



Sonic Studio HD™

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Installation Guide

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SonicStudio High Density User Guide - Sonic Part Number 800127A (4/99)

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Welcome to SonicStudio HD

Welcome to SonicStudio HD™ from Sonic Studio! SonicStudio HD is the first family of digital audio workstations to be designed from the ground up for DVD-Audio production and High-Density™ Audio mastering.

Each SonicStudio HD system gives you all the tools you need to record, edit, mix and master the highest quality audio for release on Compact Disc™. SonicStudio HD can be upgraded with additional features and functions for full DVD-Audio and DSD (Direct Stream Digital) production.

Audience

This installation guide is provided for audio professionals who intend to use SonicStudio HD as their complete production tool for sound editing and Compact Disc™ or DVD-Audio premastering.

You should be familiar with basic computer terms such as click, drag, highlight, etc. We also assume that you understand the basics of how to maneuver through the Macintosh interface. If not, please review the tutorials provided by Apple Computer.

Related Documents

Please refer to the following for further information:

- SonicStudio HD User Guide
- NoNoise User Guide

How to Reach Technical Support

You will receive software technical support from Sonic Studio for 90 days at no charge. If you wish to continue receiving support or technical assistance, please be sure to purchase a SonicCare technical support contract for your system (a representative will contact you before the 90-day period is up).

Sonic Studios' Customer Support center is available from 9:00 AM - 6:00 PM PST via phone, fax, or email:

Telephone: 763-577-1535

Fax: 763-577-5950

Email: info@sonicstudio.com

Please have the following information before contacting customer support:

- Software version (select the application icon in the Finder and type `COMMAND + I` or look on the CD-ROM label)
- Board Serial Numbers — look on the board for the sticker and write the serial numbers below:

HDSP Processor:

HDSP Plug-In Processor:

Activating the Sonic Keyfile

- 1 Launch the Sonic Keyfile Activator application (located in the same folder as your Sonic application). You will see this dialog:



Figure 1 Sonic Keyfile Activator Dialog

- 2 Type the Activator Code into the Sonic Keyfile Activator application.
- 3 Click the OK button. Your keyfiles will automatically be installed in a Sonic Preferences folder inside your Macintosh System Folder.
- 4 You may now launch SonicStudio HD.

Please feel free to contact Sonic Studios' Customer Support at 763-577-1535 with any questions regarding this procedure. Be sure to have your SonicCare number on hand when you call.



keyfile.

Warning! Before you activate your key code, remove from the Sonic Preferences folder (located in the System folder) any existing SonicKey files that you wish to keep. Existing keyfiles will be overwritten by your new

1

HD-1000 Workstation

This chapter describes how to install the hardware for the HDSP Workstation (HD-1000).

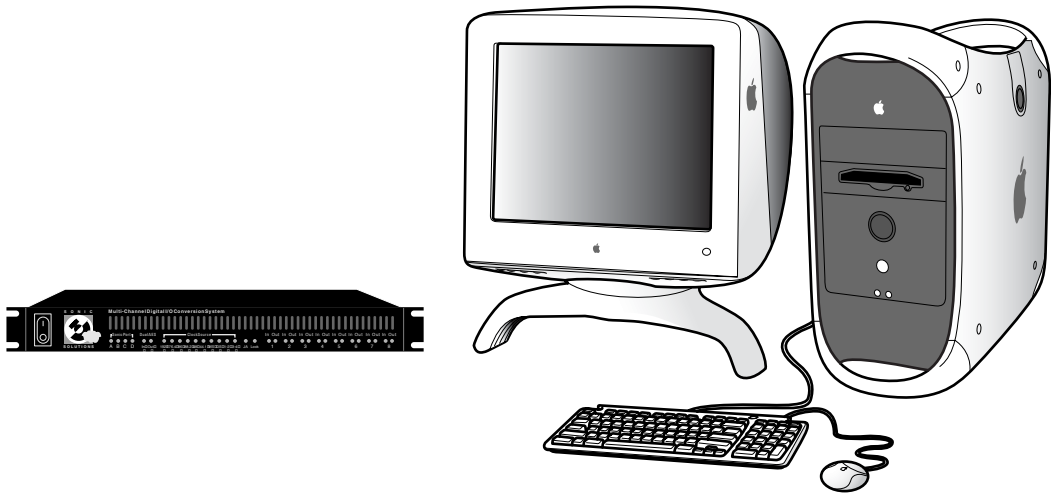
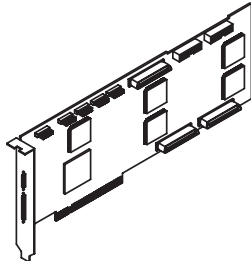


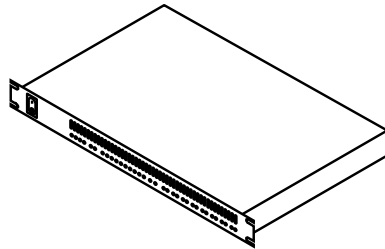
Figure 1-1 The Sonic HDSP Workstation (HD-1000)

What's Included with the HD-1000 Workstations

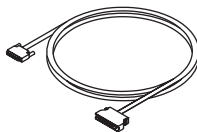
The HD-1000 and HD-2000 Workstations include the following hardware:



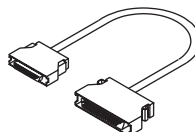
HDSP Audio Processor



Sonic HD3 I/O Box



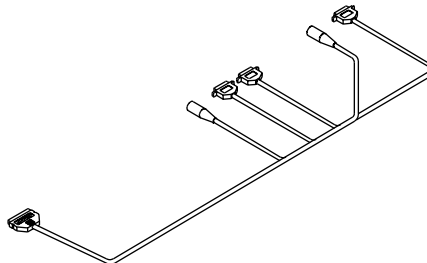
**HDSP Audio I/O
Cable**



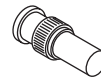
**HDSP Serial
Adapter Cable**



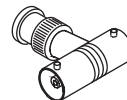
**Sonic I/O
Terminator**



**Serial Machine Control &
Timecode Cable**



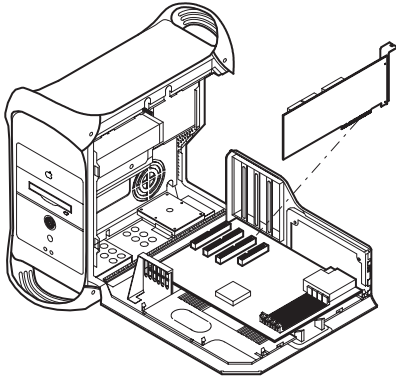
BNC Terminator



BNC Tee

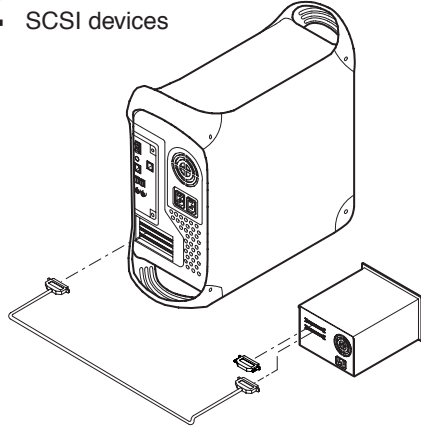
HD-1000 Installation Quickstart

For detailed installation instructions, see "Installing the Hardware" on page 1-5.

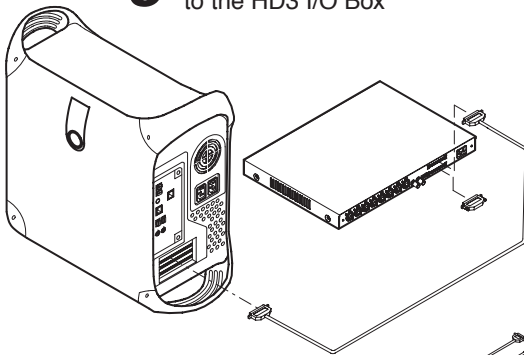


1 Install the HDSP card in the Macintosh

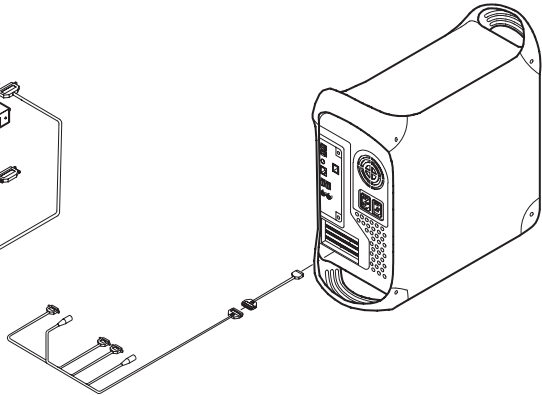
2 Connect external SCSI devices



3 Connect the HDSP to the HD3 I/O Box



4 Connect timecode and machine control



System Requirements

In addition to the hardware supplied by Sonic, you'll need the following components:

Macintosh Computer System

- Power Macintosh G3 or G4 computer
- 128 MB memory minimum (256 MB recommended)
- Mac OS 9.04 or later
- 4 GB internal hard drive (system and applications)
- CD-ROM drive
- 20-inch color monitor
- 24-bit, 1024x768 color graphics card (if not supplied with CPU)
- 18 GB external hard drive (media drive)
- SCSI adapter card



Note: For high clock rate, multi-channel audio, SonicStudio HD requires an ultra-wide SCSI drive and SCSI accelerator card. For the latest information regarding approved devices, visit www.sonic.com.

Peripheral Equipment

- A/D and D/A converters: two to eight channels of 44.1 to 96 kHz, or two channels of 176.4 to 192 kHz (such as the Sonic 888 from Lucid Technology)
- Audio source and monitoring equipment
- Disk image output medium (such as CD-R, Exabyte, Image File or Sony 1630)

Installing the Hardware

This section presents grounding precautions and detailed instructions for installing the HD-1000 Workstation hardware.

Grounding Precautions

To assure safety and protect your system components from damage, please follow these grounding procedures:

- Before making any connections, shut down your Macintosh and any peripheral equipment that is already connected to it. Never connect or disconnect components when the power is on unless you are certain that they are hot-swappable.
- Use only three-pin, grounded AC mains outlets and, if in doubt, test them before using to ascertain that they are properly wired.
- Never use ground-lifting adapters to defeat the earth ground connection; this can result in a hazardous condition.
- Use surge-protected outlets to prevent damage from power surges.
- Where possible, connect all components to the same AC circuit; this will minimize the possibility of ground voltage differentials.
- Handle circuit cards by the edges only, and use the included anti-static wrist band to avoid damaging sensitive components.

Installing the HDSP Card

To install the HDSP card, you will need:

- A #2 Phillips screwdriver
- The Power Macintosh CPU
- The HDSP PCI card

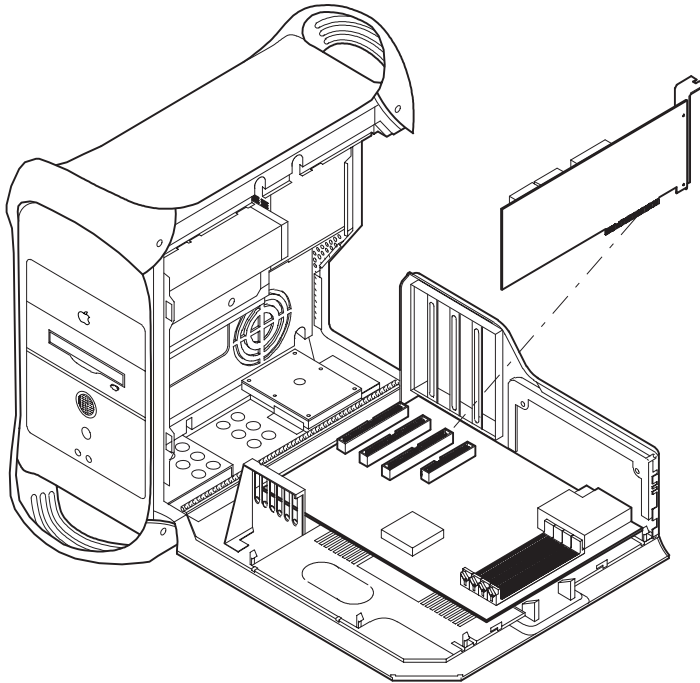


Figure 1-2 Installing PCI Expansion Cards

To install the HDSP card:

- 1** Make certain that the Macintosh power is off. Disconnect the power cord.
- 2** Put on the static protection wrist band and attach the wire to a grounded terminal.

- 3** Open the Macintosh CPU (refer to the instructions that came with your computer) and locate the PCI expansion slots.
- 4** Remove the screw that holds the access cover for the third slot from the hinge in place. Remove the access cover and set it aside.
- 5** Unpack the HDSP card from its static-proof bag. Handle the card by its edges: don't touch the gold connector fingers or on-board components.



Note: If you've not already done so, write down the serial numbers for the HDSP Processor in the space provided on page vi of this manual. You'll need this number if you require technical support.

- 6** Align the card's connector fingers with the PCI slot and press down until the card is seated. Reinstall the screw to hold the card in place.
- 7** Follow steps 4-6 again to install a SCSI accelerator card if SCSI was not included with your CPU (refer to the documentation for the card to determine which slot to use).
- 8** Close the computer. You can now take off the wristband.



Note: Reconnect the Macintosh power cord before continuing the installation. This will ensure that the computer is safely grounded, and thus prevent damage from differing ground potentials or stray electrostatic charges.

SCSI Bus Connections

SonicStudio uses the SCSI (Small Computer System Interface) bus to communicate with peripheral devices such as media drives, CD-R or DVD-R units, and digital tape drives. SCSI devices are connected in a daisy-chain fashion, with the bus connections looping through each successive device. SCSI peripherals typically have two SCSI connectors, and either connector can serve as input or output.

Three simple rules govern SCSI bus connections:

- The total physical bus length must not exceed six meters (or less for Fast, Wide and Ultra SCSI implementations; check the documentation for your SCSI interface for further information).
- The devices at each end of the bus must be terminated to prevent signal reflections that can corrupt data.
- Each device in the chain (including the computer's SCSI port) must be assigned a unique address.

Additional constraints apply when mixing narrow (8-bit) and wide (16-bit) devices on the bus. Before making SCSI bus connections, review the documentation for each peripheral device, the Macintosh and, if applicable, the PCI SCSI card to familiarize yourself with how they should be connected.



Tip: For the latest information regarding SCSI connections, check the Sonic website at www.sonic.com. Additional information about SCSI connections may be found at the web site of the SCSI Trade Association, www.scsita.org.

To connect SCSI peripherals, you will need:

- The peripheral devices
- SCSI cables (normally supplied with the device)
- A SCSI terminator (also often supplied with the device)
- The Power Macintosh CPU

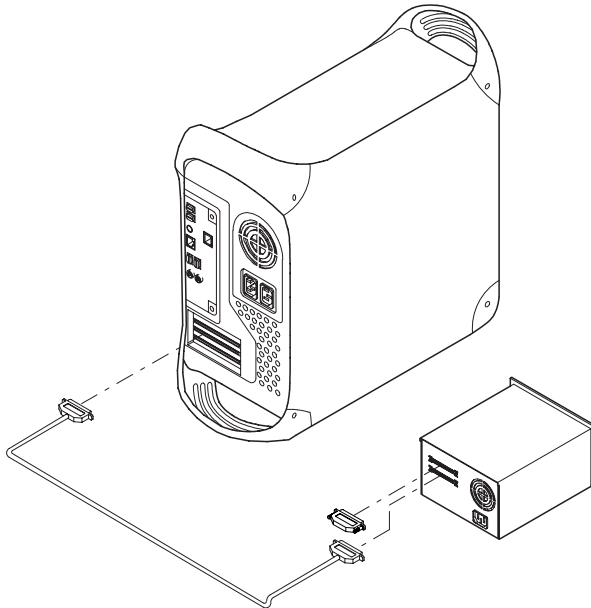


Figure 1-3 Connecting External SCSI Devices

To connect external SCSI devices:

- 1** Check to see that the Macintosh is plugged in and turned off.
- 2** Connect the power cords of each peripheral. This will assure that they are grounded. Do not turn any of the peripherals on.
- 3** Assign each device a unique address, making certain that none conflicts with the computer's SCSI port.

- 4** Using the supplied cable, connect the Macintosh SCSI port to a peripheral device. If you are connecting only a single peripheral, attach the SCSI terminator to the device's other SCSI port.
- 5** If you are connecting several peripherals, use the supplied SCSI cables to loop from one to another. Attach the terminator to the last device in the chain.

Connecting the Sonic HD3 I/O Box

The HD3 connects to the HD-1000 Workstation using the Sonic I/O bus. Similar to SCSI, the Sonic I/O bus requires that devices on the bus have unique addresses, and the bus must be terminated.

To connect the HD3, you will need:

- The HD3
- The Power Macintosh CPU
- The HDSP Audio I/O Cable
- The Sonic I/O Terminator

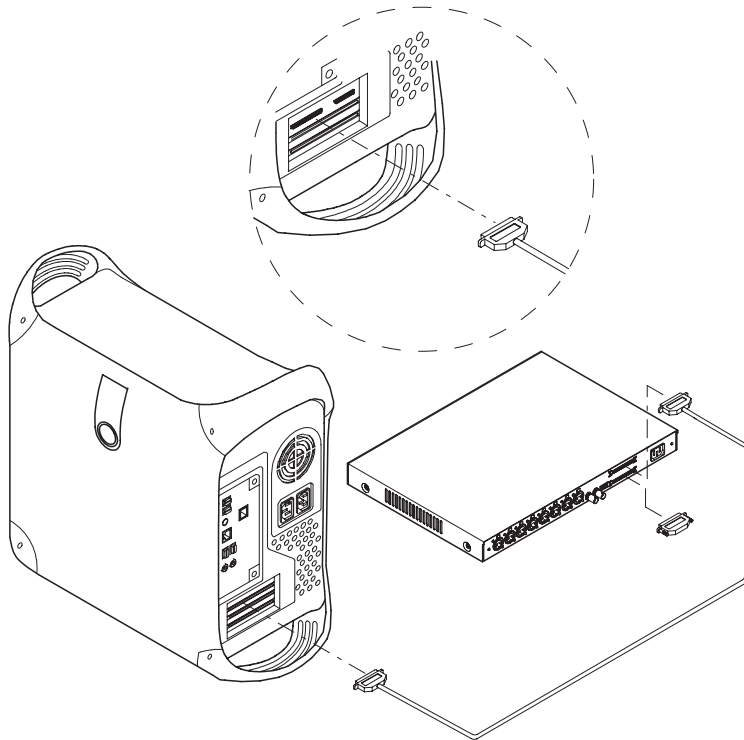


Figure 1-4 Connecting the Sonic HD3

To connect the HD3:

- 1** Connect the HD3 power cable to a grounded outlet. Do not turn it on.
- 2** Attach the smaller connector of the HDSP Audio I/O Cable to the corresponding connector on the HDSP card.
- 3** Attach the other end of the Audio I/O cable to either Sonic I/O port on the rear panel of the HD3.
- 4** Attach the terminator to the unused Sonic I/O port on the rear panel of the HD3.



Note: For connections between the HD3 and external devices, see "Connections" on page 7.

Connecting Timecode & Machine Control

Both the HD-1000 and the HD-2000 Workstations read and generate timecode in the SMPTE and EBU formats. Each also has the capability to control external audio and video transports. Connections to enable these features are made using the Machine Control & Timecode Cable.

To connect machine control and timecode, you will need:

- The Macintosh CPU
- The HDSP Serial Adapter Cable
- The Machine Control & Timecode Cable
- Compatible audio and/or video transports

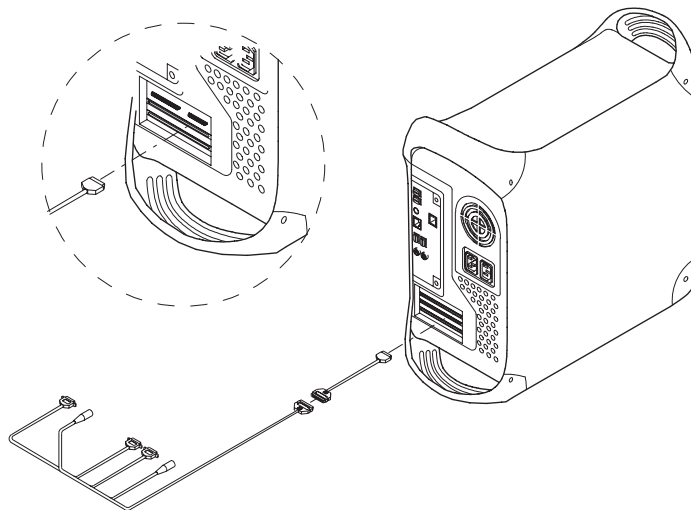


Figure 1-5 Connecting Timecode and Machine Control

To connect timecode and machine control:

- 1** Attach the smaller connector of the Serial Adapter Cable to the corresponding connector on the HDSP card.

- 2** Connect the other end of the Serial Adapter Cable to the corresponding connector on the Machine Control & Timecode Cable.
- 3** Connect the XLR-type timecode input and output connectors to your external device.
- 4** Connect the nine-pin D-sub mini connectors to the machine control inputs of suitable and compatible transports.



Note: In Compact Disc mastering applications, the timecode cables also read and generate PQ subcode bursts.

2

Software Installation/Drive Setup

Installing Your Software

All SonicStudio HD Workstations include SonicStudio HD software for editing, assembling and mastering High-Density Audio.

To install the software:

- 1** Load the Sonic CD-ROM in the Macintosh CD-ROM drive.
- 2** Double-click the Installer icon.
- 3** Select a drive (normally, the startup drive) and click OK.
- 4** Follow the directions given by the installer.
- 5** Restart the computer.



Note: Before using your software, you must activate your Sonic Keyfile. See *Activating the Sonic Keyfile* on page vii.

Formatting a Sound Storage Drive



SonicStudio HD supports a wide variety of SCSI peripherals. Previously-qualified hard disks used with SonicStudio USP/SSP systems, that maintain a data-rate of 3.75 MB or higher, should work with SonicStudio HD. Drives with lower data-rates may also be operable with SonicStudio HD, however the data bandwidth may significantly reduce the number of disc channels available.

Sonic recommends that the HDSP Workstation be configured with Seagate Cheetah drives (ST118202LW).

See your Apple documentation for details on formatting and maintaining HFS and HFS+ formatted volumes.

Formatting a Sonic Media Drive

SonicStudio HD supports Lightspeed for recording, but disk performance varies between Lightspeed and HFS. For maximum throughput to accommodate High Density Audio™, record to an HFS-formatted hard drive. We also recommend that you back up to an HFS volume any Project and EDL files that are stored on a Lightspeed volume.



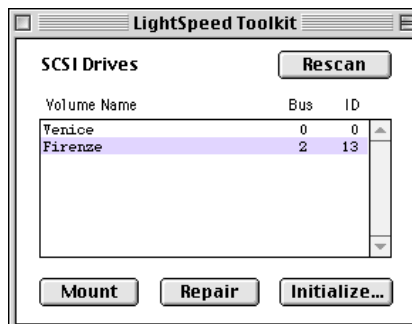
Note: Lightspeed is not recommended for use with SonicStudio HD except for transferring files from a MOFS volume to HFS or HFS+.



Note: Sherlock does not support Find File operations on Lightspeed volumes.

To initialize a Sonic Media Drive:

- 1 Format the drive using Apple Computer's Hard Disk Setup.
- 2 Double-click the LightSpeed Toolkit icon to launch it.
- 3 When the application has launched, you should see this window:



Highlight the drive that you wish to format, then click **Initialize**. You should see this window:



- 4 Enter a name for the new media volume and click **Initialize**.



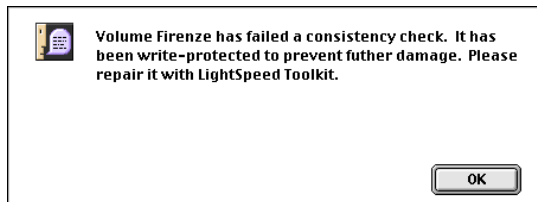
Caution! This will erase all data on the disk.

When formatting is completed, the Sonic Lightspeed volume icon will appear on the desktop:



Repairing a Lightspeed Media Drive

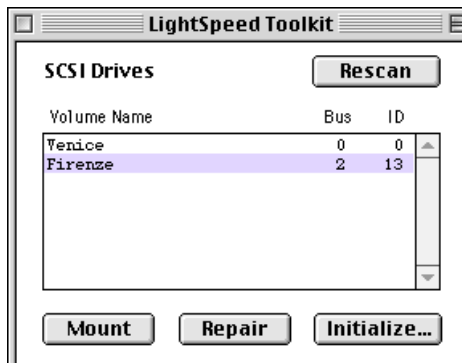
LightSpeed performs consistency checks whenever a drive is to be mounted on the desktop. If the consistency check fails, a message displays in the Finder:



Whenever you see this alert, you should immediately repair the Media Drive using LightSpeed Toolkit so as to maintain the integrity of your data.

To repair a media drive:

- 1 Click **OK** to dismiss the alert box.
- 2 Launch LightSpeed Toolkit. You will see this window:



- 3 Highlight the drive that generated the alert and click **Repair**.

Lightspeed Toolkit will begin scanning and repairing the drive. While the repair is in process, you will see a status bar indicating progress:



When the repair is completed, the Lightspeed volume icon will reappear on the desktop.

3

The Sonic HD3 I/O Box

This chapter describes the physical and electrical characteristics of the Sonic High-Density Audio™ Digital I/O Conversion System (HD3).

Overview of the HD3

The HD3 is an input/output box for connecting SonicStudio to external digital audio devices.

Housed in a single-space rack-mountable chassis, the HD3 accommodates up to eight channels of 24-bit digital audio at standard clock speeds ranging from 44.1 kHz to 96 kHz, or two channels at 192 kHz. It features sub-nano-second sample reclocking and jitter annulment for ultra-stable signal transmission, and supports digital audio signal connections in all current High-Density Audio formats — AES/EBU, double-speed AES, dual-wire AES and quad-speed AES.

The number of available channels in SonicStudio HD is affected by the sample bit rate at which you choose to work. If you are working at 44.1 or 48 kHz, two HD3s can be cascaded on a single HDSP card to provide up to sixteen channels of 24-bit digital audio. For High-Density Audio, SonicStudio HD accommodates up to three HDSP Processors — each connected to a single HD3 — for twenty-four channels of 24-bit, 96 kHz audio.

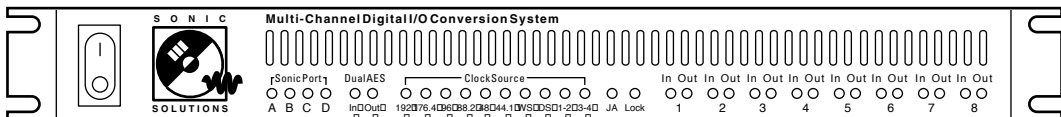


Figure 3-1 The Sonic High-Density Audio™ Digital I/O Conversion System

Safety Information

This table lists important safety information. To assure safe operation, please read and follow these cautions when installing and operating the Sonic HD3.

Name	Description
Power Source	The Sonic HD3 is intended to operate from a power source that does not apply more than 250V rms between the power supply conductors or between either power supply conductor and ground. A protective ground connection, by way of the grounding conductor in the power cord, is essential for safe operation.
Grounding	The chassis of the Sonic HD3 is grounded through the grounding conductor of the power cord. To avoid electric shock, plug the power cord into a properly wired receptacle before making any connections to the product. A protective ground connection, by way of the grounding conductor in the power cord, is essential for safe operation.
Danger from loss of ground	If the protective ground connection is lost, all accessible conductive parts, including knobs and controls that may appear to be insulated, can cause an electric shock.
Proper Power Cord	Use only the power cord and connector specified for the product and your operating locale. Use only a cord that is in good condition.

Name	Description
Operating Location	Do not operate the equipment under any of the following conditions: explosive atmospheres, in wet locations, in inclement weather, using improper or unknown AC mains voltages, using improper fuses.
Stay out of the box	To avoid personal injury or possibly fatal shocks, always keep all covers and panels on the equipment. Always operate the product with the covers and panels properly installed.
User-serviceable parts	There are no user-serviceable parts inside the Sonic HD3. In case of failure, contact Sonic customer support.

Front-Panel Indicators

The HD3 front panel incorporates a number of LED indicators that display input and output signal status.

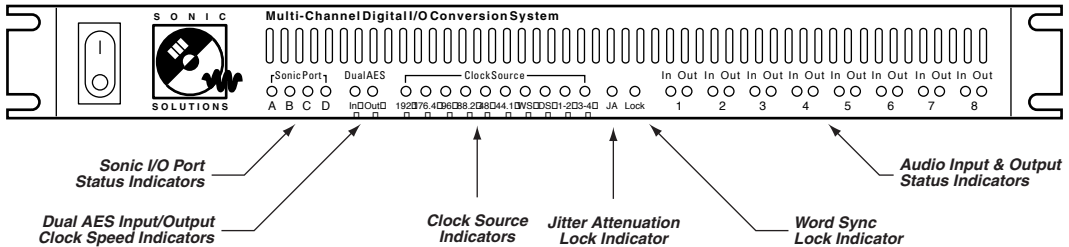


Figure 3-2 The HD3 Front Panel

- Sonic I/O Port** — This set of four indicators displays which SonicStudio I/O port is selected. The LED corresponding to the active port glows green; if all four LEDs are off, the HD3 is disabled. Port **A** is the default, **B** is optional and the other two are not currently supported.
- Dual AES Input & Output** — These two LEDs indicate the input and output AES clock speed. The indicator glows green if you are using 1x AES, and is off if you are using double-speed.
- Clock Source** — The indicator which is lit denotes the source from which digital clock is derived. If the indicated clock source is not the master, then the **DS** (digital sync) indicator will light. The last two LEDs at the right glow green for channels 1-2/3-4 and amber for 5-6/7-8.
- JA** — When the jitter attenuation circuit is locked to the clock source, this indicator glows green. If it is red, the circuit is not locked and audio outputs will mute.
- Word Sync Lock** — This indicator glows green if the HD3 is locked to an input word sync signal, and amber if it is not locked. If there is no signal at the word sync input, the indicator is off.
- Audio In & Out Status** — For each individual audio channel, a pair of LEDs indicates signal status. When the indicator is green, signal is present. Intensity corresponds to signal level; red indicates clipping.

Rear-Panel Switches & Connectors

The HD3 rear panel incorporates provisions for connecting it to SonicStudio and additional converters, assigning it a unique address on the Sonic bus, and making both digital audio and word sync connections.

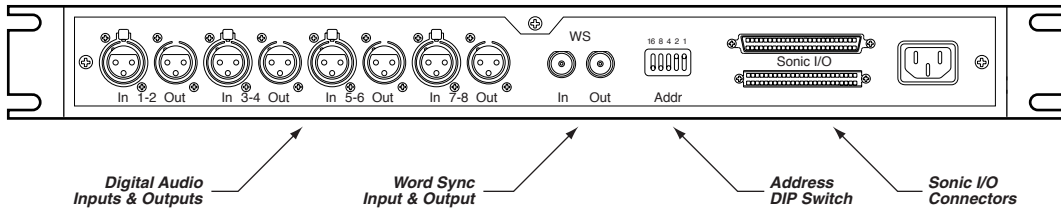
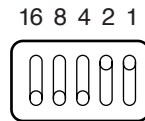


Figure 3-3 The HD3 Rear Panel

- **Digital Audio In & Out** — These balanced, XLR-style connectors conform to the AES/EBU standard (pin 3 hot).
- **Word Sync In** — This BNC-type connector accepts word sync from an external generator.
- **Word Sync Out** — You can use this BNC-type output to deliver word sync from the HD3's system clock to external devices. Do not daisy-chain word sync from this connector to other Sonic I/O boxes.
- **Address DIP Switch** — Each converter on the Sonic bus must have a unique address between 1 and 31, and the address of the HD3 is set using these switches. For example, to set the address to **3**, the switches should be as shown here:



Do not use ID 0 (all switches down); it is reserved for the HDSP card.

- **Sonic I/O** — These 68-pin connectors are used to connect the HD3 to SonicStudio or to other converter boxes. The last box in the chain must be properly terminated.

Connections

This section describes connections between the HD3 and external devices, including digital audio inputs/outputs and word sync sources.

Digital Audio Inputs & Outputs

The table below summarizes cable and speed configurations for the audio input and output formats that the HD3 accommodates:

Clock Frequency	Channels per Cable	Number of Cables	Speed	Name
44.1 kHz	2	1	1x	AES/EBU
96 kHz	2	1	2x	Double-Speed AES
96 kHz	1	2	1x	Dual-Wire AES
192 kHz	1	2	2x	Double-Speed/Dual-Wire
192 kHz	0.5	4	1x	Quad-Wire AES

The figures on the next page illustrate the assignments of input and output connectors for AES/EBU or double-speed AES connections, and dual-wire AES connections, respectively.

For detailed information on wiring cables and connectors, see Appendix A, "Connector Wiring."

AES/EBU OR DOUBLE-SPEED AES CONNECTIONS

The HD3 supports up to eight input and output channels in AES/EBU or double-speed AES mode.

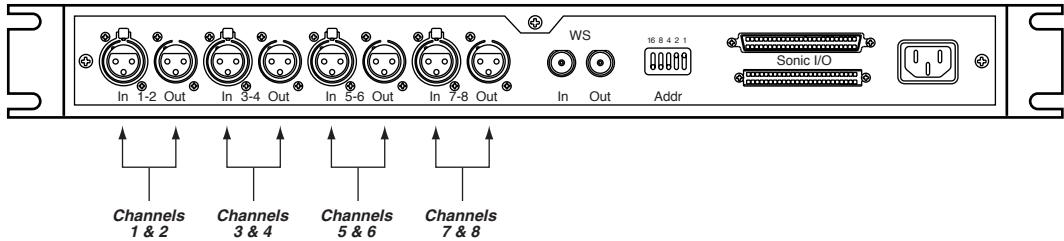


Figure 3-4 AES/EBU or Double-Speed AES Channel Assignments

DUAL-WIRE AES CONNECTIONS

The HD3 supports up to four input and output channels in dual-wire AES mode.

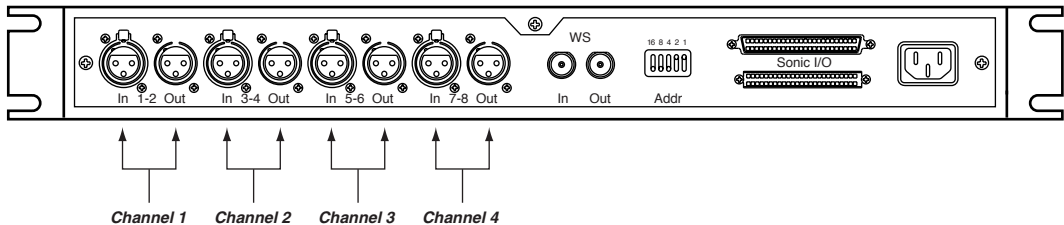


Figure 3-5 Dual-Wire AES Channel Assignments

Word Sync

You can connect an external word sync generator to the HD3 **WS In** using a standard BNC-BNC cable. The HD3 can also deliver word sync from its internal system clock to other devices through its **WS Out** connector.

To loop input word sync between multiple I/O boxes, use the BNC tee included with the HD3. The last unit in the word sync chain must be terminated. To do so, use the BNC tee and attach the terminator (included with the HD3) as shown in Figure 3-6.

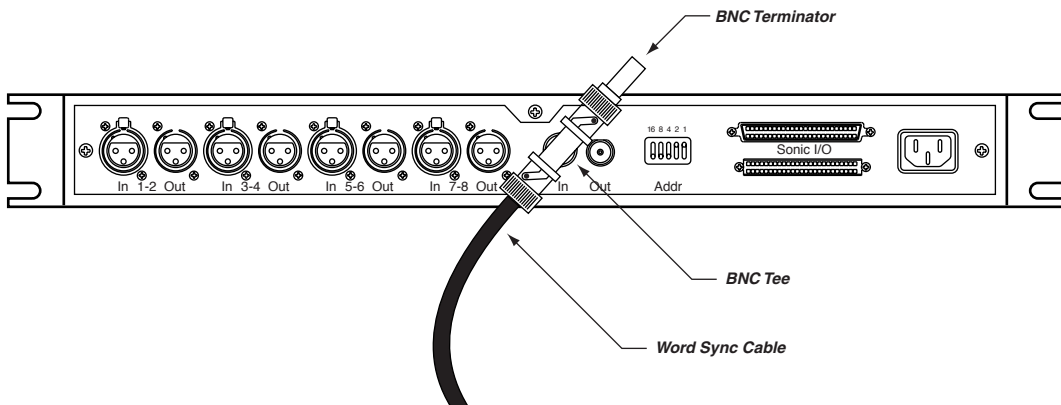


Figure 3-6 Installation of BNC Terminator on Word Sync Input

Multi-Channel Expansion

The method for multi-channel expansion of your SonicStudio HD system depends upon the clock speed for the audio streams that you wish to accommodate.

If you are working only in 44.1 or 48 kHz, you can cascade a second HD I/O from the first one using a Sonic 68-pin connector cable (included) between the devices' Sonic I/O ports. Attach a 68-pin terminator (included) to the second device's open Sonic I/O port.

If you are working in High-Density Audio (clock speeds of 88.2 kHz or higher), you are limited to one HD3 per HDSP card. This means that HD-1000 or HD-2000 Workstation owners who desire additional High-Density Audio channels must purchase and install an Expansion Chassis. To add channels to your system, install one or more additional HDSP cards in the Expansion Chassis and connect each HD3 separately to them using the cable provided.

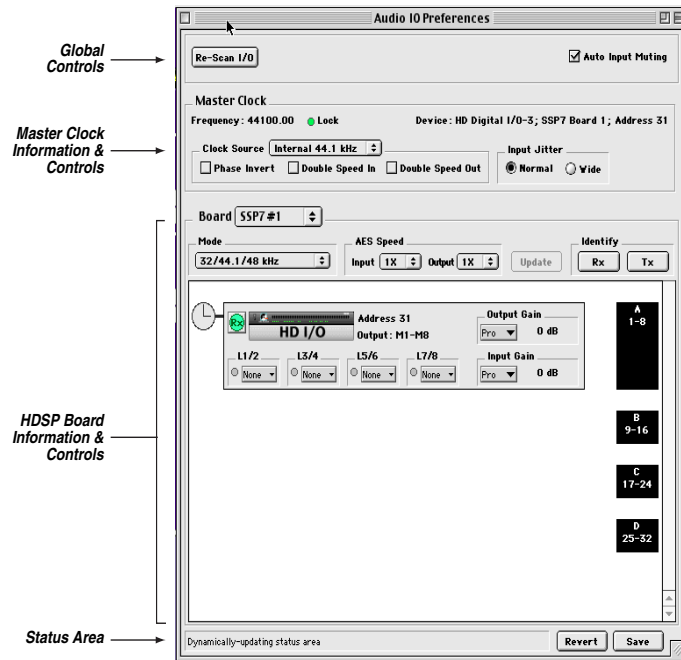
Configuring the System

Once the HD3 is connected, SonicStudio must be configured to work with it. The Audio I/O Preferences dialog sets the configuration of SonicStudio's digital inputs and outputs.

To set digital inputs and outputs:

- 1 Select an audio source to verify proper operation. Make sure that the device has power and is supplying a signal to the HD3.
- 2 Select a pair of outputs from the HD3 and connect them to a monitoring system.
- 3 Launch SonicStudio HD and choose **File > Preferences > Audio I/O...**

The **Audio I/O Preferences** dialog will appear:



This dialog controls the physical connections of the system. If necessary, use the **Board** pop-up menu to select the correct HDSP card. The HD3 I/O Box appears as an icon labeled HD3.

Global Controls

At the top of the window is an area with two global controls.

Rescan I/O — Click on this button to scan the Sonic I/O bus for converters.

Auto Input Muting — When this box is checked, SonicStudio mutes digital inputs that show bad parity or non-synchronous clock.

Setting the Master Clock Source

Digital audio systems require a master clock that is common to all devices in the system. SonicStudio derives its clock from any of several sources and will not function properly without a valid clock.

To configure the Master Clock:

- 1** The **Master Clock** icon appears in the converter window "docked" to the device that is the designated clock source. If it is not docked to the HD3, click-hold on the clock icon and drag it onto the HD3.
- 2** Click-hold on the **Clock Source** pop-up and drag to select a master clock source (Word Sync, Internal or Digital Input).
- 3** Select **Double Speed In** if your clock source is 98 kHz word sync. Select **Double Speed Out** if you want SonicStudio to generate 96 kHz word sync.

If you find that SonicStudio is unable to sync with the selected clock, the source may be jittery or unstable. Selecting **Wide Input Jitter** can sometimes solve this problem.

Similarly, you may need to select **Phase Invert** in order to sync properly with some word sync source devices.

If the Master Clock settings you have chosen are valid for the HD3, the clock icon will appear with a black border and hands. If the settings are not valid, the icon will appear with a flashing red border and hands; check the status area at the bottom of the window for an indication of error status.

Configuring the HDSP Board

- 1** Click-hold on the board **Mode** pop-up and drag to select the DSP mode for the HDSP board.
- 2** Select **2x AES Speed Input** if you are feeding your SonicStudio Workstation from a 96 kHz double-speed AES source.
- 3** Select **2x AES Speed Output** if you want your SonicStudio Workstation to send a 96 kHz double-speed AES signal.

You can use the **Identify** buttons to distinguish which converter box(es) the HDSP board is addressing:

- When you click on **Rx**, the indicators on all boxes providing input to the selected HDSP board will flash for two seconds.
- When you click on **Tx**, the indicators on all boxes providing output from the selected HDSP board will flash for two seconds.

To flash the converter indicators continuously, place the cursor over the Input Status Strip on the right hand side of the converter display box after clicking either **Rx** or **Tx**.

The HD3 Converter Display

Each converter connected to the selected HDSP board is represented by a horizontal bar in the converter window. The available configuration options will vary depending upon the specific converter. These instructions apply to the HD3 I/O Box.



Figure 3-7 The HD3 Audio I/O Panel



L1/2 – L7/8 — These pop-ups control the status of the HD3 I/O Box digital audio inputs. To enable an input pair, click-hold on its pop-up and select **AES**. To disable an input pair, select **None**.

Viewing & Editing the Channel Status

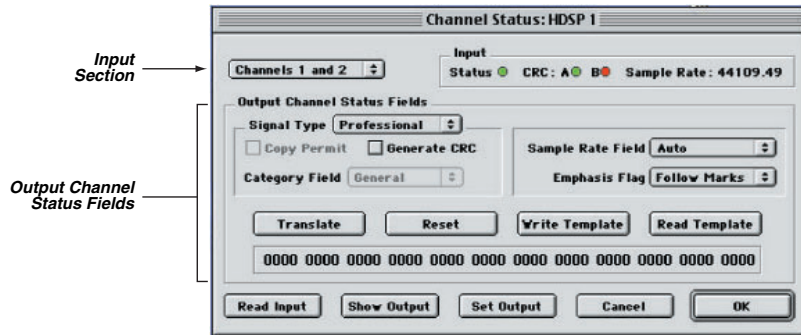
The **Channel Status** dialog allows you to:

- Read the channel status settings of incoming digital audio signals
- View and edit the hexadecimal status bits for output channels
- Read and write template files that store status bit settings

To view the audio Channel Status dialog:

In the HD3 converter bar, -click on the signal status LED for the channel pair that you wish to edit. You can also -click on the HD3 icon to open the Channel Status dialog for the first channel pair.

The following dialog appears:



INPUT SECTION

The input section displays the status of the input signal for the currently selected channel pair. Channel pairs are selected using the pop-up box in the upper left corner of the dialog box.

Input Status — This indicator has five color states. Green indicates that the input is enabled and a valid, synchronous signal is present. Red indicates that the input signal is invalid or not synchronized to the Master Clock. Red crossed out indicates that the input signal is not locked and the input is muted. Yellow indicates that the input is enabled but no signal is present. Gray means that the input is disabled.

CRC — CRC stands for Cyclic Redundancy Check, a method for detecting errors in a digital audio signal. CRC errors may arise from data corruption or lack of synchronization between the source and receiver. The **CRC A** indicator is for channel 1 of the AES input pair, and **CRC B** is for channel 2. Green indicates a valid input signal, red indicates CRC errors and gray indicates a lack of CRC signal.

OUTPUT STATUS FIELDS

Signal Type — **Professional** is AES/EBU (XLR connector), **Consumer** is S/PDIF (RCA-type connector, not available with the HD3) and **Hex** indicates that only the hexadecimal status bits shown in the display will apply to the output.

Generate CRC — (AES/EBU only) When this item is checked, Cyclic Redundancy Check bits will be generated on the currently selected channel pair.

Copy Permit — (S/PDIF only) When this item is checked, the copy prohibit flag will be set on the currently selected outputs, preventing consumer devices that sense this flag from recording the signal.

Sample Rate — Select **Auto** to slave the outputs to your Master Clock sampling rate. You may also choose **32, 44.1 or 48 kHz**.

Category — (S/PDIF only) Select **General, PCM, CD or DAT**.

Emphasis — This item controls setting of the emphasis flag. Select **On** when playing an EDL to which you have applied the emphasis filter, or **Off** if you do not use emphasis. **Follow Marks** is used for background dumps of EDLs containing start-of-track marks with Emphasis checked.

Hexadecimal Status Bits — Output status items are encoded in designated bits of the channel status block. Refer to the *SonicStudio User Guide* for a list of status bit values and their meanings.

The **Reset** button reverts from any changes made to the status bits. The **Translate** button applies the readout values to the channel status fields. You can also store and retrieve status field settings using the **Read Template** and **Write Template** buttons.

To display the channels status of the input signal, click the **Read Input** button. To display the channels status of the output signal, click the **Read Output** button. The **Set Output** button applies status bit changes to the

current output channel, and the **Cancel** button closes the Channel Status Dialog without applying any changes. To apply changes and close the dialog, click **OK**.

A

Connector Wiring

This section provides detailed information on wiring input and output audio cables and connectors for the HD3 I/O Box and A-V I/O.

HD3 Connections

When wiring digital audio inputs and outputs, choose a high-quality, shielded, twisted-pair cable with 110 ohm characteristic impedance and a low capacitance-per-foot rating (12–13 pf/ft).

AES/EBU Inputs

The HD3 AES/EBU inputs conform to the AES3 1992 specification. They are transformer-coupled, and present a 110 ohm impedance. Cables for connecting AES/EBU sources to the HD3 should be wired as shown in Figure A-1.

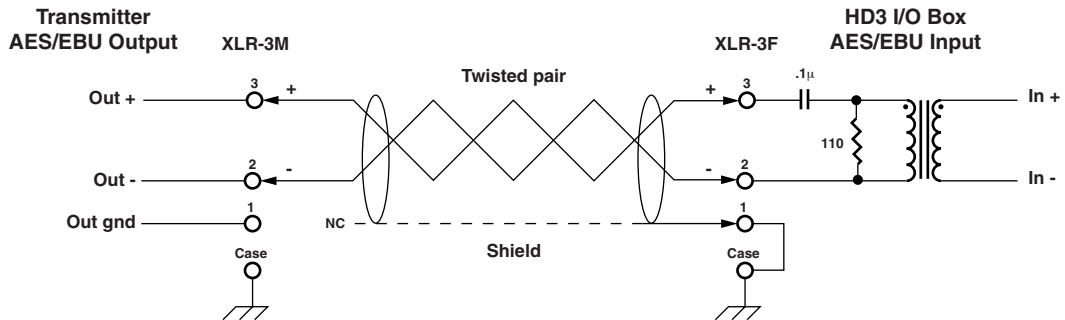


Figure A-1 Connecting AES/EBU Sources to the HD3 I/O Box

Note that the cable shield connects only at the HD3 input connector. This telescoping arrangement preserves the advantages of transformer isolation and eliminates the possibility of ground loops.

AES/EBU Outputs

The HD3 AES/EBU outputs conform to AES3 1985 and 1992, both of which specify a 110-ohm source impedance with transformer coupling. Output connections differ slightly, however, depending upon whether the receiver input is configured for AES3 1985 or AES3 1992: the earlier specification calls for a 250-ohm input impedance, while the later one specifies a 110-ohm input impedance.

When connecting to AES3 1992 inputs, wire the cables and connectors as shown in Figure A-2.

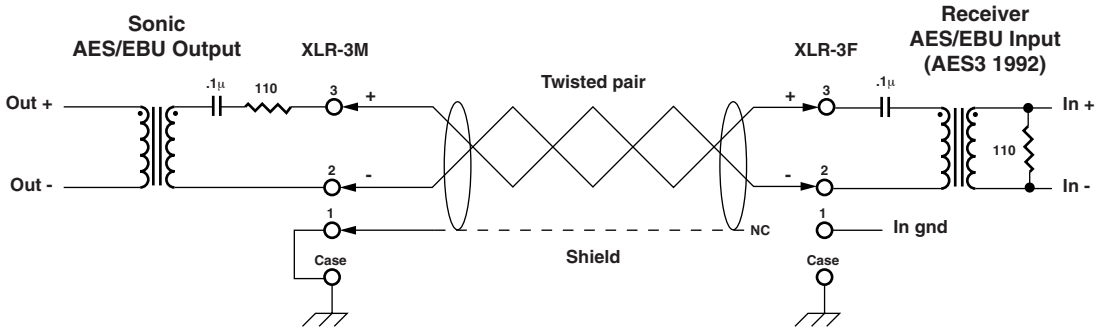


Figure A-2 Connecting to AES3 1992 Inputs

When connecting to AES3 1985 inputs, wire the cables and connectors as shown in Figure A-3.

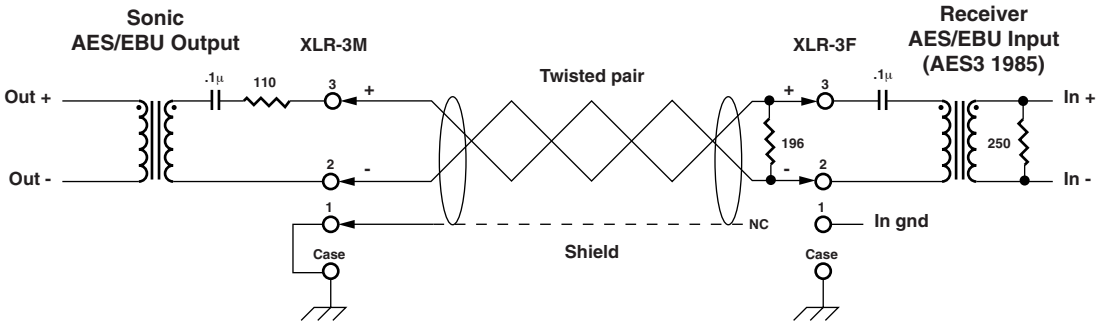


Figure A-3 Connecting to AES3 1985 Inputs

Note the addition of a 196 ohm resistor across pins 2 and 3 of the receiver input. This resistor matches the input's impedance to that of the HD3 output, reducing the likelihood of destructive reflections on the line. It can be installed directly in the XLR connector.

FCC Information



Warning! Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment may generate, use, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

When printed circuit boards are properly installed in a host computer, the computer chassis should provide protection against harmful interference in a typical installation. Rack mount or stand alone units utilize their chassis or housing to provide protection against harmful interference, therefore they should not be opened or operated without their original enclosures.

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 on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- 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 to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.



Note: Shielded data and audio cables should be used with this equipment to ensure compliance with the radio frequency emission limits for this device.

FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Declaration of Conformity

Application of Council Directive(s):	89/336/EEC
Standard(s) to which Conformity is Declared:	EN55022 Class A EN50081-1 EN50082-1 EN61000-4-2(1995) EN61000-4-4(1995) ENV50140(1994) ENV50141(1994)
Manufacturer's Name Sonic Solutions 101 Rowland Way Novato, CA 94945 USA 415-893-8000 Voice 415-893-8008 Fax	European Representative Sonic Europe 21/22 Warwick Street London, UK, W1R 5RB 44.171.437.1100 Voice 44.171.437.1151 Fax
Type of Equipment:	SonicStudio HD Workstations
Product:	Sonic A-V I/O

Declaration of Conformity

Application of Council Directive(s): 89/336/EEC

Standard(s) to which Conformity is Declared: FCC Part 15 Subpart B (emissions)
Industry Canada 1CES-003
EN55103-1 (emissions)
EN55103-2 (immunity)

Manufacturer's Name

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Type of Equipment: SonicStudio HD Workstations

Product: Sonic Audio I/O

Declaration of Conformity

Application of Council Directive(s): 89/336/EEC

Standard(s) to which Conformity is Declared: EN50081-1
EN55022 A (1995)
CISPR22 A (1993)
VCCI-1
EN50082-1 (1997)
EN61000 4-2
EN61000 4-3
ENV50204
EN61000 4-4
EN61000 4-5
EN61000 4-6
EN61000 4-8
EN61000 4-11

Manufacturer's Name

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Product(s):

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SonicStudio HD Workstations

MPEG-2 Encoder
Sonic A-V Processor
Sonic Dolby Digital Encoder
SonicStudio 16:24 Audio Processor
PCI Expansion Chassis
SonicStudio 16:24 FX Background
Processor
SonicStudio HDSP Processor
HD I/O Converter Box
SonicStudio HDSP FX Processor

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