



FS-2/2E Studio DTE Disk Recorder



User Guide

MANL-0927-04

Symbols

On the FS-2/2E Unit



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of an uninsulated Dangerous Voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



Caution

For continued protection against fire, replace only with fuses of correct rating, as listed on the rear panel.



Caution

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

In the FS-2/2E Documentation



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

Notices: Legal, Regulatory, and Safety

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FOCUS ENHANCEMENTS is responsible for unauthorized use of equipment and does not make allowance or credit for unauthorized use or access.

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8:00 AM to 5:00PM (Central Time)

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Telephone: +1 763-398-1658

Fax: +1 763-571-7688

Address: Focus Enhancements, Inc.
1370 Dell Avenue
Campbell, CA. 95008
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Address: COMO Computer & Motion GmbH
A Focus Enhancements Company
Lise-Meitner-Str. 15
24223 Raisdorf / Germany
www.focusinfo.com

Serial Number

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

Registering Products, Technical Support, and Warranty

To register a Focus Enhancements product use the online form at:
<http://www.focusinfo.com/rfi/warranty.asp>.

For questions about technical support or warranty, contact the seller, distributor, or contact Focus Enhancements by email: support@focusinfo.com.

Unauthorized Use

Focus Enhancements is not responsible for the unauthorized use of its equipment and will not make allowance or credit for unauthorized use or access.

Unauthorized Alterations and Modifications

Alterations or modifications to Focus Enhancements equipment or software that is carried out without appropriate authorization may invalidate the product warranties and the user's right to operate the equipment.

Unauthorized Servicing

Do not attempt to service this product yourself. Opening or removing covers may expose dangerous voltage or other hazards.

Refer all servicing to qualified service personnel.

Returning Materials

End Users

If the FS-2/2E was not purchased directly from Focus Enhancements, it is necessary to contact the seller and determine what procedure is needed for repairing the converter.

Direct Sales

(VARs, Distributors, and Corporate Customers)

If the FS-2/2E has problems that cannot be corrected over the telephone by Focus Enhancements technical support, it may be necessary to return the converter to Focus Enhancements.

To contact Focus Enhancements:

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

Email: support@focusinfo.com

Telephone: 763-398-1658

Fax: 763-571-7688

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

All materials shipped back to Focus Enhancements must be accompanied by a Return Materials Authorization (RMA) number. Contact Focus Enhancements Technical Support to receive a RMA number.

Write the RMA number clearly on the shipping label.



Focus Enhancements
Attn: Technical Support
RMA 1234567890

Regulatory and Safety

Environmental Precaution



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

Model Number: FS2-2E

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

FCC Class A

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

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

- 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.

Documentation

This manual is written with the assumption that the user is familiar with analog and digital video/audio signals and hardware.

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.

Note

This symbol indicates information about features, functions, operations, that is of interest to the user.

Electrical Precautions

Do Not Expose to Moisture

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

Do Not Remove Cover

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

ON / OFF Switch in Stand-By Position

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

Power Sources

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

Do Not Overload Power Outlets

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

Verify Power Plugs are Fully Inserted

To prevent potential electrical shock to personnel, verify that the FS-2/2E power cord plug is fully inserted into a grounded receptor and that the plug blades are not exposed.

ATTENTION

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

Power-Cord Protection

- **Routing Power-Cords**
Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Avoid sharp angles in the cord, particularly at plugs, convenience receptacles, and the point where they exit the product.
- **Non-Use Period**
During extended periods when the device is not used, unplug it from the power source and retract the power-cord.

Grounding or Polarization

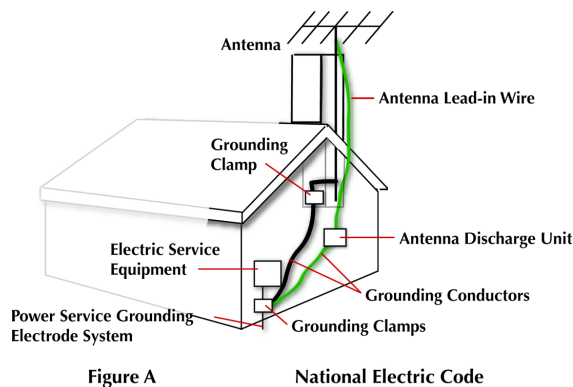
- **Polarized**

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

- **Grounded**

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

Outdoor Antenna Grounding



If an outside antenna or cable system is connected to the FS-2/2E, verify that the antenna or cable system is grounded. This provides some protection against voltage surges and built-up static charges.

Refer to Article 810 of the National Electric Code, ANSI/NFPA 70, for information about the

proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding connectors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.

Lightning and Power Surges

During electrical storms or when left unattended and unused for long periods of time, unplug the FS-2/2E from the power source and disconnect the antenna or cable system.

Power Lines

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

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

Optical Precaution

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

Maintenance and Moving

Cleaning

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

Servicing

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

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

Accessories and Replacement Parts

Use only attachments and accessories recommended by Focus Enhancements.

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

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

Safety Check

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

Operating Environment

Location

Install this device on a sturdy, level surface, away from moisture and dust.

- **Heat**
Locate this device away from heat sources such as radiators, heat registers, stoves or other electrical devices (including amplifiers) that generate heat.
- **Wall or Ceiling Mounts**
This device should not be mounted to a wall or ceiling. Any mounting of this device should follow its instructions, and should use only mounting accessories recommended by Focus Enhancements.

Moving

- Use appropriate safe lifting practices.
- Do not over load or unbalance carts when moving product.

Ventilation

Do not block the ventilation openings in the FS-2/2E cabinet. Overheating can occur and damage the device. Do not place this device in a built-in installation, such as a bookcase or rack, unless proper ventilation is provided.

WARRANTY

For customers within the USA and Canada, FOCUS ENHANCEMENTS, Inc. warrants this product against defects in materials or workmanship as follows:

For a period of TWO years from the date of purchase, FOCUS ENHANCEMENTS, Inc. will repair or replace the unit, at our option, without charge for parts or labor. After the period of TWO years, you must pay all parts and labor charges.

The limited warranty is extended only to the original purchaser. It does not cover damage or failure caused by or attributable to Acts of God, abuse, misuse, improper or abnormal usage, faulty installation, improper maintenance, lightning, or other incidences of excessive voltage, or any repairs or tampering by other than the FOCUS ENHANCEMENTS repair facility. It does not cover replacement of batteries or other consumable parts, transportation costs or damage in transit. This warranty will become void if the serial number or model number identification has been wholly or partially removed or erased. Repair or replacement under the terms of this warranty do not extend the terms of this warranty. Repairs or replacement performed outside of the warranty period will carry a warranty for 60 days from return shipment. This warranty can not be modified by an agent of FOCUS ENHANCEMENTS, Inc. unless in written and signed by an officer of FOCUS ENHANCEMENTS, Inc.

Should this product prove defective in workmanship or material, the consumer's sole remedies shall be such repair or replacement provided by the terms of this warranty. Under no circumstances shall FOCUS ENHANCEMENTS, Inc. be liable for any loss or damage, direct, consequential, or incidental, arising out of the use of or inability to use this product. Some states do not allow limitations on how long an implied warranty lasts or the exclusions or limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

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Chapter 1

Introduction

Thank you for purchasing the Focus Enhancements FS-2/2E DTE DV Studio Disk Recorder.

The FS-2/2E is designed for use as a record or playback device in studios, mobile vans and other installations.

The purpose of this User Guide is to explain the features and operation of the FS-2/2E. Study the contents of this User Guide before attempting to use your FS-2/2E.

Check the Focus Enhancements website regularly for updates to FS-2/2E software and documentation: **www.focusinfo.com/support**.

Alternatively, contact your Focus Enhancements dealer/distributor.

This chapter contains the following sections:

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What is the FS-2/2E?	page 2
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Note

FS-2E Provides Greater Embedded Audio SDI Functionality

The FS-2E provides even more embedded audio SDI functionality. It includes the ability to selectively record either channels 1 and 2 or 3 and 4 of the embedded audio of the input SDI stream. It also provides full support of the SDI audio out. The FS-2E inserts the recorded audio into the SDI output stream. The FS-2 does not possess these capabilities.

1.1 What is a DTE Disk Recorder?

A DTE Disk Recorder is a device that allows you to record or playback DV video directly to/from a removable IDE disk drive or removable FireWire disk drives. The FS-2/2E features analog and digital inputs and outputs including DV25, SDI, composite, component, S-Video, AES/EBU digital audio and balanced analog audio.

Audio and video are recorded to disk as a DV25 data stream in NLE native file formats.

1.2 What is the FS-2/2E?

The FS-2/2E is a DTE Disk Recorder that mounts horizontally in a standard electronics rack. With the FS-2/2E, it is possible to:

- Input DV25, SDI, composite, component, S-Video, AES/EBU digital audio and balanced analog audio and record to disk in native DV25 NLE file formats.
- Playback video from disk or transcode during recordings in DV25, SDI, composite, component, S-Video, AES/EBU digital audio and balanced analog audio formats.
- Capture clips to hard disk at the acquisition stage. There is no need to capture them later.
- Record clips to disk in DTE Technology-based “edit-ready” file formats such as Raw DV, AVI Type 1, AVI Type 2, Matrox AVI, Canopus AVI, Pinnacle AVI, QuickTime and Avid DV-OMF. The FS-2E, and the FS-2 (with the version 2.0 upgrade), also include DTE support for 24P AVI Type 2 (NTSC only), and 24P Quicktime (NTSC only). This means clips are immediately available to your NLE system without first having to transfer or convert the files.
- Connect your FireWire disk directly to your computer or connect it using FS-2/2E which allows mounting and dismounting of the drives without re-cabling or computer re-boots.
- Use the FS-2/2E's 10/100BaseT Ethernet port to share files over a network using FTP. This is not suggested for larger files. The FS-2E, and the FS-2 (with the version 2.0 upgrade), also include IP control of the FS-2/2E. This means you can control the FS-2/2E using a standard web browser.
- Jump from clip to clip without spooling through tape when in playback mode.
- As well as video, record and playback embedded DV audio in 2-channel (16-bit, 48kHz) format.
- Record external timecode, embedded timecode or create your own timecode using Free Run, Regen or Rec Run time code options. You can also preset timecode and user-bit values.
- Record, play and navigate using FS-2/2E's VTR-style controls.
- Lock to your facilities Reference Video signal during playback and record.

- Record and recall a single frame of DV video and record user definable time-lapse sequences.
- Use trick playback modes up to 30X/-30X fast-forward and rewind speeds, reverse play, loop clip and loop entire disk.
- Control the FS-2/2E remotely using industry standard RS422 (Sony 9-pin), FireWire (for starting record/pause or AV/C) from a DV based camcorder 1394 port. You can also control the FS-2/2E using RS-232C (using the optional wired remote control available as an accessory). The FS-2E, and the FS-2 (with the 2.0 software upgrade), can be controlled from your web browser using FS-2/2E IP control. Refer to the section on the FS-2/2E Web Interface, **FS-2E Web Interface** on page 99.
- Create and save multiple playlists on the FS-2/2E. These can be shared between different units.
- Use the internal 120GB, 7200RPM, 3.5" IDE drive or daisy chain up to eight FireWire (IEEE-1394) hard drives together for extremely long, uninterrupted record times.

1.3 Basic Applications

You can use the FS-2/2E in the acquisition stage of production, the editing/post production stage, and the presentation stage. The FS-2/2E is most useful in the following applications:

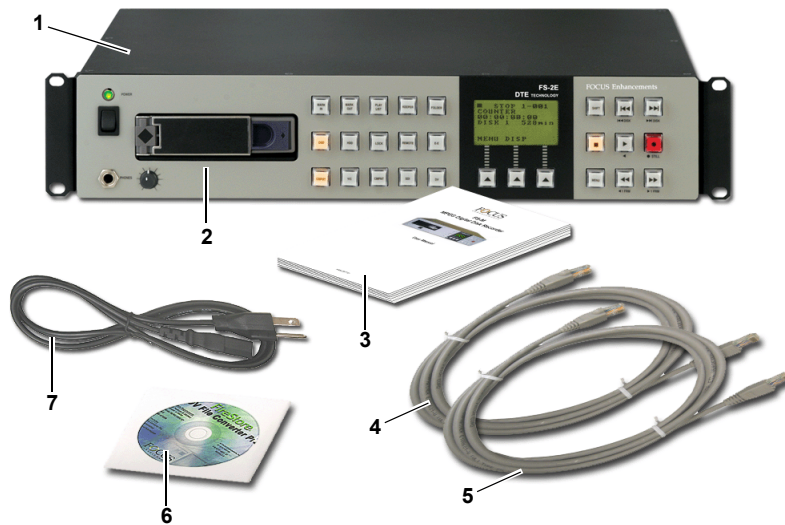
- Presentation Video Source
- Broadcast Tape Deck Replacement
- Time Lapse Recorder
- Film-to-Disk Transfer
- NLE/Linear Edit Source/Recorder
- Endless Video Program Looping
- Security Recorder/Player
- Medical Recorder/Player
- Industrial Monitoring
- Video DJ and Karaoke Player
- Outside Broadcast

1.4 Receiving, Unpacking, and Inspecting

Upon receipt of the FS-2/2E unit, examine the shipping container. If there is evidence of damage or rough handling, have an agent of the carrier present when the equipment is unpacked.

Unpack the equipment carefully. Inspect it for scratches, dents, or cracks. If the equipment is damaged, save all packing materials and notify both Focus Enhancements and the carrier immediately.

1.4.1 Package Contents



Please take a moment to study the contents of your FS-2/2E package. You should have the following contents:

1. One (1) FS-2/2E unit with attached rack mounting ears
2. One (1) 120GB IDE disk drive in caddy
3. One (1) User Guide
4. One (1) 6-pin to 6-pin FireWire cable (for External Drive connection)
5. One (1) 6-pin to 6-pin FireWire cable (for front panel port loop)
6. One (1) Focus Enhancement's DV Conversion Suite Demo Disk
7. One Power Cord
8. One (1) Focus Enhancement's Warranty Card and Statement (not shown)

If any of these items are missing, contact Focus Enhancements or your FS-2/2E dealer/distributor immediately.

You may need to purchase cables to connect more than one hard disk drive to the FS-2/2E at a time. Your Focus Enhancements dealer can help you identify additional cables you may need.

1.5 Installation and Site Requirements

Focus Enhancements recommends that FS-2/2E units be installed in a restricted access area, such as an equipment room or closet and the installation be performed by trained installers.

The units are designed and tested to operate reliably between +5 - +40C (41 - 104 F).

To maintain this range, consider the following:

- Air temperature surrounding the equipment must remain within the specified range.
- Air flow around the equipment must be sufficient to maintain proper operating temperatures

If in doubt about the site temperature, take measurements to be certain. If measured temperatures fall outside the defined ambient temperature range, you must bring the temperature within the defined range.

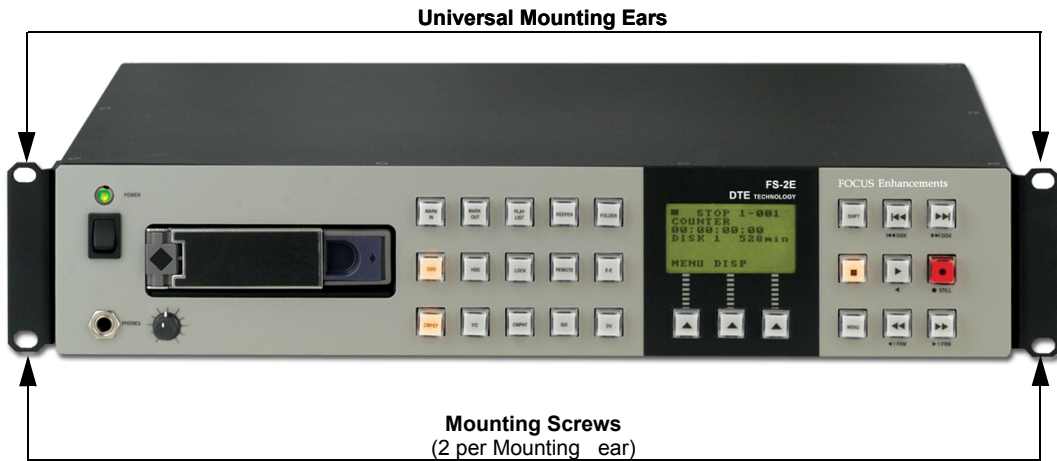
Storage temperature for the units must remain between -20 - +60C (-4 - 140 F).

1.6 Mounting in a 19 inch Electronics Rack

The FS-2/2E measures 15.89" high x 17.36" wide by 3.47" deep. It is an 2RU chassis featuring front rack mount ears to be installed into a standard 19" audio/visual rack. There must be room behind the unit for the attachment of cables.

To mount the FS-2/2E in a standard 19" audio/visual rack, do the following:

1. Determine the desired location.
The FS-2/2E requires 3.47 vertical inches of rack space.
To prevent overheating, the FS-2/2E requires a minimum of 1.75 vertical inches of space above and below the unit.
2. The FS-2/2E includes a pair of universal mounting ears on the front sides of the unit that support standard 19" audio/visual racks. Using the provided hardware, mount the FS-2/2E securely in the rack.



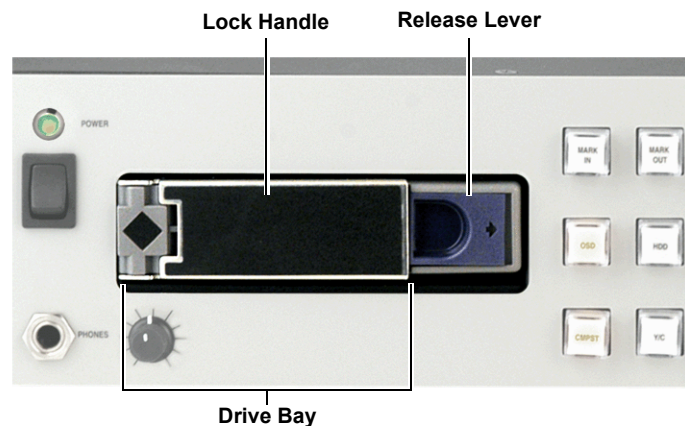
3. Connect the FS-2/2E unit to the wall current using the attached power cord.

1.7 Connecting Hard Drives

1.7.1 Inserting the Internal 3.5 inch IDE Drive

Insert the internal 3.5 inch IDE drive as follows:

1. Remove the drive from its packaging.
2. Slide the drive carefully into the bay until it is seated firmly.



3. Press the **Lock Handle** flush with the chassis face to lock the drive in place.

To remove the drive, slide the **Release Lever** to the right. The Lock Handle disengages. Pull the drive toward you to remove it.

iNote

This drive is not intended for hot-swap operation.

1.7.2 Using External Disk Drives

In addition to using a 3.5 inch IDE drive in the internal slot, you can also connect any FireWire disk drive to the HDD I/O port on the FS-2/2E. Power a single FireWire disk drive on the FS-2/2E at any given time.

If you are using more than one external FireWire drive, you must provide external power to them. It may also be necessary to partition and format the drives before their use with the FS-2/2E. Refer to **Formatting the Drive** on page 13 for instructions on preparing drives before use.

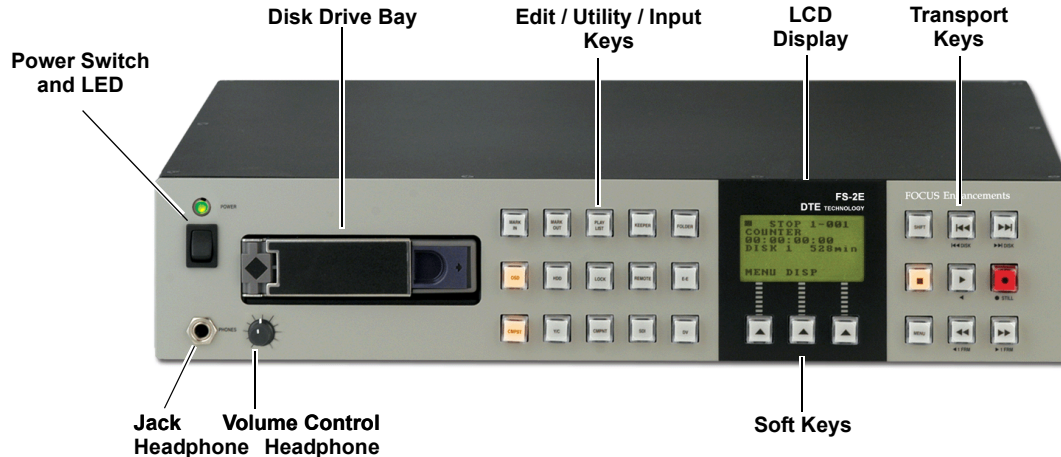
iNote

Hot-swapping External FireWire Drives

You can hot-swap connected external FireWire HDDs on the FS-2/2E. This means you can disconnect and connect drives from the system without the need to power cycle the unit. However, make sure the FS-2/2E is in STOP mode before removing a disk drive.

1.8 Physical Features

The FS-2/2E features two main surfaces, the front control panel and the rear connector panel.



1.8.1 Front Control Panel

The front control panel contains the seven control areas, as shown in the illustration below and described in this section:

- Power Switch and Power LED**

This is the FS-2/2E's main power switch. This switch, although mechanical, is controlled using software. When the power switch is set to **ON** and then **OFF**, in most cases the unit takes a moment to power down. During this time, the FS-2/2E is ensuring that any files that have not been closed properly in a record session get closed. This prevents errors occurring on particular files. The green LED above the power switch is **ON** when the unit is powered up.
- Disk Drive Bay**

The disk drive bay accepts a standard 3 1/2" removable disk drive in the supplied sled. Minimum system requirements for this drive are 7200RPM with a 2MB cache. Drive performance may vary. Focus Enhancements recommends that you use a FS-2/2E qualified and tested disk drive. Check the Focus Enhancements website for an updated list. This bay is not intended for hot swap operation.
- Edit / Utility / Input Keys**

These keys contain the edit, utility and input select functions for the FS-2/2E. In some cases, these buttons work in conjunction with the FS-2/2E menus on the display.

Input selections are either **Composite, Y/C (S-Video), Component, SDI** or **DV**. An audio source must be selected for each input using the **SETUP > AUDIO INPUT** menu, the Timecode mode in the **SETUP > TC MODE** menu, and the reference video source in the **SETUP > GENLOCK > SOURCE** menu. For component inputs/outputs you must select the video standard when used in **NTSC** mode only. Refer to **Compnt Level** on page 76 for more details.

- **LCD Display**

The FS-2/2E LCD displays the FS-2/2E's current status including track number, disk number, timecode, record / playback mode as well as other information. It also displays the FS-2/2E menu system. The LCD is a green backlit 128x64 graphical display.

- **Transport Control Keys**

This set of keys controls playback and record functions of the FS-2/2E. These functions include play, reverse play, fast forward, fast rewind, forward frame, back frame, next track, previous track, stop, record, and so on.

- **Display Soft Keys**

This set of keys enables you to navigate the FS-2/2E menus. The function of the keys varies depending on what is displayed at the base of the FS-2/2E LCD. Refer to **LCD Menu Soft Keys** on page 22 for more information.

- **Headphone Jack (3.5mm) and Volume Knob**

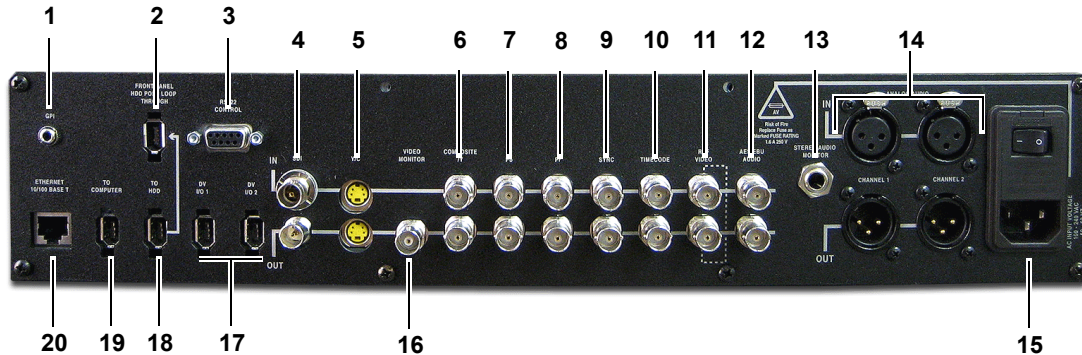
This jack is for connecting a pair of monitor headphones. You can monitor audio of the selected input (even if E-E is not selected) when not in record mode. When in record or playback mode, you can monitor the current audio. The headphone jack also includes a volume control.

1.8.2 Rear Connection Panel

The FS-2/2E rear panel, shown below, contains control and audio/video input/output areas described in this section.

You can select any of the available inputs as a source. When selected, that source is what is recorded to disk. If the unit is in E-E mode or recording, all outputs are live with the incoming signal.

For any particular video input, there is an associated audio input selected as a default. You can change that default to another input utilizing the **AUDIO INPUT MENU** under **SETUP**. Refer to Chapter 2 for more information.

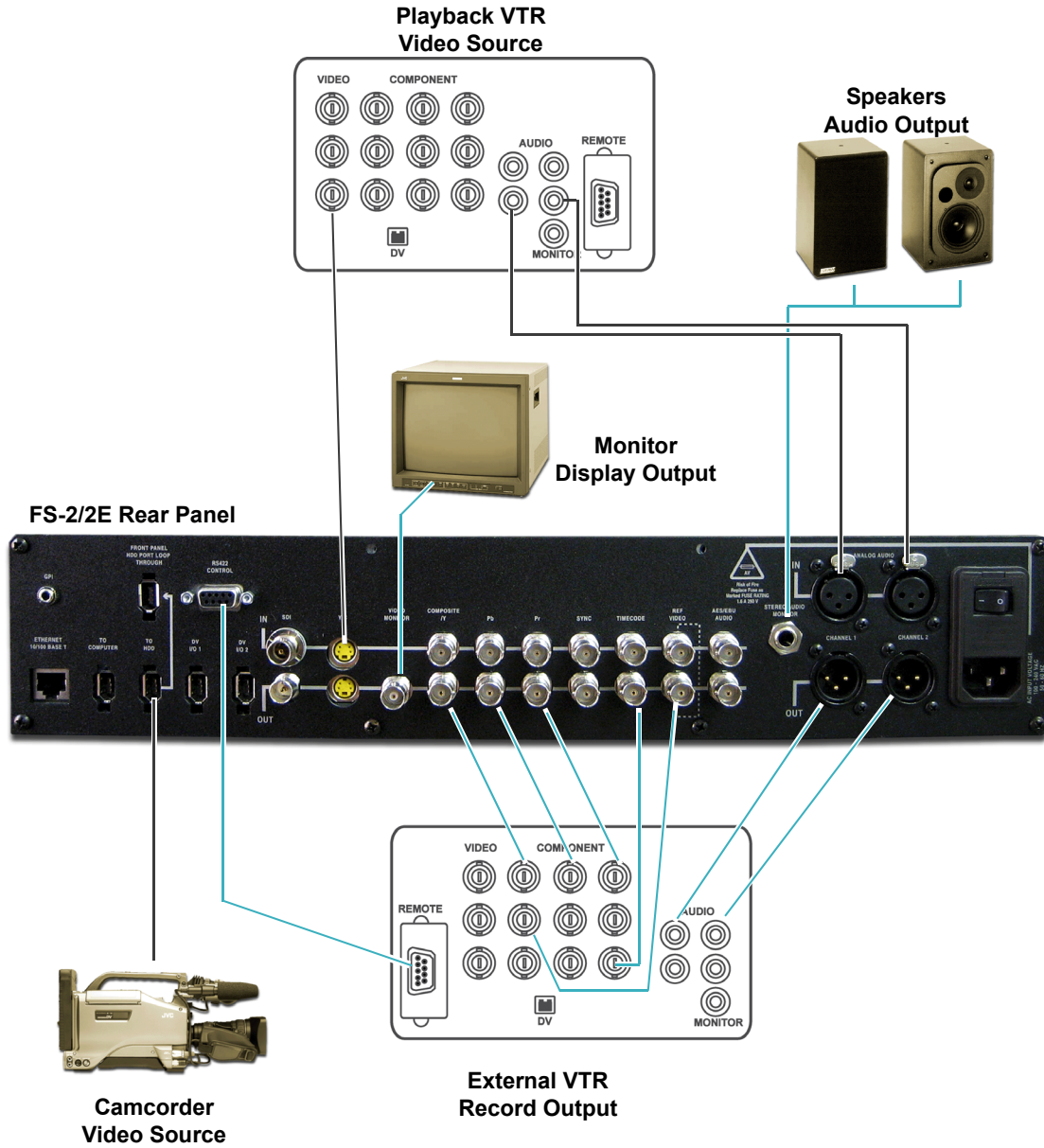


1. **GPI** - For connection of the optional wired remote control (ACSS-0019-01), the optional RS232C cable (CBLA-0113-01) or contact closure cable. The GPI plug accepts a 3.5mm TRS connector.
2. **Front Panel HDD Port Loop Through** - When patched to the **To HDD** port, this connector activates the front panel FireWire port for connection of external HDDs.
3. **RS422 Control** - This is the input connector for external RS422 control devices.
4. **SDI Input** - For connecting SDI input sources. The FS-2E provides the selection of channels 1 and 2 or 3 and 4 of the embedded SDI audio. Refer to the **AUDIO INPUT > SDI > EMBEDDED** sub-menu on **Audio Input** on page 59. The FS-2 does not have this capability.
SDI Output - For output to SDI devices. The FS-2E inserts two channels of audio into the SDI output stream. Only the FS-2E has this capability.
5. **Y/C Input** - For connecting **Y/C** (S-Video) input sources.
Y/C Output - For connecting to **Y/C** (S-Video) devices.
6. **Composite / Y Input** - For connecting composite input sources or the **Y** signal for component input sources.
Composite / Y Output - For output to composite devices or the **Y** signal to component devices (select either composite or component form **ANALOG SETTINGS** in the **SETUP** menu).
7. **Pb Input** - For connecting the **Pb** signal from component input sources.
Pb Output - For output of the **Pb** signal to component devices.

8. **Pr Input** - For connecting the Pr signal from component input sources.
Pr Output - For output of the Pr signal to component devices
9. **Sync Input** - For connecting the Sync signal on non sync on green component sources.
Sync Output - For connecting the Sync signal to non sync on green component devices.
10. **Timecode Input** - For connecting external analog VITC timecode sources.
Timecode Output - For connection to external analog VITC timecode devices.
11. **Reference Video** - For reference video loop through.
To use this Reference Video input, select **REF VIDEO** from **GENLOCK** in the **SETUP** menu. If the loop-through jack is not connected, make sure the output is terminated using an external 75 ohm terminator.
12. **AES/EBU Digital Audio Input and Output** - For connecting AES/EBU input sources or output to AES/EBU devices.
13. **Stereo Audio Monitor Output** - For connection of audio monitors.
14. **Balanced Analog Audio Input Channels 1 and 2** - For connecting balanced analog audio input sources.
Balanced Analog Audio Output Channels 1 and 2 - For output to balanced analog audio devices.
15. **AC In** - Use the power cord supplied to connect to the power outlet.
The power module contains a protective fuse. Refer to **Replacing the Power Module Fuse** on page 15 for more information.
16. **Video Monitor Output** - For connection to a video monitor (composite).
Use this connection to view the **On Screen Display**.
17. **DV I/O 1** and **DV I/O 2** - For connection of DV video devices. These two ports are used to pass through the DV signal. The FS-2/2E does not support multiple DV inputs.
18. **To HDD** - For connecting external FireWire 400 disk drives to the FS-2/2E. Use the FS-2/2E's HDD Bypass function with this port. When a connection is made with **Front Panel HDD Port Loop Through**, it allows the front panel FireWire connector to be used for connection of external FireWire HDDs.
19. **To Computer** - For connecting the FS-2/2E to a computer's FireWire 400 port. It allows any disk drives connected to the FS-2/2E to mount to the computer.
20. **Ethernet 10/100 BaseT** - For connecting FS-2/2E to a network or computers for small file exchange, telnet, or web control. (The web control functionality is only available for the FS-2E or the FS-2 with the 2.0 upgrade.)

1.9 Setting Up the FS-2/2E

This section explains how to set up the FS-2/2E for use. Refer to the illustration below and perform the steps on the following page.



To set up the FS-2/2E, do the following:

1. Plug in the power cord.
2. Connect a Video input device.
3. Connect an Audio source (if desired).
4. Connect a Monitor if desired.
5. Connect Speakers or Headset (to monitor the audio) if desired.
6. Connect a Tape Drive if desired.
7. Connect a Time Code Generator if desired.
8. Connect an External Control Device (RS422) if desired.
9. Connect a Reference Video signal if desired.

1.9.1 Formatting the Drive

Use this procedure to format the FS-2/2E internal or connected external disk drives when not yet formatted.

1. From the **Utilities** menu, select **FORMAT DISK** as shown below.

When you make this selection, the following screen appears:

```

FORMAT DISK
VOLUME 1?
SIZE      115 Gig
FREE      540 Min

EXIT      YES      NO
  
```

2. Select between volumes by pressing the ►► | and | ◀◀ buttons.
 - When you select the volume and press **YES**, the following screen appears:

```

FORMAT WILL
ERASE ALL DATA!!
CONTINUE
FORMAT VOL 1?

EXIT      YES      NO
  
```

- When you select **YES**, a message indicating that the formatting is progressing appears.



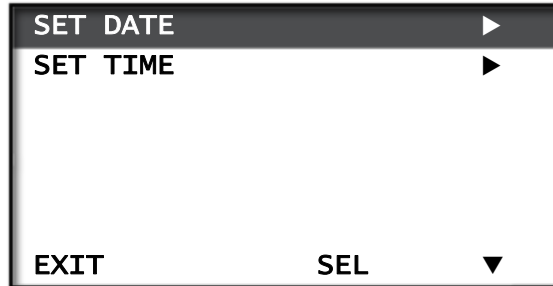
WARNING: FORMAT ERASES ALL DATA ON THE DISK DRIVE!

3. Press **EXIT** to return to the menu screen.

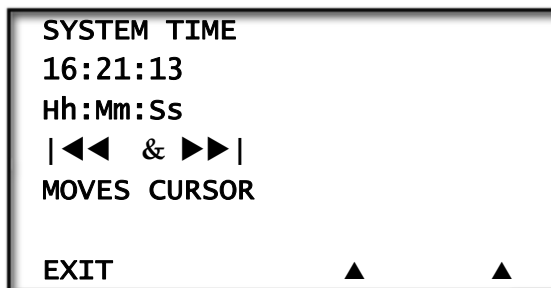
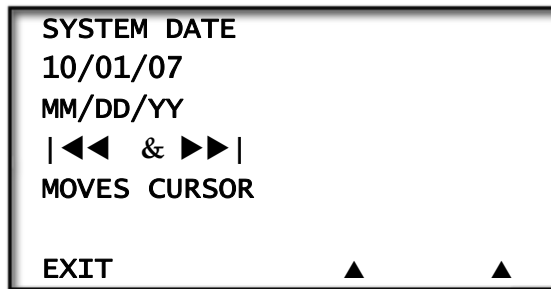
1.9.2 Setting the Time and Date

Before using the FS-2/2E, use this procedure to set the time and date.

1. Select the **Setup** Menu.
2. Select **SET DATE & TIME**. The following screen appears.



3. Select **SET DATE** or **SET TIME** and press **SEL** to open the sub menu as shown below.



4. Scroll from value to value using the **FORWARD** and **BACK** index buttons.
5. Press **▼** and **▲** to scroll through digits in the value.
6. Press **EXIT** to return to the menu screen.

Regardless of the display, the file name always remains **YYYYMMDD-HHMMSS.xxx** (Year-Month-Date-Hour-Minute-Second).

1.10 Replacing the Power Module Fuse

The power module of the FS-2/2E contains a protective fuse.

To replace the fuse do the following:

1. Turn off the FS-2/2E.
2. Locate the power module on the rear of the unit. It is indicated as **AC In**.
3. Detach the power cord from the power module.
4. Locate the small recess on the top of the power module above the power switch.
5. Use a small tipped standard screwdriver to pop open the fuse door.
6. Once open, slide the white fuse carrier out of the unit.
7. Replace the fuse with a 1.6 amp 250V slow blow fuse.
8. Reassemble the fuse carrier and slide it back into the unit.
9. Replace the fuse box door.
10. Re-attach the power cord.

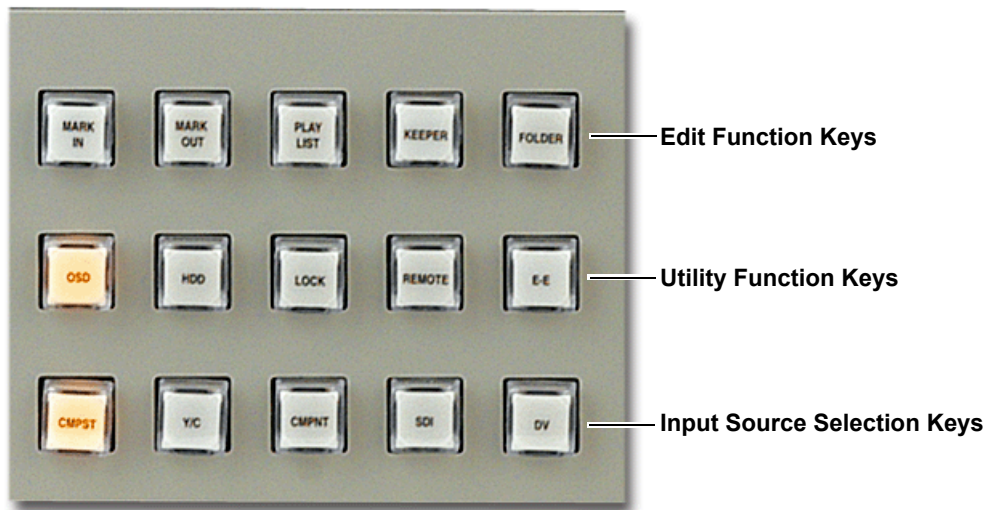
FS-2/2E Functions

This chapter contains the following sections:

Edit/Utility/Input Buttons	page 17
LCD Menu Soft Keys	page 22
Transport Control Keys	page 23
LCD Display	page 26
FS-2/2E Menus and Functions	page 30

2.1 Edit/Utility/Input Buttons

To the right of the hard disk drive is a bank of 15 buttons as shown below.



- The first row contains five buttons that are Edit functions keys.
- The second row consists of five buttons that are Utility function keys.
- The third row has five buttons that are Input buttons.

2.1.1 Edit Function Keys



2.1.1.1 MARK IN - Mark In Key

Use the **MARK IN** key to mark a particular frame as a starting point when creating a clip for a playlist. Refer to **Playlist Menu** on page 44 of this user guide for more information about Playlists.

iNote

It is only possible to mark In and Out Points during playback.

2.1.1.2 MARK OUT - Mark Out Key

Use the **MARK OUT** key to mark a particular frame as an ending point when creating a clip for a playlist.

iNote

Once the In and Out Points are selected, press the **PLAYLIST** key. The In and Out key lights will turn off. You are then free to add more clips to the playlist by again selecting In and Out points. When finished, go to the **PLAYLIST** menu under **SETUP**.

2.1.1.3 PLAYLIST – Add to Playlist key

Press this key during stop or play to add a current clip to the playlist.

Once In and Out points have been selected, press this key to add selected clips to the playlist.

2.1.1.4 KEEPER - Keeper Key

By pressing the **KEEPER** key during a recording, you can mark each clip into the **KEEPER** folder on disk.

To add all **KEEPER** clips to the **KEEPER** folder on the disk drive, select **UTILITIES > ORGANIZE CLIP** from the FS-2/2E menu.

2.1.1.5 FOLDER - Folder Key

By pressing the **Folder** key during a recording, you can mark each clip into particular pre-named folders on disk (up to 10 folders can be pre-named). Default names for the folders are 0 through 9. Refer to **How to Mark Scenes** on page 95 of this user guide to set up Scene Marking folders).

By repeatedly pressing the **FOLDER** key, you can scroll through the available folders. You can also assign clips to folders using the numeric keypad on the optional remote control units. The current clip can be marked during recording, playback or in stop mode. Once selected, the clip is marked for placement into that particular folder.

To add all marked clips to their respective folders on the disk drive, select **UTILITIES > ORGANIZE CLIP** from the FS-2/2E menu.

For more information on scene marking, refer to **How to Mark Scenes** on page 95 of this user guide.

If the FOLDER key is lit during playback, the FS-2/2E **PLAY FROM** mode is set to FOLDER.

2.1.2 Utility Function Keys



2.1.2.1 OSD - (On Screen Display)

Press this key to enable on screen display on the monitor output (composite). When off, the key will not light.

2.1.2.2 HDD – Hard Disk Drive Bypass Key

Press this key to immediately open the **HDD Bypass** confirm screen as described in the HDD Bypass section of the Menu. For more information, refer to **HDD Bypass** on page 50

2.1.2.3 LOCK – Keypad Lock Key

This key turns lock on or off. When the key is lit, the keypad is locked. When off, it is not locked.

2.1.2.4 REMOTE – Remote Key

When you press this key, the FS-2/2E goes directly to the **REMOTE** mode as described under the Control Modes menu. The key lights in Local mode. When in the FS-2/2E is in remote mode, you cannot use front panel keys for operation.

Another press exits REMOTE mode and the backlight turns off.

2.1.2.5 E-E – Electronic to Electronic Key

When you press this key, the selected input is passed on to all outputs on the FS-2/2E. The E-E mode is only active when the FS-2/2E is in **STOP** mode.

2.1.3 Input Source Selection Keys



In all cases, when selected, the key lights. When selecting **CMPST**, **Y/C**, or **CMPNT** and there is no video source available, this light flashes several times and then the FS-2/2E returns to the original input selection. Switching is not seamless. You cannot change inputs while in record mode.

2.1.3.1 **CMPST – Composite Video Source Input Key**

Press this key to select composite video as the input source. If there is no video source available when this button is pressed, the light flashes several times and then the FS-2/2E returns to the original video selection.

The default audio link is balanced analog audio. You can also select **AES/EBU** audio as the input link in the **SETUP > AUDIO INPUT** menu.

2.1.3.2 **Y/C – S-Video**

Press this key to select **S-Video (Y/C)** as the input source. If there is no video source available when this button is pressed, the light flashes several times and then the FS-2/2E returns to the original video selection.

The default audio link is balanced analog audio. You can also select **AES/EBU** audio as the input link in the **SETUP > AUDIO INPUT** menu.

2.1.3.3 **CMPNT – Component Video Source Input Key**

Press this key to select **Component** video (**Y, R-Y, B-Y**) as the input source. If there is no video source available when this button is pressed, the light flashes several times and then the FS-2/2E returns to the original video selection.

The default audio link is balanced analog audio. You can also select **AES/EBU** audio as the input link in the **SETUP > AUDIO INPUT** menu.

2.1.3.4 SDI Serial Digital Video Source Input Key

Press this key to select **SDI** video (**SMPTE 259M**) as the input source.

The default audio link is embedded AES/EBU digital audio in the stream. You can also select either balanced analog audio or separate **AES/EBU** audio as the input link in the **SETUP > AUDIO INPUT** menu.

The FS-2E provides the option to select either channels 1 and 2 or 3 and 4 of the embedded audio of the SDI stream. Refer to the **SETUP > AUDIO INPUT > SDI > EMBEDDED** sub-menu on page 59.

2.1.3.5 DV Video Source Input Key

Press this key to select **DV** video (25Mb/s) as the input source.

The default audio link is embedded 2-channel digital audio in the stream. You can also select either balanced analog audio or **AES/EBU** audio as the input link in the **SETUP > AUDIO INPUT** menu.

2.2 LCD Menu Soft Keys

The three keys directly below the FS-2/2E LCD display are soft keys for navigating and selecting items in the FS-2/2E menu.



These keys are also used for selecting different display modes. They are called soft because their function changes depending upon what is displayed on the LCD above the particular key.

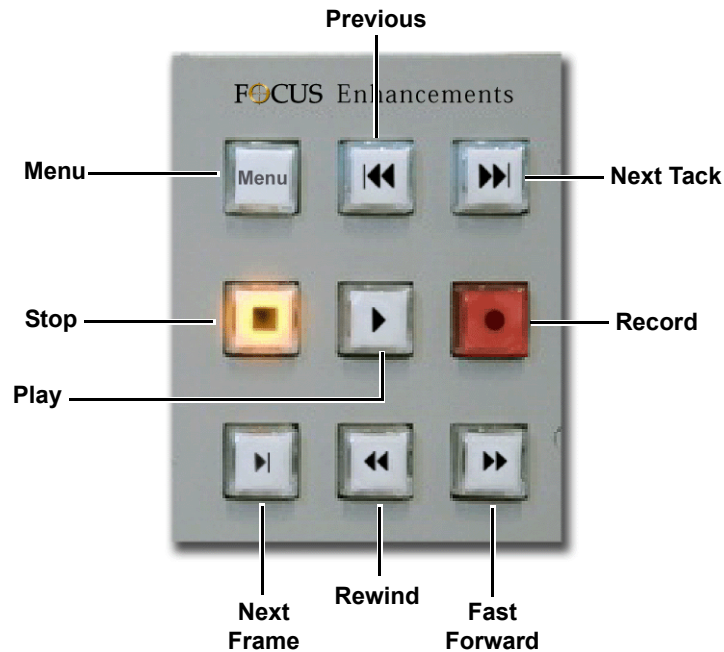
Note

Using the Right Soft Key to Scroll

In some cases when navigating the FS-2/2E menus, you can use the right soft key to scroll down through the menu. To scroll up, just hold down the SHIFT key as well as the right soft key.

2.3 Transport Control Keys

This set of buttons controls playback and record functions of the FS-2/2E. These functions include play, reverse play, fast forward, fast rewind, forward frame, back frame, next track, previous track, stop, and record. This area also features hot keys for changing, controlling, and navigating the FS-2/2E menu system. Each of these keys is described below as shown in order left to right, top to bottom.



2.3.1 MENU

Press this key to launch the FS-2/2E menu system. Once pressed, the Menu screen appears on the FS-2/2E LCD and the button lights. If you press the **MENU** key while in a particular screen in the menu system, that menu is marked and the MENU key lights. You can then EXIT the menu and perform other functions. If you press the **MENU** key at anytime, you will return to the marked Menu (except if you are in **REC** mode).

2.3.2 |◀◀ Back Index

Press this key to return to the beginning of the current clip if in playback mode. Press it twice to return to the previous clip during playback. In **Stop** mode press it to return to the beginning of the previous clip. If you press **SHIFT** and **Back Index**, the previous disk drive is selected.

2.3.3 ►►| Forward Index

Press this key to skip forward to the next sequential clip for playback.

- To skip ahead 10 clips per increment, holding down **Forward Index**.
- To select the next disk drive, press **SHIFT** and then **Forward Index**.

2.3.4 ■ Stop

Press this key to **Stop** the selected mode and return the FS-/2E to **Pause**. Press it again to put the FS-2/2E into **STOP** (standby with menu screen). The splash screen is the first frame of the selected clip when you select **SETUP > STOP OUTPUT > CLIP PREVIEW**. When the FS-2/2E is in **Stop** mode, the key lights.

2.3.5 ► Play

Press this key to start playback of the selected clip. If you press the **SHIFT** and **PLAY** keys, the FS-2/2E immediately goes into **Reverse Play** mode.

2.3.6 ● Record Key

Press this key once when the FS-2/2E is in **STOP** mode and the FS-2/2E goes into **REC-PAUSE**. The REC button flashes. Press it again to start recording. If you press **REC** during a recording, the current clip is closed and a new clip is created without dropping any frames. This key is the only key that is RED on the front panel.

If you press **REC** and **SHIFT** simultaneously, the FS-2/2E captures a single frame of video. In a particular session, all single frames of video are saved as part of the same clip on disk.

2.3.7 SHIFT

Use the **SHIFT** key to give particular keys a secondary functionality. When you press it, the SHIFT key lights and remains in **SHIFT** mode until the button is released. The SHIFT mode of particular keys is listed below that key or displayed on the FS-2/2E LCD.

2.3.8 ◀◀ Back Search

Press the **Back Search** button to allow video to be played at different speeds (both slower and faster than real-time). Refer to the note under **Forward Search Key** for more information.

2.3.9 ►► Forward Search

Press the **Forward Search** key to play video at different speeds (both slower and faster than real-time).

Note

Change Search Speed with FF Search and Back Search

Pressing the **FF Search** button multiple times results in increases in the search speed. This mode is bidirectional in forward X times normal search speed. Press the **Back Search** button to cause the FF speed to slow down by one step.

For instance, if you are in 10X FF speed and you press the **Back Search** button once, you are in 2X FF mode. This also applies to backward search speeds. The default speed resolution is as follows (NTSC and PAL have slightly different multiples for both greater and less than 1X play speed):

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

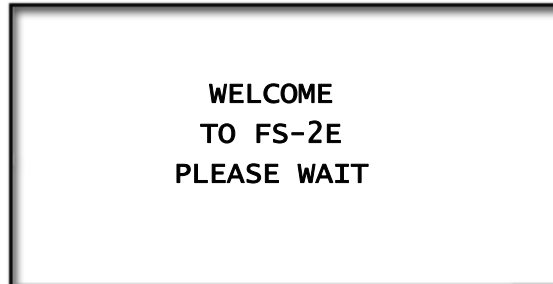
Forward Search and Reverse Search also have a “higher resolution” mode where more speeds are available as follows:

- REVERSE: -30X, -25X, -18X, -15X, -12X, -10X, -8X, -5X, -4X, -3X, -2X, -1/30, -1/15, -1/10, -1/6, -1/5, -1/3, -1/2
- FORWARD: +30X, +25X, +18X, +15X, +12X, +10X, +8X, +5X, +4X, +3X, +2X, +1/30, +1/15, +1/10, +1/6, +1/5, +1/3, +1/2

This mode can be set in the **SETUP > FF / RW HI RES** menu in the FS-2/2E Setup menu. Once set, these speed resolutions become available when you press **Back Search** or **Forward Search**.

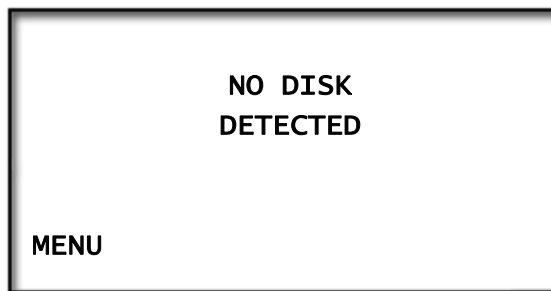
2.4 LCD Display

The FS-2/2E LCD screen displays different FS-2/2E modes and states. On boot up, the FS-2/2E displays the following screen:



Depending on the connected disk drive, the FS-2/2E may or may not display **Please Wait** during boot up.

Once booted, if no disk drive is connected to the FS-2/2E (either through the internal slot or externally using the HDD I/O port), the following screen appears:



Insert a drive into the front panel drive bay or connect a FireWire disk drive to the HDD I/O port.

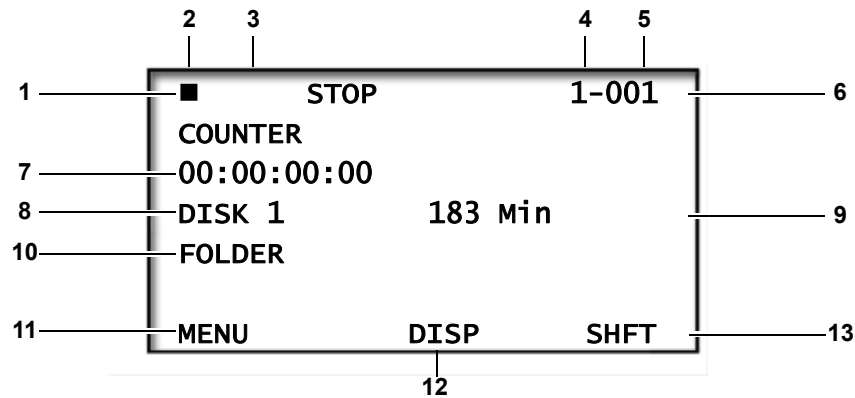
If you received a drive from Focus Enhancements, it should be configured and ready to use. If the message **No Disk Detected** appears, make sure the drive is inserted properly.

If the message **No Format Detected** appears, you must partition and format the inserted drive before use. The FS-2/2E prompts you through the steps required to perform a format.



Warning: Formatting and Portioning Erases All Data On the Disk.

Once ready for use, the FS-2/2E default menu screen appears as follows:



1. Play/Record Status Symbol

This symbol displays a graphical representation of the current FS-2/2E state as follows:

- - STOP
- ▶,◀ - Play or Reverse play
- ▶▶ - Fast Forward search and speed
- ◀◀ - Fast Back search and speed
- - Record and Record mode
- || - Pause

iNote

Each symbol has multiple display modes.

For a complete list, refer to **FS-2/2E LCD Display Modes** on page 26.

2. Record/Play Status Indicator

In this space, the FS-2/2E displays a character that indicates what record or playback mode it is in. The characters displayed and their respective modes are listed in **FS-2/2E LCD Display Modes** on page 114 of this user guide.

3. Current System Status

The current system status of the FS-2/2E is displayed in the top left corner of the LCD display. For instance, it displays whether the FS-2/2E is in record, play, stop, pause, fast search or slow motion modes.

4. Volume Number

The volume or disk number of the current clip recording or playback session is displayed in the top right corner of the LCD display. For example, a display value of **2-014** identifies a track as being on volume 2.

5. Track or Clip Number

The track number is displayed in the top right corner of the LCD Display. This is the current clip or track number being recorded or played back. For example, a display value of **2-014** identifies a track as being clip 14 on volume 2.

6. Timecode/User Bit Display Mode

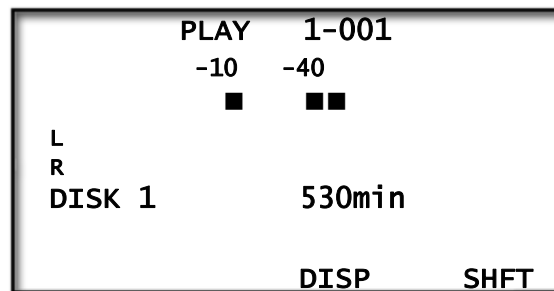
This identifies the display mode for timecode or user bit values. Selections are:

- **COUNTER** - Counts frames during record or playback of the current clip only.
- **REMAINING** - Counts down the number of frames available (time) on a particular disk during a record session. In a playback session, this display shows the remaining time on the current clip.
- **DV NTSC** or **PAL** - Displays the external timecode value being generated by a camcorder or other device during a record session. Timecode mode has to be set to EXT TC for this function to operate (refer to **TC Mode** on page 60 of this user guide). In playback mode, this displays the embedded DV timecode value in a particular track.
- **USER BIT** - Displays the set user bit value in a particular clip. A user bit value must be added for this to display (refer to **TC Set** on page 62 of this user guide).
- **ABSOLUTE** - Displays an absolute timecode value for the particular session (sum of all COUNTER timecodes on connected volumes). This is primarily used when you set the FS-2/2E to AV/C mode and are controlling it with an external FireWire device, such as a computer.

i Note

The FS-2/2E Does Not Accept NDF TC Values in DF TC Mode.

- **AUDIOMETER** - Displays left and right levels in db. The scale indicates -10db, -4db, and 0db. This display mode is only available for the FS-2E, or the FS-2 (with the 2.0 upgrade). The 2 lines on the menu appear similar to the following:



7. Timecode or User Bit Value

Displays the timecode or user bit value of display mode selected as follows:

- 00:00:00:00** - Drop Frame
- 00:00:00:00** - Non Drop Frame

8. Current Disk Volume

Displays the current disk volume in relation to available space.

9. Available Space on Volume

Displays the space in time available on the current volume, for example,

- **DISK 1 183min** - Current Disk time remaining is 183 minutes
- **NO DISK** - No attached Disk

10. Folder Display

In record or playback, this displays the particular folder a clip is in (if applicable). If playing an entire folder (**PLAY FROM** menu set to particular folder), it displays the folder name as follows: **[FOLDER]**.

11. Soft Key One (MENU) Function Display

Displays the current function related to Soft Key **1** (left key on the top row of buttons). You can use this key for opening the FS-2/2E Menu and also as a **STOP** key during a recording.

12. Soft Key Two (DISP) Function Display

Displays current function of Soft Key **2** (middle key on the top row of buttons). This changes the TC display between **COUNTER, REMAINING, DV TC (NTSC or PAL), USER BIT**, and **ABSOLUTE** when in record or playback modes. For the FS-2E, or the FS-2 with the 2.0 upgrade, there is an additional **AUDIOMETER** display mode.

13. Soft Key Three (SHFT) Function Display

Displays current function of Soft Key **3** (right key on the top row of buttons).

2.5 FS-2/2E Menus and Functions

The FS-2/2E features a comprehensive menu system which allows a number of features to be initiated and setup. The menu system contains the following selections:

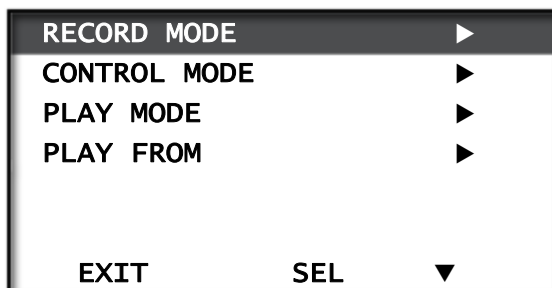
- **RECORD MODE**
 - **NORMAL REC**
 - **RETRO DISK**
 - **RETRO CACHE**
 - **LOOP RECORD**
 - **STILL**
 - **TIME LAPSE**
- **CONTROL MODE**
 - **LOCAL** (selections include: **NORMAL**, **INDEX AT TC**, **INDEX AT SCENE**)
 - **REMOTE**
 - **AV/C** (selections include **NORMAL**, **INDEX AT TC**, **INDEX AT SCENE**)
 - **SYNCRO SLAVE** (selections include **NEW FILE** [for FS-2E, or FS-2 with 2.0 upgrade only], **SAME FILE** [for FS-2E, or FS-2 with 2.0 upgrade only])
- **PLAY MODE**
 - **PLAY CLIP**
 - **LOOP CLIP**
 - **LOOP ALL**
 - **PLAY ALL**
- **PLAY FROM MODE**
 - **TRACK LIST**
 - **PLAY LIST**
 - **FOLDER LIST** (selections include: **NONE**, **KEEPER**, **0**, **1**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **9**)
- **PLAYLIST**
 - **OPEN**
 - **SAVE**
 - **NEW**
 - **EDIT** (selections include **REMOVE CLIP**, **INSERT CLIP**, and **MOVE CLIP**).
 - **VIEW**
 - **DELETE LIST**
- **HDD BYPASS**
- **INTERNAL HDD**
- **RECORD FORMAT**
 - **RAW DV**
 - **AVI TYPE 1**
 - **AVI TYPE 2**
 - **CANOPUS AVI**
 - **MATROX AVI**
 - **QUICKTIME**

- **AVID OMF**
- **PINNACLE**
- **24P AVI TYPE 2** (for FS-2E, or FS-2 with 2.0 upgrade only)
- **24P QUICKTIME** (for FS-2E, or FS-2 with 2.0 upgrade only)
- **SETUP**
 - **SET DATE & TIME** (sub-menus include **SET DATE**, **SET TIME**)
 - **OS VERSION NO**
 - **OS UPGRADE**
 - **PAL/NTSC** (selections include **NTSC**, **PAL**)
 - **RS422 REMOTE**
 - **TYPE** (selections include **BVW-75**, **GENERIC**)
 - **TC SOURCE** (selections include **ABS**, **DV**, **COUNTER**)
 - **COMPOSITE** (selections include **BALANCED** and **AES/EBU**)
 - **AUDIO INPUT**
 - **COMPOSITE** (selections include **BALANCED** and **AES/EBU**)
 - **Y/C** (selections include **BALANCED** and **AES/EBU**)
 - **COMPONENT** (selections include **BALANCED** and **AES/EBU**)
 - **SDI** (selections include **EMBEDDED**, **BALANCED**, **AES/EBU**)
 - **DV** (selection is **EMBEDDED**)
 - **AUDIO IN LEVELS**
 - **TC MODE**
 - **EXT TC** (selections include **SELECTED INPUT**, **LTC**)
 - **REC RUN**
 - **REGEN**
 - **FREE RUN**
 - **TC SET**
 - **TC PRESET**
 - **UB PRESET**
 - **TC DELAY** (FS-2E only)
 - **DROP/NON-DROP** (sub-menus include **DROP**, **NON-DROP**)
 - **ON SCREEN DIS** (sub-menus include **ABS**, **TC**, **MENU**, **OFF**)
 - **FF/RW HI RES** (sub-menus include **ENABLE**, **DISABLE**)
 - **GPI PORT** (sub-menus include **DISABLE**, **PAUSE/UNPAUSE**, **INDEX/NEW FILE**, **REC SNAPSHOT**)
 - **BACKLIGHT** (selections include **ON**, **OFF**, **AUTO OFF**)
 - **STOP OUTPUT** (selections include **GRAY**, **NO OUTPUT**, **CLIP PREVIEW**, **CUSTOM**)
 - **AUDIO CORRECT** (selections include **OFF**, **MEDIUM**, **HIGH**)
 - **PREFERENCES** (selections include **SAVE**, **RESTORE**)
 - **FOLDER PREF** (selections include **SCENE MARK** and **AUTO MARK**)
 - **ANALOG OUT** (selections include **COMPOSITE**, **COMPONENT**)

- **NETWORK SETUP**
 - **IP SETTINGS** (selections include DHCP, CUSTOM IP)
 - **USER/PASSWORD**
 - **VIEW IP INFO**
 - **SERVICES** (selections include FTP [ENABLE/DISABLE], TELNET [ENABLE/DISABLE], WEB [ENABLE/DISABLE])
- **GENLOCK** (selections include SOURCE [REF VIDEO/FREERUN], SC PHASE, H PHASE)
 - **VIDEO OUT ADJ**
 - **COMPOSITE Y/C** (selections include HUE, SATURATION, BRIGHTNESS, CONTRAST, BLACKLEVEL, [0 / 7.5])
 - **COMPONENT** (selections include Y, U, V)
- **COMPNT LEVEL**
 - **INPUT** (selections include SMPTE, BETA, MII)
 - **OUTPUT** (selections include SMPTE, BETA, MII)
- **UTILITIES**
 - **ORGANIZE PINN**
 - **ORGANIZE CLIP**
 - **ORGANIZE OMF**
 - **DELETE CLIP**
 - **FORMAT**
 - **PARTITION**
 - **REPAIR** (selections include CHECKDISK, CURRENT CLIP)
 - **FILE NAME**
 - **FACTORY RESET**
 - **DIAGNOSTIC**

Each of these selections is explained in this chapter.

To enter the FS-2/2E main menu, press the **MENU** key or soft key **1** (MENU) while in **STOP** mode. The following menu screen appears:



2.5.1 Menu Items

The four line list indicates the currently highlighted menu item. Push soft key **3** (under the ▼ symbol) to see more selections. To scroll up through the menu, press **SHIFT** + soft key **3**.

2.5.2 Sub-Menu Available

The ► symbol at the end of a line indicates a menu item that has a sub-menu available. Press the **SEL** soft key, to display the sub-menu.

2.5.3 Soft Keys

- **EXIT** -- Press **EXIT** to return to the FS-2/2E main menu screen.
- **SEL** -- Press **SEL** to select the current menu item. If a sub-menu is available, it will open.
- Scroll Arrow -- The ▼ or ▲ symbol allows you to scroll up or down through menu items.

2.5.4 Record Menu

The FS-2/2E **RECORD MENU** allows you to enable different record functions.

- Select the mode. by pressing **SEL** to open the sub menu.
- Press **EXIT** to exit back to the menu screen.

Once you select a particular mode in the Record Mode menu, the FS-2/2E remains in that mode until a different mode is selected.

Available items in the **RECORD MENU** are:

- **NORMAL REC**
- **RETRO DISK**
- **RETRO CACHE**
- **LOOP RECORD**
- **STILL**
- **TIME LAPSE**

Note

No Space Left Message

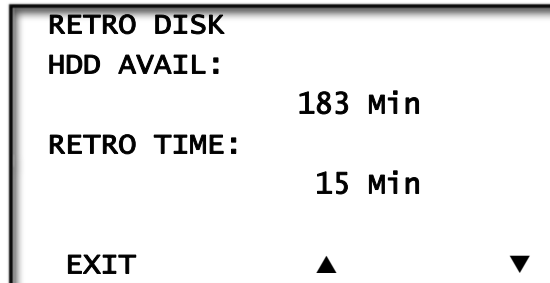
When an inserted or attached HDD is nearly full, in some record sessions, the HDD time remaining may display **001min** remaining. If you press **RECORD**, the FS-2/2E sometimes displays **NO SPACE LEFT**. Focus Enhancements advises that when a disk drive is close to being full, you make sure other disk drives are readily available in order to avoid lost footage

2.5.4.1 Normal Record

This is the standard and default record mode. When you press **REC**, the FS-2/2E begins standard recording. Press the **REC** once to put the FS-2/2E into **REC PAUSE** mode. Press it again to put the FS-2/2E into **RECORD** mode.

Press **STOP** once to pause your recording. To stop the recording session entirely, press **STOP** once again. Use the **REC** button to restart the recording.

2.5.4.2 Retro Disk



RETRO DISK Record constantly buffers video in a loop to a determined amount of space on the hard-disk drive so that when record is triggered, a retro time period can be added to the beginning of any clip. You can select the **RETRO DISK** value to close the available disk drive space.

1. Set **RETRO TIME** by pressing the ▲ and ▼ buttons. Time is selectable in one minute increments.
2. Hold the button for more than 3 seconds to allow numbers to increase by 10 times.
3. Press **EXIT** to return to the **RECORD**.

Press the **REC** key when in **RETRO DISK** mode to put the FS-2/2E into a **RETRO DISK** state (the FS-2/2E's REC button flashes as if in **REC-PAUSE** state). The FS-2/2E is actually recording in this state, but until you press the **REC** key a second time, the video records over itself in a continuous loop. **RETRO DISK** always keeps at least the selected amount of time in a series of one minute clips. For instance, if you set the **RETRO DISK** value to 3 minutes, the FS-2 always has 3 minutes (made up of three, one (1) minute clips) of video saved to disk. As the recording goes past the 3 minute point, a fourth clip is created. Once that clip reaches one minute, the oldest of the previous 3 clips is deleted. Another fourth clip is then created.

If you select a **RETRO** session that is 60 minutes or greater, instead of one minute clips, the FS-2/2E creates 9 minute, 13 second clips (2GB clips on disk). The functionality of **RETRO DISK** remains the same. The larger file size prevents the FS-2/2E from reaching its 999 track limitation for very long **RETRO** records.

Due to larger files sizes, the maximum amount of drive space available is decreased to accommodate the last recording in a session. For instance, if you have 90 minutes of disk space remaining, after you set RETRO record to less than 60 minutes, the available space changes to 88 minutes of available disk space.

If you set RETRO time to 88 minutes, the recording will be made up of about nine and a half 9 minute, 13 second clips. There must be space available in this situation in order to record the final clip which eventually will write over clip 1. This ensures that at any given time, at least 88 minutes of video exists after a complete RETRO DISK record loop.

Note

Minimum Disk Space Requirements

The FS-2/2E must always have at least one minute of disk space (under 60 minutes) or 9 minutes, 13 seconds of disk space (when the RETRO DISK value is set to greater than 60 minutes) remaining in addition to the RETRO DISK value, in order to function correctly. For instance, it is not possible to set a RETRO DISK value of one minute if only one minute of disk space remains.

Once RETRO DISK time is set, you can exit the Menus and return to the Main Screen. An **L** appears next to the record symbol on the FS-2/2E's display. Press the **REC** key once to put the FS-2/2E immediately into **RETRO DISK RECORD**. Clips are being recorded to disk for X number of minutes in one or nine minute increments (each as a separate track).

The REC button flashes (as when the unit is in pause). When you press the **REC** key, the FS-2/2E leaves **RETRO DISK** mode and goes into standard record.

All one minute tracks in the recorded loop sequence appear and are saved as their own tracks on disk (for example, 1-001, 1-002, 1-003, and so on) except for the recording that was in progress, which takes on the characteristics of a standard track. At this stage, the FS-2/2E is in standard record mode and the **L** on the display disappears. No frames are lost across tracks during the record session.

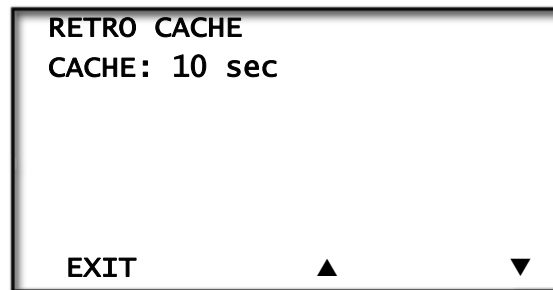
Once paused, the unit returns to RETRO DISK record mode (the **L** reappears in the LCD and viewfinder) for further RETRO recordings or until it is disabled in the RETRO DISK screen.

RETRO DISK can be used in LOCAL and SYNCRO SLAVE record control modes.



WARNING: Make certain that the FS-2/2E is in **STOP** mode before removing the disk drive from the system.
Do Not Attempt to Remove the drive when the FS-2/2E is in **REC** or **REC-PAUSE** mode.

2.5.4.3 Retro Cache



RETRO CACHE Record constantly caches your video in a loop up to a 10 second data buffer. In this way, when the record is begun, a retro time period is added to the beginning of any clip.

Pressing the **REC** key when in **RETRO CACHE** mode puts the FS-2/2E into a RETRO CACHE state (the tally light on the FS-2/2E flashes as if in PAUSE state). The FS-2/2E is actually recording in this state, but until you press the **REC** key a second time, the video records over itself in a continuous loop. It is much the same as RETRO DISK recording, except that it utilizes a data buffer separate to the disk drive to cache video.

RETRO CACHE is also accurate down to the frame instead of the 1 minute clips used in RETRO DISK. Once a RETRO CACHE value is set, pressing the **REC** key once puts the FS-2/2E immediately into **RETRO CACHE Record**. A **C** now appears next to the record symbol on the FS-2/2E's display.

Video is being recorded to the FS-2/2E cache. The REC button flashes (as if the unit is in pause). When you press the **REC** key, the FS-2/2E exits the **RETRO CACHE Record** mode and goes into standard record (the **C** on the display disappears).

Any clip recorded in this mode has the contents of the cache added to the beginning of the clip.

Once paused, the unit returns to the RETRO CACHE record mode again (the **C** reappears in the LCD) for further RETRO CACHE recordings or until it is disabled in the RETRO CACHE by setting the RETRO CACHE time to zero seconds.

RETRO CACHE record can be used in LOCAL and SYNCRO SLAVE record control modes.

2.5.4.4 Loop Record

When LOOP RECORD is selected after recording has begun, video is recorded to available disk space. Clips are recorded to disk continuously in one-minute clips (up to 60 minutes), or 9 minute clips (for loops over 60 minutes, 2GB files).

When the disk capacity's record time is reached, an additional one-minute (or 2GB) segment is created. After this clip is complete, the oldest one-minute clip (or 2GB segment) is recorded over, followed by each sequential oldest clip.

When you press **STOP** during a record session, recording stops and clips in the current **LOOP RECORD** session are saved to disk. They are also saved in a single folder.

iNote

Loop Record Only Works with One Disk Drive.

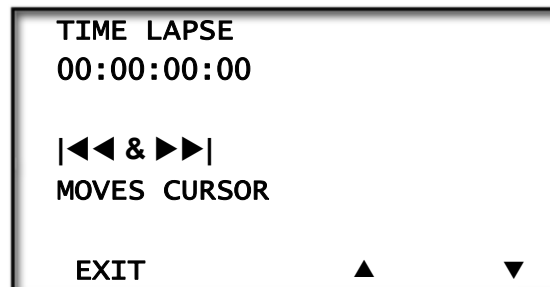
2.5.4.5 Still

When you select **STILL** when **REC** has begun, a single frame is grabbed.

You can grab a still quickly by pressing **SHIFT** and **REC** on the front panel when you are in any record mode.

Use **STILL** with **LOCAL** and **SYNCRO SLAVE** record control modes. If **STILL** is the record mode when power is cut to the unit or it is turned off, and then rebooted, the FS-2/2E goes to **NORMAL REC** mode.

2.5.4.6 Time Lapse



You can select an interval of up to twenty-four hours. The interval is the period of time between the FS-2/2E capture of a single frame of video (a value of 00:00:00:00 means no frames will be recorded).

1. Set **REC INTERVAL** by pressing the **TIME ▲** and **▼** buttons. Select the time in frames (up to 30 for NTSC or 25 for PAL), then seconds (up to 59), then minutes up to 59, then hours up to 23.
2. Use **|<< & >>|** keys to scroll between values.
3. Press **EXIT** to return to the menu screen.

2.5.5 Control Mode Menu

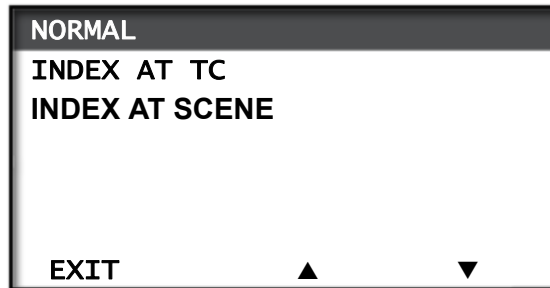


1. Select the **Control** mode. The highlighted mode is the current mode after exit.
2. Press **EXIT** to return to the menu screen.

Control Mode has the following functions:

- **LOCAL**
- **REMOTE**
- **AV/C**
- **SYNCRO SLAVE**

2.5.5.1 Local



Select these options to control the FS-2/2E from the front panel buttons only. You can also control the FS-2/2E with the optional wired remote control unit (ACSS-0019-01). This can be purchased at the Focus Enhancements online store, <https://www.focusinfo.com/webstore/webstore.asp>.

This sub-menu contains the following selections:

- **Normal Mode** - default - In this mode, recordings are captured to a single base file until STOP is triggered, or the nine minute file size limit is reached.
- **Index at TC** - In this mode, recordings are continuous until a break in the incoming timecode stream is detected, or the nine minute file size limit is reached. At that time, a new file is automatically created. No frames are lost during the transition to a new clip.

- **Index at Scene** - In this mode, recordings are continuous until a scene break is detected in the incoming video stream, or the nine minute file size limit is reached. At that time, a new file is automatically created within one second of the scene change. No frames are lost during the transition to a new clip..

Note

The Index at Scene option watches the DV stream for an index marker that is recorded to tape when a new scene, or record session starts. It depends upon the camcorder when this index is recorded to tape. Some camcorders record the index at every scene, or when the camera is placed in and out of record pause. Other cameras, only record the index marker at the beginning of every record session; in other words, the camera needs to be placed into STOP or powered-off between indices. Refer to your camcorder's manual for more information.

2.5.5.2 Remote

Select this function to control the FS-2/2E by an external device through the RS-422 port. The FS-2/2E takes on the characteristics of a VTR as setup in the **RS422** menu screen in the **SETUP** menu. You cannot use the FS-2/2E front panel controls in this mode.

The FS-2/2E has a menu item that allows the FS-2/2E to appear to external controllers as a Sony BVW-75 BetaSP VTR when in Remote RS422 mode. It also has a generic RS422 mode.

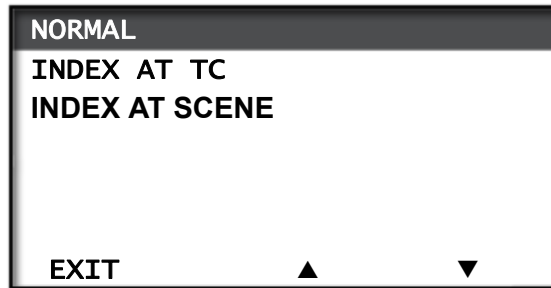
In remote, you can also slave an FS-2/2E to another device (such as a Betacam or other non-DV deck) using the RS422 port.

Note

FS-2/2E Does Not Support All BVW-75 Control Functions

This mode is only for greater compatibility with existing control systems. Refer to **Supported RS-422 Commands** on page 116 for a listing of RS422 supported commands.

2.5.5.3 AV/C



Use these settings in **PLAYBACK** and other situations where the FS-2/2E is controlled by an external FireWire device (such as a DV NLE system).

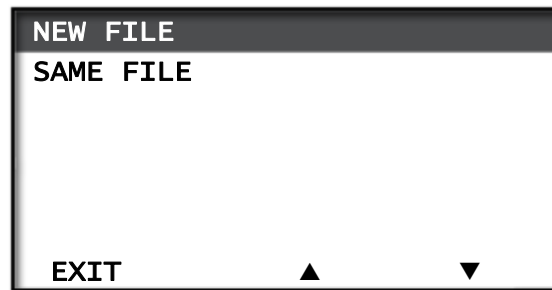
There three options in this sub-menu:

- **Normal Mode** - default - In this mode, recordings are captured to a single base file until STOP is triggered, or the nine minute file size limit is reached.
- **Index at TC** - In this mode, recordings are continuous until a break in the incoming timecode stream is detected, or the nine minute file size limit is reached. At that time, a new file is automatically created. No frames are lost during the transition to a new clip.
- **Index at Scene** - In this mode, recordings are continuous until a scene break is detected in the incoming video stream, or the nine minute file size limit is reached. At that time, a new file is automatically created within one second of the scene change. No frames are lost during the transition to a new clip. Refer to the note under Local mode regarding index markers.

Note

AV/C does not function completely with all NLE systems.
Contact Focus Enhancements technical support for more information.

2.5.5.4 Syncro Slave



The FS-2E and the FS-2 (with the 2.0 upgrade), has two settings in Syncro Slave:

- **NEW FILE** - default - This setting, and the FS-2E is triggered to stop recording from the camcorder, the current file is closed and a new file is opened ready for the next recording.
- **SAME FILE** - This option appends the new recording onto the same file. This significantly cuts down on the number of files created and is ideal for many applications.

In SYNCRO SLAVE mode, a camcorder and the FS-2/2E share the same record function and the FS-2/2E is slaved to the camcorder. Once it is set and you exit the **CONTROL** menu, they return to the default menu screen. The FS-2/2E also immediately enters **REC PAUSE** mode and a **Y** appears next to the record symbol on the FS-2/2E interface.

All recording is controlled by the camcorder exclusively. Every time you press the camcorder's **REC** button, the FS-2/2E goes into the selected **RECORD** mode. Each time you start recording on your camcorder, a new track is created on disk.

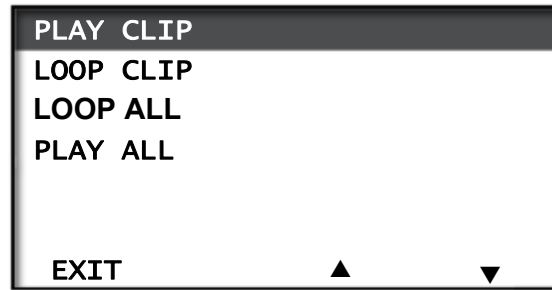
When used with **RETRO DISK** or **RETRO CACHE** functions, as soon as **SYNCRO SLAVE** is set, the camcorder begins filling up the selected retro record buffer. Press the **REC** button on the camcorder and the contents of the retro buffer are appended to the start of your clip.

The FS-2/2E buttons (other than MENU) are locked out when in this mode. It is also not possible to use the optional FS-2/2E remote control units. You must exit **SYNCRO SLAVE** by entering the **CONTROL** menu by pressing the **MENU** button when on the FS-2/2E main menu. If the camcorder is set to VTR mode, the FS-2/2E's control panel becomes active in order to allow playback.

If a tape ends while using SYNCRO SLAVE mode, the FS-2/2E continues to record.

At this point, to stop a recording, push the FS-2/2E **STOP** button twice.

2.5.6 Play Mode Menu



1. Select the mode. The highlighted mode is the current mode after exit.
2. Press **EXIT** to return to the menu screen. The default mode is **PLAY CLIP**.

2.5.6.1 Play Clip

For this function, the FS-2/2E plays the selected clip from start to finish when you press the **PLAY** button. At the end of the selected clip, the FS-2/2E pauses.

2.5.6.2 Loop Clip

For this function, the FS-2/2E plays the selected clip from start to finish. Immediately after completing the clip, the FS-2/2E begins playing the clip again without a pause. It plays this clip until stopped.

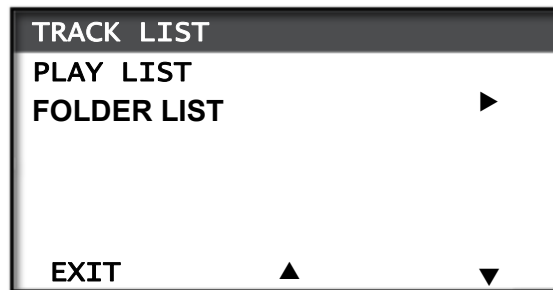
2.5.6.3 Loop All

For this function, the FS-2/2E plays the entire contents of the disk (all clips) in order from start to finish. At the end of the last clip, the FS-2/2E begins to play from the beginning of the first clip again without a pause. It plays these clips until stopped.

2.5.6.4 Play All

For this function, the FS-2/2E plays the entire contents of the disk (all clips) in order from start to finish. At the end of the last clip, the FS-2/2E pauses.

2.5.7 Play From Mode Menu



This selection allows you to select the playback list used in play mode. There are three options available.

1. Select the mode. The highlighted mode is the current mode after exit.
2. Press **SEL** for the highlighted menu item to open the sub-menu. When you exit the menu, the last menu item is the current mode.
3. Scroll from value to value using the **FORWARD** and **BACK INDEX** buttons.
4. Press **▼** and **▲** to scroll through digits in the value.
5. Press **EXIT** to return to the menu screen.

2.5.7.1 Track List

When you select this setting, all clips on attached disk drives are played back sequentially based on the order of their base file name regardless of whether they have been marked in the **KEEPER** or **SCENE MARKING** folders. If **Track List** is selected, all **PLAY MODES** relate to all clips on the connected disk drives.

2.5.7.2 Play List

This selection plays the items in the current playlist.

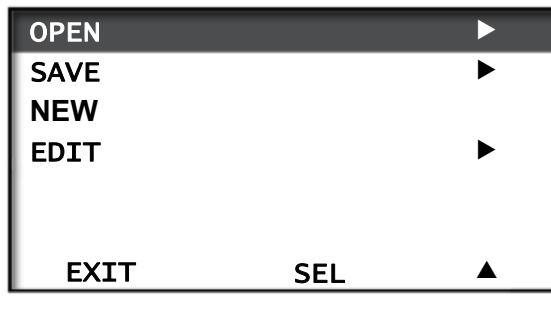
2.5.7.3 Folder List

When you select this setting, you can play back clips only from a selected folder. The highlighted folder is the selected folder after exiting. When selecting **FOLDER**, all **PLAY** modes relate only to clips in the selected folder.

When the FS-2/2E **PLAY** menu is set to **TRACKLIST** the name of the current folder appears without brackets on the LCD display (for example, **2 SCENE 2**).

When the **PLAY FROM** menu is set to **FOLDERS**, the name of the current folder appears in brackets on the LCD display (for example, **2 <SCENE 2>**).

2.5.8 Playlist Menu



The **Playlist** menu options are:

- **OPEN**
- **SAVE**
- **NEW**
- **EDIT**
- **VIEW**
- **DELETE**

The FS-2/2E playlist feature allows you to playback clips in a custom, user-defined order.

Playlists are created using the FS-2/2E front panel. You can mark in and out play points on clips. Multiple playlists can be opened, saved and edited at any time. Use the **PLAY FROM** menu to select the playlist to playback. Use the **PLAYLIST** menu selection to modify, open or save playlists.

Playlists can be named with an 8 character/number name (such as 04-05-04 or PROMO2).

A playlist can consist of multiple sequences with whole or portions of recorded clips. Each sequence gets a number in the playlist starting with 001. The corresponding track number of the clip sequence is also displayed (for example, 1-005 is a sequence from track five on volume 1).

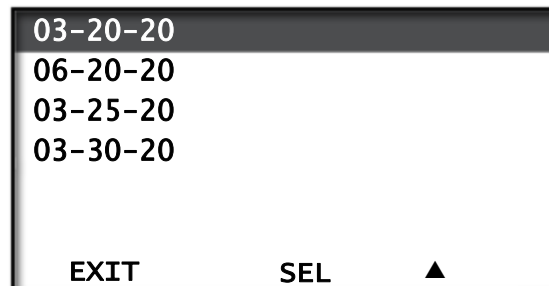
Select the mode from the list.

1. Press **SEL** when highlighting a menu item to open the sub-menu. When you exit the menu, the last menu item is the current mode.
2. Press **EXIT** to return to the menu screen. These settings are saved on power down.

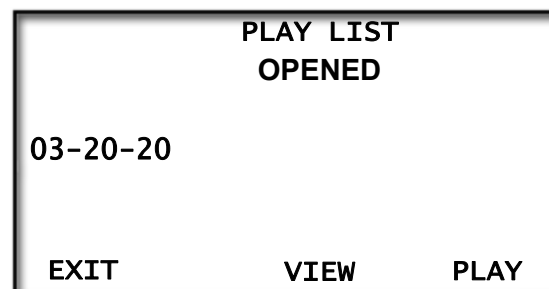
2.5.8.1 Open

Open allows you to open a playlist on disk. Do this as follows:

1. In the **PLAYLIST** menu, select the **OPEN** option.
A display similar to the following appears.



2. Once the sub menu is opened, select the desired playlist from the list. A screen similar to the following appears.



3. Once selected, you can **VIEW** or **PLAY** the playlist.
If you select the **PLAY** option, **EXIT** to the main display and press **PLAY**. The **PLAYLIST** button lights and playback will be from the selected Playlist only.
You can also play from a playlist using the **PLAY FROM > PLAYLIST** menu.

Only one playlist can be opened at a time.

i Note

Save Changes Before Opening Another Playlist

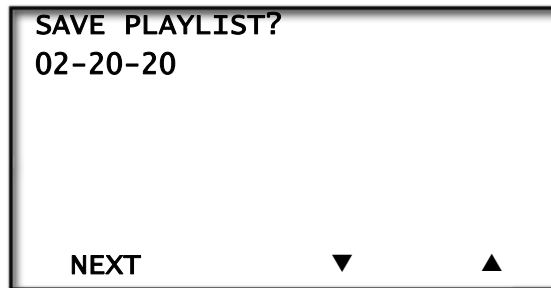
If you open a playlist without saving changes to a playlist using the **SAVE** menu option, the changes are lost.

2.5.8.2 Save

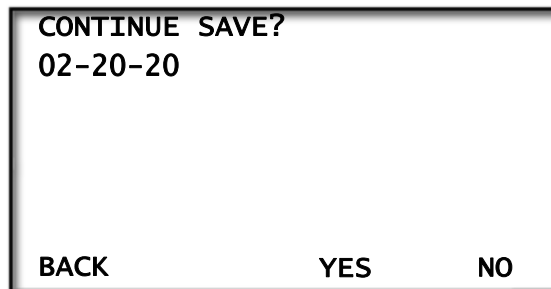
When a playlist has been created or modified, use the SAVE option to write it to disk.

If you modify a playlist, upon exiting, the SAVE function automatically appears.

If you have made modifications and wish to save them as a new playlist, modify the file name prior to saving it.



Select **NEXT** and a display similar to the following appears.



Select **YES** or **NO**.

2.5.8.3 New

Even if a playlist is open, you can begin creating a new one. If you create a new playlist without saving changes using the SAVE menu option, the changes are lost.

2.5.8.4 Edit

The edit menu allows you to modify an existing playlist.

The selected playlist must be opened in order to edit. EDIT allows you to **REMOVE**, **INSERT** or **MOVE** clips within a playlist.

2.5.8.4.1 REMOVE a Clip

To remove a clip, use the following steps:

1. Select **EDIT** from the **PLAYLIST** menu and then **REMOVE CLIP**. You are given a list of clips in the open playlist. (If no clips are in the playlist, the message **PLAYLIST EMPTY** appears.)

0001	1-001
0002	1-004
0003	1-001
0004	1-003
▲	NEXT ▼

2. Select the clip you wish to remove and then press **NEXT**.

DELETE ITEM?	
HDD:	01
CLIP:	0001
00:00:01:23	1-003
00:00:02:00	
EXIT	YES NO

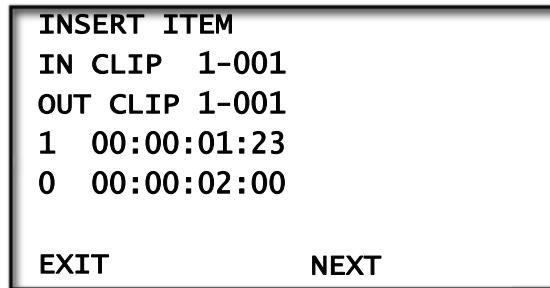
3. You will be asked again if you are sure you want to delete the item from the playlist.

2.5.8.4.2 INSERT a Clip

The **INSERT CLIP** option allows you to insert a clip in an existing playlist. A playlist must be opened and you must have marked in and out points for the clip you would like to insert before continuing.

1. From the **PLAYLIST** menu, select **EDIT > INSERT CLIP**. The selected clip number and its details will be listed.
2. Press **NEXT**.

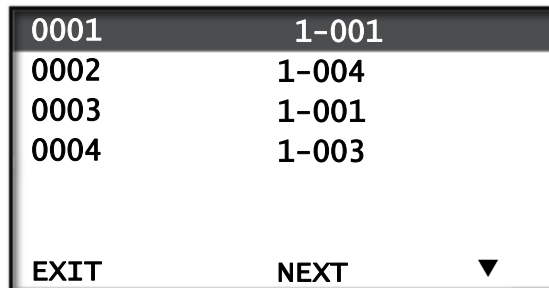
3. Select between inserting at the **BEGIN**, **END** or **CUSTOM** (user-specified) part of playlist. Once you have selected your choice, the updated playlist is displayed.



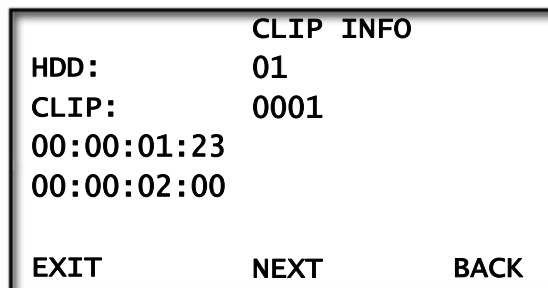
2.5.8.4.3 MOVE a Clip

The **MOVE CLIP** option allows you to move a clip within an existing playlist. To move a clip, use the following steps:

1. Select **MOVE CLIP** from the PLAYLIST > EDIT menu.
2. Once selected, scroll to the clip you wish to move.



3. Press **NEXT**. The clip information displays.



4. Select **NEXT**. You can move the clip to the **BEGIN**, **END** or **CUSTOM** (user-specified) part of the playlist.
5. Press **NEXT**. The updated playlist is displayed.

2.5.8.5 View

The VIEW option allows you to view the track information of an OPEN playlist. A playlist must be opened in order to view.

1. Select **VIEW** from the **PLAYLIST > EDIT** menu.

0001	1-001
0002	1-004
0003	1-001
0004	1-003
▲	NEXT ▼

2. Scroll to the desired clip, then select **NEXT**. The clip information is displayed.

CLIP INFO	
HDD:	01
CLIP:	0001
	00:00:01:23
	00:00:02:00
EXIT	NEXT BACK

2.5.8.6 Delete List

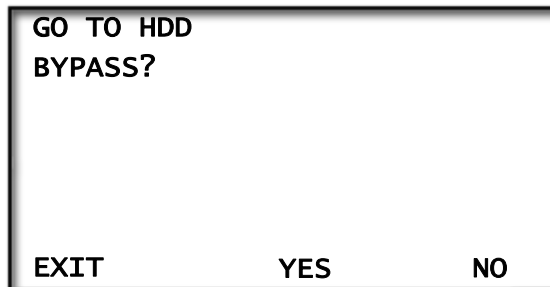
The DELETE LIST option allows you to delete an entire playlist.

1. Select **DELETE LIST** from the **PLAYLIST** menu. All the playlists on disk are displayed.

03-20-20
06-20-20
03-25-20
03-30-20
EXIT SEL ▼

2. Select the playlist you wish to delete and press **SEL**. You are asked to confirm the request: **DELETE PLAYLIST XX-XX-XX?**
3. Press **YES** to complete the deletion.

2.5.9 HDD Bypass



HDD Bypass mode allows the connected FireWire hard drives to be mounted or dismounted to a computer without removing them from the FS-2E.

Note

Attach FireWire Cable Before Enabling HDD Bypass
Before enabling HDD Bypass, attach a FireWire cable to the computer and HDD I/O port on the rear panel of the FS-2E. For more details, see *Connecting the FS-2/2E to a Network* on page 98.

In this mode, the computer connects to the “HDD I/O” port on the FS-2/2E Rear Connector Panel.

1. To Exit this mode, press the **EXIT** key.
2. Be sure to properly dismount the FireWire drive from the computer system before exiting HDD Bypass mode on the FS-2/2E.

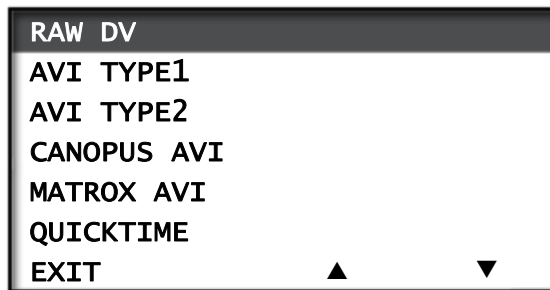
2.5.10 Internal HDD

The internal HDD function allows you to remove the front mounted IDE drive from FS-2/2E without first having to power the unit down.

1. Select **INTERNAL HDD** by pressing the **SEL** button.
2. Answer **YES** to question, **Remove Internal HDD?**
To abort, select **EXIT**.
3. Remove the disk drive from the FS-2/2E when prompted. To remove the hard drive, push the latch on the front right of the drive to the right. The drive handle pops out from the face of the drive. Then carefully pull the drive out from the drive bay. Press **EXIT** to complete the process.

To reinsert the drive, slide it back into the drive bay and press the handle back into place until you hear a click. The drive will be recognized by the FS-2/2E after about a minute.

2.5.11 Record Format Menu



The RECORD FORMAT menu allows selection of particular DTE Technology native NLE file formats prior to recording. All files are in the DV25 standard.

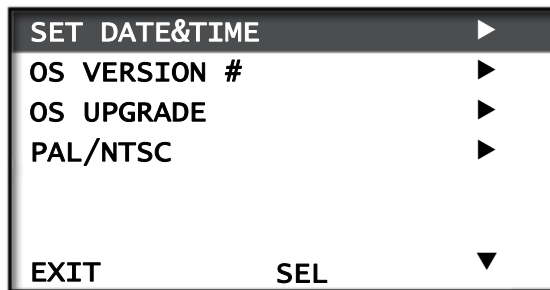
- The FS-2E supports the RAW DV formats:
 - AVI TYPE1
 - AVI TYPE2
 - CANOPUS AVI
 - MATROX AVI
 - QUICKTIME
 - AVID OMF
 - PINNACLE
 - 24P AVI TYPE2*
 - 24P QUICKTIME*
- * NTSC only.

1. Select a format to activate it. The highlighted format is the current format after exit.
2. Use ▼ to scroll through the selections.
3. Press EXIT to return to the menu screen.

Note

When recording in AVID OMF or PINNACLE AVI format, you must first do an Organize PINN or Organize OMF before using clips in an NLE. Refer to **Utilities Menu** on page 77 for more details.

2.5.12 Setup Menu



The SETUP menu allows you to set various functions of the FS-2/2E.

- Select the menu item.
- Press **SEL** to open the sub menu (where applicable).
- Use ▼ to scroll through the selections.
- Press **EXIT** to return to the menu screen.

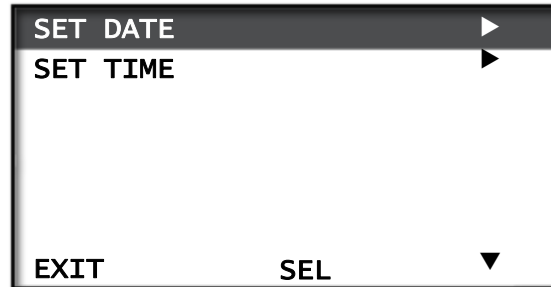
The SETUP menu contains the following selections:

- **SET DATE&TIME**
- **OS VERSION #**
- **OS UPGRADE**
- **PAL/NTSC**
- **RS422 REMOTE**
- **AUDIO INPUT**
- **AUDIO IN LEVEL**
- **TC MODE**
- **TC SET**
- **ON SCREEN DIS**
- **FF/RW HI RES**
- **GPI PORT**
- **BACKLIGHT**
- **STOP OUTPUT**
- **AUDIO CORRECT**
- **PREFERENCES**
- **FOLDER PEF**
- **ANALOG OUT**
- **NETWORK SETUP**
- **GENLOCK**
- **VIDEO OUT ADJ**

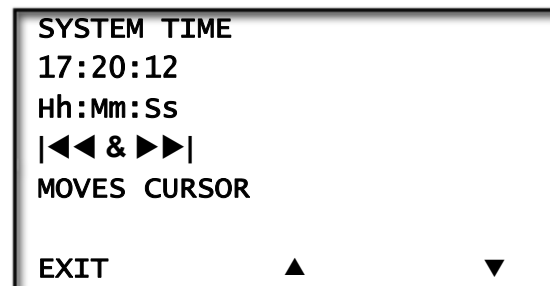
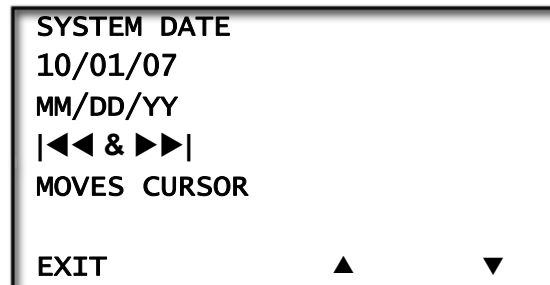
2.5.12.1 Set Date & Time

This selection provides a way to set date and time for file naming purposes. Date and Time are set in different menus.

1. Select the menu item.



2. Press **SEL** to open one of the following sub menus.



3. Move from field to field using the **FORWARD** and **BACK INDEX** Buttons.
4. Press ▲ and ▼ to scroll through digits in the value.
5. Press **EXIT** to return to the menu screen. Regardless of the display, the file name always remains as follows:

YYYYMMDD-HHMMSS.xxx

(Year-Month-Date-Hour-Minute-Second).

The date and time form the basis of the FS-2/2E file naming structure for use of clips on a computer.

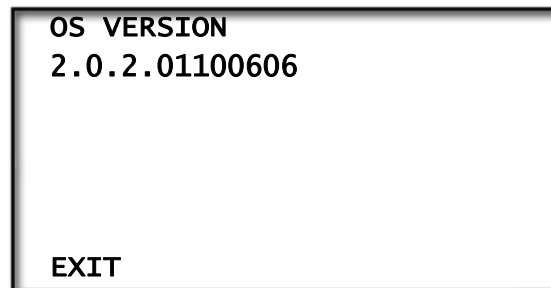
On the FS-2/2E, files are identified by TRACK and VOLUME (disk drive) number on the LCD. For instance, a file on the FS-2/2E LCD identified as 1-043 is clip number 43 on Volume (disk) 1.

On a computer, files are identified by their base file name made up of DATE and TIME. For instance, a clip named 20050615-210943-01.mov is a clip that began recording at 9:09:43PM on June 15th, 2005.

i Note

DATE/TIME is used when creating file names only. The FS-2/2E does not record this information into the stream. The FS-2/2E records the date and time which is in the DV stream sent from the input source.

2.5.12.2 OS Version #



This selection displays the current FS-2/2E Operating System (OS) Firmware version.

2.5.12.3 OS Upgrade

To upgrade operating system (OS) software, you must download a new .bin file to a FireWire drive on your computer. The latest version of FS-2/2E software can be downloaded from <http://www.focusinfo.com/support>.

There are three methods for installing new FS-2/2E software:

- Via the Web Interface, see **Updating FS-2E Software via FTP** on page 109.
- Directly onto the FS-2/2E internal drive, see the following procedure.
- From an external FireWire drive, see the following procedure.

To begin:

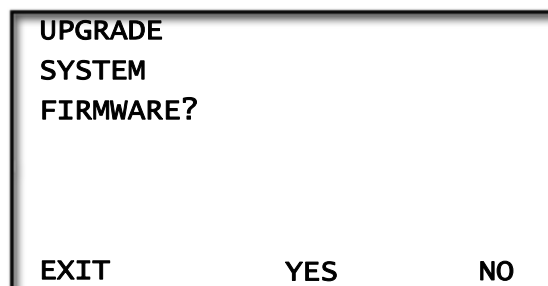
1. Download software from the Focus Website to your local computer.
2. Unzip file using WinZip (Windows) or Stuffit (Macintosh) on a computer system with a FireWire (IEEE-1394) connection.
3. Rename the unzipped file, **XXXX.bin**, to **fs2.bin**.

2.5.12.3.1 Copy Software to FS-2/2E Internal Drive

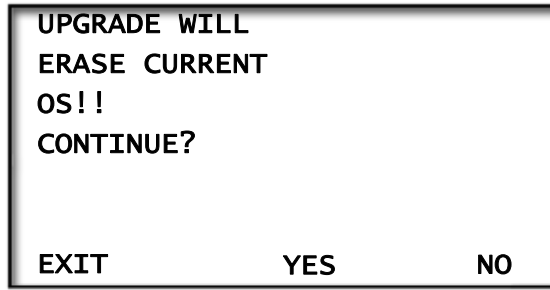
To install new OS software onto the internal drive of the FS-2/2E, do the following:

1. Using a FireWire cable, connect the computer and FS-2/2E through the FS-2/2E port labeled, **To HDD**.
2. Copy the **fs2.bin** file to the internal drive of the FS-2/2E.
3. Enter the FS-2/2E menu and select **SETUP**.
4. From the **SETUP** menu, select **OS UPGRADE**.

The following screen appears:



5. Select **YES**.
The following warning appears:



6. Select **YES** to begin the OS upgrade.
7. A message appears indicating the upgrade has begun.
8. After upgrade is complete, power cycle the FS-2/2E, to reboot the system. The new software is now loaded and ready to use.

i Note

OS UPGRADE ERROR

If the FS-2/2E cannot find the .bin the LCD screen displays the message OS UPGRADE ERROR. Check the connections between the computer and the FS-2/2E and the upgrade file's file name.

2.5.12.3.2 Load Software from External Drive

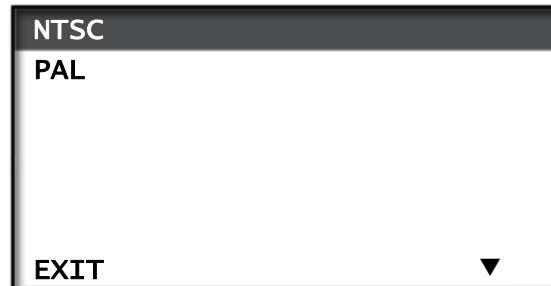
Use this procedure to load new OS software into the FS-2/2E without copying it to the internal drive.

1. Power **OFF** the FS-2/2E.
2. Remove the drive from the FS-2/2E.
3. Connect the external FireWire drive with the new OS software to the FS-2/2E via its **To HDD 1394** connector.
4. Power **ON** the FS-2/2E.
5. Follow steps **3** through **7** from the previous instruction, **Copy Software to FS-2/2E Internal Drive**.
6. Power **OFF** the FS-2/2E, disconnect the external FireWire drive and re-install the FS-2/2E internal drive.
7. Power **ON** the FS-2/2E.
This reboots the system and loads the software. It is now ready for use.

2.5.12.4 Restoring the Factory Default Operating System

To restore the factory default Operating System hold down the **Left** and **Middle** soft keys located under the LCD during boot up.

2.5.12.5 PAL/NTSC



Use this screen to select the record standard as either PAL or NTSC. The highlighted selection is the current one after exit. The FS-2/2E uses this video standard for both playback and record.

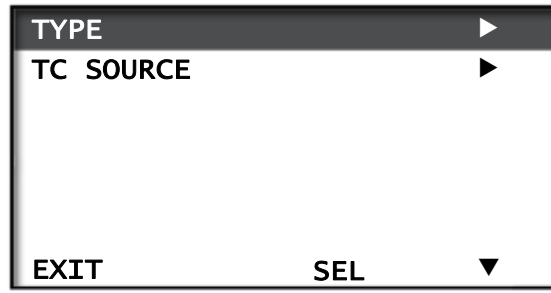
iNote

Do Not Combine PAL and NTSC Clips on the Same Drive.

2.5.12.6 RS422 Remote

This submenu allows you to setup the FS-2/2E for remote operation using the RS422 control port.

For easy integration with existing control systems, you can make the FS-2/2E look like either a Sony BVW-75 Betacam SP deck or a generic recorder. Using the TC SOURCE submenu, you can also select the timecode source for FS-2/2E control. Options are ABS, DV and COUNTER.



You can set the FS-2/2E to two different remote modes:

- **BVW-75** - The FS-2/2E appears as and is identified as a Sony BVW-75 BetaSP deck to the remote control device.

i Note

FS-2/2E Does Not Support All BVW-75 Control Functions

Some BVW-75 control functions are not available on the FS-2/2E. The FS-2/2E mainly responds to commands such as **PLAY, STOP, REWIND, REC, FF**, and so on. Commands such as Insert, Edit, and other specialty commands are not possible.

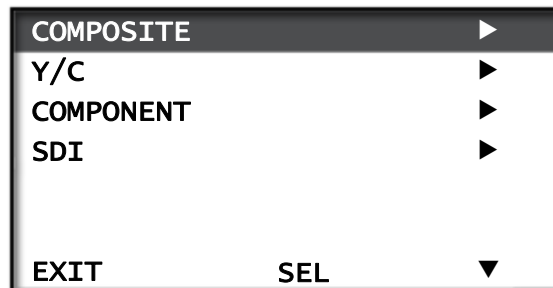
Refer to **Supported RS-422 Commands** on page 116 for more information on supported commands.

- **Generic** - The FS-2/2E appears as and is identified as a generic device to the remote controller.

After setting up the FS-2/2E's RS422 to control using an external RS422 device:

- Press the **REMOTE** button on the front panel or select **REMOTE** from the Control Mode menu.

2.5.12.7 Audio Input



In this submenu, you can change the default audio input linked to a particular video input.

Select the mode to activate it.

1. Press **SEL** for the highlighted menu item to open the submenu. In the sub-menu, the currently highlighted mode is the current mode after exit.
2. Press **EXIT** to return to the menu screen. These settings are saved on power down.

Each video input and its available audio inputs are listed below:

- **Composite**
 - Analog Balanced Audio (default)
 - AES/EBU Digital Audio
- **Y/C (S-Video)**
 - Analog Balanced Audio (default)
 - AES/EBU Digital Audio
- **Component**
 - Analog Balanced Audio (default)
 - AES/EBU Digital Audio
- **SDI**
 - Embedded (default)
 - Analog Balanced Audio
 - AES/EBU Digital Audio
- **DV**
 - Embedded (default)

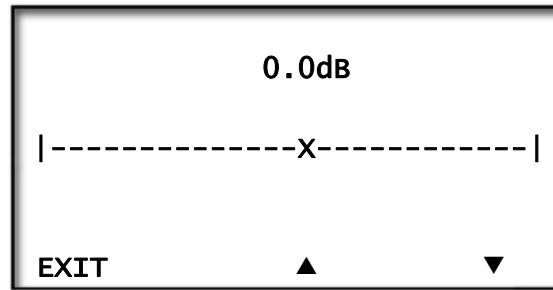
Note

The FS-2E provides the option to select channels 1 and 2 or 3 and 4 of the embedded audio of the SDI input stream. This is an FS-2E feature only.

There is a **SETUP > AUDIO INPUT > SDI > EMBEDDED** submenu that provides the following options:

- CHAN 1 and 2
- CHAN 3 and 4

2.5.12.8 Audio In Levels



This menu item allows you to set the audio input levels for FS-2/2E.

Adjust the audio level between -34.5dB and +4.5dB in 1.5dB increments.

2.5.12.9 TC Mode



This submenu allows you to select different timecode options for use when the FS-2/2E is recording.

Select the mode.

1. Press **SEL** to open the sub-menu. When you exit the menu, the highlighted menu item is the current mode.
2. Press **EXIT** to return to the menu screen. These settings are saved on power down.

This submenu contains the following selections:

- **EXT TC** - Whatever the incoming timecode, the FS-2/2E records it. You can select between **SELECTED INPUT** and **LTC**. Select the desired TC source:

Selected Input	TC Source
Composite, Component, & Y/C	VITC
SDI	LTC
DV	Embedded DV TC

- Choosing EXT TC mode will clear any stored timecode value.

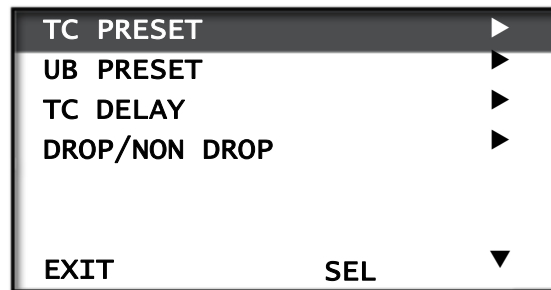
Note

If the FS-2/2E is set to EXT TC when in SYNCRO SLAVE mode, EXT TC stops once the tape in the camcorder ends. Focus Enhancements suggests that you use a different TC mode when using SYNCRO SLAVE. **NOTE:** TC Preset cannot be changed while in the EXT TC mode.

- **REC RUN** - In this mode, the FS-2/2E does the following:
 - **1** Uses the last timecode number recorded + 1 as the timecode number for the first frame of the next recording.
 - **2** Uses the number entered by a setting in the TC PRESET menu for the first frame of the next recording.
 - The last number used is stored in the memory, so this mode persists across recording sessions.
- **REGEN** - After a disk is mounted (at startup, upon manual connect) and after the track list has been constructed, the FS-2/2E looks at the last track and looks at the timecode number of the last frame in that track. The FS-2/2E stores that number for use as the TC value (+ 1) for the first frame of the next recording. If the drive is empty, the FS-2/2E uses the TC PRESET(+ 1).
- **FREE RUN** - When you enable FREE RUN mode, the FS-2/2E begins counting from the value stored. If you use the TC PRESET function, when the number is entered and the TC PRESET menu is exited, the FS-2/2E begins counting from that value.

Once a timecode value is set and the FS-2/2E is set to REC RUN or FREE RUN timecode settings, the TC preset value becomes the starting point for timecode.

2.5.12.10 TC Set



This menu allows you to set Timecode values for various modes. It also allows the selection of drop or non-drop frame (NTSC only) settings.

iNote

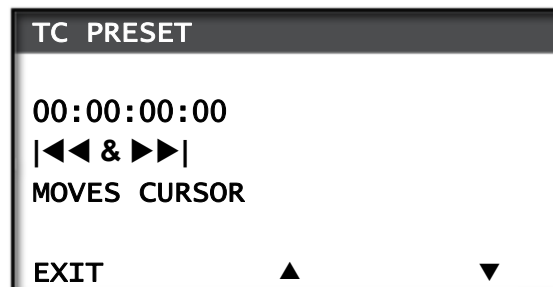
The FS-2E, or FS-2 (with the 2.0 upgrade), has the added ability to delay the recorded timecode relative to the content.

Once a timecode value is set and the FS-2/2E is set to REC RUN or FREE RUN timecode settings, the TC preset value becomes the starting point for timecode. Use this menu as follows:

1. Display this menu item by selecting it.
2. Press **SEL** to open the sub menu of choice.
3. Press **EXIT** to return to the menu screen.
4. For TC PRESET, scroll from field to field using the **FORWARD** and **BACK INDEX** buttons.
5. Press **▼** and **▲** to scroll through digits in the value.
6. Press **EXIT** to return to the menu screen.

2.5.12.10.1 TC Preset

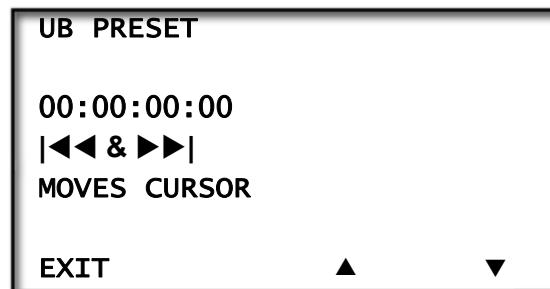
This selection allows you to set the starting timecode value for future recordings.



1. For UB Preset, scroll from field to field using the **FORWARD** and **BACK INDEX** buttons.
2. Press **▼** and **▲** to scroll through the hex digits in the value.

3. Press **EXIT** to return to the menu screen.

2.5.12.10.2 UB Preset



iNote

You cannot set UB values after selecting EXT TC mode in the TC MODE menu.

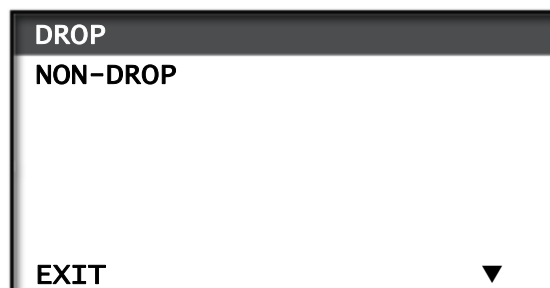
2.5.12.10.3 TC Delay (FS-2E only)

The TC DELAY menu is only available for the FS-2E, or FS-2 (with the 2.0 upgrade). This menu allows you to delay the recorded timecode up to 29 frames.

TC DELAY: 00

1. Use ▲ (middle soft key) and ▼ (right soft key) to adjust the delay value.
2. Press **EXIT** when done.

2.5.12.10.4 Drop/Non Drop



For DROP and NON-DROP, select the mode. The highlighted mode is the current mode after exit.

This selection is not applicable for PAL use. On the FS-2/2E display, DROP is identified by a semicolon (;) and NON-DROP by a colon (:).

1. Press **EXIT** to return to the menu screen.

2.5.12.11 On Screen Display



This selection allows you to turn on or off the on-screen display on FS-2/2E's Monitor Output. The highlighted item is saved after exit.

When you select **ABS**, the absolute timecode value, or amount of time recorded to the disk, appears on the bottom center of the monitor output.

When you select **TC**, the TC (Counter) timecode value appears on the bottom center of the monitor output.

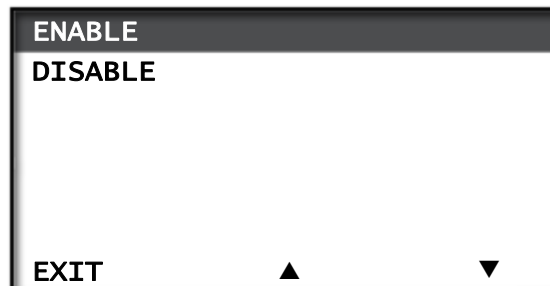
When you select **MENU**, the FS-2/2E Menu appears in the top left corner of the monitor output.

1. Press ▼ and ▲ to scroll through the selections.
2. Press **EXIT** to return to the menu screen.

i Note

By repeatedly pressing the front panel **OSD** key, you can cycle between these modes.

2.5.12.12 FF/RW Hi Res

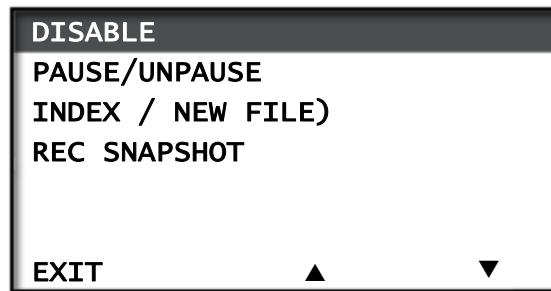


This screen enables or disables the FS-2/2E forward and reverse search high resolution mode. When enabled the following search speeds are available:

- **REVERSE:** -30X, -25X, -18X, -15X, -12X, -10X, -8X, -5X, -4X, -3X, -2X, -1/30, -1/15, -1/10, -1/6, -1/5, -1/3, -1/2
- **FORWARD:** +30X, +25X, +18X, +15X, +12X, +10X, +8X, +5X, +4X, +3X, +2X, +1/30, +1/15, +1/10, +1/6, +1/5, +1/3, +1/2

- The highlighted mode is the current mode after exit.
- Press **EXIT** to return to the menu screen.

2.5.12.13 GPI Port



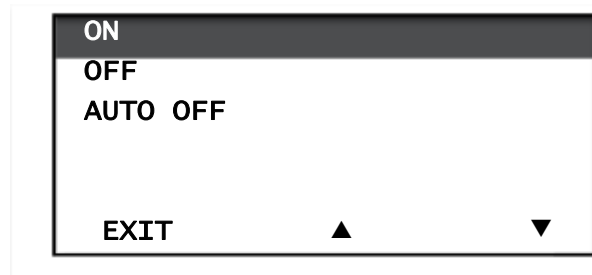
This menu allows you to change the setting of the GPI port.

- The highlighted function is the current setting after exit.
- Press **EXIT** to return to the menu screen.
- **DISABLE** - This selection allows you to connect a 3.5mm to DB9 cable to the GPI port (CBLA-0113-01) and control the FS-2/2E using RS232C from an external device. You can also use the FS-2/2E with the optional wired remote control unit (ACSS-0019-01). Purchase this item at the Focus Enhancements online store:
<https://www.focusinfo.com/webstore/webstore.asp>.

The remaining three selections allow functions to occur from a simple contact closure as follows:

- **PAUSE/UNPAUSE** - This selection allows control of pause and un-pause during a record or playback session.
- **INDEX (NEW FILE)** - This setting creates a new file during a record session without losing any frames.
- **REC SNAPSHOT** - This setting records a single frame of video to a file. Each sequential use of this function captures another frame to the same file until stopped.

2.5.12.14 Backlight



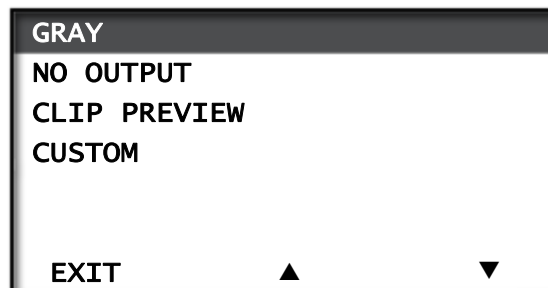
This selection enables or disables the FS-2/2E LCD backlight.

- The highlighted state is saved after exit.
- Press **EXIT** to return to the menu screen.

The ON setting leaves the LCD backlight on continuously and OFF setting turns it off.

AUTO OFF turns off the backlight after one minute. Press any keypad button on the FS-2/2E to turn the LCD backlight back.

2.5.12.15 Stop Output



Use this option to select the video displayed while the FS-2/2E is in **STOP** mode. The selected mode is the current state after exit.

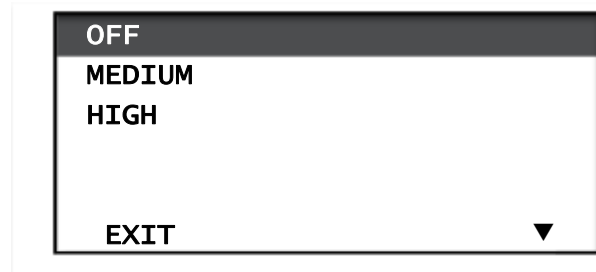
iNote

This setting does not effect E-E mode.

- **GRAY** - A black screen appears.
- **NO OUTPUT** - A blank screen appears; the DV output is turned off during STOP.
- **CLIP PREVIEW** - The first frame of each clip is generated and shows on all outputs after 1 second if you pause on that clip. After pressing the Stop button twice, the screen appears black. Use either the **Forward Index** or **Reverse Index** to show the clip preview.

- **CUSTOM** - The FS-2/2E looks on disk drive volume 1 for any clip named **SPLASH.dv** and always displays the first frame of that clip. You can name any RawDV clip **Splash.dv** and the first frame from that clip appears as the default output in STOP mode.

2.5.12.16 Audio Correct



This sub-menu allows you to change the AUDIO CORRECTION setting on the FS-2/2E.

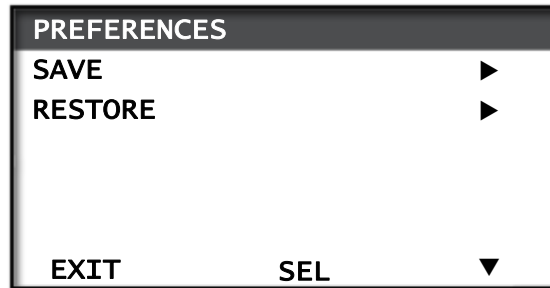
- The highlighted state is saved after exiting.
- Press **EXIT** to return to the menu screen.

The AUDIO CORRECTION selection is an advanced feature of the FS-2/2E. You should use the factory default settings for most operations (Factory default is MEDIUM).

Audio Correction mode allows you to alter the performance of the audio error corrector while recording. It is useful when recording to the FS-2/2E from tapes containing dropouts. Error correction only effects AVI 2, Canopus AVI, Matrox AVI, QuickTime, AVID OMF, Pinnacle, 24p QuickTime, and 24p AVI Type 2. It does not effect RawDV or AVI 1. The selections are:

- **OFF** - No audio correction.
- **MEDIUM** - (default) "Normal" clean tapes played back on a camcorder or other VTR with clean heads. When error correction occurs, the audio can be muted for brief periods of time.
- **HIGH** - For cases where there are visible picture disturbances and likely long audio dropouts (1/2 sec and up).

2.5.12.17 Preferences

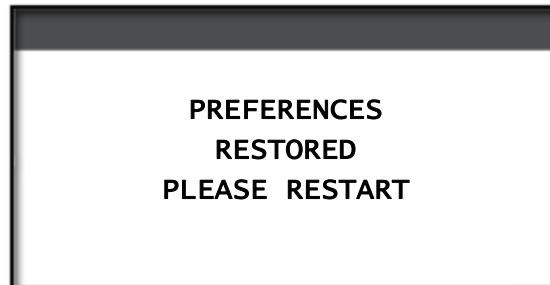


This menu allows you to save and restore system preferences.

When you select **SAVE**, you are prompted with the message **SAVE CURRENT PREFERENCES?**. Press **YES** and a file is written to the disk drive saving the current user settings.

When you select **RESTORE** the FS-2/2E searches for a saved user preference on the disk and if found, restores your preferences. Preferences are a snapshot of all settings that can be saved on the FS-2/2E.

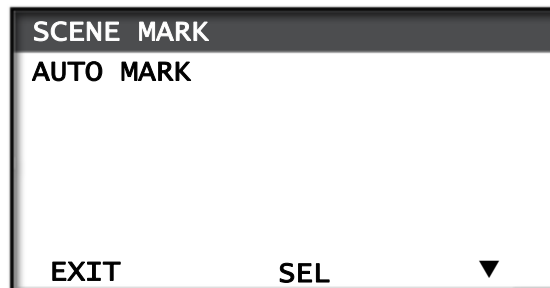
The following screen appears when the **RESTORE** completes.



It is now time to restart the FS-2E.

The restart requires that the FS-2E to be powered off and then on.

2.5.12.18 Folder Pref



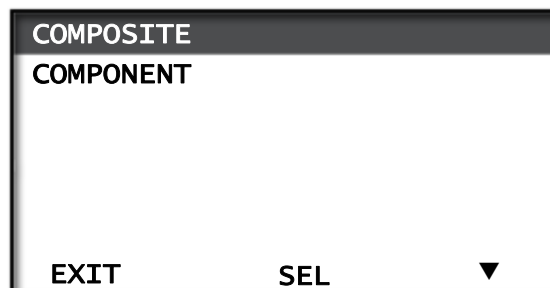
The FOLDER PREF menu allows you to determine the folders to which your clips are moved when you choose to do a ORGANIZE CLIPS from the UTILITIES menu. This menu contains the following sections:

- **SCENE MARK** - default - only marks those clips you explicitly mark during record or playback.
- **AUTO MARK** - marks all recorded clips with the last selected FOLDER.

i Note

These features are most easily used in conjunction with the optional wired remote control. This can be ordered at the Focus Enhancements on-line store: <https://www.focusinfo.com/webstore/webstore.asp>. The part number is ACSS-0019-01.

2.5.12.19 Analog Out

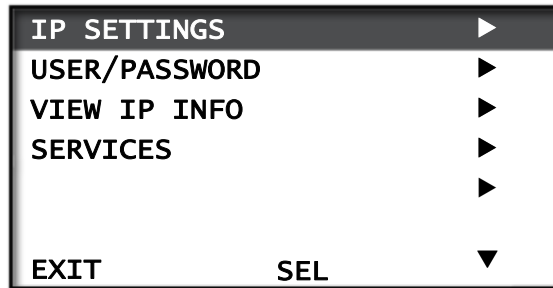


This screen provides two selections: Composite or Component.

- **Composite** - Use to select the Y output on the rear panel providing a composite signal.
- **Component** - When you select component out, you can also select either SMPTE, BETACAM, or MII output levels.

The selected mode becomes highlighted after you select **Exit**.

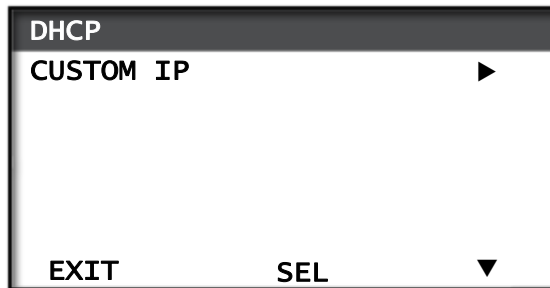
2.5.12.20 Network Setup



With **NETWORK SETUP**, you can connect the FS-2/2E to a network. When this is done, you can do FTP file transfers to or from the FS-2/2E or control the FS-2/2E using Telnet. The FS-2E, or FS-2, with the 2.0 software upgrade also allows you to control the FS-2 using your internet browser.

FOCUS Enhancements is in no way liable for device security (Telnet and FTP). Contact your system administrator regarding the best security practices.

2.5.12.20.1 IP SETTINGS



With the IP settings menu item, you can select either DHCP (the network provides the IP address) or a CUSTOM IP.

- **DHCP** - If you select DHCP and then EXIT, the FS-2/2E attempts to log onto the network.
- When DHCP is the default, **SEL** is not shown.
- When **Custom IP** is selected, **SEL** is displayed.

- **CustomIP** - If you select CUSTOM IP, a submenu opens to ask you to enter an **IP** number, **Sub Net Mask**, and **Gateway**.

IP	000.000.
	000.000
MSK	255.255.
	255.000
GWY	000.000.
EXIT	000.000
NEXT	SEL

If you do not have these values, contact your system administrator. The default values for the IP address are 000.000.000.000, Sub Net Mask 255.255.255.000 and Gateway 000.000.000.000.

To modify the custom IP values use the following steps:

1. Select the item to modify.
2. Press **▲** to select the field to change.
3. Use the **▼** to increase the value (HINT: press the **SHIFT** key on the FS-2/2E front panel plus **▲** to decrease a value).
4. Values wrap back to zero once the maximum value has been entered.
5. To modify the next item or set of values, press the **NEXT** key on the FS-2/2E front panel.
6. Once complete, press the **SEL** key when **EXIT** is highlighted to exit or the **NEXT** key to continue to modify items.

Once you exit the menu, the FS-2/2E attempts to log into the network and one of two things happen:

If the FS-2/2E successfully logs onto a network, it displays **NETWORK CONNECT SUCCEEDED**.

If the FS-2/2E is unable to log onto a network, it displays **NET CONNECT FAILED. CHECK NETWORK CABLE**.

7. Press the **VERIFY** button on the FS-2/2E to take you back to the IP Settings menu to verify your values.
8. Press the **EXIT** button to take you back to the **SETUP** menu.

2.5.12.20.2 USER/PASSWORD

USER:	fs2
PASWD:	focus
EXIT	
SAVE	
NEXT	▲ ▼

This screen allows you to set a username and password for the FS-2/2E. If you are unsure what username and password to use, contact your system administrator.

- Username may have up to 4 characters.
- Password may have up to 6 characters.

To modify the username and password, use the following steps:

1. Select the item to modify and then press the right arrow key to select the field.
2. Use ▲ to increase the value (HINT: press the **SHIFT** key on the FS-2/2E front panel plus ▲ to decrease a value).
3. Values loop back to zero once the maximum value has been entered.
4. To modify the next item, press the **NEXT** key on the FS-2/2E front panel. It is only possible to have one username and password per unit. The maximum number of characters for each is seven.

2.5.12.20.3 VIEW IP INFO

IP	000.000	
	000.00	
MSK	255.255	
	255.000	
GW	000.000	
	000.000	
NEXT	▲	▼

In cases where **DHCP** is being used, by selecting **VIEW IP INFO**, you can see the IP address that the network has provided the FS-2/2E.

If the FS-2/2E is not connected to a network or was not able to successfully log on, this screen displays **DHCP DISABLED NOT CONNECTED**. Check your settings or contact your system administrator for further assistance.

2.5.12.20.4 SERVICES

FTP	▶
TELNET	▶
WEB	▶
EXIT	▼
SEL	

The SERVICES menu allows you to enable or disable any of these services: **FTP**, **TELNET**, or **WEB** connection. With each, it is necessary to enable or disable the function within the submenu.

Once **FTP** is enabled you can use your web browser or ftp utility to transfer files to and from the FS-2/2E.

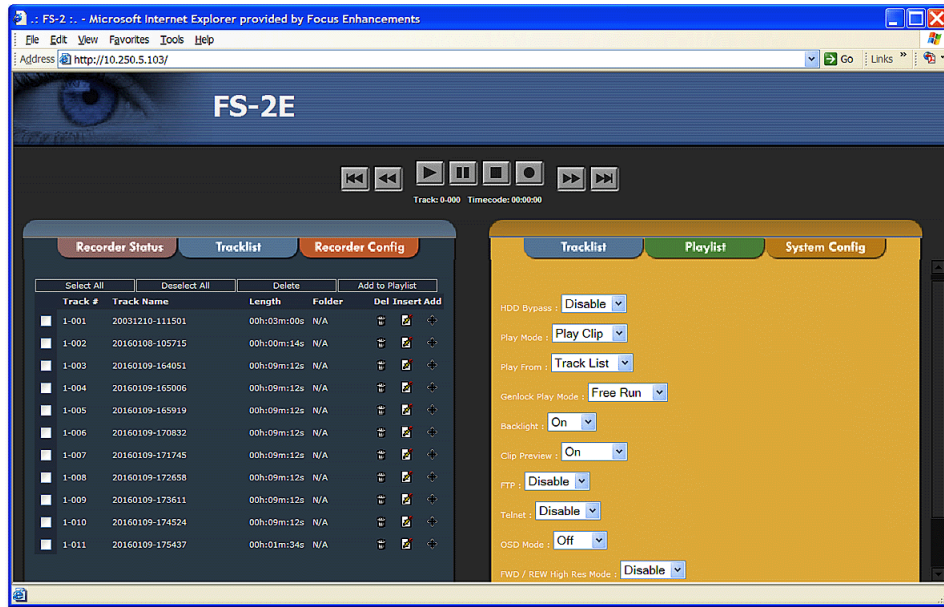
With **TELNET** enabled, you can send commands to control the FS-2/2E with a telnet utility.

With **WEB** enabled, you can control the FS-2/2E from your web browser. Type in the FS-2/2E IP address into the address bar of your browser to start using the web interface. Only an FS-2E or FS-2 (with the 2.0 firmware upgrade) has this option available.

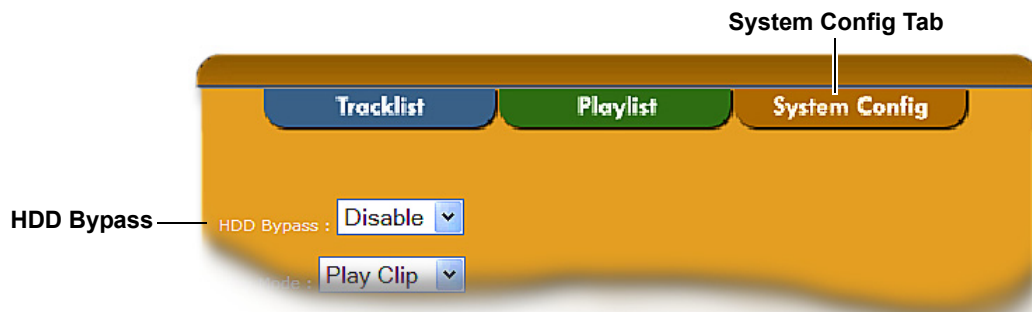
Web Interface

Use the web interface to control, change settings, edit playlists, and even delete tracks on the FS-2/2E.

Below is an example of the web interface. For more information about the web interface, see **FS-2E Web Interface** on page 99.



Remote Use of HDD Bypass

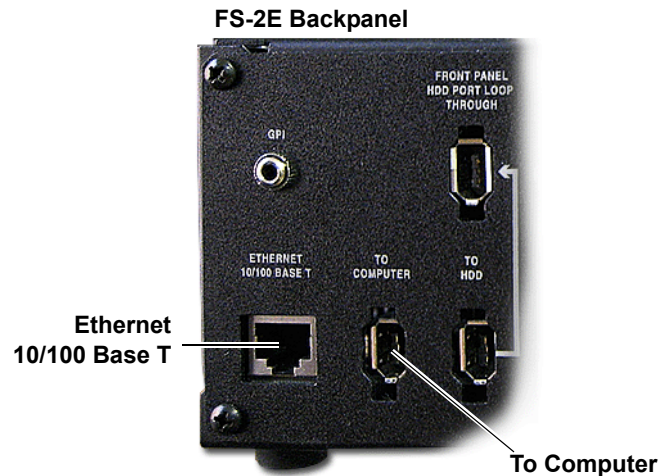


HDD Bypass allows you to make your content files available on the host computer. This permits more efficient and flexible transfer of files using your available network. Consult your Operating System’s instructions on how to network a FireWire drive.

To set up the FS-2E for **HDD Bypass**:

1. Enable HDD Bypass from the System Config tab.

2. Connect a host computer to the **TO COMPUTER** port on the back of the FS-2E next to the EtherNet port.



2.5.12.21 GENLOCK

The **GENLOCK** menu allows you to select and adjust the reference video source and whether the video out will be locked to the reference video input in playback modes.

- **SOURCE** - Selects the source of the sync pulses used to time the output video during playback. Choices are:
 - **REF VIDEO** - the reference video port on FS-2/2E's rear panel,
 - **FREE RUN** - reference video is generated internally on the FS-2/2E. When this option is selected the menu is simplified and only the above selections are in the GENLOCK menu.
- **SC PHASE** - Allows the subcarrier phase to be adjusted between +127 and -128. The default value is set at 0.

Press and hold either ▲ or ▼ for more than 3 seconds to change the value by increments of ten.

- **H PHASE** - Allows the horizontal phase to be adjusted between +127 and -128. The default value is set at 0.

Press and hold either ▲ or ▼ for more than 3 seconds to change the value by increments of ten.

iNote

Loop-Through or Terminated Output

If the loop-through jack is not connected, make sure the output is terminated using an external 75 ohm terminator.

2.5.12.22 Video Out Adj

The **VIDEO OUT ADJ** menu options allow you to make adjustments to FS-2/2E analog output sources.

- **HUE** (NTSC composite only) - adjustable between -179 and +180
- **SATURATION** (composite out only)- adjustable between -255 and +256
- **BRIGHTNESS** (composite out only) - adjustable between -127 and +128
- **Y** (component only) - adjustable between -128 and 128
- **U** (component only) - adjustable between -255 and 255
- **V** (component only) - adjustable between -255 and 255
- **CONTRAST** (composite out only) - adjustable between -127 and +128
- **BLACK LEVEL** (NTSC composite only) - Allows the output black level to be set to either 0 IRE or 7.5 IRE. 0 IRE is the default setting. This menu item is only present when the FS-2/2E is set to NTSC mode.

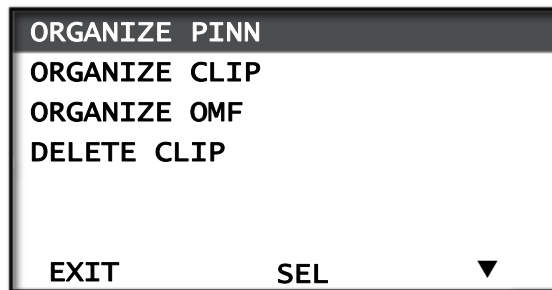
2.5.12.23 Compnt Level

This option is only available in NTSC mode and is not available in PAL mode.

Both the **component inputs** and **outputs** offer three video signal level standards:

- **SMPTE**
- **BETA**
- **MII**

2.5.13 Utilities Menu



This menu allows you to access various utilities.

- Select the menu item. Press **SEL** to open the sub menu (where applicable).
- Press **EXIT** to return to the menu screen.

This menu contains the following selections:

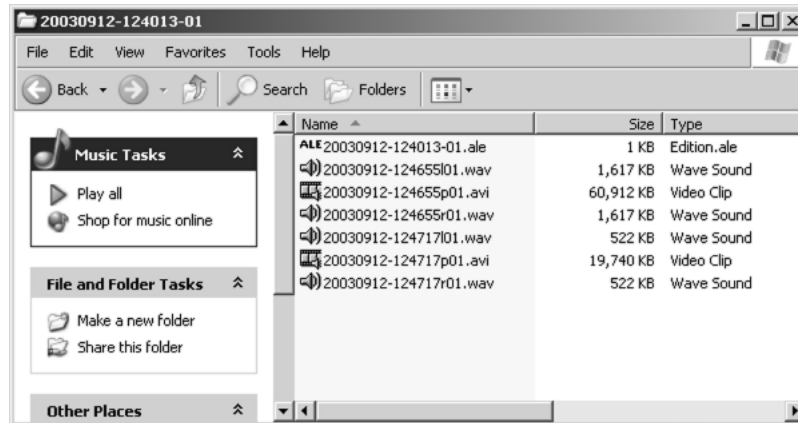
- **ORGANIZE PINN**
- **ORGANIZE CLIP**
- **ORGANIZE OMF**
- **DELETE CLIP**
- **FORMAT**
- **PARTITION**
- **REPAIR**
- **FILE NAME**
- **FACTORY RESET**
- **DIAGNOSTIC**

2.5.13.1 Organize PINN

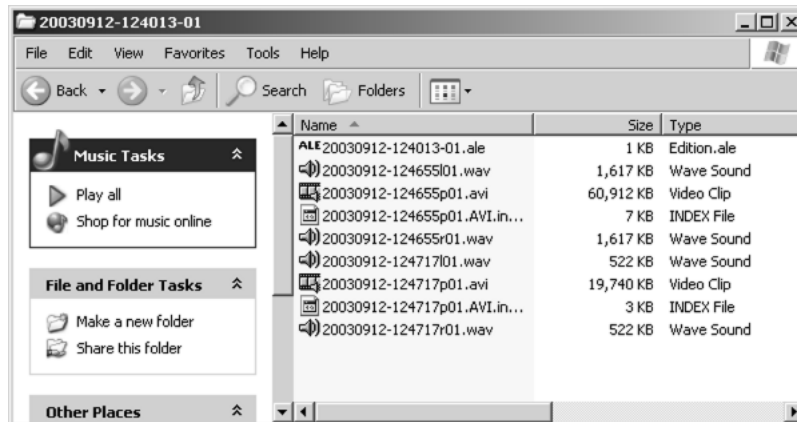
Once you have finished a Pinnacle recording session, do the following:

1. From the **SETUP** menu, select **ORGANIZE PINN**.
2. When prompted **ORGANIZE PINNACLE CLIPS?** Select **YES**.
3. You can now remove the disk drive from to begin editing.

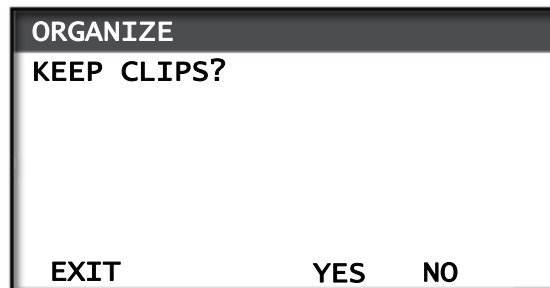
Products such as the Pinnacle AVI file format were created for use with products such as Pinnacle Liquid Edition. The Pinnacle AVI file format creates three files simultaneously during a recording; an AVI video file and two separate WAV audio files labeled as left and right. An additional **Edition.ale** file per recording session is also created which contains timecode data. This file must be kept with the media. This is shown in the following illustration.



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

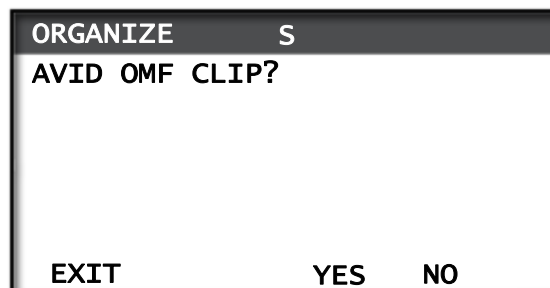


2.5.13.2 Organize Clip



This selection places all files that were identified as a KEEPER or were SCENE MARKED during recording into a folder marked KEEPER or the prenamed SCENE MARKING folders on the disk drive. These folders can be imported directly into most DV NLE bins.

2.5.13.3 Organize OMF



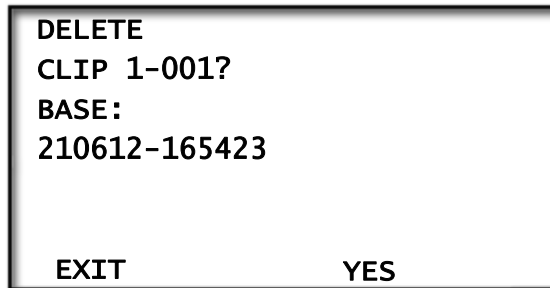
When files are recorded in the AVID OMF file format, this command automatically takes all the OMF and AIF audio files at the end of a recording session and places them into a folder on the disk drive named "OMFI MediaFiles". When the disk is connected to a computer, this folder is recognized by Avid's Media Tool feature enabling direct import of files into the Avid timeline.

Note

If you have selected files as a KEEPER or they have been SCENE MARKED, you cannot use this feature and keep files in their selected folders. If you would like to use clips in KEEPER or SCENE MARKED folders in Avid, manually create the "OMFI MediaFiles" folder when your disk drive is on your computer and drag the desired clips into this folder.

For more information on using FS-2/2E clips in Avid, refer to **Using FS-2/2E Recorded Avid OMF Clips on Avid Editing Systems** on page 90.

2.5.13.4 Delete Clip



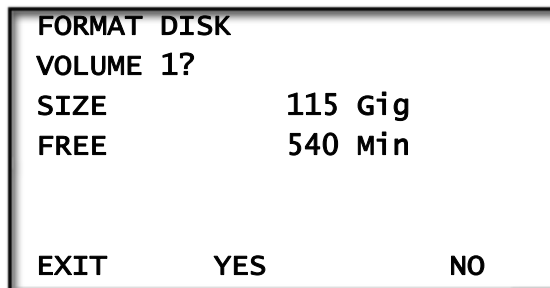
- In the DELETE CLIP X-XXX screen, select between clips by pressing the ►► and ◀◀ buttons.
- If you select **YES**, a message appears indicating that the selected clip is being deleted.
- Press **EXIT** to return to the menu screen.

Once a clip has been deleted, the FS-2/2E display re-organizes the clip number sequence. For instance, if there are three clips on disk (1-001, 1-002, 1-003) and you delete clip 1-002, after delete is complete, clip 1-003 becomes clip 1-002. Base file names are not affected however.

iNote

It is generally not recommended to delete clips, since fragmentation may occur.

2.5.13.5 Format Disk



1. Select between volumes by pressing the ►► and ◀◀ buttons.

2. Select the volume and press **YES**, the following screen appears:

```
FORMAT WILL
ERASE ALL DATA!!
CONTINUE FORMAT
VOL. 1

EXIT                YES        NO
```

3. When you select **YES**, a message indicating the formatting appears.
4. Press **EXIT** to return to the menu screen.

2.5.13.6 Partition

```
Select Drive
SIZE        115 Gib
Disk        1
FREE        524 Min

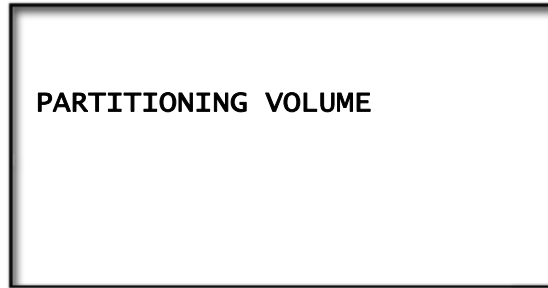
EXIT        YES        NO
```

1. Go to **Utilities** and select **Partition**.
2. The display shown above appears.
3. Press **Select**.
The following display appears.

```
Confirm Drive
Disk        1
FREE        536 Min
Good Partition

EXIT        YES        NO
```

4. Press **Yes**.
The following message appears.



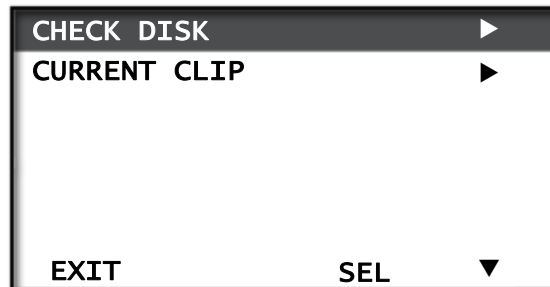
Select **Partition** to partition a connected disk drive. When an unknown volume type (HDD) is connected to the FS-2/2E, the Partition process puts a FAT32 format onto the drive. It erases any previous partition and data.

iNote

FS-2/2E Does Not Support Multiple Partitions on Drives Less Than 128GB

You cannot add multiple partitions on a single drive using the FS-2/2E. With drives greater than 128G, the FS-2/2E creates multiple partitions. There will be a partition for each 128G of disk space available.

2.5.13.7 Repair



1. Select the desired function.
2. Press **SEL** to make a selection.
3. Press **EXIT** to return to the menu screen.

2.5.13.7.1 CHECK DISK

This selection scans the entire volume for any errors. Usually, if a file was corrupted during a recording, **Check Disk** alerts you of this.

2.5.13.7.2 CURRENT CLIP

This selection performs a similar function, but on the selected clip only. If an error is found, the FS-2/2E prompts you to repair the problem. CURRENT CLIP repairs the last file in the current session if it has been damaged.

- Select between volumes by pressing the ►►| and |◄◄ buttons. Press **EXIT** to return to the menu screen.

2.5.13.8 File Name

```

CLIP 1-001
BASE:
20010612-166523

EXIT
  
```

This selection displays the base file name of the selected clip.

2.5.13.9 Factory Reset

When you select this function, the FS-2/2E reverts all settings and values back to its factory default state.

1. Press **YES** to start factory reset.
2. Press **EXIT** or **NO** to exit from the menu.



Warning: Factory Reset is can not be undone!!!

2.5.13.10 Diagnostic

```

DIAG LVL:      00

EXIT           ▲     ▼
  
```

This is a setting used for diagnosing field issues. Do not change it unless told to by Focus Enhancements Technical Support.

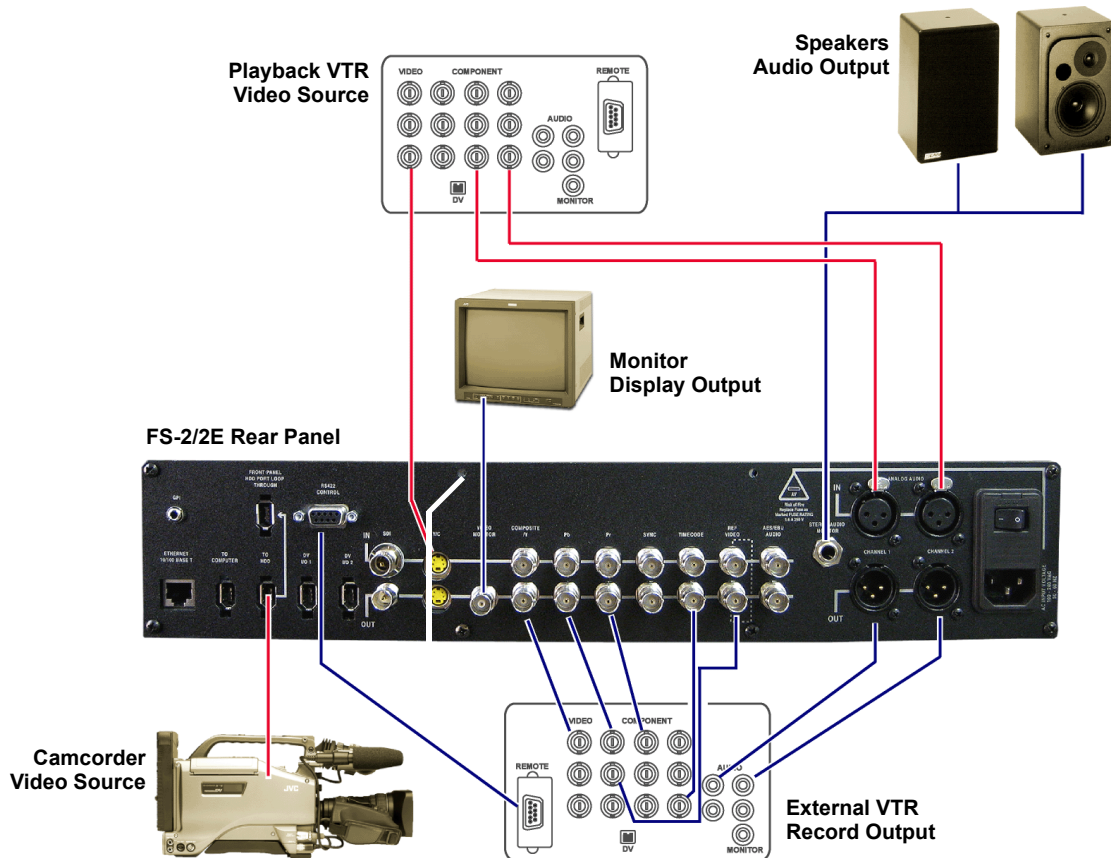
- Press **EXIT** to exit from the menu.

Using the FS-2/2E

This chapter contains the following procedures:

How to Make a Recording	page 86
How to Playback	page 86
How to Put Recorded Clips on a Computer System	page 87
How to Create a Playlist	page 94
How to Mark Scenes	page 95
Connecting the FS-2/2E to a Network	page 98

To perform these procedures use input and output targets as illustrated in the following diagram.



3.1 How to Make a Recording

1. Use the following procedure to make a recording using the FS-2/2E.
2. Make sure the FS-2/2E is connected to power and has been turned on using the power switch on the rear of the chassis.
3. Connect the required devices as explained in Chapter 1. For this example, that would include a video source (audio and video), speakers or headset if desired, and a monitor if desired.
4. Make sure the drive in the FS-2/2E has been formatted. If it is not, the LCD screen indicates that it has not been. Refer to the **Utilities Menu** on page 77.
5. Manually select the input source using the front panel buttons (that is, CMPST, Y/C, CMPNT, SDI, or DV).
Select the record format as follows:
 - Press the **Menu** soft key.
 - Select **RECORD FORMAT**.
 - Select the desired format using the ▼ soft key to highlight your selection.
 - Press **EXIT** twice.
6. Press the red record button twice. (Pressing this button once places the FS-2/2E in record-pause. Pressing it again starts the recording.) Timecode on the front panel LCD advances when recording begins.
7. Press **STOP** when you have finished the recording

3.2 How to Playback

Use the following procedure to playback a recording using the FS-2/2E.

Note

In all cases, if a monitor is connected to the video output, it displays the signal going through the FS-2/2E.

This procedure assumes that you have already recorded material on the hard drive as explained in the previous section.

1. Select the desired clip by using the **Forward Index** and **Back Index** buttons. These buttons step you through the clips on the selected disk drive.
2. If more than one disk drive is connected, press the **SHIFT** and the **Forward Index** or **Back Index** key as required until the desired drive appears on the LCD.
3. Press the **PLAY** button once to begin playback.
4. Press the **STOP** button once to pause or twice to stop the playback.

3.3 How to Put Recorded Clips on a Computer System

Once you have recorded clips to a FireWire disk drive using FS-2/2E, you can use those clips in most computer based DV NLE systems.

Traditionally, in order to get footage into an NLE system, it was necessary to capture or digitize that footage utilizing a video capture card. Using the FS-2/2E recorded clips, you can skip this capture stage by just connecting a FireWire disk drive to your computer using an OHCI compliant IEEE-1394 (FireWire) PCI card or connect direct from the FS-2/2E using the HDD Bypass mode (refer to **HDD Bypass** on page 50 for more information).

You can connect FireWire disk drives used with the FS-2/2E to any computer system that will read a FAT 32 volume. This includes Windows 98SE, Windows ME, Windows 2000, Windows XP and Mac OS9 and OS10.

Check the FOCUS Enhancements' website (www.FOCUSinfo.com) for more information.

In order to use the FS-2/2E recorded FireWire disk drives on a computer, you must have an active IEEE-1394 connection on your computer. You also must have loaded any required FireWire disk drive drivers onto your computer system. Consult your FireWire disk drive documentation for more information.

Connect your FireWire disk drive to your computer system utilizing a standard 6-pin to 6-pin FireWire cable and connect power to the drive if necessary.

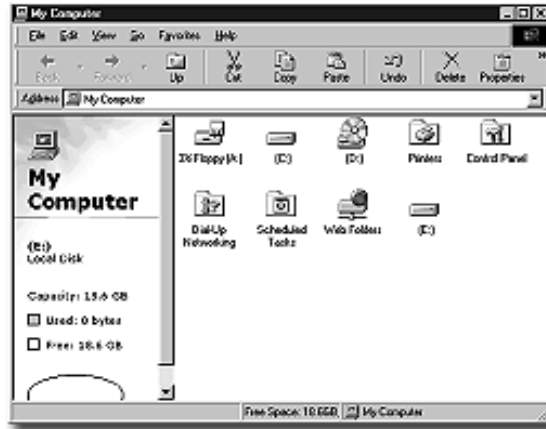
Consult the FireWire disk drive documentation for more information.

This section contains the following subsections:

Mounting FireWire Disk Drives (Windows XP, 2000, 98SE and ME)	page 88
Using FS-2/2E Recorded Avid OMF Clips on Avid Editing Systems	page 90
Dismounting FireWire Disk Drives (Windows XP, 2000, 98SE and ME)	page 92
Mounting FireWire Disk Drives (Macintosh)	page 92
Dismounting FireWire Disk Drives (Macintosh)	page 93

3.3.1 Mounting FireWire Disk Drives (Windows XP, 2000, 98SE and ME)

1. On a Windows-based computer system, double click the My Computer icon on the top left hand corner of the desktop. You will see a window similar to the following:



2. Locate your FireWire disk drive. This will probably be labeled E:, F:, G:, and so on. (drive C: is usually your computer's main disk drive).
3. Once you have identified it, double click on the FireWire disk drive. Once opened, you should see a window similar to the following:



The FireWire disk drive can contain several different files. Clips can appear as

- RawDV (.dv)
- AVI Type 1
(YYYYMMDDHHMMSSa01)
- AVI Type 2 or 24p AVI Type 2
(YYYYMMDDHHMMSSb01)
- Canopus AVI
(YYYYMMDD-HHMMSSb01)
- Matrox AVI
(YYYYMMDD-HHMMSSm01 with a separate .wav audio file per track)
- Pinnacle AVI
(YYYYMMDD-HHMMSSp01 with two separate .wav audio files per track)
- QuickTime or 24p Quicktime (.mov)
- Avid OMF (.omf with two separate .aif audio files per track).

The FAT32 file system has a limitation such that any particular file cannot exceed 2GB in size. This equates to roughly 9 minutes of recording time.

When clips are being recorded to FS-2/2E that exceed 9 minutes in length, FS-2/2E automatically creates a new file without dropping any frames.

The two clips have the same primary file name, however, the last two digits are different.

The first 2GB part of the clip is labeled with “-01” after the primary file name.

The second 2GB segment is labeled with a “-02”. Additional 2GB segments are labeled with a “-XX” number.

With most NLE systems on a Windows computer, it is possible to utilize clips within the timeline by selecting the clips on the source volume (in this case, the connected FireWire disk drive) and importing them directly into the NLE’s bin.

Clips can then be immediately used in the NLE’s timeline.

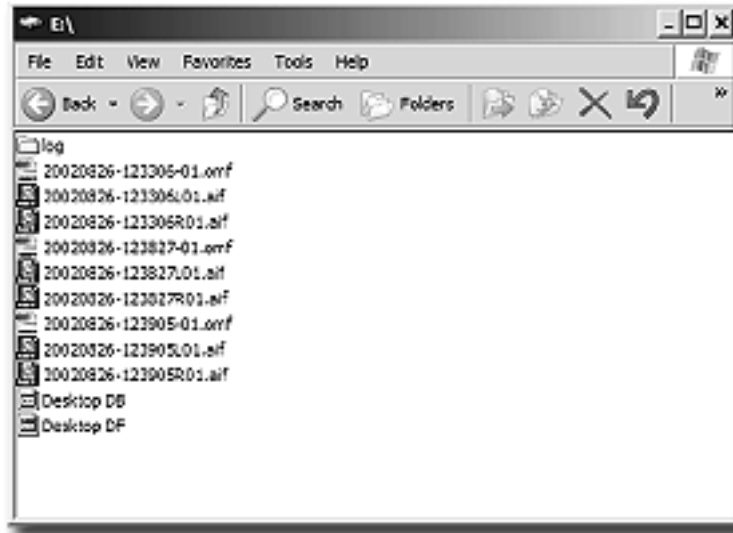
With FireWire disk drives such as the Focus Enhancements FSHDD-1, the drive itself is fast enough to directly stream the clips to the NLE eliminating the need to copy or transfer the clips before use.

When utilizing the Avid OMF file format, you must follow the following steps to import clips.

3.3.2 Using FS-2/2E Recorded Avid OMF Clips on Avid Editing Systems

The Avid DV OMF file format was developed for use with Avid editing systems on Windows 2000, Windows XP or Mac OS10. These include Avid Xpress Pro, NewsCutter, Media Composer Adrenaline, and Symphony (with the DV option).

The Avid DV OMF file format creates three files simultaneously; an OMF video file and two separate AIF audio files. On the computer's desktop, the files appear as shown in the next illustration.



On the FS-2/2E, the video file (OMF) and the audio files (AIF) appear as one track.

If you delete an Avid DV OMF file, the FS-2/2E deletes the audio and video portions at the same time.

In order to use the FS-2/2E recorded Avid DV OMF files on your Avid NLE system from the external FireWire drive, use the following procedure.

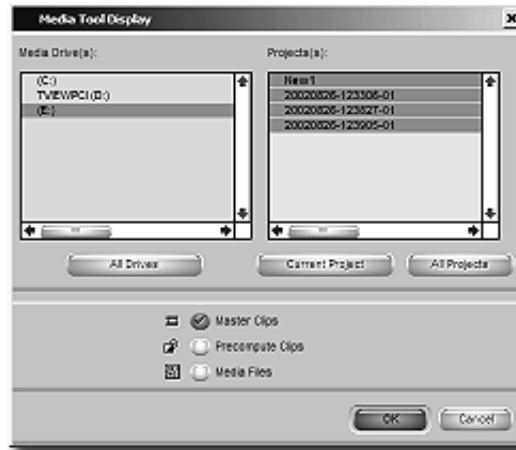
1. Locate the external FireWire drive on your computer.
If you have trouble, you can locate the name of the external drive by selecting **My Computer** on a Windows system. On a Mac, the FireWire drive should appear on the desktop.
2. Open the FireWire drive when you have found it and create a new folder named **OMFI MediaFiles**.
To do this on Windows, select **File > New > Folder** from the pull down menu.
On Mac, select **File > New Folder**. You must type **OMFI MediaFiles** correctly in order for Avid to see the disk drive.

- Drag all the OMF and AIF files into the new folder (do not drag in the files titled **Desktop DB** or **Desktop DF**).

iNote

If you are using the **ORGANIZE OMF** function on the FS-2/2E prior to using the disk on a computer, steps 2 and 3 are not necessary.

- Launch Avid.
- Once you have opened the desired project or created a new project, select **Tools > MediaTool**. The following window appears:

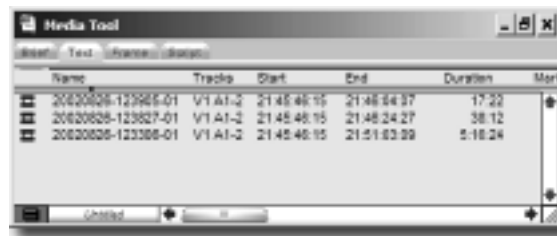


- Locate and select the external FireWire drive under Media Drive(s).

iNote

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

- Ensure that **Master Clips** is checked and press **OK**. The following Media Tools Window appears:



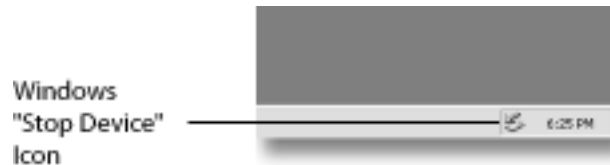
- Create a new bin (select **File > New Bin**) or open an existing bin in Avid.
- Once opened, select all items in the Media Tools window (select **Edit > Select All**).
- Drag the contents of the Media Tools Window into the bin. You can now use these clips in the Avid timeline.

3.3.3 Dismounting FireWire Disk Drives (Windows XP, 2000, 98SE and ME)

Once you have completed working with your disk drive on a Windows XP, Windows 2000, Windows 98SE or Windows ME computer system, you must dismount the drive before unplugging it.

To do this, use the following procedure:

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



2. The computer system prompts you to "remove" the connected FireWire disk drive. This begins the dismount process.
3. Select the message by clicking on it. The computer dismounts the disk drive and notify you when it is safe to remove the volume.

3.3.4 Mounting FireWire Disk Drives (Macintosh)

Note

Even if your FireWire disk drive was bought for use on a Macintosh, you **MUST** first partition and format the drive as a FAT32 volume on the FS-2/2E for it to work.

1. On a Macintosh, start your computer and connect your FireWire disk drive to the computer utilizing a standard 6-pin to 6-pin FireWire cable.
Consult your FireWire disk drive documentation for more information.
2. Ensure the required FireWire disk drive drivers have also been loaded onto your computer system (consult your FireWire disk drive's documentation for more information).

When mounted, your FireWire disk drive should appear on the computer's desktop as shown below:

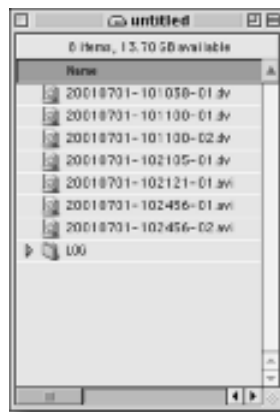


The FS-2/2E formatted disk drive appears as a FAT32 volume with a PC label.

iNote

This is not always the case on Version 10 of the Macintosh operating system however.

3. Once you have located your FireWire disk drive on the desktop, double click the disk icon to open it up. Once opened, you will see the following:



3.3.5 Dismounting FireWire Disk Drives (Macintosh)

Once you have completed working with your disk drive on a Macintosh computer system, you must dismount the drive before unplugging it.

Do this as follows:

1. Select the disk drive on the computer's desktop. It is marked with a PC symbol.
2. Drag the drive into the trash. This dismounts the particular disk drive.

3.4 How to Create a Playlist

Use the following procedure to create a simple playlist on the FS-2/2E.

1. Ensure no playlist is open.
2. **TO ADD A CLIP** - Play a clip you wish to add to the playlist. Using the front panel buttons, press **MARK IN** and **MARK OUT** for the particular portion of the clip to add to the playlist. Both buttons will light.
3. Once marked, press the front panel **PLAYLIST** button. The MARK IN and MARK OUT key lights will go out.
4. Navigate to the next clip and again mark in and out points followed by pressing **PLAYLIST**.
5. Repeat steps 2 and 3 to add all desired clips.
6. Once you have selected all the clips you wish to add to the playlist, stop playback and navigate to the **PLAYLIST** menu on the FS-2/2E.
7. Select **SAVE** and name the playlist. (It is also possible to modify your created playlist using the **PLAYLIST > EDIT** menu.
8. To playback the playlist, navigate to **PLAY-FROM** in the FS-2/2E menu and select **PLAYLISTS**. Select the desired playlist and then exit. The PLAYLIST button on the front panel will light.

All playback now comes only from the created playlist.

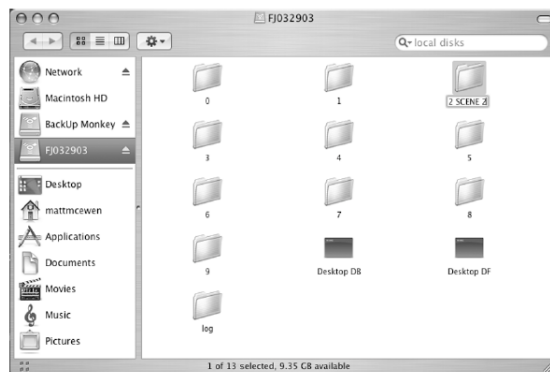
3.5 How to Mark Scenes

The FS-2/2E Scene Marking feature allows you to mark clips for placement in particular folders during recording, playback or stop mode.

When a drive is formatted using FS-2/2E, ten folders are created numbered 0 through 9. After the drive is formatted on FS-2/2E, you can connect the hard-disk drive to a computer and give each of these folders a custom name (if you need help mounting your FireWire hard-disk drive to your computer system, refer to **How to Put Recorded Clips on a Computer System** on page 87. To rename each folder, click on the folder name until it is highlighted, then type in the desired name of the folder.



Folder names cannot exceed eleven characters.



Folders are ordered on FS-2/2E in numerical followed by alphabetical order. For instance, if folders are named “Scene 1”, “Scene 2” and “Auditions”, they appear on FS-2/2E as “1 Auditions”, “2 Scene 1” and “2 Scene 2”. The folder number is added in front of the folder name on the FS-2/2E LCD display for easy identification when using the optional remote control commander keypads.

To create a custom order to Folders, Focus Enhancements recommended that you change the name to change the numerical/alphabetical order. For example place numbers at the beginning of the folder name to determine the key to folder assignments.

After you have selected your “mark to” folder, you are almost ready to mark your scenes. Before you can start marking, you must select the playlist that will contain your scenes. To do this, use the following steps:

1. Press the **PLAYLIST** button to bring up the playlist menu.
2. Select either **OPEN**, to choose an existing playlist, or **NEW**, to create a new one.
3. Exit the PLAYLIST menu by pressing the **MENU** button

Now you are ready to mark your scenes.

3.5.1 Marking Scenes

Use the following procedure:

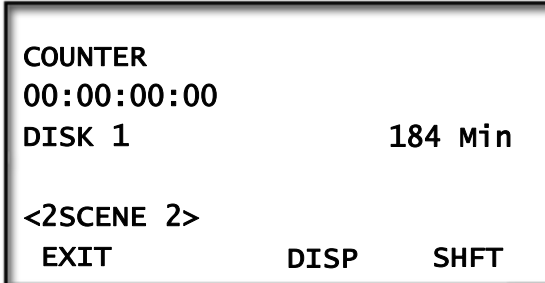
1. Play your pre-recorded clip from the FS-2/2E.
2. When you encounter the start of your scene, pause the FS-2/2E and then press the **MARK IN** button. The MARK IN button should light up.
3. Play your clip again to the end point and pause.
4. Press **MARK OUT**. The MARK OUT button lights.
5. Press the **PLAYLIST** button to save the marked scene.
6. Mark the rest of your scenes using the same procedure.
7. When you have completed marking your scenes, you must save the playlist to disk. Stop the playback on the FS-2/2E and press **PLAYLIST**.
8. Select the **SAVE** menu option, enter the playlist name.
9. Press **NEXT**, and then press **YES** to confirm your request to save the playlist. The playlists are saved in the PLAYLIST folder on your hard drive.

Advanced users can delete or change the order of scenes using the **PLAYLIST > EDIT** menu options. For FS-2E users, or FS-2 (with 2.0 upgrade), you can also use the web interface (shown below) to edit the current playlist. Use your browser to connect to the FS-2E, and select the **PLAYLIST** tab.



For more information about the FS-2E web interface, see **FS-2E Web Interface** on page 99.

If the FS-2/2E **PLAY FROM** is set to **TRACKLIST** the name of the **SCENE MARK**, or assigned, folder appears without brackets on the LCD display (for example, **2 SCENE 2**).



```
COUNTER
00:00:00:00
DISK 1           184 Min
<2SCENE 2>
EXIT           DISP           SHFT
```

If the **PLAY FROM** menu is set to **FOLDERS**, the name of the assigned folder appears in brackets on the LCD display (for example, **2 <SCENE 2>**).

Using the **SCENE MARK** menu, you can assign clips to folders using the numeric keypad on the optional remote control unit. To add all assigned clips to their respective folders on the disk drive, select **UTILITIES > ORGANIZE CLIP** from the FS-2/2E menu.

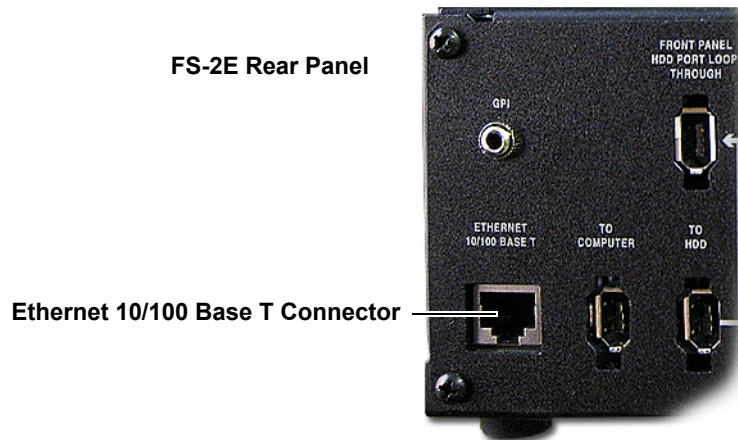
Once complete, an additional file is added to the disk named "grade" and files are moved to the selected folder for easy access on an NLE system.

Do not delete the file named "grade" from the disk if you intend to use the disk on FS-2/2E again.

3.6 Connecting the FS-2/2E to a Network

You can connect the FS-2/2E to a network using the Ethernet 10/100 Base T port on the rear panel. Do the following:

1. Use a standard RJ85 cable to connect between the Ethernet port on the rear panel to a network.



2. Power up the FS-2/2E and make sure your network is functioning properly. Contact your system administrator for additional help.
3. Navigate to the **FS-2/2E NETWORK** menu. Once in the menu, open the **IP SETTINGS** sub menu.
4. Select either **DHCP** (network supplies the IP address) or **CUSTOM IP** and enter the IP address, Sub Net Mask and Gateway). Exit when done.
5. If your network requires a user name or password, navigate to **USER/PASSWORD** and enter both.
6. Exit the NETWORK SETTINGS menu and the FS-2/2E attempts to log onto the network.

Make sure the services you intend to use are enabled. These are enabled using **SETUP > NETWORK SETTINGS > SERVICES**.

iNote

Use HDD Bypass Mode for Transferring Large Files

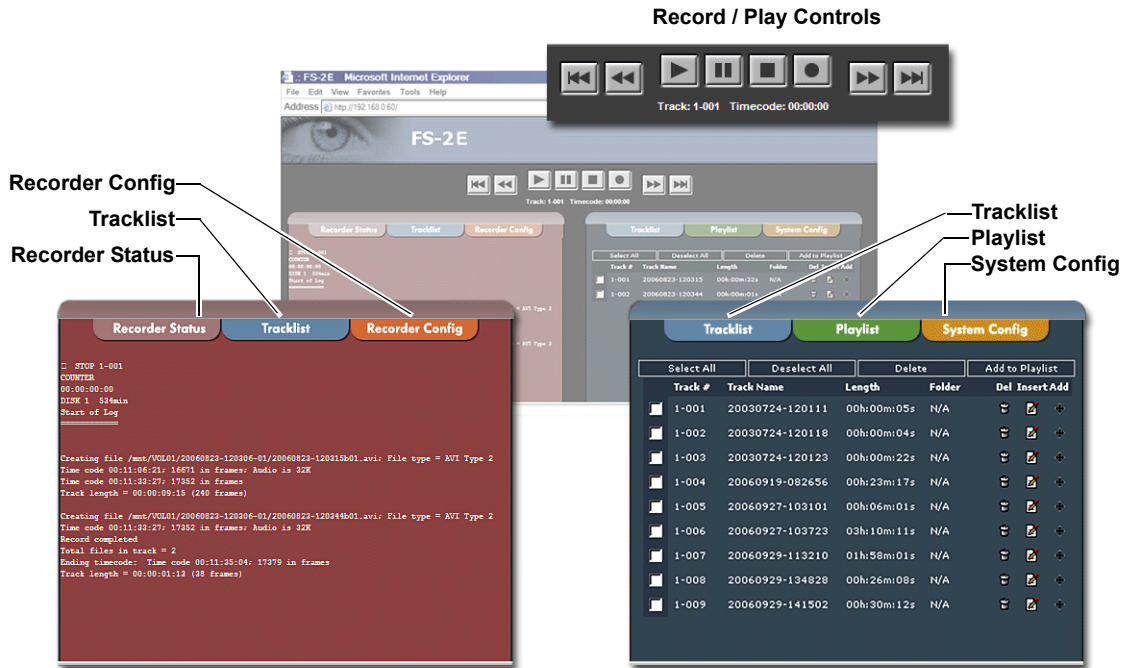
The performance of transferring files utilizing the FS-2/FS-2E ftp server is not faster than real time. It is recommended that **HDD Bypass** mode is used to transfer larger files. The web control interface can be used to remotely place the FS-2E into HDD bypass mode. For more information, see **HDD Bypass** on page 50 and **Web Interface** on page 74.

FS-2E Web Interface

The FS-2E may be configured and operated over the network via the FS-2E Web Interface. This application provides functions for recorder/player operations and a reduced set of system management functions similar to those accessed through FS-2E front panel controls, see **FS-2/2E Menus and Functions**. This chapter contains information about the FS-2/2E's web-based user interface:

Web Interface Home Page	page 100
The Web Interface	page 101
Recorder/Player Controls	page 101
Recorder Status	page 102
Tracklist	page 103
Recorder Configuration	page 105
Playlist	page 107
System Configuration	page 108
Updating FS-2E Software via FTP	page 109

4.1 Web Interface Home Page



To open the Web Interface for a FS-2E, enter the IP address of that FS-2E in the browser address window and press **Enter**.

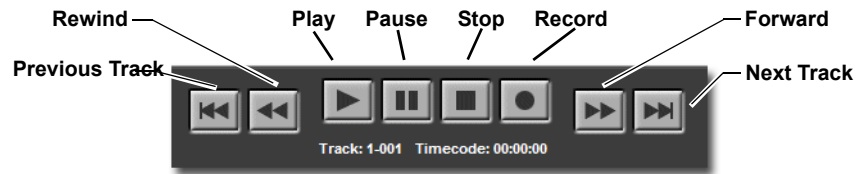
Note

JAVA Software for the Desktop

The Web Interface control functions require that the Java Runtime Environment be installed. Download this software from <http://www.java.com>.

4.2 The Web Interface

4.2.1 Recorder/Player Controls



The Record and Play buttons function in the same manner as controls on a video tape recorder (VTR) and the control panel buttons on the front of the FS-2E, see **Front Control Panel** on page 8 for more information.

4.2.1.1 Record

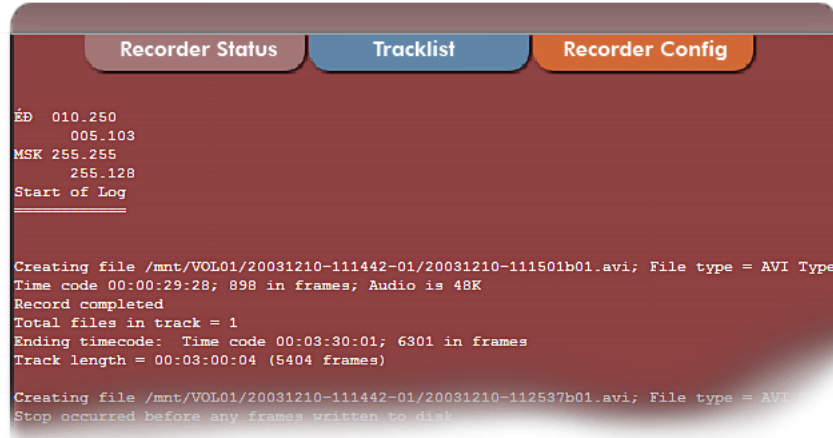
1. Verify that the input device is connected to the FS-2E. Refer to **Setting Up the FS-2/2E**.
2. Verify that the FS-2E is properly configured to record. Refer to **Recorder Configuration** on page 105.
3. Select a video source and display it on a monitor.
4. Click on the **Record** button to start recording.
5. To pause recording, click on the **Pause** button.
6. To resume recording, click on **Record** time.
7. To create a new track without stopping the recording, click on **Record** while recording.
8. Click on the **Stop** button to halt the recording.

If allowed to run on its own, the FS-2E continues recording until the hard drive reaches full capacity and then stops.

4.2.1.2 Playback

1. The method of playback depends on the **Playback Mode** selected in **System Configuration**, see page 108.
2. In Track mode, select a track in either the **Tracklist**, see page 103, and click the **Play** button. The track begins to play.
3. Click **Play** and the playlist begins playback.
4. Click **Stop** to end playback.

4.2.2 Recorder Status



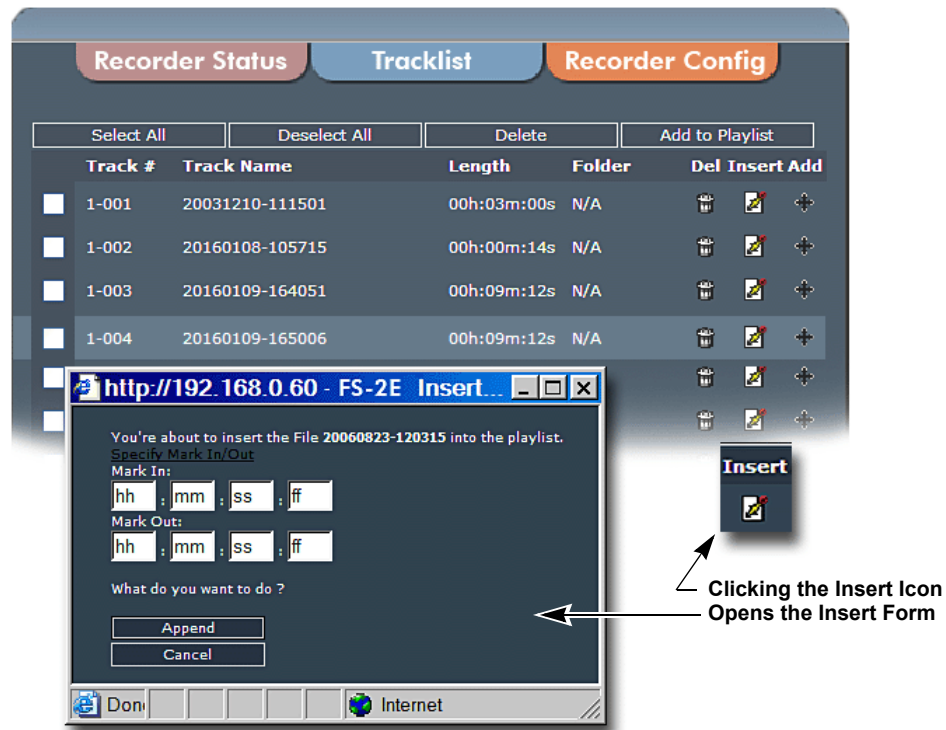
The screenshot shows a web interface with three tabs: "Recorder Status" (selected), "Tracklist", and "Recorder Config". The main content area displays a log of hard drive activity. The log includes the following text:

```
EB 010.250
005.103
MSK 255.255
255.128
Start of Log
-----
Creating file /mnt/VOL01/20031210-111442-01/20031210-111501b01.avi; File type = AVI Type
Time code 00:00:29:28; 898 in frames; Audio is 48K
Record completed
Total files in track = 1
Ending timecode: Time code 00:03:30:01; 6301 in frames
Track length = 00:03:00:04 (5404 frames)
Creating file /mnt/VOL01/20031210-111442-01/20031210-112537b01.avi; File type = AVI Type
Stop occurred before any frames written to disk
```

The Recorder Status displays a log that lists hard drive activity that includes:

- User Password (at top of display),
- IP information (at top of display),
- File name and extension,
- File type (format),
- Number of frames in file,
- Timecode,
- Track length,
- Number of files in track,

4.2.3 Tracklist



The Tracklist, which is available in both sets of tabs, is similar to a hard drive directory and displays the list of Tracks that may be used when creating playlist. Adding a track from this list to a playlist does not remove the track from the Tracklist. Likewise, deleting a track from a playlist does not delete the track from the tracklist.

Tracklist offers four list administration tools.

- **Select All** - Clicking this button selects all tracks listed. Check marks appear in all track check boxes.
- **Deselect All** - Clears the check boxes for all selected tracks.
- **Delete** - Removes any selected tracks.
- **Add to Playlist** - Adds any selected tracks to the playlist displayed in the Playlist form, see **Playlist** on page 107.

In addition, Tracklist provides three tools for each track.

- **Del** - Deletes the highlighted track. It is not necessary to use the check box to select the individual track.
- **Insert** - Inserts the highlighted track into the playlist. Clicking on Insert opens the **Insert Form**.
- **Add** - Inserts the selected track directly into the playlist without use of the Insert Form.

4.2.3.1 Adding Tracks to a Playlist

1. To add multiple tracks to a playlist:
 - Select the tracks by placing check marks in their check boxes.
 - Select the button **Add to Playlist** in the menu bar above the list of tracks.
2. To add a specific video clip within a track to a playlist, enter the run-time and frame number of the first and last frames of the clip in the **Mark In** and **Mark Out** fields respectively, and specify its **Mark In/Out** times:
 - Place the cursor over the **Insert** icon to the right of the track. The track is highlighted.
 - Click on the Insert icon.
The **Insert Form** appears.
 - Enter the **Mark In/Out** times in the Insert Form.
 - Select **Append** to save and add the track to playlist.
3. To add an entire track to the playlist, without using Mark In/Out:
 - Place the cursor over the **Add** icon to the right of the track. The track is highlighted.
 - Click on the Add icon.
 - The track is added to the playlist.
4. Refresh the **Playlist** by selecting the **Playlist** tab.
The displayed playlist does not show added tracks until the Playlist tab is selected and the list is refreshed.

4.2.3.2 Deleting Tracks from the Tracklist

Before a track can be deleted, the **Recorder** and **Player** must be in **Stop** mode.

There are two methods for deleting a track: instantly or with confirmation.

1. Instantly
This procedure deletes the track(s) immediately and offers no opportunity to reconsider.
 - Select one or more tracks by clicking the Check box to the left of the track(s).
 - Click **Delete** in the button bar at the top of the list.
2. With Confirmation
This procedure includes a confirmation step as a safeguard.
 - Select the track to delete.
 - Click on the Delete icon to the right of the track.
 - A confirmation window appears.
 - Click Yes in the confirmation dialog window.

4.2.4 Recorder Configuration

The screenshot shows the 'Recorder Config' tab in the web interface. The settings are as follows:

- Input Select: Composite
- Record Mode: Normal
- Record Format: 24P Quicktime
- Control Mode: Local
- Audio Record Level: +0.0 dB
- Syncro Record Pref: Same File
- GPI Mode: OFF

Use the Recorder Config form to set up the FS-2E recorder function.

The FS-2E provides the following Recording Settings:

For specific details about the parameters listed below, see **FS-2/2E Menus and Functions** on page 30 and **Using the FS-2/2E** on page 85.

- **Input Select** - Pick the type of input signal:
 - Composite,
 - YC,
 - Component, **default**
 - SDI,
 - DV,

iNote

Failed to Change Value Please Try Again

The FS-2E detects if the selected input signal type is present. If the selected signal is not online, the message **Failed to Change Value Please Try Again** appears. Verify that the type of input signal and reset the Input Select field.

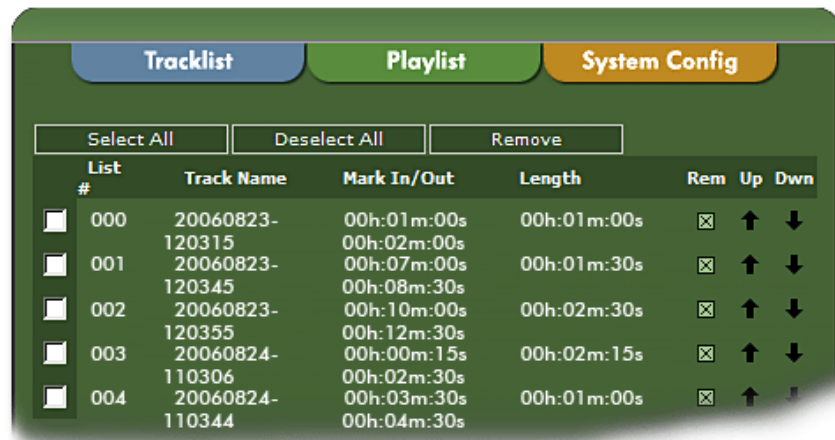
- **Record Mode:**

To start recording, click on the **Record** button.
To stop recording, click on the **Stop** button.

 - Normal, **default**
 - Retro Disk,
 - Retro Cache,
 - Loop Record,
 - Still,
 - Time Lapse,

- **Record Format:**
 - Raw DV,
 - AVI Type 1,
 - AVI Type 2,
 - Canopus AVI,
 - Matrox AVI,
 - Quicktime,
 - Avid OMF,
 - Pinnacle,
 - 24P AVI Type 2,
 - 24P Quicktime,
- **Control Mode:**
 - Local, **default**
 - Remote,
 - AVC,
 - Syncro Slave,
- **Audio Record Level:** -34.5db to +4.5db, 0.0 **default**
- **Syncro Record Pref:**
(Requires camera and tape, for details, see **Syncro Slave** on page 41.)
 - Same File, **default**
 - New File,
- **GPI Mode:**
 - Off, **default**
 - Pause,
 - Index,
 - Snap,
- **Audio Correction:**
 - Off,
 - Medium,
 - High,
- **Time Code Mode:**
 - External, **default**
 - Record Run,
 - Regen,
 - Free Run,
- **TC Delay:** 0 to 29 seconds, 0 **default**
- **Saturation:** -128 to +128, 0 **default**
- **Brightness:** -128 to +127, 0 **default**
- **Contrast:** -128 to +128, 0 **default**

4.2.5 Playlist



The FS-2E provides the ability to create simple playlists. The **Playlist** tab displays a listing of selected tracks in the order they are to play. In the button bar above the list, there are three playlist administration tools:

- **Select All** - Clicking this button selects all tracks listed and check marks appear in all of the track check boxes.
- **Deselect All** - Clears the check boxes for all selected tracks.
- **Remove** - Removes any selected track from the playlist. Remove only works with tracks in the playlist. The tracks displayed under Tracklist are not affected.

iNote

Remove and Rem Do Not Ask for Confirmation

Both **Remove** and **Rem** immediately delete specified tracks when their respective buttons are selected. These functions do not provide a confirmation step that allows cancellation.

Use the Remove and Rem buttons with caution.

In addition, the Playlist form provides three tools for each track listed:

- **Rem** - Removes the highlighted track. It is not necessary to use the check box to select the individual track.
- **Up** and **Down** - Selecting one of these buttons moves the track up or down one line.

4.2.6 System Configuration

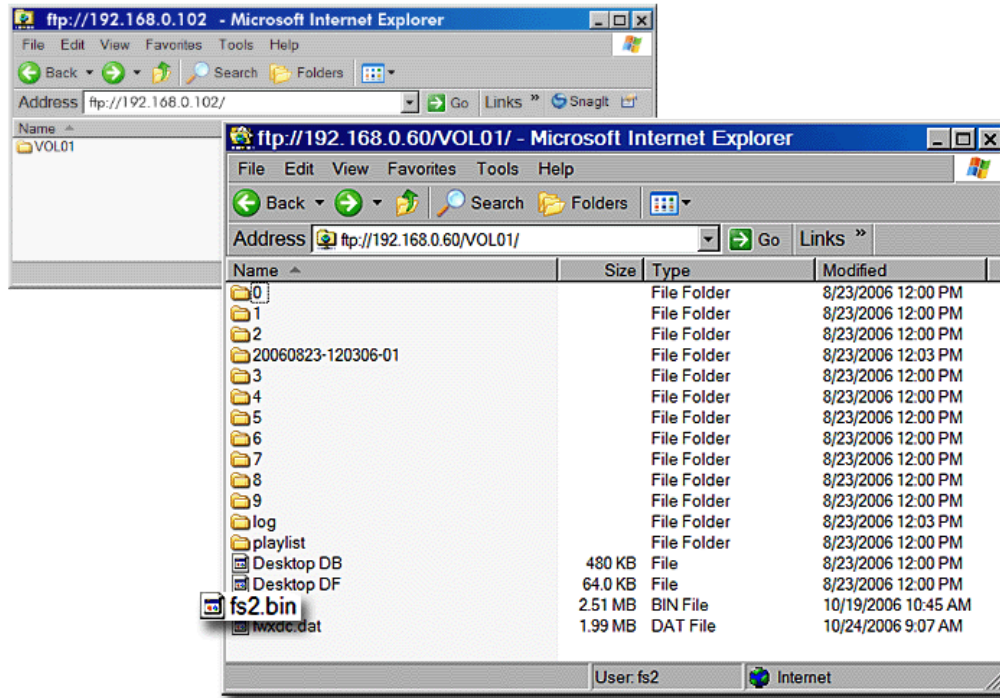


FS-2E's System Config form provides the ability to adjust system settings. When a system setting is changed, the FS-2E immediately applies it and refreshes the System Config form. For more information about these settings, see **FS-2/E Menus and Functions** on page 30.

The system settings available through the web interface are:

- **HDD Bypass:**
- **Play Mode:**
- **Play List:**
- **Genlock Play Mode:**
- **Backlight:**
- **Clip Preview:**
- **FTP:**
- **Telnet:**
- **OSD Mode:**
- **FWD/REW Hi Res Mode:**
- **Folder Preferences:**
- **Organize Files:**
- **Analog Out:**
- **H Phase:**
- **SC Phase:**

4.3 Updating FS-2E Software via FTP



Periodically check the Focus Enhancements web site for FS-2E software updates, go to <http://www.focusinfo.com/support>.

Before uploading the software, verify the file name and determine that the FS-2E is enabled for FTP operations.

1. Unzip the update software and verify that the file name is **fs2.bin**. If not, rename the file.
2. Select the **System Config** tab.
3. Verify that **FTP** is enabled, see **System Configuration** on page 108.

4.3.1 Connecting with the FS-2E

Contact the System Administrator to get the FS-2E's network IP address, logon, and password.

1. Open a browser.
2. Enter the FS-2E's FTP address in the browser **Address** field.
The FS-2E factory default IP address is **192.168.0.102**.
3. If the FS-2/2E is configured for a secure logon, the FTP path may be in the form **ftp://logon:password@ipaddress**; example **ftp://fs2:focus@192.168.0.102**.
4. Press **Enter** or select **Go**.

5. If the FS-2/2E is configured for an anonymous logon a dialogue window appears:
Enter the **Logon** and **Password**:
Factory default logon: **fs2**.
Factory default password: **focus**.
Logon and password are case sensitive.
It is not possible to change the logon or password through the web interface. Use the front panel controls, see **Network Setup** on page 70.
6. Select the directory **VOL01**.
VOL01 is the root directory for the FS-2E.
7. Move the update software file to VOL01.
8. Exit the FTP session.
9. Go the FS-2/2E front panel controls.
10. Enter the FS-2/2E menu and go to the **SETUP** menu.
11. From the Setup menu, select **OS UPGRADE**.
12. Select **YES** and a confirmation message appears.
13. Select **YES** again to start upgrade using the new fs2.bin file.
Refer to **OS Upgrade** on page 55 for more information about the upgrading software through the LCD display and menu.
14. After the upgrade completes, reboot the FS-2E using the power switch on the back of the unit: power off and then on.
15. Verify that the upgrade is successful.
Use the LCD and its soft keys to determine if the OS version has changed to the latest revision, see **Setup Menu** on page 52.

Note

Two Methods for Updating FS-2/2E Software via 1394 To HDD Port

There are two methods for updating the FS-2/2E OS software via the FS-2/2E's 1394 To HDD connector:

The direct method, copies the software to VOL01 from a connected computer, see **Copy Software to FS-2/2E Internal Drive** on page 55.

The other method, loads the software into the FS-2/2E without using its internal drive, see **Load Software from External Drive** on page 56.

Reference

This chapter contains reference information for the FS-2/2E as follows:

Technical Specifications	page 112
FS-2/2E LCD Display Modes	page 114
Supported RS-422 Commands	page 116
Shuttle Speed Parameters	page 116
Jog Speed Parameters	page 117
Custom Commands	page 117

5.1 Technical Specifications

5.1.1 Inputs/Outputs

Input/Outputs

Component - Y, Pr, Pb (3 x BNC in, 3 x BNC out)

SMPTE

- 100% white at 700mv with 300mv Sync
- 700mv Chroma levels (100% color bars)
- Setup default to **OFF**
- Chroma offset default to **OFF**

Betacam

- 100% white is at 714mv with 286mv Sync
- 4/3 Chroma boost to 934mv p to p
- Setup default to **ON**

MII

- 100% white is at 700mv with 300mv Sync
- Black to White range is restricted to 647mv (700-setup)
- Setup is **ON**

Sync (1 x BNC in, 1 x BNC out)

Composite (1 x BNC in, 1 x BNC out)

Monitor Video Out - Composite (1 x BNC)

General Composite Specifications

- Differential Phase 2 Degree maximum
- Differential Gain 2% maximum
- Hue Accuracy 1 Degree
- Signal/Noise Ratio Greater than 54 dB
- Bandwidth 5.5 MHz
- K Factor % @ 2T 1 % maximum
- Y/C Delay Less than 25 nS
- Subcarrier locking range 100Hz
- Subcarrier free-run frequency +/- 30 Hz
(NTSC or PAL Fsc deviation)
- Genlock Horizontal adjustment range ± 4 uS
- Residual Subcarrier Less than 0.5 IRE
- SC Phase Less than 2 degrees

S-Video - Y/C (1 x 4-pin DIN in, 1 x 4-pin DIN out)

Levels Adjustments

- Video Gain - +/- 20% 2mv resolution
- Chroma Gain - +/- 20% 2mv resolution
- Setup **ON**
(adds 7.5 IRE, or 53mv to luminance channel)
OFF |(no change to luminance channel)

Serial Digital - SD-SDI (1 x BNC in, 1 x BNC out - conforms to the SMPTE 259M standard)

- The FS-2E outputs embedded audio in the SDI output stream.
This feature is only available for the FS-2E.

Timecode (1 x BNC in, 1 x BNC out)

Balanced Audio (2 x XLR in, 2 x XLR out)

Stereo Audio Monitor (1 x 1/4" TRS jack)**General Audio Specifications**

Balanced Inputs

- Input Impedance 600 Ohms +/-10 Ohms
- Quantization 16 bits 48Khz
- Common mode rejection @1 KHz (dB) 100 dB
- Analog Input adjustment range -34dB to +4.5dB
(in 1.5dB steps, default setting 0dB)
- Amplitude with no clipping 3.5Vp-p

Balanced Outputs

- THD@1 KHz Less than 0.05%
- Channel Separation 100 dBu (@ 1 KHz 70 dB)
- SNR 82 db, A weighted
- Quantization 16 bits 48Khz
- Output Impedance 600 Ohms +/-10 Ohms
- Bandwidth at -3dB points 24Khz

Headphone Output (1 x 1/4" TRS jack w/ level control)

- Headphone adjustment range -73dBdB to +4.5dB
- Headphone Output Impedance - 32 Ohms, 32mW

AES/EBU Digital Audio (1 x XLR in, 1 x XLR out)**Reference Video Loop Through (2 x BNC)****DV Video I/O - 25 Mb/s (1 x 6-pin IEEE-1394)****DV Video Pass Through - up to 400 Mb/s (1 x 6-pin IEEE-1394)****External HDD I/O - up to 400 Mb/s (1 x 6-pin IEEE-1394)****FireWire Computer I/F (1 x 6-pin IEEE-1394)****10/100 Base-T Ethernet****5.1.2 Control**

- GPI & RS-232C Control (1 x 3.5mm mini jack)
- RS-422 (1 x DB9 Serial)

5.1.3 Power

- 110V to 220V AC, 50 - 60 Hz, Auto Ranging 100W
- IEC Power Input

5.1.4 Physical Specification

- 18.41lbs (8.36kg)
- 19" x 17.3" x 3.5" (483mm x 440mm x 89mm)

5.1.5 Audio/Video/Timecode Specification

- 25Mb/s, 8-bit 4:1:1 (NTSC-DV) or 4:2:0 (PAL-DV) video (user switchable)
- SMPTE or DV embedded or External Timecode (Drop or Non Drop)
- 2-ch., 16-bit embedded Digital Audio

5.1.6 DTE File Formats

- FS-2 and FS-2E: RawDV (.dv), AVI Type 1, AVI Type 2, Canopus AVI and Matrox AVI (.avi), QuickTime (.mov), Pinnacle (.avi) or Avid DV-OMF (.omf)
- FS-2E (or FS-2 with 2.0 upgrade): 24P AVI Type 2, and 24P Quicktime.

5.1.7 Disk Information

- Internal Disk Type: 120 GB, IDE, 7200 RPM
- External Disk Type: User Supplied IEEE-1394a FireWire
- Disk Format: FAT32
- FAT32 FireWire HDD compatible with Windows 98SE, ME, 2000, XP and Mac OS9 and OSX Compliance and Warranty
- CE, C-Tick and FCC
- 2-Year Limited Warranty

5.1.8 Compatible DV Formats

- DV, MiniDV, DVCam and DVCPro

5.2 FS-2/2E LCD Display Modes

The table below shows LCD characteristics when used with different FS-2/2E control, record, play and stop modes:

PLAY/REC Mode Command	LCD Display
Stop	STOP
Pause	PLAY
Play	▶ PLAY
Rec (Pause)	REC
Normal Rec (Rec)	REC
Retro Disk (Stop)	L STOP
Retro Disk (Standby)	L REC
Retro Cache (Stop)	C STOP
Retro Cache (Standby)	C REC
Loop Record (Stop)	O STOP
Loop Record (Standby)	O REC
Loop Record (Rec)	O REC
Snap (Stop)	STOP
Snap (Standby)	SNAP
Snap (Rec)	SNAP
Time Lapse (Stop)	STOP
Time Lapse (Pause)	T REC
Time Lapse (Rec)	T REC

CONTROLTYPE	LCD Display
AV/C* (Stop)	A STOP
AV/C* (Rec Pause)	II A <REC TYPE> REC
AV/C* (Rec) A	<REC TYPE> REC
AV/C* (Play Pause)	II A PLAY
AV/C* (Play)	A ALL
Syncro Slave (Pause)	II Y <REC TYPE>REC
Syncro Slave (Rec)	Y <REC TYPE>REC

* AV/C is only for use when the FS-2/2E is connected to a computer system. To control the FS-2/2E from a camcorder, use Syncro Slave mode.

5.3 Supported RS-422 Commands

RS-422 Command

Shuttle FWD	21, 13, Shuttle Speed
Shuttle Rev	21, 23, Shuttle Speed
Jog FWD	21, 11, Jog Speed
Jog Rev	21, 21, Jog Speed
Stop	20, 00
Play	20, 01
Pause	21, 13, 0
Record	20, 02
Goto Timecode	24, 31, timecode

5.4 Shuttle Speed Parameters

Command	Parameters
Pause	0
Play Slow 6	1 to 100
Play Slow 5	101 to 200
Play Slow 4	201 to 300
Play Slow 3	301 to 400
Play Slow 2	401 to 500
Play Slow 1	501 to 999
Play Normal	1000 to 1999
Play Fast 1	2000 to 2999
Play Fast 2	3000 to 3999
Play Fast 3	4000 to 4999
Play Fast 4	5000 to 5999
Play Fast 5	6000 to 6999
Play Fast 6	7000 to 7999
Play Faster	8000 to 8999

5.5 Jog Speed Parameters

Command	Parameters
Pause	0
Step 1 Frame	1 to 200
Play Slow 4	201 to 300
Play Slow 3	301 to 400
Play Slow 2	401 to 500
Play Slow 1	501 to 800
Play Normal	1000 to 8999

5.6 Custom Commands

The following commands are currently supported.



Warnings

No feedback occurs indicating that the command was processed successfully.

The FS2/2E must be in **STOP** mode before sending these commands

Only positive values of contrast, saturation, H phase, SC phase, hue, and brightness are allowed

When deleting multiple tracks, delete the last track first, then work your way to the first track. A delete command causes the track list to be rebuilt. Shifting all tracks up.

Send the CSUM command at the end of each command.

Command	Description
24 31 ## ## ## ##	Goto TimeCode from start of track
48 80 82 2A ## 00 00 00 00 00	Goto Track ## (Note 0 = track #1)
48 80 82 06 ## 00 00 00 00 00	Delete Track ##
48 80 82 0A 00 00 00 00 00 00	Record Mode Normal
48 80 82 0A 01 00 00 00 00 00	Record Mode retro disk
48 80 82 0A 02 00 00 00 00 00	Record Mode retro cache
48 80 82 0A 03 00 00 00 00 00	Record Mode loop record
48 80 82 0A 04 00 00 00 00 00	Record Mode still record
48 80 82 0A 05 00 00 00 00 00	Record Mode time lapse
48 80 82 0B 00 00 00 00 00 00	Snap Mode Same File
48 80 82 0B 01 00 00 00 00 00	Snap Mode New File
48 80 82 0C 00 00 00 00 00 00	Control Mode Local Control
48 80 82 0C 01 00 00 00 00 00	Control Mode Remote Control
48 80 82 0C 02 00 00 00 00 00	Control Mode AVC Control
48 80 82 0C 03 00 00 00 00 00	Control Mode Syncro Slave Control
48 80 82 0D 00 00 00 00 00 00	Play Mode Play Clip (normal)
48 80 82 0D 01 00 00 00 00 00	Play Mode Loop Clip
48 80 82 0D 02 00 00 00 00 00	Play Mode Loop All
48 80 82 0D 03 00 00 00 00 00	Play Mode Play All
48 80 82 0E 00 00 00 00 00 00	Play From Play List
48 80 82 0E 01 00 00 00 00 00	Play From Track List
48 80 82 0E 02 00 00 00 00 00	Play From Grade List
48 80 82 0F 00 00 00 00 00 00	Record Format Raw DV
48 80 82 0F 01 00 00 00 00 00	Record Format AVI TYPE 1
48 80 82 0F 02 00 00 00 00 00	Record Format AVI TYPE 2
48 80 82 0F 03 00 00 00 00 00	Record Format CANOPUS AVI
48 80 82 0F 04 00 00 00 00 00	Record Format MATROX AVI

Command	Description	
48 80 82 0F 05 00 00 00 00 00	Record Format	QUICKTIME
48 80 82 0F 06 00 00 00 00 00	Record Format	AVID OMF
48 80 82 0F 07 00 00 00 00 00	Record Format	PINNACLE
48 80 82 0F 0B 00 00 00 00 00	Record Format	AVI TYPE 2 - 24P
48 80 82 0F 0C 00 00 00 00 00	Record Format	QUICKTIME - 24P
48 80 82 10 00 00 00 00 00 00	FTP	ENABLE
48 80 82 10 01 00 00 00 00 00	FTP	DISABLE
48 80 82 11 00 00 00 00 00 00	TELNET	ENABLE
48 80 82 11 01 00 00 00 00 00	TELNET	DISABLE
48 80 82 12 00 00 00 00 00 00	OSD	OFF
48 80 82 12 01 00 00 00 00 00	OSD	MENU
48 80 82 12 02 00 00 00 00 00	OSD	TC
48 80 82 12 03 00 00 00 00 00	OSD	ABS
48 80 82 16 00 00 00 00 00 00	GPI	OFF
48 80 82 16 00 00 00 00 00 00	GPI	OFF
48 80 82 16 01 00 00 00 00 00	GPI	PAUSE
48 80 82 16 02 00 00 00 00 00	GPI	INDEX
48 80 82 16 03 00 00 00 00 00	GPI	SNAP
48 80 82 17 00 00 00 00 00 00	Backlight	OFF
48 80 82 17 01 00 00 00 00 00	Backlight	ON
48 80 82 17 02 00 00 00 00 00	Backlight	AUTO
48 80 82 18 00 00 00 00 00 00	Audio Correction	OFF
48 80 82 18 01 00 00 00 00 00	Audio Correction	MEDIUM
48 80 82 18 02 00 00 00 00 00	Audio Correction	HIGH
48 80 82 19 00 00 00 00 00 00	TimeCode Mode	External
48 80 82 19 01 00 00 00 00 00	TimeCode Mod	Rec Run
48 80 82 19 02 00 00 00 00 00	TimeCode Mode	Regen
48 80 82 19 03 00 00 00 00 00	TimeCode Mode	Free Run
48 80 82 1A 00 00 00 00 00 00	Clip Preview	On
48 80 82 1A 01 00 00 00 00 00	Clip Preview	Off
48 80 82 1A 02 00 00 00 00 00	Clip Preview	None
48 80 82 1A 03 00 00 00 00 00	Clip Preview	Custom
48 80 82 1B ## 00 00 00 00 00	Brightness	##
48 80 82 1C 00 00 00 00 00 00	Input Select	Cmpst
48 80 82 1C 01 00 00 00 00 00	Input Select	Y/C
48 80 82 1C 02 00 00 00 00 00	Input Select	CMPNT
48 80 82 1C 03 00 00 00 00 00	Input Select	SDI
48 80 82 1C 04 00 00 00 00 00	Input Select	DV
48 80 82 1D 00 00 00 00 00 00	Audio Rec Level	-34.5
48 80 82 1D 01 00 00 00 00 00	Audio Rec Level	-33.0
48 80 82 1D 02 00 00 00 00 00	Audio Rec Level	-31.5
48 80 82 1D 03 00 00 00 00 00	Audio Rec Level	-30.0

Command	Description
48 80 82 1D 04 00 00 00 00 00	Audio Rec Level -28.5
48 80 82 1D 05 00 00 00 00 00	Audio Rec Level -27.0
48 80 82 1D 06 00 00 00 00 00	Audio Rec Level -25.5
48 80 82 1D 07 00 00 00 00 00	Audio Rec Level -24.0
48 80 82 1D 08 00 00 00 00 00	Audio Rec Level -22.5
48 80 82 1D 09 00 00 00 00 00	Audio Rec Level -21.0
48 80 82 1D 0A 00 00 00 00 00	Audio Rec Level -19.5
48 80 82 1D 0B 00 00 00 00 00	Audio Rec Level -18.0
48 80 82 1D 0C 00 00 00 00 00	Audio Rec Level -16.5
48 80 82 1D 0D 00 00 00 00 00	Audio Rec Level -15.0
48 80 82 1D 0E 00 00 00 00 00	Audio Rec Level -13.5
48 80 82 1D 0F 00 00 00 00 00	Audio Rec Level -12.0
48 80 82 1D 10 00 00 00 00 00	Audio Rec Level -10.5
48 80 82 1D 11 00 00 00 00 00	Audio Rec Level - 9.0
48 80 82 1D 12 00 00 00 00 00	Audio Rec Level - 7.5
48 80 82 1D 13 00 00 00 00 00	Audio Rec Level - 6.0
48 80 82 1D 14 00 00 00 00 00	Audio Rec Level - 4.5
48 80 82 1D 15 00 00 00 00 00	Audio Rec Level - 3.0
48 80 82 1D 16 00 00 00 00 00	Audio Rec Level - 1.5
48 80 82 1D 17 00 00 00 00 00	Audio Rec Level 0.0
48 80 82 1D 18 00 00 00 00 00	Audio Rec Level + 1.5
48 80 82 1D 19 00 00 00 00 00	Audio Rec Level + 3.0
48 80 82 1D 1A 00 00 00 00 00	Audio Rec Level + 4.5
48 80 82 1E 00 00 00 00 00 00	High Res Mode Disable
48 80 82 1E 01 00 00 00 00 00	High Res Mode Enable
48 80 82 1F 00 00 00 00 00 00	Folder Pref Scene Mark
48 80 82 1F 01 00 00 00 00 00	Folder Pref Auto Mark
48 80 82 20 00 00 00 00 00 00	Reference Video Reference
48 80 82 20 01 00 00 00 00 00	Reference Video Free Run
48 80 82 21 00 00 00 00 00 00	Analog Out Composite
48 80 82 21 01 00 00 00 00 00	Analog Out COMPONENT-SMPTE
48 80 82 21 02 00 00 00 00 00	Analog Out COMPONENT-BETACAM
48 80 82 21 03 00 00 00 00 00	Analog Out COMPONENT-MII
48 80 82 22 01 00 00 00 00 00	Organize PINNACLE
48 80 82 22 02 00 00 00 00 00	Organize CLIPS
48 80 82 22 03 00 00 00 00 00	Organize OMF
48 80 82 23 ## 00 00 00 00 00	Contrast ##
48 80 82 24 ## 00 00 00 00 00	Saturation ##
48 80 82 25 ## 00 00 00 00 00	H Phase ##
48 80 82 26 ## 00 00 00 00 00	SC Phase ##
48 80 82 27 ## 00 00 00 00 00	Hue ##
48 80 82 28 00 00 00 00 00 00	Black Level 0 IRE
48 80 82 28 01 00 00 00 00 00	Black Level 7.5 IRE

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