

M-Audio FireWire 1814 - Users Manual

- 1 Introduction**
- 2 What's in the Box**
- 3 About the FireWire 1814**
- 4 FireWire 1814 Features**
- 5 Minimum System Requirements**
 - Windows
 - Mac OS
- 6 Controls and Connectors**
 - Front Panel Diagram
 - Front Panel Descriptions
 - Rear Panel Diagram
 - Rear Panel Descriptions
- 7 Driver Installation**
 - Windows XP
 - Windows 2000
 - Mac OS X
 - Mac OS 9
- 8 Hardware Connections**
 - Audio
 - MIDI
- 9 The Software Control Panel**
 - Global Menu
 - Mixer Page
 - Output Page
 - Hardware Page
 - About Page

10 Using the FireWire 1814

- **Monitoring Live Playback**
- **Using the Headphone Source Selector**
- **Setting Up Your Recording Levels**
- **Monitoring Your Inputs for Recording**
- **General Recording Instructions**
- **Setting the Sample Rate**
- **Adding Effects While Direct Monitoring**
- **Using the Aux Send as a Separate Monitor Mix**
- **Using the Level Controller Assignments**

11 Troubleshooting

12 Contact Us

13 Product Specs

14 Default Mixer and Output Configuration Settings

15 Warranty Terms & Registration

1 Introduction

Thank you for choosing the M-Audio FireWire 1814. The FireWire 1814 has been designed to give you a professional, portable audio and MIDI interface for your laptop or desktop computer. Using the convenience and dependability of the IEEE 1394 (FireWire™) bus, the FireWire 1814 provides your computer with a high-performance, high-resolution multi-channel interface, as well as sixteen channels of MIDI in and out—all in a rugged, lightweight, and highly portable design.

The FireWire 1814 was created with the home or portable studio enthusiast in mind. Two high-quality microphone/instrument preamps, a total of eight analog inputs, plus ADAT Lightpipe and S/PDIF I/O give unprecedented recording and playback capacity that can be configured for your particular setup. Its front-panel headphone outputs boast high efficiency, low distortion amplifiers that deliver the power and volume you need in the studio or on stage. Dedicated level controls for monitors and headphones help you stay on top of your mix no matter what is going on around you. Selectable headphone monitoring sources make the FireWire 1814 a perfect choice for the mobile DJ setup as well.

Even if you're an experienced sound recordist, please take some time to read through this owner's manual and familiarize yourself with the FireWire 1814's features and operation. You may also want to refer to your audio software's documentation to better understand how the FireWire 1814's features may be integrated with the program. Your experience and enjoyment of your FireWire 1814 will be greatly enhanced by a good working knowledge of your audio software.

2 What's in the Box

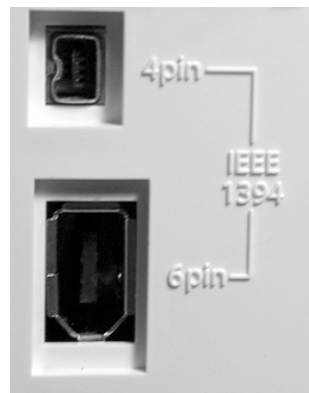
Your FireWire 1814 package contains the following:

- FireWire 1814 mobile recording interface
- Breakout cable for MIDI, coaxial S/PDIF and word clock I/O
- CD-ROM containing driver software and user manual in PDF format
- Printed QuickStart Guide
- CD-ROM containing Reason Adapted™ software
- CD-ROM containing Delta Live 2.1.2™ software
- Pro Sessions Sampler CD-ROM
- 1 meter 6-pin to 6-pin IEEE 1394 (FireWire) cable
- 1 meter 4-pin to 6-pin IEEE 1394 (FireWire) cable
- 2 screws for rack tray mounting
- 12VDC 1000mA power supply

3 About the FireWire 1814

A single IEEE 1394 cable connects the FireWire 1814 to your computer's FireWire port. If your PC is not equipped with a native FireWire port, you may purchase a FireWire PCI card at any computer electronics retailer (On Macs, the FireWire 1814 should only be used with native FireWire ports).

IMPORTANT: The FireWire 1814 comes with both a high quality six-pin to six-pin FireWire cable and a four-pin to six-pin FireWire cable. We strongly suggest that you use one of these cables, or one of equal quality, for optimum audio performance. Your computer is equipped with either a six-pin or a four-pin interface, while the connector on the FireWire 1814 is six-pin. The FireWire 1814 requires a six-pin FireWire connection in order to receive bus power; if your computer has a four-pin connection, you will need to use the supplied power adapter.



(**NOTE:** Some computer manufacturers may use a different nomenclature to refer to their FireWire connections, such as Sony's "iLink," or simply "1394" — when in doubt, consult the owner's manual for your computer.)

IMPORTANT - IEEE 1394 "FireWire" Users :

Reports have come to our attention of isolated **problems when hot-plugging IEEE 1394 (aka "FireWire") devices**. Hot-plugging refers to making 1394/FireWire connections when one or more of the devices is turned on (including the computer).

There are rare occurrences when, after hot-plugging, either the FireWire peripheral or the host computers FireWire port are rendered permanently inoperable. While M-Audio products adhere rigidly to the FireWire industry standard and pass stringent internal testing, the possibility remains that hot-plugging your M-Audio FireWire interface to some computers may result in the this type of problem.

We strongly encourage you to protect your equipment by refraining from hot-plugging any bus-powered FireWire device, including the M-Audio family of FireWire products. Connect your FireWire device while both the computer and FireWire device are powered off. Power on the FireWire device, then turn the

computer on last. If you are using bus power (system with IEEE1394 6-pin connectors) make sure you make the cable connection first, then turn the FireWire device power switch on, and turn the computer system on last.

M-Audio is being proactive in investigating any issues that may adversely affect our customers. **Please consult the Knowledge Base in the Support section at www.m-audio.com for updates on this important issue.**

In case your M-Audio FireWire device is not detected by your computer on startup, try one or more of the following troubleshooting steps instead of hot-plugging it:

1. Turn your M-Audio FireWire device off, wait 30 seconds then power it on.
2. Put your computer into hibernation mode, wait 30 seconds then reactivate it.
3. Restart the computer (don't turn it off) while the M-Audio FireWire device remains connected and powered on.

The FireWire 1814 is equipped with eight analog inputs on unbalanced 1/4" TS jacks and four analog outputs on balanced/unbalanced 1/4" TRS jacks. Optical TOSLink connectors are capable of handling 8-channel ADAT Lightpipe format signals, 4-channel S/MUX signals, or 2-channel PCM signals. 2 channels of PCM S/PDIF are also available on coaxial connectors. That makes the FireWire 1814 a sixteen-input, twelve-output audio interface capable of high-quality analog and digital I/O in full 24-bit resolution, at sampling rates up to 192kHz for recording and playback. The S/PDIF digital output also supports pass-through of AC-3 and DTS encoded multi-channel digital audio (Windows and Mac OS X 10.3 only). Two standard MIDI connectors also give you sixteen channels of MIDI I/O, while word clock I/O on standard BNC connectors gives you additional synchronization options for your digital audio transfers.

NOTE: Only analog inputs 1 & 2 provide 192kHz recording. All other inputs are capable of 96kHz recording. All analog outputs will play back up to 192kHz sampling rate. Digital PCM audio over coaxial S/PDIF I/O can record and playback at up to 96kHz sampling rate. Digital PCM audio over optical S/PDIF I/O can record and playback at up to 48kHz sampling rate.

The FireWire 1814's easy-to-use software Control Panel provides you with powerful routing and mixing control, creating a virtual twelve-channel output matrix for your audio software. You can route any combination of inputs to the analog outputs, while each mixer channel supports a virtual aux send for unprecedented flexibility. You can take advantage of ultra-low latency software monitoring with built-in ASIO drivers, and near-zero-latency direct hardware monitoring.

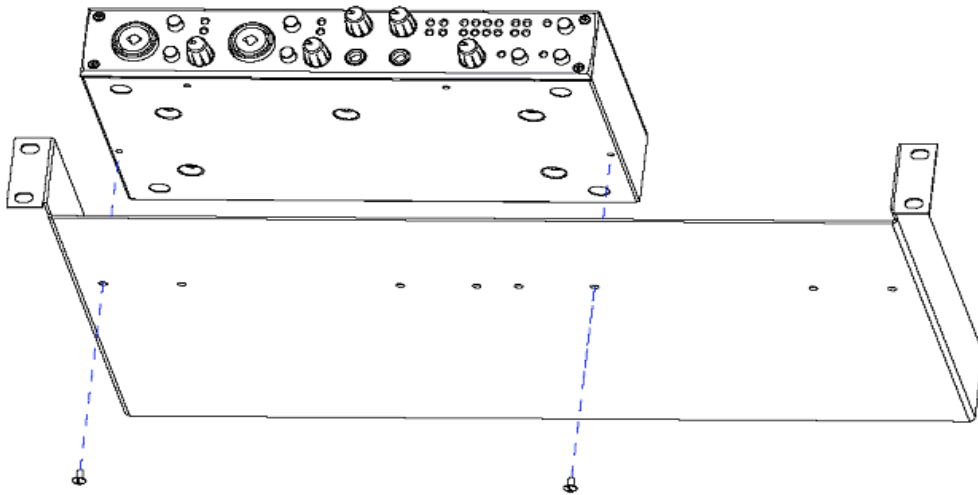
Alternative to the ADAT capabilities, the optical input and output can also be configured individually as S/PDIF ports via your software Control Panel. This allows you to customize your FireWire 1814 specifically for the devices that you will be connecting to it. The available channels in your mixer respond to the setup you have chosen, adjusting from the simplest setup to the most complex.

Two headphone outputs are provided on the front panel with dedicated rotary level controls. The front panel A/B selector switch is designed to give you control over your input monitoring, or give you immediate access to selectable stereo monitor sources—you make the choice from the software Control Panel. The main front panel rotary encoder can be assigned via the Control Panel to adjust a variety of software or hardware levels, while the FireWire 1814 can be powered via the FireWire bus for total portability.*

**Bus powered six-pin FireWire connection only. Use the DC power adapter for four-pin FireWire operation.*

Mounting the device to a rack drawer

Holes are located on the left and right of the bottom of the FireWire 1814. You can use the included screws to mount this device to a rack tray as shown below. The FireWire 1814 is mountable on either the left or right side of the drawer. If you choose to mount the device to a rack tray, you must first remove the rubber pads from the base of the unit.



4 FireWire 1814 Features

- 8 unbalanced analog 1/4" TS inputs
- 4 balanced/unbalanced analog 1/4" TRS outputs
- 1 x 1 ADAT Optical Lightpipe I/O; ADAT Optical is S/MUX-compatible for 4-channel 96kHz operation
- 1 x 1 Coaxial or Optical S/PDIF operation. Output signal will be mirrored on both S/PDIF ports
- high-quality mic/instrument preamps on XLR/1/4" Neutrik jacks have individual gain control, signal/clip LEDs and 20dB pad, with global phantom power
- main output Level controller is assignable to various groups of channel faders via the Control Panel
- independent headphone outputs with rotary encoder level controls
- front panel A/B selector switch with status indicator LED; can be assigned as a direct monitor on/off switch (default) or headphone source switch
- versatile mixer/router Control Panel provides near-zero latency hardware direct monitoring
- extremely low-latency hardware/drivers
- MIDI I/O on standard 5-pin DIN connectors
- word clock I/O on standard BNC connectors
- DE15F connector and sturdy breakout cable for word clock, MIDI, and coaxial S/PDIF
- Signal present LED indicators for analog I/O
- Valid data LEDs for optical and coaxial S/PDIF I/O, plus ADAT valid data LEDs
- two 6-pin FireWire ports
- power on/off switch with indicator LED
- frequency response: 192kHz: +/- 1 dB, 22Hz – 80kHz; 96kHz: +/- 0.5 dB, 22Hz – 40kHz; 48kHz: +/- 0.1dB, 22Hz – 22kHz
- Max. SNR and dynamic range (A-weighted): 105dB ADC, 107dB DAC
- THD + N: <0.00301% (-90.5dB)
- analog sampling rates – 44.1kHz to 192kHz for analog input 1/2 and all analog outputs (44.1kHz to 96kHz input on channels 3-8)
- digital sampling rates (kHz) – 44.1, 48, 88.2, and 96 for coaxial S/PDIF in and out, 44.1 and 48 for optical S/PDIF I/O; ADAT I/O is 44.1, 48, or 88.2, 96 in S/MUX mode
- driver support for ASIO 2.0, MME, WDM, GSIF 2.0, Sound Manager, Core Audio and MIDI
- bus-powered* or powered via included DC power adapter

*6-Pin FireWire port required for bus-powered operation. (Note that some 6-Pin PCMCIA cards do not supply power)

5 Minimum System Requirements*

IMPORTANT: The FireWire 1814 is supported under Windows XP and Windows 2000 — it is not supported under Windows 98, 98SE or Windows ME. Also, when running under Windows 2000, you must be running Service Pack 4 (SP4) or later. For Windows XP, you must be running Service Pack 1 (SP1) or later. Visit the Windows update web pages to make certain you have the most current updates and fixes supplied by Microsoft.

On the Mac, the FireWire 1814 is supported under Mac OS 9.2.2, and Mac OS X version 10.2.8 or later. Earlier versions of Mac operating systems are not supported.

Windows:

- Pentium 3 – 800 MHz (higher speed CPU may be necessary for Laptops)
- 256 MB RAM
- DirectX 9.0b or higher
- Windows XP (SP1); Windows 2000 (SP4) or higher (Windows 98, 98SE, Me & NT not supported)

Mac OS:

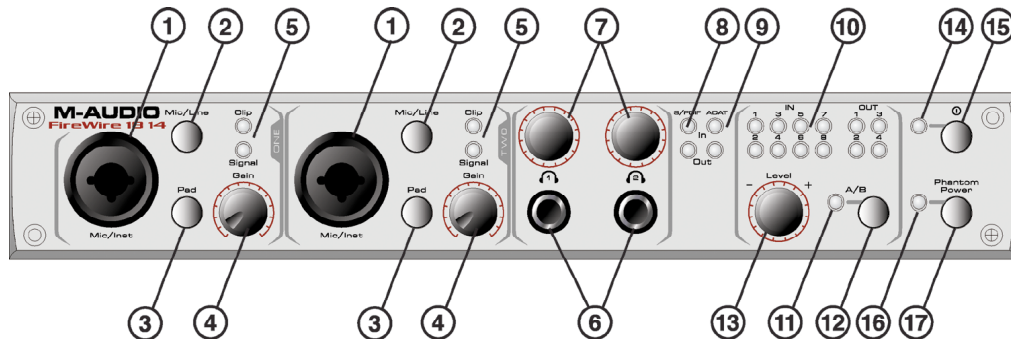
- Macintosh G3** 800 / G4** 733MHz (higher speed may be necessary for Laptops)
- OS 9.2.2 w/ 256MB RAM
- OS X 10.2.8 w/ 256MB RAM
- OS X 10.3 or greater w/ 512MB RAM

* M-Audio suggests that you also check the minimum system requirements for your software, as they may be greater than the above.

** G3/G4 accelerator cards not supported; native FireWire ports required.

6 Controls and Connectors

Front Panel



Front Panel Descriptions

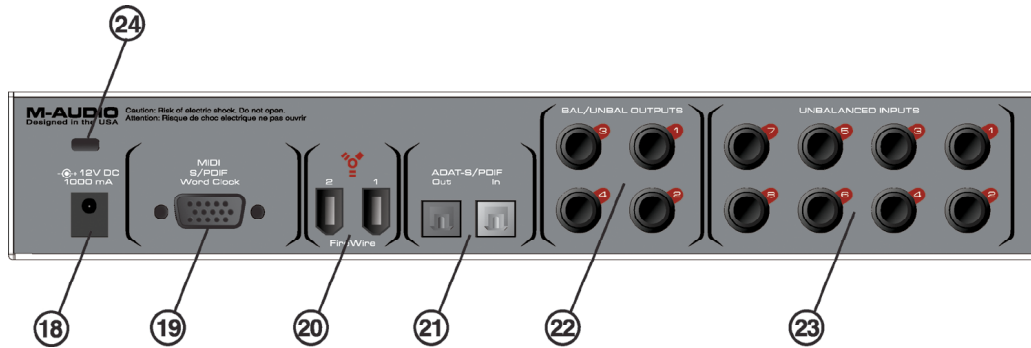
1. **Mic/Inst Inputs** – These Neutrik hybrid connectors will accept a low-impedance mic level signal on a standard three-pin balanced XLR or TRS plug, or a high-impedance instrument level signal on an unbalanced 1/4" TS plug.
2. **Mic/Line Selector** – This switch toggles the unit between the front panel Mic/Inst inputs and the rear panel Line Inputs. Set to the OUT position, the Mic/Inst inputs are selected and active, and the Line Inputs are defeated; Set to the IN position, the Line Inputs are selected and active, and the Mic/Inst Inputs are defeated.
3. **Pad** – With this switch in the IN position, a 20dB pad is inserted into the input circuit, lowering the mic or instrument input level. Use this PAD when the input level of your analog signal is too hot – as indicated by illumination of the CLIP LED – even with the INPUT GAIN LEVEL at or near minimum.
4. **Input Gain Level** – This potentiometer controls the input level of its associated analog Mic/Instrument input. When the Mic/Instrument Input is in use, the variable gain range is >40dB.
5. **Signal and Clip Indicator LEDs** – The Signal LED indicates the presence of an audio signal at the associated Mic/Inst input, and will light when signals reach levels of –30 dB or higher. The Clip LED will light when the signal is 1dB below the clipping point. If the Clip LED lights often or stays lit for any period of time, lower the Input Gain Level on that channel.
6. **Headphone Outputs 1 & 2** – These jacks accept standard 1/4" stereo TRS headphone plugs. Each headphone output has an associated level controller to control listening level. Only headphone output 1 will respond to the A/B source selection, when the A/B selector switch is configured for headphone source selection (see the "Hardware Page" section, "A/B Source Switching" for more information, and also "Using the A/B Selector Switch"). When using at 192kHz sampling rate outputs 1 & 2 are monitored in Headphone 1 while outputs 3 & 4 are monitored in Headphone 2.

7. **Headphone Output Level 1 & 2** – These rotary encoders control the levels of the individual headphone outputs. These controls are independent of output levels.
8. **S/PDIF Input and Output Indicator LEDs** – The green S/PDIF In LED will glow steadily to indicate the presence of a valid S/PDIF signal at the active S/PDIF input. The green S/PDIF Out LED will glow steadily to indicate the presence of a valid S/PDIF signal at the S/PDIF output(s). The active S/PDIF input is selected in the Control Panel, with coaxial S/PDIF being the default selection.

NOTE: When S/PDIF is selected for the digital output port, S/PDIF signals will be sent to both the optical and coaxial outputs.

9. **ADAT Input and Output Indicator LEDs** – The green ADAT In LED will glow steadily to indicate the presence of a valid ADAT signal at the optical input. The green ADAT Out LED will glow steadily to indicate the presence of a valid ADAT signal at the optical output.
10. **Line Input and Output Indicator LEDs** – The green Line Input LEDs will light at -30dB and above. The green Line Output LEDs will light at -60dB and above.
11. **A/B Status Indicator LED** – This LED indicates the currently selected mode of the A/B Switch. LED off = A, and LED on = B. In its default setting, the A/B switch controls Direct Monitoring On/Off, but may be configured as a headphone source switch (see the “Hardware Page” section, “A/B Source Switching” for more information, and also “Using the A/B Selector Switch”).
12. **A/B Selector Switch** – This momentary switch turns Direct Monitoring on and off, and may be used manually or controlled by ASIO Direct Monitoring (see your audio application’s documentation). LED off (A) = DM off, and LED on (B) = DM on. This switch can also be programmed to select the monitor source sent to the headphone outputs, in conjunction with the Headphone Source settings on the **hardware** page of the Control Panel.
13. **Level Controller** – The Level controller is a rotary encoder that is set by default to control the output level of the FireWire 1814’s analog outputs. It can be assigned to any group of **mixer** or **output** faders in the FireWire 1814’s software Control Panel. The available selections are:
 - A. **SW Return Bus** – Levels of **sw rtn** 1-4
 - B. **Output** – Levels of analog **1/2 out**; this is the default selection
 - C. **Input** – Levels of the eight analog, eight ADAT, or L/R S/PDIF digital inputs
 - D. **Aux Send** – Levels of the **L** and **R** virtual Aux Send buses
14. **Power LED** – The Blue Power LED glows steadily when power is applied to the FireWire 1814.
15. **Power Switch** – This push-on, push-off power switch turns the FireWire 1814 on and off.
16. **Phantom Power LED** – The red phantom power indicator LED will light solid when the Phantom Power Switch is in the “in” position, sending phantom power to both XLR mic input channels 1 & 2.
17. **Phantom Power Switch** – This push-on, push-off switch turns the phantom power on and off.

Rear Panel



Rear Panel Descriptions

18. **Power Supply Connector** – Connect the 12VDC 1000mA power supply to this jack when using the FireWire 1814 with a four-pin FireWire connection. Use only the power supply provided with the unit or a power supply of an equivalent quality, with a positive center pin.
19. **MIDI – S/PDIF – Word Clock Connector** – Connect the 15-pin male end of the breakout cable included with your FireWire 1814 to this DE15F female connector. This will provide you with the necessary connections for MIDI (standard 5-pin DIN connectors), coaxial S/PDIF (RCA jacks), and word clock (BNC connectors).
20. **FireWire Connectors** – Dual FireWire (IEEE 1394) ports allow you to connect one to your computer and the other to an external device. We recommend connecting only self-powered devices to these inputs. Bus-powered devices may affect your audio performance.

NOTE: The FireWire 1814 provides two 6-pin FireWire ports for your convenience. One port is used for connection to the host computer. The second port allows other peripheral devices to connect to the host through the FireWire 1814. The FireWire 1814 can receive bus-power from the host computer, but cannot supply bus-power to an additional FireWire device using the secondary FireWire port. You must use a power supply with your secondary FireWire device.

21. **ADAT - S/PDIF Optical In and Out Connectors** – ADAT Optical or S/PDIF digital input and output are provided on optical TosLink connectors. ADAT vs. S/PDIF operation can be controlled from the software Control Panel.
22. **Line Outputs 1–4** – These are balanced/unbalanced analog outputs on 1/4" TRS jacks with signal up to 2.0dBV unbalanced and 8.0dBV (10.2dBu) balanced line level. When two-channel stereo audio, the signal being monitored are routed outputs 1 and 2 by default; any or all analog output pairs may be selected in the FireWire 1814's Control Panel. You may also use the four outputs to send individual or grouped channels to a mixing console.

23. **Line Inputs 1–8** – These are unbalanced analog inputs on 1/4” TS jacks operating at signals up to 2.1dBV line level. Line inputs 1 and 2 are active only when the front panel “Mic/Line” selector switches are set to “Line.”
24. **Kensington® Lock Connector** – This connector is compatible with **Kensington®** security cables to protect your device from theft.

7 Driver Installation

Windows XP & 2000

NOTE: Do NOT connect the FireWire 1814 to your computer before you have run the installer application and shut down your computer. If you are going to use bus power, we recommend that you connect the FireWire cable before turning on the power button.

For the FireWire 1814 to function properly, you need to have installed Service Pack 1 or higher if using Windows XP, or Service Pack 4 if using Windows 2000. To install a Service Pack, please consult <http://www.microsoft.com> for instructions.

Additionally, you'll need Direct X 9.0b or higher. The FireWire 1814 driver installer will detect whether or not you have the proper version of Direct X installed. If you need to upgrade, you will be prompted to do so. DirectX 9.0b can be found on the included driver CD-ROM.

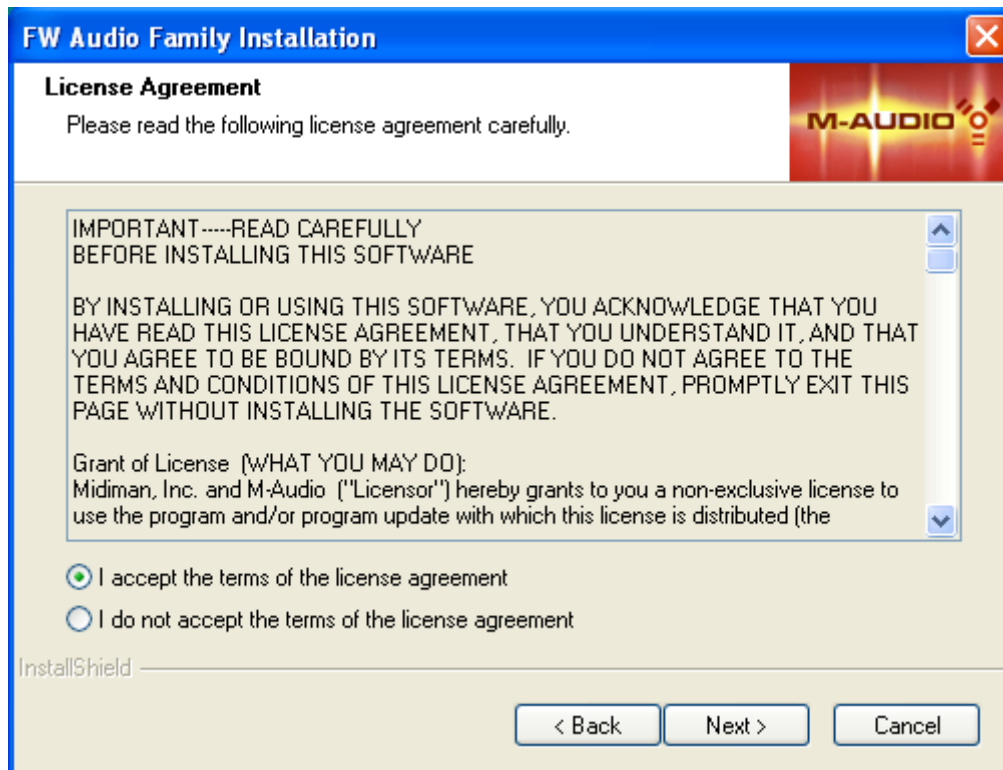
During the course of installation, messages about the Microsoft Digital Signature for the driver will appear. Microsoft tests drivers to ensure they work properly with their operating systems. While driver signing makes installation and operation more streamlined, it is not a necessity for a device to function properly with the operating system. Currently, M-Audio's FireWire drivers are not digitally signed. However, M-Audio is committed to providing the best possible drivers for our products and we constantly evaluate and test our drivers to ensure that they work properly. As a result, there is no need to worry about the driver not being signed.

Insert the Driver CD-ROM into your computer's CD-ROM drive. From the Start menu, select "Run..." then click the Browse button. Browse to the CD drive, locate the "FireWire 1814" folder, then select the FireWire 1814 installer from within that folder. Double click on the installer icon to begin the installation.

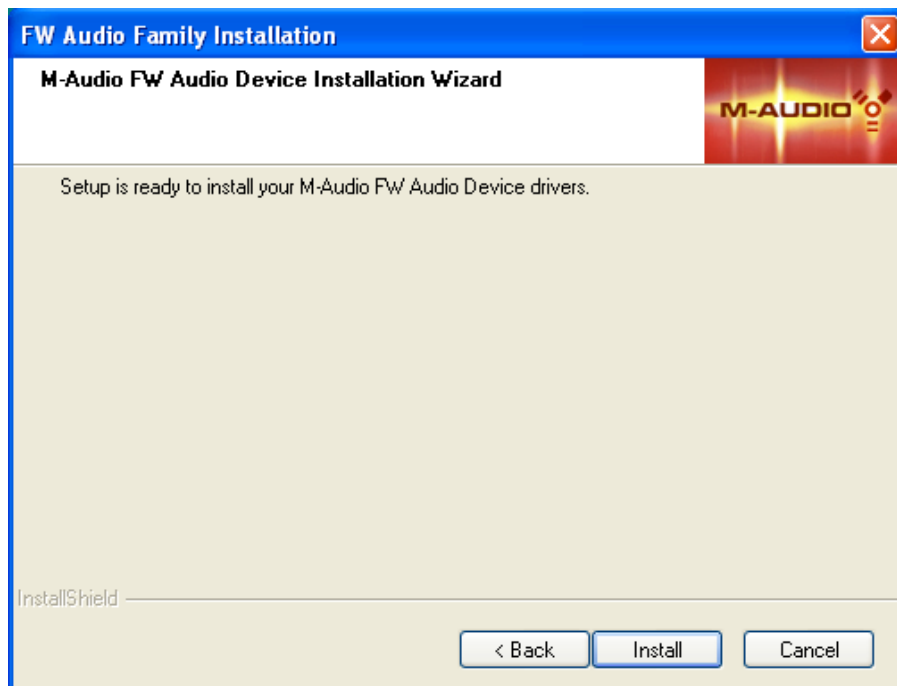
Verify that you have no other programs running, and then click "Next" to begin the installation.



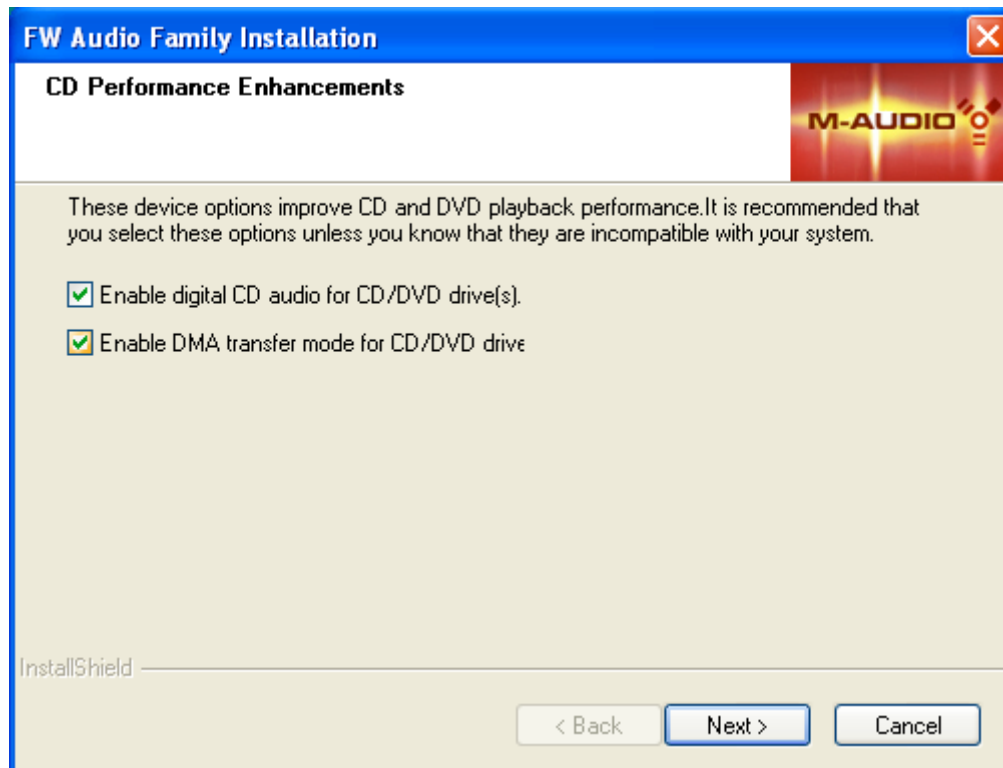
After you've read the license agreement, please click the "I accept..." circle if you agree to the terms. Then click "Next" to continue.



Click "Install" to continue.



The installer will prompt you to enable DVD/CD performance enhancement settings. In most cases, you should leave these in their default (selected) settings. While Windows is most likely already configured in this way, these settings will ensure that you will be able to hear your DVD/CD player's playback through the FireWire 1814. Click "Next."



During the installation, you will be prompted with a message warning that the driver software has not passed Windows Logo testing. Select "Continue Anyway" and proceed with the installation.



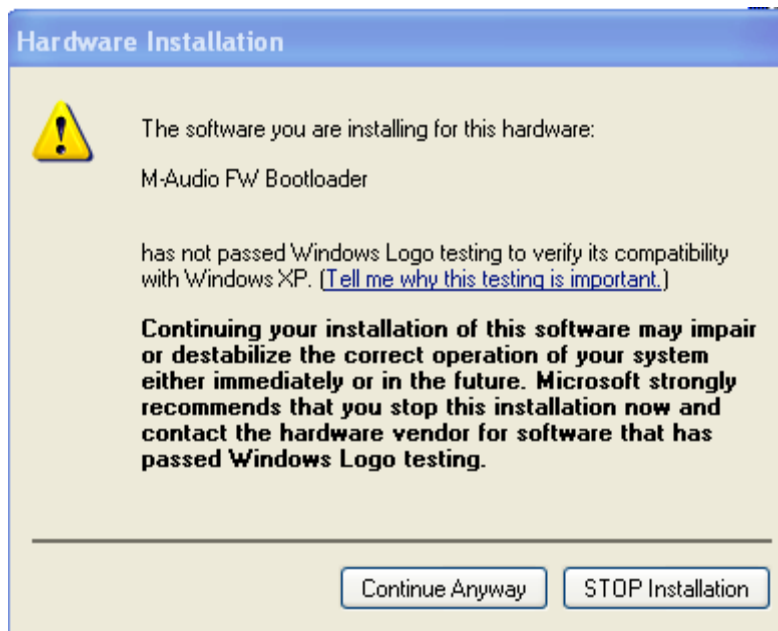
Once the installer has finished copying the files, you will see the Installation Complete screen. You will then be prompted to shut down your computer. Click “Finish” to proceed.



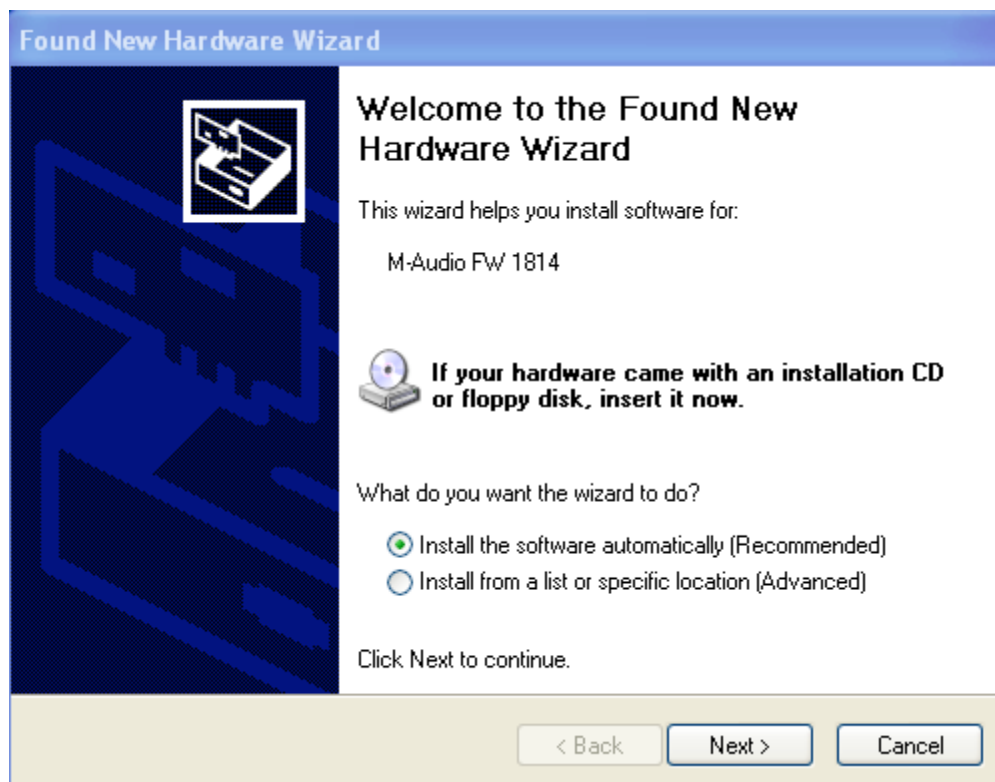
After the computer has powered off, connect the FireWire 1814 to your computer's FireWire port and power it on. Once the FireWire 1814 is connected, turn on your computer. Once Windows has loaded, the New Hardware Wizard will open. Choose the default selection, “Install the software automatically.” Click “Next.” Windows will locate and install the FireWire 1814 Bootloader files.



During the installation, you will be prompted with a message warning that the driver software has not passed Windows Logo testing. Select “Continue Anyway” and proceed with the installation.



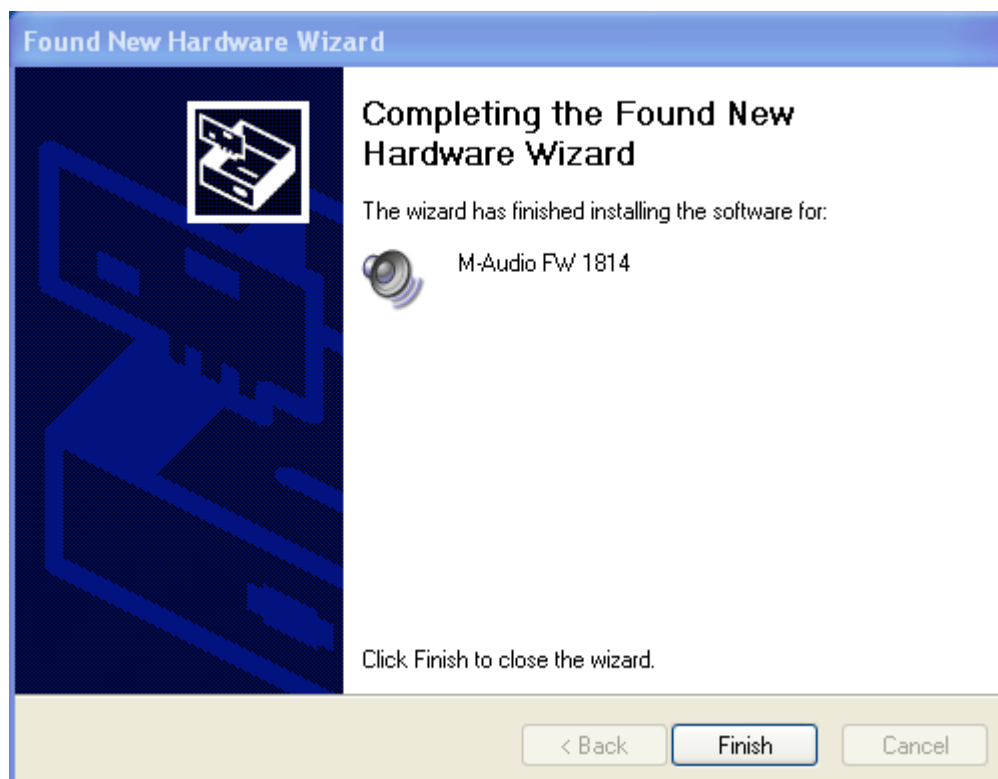
The New Hardware Wizard will run a second time to install the FireWire 1814 driver software. Choose the default selection, “Install the software automatically.” Click “Next.”



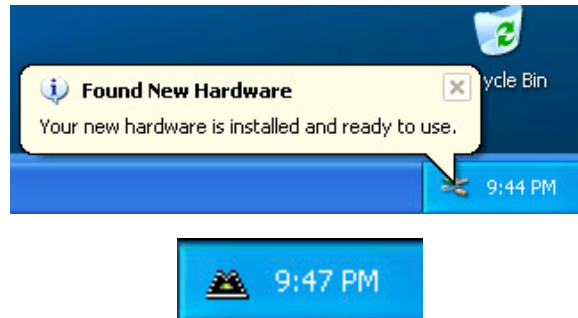
You will again be prompted by the “Windows Logo testing” notice. Again, click “Continue Anyway” and proceed with the installation.



Click “Finish” to complete the installation. Your FireWire 1814 is now ready to use.



You will see the M-Audio FireWire 1814 control panel icon in your system tray (lower right corner of your desktop). Click on the icon to open the control panel.



Mac OS X

Never connect or disconnect the FireWire 1814 while the computer is on. Also, if you're going to use bus power, we recommend that you connect the FireWire cable before turning on the FireWire 1814's power button.

Installation **NOTE:** There are differences in administrator authorization between OS 10.2.X, and OS 10.3.X. For 10.2.8 or higher, you may be prompted for your administrator password at the beginning of the installation. For 10.3 or higher, you may be prompted for the password just before the installation begins.

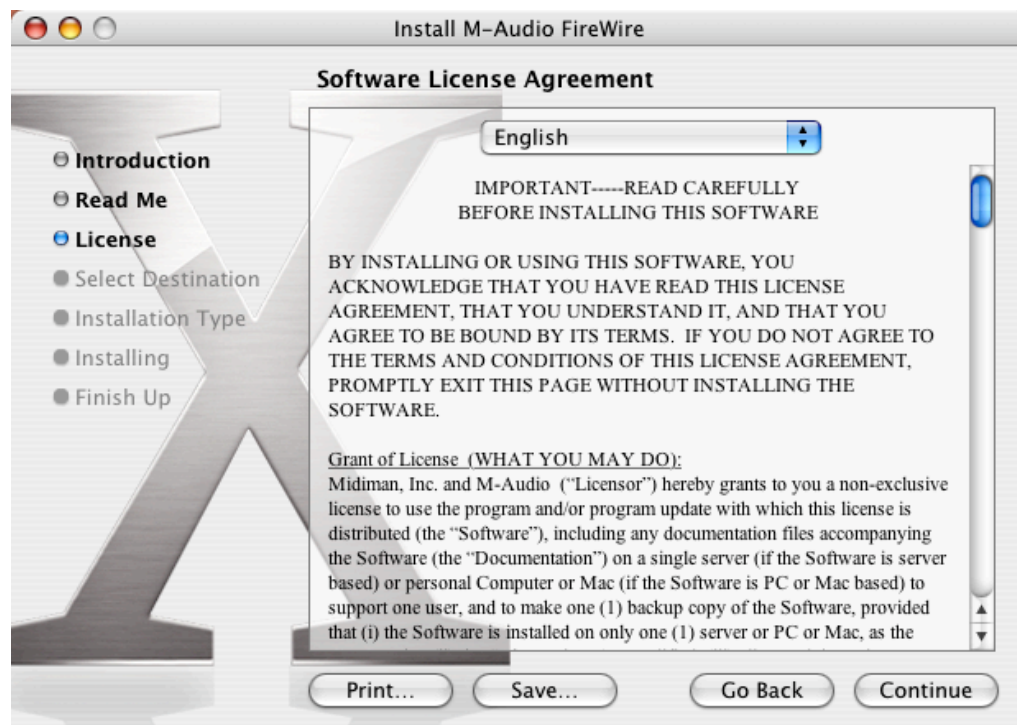
1. Insert the Driver CD-ROM into your CD-ROM drive and browse to the CD-ROM to view its contents. Locate and open the "FireWire 1814" folder, then open the folder for OS X.
2. Double click the M-Audio FireWire 1814 Installer.dmg file. An icon labeled "FireWire 1814" will appear on your desktop.
3. Double click on the FireWire 1814 icon. The file named M-Audio FireWire 1814 Installer.mpkg will appear. Double click on the installer file.
4. The introduction screen will now appear. Click "Continue" to proceed.



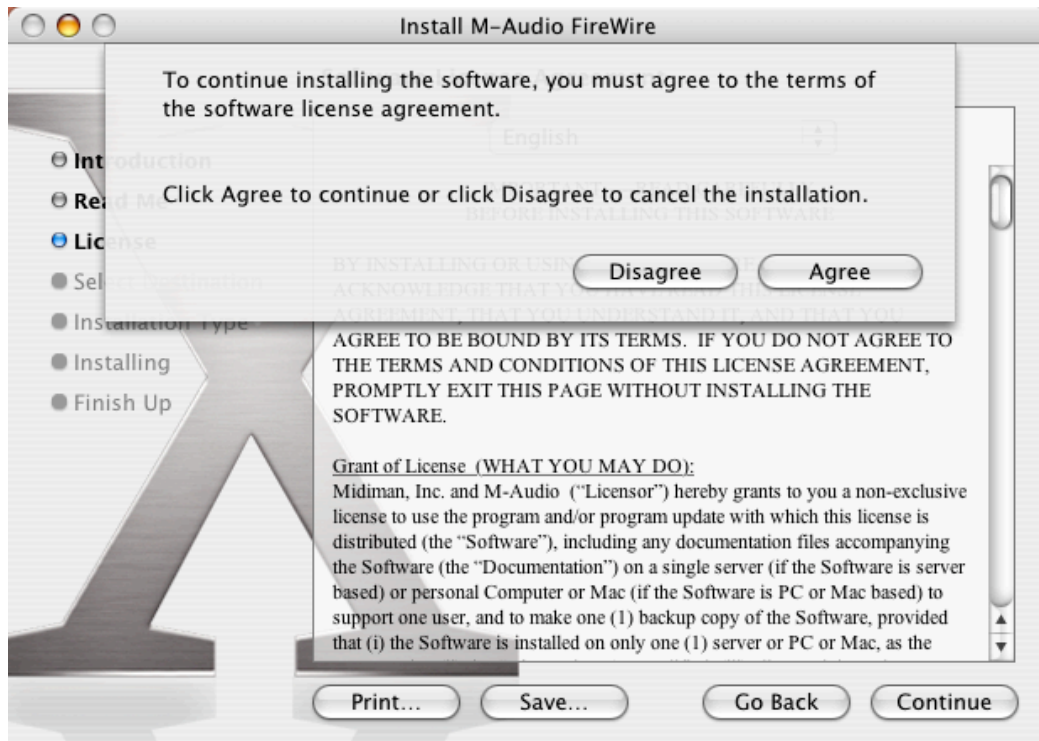
5. The next screen is the release **NOTES**. There are buttons to print or save at this point. When you are done reading them, click “Continue” to proceed.



6. The next screen displays the software license agreement. There are buttons to print or save this agreement. When you are done reading the agreement, click “Continue” to proceed.



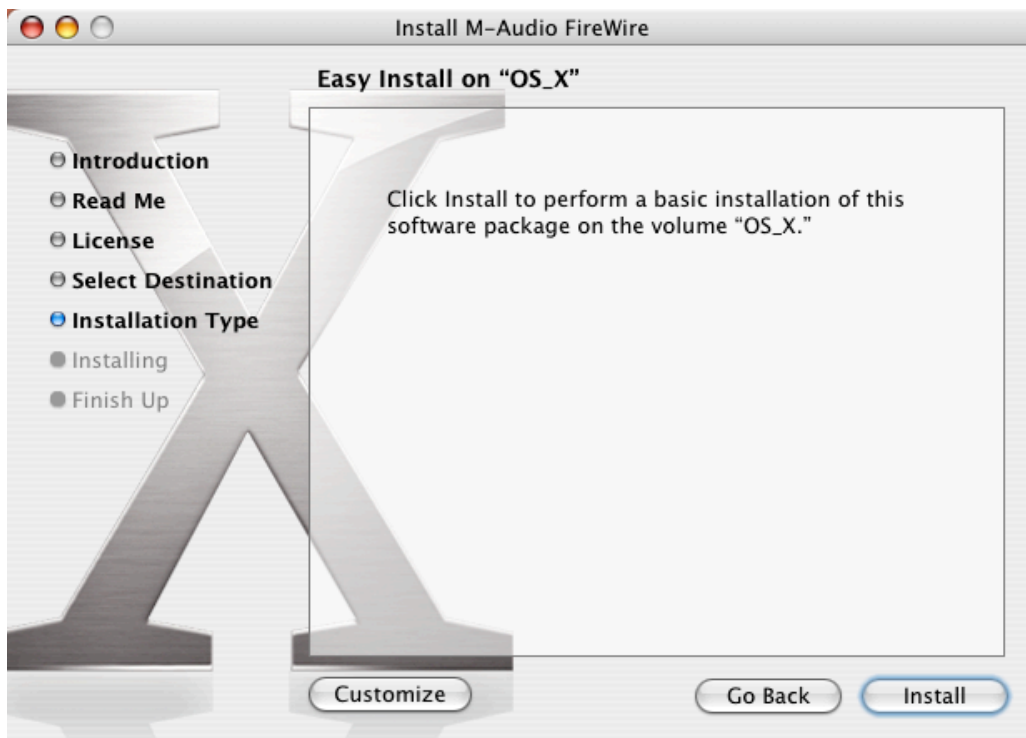
7. Once you click "Continue," a notice will appear asking you to agree or disagree. If you agree, then installation will proceed. If you choose to disagree, the installation will not proceed.



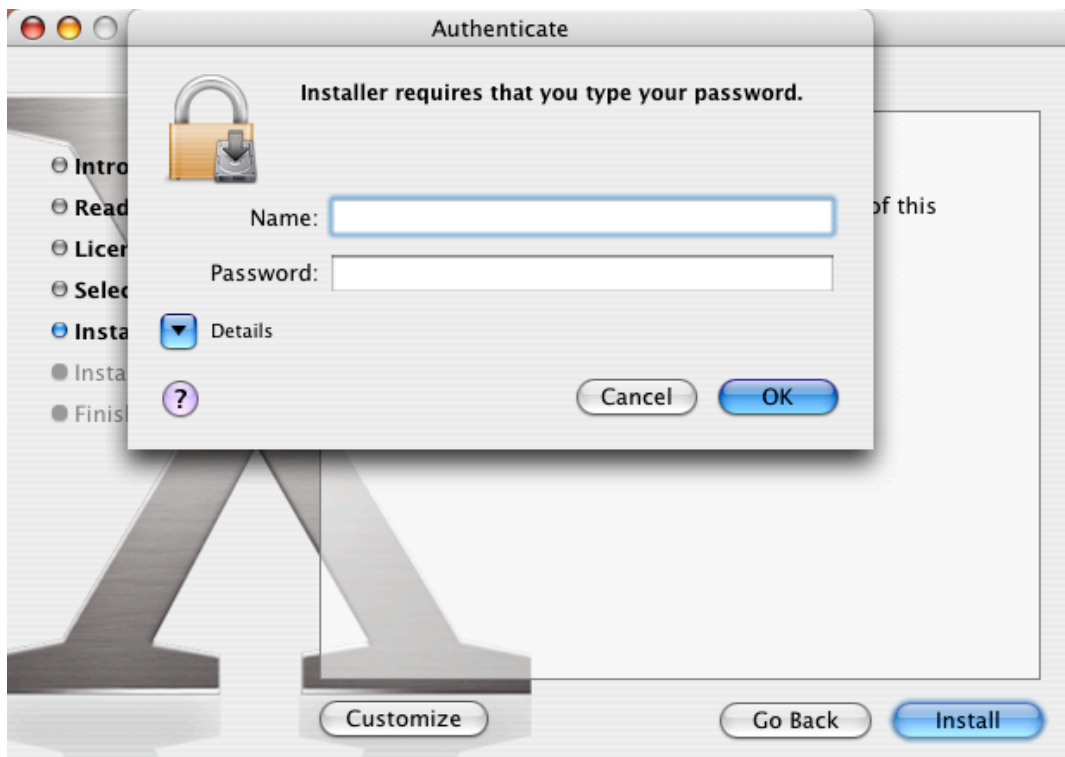
8. Select your OS X hard drive. Click "Continue."



9. The next screen provides you with options for installing the Firewire 1814 driver. We recommend that you perform the Basic Installation. To do so, click "Install." If you wish to customize your installation, click on the "Customize" button.



10. Enter your administrator name and password, and click "OK" to continue.



11. At this point, you will see a message detailing the remaining steps for the installation. Read these steps, then press "OK."



12. When the installation is complete, click "Close" to complete the wizard.



13. Once the installer is finished, shut down your computer. Plug the FireWire 1814 into your computer's FireWire Port, then press the power button to switch the unit on. Once the FireWire 1814 is connected, turn the computer back on.
14. Once the operating system has loaded, go to "System Preferences" in the Apple Menu. Select the "Sound" preference panel, and click the "Output" tab. Select "M-Audio FireWire 1814" to choose the FireWire 1814 as your default output device.

Mac OS9

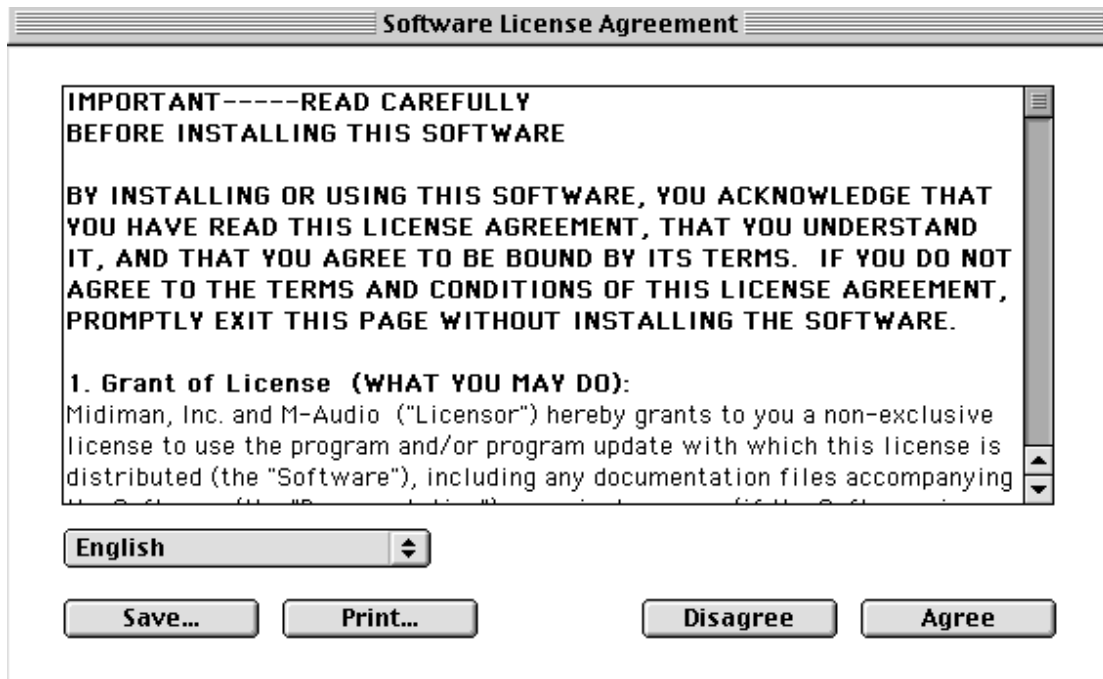
Never connect or disconnect the FireWire 1814 while your computer is on. Also, if you are going to use bus power, we recommend that you connect the FireWire cable before turning on the FireWire 1814's power button.

To use MIDI on the FireWire 1814, you must first install Opcode's OMS before installing the FireWire 1814 driver software. OMS can be installed from the Driver CD by opening the OMS 2.3.8 folder, and then double clicking the OMS installation icon. After you have installed OMS, follow these instructions to install the FireWire 1814 driver software.

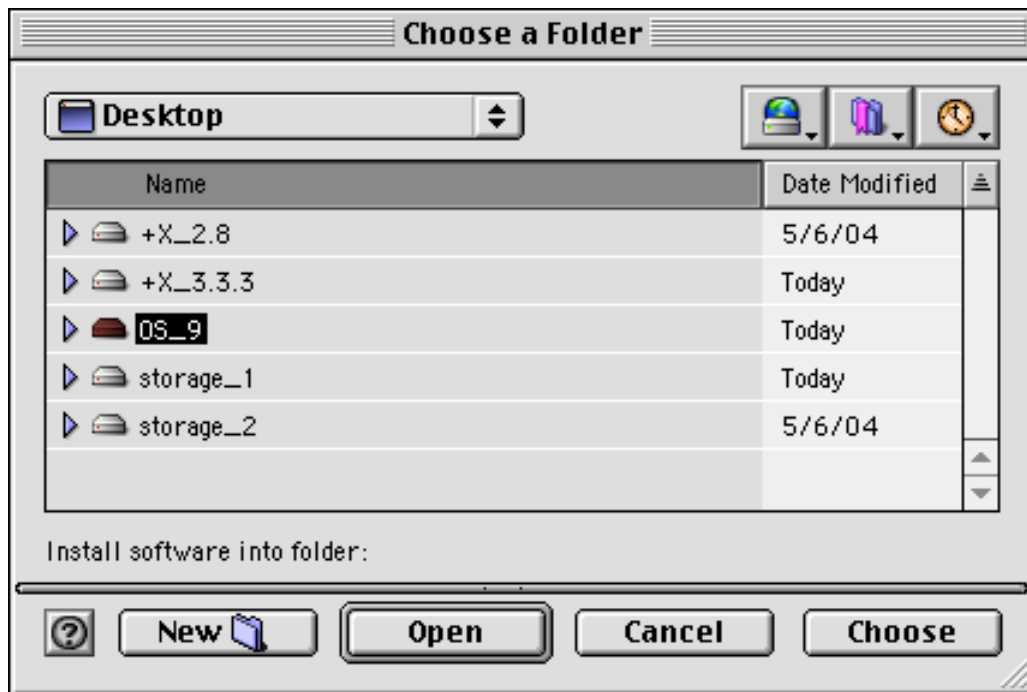
1. Insert the Driver CD-ROM into your CD-ROM drive and open the CD-ROM to view its contents. Locate and open the "FireWire 1814" folder, then open the folder for OS 9.
2. Double click on the M-Audio FireWire 1814 Installer icon.
3. Click "Continue" in the Firewire 1814 splash screen.



4. The next screen displays the software license agreement. There are buttons to print or save this agreement. Read the agreement and select "Agree" if you wish to continue with the installation.



5. Select your install location, or just choose the default, OS 9 boot drive. Click "Choose."



6. You will then be presented with a list of steps to be performed once the installer finishes. Read these steps then press "OK."



7. Once the installer is finished, shut down your computer. When your computer has powered off, connect the FireWire 1814 to your computer's FireWire port and turn on the power. Once the FireWire 1814 is connected, you may turn on your computer.
8. Once the operating system is loaded, enter the Control Panel under the Apple Menu, and select "Sound." Then select the "Output" tab. Click on M-Audio FireWire 1814 to select FireWire 1814 as your default audio device.

First Time OMS Configuration Instructions

Go to the Control Panel or Chooser under the Apple Menu, and make sure AppleTalk is turned off (this is recommended, although OMS will sense that it is on and prompt you to turn it off). If you are installing your FireWire 1814 driver and configuring OMS for the first time, follow these instructions to configure OMS.

1. In the Opcode folder that you will find on your hard drive, locate the OMS Applications folder, then OMS Setup. Double click on OMS Setup. (OMS setup can sometimes be done from within your music application.)
2. OMS will inform you that it has not yet been configured. Click "OK."
3. The Create A New Studio Setup dialog box now appears. Click "OK."
4. The "OMS Driver Search" box asks you to choose the port on which you've attached the FireWire 1814 (either Modem or Printer). DO NOT choose a port.

Just click "Search." OMS begins searching. IMPORTANT: If the FireWire cable is not correctly connected to the FireWire 1814, setup will fail.

5. "OMS Driver Setup" shows the FireWire 1814 in a list when OMS successfully finds the driver. Click "OK." OMS will now define (shows "Identifying") the FireWire 1814 output port.
6. The "OMS MIDI Device Setup" dialog box will appear showing the FireWire 1814's available output port with an open check box to the left of the port. Click to put an "X" in this open box to enable the port. Click "OK."
7. Next, the "My Studio Setup" appears with a file save dialog box over it. You will now need to name and save your new Studio Setup (or use the default name) before you can assign an instrument to the FireWire 1814's MIDI port. If you choose to do so, assign your instrument, and you are done.
8. Your FireWire 1814 is ready for use.

You can run the OMS Test Studio utility by going to the "Studio" menu and releasing the mouse on "Test Studio." Playing a **NOTE** on your keyboard will give you an audible message from your computer, "MIDI received," while the arrow pointing to the keyboard icon flashes. Clicking on a keyboard icon with the mouse pointer will send a tone cluster to the corresponding FireWire 1814 output port. The LED will light, and your sound module should play the chord.

You may now exit OMS Setup by quitting the application. The rest is up to configuration within your music software. Generally, this means selecting "OMS Compatibility," or "Open Music System" for your MIDI system setup.

8 Hardware Connections

Audio

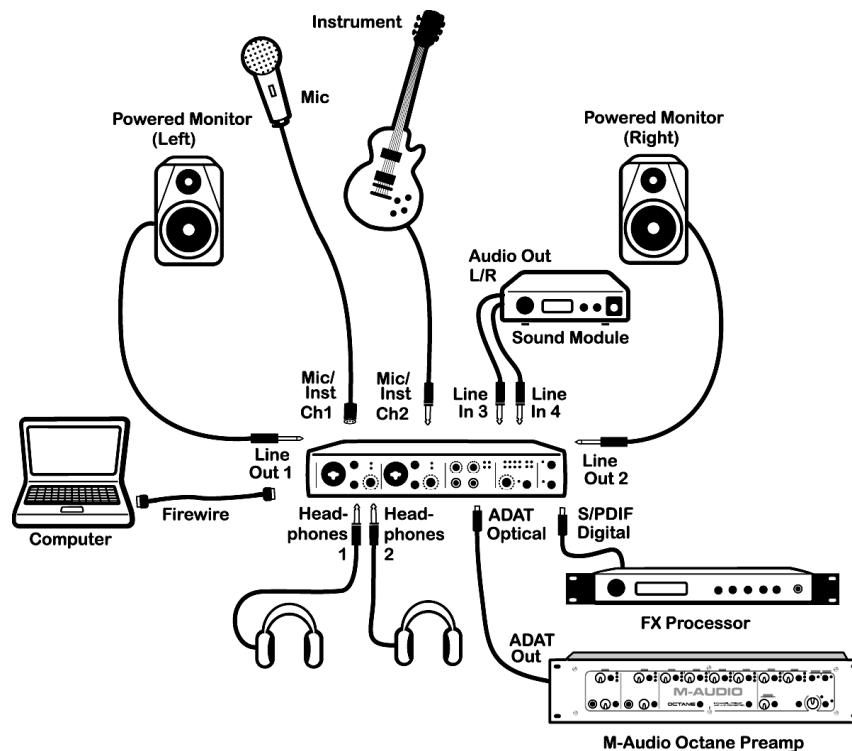
ATTENTION: You must shut down your computer any time you wish to connect or disconnect the FireWire 1814 from the system. Failure to do so may cause damage to your computer's or FireWire 1814's FireWire ports.

Connect the FireWire 1814's Line Outputs 1 and 2 to your amplifier, powered monitors or mixer. For two-channel stereo operation, the default outputs are channels 1 and 2. (You may change this in the FireWire 1814 Control Panel if you desire. You can also connect the FireWire 1814's four line outputs to a stand-alone mixer.)

Connect your headphones to the FireWire 1814's headphone outputs. (Use headphone output 1 if you plan to use A/B source switching for headphone cueing.)

Connect a microphone (using XLR or TRS/TS connector) or instrument (using TRS/TS connector only) such as an electric guitar or bass to the Mic/Inst input channels 1 and 2. Make sure the Mic/Line switch is set to the "Mic" position. Connect your line level analog source such as instruments or preamps, a CD deck, or turntable preamp to the FireWire 1814's analog line inputs 3 and 4, 5 and 6, and/or 7 and 8 (inputs 1 and 2 can be used alternately as Line Inputs).

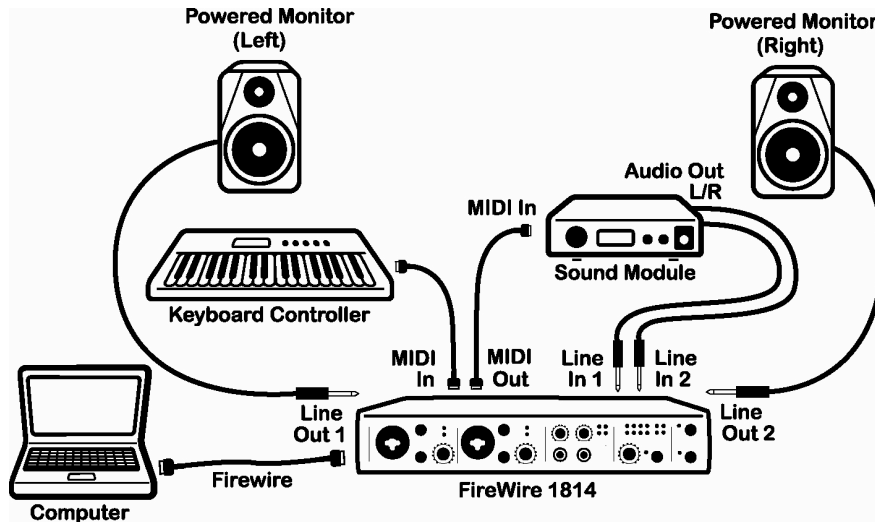
Connect your ADAT Optical or S/DPDIF optical capable device to the optical digital I/O.



MIDI

Connect your MIDI device's MIDI Output to the FireWire 1814's MIDI Input. Connect your MIDI device's MIDI Input to the FireWire 1814's MIDI Output.

Shown in the illustration below is a MIDI controller keyboard plugged into the FireWire 1814's MIDI input. A MIDI sound module is connected to the FireWire 1814's MIDI output.



9 The Software Control Panel

This section will explain the features of the FireWire 1814's control panel. This device operates under the following three modes, based on the selected sample rate:

- 44.1kHz & 48kHz mode: All control panel descriptions below apply.
- 88.2kHz & 96kHz mode: All control panel descriptions below apply except the **mixer page** controls are non-functional and grayed out. However, the meters are still enabled. Also, the **output page** no longer maintains the aux bus.
- 176.4kHz & 192kHz mode: All control panel descriptions below apply except the **mixer page** controls are non-functional and grayed out. However, the meters are still enabled. Also, the **output page** no longer maintains aux bus control.

The FireWire 1814's driver software installation includes a Control Panel—a simple yet powerful interface with your computer and Digital Audio Workstation software. The Control Panel gives you a multi-channel software mixer with up to twelve virtual outputs (in stereo pairs) from your audio software, and up to sixteen input channels from the FireWire 1814's hardware inputs. Each mixer channel input pair may be routed to any of the FireWire 1814's analog outputs. In addition, two software auxiliary sends are available per stereo input pair.

The FireWire 1814 Control Panel is installed in your system after you have completed the driver installation procedure. To open the Control Panel:

In Windows – A tiny “knob” icon will be placed in the system tray, generally located at the bottom of your Windows desktop. Double click this icon to open the Control Panel.

On the Mac – The FireWire 1814 Control Panel can be found under the Apple menu. In OS 9, go to the Apple Menu > Control Panels. In OS X, go to Apple Menu > System Preferences.

In either Windows or on the Mac, the FireWire 1814 Control Panel can also be opened from an ASIO-compliant music program's audio setup page (ASIO not applicable to Mac OS X).

The FireWire 1814 Control Panel gives you a great deal of control, and you may find that the default settings work just fine for your needs. Depending on how you record, you may never have to make an adjustment to these settings. Just to be safe, though, we'll go through the Control Panel in great detail and explain all of the user controls.

NOTE: When the FireWire 1814 is first installed, it is configured for full 16 x 12 operation. As mentioned earlier, you may customize your setup according to the digital devices that you will be connecting. If an ADAT or ADAT Optical capable device is not part of your setup, and you have no plans to add one, you may want to consider switching the optical port to S/PDIF operation. This will reduce the number of channels in your **mixer** and **output** pages, as well as the number of input and output devices that will appear in your audio recording program, with the end result of simplifying your use of both the FireWire 1814 and the Control Panel. See the **hardware** page section for more information.

Global Menus

The following Control Panel features are available on all pages of the Control Panel:

Mixer Settings – The **reset** button returns the Control Panel settings to their default values. These default values can be found in this manual's section 14, "Default Mixer and Output Configuration."

The **load**, **save** and **delete** buttons will open a Windows or Mac file dialog box. To save a set of Control Panel settings, click the **save** button. Then, from the "Save" dialog box, name the setting and click OK. After you've saved a set of Control Panel settings, clicking the **load** button will allow you to select and load your saved settings. To delete saved settings, click the **delete** button and select the setting that you wish to delete.

Level Controller Assignment – This section allows you to choose which group of **mixer** or **output** faders the front-panel "Level" controller is addressing. The **level controller assignment** knob in the FireWire 1814 Control Panel is a software representation of the hardware Level controller on the front panel, and will follow the controller assignment made here. The controller can offer tactile control for the following:

- **SW Return** – sw rtn 1-4.
- **Output** – The levels of the FireWire 1814's analog outputs. This is the default selection, and is the best choice when you simply want to control the monitor levels going to your speakers or sound system.
- **Input** – The monitor levels of the FireWire 1814's analog and digital inputs (This will not affect the actual recording level)
- **Aux Send** – The levels of the **L** and **R** virtual **aux send** busses.

When you first click on one of the group assignments listed above, the **ctrl** buttons for that entire group assignment will activate. For example, if you select the "input" **level controller assignment**, the **ctrl** buttons will become available and active for all of the input channels on the **mixer** page.

You can modify this group assignment by clicking on an active **ctrl** button; this will deselect the associated channel faders. Changes to the Level controller position (either the front panel knob or the virtual knob in the Control Panel) will then affect only the selected channel faders. The Control Panel will remember these modified assignments when you click to another **level controller assignment** group, then click back to the group with modified assignments.

NOTE that the headphones output is not selectable here, since the FireWire 1814 has its own dedicated headphone level control on the front panel. You can also control the headphone levels using the virtual faders on the **output** page.

Main Output – These two buttons provide immediate access to **mute** or **dim** the overall output levels. Pressing the **mute** button (the button turns red) will cease audio output to all of the FireWire 1814's Line Outputs, ADAT Optical outputs, and the S/PDIF Out. This is useful when you want to switch back and forth between monitoring with headphones and monitoring with your speakers. Pressing the **dim** button (the button turns green) will lower the listening level of the hardware outputs by 20dB. This is useful if, for example,

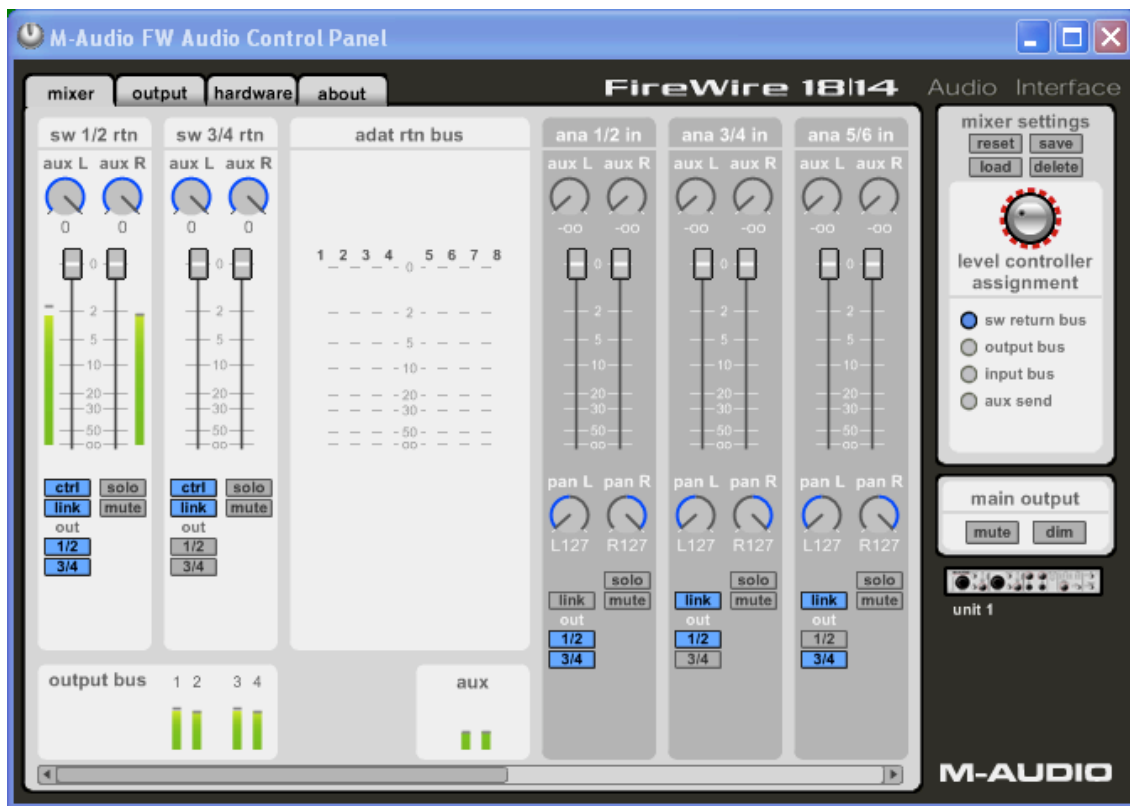
you want to have a quick conversation without losing the groove, then return to your previous listening level.

Mixer Page

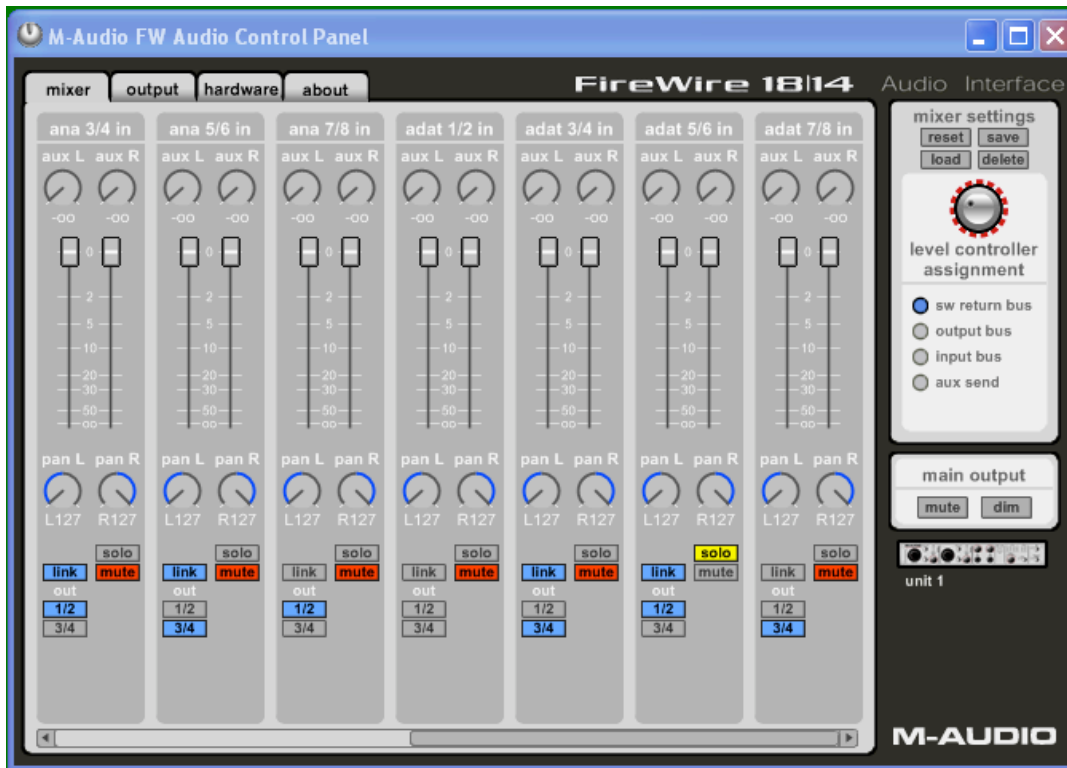
The **mixer** page provides output routing and control of the FireWire 1814's analog inputs. There are up to twelve virtual channels returning from your Digital Audio Workstation software. A scroll bar is located at the bottom of the **mixer** page, allowing you to access any of the mixer channels as needed.

NOTE: When we say “up to” a number of channels, we are referring to the fact that the number of channels in the **mixer** page (as well as the **output** page) may change according to your use of the optical port for ADAT or S/PDIF, including whether ADAT Optical is being used in 8-channel mode or in 4-channel mode at 88.2k or 96kHz sampling rate—all of which is covered in the **hardware** page section. For now, we will assume that the optical port is configured for ADAT 8-channel operation, which is the default setting.

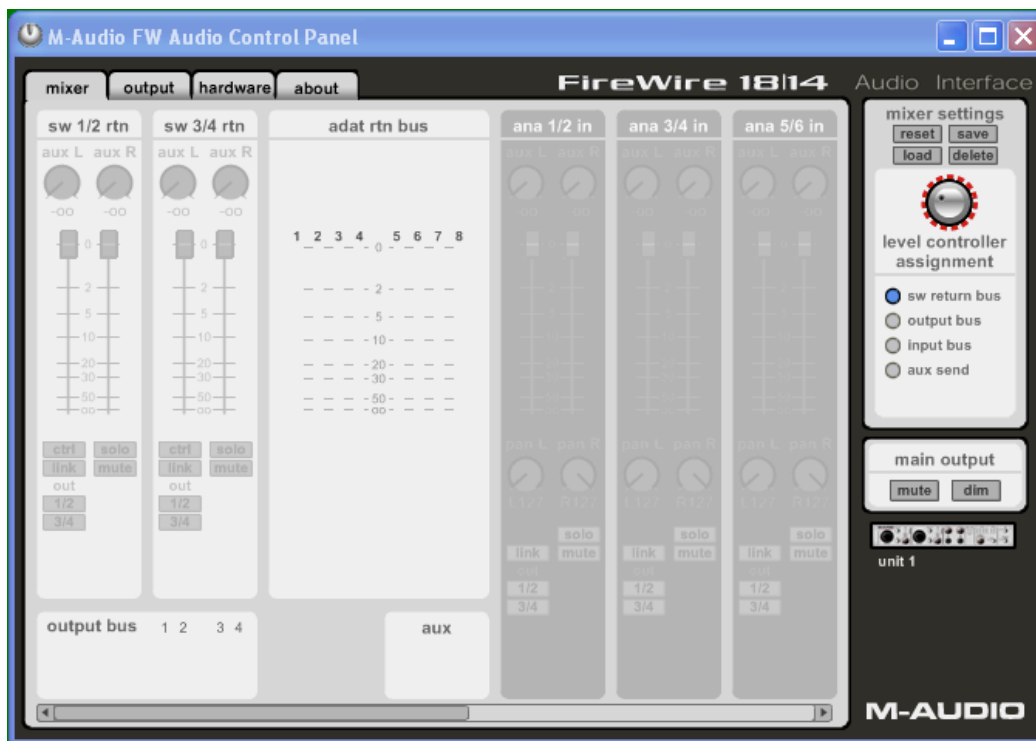
The following control panel images display various configurations of inputs and outputs (ie: S/PDIF or ADAT, etc...). Use the scroll bar to display all channels in the **mixer** page.



Mixer page (left scroll) – adat rtn bus enabled



Mixer page (right scroll) – adat inputs enabled @ 44.1 kHz



Mixer page display grayed out @ 88.2kHz and higher

Software Returns – The **mixer** page provides up to twelve virtual audio “returns” from your audio application. These returns will appear in your audio program’s output assignment and mixer settings as available audio outputs.

Most likely, you will control the software output monitor levels from your audio program’s mixer, and will want to keep the Control Panel mixer faders at their maximum level. However, you may find it convenient to adjust them here, if you are, for example, setting up a balance between input levels and **sw rtn** levels.

Hardware Inputs – The **mixer** page also provides software level control for direct monitoring of the FireWire 1814’s analog and digital inputs. These pairs are labeled **analog 1/2 in**, **analog 3/4 in**, and either **adat 1/2 in**, **adat 3/4 in** (etc.), or **spdif in**.

Please **NOTE** that the **input** channel default settings have NO Output Routings selected (see the next section for more information). Monitoring these inputs may be set up from within your music program, or you may make an Output Routing selection and then set the slider level for monitoring. See the section on “Monitoring Your Inputs for Recording,” below, for more information.

Output Routing – Software returns 1-4 may be assigned to any of the FireWire 1814’s analog outputs by clicking the output button of the desired output pair. These are labeled **1/2 & 3/4**.

All analog output pairs may be selected (the buttons turn blue when active) for each **mixer** input channel pair. These channels’ output signals appear on the selected outputs in the Control Panel **output** page. If multiple **mixer** channels are assigned to the same output pair, the signals will be summed at the assigned output. **NOTE** that clipping of summed signals is possible, so keep an eye on your output level meters when summing mixer channels.

Aux Send – Software returns 1-4 and all inputs provide two virtual **aux** send controls. Using these **aux** sends you can create a separate sub-mix, which can be useful as a headphone mix or effects send. To use the **aux** sends, click on an **aux** knob and drag upward or downward. These **aux** send levels feed the Aux Send Master channel on the **output** page. The **aux** send mix can be routed to any pair of the FireWire 1814’s outputs via the **output** page by clicking the **main** button on that channel, thereby switching the output channel from the **main** bus to the **aux** send bus.

Stereo Linking - All input channels and analog software returns are controlled by software faders; pairs can be linked for stereo operation by clicking the channels’ **link** button. The buttons turn blue when active. Once the channels are linked, grabbing and moving one fader will move both faders in unison.

Mute button - Selecting the **mute** button (the button turns red) will cause that channel pair to cease audio output. Deselecting the **mute** button will resume audio output on that channel pair.

Solo button – Selecting the **solo** button (the button turns yellow) will cause all other channels to cease audio output. Deselecting the **solo** button will resume audio output on all channels. Multiple solo selections are possible.

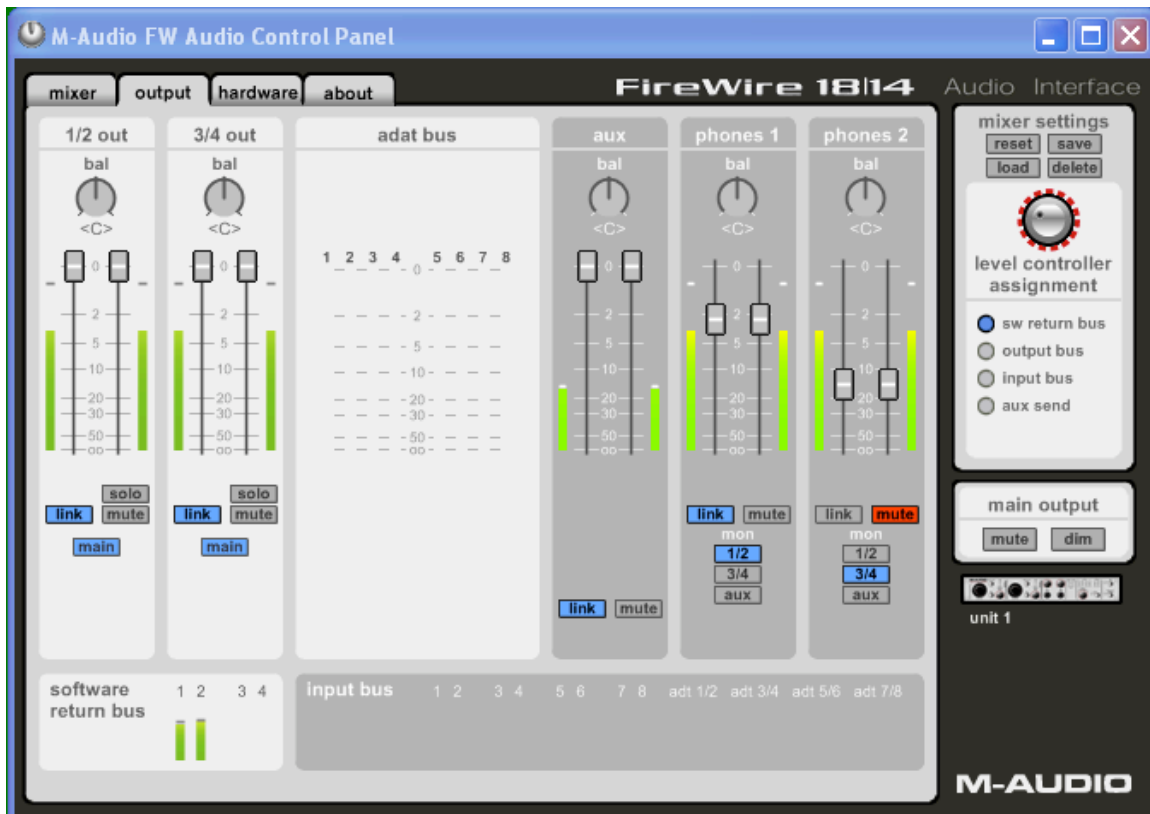
Panning - The input channel pairs also offer virtual **pan** pots. As with any typical mixer, the **pan** works in conjunction with the Output Routing assign buttons to enable you to route the signal as you wish.

Ctrl button – When **aux send** is selected under the panel's right-side **level controller assignment**, the **ctrl** button will appear under the **aux** output master channel faders. For more information, see “Level Controller Assignment” in the “Global Menu” section, below.

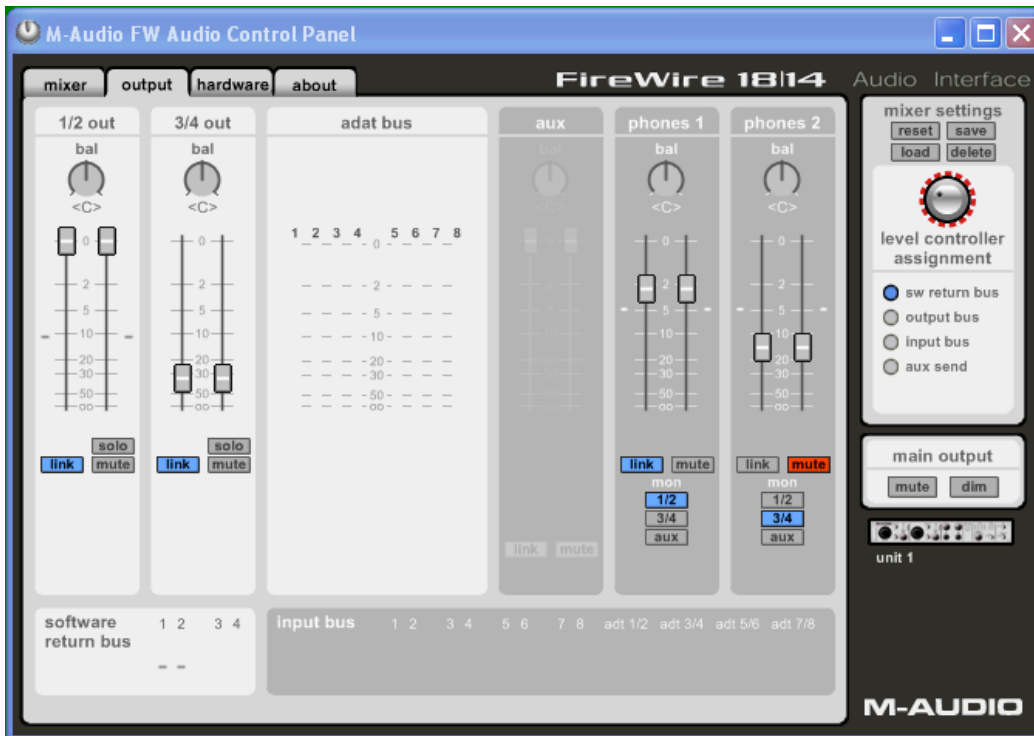
Metering - At the bottom of the **mixer** page, software level meters are provided for each of the FireWire 1814's output busses, as well as the **aux** bus. This is provided as a quick reference to what's occurring in the **output** page.

Output Page

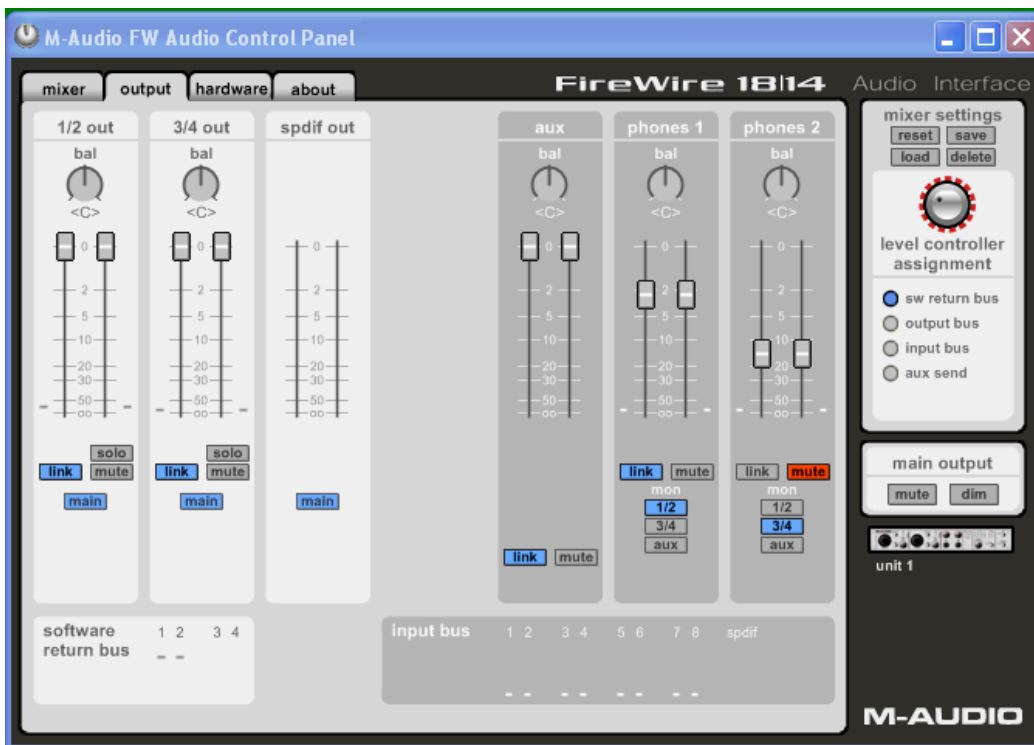
The **output** page provides you with control over each of the FireWire 1814's analog and digital outputs, as well as control of the **aux** bus and two **phones** (headphone) buses.



Output page – adat bus enabled @ 44.1kHz



Output page – adat bus enabled, aux grayed out @ 88.2kHz and higher



Output page – spdif out enabled

Output Channels – Virtual faders control the individual channel output levels. The output faders correspond to their respective analog hardware outputs. When the **main/aux** button is set to **main**, the Output Channel gets its signal from the bus assignments selected on the **mixer** page. (See “Main/Aux Button,” below.)

Balance Controls – The **bal** control allows you to adjust the balance of the associated pair’s stereo output.

Linking - Stereo pairs can be linked together with the **link** button. Once the channel is linked (the button turns blue), grabbing and moving one fader will move both faders in unison.

Main/Aux Button – When the **main/aux** button is in the **main** position (the button turns blue), the associated analog or S/PDIF outputs carry their respective bus signals, as determined by the routing selected on the **mixer** page. When the main/aux button is in the aux position, the button turns green. The associated analog or S/PDIF output pair receives the signal routed to the **aux L** and **aux R** busses (see **aux send** from the **mixer** page above).

Mute button - Selecting the **mute** button (the button turns red) will cause that channel pair to cease audio output. Deselecting the **mute** button will resume audio output on that channel pair.

Solo button – Selecting the **solo** button (the button turns yellow) will cause all other channels to cease audio output; deselecting the **solo** button will resume audio output on all channels. Multiple solo selections are possible.

Aux Output Master Channel – The **aux** output master channel controls the output functions of signals routed to the **aux L** and **aux R** busses. Both channel faders can be linked together with the **link** button. The **bal** control allows you to adjust the left/right balance of the stereo signal.

When using the **aux L** and **aux R** sends in conjunction with the **aux** output master channel, you must select an output channel pair to be the aux output by setting the **main/aux** switch on the selected channel to the **aux** position. See in section 10, “Adding Effects While Direct Monitoring” and “Using the Aux Send As a Separate Monitor Mix,” later in this manual.

NOTE that there are no **ctrl** buttons available on the **phones** channels, since the headphone outputs have their own dedicated level controllers.

Aux Channel Balance – The **bal** control allows you to adjust the balance of the associated pair’s stereo output.

Aux Channel Mute - Selecting the aux **mute** button (the button turns red) will cause the **aux** channel to cease audio output. Deselecting the **mute** button will resume audio output.

Headphone Output Channels – These channels control the functions of the FireWire 1814’s two headphone busses, **phones 1** and **phones 2**.

Headphone Source Assigns – You can monitor the FireWire 1814's analog **1/2**, **3/4**, or **aux** output busses via the headphone outputs. Using the Headphone Source Assigns you can select any one of these three output buses to route to the headphones.

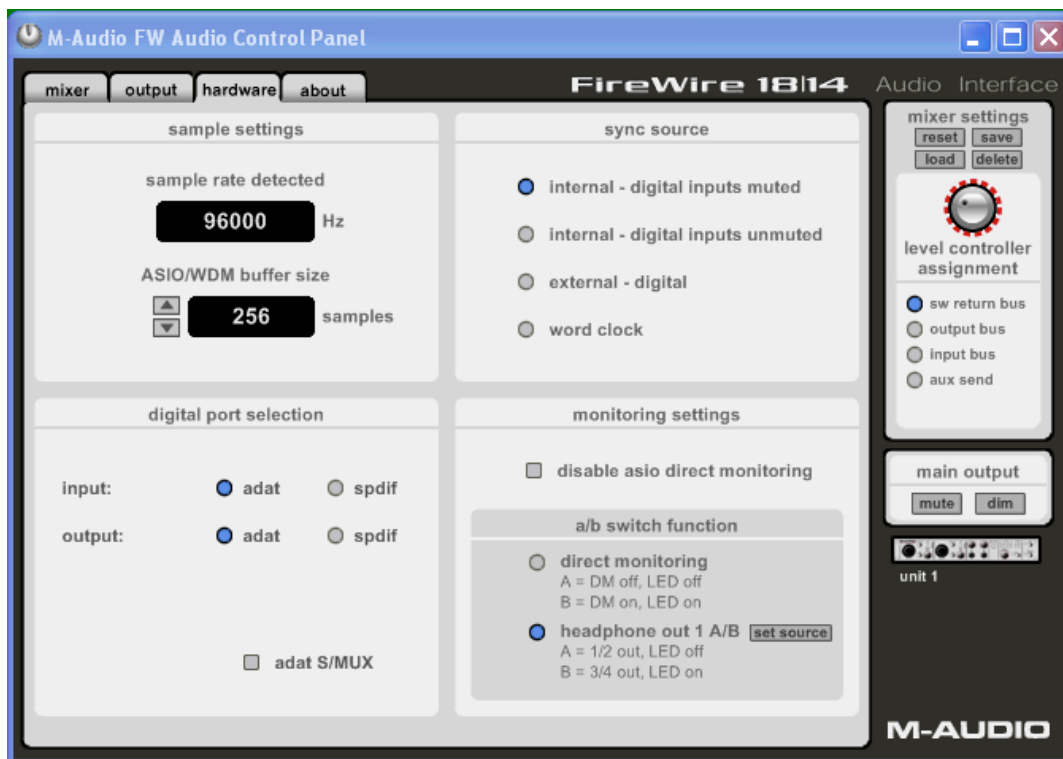
Headphone Mute button - Selecting the **mute** button (the button turns red) will cause the headphone channels to cease audio output. Deselecting the **mute** button will resume audio output on the headphone channels.

Metering – At the bottom of the **output** page, software level meters are provided for the FireWire 1814's analog and digital inputs, as well as the analog software return channel inputs. This is provided as a quick reference to what's occurring in the **mixer** page.

Hardware Page

The **hardware** page gives you access to important information and functions of the FireWire 1814.

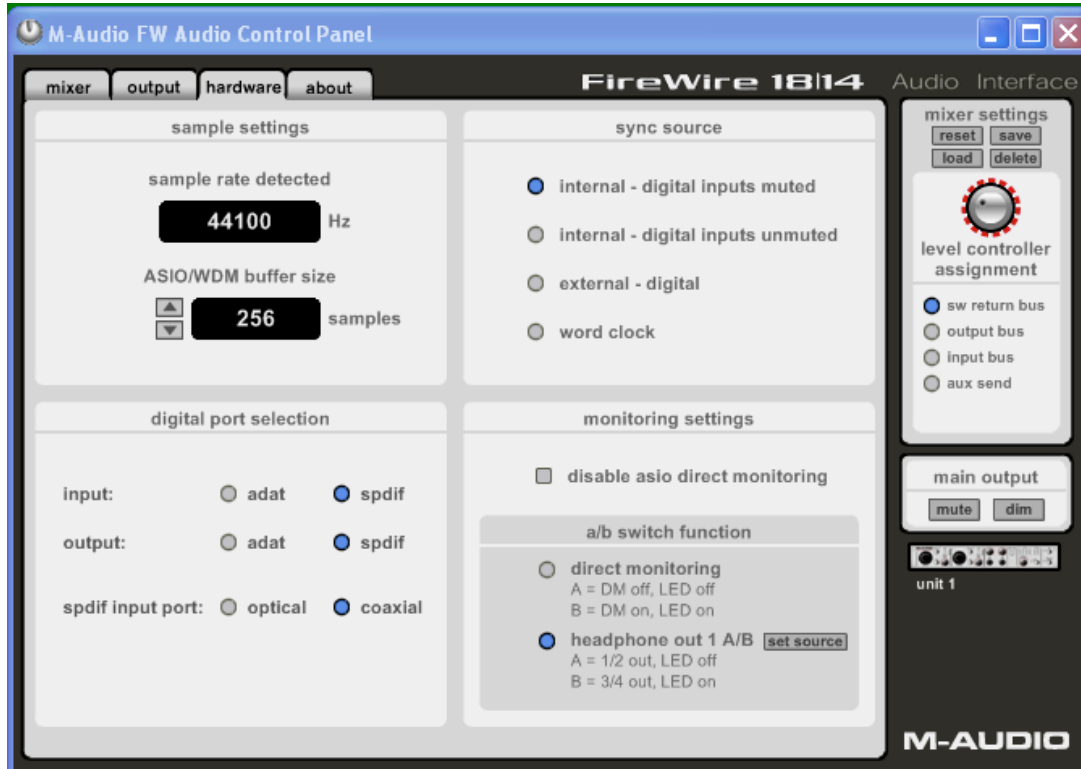
The **hardware** page design and function will vary slightly, depending on your platform and operating system. Shown below is the **hardware** page from a Windows installation.



Hardware page – adat enabled, S/MUX checkbox displayed lower left



Hardware page – spdif coaxial input, adat output enabled



Hardware page – spdif coaxial input, spdif outputs enabled

Sample Rate Detected – This field displays the detected sample rate that is being received from the currently selected sync source. When the sync source is set to **internal**, the FireWire 1814 will detect and display the sampling rate as set by your audio software or your computer's operating system via the IEEE 1394 (FireWire) bus. When the sync source is set to any of the **external** sync choices, the FireWire 1814 will detect and display the sampling rate that is being received at the selected sync input.

NOTE: When you are using the FireWire 1814 at a sample rate of either 88.2kHz or 96kHz in conjunction with the optical port being set for **adat** operation, you must enable the "adat S/MUX" checkbox found in the lower left of the **hardware** page (some applications may set this automatically). In S/MUX mode, ADAT Optical switches from 8-channel operation to 4-channel operation. Not all external ADAT Optical-capable devices can operate in S/MUX mode, so be sure and check your device's documentation for more information.

ASIO/WDM Buffer Size – In this field you can select the buffer size you wish to work with. Smaller buffer sizes result in lower latency (the time it takes for your input signal to pass through your audio software and appear at the outputs), but may not function well with slower systems. The default buffer size setting is 256. This setting may adequately serve your purposes, but you can experiment with lower settings if you wish. If you experience stuttering or crackling in your audio playback, try using a larger buffer size.

NOTE: This section does not apply to Mac OS X, and will not appear if you are running that operating system. Mac OS X does not support ASIO (or WDM). Also **NOTE** that in Mac OS 9, this section will simply be labeled "ASIO Buffer Size." However, this does not affect Sound Manager operation.

Bit Depth – This field will only appear in Mac OS 9 installations. The selections from this drop-down list will be "16-bit," "24-bit," or "auto." Some music programs in OS 9 will not work properly with 24-bit audio, in which case the bit depth setting will either a) switch automatically to 16-bit, or b) require that you manually change the bit depth setting in your FireWire 1814 **hardware** page to 16-bit. Otherwise, leave the bit depth set to "auto," which is the default setting. It is also possible that slower CPUs may benefit from a lower bit depth setting, so if your machine seems to be having a hard time handling the audio processing (clicking, stuttering, etc.), try the 16-bit setting.

Sync Source – This field allows you to choose one of two **internal** clock sources (**digital inputs muted** and **digital inputs unmuted**) or one of two **external** clock sources (**external - digital** or **word clock**). The **Internal** sync frequency can be set by your audio software or operating system. This is the FireWire 1814's default setting. Use **external digital** sync when you wish to record from or lock to either the FireWire 1814's optical or coaxial ports, whether it's set to **adat** or **spdif** operation. Use **word clock** to lock to house sync, or a word clock source from a digital audio device.

Internal digital inputs – muted means that the FireWire 1814 is actively generating an internal sync clock, and not listening to the digital inputs for sync source. This is the default selection.

Internal digital inputs – unmuted means that the FireWire 1814 is generating a sync clock, and also returning the sync clock through the digital inputs. Only use this mode when your external device is clocking to the FireWire 1814.

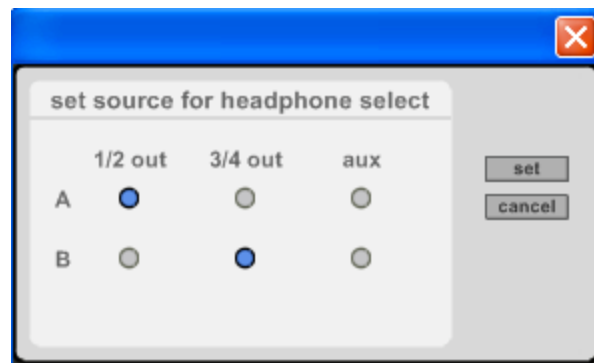
Digital Port Selection – This field allows you to set up the input and output digital ports for either ADAT Optical or S/PDIF operation. The default setting is “adat” for both the input and output, and all of these channels will appear in the **mixer** and **output** pages of the Control Panel.

NOTE: We recommend that you close your audio or music application before attempting to make any changes to the Digital Port Selection.

The selections made here allow you to customize the FireWire 1814 for your particular studio setup. Changing from “adat” to “spdif” operation for your optical port will eliminate the “adat” channels—the “adat” input channels will disappear from the **mixer** page’s input section, and the “adat” output levels will disappear from the **mixer** page’s **sw rtn** section and also the **output** page.

A/B Switch Function – This field allows you to change the assignment of the front panel A/B momentary switch, toggling between the “direct monitoring” setting, which is the default, or the “headphone out 1 A/B” setting. When “direct monitoring” is selected, the front panel A/B switch will enable and disable direct monitoring, which essentially unmutes (enables) or mutes (disables) the input channels in the Control Panel’s **mixer**. When “headphone out 1 A/B” is selected, the front panel A/B switch will toggle headphone output 1 between two monitoring sources (See “Using The A/B Selector” for more information.)

“Set Source” Button for HP (Headphone) Source – Clicking the “Set” button brings up a “Headphone Out 1 A/B Set Source” pop-up window that will allow you to choose the A/B source selections for the front panel A/B switch, in effect, when the “headphone out 1 A/B” radio button is selected. You can choose between three radio buttons in row “A,” and between the three radio buttons in row “B.” You have to click on “set” to make the changes become active or “cancel” to disregard the changes. The front panel A/B Status LED will indicate the current source selection, where A = LED off, and B = LED on.



About Page

This page contains information on your hardware and current driver software versions. This information may be helpful if you ever have to update the driver software or need to call for technical support. Clicking the M-AUDIO logo in the lower right hand corner will link you directly to our website if you are currently online.



Firmware Info – This field displays the current firmware version of your FireWire 1814.

10 Using the FireWire 1814

The following sections address a number of real-life situations that you may encounter while using your FireWire 1814. These brief tutorials should help guide you. Also check the M-Audio website from time to time for additional tutorials or FAQs.

Setting Up Your Recording Levels

Using the Mic/Inst Inputs – Connect your microphone or instrument to the FireWire 1814's front panel Mic/Inst inputs. Make sure the associated channel's Mic/Line switch is set to the "out" position to enable these front panel inputs. If you are using a condenser microphone, be certain to activate the Phantom Power switch (after connecting the microphone to an XLR input). Adjust the channel's Input Gain to achieve a fairly steady green Signal LED without triggering the red Clip LED, while audibly testing your input levels (i.e., strumming the guitar, or speaking into the mic).

NOTE: When recording with microphones, it is best to keep the mic at some distance from the main speakers, or use headphones to monitor. Feedback may occur when microphones are too close to speakers.

Using the Line Inputs – Connect the line level output of your external audio device to any of the FireWire 1814's rear panel Line Inputs. If you're using Line Inputs 1 or 2, make sure the associated channel's Mic/Line switch is set to the "in" position. Monitor the incoming signal using the Line In "signal present" Indicator LEDs.

The signal level that you receive at the Line Inputs will be the signal level that you record. Any adjustments to that signal level must be made at the source. If you have an output level control on the device that you've connected to the FireWire 1814's line inputs, adjust that output level control to change the recording level. Most recording software will allow you to add gain to a recorded track that was made at a level that is initially too low, but be careful that the recording level is not reaching digital clipping (signal over 0dB - going into the red) while recording.

You will then want to route the input signal to your audio software's inputs. Refer to the section below on "Monitoring Your Inputs For Recording," and your software's documentation for more information.

Using the ADAT Optical Input – Connect the ADAT optical digital output of your external audio device to the FireWire 1814's rear panel optical (TOSLink) digital input. This may be an ADAT multi-track recorder, the bus output of a digital mixer that is equipped with an ADAT Optical format output, or the output of an 8-channel mic preamp with an ADAT Optical output, such as an M-Audio Octane.

Make sure that **external – digital** is selected as the sync source in the FireWire 1814 Control Panel's **hardware** page. Also, **adat** should be selected as your **digital port selection** input on the **hardware** page. You may also use **word clock** if your ADAT Optical source has a BNC word clock output.

Using the Coaxial S/PDIF Input – Connect the coaxial S/PDIF output of your external digital audio device to the FireWire 1814's rear panel coaxial (RCA) digital input.

Make sure that **spdif** is selected as the input under the **digital port selection**, and that **coaxial** is selected for the **spdif input port**. Also make sure that **external digital** is selected as the sync source in the FireWire 1814 Control Panel's page. You may alternately use **word clock** if your S/PDIF source has a word clock output or is locked to the same word clock master.

The signal level that you receive at the S/PDIF input will be the signal level that you record.

Using the Optical S/PDIF Input – Connect the optical S/PDIF output of your external digital audio device to the FireWire 1814's rear panel optical (TOSLink) digital input. Since the default setting for the optical port is for ADAT Optical operation, you must also set the **digital port selection** to receive a S/PDIF signal. To do this:

Make sure that **spdif** is selected under the **digital port selection**, and that **optical** is selected for the **spdif input port**. Also make sure that **external - digital** is selected as the sync source in the FireWire 1814 Control Panel's **hardware** page. You may alternately use **word clock** if your S/PDIF source has a BNC word clock output.

The signal level that you receive at the S/PDIF input will be the signal level that you record. In most cases, this level cannot be modified at the source.

Monitoring Your Inputs For Recording

The FireWire 1814 supports ASIO direct monitoring, ASIO software monitoring and WDM input monitoring, as well as CoreAudio in Mac OS X. The FireWire 1814 also supports direct hardware monitoring (44.1kHz and 48kHz only) independent of the software's monitoring capability.

ASIO Direct Monitoring – Many applications that support ASIO 2.0 also support ASIO Direct Monitoring. In direct monitoring mode, the input signal is sent to the application and then directly to the FireWire 1814's outputs, without passing through the application itself. The advantage is that there is only a small amount of latency introduced. However, since the audio is bypassing the software application, you cannot add software effects or EQ plug-ins to the signal being monitored.

ASIO direct monitoring, when enabled, will allow you to control the monitor levels (and muting) of the FireWire 1814's **mixer** inputs directly from the program. Once you have assigned an input channel in the music software to a FireWire 1814 input, the music software's mixer will take control of the FireWire 1814 Control Panel **mixer**'s input channels.

As mentioned, while the advantages to this type of monitoring are obvious (low latency), the inability to add effects can be seen as limiting. That's why we created the **aux** sends in the FireWire 1814 Control Panel's **mixer** (44.1kHz and 48kHz only). These **aux** sends will allow you to add external effects while direct monitoring. See the section on "Adding Effects While Direct Monitoring," below, for more information.

If your audio application supports ASIO Direct Monitoring, you can enable it in your audio software's ASIO or audio control panel or setup page. Please refer to your audio software's documentation for additional information. Also see the section above, "Direct Monitoring On/Off," for information on using the A/B momentary switch in conjunction with ASIO Direct Monitoring.

ASIO Software Monitoring (not applicable to Mac OS X) – Your ASIO program may only support simple software monitoring, and not ASIO Direct Monitoring, or, you may simply prefer this method of monitoring. In ASIO software monitoring, the input signals are monitored *through* your audio software and its mixer. Although you can now monitor your inputs with effects and EQ plug-ins, a certain amount of latency is introduced by monitoring through your software. The FireWire 1814 supports the ultra-low latency ASIO standard. However your actual latency is influenced by a number of factors including your computer hardware, processor speed and selected buffer size both in your FireWire 1814 Control Panel and your music software.

If your audio application supports ASIO software monitoring (sometimes referred to as "throughput monitoring"), you can enable it in your audio software's ASIO or audio control panel simply by selecting the FireWire 1814's ASIO driver for that program (providing that ASIO Direct Monitoring is switched off). Please refer to your audio software's documentation for additional information on setting up your tracks for recording.

WDM Input Monitoring – If you are running a WDM-compliant application (WDM does not apply to Mac users), the FireWire 1814 supports input monitoring through your audio software. In most cases, WDM offers extremely low latency monitoring, even when using plug-in effects and EQ.

If your application supports WDM and direct monitoring, you may enable it in your audio software's configuration window. Please refer to your audio software's documentation for additional information.

Direct Monitoring — In direct hardware monitoring mode (44.1kHz and 48kHz only), the input signal is sent directly to the FireWire 1814's outputs. If you are running a program that is not ASIO compliant or does not have WDM input monitoring (such as Sound Forge, or some earlier programs) this type of monitoring may be necessary. The FireWire 1814 can be set up to directly monitor the analog and S/PDIF or ADAT inputs using the FireWire 1814 Control Panel **mixer**. Even if your software program does have ASIO tape-type or WDM input low-latency monitoring, you may choose to direct (hardware) monitor the FireWire 1814's inputs in this fashion, and enjoy near-zero latency monitoring.

NOTE: The front panel A/B Switch for Direct Monitoring comes in very handy for muting and unmuting the input signals you are monitoring. Refer to the section that follows, "Using the A/B Selector Switch."

As mentioned earlier, with ASIO direct monitoring, the audio software will take control over the FireWire 1814 **mixer's** input channels. With manual direct monitoring, you must control the FireWire 1814 mixer's input channels manually. Here's how:

Open your audio software and the FireWire 1814 Control Panel.

1. In the FireWire 1814 Control Panel, click the **mixer** tab. (Let's assume that we're recording with the analog Line Inputs 1 and 2, and that we're monitoring from the line outputs 1/2 in stereo.) Assign the **analog in** 1/2 channel output routing to bus **1/2**, and bring up the channel's faders **until** you begin to hear the source that is connected to the line inputs. See the previous section, "Adjusting the Input Levels," for more information.
2. In your audio software, enable tracks to record from the FireWire 1814's analog Line Inputs 1/2. If necessary, mute those channels so that you don't hear the tracks from the program while recording. (Remember, we're **direct monitoring** the inputs of the FireWire 1814.)
3. If you have tracks already recorded in your audio software that you wish to overdub along to, play those tracks and get a monitor balance between the tracks you are recording and the tracks already recorded by adjusting the **analog in** faders in the FireWire 1814 Control Panel's **mixer** page. Check the Control Panel's **output** page to make sure that the combined **input** and **sw rtn** levels are not too hot (reaching into the red) for the assigned output. If they are, try lowering both until the output level ceases to reach the red.

If you find that you need to fine-tune this monitor balance by going back and forth between your audio software and the FireWire 1814 Control Panel, you might want to assign the **level controller** to control the **analog in** faders in the FireWire 1814 Control Panel, at least while you're setting up for recording. For more information, see the section, "Using the **level controller assignments**."

As mentioned, while the advantages to this type of monitoring are obvious (very low latency), the inability to add effects can be seen as a drawback. That's why we created the **aux sends** in the FireWire 1814 Control Panel's **mixer**. These **aux sends** will allow you to add external effects while direct monitoring. See the section, "Adding Effects While Direct Monitoring," for more information.

General Recording Instructions

The FireWire 1814's analog and digital inputs will appear as inputs in your audio software. Depending on your application of choice, these may be labeled as ASIO, WDM, or CoreAudio inputs, and may be shown as either mono or stereo inputs. For example, in an ASIO-based application (e.g., Cubase, Nuendo, Logic) the FireWire 1814's inputs will appear as:

FireWire 1814 Analog Input 1 – to – FireWire 1814 Analog Input 8
FireWire 1814 ADAT Input 1 – to – FireWire 1814 ADAT Input 8
FireWire 1814 S/PDIF Input L (when **spdif** is enabled)
FireWire 1814 S/PDIF Input R (when **spdif** is enabled)

All of the above driver devices correspond to their respective hardware inputs on the FireWire 1814, and their naming is designed to reflect that. Choose an available track in your audio software and route the input signal to it. To do this, select the input source for the track and enable it for recording. Refer to your audio software's documentation for further information. If you're using the optical S/PDIF input, remember to choose the

correct active **spdif input** (coaxial or optical) in the Control Panel's **hardware** page. Refer to the **hardware** page description above.

Setting the Sample Rate

In most cases, you will want to set the sample rate from within your audio software. When the **sync source** in the **hardware** page of the FireWire 1814's Control Panel is set to **internal**, it will receive the sample rate from your audio application. However, if you are recording a digital source via the optical or coaxial digital inputs, you will want to set the **sync source** accordingly. This will allow the incoming digital source to control the sample rate. This is covered in more detail in the "Hardware Page" section, and in "Setting Up Your Record Levels."

Adding Effects While Direct Monitoring

*The following section applies when using 44.1kHz and 48kHz sample rates (the **aux send** feature is not available at higher sample rates).*

This feature sets the FireWire 1814 apart from many other audio interfaces. Direct monitoring is a way of avoiding the latency inherent in through-the-program monitoring, especially when building up a large number of tracks (where increasing buffer size and latency may become necessary). The **aux** sends in the FireWire 1814 Control Panel allow you to add effects to the directly monitored signal.

For this example, you must have an outboard effects unit with a S/PDIF digital input and output (fairly common on the market today). The following step-by-step instructions give you a basic setup, and then continue on to an advanced setup for adding and monitoring effects.

NOTE: In this example, we would set the sync source selection in the Control Panel's **hardware** page to **internal – digital inputs unmuted**. The outboard effects unit will get its clock from the FireWire 1814's coaxial S/PDIF Out, and therefore will lock to the FireWire 1814's **internal** clock. When the effect unit returns to the S/PDIF input, the S/PDIF input should be in sync with the **internal** clock.

1. Connect the FireWire 1814's S/PDIF out to the S/PDIF input of your outboard effects unit. In the FireWire 1814's output page, click on the spdif out channel's main/aux switch so that it displays aux.
2. Since we're going to be monitoring the effect from the S/PDIF input, we must assign the spdif in channel in the FireWire 1814 mixer page to a destination. Select the output routing button 1/2 as the destination, so that the effect is mixed in with other signals being monitored.
3. Set up your FireWire 1814 to record with the analog inputs using the instructions under the "Setting Up Your Record Levels" section.
4. Let's assume that you are only using analog Line In 1 for recording (maybe a bass synth on channel 1). After you have set up a reasonable monitor level using the level fader on the mixer page's analog 1 in channel and panned the channel (most likely center), add some level to the aux L control. That signal is being sent to the aux output master channel, and then to the spdif out. Since we're adding an effect

to a mono instrument, set the aux output master channel's pan knobs to <C>, or center panned (on the output page).

As you play the synth, you should start to see level appear on the **aux** output master channel as you add level to **aux L** control on the **analog 1 in**. You should also start to see level appearing at the input of your effects unit, and hear the effect level at the FireWire 1814's S/PDIF In. You can make adjustments to the (effect return) monitor level using the **spdif in** channel's level faders.

To demonstrate a more advanced setup, we've added an effect to the instrument that we're recording and direct monitoring. That's fine for recording, but we might want to hear that same effect when we're playing back—at least while the recording process is going on. Once you're done recording, you might want to disconnect the outboard effects unit, reset your FireWire 1814 Mixer, and then use the software plug-in effects from within your audio software.

Here's how to hear the same effect on the synth you are recording as you hear when playing back the track and evaluating the performance. Whichever track you are recording to, set that track's output to Line Output 3 and 4. In the FireWire 1814 **mixer**, set the destination on **sw rtn 3/4** to output bus **1/2**. Then, match the level of **sw rtn 3** to the settings made earlier on the **analog 1 in** channel. Also, match the level of the **aux L** controls for both of those channels.

This way, when you play back a track that you've just recorded, you'll still hear the same effect. This is very useful for both the artist and the producer, and is generally better for judging the performance than having to shift your perception to listening to the recorded track played back without an effect or with a different effect (such as one provided by a software plug-in).

Using the Aux Send as a Separate Monitor Mix

The **aux** send can also be used to create an alternate monitor mix that is sent to a headphone output. Sometimes the artist wants to hear a different mix than the recording engineer, perhaps one with louder rhythm tracks or a quieter piano track—whatever they need to inspire their performance.

On the **output** page of the control panel, select **aux** on the **phones 2** channel. Then, on the aux channel, set the balance to **c** (center), and bring both faders to zero. Open the **mixer** page. Above each input and return are aux level controls for left and right. Use the left **aux** send knob to send these sources to the left side of the headphones. Use the right **aux** send knob to send these sources to the right side of the headphones. If you wish to hear to source in stereo, adjust both knobs accordingly. These levels are used to set the alternate monitor mix. Be sure to plug headphones into the **phones 2** input on the front panel, and adjust the **phones 2** volume level to taste. In standard use, **phones 1** is used to monitor the main mix. However, **phones 1** can be used the same way as described above.

Using the Level Controller Assignments

The Level controller on the FireWire 1814's front panel is a rotary encoder, and its function is completely software assignable from the FireWire 1814 Control Panel. When the Control Panel is first installed, the default setting for the Level controller is to control the Outputs—perfect for most of your monitoring needs.

However, if you are an advanced user, you may find an advantage in modifying the **level controller assignment** or making custom settings. A likely scenario for an alternate assignment would be to use it to control the input monitor levels when you are direct monitoring the FireWire 1814 inputs. We'll explore that here, which might give you some ideas for other ways that you can use the **level controller assignments**.

1. In the right panel of the FireWire 1814 Control Panel, click **input bus** as your **level controller assignment**.
2. Click the **mixer** tab. On the **mixer** page, you should see the **ctrl** buttons on the **analog in** and **spdif in** or **adat in** channels. If you're just recording with the analog inputs, for example, click the **ctrl** button on the **spdif in** or **adat in** channels to deselect those faders from the **level controller assignment**. Then, the Level controller will ONLY control the analog in channels.

Now, you can keep your audio software open while recording, and avoid having to switch back and forth between your audio software and the FireWire 1814 Control Panel to tweak your monitor levels for the inputs that you are recording.

NOTE: Whenever you click on a “new” **level controller assignment** group, all of the possible **ctrl** buttons will become active. You can make changes by clicking an individual **ctrl** button to deselect that channel and disassociate it from the **level controller assignment** group. The Control Panel will then remember these modifications if you click to another assignment group and then click back to the previously modified group.

Using the A/B Selector Switch

The front panel A/B Switch can be assigned from your Control Panel's **hardware** page to perform one of two functions. In the default setting, the A/B Switch is a direct monitoring on/off switch, which allows the user to mute or unmute the input channels manually. If your audio program is capable of ASIO Direct Monitoring, the program will control the switch while the indicator LED may serve as an input monitor on/off indicator.

When the “headphone out 1 A/B” radio button is selected under **a/b switch settings** in the Control Panel's **hardware** page, the front panel A/B Switch will function as a Headphone Source Selector, allowing you to monitor multiple audio sources by keeping them separate from the Line Outputs while you cue them for playback. This makes the FireWire 1814 a perfect companion for laptop-based DJ and live performance.

Different scenarios for using the A/B Switch for turning Direct Monitoring on and off or for monitoring multiple sources are described in the sections that follow.

Direct Monitoring On/Off – This is the default function for the A/B Switch. To change the function of the momentary switch to **direct monitoring** (if the setting has been

altered), open your FireWire 1814 Control Panel and click the **hardware** tab. Clicking the “direct monitoring” radio button will change the momentary switch from a Headphone Source Selector to a Direct Monitoring On/Off switch.

Now, the momentary switch will mute or unmute your FireWire 1814’s input channels. This is useful when you want to manually control the monitoring of your hardware inputs. For this to work, you must have your inputs set up for direct monitoring (see section, “Monitoring Your Inputs for Recording”), either manually or through ASIO Direct Monitoring. Once you have done this, your A/B Switch will then turn Direct Monitoring “off” when it is in the A position (all input channels will be muted), and turn Direct Monitoring “on” when it is in the B position (all input channels will be unmuted).

If you have ASIO Direct Monitoring switched on (your music program must be capable of ASIO Direct Monitoring), you can still use the A/B selector for manually turning Direct Monitoring on and off. ASIO Direct Monitoring, however, will take control of muting or unmuting your FireWire 1814 inputs when you set up a track for recording, and use the music program’s transport controls to stop, play, and punch-in or record. The A/B switch’s corresponding LED, in this case, becomes a handy indicator of your record/monitor status.

When ASIO Direct Monitoring is in use, you will be able to hear your FireWire 1814 inputs when the program’s “transport” is in stop mode (the A/B LED will light, and your inputs will be unmuted). When the program is in play mode, you will hear the recorded tracks but *not* the FireWire 1814 inputs (the A/B LED will *not* be lit, and your inputs will be muted), and when the program is punched in to record mode, you will again hear the FireWire 1814 inputs (the A/B LED will again light, and your inputs will be unmuted).

This is a highly accepted way of recording, and perhaps the most desirable. The FireWire 1814’s Direct Monitoring On/Off switching makes it very convenient to use this method of recording, with the ability to manually turn it on or off when it is convenient to do so.

Monitoring From Your DJ Program – The FireWire 1814 is a perfect companion for laptop-based DJing and live performance. Using the A/B Switch as a Headphone Source Selector allows you to “A/B,” or monitor multiple sources, keeping them muted from the line outputs while you cue them for playback.

A DJ program will allow you to send one audio stream to the main outputs 1/2 that are connected to your sound system, and cue another audio stream directed to outputs 3/4. You may use the A/B Switch in Headphone Source Selector mode to conveniently toggle between those two audio sources (1/2 and 3/4 are the default selections), allowing you to discreetly cue the program material on 3/4 while the main outputs 1/2 continue to play audio to your sound system.

NOTE: The Headphone Source Selector mode only applies to Headphone Out 1, and not to Headphone Out 2. Headphone Out 2 will always receive the source that is selected in the **output** page of the Control Panel.

To configure the A/B Switch to function as a Headphone Source Selector, go to the **hardware** page of the Control Panel, and within the **a/b switch settings** field, select **headphone out 1 a/b** option. The default Control Panel A/B settings are already set up to toggle between out 1/2 and out 3/4. For further clarification, please read the below description.

1. In the **mixer** page, **sw rtn 1/2** is routed to output **1/2**. This means that the tracks in your DJ program that are set to the “FireWire 1814 Analog Outs 1/2” will be heard from Line Outputs 1/2. Your main speakers are connected to Line Outputs 1/2.
2. With the A/B Switch set to A, you will also be monitoring the tracks in your DJ program that are set to the “FireWire 1814 Line Outs 1/2.”
3. **NOTE:** If you look at your Control Panel’s **hardware** page, you’ll see that the “headphone out 1 a/b” is set up as out 1/2 for the A selection, and out 3/4 for the B selection.
4. When you want to cue up other material from your DJ program, route those tracks to play out of FireWire 1814 Analog Outs 3/4. (In the **mixer** page, **sw rtn 3/4** is routed to output **3/4**.)
5. Press the A/B Switch to set the source to “B.” The LED indicator will light for the B selection. You will now be able to hear the tracks that you are cueing *only* from the headphones—not the main outputs. When you are done cueing, you may set the A/B Switch back to the “A” selection by pressing the momentary switch again.

Monitoring Live Playback -- You can, for example, connect a turntable preamp’s outputs to a Line Input pair or a CD player’s S/PDIF output to the FireWire 1814’s S/PDIF Input, and route them to different outputs via your Control Panel **mixer** while playing other tracks from your audio software. By selecting the appropriate settings in the Control Panel, you can use the front panel HP Source Selector to monitor either one of the inputs with headphones while playing back audio from your computer. The following instructions will guide you through this setup.

1. If you look at your Control Panel’s **hardware** page, you’ll see that the default “headphone source selector” is set up as “out 1/2” for the A selection, and “out 3/4” for the B selection. If they are not, then set them for this configuration by clicking the “Set” button.
2. In the **mixer** page, route **analog 1/2 in** to Output 1/2 by clicking the **1/2** button for the **analog 1/2 in** channel.
3. Also in the **mixer** page, route the **spdif in** to Output 3/4 by clicking the **3/4** button for the **spdif in** channel.
4. Connect headphones to the FireWire 1814’s left Headphone Out (HP1). With the A/B Switch set to “A,” you will be monitoring Line Input 1/2. When you switch to the “B” selection, you will be monitoring the S/PDIF Input.
5. You can also connect Line Output 1/2 and Line Output 3/4 of the FireWire 1814 to a DJ battle mixer. This would allow you to toggle between the turntable and the CD player, and alternately play tracks from your computer that are set to play out of the FireWire 1814’s Line Output 1/2 and Line Output 3/4.

11 Troubleshooting

The FireWire 1814 has been designed to give you high performance and professional quality audio. It has been tested under a wide range of systems and operating conditions. However, there are a virtually limitless number of operating scenarios, any of which could affect your system's performance. Though this section cannot cover all possible issues you may encounter, we would like to offer you some suggestions for dealing with common problems.

We recommend that you avoid connecting too many devices. The FireWire bus is a dependable, high-speed, high-bandwidth protocol that is ideally suited for digital audio. Nevertheless, it is important to remember that audio and multimedia streaming places considerable demands on your processor and the FireWire bus. Although it is theoretically possible to chain many multiple FireWire devices in series, doing so has the potential to degrade your audio performance.

Generally, FireWire devices do not suffer from the IRQ conflicts often encountered with PCI cards on Windows PCs. If you are having trouble getting audio in or out of your FireWire 1814, please check the following:

If you have no sound:

- Check to see if the FireWire 1814 drivers are properly installed. In Windows XP, go to the Control Panel and double-click the System icon (under Performance and Maintenance if you are in Category view). Select the Hardware tab and click the Device Manager button. Click the plus sign (“+”) next to Sound, Video and Game Controllers, and locate the FireWire 1814 listing. If you see a question mark or exclamation point next to it, or if you don't see it listed, you may need to reinstall the driver software.
- Make sure your audio software has been set up to use the FireWire 1814. Open your application's audio settings page and check to see if the FireWire 1814's ASIO, WDM, or CoreAudio drivers have been selected.
- If you're certain the FireWire 1814 is correctly installed and configured for your audio software, check your signal path. Make sure your inputs are routed correctly by verifying that your application is receiving audio signal. Make sure your outputs are routed correctly so that your signal is sent to your headphones, amp and/or monitors.
- Check your audio connections and cables to make sure everything is plugged in correctly.
- Check if the power button is enabled.
- Check mic/line selector switch to verify that you've chosen the proper input.

If you're trying to record a digital input to the FireWire 1814 and have no sound:

- Make sure your audio software is configured to receive digital input, and that the input source is set as clock master.

If you're experiencing clicks and pops in your recordings:

- Make sure your input levels are not too hot, as this can cause distortion and clipping. Check the input level meters in your audio application.
- If you are recording a digital input source, make sure the FireWire 1814's sync source, as well as the sync source in your audio software, are set to **external**.

- You might want to try using a larger buffer size. Larger buffer sizes can increase input latency time, but if you're mixing, for example, this is not an issue. Increasing the buffer size can be helpful, particularly in the case of older or lower-powered systems.
- If you have 'daisy-chained' other FireWire devices, try using the FireWire 1814 without them to see if this works better. The noise might be due to a low power situation on the bus or a bus-master conflict.

12 Contact Us

M-AUDIO U.S.

5795 Martin Road
Irwindale, CA 91706-6211
U.S.A.

Sales Information: 626-633-9050
Sales Information (email): info@m-audio.com
Tech Support: 626-633-9055
Tech Support (email): techsupt@m-audio.com
Fax: 626-633-9060
Internet Home Page: <http://www.m-audio.com>

M-AUDIO U.K.

Unit 5, Saracen Industrial Estate, Mark Rd.
Hemel Hempstead, Herts HP2 7BJ, England

Sales Information: 44 (0) 1442 416590
Sales Information (fax): 44 (0) 1442 246832
Sales Information (email): info@maudio.co.uk
Technical Support (PC): 44 (0) 1309 671301
Technical Support (Mac): 44 (0) 1765 650072
Technical Support (email): richard@maudio.freereserve.co.uk
Internet Home Page: <http://www.maudio.co.uk>

M-AUDIO France

Unit 5, Saracen Industrial Estate, Mark Rd.
Hemel Hempstead, Herts HP2 7BJ, England

Sales Information: 0810 001 105
Sales Information (email): info@m-audio-france.com
Technical Support: 0820 00 731
Technical Support (email): support@m-audio-france.com
Fax: 44 (0) 144 224 6832
Internet Home Page: <http://www.maudio.co.uk>

M-AUDIO Deutschland (Germany)

Kuhallmand 34, D-74613, Ohringen, Germany

Sales Information: 49 7941 98 7000
Sales Information (email): info@m-audio.de
Technical Support: 49 7941 98 70030
Technical Support (email): support@m-audio.de
Fax: 07941 98 70070
Internet Home Page: <http://www.m-audio.de>

M-AUDIO Canada

1400 St-Jean Baptiste Ave., #150
Quebec City, QC G2E 5B7, Canada

Tel: 418-872-0444
Fax: 418-872-0034
Email: midimancanada@m-audio.com
Internet Home Page: <http://www.m-audio.ca>

M-AUDIO Japan

Annex Buliding 6F, 2-18-10 Marunouchi
Naka-Ku, Nagoya 460-0002, Japan

Tel: 81 52 218 3375
Fax: 81 52 218 0875
Technical Support: 0820 00 731
Email: info@m-audio.co.jp

13 Product Specs

All audio spec measured at 48kHz sample rate, unless otherwise stated:

Line Inputs 1-8 (TS):

Frequency Response	+/- 0.1dB, 22Hz to 22kHz
Dynamic Range	105dB, A-weighted
Signal-to-Noise Ratio	-105dB, A-weighted
THD+N	<0.00281% (-91dB)
Crosstalk	-107dB @ 1kHz
Nominal Input Level	-10dBV
Maximum Input level	+2.1dBV, typical
Input Impedance	10K Ohms, typical

Mic/Inst. Inputs 1-2 (Balanced; at Minimum Gain):

Frequency Response	+/- 0.1 dB, 22Hz to 22kHz
Dynamic Range	105dB, A-weighted
Signal-to-Noise Ratio	-105dB, A-weighted
THD+N	<0.00281% (-91dB)
Crosstalk	-105dB @ 1 kHz
Maximum Input level	-3.8dBu, typical
Input Impedance	inst in: 500K Ohms, typical; mic in: 1.8K Ohms, typical
Adjustable Gain	> 40dB
Pad	-20dB
Total Gain Range	+60dB

Line Outputs 1-4 (TRS):

Frequency Response	192 kHz: +/- 1dB, 22Hz – 80kHz 96kHz: +/- 0.5dB, 22Hz – 40kHz 48 kHz: +/- 0.1dB, 22Hz – 22kHz
Dynamic Range	107dB, A-weighted
Signal-to-Noise Ratio	-107dB, A-weighted
THD+N	<0.00301% (-90.5 dB)
Crosstalk	-106dB @ 1kHz
Nominal Output Level	+4dBu balanced, -10dBV unbalanced
Maximum Output Level	+10.2dBu balanced, typical; +2.0dBV unbalanced, typical
Output Impedance	150 Ohm
Load Impedance	600 Ohm minimum

Headphone Outputs 1 & 2 (at Maximum Volume; Into 32 Ohm load):

Frequency Response	+/- 1dB, 22Hz to 22kHz
Power into Ohms	16 mW into 32 Ohms
THD+N	<0.04987% (-66.1 dB)
Signal-to-Noise Ratio	-96dB, A-weighted
Max Output Level into 32 Ohms	-3.0dBV, typical
Output Impedance	75 Ohm
Load Impedance	32 to 600 Ohms

Word Clock:

Output	up to 192kHz
Input	up to 96kHz
Pass-through I/O	up to 96kHz
Impedance	75 Ohms

Analog sampling rates:

44.1kHz-192kHz for analog input 1/2 and all analog outputs
(44.1kHz-96kHz input on channels 3-8)

Digital sampling rates (kHz):

44.1, 48, 88.2, & 96 for coaxial S/PDIF in and out
44.1 & 48 for optical S/PDIF in & out
44.1, 48, or 88.2 & 96 for ADAT I/O in S/MUX mode

14 Default Mixer and Output Configuration Settings

mixer faders	0dB
output faders	0dB
output channels assignments	"main"
phones 1 & 2 sources	1/2
sw rtn 1/2 & 3/4 routing	to buses 1/2 & 3/4
spdif sw rtn	hardwired to spdif out
adat rtn bus	hardwired to adat output bus
aux send knobs	turned all the way down
analog & digital input channels	unassigned
pan knobs	hard left / right
balance knobs	center position <C>
all mixer and output channels	mute=off, solo=off and link=off
main level controller assignment	"output" fader group (all output channels selected)

15 Warranty Terms & Registration

Terms

M-Audio warrants products to be free from defects in materials and workmanship, under normal use and provided that the product is owned by the original, registered user. Visit www.m-audio.com/warranty for terms and limitations applying to your specific product.

Registration

Thank you for registering your new M-Audio product. Doing so immediately both entitles you to full warranty coverage and helps M-Audio develop and manufacture the finest quality products available. Register online at www.m-audio.com/register to receive FREE product updates and for the chance to win FREE M-Audio gear.