



Mbox[®] User Guide

Version 9.0

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Documentation Feedback

At Avid, we are always looking for ways to improve our documentation. If you have comments, corrections, or suggestions regarding our documentation, email us at ***techpubs@avid.com***.

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chapter 1

Welcome to Mbox

Welcome to the Mbox[®] USB audio and MIDI interface from Avid[®].

Mbox provides your USB 2.0-equipped computer with two channels of analog audio input and output, two channels of digital audio input and output, MIDI In and Out ports, one headphone output with front panel level control. Mbox includes two professional-quality mic preamps and 24-bit/96 kHz analog-to-digital and digital-to-analog converters.

Mbox integrates with Pro Tools[®] software, and is compatible with third-party audio and MIDI applications that support the CoreAudio (Mac) or ASIO (Windows) standard.

Mbox Features


Mbox provides the following:

- Two channels of analog audio input with high-quality microphone preamps and switchable 48V phantom power
 - Analog input jacks include two XLR/TRS combo-jacks and two 1/4 TS jacks, with switchable Mic, Line, and DI levels
 - Soft-limit feature on each input
 - -20 dB pad available separately on each analog input channel
- Two channels of S/PDIF digital input and two channels of S/PDIF digital output
- S/PDIF inputs are available independently, in addition to analog inputs 1–2
- S/PDIF outputs are available independently, in addition to analog outputs 1–2
- Up to a total of four channels of input, using analog and digital inputs simultaneously
- One MIDI In and one MIDI Out port, providing 16 channels of MIDI input and output
- Two 1/4-inch TRS analog monitor outputs
- 24-bit A/D and D/A converters, supporting sample rates up to 96 kHz
- Low Latency Monitoring (LLM) with adjustable balance between input and playback
- Dim and Mono buttons
- 1/4-inch (TRS) stereo headphone output with adjustable level control
- On-board reverb and delay effects (useful for monitoring while tracking vocals)
- On-board Tuner
- Multi-function, assignable Soft button
- USB 2.0 High-speed operation

⚠ *Mbox may not function properly if connected to a USB hub. Connect Mbox Mini to a separate, dedicated USB port.*


System Requirements and Compatibility

Mbox can be used with a qualified Windows or Mac computer running Pro Tools software 8.0.4 or higher.

 *For Pro Tools installation instructions, see the Pro Tools Installation Guide.*

Mbox can be also be used with a qualified Mac or Windows computer running other Core Audio- or ASIO-compliant applications.

Mbox hardware drivers must be installed before you can connect and use your Mbox.

 *For Mbox hardware drivers installation instructions, see Chapter 3, "Installing and Connecting Mbox."*

A DVD drive is required to use the Drivers Installer disc (included with your Pro Tools software package).

Avid can only assure compatibility and provide support for hardware and software it has tested and approved.

For complete system requirements and a list of qualified computers, operating systems, hard drives, and third-party devices, visit:

www.avid.com/compatibility

Conventions Used in This Guide

All of our guides use the following conventions to indicate menu choices and key commands:

Convention	Action
File > Save	Choose Save from the File menu
Control+N	Hold down the Control key and press the N key
Control-click	Hold down the Control key and click the mouse button
Right-click	Click with the right mouse button

The names of Commands, Options, and Settings that appear on-screen are in a different font.

The following symbols are used to highlight important information:



User Tips are helpful hints for getting the most from your system.



Important Notices include information that could affect your data or the performance of your system.



Shortcuts show you useful keyboard or mouse shortcuts.



Cross References point to related sections in this guide and other Pro Tools guides.

About www.avid.com

The Avid website (www.avid.com) is your best online source for information to help you get the most out of your Pro Tools system. The following are just a few of the services and features available.

Product Registration Register your purchase online.

Support and Downloads Contact Avid Customer Success (technical support); download software updates and the latest online manuals; browse the Compatibility documents for system requirements; search the online Knowledge Base or join the worldwide Pro Tools community on the User Conference.

Training and Education Study on your own using courses available online or find out how you can learn in a classroom setting at a certified Pro Tools training center.

Products and Developers Learn about Avid products; download demo software or learn about our Development Partners and their plug-ins, applications, and hardware.

News and Events Get the latest news from Avid or sign up for a Pro Tools demo.

chapter 2

Mbox Hardware Overview

Mbox Front Panel Features

Figure 1 identifies controls, indicators, and input and output ports on the front panel on the Mbox.

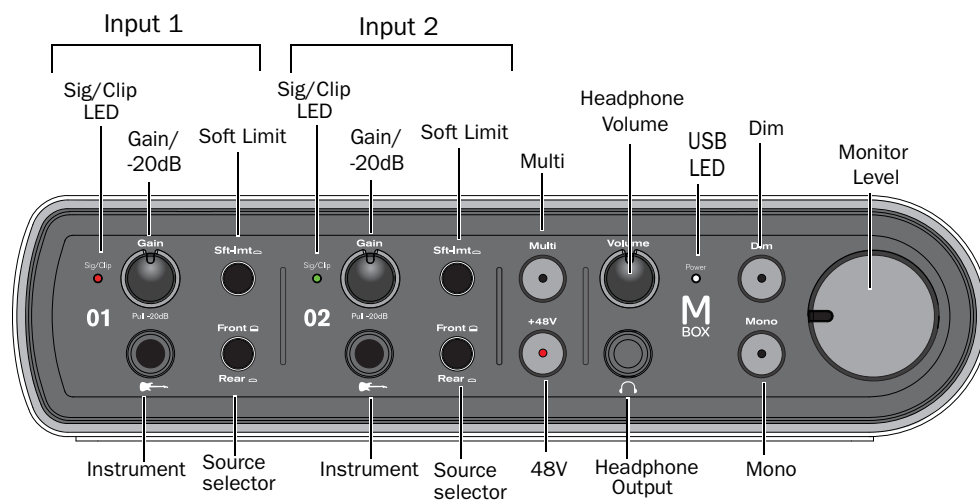


Figure 1. Mbox front panel

Instrument Inputs

Use these 1/4-inch TS inputs for connecting an electric guitar, bass, or other instrument-level device. The level for these inputs is controlled by the Gain Controls.

Front/Rear Source Selectors

These buttons select either the front panel Instrument Inputs (TS) or rear panel Mic/Line Inputs (XLR/TRS combo) for each channel. When the button is set to the Out position, the front panel Instrument Inputs are active. When the button is set to the In position, the rear panel Mic/Line Inputs are active.

Gain Controls/–20dB Pad

These knobs adjust the input gain levels of the Mic/Line inputs. Turn the knob clockwise to increase gain, and counter-clockwise to decrease gain.

If your input signal is too hot even with the Gain knob at a low setting, pull the Gain knob out to engage a “pad” that attenuates the signal by 20 dB.

Signal/Clip LEDs

These LEDs illuminate green in the presence of audio signal, and illuminate red if the input signal has “clipped” (overloaded) the input of the Mbox. Clipping the input can result in audible distortion.

Soft-Limit Buttons

These buttons activate the Soft-Limit function, applying a smooth, overdriven tape-type limiting to strong input signals on the Instrument, Mic, or Line inputs.

+48V Switch and LED (Phantom Power)

The +48V switch toggles phantom power on/off for all mic input channels. The LED, when lit, indicates that 48V phantom power is active on the XLR Mic inputs.

About Phantom Power

Dynamic microphones (such as Shure SM57s) do not require phantom power to operate, but are not harmed by it. Most *condenser* microphones (like an M-Audio Solaris) *do* require phantom power to operate.

⚠ *Although phantom power can be used safely with most microphones, it is possible to damage some ribbon microphones with it. Always turn off phantom power and wait at least ten seconds before connecting or disconnecting a ribbon microphone.*

⚠ *When using phantom power, the Mbox maximum current per microphone is 4 mA.*

If you are not sure about the phantom power requirements for your microphone, consult your microphone’s documentation or contact the manufacturer.

Monitor Level

The Monitor Level knob adjusts the output level of the Monitor Output ports.

Dim Button and LED

The Dim Button reduces by 30 dB the output volume from both the Monitor Outputs and the Headphone Output. When engaged, the Dim LED lights.

Mono Button

The Mono Button sums the control room outputs to a mono signal (delivering that identical signal to both speakers) via the Driver Control Panel or the Mbox. When engaged, the Mono LED lights.

Checking Phase Relationships

The Mono switch can also be used for a quick check of the phase relationship between Source 1 and Source 2 inputs.

Guitar Tuner Function

When the Dim Button and the Mono Button are pushed at the same time, the Guitar Tuner function is activated. The Dim and Mono LEDs flash between off and on to indicate tuner mode is active. When a string is played on a guitar plugged into an Instrument Input, the Input 1 Signal/Clip LED is illuminated red if tuning is too low, off when tuning is too high, and green when tuning is correct. The Input 2 Signal/Clip LED is illuminated red if tuning is too high, off when tuning is too low, and green when tuning is correct. The Tuner interface is displayed in the Software Control panel if the Software Control Panel is open.

Front Panel Headphone Output

Use the Headphone Output to connect stereo headphones with a 1/4-inch stereo connector. The headphone outputs mirror the signal sent to the Monitor Outputs.

Headphone Volume

The Headphone Volume knob adjusts the output level of the Headphone port. This output is independent of the Monitor Level knob.

Multi Button

(Pro Tools Only)

The Multi Button can be assigned to execute several functions in Pro Tools, including Add Track, Start/Stop Record, Tap Tempo, Toggle Marker Locations, and Save Session. See Chapter 5, “Using the Multi Button (Pro Tools Only).”

USB LED

The USB LED indicates that the Mbox is receiving power from its USB connection. Once the USB light is on, audio can pass in or out of the system.

The USB LED is a power LED, which is also indicates when the unit is powered in stand-alone mode. In this mode you can connect a USB cable but that cable is connected to a wall outlet instead of a computer (similar to an iPod or iPhone).

Mbox Back Panel Features

Figure 2 identifies each port on the back panel of the Mbox.

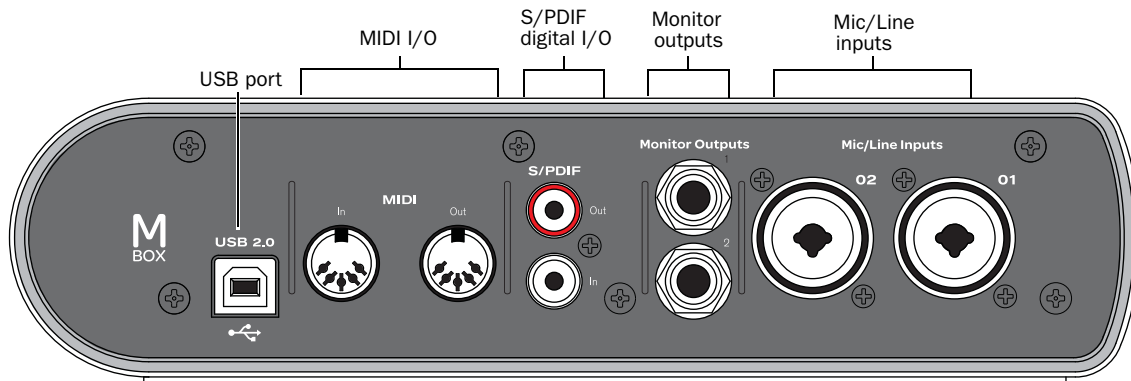


Figure 2. Mbox back panel

USB Port

This standard USB connector is used to connect a USB 2.0 port on your computer to the Mbox. One standard USB cable is included with your system. (It is also used to power the unit in stand-alone mode.)

In use, the S/PDIF input and output channels are available in addition to the four channels of analog audio I/O.

Mic/Line Inputs

Each analog source input channel provides combination XLR/TRS on the rear panel. These balanced/unbalanced analog audio inputs support the following input levels:

- Mic (microphone) for XLR inputs
- Line (TRS) for line level signals on TRS or TS inputs

On the front panel, the input signal is adjusted by the Gain control for each channel and the source (rear panel Mic/Line, or front panel Instrument) is chosen using the Source selectors.

Mic/Line Input 2 is at the far left (when looking at the back panel), and Mic/Line Input 1 is to its right. The back panel inputs for Mic/Line Input 1 and Mic/Line Input 2 are located such that they are directly in line with their associated input controls on the front panel. This lets you locate input jacks more easily when viewing from the front of the unit.

Monitor Outputs

These outputs support balanced TRS, or unbalanced TS, 1/4-inch connections. To monitor your mix, connect these outputs to a mixing board, directly to a monitoring system such as a stereo power amp, or another stereo destination.

S/PDIF Digital I/O

The S/PDIF in and out ports are unbalanced two-conductor phono (RCA) connectors that utilize a full 24-bit, two-channel digital data stream.

The Sony/Philips Digital Interface Format (S/PDIF) is used in many professional and consumer CD recorders and DAT recorders. To avoid RF interference, use 75-ohm coaxial cable for S/PDIF transfers and keep the cable length to a maximum of 10 meters.

MIDI I/O

The MIDI In and MIDI Out ports are standard 5-pin MIDI ports, each providing 16 channels of MIDI input and output.

chapter 3

Installing and Connecting Mbox

To use Mbox with Pro Tools or any other Core-Audio- or ASIO-compatible applications, you must install the Mbox hardware drivers on your computer.


This chapter provides instructions on installing the drivers on Mac and Windows, and connecting the Mbox to your computer.

A *Do not start this procedure with your Mbox connected to your computer.*

A *Before installing the hardware drivers, refer to the Read Me information included with the drivers installer for your device.*

To install the drivers and connect the Mbox:

1 Make sure you are logged in as an Administrator for the account where you want to install the drivers.

 *For details on Administrator privileges, see the documentation for your computer.*

2 Do one of the following:

- Insert the Drivers Installer disc that came with your Pro Tools software package into your computer.

– or –

- Download the Mbox drivers installer for your computer platform from www.avid.com. After downloading, make sure the installer is uncompressed (.dmg on Mac or .ZIP on Windows).

3 Do one of the following:

- On Mac, locate and double-click Avid Mbox.mpkg.


– or –


- On Windows, locate and double-click Install Avid Mbox.exe.

4 Follow the on-screen instructions to proceed with installation.


5 When installation is complete, click Restart.

6 After the computer has restarted, connect the small end of the included USB cable to the USB port on Mbox and connect the other end to any available USB port on your computer.

 *If the USB LED on the front panel of the Mbox does not illuminate, try unplugging the USB cable from the Mbox USB port, and plugging it back in. If the USB LED still does not illuminate, shut down the computer, disconnect Mbox and start the computer. Once the computer has fully restarted, reconnect Mbox.*

 *Mbox may not function properly if connected to a USB hub. If you need to use a hub for other USB peripherals, connect the hub to a separate USB port; Mbox must be connected to a dedicated port on the computer in order to function properly.*

You can now use your Mbox with Pro Tools, or with any other CoreAudio- or ASIO-compatible application.

 *For Pro Tools installation instructions, see the Pro Tools Installation Guide.*

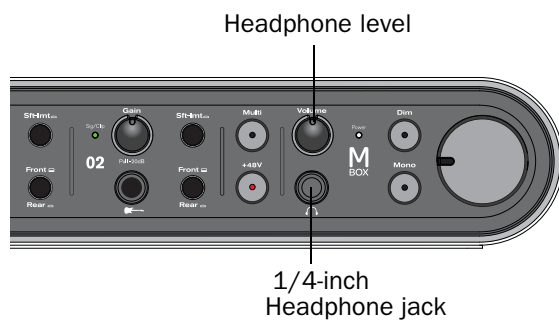
chapter 4

Making Studio Connections

This chapter provides step-by-step instructions for connecting mics, instruments, mixers, headphones, speakers, and other devices to Mbox.

Connecting Outputs

To hear audio from Mbox, you need to connect headphones or an external sound system (such as powered monitors or a home stereo) to Mbox.



Headphone jack on front of Mbox

Connecting Headphones

You can use headphones equipped with a 1/4-inch stereo jack to monitor your audio.

The Headphone Output mirrors Monitor Output channels 1–2.

To connect headphones:

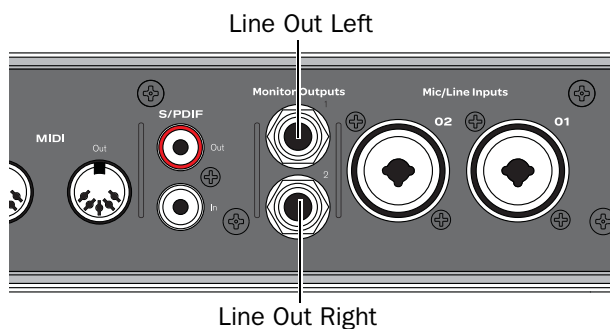
- 1 Connect headphones with a 1/4-inch stereo connector (or adapter) to the Headphone jack.
- 2 Adjust the volume using the Headphone Volume knob on the front panel.

The headphone outputs mirror the signal sent to the Monitor Outputs.

Connecting a Sound System

The Monitor Outputs on the back of the Mbox support 1/4-inch plugs. These connections can be balanced TRS (Tip-Ring-Sleeve) connectors, or unbalanced TS (Tip-Sleeve) connectors such as those on instrument cables.

To listen to your audio, connect these outputs to any amplification system: powered speakers, a home stereo system, or an audio mixer.



Stereo output from the Mbox (back panel)

To connect a sound system:

- For stereo monitoring, connect Monitor Outputs 1 and 2 to the inputs of your main left and right speakers.

To connect to a stereo system:

- When connecting to a stereo system, connect the left channel of the stereo (often the white plug) to Monitor Output 1, and the right channel of the stereo (often the red plug) to Monitor Output 2.



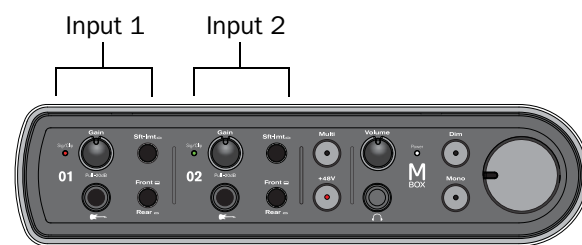
Home stereo systems often use RCA connectors. You can use an adaptor or a special cable to convert from the 1/4-inch TRS (Tip-Ring-Sleeve) connectors used by Mbox to the RCA connectors on your home stereo.

Audio Inputs

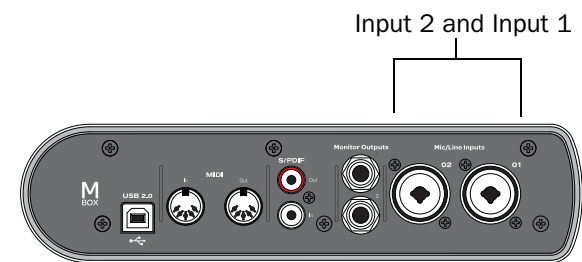
Mbox provides two channels of analog inputs, and supports microphones, guitars, keyboards, and other types of instruments and devices.

Mbox has two audio input sections, labeled Input 1 and Input 2. For stereo inputs, use Input 1 for the left input, and Input 2 for the right input.

The two input sections are located so that the hardware input jacks line up directly behind their corresponding input controls on the front panel. This makes it easier to locate channel input connections from the front.



Inputs on front panel of Mbox



Inputs on rear panel of Mbox

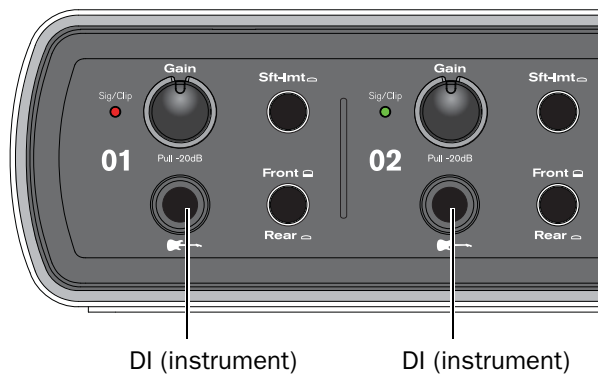
For information about connecting specific audio sources, see “Connecting a Microphone” on page 15, and “Connecting Instruments to the Mbox” on page 16.

Each Input section has three analog input jacks (the Mic and Line are on a single, combo jack):

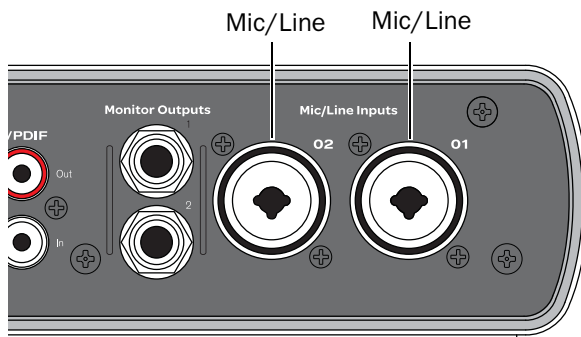
Mic For XLR microphone cables.

Line (TRS or TS) For 1/4-inch Tip-Ring-Sleeve or Tip-Sleeve cables from keyboards, mixers, and other line-level sources.

DI For 1/4-inch Tip-Sleeve cables from guitar, bass, or similar sources.



Front panel analog input connectors



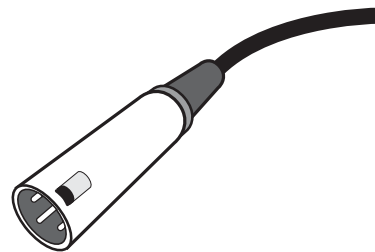
Rear panel analog input connectors

Connecting a Microphone

Mic Cables and Connectors

Use a microphone with an XLR connector to connect the microphone to the Mbox.

The Mbox can only supply power through a microphone cable with an XLR connector. If you are not sure about the phantom power requirements for your microphone, refer to your microphone's documentation or contact the manufacturer.



XLR connector

Phantom Power

Some microphones require power to operate. This power, called *phantom power*, is supplied either by a battery in the microphone, or by a mic preamp in a mixer or audio interface (such as Mbox) that can supply power through the microphone cable.

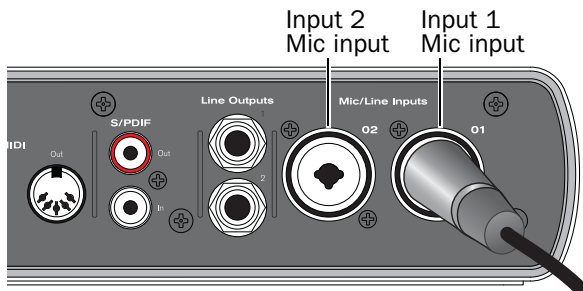
Most *condenser* microphones (such as an M-Audio Solaris) require phantom power to operate. *Dynamic* microphones (such as a Shure SM57) do not require phantom power to operate, but are not harmed by it.

⚠ Although phantom power can be used safely with most microphones, it is possible to damage some ribbon microphones with it. Always turn off phantom power and wait at least ten seconds before connecting a ribbon microphone.

Using a Mic with an XLR Connector

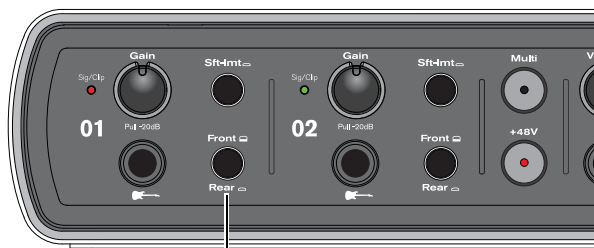
To use a microphone that has an XLR connector:

1 Plug your microphone cable into one of the Mic/Line inputs on the back of Mbox.



XLR connector plugged into Input 1

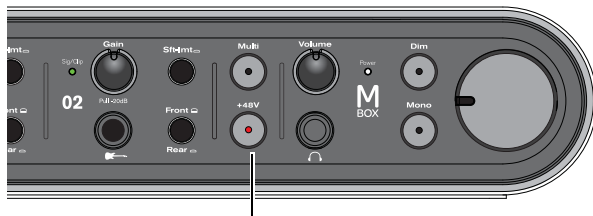
2 Set the Source to Rear (“in” position) by pressing the Source selector on the front of Mbox.



Source selector

Input 1 Source selector

3 If your microphone requires phantom power, make sure the microphone is connected, then press the Phantom Power switch (labeled 48V) on the front of the Mbox. This switch sends 48V to *both* mic inputs. The 48V LED on the front of the Mbox lights when phantom power is being supplied.



Phantom Power switch

Phantom Power switch

4 On the front of the Mbox, carefully turn the Gain control to the right to increase the input level of your microphone signal.



Gain knob for Input 1

5 If the incoming signal is too loud, pull the Gain knob out to engage the -20 dB pad.

Connecting Instruments to the Mbox

Mbox provides two input types (DI and Line) for instruments.

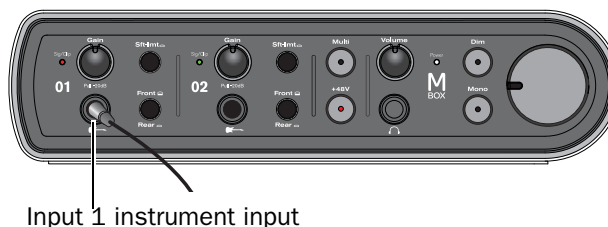
DI Input Use the DI (“Direct Inject”) input for electric guitars or electric basses.

Line Input Use the Line input for line-level devices, including electronic audio sources such as mixers, samplers, keyboards, and synthesizers.

Connecting Electric Guitar or Bass

To use a guitar with Mbox:

- 1 On the front of the Mbox, plug your guitar cable into one of the Instrument inputs.



Connecting a guitar to the 1/4-inch connector

- 2 On the front of the Mbox, set the source to Front by setting the input channel Source selector to the Out position (orange band is visible).



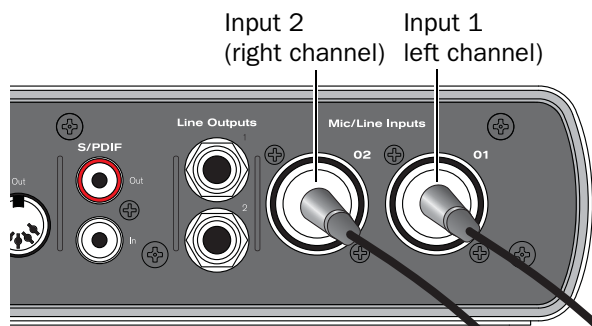
Source selector and Gain control for Input 1

- 3 On the front of the Mbox, carefully turn the Gain control to the right to increase the input level of your guitar.

Connecting Keyboards and Mixers

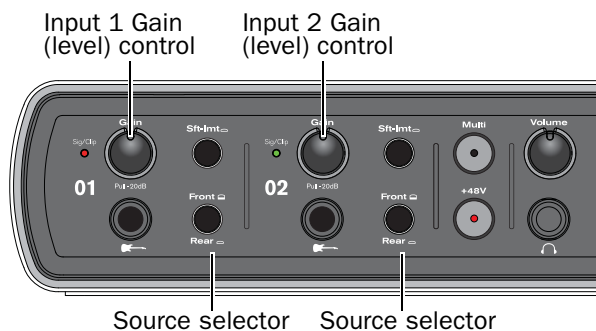
To use a keyboard or mixer with Mbox:

- 1 Plug your keyboard, mixer, or other audio source into either the Input 1 or Input 2 Line (TRS) inputs on your Mbox. If your source is stereo (such as a stereo keyboard or the stereo output from a mixer), connect the left channel (often the white plug) to Input 1, and right channel (often the red plug) to Input 2.



Mbox connections for line-level stereo input source

- 2 Set the Source to Rear ("in" position) by pressing the Source selector on the front of Mbox.



Source selector and Gain control for Inputs 1 and 2

- 3 Set your instrument's volume to its optimal level. For example, the optimal level for most keyboards is between 80% and 100% of maximum volume.
- 4 On the front of the Mbox, carefully turn the Gain control to the right to increase the input level of your keyboard.

Digital Input and Output

Mbox provides digital inputs and outputs for S/PDIF-format digital audio. The two channels of S/PDIF digital input can be used in combination with the two analog inputs (for a total of four simultaneous input channels). The two channels of S/PDIF digital output can be used in combination with the two analog outputs (for a total of four simultaneous output channels).

Connecting Digital Devices

To connect a S/PDIF device to Mbox:

- 1 Use two 75-ohm coaxial cables with male RCA connectors on both ends (purchased separately).
- 2 Connect the device's S/PDIF output to Mbox's S/PDIF input port, and the device's S/PDIF input to Mbox's S/PDIF output port.

Using S/PDIF Input

If you are using the S/PDIF input on Mbox with a third-party CoreAudio-or ASIO-compliant application, use the Mbox Control Panel to configure the input. If you are using Pro Tools, use the Hardware Setup dialog in Pro Tools.

To configure Pro Tools for a S/PDIF connection:

- 1 Choose Setup > Hardware Setup.
- 2 Select S/PDIF from the Clock Source pop-up menu.
- 3 Click OK.
- 4 On the recording track, select the appropriate stereo or mono S/PDIF source from the track Input selector.

Once enabled in the Hardware Setup dialog, the S/PDIF inputs become active and passes audio to Mbox.

To configure Mbox for a S/PDIF connection:

- 1 Do one of the following:
 - On Mac, launch System Preferences (Apple menu > System Preferences), then double-click Avid Mbox. (You can also open the Driver Control Panel from the Applications menu.)
 - or –
 - On Windows, choose Start > Control Panel > Mbox.
- 2 In the Control Panel, choose Setup.
- 3 Select S/PDIF from the Clock Source pop-up menu.

MIDI Connections

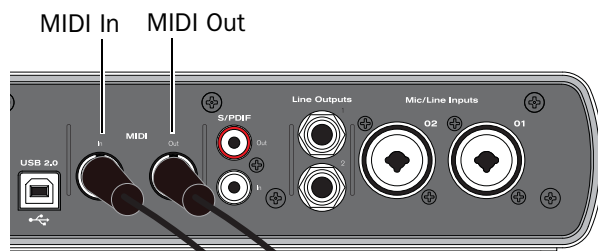
The two MIDI ports on Mbox are available to any MIDI application on your computer, as long as the Mbox hardware drivers are installed.

If you need additional MIDI ports you can add a compatible MIDI interface. USB MIDI interfaces work effectively with Windows or Mac. Serial MIDI interfaces are supported on Windows systems only.

! *Only USB MIDI interfaces are compatible with Pro Tools systems for Mac OS X. Modem-to-serial port adapters and serial MIDI devices are not supported.*

To connect your MIDI device to Mbox:

- 1 Connect a standard 5-pin MIDI cable from the MIDI Out port of your device to the MIDI In port on the back of Mbox.
- 2 Connect another MIDI cable from the MIDI In port of your device to the MIDI Out port on the back of Mbox.



MIDI connections to Mbox



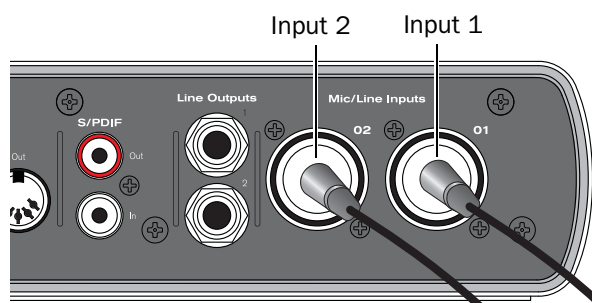
On Mac OS X, use the Audio Midi Setup (AMS) utility to customize the names of your MIDI devices.

Monitoring MIDI Instruments with Mbox

If you have a MIDI instrument that has analog outputs, you can connect it to Mbox to monitor its output.

To connect your MIDI instrument for monitoring:

- Connect the MIDI instrument's audio outputs to the Line (TRS) inputs on your Mbox.




Mbox connections for line-level stereo input source

chapter 4

Using the Driver Control Panel

The Mbox Driver Control Panel lets you configure settings for your audio interface for use with Pro Tools or other audio applications that support the CoreAudio (Mac) or ASIO (Windows) standard.

 *For information on configuring applications other than for use with your interface, see “Using Third-Party Applications” on page 37.*

Several features of Mbox can be accessed directly from the Mbox front panel, such as input gain, phantom power, and output levels. But there are many additional parameters that cannot be accessed from the front panel. These additional features are available to you using the included Driver Control Panel application.

To open the Driver Control Panel:

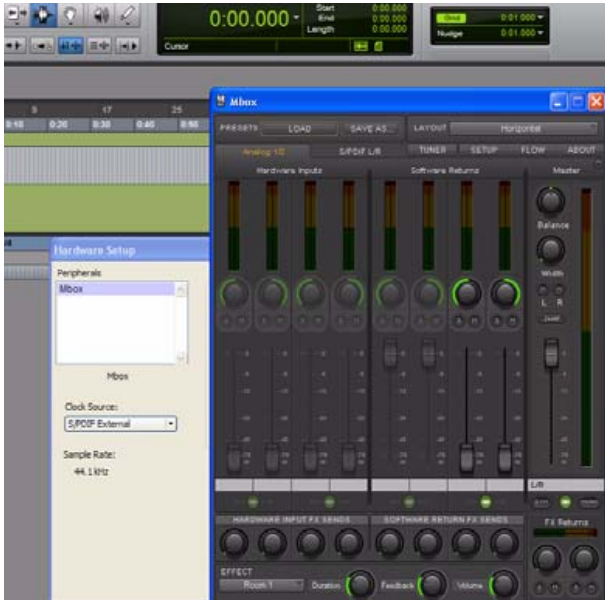
- On Mac, launch System Preferences (Apple menu > System Preferences), then double-click Avid Mbox. (You can also open the Driver Control Panel from the Applications menu.)
 - or –
- On Windows, choose Start > Control Panel > Mbox.



Mbox Driver Control Panel (Horizontal view shown)

To open the Driver Control Panel from Pro Tools:

- 1 Choose Setup > Hardware.
- 2 Click Launch Setup App.



Mbox Driver Control Panel launched in a Pro Tools session

Presets

The Preset view lets you load and save Mbox Settings files, which contain all settings of the Mbox Driver Control Panel. This is useful if you'd like to save various configurations so that you do not have to manually reconfigure your system each time you work on a different type of project.

Load Button

The Load Button opens a file browser that lets you load a previously saved Settings file.

Save as...

The Save as button opens a file browser that lets you save the current settings of the Driver Control Panel to a Settings file.

Layouts

The Layout drop-down menu lets you choose what information you would like the Driver Control Panel to show, and how you would like that information to be displayed. There are four layouts to select from:

Horizontal

The Horizontal layout is the default layout. It shows all knobs, faders, meters and buttons in a layout similar to that of a mixing console. The Horizontal layout is used for all the screen captures in this chapter.

Horizontal (Meters Only)

The Meters Only layout emphasizes pre-fader hardware input and software return metering, but does not provide access to the stereo mixers.



*Mbox Driver Control Panel
(Horizontal (Meters only) shown)*

Vertical



Mbox Driver Control Panel
(Vertical shown)

The Vertical layout provides access to all controls and meters in a vertical window. The Vertical layout was designed for compact operation, which is convenient if you want to run it along with Pro Tools or your other audio application (uses far less screen real estate, but provides full functionality).

Vertical (Meters Only)



Mbox Driver Control Panel
(Vertical (Meters only) shown)

The Meters Only layout emphasizes pre-fader hardware input and software return metering, but does not provide access to the stereo mixers.

Additional Functions

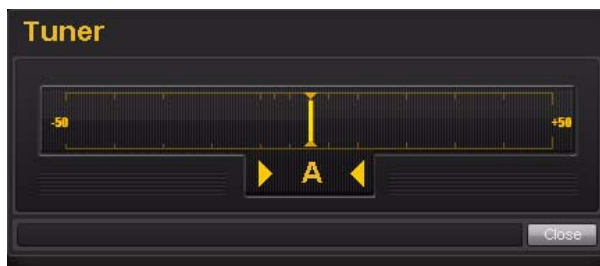
Mbox also features a variety of functions accessible through pop-up menus located at the upper-right area of the Control Panel:

- Tuner
- Setup
- Flow
- About

Tuner

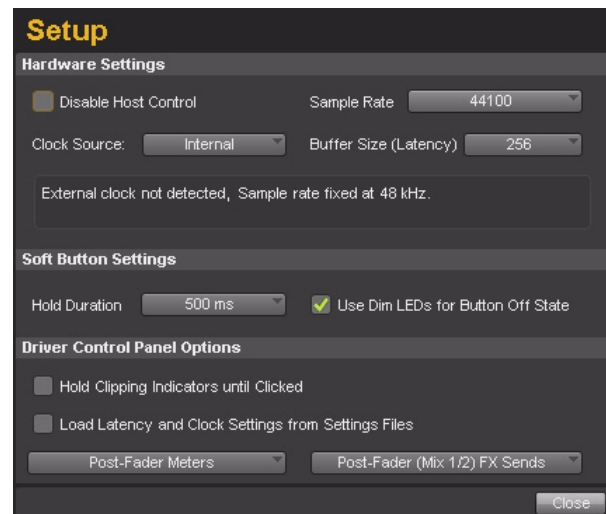
The Tuner activates the tuner function of Mbox. You can also access the tuner by pressing the front panel Mono and Dim buttons simultaneously. A tuner display appears in the center of the Driver Control Panel, and the front panel input meters function as tuning indicators as well.

When tuning from the front panel, use the input meters (LED ladders). They are red when out of tune and green when in tune.



Setup

Setup is where you define the hardware settings of the Mbox. For example, you can set buffer size, sample rate, and clock source. Think of Setup as a quick way to customize Mbox behavior.



Setup pop-up menu

In the Setup window, the options are grouped in the following categories:

Hardware Settings

The parameters in this section of the Control Panel govern the operation of the interface when it is connected to a computer using a USB cable (Hosted Mode).

This section of the Control Panel provides parameters you can set on your interface when it is connected to a computer using a UBS cable.

Disable Host Control

When you launch Pro Tools, it takes control of the Driver Control Panel's first stereo mixer. If you want to obtain full manual control of the Driver Control Panel, choose this option.



If you want to use the Low Latency Monitoring option of Pro Tools, this option must not be checked.

Clock Source

This setting determines the clock source to which Mbox is synchronized.

Internal If you are using Mbox by itself (i.e., without other digital devices or an external clock), select the Internal option for the interface to work properly.

S/PDIF If you have connected a S/PDIF device to your Mbox, select the S/PDIF option. This makes Mbox clock to the external device's clock.

Sample Rate

This drop-down menu sets the sample rate of Mbox. Note that when using the interface with an ASIO or CoreAudio application, the sample rate can also be determined by your audio application. This parameter may not be editable from within the Mbox Control Panel if your audio application is running. In this case, any changes to the sample rate must be made through the audio application itself. If the application does not provide a way to set the sample rate, quit the application, then change the sample rate through the Mbox Control Panel.

When the sample rate is locked to an external digital clock source, the Mbox's LED is solid blue. When the sample rate is set and there is no digital clock source detected (or cannot lock to it

for some reason), the LED blinks. (A message appears at the bottom of the Hardware Settings section stating that: "External clock not detected, Audio Streaming is Disabled.").


Buffer Size (Windows only)

This menu sets the size of the input and output buffers on Mbox.

Buffers are used to help keep audio hardware and software running smoothly by processing audio in groups of samples rather than one sample at a time. Due to variations between computer hardware and software, it is impossible to recommend a single optimum setting for all systems. It may be necessary to experiment with various settings until you find the best buffer size for your system.

The goal of setting a buffer size is to reduce it as much as possible without hearing any clicks, pops, or other glitches. If the buffer size is too small, the computer may not be able to make all the required audio calculations on time and you may hear pops, clicks, and stuttering in your audio streams. On the other hand, if the buffer size is set too high, your computer processes audio without incident, but your software may feel sluggish and unresponsive.

To find your system's optimum buffer size setting, begin with a high setting and gradually reduce the size until you begin to hear clicks, pops, or other audible glitches in your audio. Then, raise the buffer size setting until these glitches disappear. You may need to stop playing audio any time you change this setting and certain applications require you to re-launch the program before the new buffer size settings become active.

 *This menu only appears on Windows systems. Most Mac OS X applications allow to change the buffer size from within the audio application itself. Please see your audio application's user guide to learn how to change this setting.*

Soft Button Settings

The Mbox has four “Soft” buttons: Multi, +48v, Mono, and Dim.

Hold Duration

This pop-up menu gives you four choices of Press and Hold duration for all soft buttons on the front of the Mbox. Choose between 250 msec, 500 msec, 750 msec, and 1 sec.

Use Dim LEDs for Button off State

Checking this option gives you a dim LED for all the soft buttons that are off (so you can still discern the LED in the dark).

Driver Control Panel Options

Hold Clipping Indicators until Clicked

The top section of the meters (or right section for horizontal meters) of the Driver Control Panel feature a red clipping indicator. When this option is selected, the clipping indicators remain lit until they are clicked.

Load Latency and Clock Settings from Settings Files

When this option is selected, the clock source and buffer settings are recalled when loading a setting file

Post-Fader Meters

When this option is selected, fader positions affect the meters. Post-Fader Meters mean the meter indicate post-fader levels.

Pre-Fader Meters

When this option is selected, the meters display the level of a signal before it passes the fader. This allows signal levels to be displayed regardless of the fader positions within the stereo mix (in other words, a fader can be all the way down and no sound is heard from the mixer's output, but you can still see if there is any activity on that input).

FX Sends Mode

Pre-Fader FX Sends

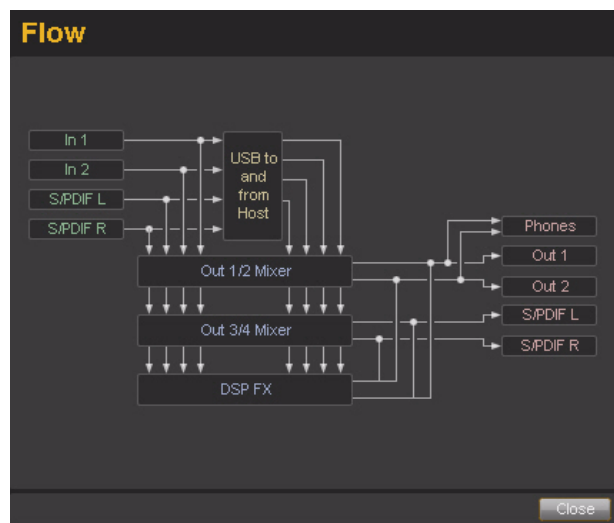
When Pre-Fader FX Sends is selected, the full audio signal is sent to the FX Sends, regardless of the position of the Channel Faders of stereo mix 1–2.

Post-Fader (Mix 1/2) FX Sends

When Post-Fader (Mix 1/2) is selected, the audio signal level being sent to the FX Sends is affected by the position of the Channel Faders of Stereo Mix 1.

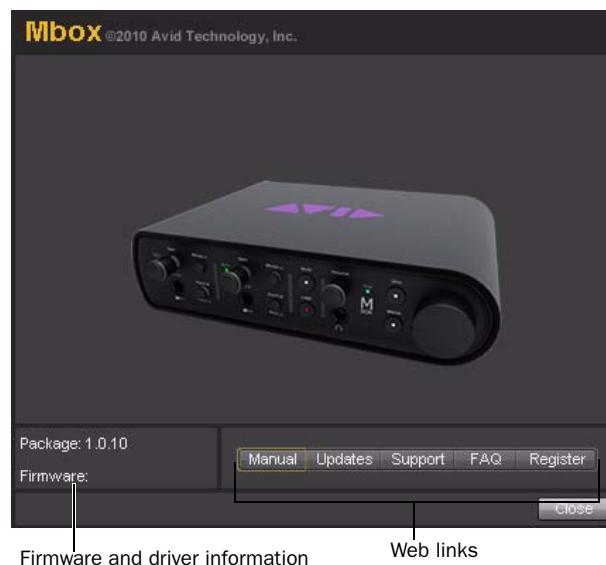
Flow

Clicking the Flow pop-up menu opens a display showing the signal flow from the inputs to the outputs of Mbox. This is a useful reference for understanding the path of an audio signal flowing through Mbox.



About

The About pop-up menu allows you to view the firmware version of the Mbox hardware, and the package version of the Mbox driver installer.



Viewing Firmware and Installer Information

Directly above the status indicators, you can view the firmware version of the Mbox hardware, and the package version of the Mbox driver installer.

Accessing the Web Links

Along the bottom-right of the Driver Control Panel you can easily access helpful online resources on our Avid website (www.avid.com) by clicking on the following pop-up menus:

- Manual
- Updates
- Support
- FAQs
- Register



Clicking on any of the “Web links” opens your web browser. Your computer must have Internet access for these pages to load.

Stereo Mixes

This 8-input, 4-output mixer allows you to create two different stereo mixes from 8 input sources consisting of any of the hardware inputs (i.e., analog and digital inputs) and software returns (software outputs). This allows you to set up near-zero latency cue mixes in which the performers hear a “customized” mix while recording.

It is important to note that any changes made to the stereo mix only affects what is audible from the mixer’s outputs—the stereo mix does not affect the signals that are sent to your DAW for recording. For example, if you are recording a vocalist and he/she tells you to turn up the vocal track so they can hear themselves better, you can increase the vocalist’s microphone channel in the stereo mix. This makes the vocal part louder in the vocalist’s headphones, but it is still recorded into your DAW at the volume determined by the front panel Gain Adjustment Knob.

The stereo is set up like a standard mixing console: There are 8 input channels, each with its own volume fader, pan and aux send knobs, solo, and mute buttons, as well as a master output section with its own faders and mute button.

A pair of channels can be linked together by clicking the link icon between the two channels. Linking channels allows you to adjust mute, solo, and fader settings simultaneously by modifying parameters on either one of the linked channels. However, linking two channels does not have any effect on their Pan controls, which are always made on a per-channel basis.

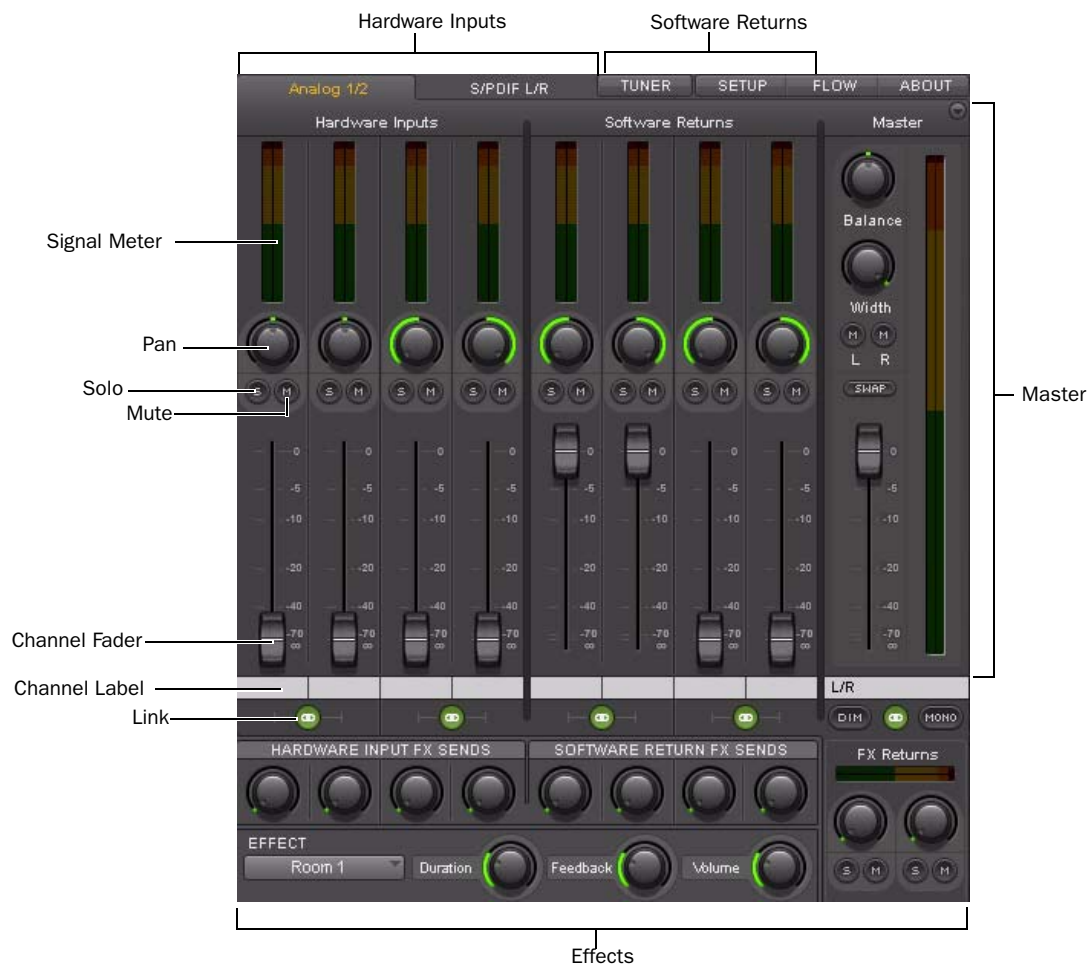
The stereo mix features multi-segment meters to show input channel levels (directly above each channel) and main mixer output levels (at the top right of the mixer). The peak hold indication time as well as pre/post fader metering operation can be set from the Settings Tab of the Control Panel. The clip indicators can be reset by clicking on the meter itself.

Keep in mind that setting or adjusting the stereo mix does not affect the signal that is recorded into your DAW. For example, you’ll still be able to record a channel while its corresponding stereo mix channel is muted. You won’t hear the part through the stereo mix as it is being recorded, but it still records into Pro Tools and play back properly.

Using the Stereo Mix Section

The stereo mix section is located in the main view of the Driver Control Panel and is divided into four main sections:

- Hardware Inputs
- Software Returns
- Effects
- Master



Hardware Inputs

The Hardware Inputs section is where the Mic/Line and Instrument inputs are monitored, as well as the S/PDIF input of Mbox. Hardware Inputs 1–2 are the analog inputs, and Hardware Inputs 3–4 are the S/PDIF input L/R.

Software Returns

The Software Returns section is where the audio coming back from Pro Tools (or other audio application) is monitored. Software Returns 1 and 2 is the default stereo output from Pro Tools.

Pan

The Pan knobs control the position of a channel's audio signal in the stereo image of the stereo mix (double-click the knob to return pan to center).

Solo

Each Solo button lets audio be monitored for the channel of which it is a part, while simultaneously muting all other Hardware Input channels and Software Returns (except for those that also have their Solo buttons activated).

Mute

The Mute buttons are used to individually turn off audio monitoring for each channel in the stereo mix.

Channel Faders

The Channel Faders control the monitoring volume level of each channel in the stereo mix.

Channel Labels

By default, the Channel Labels show the input name of each channel (1–8), except for the Master fader pair (which is labeled L/R by default).

Clicking on a Channel Label gives you a cursor, allowing you to type in your own custom channel name (such as “guitar,” “vocals,” etc.).

The Channel Labels also display the signal level (in dB) while a fader is being adjusted.

Link

The Link buttons connect stereo pairs of knobs or faders (and also links the corresponding FX Send knobs), so that adjusting either channel (left/right) adjusts the other side identically.



💡 *Pan controls are unaffected by linking two channels.*

Effects

The Effects section is where you set up “send-and-return” configurations, and select the effects that you apply to the Hardware Inputs and/or Software Returns.

Hardware Input FX Sends

FX Sends are shared by all Stereo Mixes, unless “Post-Fader Stereo Mix 1” is chosen in the Setup pop-up menu.

Software Return FX Sends

FX Sends are shared by all Stereo Mixes, unless “Post-Fader Stereo Mix 1” is chosen in the Setup pop-up menu.

FX Returns

These knobs control how much of the Effect audio output is mixed in with the monitor signal Master L/R outputs. Unlike sends, FX Returns are individually adjustable for each stereo mix.

The Clip LED shows clipping if the input to the FX is clipping and if the output is clipping (the rest of the meter is just output).

Effect

The Effect drop-down menu is used to select the effect to be applied to the Hardware Inputs and/or Software Returns. There are five available reverb types: Three room reverbs and two hall reverbs, delay, and echo. These effects can be customized by using the following three controls:

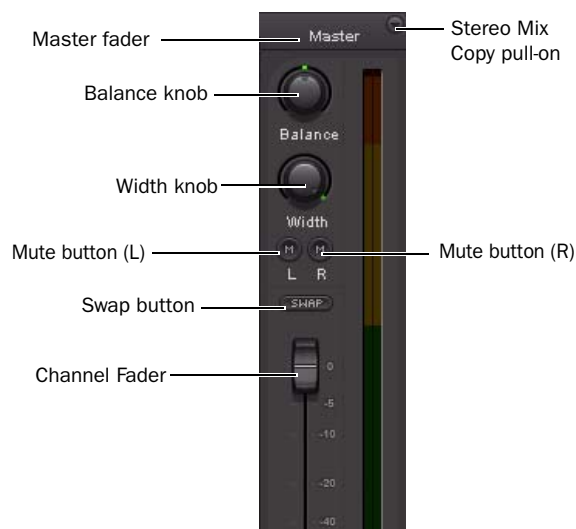
Duration This knob controls decay time (for the reverbs) or delay time (for delay and echo).

Feedback This knob controls the number of repeats for the delay and echo effects. It does not affect the reverbs.

Volume This knob controls the effects output level being sent to the FX Returns.

Master

The Master section is for monitoring the main mixer output. This output can be routed to any hardware output. Each Stereo Mix includes master section with several controls:



Master Fader Adjusts the overall level of the stereo mix.

Balance Knob Adjusts the left/right balance of the stereo mix (double-click the knob to return it to center).

Width Knob Adjusts the width of the stereo image, where fully counter-clockwise is mono, and fully clockwise is full stereo (double-click the knob to return it to center).

Mute Buttons Mutes the left and/or right side of the stereo mix.

Swap Button Swaps the stereo image, making the left channel play out the Right output, and the right channel play out the Left output.

Link Button Links the FXReturns section and the mute buttons.

Master Meters Lets you have a visual representation of the audio signal being fed to the associated hardware output pair.

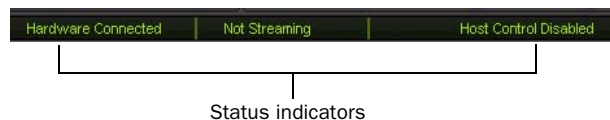
Stereo Mix Copy Lets you copy the settings of the current stereo mix to one of the other stereo mixes.

Status Indicators

Along the bottom-left of the Driver Control Panel are the following status indicators:

Hardware Connected

This tells you the status of the hardware; if a properly installed, powered-on Mbox is connected to the computer.



Streaming

This indicates if audio from an audio application (such as Pro Tools) or a media player such as Windows Media Player) is currently streaming audio to the Mbox.

Host Control Enabled

If an application such as Pro Tools has control over the Driver Control Panel, then “Host Control Enabled” is displayed.

chapter 5

Using the Multi Button (Pro Tools Only)

The Multi button on the front panel of the Mbox can be assigned to easily execute several functions in Pro Tools including (but not limited to):

- Add Track
- Start/Stop Record
- Tap Tempo
- Locating to Next/Previous Marker
- Save Session



Mbox (Multi button shown)

You can use the Multi button to do these and other common tasks with a single button instead of using on-screen menu commands. By pressing the Multi button two different ways (Press and Release, Press and Hold) you can perform two functions with one button.

Using the Multi Button

In the Hardware Setup dialog, Pro Tools lets you set three Multi button parameters for your Mbox using the “Multi Button Function” pane. (You can also launch the Driver Control Panel from here).



For more information on the Driver Control Panel, see See Chapter 4, “Using the Driver Control Panel.”.

The Multi Button Function includes the following options:

Press and Release Displays the options available for Press and Release mode.

Press and Hold Displays the options available for Press and Hold mode.

Duration Gives four time duration options for Press and Hold button.

Launch Control Panel Launches Driver Control Panel.

To use the Multi Button Function pane and configure its parameters (example):

- 1 Launch Pro Tools.
- 2 Choose Track > New and create 1 Mono audio track.



You need to have at least one track available in a session to use the Add Last Track and Add Selected Track functions.

- 3 Choose Setup > Hardware.
- 4 From the Press and Release list, select Start/Stop Record (the default).
- 5 From the Press and Hold list, select Add Selected Tracks (the default).
- 6 From the Hold Duration list, select 500 msec (the default).
- 7 Go to the Edit Window and select the track you just created.
- 8 Press and hold the Multi button for 500 msec, then release. A new track is added in Record Enable mode.
- 9 Press and immediately release the Multi button. The track begins recording.

This is just one example of how easy it is to use the Multi button if you want to quickly throw down tracks and record. But you can personalize the Multi button settings to fit any audio workflow that works for you.

Press and Release Options

When you click on the Press and Release list, a pop-up menu provides access to the following options:

None No function is selected in this mode.

Add Last Track Adds the last track type that you created in the session. Say you have created two Audio tracks in a session. It adds another mono Audio track.

Add Selected Track Adds whatever tracks that you have selected in a session. Say you have selected two Audio tracks in a session. It adds another two Audio tracks.

Cursor to Next Marker Each time the button is pressed and released, the transport locates to the *next* marker location.

Cursor to Previous Marker Each time the button is pressed and released, the transport locates to the *previous* marker location.

Start/Stop Playback Each time the button is pressed and released, it starts/stops playing back the session.

Start/Stop Record Each time the button is pressed and released, it starts/stops recording.

Loop Playback Toggle Each time the button is pressed and released, the Loop Playback mode is toggled between enabled and disabled.

Undo Each time the button is pressed and released, it undoes that last operation you performed in Pro Tools. (Same as the Undo command from the Pro Tools menu)

Save Session Each time the Multi button is pressed and released, it saves the session.

Tap Tempo The Multi button can be tapped to adjust the session tempo. Tapping tempo causes Pro Tools to come out of Conductor mode and match its tempo to the tapped tempo. If Pro Tools is already in Manual Tempo mode, the session automatically adjusts its tempo to match the value created by the Tap Tempo function.

Press and Hold Options

When you click on the Press and Hold list, a pop-up menu provides access to the following options:

None No function is selected in this mode.

Add Last Track Adds whatever the last track type was that you created in the session. Say you have five types of tracks in your session but the most recent track you created was 1 Mono Audio Track, in Samples. It adds another 1 Mono Audio Track, in Samples.

Add Selected Track Adds whatever tracks that you have selected in a session. Say you have selected two Audio tracks in a session. It adds another two Audio tracks.

Cursor to Next Marker Each time the button is held and released, the transport locates to the *next* marker location.

Cursor to Previous Marker Each time the button is held and released, the transport locates to the *previous* marker location.

Start/Stop Playback Each time the button is held and released, it starts/stops playing back the session.

Start/Stop Record Each time the button is held and released, it starts/stops recording.

Loop Playback Toggle Each time the button is held and released, the Loop Playback mode is toggled between enabled and disabled.

Undo Each time the button is held and released, it undoes that last operation you performed in Pro Tools. (Same as the Undo command from the Pro Tools menu)

Save Session Each time the Multi button is held and released, it saves the session.

Hold Duration Options


When you click on the Hold Duration list, a drop-down menu provides access to the following options:

Hold Duration There are four choices of Hold Duration (250 msec, 500 msec, 750 msec, and 1 sec), which is the amount of time you choose to hold the Multi button down in Press and Hold mode. The default is 500 msec.

appendix a

Using Third-Party Applications

The Mbox hardware drivers allow you to use third-party CoreAudio-(Mac) or ASIO-(Windows) compliant audio and MIDI applications with your Mbox.

 *For driver installation instructions, see Chapter 3, “Installing and Connecting Mbox.”*

Configuring Mbox for Third-Party Applications

When using Mbox with third-party applications (such as Apple GarageBand), you may be able to configure hardware settings through the audio preference settings available in that application.

You can also configure your hardware using the Control Panel. See Chapter 4, “Using the Driver Control Panel.”

Configuring the Apple Sound Preferences

(Mac Only—Required for Using Qualified Pro Tools Interface with Apple iTunes or QuickTime Player)

To use your Avid Mbox-family hardware with certain CoreAudio-compatible playback applications (such as Apple iTunes or QuickTime Player), you need to configure either Sound Preferences or Audio MIDI Setup.

To configure the Apple Sound Preferences:

- 1 Launch System Preferences (Apple menu > System Preferences)
- 2 Click Sound.
- 3 Click Output and select your Pro Tools hardware as the device for sound output.
- 4 Click Input and select your Pro Tools hardware as the device for sound input.
- 5 Quit System Preferences.

appendix b

Compliance Information

Environmental Compliance

Disposal of Waste Equipment by Users in the European Union



This symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.

Proposition 65 Warning

⚠ *This product contains chemicals, including lead, known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.*

Perchlorate Notice

This product may contain a lithium coin battery. The State of California requires the following disclosure statement: "Perchlorate Material – special handling may apply, See www.dtsc.ca.gov/hazardouswaste/perchlorate."

Recycling Notice



EMC (Electromagnetic Compliance)

Avid declares that this product complies with the following standards regulating emissions and immunity:

- FCC Part 15 Class B
- EN 55022 Class B
- EN 55024 Class B
- AS/NZS CISPR 22 Class B
- CISPR 22 Class B

FCC Compliance for United States

Communication Statement

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

- Reorient or locate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any modifications to the unit, unless expressly approved by Avid, could void the user's authority to operate the equipment.

Argentine Compliance



Australian Compliance



Canadian Compliance

This Class B digital complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

CE Compliance

(EMC and Safety)



Avid is authorized to apply the CE (Conformité Européenne) mark on this compliant equipment thereby declaring conformity to EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC.

Korean EMC Regulations

이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

Japan VCCI Compliance

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。 VCCI-B

Safety Compliance

Safety Statement

This equipment has been tested to comply with USA and Canadian safety certification in accordance with the specifications of UL Standard UL60590-1, 2nd Edition/IEC60950-1, 2nd Edition and Canadian CAN/CSA C22.2 No. 60950-1-07; 2007 2nd Ed. Avid Technology, Inc. has been authorized to apply the appropriate TUV & cTUV marks on its compliant equipment.

Warning



Important Safety Instructions

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this equipment near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect power cords from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the equipment.
- 11) Only use attachments/accessories specified by the manufacturer.

12) For products that are not rack-mountable: Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the equipment. When a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.

13) Unplug this equipment during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the equipment, the equipment has been exposed to rain or moisture, does not operate normally, or has been dropped.

15) For products that are a Mains powered device: The equipment shall not be exposed to dripping or splashing and no objects filled with liquids (such as vases) shall be placed on the equipment.

Warning! To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.

16) For products containing a lithium battery:
CAUTION! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

17) For products with a power switch:
It should remain accessible after installation.

18) The equipment shall be used at a maximum ambient temperature of 40° C.

Important Safety Instructions (Hebrew)

9) אין לעשות דבר שעלול להפריע לתכלית הבטיחותית של תקע מקוטב או תקע עם הארקה. תקע מקוטב מצויד בשני להבים, שאחד מהם רחב יותר. תקע עם הארקה מצויד בשני להבים ובנוסף בפין הארקה. הלהב הרחב או פין הארקה נועדו לשמור על בטיחות המשתמש. אם התקע שסופק לא מתאים לשקע החשמל, יש להתייעץ עם חשמלאי לצורך החלפתו בתקע מתאים.

10) יש להגן על כבלי החשמל כדי למנוע קיפול או דריכה עליהם, וזאת במיוחד בסמוך לתקעים, למפצלי שקעים ובנקודות היציאה של כבלי החשמל מהמכשירים.

11) יש להשתמש אך ורק באבזרים אשר אושרו על-ידי היצרן.

12) כאשר מדובר במוצרים שלא ניתן להתקיןם בארון ציוד: יש להשתמש בעגלות, מעמדים, חצובות מדפים או שולחנות המאושרים על-ידי היצרן או הנמכרים עם פריט הציוד הרלוונטי. כאשר מניחים את המכשיר על עגלה, יש לנקוט זהירות בעת הזזתה, כדי למנוע נפילה העלולה לגרום לפציעה.

13) יש לנתק את המכשיר משקע החשמל בזמן סערת ברקים או כאשר הוא לא בשימוש במשך תקופה ארוכה.

14) בכל טיפול במכשיר יש לפנות לאנשי שירות מוסמכים. טיפול נדרש כאשר המכשיר ניזוק בצורה כלשהי; לדוגמה במקרים הבאים: נזק לכבל או לתקע חשמל; שפיכת נוזלים או נפילת חפצים לתוך המכשיר; חשיפת המכשיר לגשם או ללחות; ליקוי בפעולתו הרגילה של המכשיר; נפילת המכשיר.

15) כאשר מדובר במוצרים המחוברים לרשת החשמל: יש למנוע את חשיפת המכשיר לטפטוף או התזה של נוזלים. כמו כן, אין להניח על המכשיר חפצים המכילים נוזלים (כגון אגרסלים).

אזהרה! כדי לצמצם סכנה של אש או מכת חשמל, אין לחשוף את המכשיר לגשם או לחות.

16) כאשר המוצר מכיל סוללת ליתיום: **זהירות!** קיימת סכנת התפוצצות אם החלפת הסוללה לא מתבצעת בצורה נכונה. יש להחליף את הסוללה רק בסוללה זהה או שוות ערך.

17) כאשר המוצר מצויד במתג הפעלה: מתג ההפעלה הראשי נמצא על הלוח הקדמי של ה-HD MADI. יש להקפיד שהגנישה אליו חופשית גם לאחר התקנת המכשיר.

18) אין להשתמש במכשיר כאשר טמפרטורת הסביבה עולה על 40°C .

תאימות לתקני הבטיחות

אזהרה



הוראות בטיחות חשובות

- 1) יש לקרוא את ההוראות.
- 2) יש לשמור את ההוראות במקום בטוח.
- 3) יש לשים לב לכל האזהרות.
- 4) יש לפעול בהתאם להוראות.
- 5) אין להשתמש במכשיר זה ליד מים.
- 6) יש לנקות את המכשיר רק באמצעות מטלית יבשה.
- 7) אין לחסום שום פתח אוורור. יש לבצע את ההתקנה בהתאם להוראות היצרן.
- 8) אין להתקין את המכשיר ליד מקורות חום כגון מקרנים, פתחי אוורור של מערכות הסקה מרכזיות, תנורים או פריטי ציוד אחרים (לרבות מגברים) המפיקים חום.

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