

7700 MultiFrame Manual

7771DS-HD HD Decompression Codec

TABLE OF CONTENTS

| 1. | OVE | RVIEW | .1 |
|----|------|--|----------------|
| 2. | INS | TALLATION | .2 |
| | 2.1. | VIDEO CONNECTIONS | .2 |
| | 2.2. | AUDIO CONNECTIONS | .2 |
| | 2.3. | GENERAL PURPOSE OUTPUT CONNECTION | . 3 |
| 3. | SPE | CIFICATIONS | .3 |
| | 3.1. | SDTI VIDEO INPUT | .3 |
| | 3.2. | HD SERIAL VIDEO OUTPUT | .3 |
| | 3.3. | AES AUDIO OUTPUTS | .4 |
| | 3.4. | ANALOG AUDIO OUTPUTS | .4 |
| | 3.5. | GPO | .4 |
| | 3.6. | SDTI TO OUTPUT DELAY | .4 |
| | 3.7. | ELECTRICAL | .5 |
| | 3.8. | PHYSICAL | . 5 |
| 4. | STA | TUS INDICATORS AND DISPLAYS | . 5 |
| | 4.1. | STATUS AND INDICATOR LEDS | . 5 |
| | | 4.1.1. Module Status LEDs 4.1.2. SDTi Audio and VANC Present LEDs 4.1.3. HD Output Embedded Audio Present LEDs | .5 .6 .6 |
| | 4.2. | DOT-MATRIX DISPLAY | .7 |
| | 4.3. | GPO FUNCTION | .7 |
| 5. | CAR | D EDGE CONTROLS | .8 |
| | 5.1. | CARD EDGE MENU CONTROL | . 8 |
| | 5.2. | CARD EDGE MENU DISPLAY | .9 |



| | 5.3. | CONFIGURING THE AUDIO SETTINGS | 9 |
|----|-------|--|-------------|
| | | 5.3.1. Audio Detection Mode | 9 9 9 |
| | | 5.3.4. Audio Delay | 0 |
| | 5.4. | CONFIGURING VIDEO SETTINGS | 0 |
| | | 5.4.1. Selecting the Upstream Video Standard | 0 0 |
| | 5.5. | CONFIGURING CARD EDGE DISPLAY1 | 0 |
| | 5.6. | FIRMWARE VERSION1 | 0 |
| | 5.7. | CARD EDGE DIP SWITCH CONTROL1 | 1 |
| | 5.8. | SELECTING THE OUTPUT VIDEO STANDARD (TOP BOARD)1 | 2 |
| | 5.9. | SELECTING HOW THE AUDIO WILL BE OUTPUT (TOP BOARD)1 | 2 |
| | 5.10. | SELECTING VANC EMBEDDING INTO THE HD OUTPUT (TOP BOARD)1 | 2 |
| | 5.11. | SELECTING AUDIO DELAY (TOP BOARD)1 | 2 |
| | 5.12. | SELECTING THE ANALOG AUDIO SOURCE CHANNEL (TOP BOARD)1 | 3 |
| | 5.13. | SELECTING HOW THE AUDIO WILL BE OUTPUT (BOTTOM BOARD)1 | 3 |
| | 5.14. | SELECTING IF AUDIO GROUP 2 IS ENABLED OR DISABLED (BOTTOM BOARD) | 4 |
| | 5.15. | AUDIO OUTPUT AUTO/MANUAL SELECTION (BOTTOM BOARD)1 | 4 |
| | 5.16. | ANALOG AUDIO MONITOR VOLUME | 4 |
| 6. | JUM | PERS1 | 5 |
| | 6.1. | SELECTING WHETHER LOCAL FAULTS ON THE BOTTOM BOARD WILL BE MONITORED BY THE GLOBAL FRAME STATUS | 5 |
| | 6.2. | SELECTING WHETHER LOCAL FAULTS ON THE TOP BOARD WILL BE MONITORED BY THE GLOBAL FRAME STATUS1 | 6 |
| | 6.3. | CONFIGURING THE MODULE FOR FIRMWARE UPGRADES1 | 6 |
| 7. | VIST | ALINK™ REMOTE MONITORING/CONTROL1 | 6 |



| 7.1. | WHAT IS <i>VISTA</i> LINK™? | 16 |
|------|--|----|
| 7.2. | VISTALINK [™] MONITORED PARAMETERS | 17 |
| 7.3. | VISTALINK [™] CONTROLLED PARAMETERS | 17 |
| 7.4. | VISTALINK [™] TRAPS | 18 |

Figures

| Figure 1: 7771DS-HD Block Diagram | 1 |
|--|----|
| Figure 2: 7771DS-HD Rear Panel | 2 |
| Figure 3: LED and Switch Locations | 5 |
| Figure 4: Card-edge Menu Quick Reference | 8 |
| Figure 5: Location of Jumpers Bottom Board | 15 |
| Figure 6: Location of Jumpers Top Board | 15 |



Tables

| Table 1: 9 Pin D Connector Pin Definitions | 3 |
|--|------|
| Table 2: Video Output Formats | 4 |
| Table 3: Top Board DIP Switch Functions | 11 |
| Table 4: Bottom Board DIP Switch Functions | . 11 |
| Table 5: Video Standard Switch Settings | 12 |
| Table 6: AES Output Sample Rate Converter Enable/Disable Switch Settings | 12 |
| Table 7: VANC embedder enable/disable Switch Settings | 12 |
| Table 8: Audio delay Switch Settings | 13 |
| Table 9: Video Standard Switch Settings | 13 |
| Table 10: Audio Group 1 Destination Selection Switch Settings | 13 |
| Table 11: Audio Group 2 Destination Selection Switch Settings | 13 |
| Table 12: Audio Group 2 Enable/Disable Switch Settings | . 14 |
| Table 13: Auto/Manual Audio Output Switch Settings | 14 |
| Table 14: VistaLINK™ Monitored Parameters | 17 |
| Table 15: VistaLINK™ Controlled Parameters | 17 |
| Table 16: VistaLINK™ Traps –All versions | . 18 |
| | |



REVISION HISTORY

| REVISION | DESCRIPTION | DATE |
|----------|---|----------------|
| 1.0 | First Revision | February 2005 |
| 1.1 | Added Card Edge Menu and VistaLINK parameters | September 2005 |

Information contained in this manual is believed to be accurate and reliable. However, Evertz assumes no responsibility for the use thereof nor for the rights of third parties, which may be effected in any way by the use thereof. Any representations in this document concerning performance of Evertz products are for informational use only and are not warranties of future performance, either express or implied. The only warranty offered by Evertz in relation to this product is the Evertz standard limited warranty, stated in the sales contract or order confirmation form.

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

1. OVERVIEW

The 7771DS-HD, HDTV Decompression Codec converts a 270Mb/s SDTi (SMPTE 305M) input signal containing HDCAM compressed data with embedded AES audio, into a SMPTE 292M (1.485Gb/s) component serial digital stream with embedded or separate AES audio. An additional stereo analog audio channel is also available for local monitoring. The 7771DS-HD supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.97sF and 1035i/59.94 video formats.

The 7771DS-HD occupies two card slots and is housed in the standard Evertz 3RU frame that holds up to 15 modules.

Features:

- Industry proven HDCAM video decompression for origination quality video
- Supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF 1080p/23.98sF and 1035i/59.94 formats
- Automatic detection of 1035i/1080i active lines
- Detection of uncompressed SD or compressed HD input stream and outputs GPO control for downstream equipment.
- Outputs up to four channels of uncompressed embedded AES audio
- Audio delay processing to match video compression/decompression delay
- Four separate stereo AES unbalanced outputs
- One stereo analog audio output
- Fully hot swappable from front of frame



Figure 1: 7771DS-HD Block Diagram



2. INSTALLATION

The 7771DS-HD comes with a companion rear plate that has eight BNC connectors, 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: 7771DS-HD Rear Panel

2.1. VIDEO CONNECTIONS

Connect a source of SDTi compressed HD serial component video, compatible with the SMPTE 259M and SMPTE 305M standards, to the BNC labeled **SDTi INPUT**. See Table 2 for a list of the video formats supported. Uncompressed HD video output, compatible with the SMPTE 292M standard, is available on the **HD OUTPUT** BNCs.

2.2. AUDIO CONNECTIONS

The 7771DS-HD has the ability to de-embed up to 4 uncompressed AES audio streams (8 channels) from 2 groups on the compressed video input. The de-embedded audio can be either re-embedded on the HD video output or output as AES audio on the 4 BNCs labeled **AES OUTPUT**. Selection of the audio destination and embedding group is done by DIP switch (see section 5.13).

A 9 pin D connector labeled **ANALOG AUDIO OUT** contains 2 balanced analog audio outputs. The connector pinout is shown in Table 1. See sections 5.12 and 5.16 for more information about the analog audio outputs.

| Pin | Name | Description |
|-----|------|--------------------------|
| # | | |
| 1 | A1- | Audio 1 (Left) - Output |
| 2 | Gnd | Signal Ground |
| 3 | A2+ | Audio 2 (Right) + Output |
| 4 | Gnd | Signal Ground |
| 5 | Gnd | Signal Ground |
| 6 | A1+ | Audio 1 (Left) + Output |
| 7 | A2- | Audio 2 (Right) - Output |
| 8 | GPO | General Purpose Output |
| 9 | Gnd | Signal Ground |

 Table 1: 9 Pin D Connector Pin Definitions

NOTE: The Analog Audio and GPO features have been removed/disabled for later series units

2.3. GENERAL PURPOSE OUTPUT CONNECTION

A pair of pins on the 9 pin D connector labeled **ANALOG AUDIO OUT** contains a general purpose output. The connector pinout is shown in Table 1. See section 4.3 for more information about the operation of the general purpose output.

3. SPECIFICATIONS

3.1. SDTI VIDEO INPUT

| Standard: | SMPTE 259M-C – 525 line component. |
|---------------|--|
| | 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: Number of Outputs: | 1.485 Gb/sec SMPTE 292M – standards supported are shown in Table 2. 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 |



| SDTi | | | | | |
|-----------|---------------|--------------|----------|-------------|----------|
| Input | | H | D Output | | |
| | Common | Pixels / | Frame | Progressive | SMPTE |
| | Name | Active Lines | Rate | /Interlace | Standard |
| 525/29.97 | 1080i/59.94 | 1920 x 1080 | 29.97 | I | 274M |
| 525/29.97 | 1080p/29.97sF | 1920 x 1080 | 29.97 | P (sF) | 274M |
| 625/25 | 1080i/50 | 1920 x 1080 | 25 | I | 274M |
| 625/25 | 1080p/25sF | 1920 x 1080 | 25 | P (sF) | 274M |
| 525/23.98 | 1080p/23.98sF | 1920 x 1080 | 23.98 | P (sF) | 274M |
| 525/29.97 | 1035i/59.94 | 1920 x 1035 | 29.97 | I | 260M |

Table 2: Video Output Formats

3.3. AES AUDIO OUTPUTS

| Standard: | SMPTE 276M, single ended synchronous AES |
|--------------------|--|
| Number of Outputs: | 4 |
| Connectors: | BNC per IEC 169-8 |
| Signal Level: | 1V p-p ±0.1V |
| Resolution: | 24 bits |
| Sampling Rate: | 48 kHz |
| Impedance: | 75 Ohms unbalanced |
| | |

3.4. ANALOG AUDIO OUTPUTS

| Number of Outputs: | 2 |
|---------------------|---|
| Туре: | Balanced analog audio |
| Connector: | 9 pin female D connector |
| Output impedance: | 66Ω |
| Sampling Frequency: | 48kHz |
| Signal Level: | 0dB FS => 20dBu into high impedance loads (10 kOhms) Not good for low impedance loads (i.e. 600 Ohm) |
| Frequency Response: | 50Hz to 20kHz: +/- 0.20dB |
| SNR: | >85dB (50Hz to 20 kHz) |
| THD+N: | 65 dB @ 1kHz, 0 dBFS, typical |

3.5. GPO

| Number of GPO's: | 1 |
|------------------|--|
| Туре: | TTL |
| Connector: | 9 pin female D connector (same connector as analog audio output) |

3.6. SDTI TO OUTPUT DELAY

| Video: | 2 frames |
|----------------|----------|
| AES: | |
| Evertz Source: | 5 frames |
| Sony Source: | 2 frames |
| VANC: | 9 fields |



3.7. ELECTRICAL

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

3.8. PHYSICAL

7700 frame mounting: 2 slots7701 frame mounting: 1 slots

4. STATUS INDICATORS AND DISPLAYS

The 7771DS-HD has 7 LED Status indicators and a 4 digit alphanumeric display on the front card edge to show operational status of the card at a glance. Figure 3 shows the location of the LED's, display and card edge DIP switches.

NOTE: Cards using code previous to 1.0 build 7 will have DIP switch control enabled. Cards using firmware version 1.0 build 7 or newer will have DIP switches disabled, and card edge menu enabled.



Figure 3: LED and Switch Locations

4.1. STATUS AND INDICATOR LEDS

4.1.1. Module Status LEDs

Two large LED's on the front of the bottom 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 valid embedded audio in group 1 or group 2 of the SDTi input or if a local input power fault exists on the bottom board (i.e.: a blown fuse). The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper on the bottom board.



Note: When AUD 1 and AUD 2 are selected to be OFF, the LOCAL FAULT LED does not turn RED on loss of Audio

MODULE OK: This Green LED indicates good module health. It will be On when both audio groups 1 and 2 are present, and board power is good.

Two large LED's on the front of the top board indicate the presence of video to the module. DIP switches 1 to 3 on the top board are used to select the video standard (see section 5.8). The alphanumeric display will show the video standard in use (see section 4.2).

- VIDEO FAULT: This Red LED will be On during the absence of valid video input of the selected standard or if a local input power fault exists on the top board (i.e.: a blown fuse). This condition can also be reported to the frame through the FRAME STATUS jumper on the top board.
- **VIDEO OK:** This Green LED will be On when a valid video signal of the selected standard is present.

4.1.2. SDTi Audio and VANC Present LEDs

There are three small LED's on the back side of the top board that indicate the presence of embedded audio groups 1 and 2 and embedded VANC on the SDTi input.

GROUP 1 PRESENT: This Green LED indicates the presence of Group 1 embedded audio.

GROUP 2 PRESENT: This Green LED indicates the presence of Group 2 embedded audio.

VANC PRESENT: This Green LED indicates the presence of VANC data in either Group 3 or group 4.

4.1.3. HD Output Embedded Audio Present LEDs

There are four small LED's on the backside of the bottom board that indicate the presence of embedded audio on the HD video output.

| GROUP 1 PRESENT: | This Green LED indicates the presence of Group 1 embedded audio. |
|------------------|--|
| GROUP 2 PRESENT: | This Green LED indicates the presence of Group 2 embedded audio |
| GROUP 3 PRESENT: | This Green LED indicates the presence of Group 3 embedded audio |
| GROUP 4 PRESENT: | This Green LED indicates the presence of Group 4 embedded audio |

4.2. DOT-MATRIX DISPLAY

The 4-digit alphanumeric display located on the card edge of the top board is used to display the video standard in use. If manual video standard selection is set (DIP switch 1 On) then the display will always display the selected standard. If auto standard selection is set (DIP switch 1 Off) the alpha-numeric display will read AUTO until a valid input standard is detected. When valid input video is detected the detected standard will be displayed. The following messages will be displayed.

- AUTO Auto video standard selected, and no video present
- **59** 1080i/59.94 or 1080p/29.97sF
- 50 1080i/50 or 1080p/25sF
- **35** 1035i/59.94
- 23 1080p/23.98sF
- SD SDI input, not an SDTi compressed stream

4.3. GPO FUNCTION

The GPO output (pin 8 on the 9 pin D connector) is for use in switching downstream equipment between SD and HD mode. When the 7771DS-HD detects a non SDTi (i.e. SDI) video in it will set this output to 5V. At this time "SD" will be displayed on the dot-matrix display. When SDTi input video is found this output will be 0V (ground).



5. CARD EDGE CONTROLS

5.1. CARD EDGE MENU CONTROL

Additional signal and status monitoring is provided via the 4-digit dot-matrix display located at the cardedge. The card-edge pushbutton and toggle-switch are used to navigate through the display menu. Refer to Figure 4: Card-edge Menu Quick Reference for menu quick reference.

Pressing the pushbutton advances the display to the next menu level. The toggle-switch may then be used to move up or down through selections of that menu level. Select BACK to return to previous menu level.

If a specific menu selection has a configuration value associated with it, then this may be changed using the toggle switch. Pressing the pushbutton will apply the displayed value and return you to the previous menu level.

The most recent user selection will be maintained in non-volatile memory in the event of power loss to the module.

NOTE: Cards using code previous to 1.0 build 7 will have DIP switch control enabled. Cards using firmware version 1.0 build 7 or newer will have DIP switches disabled, and card edge menu enabled.

| | Menu Level 1 | Menu Level 2 | Menu Level 3 | Menu Level 4 |
|--------|--------------|---------------------------------------|--------------|--------------|
| | Pushbutton⇒ | Pushbutton⇔ | Pushbutton⇒ | Pushbutton⇒ |
| | BACK | | | |
| | AUD | MODE | AUTO | |
| | | | MAN | |
| | | | OFF | |
| 仓 | | AUD1 | GRP1-GRP4 | |
| Toggle | | | EXT | |
| | | | OFF | |
| Switch | | AUD2 | GRP1-GRP4 | |
| Û | Û | | EXT | |
| | | DLAY | EVTZ | |
| | | | SONY | |
| | | SRC | AES1-AES4 | ON |
| | | | | OFF |
| | VID | VSTD | AUTO | |
| | | | 35 | |
| | | | 23 | |
| | | | 50 | |
| | | | 59 | |
| | | VANC | ON | |
| | | | OFF | |
| | DISP | VERT | | |
| | HORZ | | | |
| | VER | (displays scrolling Firmware version) | | |

Figure 4: Card-edge Menu Quick Reference



5.2. CARD EDGE MENU DISPLAY

The Card Edge menu is arranged in a layered structure that groups similar configuration items together. The following section gives a brief description of the first level of menus that appear when you enter the Card Edge display. Selecting one of these items will take you to the next menu level

| AUD | Configures Audio settings, Auto and Manual modes. |
|------|--|
| VID | Configures Video standard settings and VANC transport. |
| DISP | Configures card edge display . |
| VER | Allows user to view installed firmware version. |

5.3. CONFIGURING THE AUDIO SETTINGS

5.3.1. Audio Detection Mode



Setting the Audio Mode to Auto will automatically detect incoming audio (Embedded or External). To configure AUD1 and AUD2, set MODE to MAN for manual configuration.

5.3.2. Selecting Upstream Audio Source 1



The AUD1 audio option allows the user to select the source of the First upstream Audio Group. If Audio is embedded, select the coresponding GRP1, GRP2, GRP3, or GRP4 upstream Audio Group. If AES audio is external, select the EXT option.

5.3.3. Selecting Upstream Audio Source 2

| AL | JD | |
|----|-----|------|
| | AUI | D2 |
| | | GRP1 |
| | | GRP2 |
| | | GRP3 |
| | | GRP4 |
| | | EXT |

The AUD2 audio option allows the user to select the source of the second upstream Audio Group. If Audio is embedded, select the coresponding GRP1, GRP2, GRP3, or GRP4 upstream Audio Group. If AES audio is external, select the EXT option.



5.3.4. Audio Delay



The 7771DS will except SDTi from the companion 7771CS or Sony HDCAM or similar Tape deck using Sont SDTi compression technology. The DLAY setting will compinsate for delay for the two types of configurations. Set the DLAY to EVTZ when connected to a 7771CS module. Set the DLAY to SONY when decompressing a SONY SDTi source.

5.3.5. Sample Rate Converters



The SRC menu option allows the user to Enable or Disable the audio sample rate converters for External Audio Select the AES channel to configure, and select ON to enable SRC or OFF to disable SRC.

NOTE: To pass Dolby Audio, Sample Rate Converters must be set to OFF.

5.4. CONFIGURING VIDEO SETTINGS

5.4.1. Selecting the Upstream Video Standard



The Video Setting can be configured for Automatic detection or manual configuration. Setting the VSTD to AUTO will enable automatic standard detection of upstream video. The following are the manual settings:

35 – 1035i/59.94

23 – 1080p/23.98sF

50 – 1080i/50 or 1080p/25sF

59 - 1080i/59.94 or 1080p/29.97sF

5.4.2. Enabling and Disabling VANC data transport



The VANC data transport can be enabled or disabled using this option. Setting the VANC to ON passes all upstream VANC data. Setting it to OFF disables VANC data from passing thru.

5.5. CONFIGURING CARD EDGE DISPLAY

| DI | SP |
|----|------|
| | VERT |
| | HORZ |

Configures the display orientation of the card edge display. VERT configures the numerics Vertically. HORZ configures the numerics Horizontally.

5.6. FIRMWARE VERSION

VER Version display Displays the Firmware version loaded on the card

5.7. CARD EDGE DIP SWITCH CONTROL

NOTE: Cards using code previous to 1.0 build 7 will have DIP switch control enabled. Cards using firmware version 1.0 build 7 or newer will have DIP switches disabled, and card edge menu enabled.

The 7771DS-HD is equipped with two 8 position DIP switches to allow the user to select various functions. The DIP switch on the bottom card is used control the embedding of audio on the SDTi output. The DIP switch on the top card is used to set the input video standard. All positions are assigned sequentially such that the first position is located at the top of the DIP switch (farthest from to the card ejector). The On (closed) position is down, or closest to the printed circuit board. The Off (open) position is up, or farthest from the printed circuit board.

Table 4and Table 3 give an overview of the DIP switch functions. Sections 5.8 to 5.16 give detailed descriptions of each of the DIP switch functions. A three position, return to center toggle switch is used to control the volume of the analog audio output.

| DIP Switch | Function |
|-------------------|--|
| 1 | Auto/Manual Video Format Selection |
| 2 | Video Standard Soloction |
| 3 | |
| 4 | AES input's Sample Rate Converter enable/disable |
| 5 | VANC embed to HD enable/disable |
| 6 | Audio delay Evertz/Sony |
| 7 | Analog monitor audio channel source |
| 8 | |

Table 3: Top Board DIP Switch Functions

| DIP Switch | Function |
|-------------------|--|
| 1 | Group 1 Source Select |
| 2 | Croup 1 mapping from Input Embodded Croups |
| 3 | Group I mapping nom input Embedded Groups |
| 4 | Group 2 Source Select |
| 5 | Group 2 mapping from Input Embedded Groups |
| 6 | |
| 7 | Group 2 enable/disable |
| 8 | Auto/Manual Audio selection |

Table 4: Bottom Board DIP Switch Functions



5.8. SELECTING THE OUTPUT VIDEO STANDARD (TOP BOARD)

DIP switches 1 to 3 on the top card control the selection of the output video format. DIP switch 1 selects whether the input video format will be automatically detected or set using DIP switches 2 and 3.

| DIP 1 | DIP 2 | DIP 3 | Video Standard |
|-------|-------|-------|---------------------------------|
| Off | | | Auto |
| On | Off | Off | 1080p/23.98sF |
| On | Off | On | 1035i/59.95 |
| On | On | Off | 1080i/50 or 1080p/25sF |
| On | On | On | 1080i/59.94 or 1080p/29.97sF |

 Table 5: Video Standard Switch Settings

5.9. SELECTING HOW THE AUDIO WILL BE OUTPUT (TOP BOARD)

DIP switch 4 on the top card controls whether sample rate conversion is enabled on the AES outputs.

| DIP 4 | AES output sample rate converter |
|-------|----------------------------------|
| Off | Disabled |
| On | Enabled |

Table 6: AES Output Sample Rate Converter Enable/Disable Switch Settings

5.10. SELECTING VANC EMBEDDING INTO THE HD OUTPUT (TOP BOARD)

DIP switch 5 on the top card controls whether VANC data, if present in the SDTi stream (see 7771CS manual) will be embedded into the HD stream.

| DIP 5 | VANC embedder |
|-------|---------------|
| Off | Disabled |
| On | Enabled |

| Table 7: VANC embedder | enable/disable | Switch Settings |
|------------------------|----------------|-----------------|
|------------------------|----------------|-----------------|

5.11. SELECTING AUDIO DELAY (TOP BOARD)

DIP switch 6 on the top card controls the audio delay through the card. Since the Evertz 7771CS does not delay the audio to synchronize it with the video a longer delay is needed in the 7771DS when the 7771CS is it's SDTi source. If a Sony generated SDTi source is used a shorter audio delay is needed since the SDTi input to the 7771DS will then have the audio and video in sync.



| DIP 6 | SDTi source |
|-------|--------------------------------|
| Off | Sony SDTi source (short delay) |
| On | Evertz 7771CS (long delay) |

 Table 8: Audio delay Switch Settings

5.12. SELECTING THE ANALOG AUDIO SOURCE CHANNEL (TOP BOARD)

The 7771DS supports two groups of audio or 4 stereo pairs however only has one stereo pair of analog monitor output. DIP switches 7 and 8 on the top card select which of the four stereo channels transported is output to the analog monitor channels.

| DIP 8 | DIP 7 | Monitor source |
|-------|-------|------------------------|
| On | On | Group one, channel one |
| On | Off | Group one, channel two |
| Off | On | Group two, channel one |
| Off | Off | Group two, channel two |

 Table 9: Video Standard Switch Settings

5.13. SELECTING HOW THE AUDIO WILL BE OUTPUT (BOTTOM BOARD)

Up to 2 groups of 4 audio channels can be de-embedded from the 270 Mb/s SDTi bit stream and either be re-embedded on the HD video output or output as AES audio. DIP switch 1 on the bottom board controls whether group 1 will be output as AES1 and AES2 or embedded on the HD output. When DIP switch 1 is set for HD embedded audio, DIP switches 2 and 3 are used to select which group on the HD output will be used to embed the audio according to Table 10

| DIP 1 | DIP 2 | DIP 3 | Audio Group 1 Destination |
|-------|-------|-------|---------------------------|
| Off | | | AES outputs 1 and 2 |
| On | Off | Off | HD Output group 1 |
| On | Off | On | HD Output group 2 |
| On | On | Off | HD Output group 3 |
| On | Ön | Ön | HD Output group 4 |

Table 10: Audio Group 1 Destination Selection Switch Settings

DIP switch 4 on the bottom board controls whether group 2 will be output as AES3 and AES4 or embedded on the HD output. When DIP switch 4 is set for HD embedded audio, DIP switches 5 and 6 are used to select which group on the HD output will be used to embed the audio according to Table 11.

| DIP 4 | DIP 5 | DIP 6 | Audio Group 2 Destination |
|-------|-------|-------|---------------------------|
| Off | | | AES Outputs 3 and 4 |
| On | Off | Off | HD Output group 1 |
| On | Off | On | HD Output group 2 |
| On | On | Off | HD Output group 3 |
| On | On | On | HD Output group 4 |

| Table 11: Audio Group 2 Destination | n Selection Switch Settings |
|-------------------------------------|-----------------------------|
|-------------------------------------|-----------------------------|



5.14. SELECTING IF AUDIO GROUP 2 IS ENABLED OR DISABLED (BOTTOM BOARD)

DIP switch 7 on the top board allows the second audio group to be output or not (whether embedded in HD or output as AES). When audio selection is manually controlled this switch should reflect the encoders setting.

| DIP 7 | Audio Group output |
|-------|--------------------|
| Off | Disabled |
| On | Enabled |

Table 12: Audio Group 2 Enable/Disable Switch Settings

5.15. AUDIO OUTPUT AUTO/MANUAL SELECTION (BOTTOM BOARD)

DIP switch 8 on the top board controls whether the destination for the embedded audio data is determined automatically or by DIP switches 1 through 7 on the bottom board. Note: if VANC transport on the encoder is turned off or an SDTi stream from another product is input and this switch is set to auto (off) then group 1 will be embedded to group 1 of the HD output video and group 2 if it is present will be embedded to group 2 of the HD output video.

| DIP 8 | Auto Audio destination |
|-------|------------------------|
| Off | enabled |
| On | disabled |

Table 13: Auto/Manual Audio Output Switch Settings

5.16. ANALOG AUDIO MONITOR VOLUME

The toggle switch is used to control the volume of the analog audio outputs. Pressing the switch up (away from the card ejector) increases the volume, and pressing the switch down (towards the card ejector) decreases the volume.



6. JUMPERS

Several jumpers, located at the front of the module are used to preset various operating modes. Figure 5 and Figure 6 show the location of the jumpers on the bottom and top boards respectively.



Figure 5: Location of Jumpers Bottom Board



Figure 6: Location of Jumpers Top Board

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

The FRAME STATUS jumper J4 on the bottom board determines whether local faults (as shown by the Local Fault indicator) on the bottom board will be connected to the 7700FR frame's global status bus.

FRAME STATUS To monitor faults on this module with the frame status indicators (on the Power Supply 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. SELECTING WHETHER LOCAL FAULTS ON THE TOP BOARD WILL BE MONITORED BY THE GLOBAL FRAME STATUS

The FRAME STATUS jumper J4 on the top board determines whether local faults (as shown by the Local Fault indicator) on the top board will be connected to the 7700FR frame's global status bus.

FRAME STATUS To monitor faults on this module with the frame status indicators (on the Power Supply 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.

6.3. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES



The UPGRADE jumper J16 is installed on the underside of the bottom board.

UPGRADE The UPGRADE jumper J5 on the bottom board 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* chapter of this manual for more information.

To upgrade the firmware in the module unit pull it out of the frame. Move the UPGRADE jumper into the *UPGD* position. Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto the SERIAL header 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 the UPGRADE jumper into the *RUN* position, remove the upgrade cable and re-install the module. The module is now ready for normal operation.

7. *VISTALINK™* REMOTE MONITORING/CONTROL

7.1. WHAT IS VISTALINK™?

*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 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 7771CS and 7771DS 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.

7.2. VISTALINK[™] MONITORED PARAMETERS

everlz

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

| Parameter | Description |
|-----------------------------------|---|
| Video Present | Video is present on Video Input BNC |
| Video Absent | Video is not detected on Video Input BNC |
| Audio 1 Source Present/ Absent | Detects presence of Embedded or External AES. Audio detection type is based on EMB or EXT menu settings |
| Audio 2 Source Present/ Absent | Detects presence of Embedded or External AES. Audio detection type is based on EMB or EXT menu settings |

Table 14: *Vista*LINK[™] Monitored Parameters

7.3. VISTALINK[™] CONTROLLED PARAMETERS

When the CONTROL jumper is set to the REMOTE position, the following parameters can be remotely controlled through the *Vista*LINK[™] interface. When the MASTER jumper is set to the LOCAL position the local jumper settings will override the settings configured through the *Vista*LINK[™] interface.

| Parameter | Description |
|-----------|-------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Table 15: VistaLINK™ Controlled Parameters



7.4. VISTALINK[™] TRAPS

Table 16: *Vista*LINK[™] Traps –All versions