

MultiMix16USB 2.0

MULTICHANNEL MIXER/AUDIO INTERFACE

Reference Manual

ALESIS

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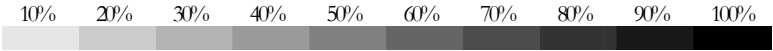


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Introduction

Welcome!

Thank you for making the Alesis MultiMix USB2.0 a part of your studio. Since 1984, we've been designing and building creative tools for the audio community. We believe in our products, because we've heard the results that creative people like you have achieved with them. One of Alesis' goals is to make high-quality studio equipment available to everyone, and this Reference Manual is an important part of that. After all, there's no point in making equipment with all kinds of capabilities if no one explains how to use them. So, we try to write our manuals as carefully as we build our products.

The goal of this manual is to get you the information you need as quickly as possible, with a minimum of hassle. We hope we've achieved that. If not, please drop us an email and give us your suggestions on how we could improve future editions of this manual.

We hope your investment will bring you many years of creative enjoyment and help you achieve your musical goals.

Sincerely,
The people of Alesis

***For more effective service
and product update notices,
please register your
MultiMix USB2.0 mixer
online at:
[http://www.alesis.com/
index.php?registration](http://www.alesis.com/index.php?registration)***

About the MultiMix USB2.0

The MultiMix USB2.0 mixers are the latest in the large family of Alesis audio mixers and the fourth series that includes computer interfacing (following on the launch of the MultiMix USB mixers in 2004, the MultiMix FireWire mixers in 2005, and the iMultiMix8 USB-with-iPod mixer in 2007).

We've come a long way since introducing our first mixing console in 1989. Since that time audio technology has grown in leaps and bounds, pushing up quality and driving down prices. Only a few years ago, you wouldn't have been able to buy a mixer with analog performance this powerful for such an affordable price, and the addition of multichannel, 96kHz computer audio interfacing would have been a pipe dream. Just take a look at the key features listed below, and you'll see that you have just made an incredible addition to your home studio or live setup.

All-In-One Mixer and Multichannel Computer Audio Interface

The MultiMix USB2.0 consoles give you just about everything you need to create polished, professional-sounding mixes both live and within a computer-based recording studio. When designing this unit, our goal was to give you as much control over your mixes as possible without requiring a wealth of extra equipment. That's why we added tools like the digital effects processor, the mic preamps, and the dedicated control room output.

The MultiMix USB2.0 is also a full-duplex, multichannel computer recording interface device. Not only can you record every channel independently, but you can also record the MAIN mix channels. To get you started with computer-based recording, we even include a well-specified Digital Audio Workstation (DAW) software program. With a multitude of ways in which to connect other equipment and instruments, the MultiMix USB2.0 offers endless possibilities.

*Important: download the drivers from <http://www.alesis.com> onto a folder on your desktop or insert the software DVD into your computer's DVD drive **BEFORE** you plug your MultiMix into your computer for the first time.*

See page 25 for details.

MultiMix USB2.0 Key Features

- **Two Models:**
MultiMix 8 USB2.0 (4 mic/line preamps, 2 stereo inputs)
MultiMix 16 USB2.0 (8 mic/line preamps, 4 stereo inputs)
- **Multichannel USB2.0 input and output** – routes each individual channel's output, plus the MAIN outputs, through the USB2.0 port, and receives two channels back

from the computer, all in 24-bit, 44.1/48/88.2/96 kHz digital audio.

- **ASIO and WDM computer drivers** – lets you use the MultiMix USB2.0 with the vast majority of digital audio workstation programs.
- **Clean and powerful preamps** – up to 50dB of preamp gain for capturing quiet sources. Globally switched phantom power.
- **Stereo inputs** – Four stereo pairs. Great for line-level instruments.
- **Internal digital effects processor with 100 preset effects and an easy-to-read display** – includes a variety of reverbs, delays, choruses, flanges, a pitch transposer and multiple combinations of these.
- **3-band EQ per channel** – a potent tool for sonically shaping each channel to get that perfect mix.
- **2 aux sends per channel** – one can be used to access an external effects device; the other can be used either to access the MultiMix's internal effects or to access a second external device. The first aux send can be switched between either pre- or post-fader operation.
- **Control room output level** – provides control over the separate control room output.
- **2-track send and return** – lets you mix your audio to tape or other media and to add a tape deck or CD player to the mix.

Additional Features of the MultiMix 16 USB2.0

- **PFL/Solo in place functionality per channel** – isolates a channel with a single push of a button.
- **Mute/Alt 3/4 assign per channel** – lets you mute a channel and, at the same time, route its signal to the mixer's ALT 3/4 output—a separate stereo bus.
- **Independent Main Mix and Alt 3/4 levels** – permits you to separately command the levels of the MultiMix's two stereo buses

Introduction

How to Use This Manual

This manual is divided into the following sections describing the various functions and applications of the MultiMix consoles. While it's a good idea to read through the entire manual once carefully, those having general knowledge about mixing should use the table of contents to look up specific functions.

Chapter 1: Getting Started shows you how to include the MultiMix in your audio setup for recording, computer interfacing, and live applications. We've included a hookup diagram, guidelines for which cables to use and the vital steps you must take to set levels properly.

Chapter 2: A Tour of the MultiMix describes the MultiMix piece by piece. This chapter also features diagrams of the mixer to help you find each component as you read about it.

Chapter 3: Digital Effects Processor explains the effects provided by the on-board digital effects processor. If you want to know what a certain effect will do to your sound before you select it, this is where you should look.

Chapter 4: Traditional Mixing outlines a number of scenarios in which you can use the MultiMix for live mixing and simple, non-USB2.0 based recording.

Chapter 5: USB2.0 Recording orients you to the MultiMix's powerful USB2.0 recording features, including software installation and setup with common DAW programs.

Chapter 6: Troubleshooting can give you a hand if you're experiencing problems with your mixer. You'll find that most issues can be resolved simply and quickly with the push of a button.

Chapter 7: Specifications and *Chapter 8: Block Diagrams* are full of technical information for the more techie users.

And at the end of this manual you'll see a glossary of common mixing-related terms.

Helpful tips and advice are highlighted in a shaded box like this.



When something important appears in the manual, an exclamation mark (like the one shown at left) will appear with some explanatory text. This symbol indicates that this information is vital when operating the MultiMix consoles.

A Few Words for Beginners

We realize that some of you who have purchased the MultiMix USB2.0 are fairly new to the art of mixing and computer recording. We've written this manual with that in mind. We designed the MultiMix to be both powerful and easy enough to use that even a beginner can quickly pick up the basics.

Many mixer manuals—and manuals for just about any electronic instrument for that matter—are full of complicated terminology and incomplete instructions that presume a lot of experience on the part of the reader. We try to avoid that with this manual. True enough, you will find all the technical lingo and specifications you can handle in here, but we do our best to make this accessible to you.

Beginners will find several elements of this manual especially useful. Keep your eye out for the tips found in the gray boxes on the right side of the page. Be sure to check out the hookup diagrams on page 11, which will give you some ideas on how to fit the mixer into your audio setup after you've taken a tour of the mixer in Chapter 2. And if you come across any terms that you haven't seen before, the glossary probably can help you out.

One of the most important things you'll do before you begin a mixing session is to set the levels. Be sure to refer to the instructions on page 20.

Introduction

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1 Getting Started

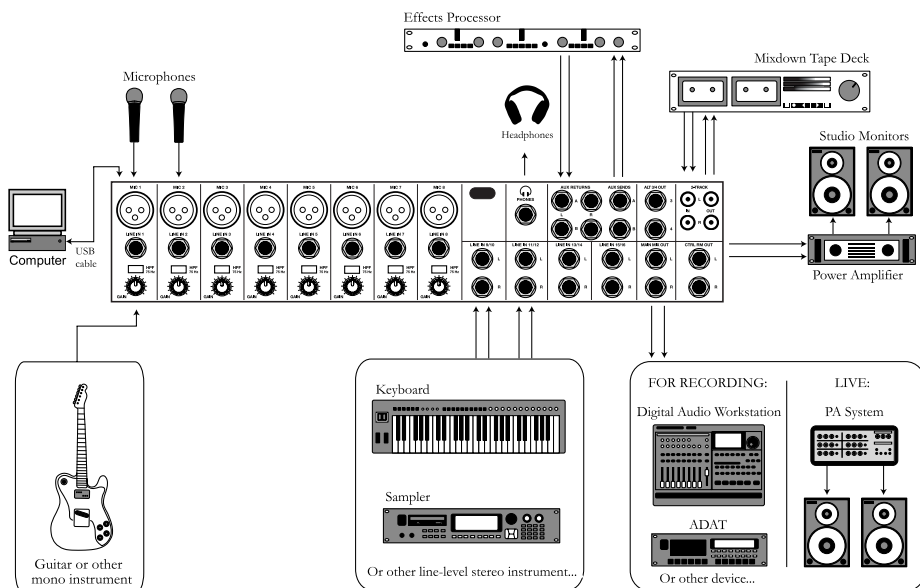
*Important: download the drivers from <http://www.alesis.com> onto a folder on your desktop or insert the software CD into your computer's CD drive **BEFORE** you plug your MultiMix into your computer for the first time.*

See page 25 for details.

Hooking up the MultiMix USB2.0

This diagram will help you get the MultiMix USB2.0 hooked up and ready to go. The equipment you use depends on personal preference and on whether you're performing live or recording. For example, you'll see below that the MAIN MIX OUT can be routed to a recording device for recording, or to a PA system for live performance.

Be sure to follow the guidelines for which cables to use (further down this page) and the procedure for setting levels (on the next page) before you begin mixing.



Using Proper Cables

When connecting instruments and other equipment to the MultiMix, it's important that you use the appropriate types of cables. Here are some simple but important guidelines:

- For the mic inputs, use XLR cables.
- For the line inputs and all other 1/4" connections, use 1/4" mono TRS cables.
- Use stereo RCA cables for the 2-track in and out.
- Use a USB 2.0 cable to connect one of the USB 2.0 ports to a computer.

Setting Levels

Before you can begin mixing and recording different audio sources with your MultiMix, you must set the level for each channel you're using. This helps to prevent distortion and clipping. Here's how:

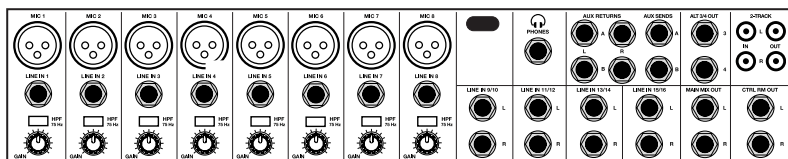
1. Slide the channel fader to unity gain (0).
2. Turn the AUX SEND and GAIN controls all the way down, and turn the EQ knobs to the center detent (you'll feel a click).
3. Connect the source of the signal to the channel's input.
4. Press the PFL / SOLO switch on the channel.
5. Make sure the SOLO MODE switch in the master section is set to SOLO.
6. Play the instrument at a normal level and watch the LED meters in the master section.
7. Adjust the channel's GAIN knob until the LED meters remain at or very close to 0.
8. If you need to apply EQ, do so and check the meters again.

2 A Tour of the MultiMix USB2.0

In this chapter, you'll learn all about the MultiMix's components (except for the digital effects processor, which is explained in the next chapter). Please refer to the diagrams as you read each section to see which components we're talking about.

Patchbay

At the rear portion of the top of the MultiMix, you'll find the patchbay. This is where you plug in instruments, signal processors, multitrack recorders and other devices. Whatever you need to connect to the mixer, this is where it's done. In the following paragraphs, we tell you all about the inputs, outputs, switches and knobs you see in this section of the mixer.



Mic Inputs (Channels 1 – 8)

The MultiMix uses standard XLR-type mic inputs. These provide +48V phantom power that you can turn on and off with the Phantom On switch located on the rear of the mixer. You probably will have to turn on the phantom power when you're using most condenser mics, as these usually require the extra voltage (unless the mic has its own power source, such as a battery). Dynamic and ribbon mics don't require phantom power and are unaffected when the power is on.

These high-quality mic inputs also feature up to 50dB of preamp gain that you can adjust with the Gain knob.

Another useful feature of these mic inputs is a high-pass filter (HPF) that can be turned on and off with the HPF switch. When you activate this switch, all frequencies below 75Hz are cut from the signal. This is useful for mic or line signals that don't have much bottom end, such as vocals, snares, cymbals and electric guitar. You'll want to leave this inactivated for instruments like basses and kick drums.

Line Inputs (Channels 1 – 8)

The line inputs, marked LINE IN, are balanced 1/4" jacks that offer the same 50dB of preamp gain and the high-pass filter provided by the mic inputs (however, phantom power does not apply to line inputs). These inputs accept line-level instruments such as keyboards and drum machines. If you find that your instrument has a weak line signal, just plug it into channels 1 – 8 and crank it up with the Gain knob.

Although chances are your microphones will work fine with these mic inputs, we recommend that you do some checking up on the type of microphone you're using, especially if it's one of the older vintage models or a ribbon microphone of any kind. Verify that your microphone requires phantom power and make sure its output is low impedance, balanced and floating.

*Always connect your microphones **before** activating phantom power. Microphones tend to be very sensitive, and the sudden power surge can do permanent damage to the mic's circuitry. It's also a good idea to lower mixer levels before you activate phantom power.*

Line Inputs (Channels 9 – 16)

Unlike channels 1 – 8, the line inputs on channels 9 – 16 are stereo inputs that have left and right inputs. If you're using one of these channels as a mono input, plug your instrument into the left input. Channels 9 – 16 don't have the extra gain found on channels 1 – 8 because most line-level instruments don't require the extra boost. Synthesizers and other electronic instruments will work especially well on these channels. These inputs are also good for connecting CD players or tape decks, as these audio sources don't require extra gain.

PHONE Jack

The headphone jack accepts 1/4" jacks. If your headphones are 1/8", you can find a 1/8" to 1/4" adapter in most electronics stores.

AUX RETURNS

These are the 1/4" jacks where you connect the outputs of an external effects processor or other audio source. Each aux return gives you 15dB of gain that can be controlled by the AUX RET A and EFFECTS / AUX RET B LEVEL knobs in the mixer's output section.

AUX SENDS

And this is the 1/4" jack where you connect the cable that's going into the input of an external effects processor. The aux sends give you 10dB of gain that can be controlled in the AUX section of each channel input.

ALT 3/4 OUT

These jacks are the outputs for the MultiMix's extra stereo bus. This signal includes channels whose MUTE / ALT 3/4 switch is activated.

2-TRACK

The 2-TRACK IN and OUT jacks are standard RCA jacks. You'll use the OUTs for mixing to a tape deck or other recorder. With the INs you can bring in a signal, which can be monitored and even added to the main mix via the 2TK TO MIX switch in the master section of the mixer.

The 2-TRACK INPUT is blended with any signal coming back from a computer over the USB2.0 connection.

MAIN MIX OUT

These 1/4" jacks are where the signal on the main mix bus leaves the mixer. From there you can send it to a recorder or a PA system. The level of this signal is controlled by the MAIN MIX fader.

Any audio signal that is routed to the MAIN OUTPUTS will also be sent out of the DIGITAL OUTPUT jack. The level is controlled by the MAIN FADERS. The DIGITAL OUTPUT mirrors the output from the MAIN OUTPUTS.

If you are using an effects device with only a mono output, plug it into the left return of STEREO AUX RETURN. It will appear in the center of the stereo spectrum, and not to the left.

CTRL RM OUT

You can use these 1/4" jacks to send the control room signal to the input of the amplifier driving your monitors or headphones. This output can carry several different signals, depending on which source you have selected in the master section of the mixer.

Channel Strips

The eight channel strips are virtually identical to each other, with the only difference being that channels 1 – 8 are mono and channels 9 – 16 are stereo. Each channel strip contains the following components.

Fader

The fader controls how much of the signal from the mic or line inputs is sent to the channel. To adjust the level, simply slide the fader up and down to the desired level. In the lowest position, levels are cut completely, and in the uppermost position you get an additional 10dB of gain. When the fader is at 0, it is at unity gain, where the level of the output equals the level of the input.

MUTE / Alt 3/4

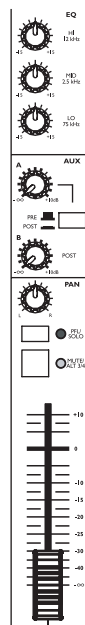
This switch has two purposes. The mute function is pretty self-explanatory: when you press the switch, the channel's output is no longer routed to the main mix output. The second purpose of this switch is that in addition to muting a channel, it also routes it to the ALT 3/4 OUT found in the patchbay. This is where you get the MultiMix's extra stereo bus. If you don't have anything connected to the ALT 3/4 OUT, the switch acts only as a mute button. If you do have something connected—say, a multitrack recorder—this button acts as a signal router.

PFL / SOLO

The PFL / SOLO switch allows you to single out a channel so you can make adjustments to it before you run it into the main mix. This is useful for setting an instrument's gain or EQ and for troubleshooting. PFL stands for “pre-fade listen.” In other words this switch lets you hear the signal before it is affected by the fader. This switch is post-EQ.

PAN or BAL

This control—labeled PAN on the mono channels and BAL on the stereo channels—lets you assign the channel to a particular spot within the stereo spectrum. If you turn this knob to the left, you can hear the signal move to the left, and if you turn it to the right...you get the picture. The pan controls do this by adjusting the amount of the signal being sent to the left main mix bus versus the right main mix bus. The balance controls do it by controlling



Channel Strip

2 A Tour of the MultiMix USB2.0

the relative balance of the left and right channel signals being sent to the left and right main mix buses.

Aux

Here you'll find knobs that control the levels of aux sends A and B. AUX A is either pre-fader or post-fader, depending on the position of the PRE / POST switch. When the switch is in the raised position, the aux send is pre-fader. When the switch is depressed, the aux send is post-fader.

What does all this mean? In POST mode the aux send is affected by the fader, EQ and HPF settings. In PRE mode the aux send is affected only by the EQ and HPF settings. POST mode is generally used for sending the signal to an external effects device (so that the fader controls the signal level), and PRE mode is usually used for cue sends (for example, sending a signal to headphones while recording, for which you may not want the fader to alter the channel's level).

AUX B is always post-fader, as indicated by the word "POST" to the right of this knob. Like AUX A, AUX B can be used for routing signals to external devices. And when you are using the onboard effects processor, AUX B is used to control the level of the channel's signal being routed to the processor.

EQ

The MultiMix gives you three bands of EQ per channel. Using these knobs, you can tailor the channel's signal by boosting some frequencies and cutting others. The LO and HI controls are shelving controls with fixed frequencies of 80 Hz and 12 kHz respectively. The MID control has a peaking response fixed at 2.5 kHz.

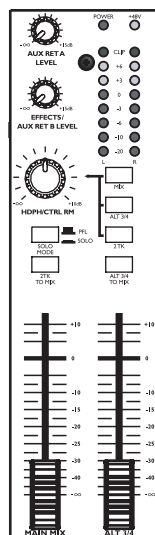
"Shelving" means that the mixer boosts or cuts all frequencies past the specified frequency. "Peaking" means that frequencies above and below the specified frequency fall off, forming a peak in a graphical representation.

Master Section

The Master Section is the heart of the mixer, where the channel inputs and aux returns all are mixed together and routed in various ways.

Main Mix Fader

The signals from all channels and aux sends—excluding those that are muted—are sent to the main mix. The MAIN MIX fader is the one you'll use to control the overall level of those combined signals. This fader affects the levels of the signals sent to the



Master Section

MAIN MIX OUT and the 2-TRACK OUT. In its lowest position the signal is cut off completely, and in the uppermost position you get an additional 10dB of gain. In the 0 position the fader is at unity gain.

Alt 3/4 Fader

This fader controls the output of the Alt 3/4 bus.

2TK To Mix

When you press this switch, the signal coming in through the 2-TRACK IN gets routed to the MAIN MIX, joining whichever other signals are already part of the main mix. Used this way, the 2-TRACK IN effectively becomes another stereo channel (but without all the extras like pan, EQ, etc.).

The 2-TRACK IN signal combines both whatever is plugged into the 2-TRACK RCA jacks and also any audio coming back to the computer over USB.

Alt 3/4 To Mix

This switch adds the signal from the Alt 3/4 bus to the main mix bus.

Solo Mode

The SOLO MODE switch affects the signals of channels whose PFL / SOLO switches are engaged. When the SOLO MODE switch is in the up position, you're in PFL, or pre-fader listen mode. This means that you'll hear the signals of all soloed channels as they sound before they pass through their respective faders. You'll need to be in PFL mode when you're setting levels (see "Setting Channel Levels," page 12. This mode is post-EQ.

When the SOLO MODE switch is engaged (in the down position), you are in SOLO mode. This means that you will hear the output of every soloed channel (after it passes through its fader, pan and EQ).

The purpose of seeing a soloed channel's level on the LED meters is so that you can see the true level of that channel's signal. For that reason, the HDPH / CTRL RM knob does not change the LED meters' reading—it changes only the level at which you're listening to the soloed channel.

HDPH / CTRL RM

The HDPH / CTRL RM knob controls the level of the signal being sent to the CTRL RM OUT and the PHONES output. The level of this signal is represented by the LED meters. The switches to the right of the HDPH / CTRL RM knob determine the source of the control room mix as explained below. You can use these switches in any combination. If no switches are selected, you'll hear silence in the control room mix and the LED meters won't light up.

The "CTRL RM" in the name of this knob refers to the fact that it controls the signal that typically is sent to the control room monitors of a studio, where someone—usually an engineer—is working the mixer. However, don't be intimidated if you're using this mixer in your bedroom, which probably isn't equipped with a control room. In this scenario, you can use headphones or connect the CTRL RM OUT to your speakers.

When you solo a channel via its PFL / SOLO switch, that channel's signal will override your control room mix selection. You then will hear only that channel in the control room and the headphones.

MIX Switch

Pressing the MIX switch routes the main mix to the control room level control. When you engage this switch, the channels and aux sends will pass through the MAIN MIX fader and then through the HDPH / CTRL RM level control. You can then keep the MAIN MIX fader set to unity gain for optimal recording, and the HDPH / CTRL RM level control set to a more comfortable listening level if necessary.

ALT 3/4 Switch

When you press the ALT 3/4 switch, the signal from the ALT 3/4 stereo mix bus is routed through the HDPH / CTRL RM level control.

2TK Switch

If you want to monitor the signal coming in from the 2-TRACK jacks and from the computer (if a USB cable is attached), press the 2TK switch.

Aux Ret A Level

This is the level control for the signal returning to the mixer via AUX RETURN A.

Effects / Aux Ret B level

If you are using one of the MultiMix's internal effects, this knob controls the effect level. If AUX SEND B is connected to an external device, this knob controls the level for AUX RETURN B.

LED Meters

These are the two rows of yellow, green and red lights you see in the master section of the mixer. They are very versatile, allowing you to view the signal level of the main mix, individual channels (both pre- and post-fader) and aux returns depending on which signal you have routed to the control room mix.

POWER Indicator

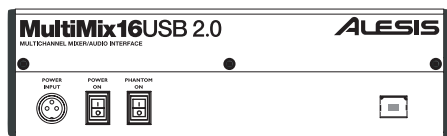
When this LED is lit up, that means the POWER ON switch on the rear of the mixer has been activated.

+48V Indicator

When this one is lit up, that means the PHANTOM ON switch on the rear of the mixer has been activated and is supplying +48V phantom power to all XLR mic inputs.

Rear of the Mixer

Here's what you'll find at the rear of the mixer.



Rear

Power Input

Here's where you plug in your mixer's external power supply. You should always connect your power supply to the mixer *before* you plug the power supply into an electrical outlet.

Power Supply Unit

This unit provides 18.5 VAC at 700 mA of power, more than enough to keep your MultiMix running smoothly. As with nearly all power supply units, this one tends to get warm when left on for a while. This is perfectly normal.

*The POWER INPUT is built to accept **only** the power supply unit provided with your MultiMix, or an AC power supply that has the same specs. Others probably will not work.*

Power On

Another easy one. Switch this one on and your mixer has power. Switch it off and it doesn't. Make sure the faders in the master section are pulled all the way down when powering your mixer up or down.

Phantom On

This switch activates and deactivates the phantom power described in "Mic Inputs (Channels 1 – 4)," page 13. This switch controls phantom power for all four mic inputs.

*As we said earlier, it's very important that you plug in your microphones and mute your system **before** you turn on phantom power.*

USB2.0 port

This port allows you to connect the MultiMix to a computer for multichannel digital audio communication.

If you connect to a computer with a USB 1.1 port, you will be restricted to recording and playing back only two channels at either 44.1kHz or 48kHz.

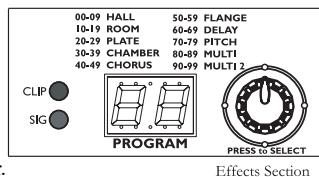
3 Digital Effects Processor

Onboard your MultiMix USB2.0 is a powerful effects unit that has 100 preset programs. We offer a few tips on where to use these, but don't limit yourself to our suggestions. We recommend that you experiment with these effects to get a good feel for how they can improve your mixes

Effects Section Components

Program Selection Knob

You can use this knob to assign one of 100 effect programs to your mix. Turning the knob to the right increments the program number, and turning it to the left decrements the program number. You can control the level of the effect for each channel via the channel's AUX B knob. You must PRESS the effect knob to activate the selected effect.



LED Display

This display shows you the number of the current program.

CLIP Indicator

When lit, this LED tells you that there is a signal clip at the internal effects input. This means that you should reduce the signal via the EFFECTS / AUX RET B LEVEL control.

SIG Indicator

When lit, this LED indicates that the effects processor is receiving a signal.

Effect Descriptions

HALL

This type of reverb simulates the ambience of a grand concert hall.

ROOM

This type of reverb reproduces the more intimate ambience of natural room acoustics.

PLATE

These are simulations of metal plate reverbs, as used on classic recordings from the '70s and '80s.

CHAMBER

These are simulations of the reverb created by artificial echo chambers, as used on classic recordings of the '50s and '60s.

CHORUS

These create the effect of multiple voices (or instruments) sounding at once from a single input.

FLANGE

These create a sweeping, swooshing sound effect that you will probably recognize.

DELAY

These effects are based on a discreet repetition or echo of the input.

PITCH

These effects transpose the pitch of the input signal and blend the effect signal with the original to create harmonies.

MULTI & MULTI II

These are combinations of two or more of the above effects.

4 Traditional Mixing

Simple Live Setup

Connect your instruments and microphones to the mono and stereo channels, making sure to properly set the level of each channel.

You can select one on-board effect and control its level with the AUX B knob for each channel. You can also use an external effects processor by sending a signal to the external unit via the AUX SEND A and returning it via AUX RETURN A (you'll probably want to set AUX SEND A to POST, for "post-fader").

If you wish, you can use a second external effects processor via AUX SEND B and AUX RETURN B. However, note that use of an external effects processor on these jacks disables the internal effects.

Connect the MAIN MIX OUT to a PA system amplifier. For monitoring purposes, you can connect the CTRL RM OUT to a headphone amplifier. You could also connect a digital equalizer (like the Alesis DEQ-230D) between the DIGITAL OUTPUT and a PA system for extra tone control.

By muting channels and pressing the ALT 3/4-to-HDPH/CTRL RM button in, you can audition a channel before you bring it into the mix, making sure the levels are OK before the audience hears it.

Using Additional External Audio Sources

The MultiMix gives you a few extra audio inputs in addition to the mic and line inputs. If you want to bring external audio sources into a recording or live mix, you can do it in one of two ways:

Using the 2-TRACK IN, you can add a tape deck, ADAT, CD player, USB2.0 audio stream from a computer, or other source to the mix. The 2-TRACK IN also can be used to entertain the audience with a CD as the band is setting up for a live show.

The AUX RETURNS can be used as additional audio inputs when you are not using them for effects.

Audio coming into the MultiMix from a computer over the USB2.0 connection is routed to the 2-TRACK IN.

You can use the RCA jacks of the 2-TRACK IN at the same time as audio is playing back from a computer, but you must adjust the relative levels of each input from outside the MultiMix.

Simple Two-Channel Recording Setup (without using a computer)

Again, connect your instruments and microphones to the mono and stereo channels and set the levels appropriately. To record directly from the mixer to a tape deck or other device, connect the MultiMix's 2-TRACK OUT jacks to the IN jacks of the recorder.

For monitoring you can connect the CTRL RM OUT jacks to a speaker or headphone amplifier, or just simply plug headphones into the PHONES jack.

5 USB2.0 Recording

Important: download the drivers from <http://www.alesis.com> onto a folder on your desktop or insert the software DVD into your computer's DVD drive BEFORE you plug your MultiMix into your computer for the first time.

First-time connection and driver installation instructions

Windows

Before attaching your mixer to your computer, install the drivers either from the website or the software DVD. During the installation process, attach and re-attach your mixer as prompted by the install program.

For each of the several installations that occur, click “Continue Anyway” if Windows warns you that the drivers have not passed Microsoft Logo Certification.



*Windows Logo Certification warning.
Ignore this warning by clicking “Continue Anyway.”*

These drivers include the two most popular standards for audio interfacing—WDM (the “Windows Driver Model” built by Microsoft) and ASIO (the “Audio Stream Input/Output” standard used by many audio software applications).

Macintosh

Install the driver from the .dmg file.

Wait to turn on/attach your MultiMix USB2.0 mixer to your Mac until after the Mac has fully booted. If you do not do so, your computer may not recognize the device.

You must select the “Alesis USB Audio Device” via your Mac’s “Audio MIDI Setup” utility in order for your computer to route the MultiMix USB2.0’s signals into and out of your computer applications properly.

!
Mac OS X 10.4 or higher is required by the MultiMix drivers.

All digital audio carried over the USB2.0 connection is 24-bit PCM data.

Installing the optional applications

The software DVD that comes with the MultiMix USB2.0 contains not only the *drivers* (the small computer programs that work behind the scenes so that your MultiMix works properly with your computer) but also some powerful music *applications*.

If you don't already have a Digital Audio Workstation (DAW) program, definitely install one from the DVD. It's a fantastic way to get started in computer-based recording. You may find that it's the only program you need.

The demo applications give you a taste of some of the premier computer-based music programs on the market today. We encourage you to install and explore them.

Power-on/Power off order

A few computers are sensitive to the order in which they and the MultiMix USB2.0 are powered on. If you find that the MultiMix USB2.0 does not consistently make a connection to your computer when you turn them both on, experiment to find out whether turning one on before the other—and one off before the other—makes a positive difference.

USB2.0 inputs and outputs

Channels sent from the MultiMix to the computer

The USB2.0 port sends every individual mixer channel as well as the MultiMix's MAIN OUT/2-TRACK OUT left and right signals to the computer. This means that, for the MultiMix 16 USB2.0, 16 individual channels are sent to the computer along with the MAIN stereo pair (18 channels in total.)

Individual channels

The INDIVIDUAL channels sent to the computer send the signal after the preamp gain knob, the high-pass filter, the three-band EQ, and the channel fader.

The effects of the AUX send knobs are NOT included in the outputs of the individual channels.

MAIN MIX channels

The MAIN mix channels sent to the computer exactly mirror the MAIN output of the mixer. If you are only interested in making stereo recordings, consider recording the MAIN channels in your recording software.

Channels returned from the computer to the MultiMix

The USB2.0 port receives a stereo audio stream from the computer and assigns it to the 2-TRACK IN left and right channels of your MultiMix mixer. Note that, if a device is connected to the MultiMix's 2-TRACK IN inputs, the signal from this device is merged with the signal from the computer.

To understand why the AUX signals are not blended into the individual channel feeds to the computer, consider the nature of AUX sends:

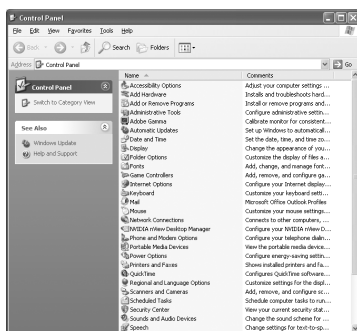
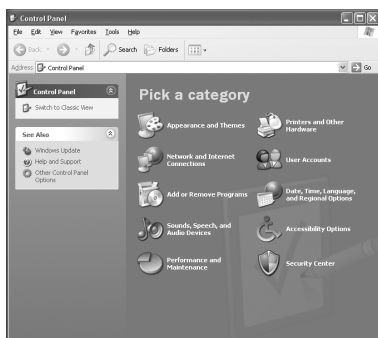
Every channel can send none, some, or all of its signal to the AUX processors. For instance, in the MultiMix 12, 12 different signals could be sent to an external processor, all at different levels.

However, that AUX processor can only return at most a stereo pair into the mixer. There's no way that the processor could route the effects of each channel back to that channel directly without including the signal from the other channels as well.

Sound setup under Windows

To use your MultiMix USB2.0 as your default Windows sound device, follow these steps:

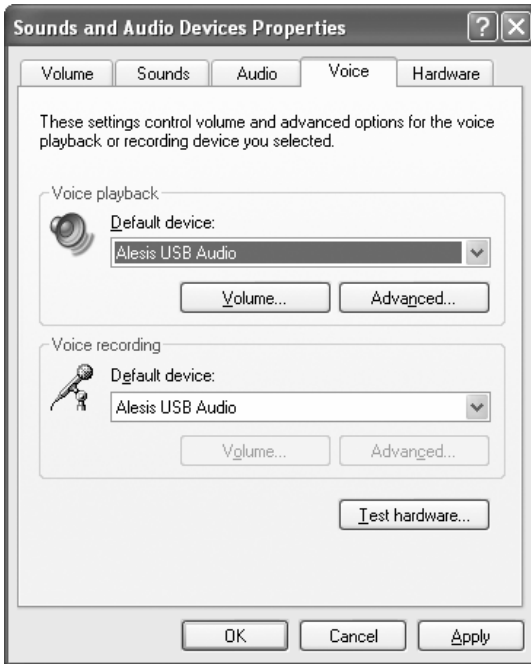
1. From the Windows Start menu, choose “Control Panel.” Depending on your Windows preferences, it will appear similar to one of the two pictures below:



2. Choose “Sounds and Audio Devices”.
3. Click the “Audio” tab. Change the default devices for both sound playback and sound recording to “Alesis USB Audio.”



4. Click the “Voice” tab. Change the voice playback and voice recording settings to “Alesis USB Audio.”

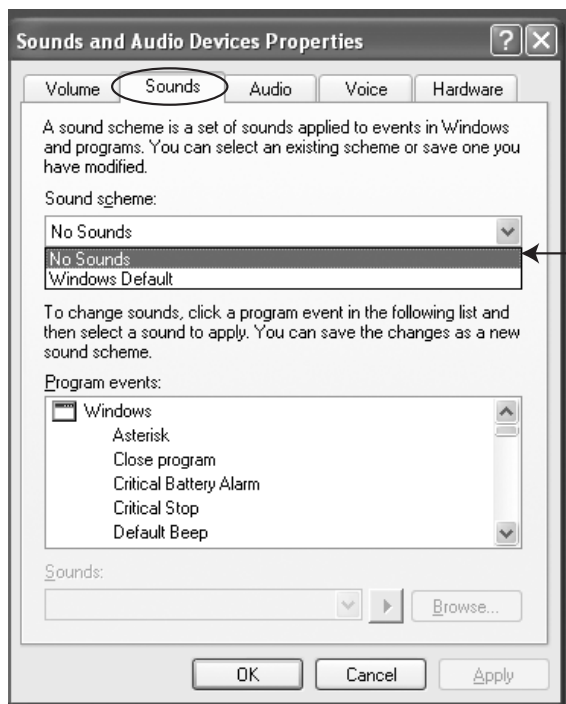


5. Click “Apply” to apply these changes.

Disabling Windows System Sounds

Windows System Sounds—the sounds that Windows plays to signal starting up, shutting down, alerts and so forth—can interfere with your audio recording. We **strongly suggest** that you disable these sounds.

1. Click the “Sounds” tab of “Sounds and Audio Devices.”
2. Under “Sound Scheme,” choose “No sounds.”



3. Click “OK” to accept this entry and close the dialog box.

Connections and settings for USB2.0 recording and monitoring

The best way to begin using the MultiMix for USB2.0 recording is to set up your system this way:

1. Hook up your monitoring system to the MultiMix's CTRL RM OUT jacks.
2. Apply the MASTER section's buttons as follows:
 - a. **2 TK TO MIX: Leave UP.**
Pressing this button down can cause nasty feedback loops.
 - b. **MIX TO CONTROL ROOM: Press DOWN.**
This will allow you to hear the music being recorded in real time.
 - c. **ALT 3/4 TO CONTROL ROOM:**
Leave up or down.
 - d. **2 TK TO CONTROL ROOM: Press DOWN.**
This will allow you to hear the output from the computer.
 - e. **ALT 3/4 TO MIX:** Leave up or down.

Using the MultiMix USB2.0 with Cubase and other ASIO applications

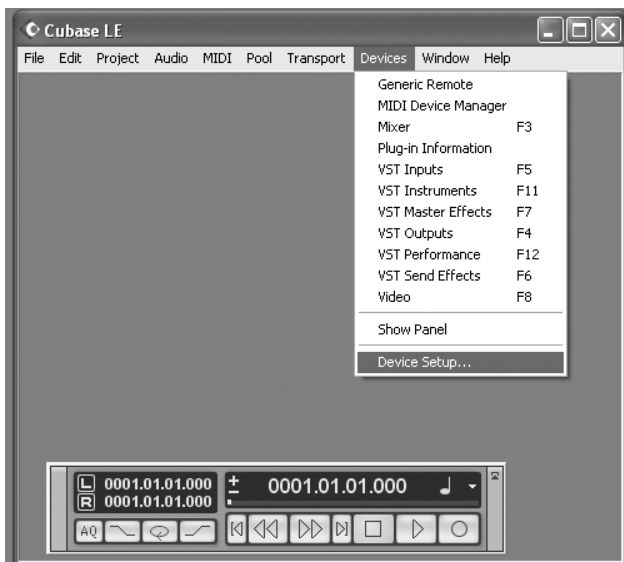
Audio recording programs running on Microsoft Windows generally use one of two different audio standards—WDM (the “Windows Driver Model,” developed by Microsoft) or ASIO (“Audio Stream Input/Output,” developed by Steinberg and made freely available to other companies).

Audio on the Macintosh (OS X) generally runs on top of Apple's CoreAudio standard.

We'll look at how to use the MultiMix USB2.0 under each of these standards, starting with ASIO (using Cubase as an example).

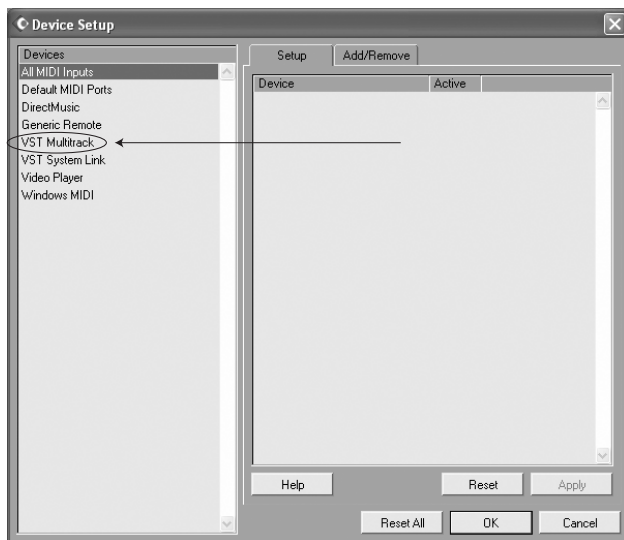
Choosing the MultiMix as your audio device

1. Choose the menu option “Devices” | “Device Setup...”

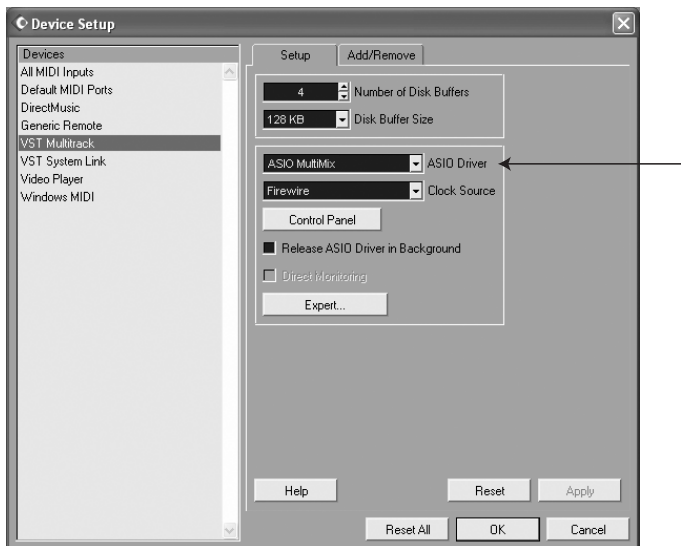


This discussion uses Steinberg's Cubase software, but the principles provided here apply to all ASIO recording software.

2. Click the “VST Multitrack” option.



- From within the ASIO Driver drop-down box, choose the Alesis USB Audio device.

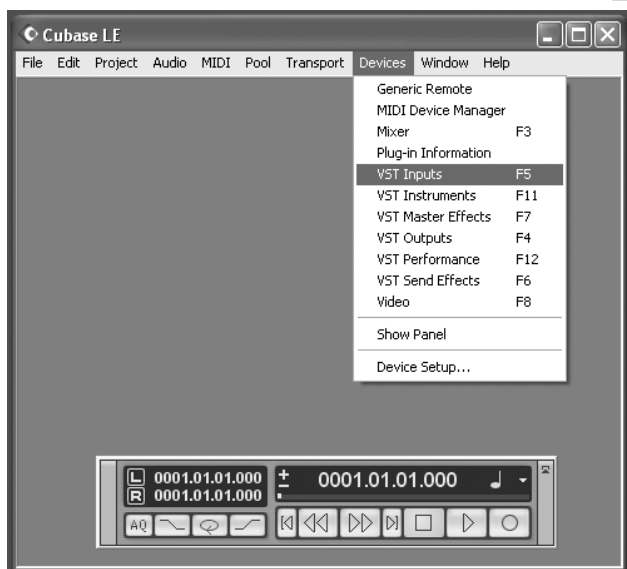


- Press “OK” to accept this setting.

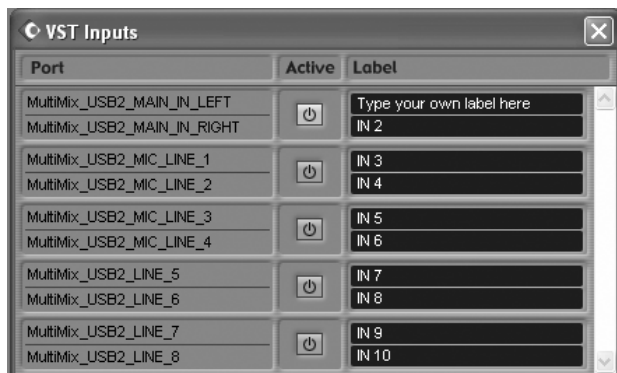
Different versions of Cubase function similarly, but not exactly, to the examples shown here.

- Now that the MultiMix is selected as the audio device, individual channels must be activated for use. Again, return to the “Devices” menu, and select “VST inputs.”

Some versions of Cubase do not allow all inputs to be used simultaneously.



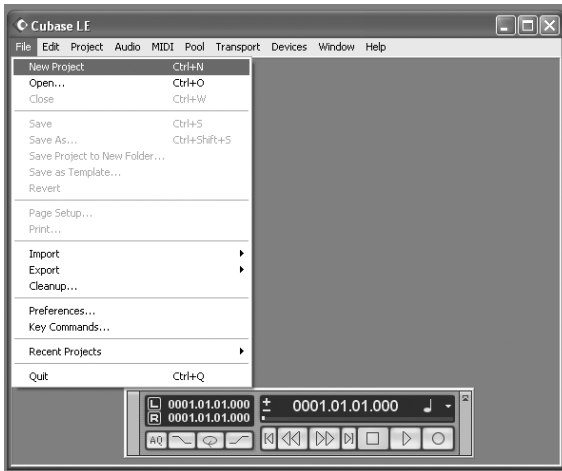
- Click the activation buttons for channel pairs that you want to use.



Creating a new audio file

Now, you're ready to create an audio project.

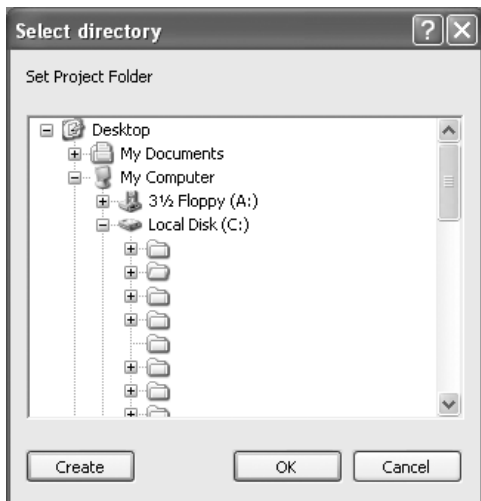
1. Choose "File" | "New Project..."



2. You can begin with a template or an empty file. For now, begin with an empty file.

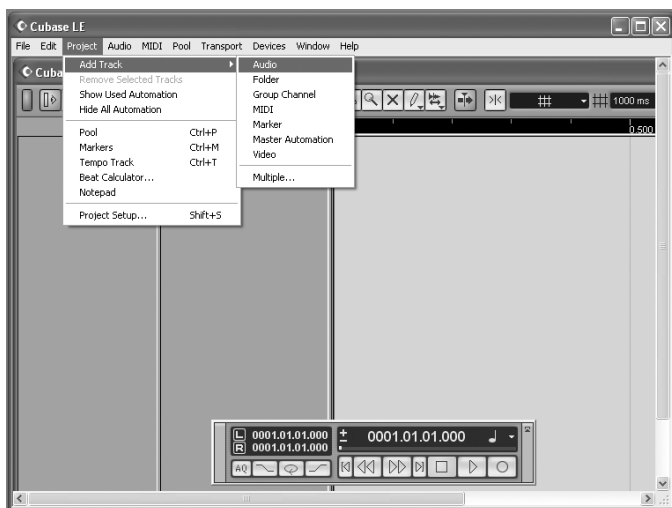


- Cubase needs to know where to place audio. Choose a directory here.



An excellent scheme for storing your projects is to create a directory called "audio projects." Then, within that folder, create a new folder for each song you work on. Cubase will store your song file and all associated audio files in that same folder.

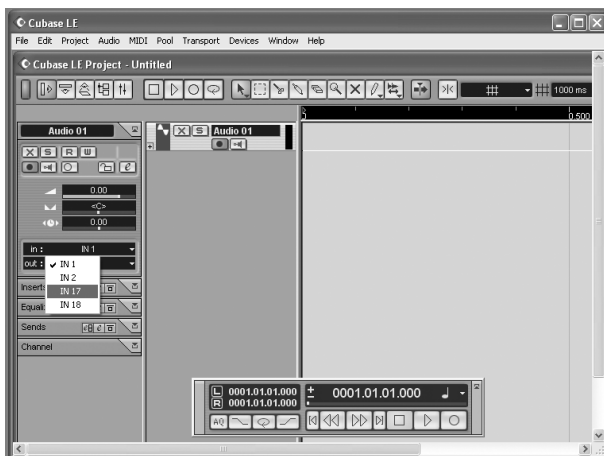
- Now, you have a blank project. Add an audio track for recording by choosing "Project" | "Add Track" | "Audio."



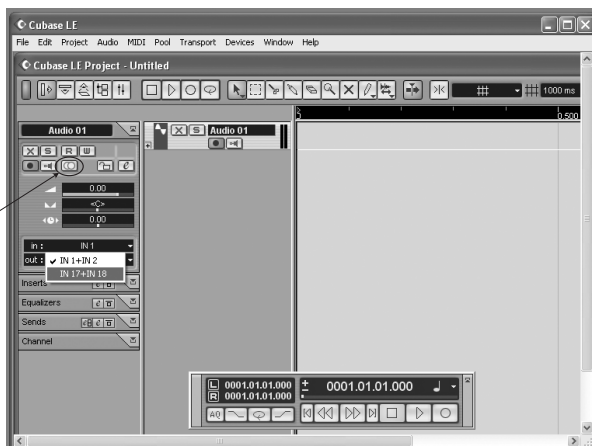
5. Be sure that the “inspector”—a strip on the left-hand side of Cubase that shows all sorts of information about the selected track—is active.

If your view is similar to that shown below, the Inspector is active. If you do not see all of the information on the left-hand side, the Inspector is not active. To activate it, press the “show Inspector” button towards the upper left of the screen (just below the “Edit” menu in the following picture).

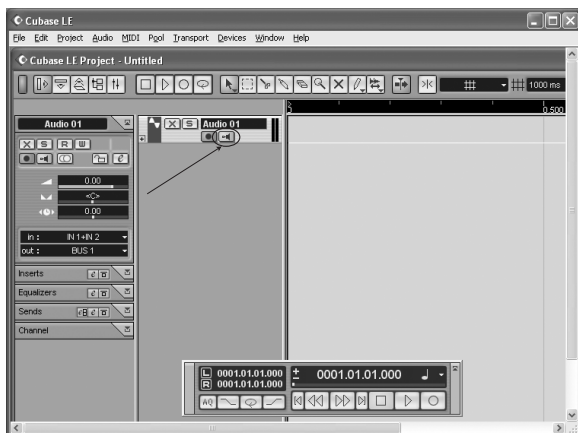
Later, you can hide the Inspector if you want to save space on your screen.



6. Choose an input for your track by selecting it from the “in” area on the left. To record stereo on the track, click the button highlighted below.



7. You will do most of your monitoring through the mixer. However, if you want to monitor with Cubase's effects, or if you just want to hear what the computer is hearing, press the direct monitoring button next to the Record Enable button.



Note that using direct monitoring causes a small delay as the digital audio is being processed. For this reason, when you use direct monitoring, you may want to press the MultiMix's **MIX TO CONTROL ROOM** button up so as not to hear the audio signal twice.

8. Add additional audio tracks as needed. Record-arm each one and press the RECORD button to begin recording.

For additional information, consult your software's documentation.

Working with the Alesis USB2.0 control panel

Accessing the control panel

In Windows, open the Alesis USB2.0 control panel from either the All Programs menu or within your audio application.

On the Mac, access this panel from the “configure device” button of Audio/MIDI Setup.

To open the control panel from within Cubase in Windows, select “Devices” | “Device Setup...” | “VST MultiTrack.” Then, click the “Control Panel” button.



Here, you can see your current sample rate, driver and firmware versions, and you can change your audio latency.

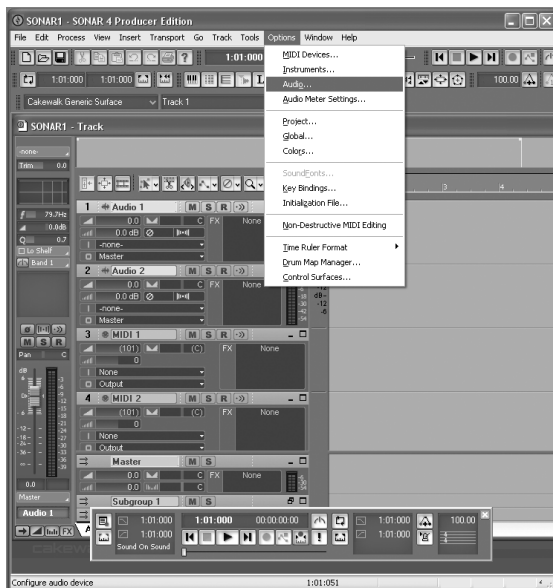
Higher latency settings generally allow for more stable audio performance and generally allow you to run more simultaneous audio tracks and plugins. The downside is that higher latency introduces noticeable lag between the time that you perform an action and the time you listen back to it.

For this reason, many people use lower latency settings when recording tracks and then switch to higher ones when mixing.

Using the MultiMix USB2.0 with Sonar and other WDM applications

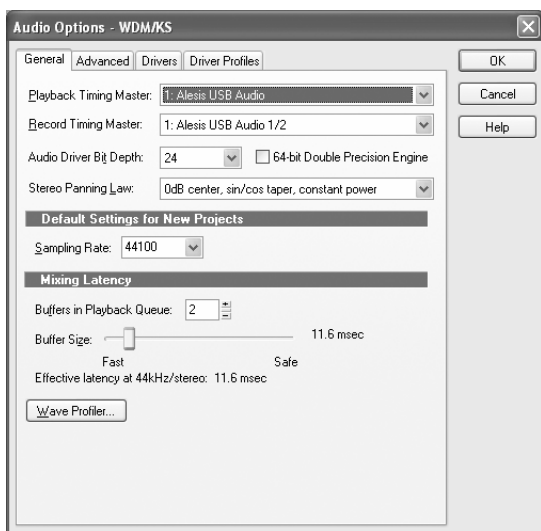
Choosing the MultiMix as your audio device

1. Choose the menu “Options” | “Audio....”



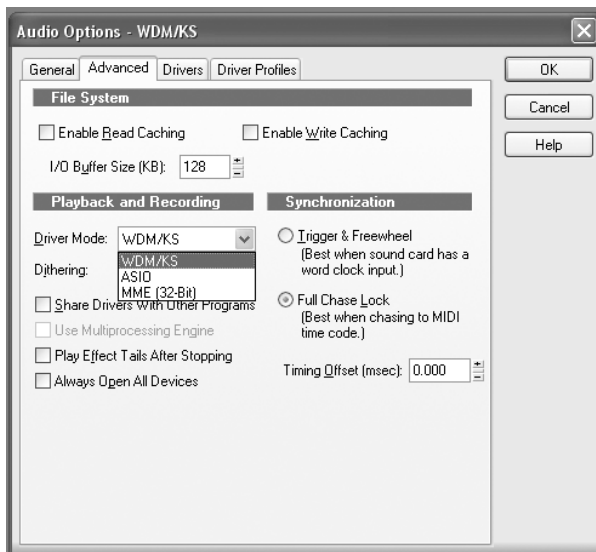
Choosing the MultiMix as your audio device
Unlike ASIO, WDM allows multiple audio devices to be used at the same time. However, doing so can cause all sorts of synchronization problems. Therefore, we suggest that you use the MultiMix as your sole audio input/output device.

2. On the “General” tab, select any available Alesis USB Audio channels as the Playback and Record timing masters.



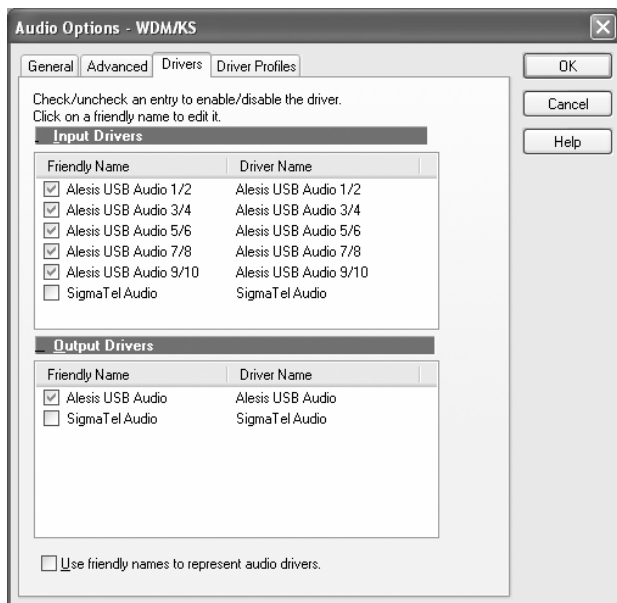
This discussion uses Cakewalk's Sonar software, but the principles provided here apply to all WDM-based recording software.

3. Click the “Advanced” tab. For WDM operation, be sure that the “Driver Mode” is set to “WDM/KS.” (If you change this setting, you will need to exit and then restart Sonar.)



For applications like Sonar that support both WDM and ASIO modes, you may want to experiment with each to see if either mode offers greater stability.

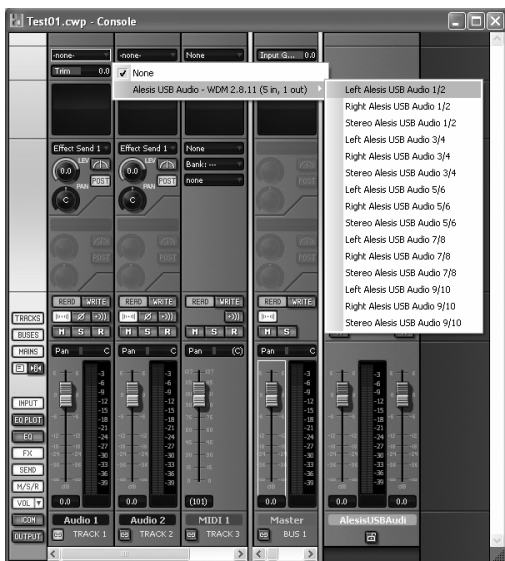
4. Move to the “Drivers” tab. Click on each input pair and also on the output pair to make them available to Sonar.



Assigning inputs to audio tracks

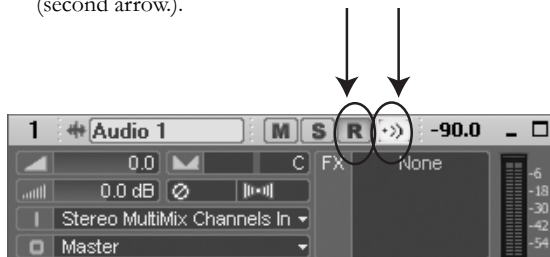
Now, you're ready to assign the MultiMix's inputs to various channels.

For each audio track that you want to record, click on the input section of the track and select the MultiMix channel that you want.



Record-enable the tracks to be recorded (first arrow).

You will do most of your monitoring through the mixer. However, if you want to monitor with Sonar's effects, or if you just want to hear what the computer is hearing, press the direct monitoring button next to the Record Enable button (second arrow).



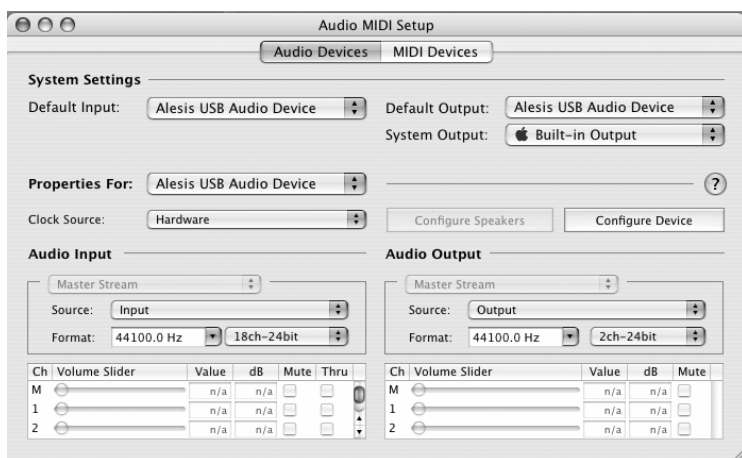
Note that using direct monitoring causes a small delay as the digital audio is being processed. For this reason, when you use direct monitoring, you may want to press the MultiMix's **MIX TO CONTROL ROOM** button up so as not to hear the audio signal twice.

Using the MultiMix USB2.0 with CoreAudio on the Macintosh

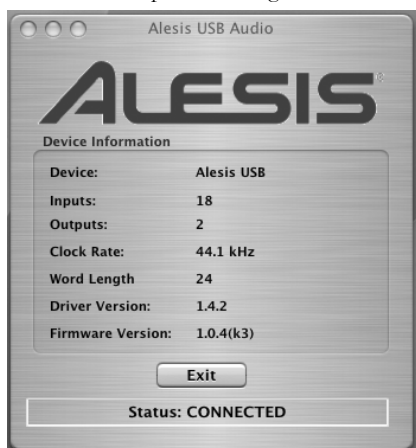
To configure the MultiMix for use with CoreAudio:

1. Open the Mac's "Audio MIDI Setup" utility.
2. Choose the "Alesis USB Audio Device" as both input and output device.

Mac OS X 10.4 or higher is required by the MultiMix drivers.



3. To verify that the MultiMix USB 2.0 is connected to your Mac, select the "Alesis USB Audio Device" under "Properties For:" and then press "Configure Device."



Troubleshooting: non-USB2.0

If you're having problems operating the MultiMix, this troubleshooting index will help you correct them.

Symptoms	Cause	Solution
No sound from the mixer.	Mixer is not plugged in or turned on.	Plug in mixer and turn it on.
	Faders are too low.	Raise appropriate faders.
	Control room level is too low.	Turn up control room level.
	The appropriate signal hasn't been assigned to the control room out.	In the master section of the mixer, be sure the right switch is selected (MIX, ALT 3/4 or 2TK).
	Cable is not plugged into output jack.	Check outputs to make sure cables are plugged in securely.
	Headphones are not plugged into PHONE jack.	Plug headphones into PHONE jack.
	Monitor or headphone amplifier is turned off or down.	Turn amplifier on or up.
Audio signal is distorted.	Bad cable.	Check all cables; substitute cables with known good ones.
	Channel level is too high.	Set channel levels using the procedure on page 12.
	Channel input is too high.	Turn down your instrument to a normal volume and then set channel levels using procedure on page 12.
	AUX RET B level is too high.	Lower the level of AUX RET B in the master section of the mixer.
	MAIN MIX level is too high.	Lower the MAIN MIX fader in the master section of the mixer.
	ALT 3/4 level is too high.	Lower the ALT 3/4 fader in the master section.

6 Troubleshooting: non-USB2.0

Audio signal carries an unwanted hum.

Too much low-level noise in the mix.

Engage the channel's high-pass filter by pressing the HPF switch.

Interference from appliances such as air conditioners.

Engage the channel's high-pass filter by pressing the HPF switch.

Not using TRS cables.

Make sure you are using 1/4" TRS cables.

Microphone level is too low.

Phantom power is not turned on.

Turn on phantom power using the switch on the rear panel of the mixer.

Microphone is damaged.

Test the microphone on other audio devices. If you detect damage, contact the manufacturer or dealer.

No or low sound from a channel.

Fader is too low.

Raise channel fader.

Instrument volume is too low.

Turn up the instrument's volume control. If problem persists, check the instrument by plugging headphones into the instrument's phone jack.

Channel is muted.

Check the MUTE / ALT 3/4 switch.

Gain is too low.

Adjust the channel's GAIN control.

Internal effects aren't working.

Effects level is too low.

Turn up the level using the EFFECTS / AUX RET B LEVEL control in the master section of the mixer.

An effect hasn't been selected.

Press the EFFECTS knob on the desired effect and make sure the SIG indicator is lit.

External effects aren't working.	Effects processor is not plugged in or turned on.	Make sure unit is plugged in and turned on.
	Aux outputs of mixer aren't connected to inputs of processor or processor's outputs aren't connected to mixer's inputs (or aux return).	Make sure the mixer's aux outputs are connected to the processor's inputs and that the processor's outputs are connected to the mixer's aux inputs.
	Mixer's effects return signal is too low.	Turn up the output of the effects processor or turn up the mixer's AUX RET A RETURN or EFFECTS / AUX RET B RETURN in the master section.
LED meters not working.	Nothing is routed to the HDPH/CTRL RM output.	Press the desired MIX, ALT ⅓ or 2 TK button.
Computer does not see the MultiMix.	USB2.0 connection must be established.	Unplug the USB2.0 cable and turn off the MultiMix. Turn the MultiMix back on and plug the cable back in. If this does not work, leave the MultiMix on, turn off the computer (do not use "restart" but instead actually turn off the computer) and then turn it on again.
Computer sees the MultiMix USB2.0, but no sound is received and/or transmitted.	MultiMix USB2.0 is not set as primary sound device.	In the computer's Control Panel, go to the Sounds/Multimedia area. In the Audio section, set the default sound recording and playback devices to MultiMix USB2.0.
No power.	Incorrect or defective power supply.	Replace with correct power supply (only use Alesis-recommended AC output power supply).

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Computer or audio application does not see the MultiMix USB2.0

Basic troubleshooting

First, check that the MultiMix is seen by the computer: Open the Alesis control panel and check that Windows sees the device as attached.

No connection

If “MultiMix Audio” does not appear, Windows does not see the mixer as being connected to the computer. Check your USB2.0 cable and try powering the mixer off and on again.

As a last resort, re-start your computer.

Audio playback or recording is at the wrong speed

Adjust the buffers in the ASIO control panel or through your WDM application’s audio setup options.

It is impossible to say which buffer settings are perfect for each system, but generally buffer sizes around the middle or low-middle of the available range provide the best results.

Audio playback or recording stutters or drops out

Again, work with the buffer settings in the ASIO control panel or through your WDM application’s audio setup options in order to find the most reliable setting.

Many audio applications include advanced setting dialog boxes where pre-fetch and other parameters can be set. Explore those options.

Audio echoes during recording

Either turn your software direct monitoring off or—if you want to monitor your incoming audio through your software—put the **MIX TO CTRL RM** button in the UP position.

Be sure to attach your monitoring speakers to the CTRL RM OUT jacks, not the MAIN MIX OUT jacks.

When restarting your computer, turn it off all the way. Pull out the AC power cord, keep it out for a few seconds, and then plug it back in again before you restart your computer.

This step helps reset your computer’s motherboard, including any USB2.0 ports and cards.

Help on the web

Most major recording programs are supported by lively user forums. The odds are that, if you’re having problems, someone who posts at these forums has already experienced them and found solutions.

Don’t be shy about visiting these forums and posting your questions.

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For the more technical-minded, here are some detailed specifications for the MultiMix's operating levels.

Input Channels

Mic In Sensitivity Range:	-60dBu to -10dBu nominal, +5dBu maximum
Line In Sensitivity Range:	-40dBu to -10dBu nominal, +25dBu maximum
Mic/Line Gain Range:	+10 to +60dB

Equalization

High-Pass Filter:	75Hz, 18dB/octave
High Shelving:	12kHz, +/- 15dB
Mid Bandpass/Band Reject:	2.5 kHz, +/- 15dB
Low Shelving:	80Hz, +/- 15dB

Aux Sends

Aux Send A & B Gain Range:	-∞ to +10dB
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Aux Returns

Aux Return A Gain Range:	-∞ to +15dB
Effects Level/	
Aux Return B Gain Range:	-∞ to +15dB

Channel Levels

Channel Level Gain Range:	-∞ to +10dB
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Master Levels

Main Mix, Ctrl Room Gain Range:	-∞ to +10dB
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1/4" Inputs

Stereo Aux Return Level:	+4dBu nominal, +20dBu maximum
--------------------------	-------------------------------

RCA Inputs

2-TRACK IN Level:	-10dBV nominal, +5dBV maximum
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1/4" Outputs

Main Mix, Ctrl Room, Aux 3/4, Ext Aux Send Level:	+4dBu nominal, +20dBu maximum
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Headphone Output:	75 ohm output impedance >105mW into 75 ohms, >40mW into 600ohms
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RCA Outputs

2-TRACK OUT Level:	-10dBV nominal, +5dBV maximum
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All measurements done over a 22Hz – 22kHz range with a 1kHz sine wave at +18dBu (-1dBFS) input. Impedances are measured at 1kHz.

Mechanicals**(W x L x H)**

MultiMix 12 USB2.0: 13.0" x 13.4" x 3.2" /
331mm x 340mm x 80mm,
7.0lbs / 3.2kg

MultiMix 16 USB2.0: 13.0" x 15.2" x 3.2" /
331mm x 386mm x 80mm,
9.7lbs / 4.4kg

Computer Requirements:

Minimum PC Requirements:

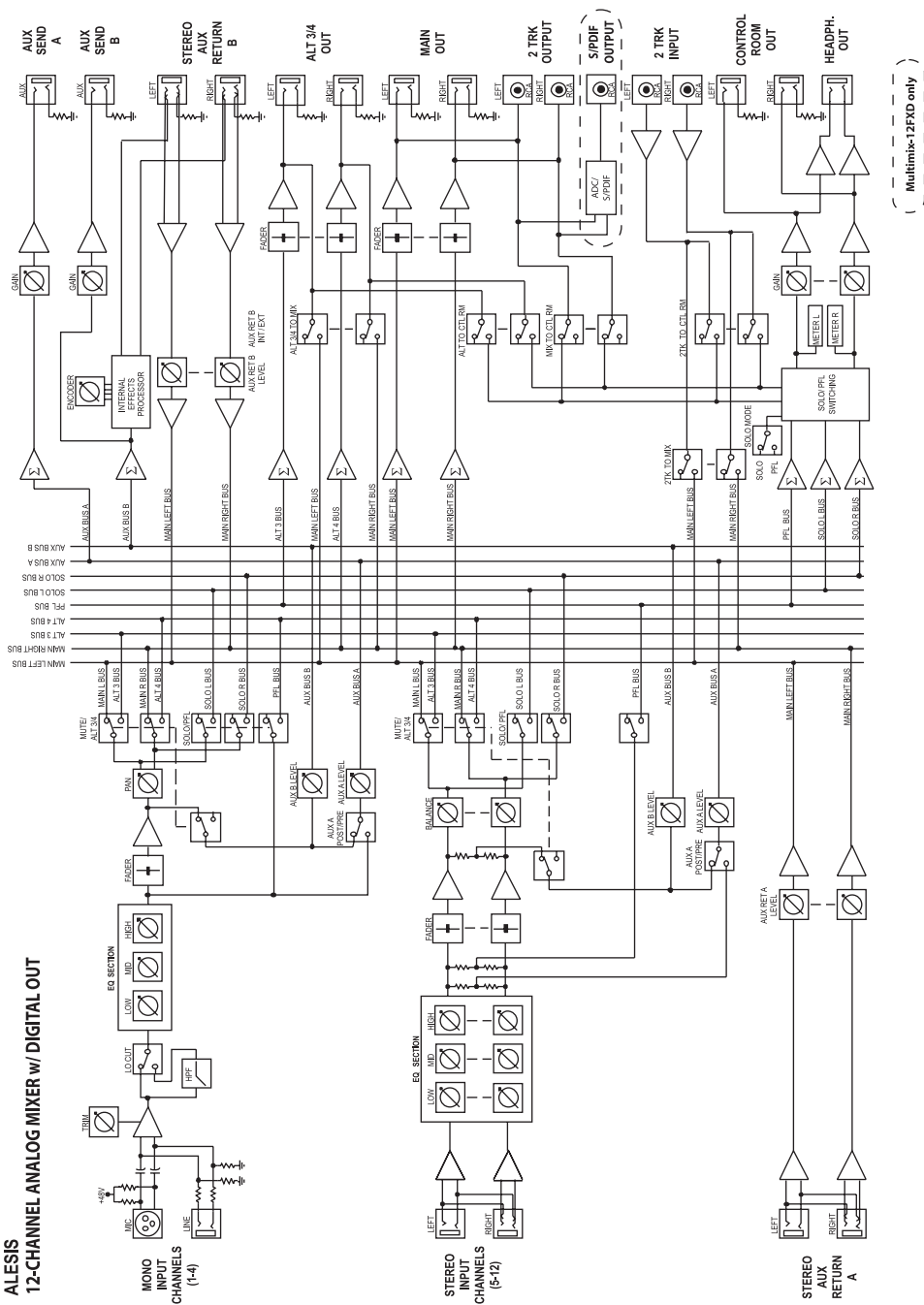
- Pentium 4, 2.4GHz Processor (or equivalent, such as any Intel Centrino notebook computer)
- 512 MB RAM
- Available USB2.0 Port
- Windows XP (with Service Pack 2 or higher installed)
- 5400 RPM or faster hard drive recommended for multitrack audio

Minimum Macintosh Requirements:

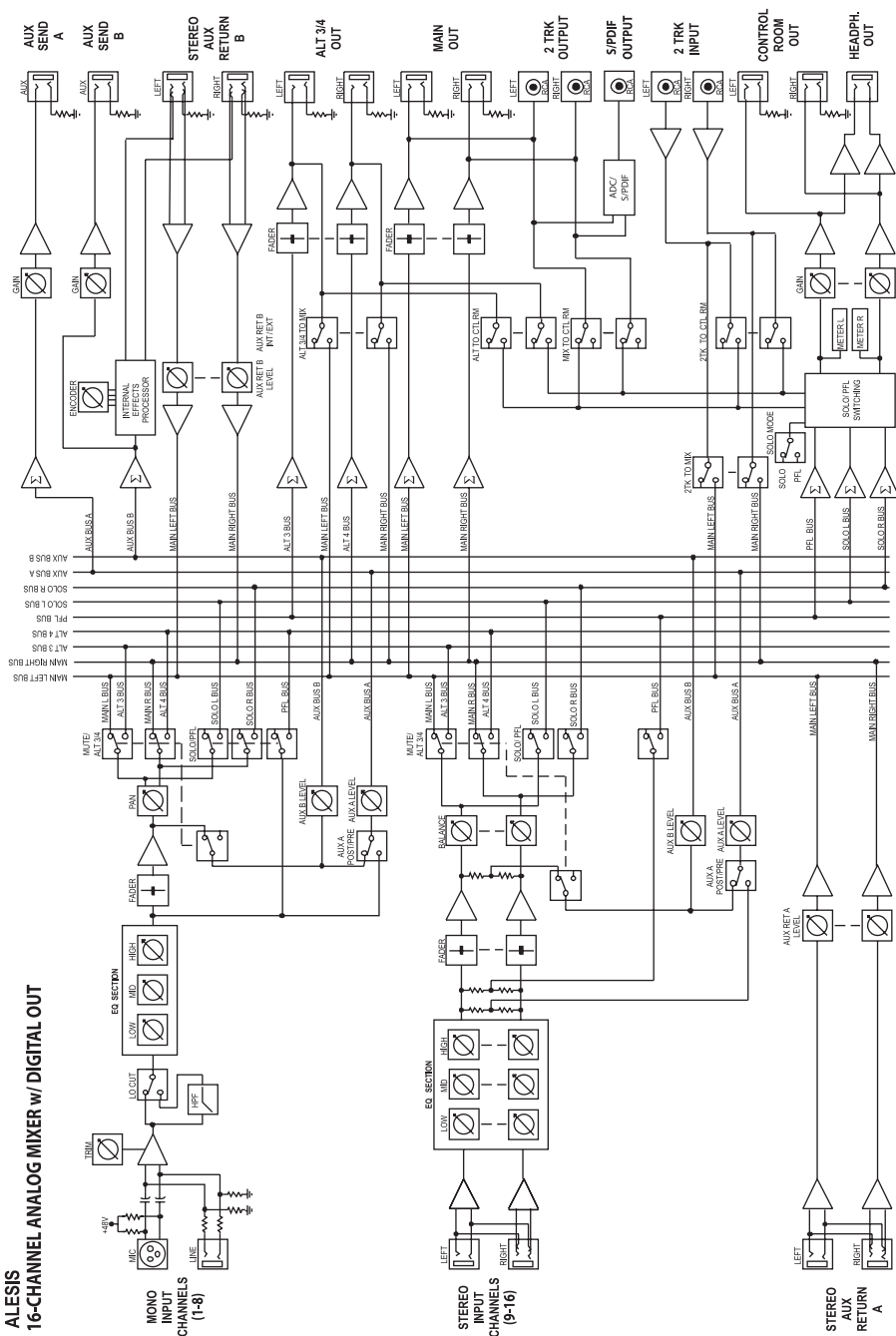
- G4 with native USB2.0 support
- Mac OS X version 10.4 or later
- 512 MB RAM
- 5400 RPM or faster hard drive recommended for multitrack audio

9 Block Diagrams

ALESIS
12-CHANNEL ANALOG MIXER w/ DIGITAL OUT



ALESIS 16-CHANNEL ANALOG MIXER w/ DIGITAL OUT



Glossary

Here are the definitions to some terms you'll probably encounter while using your MultiMix USB2.0.

Term	Definition
ASIO	Audio Stream Input/Output. An audio protocol developed by Steinberg and used by multiple audio software manufacturers.
aux (auxiliary)	An additional set of outputs and inputs found on many mixers. These allow the addition of external effects and other audio sources.
balance	A control that lets you control the position of sound in a stereo signal by altering the relative levels of the left and right channels.
bus	The electrical component that carries signals from multiple sources to a single destination such as an amplifier.
channel	A path through which an audio signal flows.
channel strip	A section of a mixer on which reside controls like a fader, EQ and pan for manipulating the signal of an input channel.
clipping	The cutting of an audio signal caused by a level that is too great for a mixer circuit to handle.
codec	Compression/decompression algorithm. Different CODECs are used by different digital audio devices and file formats.
condenser microphone	A type of high-quality microphone that produces a weak signal, usually requiring an external power source like the ones provided by your MultiMix's XLR mic inputs.
DAW	Digital audio workstation. DAWs can be either standalone, like the Akai DPS series, or software.
dB (decibel)	A common unit of measure for audio.
detent	A point of resistance in the path that a mixer knob or fader travels. Detents are used to mark important settings. As you turn the knob or slide the fader, you'll feel it "click" into the detent.
dry	Term used to describe an audio signal free of effects. The opposite of "wet."
dynamic microphone	A common type of microphone that does not require external power. Dynamic microphones are generally cheaper than condenser microphones.
effects processor	A unit whose purpose is to provide effects for audio signals. Some common effects include reverb, chorus, flange and delay. Effects processors come in many shapes and sizes, from small pedals up to

	rectangular rackmount units.
EQ (equalizer)	The part of your mixer (or other device) that manipulates an audio signal by lowering the level of some frequencies and increasing the levels of others. EQ is used to fine-tune a signal's highs and lows.
fader	A device that allows you to control the level of an audio signal by sliding the fader up and down a straight path. Each input channel of the MultiMix has its own fader, and so do the MAIN MIX and ALT 3/4.
USB2.0	A standard for connecting external devices to a computer.
gain	The measure of extra amplification applied to an audio signal. Channels 1 – 4 on your MultiMix have gain controls, which are useful for boosting mic and line signals.
latency	The time it takes for audio to travel from the MultiMix, through the computer and the recording program, and out again. Latency is measured in either samples or milliseconds.
level	The amount of power driving an audio signal. The most common names given to levels of varying voltage are, from lowest to highest, microphone level, instrument level and line level.
master section	The section of a mixer where the main mix is controlled.
mic preamp	An amplifier that boosts a microphone-level signal up to line level.
mixer	A device whose purpose is to combine and output a number of audio signals, allowing various types of signal manipulation.
mono (monaural)	Refers to an audio signal that has only one channel. The opposite of stereo.
pan	A control that lets you position a mono signal within the stereo spectrum by altering the level of the signal being sent to the left channel as opposed to the right.
phantom power	A way of providing power to condenser microphones. Called “phantom” because the power isn't apparent to dynamic microphones when you connect them to an input that provides phantom power.
post-fader	Describes an aux send that sends a signal that already has passed through the channel fader.
pre-fader	Describes an aux send that sends a signal that has not passed through the channel fader.
return	A line input whose function is to carry back to the mixer an audio signal that has been sent from the mixer. Usually used in the application of

	effects.
sample rate	Digital audio is chopped up into tiny time slices. The sample rate is the number of time slices captured in one second. 44.1kHz—44,100 samples per second—is the standard used for Compact Disk audio. 48kHz—48,000 samples per second, is commonly used for film and video.
send	A line output whose function is to send a signal from the mixer to an external device, usually an effects processor.
stereo	Refers to an audio signal that has two channels.
unity gain	Refers to the setting of an audio channel at which the signal leaves the channel at the same level at which it entered. Unity gain is marked by a 0 on the MultiMix's faders.
WDM	The Windows Driver Model. This is the default standard by which Microsoft Windows communicates with audio devices.
wet	An audio signal that has had effects or other manipulations applied. The opposite of “dry.”

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MultiMix USB2.0 Reference Manual
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7-51-0241-A
7/20/2007

7-51-0241-A