FOCUS
enhancements

MR-HD100
Media Recorder

User Guide

MANL-1144-02

LEGAL NOTICES

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Serial Number

The serial number for this equipment is located inside the unit, in the battery compartment. Please record this serial number and keep it in a secure area.

Regulations and Safety

Focus Enhancements, Inc.
1370 Dell Avenue
Campbell, CA. 95008

Model Number: MR-HD100 Media Recorder

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

Batteries

BATT-0012-01LF
(Accessory Part Number: ASYF-1323-01LF)

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

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 actions:

- 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.

Compliance

MR-HD100 is a device marketed for use in industrial or business environments. The MR-HD100 complies with the regulations the following testing agencies:

Australia and New Zealand

European Union

Safety

Symbols

Power Supply Only

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

In the MR-HD100 Documentation

Caution Title
This symbol indicates important operating or maintenance (servicing) information that the user should read and understand.

Note Title
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.

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 MR-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.

Ground Loop WARNING:

To avoid earth or ground *loops*, insure that all equipment connected to the MR-HD100 share a common ground. Use a single, grounded outlet strip as opposed to separate outlets with the possibility of different ground potentials.

Lightning and Power Surges

During electrical storms or when left unattended and unused for long periods of time, unplug the MR-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.

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

- Avoid moisture, dust, extreme heat or cold.

Table of Contents

Introduction

Thank you for purchasing a Focus Enhancements' MR-HD100 Media Recorder. Designed specifically for use with JVC GY-HD series Pro HD camcorders, the MR-HD100 combines powerful, industry leading Native File Recording with the ability to add metadata to clips in non-linear editing (NLE) and media asset management (MAM) native formats while you shoot. MR-HD100's small size and powerful feature set make it ideal for DV and HDV camcorder owners.

Native File Recording Eliminates Pre-edit Processing

The MR-HD100 Native File Recording eliminates the need to capture, transfer or convert video clips before editing. The MR-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 1394 interface. 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.

Assign Custom Metadata on the Fly

With the MR-HD100, you can personalize and optimize workflow—while you shoot. With your wireless handheld device or laptop, you can access the MR-HD100 through a browser, define metadata, and assign it to video while you're recording, eliminating the need to tag footage when the shoot is over. During postproduction, simply transfer clips—complete with metadata—from the MR-HD100 to your NLE system or PX Media Server. All of the information that you assigned during the shoot goes with the clips, saving you hours or even days of logging time.

Unpacking

Verify that the MR-HD100 has the following items:

1.	MR-HD100 unit	
2.	Li-Ion battery pack	BATT-0012-01LF (Accessory Part Number: ASYF-1323-01LF)
3.	Power adapter with connector cable.	PWRS-0038-03
4.	Cable, power (If required for included power supply.)	
5.	Cable, USB, 2.0, A-A	CBLA-0166-01LF
6.	Cable, Firewire, 6-pin to 6-pin	CBLA-0165-01LF
7.	Cable, Firewire, 6-pin to 4-pin	CBLA-0164-01LF
8.	WiFi dongle	ASYF-1343-01LF or ASYF-1344-01LF
9.	Camera mount cradle	ASYF-1342-01LF
10.	User Guide	MANL-1144

Note

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

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Email: support@focusinfo.com
Telephone: +1 763-398-1658

EMEA
Email: techsupport@como.com
Phone: +49 4307-8358-58
www.como.com - www.focusinfo.com

Features

The MR-HD100 offers the following features:

- **Direct To Disk Acquisition**

  Especially equipped camcorders permit the use of Native File Recording (NFR) Technology to record directly from a camcorder while shooting and without the need of a tape.

- **True NFR Technology**

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

DV25	HD
AVI 1 AVI 2 AVI 2 – 24p (NTSC mode) Canopus AVI Matrox AVI MXF OP Atom QuickTime QuickTime 24p (NTSC mode) RAW DV	M2T MXF * QuickTime **

* 720p30 and 1080i50/60 support only.
** 720p24/25/30/50 and 60 support only.

NFR includes support for HDV camcorders with 720p and 1080i MPEG-2 capabilities and equipped with a FireWire 1394 connection.

- **Fast and Efficient Editing**

  When shooting is finished, mount the MR-HD100 to a Mac or PC editing system like a typical USB hard disk drive. Transfer clips to your NLE's media drive at up to 480Mb/s or edit instantly in real-time using the MR-HD100 as your media source. Data transfer rates vary dpending on type of network and workload.

- **Confidence in Recording**

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

- **Compact, Lightweight, Rugged Design**

  The MR-HD100 weighs approximately 12 ounces (0.34 kg) including the battery and is only 1.25" (32mm) thick. You can mount the MR-HD100 directly to your camcorder using the optional camera mount kit. The MR-HD100 is designed to withstand the rigors of field shooting. The electronic shock cache ensures that video is always recorded even in the roughest of conditions.

- **Disk Utilities**

  Format, Delete Clip and Repair Disk/Clip.

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

  a. The MR-HD100 interfaces with the camcorder via FireWire.

  b. The MR-HD100 uses USB 2.0 to connect to either a computer or network devices (wired or wireless).

  c. When a tape is present in the camera, each press of the camcorder's record button creates an individual clip on the MR-HD100 disk.

  Some cameras allow the MR-HD100 to be triggered into record from the camera without the need for a tape. Check the latest camera / MR-HD100 compatibility chart on the Focus website.

  d. The MR-HD100 features a comprehensive backlit color display, menu system, scroll wheel and control buttons allowing for easy control and management of the unit and its contents.

No Video Playback Through Display

To preview video, place the MR-HD100 in play mode and connect it through its FireWire DV I/O connector to a camera.
The MR-HD100 does not provide video playback through its color display.

e. In addition, the MR-HD100 is upgradable in the field.

- **Flexible Capacities and Power**
  - **a.** The MR-HD100 hard drive provides hours of recorded content capacity. See www.focusinfo.com for the currently available hard drive capacities.
  - **b.** Power the MR-HD100 using:
    - Removable Li-ion battery pack supplied with the unit.
    - AC adapter supplied with the unit.
    - Accepts 11-18 volt DC input.
    - FireWire connection between the MR-HD100 and a computer via an active FireWire port with power. Using a 6-pin to 6-pin FireWire cable, it is possible to power the MR-HD100 and charge its battery.

FireWire Connection Is Not A Data Interface
Mounting the MR-HD100 to a computer is done exclusively through the USB2 interface.

- **Metadata**

  Fast and flexible metadata generation that includes the ability to log metadata using a wired or wireless USB 2.0 network adapter and a device with web browser capabilities (computer, laptop, PDA, etc.)
- **Multiple Control Modes**

  External, Normal, and Syncro -- coordinate control between camera and MR-HD100.
- **Multiple Timecode Modes**

  External or Internal Free Run, Rec Run or Regen.
- **Never Miss A Shot**

  MR-HD100's ten second Retro Cache 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.
- **HD NFR Formats**

  QuickTime, MXF (Avid) and M2T HD NFR.
- **Retro Cache Mode with 10 Second Cache**

  This mode insures that action at the beginning of video clip is not missed. In Retro Cache mode, the MR-HD100 is in a state similar to Pause, except that it is continuously recording video in a loop of user-defined length: up to 10 seconds. When active

recording starts, the MR-HD100 creates a new clip and seamlessly appends the Retro Disk session to the beginning of the new clip.

- **Retro Disk Mode**

  This mode insures that action at the beginning of video clip is not missed. In Retro Disk mode, the MR-HD100 is in a state similar to Pause, except that it is continuously recording video in a loop of user-defined length: from 1 to 392 minutes. The length of the loop depends on the amount of disk drive space available. When active recording starts, the MR-HD100 creates a new clip and seamlessly appends the Retro Disk session to the beginning of the new clip.

- **Scene Marking (Reels)**

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

- **Snap and Timelapse Record (DV Only)**

- **Universal Disk Format (UDF)**

  a. Large disk storage capacity through use of UDF.
  b. Single DV/HDV file recording times of up to 90 minutes.
  c. 720p50/60 QuickTime recording time 45 minutes.
  d. Automated new file creation at large file boundaries.
  e. Read Capability on Windows XP and Read/Write Capability on Mac OS 10.5 and Windows Vista
  f. FAT32 optional.

- **Wired or Wireless Networking**

  Set up and log metadata while shooting, through the MR-HD100's USB 2.0 interface. Mount the MR-HD100 on either wired or wireless networks using USB 2.0 wired or wireless (802.11b/g) network adapters provided with the MR-HD100.

  In addition, this permits the asynchronous file transfer of clips from the MR-HD100 to a NLE system or PX Media Server.

Overview of this Guide

This user guide is divided into the following chapters.

Quick Start

Quick Start provides the information necessary to start using the MR-HD100 as quickly as possible.

This chapter covers the topics:

Physical Description and Controls

Front View - Controls

Display

Active Display that shows menus and recording information, such as timecode, file format, metadata, and folder assignments.

Power

The **Power** key provides two functions.

1. **Power ON** MR-HD100.
2. **Power OFF**.

   Press the key to shut down. During power off, the MR-HD100 beeps, indicating that it is turning off.
3. **Reset**

   Is a function of turning off the MR-HD100.

Record / Play Controls

Use these keys to control MR-HD100 playback and record functions. Typically, these functions are used while on the **HOME** Screen.

Record ●

Press Record when the MR-HD100 is in **Stop** mode to start recording.

Note

Pressing Record Key During Record Mode
In all record modes, pressing the Record key while recording, causes the current clip to close and a new clip to start without dropping any frames.

Stop ■

While in the **Home** screen, and in any Record and Play modes, press the **Stop** key to Stop the MR-HD100 function. Refer to the section, **Setup Screens** on page 62 for more information.

Play ▶

Press this key to start playback of the selected clip.

Note

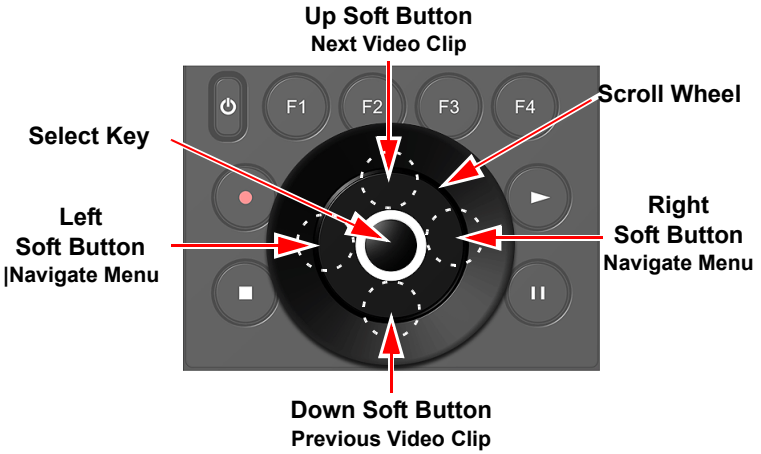
Some HD Camcorders Require a Moment to Synchronize
Some HD camcorders require a moment to synchronize the video from an external source. Typically during this period, they display a solid blue or black video until synchronized.

Pause

While in the **Home** screen, and in Record or Play mode, press **Pause** to temporarily halt the function.

Pressing **Pause** a second time resumes the function.

Scroll/Select Wheel and Soft Navigation Keys



Use the Scroll Wheel, Select and Soft buttons to navigate through the MR-HD100 menus. The navigation keys are **Left**, **Right**, **Up**, **Down**, and **Select**.

The soft buttons are areas on the Scroll Wheel where, when pressed, act like a key.

Note

Navigation Tips

When in any of the menus:

- Press the Left soft button to return to the top of the menu.
- Press the Select Key to return directly to the home screen.

Scroll Wheel and Select key

The Scroll Wheel has multiple functions.

- **Menu Navigation**
  Moving through the MR-HD100 menu tree.
- **Input Values**
  When selecting values for fields, use the **Scroll Wheel** to dial to an item in a list of options and the **Select** key to Exit input mode.
- **Return to Home Screen**
  When at the top of a menu, pressing the **Select** key returns the display to the Home screen.

Right Soft Button

To enter the menu, use either the **Right** or **Left** soft buttons.

Left Soft Button

When in a menu, pressing the **Left** soft button returns the display to the top of that menu.

When at the top of a menu, pressing **Left**, returns the display to the **Home** screen.

Up Soft Button / Next Video Clip

When in a menu, pressing the **Up** soft button moves the cursor upwards in the menu.

When in the Home screen, pressing the **Up** soft button advances to the next clip.

Down Soft Button / Previous Video Clip

When in a menu, pressing the **Down** soft button moves the cursor downwards in the menu.

When in the Home screen, pressing the **Down** soft button returns to the previous clip.

Function keys

Below the MR-HD100 LCD display are four user-defined function keys: **F1**, **F2**, **F3**, and **F4**. Use them as short-cut keys to select functions displayed at the bottom of the LCD screen and to assign metadata. The function of these keys changes, depending on the options displayed on the LCD.

Unit LEDs

Disk Activity

LED State	Indicates
Red - Flashing	Disk activity.

Battery Charge

LED State	Indicates
Off	Powered Off, Adapter Connected - No Battery
Green	Charging Cycle Completed
Green Slow Flashing	Charging (fast charge)
Green Fast Flashing	Charging (topping off battery)

Battery charge level is indicated by the color of the battery symbol in the LCD display:

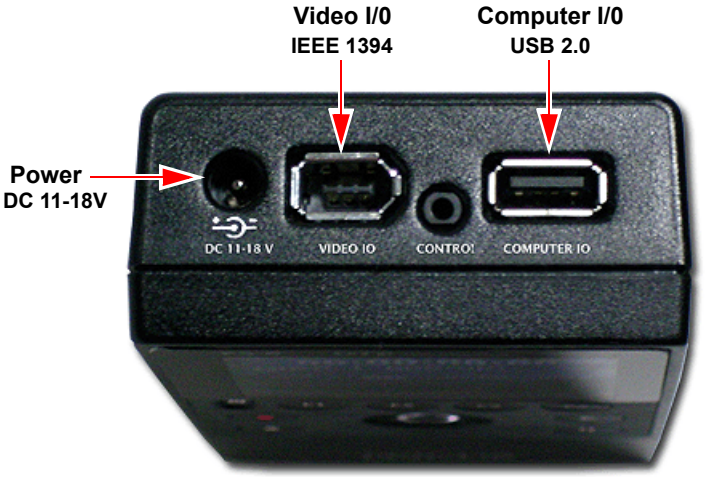
Green - 100% - 50%

Yellow - 50% - 25%

Red - 25% - 0

Low charge, recharge immediately.

Top View - Input/Output and Power Connectors



Power - 11-18V DC

The primary power input is through the **Power** connector and supplied by an external adapter unit. It is possible to plug in DC power inputs from 11 to 18 volts. This allows powering the MR-HD100 with professional battery power systems

Video I/O - IEEE1394 Camera FireWire Connector

- DV/HD Video I/O
- 6-pin IEEE-1394a connector
- Isochronous 19.8/25Mbp/s DV or HDV video I/O MR-HD100 supports 1080i/720p video I/O when used with HDV camcorders equipped with a 1394 connection.

Note

Powering the MR-HD100 Via the FireWire Connection
The MR-HD100 can also draw power for recording, playback, and battery charging operations though the FireWire IEEE 1394 connector. This requires an active Firewire connector with power and a 6-pin to 6-pin cable.
FireWire Is Not A Data Connection and it is Not Possible to mount the MR-HD100 to a computer using the FireWire connection.

DV Audio

Audio is embedded in the FireWire signal.

- **DV25**
  2-ch (16-bit, 48kHz)
  4-ch (12-bit, 32kHz) -- Available in the Raw DV NFR file format only.
- **HDV**
  2-ch MPEG 1, Layer 2

Not All Frame Rates Are Supported With All NFR File Formats.
Check the Focus website for the latest compatibility information: www.focusinfo.com.

Computer I/O - USB 2.0

The USB 2.0 connector is for all data (asynchronous) I/O:

- Connect with computers at up to 480Mb/s.
  Actual performance depends on type of network and network activity. Best performance is achieved when the MR-HD100 is connected to the computer's USB 2.0 port.
- Networks wired or wireless.

  Depending on the type of network, it is necessary to use an USB adapter: USB 2.0 to Ethernet or USB Wireless Network (802.11b or g) dongle.

  Network settings are made in the MR-HD100 System **Setup** menu, see **Network** on page 65.

  The MR-HD100 auto detects the type of connection being made provided it is set up correctly or in **HDD** mode.

Powering the MR-HD100

Connecting the MR-HD100 to AC Power

The MR-HD100 can operate with the battery installed or uninstalled while connected to the MR-HD100 power adapter.

To do this, connect the AC power as follows:

1. Plug the cord from the power supply into the **Power** connector of the MR-HD100.
2. Connect the line cord to the rectangular power supply.
3. Plug the line cord into an electric outlet.

Battery Operations

Before operation with battery power, it is first necessary to fully charge the battery.

Installing a Battery

1. Place the MR-HD100 so that the unit is face up.
2. Position the battery pack, so that the connector tab is on the upside.

   The connector tab must align with the power tab on the inside the MR-HD100.
3. Slide the battery forward, into the MR-HD100 until it latches.

   The MR-HD100 uses close tolerances to create a friction fit that holds the battery firmly in place.

Removing a Battery

1. Depress and hold the Release Buton on the MR-HD100's right side.
2. Give the MR-HD100 a light straight downward shake: the battery loosens and slides out.

Charging the Battery

The battery begins charging anytime the MR-HD100 is connected to the AC power adapter that is supplied with the MR-HD100.

Note

Charging Battery with FireWire Connection
The FireWire connection can provide power to the MR-HD100 for operation and battery charging.
The FireWire connection must be with a 6-pin to 6-pin cable to an active computer port with power.

Battery Data

- The preferred methods for charging the battery, are:

  Connect the AC adapter **with the MR-HD100** unit powered off. This protects the battery by reducing internal temperature.

  Connect the MR-HD100 to a computer through an active, powered FireWire port.
- The Battery Charge LED flashes whenever the MR-HD100 has both the battery and AC power installed. This indicates that the battery is receiving a charge.
- When the battery is charged, the battery charge symbol in the LCD is solid green.
- An uncharged battery takes 2-3 hours to charge with the unit powered off.
- The battery provided with the MR-HD100 can supply power to the unit for a maximum of 3 hours while in continuous record or play modes. This time depends on LCD and key brightness and other devices attached to the unit, such as the wireless dongle.

Battery Use

Misuse can damage unit and/or cause injury such as burns if a conductive material like jewelry, keys, or beaded chains touch exposed terminals. Conductive material may complete an electrical circuit (short circuit) and become very hot. Use care in handling 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.

Low Battery Power During Operation

If during operation, the MR-HD100 senses that the battery charge is low resulting in a low voltage condition, the unit alerts the user with warning beeps -- less than 3% charge remaining -- and then powers down in an orderly manner, protecting the stored video clips and metadata.

Power From External DC Battery Devices

The ability to charge the MR-HD100 battery when operating using an external DC battery device is dependent on the load placed on the MR-HD100.

Consider the following when using external DC battery devices to power the MR-HD100. The typical external DC power source for the video device is 12V or 14.4V.

Power Consumption Tables

No Battery Installed - no charging current

Volt- in	No Dongle	with Linksys Dongle	Notes
14.4 V	0.238A (3.42W)	0.328A (4.72W)	idle-LCD/Backlight at max
12.0V	0.285A (3.42W)	0.398A (4.77W)	idle-LCD/Backlight at max

Battery Installed - partially discharged, full charging current

Volt- in	No Dongle	with Linksys Dongle	Notes
14.4 V	NA	0.608A (8.75W)	Record Mode-LCD/ Backlight at max
14.4 V	0.525A (7.6W)	0.575A (8.25W)	record for 1 hr., internal T=56 deg.C

Operation

When operating the MR-HD100 at 12V rather than 14.4V, the power consumed remains the same, but the current draw increases by a factor of 1.2 (14.4/12.0).

The Linksys dongle uses approximately 1.35W. This represents about 30% of the power budget when not charging the batteries.

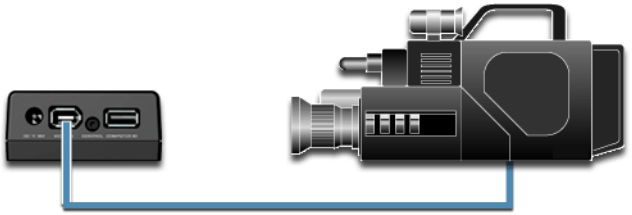
When charging the batteries, the MR-HD100 applies as much power as possible to the battery, up to a limit of about 1A charging current. However, the overall power system limits the total amount of current consumed to about 0.6 A maximum based on the 15V input adapter.

The result is that when a big load is added, such as a discharged battery and the dongle, the MR-HD100 automatically reduces the amount of the charging current so that the total current through the adapter never exceeds approximately 0.6 Amps.

Connecting MR-HD100 to DV/HDV Camera

Before performing this procedure, make sure you have installed and charged the battery, see **Installing / Removing the Battery Pack** on page 20.

1. Connect the supplied FireWire, 1394, cable to the DV I/O connector on the top of the MR-HD100.



1. 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

MR-HD100 Supplied with Two FireWire Cables
The MR-HD100 is provided with both 4-pin to 6-pin and 6-pin to 6-pin FireWire cables.
Check to see which type the camcorder requires.

2. Connect the other end of the FireWire, IEEE 1394, cable to the video camera.
3. Turn on the camera.
4. Turn on the MR-HD100.

MR-HD100 User Interface

The MR-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 soft buttons on the Scroll Wheel.

For more information on each function, go to the chapter **MR-HD100 Functions** on page 77.

Note

Returning to the Top of the Menu or to Home screen

To get to the top of any menu, press the **Left** soft button.

To get back to the Home screen:

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

Main Screen	Feature	Option	Selection
WELCOME	Only appears for a few seconds on power up.		
HOME	Gateway screen for all functions, it displays disk and operational status.		
OPERATION	**For more information see OPERATION Screens on page 83.**		
	MODE		
		REC/PLAYER	
		HDD **(mount to computer function)**	
	CONTROL	NORMAL EXTERNAL SYNCRO	
	REC MODE	NORMAL RETRO CACHE RETRO DISK SNAP **(DV mode only)** TIMELAPSE **(DV mode only)**	
	REC FORMAT		
		DV HDV	
	NFR FORMAT	Depends on REC FORMAT setting.	
		DV	Raw DV AVI Type1 AVI Type2 Canopus AVI Matrox AVI Quicktime MXF
		HDV	M2T QUICKTIME MXF
	TIMECODE	TC EXT TC REC RUN TC FREE RUN TC REGEN	

Main Screen	Feature	Option	Selection
SYSTEM SETUP	**For more information see Setup Screens on page 42.**		
	DATE		
	TIME		
	LCD	ON OFF AUTO	
	LCD BRIGHT	1 through 16	
	KEY BRIGHT	1 through 16 **(Does not include Scroll Wheel)**	
	ALARM	ON/OFF	
	STOP	FRAME GRAY NO VIDEO	
	EXTL CTL	OFF PAUSE FRAME FILE	
	TC SET		
	UB SET		
	TC MODE	DROP NON-DROP	**(If MR-HD100 in EXT TC, TC Mode has no effect.)**
	RETRO CACHE	0 to 10 seconds	
	RETRO DISK	0 to 392 minutes (Based on 100GB drive, other models may vary.)	
	TIMELAPSE	Set duration between single frame captures. **(DV mode only)**	
	PLAY MODE	PLAY ALL PLAY CLIP LOOP CLIP LOOP TRACK	
	PLAY FROM	PLAY TRACK PLAY REEL	
	UDF FS PERM	READ-ONLY READ-WRITE	
	NETWORK	DHCP MANUAL **(When DHCP is set, IP ADDR, IP MASK, BROADCAST, and GATEWAY are assigned by the host router.)**	
	IP ADDR	Manual or DHCP.	

Main Screen	Feature	Option	Selection
	IP MASK	Manual or DHCP.	
	BROADCAST	Manual or DHCP.	
	GATEWAY	Manual or DHCP.	
	ESSID	Set manually.	
	KEY	Set manually **(WEP encryption only.)**	
	WIFI MODE	MANAGED ADHOC (P2P)	
	FTP	DISABLED ENABLED **(Default ftp://FS:FS@ipaddress)**	
	FTP PASS	Sets FTP password for FTP function.	Default is FS.
	WEB	DISABLED ENABLED	
	AUTO ORG	DISABLED ENABLED	
	AUTO MARK	DISABLED ENABLED	
	REELS PREF	FOLDER TEMPLATE	
FUNCTIONS	**Contains user definable function key selections. Changing a setting with a Function key is identical to changing the setting in its corresponding menu.** **Refer to Functions Screen** on page 47 **for more information.**		
	F1	SYNC EXTERNAL LCD SET REELS R1-1 etc., see Reels on page 89.	
	F2	DISP ALARM FILE REELS R1-1 etc., see Reels on page 89.	
	F3	DV/DD REELS R1-1 etc., see Reels on page 89	
	F4	LOCK REELS R1-1 etc., see Reels on page 89	

Main Screen	Feature	Option	Selection
UTILITIES	**For more information see Utilities Screen on page 58.**		
	FORMAT		
	REPAIR DISK		
	REPAIR CLIP		
	FILE NAME		
	ORGANIZE REEL		
	ORGANIZE MXF		
	UPGRADE		
	SYSTEM RESET		
	DIAGNOSTIC		
	STATUS		
	VERSION		

Types of MR-HD100 Displays

The MR-HD100 has three types of screens:

- **Informational**

  These screens provide information only and do not permit setting values: examples, **WELCOME** and **VERSION** (see page 137).

- **Select an Option**

  These interactive screens provide a list of items that the User can select. In some cases, selecting an item leads to a second screen where settings are selected or values entered.

  To do this:

  1. Use either the Soft Down or Up keys or the Scroll Wheel to move about in the menu.
  2. Pick an item by pressing on the Select key.

     Selecting an item may open other screens with more options.

- **Enter Value**

  These interactive screens permit the User to enter user-defined values. To do this:

  1. Use the Soft right key to advance between data fields.
  2. Use the Scroll Wheel to dial in the correct values.
  3. Press the Select key to save changes and return to the **SETUP** main menu
  4. Clicking **UNDO** cancels changes and returns to the **SETUP** main menu.

Record and Playback

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

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

Set Up the MR-HD100

Power On MR-HD100

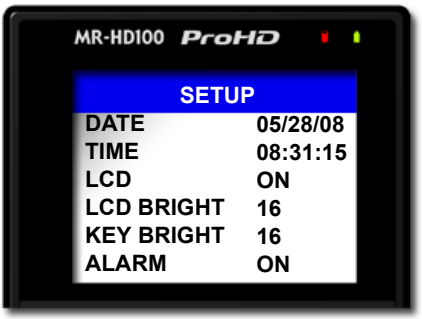
1. Press the **Power** key for more than one second and release it.
2. The **Welcome** screen appears and displays while the MR-HD100 initializes.

Set Date and Time

Note

Date and Time Must Be Set
The date and time must be set because they are used in the MR-HD100 file naming function.

1. Press the **Right** soft button several times until the **SETUP** screen appears.



2. Use the **Down** soft button to highlight the date and press the Select key to access the **Set Date** screen.

3. Use the **Right** and **Left** soft buttons to highlight the Month, Day, and Year. Use the **Scroll Wheel** to change the value.
4. When complete, press the **Select** key.
   The display returns to the SETUP menu which displays the new date.

5. Use the **Down** soft button to select the **TIME** setup screen and press the **Right soft button**. The following screen appears:

6. Use the **Right** and **Left** navigation keys to highlight the Hour, Minute, and Second. (Time is indicated in 24hr. mode.) Use the **Scroll Wheel** to change the value.
7. Press the **Select** key.

   The display returns to the SETUP menu which displays the new date.

   For more information on the Setup function, refer to the section, **SETUP Screens** on page 94.
8. Return to the Home screen.

   For more information see **Home** on page 79 for more details

9. Press the **Right** soft button on the Scroll Wheel once to display the **OPERATION** menu.

By default, the MR-HD100 is setup for the most typical recording situations. The Operation defaults are:

MODE	**REC/PLAY**	See **MODE** on page 84.
CONTROL	**NORMAL**	See **CONTROL** on page 85.
REC MODE	**NORMAL**	See **REC MODE** on page 86.
REC FORMAT	**HDV**	See **REC FORMAT** on page 90.
NFR FORMAT	**QUICKTIME**	See **NFR FORMAT** on page 90.
TIMECODE	**EXT TC**	See **TIMECODE** on page 92.

If it is necessary to change any of these settings, refer to the following few pages.

Select Record/Play Mode

1. Use the Up or Down soft buttons to select **MODE**.
2. Press the Select key in the center of the Scroll Wheel.
   A list of operation modes appears: **REC/PLAY** or **HDD**.
3. Pick **REC/PLAY** and press the Select key.
   The display returns to the **OPERATION** menu.

Select the Control Mode

This determines which controls, the MR-HD100's or the camera's, are used during either recording or playback, see **CONTROL** on page 85. Select the mode to use and the display returns to the **OPERATION** menu.

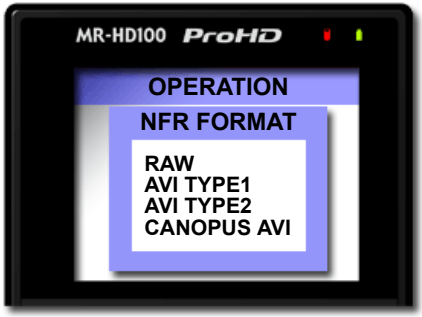
EXTERNAL control mode controls the MR-HD100 from the camera and is the recommended control mode for all JVC Pro HD camcorders whether using tape or no tape. Make sure that the camcorder's DV control port is turned on.

Select the Recording Format (REC FORMAT)

This determines which recording format, **DV** or **HDV**, the MR-HD100 uses. The camera must support the recording format selected.

Select the format type and the display returns to the **OPERATIONS** menu.

Select the NFR Format



This determines which NLE compatible format the MR-HD100 uses when recording. The NFR formats displayed depend on the **REC FORMAT** selected in the last step.

DV24p and PAL 25p Modes

- 24p modes are only for use with camcorder's that are capable of DV-24p Advanced mode.
- 24p is comparible to DV QuickTime and AVI Type 2.
- PAL 25p camcorders require no special 25p DV format
- There are different MR-HD100 models for NTSC and PAL recording.

The display returns to the **OPERATION** menu.

Select the Timecode

This determines the source of the timecode to be embedded in the recording.

Selecting the timecode returns the display to the OPERATION menu.

With the OPERATION menu title highlighted, press the **Right** key once and advance to the **SYSTEM SETUP** screen.

SETUP Menu Overridden by EXT TC Settings

When EXT TC is selected, the MR-HD100 follows the timecode mode of the camera, **Drop Frame** or **Non Drop Frame**, regardless of the setting in the SETUP menu.

Record with the MR-HD100

There are two modes of recording with the MR-HD100.

- **NORMAL Recording**

  Control with the MR-HD100 transport keys.

- **EXTERNAL Recording**

  Control MR-HD100 recording with the video camera controls, whether using tape or tapeless.

  EXTERNAL mode is the recommended control mode for all JVC Pro HD camcorders whether using tape or no tape. Make sure that the camcorder's DV control port is turned on.

  Check the latest camera compatibility matrix on the Focus website: **www.focusinfo.com**.

- **SYNCRO Recording**

  SYNCRO is used most often with older camcorders that require the presence of a tape in the camcorder's tape deck.

Before beginning recording, verify that:

1. Time and date are set.
2. Recording format is set.
3. NFR Format is set.
4. The MR-HD100 is connected to the video camera according to the explanation in **Connecting MR-HD100 to DV/HDV Camera** on page 22.
5. Camera and MR-HD100 are powered on.
6. Tape is loaded in the camera, if:
   - Camera requires a tape in its transport before it triggers MR-HD100 record.
   - User wants to record to both tape and disk, see the following note.

Note

EXTERNAL Operation

Tape does not need to be loaded if the camera supports external operation, refer to, **CONTROL** on page 85.

Troubleshooting: Counter Not Incrementing

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

- Verify that the MR-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 will increment and recording will start.
- Verify that MR-HD100 and camera settings are correct.

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.

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 82 to and **Repair Clip DV mode only** on page 83.

NORMAL Recording

1. Set the video camera to **Camera** or **Cam** mode.
2. Verify that an image appears in the viewfinder.
3. On the MR-HD100, press **Record** ●.
   The MR-HD100 begins to record. The timecode value displays on the screen.

4. Press **Pause II** once to put the MR-HD100 to **Rec-Pause** mode.
5. Press **Pause II** again and the MR-HD100 begins to **Record** again in the same clip.
6. Press **Stop** ■ to stop the recording.
7. Press **Record** ● 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.

While recording, press **Record** ● again and the MR-HD100 automatically creates a new clip.

EXTERNAL Recording

External control permits the MR-HD100 to control the camcorder functions during record and playback.

1. Verify that the MR-HD100 is in **Stop** mode.
2. From the MR-HD100 Home screen, press the **Right** soft button several times until the **OPERATION** screen appears:

3. Use the **Down** soft button to select **Control**.
   The default value is **NORMAL**
4. Use the **Down** soft button to select **EXTERNAL**.
5. Press the Scroll Wheel **Select** key.
   The Operations screen appears.
6. Press the Left soft button twice to return to the Home screen.
   The screen returns and a **STOP** indicator appears in the upper left-hand corner. Next to it is an **E** indicating that MR-HD100 is now in external control of the camcorder record and playback functions.

Proceed with recording.

1. On the MR-HD100, press **Record** ●.
   The MR-HD100 begins to record. The timecode value displays on the screen and the image appears in the camera's LCD display.
2. Press **Pause II** once to put the MR-HD100 in **STOP** mode.
3. Press **Pause II** again and the MR-HD100 begins to **Record** again in the same clip.
4. Press **Stop** ■ to stop the recording.
5. Press **Record** ● to begin a new clip.

SYNCRO Recording

Syncro recording allows the MR-HD100 to mimic camcorder operations by monitoring the state of the camcorder's tape recorder controls.

Note

Syncro: For Camcorders Without External Trigger Control
Syncro mode should only be used with older camcorders that do not have external trigger controls. Check the latest camera compatibility matrix on the Focus website.

1. Verify that the MR-HD100 is in **Stop** mode.
2. From the MR-HD100 Home screen, press the **Right** soft button several times until the **OPERATION** screen appears:

3. Use the **Down** soft button to select **Control**.
   The default value is **NORMAL**
4. Use the **Down** soft button to select **SYNCRO**.
5. Press the Scroll Wheel **Select** key.
   The Operations screen appears.
6. Press the Left soft button twice to return to the Home screen.
   The Home screen returns and a **Pause** indicator appears in the upper left-hand corner. Next to it is a **Y** indicating that MR-HD100 is following the state of the camcorder's tape controls, i.e. record when the camcorder records and pause when it pauses.

7. Now the MR-HD100 will respond to the camcorder's tape controls. The recording signal goes both to the tape in the camera and to the MR-HD100.

Recording Timecode in the File

1. Press the **Right** soft button several times until the **Timecode** screen appears.
2. Select **EXT TC** in the SETUP menu.
   This option records the video camera timecode in the file. For other available timecode options refer to **TIMECODE** on page 92.
   To view the source timecode (TC) from the camera, press the **DISP** key, **F2** default, until the format type appears, e.g. 1080/60i TC.

Note

EXT TC
When in EXT TC mode the MR-HD100 follows the camera's timecode, and the Drop/Non-Drop Frame in System SETUP menu has no effect on the recorded video's timecode.

Function keys
The tasks discussed above are available for programming into the function keys. For information on setting up function keys, refer to the section, **FUNCTIONS Screens** on page 120

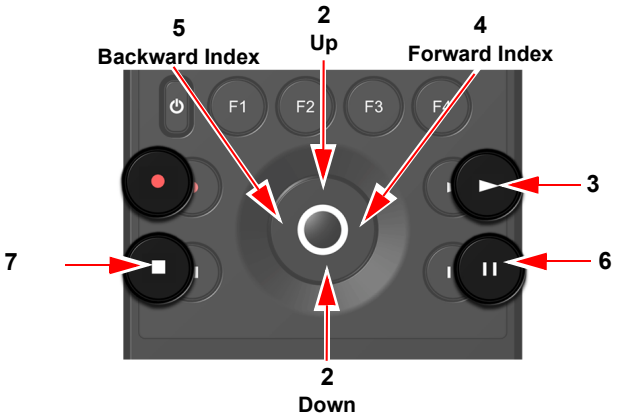
Playback with the MR-HD100

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

Note

Feature Availability on PAL Cameras
This feature is not available on some PAL cameras.

1. Set the video camera to **VCR** or **Playback** mode.
2. Navigate to the video clip to preview, using the MR-HD100 **Down** and **Up** soft buttons.



3. Press the **Play** key.
4. Press **Pause** to pause playback.
5. Press **Stop** to end playback of the clip.

Refer to **Scroll/Select Wheel and Soft Navigation Keys** on page 12 for more information on the function of these controls.

Note

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

Metadata

Metadata is an important part of modern video production. Metadata is information that is attached to a content file (video, graphic, audio, etc.) and describes some characteristic or attribute of the content. In the case of video, the metadata is either timecode or video clip-based. The purpose of metadata is to uniquely identify each content item, creating a data hierarchy that can be used to search for and group content in as many useful ways as possible.

The advent of tapeless based acquisition devices like the MR-HD100, which is able to produce files in a variety of video formats, makes the proper labeling of video content critical. Efficient handling of content within NLE systems as well as easy content retrieval in asset management or archive solutions depends on the use of metadata.

Many standards of metadata types and labels have been developed. The most commonly used is the Apple XML Interchange Format which is supported by the MR-HD100.

For metadata to be useful, it must reflect the processes and vocabulary of the organization using it. The easiest and most recognizable metadata implementation is to use simple descriptions about the content (e.g. what is the scene, what is the production name, take number, good shot, etc.) This can be the same type of descriptive tags that are added to the content when using a NLE's log and capture or log and transfer windows.

The MR-HD100 Metadata utility is a web-based application that provides the user the ability to:

- Add video clip-based and timecode-based metadata to video clips during recording or playback.
- Use a default or custom metadata entry templates.
- Export clip-based and timecode-based templates to ProxSys Media Servers and NLE applications.

Note

MR-HD100 Web server and Database Provide Metadata Functions
The MR-HD100 has a resident web-based Metadata application that permits the configuring of metadata templates and metadata logging using a simple web browser.

Connect to MR-HD100's web server using the USB2 to 802.11 WIFi dongle provided with the unit or a USB2 to Ethernet adapter. Any device with networking capabilities and web browser functionality -- computer, laptop, PDA, etc. -- can log into MR-HD100's web server.

This chapter contains:

Overview

MR-HD100 metadata logging is flexible because it can be either timecode-based or video clip-based.

Metadata Categories

There are three categories of metadata, descriptive, administrative, and structural. Some metadata, such as Project ID is not limited to one category.

Descriptive

Descriptive metadata is used to promote rapid search and recovery of content. Often it is in a form that is familiar to the greatest number of users, enterprise-wide. Descriptive metadata can include:

- Name of released project.
- Subject tags -- sports, medicine, history and such.
- Name of videographer.
- Location of recording.
- Project ID.

Often, descriptive metadata values are added during recording or when transferred to the NLE. Some descriptive metadata may be added at different stages of production/post-production to indicate content status.

Administrative

Administrative metadata is video clip based and is used to manage the content within the content library and backup repository. This metadata links all content to its parent files and identifies where it may be archived. Examples of administrative metadata may include:

- Library archive number.
- Project ID.

Structural

Structural metadata is video clip-based and used primarily for storage of objects in the production library and for presentation. This metadata assists users during production and post production steps and can be added or changed according to where the content is in the workflow.

Structural metadata can include:

- Camera.
- Clip number.
- Name of videographer.
- Project ID.
- Storyboard frame number.
- Sequence start/stop (timecode-based)
- Frame location (timecode-based)

Structural metadata is added during recording and subsequent editing. Often this metadata is timecode-based, which defines or describes specific frames within a clip.

Templates

A template is an xml form into which, job specific data is entered. For example, a news crew will have at least one template available for each story type covered: accident, fire, interviews, sports-baseball, sports-football, and weather.

A metadata template can include:

- Fields into which data is entered,
- Lists of predetermined metadata from which values are selected,
- Setting the type of metadata, timecode based or not,

It is possible to create both metadata templates that conform to the Apple XML Interchange Format and custom templates.

Metadata entered through the template is stored in a database on the MR-HD100.

Default Template

The MR-HD100's default template is based on the Apple XML Interchange Format. Metadata that is defined in this template and later used for logging is later exported to a standard Apple xml file for direct import into Final Cut Pro or a ProxSys media asset management system. For more information, see **Final Cut Pro** on page 172.

Custom Template

The MR-HD100 provides the capability for the User to create custom templates by modifying the FCP template or entering unique fields into an empty template.

Imported Templates

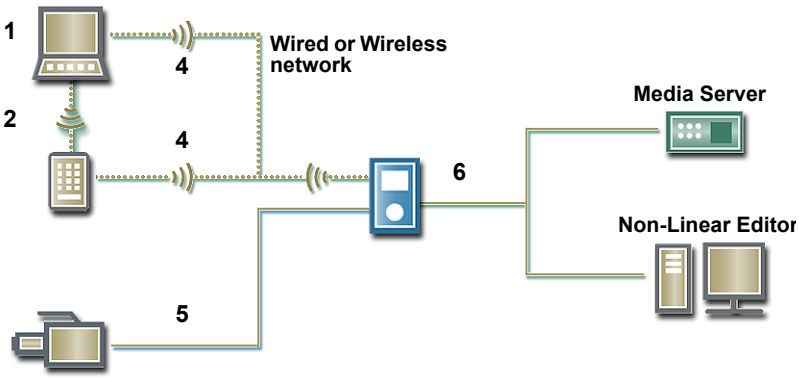
The MR-HD100 has the capability of importing templates created and exported from other MR-HD100 units.

Format Function May Remove Custom and Imported Templates

Depending on the **Templates** setting in the **Format** function, the Custom and Imported templates may be removed and only the default template will remain, see **FORMAT** on page 127.

As a precaution, **Export** and archive all non-FCP Example templates. After formatting, it is necessary to re-import them.

Video Production



Pre-production

Pre-production includes the setup of equipment for recording the production, see **Connecting MR-HD100 to DV/HDV Camera** on page 22, and defining the metadata template(s) used, its metadata fields and values.

In addition, it is possible to match metadata fields in the file to specific metadata fields in a different template.

For the MR-HD100 this involves:

1. Set up the xml metadata template.
   - Using the MR-HD100 web-based interface, open the metadata template on a laptop or PDA.
   - Setup the metadata template values and settings by logging into MR-HD100's web server using a computer or laptop.

   Template settings and metadata resides on the MR-HD100, in the MR-HD100 database in the directory: **/log/fs_3.db**.

Production

Production involves the includes recording of video, logging both clip and timecode metadata based on the templates that were defined in the pre-production phase. In addition, clips can be played back and verified -- through the camera -- and additional metadata can be defined if required.

For the MR-HD100 this involves:

2. Record video.

   During recording, use the MR-HD100's web server interface and template to log predefined or dynamically input metadata values.
3. Playback video.
4. During playback, use the MR-HD100's web server interface and template to log predefined or dynamically input metadata values.

Post-production

The post production phase includes exporting logged metadata that is stored in the MR-HD100 database into a format that can be used with an NLE or ProxSys Media Asset Management system along with the recorded content.

For the MR-HD100 this involves:

5. Export metadata from MR-HD100 database to xml file.

   Export metadata from the MR-HD100 database to an xml file using either the **AUTO ORG** function -- automatically exports an xml file based on the current templates and logged metadata -- or the manual metadata export function in the MR-HD100's web interface. During export, it is possible to determine the type of export file to create: compatible with a particular NLE or project on a ProxSys media server.
6. Import the xml file into a NLE or ProxSys Media Server.

   Use the NLE or ProxSys Media Server interface to import the xml file into the application. In either case, NLE or ProxSys system, it is only necessary to import the xml file.

   During the import process, the application locates and identifies all video clips associated with the xml file and imports them too. In addition, the metadata logged during recording or playback is added to the video clip(s). The metadata is now viewable and searchable with links to the video content in the NLE or ProxSys

Metadata has many uses during post-production.

- Identify individual video clips, clip xml files, cameras -- position and lens, provide for rapid creation and display of the video dailies from film or digital footage.

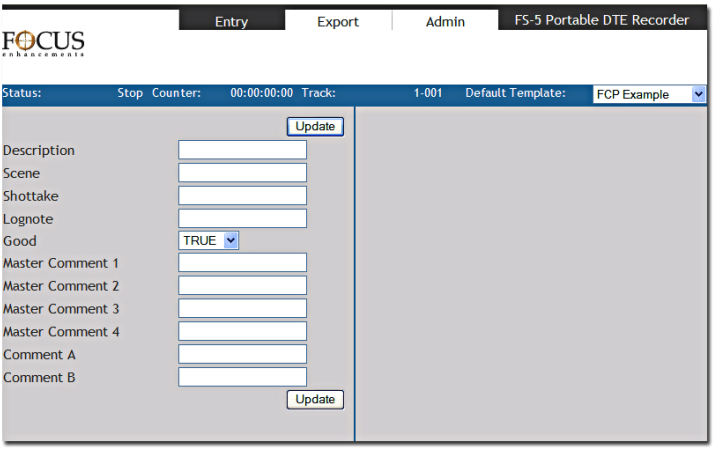
  Metadata can be used to determine the sequence that the dailies are shown and create text generator slates before each shot.
- Merge subtitles with scenes.
- Group and archive all video clips belonging to each project.
- Facilitate rapid search and retrieval of raw footage and related video clips used in projects.
- Version-tracking of video clips and sequences.
- Find and replace video clips with other clips.
- Track processes applied to video sequences, for example chromakey effects.

Logging Onto the MR-HD100 Web Server

Logging onto the MR-HD100 web server provides access to the metadata settings and logging functions. The pages and functions available depend on the type of device accessing the MR-HD100.

1. Connect the MR-HD100 to a wired or wireless network, through its USB, port using an USB to Ethernet adapter, or the 802.11b/g wireless dongle provided with the MR-HD100. Depending on the type of connection, refer to the following:
   - **MR-HD100 to Wired (Ethernet) Network** on page 144.
   - **MR-HD100 to a Managed Wireless Network** on page 145.
   - **MR-HD100 Peer-to-Peer Networking (Wi-Fi)** on page 146.
2. Determine the MR-HD100's IP address, see **IP ADDR** on page 110.
3. Open a web browser and enter the MR-HD100's IP address in the browser's Address window.

   The **Entry** page appears.



This is the first page that a PDA type device displays.

The first time that the Entry page appears it displays the default template.

Metadata Pages and Functions

MR-HD100 Metadata has four pages representing specific functions that are divide into two groups: **User** and **Admin**. To display the hidden group, click on the **User** or **Admin** tab.

- **User** group includes the pages:

  Template - for creating and managing templates,

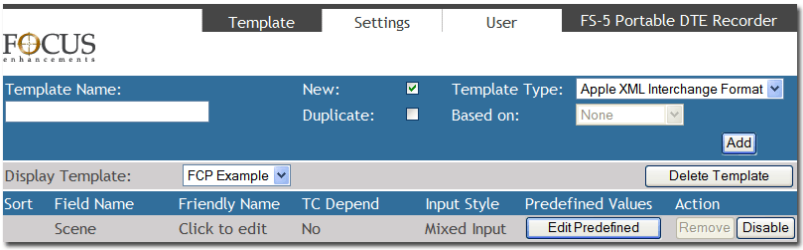
  Settings - template export/import and reel matching parameters,

- **Admin** group includes the pages:

  Entry - for entering and setting metadata values in a template,

  Export - for specifiying the export of metadata based on template type,

Template

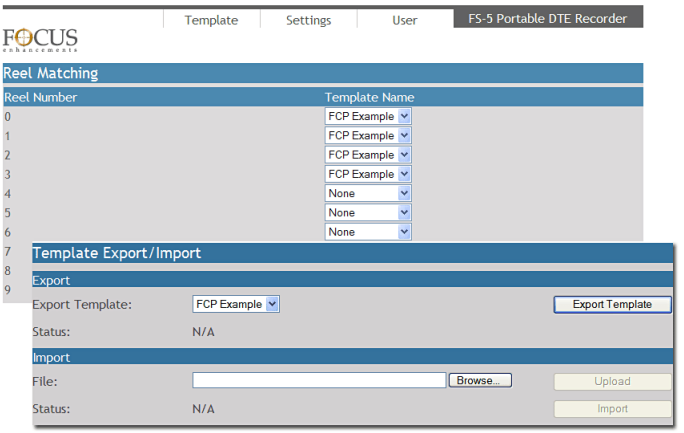


Not accessible with PDA type devices.

Use the **Template** page to create, modify, and manage the metadata templates stored in the MR-HD100 database:

- Display an existing template.
- Enable or disable specific metadata fields on a template.
- Edit predefined values for specific fields.
- Duplicate an existing template and assign it a new name.
- Create a new template using either the Apple XML Interchange Format or a Custom format.

Settings



Not accessible with PDA type devices.

Clicking on **Settings** opens a page with the functions:

- **Reel Matching**

  This function allows the User to assign specific metadata templates to particular MR-HD100 **REEL**s. The REEL then has the template's name.

  The User can, without leaving the Home screen, employ one of the function keys to quickly select a template by picking a REEL with the template's name. The Entry page automatically changes to the template assigned to the REEL.

  This function requires that the **SETUP** menu > **REELS PREF** option **TEMPLATE** be selected, see **REELS PREF** on page 119.

- **Template Export/Import**

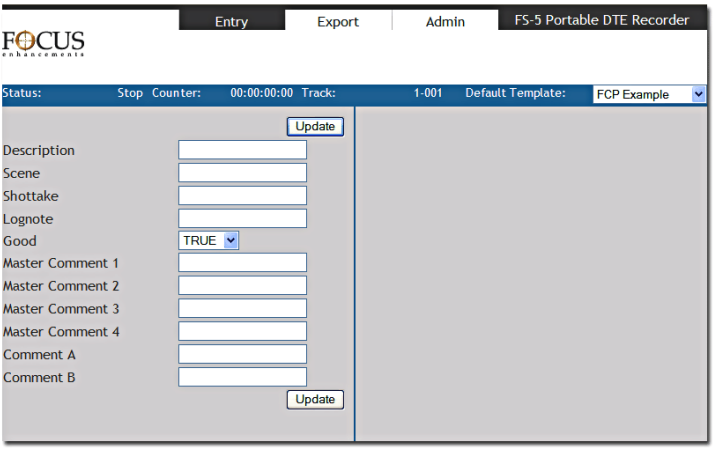
  This function permits the User to export a template from the MR-HD100 database to the MR-HD100 drive where it is available for downloading.

  In addition, the User can import from the input device templates created in other MR-HD100s

- **Delete Template**

  This function allows the User to select and delete templates from the MR-HD100.

Entry



Use the **Entry** page to enter metadata for a video clip.

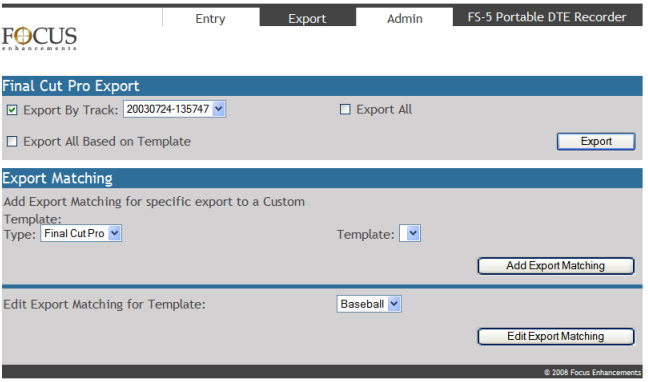
Verify that the desired template is selected and appears in the **Default Template** field. A template must be selected before recording or playback begins.

Initially the Entry tab appears blank, however, once the MR-HD100 is in Record, Pause or Playback mode, the template's fields appear and are active.

It is possible to add metadata to a clip after it is recorded by setting up the Entry page and then entering Playback mode.

In addition, the Entry provides an information bar where the current MR-HD100 status (Rec, Play, Pause, Stop), current timecode, and track number are displayed.

Export



Use **Export** to manually export video clip metadata files from the MR-HD100 database to User accessible xml files. The file name of the xml file identifies it as belonging to a specific video clip.

Export creates xml metadata files for specific NLEs, for example Final Cut Pro, or from a Custom user defined template.

NLE - Final Cut Pro

In Final Cut Pro, the User drags or imports the xml file(s) into the Final Cut browser, see **Importing Video Clip and Metadata** on page 176. The application automatically locates the associated video clips and imports them into the editor browser. From there the User can insert the xml template and video files into the Final Cut timeline. Using the attached metadata, the User can review the metadata in the Final Cut browser and use NLE to search for and through the video clips.

For more information about NLEs refer to **Non-Linear Editors (NLEs)** on page 171.

ProxSys Media Servers

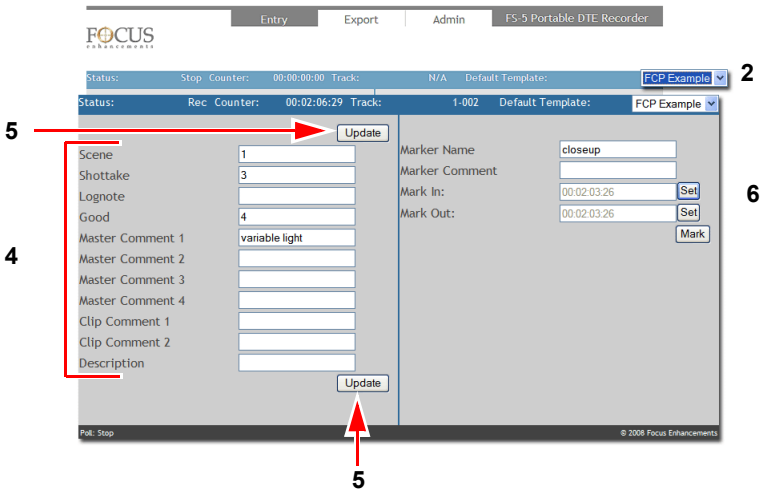
Using the ProxSys Media Transfer Utility, the User can select the xml files and import them into ProxSys systems. ProxSys automatically locates the video clips associated with the xml file(s) and imports them into the ProxSys system where the metadata provides search capability. For more information refer to the ProxSys Media Transfer Utility User Guide.

Entering Metadata

This procedure assumes that there is a ready to use template, for instance the **FCP Example** supplied with the MR-HD100, and that it is not necessary to modify it or create a new one.

Use the following steps to enter metadata during Record, Play, and Stop modes.

1. Open the metadata function using a web browser and the MR-HD100 web-based interface.
   Initially, the **Entry** page is empty.



   The style of MR-HD100 user interface displayed, depends on the type of device used to access it: iPod Touch, iPhone or other.

2. Select the **Template** to use.
   This must be done before recording begins.
3. Begin to record or playback or enter Stop.

Note

Entering Metadata During Stop Mode
Metadata entered during Stop mode is assigned to the previous video clip.

The fields of the selected metadata template appear on the **Entry** page.

4. Enter data into the metadata fields.
   This sets the video clip-based metadata.
   The type of data entered depends on the type input allowed by the field: variable, predefined, and mixed. For definitions of input types see **Creating A Custom Template** on page 66.
5. Click **Update**.
6. Set timecode markers.
   It may be necessary to set markers to indicate the location of a particular frame or sequence of frames in the video clip. The names of the markers depends on the template used and the template type. Generally, there is an In (Start) maker for the beginning and an Out (Stop) for the end of the marker selection.
   - Clicking on a **Set** button places the marker and displays the timecode location of the marker.
   - Clicking on the **Marker** button resets the markers to 00:00:00:00.

   Continue recording until finished.

Updating Metadata - One Set Per Video Clip
During recording, if different data is entered in the metadata fields and the Update button clicked, the new data replaces the previous entry for the video clip.

Repeat the procedure to insert the same or different metadata for each video clip recorded.

Saving Metadata

There is no distinct Save step.

Clicking on the Update or Mark buttons writes the metadata to the MR-HD100 database and into a specific record assigned to the video clip. Changing the metadata in the template changes in real time, the video clip's record in the database.

Reel Matching and Templates

Note

PDAs Can Not Access the Settings Page
Because of their limited functionality, PDA type devices can not access the Settings or Metadata Template pages.

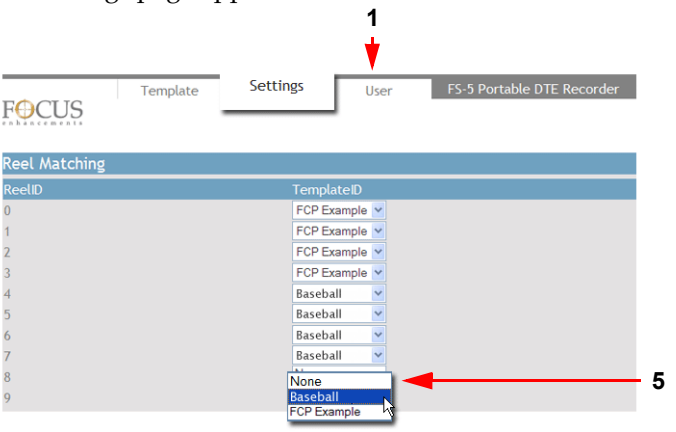
Performing **Reel Matching** must be done with a computer.

The **REEL**s functions permit the User to group video clips into Reels, see **Assigning Clips to Reels** on page 124.

This function requires that the **SETUP** menu > **REELS PREF** option **TEMPLATE** be selected, see **REELS PREF** on page 119.

Reel Matching is a function that allocates a template to specific reel or reels. When a Reel is assigned to a video clip the matched template is applied to the clip and when recording begins, the designated template automatically appears in the **Entry** window.

1. Click on the **Settings** tab to display **Reel Matching**.
   The Settings page appears.



2. For each of the Reels, click on its **Template ID** dropdown menu and select a template. From now on, by selecting a clip to a particular reel, the reel will have the name.

Creating A Template

Note

PDAs Can Not Access the Metadata Admin Template Page
Because of their limited functionality, PDA type devices can not access the Metadata Admin Template or Settings pages. Creating templates must be done with a computer.

It is possible to create a new template by:

- Duplicating and modifying an existing template.

  The duplicate template has the same metadata fields and settings as the original. The User is restricted to disabling/enabling the metadata fields or changing their predefined values.
- Constructing a new template using the Apple XML Interchange Format.

  This method creates a template that conforms to the selected xml format and with all the metadata fields set to their defaults. The User is restricted to disabling/enabling the metadata fields or changing their predefined values.
- Build a new template using an empty custom template.

  This procedure permits the User to create a unique template by adding metadata fields and defining their values and type of input.
- Import a template created on another MR-HD100

  This procedure provides the ability to import templates stored on the input device -- computer or PDA.

  .

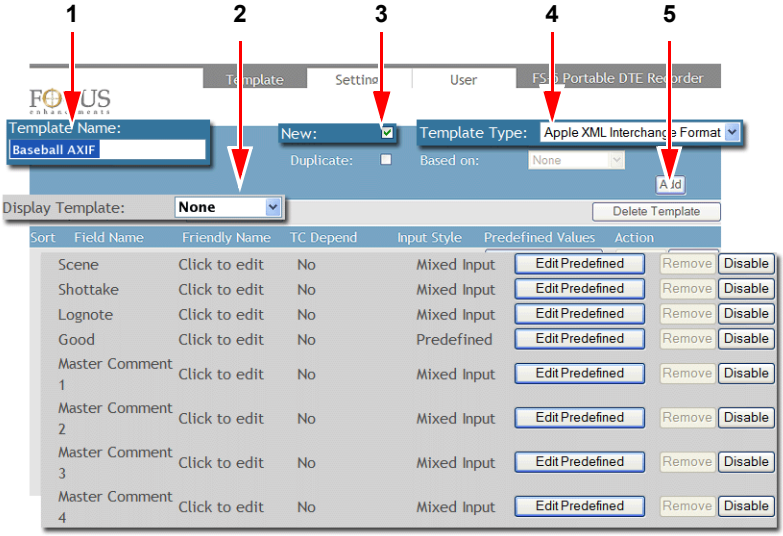
Note

TC (timecode) Depend Metadata Fields
TC Depend identifies if whether a metadata field:

- Depends on video timecode: metadata for specific TC markers, either a single point or a Mark IN and Mark Out point.
- Does Not Depend on video timecode: such as whole clip based metadata.

These are not editable in a Apple xml template because the format only supports a default set of metadata values.

Creating A New Template



This method uses the Apple XML Interchange Format listed in the **Template Type** dropdown menu.

1. Enter a unique name in the **Template Name** field.
2. Verify that the Display Template field is set to **None**.
3. Place a check in the **New** check box.
4. Select the metadata template to use from the **Template Type** dropdown menu.

   Apple XML Interchange Format is the default xml document type.

5. Click **Add**.

   The template opens displaying all of the metadata fields available in the xml template. The fields are set to their default states and values.

Note

Final Cut Pro (FCP) Example Template

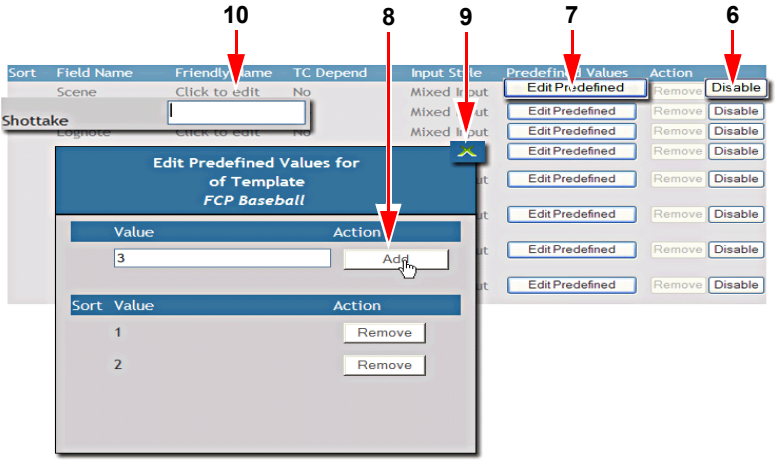
FCP Example is a generic, Final Cut Pro compatible template that employs the standard Apple XML Interchange Format. The information logged into these fields is viewable using the FCP application browser window, once it is imported into FCP.

6. Verify that the necessary metadata fields are enabled.

Note

Enable Only Necessary Fields
When logging metadata in the field, it may be difficult to log more than a few metadata fields for a given shot (although it is possible to log as many as you need with MR-HD100). To be more efficient, disable non-critical fields so that they do not distract while logging.

The **Disable**/**Enable** button is a toggle switch. Its label indicates the action that will occur, if it is selected.



7. Define the metadata values for each metadata field.
Click on the **Edit Predefined** button to view or edit the metadata values for specific metadata fields.
The **Edit Predefined Values** dialog box appears.

Note

Predefined Values
Predefined values offer the User a list of set items that makes logging more consistent and quicker.

8. **Add** and **Remove** predefined values.
Enter values, one at a time and click on **Add**.
Add values in the order they are to appear.

9. Click on **X** to close the **Edit Predefined** button.
10. (Optional) Replace the metadata item's Field Name with a more meaningful **Friendly Name**.

    Click on **Click to Edit** in the Friendly Name column.

    A text field appears where the User can enter a more meaningful label for the metadata Field Name. The Friendly Name replaces the Field Name on the Entry page. The Friendly Name does not change the Field Name in the MR-HD100 database.

The template is now ready for use.

TC Depend and Input Style In AXIF and Final Cut Pro

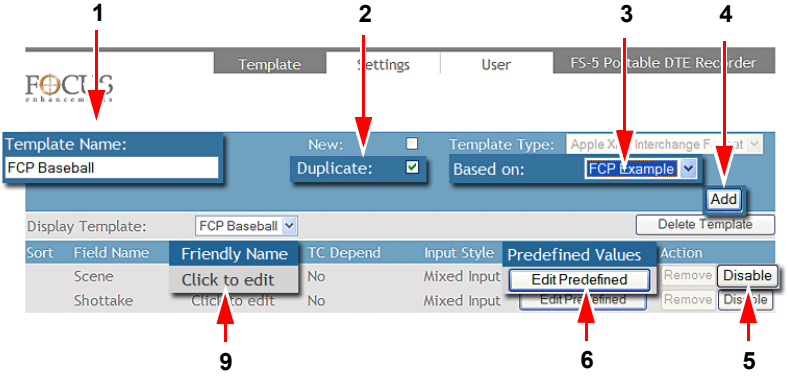
In Apple XML Interchange Format (AXIF) templates the settings for the TC Depend and Input Style fields are grayed out because their settings are fixed and can not be changed.

- By default, most but not all of the metatdata fields are set as not timecode dependent.
- All the metadata fields have their Input Style set as Mixed Input which permits the use of both predefined and variable, user entered, values.

Final Cut Pro supports these settings because they are template defaults.

Creating a Custom Template allows the user to set TC Depend and Input Style defaults to other values which Final Cut Pro will then support. For more information, see **Creating A Custom Template** on page 66.

Duplicating a Template

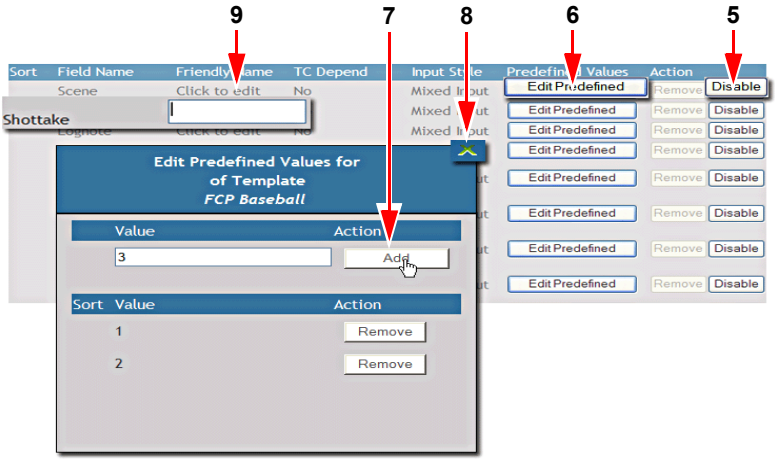


1. Enter the name of the new template in the **Template Name** field.
2. Place a check mark in the **Duplicate** check box.
3. Select the template to duplicate from the **Based On** dropdown menu.
4. Click **Add.**
   - The new template appears with all of the metadata fields found in the parent template.
   - The new template's name appears in the **Display Template** dropdown menu.
5. Determine which fields are active in the template.

   It is possible to **Disable**/**Enable** each of the metadata fields in the template by clicking on its Action button. The button label indicates the action available. If it is grayed-out it is inactive.
6. Define the metadata values for each metadata field.

   Click on the **Edit Predefined** button to view or edit the metadata values for specific metadata fields.

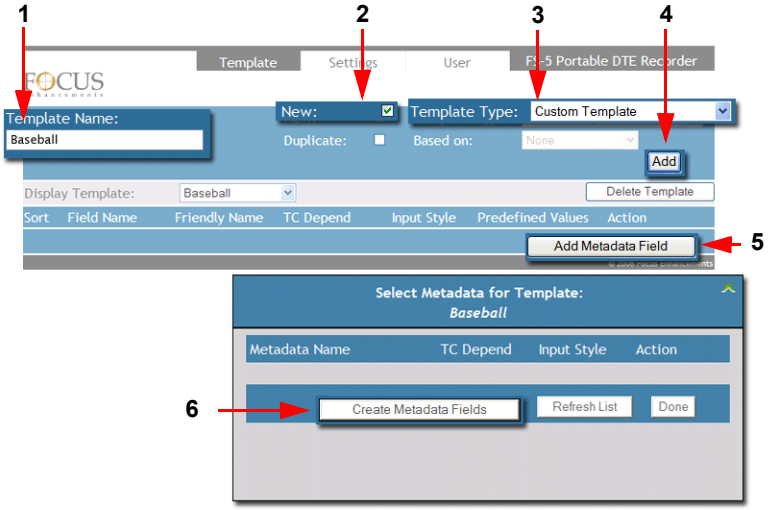
The **Edit Predefined Values** dialog box appears.



7. **Add** and **Remove** predefined values.
   Enter values, one at a time and click on **Add**.
   Add values in the order they are to appear.
8. Click on **X** to close the **Edit Predefined** button.
9. (Optional) Replace the metadata item's Field Name with a more meaningful **Friendly Name**.
   Click on **Click to Edit** in the Friendly Name column.
   A text field appears where the User can enter a more meaningful label for the metadata Field Name. The Friendly Name replaces the Field Name on the Entry page. The Friendly Name does not change the Field Name in the MR-HD100 database.

The template is now ready for use.

Creating A Custom Template



Create custom templates when importing metadata into a NLE that is not supported by the MR-HD100.

Suppose that it is necessary to create a metadata template for recording baseball games, that is then used in a proprietary NLE. To assist the producer and editor the metadata must be specific to the game of baseball.

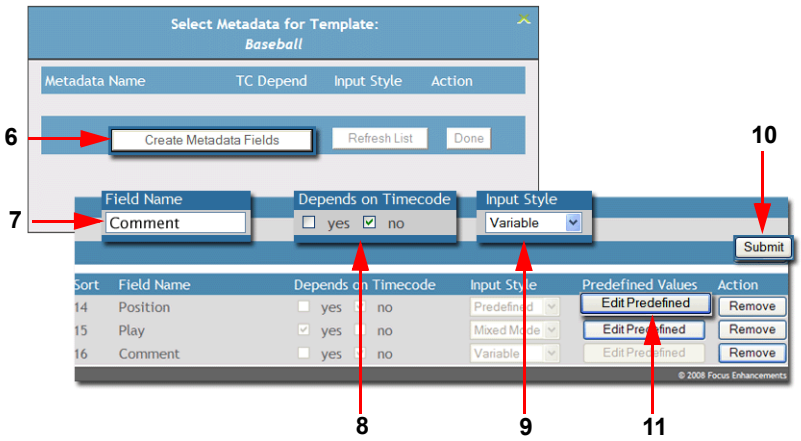
To create a new custom template:

1. Enter the name for the custom template, for example Baseball, in the **Template Name** field.
2. Change **Template Type** to **Custom**.
3. Verify that **Display Template** is set to **None**.
4. Click on **Add** to create the empty template.

   The name of the template appears in the Display Template field along with the template's column header.
5. Click on the **Add Metadata Field** button.

   The Select Metadata for Template dialog box appears. This box is empty.
6. Click on the **Create Metadata Fields** button.

   A new window appears with a work space for creating metadata fields appears.



7. Enter a name for the metadata field.
8. Set timecode dependence

   yes - if metadata relates to timecode.

   no - if metadata is independent of time, i.e. notes, remarks, etc.
9. Set the Input Style, this is required.

   This is the type of value input.

   Variable

   The user may enter any character string.

   Predefined

   This creates a dropdown list of predefined terms that the user selects from. After the field is submitted and appears in the list, it is necessary to add the predefined values: refer to **Step 15**.

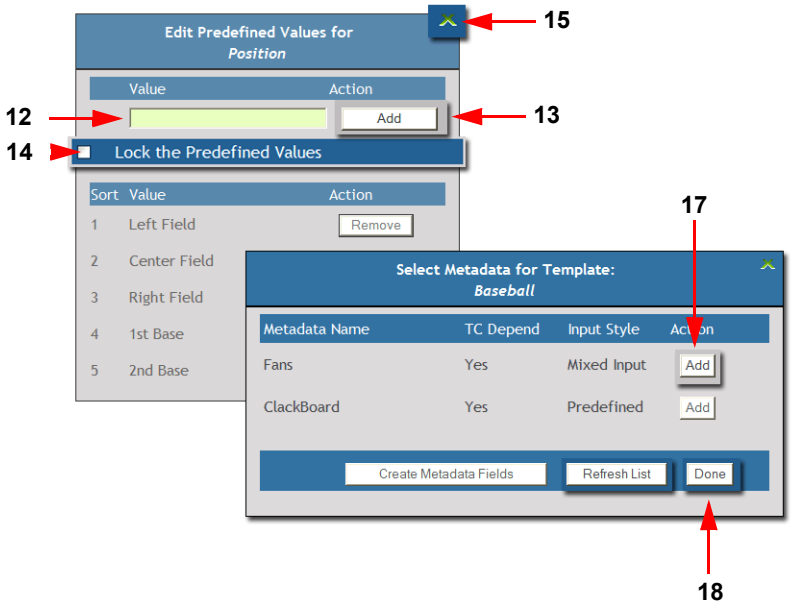
   Mixed Mode

   This is a combination of **Predefined** and **Variable** inputs. The User first selects a term from a dropdown list and then can enter more data as a text string in an open field.

   After the field is submitted and appears in the list, it is necessary to add the predefined values: refer to **Step 15**.
10. Click **Submit** to post the new fields to the list.

    The metadata field appears as a new item in the list below.
11. Click on the **Edit Predefined** button for a metadata field to add **Predefined** or **Mixed** variables.

The Edit Predefined Values dialog box opens.



12. Enter each value separately.

13. Click **Add** to place value in list.

Add the values in the order they should appear.

Click on the **Remove** button to delete a value.

14. Click on **Lock the Predefined Values** box to prevent the User from adding other data to the list during metadata entry.

- This restricts the list to only those values already entered.
- Default is that the User can add other values to the list.

15. Click on the **X** in the upper right corner to close the dialog box.

16. Metadata fields appear in the list of fields from which to select.

17. Click a field's **Add** button to place it on the template.

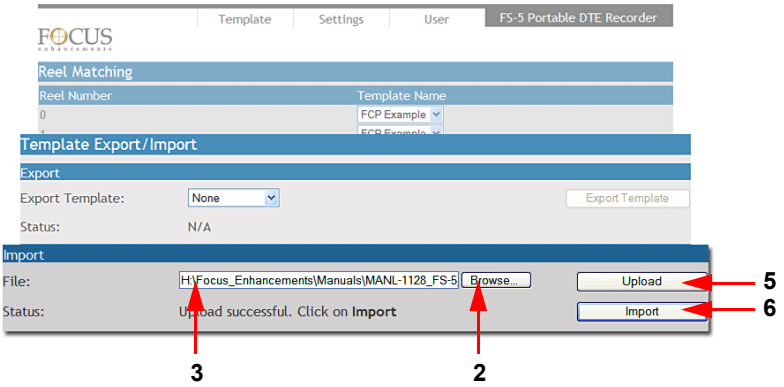
When a field is added to the template, it is removed from the list and, if a field is removed from the template, it reappears on the select list.

Clicking the **Refresh** button updates the list.

18. Click on **Done** to finalize adding the fields to the template.
    The fields now appear in the new template and the Select Metadata for Template dialog box closes.
19. Close the still open Add Metadata Window.

The template is now ready for use.

Importing MR-HD100 Templates



The MR-HD100 provides the ability to import templates created on other MR-HD100 units and stored on a local computer or network drive.

1. Open the **Settings** page.
2. Click on the **Browse** button in the Import section and locate the template to import.
   A standard file system browser opens.
3. Select the template file.
   The file must be a template exported from a MR-HD100 using the **Template Export** function. The file is identified by the **.fst.xml** at the end of the filename.
4. Click the **Open** button in the file browser.
   The path and filename of the template appear in the **Browse** field.

5. Click **Upload** button.
   A message appears below the **Browse** field, indicating if the upload was successful and, if so, to click on **Import**.
6. Click on the **Import** button.
   A system message appears below the Browse field, indicating that the import was successful.
   The template

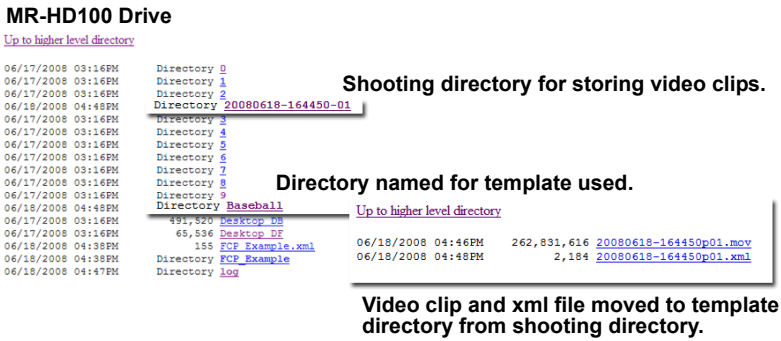
Removing Metadata Fields

Removing A Metadata Field Deletes All Data Stored In Field In All Records!

Use extreme caution when removing metadata fields.

This applies to metadata fields added by the User and accompanied by the Remove button.

Making Metadata into XML Files



During a recording session, video clips are placed in a directory automatically created by MR-HD100. Metadata is entered into the MR-HD100 database through the use of xml templates.

To make that data accessible, it is necessary to export it from the database into a xml file and link it to its video clip. This is done after the recording and data entry are completed.

There are two methods for doing this.

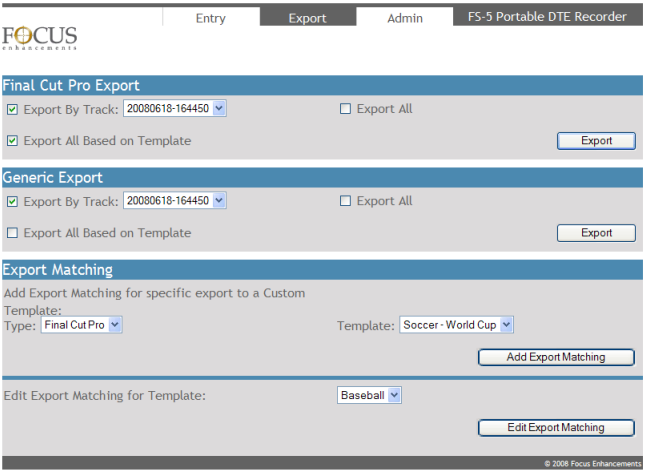
- **AUTO ORG**

  If **AUTO ORG** is enabled, after video is recorded, run HDD to mount MR-HD100 to a computer, and the video clips and xml files are placed in the folder with the same name as the template. In addition, a template xml file is created at the root level of the drive. This xml files includes links and metadata for all the clips that were recorded with that particular template loaded.

- **Export**

  Export is a function that allows the User to export the video clips metadata to either Apple XML Interchange Format or a Custom formatted xml document.

Export



Final Cut Pro Export

Use this function to create metadata xml documents for Final Cut Pro, using the Final Cut Pro XML Interchange Format. There are three options.

Export By Track

Note

This step is only necessary if AUTO ORG is set to DISABLED in the SETUP menu.

Use this method to export individual tracks (video clips) with metadata.

1. Place a check mark in the box **Export by Track**.
2. Select the **Track** (clip) to export.
3. Click on **Export**.

The clip and its metadata document are placed in a directory on the MR-HD100 with the name of the template used.

Export All

Similar to Export By Track, except clicking **Export** processes all the waiting video clips.

Export Based on Template

Use this method when a variety of metadata templates were used during the recording session. This option processes all video clips that had Final Cut Pro based templates used to enter metadata.

Generic Export

This option creates a metadata xml document based on the Custom template created. **Export By Track**

Use this method to export individual tracks (video clips) with metadata.

1. Place a check mark in the box **Export by Track**.
2. Select the **Track** (clip) to export.
3. Click on **Export**.

The clip and its metadata document are placed in a directory on the MR-HD100 with the name of the template used.

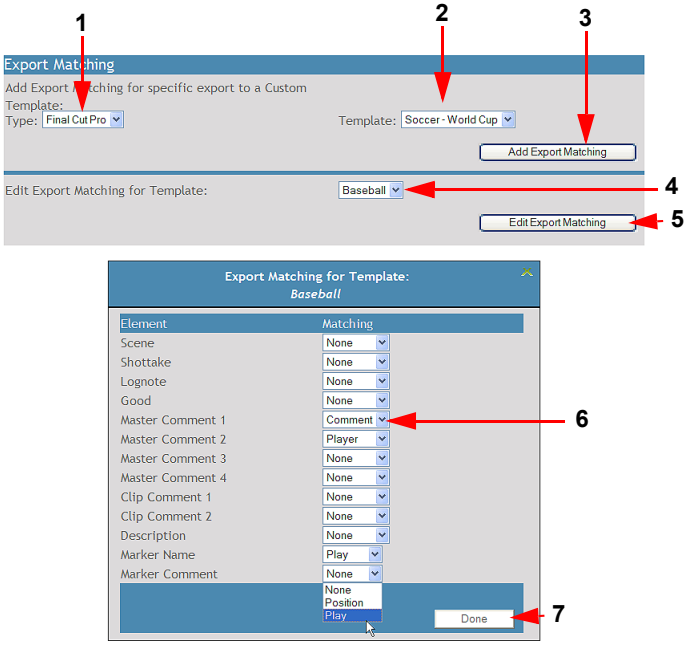
Export All

Similar to Export By Track, except clicking **Export** processes all the waiting video clips.

Export Based on Template

Use this method when a variety of metadata templates were used during the recording session. This option processes all video clips that had the same Custom based templates used to enter metadata.

Export Matching



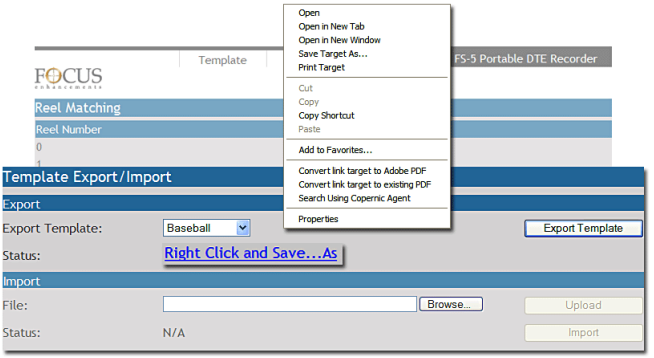
Export matching allows the User to match similar metadata field content between Custom and NLE templates even though the fields may have different names.

1. Select the NLE **Template Type** to match the Custom template to from the dropdown menu.
2. Select the Custom template from the **Template** dropdown menu.
3. Click **Add Export Matching** to create database pivot table of metadata fields. This creates lists from which matches can be made.
4. Select the Custom template from the Edit Export Matching Template dropdown menu.
5. Click **Edit Export Matching**.

   A dialog box opens with the NLE metadata fields listed. Beside each field is a dropdown menu with a list of the Custom template fields.

6. Select those Custom fields that match to the NLE field. If there is no match, leave the field at **None**.
7. Click Done when all matches are made.

Exporting a Template



The MR-HD100 provides the capability of exporting a xml template to a drive in the input device, computer or PDA, or on the network.

It is first necessary to create the template and then run HDD to mount the MR-HD100 to the network. The process of running HDD outputs the template data from the MR-HD100 database as xml template files to the MR-HD100 directory.

To export the template from the MR-HD100:

1. Go to the **Settings** page.
2. Select the template to export from the **Export Template** dropdown menu in the Template Export/import section.
3. Click on the **Export Template** button.
   A link **Right Click and Save ... As** appears beneath the dropdown menu.
4. Right-click on the link.
   A system file options menu appears.
   The menu provides the ability to view, print, and save the xml file.
5. Click on **Save Target As ...** .
   A system file browser appears.
6. Locate the destination for the template and **Save**.

The template now resides on a disk drive. A template exported from a MR-HD100 can be identified by last 8 characters of its filename: **.fst.xml**.

MR-HD100 Functions

This section contains information on the following LCD screens:

MR-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 **Scroll Wheel** or **Up** and **Down** navigation buttons to cycle through screen items (selections).

Use the Scroll Wheel **Select** button to make a choice.

Note

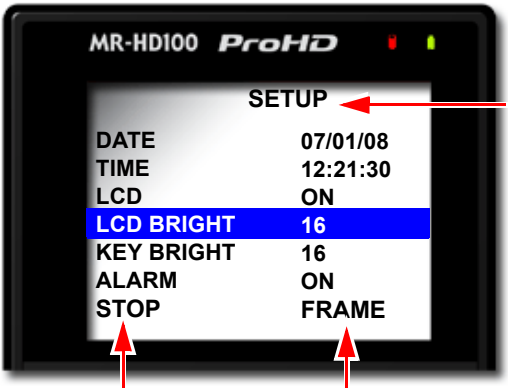
Navigation Tip: Jump to Top of Display Using the Left Button
When navigating through the LCD displays and scrolling down into the menu, press the **Left** navigation button on the front panel and immediately return to the top of the display, which allows navigating to other displays.

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 MR-HD100 LCD menu screens are organized by function with each menu 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.



Selecting a menu item, displays its setting options.

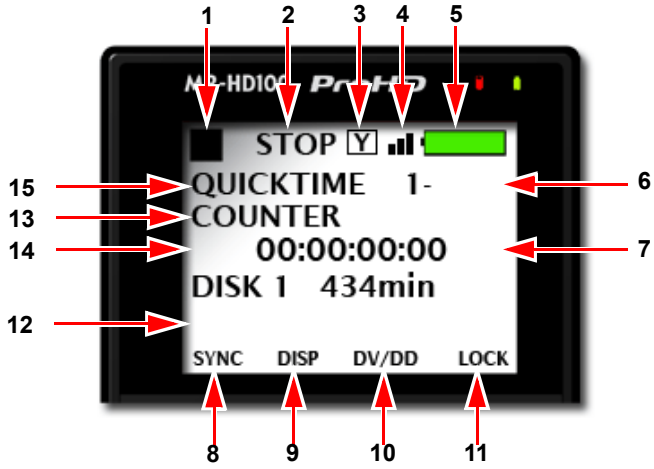
Navigate to the correct option or enter its parameters and press the Select button to set the option and return to the menu.

Welcome

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

Home

The Home screen combines displaying operation information and providing function controls through the function buttons. 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 97.

2. **Operational Status**

   This indicates the current record/playback status.

3. **F1 Function Active**

   Indicates a function assigned to **F1** key is active:

   - **Y** Syncro
   - **E** External

4. **Wireless Network Connected**

   Symbol indicates that MR-HD100 is receiving wireless signals.

5. **Battery Life Gauge**

   This gauge is accurate only when the unit is powered exclusively from the battery.

6. **Volume and Clip Number**

   The volume number is always **1**.

   Number of the current video clip, i.e. 001 for clip 1.

7. **Time Remaining** on the disk.

8. **F1** Functions with **EXT** as the default, refer to **Functions Screen** on page 52 for more information.

9. **F2** Functions with **DISP** as the default, refer to **Functions Screen** on page 52 for more information.

10. **F3** Functions with **LOCK** as the default, refer to **Functions Screen** on page 52 for more information.

11. **F4** Functions

12. **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.

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

14. **DISP** information field that displays current NFR format.

15. **Recording Format**.

DISP (display) Information Fields

It is necessary for the **F2** function button be set to DISP before using the following feature.

Use the **DISP** function button to display current operation information fields 12 and 13. The data shown depends on the mode of operation: **DV** or **HDV**.

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

Field Number	Data Type / Data Description
13	COUNTER
14	Shows frame count of current video clip during record or playback.
13	REMAINING
14	**Record**: counts down number of available frames remaining, as time, on a specific disk. **Playback**: displays time remaining of the current clip.
14	DV (NTSC or PAL) or HD (see note following this table)
13	**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 **TIMECODE** on page 92. **Playback**: displays the embedded DV timecode value in a particular track.
14	UB NTSC displays the Frames per Second input stream.
13	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 102.
14	ABSOLUTE
13	Displays an absolute timecode value for the particular session: the sum of all COUNTER timecodes on connected volumes.

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 Digital (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 MR-HD100 unit. Possible values are:

- 1080i50/60 TC
- 720/30p TC
- 720/25p TC
- 720p24 TC
- 720p50/60 TC
- 576/50p TC
- 480/60p TC

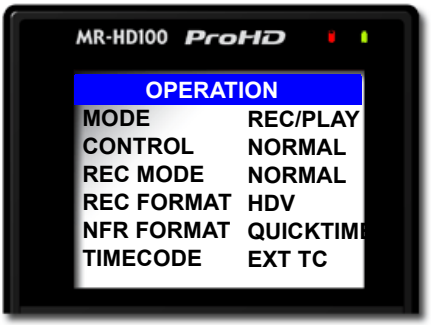
Refer to the camcorder manual for supported resolutions

MR-HD100 System Information Screens

The MR-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.

OPERATION Screens

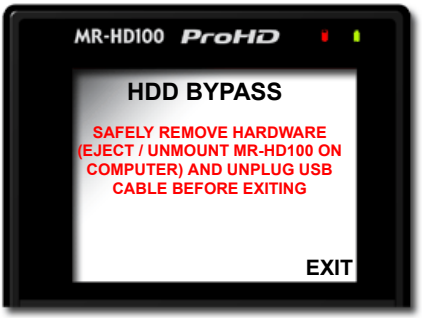


The Operation screen provides access to settings that control various recording features and functions and information. The functions listed are:

Item	Default	Options
MODE	REC /PLAY	REC /PLAY HDD
CONTROL	NORMAL	NORMAL EXTERNAL SYNCRO
REC MODE	NORMAL	NORMAL RETRO CACHE RETRO DISK SNAP **DV REC Mode only** TIMELAPSE **DV REC Mode only**
REC FORMAT	HDV	DV
NFR FORMAT	QUICKTIME	DV RAW DV AVI TYPE 1 AVI TYPE 2 CANOPUS AVI MATROX AVI QUICKTIME MXF HDV M2T QUICKTIME MXF
TIMECODE	EXT TC	EXT TC REC RUN TC FREE RUN TC REGEN TC

MODE

- **REC/PLAY**
  Use this option to set the MR-HD100 controls to disk recorder mode.
- **HDD**
  Use this option when connecting the MR-HD100 to a computer. The MR-HD100 functions as a volume visible to the computer.
  Selecting this option displays the **HDD BYPASS** screen.



As long as this screen appears, the MR-HD100 is mounted on the computer.

Exiting HDD

Before exiting HDD mode, safely remove the MR-HD100 from the network:

1. Use the host computer's operating system's **Eject** or **Safely Remove Hardware** function to dismount the MR-HD100.
2. Unplug the USB cable.
3. Press **F4/EXIT**.

CONTROL

The **CONTROL** menu provides the capability of enabling the MR-HD100 to operate in three different control modes during record and playback.

- **NORMAL**

  Record and Play modes are controlled through the MR-HD100 controls.

- **EXTERNAL**

  Use **EXTERNAL** when controlling recording through an external device. This is the recommended control mode when being used with JVC GY-HD ProHD camcorders whether recording simultaneously to tape or not.

  The camera's DV Control mode must be enabled.

- **SYNCRO**

  This mode is most often used with older camcorders.

  In **SYNCRO** a camcorder and the MR-HD100 follow the camcorder's record state. It requires a tape to be in the camcorder. To use this mode, refer to the section, **Syncro Slave Recording** on page 30.

REC MODE

The **REC MODE** menu permits setting the MR-HD100 to various recording modes see **REC MODEs with Home Screen Indicators** on page 86.

Once a recording mode is selected, the recorder remains in that mode until a different mode is chosen. Exiting the **REC MODE** 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.

REC MODEs with Home Screen Indicators

Mode	Top Line Displayed In Home Screen			
NORMAL	■		STOP	1-001
RETRO CACHE	■	C	STOP	1-001
RETRO DISK	■	L	STOP	1-001
SNAP REC	■		SNAP	1-001
TIME LAPSE	■	T	STOP	1-001

For more about LCD display symbols and text, see **LCD Display Symbols and Text** on page 97.

NORMAL Record

This is the standard recording mode.

- All control is from the MR-HD100 front panel.
  Initially, the **Home** screen displays ■ **STOP**.
- Pressing Record ● puts the MR-HD100 into record mode.
- Pressing Pause **II** stops recording.
- Pressing Pause **II** a second time resumes recording to the original video clip.
- Pressing Stop ■ stops recording puts the MR-HD100 into **STOP** mode.

RETRO CACHE

Retro Cache is available in all control modes.

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 the video camera during pauses.

To initiate Retro Cache:

1. Pressing Record ● and the MR-HD100 goes into **REC-PAUSE** mode and starts caching video.
   When caching, the Home screen displays ■ (**STOP/REC PAUSE**) and a **C**.
2. Pressing Record ● a second time, begins active recording at the last frame stored in the cache. The resulting video clip has the cached video at the beginning.

Setting Length of RETRO CACHE

1. Go to the **SETUP** Menu.
   See **RETRO CACHE** on page 104.
2. Select the item **RETRO CACHE**.
3. Select the time field.
   Use the scroll wheel to set the length of video that the **RETRO CACHE** should store.
   Set the length of video in 1-second increments from 0. The maximum time allowed 10 seconds.

RETRO DISK

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 all record modes.
- When Retro Disk is set, the symbols ■ **L** (**STOP/REC-PAUSE** and L) appear in the MR-HD100 display.

To initiate Retro Disk:

1. Pressing Record ● and the MR-HD100 goes into **REC-PAUSE** mode and starts caching video.

   When caching, the Home screen displays **REC PAUSE** and a **C**.
2. Pressing Record ● a second time, begins active recording at the last frame stored in the cache. The resulting video clip has the cached video at the beginning.

Setting Length of RETRO DISK

1. Go to the **SETUP** Menu.
2. Select the item **RETRO DISK**.

   See **RETRO DISK** on page 104.
3. Select the time duration field.

   Use the scroll wheel to set the length of video that the Retro Disk should store:

   Set the length of video in 1-minute increments. The maximum time allowed depends on the model.

SNAP Record DV modes only

Use Snap to record individual frames. In Snap mode, pressing record ● captures a single frame. Each record Snap session captures the individual frames into a single file. To start a new Snap record session place the unit in **STOP** between Snap records.

- Snap recording is available only in DV modes of operation.
- Use **SNAP** in **EXTERNAL** and **SYNCRO** control modes.
- Removing power from the MR-HD100 in the midst of a Snap recording session causes the MR-HD100 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** **on page 100**.

TIMELAPSE DV mode only

Timelapse 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 Timelapse 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.

Setting Duration of TIMELAPSE

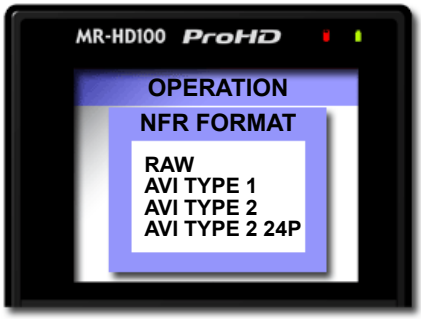
1. Go to the **SETUP** Menu.
2. Select the item **TIMELAPSE**.
3. Select the time field.
   Use the scroll wheel to set the length of time between frame captures.
   Set the length of video in 1-frame increments. The maximum time between frames is 24 hours.

REC FORMAT

Select either:

- **DV**
- **HDV**

NFR FORMAT



Depending on which **REC FORMAT** was selected, this screen displays a list of available Native File Recording formats: above, display for **DV**.

DV Formats

- **RAW DV**
- **AVI TYPE 1**
- **AVI TYPE 2**
- **CANOPUS AVI**
- **MATROX AVI**
- **QUICKTIME**
- **OP ATOM**
- **MXF P2**

HDV Formats

- **M2T**
- **QUICKTIME**
- **MXF**

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

TIMECODE

The MR-HD100 provides four timecode functions in HDV mode and NFR FORMAT is set to **QUICKTIME**. In M2T mode, all TC modes act as **EXT**.

The following are timecode functions:

- **EXT TC** **Default**

  Records the incoming source timecode. If the timecode is not running, and the MR-HD100 records the same timecode number in each recorded frame. Choose **TC EXT** mode to clear any stored number.

  Note

  SETUP Menu Overridden by EXT TC Settings
  When EXT TC is selected, the MR-HD100 follows the timecode mode of the camera, **Drop Frame** or **Non Drop Frame**, regardless of the setting in the SETUP menu.

- **REC RUN** **DV mode only**

  This function creates a timecode number for the first frame of the next recording.

  Take the last timecode recorded and add 1.

  The MR-HD100 stores the last recorded timecode in its non-volatile memory, so it can persist across recording sessions.

- **FREE RUN**

  This function causes the MR-HD100 to begin counting from the value stored by **TC SET**. To enter a value in **TC SET**:

  1. Go to the **SETUP** menu.
  2. Select the **TC SET** item.
  3. Enter values using the Right soft key and Scroll Wheel.
  4. Press the Select button to enter values and return to the **SETUP** menu.

     A number entered via **TC SET** is not stored or the MR-HD100 begins counting using that number, until it is selected and the display returns to the **SETUP** menu.

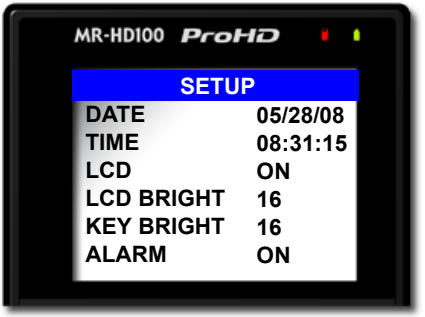
- **REGEN**

  When the MR-HD100 powers up in **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 MR-HD100 uses the **TC SET** value.

SETUP Screens



The items in 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 new screen appears with parameters to set. To return from a parameters screen, use the **BACK** function button.

The Setup menu items include:

Item	Default	Options / Comments
DATE	06/15/08	Displayed in Home screen.
TIME	08:00	Displayed in Home screen.
LCD	ON	ON OFF AUTO
LCD BRIGHT	16	1 -16
KEY BRIGHT	16	1 -16
ALARM	ON	ON/OFF
STOP	NO VIDEO	NO VIDEO
EXT CTL	OFF	OFF PAUSE FRAME FILE
TC SET	00:00:00:00	

Item	Default	Options / Comments
UB SET	00:00:00:00	
TC MODE	NON-DROP	DROP NON-DROP
RETRO CACHE	5 seconds	
RETRO DISK	1 minute	
TIMELAPSE	00:00:00:00	
PLAY MODE	PLAY CLIP	PLAY CLIP LOOP CLIP PLAY ALL LOOP ALL
PLAY FROM MODE	TRACK	TRACK REEL
UDF FS PERM	READ-ONLY	READ-ONLY READ-WRITE
NETWORK	DHCP	MANUAL DHCP
IP ADDR	0.0.0.0	When set to DHCP, 0.0.0.0. When set to MANUAL, 192.168.1.1
IP MASK	0.0.0.0	When set to DHCP, 0.0.0.0. When set to MANUAL, 255.255.255.0
BROADCAST	0.0.0.0	When set to DHCP, 0.0.0.0. When set to MANUAL, 192.168.1.255
GATEWAY	0.0.0.0	When set to DHCP, 0.0.0.0. When set to MANUAL, 192.168.1.1
ESSID	FS5	
KEY		
WIFI MODE	MANAGED	MANAGED ADHOC PEER-TO-PEER (P2P)
FTP	DISABLED	
FTP PASS	FS	
WEB	ENABLED	
AUTO ORG	ENABLED	
AUTO MARK	DISABLED	
REELS PREF	FOLDER TEMPLATE	

SET DATE

Default is 06/15/08.

SET TIME

Default is 08:00:00

Note

Date and Time Must Be Set
The date and time must be set. They are used in the MR-HD100 file naming function.

LCD

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

- **ON** Default

  Permanently sets LCD backlight to **ON**.
- **OFF**

  Permanently sets LCD backlight to **OFF**.
- **AUTO**

  Turns off the backlight after one minute.
  On the MR-HD100, pressing any button pad button turns the backlight back on. Any information screen turns the backlight on.

LCD BRIGHT

Sets the brightness of the LCD display: range of 1 to 16 with 16 the brightest.

Default is **16**.

KEY BRIGHT

Sets the brightness of the MR-HD100 control keys: range of 1 to 16 with 16 the brightest. This control does not effect the Scroll Wheel brightness.

Default is **16**.

ALARM

Toggle switch controlling the Alarm.

- When the alarm is enabled, pressing any button on the MR-HD100 produces audio feedback.
- The MR-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 still sounds for low power, high heat, or low disk space conditions.

Default is **ON**.

STOP

These settings depend on the REC FORMAT selected and determine which video is output from the MR-HD100 when using the **Search Index** Soft button to view recorded clips.

In **DV** Mode the options are:

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

In **HDV** mode:

- **NO OUTPUT**
  The camcorder LCD displays its default screen.

EXT CTL

These external control options permit the use of a device to control the MR-HD100 using a simple contact closure.

- **OFF** **Default**

  Use this option when connecting an external device with an RS232C cable.

  This requires the use of a a 3.5mm-to-DB9 adapter cable, plugged into MR-HD100 **Control** port.

  In Local mode, select this item to control the MR-HD100 with the optional wired remote control unit, refer to page 94.

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

- **PAUSE**

  Controls **Pause** and **Resume** during a record or playback session.

- **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.

- **FILE**

  Creates a new file during a record session without losing any frames.

TC SET

Default is 00:00:00:00.

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

- **TC FREE RUN**

  The MR-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

TC SET and UB SET Can Be Set at the Same Time
Both parameters, TC SET and UB SET, may be set.

UB SET

Default is 00:00:00:00.

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.

UB Set is an early method or creating simple metadata. 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 MR-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

TC SET and UB SET Can Be Set at the Same Time
Both parameters, TC SET and UB SET, may be set.

TC MODE 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.

- **DROP**

  Enables the drop-frame function and frames **00** and **01** are dropped from each minute of video recorded, with the exception of the first minute of the hour.

- **NON-DROP** Group Default

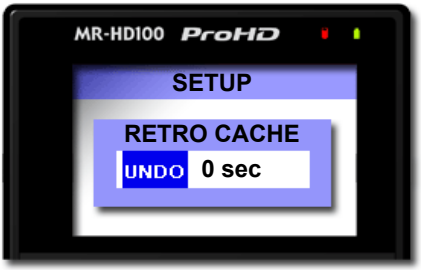
  Disables drop-frame.

  No frames are dropped during recording and the timecode reflects the actual time during recording.

Note

If the MR-HD100 is in EXT TC mode, the TC MODE selection has no effect on the recorded video's timecode.

RETRO CACHE



Select between 0 and 10 seconds.

Default is 5 seconds.

RETRO DISK

Select between 1 and 392 minutes.

Default is 1 minute.

TIMELAPSE

Available only in DV modes.

0 to maximum available in retro hard disk space. This is slightly less than the entire remaining hard drive space.

Default is 00:00:00:00.

Explanation

Timelapse provides the ability to record a single frame at specific time intervals, this gives the user the ability to control the amount of frames recorded per second, minute or hour. For example, one frame per minute 00:01:00:00 would mean that in 30 minutes, a full 1 second clip is recorded.

Timelapse applications can include capturing the traffic on city streets, the growth of a plant from seed to maturity, and construction projects: long duration events appear to occur rapidly.

Features of the Timelapse 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.

PLAY MODE

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

PLAY FROM

This screen permits the selection from where clips playback: track directory or reel. There are two choices:

- **Play Track** **Default**

  Clips playback in the order in which they were recorded. Playback order is based on the order of the file names.

- **Play Reel**

  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).

UDF FS PERM

Use this setting to determine the read-write capabilities of the UDF file system.

- **READ-ONLY** **Default**
  Use for Windows XP operating system.
- **READ-WRITE**
  Use for MAC OS 10.5 and Windows Vista operating systems.

Note

UDF Perm Default Set to Read-Only.
When using Mac OS10.5 and UDF Perm is set to Read-Write, it may take several minutes for the disk drive to mount on the computer. Setting to Read-Only permits faster mounting times.

For more information about operating systems, see **Windows and MAC Operating Systems** on page 141.

Maximum Recording Times in UDF Mode

MR-HD100 maximum record times in UDF mode are:

- 720p50/60 QuickTime - 45 minutes,
- All other UDF formats - 90 minutes,

NETWORK

Select the method to use to assign a network IP address to the MR-HD100.

- **MANUAL**
  When MANUAL IP is selected, the MR-HD100 automatically fills in a default value for:
  IP ADDR: 192.168.1.1
  IP MASK: 255.255.255.0
  BROADCAST: 192.168.1.255
  GATEWAY: 192.168.1.1
  ESSID: FS5
- **DHCP** **Default**
  Select, if IP address is automatically assigned by the network DHCP server.

IP ADDR

When set to DHCP, the address is 0.0.0.0.

Default is 192.168.1.1.

IP MASK

When set to DHCP, the address is 0.0.0.0.

Default is 255.255.255.0.

BROADCAST

When set to DHCP, the address is 0.0.0.0.

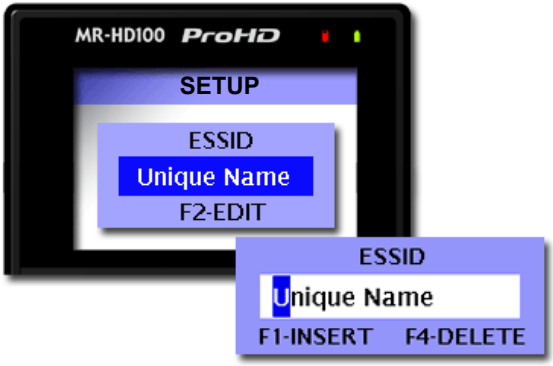
Default is 192.168.1.255.

GATEWAY

When set to DHCP, the address is 0.0.0.0.

Default is 192.168.1.1.

ESSID



Set the ESSID (Extended Service Set Identifier) depending on how it is used:

- Peer-to-Peer connections, where the ESSID must be the same for all members of the network.
- Infrastructure -- network -- where the ESSID distinguishes one wireless network from another. It is a unique name that identifies a wireless network, specifically, the wireless access point.

The ESSID can contain upper and lower case alphabetical characters, some special characters, spaces, and numerals.

1. Select **ESSID** from the **SETUP** menu.
2. Press the **F2** function button to enter or edit the ESSID.
3. Use the Right and Left soft buttons to go between the ESSID characters.
4. Use the Scroll Wheel to dial in the desired character.

   Press **F1** to insert a space.

   Press **F4** to delete a character or space.
5. Press the Select button to save the ESSID and return to the previous ESSID display.
6. Press the Select button again to return to the SETUP menu.

Default is FS5.

KEY

The KEY is a code sequence required by the wireless network. This can only be WEP encryption.

WIFI MODE

This function sets the type of wireless connection that the MR-HD100 uses.

- **MANAGED**
  Managed mode is used when making a wireless connection to a structured LAN where central access points are used and devices are managed through the network.
- **ADHOC Peer-To-Peer (P2P)**
  Ad-hoc mode is a method for connecting wireless devices directly to each other. Successful implementation of Ad hoc mode requires that:
  - All wireless adapters must be configured for ad hoc mode.
  - All ad hoc wireless adapters must use the same ESSID and channel number.
  - Only a small number of devices, within close range, can be in the ad hoc network. As number of devices and range increase, performance falls.
  - All wireless devices within range must be able to discover and communicate in peer-to-peer fashion without employing central access points. This includes broadband wireless routers that use central access points.
  - Ad-hoc networks cannot bridge to wired LANs or to the Internet without installing a special-purpose gateway.

FTP

This function enables only the MR-HD100's FTP Read capabilities. FTP can not be used to write to the MR-HD100.

Note

Do Not Use FTP and the FS-5 Web Server Simultaneously.

Default FTP password is FS. To change the FTP password, see below.

Default is **DISABLED**.

FTP PASS

This function sets the FTP password.

Default is **FS**.

WEB

This function must be enabled to use the MR-HD100's WEB capabilities: allowing the User to access MR-HD100 features through the MR-HD100's web server and metadata pages.

Default is **ENABLED**.

AUTO ORG

This function enables the MR-HD100's function to automatically organize structured files by moving clips and related files from the current clips folder to assigned reels. This must be done before the MR-HD100 is mounted on a computer or the files are imported into NLEs.

In addition, when enabled, **AUTO ORG** automatically creates xml metadata files when **HDD** is run.

Default, the MR-HD100 is enabled to recognize files requiring organizing and automatically prompting the videographer to organize these files when powering down the MR-HD100 or mounting the MR-HD100 to a computer.

Note

Disable AUTO ORG Before Recording MXF Clips
After recording MXF clips, run ORGANIZE MXF before mounting MR-HD100 to computer.

AUTO MARK

When auto-mark is enabled, the MR-HD100 continues to mark future clips to the same REEL that was previously selected.

Default is **DISABLED** and the User must assign each clip to a folder manually.

REELS PREF

Use this function to select the method that a folder is identified:

- **FOLDER**

  This option uses Reel numbers to name the folders: R-0,R-1. R-2, and so on, up to R-9.

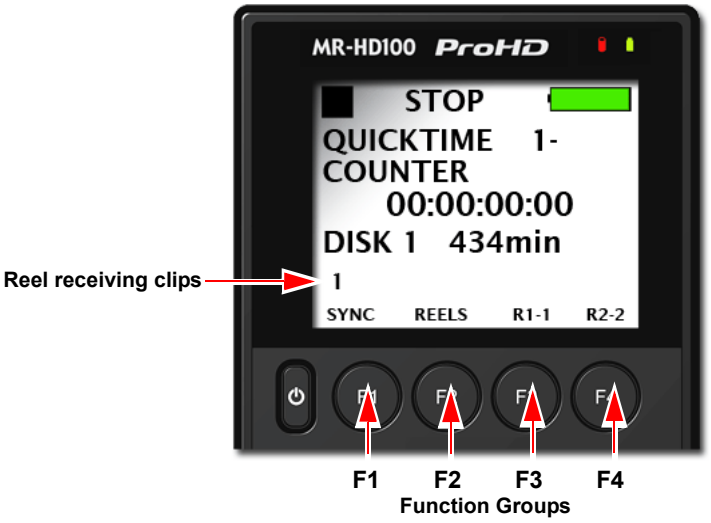
- **TEMPLATE**

  This option enables the capability to assign folders unique names based on xml templates stored in the MR-HD100.

Setting one of the Function buttons, F1 - F4, to the REEL option shows the folder or template designation, in the Home Screen display, see **FUNCTIONS Screens** on page 120.

Default is FOLDER.

FUNCTIONS Screens



The Functions keys **F1**, **F2**, **F3**, and **F4** provide convenient Home screen shortcuts that act 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 four groups of functions **F1**, **F2**, **F3**, and **F4** 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

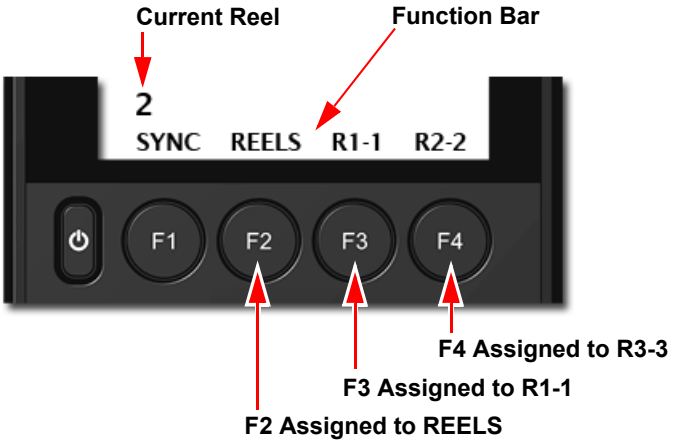
A list of the Function button menu is below. In each group, the default selection is listed first.

MENU	Appears on LCD as…
F1 SYNC	SYNC Toggles between SYNCRO and LOCAL record control.
F1 EXTERNAL	EXT (Toggles between external TRIGGER and LOCAL control) Default
LCD SET	Sets the LCD display to A = AUTO, 1 = ON, 0 = OFF, see LCD on page 97.
F1 REELS	REEL Increments current reel number,
F1 R0-0	R0 Marks Current Clip to Reel 0,
F1 R1-1	R1 Marks Current Clip to Reel 1,
F1 R2-2	R2 Marks Current Clip to Reel 2,
F1 R3-3	R3 Marks Current Clip to Reel 3,
F1 R4-4	R4 Marks Current Clip to Reel 4,
F1 R5-5	R5 Marks Current Clip to Reel 5,
F1 R6-6	R6 Marks Current Clip to Reel 6,
F1 R7-7	R7 Marks Current Clip to Reel 7,
F1 R8-8	R8 Marks Current Clip to Reel 8,
F1 R9-9	R9 Marks Current Clip to Reel 9,
F1 BLANK	No Function.
F2 DISP	DISP (Toggles the different TC display modes) (Default)
F2 ALARM	ALRM/MUTE Turns the FS-C alarm on or off.
F2 FILE	FILE (Toggles display between normal and the file name.
F2 REELS	REEL Increments current reel number,
F2 R0-0	R0 Marks Current Clip to Reel 0,

MENU	Appears on LCD as…
F2 R1-1	R1 Marks Current Clip to Reel 1,
F2 R2-2	R2 Marks Current Clip to Reel 2,
F2 R3-3	R3 Marks Current Clip to Reel 3,
F2 R4-4	R4 Marks Current Clip to Reel 4,
F2 R5-5	R5 Marks Current Clip to Reel 5,
F2 R6-6	R6 Marks Current Clip to Reel 6,
F2 R7-7	R7 Marks Current Clip to Reel 7,
F2 R8-8	R8 Marks Current Clip to Reel 8,
F2 R9-9	R9 Marks Current Clip to Reel 9,
F2 BLANK	No Function.
F3 LOCK	LOCK/UNLK Locks the buttonpad (Default) - toggles between LOCK and UNLK <Unlock>
F3 REELS	REEL Increments current reel number,
F3 R0-0	R0 Marks Current Clip to Reel 0,
F3 R1-1	R1 Marks Current Clip to Reel 1,
F3 R2-2	R2 Marks Current Clip to Reel 2,
F3R3-3	R3 Marks Current Clip to Reel 3,
F3 R4-4	R4 Marks Current Clip to Reel 4,
F3 R5-5	R5 Marks Current Clip to Reel 5,
F3 R6-6	R6 Marks Current Clip to Reel 6,
F3 R7-7	R7 Marks Current Clip to Reel 7,
F3 R8-8	R8 Marks Current Clip to Reel 8,
F3 R9-9	R9 Marks Current Clip to Reel 9,
F3 BLANK	No Function.
F4 LOCK	LOCK/UNLK Locks the buttonpad - toggles between LOCK (Default) and UNLK <Unlock>

MENU	Appears on LCD as…
F4 REELS	REEL Increments current reel number,
F4 R0-0	R0 Marks Current Clip to Reel 0,
F4 R1-1	R1 Marks Current Clip to Reel 1,
F4 R2-2	R2 Marks Current Clip to Reel 2,
F4 R3-3	R3 Marks Current Clip to Reel 3,
F4 R4-4	R4 Marks Current Clip to Reel 4,
F4 R5-5	R5 Marks Current Clip to Reel 5,
F4 R6-6	R6 Marks Current Clip to Reel 6,
F4 R7-7	R7 Marks Current Clip to Reel 7,
F4 R8-8	R8 Marks Current Clip to Reel 8,
F4 R9-9	R9 Marks Current Clip to Reel 9,
F4 BLANK	No Function.

Assigning Clips to Reels



To enable this function, **REELS PREF** must be set to **FOLDER**: see **REELS PREF** on page 119.

When a disk is formatted, the MR-HD100 creates 10 folders, numbered 0-9, on the disk. Each folder is a **REEL**. Optionally, another set of reels/folders 0 - 9 can be created within each of the original reels.

For example: REEL 1 has a sub REEL 2 which is designated 1-2.

Reels can be assigned to a clip during record, stop, or playback.

The function keys can be set to assign video clips to particular reels (folders). There are two functions for assigning clips to reels:

- **REELS**

  To allocate a clip to one of the folder/reels **0** - **9** assign the **REELS** function to a function key.

  To Select the reel that the clip should belong to, press the **REELS** function key to increments the reel that the current clip is assigned to. The number of the reel appears in the lower left-hand area of the display, just above the functions bar.

Example

In the illustration above, F2 assigned to REELS. The videographer wants to assign the current clip to Reel 2. To assign this action, Reel 2 is selected by pressing the F2 key until the FS-5 marks the clip to the currently selected reel. The current reel is indicated in the line above the F1 function reel selection.

- **RX-X**

  Setting a function key to this type of marker, instructs the MR-HD100 to mark the current clip as belonging to a sub-reel/ folder.

  For example, R2-2 assigns the clip to REEL 2-2 which is a reel within REEL 2.

- Custom REEL names created by the User.

  REELS can also be assigned unique names by using the Reel Matching function, found on the MR-HD100's web pages, see **Reel Matching and Templates** on page 59.

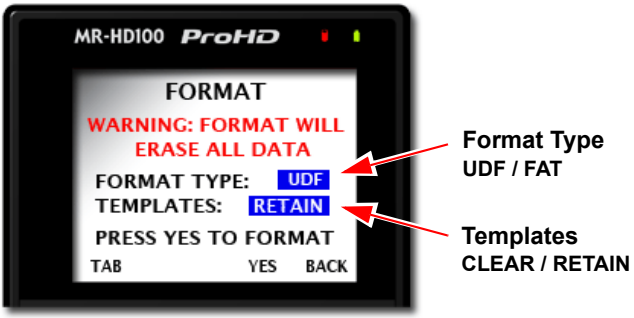
Blank

Functions identified as Blank are inactive.

UTILITIES Screens

Item	Default	Comment
FORMAT	UDF	Backup data before using. No Undo. Maximum record times for 720p50/60 QuickTime is 45 minutes. Other UDF formats are 90 minutes.
REPAIR DISK	Not Applicable	Use to repair the file structure of hard drive.
REPAIR CLIP	Not Applicable	Use to repair the end of a damaged video clip.
FILE NAME	Not Applicable	Displays the number assigned to the video clip.
ORGANIZE REEL	Not Applicable	Places all Assigned To Reels video clips into proper folders.
ORGANIZE MXF	Not Applicable	Some NLE's require this utility to organize their structured files.
UPGRADE	Not Applicable	Upgrades the unit software.
DELETE CLIP	Not Applicable	Deletes and removes selected clip from unit. No Undo.
SYSTEM RESET	Not Applicable	Resets unit to factory defaults.
DIAGNOSTIC	Not Applicable	Use to assist Focus Technical Support in diagnosing issues.
STATUS	Not Applicable	Provides details of power state and internal temperature of unit.
VERSION	Not Applicable	Displays the current software version for the unit.

FORMAT



Prevent lost frames due to file fragmentation by formatting the MR-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 MR-HD100 before formatting.

This selection formats the disk as follows:

1. From the Utilities screen, Select **Format**.
2. Select the type of formatting: **UDF** or **FAT**.
   The format type is shown in the blue field.
   Use the Scroll Wheel to change the format type.
3. Press F1/TAB to move between the options Format Type and Templates.
4. Select to keep or delete non-default templates: **RETAIN** or **CLEAR**.
   Use the Scroll Wheel to change template selection.
5. Select **YES** to begin formatting.
   A status screen displays progress of the formatting and at successful completion the display returns to the Utilities menu.
   The MR-HD100 issues an error message if format does not complete successfully.
6. After formatting, reboot the MR-HD100.

To return to the **Utilities** menu without doing a format, press the **F4/ BACK** key.

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 sudden loss of power to the MR-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.

Using Repair Disk with Less Than 300 Mb Free Space
If it is necessary to run Repair Disk, but the MR-HD100 disk has 300 Mb or less free space, it is necesary to install a USB memory stick in the MR-HD100's USB port.

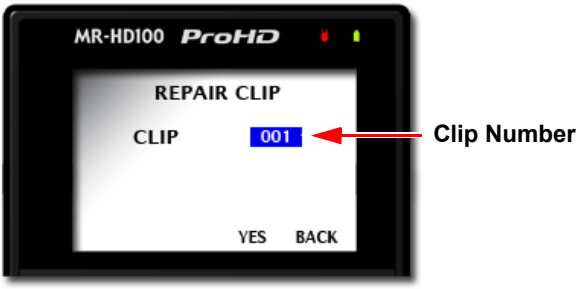
To repair a disk:

1. In the Utilities menu, Select **Repair Disk**.
2. Select **YES** and the MR-HD100 begins repairing the disk. A status screen displays the progress of disk repair and at completion displays the message.
   - **Complete** indicating that the disk repair was successful.
   - **Aborted** indicating that there were errors and the repair did not complete.
3. Press **BACK** to return to the Utilities menu.

Note

After Using REPAIR DISK Move Content and Re-Format
After using the REPAIR DISK utility, the content must be moved from the MR-HD100's drive and the MR-HD100 utility **FORMAT** run before resuming recording. Refer to **FORMAT** on page 127.

REPAIR CLIP



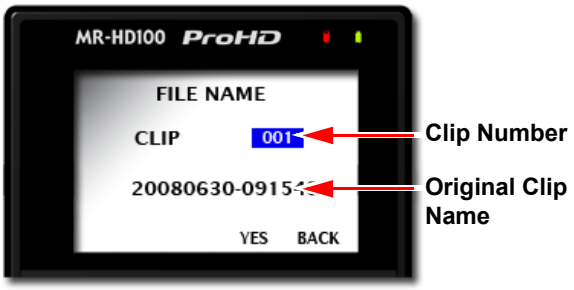
Use this function to repair a specific file that may be damaged or incomplete. For example, recording terminates due to a loss of power to the MR-HD100 and a specific file may be damaged. Repair Clip scans the specified file checking for and repairing file errors and incomplete files. When the file is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

1. In Utilities menu, Select **Repair Clip**.
2. Use the Scroll Wheel to pick the number of the clip to repair.
3. Press **YES** and the MR-HD100 begins repairing the file. A status screen displays the progress of disk repair and at completion displays the message:
   - **Complete** indicating Repair Clip was successful.
   - **Aborted** indicating that there were errors and the repair did not complete.
4. Press **BACK** to return to the Utilities menu.

Note

After Using REPAIR CLIP Move Content and Re-Format
After using the REPARI CLIP utility, the content must be moved from the MR-HD100's drive and the utility **FORMAT** run before resuming recording. Refer to **Format Disk** on page 81.

FILE NAME



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

1. From the Utilities screen, go to **FILE NAME**.
2. Enter the file's clip number using the **Up** and **Down** soft navigation buttons.

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

   When a clip has multiple files, the first Base file name is displayed
3. Press **BACK** to return to the **Utilities** screen.

ORGANIZE REEL

This function places all files identified as a REEL clip during recording or playback into the appropriate reel folder. The clip may be marked by either, using either **REEL** or **Rx-x**.

It is possible to import REEL folders directly into most DV NLE bins.

ORGANIZE MXF

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 utility:

1. 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.

Note

Disable AUTO ORG Before Recording MXF
After recording MXF clips, run ORGANIZE MXF before mounting MR-HD-100 to computer.

UPGRADE

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

Reformat Drive FAT 32 Before Upgrading System Software

It is necessary to reformat the MR-HD100 drive as a FAT 32 file system BEFORE upgrading the system software. Remember to copy all data from the drive before reformatting.

To upgrade system software:

1. Attach the MR-HD100 to AC power before upgrading. A secure power source is necessary.
2. Download the latest upgrade file to a local computer.
3. Rename the upgrade file to **mr-hd.bin**.

   Some computers attempt to decompress, unzip or unpack, this file when it is downloaded. Set the download application so that it will not automatically unzip files as they download.
4. Connect the MR-HD100 to the local computer using the USB 2.0 cable provided with the MR-HD100.
5. Access the MR-HD100 root directory.

   Go to OPERATION > MODE and select **HDD**, see **MODE** on page 84.
6. Copy or drag the mr-hd.bin file to the MR-HD100 root directory.
7. Exit the MR-HD100 from **HDD** mode and navigate to the Utilities menu.

8. Select the utility **Upgrade**.
9. Press **F3/YES**.
   The **UPGRADING** screen appears. This screen continues to display until the upgrade completes.
   This process may take approximately 10 minutes.
10. On successful completion of the upgrade, the MR-HD100 displays the message, **UPGRADE COMPLETE** and automatically restarts.
11. Format the unit once the MR-HD100 has rebooted.

UPGRADE ABORT

If the upgrade fails, the MR-HD100 displays the message:

If the upgrade aborts:

1. 1. Re-mount the MR-HD100 to a computer.
2. Verify that the upgrade file name is mr-hd.bin and that it is in the MR-HD100 hard drive's root directory.
3. Dismount the MR-HD100 from the computer.
4. Retry initiating upgrade.

DELETE CLIP

Use this item to delete a selected clip.

1. In the Utilities menu, Select **DELETE CLIP**.
2. Use the Scroll Wheel to pick the number of the clip to deleted.
3. Press the **F3/YES** function key.
4. The selected clip is deleted.
5. Press **BACK** to return to the **Utilities** screen.

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

Note

Use Delete Function Sparingly
The delete function should be used sparingly. It is suggested that the DELETE CLIP utility be used only when absolutely necessary. It can cause disk fragmentation that can lead to file playback and record issues. If more space is required you must transfer your content from the MR-HD100 and perform the FORMAT utility. Refer to **Format Disk** on page 81.

System Reset

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

System Reset

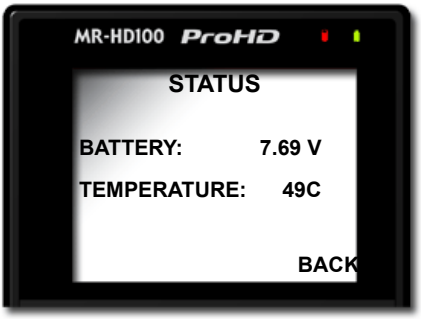
A System Reset can not be reversed.

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 MR-HD100.

Status



The MR-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.

Version

The Version screen displays:

- **MR-HD100 Firmware version**
- **Video Standard of the unit.**
- **MR-HD100 model**

MR-HD100 with Other Devices

Once video clips are recorded to the MR-HD100, they can be edited in most computer based DV/HDV NLE systems. This section contains:

In the past, to get footage into an NLE system, it was necessary to capture / digitize the footage using a video capture card. The MR-HD100's NFR functionality eliminates the capture stage. All that is necessary is the moving of the video files from the MR-HD100 to a computer. To do this:

- Connect the MR-HD100 directly to a computer through a USB A-A connection.
- Mount the MR-HD100 to the computer's file system.
- Use the MR-HD100 HDD Bypass mode, refer to **Initial Setup** on page 143 for more information.

The MR-HD100 is compatible with any computer system that can read FAT 32 or UDF volumes, see **FAT32** on page 141 and **UDF** on page 142.

Windows and MAC Operating Systems

The MR-HD100's default file system is UDF, Universal Disk Format. However, the MR-HD100 provides the ability to format the drive in either the **FAT32** or **UDF**. Selecting which drive format to use depends on the operating system and workflow.

Operating System	Version	FAT32	UDF read/write
Windows	XP	Read/Write	Read Only
Windows	VISTA	Read/Write	Read/Write
MAC OS	10.x	Read/Write	Read Only
MAC OS	10.5 Leopard	Read/Write	Read/Write

Note

Improving Mounting Time for Mac OS 10.5 and Later

When there are a large number of files on the MR-HD100 and it is set to **UDF Read/Write** mode, it can take several minutes for mount the MR-HD100 to the Mac desktop.

To shorten mounting time, set the MR-HD100 to **Read Only**.

FAT32

The FAT32 file system limits file size to a maximum of 2GB or approximately, 9 minutes of recording time.

Note

Recording Time Depends on Recorder Mode and Resolution

The number of minutes per 2G file depends upon the recorder mode and resolution:

- DV - 9 minutes,
- 720p (MOV) - 10 minutes,
- 720p (M2T) - 13 minutes,
- 1080i (M2T) - 9 minutes,
- 1080i (MOV) - 8 minutes (1080/60i) or 7.5 minutes (1080/50i),

When clips exceed 9 minutes in length, the MR-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 NLE systems it is possible to use clips within the timeline. Select the clips on the source volume, i.e. the connected MR-HD100, and import them directly into the NLE bin.

This makes clips immediately available in the NLE timeline.

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

UDF

UDF does not have the 2GB limitation on file size which permits the MR-HD100 to record clips of up to 1.5 hours in length.

UDF Perm Default Set to Read-Only.

When using Mac OS10.5 and UDF Perm is set to Read-Write, it may take several minutes for the disk drive to mount on the computer. Setting to Read-Only permits faster mounting times.

-

UDF and 720p 50/60 Quicktime Recording

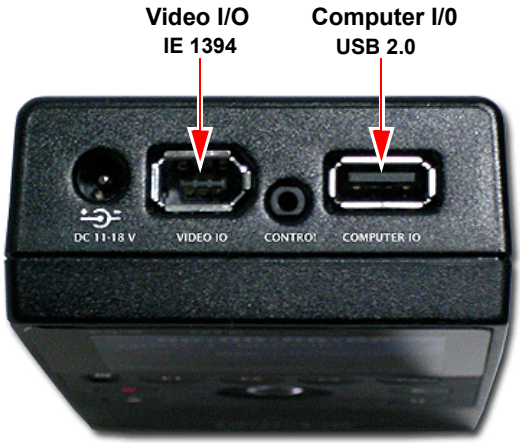
The maximum record times in UDF mode for 720p50/60 QuickTime recordings is 45 minutes in duration. Other UDF formats are 90 minutes.

Initial Setup

The MR-HD100 can be accessed by computer in three ways:

- Directly by USB cable.
- Through a wired (ethernet) network.
- Through a wireless network.

MR-HD100 to Computer



1. With MR-HD100 powered off, connect the MR-HD100 through its **COMPUTER I/O** USB 2.0 port to the computer system.

   Use either:

   - USB 2.0, type A to A, cable provided with the unit.
2. Power up MR-HD100.
3. Mount the MR-HD100 drive on the computer.

   For more information see **Mounting to Windows and MAC** on page 158.

MR-HD100 to Wired (Ethernet) Network

This procedure requires the use of a USB 2.0 to Ethernet Extender.

1. With the MR-HD100 powered off, use an USB 2.0 to Ethernet Extender to connect the MR-HD100 to the network.
2. Power on the MR-HD100 and wait for the Home screen to appear.
3. Go to the **SETUP** menu and locate **IP ADDR**.

   If the network employs DCHP, the **SETUP** options **IP ADDR**, **IP MASK**, **BROADCAST**, and **GATEWAY** display the network assigned addresses.
4. Open an IE or Safari web browser.
5. Enter the MR-HD100's **IP ADDR** into the browser's IP address bar and enter.

   The MR-HD100 **Templates** web page opens.

MR-HD100 and FTP

To access the MR-HD100 via FTP, follow the same steps above.

In Step 5, enter the address **ftp://FS:FS@** and then the **IP ADDR** from SETUP.

For more information about FTP password, see **FTP PASS** on page 115.

MR-HD100 to a Managed Wireless Network

A managed wireless network employs a wireless router to manage connected Wi-Fi devices. The router provides DHCP services the network in a way similar to the DHCP server on a wired network.

Setting up the MR-HD100 is similar to that of attaching the MR-HD100 to the ethernet network mentioned before. There are a few items to note:

- Verify that MR-HD100 is set to DHCP.
  SETUP > NETWORK > DHCP.
- Insure that the proper **ESSID** set,
  SETUP > NETWORK > ESSID.
  Use ESSID to browse available networks.
- Insure that the **KEY** is set.
  The **KEY** is the wireless network password.
  SETUP > NETWORK > KEY.
  This is WEP encryption only.

MR-HD100 Web and FTP

Like the wired network, the MR-HD100 can be accessed by web browser or FTP.

MR-HD100 Peer-to-Peer Networking (Wi-Fi)

Peer-To-Peer is the ability to connect the MR-HD100 with other Wi-Fi capable devices without going through a separate wireless router. This permits the videographer to use MR-HD100's metadata function in the field with a minimum of equipment, the MR-HD100 and another WI-FI device.

It is necessary to establish an ad-hoc, peer-to-peer network: the connection between MR-HD100 and other Wi-Fi capable devices are networked only for the duration of the session and while they are in Wi-Fi range.

Note

Current Technical Requirements

Presently, Peer-To-Peer networking requires the use of the latest firmware and an 802.11 USB dongle which utilizes the Ralink chipset.

One of the following USB dongles is provided with the MR-HD100:

- ASYF-1343-01LF
- ASYF-1344-01LF

Example

This example uses an iPod Touch and a Wi-Fi capable Mac running Safari.

Setting MR-HD100

1. Connect an approved 802.11 USB dongle to the MR-HD100.
2. Power up MR-HD100.

3. Go to the **SETUP** > **NETWORK** and Select **MANUAL**.

4. If needed, scroll to **SETUP** options **IP ADDRESS**, **IP MASK**, **BROBADCAST** and **GATEWAY** and modify their settings.
5. Set **ESSID**.

   SETUP > **ESSID** > Select **ESSID**.

   The **ESSID** display lists wireless networks within range of the MR-HD100. If the network is not displayed, press F2 and enter it, see **ESSID** on page 112.
6. Pick the network and press Select button.

   The display returns to the **SETUP** menu.
7. Set **KEY**.

SETUP > **KEY** > Select **KEY**.

The key is the wireless equivalent of the network password.

8. Enter the Key code and press Select, see page 113.

   The display returns to the **SETUP** menu.

   A key code is a WEP encryption convention and is not always required.

9. Set **WIFI MODE**.

   SETUP > **WIFI MODE** > Select **ADHOC (P2P).**

10. Verify that **WEB** is enabled.

    SETUP > **WEB** > **ENABLE.**

Setting Up iPod Touch (or iPhone)

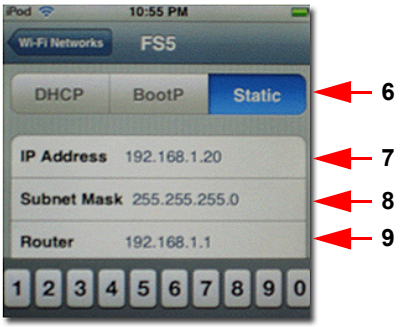
Use similar settings on other Wi-Fi devices.

1. Unlock the iTouch.
2. Select the **Settings** button.
3. In **Settings**, select the **Wi-Fi** setting (**ON**).

4. Under **Choose a Network...** Locate the **ESSID** set on MR-HD100 and select it buy touching the name. In this example, MR-HD100.

   A check mark appears next to the selection.

5. Press the right arrow in the blue circle to open the Network setting for this Wi-Fi selection.

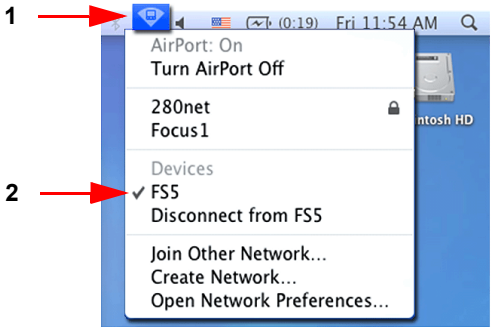


6. Press the **STATIC** button at the top of the screen.
7. Select an IP address where the last value is within 20 or 30 of that set on MR-HD100.

   Example: if MR-HD100's IP address is 192.168.1.1, set the MR-HD100 to 192.168.1.20.
8. Set **SUB NET MASK** to match the value on MR-HD100 (usually 255.255.255.0.
9. Set **ROUTER** to the IP address of MR-HD100 (for example, 192.168.1.1).
10. Exit this window by pressing the middle key at the base of the iPod display.
11. Launch the Safari web browser.
12. Enter the MR-HD100's IP address in the URL window. The MR-HD100 web page now appears.

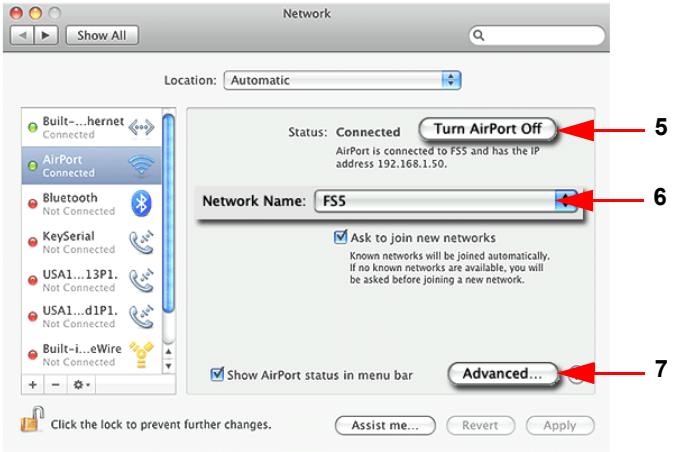
Setting Up a Mac

Use similar settings on other Wi-Fi capable computers.



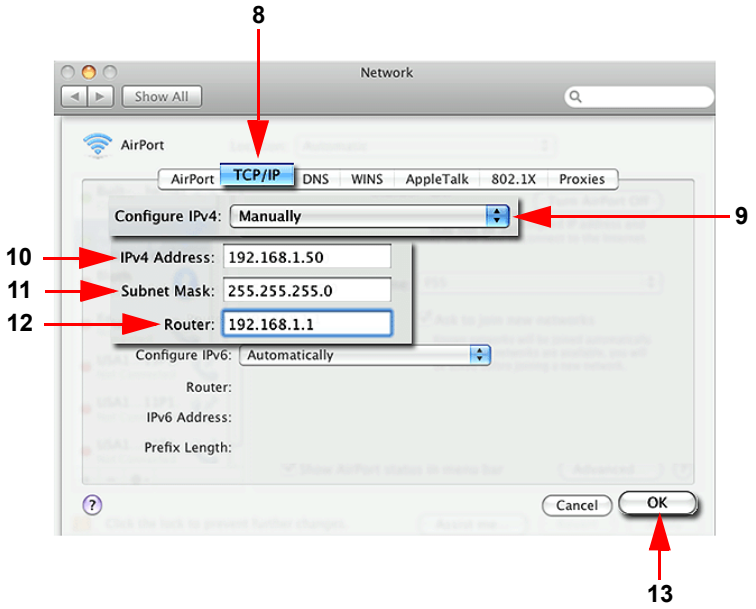
1. Select the Wi-Fi selector on the right side of the Mac's menu.
2. Under Devices, select the ESSID assigned on the MR-HD100 earlier.

   The Wi-Fi symbol on the menu bar will change to a Wi-Fi device symbol.
3. Open the Mac's **SYSTEM PREFERENCES**.
4. Located under **INTERNET AND NETWORK**, open **NETWORK**.



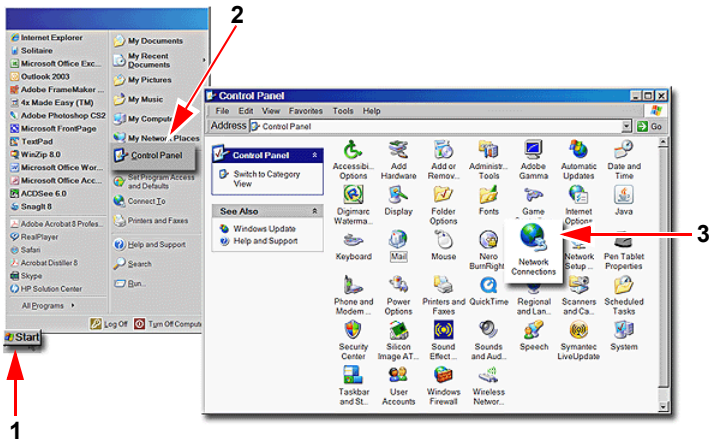
5. Select **AirPort** network icon.
   ON appears.

6. Verify that the MR-HD100 **ESSID** selected in Step 2 is the current Network name. If it is not, select it.
7. Click the **ADVANCED** button.



8. Click on **TCP/IP**.
9. Set **CONFIGURE Ipv4** to **MANUALLY**.
10. Enter a new IP Address under **IPv4 ADDRESS**.
    It should be within the IP range set on MR-HD100 and on other Wi-Fi devices connected to the ad-hoc network.
11. Set **SUBNET MASK** to the same value that is set on MR-HD100.
12. Set **ROUTER** to the IP Address of MR-HD100.
13. Press **OK**.
14. Press **APPLY**.
15. Open Safari on the Mac.
16. Enter the MR-HD100's **IP ADDR** into the browser's IP address bar and enter.
    The MR-HD100 **Templates** web page opens, see **Metadata** on page 43.

Setting Up a PC (XP)



Because the operating system's user interface (GUI) is customizable and that there are multiple versions of Windows XP in the workplace, the following instructions are only a guide. Individual computers may have GUIs different from the one shown here. The procedure remains the same.

1. Open the PC's Control Panel by clicking on the **Start** icon on the Windows Task Bar.

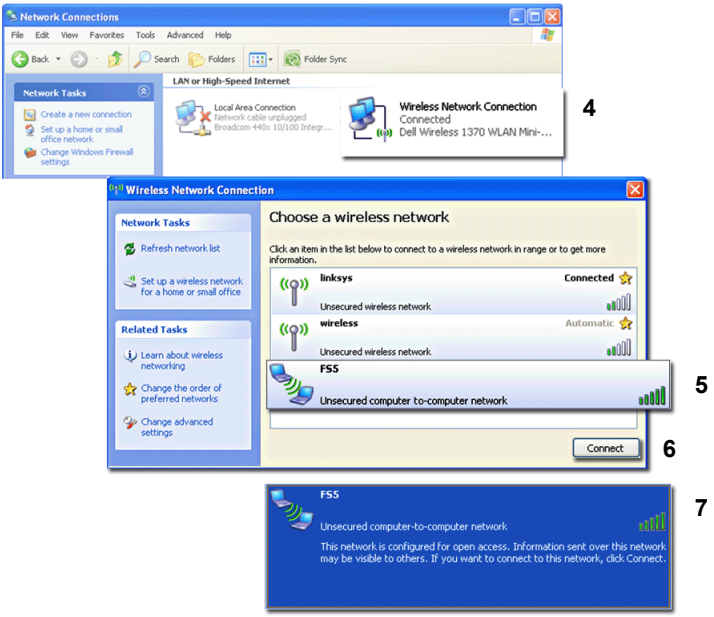
   The Start Menu appears.

2. Locate the **Control Panel** button and click on it.

   The Control Panel window open.

3. Click on **Network Connections**.

The Network Connections window opens.



4. Click on **Wireless Network Connections**.
   The Wireless Network Connection window opens.
5. Click on **FS5**.
6. Click the **Connect** button.
   This connects the computer to the MR-HD100. When the connection is made, the signal strength bars in the MR-HD100 listing go green and a message appears.
7. Click on the MR-HD100 again, to reselect.

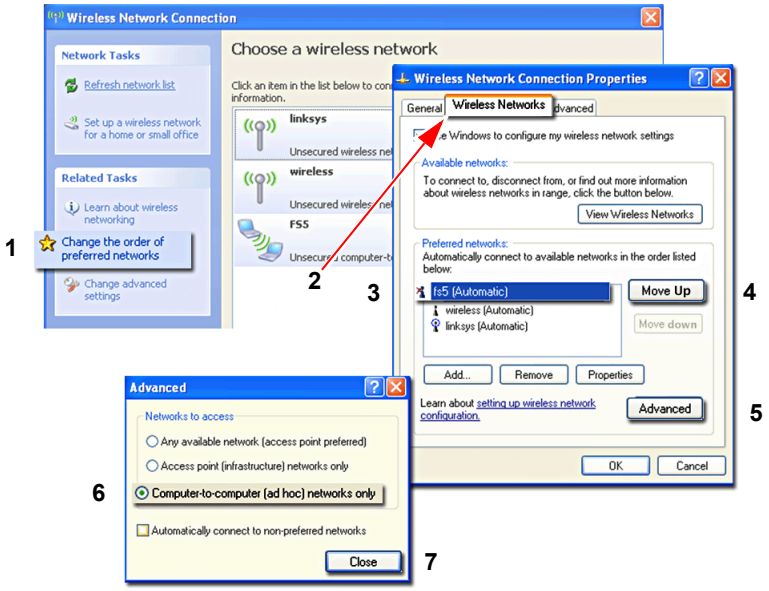
Two messages appear in sequence.

8. Click **Connect Anyway** and then **OK**.
   This completes the wireless connection.
9. Go to **Completing Network Setup** on page 156.

Completing Network Setup

The following steps are required to complete the set up.

Return to the Wireless Network Connection window.

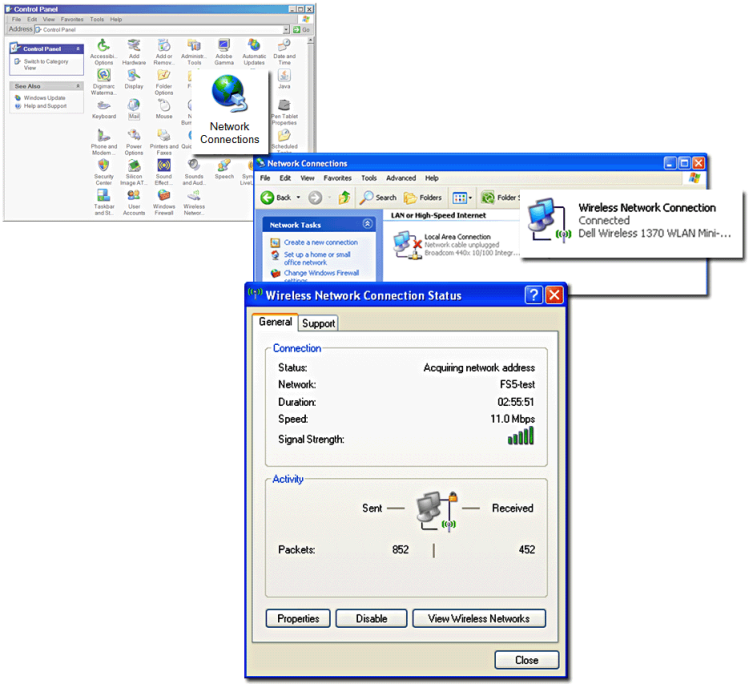


1. Click on **change the order of the preferred networks** in the Related Task column to the left.

   A new window opens.
2. Click on the **Wireless Network** tab.
3. Under Preferred Networks, click on the **FS5**.
4. Click on the **Move Up** button to move the FS5 to the top of the network list.
5. Click on the **Advance** to go into the next connection window.
6. Select **Computer to Computer (adhoc) network only**.
7. Click **Close**.

This initiates the wireless connection between the computer and the FS5. Connection status messages appear in the FS5 listing: **Acquiring network address** and **Connected**.

Wireless Network Status



To access the current network status -- connection, network name, duration, speed, signal strength:

1. Go to the Control Panel and click on the **Network Connection** icon.

   The Network Connections window appears.

2. Click on the wireless network that the FS5 belongs to.

   The Wireless Network Connection Status window appears.

Mounting to Windows and MAC

This procedure is the same for computers running Windows or MAC operating systems.

Select HDD MODE

On the MR-HD100, **OPERATION** > **MODE** and Select **HDD**.

This step is required before mounting the MR-HD100 to a computer. Refer to the section, **MODE** on page 84.

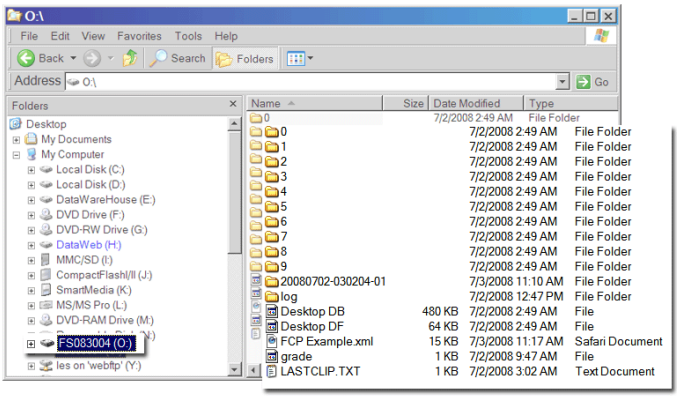
The **HDD BYPASS** screen appears.

It is now possible to mount the MR-HD100 drive onto the operating system.

Mounting and Dismounting the MR-HD100

How this is done depends on the operating system: MAC or Windows.

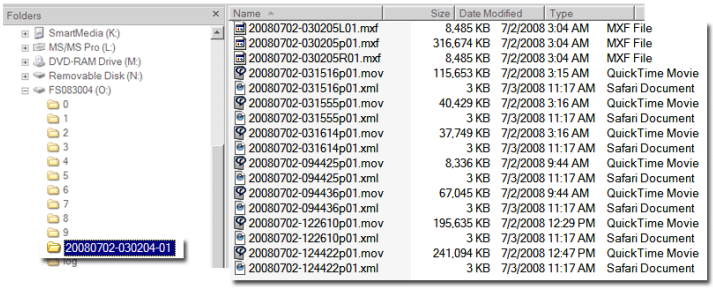
Windows



1. Open the Windows file system via MyComputer, Windows Explorer, or a similar Windows application.
2. Locate the MR-HD100 drive and open it.

   Often, it appears as a standard disk drive and may be labeled E:, F:, G:, and so on.

   The root folder has 11 folders and several files.
3. Open the folder with the most recent date code.



This folder may contain several different files: video and xml, see **Video File Types and Name Formats:** on page 168.

Close MR-HD100 Directory and Dismount From Windows

1. Close the file system browser, i.e. Windows Explorer.
2. Terminate **HDD** mode on the MR-HD100.
   There are two methods:
   - Select BACK in the MR-HD100's **HDD BYPASS** display.
   - Function Key assigned to **DD/DV**, press that key.

   The **HDD** display closes and the MR-HD100 returns to its previous display.

Note

Dismount Does Not Need Windows Intervention

Many USB devices, that once mounted to a Windows computer must then be dismounted using the Safely Remove Hardware function.

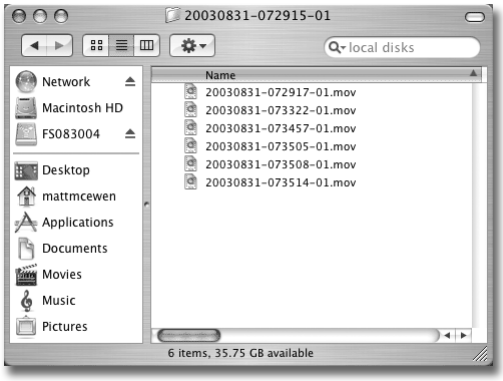
The MR-HD100 does not require that step. It safely dismounts itself from the computer file system.

MAC

1. Start the Mac computer and connect the MR-HD100's **COMPUTER I/O** port to the computer using a standard USB 2.0 type A to A cable.

   When mounted, the MR-HD100 appears on the computer's desktop as a FAT32 volume with a PC label, as shown below:

2. Locate the MR-HD100 on the desktop and open it up.
3. Open the folder with the most recent date code (for example, 20050127-110345-01). It should look similar to the following:



Note

Organizing Structured Files

If clips have been assigned to a Reel folder: perform an **Organize REEL** before connecting the unit to a computer, see **ORGANIZE REEL** on page 131. Also see **ORGANIZE MXF** on page 132.

Close MR-HD100 Directory and Dismount From MAC

Dismount MR-HD100 Before Powering Off

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

To dismount the MR-HD100 from a Mac:

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

Eject Shortcut for Two-button Mouse

If the Macintosh is equipped with a two-button mouse, the following keyboard shortcut is available:

- Right click the MR-HD100 icon on the desk top.
- Select the **Eject** function from the pop-up menu.

iPod Touch and the MR-HD100

The MR-HD100's internal web server, database, and wireless connectivity provide the ability to use the iPod iTouch, or other PDA, to log video clip metadata while recording in the field. During the recording, the clip metadata is stored in the MR-HD100 database. Later the clip and its metadata are downloaded to a NLE for editing.

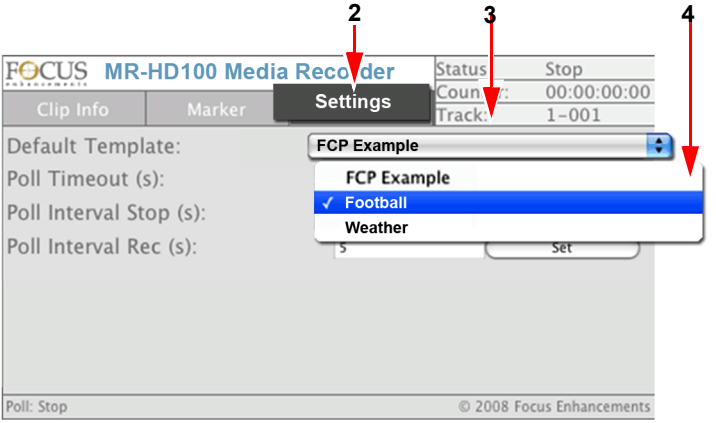
A summary of the steps for logging metadata are:

1. Connect to the wireless network on which the MR-HD100 is operation.
2. Use the iPod browser to access the MR-HD100 web page and database.
3. Select the metadata template to use.
4. Place the MR-HD100 in Record mode and begin recording.
5. Set metadata values for clip.

Connect Using Wireless

First it is necessary to connect to the MR-HD100 using wireless networking, see **FS-5 to a Managed Wireless Network** on page 140 or **FS-5 Peer-to-Peer Networking (Wi-Fi)** on page 142.

Logging Metadata While Recording Logging Metadata



Content-based Metadata

1. Access the MR-HD100 using the iPod browser.

   The MR-HD100 **Entry** page appears.
2. Click on **Settings**

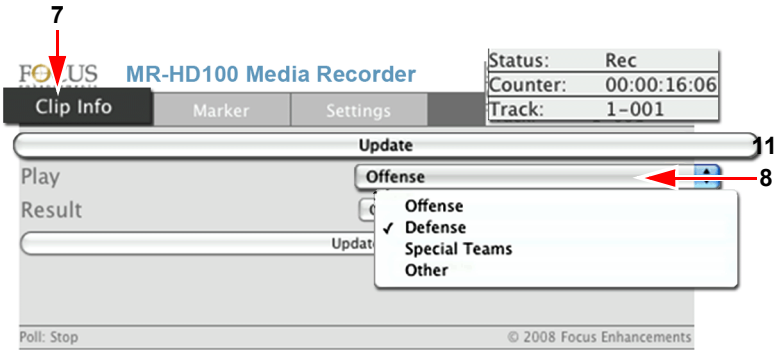
   A new page appears. The name of the currently active template is displayed on the Default Template button.
3. Select a metadata template to use.

   If the default template is okay, go to Step 5.

   If another template is needed, click on the **Default Template** button.

   A dropdown menu appears with a list of available templates.
4. Pick the template and click on **Done**.

   The name appears on the Default Template button. This template and its predefined metadata values are applied to all recordings until another template is selected.
5. Verify that:
   - MR-HD100 is set to the **QUICKTIME DTE** format -- either **DV** or **HDV** format.
   - **AUTO ORG** is enabled -- look in the **SETUP** menu.



6. Put the MR-HD100 into **Record** mode and start recording.
   The Settings page on the iPod now shows:
   - MR-HD100 Status is recording,
   - Current timecode,
   - The number of the track being recorded,
7. Click on **Clip Info**.
   The iPod displays the Clip info page with the template's metadata fields and/or their buttons. If Friendly Names were assigned early, they appear.
   This page is for logging clip-based - non TC Depend, timecode dependent -- metadata.
8. Enter the metadata:
   - For open data fields, click on the field: depending on the data type, the iPod keyboard or number pad appears.
   - For metadata buttons, click on the button to display a dropdown menu with its predefined values. Pick the appropriate value.
9. Click **Done**. (Not shown in illustration.)
   The data is fixed in the field and it is now possible to go on to other metadata fields.
10. Repeat Steps 7, 8, and 9 until all metadata is specified.
11. Click one of the **Update** buttons.
    The metadata is associated with the clip and immediately uploaded and saved in the MR-HD100 database. This metadata applies to the entire clip.

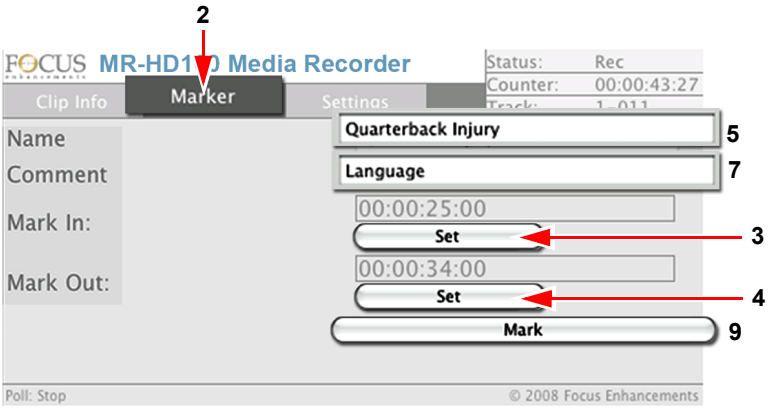
Once logged, stop the recording.

It is also possible to log clip-based metadata to a clip after the recording is complete, **STOP** mode, but before recording the next clip.

It is also possible to log metadata when in **Playback** mode.

Timecode-based Metadata (In and Out Markers)

If while recording a clip an event occurs that the editor needs to be aware of, for example a player is injured during a play, it is possible to insert Markers to locate that portion of the clip.



To mark timecode specific values, it is important that a metadata field have **TC DEPEND** enabled. This is done while the template is being created.

When timecode **In** and **Out** markers are set during the recording is at the discretion of the videographer and the events being recorded.

1. Start recording.
2. Click on **Marker**.

   The Marker page appears.
3. Click the **Mark In: Set** button.

   This sets a **In** marker at that point in the timecode of the recording.

4. Click the **Mark Out: Set** button.

   This sets a **Out** marker at that point in the timecode of the recording.

5. Name the marker.

   Click on the **Marker Name** field.

   The iPod keypad appears.

   Key in a descriptive name to identify the video segment: for example *injury*.

6. Click **Done**. (Not shown in illustration.)

   The data is fixed in the field and it is now possible to go on to other metadata fields.

7. Add a comment.

   Click on the **Mark Comment** field.

   The iPod keypad reappears.

   Key in a descriptive word or phrase to assist the editor in post production, for example *langauge*, that indicates the injured player used words not acceptable for broadcast.

8. Click **Done**. (Not shown in illustration.)

   The data is fixed in the field and it is now possible to go on to other metadata fields.

9. Click the **Mark** button to store the marker in the MR-HD100 database.

Video File Types and Name Formats:

DV File Types	Name Format	Extension
RAWDV		.DV
AVI Type2 **or 24p AVI Type2**	YYYMMDDHHMMSSb01	.AVI
Canopus AVI	YYYMMDD-HHMMSSb01	.AVI
Matrox AVI	YYYMMDD-HHMMSSm01 This file has a separate .wav audio file per track.	.AVI
QuickTime **or 24p Quicktime**		.MOV
OP Atom	YYYYMMDD-HHMMSSp01 YYYYMMDD-HHMMSSL01.mxf), - (YYYYMMDDHHMMSSR01.mxf) where: **p** is video, **L** is the left audio channel, **R** is the right audio channel,	.MXF
MXF P2		.MXF
HDV File Types		
M2T	YYYYMMDD-HHMMSSX01.m2t	.M2T
MXF		.MXF
QuickTime		.MOV

AUTO ORG and REELS

Note

MR-HD100 Video Clips in Reel Folder

MR-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, the MR-HD100 reminds the videographer to run AUTO ORG before attaching the MR-HD100 to a computer.

MR-HD100 Resolution and Frames

- M2T or QUICKTIME (MOV) filename format: YYYYM-MDD-HHMMSS**X**01.m2t or .mov 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	756p, 50 fps *		
z	480p, 60 fps *		

*** The 576p, 50 fps and 480p, 60 fps resolutions are not supported in the HDV QUICKTIME format. The unit will not record these resolutions camera when in HDV QUICKTIME format.**

MR-HD100 Accessories

Check www.focusinfo.com for information about MR-HD100 accessoreis.

Non-Linear Editors (NLEs)

This section provides MR-HD100 information specific to supported non-linear editors. Also check the Focus Enhancements web site, www.focusinfo.com for the latest updates.

In this section:

Final Cut Pro

MR-HD100 NFR Workflow

Traditional File-Based Workflow

Traditional video workflow is based on the film industry. Video like film is considered as an actual strip of film or tape that is identified by a code number. Records of the content of the video is physically logged and maintained separately from the tape.

A significant part of the workflow involves the physical handling, processing, logging, and storing of individual items.

Even with the introduction of digital media, much of the old workflow remains. Video clips, though digital and now easily duplicated, are still often identified by a code number that identifies the video file, much like a strip of film.

MR-HD100 and Content-Based Workflow

The MR-HD100 combines Native File Recording (NFR) technology and integrated metadata logging to create content-based workflow that is significantly more efficient than the file-based method. The MR-HD100 provides the ability to video content and related metadata that can be downloaded, ready to edit, into the Final Cut Pro editor.

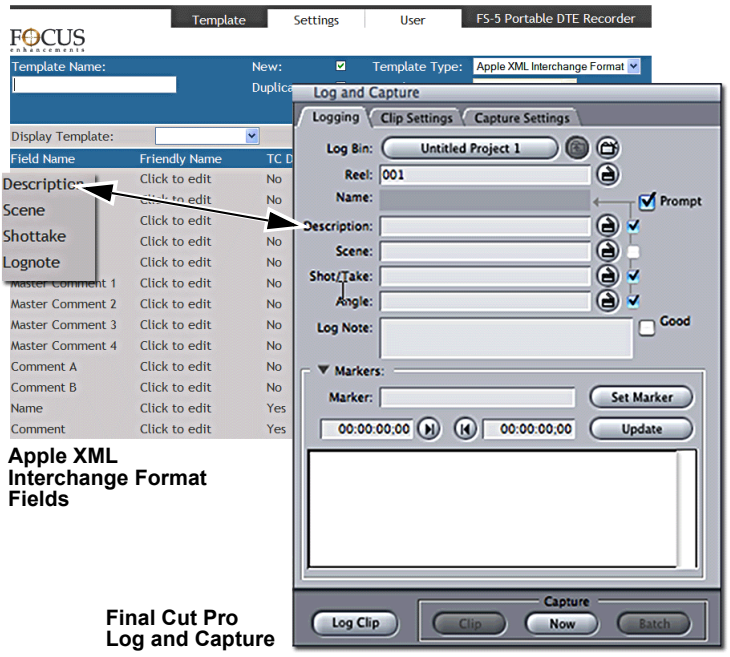
Content-based workflow involves:

- **Defining Project**
  Using storyboards, scripts, director's shot list, and other means, the video team visualizes how the final project will look and the individual tasks needed to create the video content. This information is the basis for the fields in the metadata template.

- **Creating Metadata Template**

  Taking the information generated during project definition, the editor creates xml metadata templates that reflect the project's content structure. These templates are created using a computer networked to the MR-HD100. The MR-HD100 has a web server that provides a web interface for creating and managing templates. The templates are stored in the MR-HD100's database, see **Creating A Template** on page 60.

  To assist the template author, the MR-HD100 provides a Final Cut Pro example template and a set of Apple XML Interchange Format metadata fields that can be adapted to a specific project's requirements. Most of these metadata fields will be familiar to Final Cut Pro users: they are the same values that are used in Final Cut Pro's Log and Capture window within Final Cut Pro.



Apple XML Interchange Format Fields

Final Cut Pro Log and Capture

For example, here is a possible template for shooting a football game:

Field Name	Friendly Name	Predefined Value
Master Comment 1	Play	offense defense special teams
Master Comment 2	Result	complete incomplete fumble interception

Once created, a template can be saved, reused, and shared with other MR-HD100s.

- **Creating Content**

  This involves two parallel steps.

  Recording Video

  Event is recorded in a DTE format as a series of video clips.

  Logging Metadata

  Using a PDA, such as an iPod iTouch, the videographer or editor connects to the MR-HD100 via wireless peer-to-peer network and accesses the Metadata templates through the MR-HD100 web server, see **Connect Using Wireless** on page 163.

  Logging consists of selecting the appropriate template for the clip, entering information into the metadata fields, and saving in the MR-HD100 database, see **Logging Metadata While Recording Logging Metadata** on page 164.

- **Downloading Content Into Final Cut Pro**

  The video clip and its associated metadata are downloaded directly into Final Cut where it is immediately ready to edit, see **Importing Video Clip and Metadata** on page 176.

- **Continuing with Post Production Tasks**

  Once in Final Cut, the video and its metadata are available for post production.

Overview of XML

This section applies to Final Cut Pro 5.1 and later.

Using the MR-HD100 Export function creates a pair of associated files: video clip and metadata document file that is in the Apple XML Interchange Format (AXIF). Final Cut supports documents in the Final Cut Pro XML Interchange Format which is a variation of AXIF and is able to open, view, parse and edit the MR-HD100 xml metadata document.

By importing video clips and their MR-HD100 metadata xml documents into Final Cut it is possible to improve post-production workflow.

- Production companies often use the metadata feature to track all film or video shots during production. Exporting this database information to interchange format documents permits the quick creation of video dailies from film, HD, or SD footage. The interchange format document is edited together with MR-HD100 footage into a sequence before each shot.
- An Editor may need to change all medium shots of a scene to close up's. Using metadata and xml, the post editor can quickly find and replace clips with other clips.

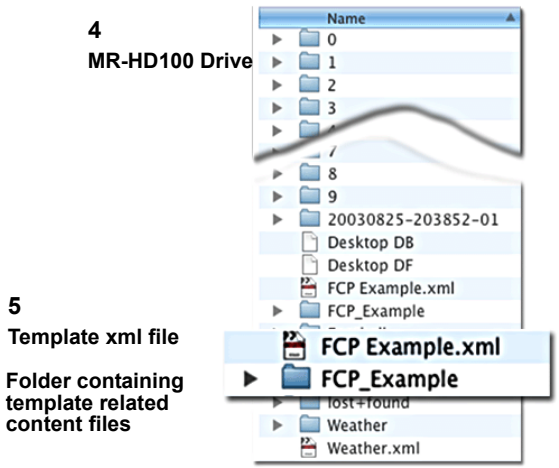
Importing Video Clip and Metadata

To begin,

1. Connect the MR-HD100 to the Final Cut Pro computer using a USB 2.0 A-A cable,
2. Verify that the MR-HD100 has **AUTO ORG** enabled,
3. Mount the MR-HD100 as a drive on the MAC, see **Mounting to Windows and MAC** on page 158.
4. Locate the MR-HD100's drive and root directory.

   MAC - the MR-HD100 drive appears on the desktop.

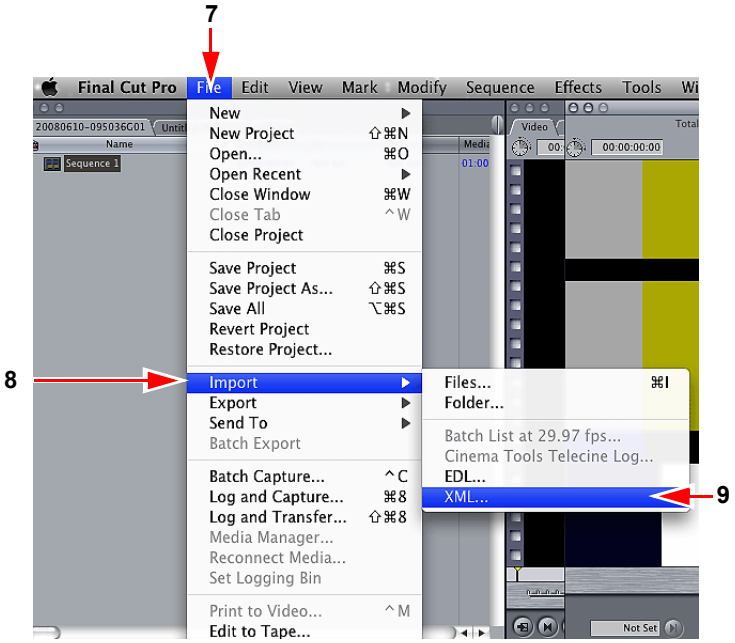
   Window - use the file browser to locate the MR-HD100 drive.
5. Find the template xml file.



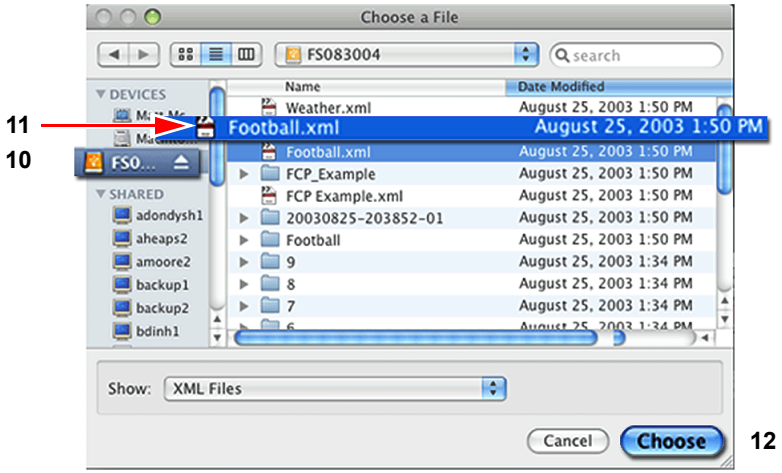
This file has the same name as the template used during recording. All the metadata logged when a clip was shot is inside the template .xml file. In addition, the template .xml file contains a link to the location of the video clip on the MR-HD100 drive.

All clips recorded using the same template are located in the folder with that template's name.

6. Open Final Cut.



7. Click on the **File** option in the Menu Bar.
8. Highlight the **Import** option so that it's menu appears.
9. Select **XML**.
   The **Choose a File** window appears.



10. Select the MR-HD100 drive in the Devices column.

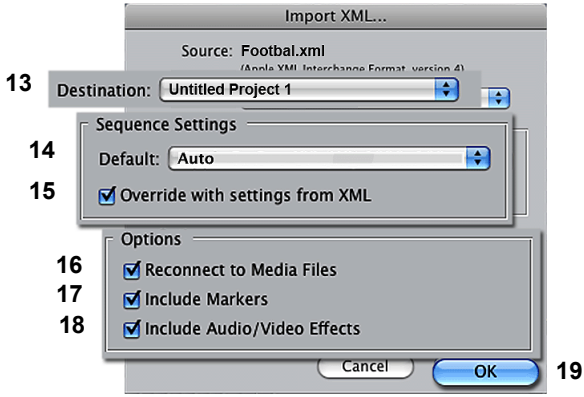
A list of directories and files appears. Because Import > XML was picked earlier, the xml files are active but the video files are grayed out and inaccessible.

11. Select the template's **xml** file.

A xml icon appears with the name of the file and other data. Under the icon is the **more info** link. Clicking on this link opens a window with information about data that was created using the MR-HD100 metadata function.

12. Click the **Choose** button.

The Import XML window appears.



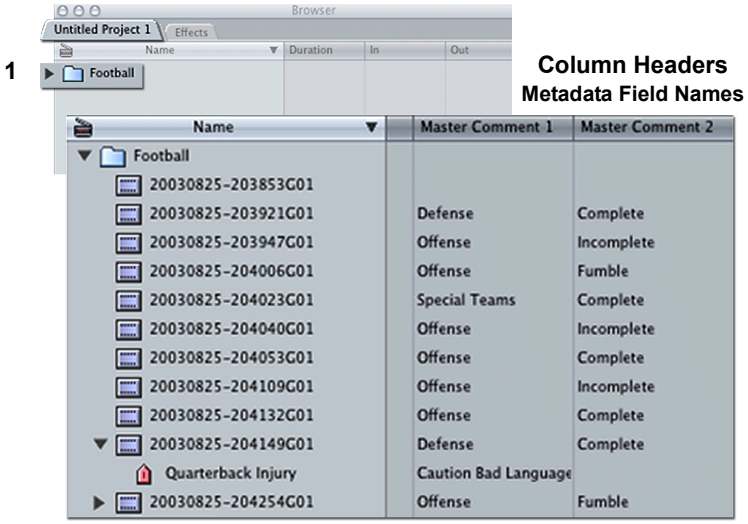
13. Use the Destination field to navigate to the project where the video clip is to be placed. Default is **Untitled Project**.
14. Select **Auto** from the Default dropdown menu.

    Auto enables Final Cut to automatically determine the format of the video clip, e.g. Apple ProRes 422 (HQ) 1920 x1080 50i 48kHx.

    Final Cut versions earlier than 5.1 require that the User manually select the correct entry.
15. Check mark the setting **Override with settings from XML**.
16. Check mark the option **Reconnect to Media Files**.
17. Check mark the option **Include Markers**.
18. Check mark the option **Include Audio/Visual Effects**.
19. Click **OK**.

    Final Cut imports all the clips that were shot using the specific template and places them in a folder in the browser window. One step places all the related video clips and their logged metadata in a folder.

Viewing a Clip



1. To view all of the clips recorded using a specific template, open the folder with that template's name.

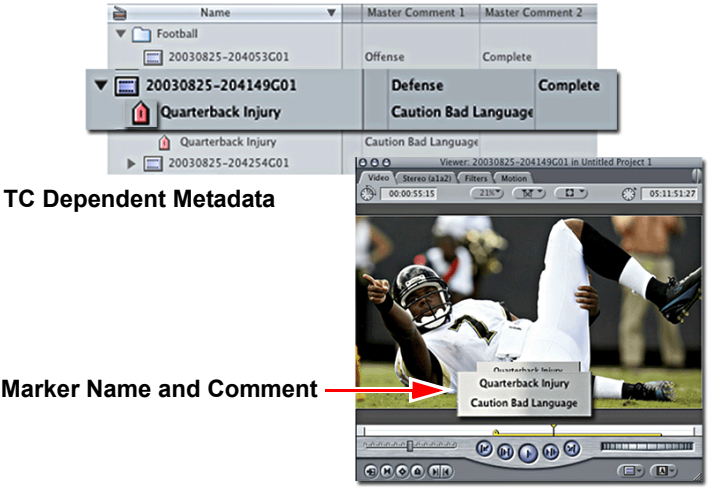
   A list of all the video clips associated with the template appears.

   To the right of the clip file names are columns with the metadata values attached to the file. The column headers are the **original** metadata field names: **Friendly Names** assigned in the template do not appear.

   By selecting the field name at the top of the column, it is possible to sort all the clips by the values in that field.

2. To view the clip, drag it into the viewer window.

   The MR-HD100's capability of recording in native QuickTime HDV format using Native File Recording technology means that when the clip is dragged into the Final Cut Pro timeline, no rendering is required and the clip is ready to edit.



Any clips logged using timecode dependant (TC DEPEND) metadata have an arrow to the left of the clip in the browser window. Clicking on the arrow, displays the marker that was set and the name, if it was entered.

If the entire clip is dragged into the viewer or timeline, the marker portion (with **IN** and **OUT** points) plays in the viewer. If the play marker is within the marker period, the marker name and comment appear superimposed over the video.

Technical Specifications

Specifications are subject to change.

Physical Description

- Dimensions: 2.75″ x 5.50″ x 1.25″ (70mm x 140mm x 32mm).
- Weight: 12 oz. (0.34 kg) with battery.

User Interface

- Graphical display, 37mm x 49mm Active Display, color, backlit.
- 9 control buttons with conductive rubber keypad.
- Scroll Wheel I/F.
- Menu system integrated with control buttons to provide access to unit:
  - Operations
  - System Setup
  - Functions
  - Utilities

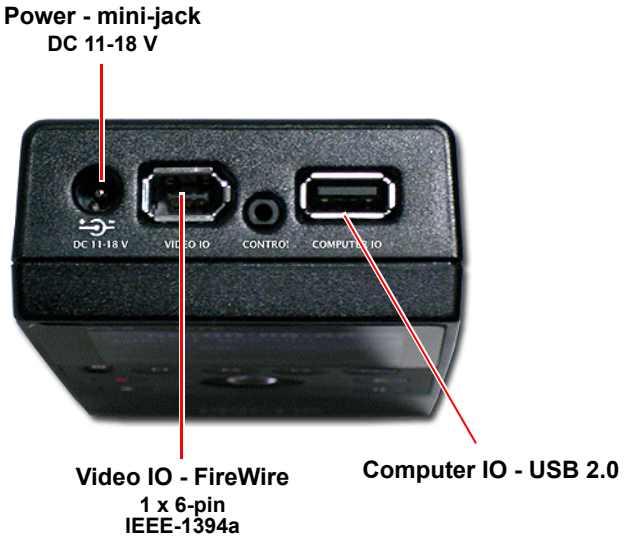
Metadata

- Download from external device, Xml template of metadata tags.
- Add metadata tags to video file and link to:
  - Timecode values in a recording,
  - Individual clips,
  - Entire recording session,
- Metadata compatible with popular NLE editor applications.

Compliance

- CE
- FCC Class A
- C-Tick
- RoHS

Connectors



Inputs/Outputs

Video

- 1 x 6-pin FireWire, IEEE-1394a, connector with restraining latch.
- Connector does not accept or provide power.

NFR Video Formats

- SD
- DV25

  Frame rates:

  480i @ 30 fps.

  480p @ 24 and 30 fps.

  576i/p @ 25fps.
- HD/HDV

  Frame rates:

  720p @ 24, 25, 30, 50 and 60 fps.

  1080i @ 24F, 30F, 50 and 60 fps.

Audio

Embedded in the FireWire signal

- DV25

  Embedded 2-channel (16-bit, 48kHz),

  Embedded 4-channel (12-bit, 32kHz),
- HDV

  Embedded 2-channel MPEG 1, Layer 2,

Timecode

- Embedded in FireWire or through external serial port. Timecode can be generated on a single MR-HD100 and passed to additional MR-HD100 units using either a serial control cable with a splitter or using a 802.11g dongle connected to the USB 2.0 port.

Data I/Os

USB 2.0

- 1 x Asynchronous USB 2.0 port (Type A connector) w/ power out (500mA max) and locking latch – TBD. Also able to accept power when connected to a computer. Power from computer limited to 500mA maximum for powering the unit.
- Does not charge battery.
- Connect 802.11b/g wireless LAN compatible devices.

Disk Drive

- Capacity: 60GB or 100GB
- Form Factor: 1.8″
- Formatting: UDF
- Speed: 4200 RPM
- Type: PATA (IT series)

NFR File Formats Supported

- DV25
  - AVI 2
  - AVI 2 – 24p
  - Canopus AVI
  - Matrox AVI
  - QuickTime
  - QuickTime 24p
  - OP Atom
  - MXF P2
- HDV
  - M2T
  - QuickTime
  - MXF

Error Messages

The MR-HD100 will display error messages on its LCD display if certain conditions occur that can effect MR-HD100 operation. Below is a list of the error messages and the actions to take:

Error Message	Description	Action
LOW BATTERY!	Battery power is low.	Connect AC Power or replace the battery pack.
HIGH TEMPERATURE!	The unit is getting too hot for normal operation.	Check ambient air temperature. Is unit in direct sun light or near heat source?
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.
AUDIO MUTE	Record or Playback with VF mode set to 24, 25 or 30 is muted for the PN NFR formats (QuickTime PN and P2 PN).	This is normal. No action is required.

Data CRC Errors

CRC (Cyclic Redundancy Check) errors indicate that either a file is corrupted (this might be a hardware error) or a file system is corrupted.

CRC's are caused by any of the following:

- Computer hard drive
- Computer hard drive copying the files
- Computer port
- Computer file system corruption
- Cable, FireWire or USB MR-HD100 hard drive
- MR-HD100 port
- MR-HD100 file system corruption

Environment

- Operating Temperature: 0-40° C (32° -104°F)
- Storage Temperature: -20-60° C (-4° -140°F)
- Ambient Operating Humidity: Within 10% to 85% (relative humidity)
- Shock (Drop Test): Operating 50cm / Non-operating 100cm

Power

- Main unit:
  11 – 18V DC,
  Low power consumption. less than 3W during record,
- Removable and rechargeable Li-Ion battery pack:
  Capable of more than 3 hours of continuous record operation,
  Battery charger built into the unit,
- Supplied external AC adapter with restraining mechanism,
- Accept/receive power via USB 2.0 port:
  Maximum 2.5W (500mA),
  Operation Only - Does Not Charge Battery,
- Power From External DC Battery Devices
  The ability to charge the MR-HD100 battery when operating using an external DC battery device is dependent on the load placed on the MR-HD100.
  Consider the following when using external DC battery devices to power the MR-HD100. The typical external DC video device is 12V or 14.4V.

Power Consumption Tables

No Battery Installed - no charging current			
Volt- in	**No Dongle**	**With Linksys Dongle**	**Notes**
14.4 V	0.238A (3.42W)	0.328A (4.72W)	idle-LCD/Backlight at max
12.0V	0.285A (3.42W)	0.398A (4.77W)	idle-LCD/Backlight at max

Battery Installed - partially discharged, full charging current			
Volt- in	**No Dongle**	**With Linksys Dongle**	**Notes**
14.4 V	NA	0.608A (8.75W)	Record Mode-LCD/ Backlight at max
14.4 V	0.525A (7.6W)	0.575A (8.25W)	record for 1 hr., internal T=56 deg.C

Operation

When operating the MR-HD100 at 12V rather than 14.4V, the power consumed remains the same, but the current draw increases by a factor of 1.2 (14.4/12.0).

The Linksys dongle uses approximately 1.35W. This represents about 30% of the power budget when not charging the batteries.

When charging the batteries, the MR-HD100 applies as much power as possible to the battery, up to a limit of about 1A charging current. However, the overall power system limits the total amount of current consumed to about 0.6 A maximum based on the 15V input adapter.

The result is that when a big load is added, such as a discharged battery and the dongle, the MR-HD100 automatically reduces the amount of the charging current so that the total current through the adapter never exceeds approximately 0.6 Amps.

Warranty

- MR-HD100, one year, limited.

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FOCUS enhancements

MR-HD100 Media Recorder
MANL-1144-02