control
- Dolby-E/AC3 pass through/delay mode when supplied with 48 KHz synchronous data and a reference input signal
- Additional delay in 15 steps can be added for each AES input.
- Front panel LEDs indicate: module fault, audio, genlock and DARS present
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO or 9000NCP Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

Additional Features when controlled through VistaLINK™

- Ideal for dubbing and editing between playback and record DVTRs
- Provides 2:1 audio mixing capability, ideal for “ducking” audio or voiceovers
- Can be used at the inputs of an audio console to expand inputs and add mixing capacity
- Performs voice overs, stereo or mix downs and on-air breakaways
- Reassignment of audio channels
- +12 to -12dB gain control on each mixer input in 0.25 dB steps
- Continuous and independent channel delay adjustment up to 2.5 seconds.

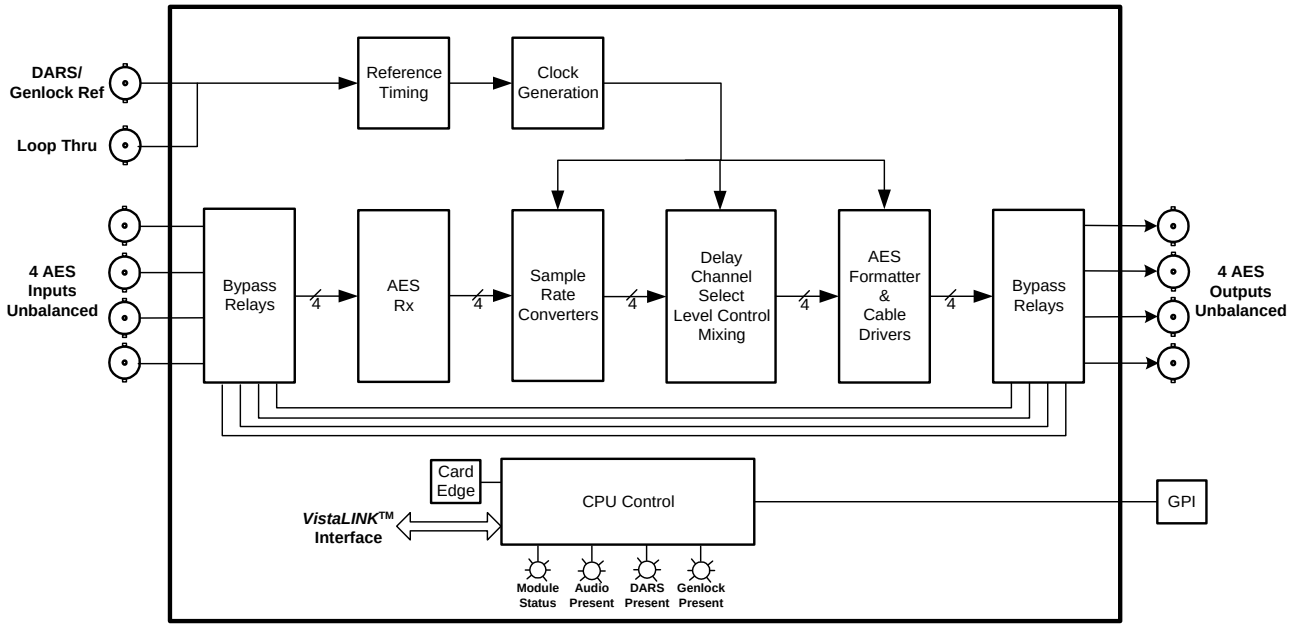


Figure 1: 7720AM-AES4 Block Diagram

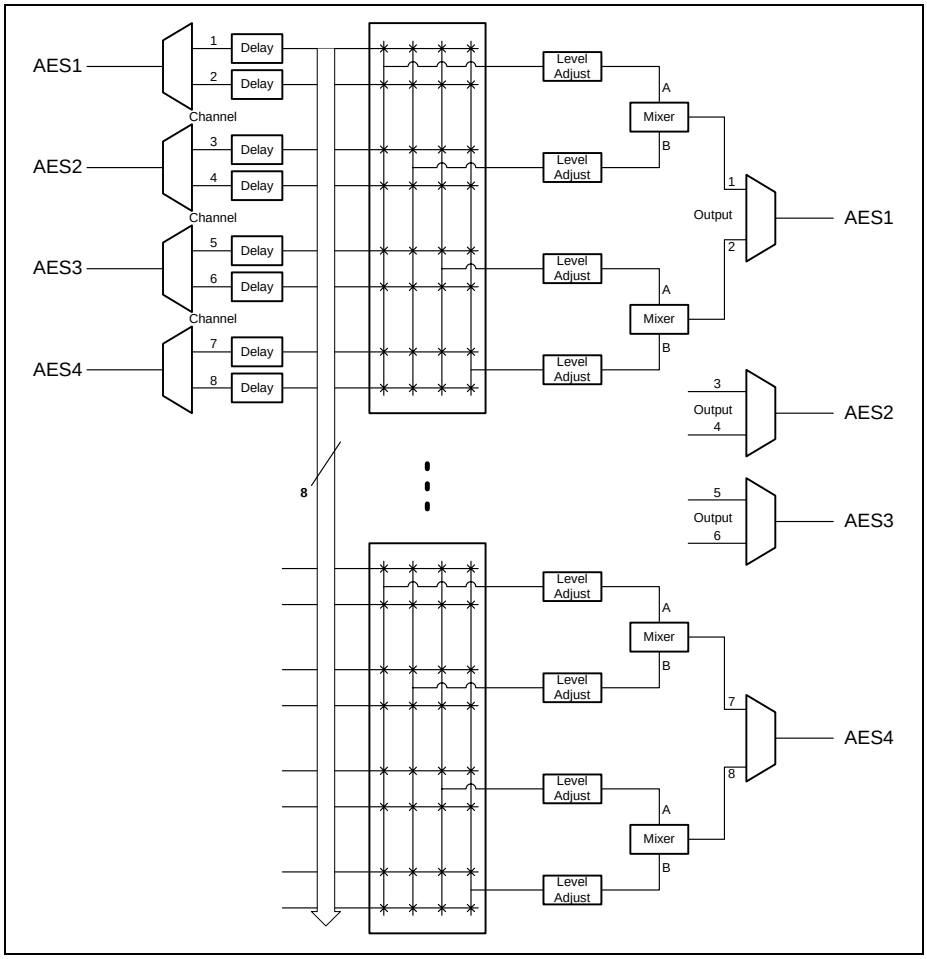


Figure 2: 7720AM-AES4 Audio Processing

2. INSTALLATION

The 7720AM-AES4 version comes with a companion rear plate that has 10 BNC connectors and a 12 pin terminal block, and occupies two slots in the 3RU 7700FR frame. For information on mounting the rear plate and inserting the module into the frame see section 3 of the 7700FR chapter.

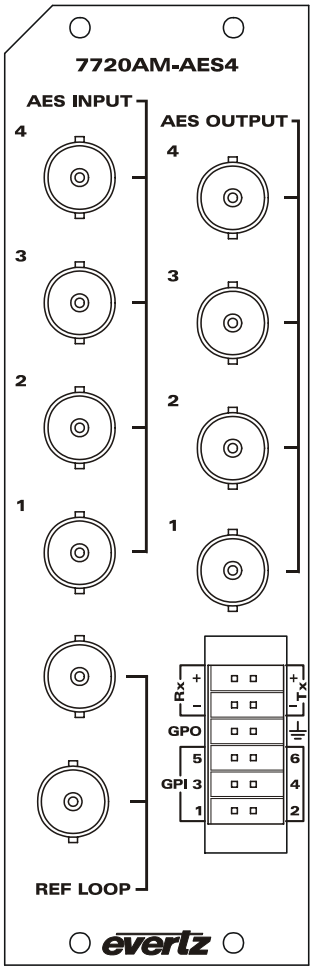


Figure 3: 7720AM-AES4 Rear Panels

2.1. AES AUDIO CONNECTIONS

Four unbalanced AES inputs and outputs are provided on BNC connectors. These inputs and outputs are for unbalanced AES signals conforming to SMPTE 276M. The AES outputs are protected by bypass relays, which will activate in the event of power loss to the module. See Table 3-2 for information about minimum and maximum audio delays possible.

2.2. REFERENCE

For proper synchronization of the output audio, the audio mixer must be locked to a reference signal.

REF LOOP This BNC loop is for connecting an analog Genlock or DARS reference. The genlock signal may be NTSC or PAL, and is auto-detected by the module. DIP switches 6 and 7 are used to select whether the module will lock to a genlock or DARS reference. (See section 5.3) Jumper J3 on the 7700-AES4-2 submodule selects whether the reference input loop is terminated to 75 ohms or high impedance (default). (See section 6.3)

2.3. AUXILLARY I/O

The 7720AM-AES4 has a 12 pin terminal block containing six general purpose inputs, one general purpose output and an RS-422 serial communications port. The cables can be secured into the removable portion of the terminal strips using a small screwdriver. The removable part of the terminal strip is then inserted into the rear panel.

2.3.1. General Purpose Inputs And Outputs

GPI's The six bottom pins on the 2x6 pin terminal strip are used for six General Purpose inputs (GPI). The GPI's are active low with internal pull up resistors (2k Ohms) to +5V. To make an input active, lower the signal to near ground potential (i.e. connect to the ground pin provided). This can be done with a switch, relay, TTL drive, GPO output or other similar method. Figure 4 shows the input circuit for the General purpose inputs. The GPI inputs are used to load various preset configurations into the mixer.

GPO's The two pins in the middle of the 2x6 pin terminal strip are used for a General Purpose Output (GPO). The GPO is active low with internal pull up (22k Ohm) resistor to +5V. When the output goes low it is able to sink up to 10mA. When high, the signal will go high (+5V). **Do not draw more than 100μA from the output.** Figure 5 shows the circuit for the general purpose output.

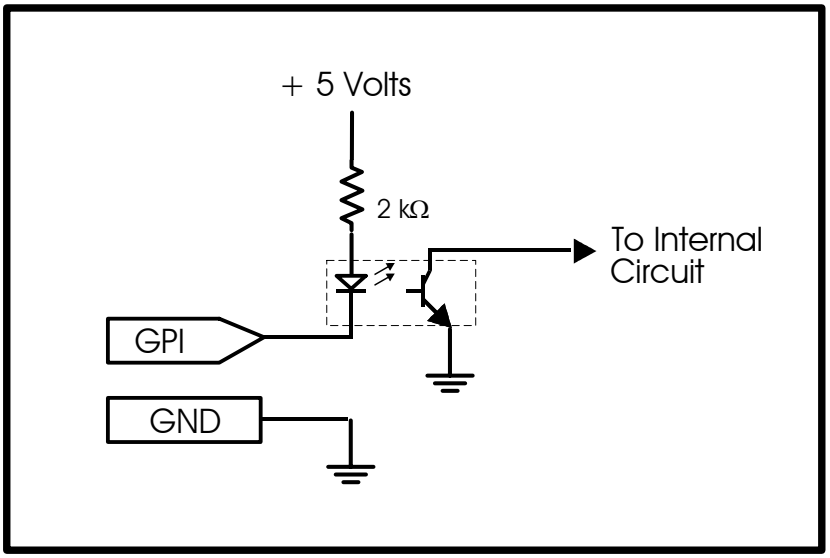


Figure 4: GPI Input Circuitry

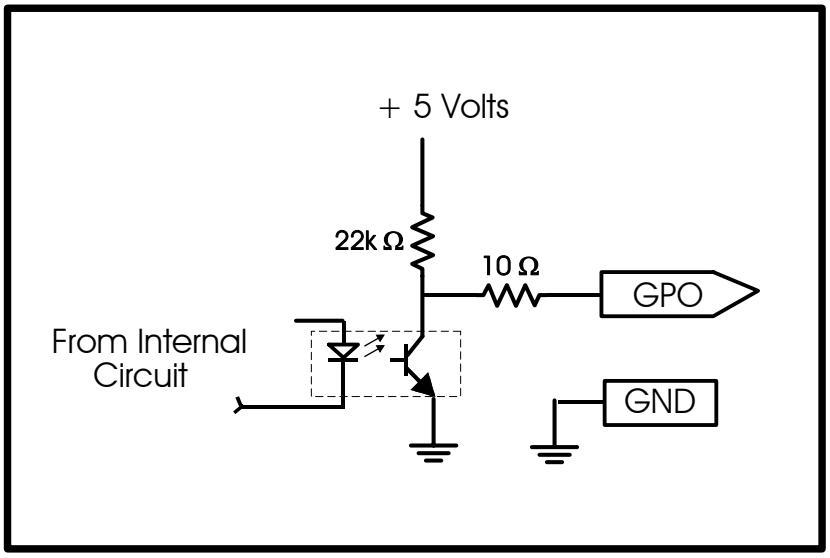


Figure 5: GPO Output Circuitry

2.3.2. Connecting the RS232/422 Serial Data Port

TX, RX The top 4 Pins on the 2x6 pin terminal strip are used for a bi-directional serial data port conforming to RS422 signal levels. The serial data port is not used at this time.

3. SPECIFICATIONS

3.1. AES AUDIO INPUTS AND OUTPUTS

Number of Inputs:	4
Number of Outputs:	4
Standard:	SMPTE 276M, single ended synchronous or asynchronous AES
Connectors:	BNC per IEC 60169-8 Amendment 2
Resolution:	24 bits
Sampling Rate:	48 kHz
Impedance:	75 Ohms unbalanced
Signal Level:	1 V p-p nominal

3.2. GENLOCK INPUT

Type:	HD Trilevel Sync, NTSC or PAL Colour Black 1 V p-p, or Composite bi-level sync (525i/59.94 or 625i/50) 300 mV (See Table 3-1)
Connector:	BNC loop per IEC 60169-8 Amendment 2
Termination:	75 ohm (jumper selectable)

Genlock Reference	Frame Rate
NTSC	29.97
PAL	25
1080i/60	60
1080i/59.94	59.94
1080i/50	50
1080p/25	25
1080p/24sF	24
1080p/24	24
1080p/23.98sF	23.98
1080p/23.98	23.98
720p/60	60
720p/59.94	59.94

Table 3-1: Valid Genlock References

3.3. DARS REFERENCE

Type: Digital Audio Signal with 48KHz sample rate.
Standard: SMPTE 276M-1995 single ended AES, AES-11
Connectors: BNC loop per IEC 60169-8 Amendment 2
Termination: 75 ohm (jumper selectable)

3.4. INPUT TO OUTPUT PROCESSING

Gain: +/- 12 dB in 0.25 dB steps
Delay: Min 7 samples with sample rate converters disabled
Min 92 samples with sample rate converters enabled
Adjustable to 2.54 seconds as shown in Table 3-2.

	Audio Delay		
Reference Type	**Min**	**Card Edge Control Independent control for each AES pair(15 steps)**	**VistaLINK™ Control Independent control for each channel (continuously variable)**
None (freerun)	7 samples	7200 samples (0.15 seconds)	121920 samples (2.54 seconds)
Valid Genlock (See Table 3-1)	7 samples	3.75 Frames	121920 samples (2.54 seconds)
DARS	7 samples	7200 samples (0.15 seconds)	121920 samples (2.54 seconds)

Table 3-2: Audio Processing Delay

3.5. GENERAL PURPOSE IN/OUT

GP Inputs: Load user preset configurations
GP Output: GPO1: TBD
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: 5 pins on 12 pin removable terminal block
Signal Level: +5V nominal

3.6. DATA LOGGING SERIAL PORT

Standard: RS 422
Connector: 8 pins on 12 pin removable terminal block
Function: not used at this time

3.7. ELECTRICAL

Voltage: + 12VDC
Power: 8 Watts.
EMI/RFI: Complies with FCC regulations for class A devices.
Complies with EU EMC directive.

3.8. PHYSICAL

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

4. STATUS LEDS

4.1. MODULE STATUS LEDS

There are 5 LED status indicators at the front card edge as shown in Figure 8.

MODULE OK This Green LED will be ON when the module is operating properly

LOCAL FAULT This Red LED makes it easy to identify one module in a frame that is missing an essential input or has another fault.

The LED will blink on and off if the microprocessor is not running.

AUDIO PRESENT This Green LED will be On when there is a valid AES audio signal present at one of the AES inputs.

GENLOCK This Green LED will be On when there is a video reference signal present at the module genlock input.

DARS PRESENT This green LED will be On when there is a DARS reference signal present at the module DARS input.

There are four small LEDs located on the lower half (opposite the DIP switch). These LEDs (called Function LEDs) are used in conjunction with the toggle switch and DIP switch to program various operational modes of the module. LED 1 is located near the center of the printed circuit board. For more information see section 5.1.

5. CARD EDGE CONTROLS

The 7720AM-AES4 is equipped with an 8 position DIP switch, a toggle switch and four function LEDs to allow the user to select various functions as shown in Figure 6. Table 5-1 gives an overview of the DIP switch functions. Sections 5.1 to 5.4 give a detailed description of each of the DIP switch functions. The On position is down, or closest to the printed circuit board.

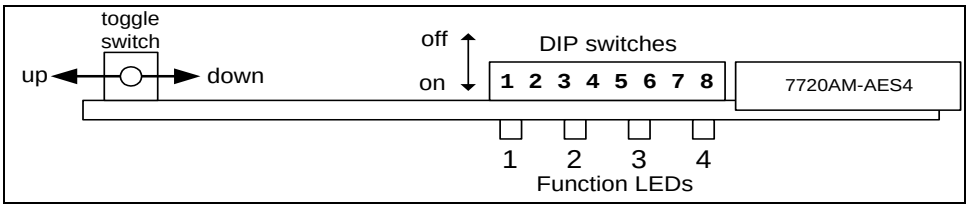


Figure 6: 7720AM-AES4 Card Edge Controls

DIP Switch	Function
1	Select toggle switch function for programming operation modes.
2	
3	
4	
5	Sample Rate Converter Bypass
6	Genlock Control
7	DARS Reference Control
8	VistaLINK™ Control Enable

Table 5-1: DIP Switch Functions

5.1. SETTING OPERATIONAL MODES USING THE TOGGLE SWITCH FUNCTIONS

The toggle switch on the card edge is used to set various operational modes of the module. DIP switches 1 to 4 are used to select the Toggle switch function. Table 5-2 shows the various modes and the DIP switch settings used to select them. When you have selected the mode you want to change using the DIP switches, operating the toggle switch selects different values for that mode.

MODE	DIP 1	DIP 2	DIP 3	DIP 4	FUNCTION
0	Off	Off	Off	Off	Help / Module Status
1	On	Off	Off	Off	AES1 delay adjust
2	Off	On	Off	Off	AES2 delay adjust
3	On	On	Off	Off	AES3 delay adjust
4	Off	Off	On	Off	AES4 delay adjust
5	On	Off	On	Off	AES C-Bit mode select
6	Off	On	On	Off	reserved
7	On	On	On	Off	
8	Off	Off	Off	On	
9	On	Off	Off	On	
10	Off	On	Off	On	Select Preset 1
11	On	On	Off	On	Select Preset 2
12	Off	Off	On	On	Select Preset 3
13	On	Off	On	On	Select Preset 4
14	Off	On	On	On	Select Preset 5
15	On	On	On	On	Select Preset 6

Table 5-2: Toggle Switch Function Selection

5.1.1. Displaying the Module Status

When DIP switches 1 to 4 are set in mode 0 (all Off), the toggle switch is used to send a small help menu and module status report to the serial port accessible from the Card Edge Upgrade header J24 using the standard 7700 upgrade cable. You can use any standard terminal program such as HyperTerminal to monitor the output on the serial port. See the *Upgrading Firmware* section of this manual for information on connecting your computer to the module using the upgrade cable. The required port settings are 57600 baud, No parity, 8 data bits, 2 stop bits, and no flow control.

Pressing the toggle switch once displays the following help display:

```
====================================
DIP switch settings UP=off=0 DOWN=on=1
------------------------------------
1-2-3-4
0 0 0 0 = Help/Status
1 0 0 0 = AES1 Delay - Toggle up = Increase delay, down = decrease delay
0 1 0 0 = AES2 Delay
1 1 0 0 = AES3 Delay
0 0 1 0 = AES4 Delay
1 0 1 0 = Cbit Mode Select
0 1 1 0 = reserved
1 1 1 0 = reserved
0 0 0 1 = reserved
1 0 0 1 = reserved
0 1 0 1 = Select Preset 1 - Toggle up = store to preset, down = load from preset
1 1 0 1 = Select Preset 2
0 0 1 1 = Select Preset 3
1 0 1 1 = Select Preset 4
0 1 1 1 = Select Preset 5
1 1 1 1 = Select Preset 6
```

Pressing the toggle switch again displays the card status, and current card settings. The card status reports the hardware build and software version and build numbers.

Current Status:

```
    H/W : build 1
    S/W : v1.20 build 1
fade_rate = 4800
Output 1 (Delay = 1492 samples)
  Mixer Input A
    Channel = 1 (AES 1A)
    Audio Level = 0 dB
  Mixer Input B
    Channel = none
    Audio Level = 0 dB
Output 2 (Delay = 1492 samples)
  Mixer Input A
    Channel = 2 (AES 1B)
    Audio Level = 0 dB
  Mixer Input B
    Channel = none
    Audio Level = 0 dB
Output 3 (Delay = 0 samples)
  Mixer Input A
    Channel = 3 (AES 2A)
    Audio Level = 0 dB
  Mixer Input B
    Channel = none
    Audio Level = 0 dB
Output 4 (Delay = 0 samples)
  Mixer Input A
    Channel = 4 (AES 2B)
    Audio Level = 0 dB
  Mixer Input B
    Channel = none
    Audio Level = 0 dB
Output 5 (Delay = 0 samples)
  Mixer Input A
    Channel = 5 (AES 3A)
    Audio Level = 0 dB
  Mixer Input B
    Channel = none
    Audio Level = 0 dB
Output 6 (Delay = 0 samples)
  Mixer Input A
    Channel = 6 (AES 3B)
    Audio Level = 0 dB
  Mixer Input B
    Channel = none
    Audio Level = 0 dB
Output 7 (Delay = 0 samples)
  Mixer Input A
    Channel = 7 (AES 4A)
    Audio Level = 0 dB
  Mixer Input B
    Channel = none
    Audio Level = 0 dB
Output 8 (Delay = 0 samples)
  Mixer Input A
    Channel = 8 (AES 4B)
    Audio Level = 0 dB
  Mixer Input B
    Channel = none
    Audio Level = 0 dB

    AES1 not present
    AES2 not present
    AES3 not present
    AES4 not present
```

SRC Bypass (SRCs are bypassed)

Cbit Mode is normal restripping (emphasis not indicated, 000)

Lock Preference
DARS only

DARS is not present
Genlock is not present
DARS is not lock
Genlock is not lock

AES 1 not slipping
AES 2 not slipping
AES 3 not slipping
AES 4 not slipping

Pressing the toggle switch a third time displays the following small reminder:

```
Use DIPs to set toggle switch behaviour
```

5.1.2. Adjusting The AES Delay

The 7720AM-AES4 can add up to 2.54 seconds of delay to the audio. Using card edge controls, the audio delay can be set in 15 steps for each AES input. When DIP switches 1 to 4 are set in modes 1 to 4 the toggle switch is used to select how much additional audio delay will be added to the AES1 to AES4 inputs as shown in Table 5-3. Pressing the toggle up or down changes the delay value, which will be indicated on the function LEDs.

FUNCTION LEDS				AUDIO DELAY	
1	2	3	4	NTSC or PAL Reference	DARS Reference
Off	Off	Off	Off	minimum	Minimum
On	Off	Off	Off	0.25 frames	480 Samples
Off	On	Off	Off	0.5 frames	960 Samples
On	On	Off	Off	0.75 frames	1440 Samples
Off	Off	On	Off	1.0 frames	1920 Samples
On	Off	On	Off	1.25 frames	2400 Samples
Off	On	On	Off	1.5 frames	2880 Samples
On	On	On	Off	1.75 frames	3360 Samples
Off	Off	Off	On	2.0 frames	3840 Samples
On	Off	Off	On	2.25 frames	4320 Samples
Off	On	Off	On	2.5 frames	4800 Samples
On	On	Off	On	2.75 frames	5280 Samples
Off	Off	On	On	3.0 frames	5760 Samples
On	Off	On	On	3.25 frames	6240 Samples
Off	On	On	On	3.5 frames	6720 Samples
On	On	On	On	3.75 frames	7200 Samples
On	On	On	On	Set by VistaLINK™ only	Set by VistaLINK™ only

Table 5-3: Audio Delay Settings

When DIP switch 8 is ON, the additional audio delay is set using VistaLINK™ control and is continuously variable for each channel.

5.1.3. Storing And Loading User Presets

This feature is available with firmware version 1.2 and higher.

5.1.3.1. Storing And Loading User Presets Using Card edge Controls

When DIP switches 1 to 4 are set in modes 10 to 15 (as shown in Table 5-2) you can store and recall user presets for the module. When you have selected the desired preset using the DIP switches, the function LEDs will show a binary encoded value of the preset selected as shown in Table 5-4.

FUNCTION LEDS				
1	**2**	**3**	**4**	**Preset Number**
Off	Off	Off	Off	Preset 1
On	Off	Off	Off	Preset 2
Off	On	Off	Off	Preset 3
On	On	Off	Off	Preset 4
Off	Off	On	Off	Preset 5
On	Off	On	Off	Preset 6

Table 5-4: Preset Selection

To store the active configuration to the selected preset, press the toggle switch to the up position. While in the up position function LED 4 will stay on to verify the preset have been saved.

To recall the selected preset as the active configuration, press the toggle switch to the down position. While in the down position function LED 4 will stay on to verify the preset have been recalled.

5.1.3.2. Recalling User Presets Using GPI Inputs

Presets can be recall by closing the appropriate GPI to ground. as described in Table 5-5. The GPIs are priority decoded such that GPI1 has highest priority. The selected preset will overwrite the active configuration. When the GPI is released the selected preset will remain active.

User Preset	GPI
1	1
2	2
3	3
4	4
5	5
6	6

Table 5-5: GPI Preset Selection

5.1.4. Selecting AES Channel Status Bit Mode

This feature is available with firmware version 1.2 and higher.

When DIP switches 1 to 4 are set in mode 5 (as shown in Table 5-2) you can select one of three Channel Status Bit (C-bit) modes. Pressing the toggle up or down changes the C-bit mode, as indicated by the function LEDs.

FUNCTION LEDS				
1	2	3	4	Channel Status bit Mode
On	Off	Off	Off	Pass-thru
Off	On	Off	Off	Re-striping
On	On	Off	Off	Re-striping with No emphasis

Table 5-6: AES output Channel Status bit Mode

5.1.4.1. Channel Status Pass-thru

In this mode, the professional channel status bits of the AES outputs will be the same as the corresponding AES input (eg. AES input 1 ➔ AES output 1, AES input 2 ➔ AES output 2, etc…) this will be true regardless of audio mixing and routing.

Note: Channel status bits will be re-striped when input status bits are defined as consumer.

5.1.4.2. Channel Status Re-striping

In this mode, the channel status bits of the AES outputs will be re-striped with standard information.

5.1.4.3. Channel Status Re-striping with No emphasis indicated

In this mode, the channel status bits of the AES outputs will be re-striped with standard information as in 5.1.4.2, and with additional indication for “no emphasis used.”

5.2. SELECTING SAMPLE RATE CONVERSION FOR AES INPUTS

DIP switch 5 is used to enable or disable the sample rate converters for the AES inputs.

DIP 5	SAMPLE RATE CONVERTER MODE
Off	Audio is sample rate converted at 48 kHz that is synchronous to the selected reference. Audio may be either synchronous or asynchronous to the reference input.
On	The content of the audio is preserved without any loss. This setting is required for non PCM audio sources such as Dolby-E. Audio must either synchronous to the reference input or samples will be lost or repeated.

Table 5-7: Sample Rate Conversion Switch Settings

When DIP switch 8 is On the sample rate converter mode is set using VistaLINK™ control.

5.3. SELECTING THE REFERENCE TYPE

DIP switches 6 and 7 are used to select whether the 7720AM-AES4 will lock its sample clock to the video genlock reference or the DARS reference.

DIP 6	DIP 7	REFERENCE SOURCE
Off	Off	Output sample clock is free running.
On	Off	Output sample clock is frequency locked to the video reference input. DARS reference is ignored.
Off	On	Output sample clock is frequency and phase locked to the DARS reference input. Video reference is ignored.
On	On	Output sample clock is free running.

Table 5-8: Sample Rate Conversion Switch Settings

When DIP switch 8 is On the sample clock reference source is set using VistaLINK™ control.

5.4. ENABLING VISTALINK™ CONTROL OF THE AUDIO MIXER

The 7720AM-AES4 can be controlled using the card edge DIP switches and toggle switch or remotely via SNMP (using VistaLINK™ PRO or the model 9000NCP Network Control Panel). See section 7 for a full description of the parameters that can be monitored or controlled using VistaLINK™. VistaLINK™ control is only available when the card is installed in the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller card is installed in slot 1 of the frame.

DIP switch 8 is used to enable or disable VistaLINK™ control.

DIP 8	CONTROL MODE
Off	Local control mode. The module will be controlled using the DIP switches and toggle switch functions described in sections 5.1 to 5.3.
On	VistaLINK™ control mode. The module will be controlled remotely through SNMP.

Table 5-9: Control Mode Switch Settings

5.5. CONTROLLING THE AUDIO PROCESSING FUNCTIONS USING VistaLINK™

When DIP switch 8 is set to the On position the *Audio Processing* controls, used to configure parameters associated with the manipulation of the audio content, can be controlled and monitored using VistaLINK™ control. Figure 7 shows the VistaLINK™ controls to adjust the routing and processing of each of the 8 audio channels (4 AES pairs).

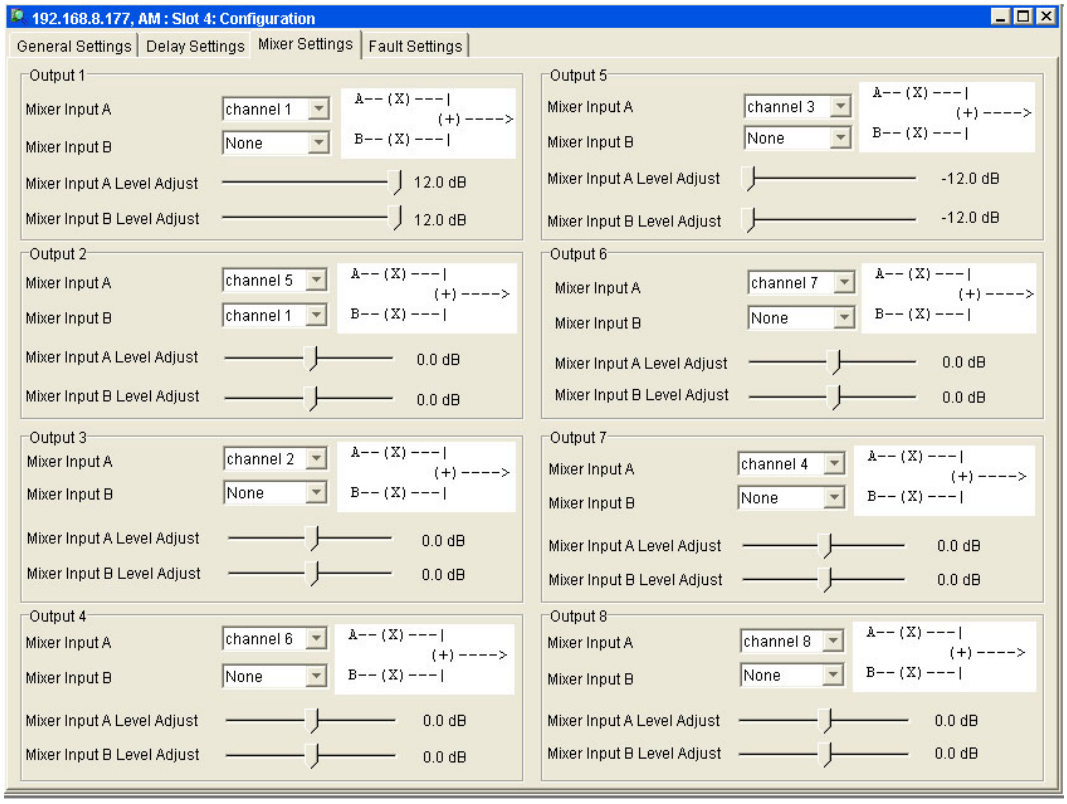


Figure 7: VistaLINK™ Control of the Audio Mixers

5.5.1. Remapping and Mixing the Audio Channels

The Channel Processing controls permit basic audio channel routing, mixing and manipulation.

Any input channel can be routed to any output channel. The default is to route the input channel to the corresponding output. (e.g. input channel 1 to output channel 1)

5.5.2. Setting the Audio Levels

The audio gain controls are used to adjust the level of each of the mixer inputs. The gain controls have a range of +/-12 dB with 0.25 dB resolution. The displayed value is the amount of gain (+ve), or attenuation (-ve), in decibels, where 0dB corresponds to unity gain.

Whenever +ve gain is configured, there is the possibility of distortion due to clipping. If the input audio level is increased to greater than 0dB FS, by adding gain, then the output audio will be limited at 0dB FS.

To pass non-PCM data such as Dolby-E, the gain must be set to unity (0db) the audio must be synchronous, sample rate converter bypassed and no mixing can occur.

6. JUMPERS

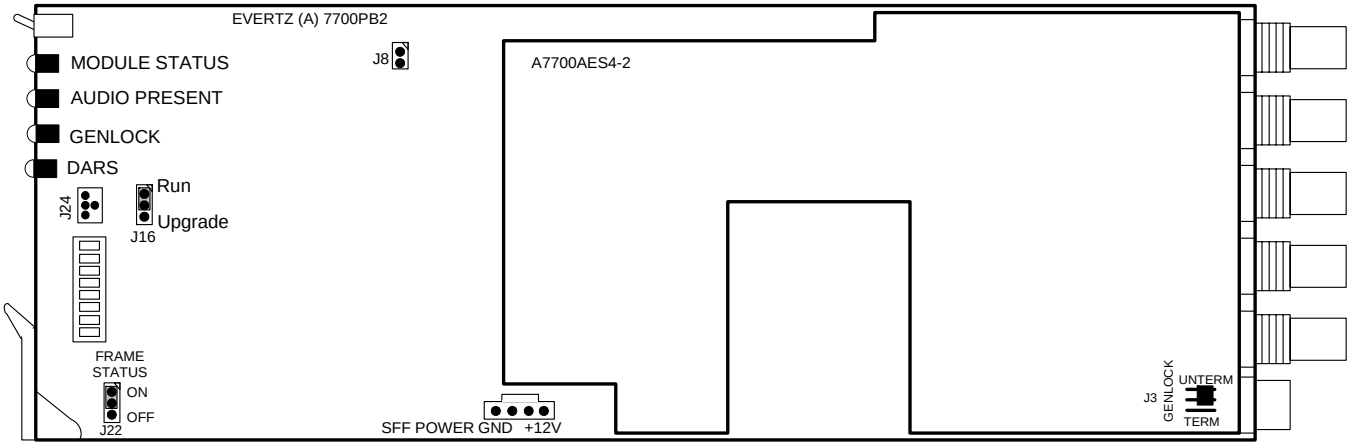


Figure 8: Location of Jumpers on 7720AM-AES4

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

FRAME STATUS The FRAME STATUS jumper located at the front of the 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 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.

6.2. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE The UPGRADE jumper J16 located at the front of the module 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 of this manual 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 the *Upgrading Firmware* section of this manual. 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.

6.3. SELECTING WHETHER THE REFERENCE INPUT IS TERMINATED

TERM/UNTERM The TERM/UNTERM jumper J3 located on the A7700-AES4-2 submodule is used to terminate the **REF LOOP** input. When it is in the TERM position a 75 ohm terminating resistor will be connected to the input to ground. When it is in the UNTERM position the **REF LOOP** input will be high impedance.

6.4. RESETTING THE MODULE TO ITS FACTORY DEFAULT CONDITION

This operation will completely reset the module and all user settings will be erased. Make sure you want to reset the module before you proceed.

Occasionally users want to reset the module to its factory default condition. The following procedure allows you to erase all user settings and restore the factory settings.

You will need the following equipment in order to reset the card to its factory defaults

- PC with available communications port.
- Terminal program that is capable of Xmodem file transfer protocol (such as HyperTerminal).
- Special Serial Upgrade cable supplied with the 7700FR-C frame. This cable is normally in the vinyl pouch at the front of this manual. (Evertz part #WA-76). A "Straight-thru" serial extension cable (DB9 female to DB9 male) may be required if you need to extend the length of the WA-S76 serial upgrade cable

Reset Procedure:

1. Remove the module from the frame.

2. Move the UPGRADE jumper into the *UPGRADE* position.

3. Connect the 7700PB Serial Upgrade cable to the 2 row x 3 pin header labelled J24. Install the cable with the ribbon cable towards the front of the board.

4. Connect the 9 pin connector on the end of the Serial Update cable to the PCs' RS-232 communications port.

5. Start the terminal program.

6. Configure the port settings of the terminal program as follows:

Baud	**57600**
Parity	**no**
Data bits	**8**
Stop bits	**2**
Flow Control	**None**

7. Install the module into the frame. After the module powers up, a banner with the boot code version information should appear in the terminal window.

For example:

```
EVERTZ MFC5407 MONITOR 2.1.3
COPYRIGHT 1997, 1998, 1999, 2000, 2001, 2002 EVERTZ MICROSYSTEMS LTD.
UPGRADE JUMPER INSTALLED

UPLOAD FILE NOW, CONTROL-X TO CANCEL
```

8. The following is a list of possible reasons for failed communications:

   - Defective Evertz Serial Upgrade cable.
   - Wrong communications port selected in the terminal program.
   - Improper port settings in the terminal program. (Refer to step 5 for settings).

9. Press the <CTRL> and <X> keys. This will bring you to the boot prompt "7700 Boot>

10. Type the word “reset”, without quotes, and hit the <ENTER> key once. The boot code will ask `Are you sure?` Type "y", without quotes.

11. Wait one minute, power down the module. Remove the module from the frame and disconnect the Serial Upgrade cable from the module. Restore the UPGRADE jumper to the *RUN* position. Reinsert the module into the frame.

12. You can now close the terminal program and disconnect the RS-232 serial cable from the PC.

The module is now set to factory defaults**.**

7. *Vista*LINK™ REMOTE MONITORING/CONTROL

7.1. What is *Vista*LINK™?

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

There are 3 components of SNMP:

1. An SNMP manager also known as a Network Management System (NMS) is a computer running special software that communicates with the devices in the network. Evertz *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 7720AM-AES4), 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.

7.2. *Vista*LINK™ MONITORED PARAMETERS

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

Parameter	Description
AES 1 present	Indicates if AES1 is present
AES 2 present	Indicates if AES2 is present
AES 3 present	Indicates if AES3 is present
AES 4 present	Indicates if AES4 is present
DARS present	Indicates if DARS is present
DARS locked	Indicates if DARS is valid and lockable at 48 kHz
Genlock present	Indicates if Genlock is present
Genlock locked	Indicates if Genlock is a valid reference that is lockable
AES 1 asynchronous	Indicates if AES 1 is not locked to reference (DARS or Genlock)
AES 2 asynchronous	Indicates if AES 2 is not locked to reference (DARS or Genlock)
AES 3 asynchronous	Indicates if AES 3 is not locked to reference (DARS or Genlock)
AES 4 asynchronous	Indicates if AES 4 is not locked to reference (DARS or Genlock)
LocalRemoteMode	Indicates if module is under VistaLINK™ control (state of DIP 8)

Table 7-1: *Vista*LINK™ Monitored Parameters

7.3. *Vista*LINK™ CONTROLLED PARAMETERS

The following parameters can be remotely monitored or set through the *Vista*LINK™ interface.

Parameter	Description
Lock preference	Selects whether the module sample clock will freerun or to attempt to lock to Genlock or DARS.
Mixer fade rate	Adjust how fast gain adjustments or channel selections fade.
Sample rate converter	Enables or bypasses sample rate converters.
Channel 1 delay	Sets the audio delay for channel 1.
Channel 2 delay	Sets the audio delay for channel 2.
Channel 3 delay	Sets the audio delay for channel 3.
Channel 4 delay	Sets the audio delay for channel 4.
Channel 5 delay	Sets the audio delay for channel 5.
Channel 6 delay	Sets the audio delay for channel 6.
Channel 7 delay	Sets the audio delay for channel 7.
Channel 8 delay	Sets the audio delay for channel 8.
Mixer 1 Input A	Selects the input for mixer input A (there are 8 independent controls - one for each output channel).
Mixer 1Input B	Selects the input for mixer input B (there are 8 independent controls – one for each output channel).
Mixer 1 Input A Level Adjust	Sets the gain adjustment for mixer input A (there are 8 independent controls – one for each output channel).
Mixer 1 Input B Level Adjust	Sets the gain adjustment for mixer input B (there are 8 independent controls – one for each output channel).

Table 7-2: *Vista*LINK™ Controlled Parameters

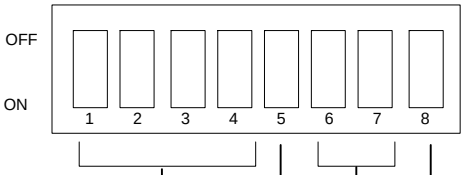
7.4. *Vista*LINK™ TRAPS

The following traps can be enabled controlled through the *Vista*LINK™ interface. Each trap will indicate a fault condition when its value is True.

Trap	Description for True Condition
AES 1 missing	AES1 is not present
AES 2 missing	AES2 is not present
AES 3 missing	AES3 is not present
AES 4 missing	AES4 is not present
DARS missing	DARS is not present
DARS not locked	DARS is not valid or not lockable at 48 kHz
Genlock missing	Genlock is not present
Genlock not locked	Genlock is not a valid reference that is lockable
AES 1 asynchronous	AES 1 is not locked to reference (DARS or Genlock)
AES 2 asynchronous	AES 2 is not locked to reference (DARS or Genlock)
AES 3 asynchronous	AES 3 is not locked to reference (DARS or Genlock)
AES 4 asynchronous	AES 4 is not locked to reference (DARS or Genlock)
LocalMode	DIP 8 in Local control position (Off)
RemoteMode	DIP 8 in VistaLINK™ control position (On)

Table 7-3: *Vista*LINK™ Traps

8. DIP SWITCH QUICK REFERENCE



DIP 8	Control Mode
Off	Card Edge Control
On	VistaLINK™ Control

DIP 6	DIP 7	Reference Select
Off	Off	Free Running
On	Off	Video Genlock only
Off	On	DARS only
On	On	Free Running

DIP 5	Sample Rate Converter Disable
Off	Sample Rate Converter Enabled
On	Sample Rate Converter Disabled

DIP				TOGGLE SWITCH FUNCTION
1	2	3	4	
Off	Off	Off	Off	Help / Module Status
On	Off	Off	Off	AES1 delay adjust
Off	On	Off	Off	AES2 delay adjust
On	On	Off	Off	AES3 delay adjust
Off	Off	On	Off	AES4 delay adjust
On	Off	On	Off	AES C-Bit mode select
Off	On	On	Off	reserved
On	On	On	Off	
Off	Off	Off	On	
On	Off	Off	On	
Off	On	Off	On	Select Preset 1
On	On	Off	On	Select Preset 2
Off	Off	On	On	Select Preset 3
On	Off	On	On	Select Preset 4
Off	On	On	On	Select Preset 5
On	On	On	On	Select Preset 6

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