FOCUS
enhancements

FS-5
Portable HD/SD DTE Recorder

User Guide

MANL-1128-03

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: FS-5 DTE Recorder

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

FCC Class B

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 B 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

FS-5 is a device marketed for use in industrial or business environments. The FS-5 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 FS-5 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 FS-5 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 FS-5 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 FS-5 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, esxtreme heat or cold.

Table of Contents

Introduction

Thank you for purchasing a Focus Enhancements' FS-5 portable Direct To Edit ®

(DTE) disk recorder. FS-5 combines powerful, industry leading DTE Technology with the ability to add metadata to clips in non-linear editing (NLE) and media asset management (MAM) native formats while you shoot. FS-5's small size and powerful feature set make it ideal for DV and HDV camcorder owners.

DTE Eliminates Pre-edit Processing

The FS-5 DTE disk recorder eliminates the need to capture, transfer or convert video clips before editing. The FS-5 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 FS-5, you can personalize and optimize workflow—while you shoot. With your wireless handheld device or laptop, you can access the FS-5 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 FS-5 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

Illustration
components of FS-5 Pkg

TBD

Verify that the FS-5 has the following items:

1.	FS-5 unit	
2.	Li-Ion battery pack, one	BATT-0012-01 (Accessory Part Number: ASYF-1323-01LF)
3.	Power adapter with connector cable. ‘	PWRS-0039-01
4.	Cable, power (If required for included power supply.)	
5.	Cable, USB, 2.0	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.	User Guide	MANL-1128

Note

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

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

The FS-5 offers the following features:

- **Direct To Disk Acquisition**

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

- **True DTE Technology**

  When shooting is finished, connect the FS-5HD 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.
** 720p25/30 and 1080i50/60 support only.

DTE 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 FS-5 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 400 Mbps or edit instantly in real-time using the FS-5 as your media source.

- **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 FS-5 weighs approximately 12 ounces (0.22 kg) including the battery and is only 1.25" (32mm) thick. You can mount the FS-5 directly to your camcorder using the optional camera mount kit. The FS-5 is designed to withstand the rigors of field shooting. The programmable 10-seconds of 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 FS-5 interfaces with the camcorder using a FireWire.

  b. The FS-5 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 Start and Stop on the camcorder's record button creates an individual clip on the FS-5 disk.

  On some cameras, the FS-5 can be triggered into record from the camera without the need for a tape. Check the latest camera / FS-5 compatibility chart on the Focus website.

  d. The FS-5 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.

  e. In addition, these units are upgradable in the field.

- **Flexible Capacities and Power**

  a. The FS-5 hard drive provides hours of recorded content capacity. See www.focusinfo.com for the currently available hard drive capacities.

  b. Power the FS-5 using:

  - Removable Li-ion battery pack supplied with the unit.
  - AC adapter supplied with the unit.

- FireWire connection between the FS-5 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 FS-5 and charge its battery.

Note

FireWire Connection Is Not Data Interface
Mounting the FS-5 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 FS-5.
- **Multiple Timecode Modes**

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

  FS-5'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 DTE Formats**

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

  This mode insures that action at the begining of video clip is not missed. In Retro Disk mode, the FS-5 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 FS-5 creates a new clip and seamlessly appends the Retro Disk session to the beginning of the new clip.
- **Scene Marking**

  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)**
  - Large disk storage capacity through use of UDF.
  - Single DV/HDV file recording times of up to 1.5 hours.
  - Automated new file creation at large file boundaries.
  - Read Capability on Windows XP and Read/Write Capability on Mac OS 10.5 and Windows Vista
  - FAT32 optional.
- **Wired or Wireless Networking**

  Set up and log metadata while shooting, through the FS-5's USB 2.0 interface. Mount the FS-5 on either wired or wireless networks using optional USB 2.0 wired or wireless network adapters.

  In addition, this permits the asynchonous file transfer of clips from the FS-5 to a NLE system or PX Media Server.

Overview of this Guide

This user guide is divided into the following chapters.

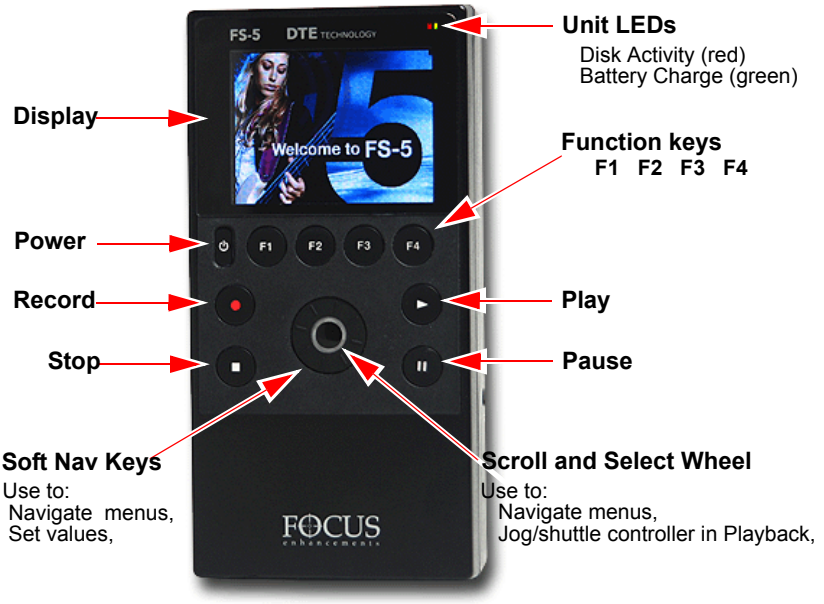
Quick Start

Quick Start provides the information necessary to start using the FS-5 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 three functions.

1. **Power ON** FS-5.
2. **Reset** FS-5.
   - FS-5 first must be powered on.
   - Hold down the **Power On** key for more than a second.
3. **Power OFF**.

   Press the key for five (5) seconds.
   During power off, the FS-5 beeps, indicating that it is turning off.

Record / Play Controls

Use these keys to control FS-5 playback and record functions. Typically, these functions are used while on the **HOME** Screen.

Record ●

Press this key once when the FS-5 is in **Stop** mode to put the FS-5 into **REC-PAUSE**.

Press Record again to start recording.

Note

Record Key in RETRO Record Mode
In the RETRO recrod 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 FS-5 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.

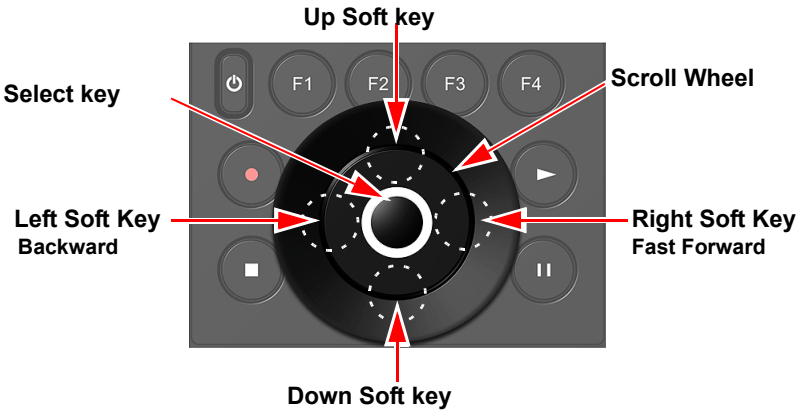
Pause

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.

Use this key to skip forward to the next clip in **STOP** or **PLAY** modes.

Scroll/Select Wheel and Soft Navigation Keys



Use the Scroll Wheel, Select and Soft keys to navigate through the FS-5 menus. The navigation keys are **Left**, **Right**, **Up**, **Down**, and **Select**.

The soft keys 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 Key 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**
  When navigation through the FS-5 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 **Select** key returns the display to the Home screen.

Right Soft Key / Fast Forward

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

- **Fast Forward**
  During Play Mode, pressing the Right soft key increases the rate of playback. The rate is shown in the display and is indicated as a multiple of the standard frame rate, i.e. 2X, 10X, 30X.

Left Soft Key / Back Index

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

When in a menu, pressing **Left** a second time, returns the display to the **Home** screen.

Reverse

In Play mode, this key runs the FS-5 in reverse mode.

Pressing the Left key twice in sequence to return the FS-5 to the previous clip during.

In **STOP** mode, press this key to return the FS-5 to the beginning of the previous clip.

Up and Down Soft keys

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

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

Function keys

Below the FS-5 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
Off	Power Off, Pause, Playback Pause, Recording
Red	Playback
Red - Flashing	Disk being accessed: Recording, HDD mode

Battery Charge

LED State	Indicates
Off	Powered Off, Adapter Connected - No Battery
Green	Charging Cycle Completed
Green Flashing	Charging (adapter connected)

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

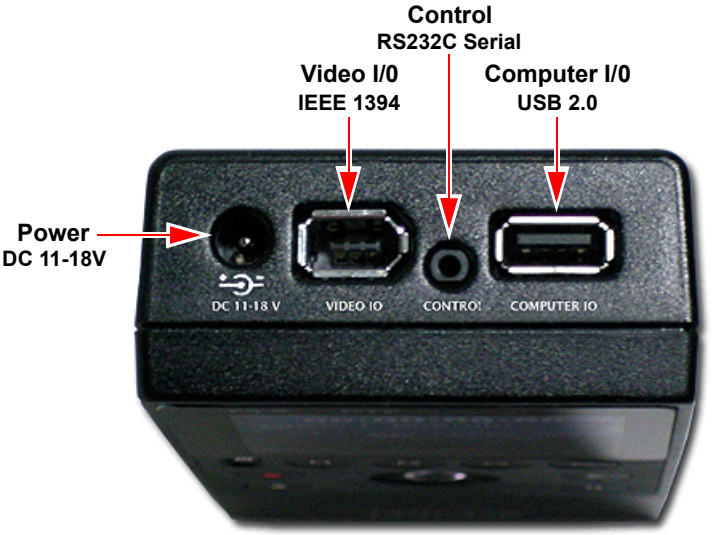
Green - 100% - 50%

Yellow - 50% - 25%

Red - 25% - 0

Low charge, recharge immediately.

Top View - Input/Output and Power Connectors



Power - DC 11-18V

The primary power input is through the **Power** connector and supplied by an external adapter unit.

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
  FS-5 supports 1080i/720p video I/O when used with HDV camcorders equipped with a 1394 connection.

Note

Powering the FS-5 Via the FireWire Connection
The FS-5 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 Not A Data Connection
It is Not Possible to mount the FS-5 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)
- **HDV**
  Available in the RawDV DTE file format only.
  2-ch MPEG 1, Layer 2

Not All Frame Rates Are Supported With All DTE 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:

- Computers with up to 480Mb/s.
- 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 FS-5 System **Setup** menu, see **Network** on page 65.

  The FS-5 auto detects the type of connection being made provided it is set up correctly or in **HDD** mode.

Powering the FS-5 Via the USB Connection
The FS-5 can also draw power for recording and playback operations though the USB connector. However, the FS-5 does not recharge its li-ion battery in this mode.

Control - RS232C Serial

- Can configure to act as a simple contact closure or RS-232C port.
- GPI / RS232C - Reserved for future use.

Powering the FS-5

Connecting the FS-5 to AC Power

The FS-5 can operate either with a battery installed or without a battery and connected to its power adapter.

Do Not Operate FS-5 With Battery and AC Adapter

The FS-5 can operate with either battery or AC adapter as its power source. However, when powering the unit with the AC adapter while the battery is still installed, will over charge the battery and reduce its charge life. It is possible to reduce the battery life to 0 through prolonged over charging.

To do this, connect the AC power as follows:

1. Plug the cord from the power supply into the **Power** connector of the FS-5.
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 FS-5 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 FS-5.

3. Slide the battery forward, into the FS-5 until it latches.
   The FS-5 uses close tolerances to create a friction fit that holds the battery firmly in place.

Removing a Battery

1. Depress and hold the Belease Batch on the FS-5's right side.
2. Give the FS-5 a light straight downward shake: the battery loosens and slides out.

Charging the Battery

The battery begins charging anytime the FS-5 is connected to the AC power adapter that is supplied with the FS-5.

The preferred and recommended method to charge the battery, is to connect the AC adapter with the FS-5 unit powered off. This protects the battery from over charging and insures long battery life.

Note

Charging Battery with FireWire or USB Connections
Both the FireWire and USB connectionscan provide power to the FS-5 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 Battery Charge LED flashes whenever the FS-5 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.

Do Not Over Charge Battery

So long as the AC adapter is connected to the FS-5, it delivers a charging current to the battery. Once the battery is charged, continued charging will damage the the battery and reduce its useful life.

If charging the battery during operation, pay close attention to charge status and once the battery is fully charge, disconnect the AC Adapter or remove the battery.

- An uncharged battery takes 2-3 hours to charge with the unit powered off.
- The battery provided with the FS-5 can supply power to the unit for more than 3 hours while in continuous record or play modes.

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 FS-5 senses that the battery charge is low resulting in a low voltage condition, the unit alerts the user with warning beeps 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 FS-5 battery when operating using an external DC battery device is dependent on the load placed on the FS-5.

Consider the following when using external DC battery devices to power the FS-5. 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 FS-5 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.

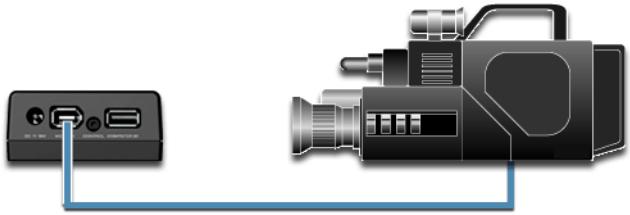
When charging the batteries, the FS-5 apples as much power as possible to the battery, up to a limit of about 1A charging current. However, the overall power system limits the total amount of current consumed to about 0.6 A maximum based on the 15V input adapter.

The result is that when a big load is added, such as a discharged battery and the dongle, the FS-5 automatically reduces the amount of the charging current so that the total current through the adapter never exceeds approximately 0.6 Amps.

Connecting FS-5 to DV/HDV Camcorder

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 FS-5.



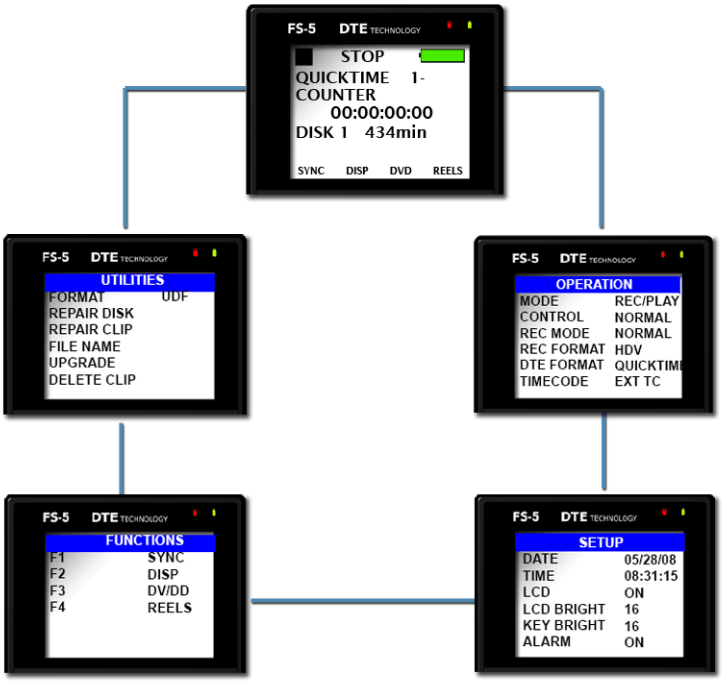
1. Locate the FireWire/DV/iLink (or similar) connector on your video camera. It is located in different places depending upon the brand of camera. If you are unclear of its location, consult your video camera manual.

Note

FS-5 Supplied with 6-pin to 4-pin FireWire Cable
Some camcorders require a 6-pin to 6-pin FireWire, IEEE 1394, cable and the cable provided with the FS-5 will need to be replaced.

2. Connect the other end of the FireWire, IEEE 1394, cable to the video camera.
3. Turn on the camera.
4. Turn on the FS-5.

FS-5 User Interface



The FS-5 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 **FS-5 Functions** on page 69.

Note

Returning to the Top of the Menu or to Home screen

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

To get back to the Home screen:

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

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 75.**		
	MODE		
		REC/PLAYER	
		HDD **(formatting function)**	
	CONTROL	NORMAL EXTERNAL SYNCRO	
	REC MODE	NORMAL RETRO CACHE RETRO DISK SNAP **(DV mode only)** TIMELAPSE **(DV mode only)**	
	REC FORMAT		
		DV HDV	
	DTE 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	
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 FS-5 in EXT TC, TC Mode has no effect.)**
RETRO CACHE	0 to 10 seconds
RETRO DISK	0 to 388 minutes
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.
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)**

	WEB	DISABLED ENABLED
	AUTO ORG	DISABLED ENABLED
	AUTO MARK	DISABLED ENABLED
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
UTILITIES	**For more information see Utilities Screen on page 58**.	
	FORMAT	
	REPAIR DISK	
	REPAIR CLIP	
	FILE NAME	
	ORGANIZE REEL	
	UPGRADE	
	SYSTEM RESET	
	DIAGNOSTIC	
	STATUS	
	VERSION	

Types of FS-5 Displays

The FS-5 has three types of screens:

- **Informational**

  These screens provide information only and do not permit setting values: examples, **WELCOME** and **VERSION** (see page 124).

- **Select an Option**

  These interactive screens provide a list of items that the User can select. In some cases, selection 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 FS-5, 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 FS-5

Power On FS-5

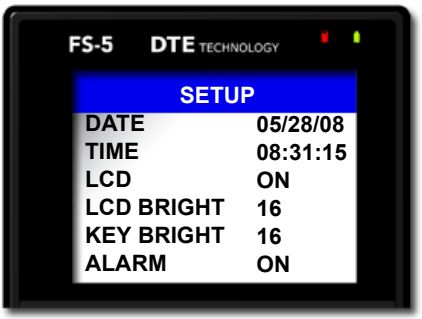
1. Press the **Power** key for more than one second and release it.
2. The **Welcome** screen appears and displays while the FS-5 initializes.

Set Date and Time

Note

Date and Time Must Be Set
The date and time must be set because they are used in the FS-5 file naming function.

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



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

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

5. Use the **Down** soft key to select the **TIME** setup screen and press the **Right soft** key. 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 86.
8. Return to the Home screen.

   For more information see **Home** on page 71 for more details

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

By default, the FS-5 is setup for the most typical recording situations. The Operation defaults are:

MODE	**REC/PLAY**	See **MODE** on page 76.
CONTROL	**NORMAL**	See **CONTROL** on page 77.
REC MODE	**NORMAL**	See **REC MODE** on page 78.
REC FORMAT	**HDV**	See **REC FORMAT** on page 82.
DTE FORMAT	**QUICKTIME**	See **DTE FORMAT** on page 82.
TIMECODE	**EXT TC**	See **TIMECODE** on page 84.

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

Select Record/Play Mode

1. Use the Scroll Wheel or Down Soft key to select **MODE**.
2. Press the Select key in the center of the 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 FS-5's or the camera's, are used during either recording or playback, see **CONTROL** on page 77.

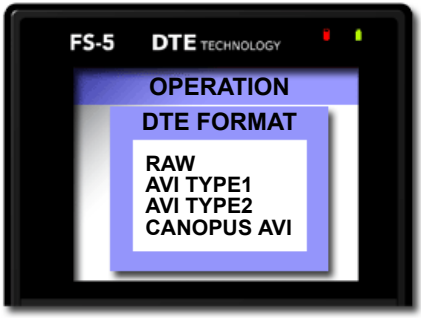
Select the mode to use and the display returns to the **OPERATION** menu.

Select the Recording Format (REC FORMAT)

This determines which recording format, **DV** or **HDV**, the FS-5 uses.

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

Select the DTE Format



This determines which NLE compatible format the FS-5 uses when recording. The DTE formats displayed depend on the **REC FORMAT** selected in the last step.

Note

DV24p and PAL 25p Modes
24p modes are only for use with camcorder's that are capable of DV-24p Advanced mode.

PAL 25p camcorders require no special 25p DV format

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

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.

Note

SETUP Menu Overridden by EXT TC Settings
When EXT TC is selected, the FS-5 follows the timecode mode of the camera, **Drop Frame** or **Non Drop Frame**, regardless of the setting in the SETUP menu.

Record with the FS-5

There are two modes of recording with the FS-5.

- **NORMAL Recording**

  Control with the FS-5 transport keys.

- **SYNCRO or EXTERNAL Recording**

  Control recording with the video camera controls.

  Most modern HDV and DV cameras, EXTERNAL control mode is the preferred control method. Check the latest camera compatibility matrix on the Focus website.

Before beginning recording, verify that:

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

Note

EXTERNAL Operation

Tape does not need to be loaded if the camera supports external operation, refer to, **CONTROL** on page 77.

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 FS-5 and the camera.

- Verify that the FS-5 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 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

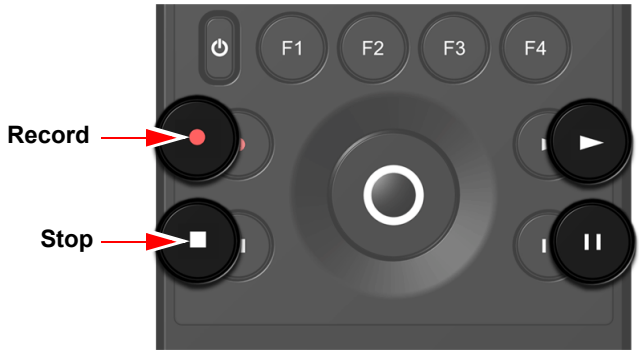
Never disconnect the power or the FireWire cable during a recording. This will cause file corruption.

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 FS-5, press **Record** ● once.
   This sets the FS-5 to **Rec-Pause** mode.



4. On the FS-5, press **Record** ● key a second time. The FS-5 begins to record. The timecode value displays on the screen.
5. Press **Stop** ■ once to return the FS-5 to **Rec-Pause** mode.
6. Press **Record** ● and the FS-5 begins to **Record** again on the same clip.
7. Press **Stop** ■ **twice** to stop the recording.
8. Press **Record** ● **twice** to begin recording a new clip.

Creating a New File without Dropping Frames

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

Press **Record** ● and the FS-5 automatically creates a new clip.

SYNCRO Recording

Syncro recording allows the FS-5 to mimic camcorder operations by monitoring the state of the camcorder's tape recorder controls.

1. Verify that the FS-5 is in **Stop** mode.
2. From the FS-5 Home screen, press the **Right** soft key several times until the **Control** screen appears:

3. Use the **Down** soft key to select **Syncro**. The default value is **NORMAL**.
4. Press the Scroll Wheel **Select** key.
5. The beginning screen returns and a **Pause** indicator appears in the upper left-hand corner. Next to this symbol, is a **Y** indicating that FS-5 is following the state of the camcorder's tape controls, i.e. record when the camcorder records and pause when it pauses.
6. Now the FS-5 will respond to the camcorder's tape controls. The recording signal goes both to the tape in the camera and to the FS-5.

Recording Timecode in the File

1. Press the **Right** soft key 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 84,.

Note

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 108

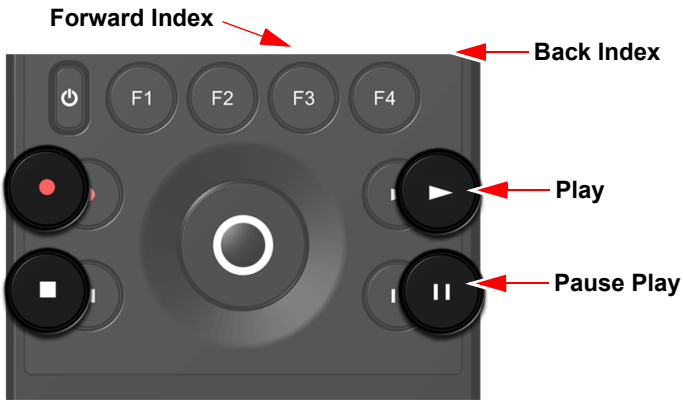
Playback on the FS-5

Verify that both the video camera and the FS-5 are powered on and that they are connected together with the FireWire cable from the FS-5 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 FS-5 **Left** and **Right** soft keys or the **F3** and **F4** keys.



3. Press the **Play** key.
4. Search through the clips using the FS-5 **Forward Search**, **Forward Index**, **Backward Index**, or **Backward Search** keys. Refer to **Scroll/Select Wheel and Soft Navigation Keys** on page 12 for more information on the function of these keys.

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 information that is attached to a content file (video, graphic, audio, etc.) and describes some characteristic or attribute of the content. In the cae of video, the metadata is either timecode or video clip based. In general, there are three categories of metadata: descriptive, administrative, and structural. The purpose if 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.

For metadata to be useful, it must reflect the processes and vocabulary of the organization using it.

The FS-5 Metadata utility is a web-based application that provides the user the ability to:

- Add 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

FS-5 Web server and Database Provide Metadata Functions
The FS-5 has a resident web-based Metadata application that permits the configuring of metadata templates and metadata logging using a simple web browser.
Connect to FS-5's web server utilizing an optional USB2 to 802.11 WIFi dongle or a USB2 to Ethernet adapter. Any device with networking capabilities and web browser functionality -- computer, laptop, PDA, etc. -- can log into FS-5's web server.

This chapter contains:

Overview

FS-5 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

Metadata is entered using a template that is an xml document, and example is the Apple XML Interchange Format. ProxSys Media Servers are based on this format and many NLE applications support it. Some NLEs use templates with other xml document formats.

Metadata entered through the template is stored in a database on the FS-5.

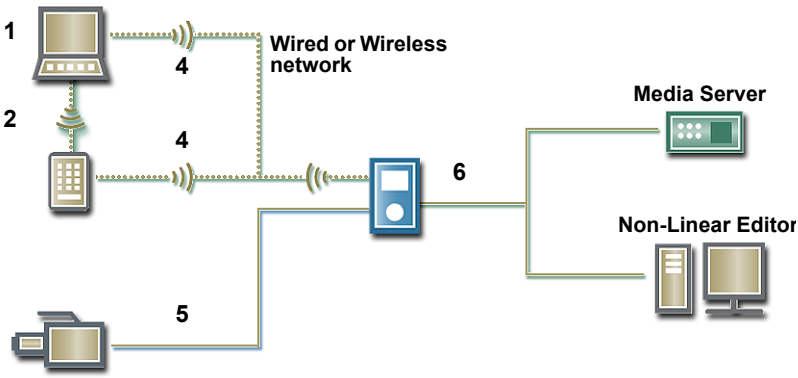
Default Template

Final Cut Pro (FCP) is the FS-5 default template. It can be used as-is or modified to create custom templates. For more information, see **Final Cut Pro** on page 152.

Custom Template

The FS-5 provides the capability for the User to create custom templates by modifying the FCP template or entering unique fields into an empty template.

Production Phase



The production phase involves the setup and recording of video and then its input into the post-production system. For the FS-5 this involves:

1. Set up the XML metadata template.
   a. Using the FS-5 web-based interface, open the metadata template on a laptop or PDA.
   b. Setup the metadata template values and settings by logging into FS-5's web server using a computer or laptop.
   Template settings and metadata resides on the FS-5, in the FS-5 database in the directory: **/log/fs_3.db**.
2. Record video.
   During recording, use the FS-5's web server interface and template to log predefined or dynamically input metadata values.
3. Playback video.
4. During playback, use the FS-5's web server interface and template to log predefined or dynamically input metadata values.
5. Export metadata from FS-5 database to xml file.
   Use the FS-5 web-based interface to export the video clip's metadata from the database to a xml file associated with the clip. 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.
   In addition, it is possible to match metadata fields in the file to specific metadata fields in a different template.

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.

Post-production Phase

Metadata has many uses during post-production:

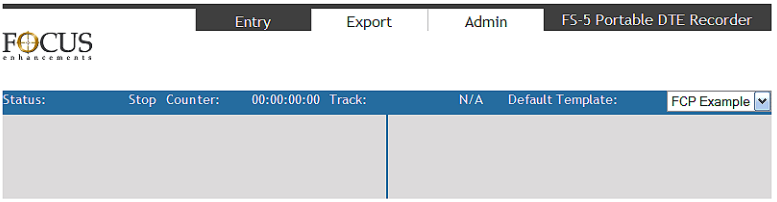
- Identify individual video clips, cameras -- position and lens, provide for rapid creation and display of the video dailies from film or digital footage.

  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.

Metadata Pages and Functions

FS-5 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.

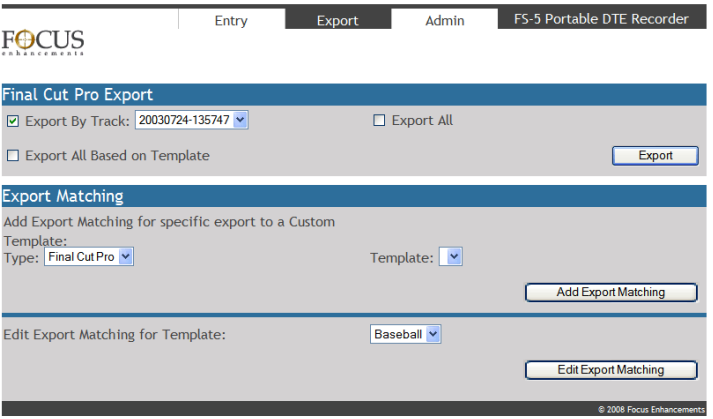
Entry



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

Initially the Entry tab appears blank, however, once the FS-5 is in Record, Pause or Playback mode, then the template's fields appear and are active.

Export



Use **Export** to manually export video clip metadata files from the FS-5 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.

NLEs

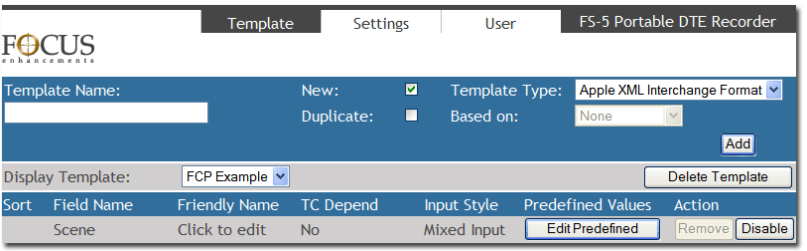
In Final Cut Pro, the User drags the xml file(s) into the Final Cut browser where the application automatically locates the associated video clips, imports them into the editor, and inserts them into the Final Cut timeline. Using the attached metadata, the User can use the Final Cut to search for and through the video clips.

For more information about NLEs refer to **Native Language Editors (NLEs)** on page 151.

ProxSys Media Servers

Using the ProxSys Media Server's import utility, the User can select the xml files and drag them into the ProxSys import utility. 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.

Template



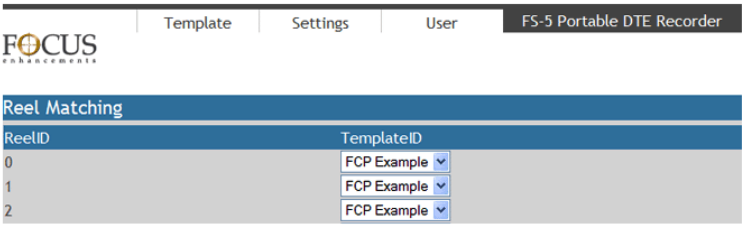
Not accessible with PDA type devices.

Use the **Template** page to create, modify, and manage the metadata templates stored in the FS-5 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.

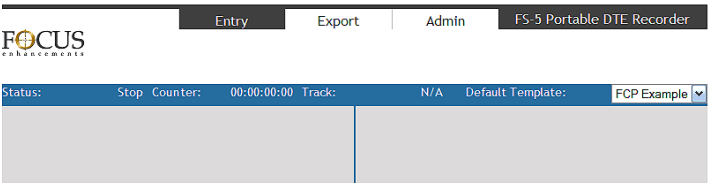
Clicking on **Settings** opens the **Reel Matching** page. This function allows the User to assign specific metadata templates to particular FS-5 **REEL**s. This makes it possible to assign different sets of metadata to video clips, determined by in which REEL they are kept.

Logging Onto the FS-5 Web Server

Logging onto the FS-5 web server provides access to the metadata settings and logging functions. The pages and functions available depend on the type of device accessing the FS-5.

1. Connect the FS-5 to a computer or network through its USB port, using a USB cable, optional USB to Ethernet adapter, or 802.11b/g wireless dongle. Depending on the type of connection, refer to the following:
   - **FS-5 to Computer** on page 129.
   - **FS-5 to Wired (Ethernet) Network** on page 130.
   - **FS-5 to a Managed Wireless Network** on page 130.
   - **FS-5 Peer-to-Peer Networking (Wi-Fi)** on page 131.
2. Determine the FS-5's IP address, see **IP ADDR** on page 100.
3. Open a web browser and enter the FS-5's IP address in the browser's Address window.

   The **Entry** page appears.

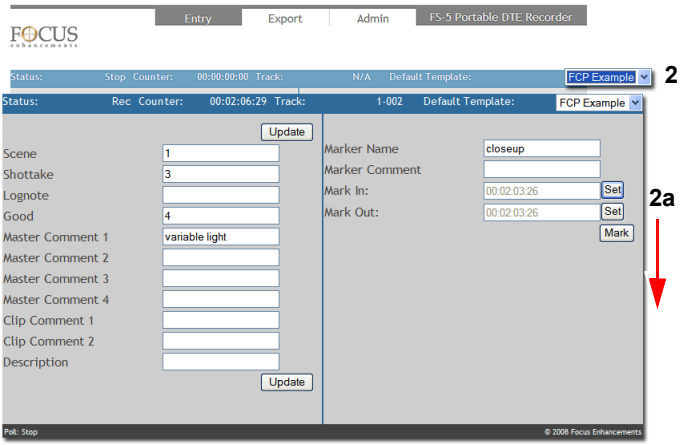


Entering Metadata

This procedure assumes that there is a ready to use template, for instance the **FCP Example** supplied with the FS-5, and that it is not necessary to modify it or create a new one.

Use the following steps to enter metadata during either record or playback modes.

1. Open the metadata function using a web browser and the FS-5 web-based interface.
   Initially, the **Entry** page is empty.



2. Select the **Template** to use.
3. Begin to record or playback.
   The fields of the selected metadata template appear on the **Entry** page.
4. Enter data into the metadata fields.
   The type of data entered depends on the type input allowed by the field: variable, predefined, and mixed.
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 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.

Note

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.

Metadata is automatically written to the FS-5 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

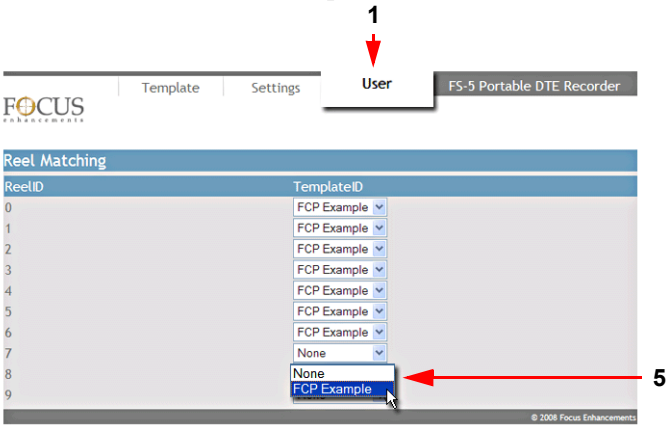
Note

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 112. **Reel Matching** is a function that allocates a template to specific reel or reel. 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.

It is necessary to set **Reel Matching** before beginning the recording session.

1. Click on the **Settings** tab to display **Reel Matching**.
   The **Reel Matching** window opens.



2. For each of the Reels, click on its **Template ID** dropdown menu and select a template.

Creating A Template

Note

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

It is possible to create a new template by:

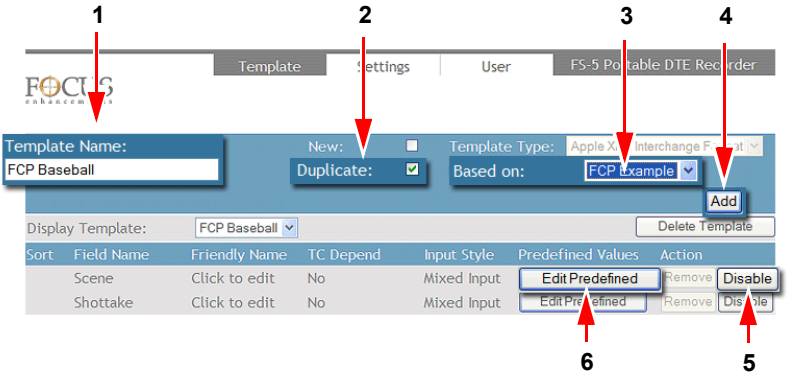
- Duplicating and modifying an existing template.

  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 a xml document type.

  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.

Duplicating a Template



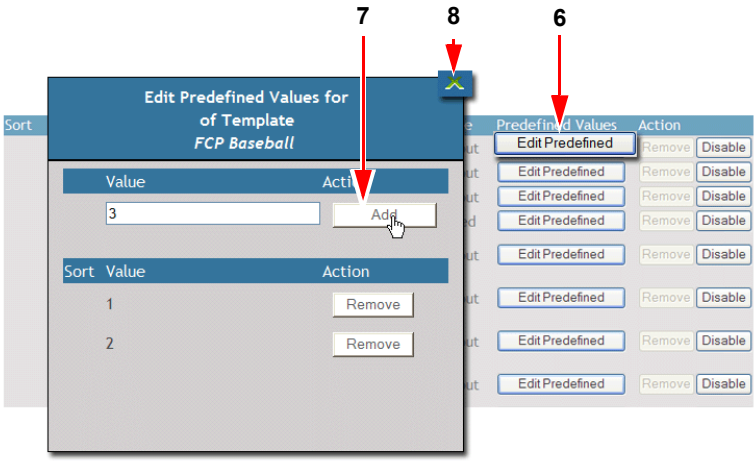
1. Enter the name of the new template in the **Template Name** field.
2. Place a check mark in the **Duplicate** check box.

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.
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.



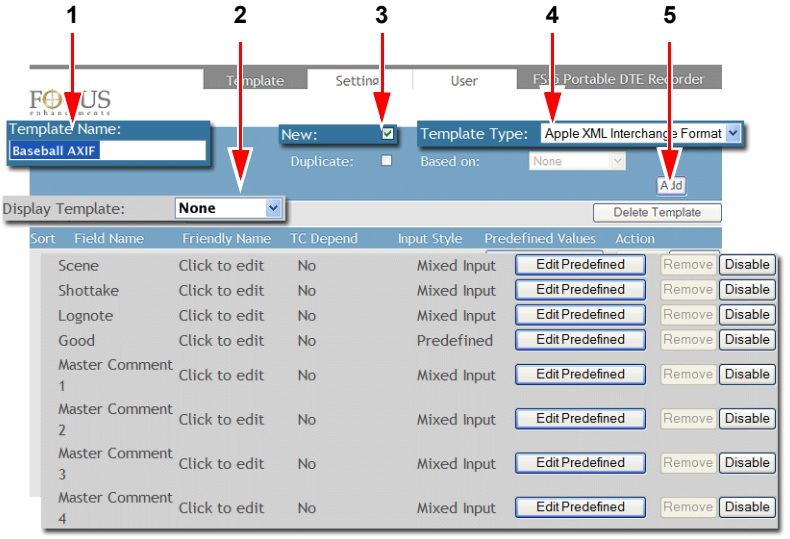
7. **Add** and **Remove** predefined values.

   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.

The template is now ready for use.

Using XML Document Format



This method uses a xml document 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 chicanery 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**.

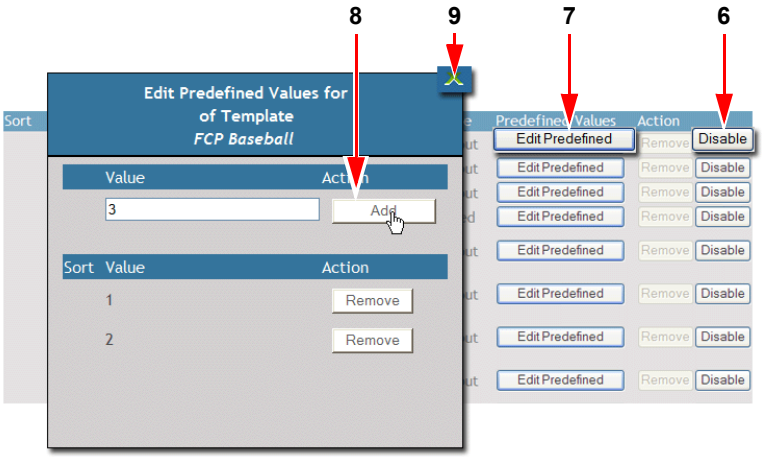
   The template opens displaying all of the metadata fields available in the xml template. The fields are set to their default states and values.

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.

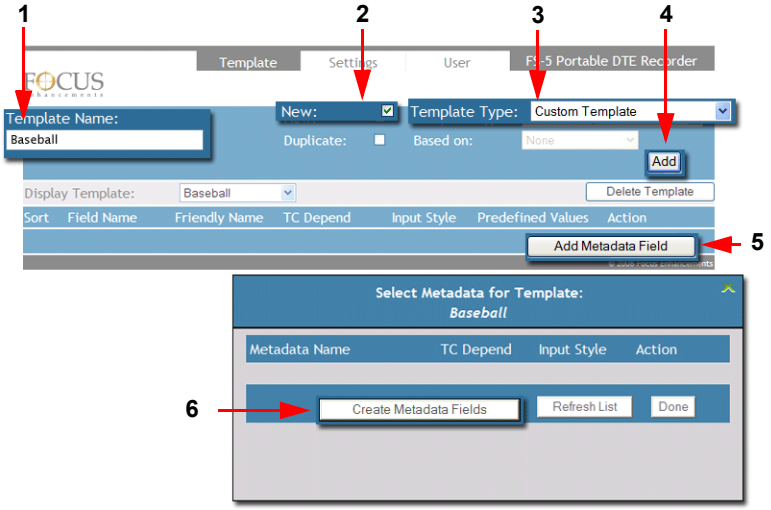
6. Verify that the necessary metadata fields are enabled.
   The **Disable**/**Enable** button is a toggle switch. Its label indicates the action that will occur, if it is selected.



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
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.

The template is now ready for use.

Creating A Custom Template



As an example, suppose that it is necessary to create a metadata template for recording baseball games. To assist the producer and editor the metadata must be specific to the game of baseball.

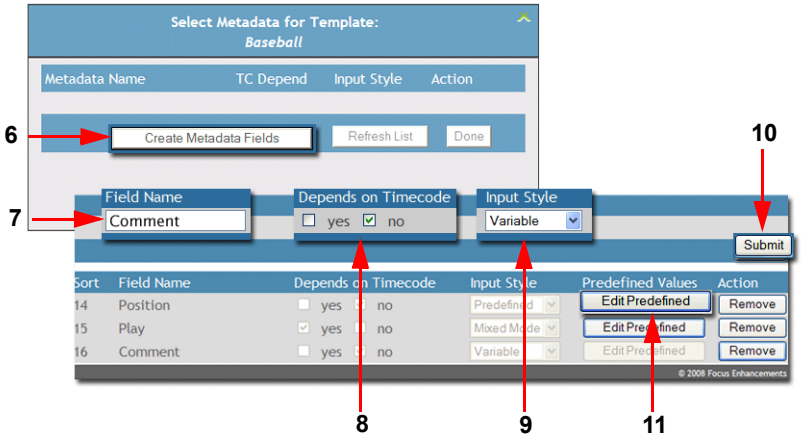
To create a new custom template:

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**.

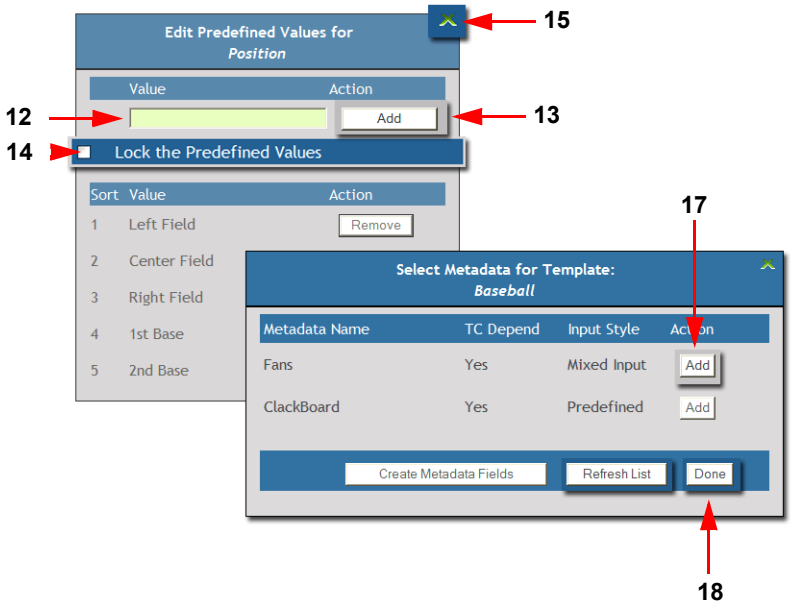
   Mixed Mode

   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.

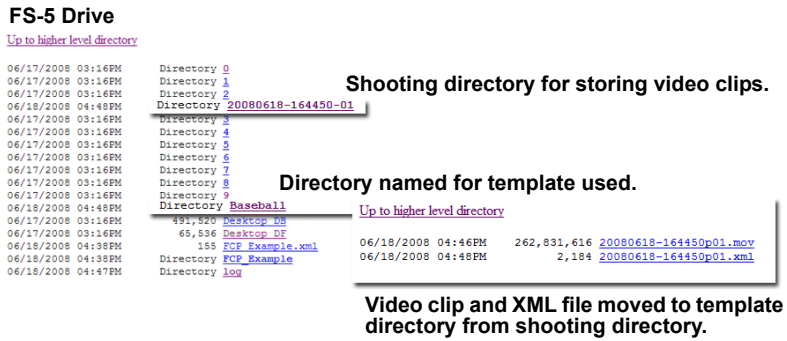
Removing Metadata Fields

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 FS-5. Metadata is entered into the FS-5 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 method for doing this.

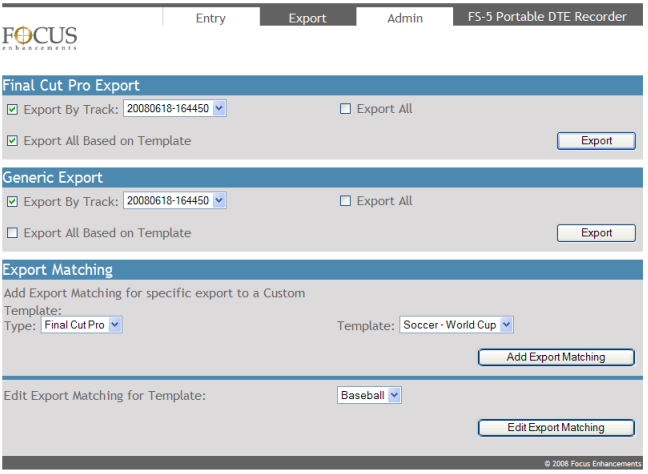
- **AUTO ORG**

  If **AUTO ORG** is enabled, after video is recorded, run HDD and the video clips and xml files are placed in the folder with the same name as the template.

- **Export**

  Export is a function that allows the User to export the video clips metadata to a specific NLE 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

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 FS-5 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 FS-5 with the name of the template used.

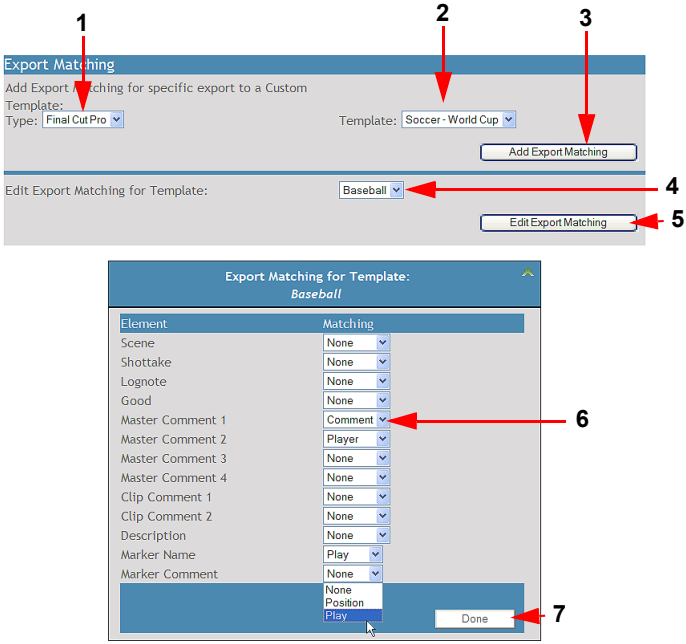
Export All

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.

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.

FS-5 Functions

This section contains information on the following LCD screens:

FS-5 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.

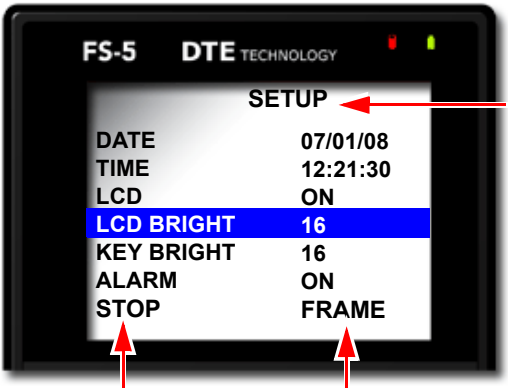
Note

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 FS-5 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.

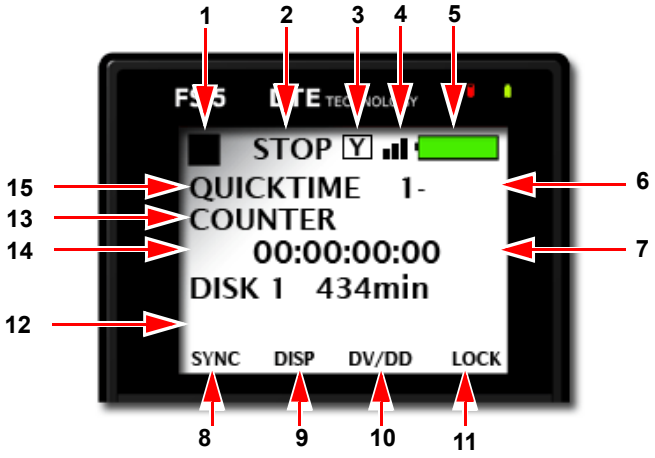
Navigate to the correct option or enter its parameters and press the Select button to set the option and return to the menu.

Welcome

The Welcome screen appears briefly after boot-up, and automatically switches to the Home screen when the FS-5 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
   - **A** AV/C
   - **E** External
4. **Wireless Network Connected**
   Symbol indicaes that FS-5 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 DTE format.
15. **Recording Format**.

DISP (display) Information Fields

It is necesary 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 84. **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 94.
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

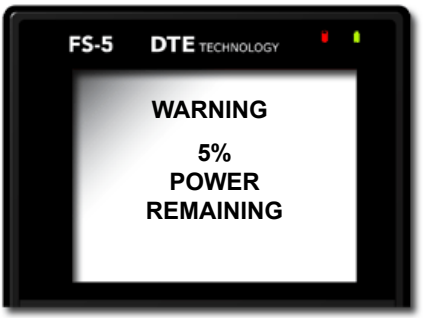
Line 11 displays the HD resolution of the current track which depends on the camcorder in use with the FS-5 unit. Possible values are:

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

Refer to the camcorder manual for supported resolutions

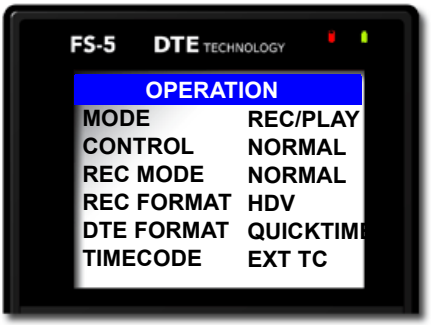
FS-5 System Information Screens

The FS-5 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

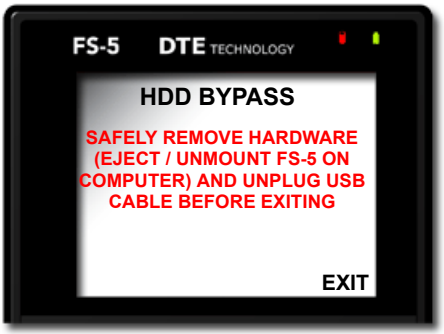


The Operation screen provides access to settings that control various recording features and functions and information. The functions listed are:

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 RAW DV AVI TYPE 1 AVI TYPE 2 CANOPUS AVI MATROX AVI QUICKTIME MXF HDV M2T QUICKTIME MXF
DTE FORMAT	QUICKTIME	QUICKTIME
TIMECODE	EXT TC	EXT TC REC RUN TC FREE RUN TC REGEN TC

MODE

- **REC/PLAY**
  Use this option to set the FS-5 controls to disk recorder mode.
- **HDD**
  Use this option when connecting the FS-5 to a computer. The FS-5 functions as a volume visible to the computer.
  Selecting this option displays the **HDD BYPASS** screen.



As long as this screen appears, the FS-5 is mounted on the computer.

Exiting HDD

Before exiting HDD mode, safely remove the FS-5 from the network:

1. Use the operating system's Eject or Safely Remove Hardware function to dismount the FS-5.
2. Unplug the USB cable.
3. Press **F4/BACK**.

CONTROL

The **CONTROL** menu provides the capability of enabling the FS-5 to operate in four different control modes during record and playback.

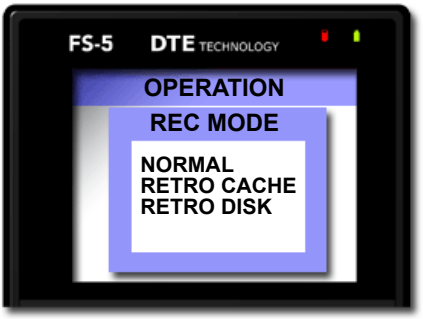
- **NORMAL**

  Record and Play modes are controlled through the FS-5 controls.
- **EXTERNAL**

  Use **EXTERNAL** when controlling recording through an external device.
- **SYNCRO**

  In **SYNCRO** a camcorder and the FS-5 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 FS-5 to various recording modes see **REC MODEs with Home Screen Indicators** on page 78.

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	■		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 FS-5 front panel.
  Initially, the **Home** screen displays ■ **STOP**.
- Pressing Record ● puts the FS-5 into **II REC PAUSE** mode.
- Pressing Record ● a second time puts the FS-5 into **REC** mode.

RETRO CACHE

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

Retro Cache is available in **EXTERNAL** and **SYNCRO** control modes.

Setting RETRO CACHE

1. Go to the **SETUP** Menu.
   See **RETRO CACHE** on page 95.
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 depends on the model.

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 Normal, Syncro and External control modes.
- When Retro Disk is set, the symbols ●L (Record and L) appear in the FS-5 display.

Setting RETRO DISK

1. Go to the **SETUP** Menu.
2. Select the item **RETRO DISK**.
   See **RETRO DISK** on page 96.
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 FS-5 in the midst of a Snap recording session causes the FS-5 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 92**.

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 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.

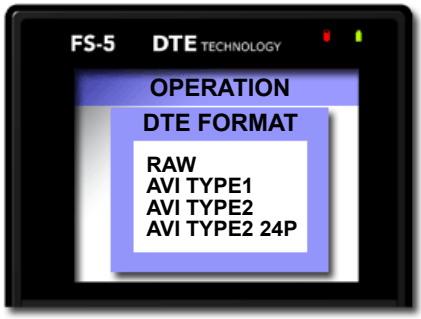
   Set the length of video in 1-second increments from 0. The maximum time allowed depends on the model.

REC FORMAT

Select either:

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

DTE FORMAT



Depending on which **REC FORMAT** was selected, this screen displays a list of available direct-to-edit formats: above, display for **DV**.

DV Formats

- **RAW DV**
- **AVI TYPE1**
- **AVI TYPE2**
- **AVI TYPE2 24p**
- **CANOPUS AVI**
- **MATROX AVI**
- **QUICKTIME**
- **QUICKTIME 24p**
- **OP ATOM**
- **MXF P2**

HDV Formats

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

Organizing OMF, MXF, P2 Files

To turn off automatic organizing, **AUTO ORG**:

1. Go to the **SETUP** Menu.
2. Select the item **AUTO ORG**.
3. Select **DISABLE**.

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

TIMECODE

The FS-5 provides four timecode functions in HDV mode and DTE 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 FS-5 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 FS-5 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 time code number for the first frame of the next recording.

  Take the last timecode recorded and add 1.

  The FS-5 stores the last recorded timecode in its non-volatile memory, so it can persist across recording sessions.

- **FREE RUN**

  This function causes the FS-5 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 FS-5 begins counting using that number, until it is selected and the display returns to the **SETUP** menu.

- **REGEN**

  When the FS-5 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 FS-5 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	
STOP	FRAME	**FRAME** **GRAY** **NO VIDEO**
EXT CTL	OFF	OFF PAUSE FRAME FILE

TC SET	00:00:00:00	
UB SET	00:00:00:00	
TC MODE	NON-DROP	DROP NON-DROP
RETRO CACHE	0 sec	
RETRO DISK	0 min	
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	
IP MASK	0.0.0.0	
BROADCAST	0.0.0.0	
GATEWAY	0.0.0.0	
ESSID		
KEY		
WIFI MODE	MANAGED	MANAGED ADHOC (P2P)
FTP	DISABLED	
WEB	ENABLED	
AUTO ORG	ENABLED	
AUTO MARK	DISABLED	

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 FS-5 file naming function.

LCD

These items enable or disable the FS-5'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 FS-5, 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 FS-5 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 FS-5 produces audio feedback.
- The FS-5 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 determine which video is output from the FS-5 when using the **Search Index** Soft button to view recorded clips.

- **FRAME** **Default**

  Displays the first frame of the clip.

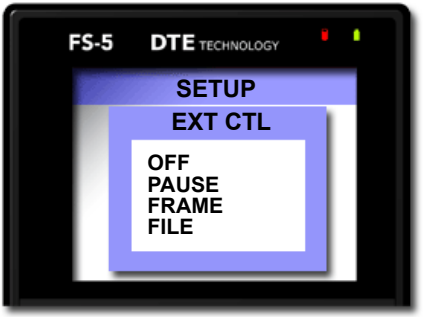
- **GRAY** **DV only**

  Displays a black frame.

- **NO VIDEO** **DV only**

  Video output is **OFF**.

EXT CTL



These external control options permit the use of a device to control the FS-5 through the optional RS-232 cable.

Note

RS-232 Cable Available from Focus Online Store
The RS-232 cable required to connect the FS-5 to an external control device is Focus part number **CBLA-0113-01**. It and other accessories mentioned in this manual are available at **https://www.focusinfo.com/store**.

- **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 FS-5 **Control** port.

  In Local mode, select this item to control the FS-5 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 FS-5's non-volatile memory. This value is available for use by the FS-5 immediately after exiting **TC SET.**

- **TC FREE RUN**
  The FS-5 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.

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 FS-5 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.

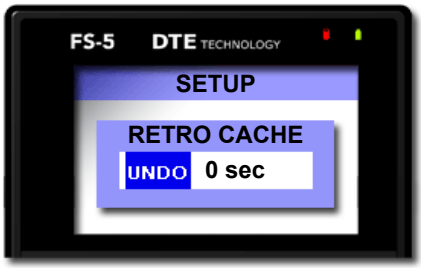
- **NON-DROP** Group Default

  Disables drop-frame.

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

If the FS-5 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 388 minutes.

Default is 1 minute.

TIMELAPSE

Default is 00:00:00:00.

PLAY MODE

- **Play Clip** **Default**

  In this mode, the FS-5 plays the selected clip from start to finish when you press the PLAY button. At the end of the particular clip, the FS-5 pauses.
- **Loop Clip**

  In this mode, the FS-5 plays the selected clip from start to finish. Immediately after completing the clip, the FS-5 begins playing the clip again without a pause. It stays in this state until stopped.
- **PLAY ALL**

  In this mode, the FS-5 plays the entire contents of the disk (all clips) in order, from start to finish. At the end of the last clip, the FS-5 pauses.
- **LOOP ALL**

  In this mode, the FS-5 plays the entire contents of the disk (all clips), in order, from start to finish. At the end of the last clip, the FS-5 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 of from where clips playback. 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.

NETWORK

Select the method to use to assign a network IP address to the FS-5.

- **MANUAL**
  Select if a static IP is assigned by Network Administrator.
  This requires that an address be entered in the **IP ADDR** option.
- **DHCP** **Default**
  Select, if IP address is automatically assigned by the network DHCP server.

IP ADDR

Default is 0.0.0.0.

IP MASK

Default is 0.0.0.0.

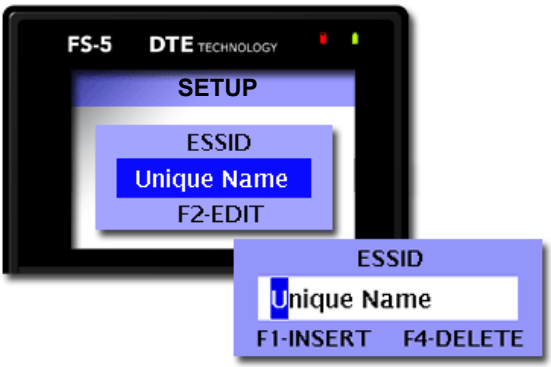
BROADCAST

Default is 0.0.0.0.

GATEWAY

Default is 0.0.0.0.

ESSID



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.

5. Press **F1** to insert a space.
   Press **F4** to delete a character or space.
6. Press the Select button to save the ESSID and return to the previous ESSID display.
7. Press the Select button again to return to the SETUP menu.

KEY

The KEY is a code sequence required by the wireless network.

WIFI MODE

This function sets the type of wireless connection that the FS-5 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 (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 the FS-5's FTP capabilities.

Default is **DISABLED**.

WEB

This function enables the FS-5's WEB capabilities. This allows the user to access FS-5 features through the FS-5's web server and pages.

Default is **ENABLED**.

AUTO ORG

This function enables the FS-5'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 FS-5 is mounted on a computer or the files are imported into NLEs.

Default, the FS-5 is enabled to recognize files requiring organizing and automatically prompting the videographer to organize these files when powering down the FS-5 or mounting the FS-5 to a computer.

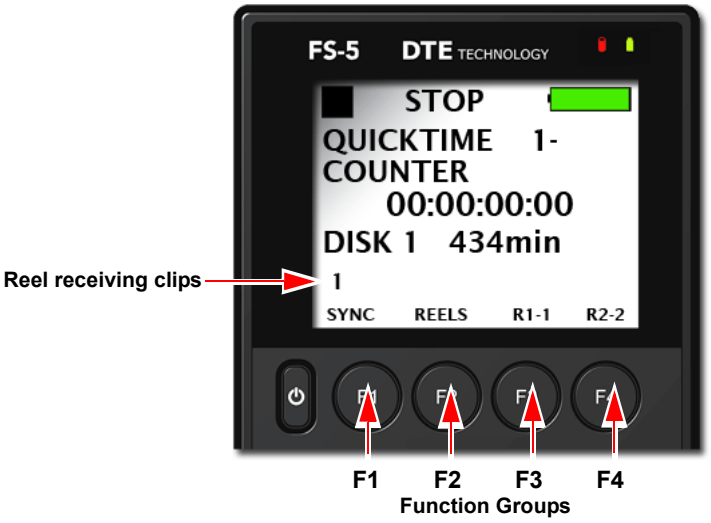
AUTO MARK

When enabled, the FS-5 to automatically places Start/Stop marks in a recording whenever the Pause control is used.

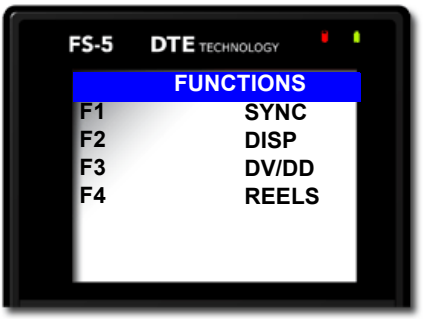
Later, these marks are used during playback to navigate between scenes in the recording or to automatically generate individual video clips from each recorded segment.

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

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

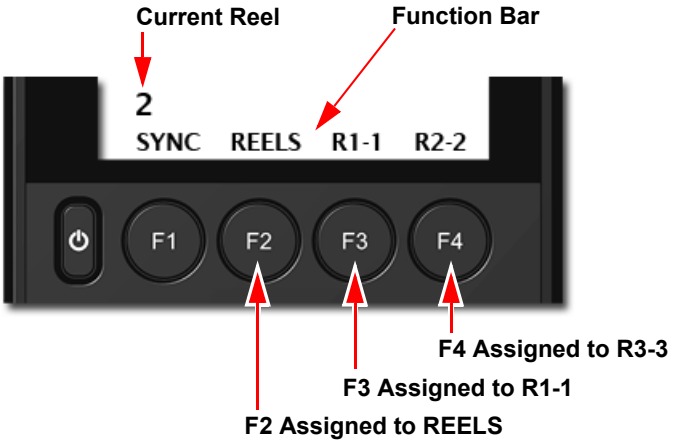
A list of the Function button menu is below. In each group, the default selection is listed first.

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 89.
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 DV/DD	DD Toggles between REC/PLAY and HDD Modes
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 DV/DD	DD Toggles between DV/HD and HDD Modes
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



When a disk is formatted, the FS-5 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 has pressed the F2 key until the FS-5 to mark the clips to the currently selected reel. The current reel is indicated in the line **above** the F1 function reel selection.

- **RX-X**

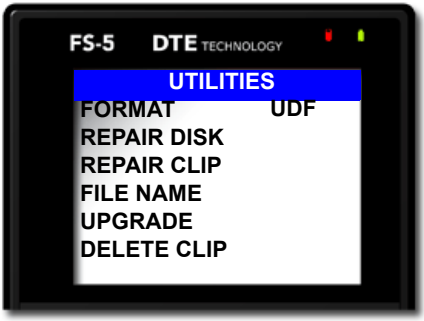
  Setting a function key to this type of marker, instructs the FS-5 to mark the current clip as belonging to a sub-reel/folder.

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

Blank

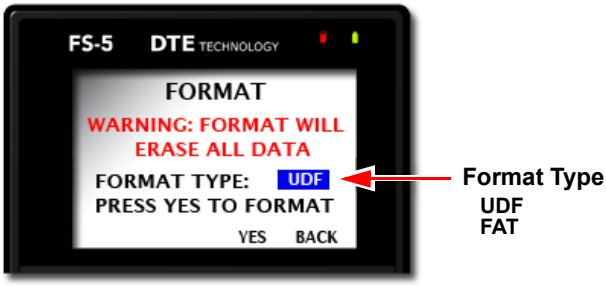
Functions identified as Blank are inactive.

UTILITIES Screens



Item	Default	Comment
FORMAT	UDF	Backup data before using. No Undo.
REPAIR DISK		
REPAIR CLIP		
FILE NAME		
ORGANIZE REEL		
UPGRADE		
DELETE CLIP		
SYSTEM RESET		
DIAGNOSTIC		
STATUS		
VERSION		

FORMAT



Prevent lost frames due to file fragmentation by formatting the FS-5 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 FS-5 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.
   Press the **F2** key to change the format type.
3. 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 FS-5 issues an error message if format does not complete successfully.

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 loss of power to the FS-5. Repair Disk scans the entire disk drive checking for and repairing file errors and incomplete files. When the file is repaired it can be used in the NLE system.

Note

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

To repair a disk:

1. In the Utilities menu, Select **Repair Disk**.
2. Select **YES** and the FS-5 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 FS-5's drive and the FS-5 utility **FORMAT** run before resuming recording. Refer to **FORMAT** on page 115.

REPAIR CLIP

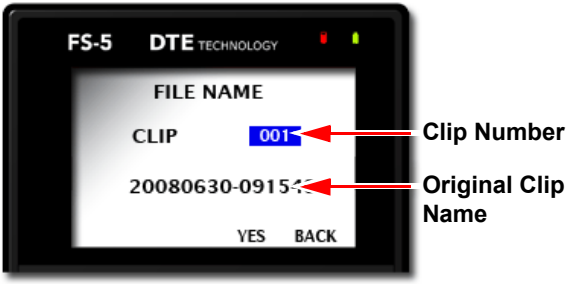
Use this function to repair a specific file that may be damaged or incomplete. For example, recording terminates due to a loss of power to the FS-5 and a specific file may be damaged. Repair Clip scans the specified file checking for and repairing file errors and incomplete files. When the file is repaired 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 FS-5 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 FS-5'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.

UPGRADE

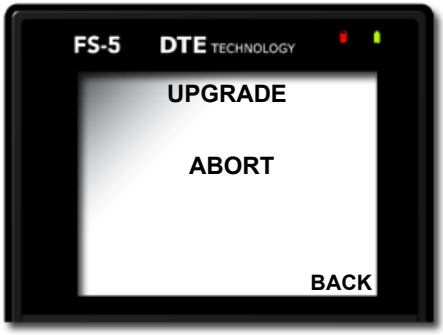
Check Focus Enhancements website for upgrades and latest software updates, go to **www.focusinfo.com**.

To upgrade system software:

1. Download the latest upgrade file to a local computer.
2. Rename the upgrade file to **FS5.bin**.
3. Connect the FS-5 to the local computer using the USB 2.0 cable provided with the FS-5.
4. Access the FS-5 root directory.
   Go to OPERATION > MODE and select **HDD**, see **MODE** on page 76.
5. Copy or drag the FS5.bin file to the FS-5 root directory.
6. Exit the FS-5 from **HDD** mode and navigate to the Utilities menu.
7. Select the utility **Upgrade**.
8. Press **F3/YES**.
   The **UPGRADING** screen appears. This screen continues to display until the upgrade completes.
   This process may take approximately 15 minutes.
9. On successful completion of the upgrade, the FS-5 displays the message, **UPGRADE COMPLETE** and automatically restarts.

UPGRADE ABORT

If the upgrade fails, the FS-5 displays the message:



Verify that the upgrade file name is **FS5.bin** and that it is in the FS-5 hard drive's root directory.

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 FS-5 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 FS-5 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 FS-5 unit. This feature is useful for diagnosing problems with the unit.

System Reset

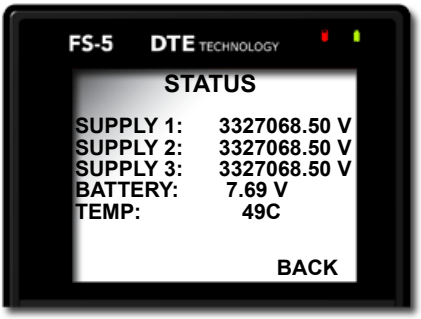
A System Reset can not be reversed.

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 FS-5.

Status



The FS-5 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

This screen displays:

- **FS-5 Firmware version**
- **SD video of the unit.**
- **FS-5 model**

FS-5 with Other Devices

Once video clips are recorded to the FS-5 it is possible to use those clips in most computer based DV/HD NLE systems. This section contains information about the following:

In the past, to get footage into an NLE system, it was necessary to capture / digitize the footage using a video capture card. The FS-5's DTE functionality eliminates the capture stage. All that is necessary is the moving of the video files from the FS-5 to a computer. To do this:

- Connect the FS-5 directly to a computer with an active OHCI compliant IEEE-1394 FireWire port and the necessary FireWire disk drive drivers.

> **Note**
>
> **For More Information**
> Go to the Focus Enhancements' website (www.focusinfo.com) for more compatibility information.

- Use the FS-5 HDD Bypass mode, refer to **Initial Setup** on page 129 for more information.

The FS-5 is compatible with any computer system that can read FAT 32 volumes, such as Windows 98SE/ME/2000/XP and Mac OS9/OS10.

Operating Systems

The FS-5's default file system is UDF, Universal Disk Format. However, the FS-5 provides the ability to format the drive in either the **FAT32** or **UDF**.

MAC OS and Windows

The operating system that the FS-5 mounts to, determines the type of formatting.

FAT 32	UDF
Windows 2000	MAC OS 10.5
Windows XP	Windows VISTA

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 FS-5 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 FS-5, and import them directly into the NLE bin.

This makes clips immediately available in the NLE timeline.

The high transfer speed of the FS-5 drive permits direct streaming of the clips to the NLE, thus eliminating the need to copy or transfer the clips before their use.

UDF

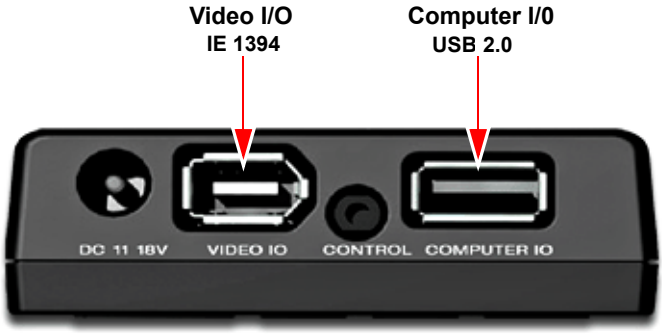
UDF does not have the 2GB limitation on file size which permits the FS-5 to record clips of up to 1.5 hours in length.

Initial Setup

The FS-5 can be accessed by computer in three ways:

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

FS-5 to Computer



1. With FS-5 powered off, connect the FS-5 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.
   - USB 2.0 to FireWire cable extender, not provided.

2. Power up FS-5.
3. Mount the FS-5 drive on the computer.

   For more information see **Mounting to Windows and MAC** on page 142.

FS-5 to Wired (Ethernet) Network

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

1. With the FS-5 powered off, use an USB 2.0 to Ethernet Extender to connect the FS-5 to the network.
2. Power on the FS-5 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 FS-5's **IP ADDR** into the browser's IP address bar and enter.
   The FS-5 **Templates** web page opens.

FS-5 and FTP

To access the FS-5 via FTP, follow the same steps above.

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

FS-5 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 FS-5 is similar to that of attaching the FS-5 to the ethernet network mentioned before. There are a few items to note:

- Verify that FS-5 is set to DHCP.
  SETUP > NETWORK > DHCP.
- Insure that the proper **ESSID** set,
  SETUP > NETWORK > ESSID.
- Insure that the **KEY** is set.
  The **KEY** is the wireless network password.
  SETUP > NETWORK > KEY.

FS-5 Web and FTP

Like the wired network, the FS-5 can be accessed by web browser or FTP.

FS-5 Peer-to-Peer Networking (Wi-Fi)

Peer-To-Peer is the ability to connect the FS-5 with other Wi-Fi capable devices without going through a separate wireless router. This permits the videographer to use FS-5's metadata function in the field with a minimum of equipment, the FS-5 and another WI-FI device.

It is necessary to establish an ad-hoc, peer-to-peer network: the connection between FS-5 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. Use one of the following:

- Linksys WUSB54GC
- Belkin F5D7050

A list of tested USB dongles will be available soon from www.focusinfo.com.

Example

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

Setting FS-5

1. Connect an approved 802.11 USB dongle to the FS-5.
2. Power up FS-5.
3. Go to the **SETUP** > **NETWORK** and Select **MANUAL**.

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

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

   The **ESSID** display lists wireless networks within range of the FS-5. If the network is not displayed, press F2 and enter it, see **ESSID** on page 102.
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 103.

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

9. Set **WIFI MODE**.

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

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

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

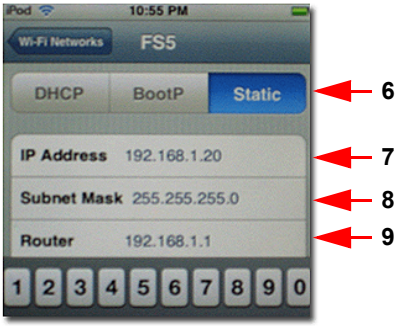
Setting Up IPod Touch (or iPhone)

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 FS-5 and select it buy touching the name. In this example, FS-5. 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.

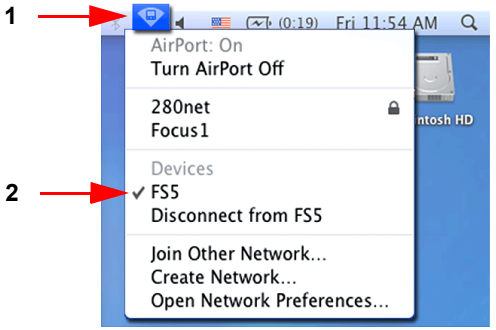


6. Press the **STATIC** button at the top of the screen.
7. Select an IP address where the last value is within 20 or 30 of that set on FS-5.

   Example: if FS-5's IP address is 192.168.1.1, set the FS-5 to 192.168.1.20.
8. Set **SUB NET MASK** to match the value on FS-5 (usually 255.255.255.0.
9. Set **ROUTER** to the IP address of FS-5 (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 FS-5's IP address in the URL window.
    The FS-5 web page now appears.

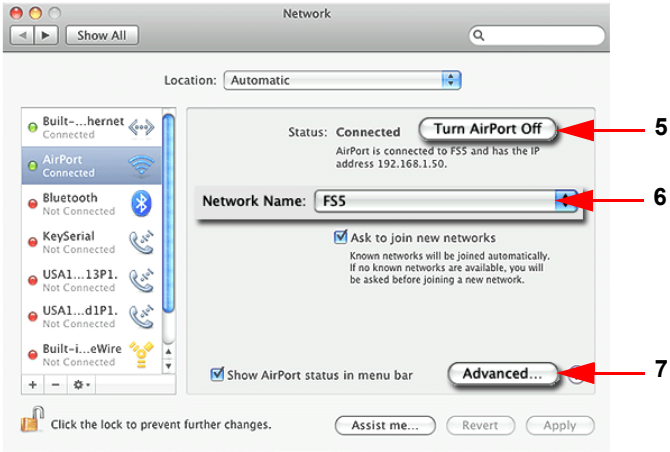
Setting Up a Mac

Use similar settings on other Wi-Fi capable computers.



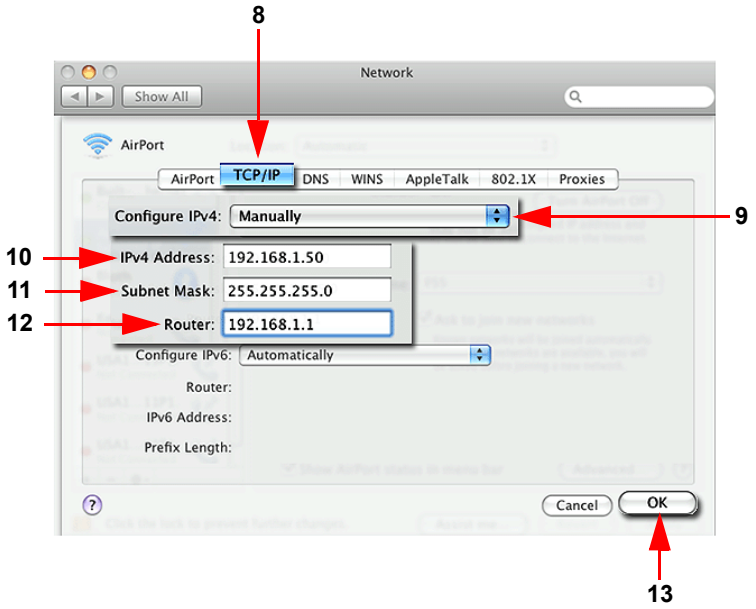
1. Select the Wi-Fi selector on the right side of the Mac's menu.
2. Under Devices, select the ESSID assigned on the FS-5 earlier.

   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**.



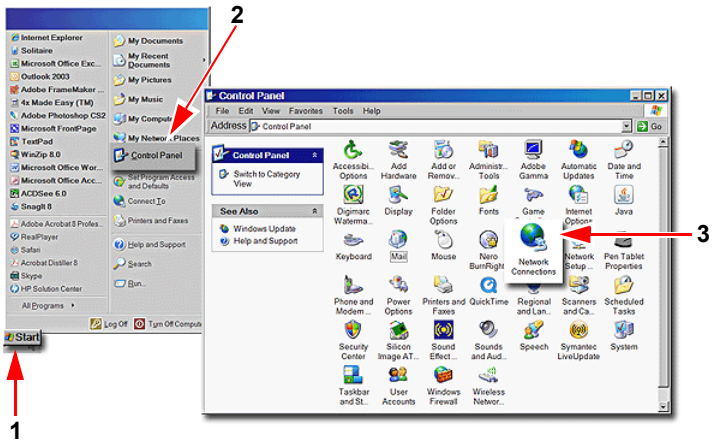
5. Select **AirPort** network icon.
   ON appears.

6. Verify that the FS-5 **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 FS-5 and on other Wi-Fi devices connected to the ad-hoc network.
11. Set **SUBNET MASK** to the same value that is set on FS-5.
12. Set **ROUTER** to the IP Address of FS-5.
13. Press **OK**.
14. Press **APPLY**.
15. Open Safari on the Mac.
16. Enter the FS-5's **IP ADDR** into the browser's IP address bar and enter.
    The FS-5 **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.

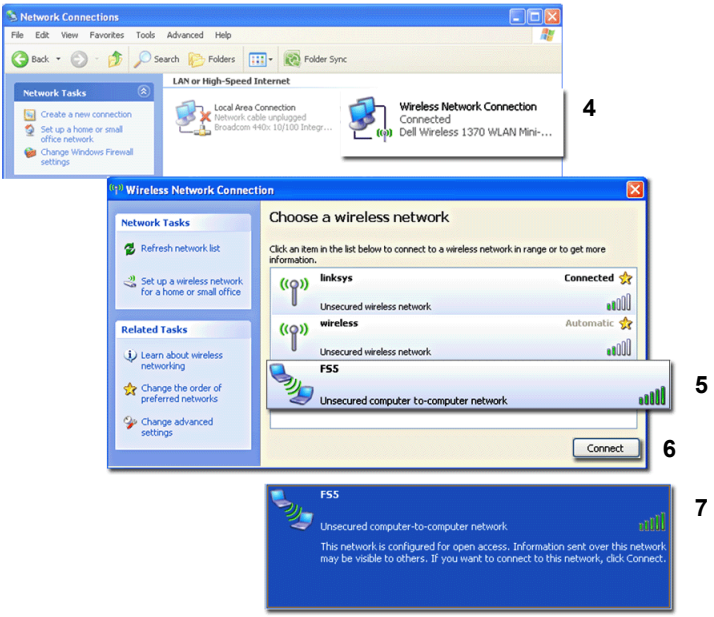
   The Start Menu appears.

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 FS-5. When the connection is made, the signal strength bars in the FS-5 listing go green and a message appears.
7. Click on the FS-5 again, to reselect.

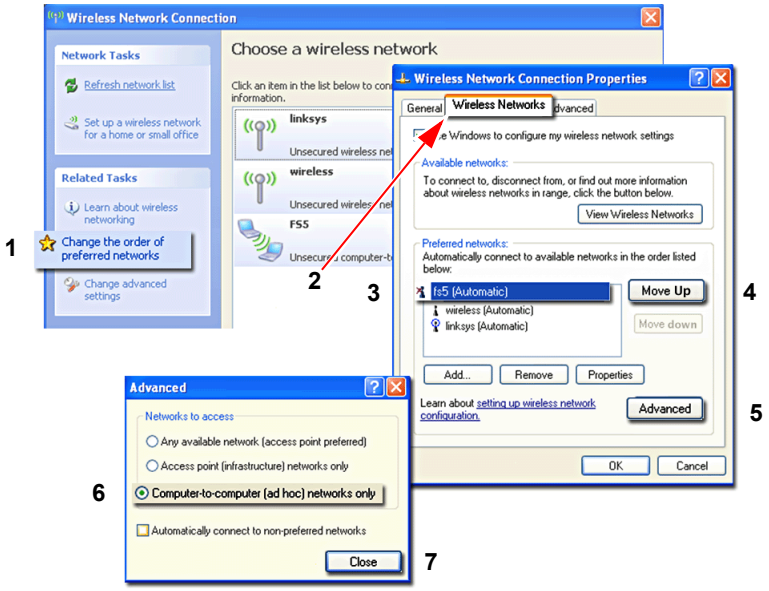
Two messages appear in sequence.

8. Click **Connect Anyway** and then **OK**.
   This completes the wireless connection.
9. Go to **Completing Network Setup** on page 140.

Completing Network Setup

The following steps are required to complete the set up.

Return to the Wireless Network Connection window.

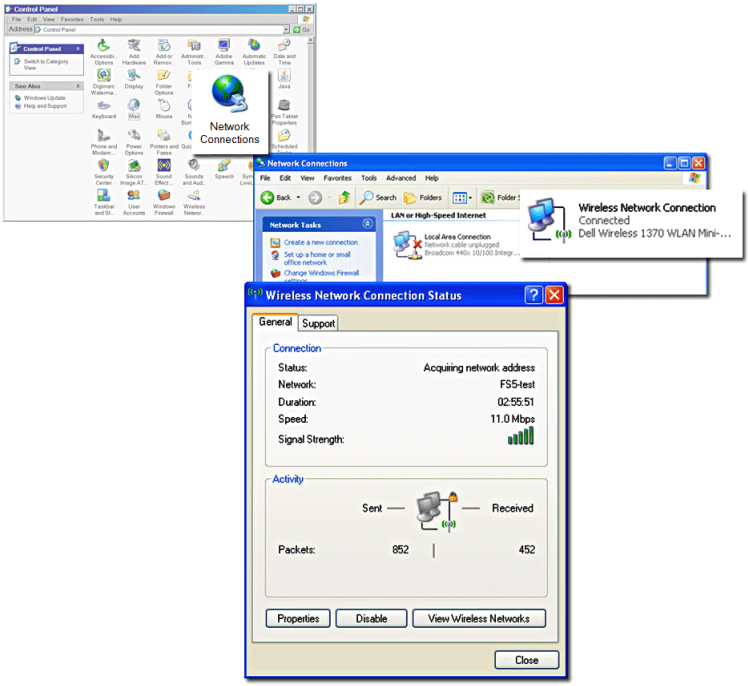


1. Click on **change the order of the preferred networks** in the Related Task column to the left.

   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

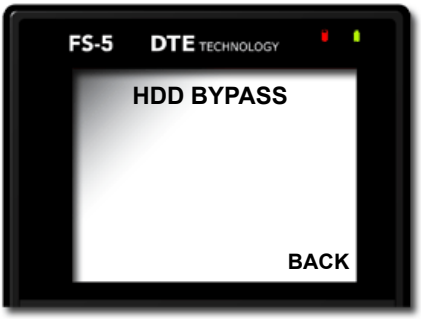
This procedure is the same for computers running Windows or MAC operating systems.

Select HDD MODE

On the FS-5, **OPERATION** > **MODE** and Select **HDD**.

This step is required before mounting the FS-5 to a computer. Refer to the section, **MODE** on page 76.

The **HDD BYPASS** screen appears.

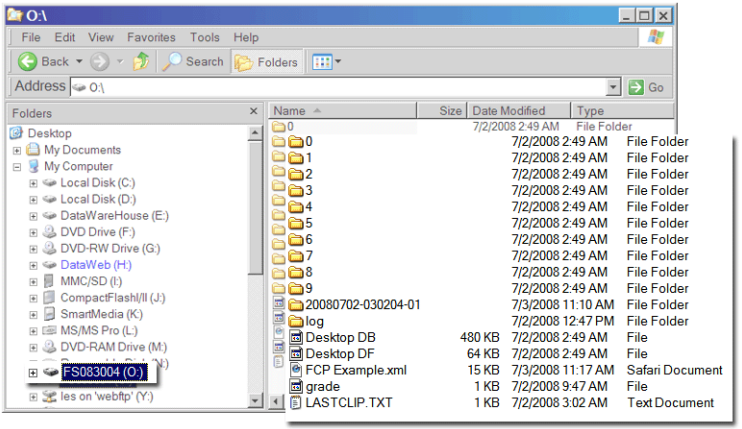


It is now possible to mount the FS-5 drive onto the operating system.

Mounting and Dismounting the FS-5

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

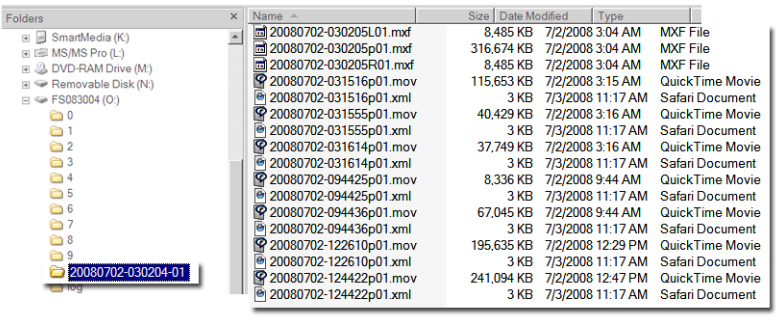
Windows



1. Open the Windows file system via MyComputer, Windows Explorer, or a similar Windows application.
2. Locate the FS-5 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 147.

Close FS-5 Directory and Dismount From Windows

1. Close the file system browser, i.e. Windows Explorer.
2. Terminate **HDD** mode on the FS-5.
   There are two methods:
   - Select BACK in the FS-5's **HDD BYPASS** display.
   - Function Key assigned to **DD/DV**, press that key.

   The **HDD** display closes and the FS-5 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.

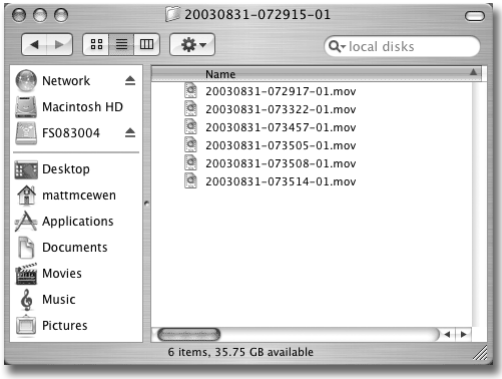
The FS-5 does not require that step. It safely dismounts itself from the computer file system.

MAC

1. Start the Mac computer and connect the FS-5's **COMPUTER I/O** port to the computer using a standard USB 2.0 type A to A cable.

   When mounted, the FS-5 appears on the computer's desktop as a FAT32 volume with a PC label, as shown below:

2. Locate the FS-5 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:



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 119.

Close FS-5 Directory and Dismount From MAC

Dismount FS-5 Before Powering Off

It is important to dismount the FS-5 from the Mac system BEFORE powering down the FS-5.

To dismount the FS-5 from a Mac:

1. Select the FS-5 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 FS-5.

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 FS-5 icon on the desk top.
- Select the **Eject** function from the pop-up menu.

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

FS-5 Video Clips in Reel Folder

FS-5 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 FS-5 reminds the videographer to run AUTO ORG before attaching the FS-5 to a computer.

FS-5 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 HD RECORDER QUICKTIME format. The unit will not record these resolutions camera when in HD RECORDER QUICKTIME format.**

Mounting Hardware

Mounting FS-5 to a Camcorder

Mount the FS-5 to your camcorder using the optional Camcorder Mount Kit (P/N ASYF-1325-01CF). For more information about this kit or to order it, contact Focus Enhancements:

USA

Email:	**support@focusinfo.com**
Telephone:	+1 763-398-1658
Fax:	+1 763-571-7688
Address:	Focus Enhancements, Inc. 1370 Dell Avenue Campbell, CA. 95008 **www.focusinfo.com**

EMEA (Europe, Middle East, Africa)

Email:	**techsupport@como.com**
Telephone:	+49 4307 - 83 58 58
Fax:	+49 4307 - 83 58 99
Address:	COMO Computer & Motion GmbH A Focus Enhancements Company Lise-Meitner-Str. 15 24223 Schwentinental / Germany **www.focusinfo.com**

FS-5 Accessories

Camera Mounting Kit

Belt Clip

Native Language Editors (NLEs)

This section provides FS-5 information specific to supported native language editors. Also check the Focus Enhancements web site, www.focusinfo.com for the latest updates.

In this section:

Final Cut Pro

How It Works – Overview of XML

Creating an XML interchange format document with information about a project or components of a project is a simple menu choice. In Final Cut Pro, you select what you would like to describe in the format and then choose FILE > Import > XML. (Refer to “screen shot 1” below)

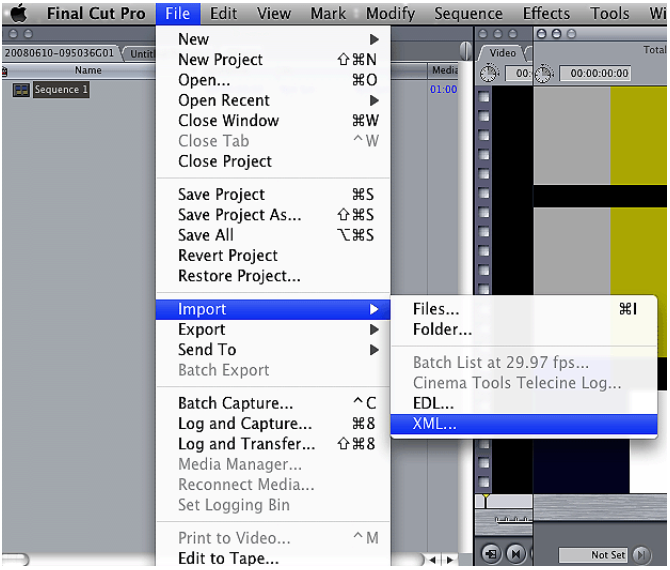
Documents in the Final Cut Pro XML Interchange Format are stored on disk as plain text documents that you can view, parse, and edit on any platform.

XML is another way to think about the possibilities: such as bottlenecks in the post-production workflow - where the XML Interchange Format can help.

- Production companies often use the metadata feature to track all film or video shots during production. Exporting this database information to interchange format documents could allow for the quick creation of video dailies from film, HD, or SD footage. The interchange format document could edit together with FS5 footage into a sequence before each shot.
- A producer might have a video editor to change all medium shots of scene to close up's. Using metadata and XML, the post editor could easily find and replace clips with other clips.

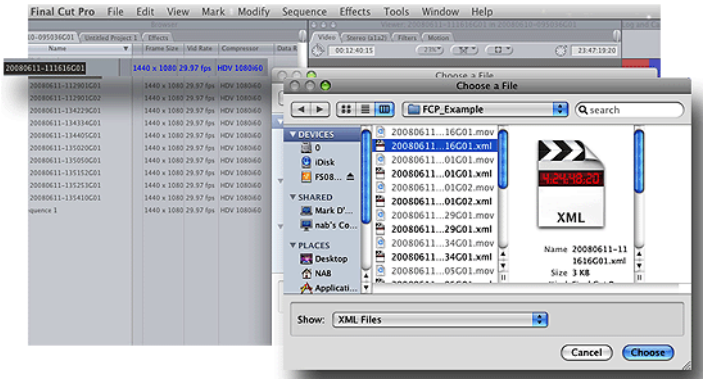
  When attempting to import XML files into Final Cut Pro, end-users maybe asked for a Translation File. A Translation File takes the information in an exported XML file and translates it into something Final Cut Pro is able to understand.

File Menu > Import > XML



Navigate to the saved xml file, and choose it. XML File and clip together will appear together in the browser window.

Right clicking the mouse on the clip > item Properties > Logging info will bring up an item Properties window.



In this window – the end-user will find the XML information data that was created using FS5 web interface.

Technical Specifications

Specifications are subject to change.

Physical Description

- Dimensions: 2.75″ x 5.5″ x 1.25″ (70mm x 140mm x 32mm).
- Weight: 0.58 lb. without Battery and 0.8 lb. 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

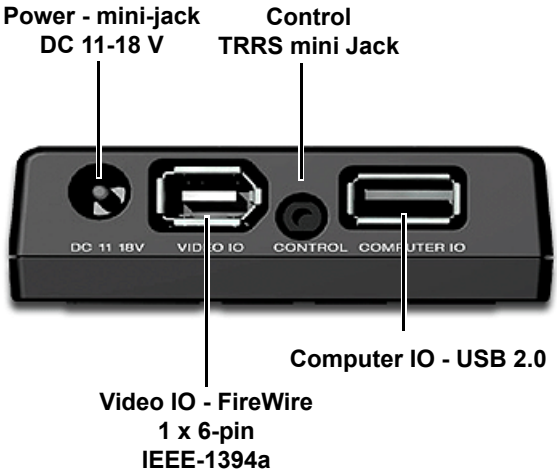
Metadata

- 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.

DTE 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 FS-5 and passed to additional FS-5 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.

TRRS Mini Jack

- 1 x Serial Port (TRRS mini Jack) for TC (via a mini-jack splitter), Control and Power (for external control panel).

Disk Drive

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

DTE 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 FS-5 will display error messages on its LCD display if certain conditions occur that can effect FS-5 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 DTE formats (QuickTime PN and P2 PN).	This is normal. No action is required.

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,
- External control panel:
  Low power consumption,
  Powered via TRRS serial connector from main unit (future option)
- 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 FS-5 battery when operating using an external DC battery device is dependent on the load placed on the FS-5.
  Consider the following when using external DC battery devices to power the FS-5. 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 FS-5 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 FS-5 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 FS-5 automatically reduces the amount of the charging current so that the total current through the adapter never exceeds approximately 0.6 Amps.

Warranty

- FS-5, one year, limited.

Index

E

F

H

I

L

M

N

P

Q

R

S

T

U

V

W

X

FS-5 Portable HD/SD DTE Recorder
MANL-1128-03