



ProHD DR-HD100 Portable DTE Recorder



User Guide

Part Number: MANL-0995-08

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Regulations and Safety



Focus Enhancements, Inc.
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Campbell, CA. 95008

Model Number: ProHD DR-HD100

Date of Manufacture:
Reference the Serial Number label attached to
the unit.

Serial Number

The serial number for this equipment is located on the back of the unit. Please write this serial number on the enclosed warranty card and keep it in a secure area.

FCC Class A

This product satisfies FCC regulations when shielded cables and connectors are used to connect the unit to other equipment. To prevent electromagnetic interference with electric appliances such as radios and televisions, use shielded cables and connectors.

This equipment has been tested and found to comply within the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, correct the interference by one or more of the following:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that used by the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Symbol Used In the ProHD DR-HD100 Unit



This symbol indicates the presence of an uninsulated Dangerous Voltage within the product's enclosure that may constitute a risk of electric shock to persons.

Symbols Used in This Documentation



This symbol indicates important information that the User should read.



This symbol indicates supplementary information about features, functions, or operations that may be of interest to the user.

Documentation

Read, Retain, and Follow Instructions

All the safety and operating instructions should be read before the product is operated.

- **Retain Documentation**
Place documentation in a secure place for future reference on operating and safety instructions.
- **Follow All Operating and Safety Instructions**
- **Pay Attention to All Warnings**
Warnings are provided to protect the operator, the equipment, and content.

Electrical Precautions

Do Not Expose to Moisture

Do not use this product near water or in an environment where it is exposed to dampness or there is the possibility of it getting wet.

Do Not Remove Cover

There are *No User Serviceable Parts* inside this unit. Servicing should be done by qualified service personnel.

ON / OFF Switch in Stand-By Position

The On/Off switch *Does Not Separate the Unit From the Main Power* when it is in the stand-by position.

Power Sources

Use only power sources that match those indicated on the marking label. If unsure of the type of power supply that is available, consult your dealer or local power company.

Do Not Overload Power Outlets

Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

Verify Power Plugs are Fully Inserted

To prevent potential electrical shock to personnel, verify that the DR-HD100 power cord plug is fully inserted in to a grounded receptor and that the plug blades are not exposed.

ATTENTION

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

Power-Cord Protection

- **Routing Power-Cords**

Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Avoid sharp angles in the cord, particularly at plugs, convenience receptacles, and the point where they exit the product.

- **Non-Use Period**

During extended periods when the device is not used, unplug it from the power source and retract the power-cord.

Grounding or Polarization

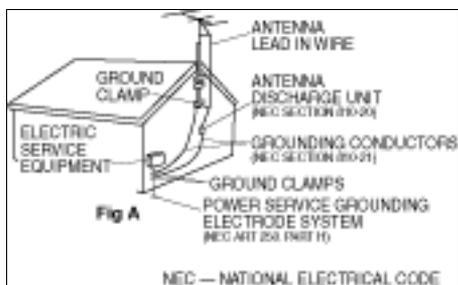
- **Polarized**

If this product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other), it will fit into the outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

- **Grounded**

If this product is equipped with a three-wire grounding type plug, a plug having a third (grounding) pin, it will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

Outdoor Antenna Grounding



If an outside antenna or cable system is connected to the DR-HD100, verify that the antenna or cable system is grounded. This provides some protection against voltage surges and built-up static charges.

Refer to Article 810 of the National Electric Code, ANSI/NFPA 70, for information about the proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding connectors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Lightning and Power Surges

During electrical storms or when left unattended and unused for long periods of time, unplug the DR-HD100 from the power source and disconnect the antenna or cable system.

Power Lines

Do not locate an outside antenna system in the vicinity of overhead power lines, electric light or power circuits, or where it can fall onto such lines or circuits.

When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

Optical Precaution

The use of optical instruments with this device will increase hazards to the eyes hazard.

Maintenance and Moving

Cleaning

Unplug this product from the wall outlet before cleaning. The product should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

Servicing

Unplug the device from the power outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally when following the operating instructions. Adjust only those controls that are covered by the operating instructions. The incorrect adjustment of other controls can result in damage and often requires extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way.
- When the product exhibits a distinct change in performance.

Accessories and Replacement Parts

Use only attachments and accessories recommended by Focus Enhancements.

Use only replacement parts specified by the Focus Enhancements or of comparable quality and characteristics as the original parts.

Unauthorized substitution of parts can result in fire, electrical shock, other hazards, and loss of warranty.

Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Operating Environment

Location

Any mounting of this device should follow its instructions, and should use only mounting accessories recommended by Focus Enhancements.

- Install this device on a sturdy, level surface, away from moisture and dust.
- **Heat**
Locate this device away from heat sources such as radiators, heat registers, stoves or other electrical devices (including amplifiers) that generate heat.

Ventilation

Do not block the ventilation openings in the DR-HD100 body. Overheating can occur and damage the device. Do not place this device in a built-in installation, such as a bookcase or rack, unless proper ventilation is provided.

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Introduction

Thank you for purchasing a Focus Enhancements' DR-HD100 portable direct-to-edit (DTE) disk recorder. The DR-HD100 is the first portable DVHD disk recorder with DTE technology designed for hand held camcorders in a small, rugged and shock proof chassis.

If you edit with applications from Adobe, Apple, Avid, Canopus, Matrox, Pinnacle, Sony, Ulead, and many others, Focus Enhancements' DTE Technology is the only solution that can save hundreds of hours a year by recording clips to disk in your non-linear editor's (NLE) native file format.

DTE Eliminates Pre-edit Processing

The DR-HD100 DTE disk recorder eliminates the need to capture, transfer or convert video clips before editing. The DR-HD100 is a stand-alone device that records DV25, HD 720p, and HD 1080i video to its disk drive as a NLE native file. In HD Recorder mode it has the capability of capturing to disk HD 720p and 1080i video from HDV camcorders equipped with a 1394interface. For most DV and many HDV compatible NLE systems, when the disk drive is connected to a computer the clips are immediately available for editing. Shoot, connect, and edit: it is now that easy.

These capabilities make the DR-HD100 the perfect companion for the JVC GY-HD cameras.

Unpacking



Verify that the DR-HD100 has the following items:

1. DR-HD100 unit
2. Belt clip
3. User guide
4. 2 Firewire cables
5. Power cord
6. Power supply with cable and connector to the DR-HD100
7. Removable Li-Ion battery pack

Note

Missing or Damaged Components

If there are missing or damaged items, contact Focus Enhancements Support for assistance.

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EMEA

email: techsupport@como.com

phone: +49 4307-8358-58

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Features

DR-HD100 Features

The DR-HD100 offers the following features:

- **Tapeless acquisition**

Especially equipped camcorders permit the use of Direct To Edit (DTE) Technology to record directly from a camcorder while shooting and without the need of a tape.

- **True DTE Technology**

When shooting is finished, connect the DR-HD100 to a computer and instantly be ready to edit in the timeline. Files are recorded to disk as

<p>HD Recorder M2T</p>	<p>DV Recorder: AVI Type 1 AVI Type 2 Avid OMF Canopus AVI Matrox AVI Pinnacle QuickTime RawDV</p>	<p>DV Recorder (NTSC units): AVI Type 2 24p QuickTime 24p</p>
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DR-HD100 provides support for cutting edge HDV camcorders with 720p and 1080i MPEG-2 capabilities and FireWire, 1394, connection.

- **Fast and Efficient Editing**

When shooting is finished, mount the DR-HD100 to a Mac or PC editing system like a typical FireWire hard disk drive. Transfer clips to your NLE's media drive at up to 400 Mbps or edit instantly in real-time using the DR-HD100 as your media source. With some DV and HDV compatible NLE systems, it is necessary to capture the video footage using the NLE system's capture capability.

- **Confidence in Recording**

Now, simultaneously record to disk and tape while you shoot, providing an immediately available, drop out free, edit source with an archive and backup on tape.

- **Compact, Lightweight, Rugged Design**

The DR-HD100 weighs approximately one pound including the battery and is only 1.5" thick. You can mount the DR-HD100 directly to your camcorder using the optional camera mount kit, or clip the DR-HD100 directly to your belt. The DR-HD100 is designed to withstand the rigors of field shooting. The programmable, 10-second electronic shock cache ensures that your video is always recorded even in the roughest of conditions.

- **Flexible Capacities and Power**

The DR-HD100 is available with different capacity hard drives. See the Focus Enhancements website for more information, www.focusinfo.com. Extend record times by linking two DR-HD100 units together.

Power the DR-HD100 using slim, removable battery packs or power it using the supplied AC adapter.

- **Easy to Use, Control and Update**

The DR-HD100 interfaces with your camcorder using a single FireWire cable that passes audio, video, timecode and control information. When a tape is present, each press of start and stop on your camcorder's record button creates an individual clip on disk. The DR-HD100 features a comprehensive backlit display, menu system and buttons allowing easy control and management. In addition, these units are upgradeable in the field.

- **Never Miss A Shot**

DR-HD100's ten second retro record mode means you are always recording. When action happens, you know up to ten seconds prior to the event occurring is saved in your clip.

- Retro Disk and Loop Record modes.

- Scene Marking:

This allows categorizing video clips into pre-named folders on the disk during a shoot.

- User definable time lapse.

- Loop playback modes.

- Free Run, Rec Run, and Regen timecode modes.

DR-HD100 2.0 Upgrade Features

- MXF OPatom DV DTE format.
- QUICKTIME HD DTE format
- HD TC display and restripe capabilities.

Quickstart

This section provides the following information necessary for using the DR-HD100 as quickly as possible.

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Physical Description and Basic Controls

Front Panel Controls



LCD Display

This is a backlit, 14 character by 7 line dot matrix display. In event of a mild electrical discharge to the unit the LCD could go blank. To correct, hold the SELECT button down for 5 seconds.

Function buttons (A, B, C)

Below the DR-HD100 LCD display are three user-defined function buttons: A (left), B (center), and C (right). Use them as short-cut keys for the most frequently selected functions at the bottom of the LCD display. The function of these soft buttons changes, depending on the options displayed above that specific button. Refer to the “Functions Screen” on page 77 for more information.

Power On Button

The Power ON button provides two functions.

- **Power ON**
Turn on the DR-HD100.
- **Reset DR-HD100**
 - DR-HD100 first must be powered on.
 - Hold down the **Power On** button for more than one second.
- **Power OFF**
Hold down the **OFF** button ■ for three (3) seconds. During power off, the DR-HD100 beeps, indicating that it is turning off.

Note

Alarm OFF

If the Alarm feature is set to OFF, then the power-down sequence occurs silently.

Navigation Buttons

Use these buttons to navigate through the DR-HD100 menus. The navigation buttons are **Left**, **Right**, **Up**, **Down**, and **Select**.

Transport Control Buttons



Use these buttons to control DR-HD100 playback and record functions. You usually operate these transport buttons while on the Home screen.

Record ●

Press this button once when the DR-HD100 is in **Stop** mode to put the DR-HD100 into **REC-PAUSE**. Press it again to start recording. Pressing the Record button while recording, causes the current clip to close and a new clip is created without dropping any frames. This button is the only button that has a red legend on the front panel.

Back Search ◀◀

Press this button to play video at speeds different than real-time. Refer to the note in the Forward Search section.

Play ▶

Press this button to start playback of the selected clip.

Note

Some HDV Camcorders Require a Moment to Synchronize

Some HDV camcorders require a moment to synchronize the video from an external source. Typically during this period, they display a solid blue or black video until synchronized.

Forward Search ▶▶

Press this button to play video at speeds different than real-time.

Note

Fast Forward and Reverse

Pressing the Forward Search button multiple times results in increases in the search speed, i.e. fast forward. This mode works both in forward and reverse functions. For instance, if you are in 10X FF speed and you press the Back Search button once, the DR-HD100 is now in 2X FF mode. In addition, this applies to backward search speeds. The default speed resolution is as follows (NTSC and PAL have slightly different multiples for < 1X)

- Reverse: -30X, -10X, -2X, -1X (reverse play), -1/2X(-15fps), Still.
- Forward: Still, +1/2X (+15fps), +1X (play), +2X, +10X, +30X

Fast Forward and Reverse Search Compatible Camcorders

In Forward and Reverse Search modes, some camcorders do not display video when played-back from an external device, such as the DR-HD100.

Back Index |◀◀

This button returns the DR-HD100 to the beginning of the current clip when in playback mode. Press this button twice in sequence to return the DR-HD100 to the previous clip during playback. In **STOP** mode, press this button to return the DR-HD100 to the beginning of the previous clip.

Note

Using Back Index with Short Clips

When using Back Index with short clips, it is first necessary to place the DR-HD100 in **STOP** mode.

Pause, STOP ■ and Power OFF

While in the Home screen, and in any transport mode, press this button to Pause the DR-HD100. Press it again to stop the DR-HD100. Refer to the section, “Setup Screens” on page 67 for more information.

To power off the DR-HD100, hold down the **STOP** button ■ for three seconds. During Power OFF and if the Alarm function is **ON**, the DR-HD100, makes an audible beep indicating it is turning off.

Forward Index ▶▶|

Use this button to skip forward to the next clip in **STOP** and **PLAY** modes.

Top Panel

The top panel contains the following connectors and LEDs:

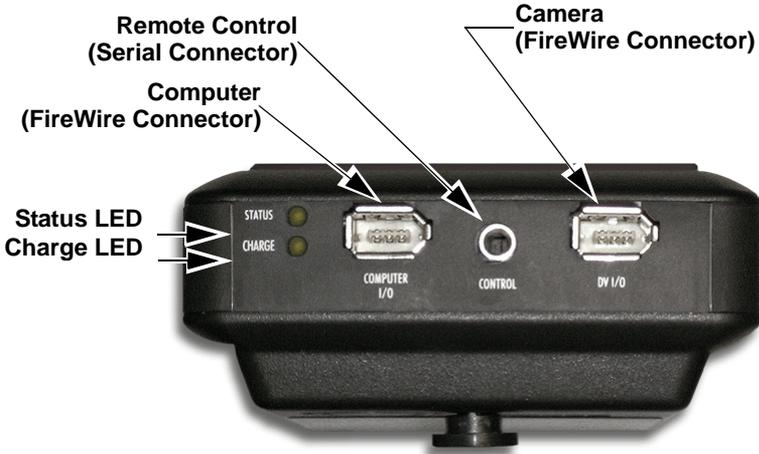


Table 1: Charge LED States

LED	Indicates
Off	No Charger Connected
Green	Charging Cycle Completed
Amber / Green	Floating Charge Mode (Charging almost completed.)
Amber	Fast Charge Mode (Maximum charging rate.)
Red	Charging Error
Red / Amber	No Battery Installed / Battery Error
Amber, flashing	Insufficient Voltage to Charger

Table 2: Status LED States

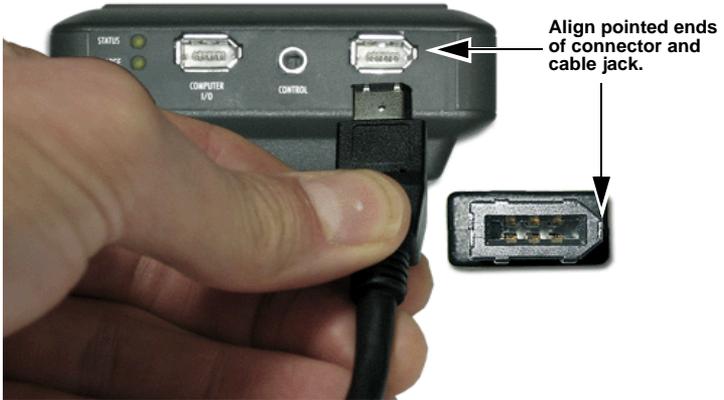
LED	Indicates
Off	Power OFF
Green	Power ON (Power On but there is no activity.)
Orange, solid	Playback
Orange, fluttering	Hard drive being accessed during playback.
Red, solid	Recording Mode
Red, blinking	Recording Pause

FireWire Alignment



IMPROPER INSERTION WILL DAMAGE UNIT

Properly Align FireWire Cable and Connector - Do Not Force
Correctly align the FireWire cable to the connector before insertion. The pointed end of the connector and the jack should be on the same side before insertion:



- In/Out: 6-pin IEEE-1394a port x 1
- Asynchronous Data I/O

Remote Control, Serial Connector

- GPI / RS232C; 3.5mm TRS mini jack. (3.5mm to DB-9 cable accessory available).
- Configure as a simple contact closure or RS-232C port.
- Connect an optional wired remote commander.

Camera FireWire Connector

- DV/I/O
- 6-pin IEEE-1394a connector
- Isochronous 25Mb/s DV video I/O
DR-HD100 supports 1080i/720p video I/O when used with HDV camcorders equipped with a 1394 connection like the JVC GY-HD cameras.
- DV Audio: embedded 2-channel (48kHz, 16-bit) or 2-channel (12-bit, 32kHz) audio, 720p/1080i HDV MPEG1 Audio Layer II.

Note

4-Channel Audio

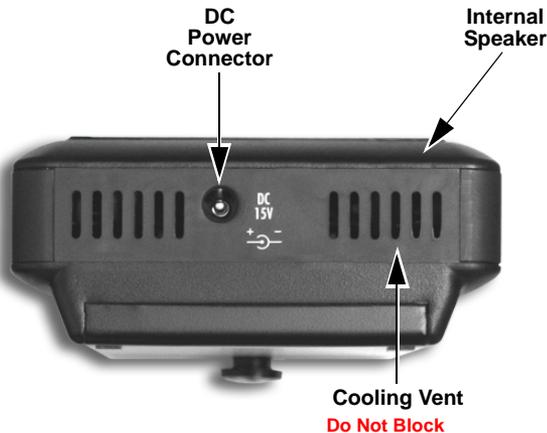
4-channel (12-bit, 32kHz) audio is available only with RawDV format.

GY-HD Cameras Do Not Support 1080i

The GY-HD companion camcorders do not support 1080i

Bottom Panel

The DR-HD100 bottom panel features a single 2-pin DC power connector. Connect the supplied AC power adapter here.

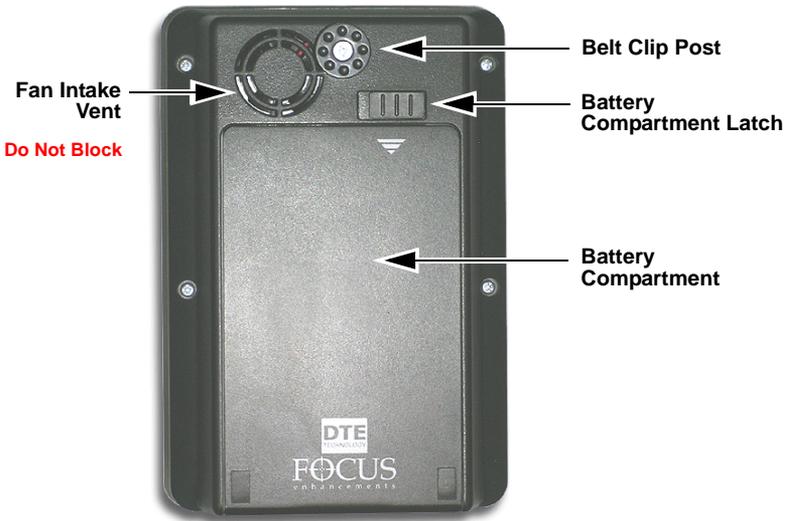


Internal Speaker

An internal speaker provides alarms and audible feedback. To disable the audible feedback, go to the Settings menu and select **ALARM OFF**. However, the power, temperature, and disk capacity alarms are always active.

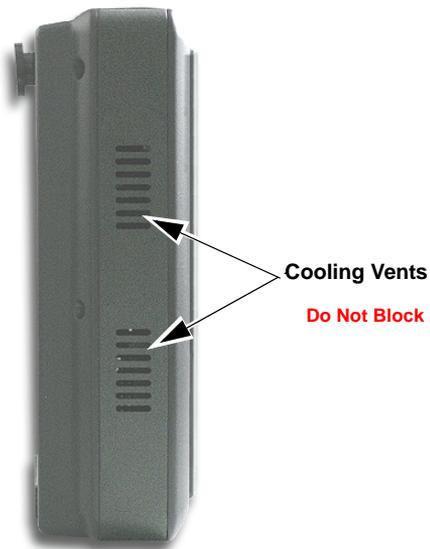
Rear Panel

The rear panel contains the following important items:



Side Panel

The side panel contains cooling vents as illustrated below.



The DR-HD100 Menu System

The DR-HD100 menu system provides access to all the functions available in the unit. Each of the screens below (except the Welcome and Home screens which come up automatically when the unit starts) are accessed by pressing the **Left** or **Right** navigation buttons. The functions of each of the selections on these screens is explained in more detail in “DR-HD100 Functions” on page 51.

Note

Returning to the Top of Menu or Home screen

To get to the top of any menu, press the **Left** button. To get back to the Home screen:

- Highlight the screen title at the top of the screen.
- Press the **Select** button.

- **Welcome**

Only appears for several seconds upon power up.

- **Home**

Gateway screen for all functions, it displays disk and operational status.

- **Control**

Contains the following selections:

- Local
- JVC GY-HD
- Syncro Slave
- AV/C
- External

- **Play From**

Provides lists to select play material from:

- Track List
- Reel List

- **Play**

Contains the following Play selections:

- Play Clip
- Loop Clip
- Loop All
- Play All

- **Reels**

Allows selected clips to be marked for placement in particular Reels Folders.

- R0 0
- R1 1
- R2 2
- R3 3
- R4 4
- R5 5
- R6 6
- R7 7
- R8 8
- R9 9
- NONE

- **Utilities**

Contains the following disk and clip functions:

- Organize Reel
- Organize OMF
- Organize MXF **2.0 upgrade only**
- Organize PINN
- Delete Clip
- Format
- Repair Disk
- Repair Clip **DV mode only**
- File Name
- Upgrade
- System Reset
- Diagnostic
- Status

- **Functions**

Contains user definable function button selections. Changing a setting with a Function button is identical to changing the setting in its corresponding menu. Refer to “Functions Screen” on page 77 for more information.

- **Setup**

Contains the controls for setting and reviewing the DR-HD100 configuration:

- Set Date (MM/DD/YY)
- Set Time (XX:XX:XX)
- View Firmware Version
- LCDLight ON
- LCDLight OFF
- LCDLight AUTO
- Alarm ON
- Alarm OFF
- Stop Frame **DV mode only**
- Stop Gray **DV mode only**
- Stop No Video
- EXT CTL OFF
- EXT CTL PAUSE
- EXT CTL FRAME **DV mode only**
- EXT CTL FILE
- TC EXT (external)
- TC REC RUN **DV mode or 2.0 upgrade only**
- TC FREE RUN **DV mode or 2.0 upgrade only**
- TC REGEN (regenerate) **DV mode or 2.0 upgrade only**
- TC SET
- UB SET
- TC DROP **NTSC only**
- TC NON-DROP **NTSC only**
- HDV TC TYPE **HD only in 2.0 upgrade**
- LCD Contrast

- **HDD Mode**

Contains the following hard drive selections:

- DV Recorder
- HD Recorder
- DD Drive
- Use Ext. DR-HD

- **DV or HD Formats**

Following HDD mode is a menu of formats available for the type recorder selected in HDD mode.

When selecting **DV Recorder** the following formats are shown:

- Raw DV
- AVI Type 1
- AVI Type 2
- Canopus AVI
- Matrox AVI
- Quicktime
- Avid OMF
- Quicktime 24p
- AVI Type 2 24p
- Pinnacle

When selecting **HD Recorder** the format displayed is:

- M2T

- **Record**

Contains the following recording functions:

- Normal
- Retro Disk
- Retro Cache
- Loop Record
- SNAP *DV mode only*
- Time Lapse *DV mode only*

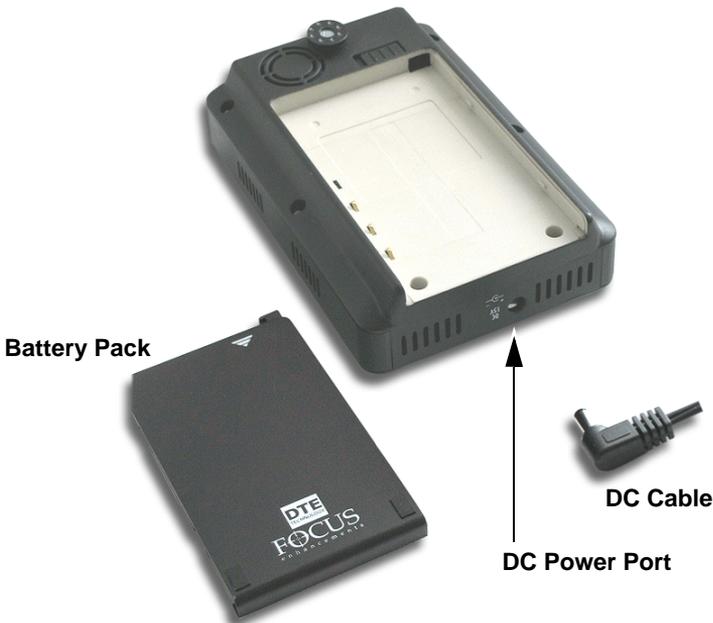
Powering the DR-HD100

- **The DR-HD100 operation without a battery installed.**
To operate the DR-HD100 without a battery installed, connect the unit to an AC power source.
- **Before operating the DR-HD100 with battery power.**
It is first necessary to fully charge the battery. An uncharged battery, typically takes 2-3 hours to charge.

Connecting the DR-HD100 to AC Power

Attach the AC power cord to the DR-HD100 (with or without battery installed). The DR-HD100 is immediately ready for operation.

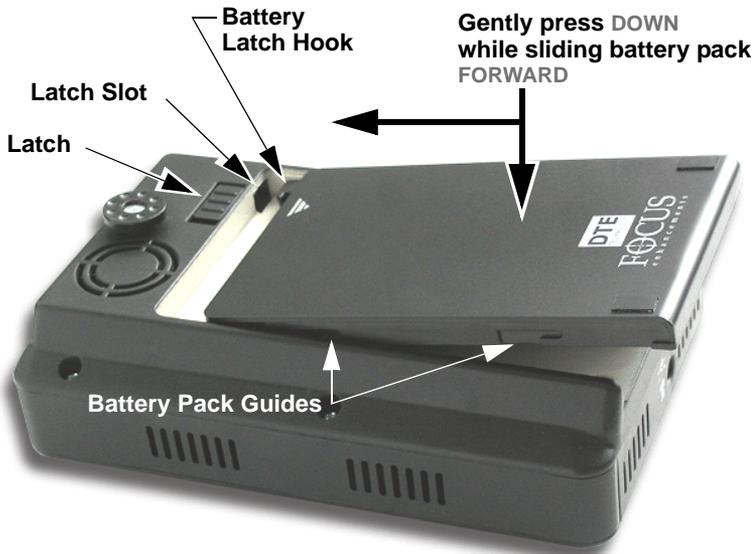
To do this, connect the AC power as follows:



- Step 1: Plug the cord from the power supply into the bottom of the DR-HD100.
- Step 2: Connect the line cord to the rectangular power supply.
- Step 3: Plug the line cord into an electric outlet.

Installing / Removing the Battery Pack

Installing a Battery



- Step 1: Place the unit, so that the battery compartment is up.
- Step 2: Position the battery pack, as shown above, so that the latch hook is almost in the latch slot, and touching the floor of the battery compartment.
- Step 3: Slide the battery forward while gently pressing down. Feel the battery slide along guides and seat itself.
- Step 4: When seated, the battery latch clicks into place.

Removing a Battery

- Step 1: Slide the battery latch to the left and hold.
- Step 2: Apply backward pressure to the battery pack at the triangle/ arrow and gently slide the pack back about 1cm or 3/8 in. This is the reverse motion of inserting the battery.
- Step 3: Remove the battery pack.

Charging the Battery

The battery begins charging anytime it is connected to AC power using the AC adapter supplied with the DR-HD100. The charge LED lights when the DR-HD100 is charging. For information on the charge LED, refer to the subsection “Top Panel” on page 12.

Before the battery can be used it must charge until the battery status LED indicates the unit is fully charged (green).

- The Charge LED on the top of the DR-HD100 lights to show the battery is charging.
- An uncharged battery takes 2-3 hours to charge with the unit powered off.
- The battery provided with the DR-HD100 can supply power to the unit for about 90 minutes while in continuous Record or Playback mode.
- An optional high capacity battery (**BATT-0009-01**) capable of providing power for almost three hours of continuous recording is available from Focus Enhancements.

Note

Using FireWire to Charge DR-HD100

It is possible to charge the DR-HD100 battery through the 1394 port on a computer provided that the computer outputs at least 15V through the port. To determine if this is possible, consult the computer's specifications.



Battery Use

Misuse can cause property damage and/or bodily injury such as burns if a conductive material such as jewelry, buttons, or beaded chains touch exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling a charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.



Warning: Do Not Use Unapproved Battery Chargers

Use of battery chargers not approved by Focus Enhancements could cause the battery to catch fire or explode.

Use Only Original Focus Enhancements FS-BC Battery Chargers

There are four versions of the optional FS-BC battery charger for use in various parts of the world.

ASYF-0940-01	USA
ASYF-0941-01	Europe
ASYF-0943-01	United Kingdom
ASYF-0944-01	Australia

These optional battery chargers are available from either your local dealer or online at the Focus Enhancements web store, www.focusinfo.com.

Connecting a DR-HD100 to a DV/HD Camcorder

Before performing this procedure, make sure you have installed and charged the battery, see “Installing / Removing the Battery Pack” on page 21.

- Step 1:** Connect the supplied Firewire cable to the “DV I/O” connector on the top of the DR-HD100.



- Step 2:** Locate the FireWire/DV/iLink (or similar) connector on your video camera. It is located in different places depending upon the brand of camera. If you are unclear of its location, consult your video camera manual.

Note

DR-HD100 Supplied with 6-pin to 6-pin FireWire Cable

A 6-pin to 6-pin FireWire, 1394, cable is provided with the DR-HD100.

GY-HD FireWire Connector

The FireWire connector on the GY-HD cameras is located on the right side of the camera, behind the tape transport. For more information, refer to the GY-HD documentation.

- Step 3:** Connect the other end of the FireWire, 1394, cable to your video camera.
- Step 4:** Turn on the video camera.
- Step 5:** Turn on the DR-HD100.

Record and Playback with the DR-HD100

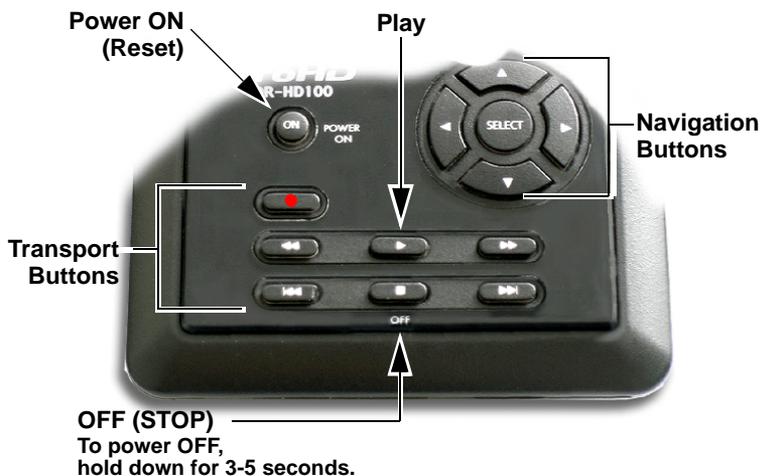
Before using the DR-HD100, set up the unit as outlined in the following sections:

Power On the DR-HD100	24
Select HDD Recorder Mode	25
Select a DV/HD File Format	26
Set Time and Date	27
Record With the DR-HD100	29
Manual Recording	31
JVC GY-HD	32
Series Record and Split Slave Control Modes	33
Syncro Slave	34
External	35
Playback on the DR-HD100	36

The values set in these procedures are fixed and persist through power cycles. To change them, repeat the steps outlined above.

Power On the DR-HD100

Step 1: Press the **Power ON** button for more than one second and release it.



- Step 2: The Welcome screen appears and displays while the Home screen appears when the DR-HD100 initializes.

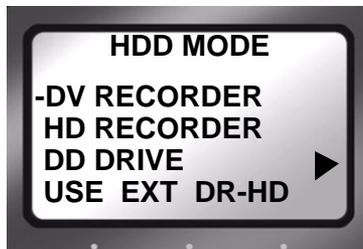


- Step 3: The Home screen appears when the DR-HD100 first powers up. For more details about this screen, "Home Screen" on page 53.



Select HDD Recorder Mode

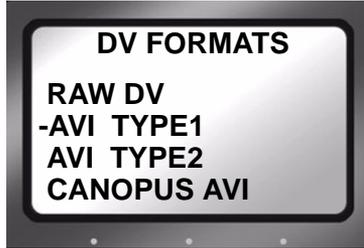
- Step 1: Press the **Right** navigation button two times until the HDD Mode display appears.



- Step 2: Use the **Down** navigation button to highlight the recorder mode, either DV or HD.
- Step 3: Press the **Select** button on the navigation buttons.
- Step 4: Press the **Left** button to return to the menu title.
- Step 5: Press the **Right** button once and advance to the **FORMAT** screen.

Select a DV/HD File Format

The formats displayed depend on the recorder mode selected in the previous step, for example **DV RECORDER** results in the following:



- Step 1: Use the **Up** and **Down** navigation buttons to select the DV file format that supports the preferred NLE system. A dash mark to the left of a list item indicates that it is the current selection. The default value is AVI Type 2.

Note

DV24p and PAL 25p Modes

24p modes are only for use with camcorder's that are capable of DV-24p Advanced mode.

PAL 25p camcorders require no special 25p DV format

Check www.focusinfo.com for supported Applications

For a complete and up-to-date list of supported applications and their associated formats, visit the website:
<http://www.focusinfo.com>

- Step 2: Press the center **Select** button on the navigation buttons.
- Step 3: Press the **Left** button to return to the menu title.
- Step 4: Press the **Right** button once and advance to the **SETUP** screen.

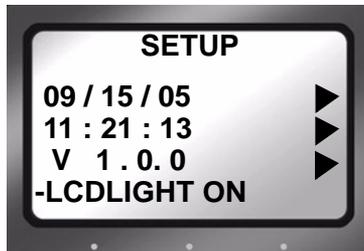
Set Time and Date

Note

Date and Time Must Be Set

The date and time must be set because they are used in the DR-HD100 file naming function.

- Step 1: Press the **Right** navigation button several times until the Setup display appears on the screen as shown below:



- Step 2: Use the **Down** navigation button to highlight the date and press the **Right** navigation button to access the **SET DATE** screen.



- Step 3: Use the **Up** and **Down** navigation buttons to change the highlighted value. Use the **Right** and **Left** navigation buttons to highlight the Month, Day, and Year.
- Step 4: When complete, press the right-most Function button indicated as **BACK** on the screen. The new date will be indicated on the **SETUP** screen.

- Step 5: Use the **Down** navigation button to select the time and press the **Right** navigation button. The following screen appears:



- Step 6: Use the **Up** and **Down** navigation buttons to change the highlighted value. Use the **Right** and **Left** navigation buttons to highlight the Hour, Minute, and Second. (Time is indicated in 24hr. mode.)
- Step 7: Press the right-most Function button indicated as **BACK** on the screen. The new date appears on the **SETUP** screen.
The Time and Date are now set.
- Step 8: Press the **Left** navigation button followed by the **Select** button to return to the beginning screen.
For more information on the Setup function, refer to the section, "Setup Screens" on page 67.

Record With the DR-HD100

There are four modes of recording with the DR-HD100.

- **Manual Recording**
Control with the DR-HD100 transport buttons.
- **JVC GY-HD**
This recording mode is tailored for use with the companion, JVC GY-HD cameras. Set the JVC GY-HD camcorder's **1394 REC TRIGGER** to **SYNCHRO**, **SPLIT**, or **SERIES** to enable control of the DR-HD100.
- **Syncro Slave**
Use this mode with camcorders that do not have DR-HD100 compatible external control or tapeless trigger functionality. In this mode, the DR-HD100 watches the record status of the camcorder and replicates its actions. A tape must be in the camcorder for this mode to function.
- **External**
Control recording with other camcorders that have DR-HD100 compatible external control or tapeless trigger capabilities.

Before beginning recording, verify that:

1. Time and date are set.
2. Recording format is set.
3. The DR-HD100 is connected to the video camera according to the explanation in "Connecting a DR-HD100 to a DV/HD Camcorder" on page 23.
4. Camera and DR-HD100 are powered on.
5. Tape is loaded in the camera.

Note

External Control

If the camcorder supports an external control function, then tapeless recording is possible. Otherwise, the DR-HD100 control panel keys must be used to control recording in **LOCAL** control mode when there is no tape in the camcorder.

For a list of compatible camcorders, go to Focus Enhancements website at <http://www.focusinfo.com>.



Do Not Disconnect Power or FireWire Cable

Never disconnect the power or the FireWire cable during a recording. This will cause file corruption.

Loss of Power During Recording

If power is lost during recording it is possible to repair the damaged file or files, refer “Repair Disk” on page 86 to and “Repair Clip DV Mode only” on page 87.

Note

Troubleshooting: Counter Not Incrementing

If the Counter does not increment while recording from the camera, it is an indication that there is no active connection between the DR-HD100 and the camera.

- Verify that the DR-HD100 1394 DV I/O and the camera connections are secure. It may be necessary to unplug and then reconnect them.

When a good connection is made, the Counter increments and recording starts.

Verify Record Mode Matches Source Video Content and Format

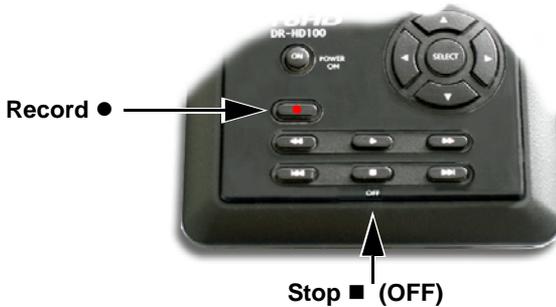
If in DV Recorder mode, HD content will not record properly. A NTSC or PAL DV source records only on a matching NTSC or PAL unit.

Short Delay When Switching from VTR to Camera Mode

When switching a camcorder from VTR to camera mode, there is a short (10-20 seconds) interval while the DR-HD100 re-establishes communications with the camcorder. If recording is started during this period, recording is delayed until the DR-HD100 finishes establishing communications with the camcorder.

Manual Recording

- Step 1: Set the video camera to **Camera** or **Cam** mode.
- Step 2: Verify that an image appears in the viewfinder.
- Step 3: On the DR-HD100, press **Record ●** once.
This sets the DR-HD100 to **Record-Pause** mode.



- Step 4: On the DR-HD100, press **Record ●** button a second time. The DR-HD100 begins to record. The timecode value is displayed on the screen.
- Step 5: Press **Stop ■ (OFF)** once to return the DR-HD100 to **Record-Pause** mode.
- Step 6: Press **Record ●** and the DR-HD100 begins to record again on the same clip.
- Step 7: Press **Stop ■ (OFF)** *twice* to stop the recording.
- Step 8: Press **Record ●** *twice* to begin recording a new clip.

Creating a New File without Dropping Frames

When in record mode, it is possible to break the recording into a separate, new file without dropping frames.

Press **Record ●** and the DR-HD100 automatically creates a new clip.

JVC GY-HD

The JVC GY-HD control setting is the preferred mode when using the companion GY-HD camcorder.

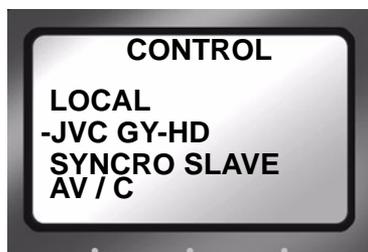
Note

Important GY-HD Camera Setting

When simultaneously recording to both tape and the DR-HD100, be certain to set the GY-HD's **OTHERS**→**BACK SPACE [HDV] Menu** selection to **P-1394**.

With this setting there is a slightly delayed response to the record trigger. However, when **OTHERS**→**BACK SPACE[HDV]** is set to **P-TAPE**, the stream that the DR-HD100 records will contain discontinuities at every point that recording to tape is initiated. This will result in the loss of content.

- Step 1: Place the GY-HD camera into **SYNCRO** mode from the camcorder's **1394 REC TRIGGER** menu. Refer to the camcorder manual for details.
- Step 2: Verify that the DR-HD100 is in **STOP** mode.
- Step 3: From the DR-HD100 Home screen, press the **Right** navigation button several times until the **CONTROL** screen appears:



- Step 4: Use the **Down** navigation button to select **JVC GY-HD**. The dash on the left side of an item indicates it is the current selection. The default value is **Local**.
- Step 5: Press the **Select** navigation button.
- Step 6: The beginning screen returns and a **Pause** indicator appears in the upper left-hand corner. Next to this symbol, is a **J** indicating that GY-HD is now controlling the DR-HD100.
- Step 7: Now the DR-HD100 will respond to the camcorder's record/record-pause trigger.

Series Record and Split Slave Control Modes

Two additional control modes are available when the DR-HD100 is teamed up with the JVC GY-HD camcorder: **Series Record** and **Split Slave**. To access these control modes, select either **Series** or **Split** mode from the GY-HD camcorder's **1394 REC TRIGGER** menu. The DR-HD100 must be in **JVC GY-HD** mode for these modes to function, see "JVC GY-HD" on page 32.

Series Record

Series Record automatically starts recording to disk when a tape is close to the end of the record session. For more information about what happens once recording to disk begins, refer to the camcorder documentation.

Split Slave

In Split Slave mode, the GY-HD camcorder controls the DR-HD100 separately from the camcorder's tape transport. The DR-HD100 is slaved to the camcorder's **REC TRIGGER** button, located on the GY-HD's left panel.

- Every time the Rec Trigger is pressed, the DR-HD100 begins recording in the selected recording mode.
- When the Rec Trigger is pressed again, the DR-HD100 enters **REC/PAUSE** mode. The only exception is if it is in Retro Record mode.
- Pressing the Rec Trigger a third time, restarts recording. A new track is created on the disk. Refer to camcorder documentation for more information.

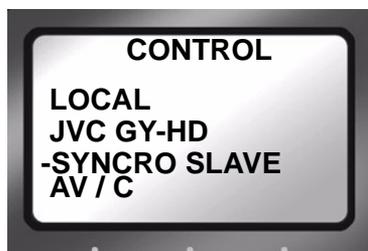
Note

GY-HD Camera's OTHERS→BACK SPACE[HDV] Setting

When using this mode, be certain to set the GY-HD's **OTHERS→BACK SPACE[HDV]** menu to **P-1394**.

With this setting there is a slightly delayed response to the record trigger. However, when **OTHERS→BACK SPACE[HDV]** is set to **P-TAPE**, the stream that the DR-HD100 records will contain discontinuities at every point that recording to tape is initiated. This will result in the loss of content.

Syncro Slave



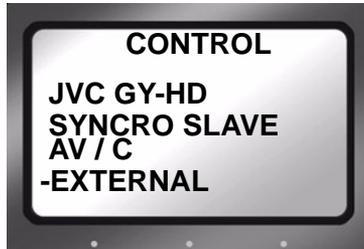
This mode is for camcorders that do not have external control or the tapeless control functionality compatible with the DR-HD100.

- Syncro Slave mode requires that a tape be in the camcorder for operation.
- The DR-HD100 must be set to **Syncro Slave** control mode.
- In this mode, the DR-HD100 watches the record state of the camcorder and follows its actions.

When Synchrono Slave mode is entered from the menu, the Home screen appears with the Pause indicator displayed in the upper left-hand corner along with a **Y** that indicates that the DR-HD100 is following the camcorder's record state.

- Step 1: Verify that the DR-HD100 is in **STOP** mode.
- Step 2: From the DR-HD100 Home screen, press the **Right** navigation button several times until the **CONTROL** screen appears:
- Step 3: Use the **Down** navigation button to select **Syncro Slave**. The dash on the left side of an item indicates it is the current selection. The default value is **Local**.
- Step 4: Press the **Select** navigation button.
- Step 5: The beginning screen returns and a **Pause** indicator appears in the upper left-hand corner. Next to this symbol, is a **Y** indicating that DR-HD100 is now following the record state of the connected camcorder.
- Step 6: Now the DR-HD100 will record at the same time the camcorder records to tape.

External



Use the External control mode with camcorders that are compatible with DR-HD100 external control or tapeless operation capabilities.

- When the DR-HD100 is in **External** mode, an **E** displays along with the tape state, indicating that the unit is in **External** mode.
- Use the camcorder's **REC** button to **Start** and **Stop** the DR-HD100 tapeless recording.
- The camcorder's External control or tapeless trigger function must be enabled for this mode to work.

Refer to the camcorder User Manual for more details.

Recording Timecode in the File

Select **EXT TC** in the Setup menu. This option records the video camera timecode in the file. There are other timecode options available, refer to **TIME CODE** on page 71.

Note

Function buttons

The tasks discussed above are available for programming into the function buttons. For information on setting up function buttons, refer to the section, "Functions Screen" on page 77

Playback on the DR-HD100

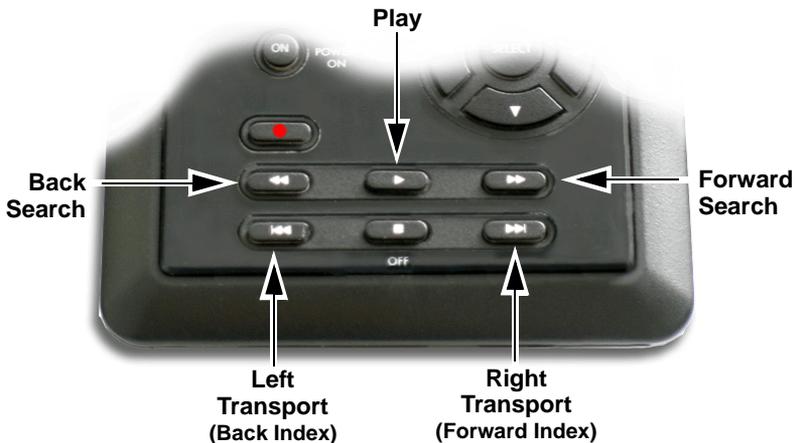
Verify that both the video camera and the DR-HD100 are powered on and that they are connected together with the FireWire cable from the DR-HD100 DV/IO port to the camcorder 1394 port.

Note

Feature Availability on PAL Cameras

This feature is not available on some PAL cameras.

- Step 1: Set the video camera to **VTR** or **playback** mode.
- Step 2: Navigate to the video clip to preview, using the DR-HD100 **Left** and **Right** transport control buttons.



- Step 3: Press the DR-HD100 **Play** button.
- Step 4: Search through the clips using the DR-HD100 **Forward Search**, **Forward Index**, **Backward Index**, or **Backward Search** buttons. Refer to “Navigation Buttons” on page 9 for more information on the function of these buttons.

Note

Camcorder Compatibility with External Players

Some HD camcorders are not compatible with the external player functions Forward/Reverse Search and Pause.

VTR/CAMERA Button

On the JVC GY-HD camcorder, the VTR/Camera button is located on the left side of the camera in the recessed LCD compartment.

DR-HD100: Using with a Computer

Once video clips are recorded to the DR-HD100 it is possible to use those clips in most computer based DV/HD NLE systems. This section contains the following:

Initial Setup	38
Mounting the DR-HD100 in Windows	39
DR-HD100 and FAT 32.....	41
Using Avid OMF Clips (Required for DV mode only)	42
Dismounting the DR-HD100 (Windows).....	45
Mounting the DR-HD100 (Macintosh)	46
Dismounting the DR-HD100 (Macintosh)	47

In the past, to get footage into an NLE system, it was necessary to capture / digitize the footage using a video capture card. For most DV and some HDV compatible NLE systems, DR-HD100 DTE functionality eliminates the capture stage. All that is necessary is the moving of the video files from the DR-HD100 to a computer.

Note

Recording for Unsupported NLE

If a desired NLE is not supported by Focus Enhancements DTE, it is necessary to use the AV/C control to capture the video footage for editing. For more details refer to "Control Screen" on page 97.

To move video files from the DR-HD100 to a computer:

- Connect the DR-HD100's **Computer I/O** 1394 port directly to a computer with an active OHCI compliant IEEE-1394 FireWire port and the necessary FireWire disk drive drivers.

Note

For More Information

Go to the FOCUS Enhancements' website (www.focusinfo.com) for more compatibility information.

- Use the DR-HD100 HDD Bypass mode, refer below for more information.

The DR-HD100 is compatible with any computer system that can read FAT 32 volumes, such as Windows 98SE/ME/2000/XP and Mac OS9/OS10.

Initial Setup

Step 1: Connect the DR-HD100 through its **COMPUTER I/O** 1394 port to the computer system using a standard 6-pin to 6-pin FireWire cable.

Step 2: Enter HDD mode and enable DD Drive.
This step is required before mounting the DR-HD100 to a computer.

- On the DR-HD100 go to the **HDD** screen.
- Select **DD Drive** and **Right** arrow to **Connect** screen.
- Press **Enable** function button.

Refer to the section, "HDD Mode Screen" on page 62

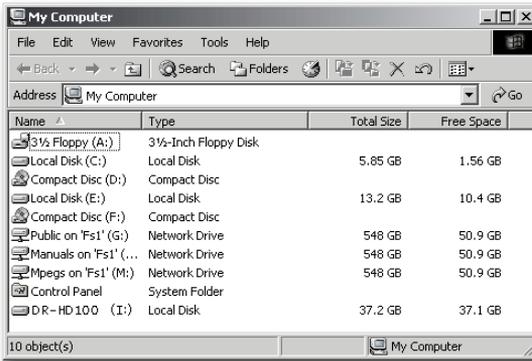
Step 3: Connect power to the drive if necessary.

Step 4: Consult the computer's documentation for more information.

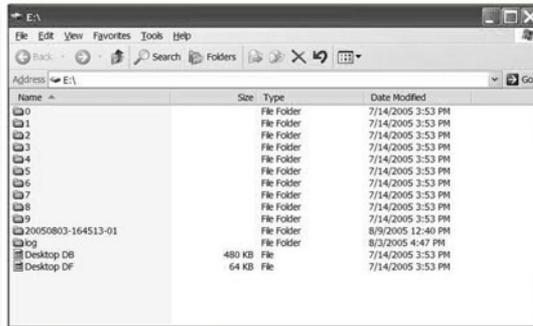
Mounting the DR-HD100 in Windows

Use this procedure for Windows XP, 2000, 98SE and ME.

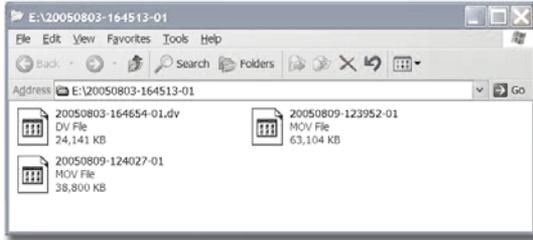
- Step 1:** On a Windows-based computer system, double click the **My Computer** icon on the top left hand corner of the desktop. A directory window appears.



- Step 2:** Locate the DR-HD100 drive and open it. Often, it appears as a standard FireWire disk drive and may be labeled E:, F:, G:, and so on.
- Step 3:** Open the DR-HD100 disk icon.
- Step 4:** Open the folder with the most recent date code.



This folder may contain several different files. The video clips can appear as:



- RawDV (.dv)
- AVI Type 1 - (YYYYMMDDHHMSSa01)
- AVI Type 2 or AVI Type 2 24p - (YYYYMMDDHHMSSb01)
- Canopus AVI - (YYYYMMDD-HHMSSb01)
- Matrox AVI - (YYYYMMDD-HHMSSm01)
This file has a separate .wav audio file per track.
- QuickTime or Quicktime 24p (.mov)
- Pinnacle - (YYYYMMDD-HHMSSp01)
There are two separate .wav audio files per track.
- Avid OMF (.omf)
OMF has two separate .aif audio files per track.
- MXF OPA_{tom} - (YYYYMMDD-HHMSSp01.mxf),
(YYYYMMDD-HHMSSL01.mxf),
(YYYYMMDDHHMSSR01.mxf) where:

p is video,
L is the left audio channel,
R is the right audio channel,

Note

DR-HD100 Video Clips in Reel Folder

DR-HD100 permits the storing of video clips in either the standard file folder or a Reel folder. If video clips have been assigned to a Reel folder, it is necessary to run Organize Reels before attaching the DR-HD100 to a computer. For more information about the Organize Utilities, see Organize Reel on page 82.

HD Resolution and Frames

- M2T or .mov filename format: YYYYMMDD-HHMMSSX01.m2t or .mov (QT) where the **X** is a letter indicating the resolution of the captured video file. The table below lists letters and associated resolutions. Not all HDV camcorders support these resolutions.

X	Resolution	X	Resolution
d	720p, 23.976 fps	D	1080i, 23.976 fps
b	720p, 24 fps	B	1080i, 24 fps
c	720p, 25 fps	C	1080i, 25 fps
a	720p, 29.97 fps	A	1080i, 29.97 fps
e	720p, 30 fps	E	1080i, 30 fps
f	720p, 50 fps*	F	1080i, 50 fps
g	720p, 59.94 fps*	G	1080i, 59.94 fps
h	720p, 60 fps*	H	1080i, 60 fps
y	576p, 50 fps*		
z	480p, 60 fps*		

* These resolutions are not supported in the HD RECORDER QUICKTIME format. The unit will not record these resolutions from the GY-HD camera when in HD RECORDER QUICKTIME format.

DR-HD100 and FAT 32

The FAT32 file system limits file size to a maximum of 2GB which, depending on record mode and resolution, approximately equals the following minutes of video:

DV		9 minutes
720p	(M2T)	13 minutes
720p	(MOV)	10 minutes
1080i	(M2T)	9 minutes
1080i	(MOV)	7 minutes

When clips exceed 2GB in size, the DR-HD100 automatically creates a new, file without dropping any frames. The two files have the same root filename but have different two digit suffixes that indicate the order of their creation, -01, -02, and so on. This process can produce as many sequential 2GB files as the drive can hold.

With most DV and many HDV compatible NLE systems on Windows or Macintosh computers, it is possible to use clips within the timeline. Select the clips on the source volume, i.e. the connected DR-HD100, and import them directly into the NLE bin.

This makes clips immediately available in the NLE timeline.

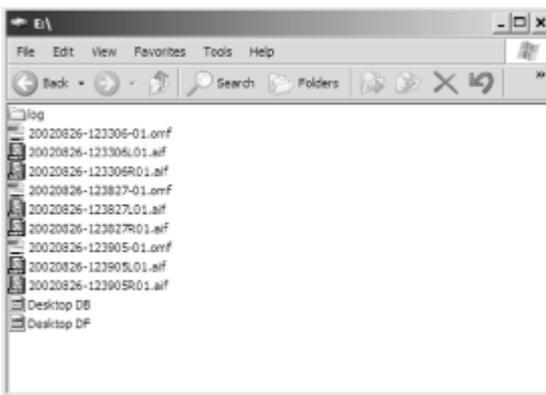
The high transfer speed of the DR-HD100 drive permits direct streaming of the clips to the NLE, thus eliminating the need to copy or transfer the clips before their use.

Using Avid OMF Clips (Required for DV mode only)

These steps are required when using Avid OMF formatted clips.

The Avid OMF file format was developed for use with Avid editing products on Windows 2000, Windows XP or Mac OS X. These products include Avid Xpress Pro, NewsCutter, and Media Composer Adrenaline (with the DV option).

The Avid OMF file format creates three files simultaneously; one OMF video file and two separate AIF audio files. On the computer's desktop, the files appear similar to those shown below.



On the DR-HD100, the video file (OMF) and the audio files (AIF) appear as one track.

When an Avid OMF file is deleted, the DR-HD100 deletes the audio and video portions at the same time.

To use a DR-HD100 recorded Avid OMF file on an Avid NLE system, use the following procedure.

Note

ORGANIZE OMF Function

If using the ORGANIZE OMF function on the DR-HD100 before connecting it to a computer, steps 2 and 3 are not necessary

- Step 1: Locate and open the DR-HD100 drive folder.
- Step 2: Create a new folder and name it **OMFI MediaFiles**.
- Step 3: To do this in Windows, select **File>New>Folder**.
- Step 4: To do this with Macintosh, select **File>New Folder**. Next, type **OMFI MediaFiles**.
- Step 5: Drag all the OMF and AIF files into the new folder:
Do Not Drag in the files titled Desktop DB or Desktop DF.
- Step 6: Launch Avid.
- Step 7: Open an existing project or create a new one.
- Step 8: Select **Tools>MediaTool**. A screen similar to the following appears:



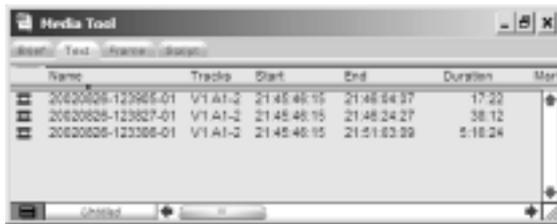
Step 9: Locate and select the DR-HD100 under Media Drive(s).

Note

If Drive Does Not Appear

If the drive does not appear, check to make sure that the OMF1 MediaFiles folder was created correctly with proper case and spacing. In addition, verify that the drive is properly connected and recognized by the computer. Under **Project(s)**, select **All Projects** (This highlights all items in the Project(s) window).

Step 10: Verify that Master Clips is checked and press **OK**. The Media Tools Window, similar to the following, appears:



- Step 11: Create a new bin (select **File** -> **New Bin**) or open an existing bin in Avid.
- Step 12: Select all items in the Media Tools window (select **Edit**> **Select All**).
- Step 13: Drag the contents of the Media Tools Window into the bin. It is now possible to use these clips in the Avid timeline.

Dismounting the DR-HD100 (Windows)

When finished working with the DR-HD100 and the computer, it is necessary to dismount DR-HD100 from the system



Dismount DR-HD100 Before Powering Off

It is important to dismount the DR-HD100 from the Windows system BEFORE powering down the unit.

To do dismount the DR-HD100:

- Step 1: Click the **Safely Remove Hardware** icon at the bottom right side of the Windows task bar as shown below.



**Unplug or Eject Hardware Icon
(Safely Remove Hardware)**

- Step 2: Next, the computer system prompts to remove the connected DR-HD100. This begins the dismount process.
- Step 3: Select the message and click on it.

The computer dismounts the DR-HD100 and then displays a message that it is now safe to remove the unit.

Mounting the DR-HD100 (Macintosh)

Step 1: Start the Mac computer and connect the DR-HD100's **COMPUTER I/O** port to the computer using a standard 6-pin to 6-pin FireWire cable.

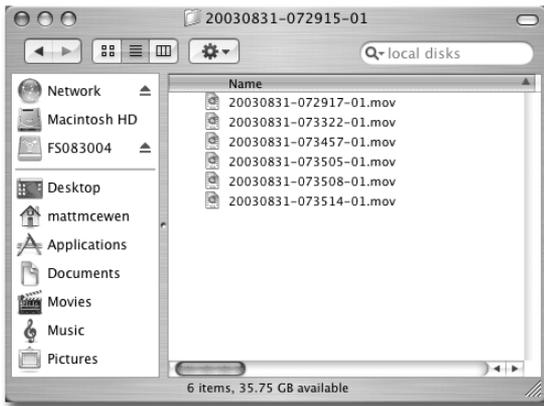
When mounted, the DR-HD100 should appear on the computer's desktop as shown below:



The DR-HD100 appears as a FAT32 volume with a PC label.

Step 2: Locate the DR-HD100 on the desktop and open it up.

Step 3: Open the folder with the most recent date code (for example, "20050127-110345-01"). It should look similar to the following:



Note

Before Connecting DR-HD100 to a Computer

If clips have been assigned to a Reel folder: perform an **Organize Reels** before connecting the unit to a computer.

Dismounting the DR-HD100 (Macintosh)

When finished working with the DR-HD100 and the Macintosh it is necessary to dismount the unit from the system.



Dismount DR-HD100 Before Powering Off

It is important to dismount the DR-HD100 from the Mac system BEFORE powering down the DR-HD100.

To dismount the DR-HD100 from a Mac:

- Step 1: Select the DR-HD100 on the computer's desktop. It is marked with a PC symbol.
- Step 2: Drag the drive into the trash or use the eject button. This dismounts the particular disk drive.
- Step 3: It is now safe to remove the DR-HD100.

Note

Two-Button Mouse Shortcut for Macintosh Computers

If your Macintosh is equipped with a two-button mouse, you can use the following shortcut:

- Right click the FS-100 on the desktop.
- Select the **Eject** function from the pop-up menu.

Mounting Hardware

Mounting DR-HD100 to a Camcorder

Mount the DR-HD100 to your camcorder using the optional Camcorder Mount Kit (P/N ASYF-0849-01). For more information about this kit or to order it, contact Focus Enhancements:

USA

Office Hours: Monday through Friday
8:00 AM to 5:00PM (Central Time)

Email: support@focusinfo.com

Telephone: +1 763-398-1658

Fax: +1 763-571-7688

Address: Focus Enhancements, Inc.
1370 Dell Avenue
Campbell, CA. 95008
www.focusinfo.com

EMEA (Europe, Middle East, Africa)

Office Hours: Monday through Friday
9:00 AM to 5:00PM

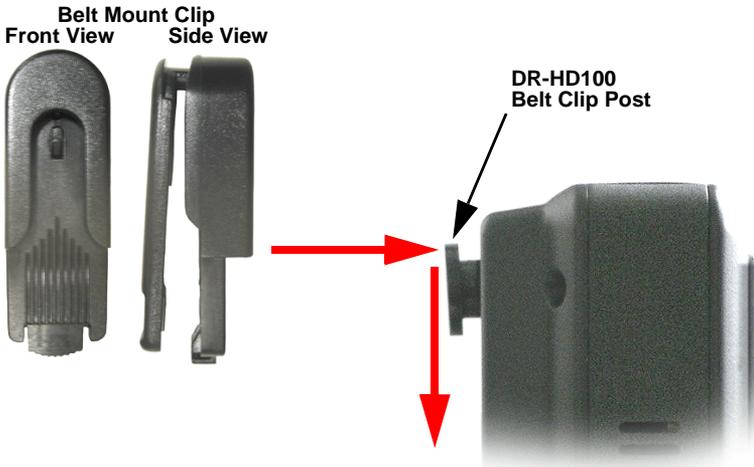
Email: techsupport@como.com

Telephone: +49 4307 - 83 58 58

Fax: +49 4307 - 83 58 99

Address: COMO Computer & Motion GmbH
A Focus Enhancements Company
Lise-Meitner-Str. 15
24223 Raisdorf / Germany
www.focusinfo.com

Clipping to a Belt



A belt mount clip is included with the DR-HD100. This mount is similar to those used with cellular telephones. Attach the belt mount to the belt clip post on the rear of the DR-HD100 and push it down to lock it in position. The belt clip can ratchet to various positions when attached to a belt.

DR-HD100 Functions

This section contains information on the following LCD displays:

General Screen Information	52
Record Screens	57
HDD Mode Screen	62
Format Screen	65
HD Format Screen	66
Setup Screens	67
Functions Screen	77
Utilities Screen	82
Control Screen	97

DR-HD100 screens are organized in a flat hierarchy. Every screen has a unique name, and it is possible to cycle continuously through the screens using the **Left** and **Right** navigation buttons.

Use the **Up** and **Down** navigation buttons to cycle through screen items (selections).

Use the **Select** Navigation button to make a choice.

Note

Navigation Tip: Jump to Top of Display Using the Left Button

When navigating through the LCD displays and scrolling down into the menu, press the **Left** navigation button on the front panel and immediately return to the top of the display, which allows navigating to other displays.

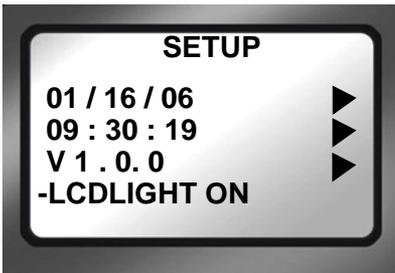
Jump to Home display Using Select Button

To return immediately to the Home Screen, navigate to the menu title at the top of the screen and press the Select button.

General Screen Information

The DR-HD100 LCD displays are organized by function with each screen displaying a list of items. An item can be:

- A value that can be set, such as the date.
- A switch similar to a check box, that can be enabled along with other options in the display.
- A switch similar to a radio button, that belongs to a family of options, in which only one can be active at any time.
- A link to another display, which is indicated by a ►.



Menu Title

Appears at the top of the display and identifies its topic or function.

Navigation

Use the **Left** or **Right** navigation buttons to move to the previous or next display.

Use the **Up** and **Down** navigation buttons to move between the items in the display.

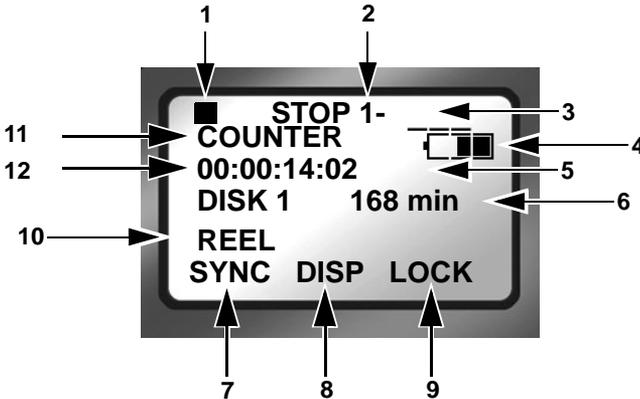
Welcome Screen

The Welcome screen appears briefly after boot-up, and automatically switches to the Home screen when the DR-HD100 is ready for operation.



Home Screen

The Home screen is read only and has no navigable items. To leave the Home screen use either the **Left** or **Right** Navigation button.



1. Current Function: Symbol and Description
Refer to "LCD Display Symbols and Text" on page 101.
2. Volume Disk Number
The volume number is always **1** unless multiple DR-HD100's are connected, refer to "USE EXT DR-HD" on page 63.
3. Clip Number
Number of the current video clip, i.e. 001 for clip 1.
The system can hold a maximum number of 999 clips.
4. Battery Life Gauge
This gauge is accurate only when the unit is powered exclusively from the battery.
5. Timecode Value
Either Drop Frame - 00;00;00;00 or, Non Drop Frame - 00:00:00:00.
6. Time remaining on the disk.
7. FA Functions with **SYNC** as the default, refer to "Functions Screen" on page 77 for more information.
8. FB Functions with **DISP** as the default, refer to "Functions Screen" on page 77 for more information.
9. FC Functions with **LOCK** as the default, refer to "Functions Screen" on page 77 for more information.

10. Reel Display

In **Record** or **Playback** modes, this item displays the particular REEL that a clip is located in or, has been marked to. If in **PLAY FROM > REEL LIST** mode, the REEL appears in brackets for example, [REEL]. This area is blank if **NO REEL** has been selected.

11. **DISP** information field that displays data type.

12. **DISP** information field that displays current data.

DISP (display) Information Fields

Use the **DISP** function button to display current operation information fields 11 and 12. The data shown depends on the mode of operation, i.e. DV or HD Recorder.

Pressing the **DISP** button advances the display to the next category of information. Below is a table of the data types and data available with **DISP**.

Field Number	Data Type / Data Description
11	COUNTER
12	Shows frame count of current video clip during record or playback.
11	REMAINING
12	Record: counts down number of available frames remaining, as time, on a specific disk. Playback: displays time remaining of the current clip.
11	DV (NTSC or PAL) or HD (see note following table) The type of timecode displayed in HD RECORDER mode from this screen is defined by the HDV TC TYPE setting, see page 75.
12	Record: displays the external timecode value being generated by a camcorder or other device during a recording session. Timecode mode must be set to EXT TC for this function to operate, refer to "TIME CODE EXT, REC RUN, FREE RUN, REGEN" on page 71. Playback: displays the embedded DV timecode value in a particular track.
11	UB NTSC

- | | |
|----|--|
| 12 | Displays the set user bit value in a particular clip. A user bit value must be added for this to display, refer to “UB SET” on page 73. |
| 11 | ABSOLUTE |
| 12 | Displays an absolute timecode value for the particular session: the sum of all COUNTER timecodes on connected volumes.
Absolute is primarily used when setting the DR-HD100 to AV/C mode and controlling it with an external FireWire device, such as a computer. |

Note

DV (NTSC or PAL) and HD

The information displayed in fields 11 and 12 depends, in part, on which Recorder Mode is set.

DV RECORDER

Line 11 displays the Standard Definition (SD) video format. It can not be changed.

HD RECORDER

Line 11 displays the HD resolution of the current track which depends on the camcorder in use with the DR-HD100 HD unit. Possible values are:

- 1080/50i TC
- 1080/60i TC
- 720/30p TC
- 720/60p TC
- 720/50p TC
- 720/25p TC
- 720/24p TC
- 576/50p TC
- 480/60p TC

Refer to the camcorder manual for supported resolutions.

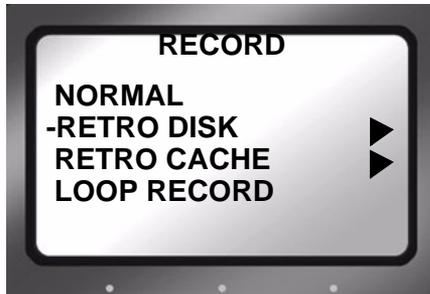
DR-HD100 System Information Screens

The DR-HD100 automatically creates information screens to indicate conditions such as high temperature, power remaining, or drive capacity remaining.



Press **OK** to clear the screen and return to the last screen.

Record Screens

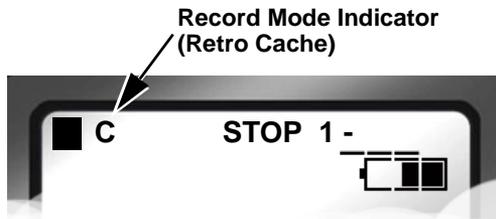


The Record screen permits setting the DR-HD100 to various recording modes, depending on the model:

- **NORMAL**
- **RETRO DISK**
- **RETRO CACHE**
- **LOOP RECORD**
- **SNAP** *DV modes only*
- **TIME LAPSE** *DV modes only*

Once a record mode is selected, the recorder remains in that mode until a different mode is chosen. Exiting the **Record** screen and returning to **Home**, enables the selected recording mode.

To verify that the digital recorder is set to the correct recording mode, refer to the upper left-hand of the Home screen where the recorder mode is displayed.



Symbol	Indicates
L	Retro Disk
C	Retro Cache
O	Loop Record
SNAP	Snap Record
T	Time Lapse

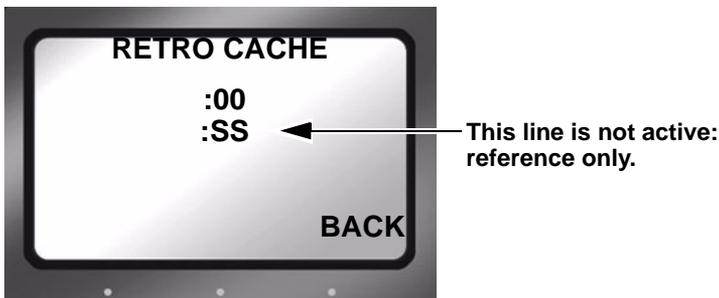
For more about LCD display symbols and text, see “LCD Display Symbols and Text” on page 101.

Normal Record

This is the standard recording mode.

- All control is from the DR-HD100 front panel. Initially, the **Home** screen displays **■ STOP**.
- Pressing Record ● puts the DR-HD100 into **II REC PAUSE** mode.
- Pressing Record ● a second time puts the DR-HD100 into **REC** mode.

Retro Cache Record Mode

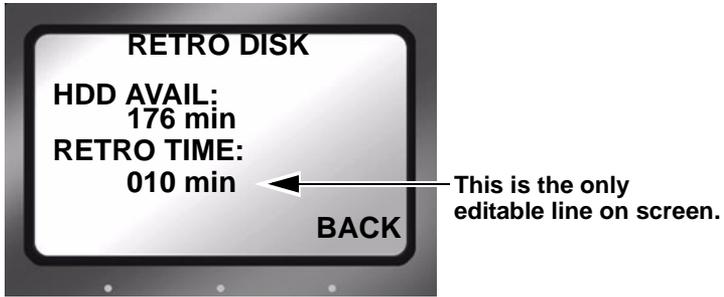


The Retro Cache mode insures that important material at the very start of a recording session is captured. Retro Cache stores in the on board memory a continuous loop of video captured by video camera during pauses. Pressing Record ● begins active recording at the last frame stored in the cache. The resulting video clip has the cached video at the beginning.

Retro Cache is available in **Local**, **JVC GY-HD**, **Syncro Slave**, and **External** control modes.

Set the length of video that the Retro Cache should store: 0 to 10 seconds.

Retro Disk Record Mode



The Retro Disk mode records video in a continuous loop to a user-defined portion of disk space. Pressing Record ● seamlessly begins active recording. The Retro Disk session is appended to the beginning of the new clip. The result is a set of clips beginning with the cached video and continuing with the newly recorded video.

- When calculating the amount of hard disk space needed for a Retro Disk record session, always include additional space beyond the recording requirements. The added space depends on the length of the loop.
 - Loops less than 60 minutes, need an additional 1 minute of unused disk space.
 - Loops 60 minutes and greater, require an additional 2GB of unused disk space.
- When looping less than one hour, Retro Disk records the loop in a series of 1 minute clips.
- Retro Disk is available in **Local**, **JVC GY-HD**, **Syncro Slave** and **External** control modes.
- When Retro Disk is set, the symbols ●L (Record and L) appear in the DR-HD100 display.

Loop Record

Loop Record is similar to Retro Disk.

Loop Record continuously records a series of video clips to available disk space. When all available disk space is used, Loop Record begins sequentially replacing the earliest clip with the most recent.

- The size of the video clip depends on the length of the loop.
 - Loops of 60 minutes or less are recorded in one-minute clips.
 - Loops greater than 60 minutes, are recorded in 2GB clips.
 - When the capacity of the disk is reached, one additional clip is created. The size of the last clip depends on the length of the loop i.e., one-minute or 2GB. The disk must have at least 30 minutes of disk space available for this functionality.

Saving Loop Record Clips

Press **STOP** during a record session.

The DR-HD100 stops recording and saves the current LOOP RECORD session clips to a folder on the disk.

Snap Record **DV modes only**

Use **Snap** to record individual frames. In Snap mode, pressing Record ● captures individual frames. All the frames recorded in the same session are stored in a single file.

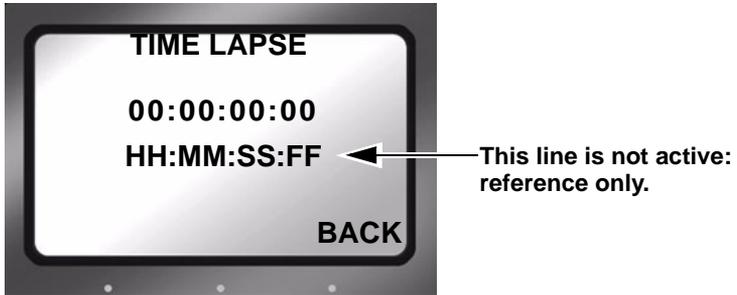
- To start a new **SNAP** record session, place the unit in **STOP** between **SNAP** records.
- Snap Record is available only in DV modes of operation.
- Use Snap in **Local**, **JVC GY-HD**, **Syncro Slave**, and **External** control modes.
- Removing power from the DR-HD100 in the midst of a Snap recording session causes the unit to return to Normal recording mode when it powers back up.

Note

Another Method to Capture Single Frames

An alternative to Snap is EXT CTL FRAME. For more information see "EXT CTL OFF, Pause, Frame, File" on page 70.

Time Lapse Record DV modes only

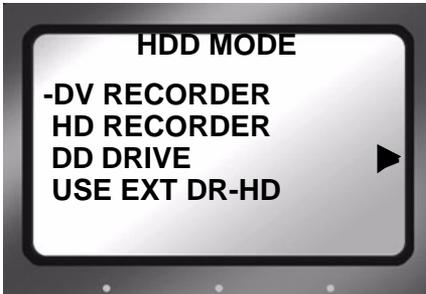


Time lapse provides the ability to record a single frame at specific time intervals, for example one frame per minute, 00:01:00:00. Time lapse applications can include capturing the traffic on city streets, the growth of a plant from seed to maturity, and construction projects.

Features of the Time Lapse function include:

- All the captured frames are recorded in a single clip.
- The time between recording periods can be set in frames, seconds, minutes, and hours.
- The maximum time between recorded frames is 24 hours.

HDD Mode Screen



This screen displays the following items:

- **DV RECORDER**

This sets the DR-HD100 as a DV recorder.

Connect the camera to the DR-HD100 DV I/O port using a FireWire cable.

- **HD RECORDER**

This sets the DR-HD100 as an HD recorder.

Connect the camera to the DR-HD100 DV I/O port using a FireWire cable.

Recording in this mode only works with HDV camcorders that have a 1394 FireWire connector and that support an HD resolution, such as 1080i or 720p.

Note

Switching Between Recorder Modes (DV and HD)

Switching between recorder modes resets the RECORDER mode to Normal, see “Normal Record” on page 58.

Power-cycle After Changing Recorder Modes

It is recommended that the DR-HD100 be power-cycled after switching RECORDER modes.

- **DD DRIVE** 

Use this option when connecting the DR-HD100 to a computer. The DR-HD100 functions as a volume visible to the computer. In addition, this setting permits the connecting of multiple DR-HD100s together to increase recording space.

- **USE EXT DR-HD**

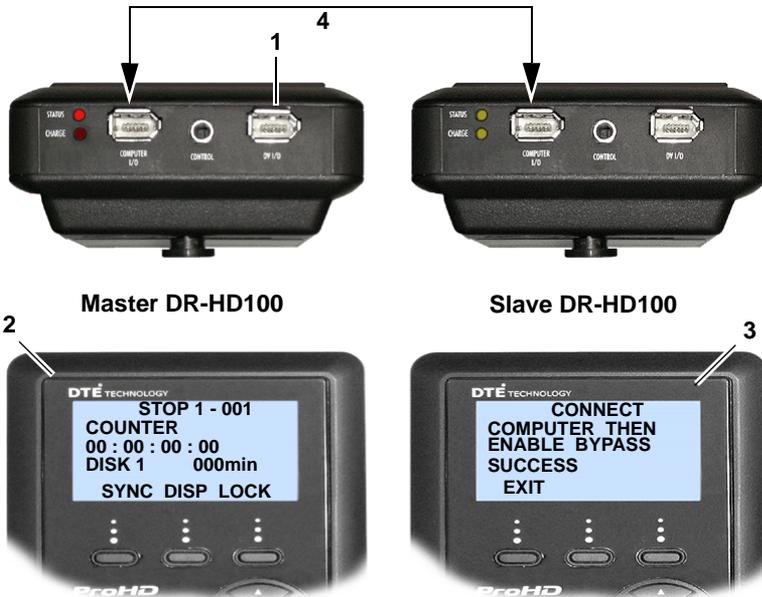
Use this option when longer recording times are needed. **USE EXT DR-HD** permits the connecting of two DR-HD100 together to provide more disk storage for longer recording. One unit acts as the master with the other as a slave: the master records to itself until full and then continues recording on the slave unit.

 **Note**

Identifying Master/Slave Volumes During Record/Playback

When two DR-HD100s are in combined via **USE EXT DR-HD** and in either **Record** or **Playback** mode, the volume on the Home screen will display 1-xxx when the master unit is recording or playing back and 2-xx if it is the slave.

Setting Up Master and Slave DR-HD100



- Step 1: Connect the camcorder to the master DR-HD, **DV I/O** connector using the supplied FireWire cable.
- Step 2: **Master**
Power on unit.
Go to the **HDD Mode** menu screen and enable **USE EXT DR-HD**.
- Step 3: Connect the DR-HD100s through the units **Computer I/O** connectors using a 6-pin to 6-pin FireWire cable.
- Step 4: **Slave**
Power on the unit
Go to the **HDD Mode** screen and enable **DD DRIVE**.
- Step 5: **Master**
Begin recording or playback using the master DR-HD100.

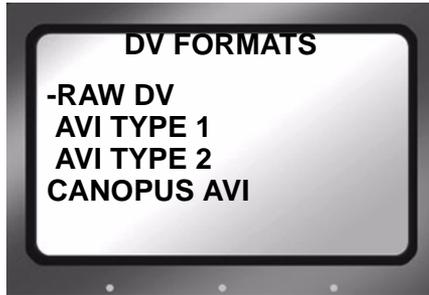


Use DD Drive Mode when Connecting to a PC

It is important to take the master DR-HD100 out of USE EXT DR-HD mode before attempting to connect to a computer. To do this, select DD DRIVE from the HDD Mode screen. This returns use of the unit to hard disk mode.

Format Screen

DV Formats



DV formats include:

- **RAW DV**
- **AVI TYPE 1**
- **AVI TYPE 2**
- **CANOPUS AVI**
- **MATROX AVI**
- **QUICKTIME**
- **AVID OMF**
- **QUICKTIME 24P (NTSC only)**
- **AVI TYPE 2 24P (NTSC only)**
- **PINNACLE**
- **MXF OPAAtom DR-HD100 2.0 upgrade only**

Note

Using Organize

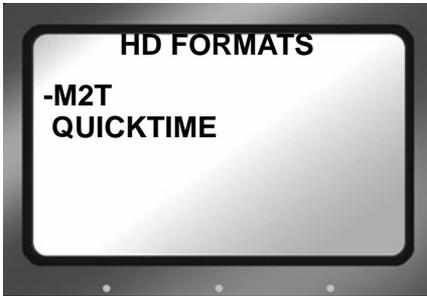
AVID OMF, MXF OPAAtom (2.0 only), and PINNACLE formats require using the Utilities functions, Organize OMF, Organize MXF, or Organize PINN respectively. Refer to the section, "Utilities Screen" on page 82.

Formats for 25P Applications

Use standard file formats for all 25P applications **except** AVID OMF. OMF is not compatible with 25P DV streams.

The latest DTE supported applications and file formats are listed on the Focus Enhancements website: www.focusinfo.com.

HD Format Screen

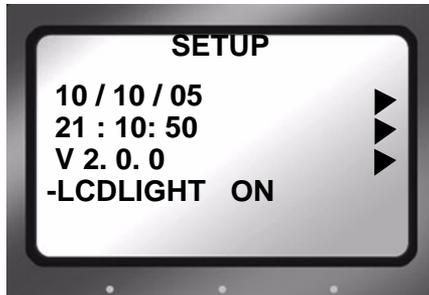


The DR-HD100 2.0 upgrade provides the additional HD DTE format QUICKTIME.

The latest DTE supported applications and file formats are listed on the Focus Enhancements website: www.focusinfo.com.

Check regularly for updates.

Setup Screens



The items on the Setup Screen are grouped by function. Within the function the items act like radio buttons, i.e. when one is active the others are not.

In some cases, such as the Date, a settings screen appears. To return from a settings screen, use the **BACK** function button.

The items displayed on the Setup screen include:

- **DATE** Displayed ▶
- **TIME** Displayed ▶
- **VERSION** Displayed ▶
- **LCDLIGHT ON** Group Default
- **LCDLIGHT OFF**
- **LCDLIGHT AUTO**
- **ALARM ON** Group Default
- **ALARM OFF**
- **STOP FRAME; (1st frame of current clip)** Group Default
- **STOP GRAY**
- **STOP NO VIDEO**
- **EXT CTL OFF** Group Default
- **EXT CTL PAUSE**
- **EXT CTL FRAME**
- **EXT CTL FILE**
- **TC EXT** Group Default

- **TC REC RUN** DV mode or 2.0 upgrade only
- **TC FREE RUN** DV mode or 2.0 upgrade only
- **TC REGEN** DV mode or 2.0 upgrade only
- **TC SET** ▶
- **UB SET** ▶

- **TC DROP** NTSC only
- **TC NON-DROP** Default, NTSC only
- **HDV TC TYPE HD** 2.0 upgrade only

- **LCD CONTRAST**

i Note

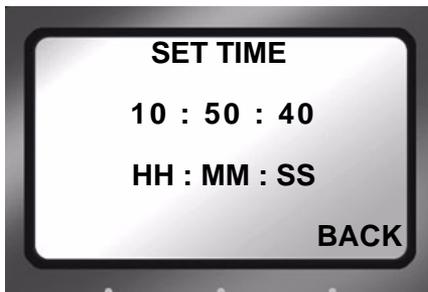
Date and Time Must Be Set

The date and time must be set. They are used in the DR-HD100 file naming function. Refer to "Set Time and Date" on page 27.

Date



Time



Version



This screen displays:

- DR-HD100 Firmware version
- SD video of the unit.
- DR-HD100 model

LCD Light On, Off, Auto

These items enable or disable the DR-HD100's LCD's backlight.

- **LCDLIGHT ON** Group Default
keeps the backlight on permanently.
- **LCDLIGHT OFF**
Keeps the backlight off permanently.
- **LCDLIGHT AUTO**
Turns off the backlight after one minute, pressing any button pad button turns the backlight back on.

Any information screen turns the backlight on.

Alarm On, Off

Default is **On**.

- When the alarm is enabled, pressing any button on the DR-HD100 produces audio feedback.
- The DR-HD100 alarm triggers when conditions such as low battery charge, low disk space, or over heating occur.

- When Alarm is set to **Off**, the audio feedback for the buttons is disabled, however the alarm will still sound for low power, high heat, or low disk space conditions.

Stop Frame, No video

These settings determine the DR-HD100 video output when using the search index keys to view recorded clips.

- **STOP FRAME DV only**
Displays the first frame of the clip.
- **STOP GRAY DV only**
Displays a black frame.
- **STOP NO VIDEO Group Default**
Video output is **Off**.

EXT CTL OFF, Pause, Frame, File

These options permit the use of an external device to control the DR-HD100 through the optional RS-232 cable.



RS-232 Cable Available from Focus Online Store

The RS-232 cable required to connect the DR-HD100 to an external control device is Focus part number **CBLA-0113-01**. It and other accessories mentioned in this manual are available at <https://www.focusinfo.com>.

- **EXT CTL OFF**
Use this option when connecting an external device using an RS232C cable.
 - This requires the use of a 3.5mm-to-DB9 adapter cable, plugged into DR-HD100 **Control** port.In Local mode, select this item to control the DR-HD100 with the optional wired remote control unit.

The following options permit control functions to occur from a simple contact closure.

- **EXT CTL PAUSE**
Controls **Pause** and **Resume** during a record or playback session.
- **EXT CTL FRAME DV Mode Only**
Captures a single frame of video and records it to a file. Each time this function is triggered, it sequentially adds another frame to the same file until stopped.

- **EXT CTL FILE**
Creates a new file during a record session without losing frames.

TIME CODE EXT, REC RUN, FREE RUN, REGEN

The DR-HD100 2.0 upgrade provides the additional functions **TC REC RUN**, **TC FREE RUN**, and **TC REGEN** in **HD RECORDER** mode. This functionality is only active when the **HD FORMAT** is set to **QUICKTIME**. In **M2T** mode, all TC modes act as **TC EXT**.

The following are timecode (**TC**) functions.

- **TC EXT** **Group Default**
Records the incoming source timecode. If the timecode is not running, the DR-HD100 records the same timecode number in each recorded frame. Choose **TC EXT** mode to clear any stored number.
- **TC REC RUN** **DV mode or 2.0 upgrade only**
In this mode, after a power cycle, the DR-HD100 starts its TC record count using the **TC SET** value. Later recordings add to the last value recorded. A power cycle resets the TC record value to the **TC SET** value.
- **TC FREE RUN** **DV mode or 2.0 upgrade only**
This function causes the DR-HD100 to begin counting from the value stored by **TC SET**.
 - A number entered through **TC SET** is not stored and available to the DR-HD100 until exiting **TC SET**. Only then does the DR-HD100 begin counting using that number.
- **TC REGEN** **DV mode or 2.0 upgrade only**
When the DR-HD100 powers up in **TC REGEN** mode, it:
 - Reads the timecode of the last track recorded.
 - Adds 1 to the number.
 - Stores the new timecode as the number that will be assigned to the first frame of the next recording session.

If the drive is empty, i.e. no existing recordings, the DR-HD100 uses the **TC SET** value.



TC SET and UB SET Can Be Set at the Same Time

Both parameters, TC SET and UB SET, may be set and are not mutually exclusive as in some groups, i.e. LCDLIGHT.

TC SET



The Timecode Set parameter stores a user defined timecode in the DR-HD100's non-volatile memory. This value is available for use by the DR-HD100 immediately after exiting **TC SET**.

- **TC FREE RUN**

The DR-HD100 uses this value on the next recording after it is set in **TC SET**.

- **TC REGEN**

This is the starting value when using an empty hard disk drive for recording.

- **TC REC RUN**

This is the value used to begin every recording session after a power cycle.

Note

The **TC SET** value is only actively applied when the unit is in DV RECORDER mode.

UB SET



The User Bit Set function provides the ability to change the user bits in the timecode recorded in the video files.

- Timecode values are not set when in **TC EXT** mode.

Professional applications employ user bits to add metadata to recordings to assist in post production. For example, multiple cameras are used during a shoot. Each DR-HD100 has a unique UB setting that identifies it and the camera it serves. Later, the user bits are used to determine from which camera station the footage was recorded.

Note

The UB SET value is only actively applied when the unit is in DV RECORDER mode.

TC DROP, NON-DROP NTSC only

These parameters are only available for NTSC and only one may be enabled at a time. Drop and non-drop enable and disable the drop-frame function that modifies how the timecode is calculated during recording. These options are only applied when the unit is in DV RECORDER mode.

- **TC DROP**

Enables the drop-frame function:

- Frames 00 and 01 are dropped from each minute of video recorded.
 - **Exception** The first minute of each hour is not dropped.
- **TC NON-DROP** Group Default

Disables drop-frame. No frames are dropped during recording and the timecode reflects the actual time during recording.

Note

Use with TC FREE RUN or TC REGEN

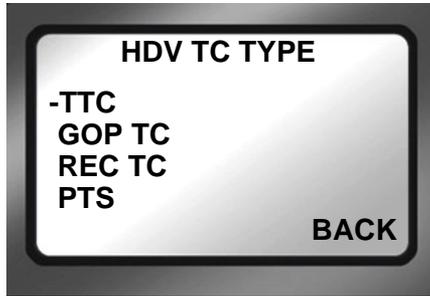
TC DROP and TC NON-DROP may only be set when using the TC FREE RUN or TC REGEN settings.

Type of Separator Indicates TC DROP or NON-DROP

The timecode displayed on the LCD indicates the TC DROP/NON-DROP mode by using either a semi-colon or a colon as a separator between hours, minutes, seconds and frames:

- DROP HH;MM;SS;FF
- NON-DROP HH:MM:SS:FF

HDV TC TYPE DR-HD100 2.0 upgrade only



This menu sets the source of the timecode displayed in **TC DISP** mode, while in HD RECORDER mode. In addition, this timecode is reported in AV/C control mode.

- **TTC (Title Timecode)**
- **GOP TC (Group of Pictures Timecode)**
- **REC TC (Recorded Timecode)**
- **PTS (Presentation Timestamp)**

Each NLE utilizes a different **HDV TC TYPE** for their workflow. The following table shows which HDV TC TYPE to use with a given NLE:

NLE	720p	1080i
AVID	GOP TC	TTC
FCP	TTC	TTC
Edius	TTC	TTC

Refer to the NLE's user guide for more information.

LCD CONTRAST

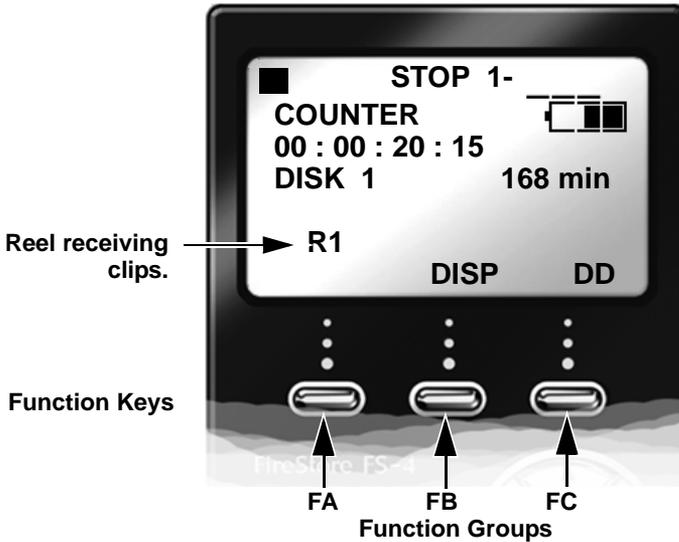


Use this function to adjust the contrast of the LCD display for easier viewing.

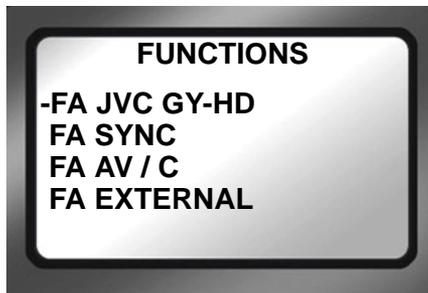
- Step 1: Use the **Right** navigation button to go to the **SET CONTRAST** submenu.
- Step 2: Use the **Up** and **Down** navigation buttons to increase and decrease the contrast number.
- Step 3: Press **BACK** when done.

Functions Screen

The Functions buttons FA, FB, and FC provide convenient Home screen shortcuts by acting as toggle switches for specific system settings. The Home screen below is an example of the information displayed.



Function settings are user-assignable and available in the Functions screen. Changing a setting with a Function button has the same effect as manually changing the setting.



- There are three groups of functions FA, FB, and FC displayed via the Functions screen.
- The function groups are independent of each other.
- In each group only one selection is active at a time.

Functions List

A list of the Function button menu is below. In each group, the default selection is listed first.

MENU	Appears on LCD as...
FA JVC GY-HD	JVC Toggles between JVC GY-HD and LOCAL control modes.
FA SYNC	SYNC Toggles between SYNCRO and LOCAL record control. Default
FA AV/C	AV/C (Toggles between AV/C and LOCAL control)
FA External	EXTL (Toggles between External TRIGGER and LOCAL control)
FA REELS	REEL Increments current reel number
FA R0-0	R0 Marks Current Clip to Reel 0,
FA R1-1	R1 Marks Current Clip to Reel 1,
FA R2-2	R2 Marks Current Clip to Reel 2,
FA R3-3	R3 Marks Current Clip to Reel 3,
FA R4-4	R4 Marks Current Clip to Reel 4,
FA R5-5	R5 Marks Current Clip to Reel 5,
FA R6-6	R6 Marks Current Clip to Reel 6,
FA R7-7	R7 Marks Current Clip to Reel 7,
FA R8-8	R8 Marks Current Clip to Reel 8,
FA R9-9	R9 Marks Current Clip to Reel 9,
FA LCD ON/OFF	LCD1/LCD0 LCD On/Off Toggle
FA LCD AUTO	LCDA/LCD0 LCD Auto On/Off Toggle
FA BLANK	No Function.
FB DISP	DISP (Toggles the different TC display modes) (Default)
FB ALARM	ALRM/MUTE Turns the DR-HD100 alarm on or off.
FB FILE	FILE (Toggles between normal and display of the file name)
FB REELS	REEL Increments current reel number
FB R0-0	R0 Marks Current Clip to Reel 0,
FB R1-1	R1 Marks Current Clip to Reel 1,

MENU	Appears on LCD as...
FB R2-2	R2 Marks Current Clip to Reel 2,
FB R3-3	R3 Marks Current Clip to Reel 3,
FB R4-4	R4 Marks Current Clip to Reel 4,
FB R5-5	R5 Marks Current Clip to Reel 5,
FB R6-6	R6 Marks Current Clip to Reel 6,
FB R7-7	R7 Marks Current Clip to Reel 7,
FB R8-8	R8 Marks Current Clip to Reel 8,
FB R9-9	R9 Marks Current Clip to Reel 9,
FB BLANK	No Function.
FC LOCK	LOCK/UNLK Locks the buttonpad (Default) - toggles between LOCK and UNLK <Unlock>
FC DV/DD	DD Toggles DR-HD100 between DV/HD and HDD Modes
FC REELS	REEL Increments current reel number
FC R0-0	R0 Marks Current Clip to Reel 0,
FC R1-1	R1 Marks Current Clip to Reel 1,
FC R2-2	R2 Marks Current Clip to Reel 2,
FCR3-3	R3 Marks Current Clip to Reel 3,
FC R4-4	R4 Marks Current Clip to Reel 4,
FC R5-5	R5 Marks Current Clip to Reel 5,
FC R6-6	R6 Marks Current Clip to Reel 6,
FC R7-7	R7 Marks Current Clip to Reel 7,
FC R8-8	R8 Marks Current Clip to Reel 8,
FC R9-9	R9 Marks Current Clip to Reel 9,
FC BLANK	No Function.

LOCK/UNLK

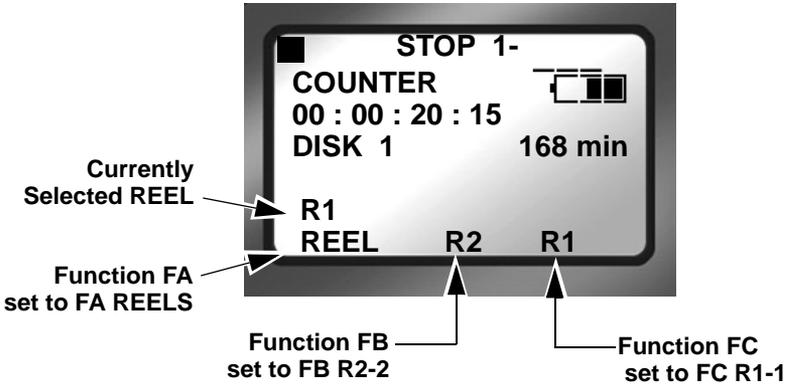
This function locks or unlocks the keys on the front panel of the DR-HD100.

To prevent the accidental unlocking of the front panel, there is unlock confirmation screen:



After pressing the **UNLK** key, press **SELECT** to unlock the front panel keys.

Assigning Clips to Reels



The function buttons are a quick way to mark video clips during recording. The Functions menu offers two types of markers to use, as an example **FA REELS** and **FB R2-2**.

- **FA REELS**

Selecting the FA REELS programs the DR-HD100 to mark the clips to the currently selected reel. The current reel is indicated in the line **above** the FA function reel selection.

- **FB R2-2**

Setting a function button to this type of marker, instructs the DR-HD100 to mark the current clip as belonging to the REEL R2.

Blank

Functions identified as Blank are inactive.

Utilities Screen



The Utilities available are:

- **ORGANIZE REEL**
- **ORGANIZE OMF**
- **ORGANIZE MXF** 2.0 only
- **ORGANIZE PINN**
- **DELETE CLIP** ▶
- **FORMAT** ▶
- **REPAIR DISK** ▶
- **REPAIR CLIP** ▶ DV mode only
- **FILE NAME** ▶
- **UPGRADE** ▶
- **SYSTEM RESET** ▶
- **DIAGNOSTIC** ▶
- **STATUS** ▶

Note

Organize Functions are Mutually Exclusive

Only one **Organize** utility can be applied to a set of files and once it is applied, the other organize utilities can not be used. For example, using the Organize OMF utility eliminates the ability to perform an Organize Reel.

Organize Reel

This selection places all files identified as a REEL clip during recording or playback into the appropriate reel folder. You can import this folder directly into most DV NLE bins.

Organize OMF

When files are recorded in the AVID OMF file format, this selection allows you to take all the OMF and AIF audio files at the end of a recording session and place them into a folder on the disk drive named **OMFI MediaFiles**. When the disk is connected to a computer, this folder is recognized by Avid Xpress DV's Media Tool enabling direct import of files into the Avid timeline. Refer to the section, "Using Avid OMF Clips (Required for DV mode only)" on page 42 for more information.

Organize MXF 2.0 upgrade only

When utilizing MXF OPAtom with some NLEs, such as AVID Xpress Pro, it is necessary to do an **Organize MXF** before importing the clips.

The **Organize MXF**:

1. Moves all MXF video files into the **/contents/video** directory.
2. Moves all MXF audio files into the **/contents/audio** directory.
3. Updates and moves the xml files from the log directory into the **/contents/clip** directory.
4. Generates thumbnails of the clips in **/contents/icon** directory.

Organize PINN

This selection organizes clips for use with Pinnacle Liquid series NLE systems. Products such as the Pinnacle file format were created for use with products such as Pinnacle Liquid Edition. The Pinnacle file format creates three files simultaneously during a recording; an AVI video file and two separate WAV audio files labeled as left and right. An additional ALE file for each recording session is also created which contains timecode data. This file must be kept with the media.

Once clips have been imported into Liquid Edition, an Index file is created on the disk drive for each clip. Do not delete this file since it is required to continue work in the particular project.

Delete Clip



Use this item to delete a selected clip.

- Step 1: From the **Utilities** screen, go to the **DELETE CLIP** screen.
- Step 2: Enter the number of the clip to be deleted using the **Up** and **Down** navigation buttons.
- Step 3: Press the **YES** function key.
The selected clip is deleted.
- Step 4: Press **BACK** to return to the **Utilities** screen.

When a clip is deleted, the DR-HD100 re-organizes and displays the remaining clips in sequence. For instance, if there are three clips on the disk: 1-001, 1-002, 1-003. If clip 1-002 is deleted, the remaining clips are reorganized and clip 1-003 becomes clip 1-002. However the base file names are not affected.

Note

Use Delete Clip Sparingly

Using the delete clip can cause disk fragmentation that reduces disk drive performance and can impact both Playback and Record. To defragment the disk or if more disk space is needed:

- Transfer all content from the DR-HD100.
- Perform the **FORMAT** utility, see "Format Disk" on page 85.

Format Disk



Prevent lost frames due to file fragmentation by formatting the DR-HD100 before each recording session.



Save Files Before Formatting

The formatting process erases all data on the disk and is not reversible. Backup all files and clips on the DR-HD100 before formatting.

This selection formats the disk as follows:

- Step 1: From the **Utilities** screen, go to **Format Disk**.
- Step 2: Select **YES** to begin formatting.
A status screen displays progress of the formatting and at completion displays the message:
- **Complete** indicating Repair Disk was successful.
 - **Aborted** indicating that there were errors and the repair did not complete.
- Step 3: Press **BACK** to return to the **Utilities** screen.

Repair Disk



Use this function if a recording session does not complete properly and there is a question that the file may be damaged. For example, recording terminates due to a loss of power to the DR-HD100. Repair Disk scans the entire disk drive checking for and repairing file errors and incomplete files. When the file is repaired it can be used in the NLE system.

Note

Corrupted Files May Need More Repairs

After running Repair Disk some files may still need further work to restore them. In such a case, run the utility Repair Clip, refer to the following page.

To repair a disk:

- Step 1: From the Utilities screen, go to **Repair Disk**.
- Step 2: Select **YES** and the DR-HD100 begins repairing the disk. A status screen displays the progress of disk repair and at completion displays the message:
 - **Complete** indicating Repair Disk was successful.
 - **Aborted** indicating that there were errors and the repair did not complete.
- Step 3: Press **BACK** to return to the **Utilities** screen.
- Step 4: Move content from DR-HD100.
- Step 5: Use Format Disk utility before doing any further recording. This step optimizes disk storage, see “Format Disk” on page 85.

Repair Clip DV Mode only



Use this function to repair a specific file that may be damaged or incomplete. For example, recording terminates due to a loss of power to the DR-HD100 and a specific file may be damaged. Repair Clip scans the specified file checking for and repairing file errors and incomplete files. When the file is repaired it then can be used in the NLE system.

- Step 1: From the Utilities screen, go to **Repair Clip**.
- Step 2: Enter the number of the clip to be repaired, using the **Up** and **Down** navigation buttons.
- Step 3: Press **YES** and the DR-HD100 begins repairing the file. A status screen displays the progress of disk repair and at completion displays the message:
 - **Complete** indicating Repair Disk was successful.
 - **Aborted** indicating that there were errors and the repair did not complete.
- Step 4: Press **BACK** to return to the **Utilities** screen.
- Step 5: Move content from the DR-HD100.
- Step 6: Use Format Disk utility before doing any further recording. This step optimizes disk storage, see “Format Disk” on page 85.

File Name



This function displays a file name but does not permit changing it.

Step 1: From the **Utilities** screen, go to **FILE NAME**.

Step 2: Enter the file's clip number using the **Up** and **Down** navigation buttons.

The base filename is dynamically displayed as a function of the clip number.

When a clip has multiple files, the first Base file name is displayed

Step 3: Press **BACK** to return to the **Utilities** screen.

Upgrade

Check Focus Enhancements website for upgrades and latest software updates, go to www.focusinfo.com.

To upgrade system software:

- Step 1: Set the DR-HD100 to **DD Drive** mode from the **HDD Mode** screen and connect it to a computer.
- Step 2: On your computer, rename the XXX.bin file as **dr-hd.bin**.
- Step 3: Copy or drag the dr-hd.bin file to the DR-HD100 while it is in **DD Drive** mode.
- Step 4: Exit the DR-HD100 from **DD Drive** mode and navigate to the Utilities screen.
- Step 5: From the Utilities screen, go to Upgrade.
- Step 6: Press **Right**. The following screen appears.



- Step 7: Press **Select**.
- Step 8: A confirmation screen appears: press **YES** to continue. A status screen displays the progress of the upgrade.



Step 9: Upon successful completion of the upgrade, the DR-HD100 displays the message:



Step 10: Hold down the **STOP / POWER OFF** button until the DR-HD100 shuts down.

Step 11: Power up the DR-HD100.

Upgrade Errors

If the upgrade fails, the DR-HD100 displays one of the following messages:



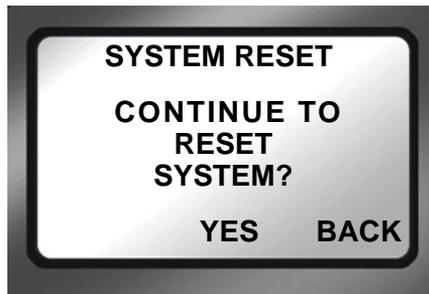
Verify that the update is for the model of DR-HD100 it is being installed on. An update is not cross-platform and must be installed on the model for which it is intended.

To find the specific model of a DR-HD100 go to the **SETUP** screen and then version (**V 1.0.0**), refer to “Setup Screens” on page 67.



Verify that the upgrade file name is dr-hd.bin and that it is in the DR-HD100 hard drive's root directory.

System Reset



The System Reset feature restores the factory default settings for the DR-HD100 unit. This feature is useful for diagnosing problems with the unit.



System Reset

A System Reset can not be reversed.

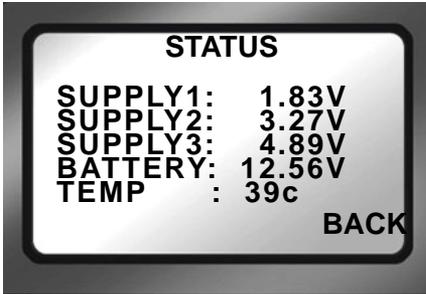
Diagnostic



DO NOT CHANGE THE SETTINGS OF THIS FUNCTION

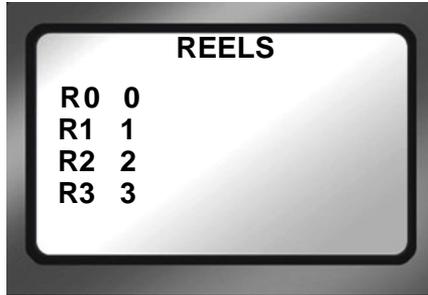
This function is included to assist Focus Enhancement Technical Support diagnose problems that may occur with the DR-HD100.

Status



The DR-HD100 Status screen provides details of the systems power state as well as internal temperature. This screen may assist Focus Enhancements Technical Support in determining power and thermal problems with your unit.

Reels Screen



When a disk is formatted, the DR-HD100 creates 10 folders, numbered 0-9, on the disk. During recording or playback of a clip, it is possible to place it into folders or play it from up to 10 different reels.

These folders can have any name up to 10 characters in length. To name the folders it is first necessary to enter **DD Drive** mode and mount the DR-HD100 to a computer.

Placing a Clip in a Reel

From the Reels screen, choose the Reels as follows:

Step 1: From the Utilities screen, go to Reels screen.

Values include:

- FA R0-0 **Default Value**
- FA R0-0 through R9-9 "Reel Name"

Step 2: Select a reel from the list.

When selecting a REEL from this screen, the current track is marked with that REEL number. This can be done in any mode: record, stop, or playback.

Each of the function keys can be set to specific reel, making it possible to quickly switch between multiple reels: a total of three reels being the maximum. Refer to "Functions Screen" on page 77 for more information.

Using a Wired Remote Control



When using the optional wired remote control, use the button pad numbered 0-9 to mark the clips. Any additional button presses during a recording or playback, changes the selected REEL. Once a session is finished, select **ORGANIZE REEL** in **Utilities** screen. The marked clips are placed in the REEL in sequential order.

When a reel is selected, the Home screen menu displays the reel's name on the left side of the second to the last line of the screen, refer to "LOCAL" on page 97.

Note

Optional Wired Remote Control (p/n ACSS-0019-01)

To order the Wired Remote Control, go to Focus Enhancements website, www.focusinfo.com.

Play Screen



- **Play Clip**
In this mode, the DR-HD100 plays the selected clip from start to finish when you press the PLAY button. At the end of the particular clip, the DR-HD100 pauses.
- **Loop Clip**
In this mode, the DR-HD100 plays the selected clip from start to finish. Immediately after completing the clip, the DR-HD100 begins playing the clip again without a pause. It stays in this state until stopped.
- **Loop All**
In this mode, the DR-HD100 plays the entire contents of the disk (all clips), in order, from start to finish. At the end of the last clip, the DR-HD100 begins to play from the beginning of the first clip again without a pause. It stays in this state until stopped.
- **Play All**
In this mode, the DR-HD100 plays the entire contents of the disk (all clips) in order, from start to finish. At the end of the last clip, the DR-HD100 pauses.

Play From Screen



This screen permits the selection of from where clips playback. There are two choices:

- **Track List**
Clips playback in the order in which they were recorded. Playback order is based on the order of the file names.
- **Reel List**
Clips in a selected folder are played back. This function provides the ability to choose between any folders on the disk. Folders can appear with their user assigned folder name (if used).

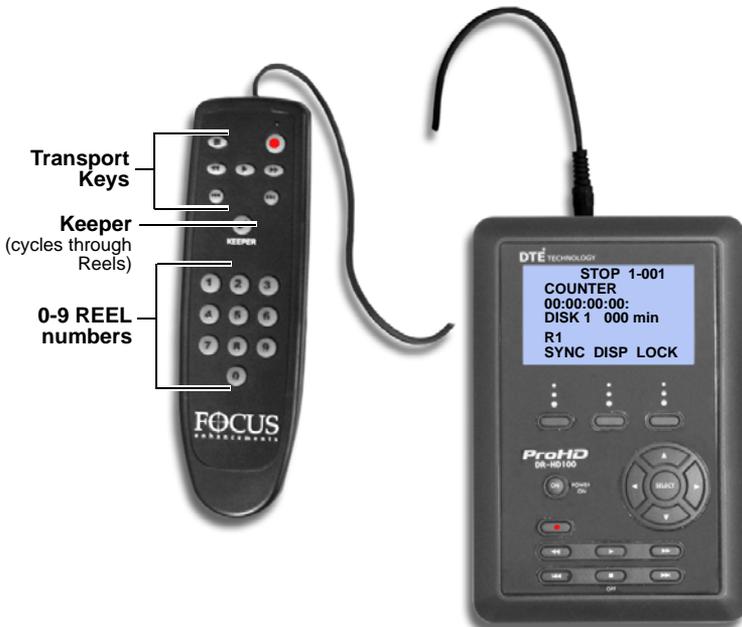
Control Screen



The Control screen provides the capability of enabling the DR-HD100 to operate in five different control modes during record and playback.

- **LOCAL**

Local control mode ignores record triggers from the camcorder and is controlled exclusively from the DR-HD100 front panel or the optional wired remote control unit.



- **Transport** keys have the same functions as on the DR-HD100.

- Use the **Keeper**  key to cycle through the available Reels. For example, if the current Reel selection is 3, pressing **Keeper** changes the selection to Reel 4.

To purchase the wired remote control, p/n **ACSS-0019-01**, for the DR-HD100, visit Focus Enhancements web site at www.focusinfo.com.

- **JVC GY-HD**

The JVC GY-HD control setting is the preferred mode when using the companion GY-HD camcorder. See page 32 for more information about using the JVC GY-HD control mode.

- **Syncro Slave**

Use this mode when the camcorder does not have DR-HD100 compatible external control or the tapeless trigger functionality. In **Syncro Slave** control mode, the DR-HD100 mimics the camcorder's operations by monitoring the camcorder's tape record state.

- **AV/C**



Do Not Use AV/C control in Record Mode

Use AV/C in playback mode and other situations where the DR-HD100 is controlled by an external FireWire device such as a NLE system that is not supported by Direct To Edit Technology. In these cases, the DR-HD100 can be used in a manner similar to a camcorder to capture footage to the NLE. In AV/C control mode the TC value reported to the controller or NLE is the value displayed on the Main menu. Pressing the **DISP** changes the source of the TC. The **DISP TC** mode selects the TC embedded in the DV/MPEG-2 stream. When in **HD RECORDER** mode, and the **QUICKTIME HD FORMAT** is selected, the type of timecode reported is defined by the **HDV TC TYPE** setting, see page 75.

- **External**

The External Control mode allows the DR-HD100 to be controlled from a camcorder other than the JVC GY-HD, if it features a DR-HD100 compatible external control setting separate from the tape transport.

 **Note**

Camcorder Requirements for External Control Mode

External Control mode will not work unless it is supported by the camcorder and the camcorder is placed in this external control mode. Please check your camcorder manual for more details.

LCD Display Symbols and Text

The table below shows the different symbols and states displayed on the top line of the LCD when used with different DR-HD100 control, record, play and stop modes:

PLAY/REC MODE	DR-HD100 LCD	CAM EVF/LCD
Stop	STOP	S white *
Pause	II PLAY	P blink white *
Play	▶ PLAY	P white *
Rec (Pause)	II REC	see table next page
Normal Rec (Rec)	REC	see table next page
Retro Disk (Stop)	L STOP	S white *
Retro Disk (Standby)	L REC	L blink red
Retro Cache (Stop)	C STOP	S white *
Retro Cache (Standby)	C REC	C blink red
Loop Record (Stop)	O STOP	S white *
Loop Record (Rec)	O REC	O red
Loop Record (Standby)	II O REC	O blink red
Snap (Stop)	STOP	S white *
Snap (Standby)	II SNAP	G blink red
Snap (Rec)	II SNAP	G red

PLAY/REC MODE	DR-HD100 LCD	CAM EVF/LCD
Time Lapse (Stop)	STOP	S white *
Time Lapse (Pause)	II T REC	T blink red
Time Lapse (Rec)	O T REC	T red
AV/C* (Stop)	A STOP	S white *
AV/C* (Rec Pause)	II A<REC TYPE>REC	R blink red
AV/C* (Rec)	A<REC TYPE>REC	R red
AV/C* (Play Pause)	II A PLAY	P blink white *
AV/C* (Play)	A PLAY	P white *
JVC GY-HD (Pause)	II J<REC TYPE>REC	see table below
JVC GY-HD (Rec)	J<REC TYPE>REC	see table below
Syncro Slave (Pause)	II Y<REC TYPE>REC	
Syncro Slave (Rec)	Y<REC TYPE>REC	
External (Pause)	II E<REC TYPE>REC	
External (Rec)	E<REC TYPE>REC	

* There is no CAM EVF/LCD Status Display when the GY-HD camera is in VTR mode.

AV/C* Only for use when the DR-HD100 is connected to a computer system.

GY-HD Camera's 1394 REC Trig Mode

GY-HD REC TRIG Mode	Record State	CAM EVF/LCD
Off	REC REC Pause	R red R blink red
Syncro	REC REC Pause	Y red Y blink red
Split	REC REC Pause	R red R blink red
Series	REC REC Pause	F red F blink red

Technical Specifications

Specifications are subject to change.

Physical Description

- Dimensions: 1.59" x 5.6" x 3.74" (40mm x 142mm x 95mm)
(with normal 90 minute Battery)
- Weight: 1 lb. (.45 kg)

Input/Outputs

- DV Video I/O - 25Mb/s (1x 6-pin IEEE-1394)
In HD RECORDER mode the unit accepts 720P and 1080i
MPEG video from specially equipped camcorders.
- FireWire Computer I/F - up to 400Mb/s (1 x 6-pin IEEE-
1394)
- GPI & RS-232C Control (1 x 3.5mm mini jack)

Power

- 15V DC, 7.5W
- Mini-jack power connector
- Custom Removable Li-ion Rechargeable Battery Pack (90
minutes estimated run-time)

Audio/Video/Timecode Specification

- 25Mb/s, 8-bit 4:1:1 (NTSC-DV) or 4:2:0 (PAL-DV) video (model dependent). The HD RECORDER mode supports 720p (24/25/30/50/60*) and 1080i (50/60) from HDV camcorders with a 1394 interface.

Note

* 720/50P and 720/60P are not supported in the HDV QUICKTIME HD format mode, as these resolutions were not supported in FCP at the writing of this manual.

- DV Embedded Timecode (Drop or Non-Drop)
- DV audio: embedded 2-channel (16-bit, 48kHz) or 2-channel (12-bit, 32kHz) Audio. 4-channel (12-bit, 32kHz) is available for RawDV format only.
- HD audio: MPEG1 Audio Layer II.

DTE File Formats

- DV mode: Raw DV, AVI Type 1, AVI Type 2, Matrox AVI, Canopus AVI, QuickTime, AVID OMF, AVI Type 2 24p (NTSC only), QuickTime 24p (NTSC only), Pinnacle
- HD mode: M2T

Disk Information

- Internal Disk Type: 5400RPM, 8 MB cache.
See www.focusinfo.com for available hard drive capacities.
- Disk Format: FAT32
- DR-HD100 compatible with Windows 98SE, ME, 2000, XP and Mac OS9/10.

DR-HD100 2.0 upgrade only

- MXF OPAAtom (DV)
- QUICKTIME (HD)

Log Files

With each recording of a particular clip on a disk, the DR-HD100 creates a text log file to identify information about the recorded clip and the recording session. Information includes:

- Clip name
- Clip in/out source TC values
- Clip duration
- Clip type (record file type).

The log file also identifies when the shock cache becomes low and when disk or other errors occur during a recording.

Error Messages

Error messages may appear on the DR-HD100 LCD display from time to time. The purpose of these messages is to alert you to action that may effect your DR-HD100 operation. Below is a list of error messages and actions you can take:

Error Message	Description	Action
LOW BATTERY!	Battery power is low.	Connect AC Power or replace the battery pack. When the unit is run without the battery installed, this warning can be displayed, that is normal.
HIGH TEMPERATURE!	The unit is getting too hot for normal operation.	Make sure the vent and fan intake holes are clear.
NO SPACE LEFT!	The Disk Drive is Full.	Transfer files off the drive and format it before attempting to do more recording.
DISK ERROR XXX	Lost Disk Communication.	Contact Focus Enhancements Technical Support.
NO DISK DETECTED	Lost Disk Communication.	Contact Focus Enhancements Technical Support.
WRONG PRODUCT ID	Incorrect Software Loaded.	Download correct software and perform upgrade again.
FILE NOT FOUND	Wrong filename or missing file.	Check filename or that upgrade file exists.
TRK LIMIT MAX!	999 clips exist on system.	Copy content from DR-HD100 hard drive and re-format.

Warranty

- 2 years, DR-HD100
- 90 Days Accessories including the battery.

Temperature

- Operating: 0-40° C (32 - 104° F)
- Operating humidity: 30% to 90% RH
- Storage temperatures: -20 to 60° C (-4° to 140°F)
- Storage humidity: 85% RH or less

Compatible Camcorders and Accessories

For a list of tested camcorders, refer to www.focusinfo.com.



Part Number: MANL-0995-08