Audio Disk Recorder

Issue: 2.0 – Date: May 1999

Technical Reference

EVS

BROADCAST EQUIPMENT

Overview

Welcome in the EVS range of products and thank you for your interest in the Disk Recorder System. We will do our best to satisfy your video production needs and we look forward to continuing working with you.

This manual is divided in 3 sections describing:

- The technical specifications of EVS Audio Disk Recorder
- The cabling installation
- The Hardware description

Audio Disk Recorder Main specifications

The EVS Audio Disk Recorder (ADR) is a analogue device able to record and replay simultaneously up to 8 stereo channels. It has been designed to complement the EVS video disk recorder used for various applications, from live sports coverage to caching. The ADR must always be used in conjunction with an EVS video disk recorder.

Audio

16 channels of 16 bits, 48 KHz, analogue balanced divided into
4 stereo inputs (I/P 1+2, I/P 3+4, I/P5+6, I/P 7+8)
4 stereo outputs (O/P 1+2, O/P 3+4, O/P 5+6, O/P 7+8)

Peak Levels : jumper select +12 or +18 dBu
Nominal Levels : jumper select -2 or +4 dBu

Input Impedance : jumper select 47K or 600 Ohms
Output Impedance : 600 Ohms

Input Gain : software selectable 0 to 22.5 dB (1.5 dB steps)
Output Attenuation : software selectable 0 to -46.5 dB (1.5 dB steps)
Default Settings : 0 dB otherwise level specifications are changed

Capacity

The ADR can be equipped with 1 or 2 SCSI drives. The type of SCSI drive is selected according to the capacity of the associated EVS video disk recorder.

Disk Capacity	Audio Recording Time (1 stereo)
4.5 GB	6 h 30 min
9.1 GB	13 h 10 min
18.2 GB	26 h 15 min

The audio is recorded **uncompressed** on the drive.

EVS

AUDIO DISK RECORDER

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Technical Reference

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Chapter 1
Technical Specifications

1.1   Unpacking

On receipt of the Equipment examine packing for obvious signs of damage. If damaged, do not unpack and inform the carrier immediately. Check thanks to the included packing list if all the items are present and if they show any mechanical damage. If yes, report damage or the missing parts to EVS or their appropriate representative.

1.2   Dimensions

Audio disk recorder (ADR)
Rackmount 1U - Weight: 11.5 Kg / 25.3Lbs
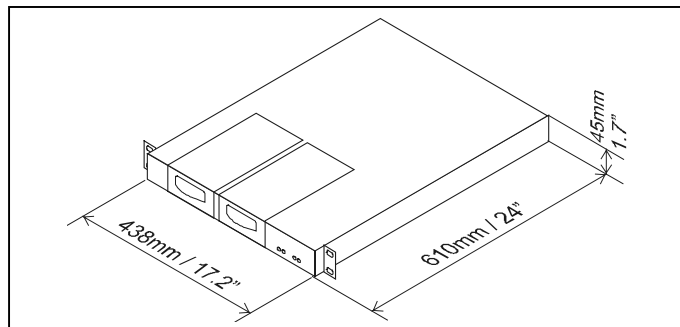
1.3   Installation

Before turning on the power, check that both hard disk removable cartridges are <u>fully engaged and locked</u>. If a cartridge is not properly locked, the hard disk will not start. Both cartridges are necessary for proper termination of the SCSI line, and at least one of them must be equipped with one hard disk drive.

1.4   Operating conditions

1.4.1 Power Supply

The EVS Audio Disk Recorder operates on 100-127/200-250 VAC, 4.2/2.2 A, 50/60 Hz, 110W maximum. The power supply is AUTO SWITCH within the permitted voltage range.

1.4.2 Grounding

Ensure the Disk recorder unit is properly grounded at all times to avoid electrical shock hazard.

1.4.3 Location

Avoid using the Disk recorder unit in areas having high humidity (less 90% non-condensing), high temperature (+5°C to +35°C / 41°F to 95°F), or excessive dust.

1.4.4 Ventilation & Rack Mounting

Adequate ventilation is obviously required for optimum performance. As result of this consideration, ensure no other Equipment is located close to either unit. In order to avoid overheating problems we recommend the following rack mounting layout:
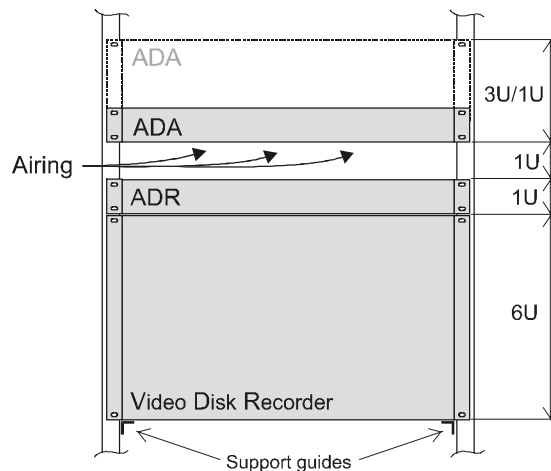
⚠	Remember that fans are used to air cool Equipment to protect from overheating, **do not block fans intakes during operations**

Having regard to the weight of the ADR units, lateral supports are required for these units into the rack mount.
The front ears of these units are not designed to support their full weight.
Applying full weight on these might result in bending the metal plate.

1.4.5 Compliance

The EVS Disk recorder systems are in compliance with the Class A norm of the FCC rules and has been verified to comply with the electromagnetic compatibility standards of the European Directive 89/336/EEC particularly standards EN50081-1 and EN50082-2. All EVS applications and products are Year 2000 compliant.

Chapter 2 – CABLING

2.1 Peripheral Equipment, Genlock and Timecode references

ADR Rear panel

Disk Recorder Mainframe
Rear panel

Genlock
Reference

LTC Timecode
reference
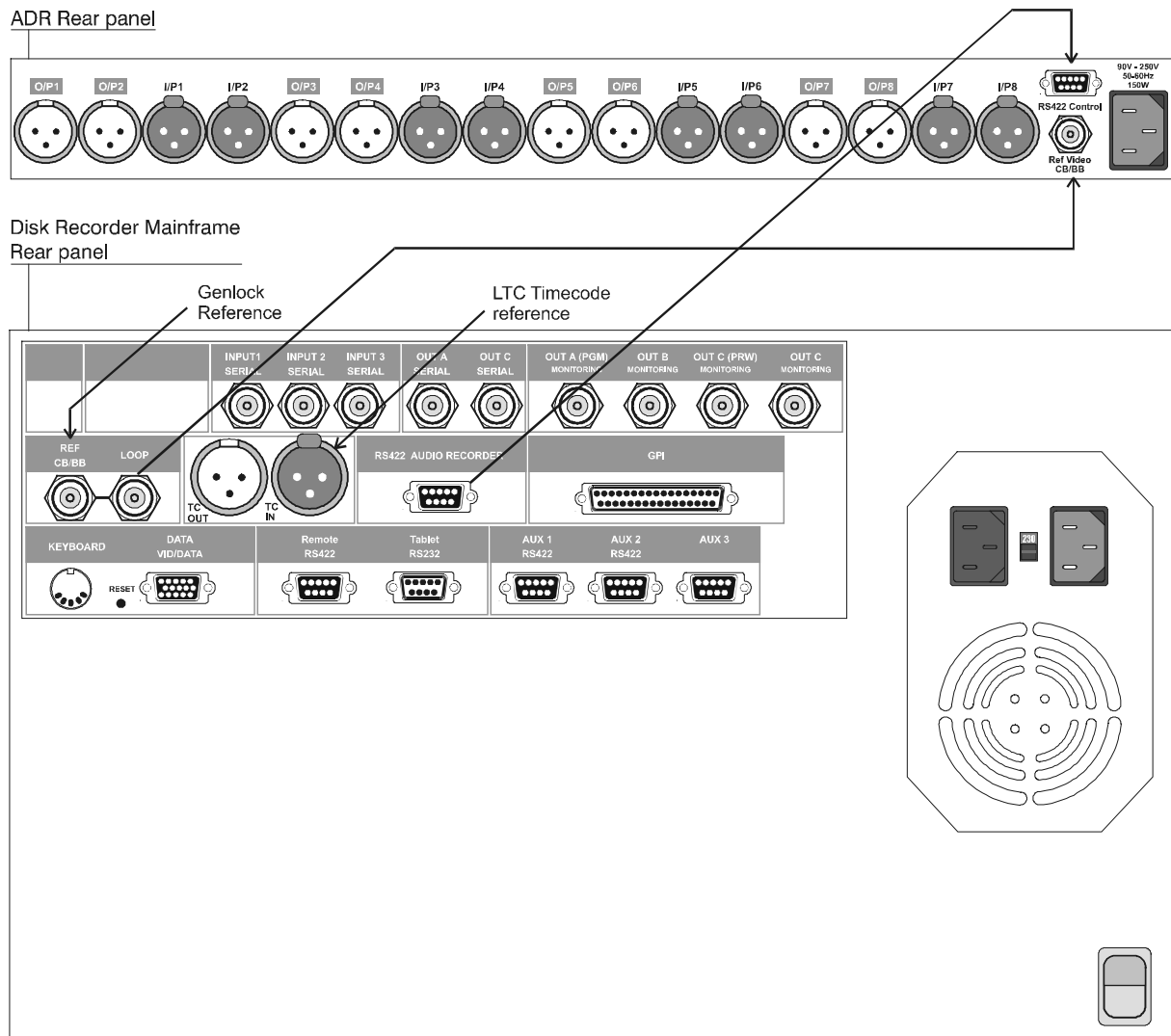
Comment : *The ADR and the Mainframe must be genlocked with the same reference signal, otherwise the synchronisation between audio and video might drift in time.*

2.2 Audio disk recorder cabling:

2.2.1 HCT2

If the ADR is used in conjunction with an HCT2 video disk recorder:

The HCT2 video disk recorder can be identified by the wide SCSI flat cables connecting the video hard disks to the controller. These cables are easily visible when removing the video disk recorder front door.

Only the 2-Camera Live Slow Motion, Air Edit and Video Delay applications are available using the combination of the ADR and HCT2 video disk recorder. Please refer to the corresponding application's User's Manual for more details.

<u>2 CAM's</u>
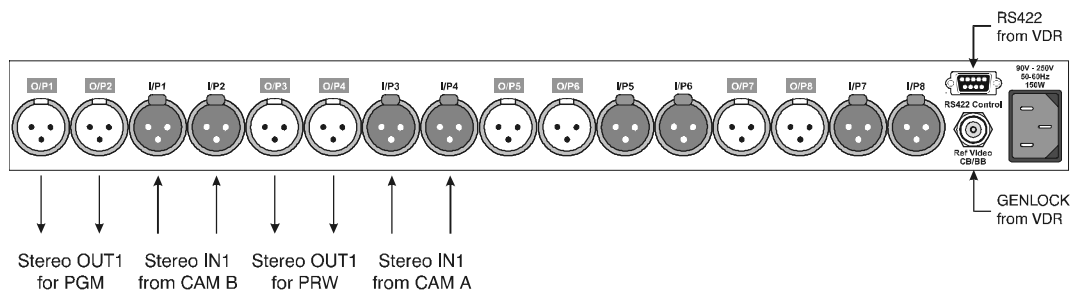
VIDEO DELAY - 2 channels

Audio channels = 2
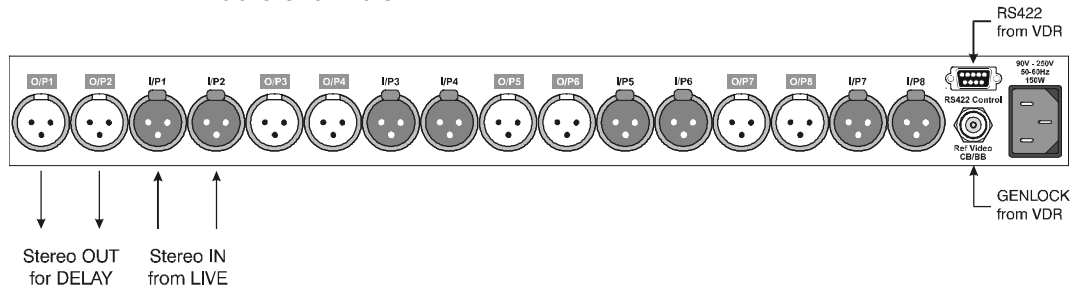
Audio channels = 4
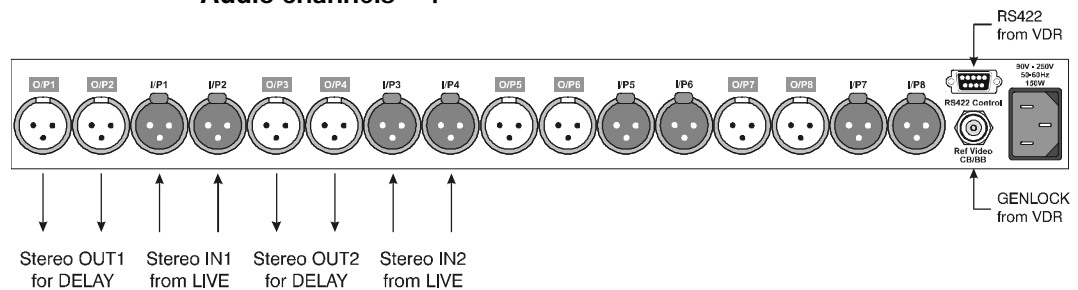
Audio channels = 6
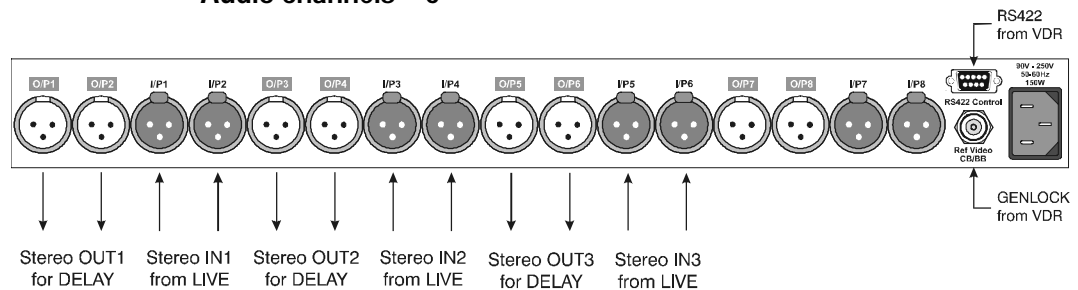
Audio channels = 8
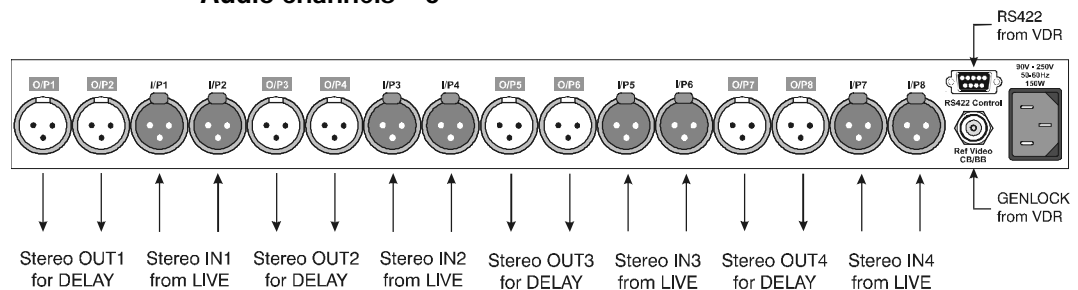
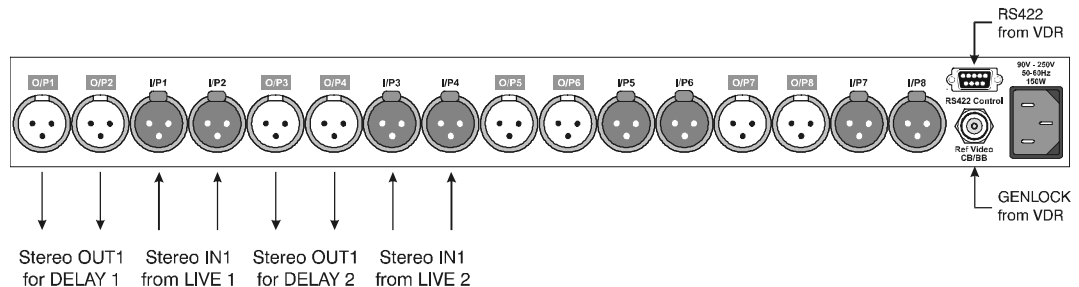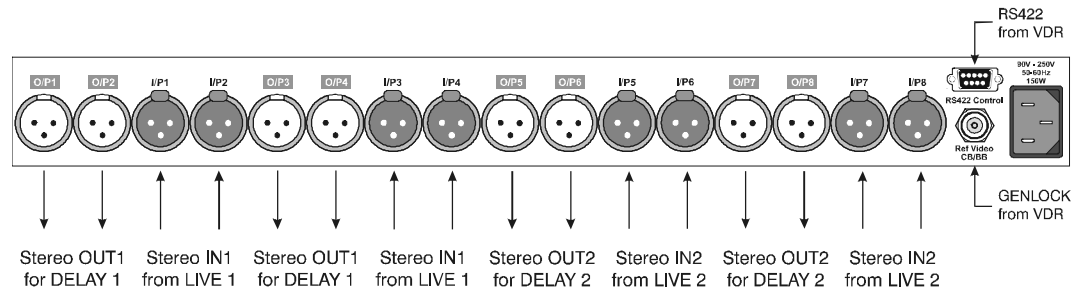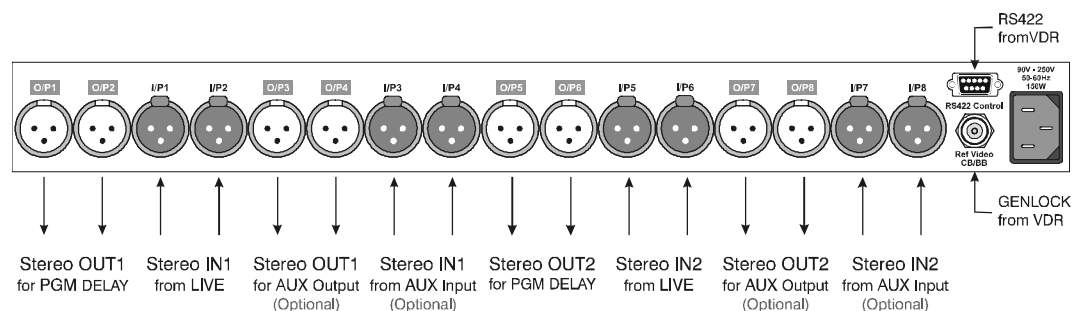### VIDEO DELAY - 4 channels

Audio channels = 4

Audio channels = 8

Air Edit

Comment1 :The AUX INPUT is available with the 4-channel systems only (2nd video I/O board required)

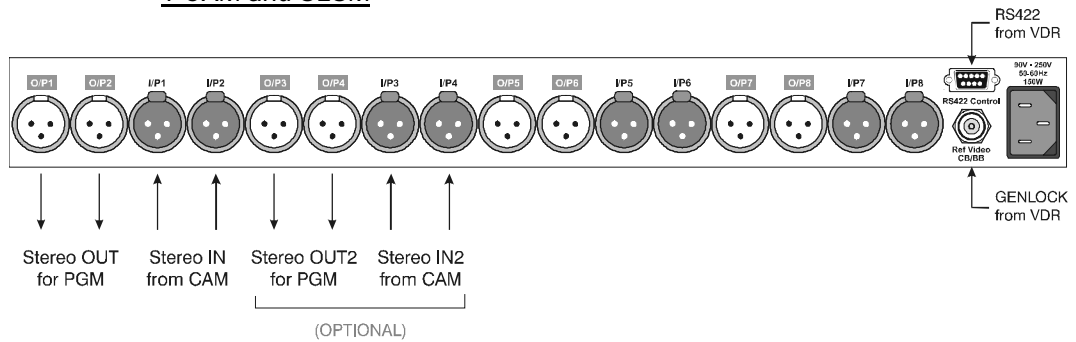*Comment2 :To activate the 2nd stereo channel, the 'm' parameter must be added to the Air Edit command line.*

2.2.2 HCT4

If the ADR is used in conjunction with a VideoRaid (HCT4) video disk recorder:
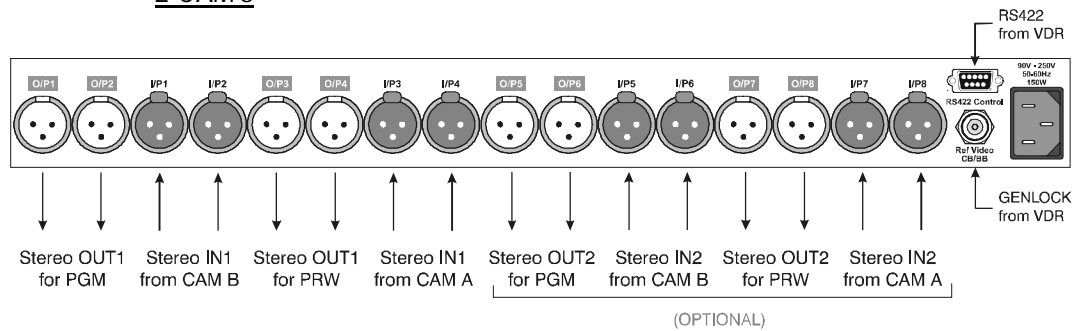
The VideoRaid video disk recorder can be identified by the small vertical connecting board linking the HCT4 controller board to the video codec boards. This board is clearly visible when removing the video disk recorder's front door.

Various applications are availaible with the VideoRaid disk recorder. Please refer to the corresponding manual for more details.
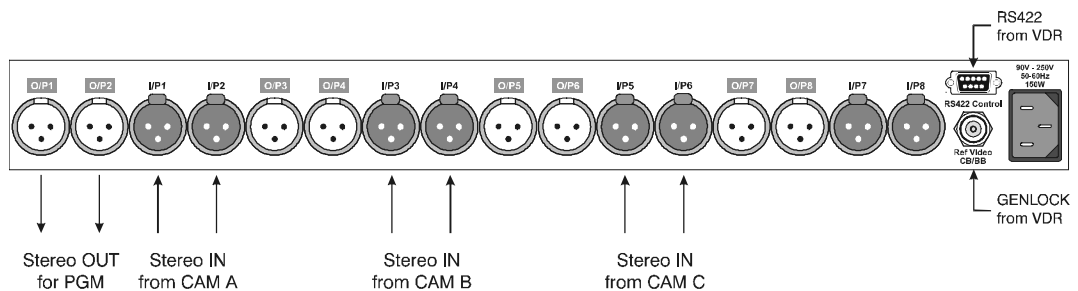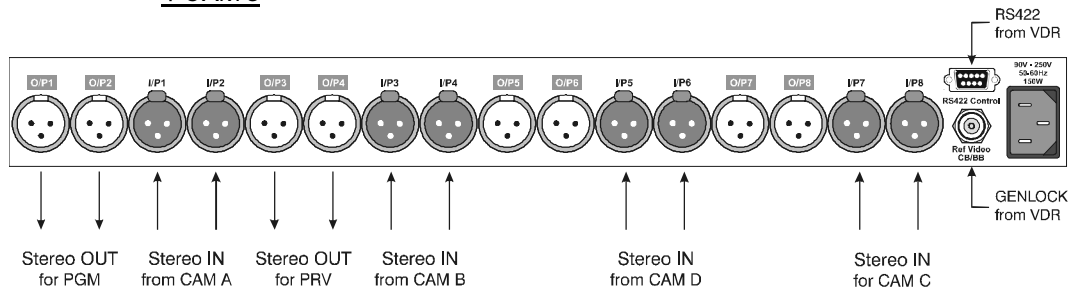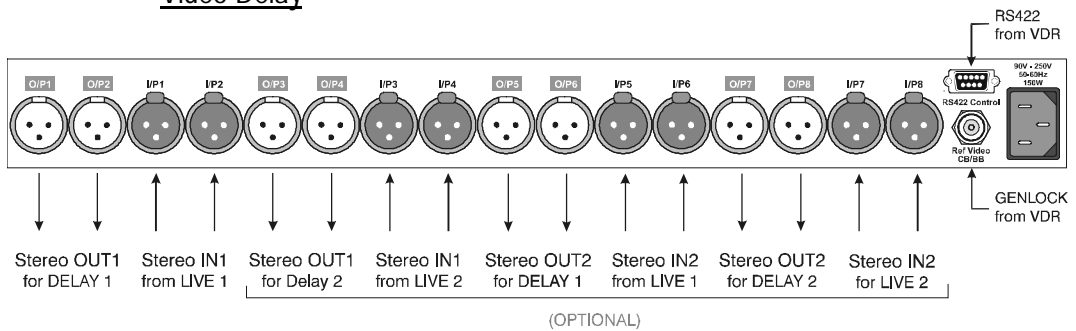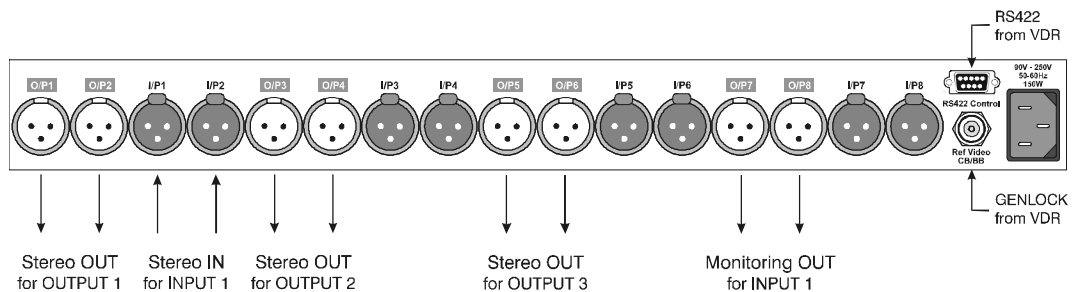
<u>1 CAM and SLSM</u>

<u>2 CAM's</u>

<u>3 CAM's</u>

4 CAM's

RS422
from VDR

90V - 250V
50-60Hz
150W

RS422 Control

Ref Video
CB/BB

GENLOCK
from VDR

Stereo OUT for PGM | Stereo IN from CAM A | Stereo OUT for PRV | Stereo IN from CAM B | Stereo IN from CAM D | Stereo IN for CAM C

Video Delay

RS422
from VDR

90V - 250V
50-60Hz
150W

RS422 Control

Ref Video
CB/BB

GENLOCK
from VDR

Stereo OUT1 for DELAY 1 | Stereo IN1 from LIVE 1 | Stereo OUT1 for Delay 2 | Stereo IN1 from LIVE 2 | Stereo OUT2 for DELAY 1 | Stereo IN2 from LIVE 1 | Stereo OUT2 for DELAY 2 | Stereo IN2 for LIVE 2

(OPTIONAL)

Spot Box

RS422
from VDR

90V - 250V
50-60Hz
150W

RS422 Control

Ref Video
CB/BB

GENLOCK
from VDR

Stereo OUT for OUTPUT 1 | Stereo IN for INPUT 1 | Stereo OUT for OUTPUT 2 | Stereo OUT for OUTPUT 3 | Monitoring OUT for INPUT 1

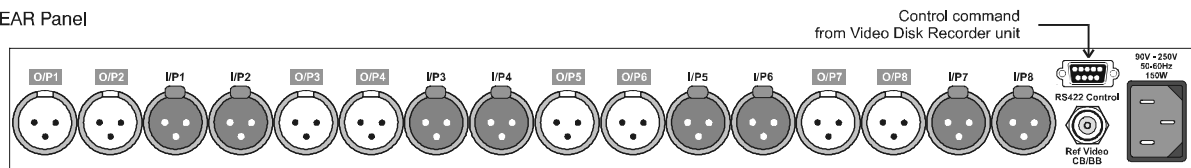# Chapter 3
Hardware description

Audio data is recorded uncompressed in the ADR unit (Audio Disk recorder)
The inputs / outputs are available from the rear panel of the 1 U external rack:
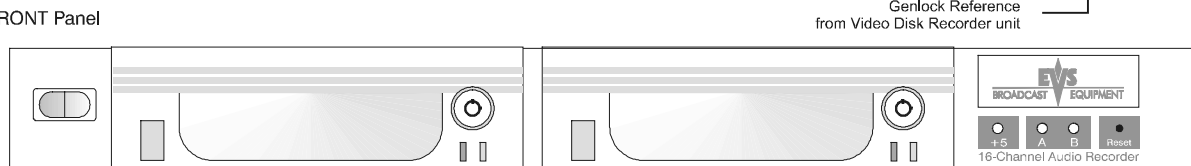Analogue Audio Channels 4 stereo IN / 4 stereo OUT 600 Ohms Balanced XLR.

Comment: *As the VDR (Video Disk Recorder) and the ADR are two separate units, the Genlock source is primordial and must be identical in order to avoid non-synchronism problems (lipsync) between the video and the audio while recording or playing back the material. On the rear panel of the Video Disk recorder unit, the LOOP connector of the REF CB/BB is assigned to that end.*
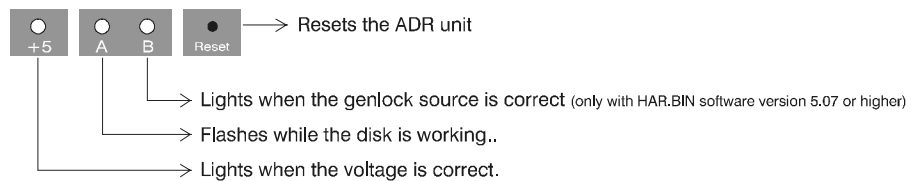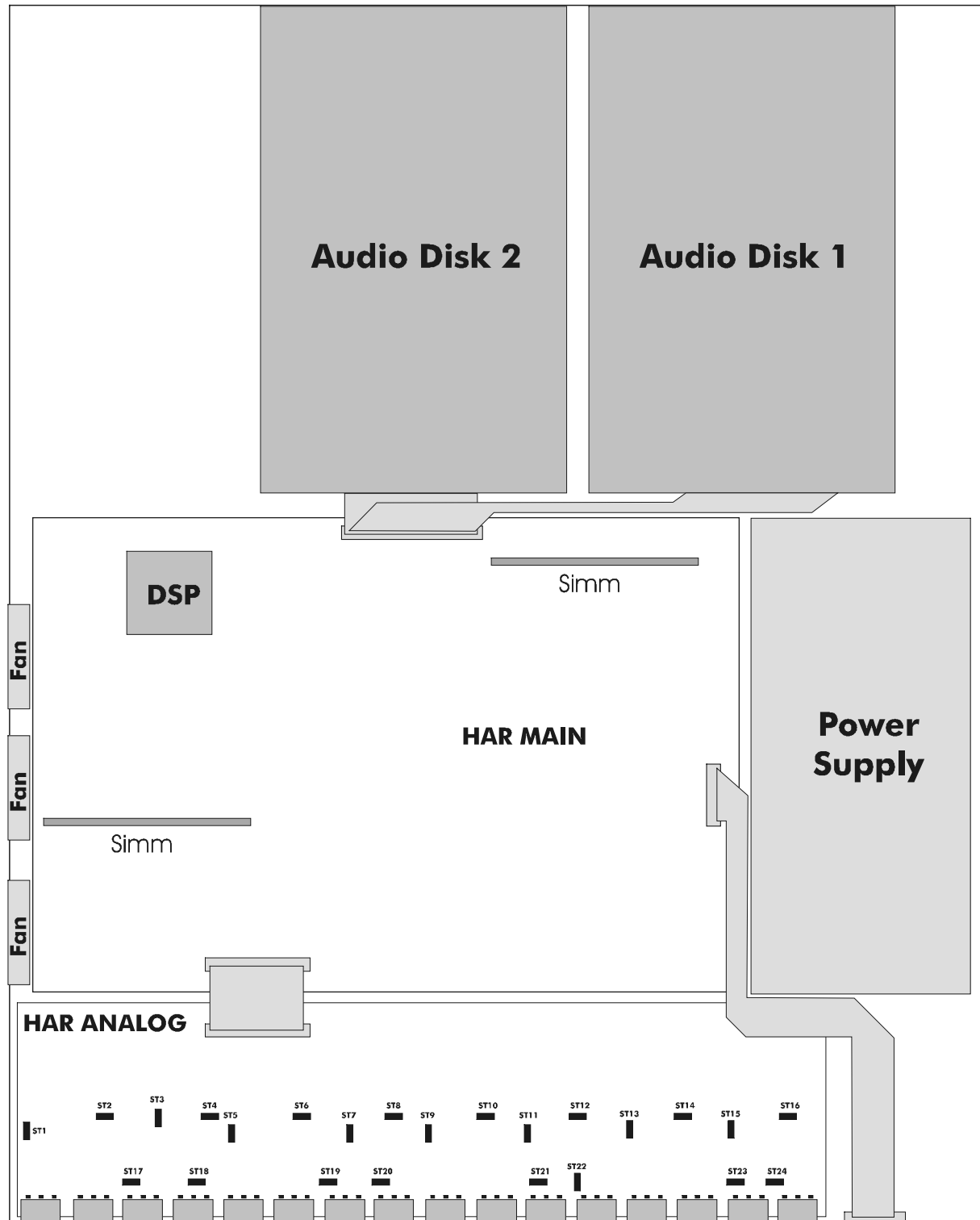
REAR Panel

FRONT Panel

LED's information:

→ Resets the ADR unit

→ Lights when the genlock source is correct (only with HAR.BIN software version 5.07 or higher)

→ Flashes while the disk is working..

→ Lights when the voltage is correct.

ADR internal configuration

Audio Level adjustements:

Peak and nominal audio levels of each channel can be adjusted independantly. These adjustments are made by changing jumpers positions inside the ADR.
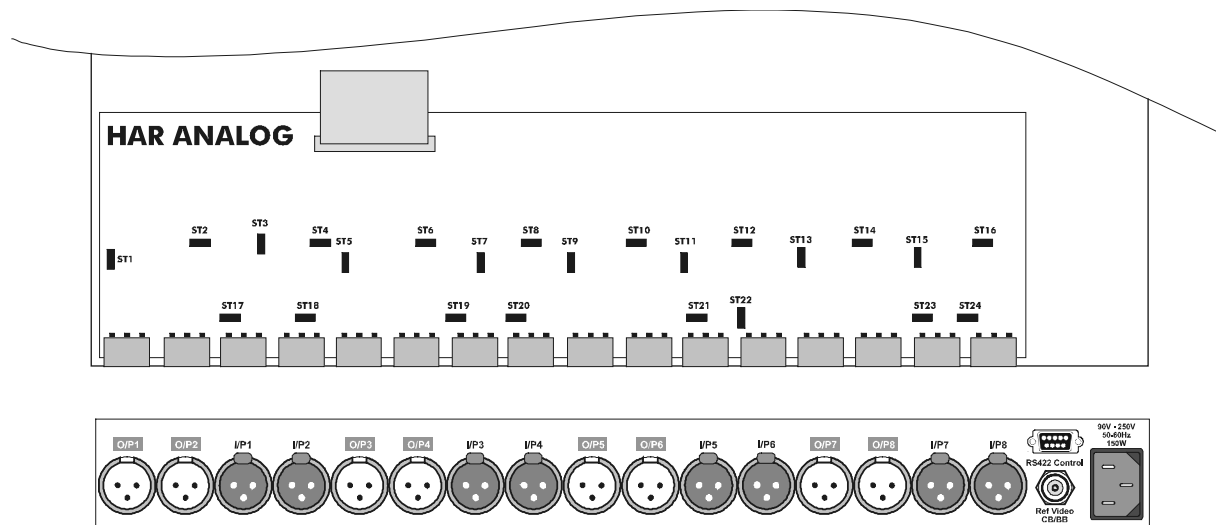
To access the jumper's positions, the cover of the ADR must be removed. This operation should be reserved to an qualified EVS technician. If you wish to perform these adjustment yourself, remove gently all screws to release cover plate.

Caution : *High voltage is present inside the ADR and can cause electric shocks resulting in serious hazards. Make sure the mains power cable is unplugged and wait at least 5 minutes to let electric capacitors discharge before opening the ADR.*

1. Peak levels: jumper select 12 or 18dBu
2. Nominal levels: jumper select –2 or 4 dBu
3. Input impedance: jumper select 47K or 600 Ohms
4. Output impedance: 600 Ohms
5. Software selectable input gain: 0 to 22.5 dB (step 1.5 dB)
6. Default: 0 dB otherwise cahnge levels specs
7. Software selectable output attenuation: 0 dB to –46.5 dB (step 1.5 dB)

Rem:

1. The jumpers for selecting the input impedance are located next to the corresponding XLR connectors.
2. The jumpers for selecting the input and the output levels are located opposite the corresponding XLR connectors, next to the operational amplifiers.

HAR ANALOG

ST1 ST2 ST3 ST4 ST5 ST6 ST7 ST8 ST9 ST10 ST11 ST12 ST13 ST14 ST15 ST16
ST17 ST18 ST19 ST20 ST21 ST22 ST23 ST24

O/P1 O/P2 I/P1 I/P2 O/P3 O/P4 I/P3 I/P4 O/P5 O/P6 I/P5 I/P6 O/P7 O/P8 I/P7 I/P8 RS422 Control Ref Video CB/BB 90V - 250V 50-60Hz 150W

Jumpers Settings:

ST17-24: Input impedance
              Closed: 600 Ohms
(default)   Open: 47Kohms

ST 1-2, 5-6, 9-10, 13-14: Peak & Nominal outputs levels
(default)   Closed: Peak level 18 dBu, Nominal level 4dBu
                  Open: Peak level 12dBu, Nominal level –2dBu

ST 3-4, 7-8, 11-12, 15-16: Peak & Nominal Inputs levels
                  Closed: Peak level 12 dBu, Nominal level –2 dBu
(default)   Open: Peak level 18 dBu, Nominal level 4 dBu

Make sure that settings are consistent for all channels. Should this not be the case, it would result in different audio levels, depending on the selected channels.

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