V1-HD
V1-UHD
V1-UHD/LE
Video Servers

User Manual

Version 5.0

Table of Contents

WARNING

THIS APPARATUS MUST BE EARTHED

IMPORTANT

WARNING

Power requirements for electrical equipment vary from area to area. Please ensure that your V1 meets the power requirements in your area. If in doubt, consult a qualified electrician or Doremi Labs, Inc. dealer.

120VAC	@60Hz for USA and CANADA rating 1A
220-230/240VAC	@50Hz for Europe rating 0.5A
240VAC	@50Hz for Australia rating 0.5A

AVIS

Le voltage peut différer d'un pays à l'autre. Il faut que le V1 soit ajuste au voltage du pays.

LA SOURCE DE PUISSANCE DOIT AVOIR UN CONDUCTEUR CONNECTE A LA TERRE.

Toutes réparations doivent être effectuées par une personne qualifiée.

AFIN D'EVITER UN CHOC ELECTRIQUE, VEUILLEZ NE PAS ENLEVER LE CAPOT.

PROTECTING YOURSELF AND THE V1

Never touch the AC plug with wet hands

Always disconnect the V1 from the power supply by pulling on the plug, not the cord.

Allow only a Doremi Labs, Inc. dealer or qualified professional engineer to repair or reassemble the V1. Apart from voiding the warranty, unqualified engineers might touch live internal parts and receive a serious electric shock

Do not put, or allow anyone to put any object, especially metal objects into the V1

Use only an AC power supply. Never use a DC power supply.

If water or any other liquid is spilled into or onto the V1, disconnect the power, and call your dealer.

Make sure the unit is well ventilated, and away from direct sunlight.

To avoid damage to internal circuitry, as well as the external finish, keep the V1 away from sources of direct heat (stoves, radiators, etc.).

Avoid using aerosol insecticides, etc. near the V1. They may damage the surface, and may ignite.

Do not use denatured alcohol, thinner or similar chemicals to clean the V1. They will damage the finish.

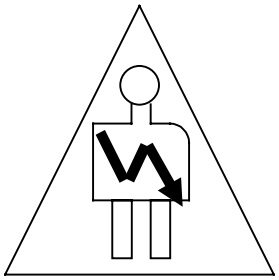
Modification of this equipment is dangerous, and can result in the functions of the V1 being impaired. Never attempt to modify the equipment in any way.

In order to ensure optimum performance of your V1, select the setup location carefully, and make sure the equipment is used properly. Avoid setting up the V1 in the following locations:

1. In a humid or dusty environment
2. In a room with poor ventilation
3. On a surface that is not horizontal
4. Inside a vehicle such as a car, where it will be subject to vibration
5. In an extremely hot or cold environment

WARNING!!

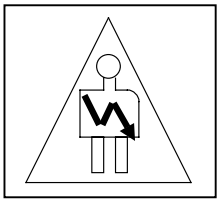
To prevent fire or shock hazard, do not expose this appliance to rain or moisture



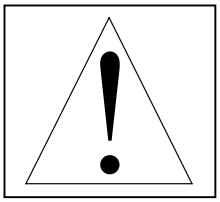
CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with the arrowhead symbol superimposed across a graphical representation of a person, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CE NOTICE

Marking by the symbol CE indicates compliance of the device to the EMC (Electromagnetic Compatibility) directive and to the Low Voltage directive of the European Community. Such marking is indicative that this device meets or exceeds the following technical standard:

- EN 55022 "Limits and Methods of Measurement of Radio Interface Characteristics of Information Technology Equipment."

A "Declaration of Conformity" in accordance with the above standard has been made and is on file at Doremi Labs, Europe, Valbonne, France.

1 Introduction

Thank you for your V1 purchase. The V1 is a random access video recorder that uses magnetic drives (hard drives) as a recording medium.

To record video on a hard drive it should be digitized which means that the analog video information must be converted to a digital data stream.

The V1 line of products includes uncompressed video recorders (8 and 10 bit encoding) and compressed video recorders, the trade off is between storage requirement and video quality.

Hopefully this introduction explains to the reader the basic technical principles of digital video disk recording.

1.1 V1 Uncompressed HD

The V1-UHD and V1-UHD/LE (for HDTV video) series records the video directly on the hard drive without the use of compression. The value priced V1-UHD/LE supports 8bit HD video recording only.

1.2 V1 Compressed HD: JPEG2000

Doremi's V1-HD product line uses JPEG2000 video compression.

1.3 The CBS Algorithm

The V1 uses a constant block size (CBS) algorithm. With traditional compression algorithms, depending on video complexity, the size of each compression field can vary thus requiring maintaining a list to indicate the start of each field on the drive. With CBS all fields have the same maximum size. Consequently, CBS does not require maintaining a list indicating the start of each field because they are all the same size. This results in a more reliable video recorder with faster video access and frame accurate recording.

1.4 Audio and Time Code

In addition to the video, and regardless of the compression ratio used, the V1 records 2, 4, 6 or 8 tracks of uncompressed audio (sampled at 48Khz). It also records the LTC and digital-VITC timecodes.

2 Design of Manual

2.1 Product Series

This user manual covers the V1 JPEG2000 and Uncompressed HD series. Although the basic operation of all V1 products is the same, there are minor differences. When a feature refers to only one product series, that function will be highlighted in bold with the name of the product as seen in the examples below:

>>V1-UHD Only – for the HDTV Uncompressed product series only. If features are supported on the V1-UHD and not on the V1-UHD/LE that will be highlighted in the text.

>>V1-HD Only – for the JPEG2000 compression product series only (V1-HD)

2.2 Firmware Versions

This manual was written with the product firmware numbers below:

- **HDTV Uncompressed (V1-UHD): 4.62e**
- **JPEG2000 (V1-HD): 4.62e**
- **Front Panel (RCV2) firmware 1.20**

The V1 firmware can be checked by going to the OPTION MENU (hold the **OPTION** button then press the **MENU** button). Press the up ▲ or down ▼ Menu buttons till you reach menu number 00. Press ++ until you see the version number V1 (no.).

Check the front panel firmware in the CONTROLLER MENU. Hold the **ESCAPE** button and press **MENU.** And then scroll to *Firmware.*

If you have a newer firmware than shown above, check the addendum pages on the back of this manual for a list of changes and additions. If you have recently upgraded your firmware please print out the README document included in the zip file with the new firmware. You can also download the latest V1 manual from our tech support page “manual” section on the Doremi website www.doremilabs.com.

If you will not be upgrading, you can download older manuals from the Doremi FTP page.

2.3 Menu Customs

CAPITAL & BOLD text is used when referring to buttons on the front panel.

Menu (no.) text provides the MENU, OPTION MENU, or CONTROLLER MENU name and the menu function #.

3 Installation

The procedures provided in this section are the following:

- Connections for basic operation, see paragraph **3.1**
- Power on and shut down, see paragraph **3.2**
- Ethernet, see paragraph **3.3**
- Connecting RS422, see paragraph **3.4**
- Connecting GPI, see paragraph **3.5**

3.1 Connections for Basic Operation

Depending on the option, additional connector can be available on the rear panel. This paragraph provides only a common connection setup for basic operations only. In order to facilitate the understanding, some parts are shadowed on the figures below.

3.1.1 Basic Input Connections

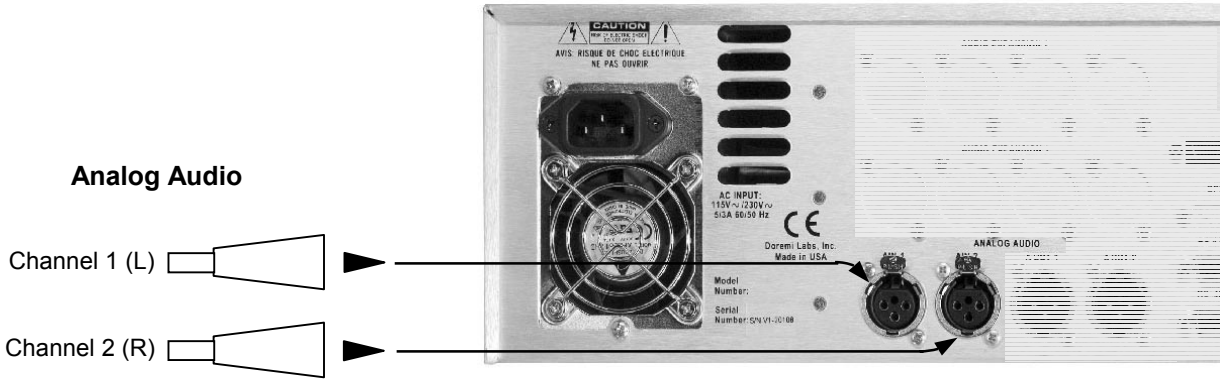


Figure 1: Audio Inputs – V1 Rear Panel

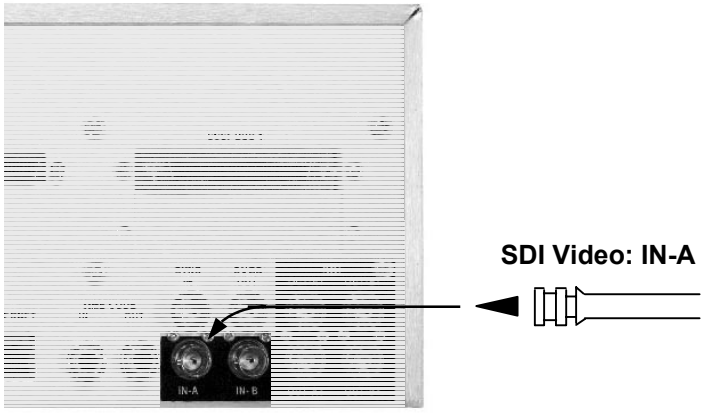


Figure 2: Video Input – V1 Rear Panel

3.1.2 Basic Output Connections

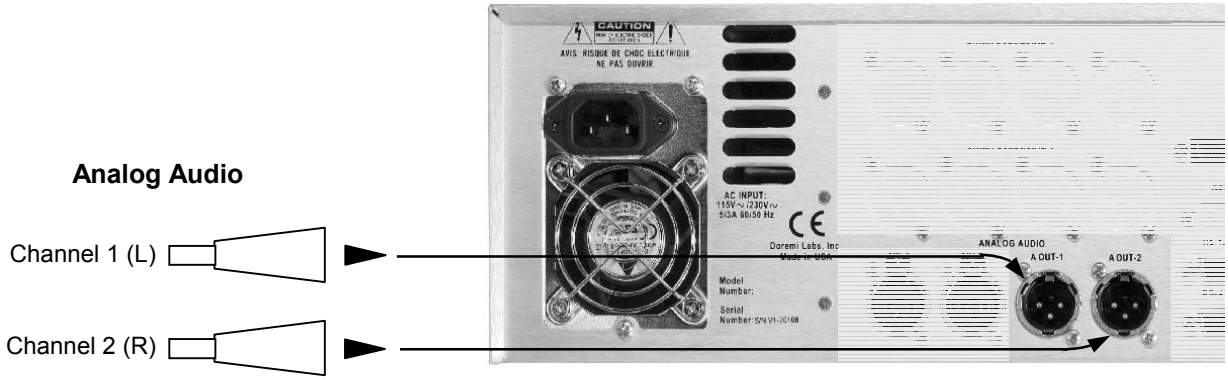


Figure 3: Audio Outputs – V1 Rear Panel

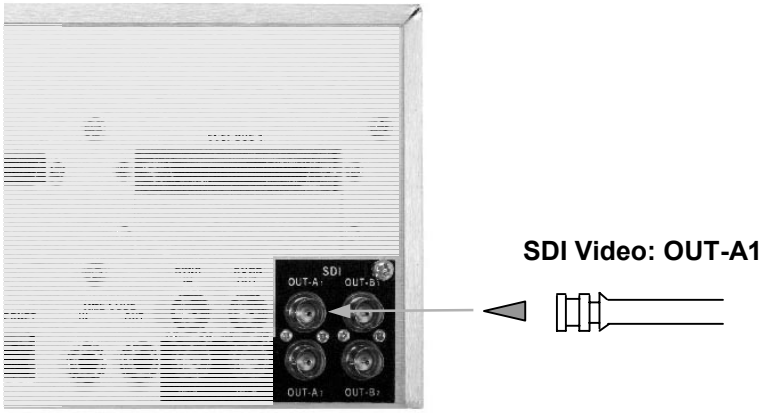


Figure 4: Video Output – V1 Rear Panel

3.1.3 Power Connection

Please connect the power connector as shown on the figure below:

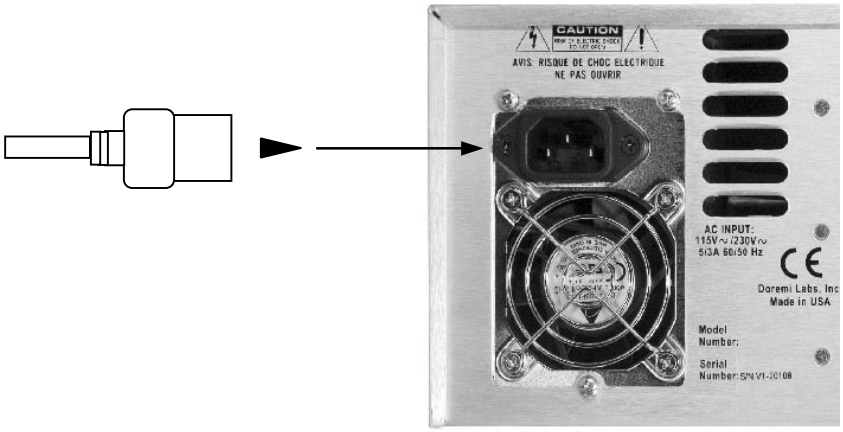


Figure 5: Power Connection – V1 Rear Panel

3.2 Power On and Shut Down

To power the V1 on or to shut it down, just press on the power button located on the front panel – make sure the V1 is connected to power according to paragraph **3.1.3**.

Figure 6: Power Button - Front Panel

3.3 Ethernet

To set up the Ethernet network, connect the Ethernet cable to the Ethernet port of the V1 unit as presented below – note that if your unit is fitted with an optional Gigabit Ethernet connector, that optional connector has to be used instead of the connector presented below:

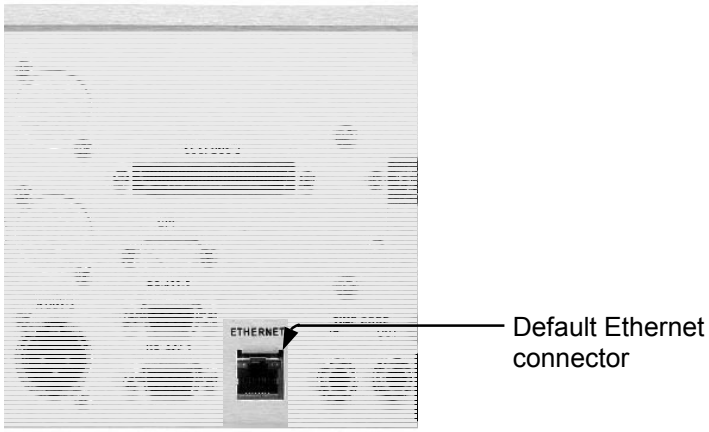


Figure 7: Ethernet Connector – Rear Panel

3.4 Connecting RS422

To use one of the RS422 port, connect the corresponding cable(s) to the RS422 connector(s) presented below:

Figure 8: RS-422 Connectors – Rear Panel

3.5 Connecting GPI

No GPI connector is directly available on the V1. To use GPI triggers, contact Doremi Labs, Inc in order to buy a RS422/GPI converter.

4 Quick Start Procedures

The quick start procedures provided in this section are the following:

- Navigation, see paragraph **4.1**
- How to create a video segment, see paragraph **4.2**
- How to play a video segment, see paragraph **4.3**
- How to make a single video segment loop, see paragraph **4.4**
- How to create a playlist, see paragraph **4.5**
- How to play a playlist, see paragraph **4.6**
- Basic Menu Operation, see paragraph **4.7**
- Setting record parameters with the V1 multi-file system (MFS), see paragraph **4.8**
- Setup V1 for playback, see paragraph **4.9**
- Setup V1 for record, see paragraph **4.10**
- Remote Operation, see paragraph **4.11**
- Save current settings to memory, see paragraph **4.12**
- Getting the firmware version number of the V1, see paragraph **4.13**

4.1 Navigation

The procedure below allows you to navigate within the video on the drive according to a starting point that you choose.

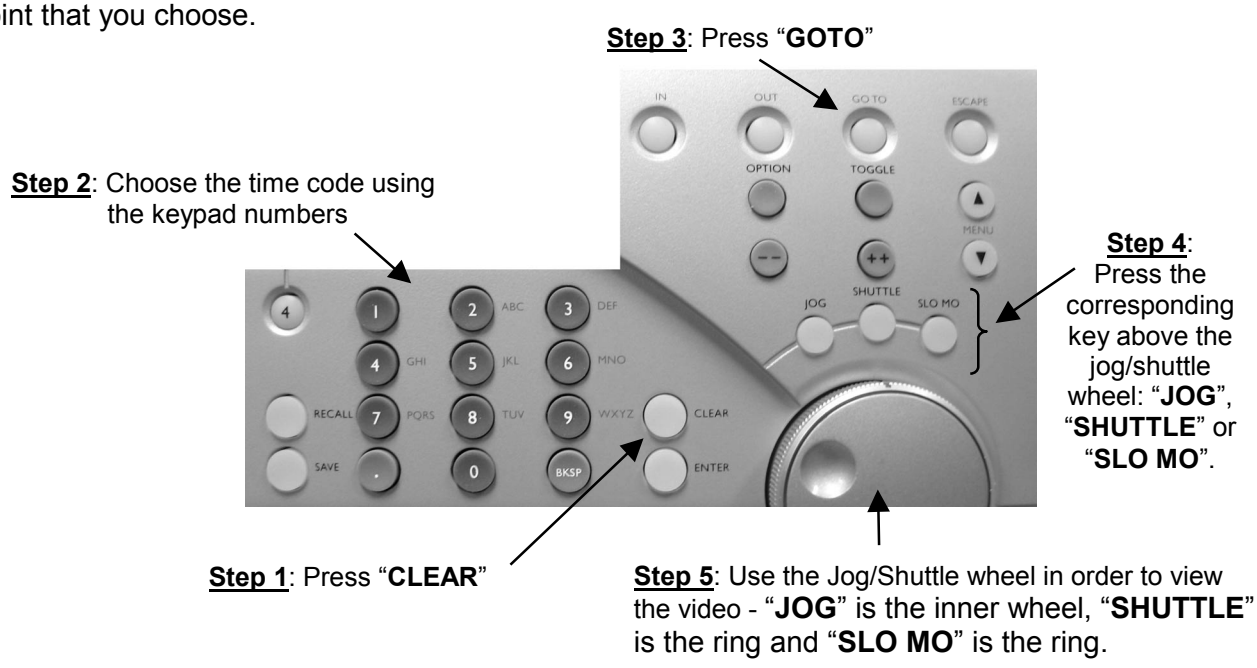


Figure 9: Navigation

4.2 How to Create a Video Segment

The procedure below allows you to create a video segment:

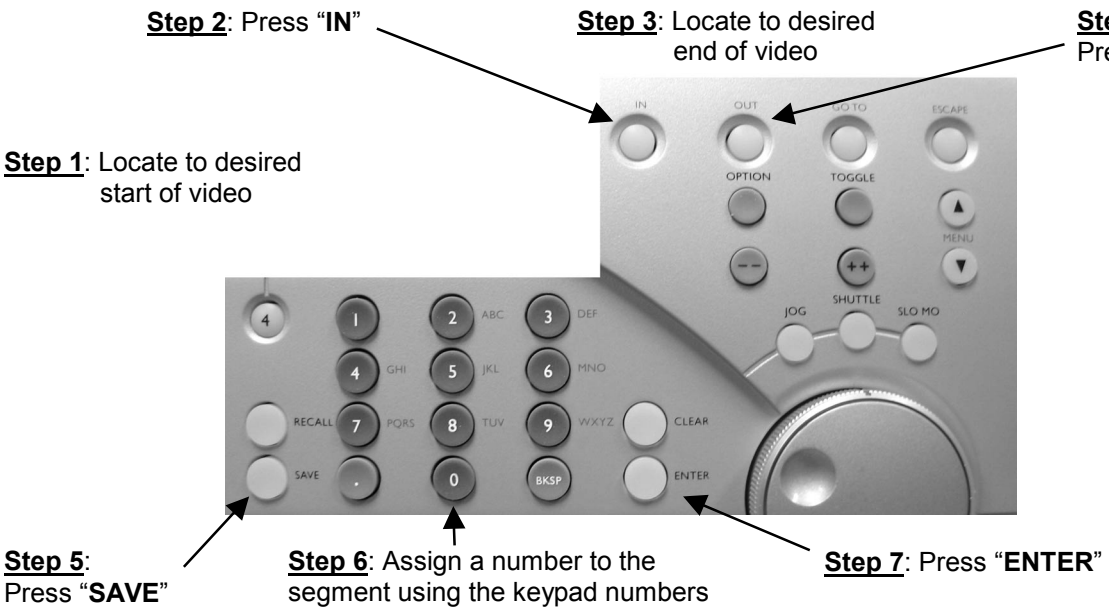


Figure 10: Video Segment Creation

Note: "**IN**" and "**OUT**" can also be pressed while video is playing.

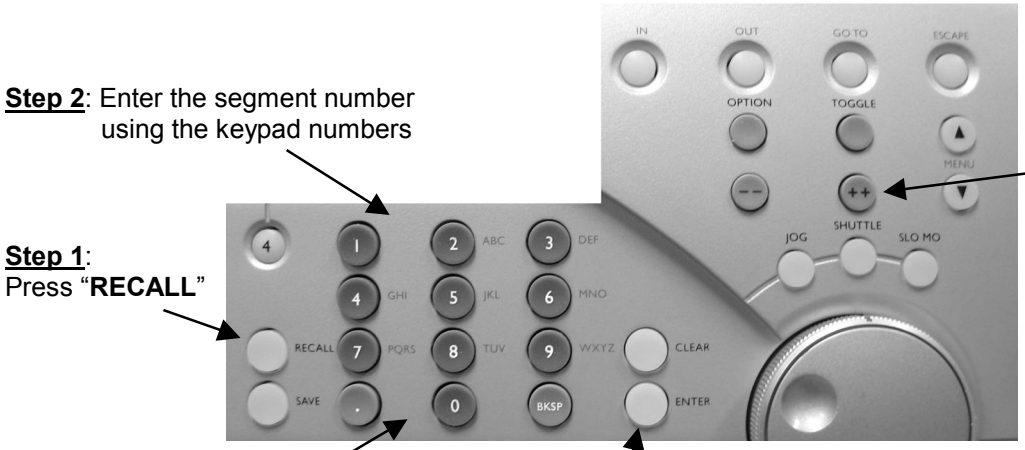
4.3 How to Play a Video Segment

The procedure below explains how to play a video segment – assuming that the segment exists.

Figure 11: How to Play a Video Segment

4.4 How to Make a Single Video Segment Loop

The procedure below explains how to make a single video segment loop – assuming that the segment exists.



Step 2: Enter the segment number using the keypad numbers

Step 3: Press "**++**"

Step 1: Press "**RECALL**"

Step 4: Enter the same segment number again

Step 5: Press "**ENTER**"

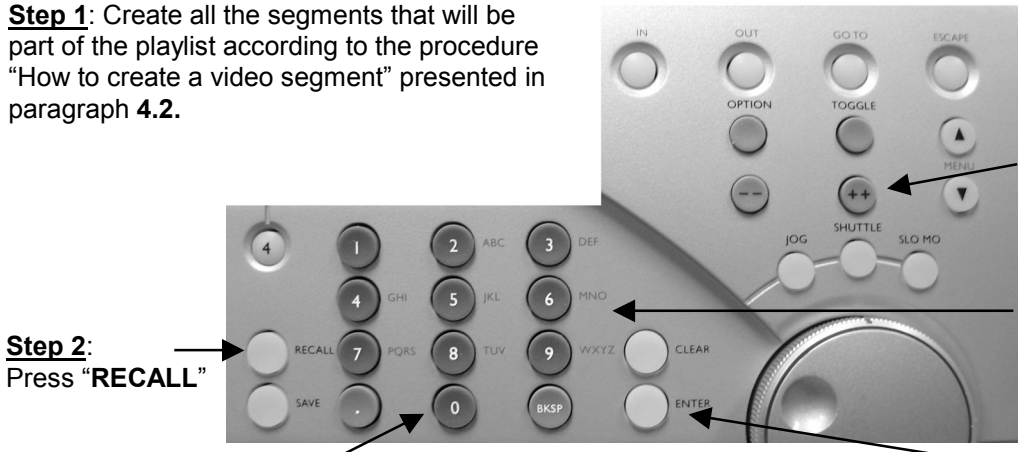
Step 6: Play the looped segment according to the procedure presented in the paragraph **4.3** above.

Figure 12: How to Make a Single Video Segment Loop

4.5 How to Create a Playlist

The procedure below explains how to create a playlist:

Step 1: Create all the segments that will be part of the playlist according to the procedure "How to create a video segment" presented in paragraph **4.2.**



Step 4: Press "**++**"

Step 5: Enter the number of the next segment you want to put in the playlist – using the keypad numbers

Step 2: Press "**RECALL**"

Step 6: Press "**ENTER**"

Step 3: Enter the number of the first segment you want to put in the playlist - using the keypad numbers

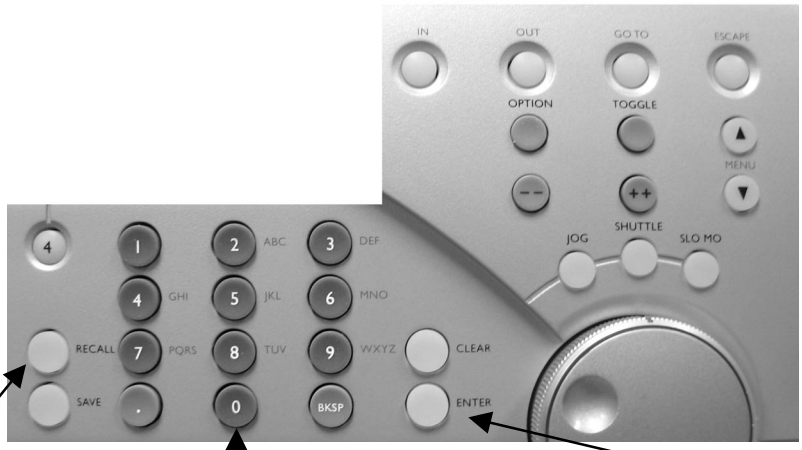
Step 7: Repeat step 2 to step 6 for the segment entered in step 5 in order to chain that segment to another one. Then, repeat step 7 until all the segments you want to process are entered.

Figure 13: How to Create a Playlist

Note: In order to loop the playlist, have the last video segment recall the first video segment.

4.6 How to Play a Playlist

The procedure below presents how to play a playlist:



Step 1: Press "**RECALL**"

Step 2: Enter the number of the first segment of the playlist – using the keypad numbers

Step 3: Press "**ENTER**"

Figure 14: How to Play a Playlist

4.7 Basic Menu Operations

Basic menu operations are presented below:

- Three different menus are available:
  - Browse the MENU by pressing the Menu ▲ or ▼ key
  - Browse the OPTION MENU by holding the "**OPTION**" button and press the MENU ▲ or ▼ key
  - Browse the CONTROLLER MENU by holding the "ESCAPE" button and press the MENU ▲ or ▼ key
- Menu Navigation: To scroll from one menu item to the next, press the MENU ▲ or ▼ keys
- Change a value: Use the "**TOGGLE**" button or Jog Wheel
- Navigate the submenus: Use the "**++**"or "**--**"keys
- Exit the Menu or Abort: Press the "**ESCAPE**" button

4.8 Setting Record Parameters with the V1 Multi-File System (MFS)

The V1 will always contain one default file (clip). Each file has a default value of 24 hours.

When you create a new file, it will be created with all the settings currently specified in OPTION MENU (3) **New Rec Set**.

To change compression ratio, bit rate, NTSC or PAL etc… change the setting in **New Rec Set** and then create a new file as described below:

- To **create** a new file: hold **OPTION** and press **SAVE**. Press **ENTER** to create the file.
- To **load** an existing file: hold **OPTION** and press **RECALL**. Turn the Jog Wheel to browse through existing files, press **ENTER** to load the selected file.

- To **erase** a file: hold **OPTION** and press **CLEAR**. Turn the Jog Wheel to browse through existing files, press **ENTER** to erase the selected file.

4.9 Setup V1 for Playback

Before performing a playback, make sure the V1 has the correct setting parameters.

Basic playback setup is provided below:

1. Connect one of the V1's video output BNCs to a Video Monitor and the XLR audio output to a speaker.
2. Select **Sync Source** in MENU (3) and choose Internal Sync. Or select the sync source connected to the back panel.
3. Exit the MENU by pressing on "**ESCAPE**"
4. To play, go to the desired point of the video and press "**PLAY**".

4.10 Setup V1 for Record

Before performing a recording, make sure the V1 has the correct setting parameters.

Basic record setup is presented below:

1. Select **Audio Source** in MENU (6) and select your audio source format (Analog or SDI)
2. To record, locate to the desired point on the drive and hold "**RECORD**" then press "**PLAY"** or set **Rec at:** to "End F." in OPTION MENU (1) which will cause the V1 to start recording at the end of the last recorded video.

4.11 Remote Operation

Basic remote operation setup is provided below:

1. Connect your remote controller to RS-422-1 on the V1 back panel.
2. Select **Control** in MENU (1) and choose "**remote**".
3. Select **Transport** in OPTION MENU (1) and press "**++**" until you reach "**Emulate___**"and select your control protocol.

4.12 Save Current Settings to Memory

To save current setting, do the following:

1. Go to OPTION MENU (5) **Save Stngs**,
2. Press the "**TOGGLE**" key: LCD displays "Are you sure?",
3. Press the "**ENTER"** key for yes – the V1 will exit the Menu automatically

4.13 Getting the Firmware Version Number of the V1

To get the firmware version number of your V1, do the following:

1. Go to OPTION MENU (00),
2. Press "**++**" key until you reach "V1 y.xx". This is your firmware number. Note that for the V1-HD, there is also a J2K version displayed as follows: "j2k vers y.xx".

5 Product Description

5.1 Overview: V1-HD vs V1-UHD

Figure 15: V1-UHD and V1-UHD/LE Overview

The V1-UHD offers the superior resolution of high definition video in a compact full featured disk recorder. Instant access to video, uncompressed recording and networkable operation make the V1-UHD the ideal multi-format recorder. The V1-UHD is only three rack units high and is available with fixed or hot swappable internal drives. An external RAID5 chassis is also available.

The V1-UHD records high definition serial digital video (HD-SDI) and standard definition SDI video. Frame accurate control via RS-422 makes the V1-UHD a drop-in replacement for any HD video tape recorder. The available Gigabit Ethernet interface is ideal for fast network transfer of still image and movie files to/form graphics and editing workstations.

The V1-UHD/LE is a value version of the V1-UHD with two removable hot-swap drives. The V1-UHD/LE only supports 8bit HD-SDI recording. SD video can be recorded at 10bit or 8bit.

Figure 16: V1-HD Overview

Doremi's V1-HD server sets the standard for affordable high-performance HD video recording. The V1-HD records HD-SDI and SDI video using JPEG2000 compression at up to 300Mb/s.

For digital cinema applications, the V1-HD is available with dual link 4:4:4 recording and playback at 2K resolution. Dual-synchronized playback is supported for video+key, super-widescreen and 3D applications.

5.2 Front Panel

The V1 front panel (called the RCV2) contains space for up to 3 Low Profile SCSI drives, keypad, menu controls, transport controls, LCD display and an optional LCD video confidence monitor.

To *disable* the front panel and prevent accidental operation, hold the **OPTION** button then press **ESCAPE**. Press again to unlock the RCV2. When the RCV2 is in “disable mode” the letters “DIS” will be displayed in the top right corner of the LCD.

To *reset* the controller (soft reset) hold the 1, 2, 3 or 4 buttons and press **CLEAR**. This may be necessary to reset the LCD video monitor if you switch between NTSC & PAL formats.

5.2.1 Keypad Area

Figure 17: Keypad Area

1, **2**, **3**, **4** (Channel Selection): If your V1 is in 1R/P mode, only channel "1" can be selected. If it is in 1R-1P mode channels “1” and “2” can be selected.

AUD. SEL: Audio Select button: Switches between audio channel pairs for the headphone connection.

ALPHA-NUMERIC KEYPAD: This keypad is used to enter numeric data such as time code addresses, in and out points, locate points, etc. To enter data, simply begin typing the numbers and the display will automatically overwrite. To abort an operation, press the **ESCAPE** button. The display will revert to its previous setting. The **BKSP** (Backspace) button can be used to correct typing errors. The keypad can also be used to name Video Segments by using the corresponding letters (This Feature is not yet available).

RECALL: Recall a saved video segment. For more about segments See paragraph **6.4**.

SAVE: Save a video segment into a memory location number or name.

CLEAR: Clears the display to enter new data.

ENTER: Press after selecting a segment to play. Also to answer YES to the V1’s “are you sure?” question.

OPTION + **SAVE**: Creates a new file.

OPTION + **RECALL**: Recalls an existing file.

OPTION + **CLEAR**: Deletes an existing file.

5.2.2 Menu Controls and Jog/Shuttle

Figure 18: Jog/Shuttle Area

IN: Select the In time point for a Video Segment.

OUT: Select the Out time point for a Video Segment.

GOTO: To locate to a specific frame (field) from the V1 front panel, enter the time code location numbers from the numeric keypad and press **GOTO**.

ESCAPE: This is the escape button. Press it when you want to exit the menu mode.

OPTION: Selects the options menu. Hold down option button and press the **MENU** button.

TOGGLE: Use this button to change selections within most menus and options.

-- Nudge the value backward. Also locates one field or frame back from the current position. This depends if you are in frame or field mode - OPTION MENU (1).

++ Nudge the value forward. Also locates one field or frame forward from the current position. This depends if you are in frame or field mode - OPTION MENU (1).

MENU ▲ ▼ Pressing one of these buttons will engage the V1 MENU (See Section **9**). Pressing the **ESCAPE** button will return the V1 to the time code display mode. Scroll forward and backward through the menu by pressing the ▲ or ▼ keys.

OPTION + **MENU** Holding the **OPTION** button and pressing the **MENU** button will engage the V1 OPTION MENU (See section **10**).

ESCAPE + **MENU** Holding the **ESCAPE** button and pressing the **MENU** button will engage the V1 CONTROLLER MENU (See Section **11**).

OPTION + **ESC** Holding the **OPTON** button and pressing **ESC** will disable/enable the front panel controls of the V1. “DIS” will appear in the upper right corner of the LCD when the front panel controls are disabled.

OPTION + **IN** Holding the **OPTION** button and pressing **IN** will create a time code offset.

JOG/SHUTTLE WHEEL FUNCTIONS: Activates the following function when lit:

JOG: In Jog mode, the rotation of the Internal wheel will generate "Jog" steps in forward or reverse. Also does the same function as the **--** and the **++** buttons.

SHUTTLE: In Shuttle mode, the angle of the external wheel from its initial position will control the shuttle speed with 7 different values in each direction: **10%, 20%, 48%, 100%, 200%, 500%, 1000% in >> or <<.**

The value used and the direction (">>", "<<") is displayed on the bottom line of the LCD during the shuttle operation.

SLO MO: Activates the external wheel for slow motion control. The slow motion is forward only with predefined values of **0%, 3%, 10%, 15%, 20%, 26%, 30%, 39%, 48%, 60%, 65%, 75%, 81%, 87%, 93%, 100%**

5.2.3 Transport Controls

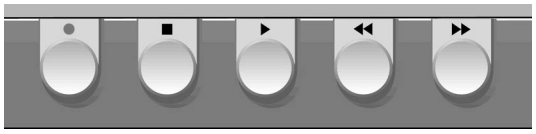


Figure 19: Transport Control Buttons

The V1’s standard transport controls include:

REC Record control button. This button also has other functions described elsewhere in this manual.

STOP Stop control button. The stop button will cause the V1 to stop any transport control (Play, record, rewind, fast forward).

PLAY Play control button. If the active drive has recorded material, pressing the PLAY button will start playback from the current location at normal speed. If the sync source selected is present, a dot will appear to the left of the PLAY message on the 4 lines LCD display.

REW Rewind control button with a speed of 40 times normal. When the rewind is close to the beginning of the recording, the speed is slowed down to normal until it reaches the start. Pressing this button again will increase the speed. There are three speed levels REW+REW+REW.

FF	Fast forward control button with a speed of 40 times normal. When the fast forward is close to the end of the recording, the speed is slowed down to normal until it reaches the end. Pressing this button again will increase the speed. There are three speed levels FF+FF+FF.
OPTION + **REW**	Reverse Play. Holding **OPTION** and then pressing **PLAY** will cause the V1 to play video at 100% reverse speed.
OPTION + **PLAY**	Executes the Chase Command. Hold **OPTION** and press **PLAY**. See **6.5**.

5.2.4 LCD Time Code Display

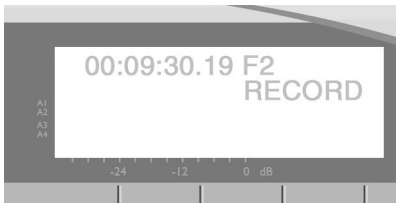


Figure 20: LCD Time Code Display

The First line of the display shows the following:

- Time location of the video material using the following format: "**HH:MM:SS:FF F1/F2"**
- "HH" represent the hours from 00 to 23, "MM" represent the minutes from 00 to 59, "SS" represents the seconds from 00 to 59, "FF" represents the frames from 00 to 24 in PAL frame-rates, 00 to 29 in NTSC frame-rates and 00 to 23 in 24P-48i frame-rates - "F1/F2" represent the field: "F1" for odd fields and "F2" for even fields.
- This display shows the **Time Code** depending upon what the user has selected in MENU (2) **Time Mode**. The display also shows Drop/NonDrop information; "." Means NonDrop and ";" means DROP frame. Field one shows "." Field two shows ":" or ";"

The Second line displays the following:

- At the V1 start-up, the bottom left displays the firmware version of the V1, then **No Disk** and **Scanning** messages will alternate on the left side, then **No MD Found** and **Scanning** messages will alternate once a disk is detected and **Stop** is displayed on the right side until a valid drive is recognized on the SCSI bus of the V1, in such case **No Disk, No MD Found** will disappear and only **Stop** will be displayed indicating that the V1 is now ready to access the drive. If **No Disk/Scanning** is still displayed even though a disk was installed, the V1 did not recognize the disk. If No MD Found / Scanning is still displayed, it is an indication that the V1 has detected a disk but it cannot be mounted – refer to paragraph **14.7** for details.
- During transport controls, the current operation is shown on the right side of the display: **Servo-Lock Dot, PLAY, STOP, REWIND, FORWARD, RECORD, JOG, SHUTTLE, VAR.**

  "VAR" is indicated during play in chase on LTC/MTC or in variable speed from RS422.
- During shuttle movement, the shuttle speed is shown as:

  If forward shuttle: **">> xx %"** with xx % = 10%, 20%, 48%, 100%, 200%, 500%, 1000%

  If reverse shuttle: **"<< xx %"** with xx % = 10%, 20%, 48%, 100%, 200%, 500%, 1000%

- During segment playback, the remaining time up to the OUT point is shown as **"no. : MM.SS",** where "no." is the number of the segment played from 001 to 2047, "MM.SS" is the remaining time up to the OUT point of the segment played in mn:sec
- During formatting, the message **Formatting**... is shown. During initialize, the message **Initializing** is shown. During drive copy, the message **Copying**... is shown, once done, **Copy Complete** is shown and if source drive has invalid recording, **Bad Param** or **Copy aborted** is shown.
- During the drives mounting (insert) and un-mounting (eject), the message **No disk** is displayed.

The Third and Fourth lines of the LCD display the Audio Level meters.

5.2.5 SCSI Drives

The V1 is shipped with either hard-mounted drive(s), a removable drive using a Data-Express or with external raid5 storage.

When mounted in a removable tray, hard drives can be removed (or installed) while the V1 is on-line (without the need to shut the unit off).

To remove (or install) a drive, insert the supplied drive key into the key slot on the receiver below the lit SCSI ID number and turn it clockwise (or counter-clockwise). When removing a drive, turning the key clockwise will unlock the drive and cut power off from it causing it to spin down.

Before removing a drive, wait until it has completely finished spinning down. This will usually take about 30 to 40 seconds depending on the drive.

5.2.6 LCD Video Display

Figure 21: LCD Video Display

Optional LCD video confidence monitor. The display can be turned OFF or ON in the CONTROLLER MENU (01) **Video** option.

To *reset* the entire front panel controller (soft reset) hold the **1, 2, 3** or **4** buttons and press **CLEAR**. This may be necessary to reset the LCD video monitor if you switch between NTSC frame-rates & PAL frame-rates formats.

5.3 Rear Panel Description

The V1 rear panel differs from one version to another. V1-HD and V1-UHD have the same rear panel even if differences can be found dues to optional connectors – e.g., audio expansions:

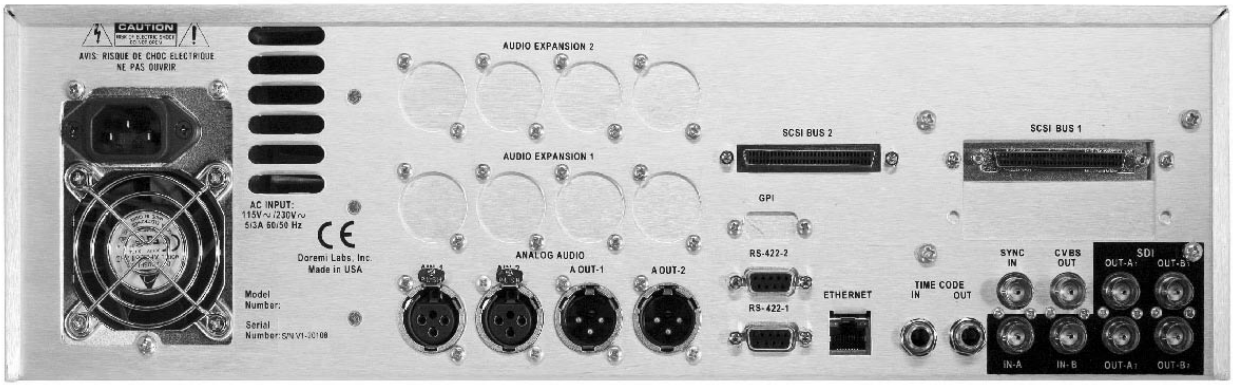


Figure 22: Rear Panel

5.3.1 Video In/Out

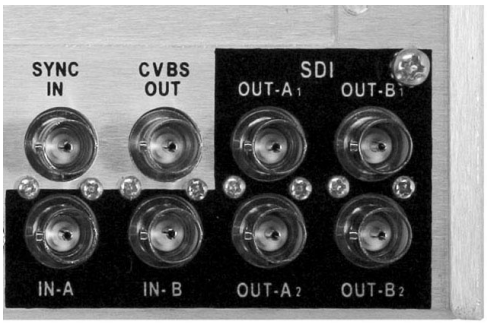


Figure 23: Video In/Out

SYNC IN House Sync input BNC connector for the V1 synchronization reference – Bi-Level or Tri-level sync input. Locks the V1 to an external sync source. Sync input should **not exceed 1V P-P**.

CVBS Composite Video Reference Output – Standard Video Resolution.

SDI Serial Digital Interface input and output BNC connectors:

- "IN-A" is an HD/SD SDI input, whereas "IN-B" is only valid when the unit is fitted with a dual link. Then A/B corresponds to the HD-SDI dual link inputs.
- Without dual link, OUT-A1, OUT-A2, OUT-B1 and OUT-B2 are HD/SD SDI outputs whereas in case of dual link, A1/B1 and A2/B2 represent two dual link outputs couples.

5.3.2 Audio In/Out

Analog Audio 2 channels analog XLR inputs and outputs. These XLR connectors are the balanced analog audio inputs and outputs. Pin 2 is hot (+), pin 3 is cold (-), and pin 1 is ground.

Digital Audio (option) 4 channels digital XLR inputs and outputs. Transformer balanced AES/EBU input and output. Pin 2 is hot (+), pin 3 is cold (-), and pin 1 is ground.

Audio Expansion1 Expansion Card Slot holds one of the following optional cards

A- 4 Channels AES / EBU

B- 2 Channels analog audio

Audio Expansion2 Expansion Card Slot holds one of the following optional cards

A- 4 Channels AES / EBU

B- 2 Channels analog audio

Embedded Audio on SDI Up to 8 channels of audio can travel with the SDI video.

5.3.3 9Pins Connector

RS-422-1: Primary serial interface connector to the V1. Connector 1 should be connected to your edit controller or workstation, while connector 2 can be used to connect the optional **RCV2-9p** external remote control from Doremi Labs.

RS-422-2 / + Biphase:

If all 9 jumpers on J34 are set to the RS422 position, this connector will be used as a second RS422 port (this is the default setting when the unit is shipped). If all 9 jumpers on J34 are set to MIDI+BP position, this connector will be used as a Biphase input with a +5V supply.

5.3.4 Ethernet

Ethernet: RJ45 connector 100BaseT. You can set a unique IP address for the V1 in Option MENU (00) **INFO/MODE** *IP (no.)*. Gigabit Ethernet is an option that uses another Ethernet connector. Then only the Gigabit connection is available – only one Ethernet connection is possible on the unit.

5.3.5 Time Code

Balanced TRS 1/4" input and output connectors for LTC time code. The V1 time code input accepts balanced signals (tip hot, ring cold & sleeve is ground). If you are feeding an unbalanced signal to it, **both** ring and sleeve **should** be connected to GND. You **can** use an **unbalanced** jack (tip and sleeve) on the **time code input** of the V1. The V1 time code output is a balanced signal (tip hot, ring cold & sleeve is ground). If you are feeding it to an unbalanced input, **ring should not be connected to anything**. You **cannot** use an **unbalanced** jack (tip and sleeve) on the **time code output** of the V1. If you connect time code from one V1 to another the cable should be balanced on both ends.

5.3.6 SCSI

Standard 68-pin female connector for connection to external SCSI drives. When connecting external Raid5 storage, the raid box should be terminated. All V1 internal drives supplied by Doremi Labs, Inc. are internally terminated.

6 Recording and Playback

6.1 Using the V1 Multi-File System

6.1.1 The Default File

The V1 will always contain one default file. The primary purpose of the default file is to allow operation without using files, thereby maintaining compatibility with existing video tape recorders.

The default file will not be included in the list of available files maintained by the V1, and will not be returned when a list of available files (clips) is requested. The default file may be specified and used for all other purposes. If no other valid file has been specified and loaded, such as on initialization and errors, the V1 will load the default file.

6.1.2 Creating a New File

Hold **OPTION** and press **SAVE**, the LCD will show you the automatically assigned name, press **ENTER** to create the file or **ESCAPE** to abort.

6.1.3 Loading an Existing File

Hold **OPTION** and press **RECALL.** Turn the **JOG WHEEL** to browse through existing files, press **ENTER** to load the selected file or **ESCAPE** to abort.

6.1.4 Erasing a File

Hold **OPTION** and press **CLEAR.** Turn the **JOG WHEEL** to browse through existing files, press **ENTER** to erase the selected file or **ESCAPE** to abort.

6.1.5 Files and Time Code

Each file is considered to have available a “pre-striped” time code range with continuous ascending time code beginning at 00:00:00:00 through the largest valid time code position specified in OPTION MENU (3) “**New Rec Set**”, the default value is 24 hours. When in A-time mode, video material may be recorded at any time code position within the file, when in Time-Code mode video is recorder at the incoming time code position. Time code positions that have never been recorded over are considered to be black video.

6.1.6 Setting Recording Parameters for each File

Each file can have different recording parameters. The recording parameters that will be saved when a new file is created are in the OPTION MENU (3) **New Rec Set** which includes compression ratio, bit rate, number of audio tracks, duration, NTSC or PAL, 1080i or 720p HD formats etc. The available settings depend on the V1 model in use and the options installed.

6.1.7 Mixing Recording Parameters

Every file can have its own recording parameters (such as compression ratio), but to create play-lists that use more than one file, the recording parameters should be the same for all files. If they are not, the transition between files during playback will no longer be seamless.

6.2 Recording Modes

To avoid having repetitive time code within the same file, the V1 records in different ways depending on the Time Code Mode selected in MENU 2.

- If Time Mode is set to Time Code or to ATC, the V1 will read the incoming time code selected and synchronizes itself to record at the proper position.
- In all other modes, the V1 will record at the current position or at the end of file depending on the "**Rec at:**" setting in OPTION MENU (1) "**Transport**".

6.3 The V1 and Supporting control Protocols

6.3.1 Serial Machine Control (SONY 9 pin and Pioneer Laser Disk) Protocols

When the V1 is set to emulate Sony 9pin mode (BVW-75, DVW-500 or RS232C decks) in OPTION MENU (1) **Transport > Emulate** or Pioneer Laser Disk in OPTION MENU (15) **SERIAL PRT** the remote control commands will only access the video in the current opened file.

6.3.2 Odetics and VDCP (Louth) Protocols

The V1 supports the Odetics and VDCP (Louth) protocol. To select a protocol, go to OPTION MENU (01) **Transport** and select the desired protocol in **Emulate.**

6.3.3 Odetics Limited Mode

The V1 has an emulation mode called Limited Mode. When a file is loaded and you are in Limited Mode operation will be "limited" to the recorded video part of that file. OPTION MENU (1) **Transport > Emulate** set to *Odetics LMTD.*

In this mode, the playback boundaries of the file, will be set by the IN and OUT PRESET values specified when the file is loaded. Limited Mode can only be accessed when using the V1 in Odetics mode.

- If the IN PRESET is before the start of recorded video, the start boundary will default to the start of the recorded video.
- If the OUT PRESET is after the end of recorded video, the end boundary will default to the end of the recorded video.

6.4 Creating Segments and Play Lists

6.4.1 What is a Segment

A segment is a recording on the active drive defined by a time IN and a time OUT points. Up to 2000 segments can be defined on the V1.

6.4.2 Segments and the V1's Multi-File System

Segments are created on the loaded file (or the default file if no file has been loaded. When you recall a segment it will load the file associated with it when it was created. This means that segments can be used to create play-lists that use multiple files.

6.4.3 Creating a Segment

To work with segments, first ensure that OPTION MENU (1) **Transport** *Emulate* is set to *V1*.

To create a segment, press **IN** button where you want the in point to be and press **OUT** where you want the out point to be. You may mark IN and OUT on-the-fly while you are playing or you can locate to each point individually (Enter Time Code and push **GOTO** or locate command on RS422) and enter the in and out points separately.

Press **SAVE** and enter a number from **0001 to 2000** to identify the segment and then press **ENTER**. To recall any defined segment for playback, press **RECALL**, enter the number of the segment from **0001 to 2000**, and then press **ENTER**. The segment will play automatically and the LCD will display the segment information as indicated in the following section.

NOTES :

The V1 will not save any segment number above 2000 and will not save segment number 0000.

When you enter a segment number, the V1 will locate to the start of the segment after a certain delay. If you do not want the V1 to locate to those intermediate segment numbers, you should enter the whole number quickly.

If you want to define the segment that will play directly after the one you have just entered, before you hit **ENTER** press the up arrow key and enter the next segment (you can also define the previous segment) then press **ENTER**.

6.4.4 Creating a Play List and Loops

Once the segments are fully defined as described above, a play list can be defined to automatically chain or loop segments during playback. In order to implement this list, each segment requires the definition of a "next segment" parameter and, optionally, a "previous segment" parameter.

To define the next segment:

- Press **RECALL**, enter the number of the segment to modify, press **++**, the LCD will display "**Next Seg:**", enter the segment number of the segment you want to play next and press **ENTER.** Note that you are only allowed to enter valid segment numbers.
- Do the above for each segment you want to chain.
- To create a “play list” that loops simply have the last segment of the chain point to the first segment of the chain
- If you want to create a loop of a single segment, recall a segment and set the “next segment” to the same number as the segment you just recalled.

Define a previous segment only when you want to insert a segment into an existing play list:

- Press **RECALL** and enter the number of the segment to be inserted, press **--**, the LCD will display "**Prev Seg:**", enter the segment number that will precede it in the play list and press **ENTER.**
- Press **RECALL** and enter the number of the segment to be inserted, press **++**, the LCD will display "**Next Seg:**", enter the segment number that will follow in the play list and press **ENTER.**

NOTE: *You are only allowed to enter valid segments.*

Examples:

To play the following list of segments: (4, 3, 8, 1, 4) the 4 at the end will cause the V1 to loop.

*Ensure all these segments have been defined with the **IN**, **OUT** and **SAVE**:*

Press **RECALL**	004	**++**	Next Seg	=	003	**ENTER**
Press **RECALL**	003	**++**	Next Seg	=	008	**ENTER**
Press **RECALL**	008	**++**	Next Seg	=	001	**ENTER**
Press **RECALL**	001	**++**	Next Seg	=	004	**ENTER**

To insert segment 5 in the play list: (4, 3, 8, **5**, 1, 4)

Press **RECALL**	005	**--**	Prev Seg	=	008	**ENTER**
Press **RECALL**	005	**++**	Next Seg	=	001	**ENTER**

The "Previous Segment" is only used to insert a segment in a previously defined play list. The V1 will automatically display the previous segments for each play list item when you recall the segment and move to "Prev Seg".

Defining more than one play list

The segment definition and playback feature allows the user to define more than one play list, as long as the segment numbers do not conflict. i.e. the user can define: Play list A: (5, 4, 3, 2, 1, 5) and Play list B: (10, 9, 8, 7, 10). To play list A, the user can recall any segment from that list (1, 2, 3, 4 or 5) or play list B by recalling any segment from that list (7, 8, 9 or 10).

Modifying a list during playback

A list can be modified during playback. This is useful to allow jumps from one list to the other. If we use the two play list defined above, if during playback of list one, the user Recalls segment 2 and enter 10 as the next segment (instead of 1), the V1 will jump from list 1 to list 2 as soon as it finishes playing back segment number 2.

Using a segment as a Marker

A segment can also be used as a marker. Locate to the point you want to put a marker on, hit the **IN** key followed by the **OUT** key and save the segment number as "**no.**" Any time you recall segment "**no.**" the V1 will locate to that point and stops.

Segments and "A Time"

The Segment definition uses the "A Time" (absolute time) as a reference, this means that even if you set a Time Code Offset, your segments will not change, they will only display the new time code when played.

Remaining Time of a Segment During Playback

When you RECALL a segment or a play list, the LCD will display the segment number playing back along with the remaining time up to the OUT point of that segment in the following format:

Segment No. : MM.SS

Where **No.** is the segment number played from 0001 to 2000 and **MM.SS** is the remaining time up to the OUT point in mn:sec.

6.5 Chase Command and Chase Modes

The V1 can chase in two different ways. The Chase Command will force the V1 to synchronize to the incoming LTC and start playback, it will not stop when the LTC stops. In Chase Mode, the V1 will synchronize to the incoming LTC, Serial Time Code and stay synchronized as long as they are present. The V1 will stop when the time code stops.

While in chase mode, if the time code stops, the V1 can be set to “free-wheel” for up to 10 frames. Select the number of frames in OPTION MENU (01) **Transport** *Chase FWL.* If your LTC is reliable set this to “1”.

6.5.1 The Chase Command

To execute a Chase command press **OPTION** and hit **PLAY**. Both the source machine and the V1 **should be synchronized** to the same source of House Sync and the time code should be fed from the source machine into the LTC IN of the V1.

Begin playing the source machine. The V1 will begin playing as soon as it sees time code that is within the range defined for the active file and will continue playing **in stand alone mode**, so a stop on the incoming LTC will not stop the V1.

During this chase (**OPTION PLAY**) the V1 LCD displays “PLAY” with a black dot to indicate that the play is in sync with the source.

6.5.2 Chase Mode, CHASE to LTC Time Code

To put the V1 into "Chase to LTC" mode, set MENU (4) **Chase Mode** to *Chase to LTC*. Both the source machine and the V1 **should be synchronized** to the same source of House Sync and the time code should be fed from the source machine into the LTC IN of the V1. Begin playing the source machine. The V1 will begin playing as soon as it sees time code that is within the range defined for the active file and will continue to play LOCKED to the incoming LTC, so a stop on the incoming LTC will also stop the V1.

During this chase play, the V1 LCD displays "VAR" to indicate that it can chase at different speeds.

6.5.3 Chase Mode, CHASE to RS422 or Serial Time Code

To put the V1 into the Chase to RS422 or Serial Time Code mode, set MENU (4) **Chase Mode** to *Serial TC*. Both the source machine and the V1 **should be synchronized** to the same source of House Sync and the time code should be fed from the source machine into the RS422 port of the V1. Begin playing the source machine. The V1 will begin playing as soon as it sees a time code within the range defined for the active file and will continue to play LOCKED to the incoming RS422 time code.

During this chase play, the V1 LCD displays "VAR" to indicate that it can chase at different speeds.

6.6 Using Discontinuous Time Code on the Open File

IMPORTANT NOTE: Discontinuous time code can cause many playback problems.

If the incoming LTC or VITC are not needed, set the unit in “A Time” mode.

If the incoming LTC or VITC are needed, set the unit in Time Code or VITC before you start recording. For projects that might have the same time code, Doremi Labs, strongly recommends creating a file for each continuous time code section.

6.7 Time Code Offset

This function will allow you to offset your time code track starting at any location (frame) on the file. For NTSC frame rates please select DF or NDF in OPTION MENU (17). To enter your Time Code Offset locate to any position on the drive, manually enter the new time code desired at that location and then hold down **OPTION** and then press the IN key. The Time Code offset will be permanently saved on the drive.

This Time Code Offset function is useful to shift the time code position to a new value.

7 Specific Applications

7.1 Using the V1 with Edit Controllers

Before using the V1 with an Edit Controller ensure that OPTION MENU (1) **Transport** is set to **Emulate** DVW-500, BVW-75 or V1. Use the V1 and your edit controller as you would with a typical tape machine setup.

7.2 Synchronizing Multiple Units

To synchronize the operation of multiple units you have three options.

1. Use the Doremi RCV2-9p remote controller and set to **Gang Mode** in CONTROLLER MENU (07).
2. Use an external controller that sends RS-422 commands to all V1 machines simultaneously.
3. Use the chase mode in MENU (4) **Chase Mode**. See section **9**.

7.3 Playback for Presentation

To use the V1 for presentations, you will first need to record video and audio onto the V1 and then create segments and playlists using the front panel or download software from the Doremi website under support. www.doremilabs.com

To record video on the V1 follow the "**Setup V1 for Record**" paragraph **4.10**

To create play lists and video segments via the front panel see the "**Creating a Play List and Loops**" paragraph **6.4.4** of the Recording & Playback Chapter.

To create play lists and video segments via Doremi's software read the readme document that comes with the software download.

7.4 Time Delay, 1 channel – V1-HD Only

This section describes how to set a V1-HD for broadcast time delay applications. **This is only available on early model V1-HD with the independent record and play option.**

Ensure that channel-1 is in 1R-1P mode by checking OPTION MENU (00).

The **1**, **2**, **3**, **4** buttons on the front panel of the unit will allow access to the channels:

- Button **1** will select the Recorder
- Button **2** will select Player 1
- Buttons **3** & **4** have no effect

Connections:

1. Feed the source video signal to a frame synchronizer (highly recommended)
2. Feed the video signal from the frame sync. to the corresponding input of the V1.
3. Feed sync to the frame synchronizer and adjust its timing.
4. Feed the audio signals to the corresponding AUDIO inputs on the V1.

Operation:

All menus are pre-configured at the factory. Just make sure that **LOOP MODE** is set to **ON** on the Recorder and on the Player:

1. Press the **1** button to select the Recorder.
2. Go to Menu 7 and make sure that the available recording time exceeds the duration of the delay. If not hit **OPTION CLEAR** and erase previous CLIPs one by one until the remaining time in Menu 7 exceeds the duration of the delay.
3. Go to OPTION MENU (3) and set the **Dur**: to a value that exceeds your delay by 30 seconds and hit **ENTER**, then hit **ESCAPE**.
4. Hold the **OPTION** key and hit **SAVE**, then hit **ENTER** to accept the CLIP name assigned by RCV2.
5. Press the **2** button to select Player 1
6. Hold the **OPTION** key and hit **RECALL**, then turn the JOG WHEEL until you see the CLIP you just created in step 4, then hit **ENTER** to load the CLIP on Player 1.
7. Hold the **ESCAPE** Button and press the **Up Arrow** key
8. Keep pressing the **Up Arrow** Key until you see **Delay**
9. Press the **TOGGLE** button and enter 01:00:00:00 (or any other delay) using the numeric keypad then press the **ENTER** button. This will locate both recorder and player to 0 time code. The recorder will start recording and the player will wait for an hour (or any value set in delay), then it will start playing.
10. Press the **ESCAPE** button

To end the time delay operation, select the record channel (channel 1), go to the CONTROLLER MENU (04) **Delay Mode** and press the **TOGGLE** button.

To stop the playback but keep the V1 recording, select the playback channel, go to the CONTROLLER MENU (04) **Delay Mode** and press the **TOGGLE** button.

7.5 Slow Motion Replay: V1-HD Only

This paragraph describes how to set the V1-HD for slow motion replay applications. **This is only available on early model V1-HD with the independent record and play option.**

Ensure that Channel-1 is in 1R-1P mode by checking OPTION MENU (00).

The **1, 2, 3, 4** buttons on the front panel of the unit will allow access to the channels:

- Button **1** will select the Recorder
- Button **2** will select the Player
- Buttons **3** and **4** have no effect

Setup:

1. Go to the OPTION MENU (1) **Transport** and set FrameMod to “off”.
2. Go to the OPTION MENU (1) **Transport** and set PL1Field<% to “0”.
3. Go to the OPTION MENU (5) **Save Setngs** to save the settings above.

Connections:

1. Feed the HDSDI signal from the camera to the HDSDI input of the V1-HD.

Operation using a SloMo controller:

1. If you want your SloMo device to control the recorder channel, connect it to RS422-1 on the back of the V1-HD
2. Connect your SloMo controller to RS422-2 on the back of the unit, which will control the player channel.
3. Follow the operating instructions of your SloMo controller

Operation using the V1 front panel (RCV2 controller):

1. Go to the CONTROLLER MENU (06) and select **Slomo Mode** to *ON*.
2. Press the **1** button to select the Recorder. Locate to 0 and start recording
3. Press the **2** button to select the Player.
4. Press the **RECORD** button to go in EE mode. When you see an event worth marking press **SAVE**, this will increment the segment number and save the IN point of the segment minus the **Preroll** value setting. (The Preroll value is set in the CONTROLLER MENU 05). Every time you hit **SAVE**, the segment number will increment and the new time code will be captured. If you want to recall a specific segment press the **++** or **--** buttons until you see the desired segment number displayed, then press **RECALL**. (You can do this while in EE mode).
5. When you press **SLOMO**, the unit will start playing from that point at the slow motion speed selected by the shuttle wheel.
6. To stop and go back in EE, press **STOP** followed by the **Record** button.

7.6 Audio Post

This section describes general connection procedures to digital audio workstations (DAW). It also details several popular applications used in Audio Post.

7.6.1 Most Common Connection

This connection scheme is used to connect the V1 to Audiofile, Audiovision, Dyaxis II, Post-Pro, Protools 4.0, StudioFrame, etc. For detailed instructions on your specific DAW refer to the Appendix.

1. Feed house sync to the V1 and the DAW.
2. Connect the time code out of the V1 to the time code input of the DAW.
3. Connect the serial cable between the V1 RS422 port 1 and the DAW.
4. Run the DAW software which will control the V1.

7.6.2 Overdubbing Video and Audio Tracks

To overdub both video and audio on a section of your disk, you need to execute the "Chase Command" by holding **OPTION** while pressing **PLAY**.

1. Use OPTION MENU (13) **Edit Prst** and select "**Assemble ON**".
2. Both the source machine and the V1 **should be synchronized** to the same reference (House Sync) and time code should be fed from the source machine into the TIME CODE input of the V1.
3. Execute the Chase command by holding down **OPTION** and pressing **PLAY**
4. Place the V1 into EE (Input Monitor) by pressing the **REC** button
5. Begin playback of the source machine before the section that you want to overdub. The V1 will begin playing as soon as it sees time code that matches what is on the current disk. Wait until the V1 LCD displays PLAY with a black dot, this indicates that the V1 is playing in sync and chasing the time code from the source machine.

When you reach the point where you want to punch in, hold down **PLAY** and press **REC** to start recording. Press **PLAY** or **STOP** to stop overdubbing.

7.6.3 Overdubbing/Insert of Video or Audio Only

This feature allows the insert/overdub of selected audio track(s) and/or video on existing recordings while the other track(s) is monitored at the same time. Since insert mode requires fast disk drives, it is recommended that you use the fastest drives available.

To use this feature:

1. Use OPTION MENU (13) **Edit Prst** to select which audio track(s) you want to insert.
2. Provide the same House Sync to the source machine and the V1.
3. Connect the time code out from the source machine into the TIME CODE input of the V1.
4. Begin playback of the source machine before the section that you want to insert on the V1.
5. Hold down **OPTION** and press **PLAY** "Chase Command" to engage synchronized playback with the source, wait until the V1 LCD displays PLAY with a black dot (This indicates that the V1 is now in sync with the house sync), then hold down **PLAY** and press **REC**. The V1 will record the insert. Then press **STOP** or **PLAY** to end the insert segment procedure.

8 Menu Reference Chart

From the front panel, you have access to three different menus.

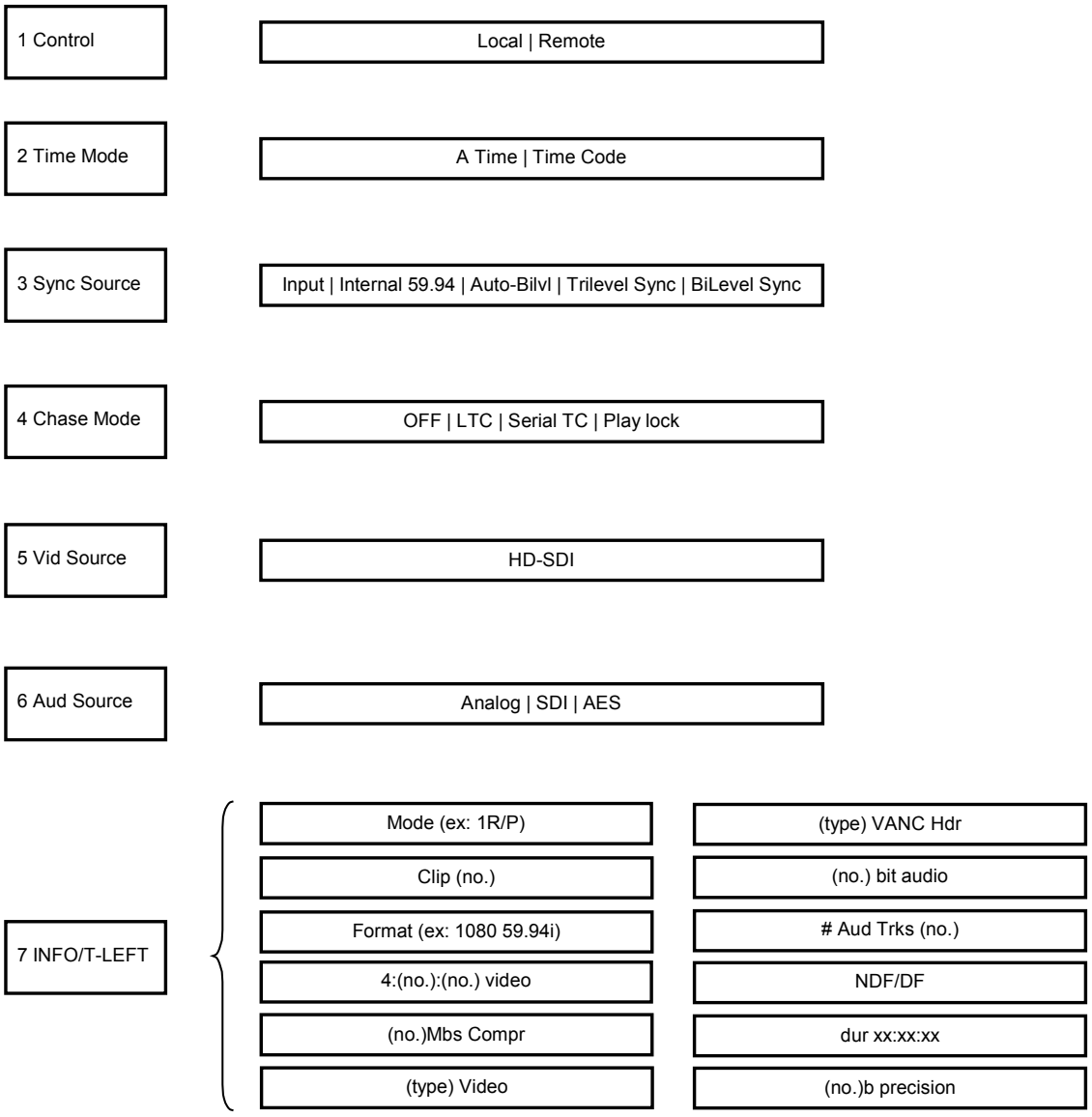
MENU: Press **MENU**

OPTIONS MENU: Hold **OPTION** and press **MENU**

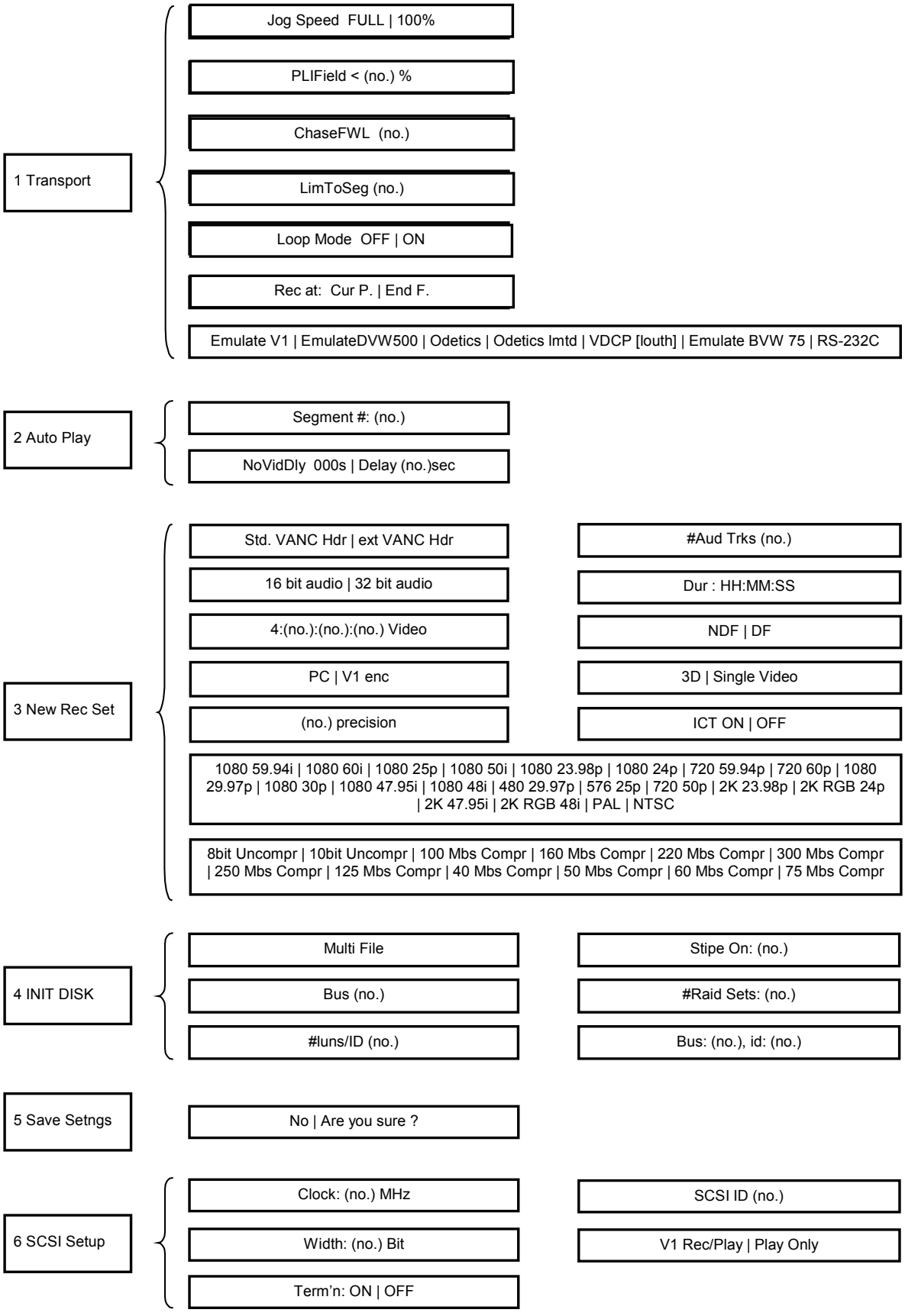
CONTROLLER MENU: Hold **ESC** and press **MENU**

Operation and navigation information are provided in the Sections **9**, **10**, and **11**. Note that the menu reference chart presented in this section contain all the menus that can be available without indicating in which configuration you will really have access to these menu – depending on the option of your unit.

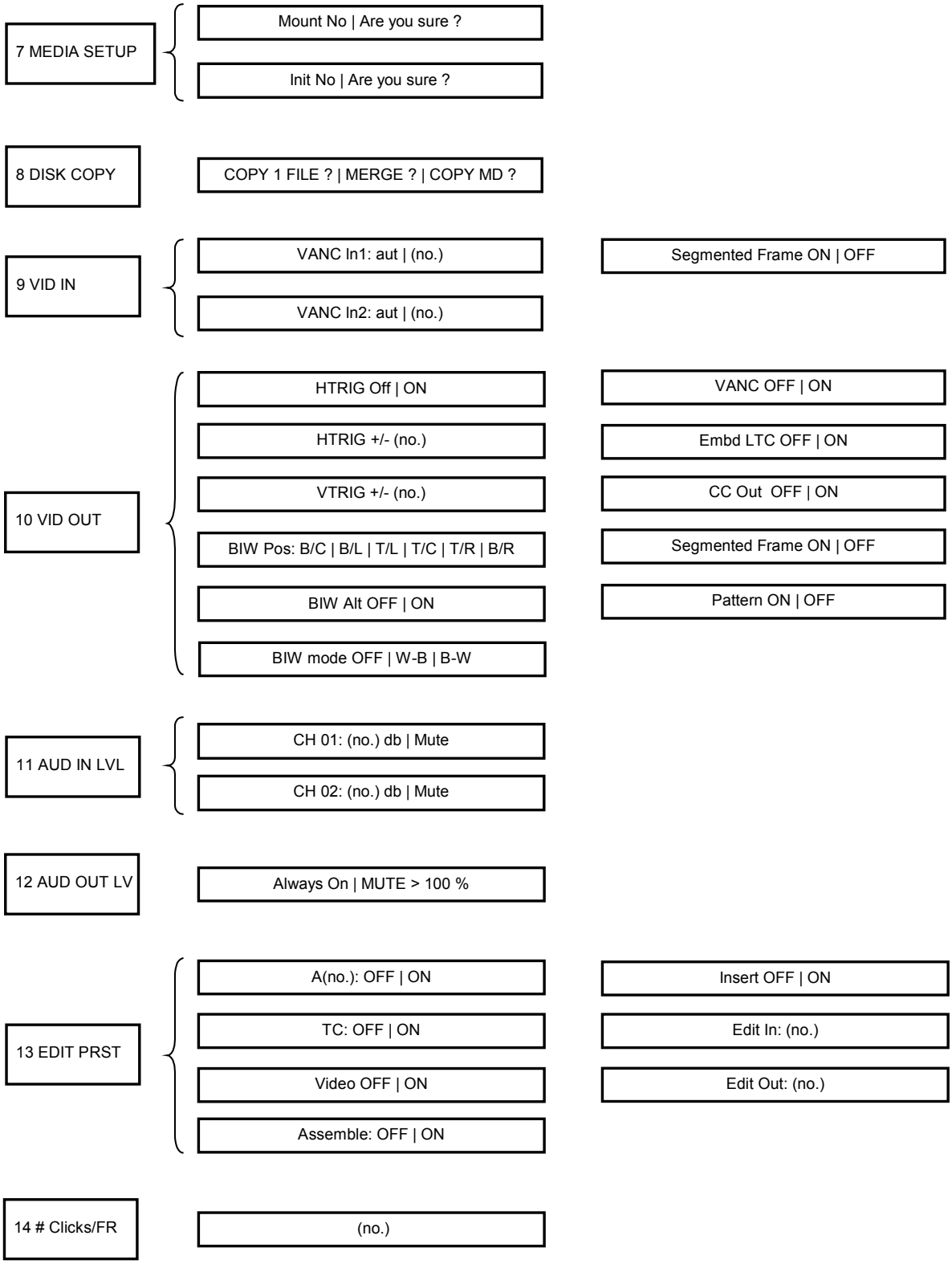
8.1 Menu Chart



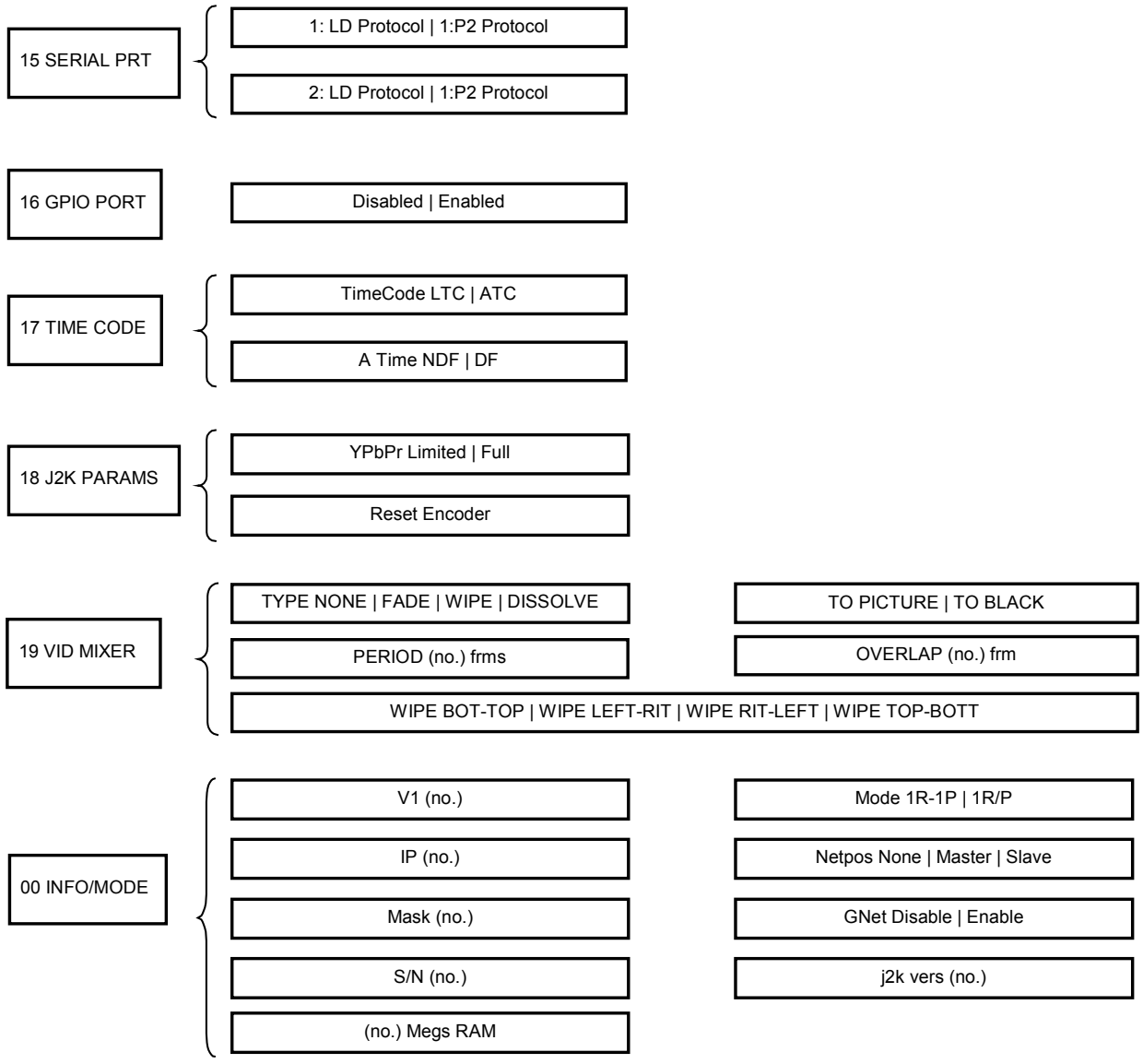
8.2 Option Menu Chart



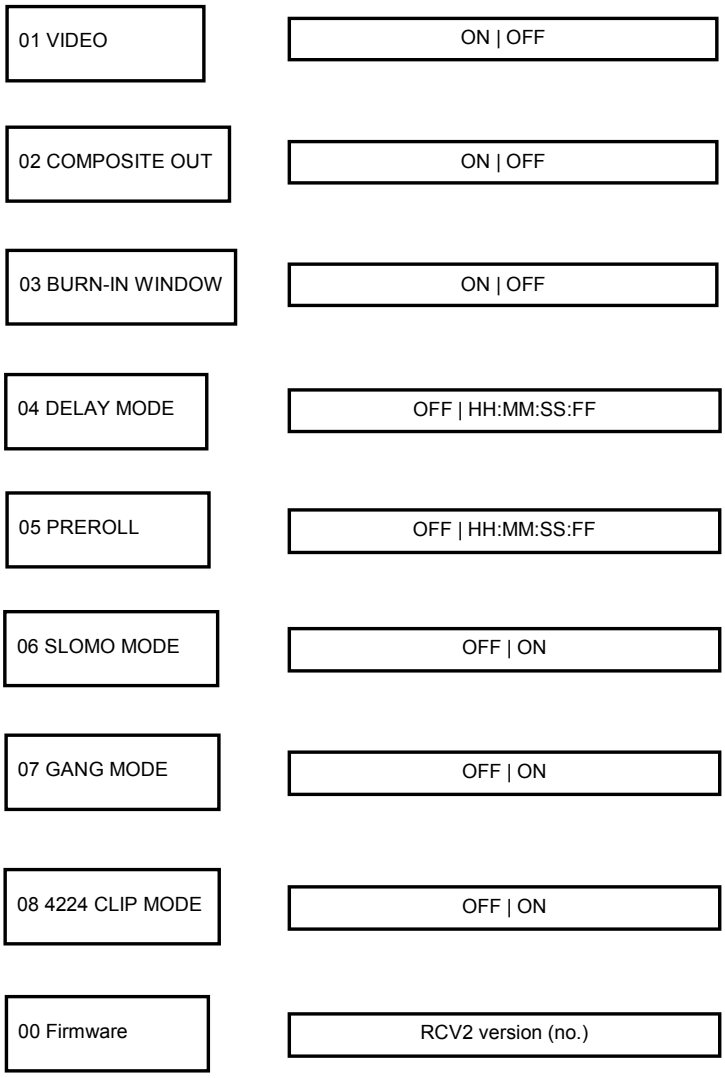
Option Menu Chart Cont…



Option Menu Chart Cont…



8.3 Controller Menu Chart



9 Menu

The V1 menu includes the most frequently used settings. Call up the V1 menu by pressing the menu up ⇧ arrow key (or down key ⇩). Use the arrow keys to scroll through the menu selections. The **TOGGLE** button changes the parameters for the selected menu. Press **TOGGLE** increment or change a value and hold **OPTION** and **TOGGLE** to decrease.

(1) Control This setting emulates the Local/Remote switch found on many Video Tape Recorders and required by some remote control devices.

Local	For front panel control of the V1
Remote	For control of the V1 by an external edit controller or workstation via the rear panel RS-422 connectors

(2) Time Mode Selects the Time Code source of the V1 during recording.

A Time	Absolute Time, the time code displayed on the V1 front panel and present on the **TIME CODE OUT** connector during playback or record is generated internally by the V1. A Time represents the time elapsed since the start of the recording unless a time code offset has been set. For NTSC frame-rates the time code out can be outputted as DF or NDF depending on the selection in OPTION MENU (17). During record, the V1 will not check for time code input on the LTC or the ATC and will record at the current location or at the End of file depending on the selection in OPTION MENU (1).
Time Code	The time code out is outputted as DF or NDF depending on the file type creation, if the file is created with DF then the output will be DF, if the file is created with NDF then the output will be NDF. In Time Code mode, the DF/NDF selection in OPTION MENU (17) does not affect the input or the output. During record the V1 will latch to the time code input on the time code in connector or to the SDI embedded ATC depending on the selection in OPTION MENU (17). The time code input LTC/ATC should match the file's format frame-rate. If the time code input is not present or has the wrong frame rate, a "wrong time code" message will be displayed.

(03)Sync Source Specifies the sync reference during playback. The V1 is always locked to the **Input** when recording.

Internal 59.94	The V1 syncs to its own internal clock (NTSC)
Auto-Bilvl	The V1 syncs to the input or to the BiLevel sync source
Input	The V1 syncs to the **VIDEO IN** input.
TriLevel Sync	The V1 syncs to the input or to the TriLevel sync source
Bilevel Sync	The V1 syncs to the input or to the BiLevel sync source

(04) Chase Mode Specifies how the V1 will chase to time code.

Off	**Normal mode of operation** when the unit is controlled by a workstation via the 9 pin RS-422 connection.
LTC	In this mode the V1 will chase the time code fed through the **TIME CODE INPUT** jack. This mode is recommended when no RS422 9 pin control is present.
Serial TC	In this mode the V1 will chase the time code received on the RS-422 connection. This mode requires a special cable and it is recommended only if no RS422 9 pin control is present.
Play lock	The play-lock is a chase to time code function. When the play-lock is set the V1 will chase the incoming Time Code to start the play, but then will keep in playing until the incoming time code stops completely (i.e. the same value and the time code is not incrementing), or disappears. After the playback starts the incoming Time Code is not checked for validity, it will only be checked for presence or if not moving.

Note**:** The Chase to LTC Mode above is different than the OPTION PLAY Command also referred to as Chase Command (see paragraph **6.5**).

(05) Vid Source Displays the input source, “SDI” for HD-SDI and SD-SDI.

(06) Aud Source Specifies the audio input format. Select between *Analog, AES* or *SDI* (for embedded audio on SDI). Formats available depend on the options installed.

(07) INFO/T-Left This menu selection provides information on the current V1 settings and the parameters of the currently loaded file. None of these settings can be changed in this menu.

10 Option Menu

To call up the OPTION MENU Hold the **OPTION** and press the **MENU** ⇧ (or down key ⇩) buttons. Use the arrow keys to scroll through the menu selections.

Use the **++** or **--** buttons to scroll through the sub-menus. The **TOGGLE** button sets the parameters for the selected sub-menu. Press **TOGGLE** to increase or increment a value and hold **OPTION** and **TOGGLE** to decrease or use the **JOG** wheel.

TOGGLE is also used to execute a command (OPTION MENU (5) and (6)), you will be prompted "are you sure?" press **ENTER** for yes or **ESC** for no.

To enter time code numerals use the numeric keypad. To enter numbers for the IP, Time and Date use the keypad and press the "." button to skip from one section to the next (i.e. month to date). Press **ENTER** to save your settings.

Commands that change the mode of operation, such as changing the IP, Subnet Mask, SCSI ID, rec/play mode etc, will require you to reboot the V1. Please wait 30 seconds before rebooting the V1 to ensure that the new settings take effect.

(00) Info/Mode

V1 (no.) Displays the V1 Version number

IP and Mask below must be set to conform to your LAN so that you can operate the V1 and upgrade the firmware via the Ethernet connection.

IP (no.) Displays the current IP number of the V1. (Only part of the IP number is displayed, to view the rest press TOGGLE)

Set the IP number by using the keypad. Press "." to jump between the sections. After inputting the IP numbers press **ENTER**. You will also need to go to OPTION MENU (5) **Save Setngs** and save.

Wait 30 seconds and restart the V1 for the setting to take effect.

Mask (no.) Displays the current IP number of the V1. (Only part of the IP number is displayed, to view the rest press TOGGLE)

Set the Mask number by using the keypad. Press "." to jump between the sections. After inputting the Mask numbers press **ENTER**. You will also need to go to OPTION MENU (5) **Save Setngs** and save.

Wait 30 seconds and restart the V1 for the setting to take effect.

The functions below provide general information about your V1. Please have this information on hand prior to contacting Doremi technical support.

S/N: (no.) Displays the unique serial number of your V1.

(no.) Megs RAM The total RAM on the V1 motherboard.

Mode

1R/P: Indicates a standard record or play engine

1R-1P (optional): Indicates a simultaneous record and play engine.

To change the mode press the **TOGGLE** key and the hit **ENTER**. You will next need to save your settings, wait 30 seconds and recycle power on the V1.

Netpos

None: For all units that are not sharing storage (V1-HD and V1-UHD), it should be set to None.

To change the mode press the **TOGGLE** key and the hit **ENTER**. You will next need to save your settings; wait 30 seconds and recycle power on the V1.

GNet

For V1-UHD and V1-HD with the Gigabit Ethernet Option installed.

All units equipped with the Gigabit option will have 2 Ethernet connectors on the back panel. The lower connector is the built-in 100BT and the higher connector is the Gigabit. **Only one of the two connectors can be active**. The default setting when the unit is ships is Gigabit Enabled.

To switch to100BaseT select “Disable” press ENTER, save settings MENU (5) and reboot the unit.

To enable Gigabit Ethernet select “Enable” press ENTER, save settings MENU (5) and reboot the unit.

For best performance, the PC connected to the V1-UHD using Gigabit should have the Jumbo Mtu set to 7500. To change the Mtu on your PC’s Gigabit card:

Right click on My Network Places and select Properties

Right click on your Local Area Connection for that card and select Properties

Click on Configure, Click on Advanced, Click on Jumbo Mtu and select 7500 and hit OK to save all changes.

10.1 Transport

The Transport settings feature functions that affect the general playback and record operation of the V1.

Disk Access This option will allow you to write protect your file. Select between **Play** and **PL-RE** (Play & Record (Default)). When **Play** is selected, you will not be able to record on the file or initialize the disk.

Frame Mode Select between Frame Mode **ON**, **OFF** and **Play**.

When ON the V1 will stop on a frame and in slow motion it will play frame by frame.

When OFF the V1 will stop on a field and in slow motion it will play field by field.

In PLAY, the V1 will stop on a field and in slow motion it will play frame by frame.

This setting also affects the Step Recording option. For Slow Motion application, the frame mode must be OFF. When the V1 is in stop (freeze) mode and Frame Mode is set to ON a full video frame will be displayed.

StopMod Select the video output to be displayed after the V1 receives a stop command. Set stop mode to either show a field/frame from the drive (**Still**) or show the image present on its input (**EE**).

Jog On Ch Select between "**1&2**", "**3&4**", "**5&6**" and "**7&8**". When the V1 is playing at any speed below 100%, the audio will output from only two channels. Use this option to select which tracks the audio will be on when the V1 is playing at any speed below 100%.

FastMod Select between **Norm** (normal) and **Enhan** (enhanced). Enhanced mode will provide the best video preview in Fast Forward and Fast Rewind

Set to Normal for V1-HD installed with the independent record and play option.

JogSpeed Sets the maximum speed in Jog mode to **100%** or **FULL** (no limit).

PL1Field<% The speed shown in percentage will define the speed under which the V1 will only play odd fields. If you want to play odd and even fields at all speeds, select 0%. For Slow Motion applications you must set this parameter to "0" and save it.

ChaseFWL The number of frames defined in this option will set the free-wheel of the chase mode between 1 and 10 frames or "0". If your time code is reliable set to "0". When set to a value between 1 and 10, the V1 will play the same field for the specified amount of frame(s) before it stops and wait for the new time code to chase.

This function is useful to reduce the audio noise during the chase command. If you know that your source does not have drop-outs in the time code, set this value to 1.

LimToSeg Limit to Segment; specifies the operation of “Loop Mode” below. When “LoopMode” is set to **ON**, the V1 will record (play) in a loop specified by the segment number. If the segment selected in this option is 0, the loop will be the entire length of the file (24 hours).

LoopMode Select between **OFF** and **ON**. When ON the V1 will loop back to beginning of the file when it reaches the end of the file or segment as specified in “LimToSeg” above. When set to OFF the V1 will stop at the end of the file.

Emulate Select between **V1** (default), **BVW-75**, **DVW-500**, **Odetics**, **Odetics LMTD**, **VDCP** (Louth) and **RS-232C**.

StepRec This option is for Step Recording. When enabled, every time the V1 goes into record, it will only record one frame. This option is useful for animation. When Step Recording is disabled, the V1 is in normal mode of operation.

Select **ALL** to record the video and audio. If you want to record video only without altering the previously recorded audio, select **Video.**

Rec at The function tells the V1 to record at the current position (**Cur P.**) or at the end of the last recorded video in the file (**End F.**). If you are working in any of the A-Time modes and want to avoid recording over existing material, set this option to **End F.**

Note : Rec at: End F. is not valid if the Time Mode is set to Time Code. In those this mode, the unit will synchronize to the incoming time code to determine the recording position.

10.2 Auto Play

The Auto Play settings allow the V1 to automatically start playing a segment when the V1 is powered on and the drive is mounted.

Auto Play Enter a predefined segment number. The V1 will now play that segment every time it mounts that drive. This function can also be used to automatically locate to a start point every time the disk is mounted. All you need to do is set the **IN** and **OUT** time at the same location for the auto-play segment.

NoVidDly 000s V1 Screen Saver. This parameter sets the delay until the video output goes black (screen saver) in 10 second increments. "000" will disable this feature. Example: "010" will cause the unit to output black video when the unit is idle for 10 seconds.

10.3 New Rec Set

The New Record Settings contain all the main options used to define a V1 File.

If you are using multiple files on the V1 you must create a new file after changing a setting in this section. For instructions on how to create a file, *see paragraph **6.1.2**.*

If you are using a single file (the default file created by the V1) you will need to reinitialize after changing a setting in this section - *See section **10.7**.*

The option below determines the amount of compression or the sample bit rate of the recording:

(no.) Mbs Compr Select the Mbs (Mega Bits Per Second). The higher the number the better the video quality and more storage space required.

(no.) Bit Uncompr Select 8bit or 10bit precision.

The option below determine the number of lines of recording and the frame rate:

Video Formats Select between the different video formats.

720 50p	Selects 720 line progressive 50 frames/sec standard
720 59.94p	Selects 720 line progressive 59.94 frames/sec standard
720 60p	Selects 720 line progressive 60 frames/sec standard
1080 29.97p	Selects 1080 line progressive 29.97 frames/sec standard
1080 30p	Selects 1080 line progressive 30 frames/sec standard
1080 59.94i	Selects 1080 line interlaced 59.94 fields/sec standard
1080 60i	Selects 1080 line interlaced 60 fields/sec standard
1080 25p	Selects 1080 line progressive 25 frames/sec standard
1080 50i	Selects 1080 line interlaced 50 fields/sec standard
1080 23.98p	Selects 1080 line progressive 23.98 frames/sec standard
1080 24p	Selects 1080 line progressive 24 frames/sec standard
1080 48i	Selects 1080 line interlaced 48 fields/sec standard
1080 47.95i	Selects 1080 line interlaced 47.95 fields/sec standard
2K RGB 24p	Select 2K RGB progressive 24 frames/sec standard
2K RGB 48i	Select 2K RGB interlaced 48 fields/sec standard
2K 47.95i	Select 2K interlaced 47.95 fields/sec standard
PAL	Select PAL resolution and frame rate
NTSC	Select NTSC resolution and frame rate
480 29.97p	Selects 480 line progressive 29.97 frames/sec standard
576 25p	Selects 576 line progressive 25 frames/sec standard

 # Audio Trks (no.) Select between 2. 4. and 8 which designate the number of audio channels to be recorded.

Dur: File Duration; the default value of this parameter is 24 hours (24:00:00) but it can be set to any other value below 24 hours to define the time code length of the file. If you want a file to start at 0 and end at 1 hour instead of 24 hours, you should set this parameter to 01:00:00, hit **ENTER** then create a new file. This parameter can be saved to flash and is essential for time delay applications.

(type) Video Select single or 3D video.

(type) enc Select V1 or PC encoded when in 3D format.

4:(no.):(no.):(no.) Video Choose between 4:4:4, 4:2:2, 4:1:1, 4:0:0 or 4:2:2:4.

(no.)b precision Select the precision (8 bit, 10 bit or 12 bits).

(type) VANC Select between standard VANC or Extended VANC.

(no.) bit audio Select 16 bit or 32 bit audio.

DF/NDF Select DF or NDF.

ICT When the video is RGB 4:4:4, setting ICT to ON will perform a conversion to YCbCr allowing to obtain a better JPEG2000 compression than RGB.

10.4 Init Disk

The Initialize Disk settings will set the parameters and configuration of the drive(s). These settings are preconfigured at the factory (when the drives are purchased from Doremi Labs) and typically will not require change.

You must initialize the drive(s) after changing any of the settings in this section.

MultiFile Type This option indicates that the drive will be initialized with Doremi's Multi-File System (MFS). This setting cannot be changed.

Bus: (no.) Select the number of SCSI buses to use. For internal drives bus 2 is used, for external storage bus 1 is used, or when the external configuration requires 2 buses then bus 1 and bus 2 are used.

#luns/ID(no.) Select the number of luns. This parameter should be set to 1.

Stripe on: (no.) Sets the number of disks in the RaidSets (see option below). This parameter should be set to the total number of drives in the Raid set.

#RaidSets:(no.) Sets the number of RaidSets to be defined. This parameter should be set to 1.

Bus:1, id(no.) Sets the first SCSI ID of bus 1. All other drive IDs for Bus 1 should be consecutive to the first drive ID.

Bus:2, id(no.) Sets the first SCSI ID of bus 2.

10.5 Save Setngs

This menu option will save all the current MENU settings of the V1 to the internal memory so that upon restart the settings will be preserved. All saved settings will remain on the drive, so that if the drive is placed in another V1 the settings will be preserved.

To write the settings to memory (Flash EPROM - see Note below), press **TOGGLE**. A message will appear on the LCD screen: "Are you sure?"

- If you want to save, press **ENTER**. The V1 will write the changes on the Flash EPROM.
- If you change your mind and don't want to save, press **ESCAPE.**

NOTE: THIS FUNCTION SHOULD NOT BE ABUSED BECAUSE THE FLASH EPROM CAN ONLY BE WRITTEN 2000 TIMES. If you save your settings on the flash EPROM more than 2000 times you might damage it and need to replace it by sending the unit back to Doremi Labs.

10.6 SCSI Setup

The SCSI Setup settings will set the parameters and configuration of the drive(s). These settings are pre-configured at the factory (when the drives are purchase from Doremi Labs) and typically will not require change.

SCSI ID (no.) Sets the SCSI ID number of the V1 after restart. **Do not use a SCSI ID number for the V1 that conflicts with any installed drive**. The default SCSI ID is 7. You need to save and restart to apply the changes.

V1 (type) Select between **Rec/Play** and **Play Only**.

Important Note: When the unit is in **Play Only** mode, all operations that write to the active drive are denied, including record, initialize, format, etc.

Clock Used to set the SCSI speed in MHz;

Width Used to set the SCSI bus width; *16bit*

Termination Used to set the Termination mode; *This should always be set to ON.*

Warning: You should not set the termination to off unless it was originally configured by Doremi or when requested by a Doremi Labs technician.

10.7 Media Setup

To activate the commands in this section, press **TOGGLE**. The message “Are you sure?” will appear on the LCD screen. To accept press **ENTER**. If you change your mind press **ESCAPE**.

Mount If you have more than one drive/MD powered up, this command will mount the next available MD.

Init The **Initialize** command deletes all previous recordings and files (clips), and writes all the new set-up parameters selected in the menus on the active drive. A disk that was never initialized on the V1 will display the message “No MD Present” until it gets initialized.

CAUTION NOTE !!

Ensure that the settings under OPTION MENU (4) **Init Disk** are set properly before initializing the drive.

10.8 Disk Copy

The Disk Copy functions will allow you to copy a whole file or a segment within the same disk or from one disk to another. The copy operation is based on a Copy Paste approach.

- Load the source file
- Locate to the start of the segment you want to copy and hit **IN** (optional)
- Locate to the end of the segment you want to copy and hit **OUT** (optional)
- Go to OPTION MENU (8), the display should be “**Copy 1 File ?**”, hit **ENTER** to mark the segment or file for copy.
- The display will show you the file name and if you hit **++**, it will show you the IN and OUT points followed by the “**PASTE ?**” prompt.

- Load the destination file
- Locate to the timecode where you want the video to be pasted to
- Go to OPTION MENU (8) and when you see the prompt "**Paste ?**" hit **ENTER** and the copy will start.
- To copy another segment, go the "**CLEAR ?**" prompt, hit **ENTER** and repeat the above steps.

Line 2 of the LCD display will show the copy progress status. When done it will display the message "Completed".

To copy a file from one disk (or set of disks) to another, use the Mount command in OPTION MENU (07). Every time you issue a Mount command, the unit will search all drives for valid V1 Multi File systems and it will mount the next available one.

10.9 Vid IN

The Video Input settings are presented below:

VANC In(no.)	Select 2 lines for the VANC
Segmented Frame	This can only be changed for V1-UHD in progressive formats.

10.10 Vid OUT

The Video Output settings below affect the video **on the output** (during playback from the drive)

HTRIG	Horizontal Trigger adjustment. Set the HTRIG adjustment ON or OFF.
HTRIG +/-	Enter the Horizontal Trigger value.
VTRIG +/-	Vertical Trigger adjustment. A positive number will move the picture upwards, and a negative number downwards.
BIW Pos	Time Code Burn-in window. Position on the screen at Top-Left, Top-Center, Top-Right, Bottom-Right, Bottom-Center, Bottom-Left **(Analog Video Outputs Only)** **(For HD always present on the standard definition composite output. Available on HD-SDI and YPbPr only when enabled)**
BIW Alt	Alternate position of the BIW
BIW mode	Select between off, black on white, or white on black numerals.
CC Out	Close Caption. Set to on or off to allow close caption to pass through the V1. **(Analog and SDI Video)**
VANC	Enable or disable the VANC output
Embd LTC	Enable or disable the Embedded LTC
Segmented Frame	This can only be changed for V1-UHD in progressive formats.
Pattern	This is available for V1-UHD only: when ON, you get a color bar

10.11 Aud IN LVL

Sets the audio input level for each analog audio channel separately.

10.12 Aud OUT LVL

When playing at any speed, if the Audio Out level is set to “always on”, the audio will be outputted. If the audio out level is set to mute >100, when the V1 is playing at a speed higher than the normal speed of 100%, the audio will be muted.

10.13 Edit Prst

The settings in Edit Presets allow for the insert/overdub of audio, time code or video individually, while the non-selected track(s) are monitored at the same time. **The settings are used for manual insertion. This is not a recommended practice. Doremi Labs strongly recommends using an edit controller.**

If you are using an edit controller **the edit controller will set these options automatically.** The settings the edit controller has selected will be reflected here.

A (no.)	Select the audio track number(s) and then select off or on. On indicates the track will be overdubbed.
TC	To insert/overdub time code on the guide track, select On.
Video	To insert/overdub video, select On.
Assemble	If this option is set to On, **all** the previous 3 submenus above will default to the On position and the drive is set for normal recording (video, audio and time code). The reason for this option is to allow the V1 to record while in PLAY mode (Usually required by Editors using RS422 control), in this case, the sub-menu Assemble must be set to On.
Insert	Enables or disables the ability to insert video or audio using the front panel.
Edit In	Specifies the Record delay for the IN point in number of frames. The V1 will wait x frames before it starts recording after receiving an EDIT ON command. For MPEG2 units this should be set to 5 or higher.
Edit Out	Specifies the Record delay for the OUT point in number of frames. The V1 will wait x frames before it stops recording after receiving an EDIT OFF command. For MPEG2 units this should be set to 5 or higher.

10.14 Clicks/FR – Bi-Phase

Select between 01, 02, 04, 10. The selection represents the number of clicks on the incoming Biphase signal per video frame (01= 1 click per frame). In PAL 25 frames/sec, 01=25Hz, 02=50Hz, 04=100Hz, 10=250Hz.

Note: It is always set to 10 click per frame for NTSC frame rates and changeable for PAL frame rates.

10.15 Serial Port

Defines the protocol used on the RS422 PORT1 and RS422 PORT2 located on the back of the unit. Each port can be individually set to emulate:

P2 Protocol: Sony P2 protocol at 38400 bauds

LD Protocol: Pioneer Laser Disk Protocol at 4800 or 9600 bauds.

1: For Serial Port 1. Select *P2* or the *LD* protocol

2: For Serial Port 2. Select *P2* or the *LD* protocol

10.16 TIME Code

This menu is presented below:

TimeCode	Allows to choose between LTC and ATC
A Time	Absolute Time. Allows to choose between DF and NDF

10.17 J2K Params

This menu is presented below:

YPbPr	Allows to choose between Full and Limited
Reset Encoder	Allows to reset the encoder

10.18 VID Mixer

This is an option on the V1-HD to do fade, wipe and dissolve.

11 Controller Menu

The front panel controls of the V1 are called the “RCV2 controller”. The RCV2 controller communicates with the V1 via RS-422. The controller has several unique functions. To call up the CONTROLLER MENU hold the ESCAPE button and press the menu up ⇧ arrow key (or down key ⇩). Use the arrow keys to scroll through the menu selections. The **TOGGLE** button changes the parameters for the selected menu. Press **TOGGLE** to increase the parameter and hold **OPTION** and **TOGGLE** to decrease the parameter.

To *disable* the RCV2 and prevent accidental operation, hold the **OPTION** button then press **ESCAPE**. Press again to unlock the RCV2. When the RCV2 is in “disable mode” the letters “DIS” will be displayed in the top right corner of the 4 lines LCD.

To *reset* the controller (soft reset) hold the **1, 2, 3** or **4** buttons and press **CLEAR**. This may be necessary to reset the optional Video LCD display if you switch between NTSC & PAL formats.

(00)	**RCV2 Version**	Displays the firmware version number for the RCV2 controller.
(01)	**Video**	Use the TOGGLE button to switch the front panel LCD monitor “on” or “off”. Default is “on”
(02)	**Composite Out**	Switches the composite output on the rear panel “on” or “off”. Default is “on”.
(03)	**Burn In Window**	When ON, the burn in window will be enabled on the confidence LCD monitor (it needs to also be enabled in the OPTION MENU setting). - Default is “on”. (Always active on LCD monitor and on composite output)
(04)	**Delay Mode**	**Configure for single drive operation (V1-HD with independent record and play option only)** This is used for broadcast delay to define the time delay between the recorder and the player(s). Ensure that the V1 is not recording. Select the player (channel 2) and enter the delay time desired and press ENTER. The record and play channel will locate to 0 time code, the recorder will start recording and the player will wait for the time set for delay to elapse, and will then start playing back automatically. The transport controls on the player (channel 2) will be disabled when the time delay function is engaged. To stop the delay function select the recorder (channel 2) and press STOP. Default is “off”.
(05)	**Preroll**	Used in conjunction with Slomo Mode (See below). When a time value is entered the RCV2 identifies the pre-roll time from the location point. This helps to compensate for the delay between the action being recorded and the push of the save button.

(06) Slomo Mode **Configure for single drive operation (V1-HD with independent record and play option only)**

Used for sports slow motion replay applications. When ON, the RCV2 operates like a slow motion controller.

Note: To use Slom Mode, ensure that MENU (2) **Time Mode** is set to *A-Time.* To operate with Time Code, you will need to use an external controller.

Select Channel 1. Go to the start of the disk by pressing CLEAR then press GOTO, then start recording.

Select Channel 2 and press the Record button to go in EE mode.

When you see an event worth marking press SAVE, this will increment the Segment number and save the IN point of the clip minus the Preroll value setting. (see Preroll above) Every time you hit SAVE, the Segment number will increment and the new time code will be captured.

If you want to recall a specific segment press the ++ or – buttons until you see the desired Segment number displayed, then press RECALL. (You can do this while in EE mode)

When you press SloMo, the unit will start playing from that point at the slow motion speed selected by the Shuttle wheel.

To stop and go back in EE, press STOP followed by the RECORD button.

Default is “off”.

(07) Gang Mode **Not applicable**

(08) 4224 Clip Mode **Not applicable**

12 Video and Key

Note: For Video & Key the DLNK-2K option is required. This is now a standard option on the V1-HD-2K model.

There are two methods to record Video & Key:

- Single-pass Recording using two synchronized inputs.
- Dual-pass Recording using a single input and the V1-HD Merge function.

In both cases, the end result is a single file with locked Video & Key outputs.

In addition to the video, and regardless of the bit-rate used: the V1-HD records 2, 4, 6 or 8 tracks of uncompressed audio (sampled at 48 KHz).

Analog and AES audio are at 16-bit depth; The SDI embedded audio is at 16-bit or 32-bit depth; The V1-HD also records LTC and ATC time-code.

The V1-HD records in different ways depending on the Time Code Mode selected in MENU (2). The V1-HD does not allow for repeating or non-continuous time-code.

The file time-line starts at 0 and ends at 24hrs.

- When Time Mode is set to Time Code, the V1 will read the incoming time code LTC or ATC depending on the time-code selection in OPTION MENU (17) and synchronizes itself to record on the time-line and at the proper position.
- When Time Mode is set to A-Time, the V1 will record on the time-line at the current position or at the end of file depending on the “Rec at:” setting in OPTION MENU (01) “Transport”.

12.1 Video & Key using the Single-Pass Recording Method

12.1.1 Creating the Recording File

Go to OPTION MENU (03) - New Record Set

- Select the format.
- Select Frame Rate.
- Select the Bit Rate.
- Select 3D Video.
- Select 4-2-2.
- Select the number of Audio Tracks.
- Select Drop or Non Drop Frame.
- Select V1 Encoding.
- Select 16-bit Audio.
- Select Standard VANC.
- Select 10b Precision.

To create the recording file:

- Hold the option Key and press SAVE.
- Press Enter to create the file.

12.1.2 Recording the Video & Key

12.1.2.1 Inputs Connections

- Use the SDI IN-A input for the Video-part, the embedded audio and the ATC.
- Use the SDI IN-B input for the Key-part.
- Use the Time Code ¼ inch balanced input for LTC time-code.

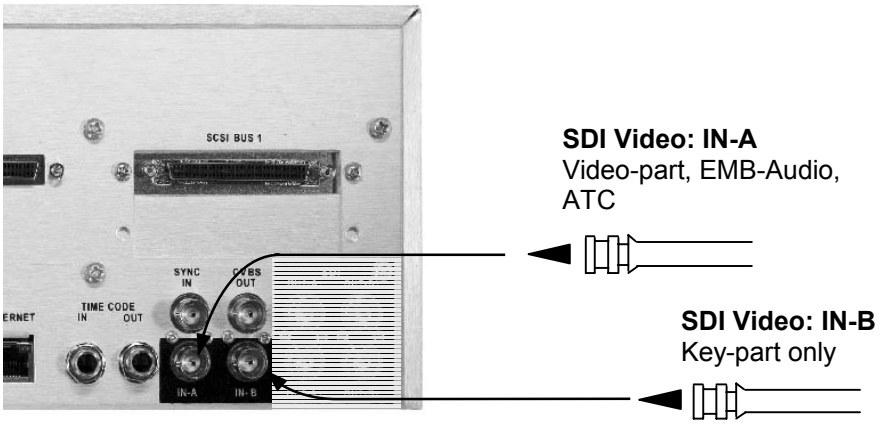


Figure 24: SDI Video Input A and B Connection

12.1.2.2 Output Connections

- The Video-part output is on SDI Out-A1 and SDI Out-A2.
- The Key-part output is on SDI Out-B1 and SDI Out-B2.

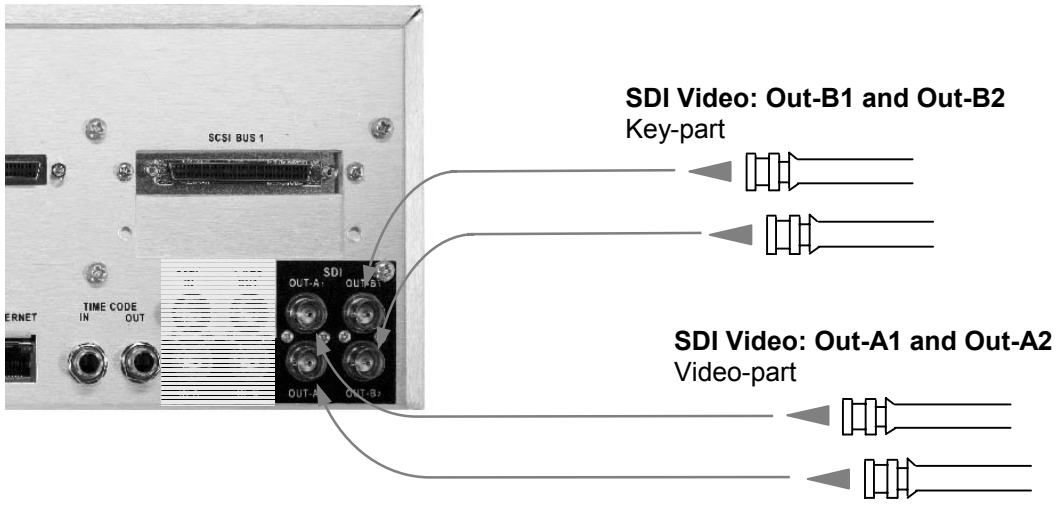


Figure 25: SDI Video Output A and B Connection

12.1.2.3 Recording in Time Code Mode

To record using the Source Time-Code:

- The NDF/DF selection when creating the file (OPTION MENU (03) ”New Rec Set”) should match the source time-code.
- Select “LTC” or “ATC” time-code (OPTION MENU (17)).
- Select “Time Code” in the Time Code Mode menu (MENU (02)).
- Press the **REC** button only to set the V1-HD in EE mode. (Displays the video on the input).
- If you see a valid video signal on your monitor, and if the displayed time-code is increasing you can press **REC** and **PLAY** at the same time to start recording.
- Press **STOP** to finish the recording.

Note: The message “Wrong TC Fed” will be displayed in the following cases:

- The time-code fed is not detected.
- The selection of LTC/ATC is not the same as the time-code source.
- The NDF/DF file setting does not match the incoming time-code format (NDF/DF)
- The incoming time-code exceeds the time-line duration.

12.1.2.4 Recording in A-Time Mode

To record in A-Time without using the Source Time-Code:

- Select “A Time” in the Time Code Mode menu (MENU (02))
- Press the **REC** button only to set the V1-HD in EE mode. (Displays the video on the input).
- If you see a valid video signal on your monitor, press **REC** and **PLAY** at the same time to start recording.
- Press **STOP** to finish the recording.

Note: the V1 will record at the current position or at the end of file depending on the “Rec at:” setting in OPTION MENU (01) “Transport”.

12.2 Video & Key using the Dual-Pass Method

This method of recording requires that the Video-part and the Key-part to be recorded separately in the same file. The audio should be recorded with the Video-part.

The Video-part time-line placement should be before that of the Key-part.

The Video-part and the Key-part are to be synchronized later using a visual marker and it is up to the user to identify the proper sync points of the two recordings.

12.2.1 Creating the recording file

Start the process by creating a file with the desired format. The bit rate of the file should not exceed 100Mb/s.

Go to OPTION MENU (03) - New Record Set

- Select the format.
- Select Frame Rate.
- Select 100Mb/s.
- Select Single Video.
- Select 4-2-2.
- Select the number of Audio Tracks.
- Select Drop or Non Drop Frame.
- Select V1 Encoding.
- Select 16-bit Audio.
- Select Standard VANC.
- Select 10b Precision.

To create the recording file:

- Hold the OPTION Key and press SAVE.
- Press Enter to create the file.

12.2.1.1 Inputs Connections

- Use the SDI IN-A input for the Video-part, the audio (for embedded audio) and for the Key-part.
- SDI IN-B input is not used for the Dual-pass method.
- Time Code is not used for the Dual-pass method.

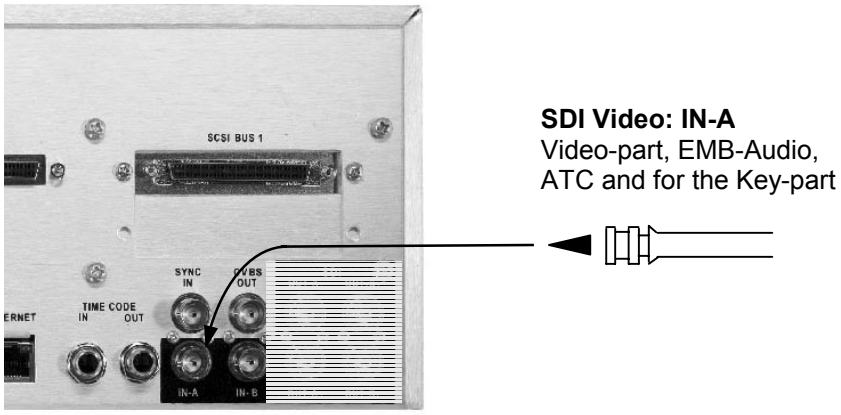


Figure 26: SDI Video Input A Connection

12.2.1.2 Output Connections

- During the recording or the playback of a Single-video file the same output is on all SDI Out-A1, SDI Out-A2, SDI Out-B1 and SDI Out-B2.
- During playback of the 3D-video file the Video-part output is on SDI Out-A1 and SDI Out-A2, the Key-part output is on SDI Out-B1 and SDI Out-B2.

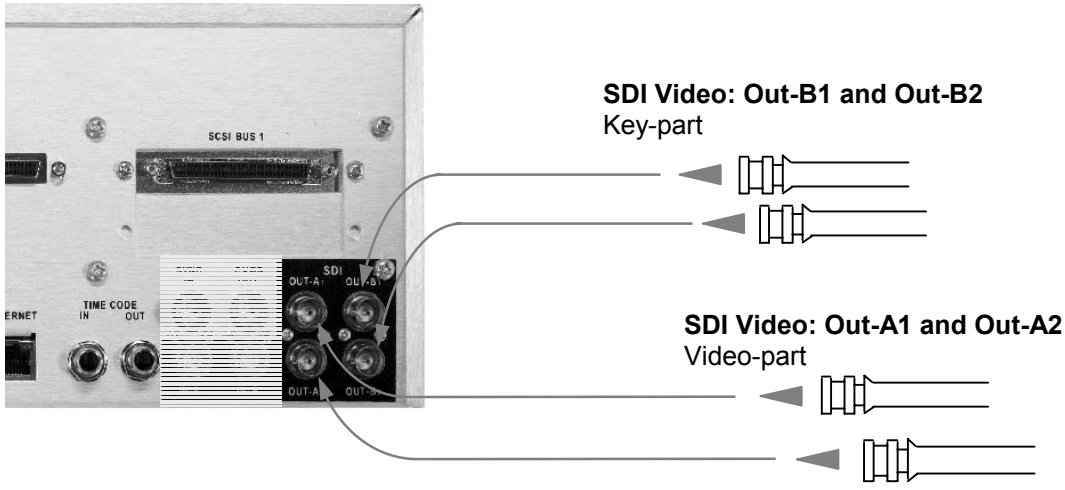


Figure 27: SDI Video Output A and B Connection

12.2.2 Recording the Video-Part

The audio should be recorded with the Video-part:

- Select “A Time” in the Time Code Mode menu (MENU (02)).
- Press the **REC** button only to set the V1-HD in EE mode. (Displays the video on the input).
- If you see a valid video signal on your monitor, press **REC** and **PLAY** at the same time to start recording. The time-code will start incrementing one the V1-HD is in record.
- Press **STOP** to finish the recording the Video-part.

12.2.3 Recording the Key-Part

- Before recording the Key-part: locate to a time code location beyond the end of the recorded video (Example: if the Video-part starts at 00:00:00:00 and ends at 00:10:00:00 locate to 01:00:00:00. To locate enter the time code value using the keypad and then press” Go To”)
- Press the **REC** button only to set the V1-HD in EE mode. (Displays the video on the input).
- If you see a valid video signal on your monitor, press **REC** and **PLAY** at the same time to start recording. The time-code will start incrementing one the V1-HD is in record.
- Press **STOP** to finish the recording the Key-part.

Note: the V1 will record at the current position or at the end of file depending on the “Rec at:” setting in OPTION MENU (01) “Transport”. For this operation set the “Rec at: to current position.

12.2.4 Merging the Video-part and the Key-Part

- Locate to the desired in-point of the Video-part recording and mark an IN point by pressing the IN button.
- Locate to the desired Out-point of the Video-part recording and mark an Out-point by pressing the Out button.
- Go to OPTION MENU (08) - Disk Copy
- Select Merge? And press Enter.
- The recording file name will be displayed.
- Press the ++ key the IN point will be displayed.
- Press the ++ key again the Out point will be displayed.
- Go out of the menu.
- Locate to a sync point on the Video-part recording. (The Sync-point S1 should be within the marked IN and OUT points)
- Go back to the Menu.
- Press the ++ key the Sync-point S1 will be displayed.
- Press Enter to accept the S1 Sync-point.
- Go out of the menu.
- Locate to a sync point on the Key-part recording. (The Sync-point S2 should be within the recorded Key-part video.)
- Go back to the Menu.
- Press the ++ key the Sync-point S2 will be displayed.
- Press Enter to accept the S2 Sync-point.
- Press the ++ key “Aud from L CH” will be displayed. (“Aud from L CH” in this case is a reference to the audio from the Video-part)
- Press Enter to accept.

The next step is to create the Video & Key file. The Video & Key file should have the exact parameters as the recording file except the Single Video parameter should be 3D, and the Bit rate should be 220Mb/s (a bit rate that is double or more of the recording file)

12.2.5 Creating the Video & Key File

Go to OPTION MENU (03) - New Record Set

- Select the format. (Same as the recording file)
- **Select 220Mb/s** (the 3D file bit-rate should be double or higher than the bit-rate of the recording file)
- **Select 3D Video** (This parameters is also used for the Video & Key)
- Select 4-2-2 (Same as the recording file)
- Select the number of Audio Tracks. (Same as the recording file)
- Select Drop or Non Drop Frame. (Same as the recording file)
- Select V1 Encoding (Same as the recording file)
- Select 16 bit Audio (Same as the recording file)

- Select Standard VANC (Same as the recording file)
- Select 10b Precision (Same as the recording file)

To create the 3D file:

- Hold the OPTION Key and press SAVE
- Press Enter to create the file.

12.2.6 Executing the Merge

After the 3D/Video & Key file is created.

- Locate to the desired time-code location. (By default the paste will be at 00:00:00:00).
- Go to OPTION MENU (08)
- Select Paste
- Press Enter
- The Merge process will start and the resulting Video & Key video will be pasted at the chosen timecode location.

Note: make sure that you have enough disk space to accommodate the recordings and the generated Video & Key file. (Ex: if your Video and Key parts recordings are 1 hour long you will need to have a free space on the drive sufficient for 30 minutes of recording at 220Mb/s.

After the merged Video & Key file is verified and plays properly in sync; you can delete the Single-video recording file.

To delete the single-video recording file:

- Hold the OPTION Key and press CLEAR.
- Use the JOG wheel to browse the file list.
- Press Enter to delete the file.

Example:

- The Video-part recording starts at 00:00:00:00 and ends at 00:10:20:25
- The Key-part recording starts at 01:00:00:00 and ends at 01:12:01:07
- The start of the needed Video-part starts at 00:01:02:03 and ends at 00:10:02:03 (total duration is 9 minutes)
- A sync point on the Video part is located at 00:05:02:03
- A sync point on the Key-part is located at 01:06:02:03

In this example the Merge function will use:

- The Video-part from 00:01:02:03 to 00:10:02:03.
- The Key-part from 01:02:02:03 to 01:11:02:03
- The duration of the Video & Key will be 9 minutes.

13 3D

Note: For Video & Key the DLNK-2K option is required. This is now a standard option on the V1-HD-2K model.

There are two methods to record 3D:

- Single-pass Recording using two synchronized inputs.
- Dual-pass Recording using a single input and the V1-HD Merge function.

In both cases, the end result is a single file with locked 3D outputs.

In addition to the video, and regardless of the bit-rate used; the V1-HD records 2, 4, 6 or 8 tracks of uncompressed audio (sampled at 48 KHz).

Analog and AES audio are at 16-bit depth; the SDI embedded audio is at 16-bit or 32-bit depth; the V1-HD also records LTC and ATC time-code.

The V1-HD records in different ways depending on the Time Code Mode selected in MENU (2). The V1-HD does not allow for repeating or non-continuous time-code.

The file time-line starts at 0 and ends at 24hrs.

- When Time Mode is set to Time Code, the V1 will read the incoming time code LTC or ATC depending on the time-code selection in OPTION MENU (17) and synchronizes itself to record on the time-line and at the proper position.
- When Time Mode is set to A-Time, the V1 will record on the time-line at the current position or at the end of file depending on the “Rec at:” setting in OPTION MENU (01) “Transport”.

13.1 3D using the Single-Pass Recording Method

13.1.1 Creating the Recording File

Go to OPTION MENU (03) - New Record Set

- Select the format.
- Select Frame Rate.
- Select the Bit Rate.
- Select 3D Video.
- Select 4-2-2.
- Select the number of Audio Tracks.
- Select Drop or Non Drop Frame.
- Select V1 Encoding.
- Select 16-bit Audio.
- Select Standard VANC.
- Select 10b Precision.

To create the recording file:

- Hold the OPTION key and press SAVE.
- Press Enter to create the file.

13.1.2 Recording the 3D

13.1.2.1 Inputs Connections

- Use the SDI IN-A input for the Left-Eye, the embedded audio and the ATC.
- Use the SDI IN-B input for the Right-Eye.
- Use the Time Code ¼ inch balanced input for LTC time-code.

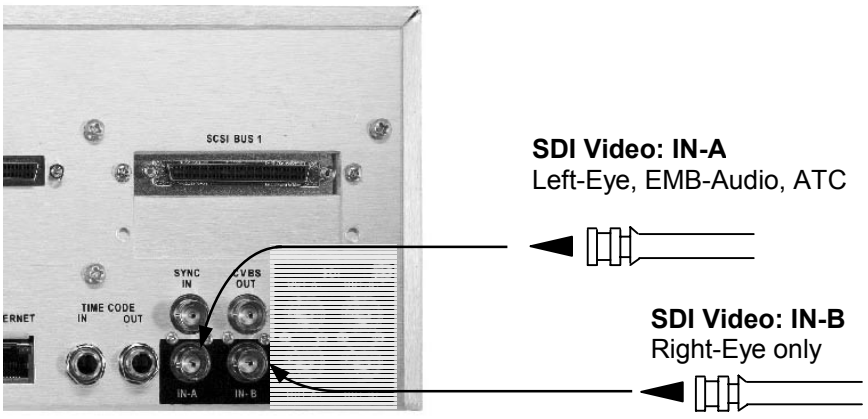


Figure 28: SDI Video Input A and B Connection

13.1.2.2 Output Connections

- The Left-Eye output is on SDI Out-A1 and SDI Out-A2.
- The Right-Eye output is on SDI Out-B1 and SDI Out-B2.

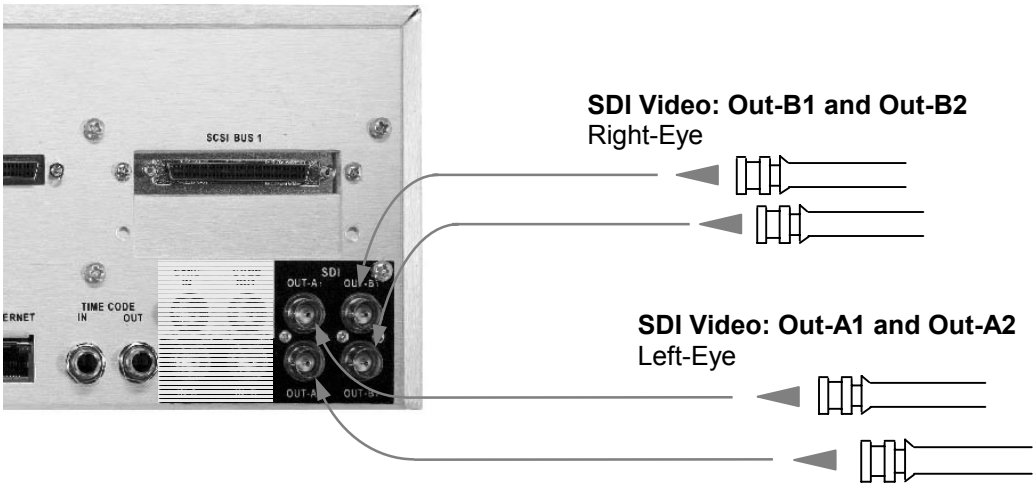


Figure 29: SDI Video Output A and B Connection

13.1.2.3 Recording in Time Code Mode

To record using the Source Time-Code:

- The NDF/DF selection when creating the file (OPTION MENU (03) ”New Rec Set”) should match the source time-code.
- Select “LTC” or “ATC” time-code (OPTION MENU (17)).
- Select “Time Code” in the Time Code Mode menu (MENU (2)).
- Press the **REC** button only to set the V1-HD in EE mode. (Displays the video on the input).
- If you see a valid video signal on your monitor, and if the displayed time-code is increasing you can press **REC** and **PLAY** at the same time to start recording.
- Press **STOP** to finish the recording.

Note: The message “Wrong TC Fed” will be displayed in the following cases:

- The time-code fed is not detected.
- The selection of LTC/ATC is not the same as the time-code source.
- The NDF/DF file setting does not match the incoming time-code format (NDF/DF)
- The incoming time-code exceeds the time-line duration.

13.1.2.4 Recording in A-Time Mode

To record in A-Time without using the Source Time-Code:

- Select “A Time” in the Time Code Mode menu (MENU (2))
- Press the **REC** button only to set the V1-HD in EE mode. (Displays the video on the input).
- If you see a valid video signal on your monitor, press **REC** and **PLAY** at the same time to start recording.
- Press **STOP** to finish the recording.

Note: the V1 will record at the current position or at the end of file depending on the “Rec at:” setting in OPTION MENU (01) “Transport”.

13.2 3D using the Dual-Pass Method

This method of recording requires that the Left-Eye and the Right-Eye to be recorded separately in the same file. The audio should be recorded with the Left-Eye.

The Left-Eye time-line placement should be before that of the Right-Eye.

The Left-Eye and the Right-Eye are to be synchronized later using a visual marker and it is up to the user to identify the proper sync points of the two recordings.

13.2.1 Creating the Recording File

Start the process by creating a file with the desired format. The bit rate of the file should not exceed 100Mb/s.

Go to OPTION MENU (03) - New Record Set

- Select the format.
- Select Frame Rate.
- Select 100Mb/s.
- Select Single Video.
- Select 4-2-2.
- Select the number of Audio Tracks.
- Select Drop or Non Drop Frame.
- Select V1 Encoding.
- Select 16-bit Audio.
- Select Standard VANC.
- Select 10b Precision.

To create the recording file:

- Hold the OPTION key and press SAVE.
- Press Enter to create the file.

13.2.1.1 Inputs Connections

- Use the SDI IN-A input for the Left-Eye, the audio (for embedded audio) and for the Right-Eye.
- SDI IN-B input is not used for the Dual-pass method.
- Time Code is not used for the Dual-pass method.

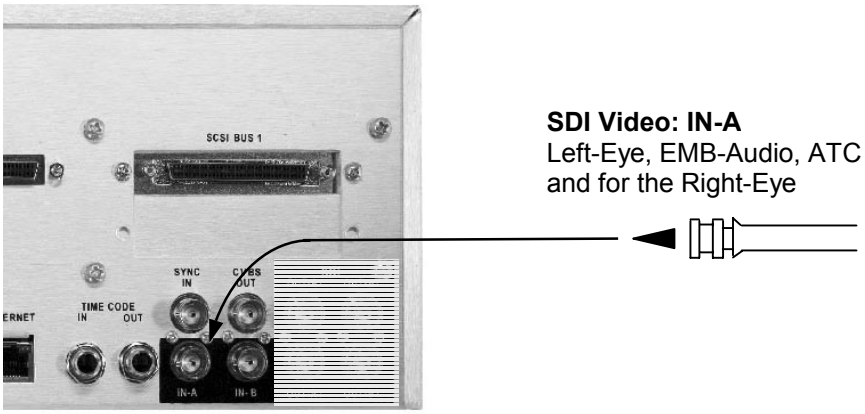


Figure 30: SDI Video Input A Connection

13.2.1.2 Output Connections

- During the recording or the playback of a Single-video file the same output is on all SDI Out-A1, SDI Out-A2, SDI Out-B1 and SDI Out-B2.
- During playback of the 3D-video file the Left-Eye output is on SDI Out-A1 and SDI Out-A2, the Right-Eye output is on SDI Out-B1 and SDI Out-B2.

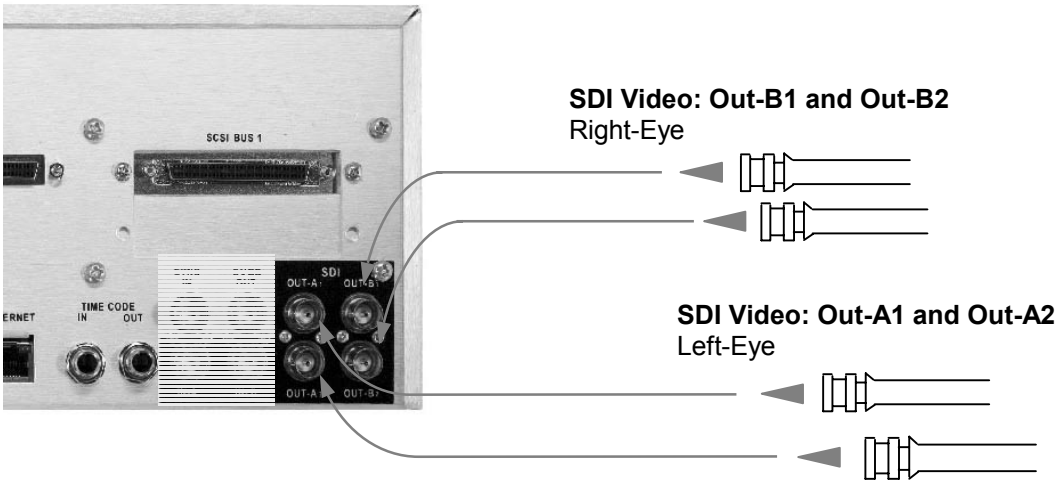


Figure 31: SDI Video Output A and B Connection

13.2.2 Recording the Left-Eye

The audio should be recorded with the Left-Eye.

- Select “A Time” in the Time Code Mode menu (menu 02).
- Press the **REC** button only to set the V1-HD in EE mode. (Displays the video on the input).
- If you see a valid video signal on your monitor, press **REC** and **PLAY** at the same time to start recording. The time-code will start incrementing one the V1-HD is in record.
- Press **STOP** to finish the recording the Left-Eye.

13.2.3 Recording the Right-Eye

- Before recording the Right-Eye: locate to a time code location beyond the end of the recorded video (Example: if the Left-Eye starts at 00:00:00:00 and ends at 00:10:00:00 locate to 01:00:00:00. To locate enter the time code value using the keypad and then press” Go To”)
- Press the **REC** button only to set the V1-HD in EE mode. (Displays the video on the input).
- If you see a valid video signal on your monitor, press **REC** and **PLAY** at the same time to start recording. The time-code will start incrementing one the V1-HD is in record.
- Press **STOP** to finish the recording the Right-Eye.

Note: the V1 will record at the current position or at the end of file depending on the “Rec at:” setting in OPTION MENU (01) “Transport”. For this operation set the “Rec at: to current position.

13.2.4 Merging the Left-Eye and the Right-Eye

- Locate to the desired in-point of the Left-Eye recording and mark an IN point by pressing the IN button.
- Locate to the desired Out-point of the Left-Eye recording and mark an Out-point by pressing the Out button.
- Go to OPTION MENU (08) - Disk Copy
- Select Merge? And press Enter.
- The recording file name will be displayed.
- Press the ++ key the IN point will be displayed.
- Press the ++ key again the Out point will be displayed.
- Go out of the menu.
- Locate to a sync point on the Left-Eye recording. (The Sync-point S1 should be within the marked IN and OUT points)
- Go back to the Menu.
- Press the ++ key the Sync-point S1 will be displayed.
- Press Enter to accept the S1 Sync-point.
- Go out of the menu.
- Locate to a sync point on the Right-Eye recording. (The Sync-point S2 should be within the recorded Right-Eye video.)
- Go back to the Menu.
- Press the ++ key the Sync-point S2 will be displayed.
- Press Enter to accept the S2 Sync-point.
- Press the ++ key “Aud from L CH” will be displayed. (“Aud from L CH” in this case is a reference to the audio from the Left-Eye)
- Press Enter to accept.

The next step is to create the 3D file. The 3D file should have the exact parameters as the recording file except the Single Video parameter should be 3D, and the Bit rate should be 220Mb/s (a bit rate that is double or more of the recording file)

13.2.5 Creating the 3D File

Go to OPTION MENU (03) - New Record Set

- Select the format. (Same as the recording file)
- **Select 220Mb/s** (the 3D file bit-rate should be double or higher than the bit-rate of the recording file)
- **Select 3D Video**
- Select 4-2-2 (Same as the recording file)
- Select the number of Audio Tracks. (Same as the recording file)
- Select Drop or Non Drop Frame. (Same as the recording file)
- Select V1 Encoding (Same as the recording file)
- Select 16 bit Audio (Same as the recording file)
- Select Standard VANC (Same as the recording file)

- Select 10b Precision (Same as the recording file)

To create the 3D file:

- Hold the OPTION key and press SAVE
- Press Enter to create the file.

13.2.6 Executing the Merge

After the 3D file is created.

- Locate to the desired time-code location. (By default the paste will be at 00:00:00:00.
- Go to OPTION MENU (08)
- Select Paste
- Press Enter
- The Merge process will start and the resulting 3D video will be pasted at the chosen timecode location.

Note: make sure that you have enough disk space to accommodate the recordings and the generated 3D file (Ex: if your Left-Eye and Right-Eye recordings are 1 hour long you will need to have a free space on the drive sufficient for 30 minutes of recording at 220Mb/s).

After the merged 3D file is verified and plays properly in sync; you can delete the Single-video recording file.

To delete the single-video recording file:

- Hold the OPTION key and press CLEAR.
- Use the JOG wheel to browse the file list.
- Press Enter to delete the file.

Example:

- The Left-Eye recording starts at 00:00:00:00 and ends at 00:10:20:25
- The Right-Eye recording starts at 01:00:00:00 and ends at 01:12:01:07
- The start of the needed Left-Eye starts at 00:01:02:03 and ends at 00:10:02:03 (total duration is 9 minutes)
- A sync point on the Left-Eye is located at 00:05:02:03
- A sync point on the Right-Eye is located at 01:06:02:03

In this example the Merge function will use:

- The Left-Eye from 00:01:02:03 to 00:10:02:03.
- The Right-Eye from 01:02:02:03 to 01:11:02:03
- The duration of the 3D will be 9 minutes.

14 Troubleshooting

14.1 Unable to Control V1 Remotely

If you have a normal RS422 9 pin control connection and you cannot control the V1, check MENU (4) **Chase Mode**. It should be set to **OFF**. In addition, ensure that the controller protocol and the emulation mode match (OPTION MENU (1) **Transport** *Emulate* and OPTION MENU (15) **Serial Port**).

14.2 V1 Identification for Editors and DAW on the RS422 Port

The V1 can reply with two different Machine Ids when connected to a controlling device like a Sony 9-Pin editor.

If OPTION MENU (1) **Transport** is set to BVW75, it will reply with a "BVW75" identification.

If OPTION MENU (1) **Transport** is set to V1 (default), the V1 will reply with a "V1" identification.

If OPTION MENU (1) **Transport** is set to DVW-500, the V1 will reply with a "DVW500" identification.

Caution note: Some DAWs or Editors will not initialize the RS422 port correctly if the Id returned on the RS422 port is unknown by them. In this case, set the EMULATION to BVW75.

14.3 The Video has no Colors

If the video is not stable and is not displaying colors properly, you have set the MENU (3) **Sync Source** to **Auto** or **Sync In** but you do not have a black burst signal fed to the SYNC IN connector. If the video stabilizes when you switch to **Internal**, the problem is definitely your **Sync Source** setting.

14.4 No Audio from Input Monitor

If you cannot hear the audio when you go in input monitor, check the OPTION MENU (11 & 12) for your Audio Levels and check the audio input source menu.

14.5 Unable to Write to Active Drive

If you are not able to write to your active drive, i.e. cannot record, initialize or format, check OPTION MENU (6) **SCSI Setup** and set V1 to **Rec/Play**. It can also be due to the selection of Disk Acc in OPTION MENU (1).

14.6 Forcing Power ON in any Condition

The V1 can be set to remain on even if AC power is cycled OFF then ON again. To force a “always ON” operation please consult our technical support department.

14.7 No MD Found

This message is valid for new drives that have not been used on a V1. You will need to initialize the drive(s).

15 Technical Support

Technical Support Contact Information:

On the web: www.doremilabs.com select the “support” button

Tel. 818 562-1101

Fax. 818 562-1109

Email Support@doremilabs.com

Address:

Doremi Labs, Inc.

1020 Chestnut Street,

Burbank, CA 91506

U.S.A.

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(d) All waivers must be in writing. Any waiver or failure to enforce any provision of this Agreement on one occasion will not be deemed a waiver of any other provision or of such provision on any other occasion.

18 Appendix

18.1 Instruction for Initial Setup and Transport

Before any transport:

- **Lock the Data-Express (Key ON as for normal use).**

  Note: Doremi highly recommends shipping drives separately.

- **Switch the V1 OFF.**
- **Remove the SCSI termination on rear** (Leaving it in may break the SCSI connector during transport).

18.2 Upgrading the V1 Firmware

The V1 firmware can be checked by going to the OPTION MENU. Scroll with the menu arrow keys until you reach OPTION MENU (00) **Info/Mode**.

The V1 firmware can be upgraded from a PC or Mac using the VUploader utility posted on our support page at: http://www.doremilabs.com

The latest firmware upgrades are posted on the support page of the Doremi web site:

The manual for VUploader is included in PDF format with the VUploader compressed file.

18.3 Upgrading the RCV2 Firmware

All silver V1 decks have two firmwares, one for the V1 motherboard and another for the front panel (the RCV2).

18.3.1 Check your RCV2 Firmware Version

Enter the CONTROLLER MENU by holding the **ESCAPE** button and pressing **MENU.** Scroll to *Firmware.*

18.3.2 The VUploader Utility

The RCV2 can be upgraded using the VUploader utility version 1.18 or higher. Download the VUploader utility from www.doremilabs.com in the support page.

Connect the 9pin cable between the RCV2-9P port labeled RS422 (1-2) (do not use the port labeled RS422 (3-4)) to any of the ports on the back panel of your V1 deck.

Power up the unit while holding the Channel 1 button under the 4 line LCD display, you should see a message saying "Flash mode"

Run VUploader. For detailed instructions see the VUploader README file that comes with VUploader.

When you receive the message from VUploader asking to select a port, choose the RS422 port that you connected to on the back of the V1.

18.4 High Definition Uncompressed Chart

The format used in the table below corresponds to the following template: “hour:minutes”. Note the chart below covers most V1-UHD and V1-UHD/LE models. For the latest chart please check the corresponding Doremi website’s product page. www.doremilabs.com

V1-UHD *HDTV Uncompressed Recording Time*												
				V1-UHD/LE-20	**V1-UHD/LE-40**	**V1-UHD/LE-80**	**V1-UHD-73R**	**V1-UHD-146R**	**V1-UHD-98T**	**V1-UHD-197T**	**V1-UHD-295ER**	**V1-UHD-590ER**
				Internal storage							**External storage**	
				removable	removable	removable	removable	removable	fixed	fixed	RAID 5	RAID 5
			Drive Size GB	73	146	300	146	300	146	300	160	160
			Drive Qty	2	2	2	3	3	4	4	11	22
			Total Rack Units	3RU	3RU	3RU	3RU	3RU	3RU	3RU	5RU	7RU
HD Format	**Bit**	**Coding**	**Xfr Mb/s**									
1080 50i or 1080 25p	8	411	78				1:34	3:08	2:06	4:17	6:18	12:36
	8	422	104	17	38	1:15	1:11	2:22	1:34	3:13	4:43	9:27
	10	422	130				0:56	1:52	1:15	2:34	3:46	7:33
	10	444	-									5:02
1080 60i or 1080 30p	8	411	94				1:18	2:36	1:45	3:34	5:15	10:30
	8	422	125	15	31	1:03	0:59	1:58	1:18	2:41	3:56	7:52
	10	422	156						1:03	2:06	3:09	6:18
	10	444	-									4:12
1080 48i or 1080 24p	8	411	75				1:38	3:16	2:11	4:28	6:33	13:07
	8	422	100	19	39	1:18	1:13	2:26	1:38	3:17	4:55	9:50
	10	422	125				0:59	1:58	1:18	2:41	3:56	7:52
	10	444	-									5:15
720 60p	8	411	84				1:28	2:58	1:57	4:00	5:52	11:45
	8	422	112	18	35	1:10	1:06	2:12	1:28	3:00	4:24	8:48
	10	422	138						1:11	2:22	3:32	7:05
	10	444	-									4:43

KEY:

Not available in this drive configuration

Model number derived from this format

18.5 JPEG2000 Compression / Time Chart

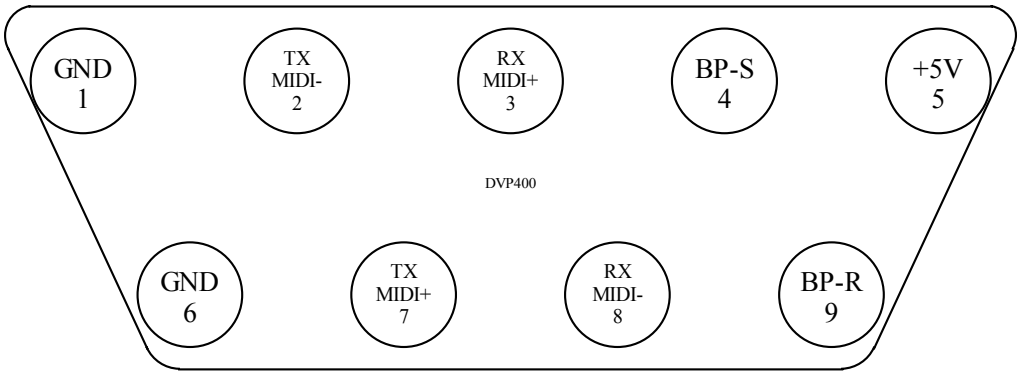
The format used in the table below corresponds to the following template: “hour:minutes”.

HD & SD Compressed Recording Time								
Video Type	Compression Bit Rate	36GB	73GB	146GB	300GB	1120GB	3.5TB	5.5TB
						External Drive Chassis		
HD	300	0:15	0:30	1:01	2:05	7:46	24:18	38:11
HD	250	0:18	0:36	1:13	2:30	9:20	29:10	45:50
HD	220	0:20	0:41	1:23	2:50	10:35	33:06	52:01
HD	160	0:28	0:56	1:54	3:53	14:31	45:22	71:17
HD	125	0:36	1:13	2:27	5:00	18:40	58:20	91:40
HD	100	0:44	1:30	3:02	6:12	23:10	72:25	113:49
HD	75	1:00	2:01	4:05	8:20	31:06	97:13	152:46
HD	60	1:15	2:32	5:06	10:25	38:53	121:31	190:58
HD	50	1:30	3:02	6:07	12:30	46:40	145:50	229:10
HD	40	1:52	3:48	7:39	15:37	58:20	182:17	286:27
SD	100	0:45	1:31	3:04	6:15	23:23	73:04	114:50
SD	50	1:27	2:58	5:58	12:12	45:33	142:22	223:44
SD	30	2:24	4:53	9:51	20:06	75:03	234:34	368:37
SD	15	4:34	9:15	18:39	38:03	142:06	444:05	697:51

All durations are approximate. Recording time may vary 10% depending on the video standard being recorded. Tables are compiled for video at the indicated bit rate with 2 audio channels.

18.6 BiPhase Settings

Pin 5: +5V will provide a 5V power signal
Pin 4: Biphase S signal
Pin 9: Biphase R Signal
Pin 1: Ground Signal
The rest of the pins are used for MIDI chase, which is still not implemented.



18.7 Connecting V1 to Audio Workstations & Edit Controllers

18.7.1 Most Common Connection

This connection scheme is used to connect the V1 to StudioFrame, Audiofile, Audiovision, Post-Pro, Dyaxis II, Protools 4.0 etc.

1. Feed house sync to the V1 and the DAW,
2. Connect the time code out of the V1 to the time code in of the DAW,
3. Connect the serial cable between the V1 RS422 port 1 and the DAW,

Run the DAW software which will control the V1.

18.7.2 Connection to the DAWN workstation (v 4.3c or later)

1. Feed house sync to the V1 and the DAWN
2. Connect the time code out of the DAWN to the time code in of the V1
3. Connect the RS422 port 1 of the V1 to one of the serial ports on the Macintosh
4. Make sure the V1 is in Chase Off mode
5. Make sure the V1 Sync source is “Auto”
6. Run the DAWN software
7. You should see a V1 track at the bottom of the mix view
8. Make sure House Sync is checked
9. Toggle Master/Slave and then make sure you end up in master mode
10. Hit play, both units should play in sync
11. Hit Stop, both units should stop.

The DAWN should always be in master mode.

18.7.3 Connection to the Akai DD-1500 with RS422 control (recommended)

1. Use the standard RS422 direct cable male-male 9 pins (Master to Slave)
2. Feed House Sync to the V1 and to the DD1500
3. Connect the serial cable between the V1 RS422 port 1 and the DD1500
4. Set the DD1500 Word Sync to Video A (29.97 for NTSC, 25fps for PAL)
5. Set the Ext M/C of the DD1500 to Master
6. Make sure the V1 is in Chase Off mode

Please contact Akai to get the best connection with the DD-1500 and the DD-8.

18.7.4 Connection to the Akai DD-1500 in CHASE RS422 Mode

1. If you did not receive a special serial cable that is DB9 Male to Male specific to the DD1500, you need to make one with the following pin-out (This is a twisted Slave to Slave cable):
   pin 1 -> pin 1
   pin 2 -> pin 8
   pin 3 -> pin 7
   pin 4 -> pin 6
   pin 5 -> pin 5
   pin 6 -> pin 4
   pin 7 -> pin 3
   pin 8 -> pin 2
   pin 9 -> pin 9
2. Feed house sync to the V1 and to the DD1500
3. Connect the serial cable between the V1 RS422 port 1 and the DD1500
4. Set the DD1500 Word Sync to Video A (29.97 for NTSC, 25 fps for PAL),
5. Set the Ext M/C of the DD1500 to Full Slave,
6. Set the Chase mode of the V1 to Serial TC.

Use the DD1500 as if it is standalone, the V1 will chase to it at any speed.

18.7.5 Connection to the Fairlight

1. Feed House Sync to the V1 and the Fairlight
2. Connect the serial cable between the Fairlight and the V1 RS422 port 1
3. On the V1, set OPTION MENU (1) **Transport** *JogSpeed* to 100% (No Limit) and save using OPTION MENU (5).
4. Run the Fairlight software, Hit the Machine 1 button to put the V1 on-line
5. Push buttons for setup of M1
6. Set Lace parameters to UNLACE=ON
7. And the LACE time parameter to 0 SEC

The Fairlight software will control the V1 properly

18.7.6 Connection to the Microlynx, the Lynx 1 and Lynx 2 synchronizers

1. Feed house sync to the V1 and the lynx,
2. If you are using a Lynx 1, connect the time code out of the V1 to the time code in of the Lynx
3. Connect the transport serial cable between the Lynx and the V1
4. In the Transport menu, select the machine as DVR10.
5. Set the Preroll to zero
6. If you are using a Microlynx or a Lynx 2, select Serial TC.

The Lynx will control the V1 and lock it to the system

18.7.7 Connection to the Sonic Solutions

1. Feed house sync to the V1 and the Sonic Station,
2. Connect the time code out of the V1 to the time code in of the Sonic,
3. Connect the serial cable between the V1 RS422 port 1 and the Sonic,
4. Select D-2 as the type of machine in the Sonic Machine list

The Sonic software will control the V1.

18.7.8 Connection to the Pro-Tools 4.0

Establishing Machine-control from Protools on the Macintosh

1. Connect the 9 pin RS422 cable between the V1's lower RS422 port and the Macintosh's Modem-port, Printer-port or G-Port serial port. You can also connect it to the serial port on your D24 or MIX card, but note that the VTPRO software will NOT operate through this port.
2. Connect the V1 LTC output to your LTC-to-MTC converter (for example: MOTU's MTP2 / MTP-AV, Opcode Midi interfaces, Digidesign USD etc.)
3. Connect the LTC-to-MTC converter to your Macintosh. In doing so, check that your Macintosh receives MTC data from your interface.
4. Install Digidesign's PostView or Machine Control Option on your Macintosh.
5. Power-up the V1. Make sure it operates correctly.
6. After your V1 has booted, run the Protools software.
7. Select the *Machine-Control* menu *(Protools -> Setups -> Peripherals -> Machine Control*).
8. Enable "*9-pin serial*". If it's grayed-out, try re-installing your Machine-Control software.
9. Under "*Port*", select the serial port that you connected your V1 to (see step 1).
10. Under "*Machine Type*", select "*Sony-9 pin*"
11. Under "*Node*", select "*V1*".
12. Under "*Pre-Roll*", set Pre-Roll to *30 frames*
13. Select the *Synchronization menu (Protools -> Setups -> Peripherals -> Synchronization*)
14. Under "*Device*", select the correct LTC-to-MTC converter. If you're not using a Digidesign device to perform this function, select "*Generic MTC reader*".
15. Under "*Port*", select the serial or USD port that you connected your LTC-to-MTC converter to.
16. Set "*Minimum sync delay*" to *30 frames*.
17. Select *Protools -> Setups -> Preferences -> Operation.* Activate "*Machine Follows Selection/Scrub*"

18. Locate the Transport Control on your screen. If you don't see it, select *Protools -> Display -> Show Transport*
19. Make sure "*transport = protools*" is set and that the "*online*" button (the one that looks like a clock) is selected.
20. Select *Protools -> OMS Midi*. Please be sure to deselect the serial port used by Protools for V1 control to avoid a conflict with OMS operation.

Protools will now be able to control the V1. The way it works is as followed:

- You hit play in Protools
- Then Protools will cue the V1 to the current play location MINUS the amount of frames set in step 12
- Next, the V1 will send LTC to your LTC-to-MTC converter
- Finally, Protools will receive the MTC and start chasing this timecode

If problems persist, please consult the "Protools and V1 control" FAQ's

18.7.9 Connection to the Orban AUDICY VX

1. Feed house sync to the V1 and to the reference video inputs on Audicy's timecode and digital input modules.
2. Connect the time code out of the V1 to Audicy's time code input, You don't need to connect Audicy's time code output.
3. Connect the RS422 port 1 of the V1 to the Audicy's RS-422 output, through the Orban adapter cable supplied.
4. Make sure the V1 is in Chase Off mode.
5. Make sure Audicy's I/O Setup has Sync Source set to Video and your local sync rate (NTSC or PAL). You may set this as a default.
6. Make sure Audicy's VTR Setup is set for +2 frame Timecode Delay, and normal Chase Dynamics and Lock Criterion. You may set this as a default.

If you press Audicy's Machine Control button, the V1 will follow every move you make on the Audicy. If you press Audicy's Chase button, it will follow every move you make on the V1. You may switch freely between these functions during a session.

18.7.10 Connection to the Dyaxis II

This connection scheme is used to connect the V1 to StudioFrame, Audiofile, Audiovision, Post-Pro, Dyaxis II, Protools 4.0 etc.

1. Feed house sync to the V1 and the DAW,
2. Connect the time code out of the V1 to the time code in of the DAW,
3. Connect the serial cable between the V1 RS422 port 1 and the DAW,
4. From the Dyaxis II software choose the following two options:
    - Internal Time Code on 9 Pin
    - Time Code on Audio Tracks

18.7.11 List of DAWs & Editors currently supported by the V1(*)

Adams-Smith SuperController, Akai DD1500, AMS Neve Audiofile, Augan OMX, DAR, Digidesign Protools 4.0, Digigram X-Track, Doremi Labs Dawn II v. 4.3+, Fairlight MFX3, Fast Video Machine, Sadie, Sonic Solutions, Sony BVE, Spectral, Studer Dyaxis, SSL/Screensound, Synclavier, TimeLine Vista Waveframe/StudioFrame, TimeLine Lynx & Micro Lynx Synchronizers.

Special note for the SSL/Screensound:

On the Screensound, go into the page 'Setup Serial' and select 'Motion Off'. The V1 will be controlled by the Screensound. The offset on the Screensound must then be set to 0; if not the Screensound will operate as if a real offset is present between the V1 and the audio tracks on the Screensound.

(*) This list is not absolute, contact Doremi Labs if your product is not listed above.

19 Document Revision History

Date	Version	Description
02/22/2008	5.0	Dedicated V1 user manual for V1-HD, V1-UHD and V1-UHD/LE series.