

# ***DigiDeck digital video recorder***<sup>TM</sup>

## **USER'S MANUAL**



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<http://www.ffv.com>

### **Precautions**

The DigiDeck has been built to meet the demands of a studio environment, however, the hardware is subject to the same dangers from static as any other electronic device. Use care when connecting or disconnecting cables.

**IMPORTANT:** Take care not to introduce any moisture into the unit. Electronic assemblies are sensitive to static electricity, due to the electrostatic sensitive devices used within the circuitry. All semiconductors, as well as some resistors and capacitors, may be damaged or degraded by exposure to static electricity. The hard drives and the video card must receive adequate ventilation and be kept as cool as possible. We have designed a bracket with fans that can be installed into your unit. This device will help prevent overheating of the drive and the video card. Overheating will most likely cause the unit to malfunction and possibly damage the video card.

If you experience any problems with the unit please call Fast Forward Video's technical support department. **DO NOT ATTEMPT** to repair or modify the unit as this might cause further damage, which could void your warranty. A technician can decipher whether your problem is caused by a faulty component in which case you might need to return it for evaluation and/or repair.

### **Cleaning**

The chassis should only require dusting with a soft cloth, solvents may harm the painted surface and leak to the inside causing severe damage. If you work in a dusty environment, periodic dusting in and around the unit using forced air is recommended to ensure the life of the fan and power supply.

### **Operation and Storage Environment**

Due to the nature of the hard drives used with this device **THE UNIT MUST BE USED IN A WELL VENTILATED AREA.** Do not cover or block the ventilation area and try to avoid areas with excessive heat, which may cause the video card to malfunction.

### **PACKAGE CONTENTS (May vary depending on model)**

- 1 **RS-422/232 Converter (KEEP IT HANDY FOR FIRMWARE UPGRADES)**  
Used to up-load the latest versions of the control firmware to the deck using your computer and a terminal emulation program (please refer to software update procedure for instructions). The RS-232/422 converter is also required if you are planning to control the DigiDeck via the RS-422 port, using the control software, or any other external controller that does not put out RS422 commands.
- 1 **POWER CABLE** (a standard 3 pin power cable).
- 1 **SET of RACK EARS** and 4 screws. The DigiDeck is rack mountable.
- 1 **CONTROL SOFTWARE CD** (optional)
- 1 **TROUBLE SHOOTING AND BASIC MENU SETTINGS GUIDE** (laminated sheet).

If hard drives were ordered or dropped shipped to us they will be installed in the unit and tested.

**PLEASE RETAIN THE ORIGINAL SHIPPING CARTON AND FOAM** If you need to return the unit for service or upgrade it is **STRONGLY** recommended that you use the original carton and foam which were specifically designed to protect it from damage while in transit. **If a unit is returned in something other than the original packaging, or a protective hard case, a \$30.00 fee will be assessed for the use of new shipping materials for return shipment to you.**

### **FCC information to the user**

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2). This device must accept any interference received, including interference that may cause undesired operation.

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# 1 OVERVIEW

The DigiDeck series of digital video recorders combines the industry's best image quality with a comprehensive feature set and a comparatively low price, which is the hallmark of Fast Forward Video's products. The DigiDeck digital video recorders are also designed to develop and evolve as the industry changes. New features are implemented regularly, [most of which can be easily implemented by updating the deck's firmware, down-loadable via FFV's Web site, <http://www.ffv.com> \(see page 7 for instructions\).](#) [Because of this, the DigiDeck series will NEVER become obsolete.](#)

## **FEATURES**

- Y/C (S-Video) and composite inputs and outputs.
- 60 fld/sec, 30 frm/sec NTSC or 50 fld/sec, 25 frm/sec PAL
- Motion JPEG compression settings as low as 4:1.
- Internally maintains the digital video industry standard CCIR 601, 4:2:2 format
- Two channels of unbalanced audio per video channel.
- Genlock input locks analog output to external sync.
- Sony/SMPTE RS-422 protocol with Odetics broadcast extensions.
- SMPTE/EBU longitudinal (LTC) time code.
- Front panel controls with LCD touch screen.

## **DUAL DECK FEATURES** *(IN ADDITION TO THOSE LISTED ABOVE)*

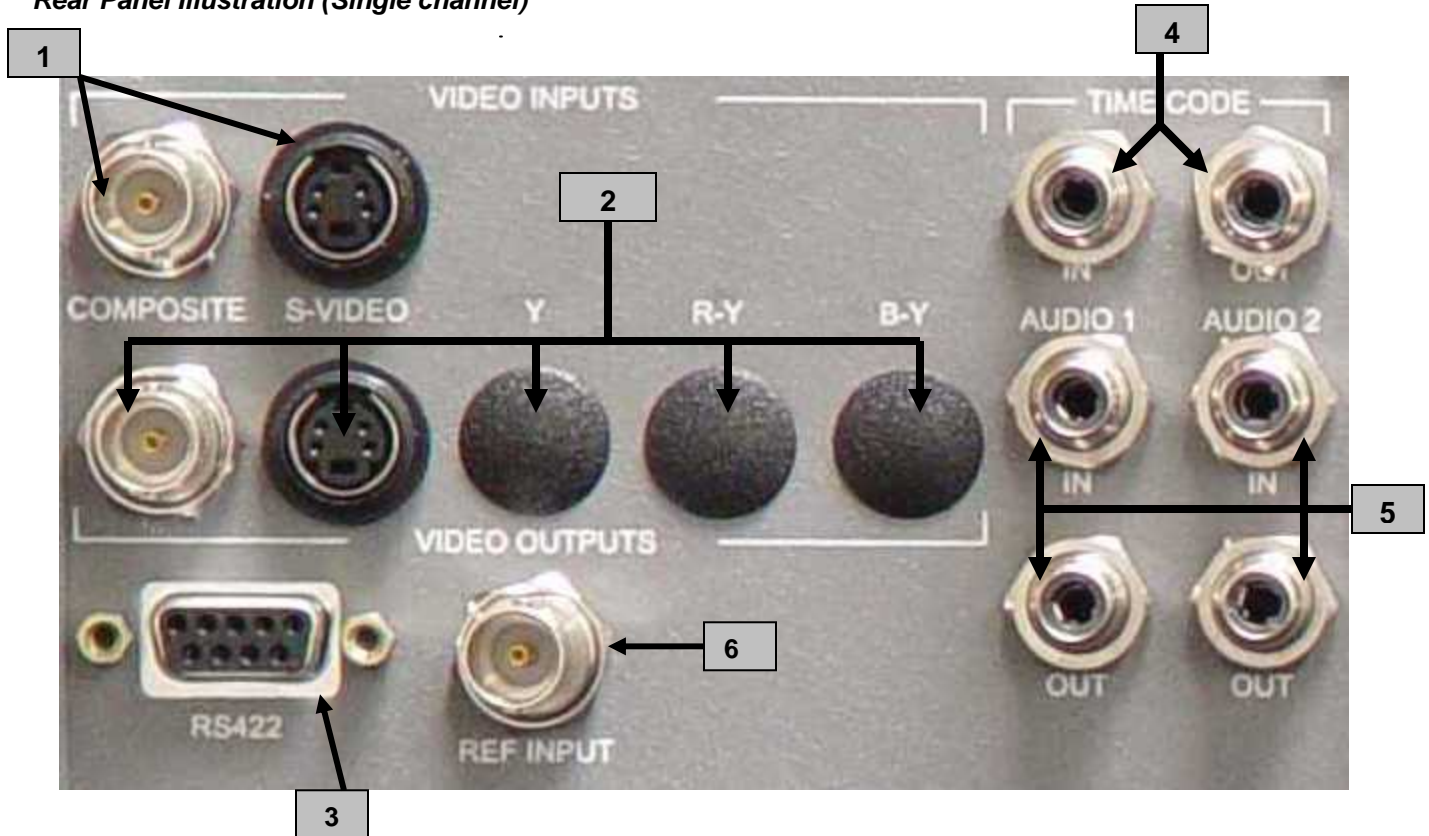
- Two independent video channels, each with two channels of unbalanced audio, and independent I/O for dedicated storage and RS-422 Machine Control.
- Separate Control on the LCD Front Panel for each Video Channel, however, both channels can be operated simultaneously (see page 9).

## **OPTIONS**

- Component output. In this configuration, inputs/outputs are Composite in and Composite/Component out.
- Controller software CD

## 2 REAR PANEL DESCRIPTION

*Rear Panel Illustration (Single channel)*



1. **ANALOG VIDEO INPUTS** - Composite and Y/C (S-Video) input.
2. **ANALOG VIDEO OUTPUTS** – Composite, Y/C (S-Video) and component (optional).
3. **RS-422 - MACHINE CONTROL (DB9 CONNECTOR)** - This connector is for controlling the DigiDeck from an external RS-422 device or via PC (utilizing supplied RS-232 to RS-422 converter).
4. **TIME CODE IN AND OUT** - RCA connectors for longitudinal time code (LTC).
5. **AUDIO INPUT AND OUTPUT** - Unbalanced audio RCA connectors.
6. **REFERENCE BNC** - Use this connector for genlock. The signal must conform to broadcast specifications which is RS-170 for NTSC. Composite video or black burst are an acceptable reference. **DO NOT** connect non-standard signals to the DigiDeck, or the picture **WILL** distort.

*Rear Panel Illustration (Dual Shown) 2*



# DigiDeck HOOK-UP DIAGRAM

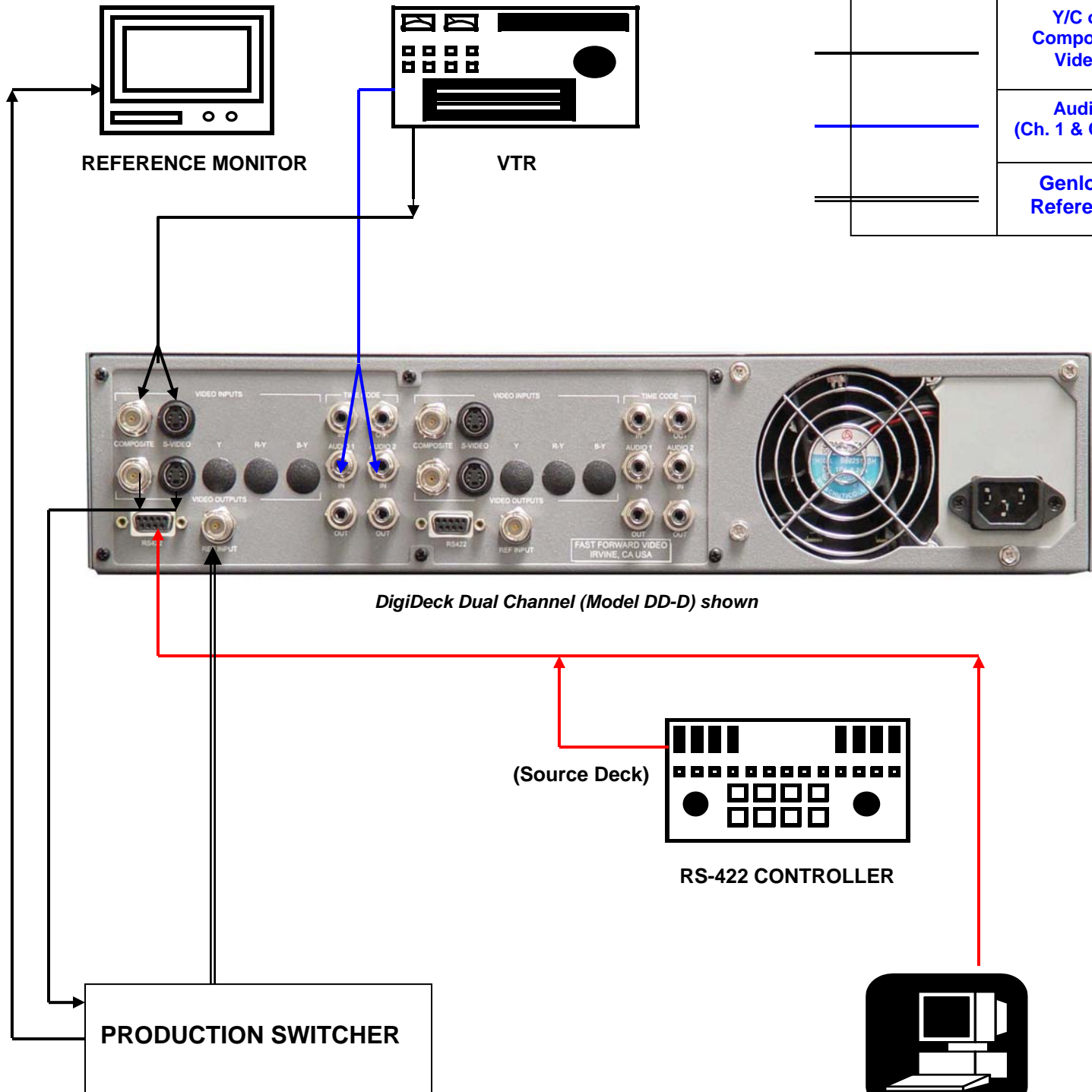
## LEGEND

RS 422

Y/C or  
Composite  
Video

Audio  
(Ch. 1 & Ch. 2.)

Genlock  
Reference



*DigiDeck Dual Channel (Model DD-D) shown*

(Source Deck)

RS-422 CONTROLLER

**PERSONAL COMPUTER**  
RUNNING OPTIONAL PLAYBACK  
CONTROL SOFTWARE

## 4 Hard drive Installation and Formatting Procedure

### **WE RECOMMEND**

That you have the drives installed, formatted and tested by Fast Forward Video. However, you may install the drives by following the procedure below. **We recommend the Hitachi (IBM) Travelstar, or the Fujitsu MHS/MHT series hard drives**, which have been tested with the DigiDeck and proven to have the best performance and reliability. For more information on recommended hard drives, please contact [support@ffv.com](mailto:support@ffv.com)

### **IDE DRIVE INSTALLATION PROCEDURE**

Unplug the unit and remove the 4 screws that hold the cover in place, and then remove the cover.

Plug the 44 pin, gray ribbon cable into the connector of the hard drive. Please observe for proper connection using pin 1 (ground) as a reference.

The bracket, in which the video card is installed, is also the bracket for installing the hard drive for each channel, depending on whether you own a single channel or a dual channel DigiDeck. Each bracket has two screws that hold the drives in from the top of the bracket and into the mounting holes on the side of the hard drive. Loosen the two screws on the bracket to clear space for the hard drives. Place the drives in the bracket, ensuring the mounting holes on the side of the drives line up with the mounting screws on the bracket. Fasten the hard drive(s) using the two supplied screws.

Replace the chassis lid using the removed screws. Switch the unit on, wait for it to boot-up and proceed to format the hard drive (clear disk).

### **FORMATTING THE HARD DRIVE:**

Most hard disks come with a "low-level" format from the manufacturer. However, the disk may still need to be formatted for the DigiDeck, so that the video data files created by the DigiDeck are stored properly. This is done by simply clearing the disk from the clear disk menu in the touch screen. When installing a brand new drive, on power up the DigiDeck will automatically detect that it needs formatting, and the touch screen will prompt you to the clear disc menu for formatting the drive.



## 5 Updating Firmware

New features for the DigiDeck are posted to our website as they become available. Our customers have access to these features via firmware updates for the lifetime of the product. Please check this site regularly to implement the newest changes.

**Firmware updates are located at [www.ffv.com](http://www.ffv.com) in the Support sub directory.**

Locate the latest revision of firmware for the front panel (fpo.zip or fpdual.zip) and the video card (recon.zip). Please note that the dates may not be the same for both. Download and unzip the files.

### **Hook up the DigiDeck to your computer:**

Connect a DB9 straight through cable to the RS 422 port located on the back panel of the DigiDeck; connect the RS-232/422 converter to the other end of the cable and into the RS232 port of your computer. 232 side of the converter into the computer. (Note: if using a slow motion controller you will only need the straight through cable).

### **Hyper Terminal Set-up:**

On your host computer, open up the Hyper Terminal program. This program can be found in the Start Menu, under Start/Programs/Accessories/Communications/HyperTerminal. The name of the program is Hypertrm.exe. When you run HyperTerminal, it prompts for a name and icon for the new connection. Name this anything meaningful to you, such as, "digi38400". HyperTerminal next prompts you for details about the connection with a window labeled "Connect To". Under the box labeled "Connect Using", select "Direct to Com 1", and press "OK". HyperTerminal now prompts you for "Port Settings". Set Bits per second, data bits, parity, and stop bits to the same format indicated below.

1. CONNECTION DESCRIPTION: FFV, choose an Icon, OK
2. PHONE NUMBER: Enter any phone number, choose a communication device, OK
3. CONNECT: Cancel
4. CONFIGURE /CONNECTION / CONNECTION PREFERENCES:  
DATA BITS: 8    PARITY: ODD    STOP BITS: 2    FLOW CONTROL: NONE
5. FILE / PROPERTIES / SETTINGS:  
FUNCTION: terminal keys,    EMULATION: VT100,    BACKSCROLL BUFFER LINES: 500

### **IMPORTANT: YOU MUST LOAD THE FIRMWARE IN THE FOLLOWING ORDER!**

1. FIRST UPLOAD (fpo.fud or fpdual.fud) TO THE FRONT PANEL (FOLLOW PROCEDURE BELOW); REBOOT
2. UPLOAD TO THE VIDEO CARD ON CHANNEL ONE, REBOOT
3. UPLOAD TO THE VIDEO CARD ON CHANNEL TWO (For Dual decks)

### **Sending the Firmware to the DigiDeck**

1. On the touch screen of the single channel DigiDeck, touch the question mark on the top left corner for the firmware data screen. On dual decks, you must go through the main menu, firmware submenu.
2. Touch the box labeled UPDATE AT 38400, the DigiDeck will send a message to your computer, which says: "Begin your Xmodem CRC transfer now", and the letter "C" scrolling across the computer monitor. Next, right click the mouse then click "Send file". You should now be at a window asking for a Filename. Click on Browse, locate the firmware (binary file from Fast Forward Video with the ". fud" file extension) and select it by clicking on browse, before sending the file, ensure that "Xmodem" is stated in the protocol box. Click on send and watch it load. When it has been transferred you will receive the message "successful completion".
3. Turn off the DigiDeck, wait approximately five seconds, turn it back on, and allow it to boot up completely. Once again access the firmware page, this time to confirm that the new firmware has been loaded.



## 6 Front Panel Buttons and Functions

**POWER SWITCH:** Turns the unit on / off.

**PASS-THRU:** The red LED above this button will light up indicating that it is in digital pass-thru mode, which indicates it, is record ready. A corresponding message will be displayed in the mode indicator area located in the center of the LCD touch-screen panel.

### **RECORD**

1. PRESS AND HOLD THE RECORD BUTTON, THEN PRESS THE PLAY BUTTON.
2. PRESS STOP TO END THE RECORD SESSION.

A RECORD message should appear in the mode indicator display and the time code display will show that video data is being recorded onto the storage media.

**RECORDING IN NATIVE MODE:** A recording in native mode will place the recorded material in the next available free space on the disk. Native mode will not allow you to record over previously recorded or existing material except when a loop record is specified. An error message will appear indicating that the disk is full when all available space has been used at which time you will need to clear the disk to record.

**RECORDING IN BVW-75 MODE:** Recording in BVW-75 mode will allow you to record anywhere on the disk regardless of whether or not it has previously recorded material. You can begin recording by cueing to the point where you wish to begin and pressing stop to end the recording.

**PLAY:** To PLAY from the beginning in Native mode, press the REWIND << button (notice it is instantaneous, no waiting for tape to shuttle back). The time code display will indicate that you are at 00:00:00:00 and the reference monitor hooked up to the DigiDeck will jump to the beginning of the disks recorded video material. Press the play button to view the recorded video material.

**STOP:** Terminates both the play and record functions.

**CHASE LOCK:** To enable this feature, simply press and hold the play and stop buttons simultaneously for 2 seconds. If feeding time code into the DigiDeck, that channel will lock to the incoming time code during playback.

**SHUTTLE / SCAN SELECT:** This allows you to choose between a variety of noise-free, slow motion, and scan speeds.

1. The orange LED places the DigiDeck in scan mode and the green LED in slow motion.
2. Use the jog wheel to shuttle through the different speeds available on the DigiDeck (1/30- 30x).

**STEP BACK:** Use this button to step the DigiDeck backward one frame at a time.

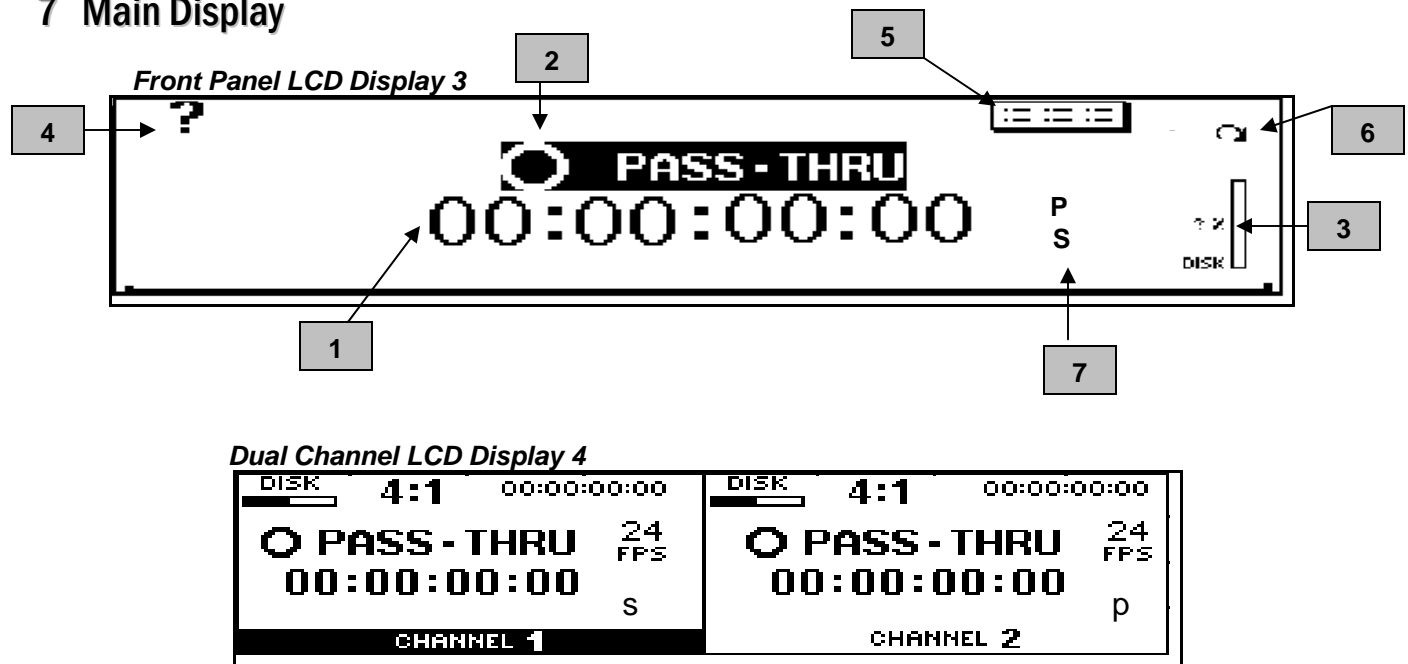
**STEP FORWARD:** Use this button to step the DigiDeck forward one frame at a time.

**<< REWIND (START POINT):** Use this to set the DigiDeck back to the first frame of the entire disk or just the first frame of a manually set clip. To get to the first frame of the last clip recorded, press the >> then the << button.

**>> FAST FORWARD (END POINT):** Used to go to the last frame of the recorded sequence.

**JOG / SHUTTLE WHEEL:** Similar to a traditional analog tape deck, this wheel acts and feels the same. In addition to machine control, this wheel is also used for selecting various options in some of the menus accessed from the front panel's touch screen.

## 7 Main Display



An LCD touch-screen panel (illustrated above) with a menu of options and a variety of parameters used to operate the DigiDeck's functions. **To lock both channels together for simultaneous control, simply highlight both channels at the bottom of the LCD display at the same time, by touching them.**

### 1. TIME CODE DISPLAY

Displays the assigned Time Code for the frame in use.

### 2. MODE INDICATOR

The current transport mode will be displayed directly above the Time Code in the center of the touch screen, such as: RECORD, PASS-THRU, PLAY, REV 1/3, FWD 2x, STOP, etc.

### 3. DISK CAPACITY INDICATOR

This icon is located on the far right of the touch screen and displays the percentage of disk space in use.

### 4. FIRMWARE ICON?

Appears as a question mark in the upper left hand corner of the screen. Pressing this icon will reveal which version of the firmware is currently installed. NOTE: That the front panel and each of the video channels have their own separate firmware specific to their particular functions.

### 5. MENU ICON

The menu icon appears as a tiny rectangle at the top of the screen of a single channel deck. This is where you will find most of the main functions for the DigiDeck. These functions allow the operator access to deck's menu structure and system settings and are explained in detail on the following pages. To access the main menu on a dual deck, touch the compression ratio of the desired channel.

### 6. GO TO ICON

Select the "GO TO" function to mark one frame of video to jump back to immediately upon request. You can store only one selection at a time.

### 7. "S" OR "P" Indicates whether deck is currently in a Source list (S) or a Play list (P)

A letter 'S' in the bottom right corner of the touch screen indicates that you are playing back material from the source list. A 'P' indicates that you are working out of a play list.

## **8. HOME ICON**

This Omega symbol is the home icon located in the upper right hand corner of each screen except main display (See p.11, fig. 8). Pressing the home icon will return you to the main display from any other screen.

# **8 Native Mode Versus BVW-75 Mode**

## **NATIVE MODE**

Native mode is the most natural state for the DigiDeck to operate in, as it utilizes the random access capabilities of the hardware most effectively.

As you record material to the DigiDeck, it stores the material in the available space on the storage media. When it gets to the time code point you have selected for the inserted material, it jumps to that point on the drive--wherever that may be--plays it, then returns to the original section.

**Note: Playlist functionality is only available in native mode.**

## **BVW-75 MODE**

Linear mode is a simulation of a video tape deck. The DigiDeck, in linear mode, is forced to adhere to strict record guidelines as if it actually were a tape deck. If you would like to operate the deck as a VTR, make sure you have selected BVW-75 mode (linear) on the personality menu of the front panel. You can then record over existing material as you would with a VTR.

The main feature of this mode is the ability to insert edit material over previously recorded material. The DigiDeck, in BVW-75 mode, assumes that it has a 24 hour tape of "black" attached to itself which has time code assigned from 00:00:00:00. If you were to tell the deck to record a 10 second clip at 00:01:00:00 for 10 seconds, it would record this and the machine would then assume it had 1 minute of black, 10 seconds of video from the 1 minute time code mark, and then 23:58:50:00 of black after this. If you want to record over this clip and add new information, it will insert the video at the same points and over write the data on the drive in the same way, always maintaining the 24 hours of time code as the master reference. **Note: Playlist functionality is NOT available in BVW-75 mode.**

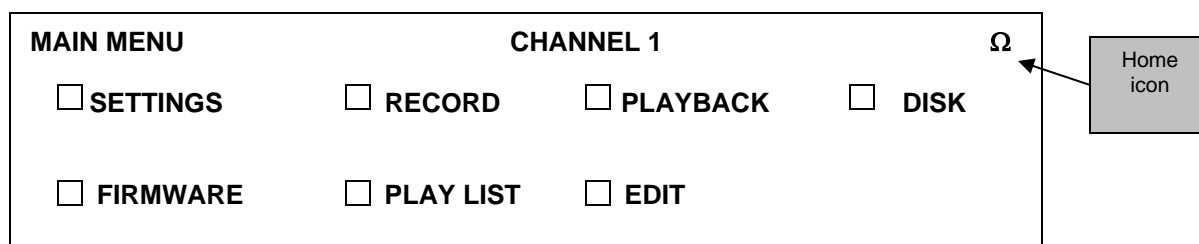
## **IMPORTANT NOTE:**

**If you record material in BVW-75 mode, the DigiDeck uses the 24-hour time code as reference, which is still visible to the deck when you switch to native mode. However, when you record material in native mode, and then switch to BVW-75 mode, the deck will not recognize the native source list. You should always record in BVW-75 mode *if you intend to switch between personalities.***

## 9 Main Menu

To access the menu and adjust any of the settings on the DigiDeck, just touch the Menu Icon located in the upper right side of the touch screen (on a single channel), it appears as a small rectangle with tiny lines. On a dual deck, touch the disc capacity indicator for the desired channel. Each of the choices listed on the main menu have sub-menus. Following the illustration are detailed descriptions of the functions accessed through the Menu Icon.

*Main Menu Display 5 (dual deck)*



### 9-1 Settings Menu

*Settings Menu Display 6*

Personality	NATIVE	Output	Y, R-Y, B-Y
Underrun	RECOVER	Time Code	SET
Standard	NTSC	Front Panel	SET

#### **PERSONALITY**

Using this command, you can select between Native Mode, which uses Odetics extensions in the RS-422 protocol, and BVW-75, which equates to a Sony BVW 75 protocol.

**Note: If you want to use BVW-75 Mode, you must use this for record and playback. If you record in Native Mode, your material will not be available to you when you switch to BVW-75 Mode, as the information in Native Mode is all related to a record index.**

#### **UNDERRUN**

If you are running a compression ratio which is higher than the disk can handle you may select RECOVER which will continue to record in the event that frames are dropping or STOP which will automatically stop recording.

#### **STANDARD**

The DigiDeck can be configured to play either NTSC (National Television Standards Committee) video which is 525 lines and 30 frames or 60 fields per second, or PAL (Phase Alternate Line) video which is 625 lines and 25 frames or 50 fields per second.

#### **OUTPUT**

**Must remain in the "Y, R-Y, B-Y" setting at all times!**

#### **FRONT PANEL**

This sub menu allows you to access the front panel's brightness/contrast setting capability, and to disable the front panel controls for uninterrupted recording or playing.

#### **TIME CODE**

This sub menu allows you to switch between Drop Frame and Non-Drop Frame.

## 9.2 Record Menu

### Record Menu Display 7

<b>RECORD</b>			
COMPRESSION LEVEL:	<input type="text"/>	INPUT	<input type="text"/>
MIN. PER GB:	▲	SINGLE FRAME	<input type="text"/>
TOTAL TIME:	▼	LOOP RECORD	<input type="text"/>
TIME LEFT:			

#### **COMPRESSION LEVEL**

The M-JPEG compression settings on the DigiDeck are user selectable from 4:1 to 20:1. In practice, it is advisable to set the compression to correspond with the best quality to storage ratio. A setting of 7:1 is a good setting for general purpose Betacam images, 10: 1 for S-VHS, 15:1 for VHS. Use the UP and DOWN arrows to scroll through the levels and choose the desired setting.

#### **MIN. PER GB:**

This screen gives you a basic reading of the minutes of storage generally available with the corresponding compression setting. The frames are dynamically quantified, which means that if you set the DigiDeck at 5:1, it may record some frames at 4:1 and less complex ones at 8:1 but will maintain an image quality level of approximately 5:1.

#### **TOTAL TIME:**

This number relates to the amount of time available for recording, based on the approximate minutes per gigabyte and the amount or size of the storage media.

#### **TIME LEFT:**

As above, this figure will give a quick reading of approximately how much time is left for recording.

#### **INPUT**

Allows you to select between Composite and Y/C (S-video) inputs.

#### **SINGLE FRAME**

Enable single frame to record one single frame at a time.

#### **LOOP RECORD**

This function allows you to continuously record material to the hard drive. Once the drive is full, the process starts again at the beginning of that clip by recording over the previous material.

**Note:** The empty space next to the word Record is a hidden menu to switch the pass through from digital to analog.

## 9.3 Playback Menu

### Playback Menu Main Display 8

<b>SLOW MOTION</b>	FIELD 1,2	<b>GENLOCK</b>	OFF
<b>LOOP PLAY</b>	OFF		
<b>PLAY SPEED</b>	30 FPS		

#### **SLOW MOTION**

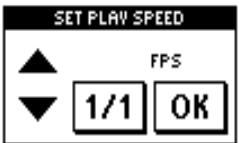
This allows you to define the clarity of the image to suit your needs. If you select frame mode in slow motion play back and stop on a single frame, it may appear jerky, as the DigiDeck switches between the two fields of the frame. If you now select field, the image will stop moving and you will only see half the horizontal lines of resolution.

#### **LOOP PLAY**

Allows you to play a segment of designated video in Loop mode, endlessly. Be sure to enable the loop play feature under the playback menu.

#### Play Speed

Allows you to select the desired speed for playback.



SET PLAY SPEED

▲ FPS ▼

1/1 OK

1. Push the square next to the play speed choice on the playback menu;
2. Use the up and down arrows to select the desired speed;
3. Push OK when your selection is displayed.

**To return to the default 1/1 (30 frames per second) quickly, just press the square.**

#### Genlock

GENLOCK	ON
H SYNC POS	SET
SC PHASE	SET

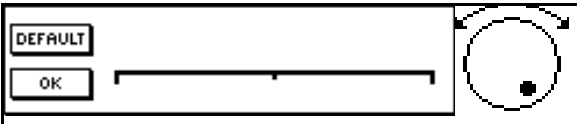
Genlock can be enabled to use with an external or internal generator. The internal Genlock will lock to the time code of the recorded video.

#### H Sync Pos and S C Phase

**H SYNC POS:** Allows you to set the H sync position and adjust the horizontal timing of the reference signal.

**S C PHASE:** Allows you to set the sub carrier phase and adjust the timing of the color signal.

**Push SET and the following option screen appears:**



DEFAULT

OK

Set the timing by turning the knob to the left for lead or to the right for lag, PUSH OK

## 9.4 Edit Menu

SOURCE LIST	NAME	TRIM	APPEND	PLAY LIST	Ω
CLIP0000	00:00:10:00				
CLIP0001	00:00:30:00				

The EDIT menu can only be accessed when in STOP (ready to play) mode. This menu directs you to the source list. Here, you will have access to all of the recorded material on the hard drive, where you can edit/trim clips, name clips, and create play lists.

## 9.5 Play list Menu

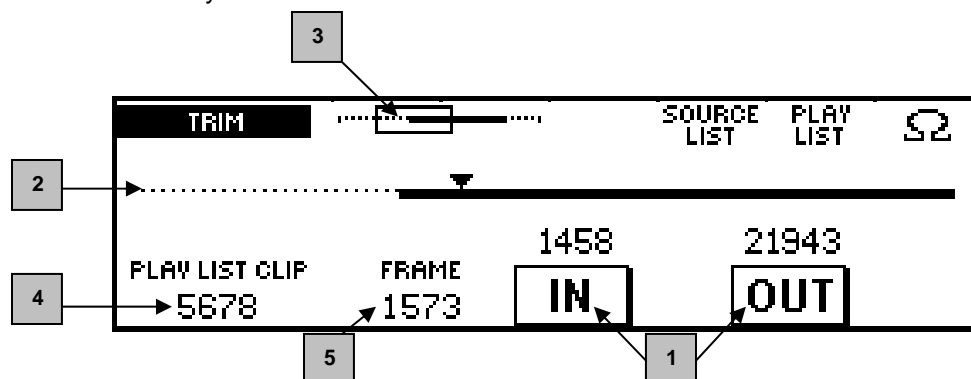
The Play list option is only available if you are using native mode.

**RECORDING CLIPS:** Record the desired material either as one clip or as many individual clips. Each time you begin and end a record a new clip will be added to the source list. The clips will be listed as untitled clips in the source list with the length of the clip to the right of it.

**PLAY LIST:** To access the playlist function menu, touch the line that runs along the bottom portion of the touch panel's main display or by selecting edit from the main menu. You must first be in ready to play or in **STOP** mode.

**SOURCE LIST:** Once you have finished recording, press stop. To access the source list menu, touch the line located at the bottom of the main display or select edit from the main menu. There should be a list of untitled clips in the sourcelist based on the material just recorded. Choose a clip by turning the knob and highlighting your selection then press trim to edit the clip. You may name the clips in your source list if you wish or you can trim them and name them after they are added to the play list. The source list contains all the originally recorded material. You can trim the original clips and add them as new clips to the play list while always keeping the original clip in your source list (unless you delete it).

**TRIM:** The trim function is for editing the original clips after they have been added to a play list. Below is an illustration of the trim screen, which appears when you select trim from the play list window. Specific features and their functions are briefly outlined below the illustration



1. **IN AND OUT BUTTONS:** used to designate the beginning and ending of a clip.
2. **SCRUB BAR:** Scrolling indicator.
3. **ZOOM:** (Not shown) allows you to scroll through the clip faster.
4. **SOURCE LIST CLIP:** Indicates the number of the clip currently in use under trim mode.
5. **FRAME:** Indicates the number of the frame in use as you scroll through the material with the scrub bar.



# 9.6 Play list Menu Functions

## TRIMMING THE CLIP



You may review the clip by pressing play, turning the knob, or using the step forward/back buttons. Select the desired start point by pressing the IN button and the end point by pressing the OUT button. Note that the thick dark line in the middle of the screen is now a shorter line, which indicates the size of the clip you have just created. If you have a large clip and wish to scroll through it quicker you can use the zoom feature located at the top of the screen near the upper left corner of the window.

## ADDING THE TRIMMED CLIP TO THE PLAYLIST

After trimming the clip from the source list select playlist from the top of the screen and either insert or append the clip. To insert, highlight the clip you want the newly trimmed clip to be inserted above (insert always inserts above the selection) and press insert. To append, simply highlight the next available area and press append. The new clip has now been added to your playlist. You may now continue to the next clip in your source list or trim from the same clip again and again creating multiple clips for your playlist from the same clip in your source list.

## NAMING YOUR PLAYLIST

You may name each clip in your source list and/or your play list by highlighting the selection, then pressing name. There are two screens for naming clips as shown below; you may designate up to 32 characters per clip. Note the box in the left corner of the playlist screen with the words untitled playlist. Touch the box and the screen changes to the naming screen, the words "untitled playlist" have moved but are still contained in a box. Touch the box again and it will clear then type in the new name. **Be sure to save your changes before turning off the unit.** (See saving play list, below).

	Touch to move to the right screen									Touch to move to the left screen							
A	B	C	D	E	F	G	H		Q	Z	.	:	/	-	?	!	
I	J	K	L	M	N	O	P		0	1	2	3	4	5	6	7	
R	S	T	U	V	W	X	Y		8	9	'	+	:	(	)	CANCEL	

## SAVING A PLAYLIST:

When you add to, change, or rename your play list you need to save it. To save your play list, select play list from the main menu, notice the word SAVE is highlighted, press it and the play list is saved.

## AUTOMATIC PLAYLIST LOAD:

In the upper left portion of the play list menu, there is a feature named **a play load**. With this feature, you can designate one play list to automatically begin to play on power up, as soon as the hard drive is initialized.

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In the upper left portion of the playlist menu, there is a feature named **a play load**. With this feature, you can designate one playlist to automatically begin to play on power up, as soon as the hard drive is initialized.

## STORING MULTIPLE PLAYLISTS:

If you wish to make a new playlist with another name, choose an existing playlist and remove all or part of the clips from it. You can make the necessary changes to the new playlist, re-name it and you now have multiple playlists to choose from. Once you have more than one playlist you must select playlist from the main menu and activate the one you wish to use by loading it.

## REMOVING CLIPS:

If you want to remove clips from the playlist, highlight the selection and press REMOVE located at the top of the screen.

## 9.7 Disk

<b>DISK</b>	
<input type="checkbox"/> <b>CLEAR DISK</b>	<input type="checkbox"/> <b>DELETE CLIPS/FRAMES</b>
<input type="checkbox"/> <b>COPY</b>	<input type="checkbox"/> <b>DELETE PLAYLISTS</b>

**DELETING A CLIP AND / OR A PLAYLIST:** Select DISK from the main menu.

**CLEAR DISK:** Used to clear the entire hard drive, and/or format a brand new hard drive.

**DELETE CLIPS OR FRAMES:** To delete clips contained in the source list.

**DELETE PLAYLIST:** To delete a play list.

## TECHNICAL SPECIFICATIONS

### VIDEO INPUT

Analog Input: Composite and Y/C  
 Levels: 1.0Vp-p, 75 ohms  
 Standards: 525/60 (NTSC) or 625/50 (PAL)

### VIDEO OUTPUT

Analog Output: Composite and S-Video (Y/C).  
*Option 1* - Composite/ Y/C  
*Option 2* - Composite/component  
 Horizontal Resolution: 550 TV lines (at 5:1 compression)  
 Levels: 1.0Vp-p, 75 ohms  
 Standards: 525/60 (NTSC) or 625/50 (PAL)  
 Connections: multi-pin for component

### VIDEO INPUT DECODER

Format: Digital 4:2:2 YCrCb  
 60 fields per second NTSC  
 50 fields per second PAL  
 YUV  
 Digital Color Space:  
 Sampling: 13.5 MHz  
 Pixel Resolution: 720 x 486 pixels (525/60)  
 720 x 576 pixels (625/50)  
 S/N Ratio: 50 dB  
 Bandwidth: 7 MHz (-3 dB)  
 Differential Gain: 2%  
 Differential Phase: 2 deg.  
 ADC Differential Linearity: +/- 0.7 LSB  
 ADC Integral Linearity: +/- 1.0 LSB

### VIDEO OUTPUT ENCODER

Digital Color Space: Digital 4:2:2 YCrCb  
 Analog Bandwidth: Y: 6.75 MHz  
 C: 1.3 MHz  
 Composite: 4.5 MHz (NTSC)  
 5.0 (PAL)  
 DAC Resolution: 10 bits x 3  
 S/N Ratio: 60 dB

### VIDEO COMPRESSION

Method: JPEG (Joint Photographic  
 Experts Group)  
 Compression Ratio: Variable down to 4:1

### MEMORY

Multi-port Frame Buffer: 8 MB DRAM  
 Aggregate Bandwidth: Greater than 45 MB/second

### MICROPROCESSOR

Type: Intel 80386EX  
 Clock Speed: 40 MHz  
 Local ROM/EPROM: 1MB Flash EEPROM  
 Local SRAM: 1 MB 0 wait state

### COMMUNICATIONS INTERFACE

RS-422 Machine Control: Sony/SMPTE Protocol

### AUDIO SPECIFICATIONS

Resolution: 16 bits  
 Channels: 2 in, 2 out  
 Dynamic Range: 80 dB  
 Total Harmonic Distortion: .022%, -73 dB  
 Intermodulation Distortion: -90 dB  
 Crosstalk: -80 dB  
 Interchannel Gain Mismatch: +/- 0.5 dB  
 Input Voltage: 1 VRMS nominal, 3V p-p  
 max  
 Input Impedance: 20k ohms  
 Input Programmable Gain Span: 22.5 dB  
 Full Scale Output Voltage: 0.707 VRMS, 2.0V p-p  
 Output Impedance: 600 ohms  
 Output Attenuation Range: 94.5 dB  
 Sampling Rate, FS: 8.0 KHz to 52 KHz  
 Passband: .045 FS  
 Passband Ripple: +/- 0.1 dB

### SOFTWARE

Optional: Machine Control Interface  
 (Win 98/Me/2000/XP/NT™)

### GENERAL

Size: 17" W x 3.5" H x 8.5"  
 Warranty: 1 year

### ATA/IDE DISK CONTROLLER

Protocol: ATA/IDE  
 Maximum Data Rate: 16.6 MB/Sec  
 Maximum Hard Drives per channel: 1  
 Supported Hard Drives: IBM Travelstar (Now Hitachi)  
 Fujitsu MHS/MHT series

# *DigiDeck digital video recorder™* Troubleshooting Guide

PROBLEM	POSSIBLE SOLUTION
<b>NO POWER:</b>	1) check the power supply, 2) check all connections. Ensure good AC input.
<b>NO SOUND:</b>	If you connect the DigiDeck audio output or input to a unbalanced device, you must make sure that you have a transformer that converts the balanced signal to an unbalanced one.
<b>GENLOCK:</b> Non-Functional  Won't Lock During the Play Function	1) The reference signal may be weak, as in the case of looping video. 2) Make sure genlock is enabled (Menu setting PLAYBACK - GENLOCK) and reference input cable is connected. Re-boot.  1) Make sure all of the cables / signals are selected BEFORE going into play mode. 2) Try setting the H sync adjustment back to the default or middle position.
<b>FRONT PANEL:</b> Won't Respond	1) Examine cable / connections from the front panel circuit card to video card. 2) Wait until the DigiDeck boots up and the question mark next to the drive icon on the touch screen changes to a percentage value.
<b>VIDEO:</b> No Signal	Go to RECORD menu, confirm "INPUT" is switched to the input you are using (Composite, Component, or Optional SDI).
Scrambled or Distorted	It is possible that you recorded a bad frame of video. Make sure all cables / connections are good and check your source. Try re-recording the material. Compression should be 4:1 or above!
Composite Out Is B&W Signal	Go to PLAYBACK Menu, switch "OUTPUT" from RGB to COMPONENT.
<b>LOOP PLAY:</b> Not Functioning Properly. The Sequence Plays Then Suddenly Stops	1) After setting up your playlist, be sure to enable the LOOP PLAY: On function under the PLAYBACK menu. 2) If you are using a very low compression ratio, choose RECOVER under SETTINGS / UNDERRUN menu. 3) Check the setting under the SETTINGS / PERSONALITY menu, you must select "Native" mode before recording material or attempting a loop play (Playlist is not available in BVW mode).
<b>DUAL DECK:</b> Operates On One Channel, the Other Does Not Respond	Check for loose connections. There are two cables leading from the power supply: one should be connected to each of the video cards. Select channel one or channel two on the highlighted front panel.
One Channel Records and Plays, the Other One Won't	If you install your own drives, make sure you set the SCSI ID jumpers for each channel beginning with "0." For Example: A Dual Deck with two internal hard drives should be set to "0" for channel one and "0" for channel two since each channel is independent.
<b>RECORDING:</b> Deck will only record one frame of video	Go to RECORD menu, turn "SINGLE FRAME RECORD" off.
<b>PLAYBACK:</b> Color flashes in and out	Go to PLAYBACK Menu, turn "Genlock" off.

**Check all cables and cable connections.** Check all of your settings. Check the settings of any equipment hooked up to the DigiDeck. Turn power off, wait, and then power on. **NEVER FORCE A CABLE ON OR OFF.**

***Included in this User's Manual is the Operators Manual for the optional DigiDeck Playback Control Software for Windows 95, 98, Me, XP & NT operating systems.***

*The DigiDeck controller software expands the control capabilities of the DigiDeck beyond that of the front panel, including:*

- ***Pre-naming of clips***
- ***Set clip notes***
- ***Trim clips in source list***
- ***Build, edit, and save multiple playlists***
- ***Set hundreds of bookmarks (cue points)***
- ***Set up to 10 Hot Key cue points***
- ***Bookmark navigation***
- ***Simultaneous control of two channels (one dual channel or two single channels)***
- ***Multiple keyboard shortcuts***
- ***Speed ramps, or changes between bookmarks***
- ***Split clip capability***
- ***Clip loop enable***
- ***Pause clip during playback***
- ***Video assist mode***
- ***Save playlists to PC***

For more information on the optional Playback Control Software, contact us at [Sales@ffv.com](mailto:Sales@ffv.com) or call (949) 852-8404.

***DigiDeck digital video recorder™***  
***CONTROLLER SOFTWARE***

**VERSION 3.3**

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### **About the DigiDeck Controller Software**

The DigiDeck controller software turns your PC running Windows 98, 98SE, Me, 2000, XP Home or XP Professional, into an RS-422 controller for the Fast Forward Video DigiDeck. The software also provides many enhancements and controls not available on the front panel, including easily recording, naming and logging of video clips, build, edit, & save play lists, set bookmarks (cue points) and playback of multiple play lists.

### **Using the Software**

When the software starts up, it searches your PC's serial ports for a DigiDeck. Once found the software will list all recorded video clips in the source list window. Click on a clip name and press <Spacebar> or click the Play button to play the clip.

- Use the <Up arrow> and <Down arrow> keys to jump to other clips. Use <Right arrow> and <Left arrow> to seek within a clip by one frame.
- Press <Enter> or double-click on a clip in the source list window to append it to a play list. It will appear in the play list window.
- After you have some clips in a play list, click on the play list window to activate it. Press <Home> to rewind the play list to the first frame, then press <Spacebar> to start playback.

### **Basic play list editing**

On the left side of the screen, the "Current in point" box contains the in-point for the current clip, as well as buttons for editing the in-point. On the right side of the screen, the "Current length" box contains similar controls for editing the length of the clip.

In both of these boxes:

"Mark" saves the current frame as the in-point or length

"Set" allows you to type in a number to use as the in-point or length. It also allows you to increment/decrement the hours, minutes, seconds or frames.

"Go to" jumps to the in-point or out-point of the current clip.

"Clear" makes available all frames of the clip from the current in/out point to the first/last frame of the clip.

When you have edited a clip in the play list the "CURRENT CLIP POSITION" timeline will turn all unused head and tail frames yellow. This provides you a quick visual reference to the length of a clip you have not used.

- To move a play list entry to another position in the list, hold down the <Ctrl> key, then click and drag an entry.
- To copy an entry, hold down both <Ctrl> and <Alt> then click and drag to its new location.

### **Recording video**

1. In the source list window, click the "Recording" tab. The DigiDeck goes into "Pass through" mode, and is ready to record video and audio.
2. Press <Enter> or click the "Record" button to start recording.
3. Press <Enter> or click "Stop rec" to end recording. When you stop recording, whatever clip description and notes you have entered will be saved with the clip and the clip will show up in the source list window.
4. Click the "Playback" tab to cue up your last recorded clip. Press <Spacebar> to playback.
5. The "Options" button will open a window allowing you to set recording compression parameters and choose video inputs.



## **Installation**

### **Requirements**

RS-232 to RS-422 converter (one came with your DigiDeck)

9-pin male-to-male serial cable (your computer's available connector may vary)

### **Minimum system**

PC running Microsoft Windows 95, 98, 98SE, or NT 4.0

800x600 screen resolution, 256 colors

750 MHz processor

128 MB RAM

### **How to hook up the deck to the computer**

1. Power on the DigiDeck.
2. Plug the RS-232 side of the converter into your PC's serial port.
3. Plug one end of the serial cable into the RS-422 side of the converter; plug the other end into your DigiDeck.

The software automatically searches through your serial ports for a DigiDeck; you don't need to worry about what port you put it on. The software also sets up the communications parameters for the port. Just attach the deck to your PC and you're set. If the software doesn't find your DigiDeck, even though you have it hooked up and powered on, please check the following two items: make sure you have the side of the converter labeled "RS-232" plugged into your computer, and make sure that your serial cable is a "straight-through" cable – not a "null-modem" cable. When you are finished with your current session it is recommended that you close the DigiDeck Controller software before disconnecting or turning off the DigiDeck.

### **Installing the controller software**

Insert the CD-ROM into your computer's CD-ROM drive. The installation program may start automatically. If it doesn't, click on "Start", "Run", and type "X:\setup.exe" (without the quotes), where X is the drive letter of your CD-ROM drive.

When the setup program has finished, click on "Start" / "Programs" / "DigiDeck controller" / "DigiDeck controller" to run the software.

### **Bookmark limits**

There is no limit to the number of bookmarks you may have, except that there can only be one bookmark per frame.

### **Speed changes at bookmarks**

When the deck plays past a bookmark set with a speed change, it will change the deck to the new speed. Remember, this is a one-way change. Your original speed will not later be restored automatically.

Tip: Set a bookmark with your original speed at the beginning of the play list, so whenever you recue, you'll restore your desired starting speed.

### **Speed ramps at bookmarks**

Instead of setting an abrupt speed change at a bookmark, you may set a speed ramp between two bookmarks. Set the first bookmark as "Begin ramp", and give it your initial speed. Set the second bookmark as "End ramp", and set the terminal speed. The software will gradually ramp from the first speed to the last speed between the bookmarks. Remember, this is a one-way change. Your original speed will not later be restored automatically.

Tip: Set a bookmark with your original speed at the beginning of the play list, so whenever you recue, you'll restore your desired starting speed.

### **Changing bookmark location**

While you cannot drag a bookmark to a new location, you can right-click on it and select "Change location." Features

### **Insert source clip / add source clip (play list)**

If you right-click on a play list entry, the first two menu items that appear are "Insert source clip" and "Add source clip." These will both show you the names of all clips in the current source folder. Selecting a clip will either insert it before or add it after the current entry.

With these two menu items, you can avoid switching to the source list window to add another clip to your play list.

### **Split clip (play list)**

Splits the current clip into two clips; the current frame becomes the out-point of the first clip, and the next frame becomes the in-point of the new clip.

### **Auto split clip (play list)**

In a play list entry with multiple bookmarks, auto split clip will split the clip at each bookmark.

### **Generic bookmarks**

Ctrl+B will allow you to drop a bookmark at the current frame, while recording or playing back, in the play list or source list.

### **Bookmark navigation**

Tab and shift+tab will jump you to the next and previous bookmark. This is great for sports instant-replay uses – drop a bookmark during record, whenever there's interesting action, and instantly jump to it on playback. Then hit Tab, and jump to the next bookmark.

### **Bookmarks on the timeline**

Left clicking on a bookmark will jump to it. Right-clicking on a bookmark pulls up a properties menu that allows you to set the name, hotkey, speed, and whether it's the beginning or end of a speed ramp.

## Keyboard Shortcuts

### Navigation Hot Keys

<b>Spacebar</b>	Toggle play/pause	<b>Ctrl+Alt+Right</b>	Seek forward five second
<b>Left arrow</b>	Seek backwards one frame	<b>Up arrow</b>	Seek to the head of the previous clip in the list
<b>Ctrl+Left</b>	Seek backwards one second	<b>Down arrow</b>	Seek to the head of the next clip in the list
<b>Ctrl+Alt+Left</b>	Seek backwards five seconds	<b>Home</b>	Jump to first clip in list
<b>Right arrow</b>	Seek forward one frame	<b>End</b>	Jump to last clip in list
<b>Ctrl+Right</b>	Seek forward one second	<b>Ctrl+Up</b>	Seek to the head of the current clip

### Playlist Window Hot Keys

<b>Ctrl+Shift+Up</b>	Select first deck	<b>F6</b>	Mark out point
<b>Ctrl+Shift+Down</b>	Select last deck	<b>Ctrl+F6</b>	Split clip at current frame
<b>Ctrl+Shift+Left</b>	Select previous numbered deck	<b>F7</b>	Set out point
<b>Ctrl+Shift+Right</b>	Select next numbered deck	<b>F8</b>	Go to out point
<b>Delete</b>	Remove clip from playlist	<b>F9</b>	Clear out point
<b>Ctrl+G</b>	Go to offset within current playlist	<b>F10</b>	Turn on shuttle mode
<b>Ctrl+Alt+G</b>	Go to offset within current clip	<b>ESC</b>	Turn off shuttle mode
<b>F1</b>	Mark in point	<b>Ctrl+N</b>	Rename current clip
<b>F2</b>	Set in point	<b>Ctrl+L</b>	Toggle loop current clip
<b>F3</b>	Go to in point	<b>Ctrl+W</b>	Toggle pause at end of clip
<b>F4</b>	Clear in point		

### Sourcelist Window Hot Keys

<b>Ctrl+N</b>	Rename current clip
<b>Enter (playback mode)</b>	Append current source entry to playlist
<b>Enter (record mode)</b>	Toggle recording start/stop
<b>Delete</b>	Permanently delete source clip from deck

### Book Mark Hot Keys

### Other Hot Keys

<b>Ctrl+B</b>	Drop generic bookmark	<b>Ctrl+O</b>	Open playlist
<b>Tab</b>	Jump to next bookmark	<b>Ctrl+S</b>	Save playlist
<b>Shift+Tab</b>	Jump to previous bookmark	<b>Alt+Left</b>	Decrease playback speed
<b>Ctrl+Backspace</b>	Delete bookmark at current frame	<b>Alt+Right</b>	Increase playback speed
<b>Ctrl+1 thru 9</b>	Drop numbered bookmark at current location	<b>Ctrl+A</b>	Activate playlist window
<b>1 – 9, 0</b>	Jump to numbered bookmark	<b>Ctrl+P</b>	Activate sourcelist playback window
		<b>Ctrl+R</b>	Activate sourcelist record window

## **Warranty**

### **12 – MONTH LIMITED WARRANTY**

Fast Forward Video, Inc. warrants to the original purchaser that the product (Hardware and components) shall be free from defects in material and workmanship for a period of 1 year from the date of purchase. If a defect covered by this warranty occurs during this 1 year period, Fast Forward Video, Inc. will repair or replace the defective product or component, at its option, free of charge.

#### **WARRANTY LIMITATIONS**

THIS WARRANTY SHALL NOT APPLY IF THIS PRODUCT: (a) IS DAMAGED BY NEGLIGENCE, ACCIDENT, MISUSE, OR BY OTHER CAUSES UNRELATED TO DEFECTIVE MATERIALS OR WORKMANSHIP; OR (b) HAS HAD THE SERIAL NUMBER ALTERED, DEFACED, OR REMOVED.

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This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.