

PRODUCT MANUAL

Installation, Configuration, and Operation Instructions



END-TO-END Solutions for
Broadcast & Streaming

LEIGHTRONIX

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LEIGHTRONIX, INC.
1125 N Cedar Rd
Mason, MI 48854
Phone: (800) 243-5589 or (517) 694-8000
Fax: (517) 694-1600
www.leightronix.com

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The LABvault-HD broadcast digital video encoder makes it simple to digitally record any video source with the push of a button. Capture high-definition digital video files for use with a LEIGHTRONIX E-HD2 server/controller and/or a FTP capable third party server or storage location. Use the included administrative Web interface to operate your LABvault-HD record and transfer features from any location and set up file transfer destinations, change recording quality presets, manage files on the LABvault's internal hard drive, and access the system's log files.

ABOUT THIS MANUAL

This manual describes how to install your LABvault-HD as well as use the included LABvault-HD Web interface to set up and control the player/recorder. Instructions on using a touch screen or other external control system with the LABvault-HD should be obtained from the third party provider. Refer to the "CONTROL COMMANDS" on page 26 of this manual for a list of the commands needed to program your external control system.

PACKING LIST

- (1) LABvault-HD Digital Video Player/Recorder
- (1) Product Resource Disc, Including *LABvault-HD Manual*
- (1) Part #10-0311, AC Power Cord, 6 ft.
- (1) Part #10-4856, CAT 5e Ethernet Cable, 7 ft.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the grounding-type plug. A grounding-type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug this apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. When the apparatus is turned off, certain components in the power supply and system board remain energized. In order to remove all electrical power from the apparatus, unplug the power cord from the MAINS socket outlet.

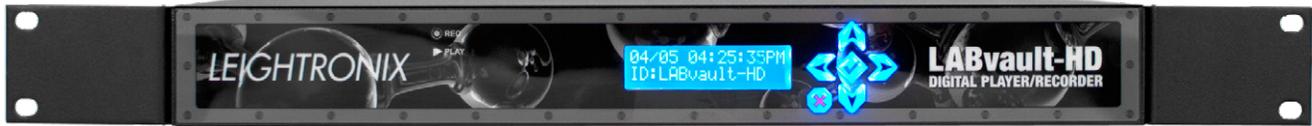


To reduce the risk of electric shock, do not expose this apparatus to rain or moisture.



This apparatus must be connected to a MAINS socket outlet with a protective earthing connection.

FRONT PANEL



KEYPAD

The four LABvault-HD arrow keys are used to display status information as well as for the entry of TCP/IP network addresses. If you hold down an arrow key for more than one second, it begins to scroll through all of the available options. Release the key when the desired option is displayed.

The front panel keypad also turns the LABvault-HD on/off. Note that the LABvault-HD automatically turns on when the unit is plugged in. When held for four seconds, the red "X" button turns off the LABvault-HD. If the LABvault-HD has been turned off, press the green check push button for two seconds to turn the unit back on.



BEFORE unplugging or removing power from the LABvault-HD, shut down the unit from its front panel.

LEDS

The LABvault-HD front panel has two status, light-emitting diodes (LEDs) for at-a-glance feedback. The red "Record" LED lights up when the LABvault-HD is encoding. The blue "Play" LED lights up when playback on the LABvault is activated.

DISPLAY

The LABvault-HD display shows status and password-protected TCP/IP address entry screens. Once the LABvault-HD has been booted up, press the up or down arrows on the keypad to display the following status screens:

Serial Number & Firmware Version

```
06/13 10:30:00AM
094000 V1.1.11
```

Firmware Date

```
06/13 10:30:00AM
FW B It:5/31/12
```

Build Number

```
06/13 10:30:00AM
Bld Num: 197
```

IP Address

```
06/13 10:30:00AM
10.9.0.16
```

LABvault-HD Identification

```
06/13 10:30:00AM
ID:LABvault-HD
```

Processor Temperature

```
06/13 10:30:00AM
Temp: 28°C
```

Recorder Status

```
06/13 10:30:00AM
Recorder StoPPed
```

Player Status

```
06/13 10:30:00AM
MPEG Player StoP
```

Bios Date

```
06/13 10:30:00AM
Bios:02/20/10
```

PStat Firmware Version

Displays the firmware version for the infrared remote control and front panel status LEDs.

```
06/13 10:30:00AM
PStat Ver:4.10
```

Transfer Status

Indicates file transfer destination and progress. If more than one destination is selected for a transfer, the screen only shows the first destination to which the LABvault-HD sends the file. Changes to "Send Idle" when there are no active file transfers.

```
06/13 10:30:00AM
NX:0.8591GB 2%
```

BACK PANEL



The LABvault-HD back panel, includes, from left to right, top to bottom:

A: Power cord connector

B: 9-pin male RS-232 DTE connector for control by a compatible third party system, such as a AMX or Crestron touch screen

C: 1 RJ-45, 10/100/1000 BASE-T Ethernet port with corresponding LED indicators

D: 1 input tension clamp terminal block for analog or AES digital audio recording

E: Audio output tension clamp terminal block for analog or AES digital audio playback

F: 1 BNC video input connector for recording

G: 1 BNC video output connector for playback

SYSTEM INSTALLATION

INSTALLING THE LABVAULT-HD

While installing the LABvault-HD, refer to the labeled back panel on page 4 that corresponds to your LABvault-HD. Perform the following installation steps:

1. The LABvault-HD may be left as a standalone, tabletop unit or mounted into a rack as follows:



Leave empty rack spaces above and below the LABvault-HD. The LABvault-HD should not have anything stacked on top of it.

- a. Insert the LABvault-HD into the rack, aligning the holes of the unit's mounting bracket with those of the rack.
 - b. Secure the LABvault-HD to the rack with user-supplied rack screws.
2. Connect the included power cable to the LABvault-HD's power cord connector and then plug the other end into an AC power source.



LEIGHTRONIX strongly recommends the use of an Uninterruptible Power Supply (UPS) with the LABvault-HD. Damage from power loss or spikes is not covered under warranty.

3. Using a straight-through RJ-45 Ethernet cable, connect the LABvault-HD Ethernet port to a hub or switch on your TCP/IP network. To check your network connection, look at the Ethernet LEDs above the Ethernet port and compare to the table on the bottom corresponding to your LABvault-HD's back panel.

NOTE: The LABvault requires the following network ports:

- 23 Telnet
- 21 FTP Control Connection
- 20 FTP Data (if using third party FTP client in passive mode)
- 80 for the LABvault-HD Web interface
- 2000 UDP for ePRO-BUS Control

LABvault-HD Ethernet LED Indicators		
LED Position	State	Description
Right	Off	Connection speed is 10Mb/s
	Green	Connection speed is 100Mb/s
	Orange	Connection speed is 1000Mb/s
Left	Slow blinking yellow	Ethernet link not established
	Fast blinking yellow	Ethernet link established. LABvault-HD is transmitting on the network.

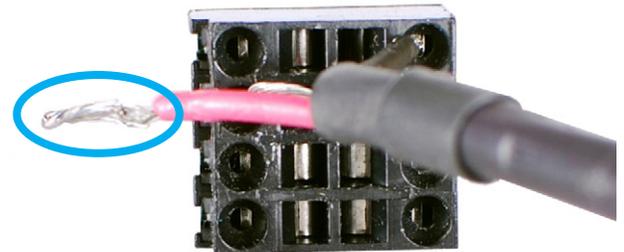
4. Connect your video signal wiring to the LABvault-HD as follows:
 - a. Video Source: this is the video resource or signal the LABvault-HD will record. Connect your video source wiring to the LABvault-HD's BNC video input.
 - b. Video Preview: preview your recorded video before it is transferred from the LABvault-HD by connecting a monitor to the LABvault-HD's BNC video output.
5. Your LABvault-HD audio connections are determined by the type of audio signals you wish to record and play out, as described below:
 - Embedded Digital Audio: part of your digital video signal, no additional audio connections are needed to play or record this type of audio signal.
 - Non-Embedded Audio Signals: the LABvault-HD supports two-channel analog and AES balanced digital audio signals. The LABvault-HD server comes equipped with two audio terminal blocks for recording and playing your non-embedded audio signals.

To play/record any of the LABvault-HD's supported, non-embedded audio signals, connect your audio signal wiring according to the following steps:

- NOTES:**
- The illustrations for the following examples show the terminal blocks in vertical positions. When connected to the rear panel, the blocks are horizontal with the AES terminals on each block rotated toward the “SDI IN” BNC video input.
 - The LABvault-HD supports an audio wiring gauge range of 18 (maximum) to 28 (minimum) AWG.

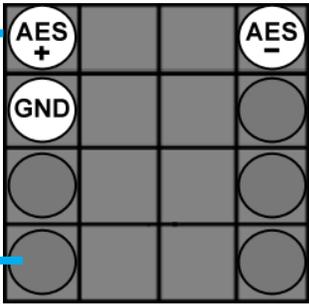
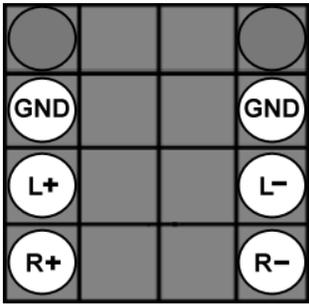
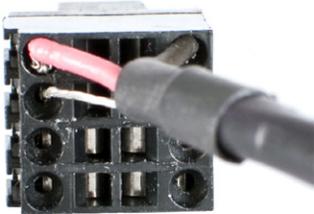
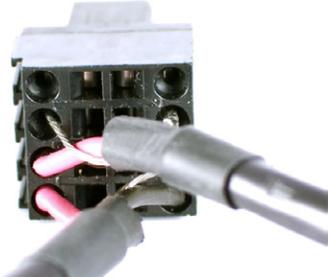
- Prepare your audio wiring for connection to the terminal blocks by stripping approximately a 1/4 inch of shield off the end of each wire. Twist each wire’s individual strands together to prevent separation (see illustration at right for example).
- Perform the following steps for the LABvault-HD audio record input and playback output:
 - With your fingers, gently grasp the desired terminal block on the LABvault-HD’s rear panel and pull to separate the block from the player/recorder.
 - Secure each of your prepared audio wires in their appropriate terminals as follows, referring to the table below for each wire’s placement on the terminal block:

Example of Wire Prepared for a LABvault-HD Terminal Block

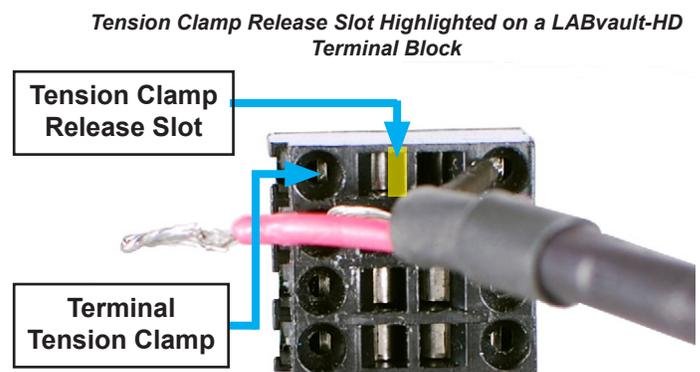


NOTE: The AES audio configuration uses only one of either common grounds.

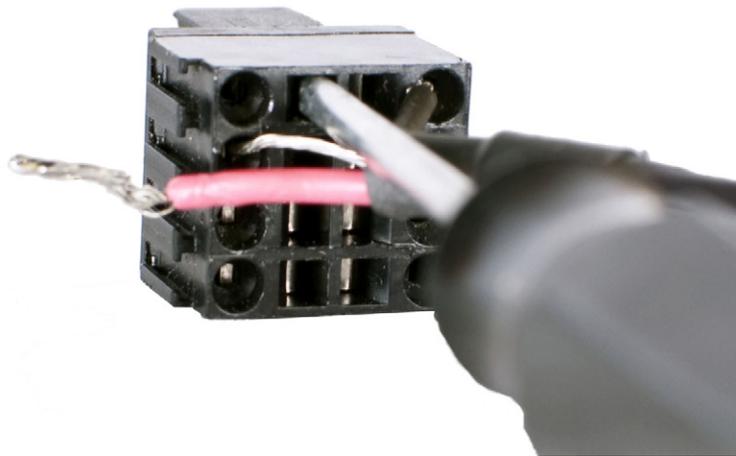
Terminal Block Wiring Configurations and Examples

AES Terminal Block Configuration	Two-Channel Analog Terminal Block Configuration
<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 10px;">Terminals</div>  </div>	
	

- (1) Using a slotted, pocket clip screwdriver with a maximum tip width of 2.5mm and thickness of .4mm, open the terminal's tension clamp by inserting the screwdriver tip into the clamp's corresponding tension release slot (see the illustration on the right for an example). Firmly push the screwdriver into the slot until the clamp in the bottom of the terminal slides open (refer to the illustration



Screwdriver Inserted into Tension Clamp Release Slot



below).

- (2) Insert the audio wire into its corresponding terminal until it touches the bottom.
 - (3) While holding the wire in place, pull the screwdriver from the slot. The wire should now be clamped into place and should not fall out of the terminal if gently tugged.
 - (4) Repeat steps 5.b.ii(1)–(3) for each of the remaining terminals in your audio terminal block configuration.
- iii. Push each wired terminal block back into its slot on the rear panel of the LABvault-HD. The block only fits one way into its holder on the rear panel

ENTERING NETWORK SETTINGS INTO LABVAULT-HD

1. Power up the LABvault-HD by pressing the green check button on the front panel for at least two seconds.
2. From the front panel, enter your password by pressing the right arrow button to display the password entry screen and then your five arrow key password. If the password is entered correctly, the LABvault-HD's configuration menu will be displayed (see below).

**Default Front Panel Password:
five right arrow keys**

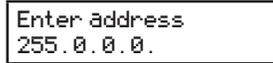
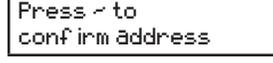
CONFIG MENU
Edit unit address

If the password is entered incorrectly, the front panel display returns to the status screens.

3. Either enter your LABvault-HD network addresses manually or use DHCP to automatically configure the addresses according to the following steps:
 - **Automatic Network Addressing:** enable DHCP on your LABvault-HD according to the table below. When enabled, DHCP will configure your LABvault with an IP, subnet mask, and gateway network addresses.

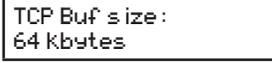
DHCP Configuration Steps	Corresponding Screen Displays
i. From the "CONFIG MENU" screen, press "↑" or "↓" to proceed to the "Edit DHCP" screen. ii. Press "→" to select the screen.	
iii. Press "↑" or "↓" to toggle the field value from "DISABLED" to "ENABLED." iv. Press "→" to enter the next screen.	
v. Either press "→" again to save your changes or "←" to abort changes.	
<p>The LABvault-HD must be powered down and then powered back up to apply any DHCP changes (press the red "X" button for four seconds to turn the unit off and then press the green check button for two seconds to return power).</p>	

- **Manual Network Address Entry**
Obtain an IP address, subnet mask, and a gateway for your LABvault-HD from your network administrator. Repeat the network configuration steps below to enter your IP, subnet, and gateway network addresses.

Network Address Configuration Steps	Corresponding Screen Displays
i. From the "CONFIG MENU" screen, press "↑" or "↓" to proceed to the desired address screen. ii. Press "→" to select the screen.	
iii. Press "→" or "←" to position the underscore beneath the editable fields and press "↑" or "↓" to edit the values. iv. Press "→" past all of the editable fields to enter the next screen.	
v. Either press "→" again to save your changes or "←" to abort changes.	
<p>The LABvault-HD must be powered down and then powered back up to apply any network address changes (press the red "X" button for four seconds to turn the unit off and then press the green check button for two seconds to return power).</p>	

4. **Optional:** the LABvault-HD FTP buffer size setting helps to control the rate at which data is transferred to and from the LABvault. The buffer size defaults to 16 kilobytes, but may be adjusted down to 4 KB or up to 64 KB. If your network equipment can handle a higher rate, edit the setting to 32 or 64 KB for faster transfer times.

To change the FTP buffer size, perform the following:

FTP Buffer Size Configuration Steps	Corresponding Screen Displays
<p>i. From the "CONFIG MENU" screen, press "↑" or "↓" to proceed to the "Edit FTP TCP Buf" screen.</p> <p>ii. Press "→" to select the screen.</p>	
<p>iii. Press "→" or "←" to position the underscore beneath the editable fields and press "↑" or "↓" to edit the values.</p> <p>iv. Press "→" again to apply change and enter reboot message screen or "←" to abort changes.</p>	
<p>The LABvault-HD must be powered down and then powered back up to apply any FTP buffer size changes (press the red "X" button for four seconds to turn the unit off and then press the green check button for two seconds to return power).</p>	

ADMINISTRATIVE WEB INTERFACE

Your LABvault-HD includes an administrative Web interface, allowing any authorized user to conveniently set up and check on your LABvault from the Internet. The LABvault-HD administrative Web interface has been tested for compatibility with Internet Explorer, version 8 or higher, Firefox, Safari, and Google Chrome.

OPENING AND LOGGING IN

Type your LABvault-HD's IP address into your Web browser's address bar (i.e., <http://10.255.14.175>). Enter the LABvault-HD "admin" username and password into the login prompt and click the "Login" button.

NOTE: The username is always "admin" and the factory-default password is the last six digits of your LABvault-HD's serial number.

Administrative Interface Login Screen



UNDERSTANDING STATUS INDICATORS ON “SYSTEM DASHBOARD” SCREEN

Click the “Dashboard” button to display the “System Dashboard” screen. The Dashboard displays all of the currently configured settings for your LABvault-HD as well as the unit’s operational and storage status.

“System Dashboard” Web Interface Screen

MPEG Player Status: shows the filename and playback time of the video currently being displayed

Storage: shows the storage capacity of your LABvault-HD’s internal hard drive for both system configuration information (“System”) and digital video files (“Internal”). Both the “System” and “Internal” indicators show how much storage has been used and is currently available for each internal drive partition. The “Internal” storage indicator also shows how many files are currently on the hard drive.

Site Information: customize the “Site Name” and “Site Location” information for your system from the “Site Information” tab on the “System Management” screen. Refer to the “Edit Site Name and Location from the ‘System Management’ Screen” subsection on the following page for further information.

File Transfers: shows which files are currently being transferred, the transfer destination(s), and the transfer rate.

MPEG Recorder Status: shows the user-selected filename and recording quality preset for the current recording session as well as the record time in hours:minutes:seconds:frames. The “Auto Delete” field indicates whether or not your LABvault-HD has been set up to automatically delete transferred files from its internal hard drive.

Destination Configuration: indicates the file destination(s) set up for automatic/manual file transfers and network settings entered for all destinations.

Network Settings: shows the network settings entered into your LABvault-HD’s front panel.

ENTERING LABVAULT-HD SETTINGS

Configure your LABvault-HD's site identification, system time and time zone, login username(s) and password(s), and more from the "System Management" screen as described in the following subsections:

Site Name and Location

Customize the "Site Name" and "Site Location" on your "System Dashboard" screen for your system. Click the "SYSTEM" button to display the "System Management" screen and then click the "Site Information" tab. Enter a new identification name for your site into the "Site Name" field and a location description in the "Site Location" field. Click "Apply Changes" to change the information on your "System Dashboard" screen.

"Site Information" Window on "System Dashboard" Screen

Site Information
Site Name: LABvault-HD
Site Location: Conference Room
Serial Number: 094000
Firmware Version: 01.01.11D

"Site Information" Tab on "System Management" Web Interface Screen

System Management

Site Information | Security | Maintenance | ePRO-BUS | Serial Port

Site Name: LABvault-HD
Site Location: Undefined
Time Zone: (GMT-05:00) Eastern Time (US & Canada)
 Automatically adjust clock for daylight savings changes
Apply Changes

LABvault-HD Time: August 23, 2012 2:24:24 PM
Computer Time: August 23, 2012 2:24:28 PM Set
Manual: August 23, 2012 02 23 58 PM Set

LABvault-HD System Time

Click the "SYSTEM" button to display the "System Management" screen and then click the "Site Information" tab. "LABvault-HD Time" shows the date and time currently on your LABvault-HD system. To change the LABvault-HD's date/time, perform one of the following:

- Sync your LABvault-HD system's date and time to your computer's current date and time by clicking the "Set" button next to the "Computer Time" field.
- Manually change the LABvault-HD system date and time by editing the "Manual" fields as follows:
 1. Use the up/down arrows to adjust the time fields.
 2. Click on the date field and select a new date in the calendar that appears.
 3. Click the "Set" button to make the changes.

Username and Passwords for Administrative Interface

Control access to your LABvault-HD system settings and operation through the browser-based interface. Click the “SYSTEM” button to display the “System Management” screen and then click the “Security” tab. Perform the following:

“Security” Tab on “System Management” Web Interface Screen

The screenshot shows the 'System Management' web interface with the 'Security' tab selected. The interface is divided into a sidebar and a main content area. The sidebar contains navigation links: DASHBOARD, FILES, DESTINATIONS, SYSTEM, LOGS, and LOGOUT. Below these are two MPEG Player and Recorder controls, and a File Name field with the value 'lab_session'. The main content area is titled 'System Management' and has tabs for Site Information, Security, Maintenance, ePRO-BUS, and Serial Port. The Security tab is active, showing three sections: 'System User (admin)', 'Front Panel Password', and 'Remote Users'. Each section has input fields and a 'Save' or 'Change Password' button. Warning messages are displayed next to each section.

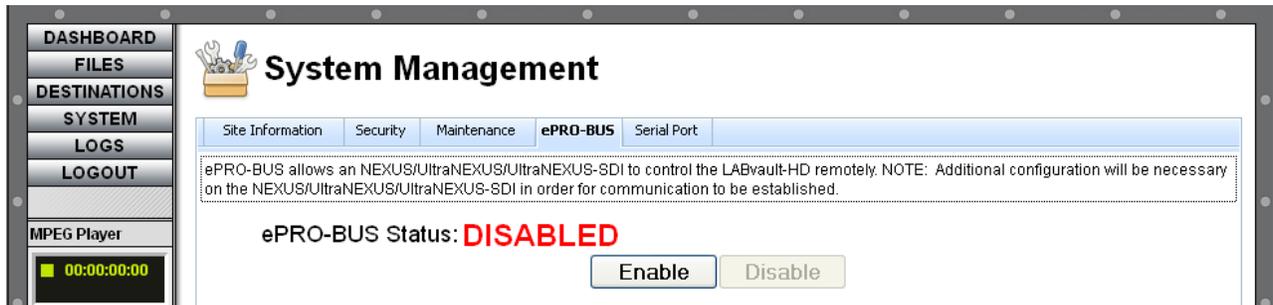
- **“System User (admin)” Password:** use these fields to change the password for the “admin” user account. The “admin” user is able to access the main LABvault-HD browser-based interface to change system configuration settings, activate the LABvault-HD recorder, modify file transfer settings, and view system log files. To change the “admin” password, enter up to eight alphanumeric characters in both fields and then click the “Change Password” button to save.
- **“Front Panel Password”:** protect access to the network settings entered into the front panel of your LABvault-HD by clicking a combination of five arrow buttons and then clicking the “Save” button to change the password or “Clear” to remove your entry from the field.
- **“Remote Users”:** remote user accounts allow users with supported third party systems to initiate, stop, and check the status of recording on your LABvault-HD. Enter a username and password into the corresponding fields and then click the “Submit” button to add the account. To delete a remote user account, single click on the user’s name and then click the “Delete” button.

ePRO-BUS Setting

Click the “SYSTEM” button to display the “System Management” screen and then click the “ePRO-BUS” tab. Click the “Enable” button to allow the LABvault-HD to receive PRO-BUS control commands over your Ethernet network from a LEIGHTRONIX E-HD2 server. Clicking “Disable” will prevent the LABvault-HD from receiving ePRO-BUS commands.

NOTE: Any LABvault-HD and E-HD2 server using the ePRO-BUS feature must be assigned a static IP address and made available for UDP on Port 2000.

“ePRO-BUS” Tab on “System Management” Web Interface Screen



Serial Port Setting

The serial port mode setting, accessed by clicking the “Serial Port” tab on the “System Management” screen, applies to the bottom serial port on the back panel of the LABvault-HD chassis. “Host” mode allows the LABvault-HD to receive serial control commands from supported, external devices connected to the bottom serial port. “Camera” mode is not currently supported. Currently, the LABvault-HD is automatically configured in the “Host” mode.

“Serial Port” Tab on “System Management” Web Interface Screen



SETTING UP FILE TRANSFER DESTINATION(S)

Easily control where your recorded files are sent by clicking the “Destinations” button and using the “File Destinations” screen tabs. Recorded files may be automatically or manually transferred to an E-HD2 server/controller and/or third party server with FTP capabilities, as outlined below. The settings apply to each recording session until you change them.

NOTE: If no destinations are enabled, the LABvault-HD will record and store your files on its internal 250 GB hard drive. Refer to “Managing Files” on page 21 for instructions on transferring and deleting files off the internal hard drive.

E-HD2 Server Destination

Send your LABvault-HD files to any of the storage volumes attached to your E-HD2 server. Enter your E-HD2’s IP address, username, and password along with the name of the volume that you want to store the files. The names of your storage volumes can be viewed in the WinLGX “Storage Manager” window. Complete the remaining settings according to the labeled illustration below and click the “Apply Changes” button when you have finished.

“E-HD2” Tab on “File Destinations” Web Interface Screen

1 “Enable”: when checked, files will be automatically transferred to the specified E-HD2 system after each recording session.

2 “Verify Connectivity”: after entering your E-HD2 unit’s IP address, username, and password, click the “Verify Connectivity” button to ensure your LABvault-HD can connect to the server.

3 “Transfer Holdoff Schedule”: 7 day/24-hour timeline allows you to decide which hours of the week your LABvault will transfer files to your E-HD2 system. Single click each hour segment on the timeline to toggle transfer capabilities on or off (green = on, red = off).

4 “Enable Auto-Play CH”: if you have selected the “PEGcasting” option on the “Record Settings” tab, you may choose to have the transferring file stream automatically begin playing on your E-HD2 system’s Digital Video Player 1 and/or 2. Select a “Playback Delay” of 2-60 minutes to specify how long after the file stream is transferred that it should begin playing on the selected channel(s).

Server with FTP Capabilities

Push your files to another LEIGHTRONIX or third party video server with FTP capabilities. Enter your server's IP address, username, and password along with the name of the destination path. Complete the remaining settings according to the labeled illustration below and click the "Apply Changes" button when you have finished.

"FTP Server" Tab on "File Destinations" Web Interface Screen

Recorded File Settings
File Name: lab_session
Recording Quality: Good
Auto Delete: Disabled

File Destinations

E-HD2 **FTP Server** Record Settings

1 Enable

IP Address: 176 . 116 . 12 . 25
Username: admin
Password: ●●●●●●●●
Confirm Password: ●●●●●●●●
Destination Path: Vol2

2 Verify Connectivity

3 Transfer Holdoff Schedule

	12AM	12PM	12AM
Sunday	Green	Green	Green
Monday	Green	Green	Green
Tuesday	Green	Green	Green
Wednesday	Green	Green	Green
Thursday	Green	Green	Green
Friday	Green	Green	Green
Saturday	Green	Green	Green

Legend:
Green: Allow Transfer
Red: Restrict Transfer

Apply Changes

1 "Enable": when checked, files will be automatically transferred to the specified FTP server after each recording session.

2 "Verify Connectivity": after entering your FTP server's IP address, username, and password, click the "Verify Connectivity" button to ensure your LABvault-HD can connect to the server.

3 "Transfer Holdoff Schedule": 24-hour timeline allows you to decide which hours of the day your LABvault will transfer files to your server. Single click each hour segment on the timeline to toggle transfer capabilities on or off (green = on, red = off).

RECORDING

Set up your LABvault-HD system for recording with the administrative interface's record quality and automation settings and then learn how to use the interface to activate the LABvault-HD's record features through the following subsections:

Record Settings

Click the "DESTINATIONS" button and then select the "Record Settings" tab. Enter the following record settings and then click the "Apply Changes" button to send the changes to your LABvault-HD or "Cancel" to abort. The settings will be applied to every recording session until they are changed.

"Record Settings" on "File Destinations" Screen

The screenshot displays the 'Record Settings' tab within the 'File Destinations' section. On the left is a navigation menu with options: DASHBOARD, FILES, DESTINATIONS, SYSTEM, LOGS, LOGOUT, MPEG Player, and MPEG Recorder. The main content area is titled 'File Destinations' and includes a 'Recorded File Settings' summary box at the top right showing: File Name: lab_session, Recording Quality: Good, and Auto Delete: Disabled. Below this are several configuration sections:

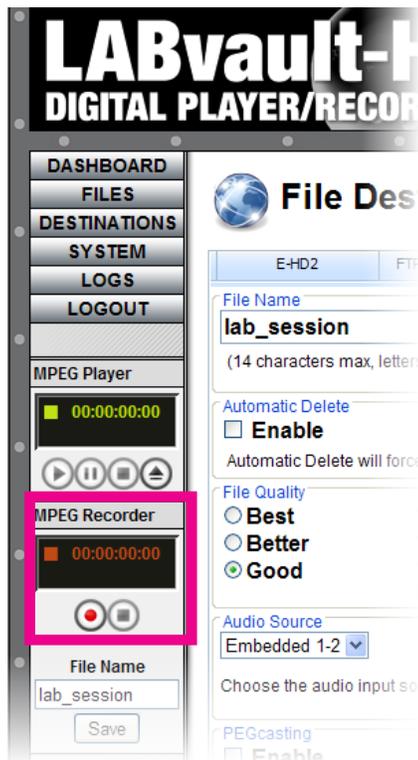
- File Name:** A text field containing 'lab_session' with a note '(14 characters max, letters, numbers, and underscores only—no spaces)'. There is an unchecked checkbox for 'Create Unique Files' with a sub-note: 'Creating unique files will automatically append a timestamp to the end of the filename.'
- Automatic Delete:** An unchecked checkbox for 'Enable' with a sub-note: 'Automatic Delete will force the recorded file to be deleted when all transfers are complete.'
- File Quality:** Three radio button options: 'Best' (VBR of 7.00-9.00 Mb/s, resolution same as source, 224 kb/s audio bit rate, 48 kHz audio sample rate), 'Better' (VBR of 4.00-7.00 Mb/s, resolution same as source, 192 kb/s audio bit rate, 48 kHz audio sample rate), and 'Good' (VBR of 3.00-5.00 Mb/s, resolution same as source except 1920->1440, 192 kb/s audio bit rate, 48 kHz audio sample rate).
- Audio Source:** A dropdown menu set to 'Embedded 1-2' with a sub-note: 'Choose the audio input source you wish to record.'
- Closed Captions:** A checked checkbox for 'Enable Closed Captions' with a sub-note: 'Check to enable closed captions.'
- PEGcasting:** An unchecked checkbox for 'Enable' with a sub-note: 'PEGcasting allows recorded files to automatically transfer to the desired destinations as they are still being recorded.'

 At the bottom of the main content area is an 'Apply Changes' button. On the left side of the interface, there are controls for the MPEG Player and Recorder, including a 'File Name' field with 'lab_session' and a 'Save' button.

- **"File Name"**: in the "File Name" field, enter up to 14 characters (letters, numbers, and underscores only—no spaces). If you use the same filename for more than one recording session, the record date and start time will be appended to the name of each additional recorded file as "yy/mm/dd-hh/mm/ss" (year/month/day-hours/minutes/seconds).
NOTE: Alternatively, you may enter the new filename into the "File Name" box in the lefthand column of the LABvault-HD Web interface. Click the "Save" button to make the change. The new name will appear in the "File Name" field on the "File Settings" tab.
- **"Create Unique Files"**: when this option is selected, the record date and start time will be appended to the filename of each recorded file as "yy/mm/dd-hh/mm/ss" (year/month/day-hours/minutes/seconds).
- **"Automatic Delete"**: if you want your recorded files deleted from the LABvault's internal hard drive after each transfer, select the "Enable" "Automatic Delete" option. The "Disable" option will cause your recorded files to stay on the hard drive until you manually delete them from the "File Management" screen (click the "Files" button).
NOTE: If no destinations are enabled, the LABvault-HD will record and store your files on its internal 250 GB hard drive. Refer to "Managing Files" on page 21 for instructions on transferring and deleting files off the internal hard drive.
- **"File Quality"**: select a "File Quality" recording preset for your files. Each recording quality preset represents the range of bit rates within which the file will be recorded.
- **"Audio Source"**: select the type of embedded or non-embedded ("Analog" or "AES") audio signal your system is set up to record from the options below.
 - "Analog": corresponds to the analog terminals on the LABvault-HD's audio input terminal block

- “AES”: corresponds to the AES terminals on the LABvault-HD’s audio input terminal block
- “Embedded 1-2”, “Embedded 3-4”, “Embedded 5-6,” and “Embedded 7-8”: if your audio is embedded within the incoming video signal, select the embedded audio channel pair that you want to record
- **“Closed Captions”**: Select the “Enable Closed Captions” option to capture any closed caption data from the source. Closed captions are hidden in the video signal and decoded for display on televisions with built-in decoders or televisions connected to external decoders.
- **“PEGcasting”**: if you want your LABvault-HD files transferred to your E-HD2 server 15 seconds after the files begin recording, select the “Enable” “PEGcasting” option. To use the PEGcasting Next to Live autoplay feature for simulated live broadcasting, you must still complete the “PEGcasting N2L” configuration settings on the “E-HD2” tab.

Left Column
“MPEG Recorder” Controls

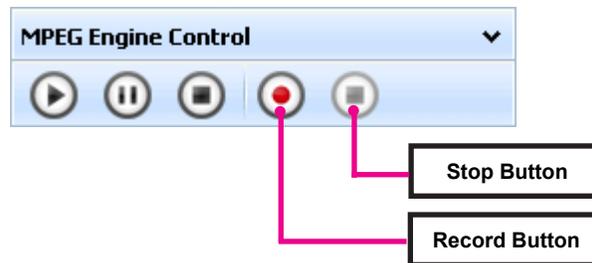


Recording from the Web Interface

Start/Stop recording from the LABvault-HD Web interface as follows:

1. From the “MPEG Recorder” panel under the menu buttons or from the “MPEG Engine Control” panel on the bottom of the “File Management” screen, click the record button  to begin recording.
2. To end the recording session, click the stop recording button . If a file destination was configured and enabled in the Web interface, your recorded file will be automatically transferred to the destination.

“MPEG Engine Control” Panel

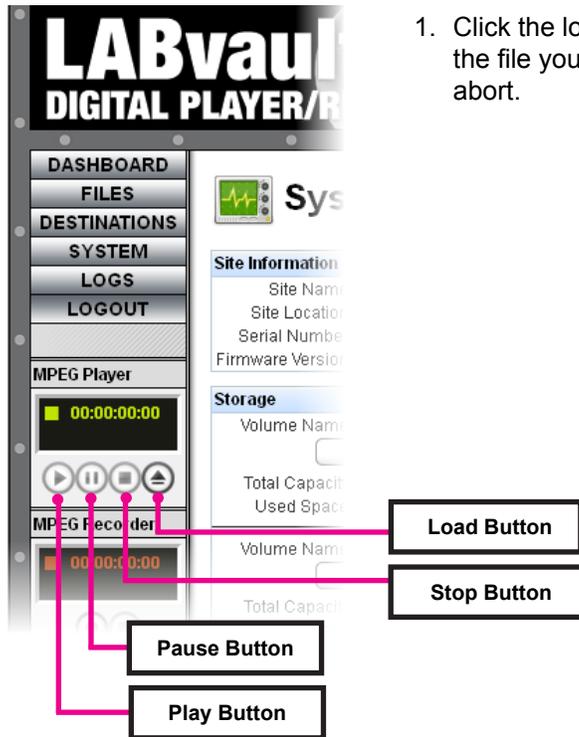


PLAYING FILES

Playback of your recorded files on a connected preview monitor may be initiated from the LABvault-HD web interface as well as a third party touch screen. To initiate playback of a file from the web interface, use one of the following control options:

“MPEG Player” Left Column Controls

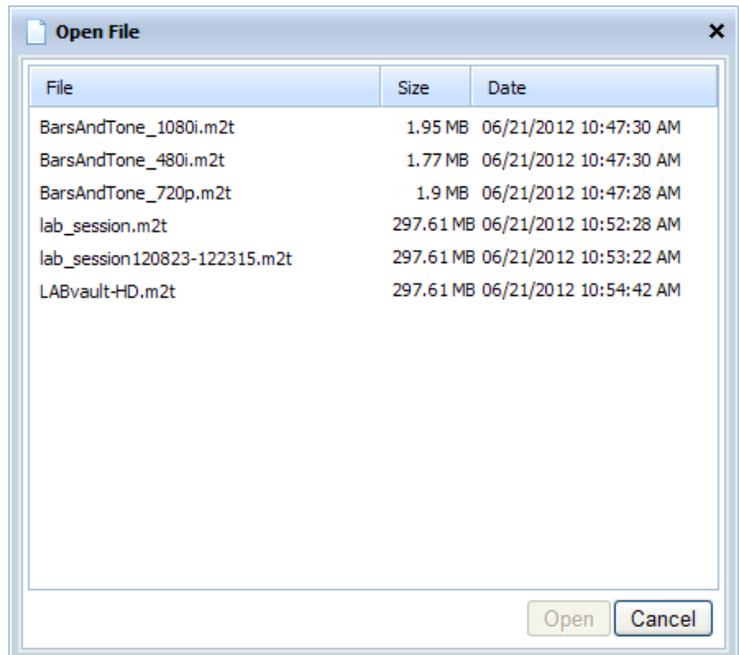
*Left Column
“MPEG Player” Controls*



On the left sidebar of the LABvault-HD web interface, you will see the control buttons for the LABvault-HD’s MPEG player. Perform the following:

1. Click the load button to display the “Open File” popup window. Single click to select the file you wish to display and click “Open” to load the selection or “Cancel” to abort.

“Open File” Popup Window



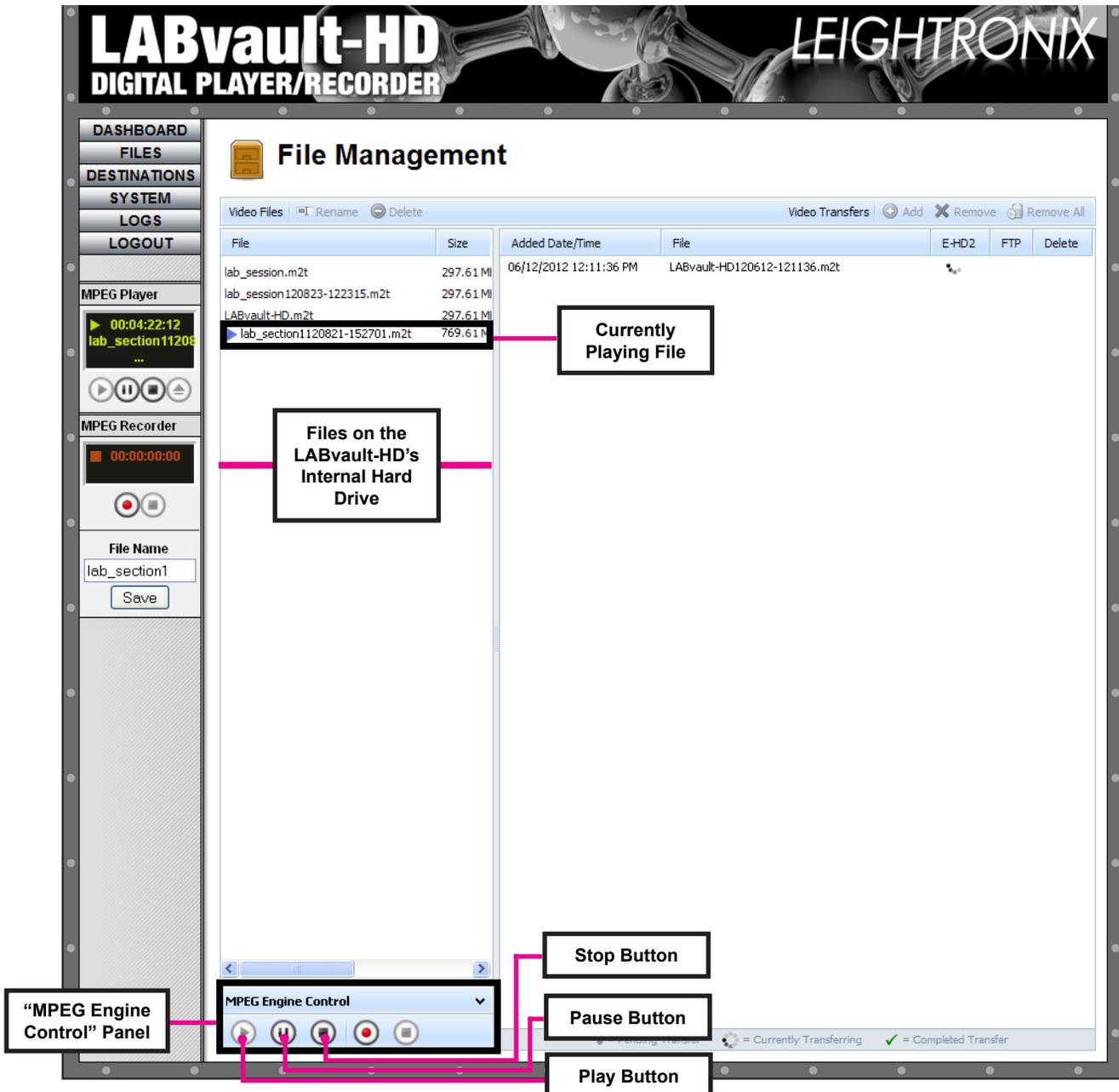
2. Start playing the file by clicking the play button.
3. You may pause playback by clicking the pause button or stop it completely with the button. The stop button also unloads the file from the MPEG player.

“MPEG Engine Control” Panel

The LABvault-HD’s MPEG player controls are also available on the bottom of the “FILES”/“File Management” screen in the “MPEG Engine Control” panel. The “MPEG Engine Control” panel playback controls mirror the functionality of the “MPEG Player” left column controls, so that controls from either panel can be used interchangeably during each playback session. If a file is playing or paused, its filename will have the corresponding symbol next to it in the lefthand “File Management” listing. Perform the following:

1. Click the “FILES” menu button to display the “File Management” screen.

“MPEG Engine Control” Panel on “File Management” Screen



2. From the lefthand listing of files on the LABvault-HD’s internal hard drive, single click to select the file you wish to display.
3. From the “MPEG Engine Control” panel, start playing the file by clicking the play button.
4. You may pause playback by clicking the pause button or stop it completely with the stop button. The stop button also unloads the file from the MPEG player.

MANAGING FILES

The “File Management” screen displays a recorded file listing and transfer queue, allowing you to manually transfer files, stop file transfers, and manage any files stored on the LABvault-HD’s internal hard drive. Recorded files are stored on the LABvault’s internal hard drive if the “Automatic Delete” record file setting has been disabled and/or no file destinations have been enabled, giving you the option to rename, delete, and manually transfer files from the “File Management” screen. Click the “Files” menu button to display the screen and then perform any of the following steps, as needed:

“File Management” Web Interface Screen

LABvault-HD DIGITAL PLAYER/RECORDER LEIGHTRONIX

File Management

File	Size	Added Date/Time	File	E-HD2	FTP	Delete
lab_session.m2t	297.61 M	06/12/2012 12:11:36 PM	LABvault-HD120612-121136.m2t			
lab_session120823-122315.m2t	297.61 M					
LABvault-HD.m2t	297.61 M					

Files on the LABvault-HD's Internal Hard Drive

File Transfer Queue

MPEG Engine Control

• = Pending Transfer ⚙ = Currently Transferring ✓ = Completed Transfer

Rename Files on Internal Hard Drive

Under the “Video Files” listing on the left side of the screen, either single click on the file you would like to rename and then click the “Rename” button or just right click on the file and select “Rename” from the menu that appears. In the “Rename File” window that appears, enter a new filename of up to 27 alphanumeric characters, no spaces, and click “Ok” to accept the change or “Cancel” to abort.

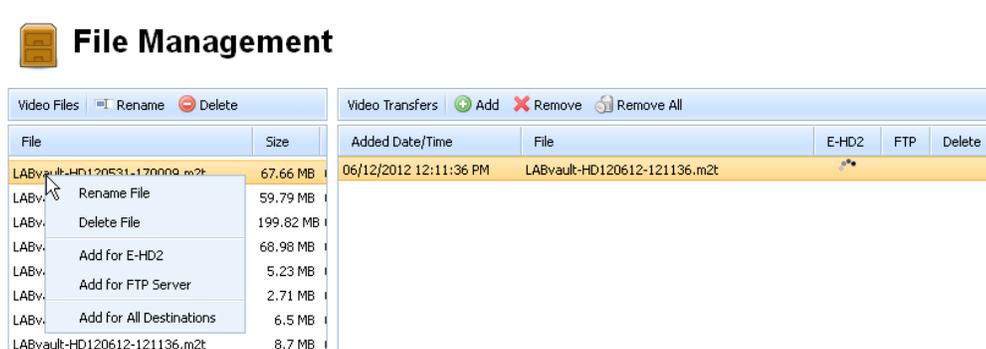
Delete Files from Hard Drive/Transfer Queue

- **Hard Drive:** under the “Video Files” listing, either single click on the file you would like to delete and then click the “Delete” button or just right click on the file and select “Delete File” from the pop-up menu. Click “Yes” when prompted to delete the file or “No” to abort.
- **Transfer Queue:** to delete a single file under “Video Transfers,” either single click on the file you would like to delete and then click the “Remove” button or just right click on the file and select “Remove Transfer” from the pop-up menu. To remove all files from the transfer catalog, either single click on a file and then click the “Remove All” button or just right click on the file and select “Remove All Transfers” from the pop-up menu. Click “Yes” when prompted to delete the file(s) or “No” to abort.

Manually Transfer Recorded Files

Under the “Video Files” listing, either single click on the file you would like to transfer and click the “Add” button to transfer the file to your configured destination(s) or right click on the file and select a file transfer destination(s) from the pop-up menu. Ensure you have entered the configuration settings for the selected destination(s) on the “File Destinations” screen.

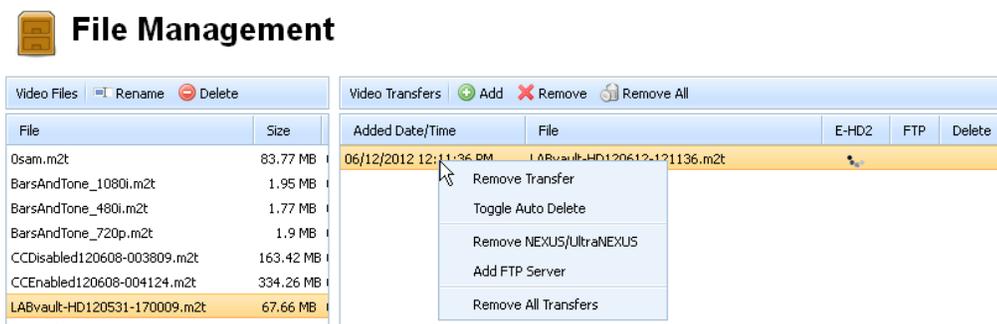
Popup Menu for “Video Files” Listing on the “File Management” Screen



Change File Transfer Destinations

Change the destination of any file in the “Video Transfers” queue by right clicking on the file and selecting one of the add/remove options in the popup menu. The remove options de-select current file transfer destinations, while the add options transfer the file to the corresponding destinations. Ensure you have entered the configuration settings for the selected destination(s) on the “File Destinations” screen.

Popup Menu for “Video Transfers” Listing on the “File Management” Screen



Enable/Disable Auto Delete

Use the “Toggle Auto Delete” option to turn “Delete” on and off for the selected file.

CHECKING LOG FILES

The LABvault-HD keeps track of everything done to or by it in internal log files which are accessible from the administrative Web interface. Click the “LOGS” menu button to display the list of current LABvault-HD logs on the “Log Files” screen.

“EVENTS.LOG” Selected on “Log Files” Web Interface Screen

LABvault-HD DIGITAL PLAYER/RECORDER LEIGHTRONIX

Log Files

Name	Size	Date Created	Date Modified
EVENTS.LOG	444.27 KB	06/21/2012 12:29:04 AM	08/23/2012 11:42:14 AM
lvhd011715_db.log	181.93 KB	08/17/2012 12:46:00 AM	08/23/2012 08:30:56 AM
pkgrch.log	269 B	08/17/2012 10:35:28 AM	08/23/2012 08:30:56 AM

Find Search ↑ Previous ↓ Next Save Delete

Date/Time	Severity	Source	Message
06/21/2012 4:29:05 PM	0	Streaming	Begin Orderly Shutdown
06/21/2012 4:29:05 PM	0	Streaming	Orderly Shutdown Complete
06/21/2012 4:29:36 PM	0	Schedule	Detected RTC extension
06/21/2012 4:29:36 PM	0	Schedule	Loading configuration from controller image c:\schedule\schedule.bin
06/21/2012 4:29:36 PM	0	MPEG	Found MPEG board 1 (H264), VenID:104C, DevID:B001, SubVID:5401, SubID:0002, BaseA
06/21/2012 4:29:36 PM	0	MPEG	MPEG board 1 ROM Ver:00010400, PROM Bootloader Ver:1.00.0000, Status:00000001
06/21/2012 4:29:37 PM	1	Schedule	Error 2 (File not found) opening schedule file c:\schedule\schedule.bin, unable to activate
06/21/2012 4:29:38 PM	0	MPEG	MPEG recorder 1 video set to 1920x1080, 30fps, M:1, Prog:0, Err=0
06/21/2012 4:29:38 PM	0	MPEG	MPEG board 1 Firmware Version 1.02.0000, PLD:18, LSI:2009.0525.2418.0000, SDI Rcvr:1
06/21/2012 4:29:38 PM	2	Diagnostic	Startup, Last Orderly Shutdown: 06/21/2012 4:29:05 PM, Number of Startups: 1
06/21/2012 4:29:38 PM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured
06/21/2012 4:29:38 PM	1	Streaming	Could not load stream catalog: c:\catalog.sys
06/21/2012 4:29:39 PM	1	MPEG	MPEG board 1, INFO, SDI Serializer Locked - HD, 1920x1080/30 (0A), M:1, Format:0157
06/21/2012 4:29:44 PM	0	Diagnostic	Opened Event Log file c:\log\EVENTS.LOG, SN:094000, Ver:01.01.11ID, IP:10.9.64.0, SM:2
06/21/2012 5:30:14 PM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured
06/21/2012 5:57:14 PM	0	File	User Login request; IP Address:10.255.5.101; Request: USER admin
06/21/2012 5:57:14 PM	0	File	User Login successful; IP Address:10.255.5.101; Reply: 230 User "admin" logged in.
06/21/2012 5:57:21 PM	0	File	User Login request; IP Address:10.255.5.101; Request: USER admin
06/21/2012 5:57:21 PM	0	File	User Login successful; IP Address:10.255.5.101; Reply: 230 User "admin" logged in.
06/21/2012 5:57:21 PM	0	File	Retrieve file request; IP Address:10.255.5.101; Request: RETR EVENTS.LOG
06/21/2012 6:30:50 PM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured
06/21/2012 7:31:26 PM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured
06/21/2012 8:32:02 PM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured
06/21/2012 9:32:38 PM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured
06/21/2012 10:33:14 PM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured
06/21/2012 11:33:50 PM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured
06/22/2012 12:34:26 AM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured
06/22/2012 1:35:01 AM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured
06/22/2012 2:35:37 AM	0	Diagnostic	Not checking for master TI or PC addr, no Gateway configured

File Name: lab_session Save

Open a Log File

From the top panel on the “Log Files” screen, single click on the desired log file to select it and then click the “Save” button to display an open/save file dialog box. Either open or save the selected log file on your computer or network as a .txt or Excel® file.

Search a Log File

Search for specific entries within either of the event or firmware logs. From the top panel on the “Log Files” screen, single click the desired log file. Enter your search term into the “Find” box and click the “Search” button to filter out any entries not containing the search term. Use the “Previous” and “Next” buttons to move up and down between entries in

the log file.

Delete a Log File

From the top panel on the “Log Files” screen, single click the desired log file to select it and then click the “Delete” button. A popup box will appear, asking whether or not you wish to delete the file. Click “Yes” to delete or “No” to abort.

The types of LABvault-HD log files are as follows:

- **Event Logs:** the event logs track LABvault-HD operations, including recording sessions, file transfers, and LABvault status. Single click either “**EVENTS.LOG**” to select the most current file of LABvault-HD actions or “**OLDEVNTS.LOG**” to view archived LABvault actions. When selected, both event logs display the screen shown in the illustration above. The event logs provide a description of each action under “Message,” along with the action’s date and time, severity, and type (“Source”).

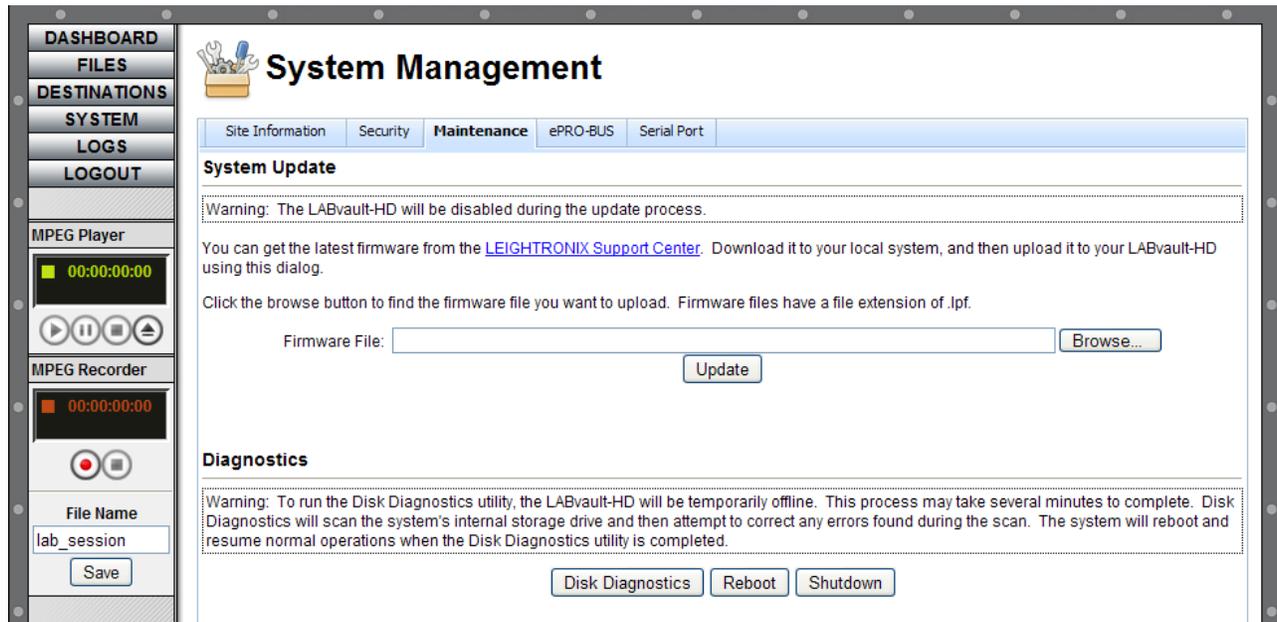
The LABvault will continually write to the “EVENTS.LOG” file until it reaches 7 MB. Once “EVENTS.LOG” reaches 7 MB, the LABvault-HD will rename it to “OLDEVNTS.LOG” (deleting the previous “OLDEVNTS.LOG”) and then display a new “EVENTS.LOG” on the “Log Files” screen. This ongoing cycle ensures that recent events are always logged.

- **Firmware Logs:** the LABvault-HD creates log files that specifically track firmware installations. The “**pkgsrch.log**” file verifies whether the LABvault-HD firmware file has been uploaded onto your LABvault, while the “**lvhdxxxxx_full.log**” records information about the actual installation of firmware on the LABvault. Separate “**pkgsrch.log**” and “**lvhdxxxxx_full.log**” firmware log files are created each time you perform a LABvault-HD firmware update. Previous firmware log files are not overwritten when new firmware updates are performed.
- **Disk Diagnostics Logs:** the “**scan_C.log**” and “**scan_D.log**” files display information from the most recent LABvault-HD hard drive scan performed with the “Disk Diagnostics” utility. Both files are automatically overwritten each time you run a drive scan, with “**scan_C.log**” providing information about the system data partition on the drive and “**scan_D.log**” covering the drive’s file partition area.

MAINTAINING THE LABVAULT-HD

The administrative interface provides a “Maintenance” tab screen under “System Management” to help you easily keep your LABvault-HD at peak performance. Take advantage of the no-charge firmware file updates to ensure your LABvault-HD system has the latest features and enhancements. Also, safeguard any recorded files and data on your LABvault-HD’s internal hard drive by regularly running the disk diagnostics utility with the click of a button. Refer to the subsections below for more details.

“Maintenance” Tab on “System Management” Web Interface Screen



Update Firmware

LEIGHTRONIX places the most current LABvault-HD firmware files on the LEIGHTRONIX Support Center Web site. Save the update files to an accessible directory on your computer or network.

Once you have downloaded the LABvault-HD firmware update file from the Support Center, open the LABvault’s Web interface and click the “SYSTEM” menu button. Select the “Maintenance” tab and use the “Choose File” button to navigate to the saved location of the firmware file. Click the “Update” button to download and install the firmware file onto your LABvault-HD.

Check Internal Hard Drive

The LABvault-HD disk diagnostics feature automatically fixes many common File Allocation Table (FAT) errors that may impair or cause data loss on your LABvault’s internal hard drive. LEIGHTRONIX recommends using the feature on a monthly basis to ensure optimal drive performance as well as any time you discover file/drive errors in your log files or notice drive performance issues due to improper system shutdown or firmware changes.

NOTE: The disk diagnostics process does not fix physical degradation of the hard drive. Contact LEIGHTRONIX Technical Support for further information on servicing your LABvault’s internal hard drive.

To run the disk diagnostics feature, click the “SYSTEM” button to display the “System Management” screen and then click the “Maintenance” tab. Click the “Disk Diagnostics” button and then select the popup menu’s “Yes” option to perform the disk check process. When the diagnosis has been completed, a log file describing any errors discovered and actions performed will be added to the “Log Files” page on your LABvault’s Web interface.

Reboot/Shut Down

Click the “SYSTEM” button to display the “System Management” screen and then click the “Maintenance” tab. Click “Reboot” to power your LABvault-HD off and then back on or click the “Shutdown” button to only power off your LABvault.

CONTROL COMMANDS

The LABvault-HD is meant to be locally operated from a compatible, third party control system connected either directly to the LABvault via an RS-232 serial cable or through your network. This section provides the control commands needed to program your touch screen to operate your LABvault-HD. For even greater versatility, your programmer can create a Web interface for Internet Explorer that duplicates your touch screen interface.

Touch Screen Interface: RS-232 SERIAL or TELNET

- NOTES:**
- Serial communication is 115200, N, 8, 1.
 - The remote control port is standard RS-232 DTE (connection to a standard PC DB-9 would be via DB9F to DB9F NULL cable).
 - Telnet has a 5 minute session timeout after no activity. Serial connections do not have a timeout.
 - A LABvault-HD with a serially connected external control system will boot logged in. A LABvault-HD with an external control system connected via Telnet requires the user to log in again on a reboot.
 - When logged in, the prompt is: "LABVAULTHD>" and when not logged in, the prompt is: ">"
 - Multiple Telnet sessions and a serial session are independent of each other.
 - All commands and responses are terminated with <CR><LF>.
 - The destination server for the FINALIZE command is configured via the LABvault-HD Web interface.

LABvault-HD Control Commands

FUNCTION	COMMAND	DETAILS	ASCII RESPONSE
(Username) Login	USER <USERNAME>	Logs in username. Allows access to restricted function. Followed by PASS command to complete login. If followed by ANY argument, it will appear to be successful (as to not give away which user accounts are and are not valid).	331 User name ok, need password
(Password) Login	PASS <PASSWORD>	Specifies password after "USER" command has been completed.	<ul style="list-style-type: none"> • If successful: 230 User Logged in, proceed • If already logged in: 335 Already logged in • If not preceded by successful USER attempt: 332 USER account not specified • If invalid password or user entered (user will be required to re-execute USER command): 507 Login attempt FAILED

FUNCTION	COMMAND	DETAILS	ASCII RESPONSE
Logout	LOGOFF	Logs off the user and ends the session. Restores default user guest rights.	336 Session reset, rights reset to guest privileges
Show Prompt	PROMPTON	Turns on the "LABVAULT>" prompt.	200 Command OK
Hide Prompt	PROMPTOFF	Turns off the "LABVAULT>" prompt.	200 Command OK
Play NOTE: When playback is initiated, recording will be stopped.	PLAYFILE <FILENAME>	FILENAME is full filename/ ext of file to be played. Filename is case insensitive. \Internal\mpeg\ directory is assumed. Ex.: PLAYFILE BROOKS. M2T	200 Command OK
Record NOTE: When recording is initiated, playback will be stopped.	RECFILE <FILENAME>	Time/Date stamp will be appended if same filename is used for multiple records. Do not include ".m2t" file extension at the end of filename. \Internal\mpeg\ directory is assumed. (Alphanumeric, '-', '_' allowed) Ex.: RECFILE BROOKS NOTE: Record file parameters are set in the LABvault-HD's Web interface	200 Command OK
Pause Play	PAUSE	Pauses channel if it is in play, unpauses it if it is in pause (toggle).	200 Command OK
Stop	STOP	Stops the current playback or record function.	200 Command OK
Send File	FINALIZE <FILENAME>	FILENAME is full filename/ ext of file to be finalized. Filename is case insensitive. \Internal\mpeg\ directory is assumed. File will no longer be available for playback. NOTE: For finalize to succeed, at least one destination must be configured and enabled via the LABvault-HD Web interface, otherwise the result will be fail. Ex.: FINALIZE BROOKS. M2T	<ul style="list-style-type: none"> • If successful: 200 Command OK • If unsuccessful: 663 Cannot finalize file, no destinations are enabled

FUNCTION	COMMAND	DETAILS	ASCII RESPONSE
Get File Dir	GETMPEGDIR	<p>Gets the directory of the \ Internal\mpeg\ dir. Ex.: 399 * 20683495 06-16-2009 14:32:30 00:00:30:07 BROOKS.m2t</p> <p>375 * 00003 Mpeg Files Returned</p>	<p>For each entry: 399 * <FILESIZE> <MM-DD-YYYY> <HH:MM:SS> <LH:LM:LS:LF> <FILENAME></p> <ul style="list-style-type: none"> • <FILESIZE>: raw length of file in bytes • <MM-DD-YYYY>: last write time date • <HH:MM:SS>: last write time • <LH:LM:LS:LF>: M2T length in hours: minutes: seconds: frames • <FILENAME>: filename of file <p>After last entry: 375 * nnnnn Mpeg Files Returned</p>
Get Status	GETSTAT	<p>Gets the current player and recorder status and timecode.</p> <p><u>Record Ex.:</u> GETSTAT recording file BROOKS.m2t, current record time is 7m, 19s, 29 frames (388 0 NONE 00:00:00:00 00:00:00:00 7 BROOKS.M2T 00:07:19:29)</p> <p><u>Playback Ex.:</u> GETSTAT playing file BROOKS.m2t, current playback position is 4m, 21s, 10 frames. Total file length is 22m, 10s, 8 frames. (388 1 BROOKS.M2T 00:04:21:10 00:22:10:08 0 NONE 00:00:00:00)</p>	<p>388 P <PLAYERFILE> <PH:PM:PS:PF> <LH:LM:LS:LF> R <RECFILE> <RH:RM:RS:RF></p> <ul style="list-style-type: none"> • P: Player mode (0 = STOP, 1 = PLAY, 2 = PAUSE) • <PLAYERFILE>: filename of file currently playing (NONE if none) • <PH:PM:PS:PF>: current playback timecode position in HH:MM:SS:FF • <LH:LM:LS:LF>: total length of file currently being played back • R: recorder mode (0 = STOP, 7 = RECORD) • <RECFILE>: filename of file currently being recorded (NONE if none) • <RH:RM:RS:RF>: current record file length in HH:MM:SS:FF
Bump FWD	MPGBUMPFWD	<p>“Bumps” the current playback position 10 seconds forward (to the nearest applicable I-Frame).</p>	<p>200 Command OK</p>

FUNCTION	COMMAND	DETAILS	ASCII RESPONSE
Bump REV	MPGBUMPREV	"Bumps" the current playback position backwards 10 seconds or to the beginning of the file if within the first 10 seconds (to the nearest applicable I-Frame).	200 Command OK
Jump TC	MPGJUMPTC <HH:MM:SS:FF>	Sets the current playback position to the nearest applicable I-Frame to the timecode specified.	200 Command OK
Get Free Space	GETDISKFREE <ROOT PATH>	Gets the free space from the specified drive. Ex.: getdiskfree d:\ 232 * 120031477760 102305726464 bytes free	232 <VOLSIZE> <FREE SPACE> bytes free
Delete File	XREMOVE <PATH\ FILENAME>	Delete a file from the hard drive (most applicable to the D:\MPEG directory). Ex.: XREMOVE d:\mpeg\ KOWALSKI.m2t	<ul style="list-style-type: none"> • If successful: 200 Command OK • If unsuccessful: 531 Could not remove requested file
Rename File	XRENAME <ORIG PATH\ FILENAME> <NEW PATH\ FILENAME>	Rename a file on the hard drive. Ex.: XRENAME d:\mpeg\ origname.m2t d:\mpeg\ newname.m2t	<ul style="list-style-type: none"> • If successful: 200 Command OK • If unsuccessful: 534 Rename failed, (Error: nn)

SPECIFICATIONS

In no event shall LEIGHTRONIX be liable for any damages whatsoever resulting from loss of use, data, or profits, whether or not advised of the possibility of damage, and on any theory of liability, arising out of or in connection with the use or performance of the LABvault-HD.

Dimensions	1.75"H x 14"W x 9"D (19"W with rack ears)
Weight, without carton or cables	5 lbs.
Front Panel Display	2x16 character liquid crystal display
Keypad	<p>Six push button keypad</p> <ul style="list-style-type: none"> • Four arrow push buttons provide password-protected front panel status and network configuration • Green check button powers on the unit • Red "X" button powers off the unit
Power Input	Three-position IEC power input with removable power cord
Power Supply	Internal 200W power supply with active P.F.C., which accepts 90-264VAC @ 47-63Hz
Product Safety	<p>Certified and listed as:</p> <ul style="list-style-type: none"> • Audio, Video, and Similar Electronic Apparatus Safety Requirements ANSI/UL 60065, 7th edition • Audio, Video, and Similar Electronic Apparatus Safety Requirements CAN/CSA C22.2 No. 60065:03, 1st edition
Internal Real Time Clock	<p>Type: microprocessor interfaced Reference: crystal controlled, temperature compensated Accuracy: +/- 5 seconds per month</p>
Configuration Storage	<ul style="list-style-type: none"> • Internal battery-backed memory • Data integrity verified • Elements: <ul style="list-style-type: none"> ▶ IP address ▶ Subnet mask ▶ Gateway ▶ User Information
Ethernet Network Host Management	<ul style="list-style-type: none"> • Remote Support: Dial-Up Networking • Network Support Interface: <ul style="list-style-type: none"> ▶ Eight-position, eight-conductor RJ-45 modular jack, 10/100/1000 BASE-T, unshielded twisted pair, Ethernet ▶ Ethernet_II frame type ▶ Protocol: TCP/IP ▶ Services: Telnet, FTP, Web
Firmware	<ul style="list-style-type: none"> • Updateable via Ethernet • Cyclical redundancy check (CRC) verified at time of reprogram
Administrative Web Interface	<ul style="list-style-type: none"> • Password-protected • Provides setup for automatic file transfers to one of the following destinations: <ul style="list-style-type: none"> ▶ LEIGHTRONIX E-HD2 ▶ Any destination with FTP capabilities
Internal Storage	250 GB internal hard drive provides 200 GB of digital media storage

<p>Internal Hardware Encoder (Recorder)/ Decoder (Player)</p>	<p>The LABvault-HD's HD/SD digital video channel operates as either a player or recorder. Initiating playback during recording stops recording and likewise starting recording during playback stops video playback. The LABvault-HD encoder/decoder supports the following:</p> <ul style="list-style-type: none"> • H.264 High Profile video encoding/decoding, HD Level 4 and SD Level 3 • MPEG-1 Layer II audio encoding/decoding • HD (1080i and 720p) and Standard Definition (480i) playback and recording • High Definition <ul style="list-style-type: none"> ○ 1920 x 1080 (29.97 Hz Interlaced, IBP group of pictures [GOP] structure) ○ 1280 x 720 (59.94 Hz progressive, IBBP GOP structure) ➤ Standard Definition: 720 x 480 (29.97 Hz interlaced, IBBP GOP structure) • 4:2:0 chroma subsampling, 8-bit, YCbCr <p>Automatic video and audio multiplexing during recording results in a single MPEG-2 transport stream (.m2t) file containing an H.264 High Profile video stream and MPEG-1 Layer II audio.. The maximum recorded file length allowed by the LABvault-HD is 23 hours, 59 minutes, and 50 seconds.</p> <p>Digital video recording results are based on a combination of the selected recording quality default and the quality of the input source. Video being fed to the encoder must have stable sync. Input signals with copy protection are not recordable.</p> <p>The LABvault-HD encoder can capture HD (1080i and 720p) and Standard Definition (480i) video at one of the following recording qualities:</p> <ul style="list-style-type: none"> • Good: VBR of 3.00-5.00 Mb/s, incoming video signal with a resolution of 1920 x 1080i is recorded at a video resolution of 1440 x 1080i; all other signals recorded at their native resolutions, 192 kb/s audio bit rate, 48 kHz audiosample rate <p>NOTE: This setting is best for reducing file size when recording signals with lower levels of action. The LABvault-HD records the incoming HD 1920 x 1080i video signal at a resolution of 1440 x 1080i while preserving the 16:9 aspect ratio of the video in an anamorphic format.</p> <ul style="list-style-type: none"> • Better: VBR of 4.00-7.00 Mb/s, resolution same as source, 192 kb/s audio bit rate, 48 kHz audiosample rate • Best: VBR of 7.00-9.00 Mb/s, resolution same as source, 224 kb/s audio bit rate, 48 kHz audiosample rate
<p>Digital Video Inputs/ Outputs</p>	<ul style="list-style-type: none"> • Two BNC-F HD/SD-SDI video inputs • Two BNC-F HD/SD-SDI video outputs • Society of Motion Pictures and Television Engineers (SMPTE) standards for inputs/outputs: <ul style="list-style-type: none"> ▶ HD: SMPTE292M ▶ SD: SMPTE259M • Support for embedded audio
<p>Digital and Analog Audio Inputs/Outputs</p>	<ul style="list-style-type: none"> • Digital AES balanced audio connections • Analog balanced audio connections

PRODUCT WARRANTY

LEIGHTRONIX, INC. warrants this digital video LABvault-HD encoder against defective workmanship or materials for a period of five (5) years from the original date of purchase.

During this warranty period, any parts found to be defective will be replaced at no charge. Labor to repair or replace defective parts will also be performed at no charge during the warranty period.

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DECLARATION OF STANDARDS CONFORMITY

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NOTE: This equipment has been tested and found to comply with 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



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