Lexicon®

Owner's Manual

AND APPLICATION GUIDE

ΩMEGA™

DESKTOP RECORDING STUDIO

COMPLETE RECORDING SOLUTION

IMPORTANT SAFETY INSTRUCTIONS

The symbols shown above are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the owner's manual.

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

SAFETY INSTRUCTIONS

NOTICE FOR CUSTOMERS IF YOUR UNIT IS EQUIPPED WITH A POWER CORD.

WARNING: THIS APPLIANCE MUST BE EARTHED.

The cores in the mains lead are coloured in accordance with the following code:

GREEN and YELLOW - Earth   BLUE - Neutral   BROWN - Live

As colours of the cores in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

• The core which is coloured green and yellow must be connected to the terminal in the plug marked with the letter E, or with the earth symbol, or coloured green, or green and yellow.
• The core which is coloured blue must be connected to the terminal marked N or coloured black.
• The core which is coloured brown must be connected to the terminal marked L or coloured red.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified service personnel who should refer to the table below. The green/yellow wire shall be connected directly to the units chassis.

CONDUCTOR		WIRE COLOR	
		Normal	Alt
L	LIVE	BROWN	BLACK
N	NEUTRAL	BLUE	WHITE
E	EARTH GND	GREEN/YEL	GREEN

WARNING: If the ground is defeated, certain fault conditions in the unit or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and earth ground are touched simultaneously.

WARNING FOR YOUR PROTECTION
PLEASE READ THE FOLLOWING:

KEEP THESE INSTRUCTIONS

HEED ALL WARNINGS

FOLLOW ALL INSTRUCTIONS

DO NOT USE THIS APPARATUS NEAR WATER

CLEAN ONLY WITH A DRY CLOTH.

DO NOT BLOCK ANY OF THE VENTILATION OPENINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

DO NOT INSTALL NEAR ANY HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES, OR OTHER APPARATUS (INCLUDING AMPLIFIERS) THAT PRODUCE HEAT.

ONLY USE ATTACHMENTS/ACCESSORIES SPECIFIED BY THE MANUFACTURER.

UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME.

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 third prong are provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

Use only with the cart stand, tripod bracket, or table specified by the manufacture, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

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

POWER ON/OFF SWITCH: For products provided with a power switch, the power switch DOES NOT break the connection from the mains.

MAINS DISCONNECT: The plug shall remain readily operable. For rack-mount or installation where plug is not accessible, an all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated into the electrical installation of the rack or building.

FOR UNITS EQUIPPED WITH EXTERNALLY ACCESSIBLE FUSE RECEPTACLE: Replace fuse with same type and rating only.

MULTIPLE-INPUT VOLTAGE: This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. Connect this equipment only to the power source indicated on the equipment rear panel. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel or equivalent.

IMPORTANT SAFETY INSTRUCTIONS

ELECTROMAGNETIC COMPATIBILITY

This unit conforms to the Product Specifications noted on the **Declaration of Conformity**. Operation is subject to the following two conditions:

- this device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

Operation of this unit within significant electromagnetic fields should be avoided.

- use only shielded interconnecting cables.

U.K. MAINS PLUG WARNING

A molded mains plug that has been cut off from the cord is unsafe. Discard the mains plug at a suitable disposal facility.

NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAINS PLUG INTO A 13 AMP POWER SOCKET.

Do not use the mains plug without the fuse cover in place. Replacement fuse covers can be obtained from your local retailer. Replacement fuses are 13 amps and MUST be ASTA approved to BS1362.

DECLARATION OF CONFORMITY

Manufacturer's Name: Lexicon Professional
Manufacturer's Address: 8760 S. Sandy Pkwy.
Sandy, UT 84070, USA

Declares that the product:

Product name: Lexicon Omega™
Note: Product name may be suffixed by the letters-EU.

Product option: all (requires Class II power adapter that conforms to the requirements of EN60065, EN60742, or equivalent.)

Conforms to the following Product Specifications:

Safety: IEC 60065 (1998)

EMC: EN 55013 (1990)
EN 55020 (1991)

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 72/23/EEC and the EMC Directive 89/336/EEC as amended by Directive 93/68/EEC.

Vice-President
of Engineering

8760 S. Sandy Parkway
Sandy, Utah 84070, USA
Date: September 2003

European Contact: Your local Lexicon Professional Sales and Service Office or

Harman Music Group
8760 S. Sandy Pkwy.
Sandy, UT 84070 USA
Ph: (801) 566-8800
Fax: (801) 568-7583

SERVICE INFO

If you require technical support, contact Lexicon Professional Customer Service. Be prepared to accurately describe the problem. Know the serial number of your unit, it is on a sticker attached to the bottom of the Omega. If you have not already taken the time to fill out your warranty registration card and send it in, please do so now.

Before you return a product to the factory for service, we recommend you refer to the manual. Make sure you have correctly followed installation steps and operation procedures. If you are still unable to solve a problem, contact our Customer Service Department at **(801) 568-7660** for consultation. If you need to return a product to the factory for service, you MUST contact Customer Service to obtain a Return Authorization Number. No returned products will be accepted at the factory without a Return Authorization Number. Please refer to the Warranty information on the following page, which extends to the first end-user. After expiration of the warranty, a reasonable charge will be made for parts, labor, and packing if you choose to use the factory service facility. In all cases, you are responsible for transportation charges to the factory. Lexicon Professional will pay return shipping if the unit is still under warranty.

Use the original packing material if it is available. Mark the package with the name of the shipper and with these words in red: **DELICATE INSTRUMENT, FRAGILE!** Insure the package properly. Ship prepaid, not collect. Do not ship parcel post.

WARRANTY

This warranty is valid only for the original purchaser and only in the United States.

1. The warranty registration card that accompanies this product must be mailed within 30 days after purchase date to validate this warranty. Proof-of-purchase is considered to be the burden of the consumer.
2. Lexicon Professional warrants this product, when bought and used solely within the U.S., to be free from defects in materials and workmanship under normal use and service.
3. Lexicon Professional's liability under this warranty is limited to repairing or, at our discretion, replacing defective materials that show evidence of defect, provided the product is returned to Lexicon professional **WITH RETURN AUTHORIZATION** from the factory, where all parts and labor will be covered up to a period of 1 year. A Return Authorization number must be obtained from Lexicon Professional by telephone. The company shall not be liable for any consequential damage as a result of the product's use in any circuit or assembly.
4. Lexicon Professional reserves the right to make changes in design or make additions to or improvements upon this product without incurring any obligation to install the same additions or improvements on products previously manufactured.
5. The foregoing is in lieu of all other warranties, expressed or implied, and Lexicon Professional neither assumes nor authorizes any person to assume on its behalf any obligation or liability in connection with the sale of this product. In no event shall Lexicon Professional or its dealers be liable for special or consequential damages or from any delay in the performance of this warranty due to causes beyond its control.

TABLE OF CONTENTS

INTRODUCTION

Congratulations on your purchase of the Lexicon Omega™ desktop recording studio. The Lexicon Omega is a complete package of hardware and software that turns your USB-connected computer into a professional multitrack recording workstation. Whether you use it for high-quality stereo location recording with a laptop computer, or for multitrack overdubbing and mixing in a home studio desktop system with MIDI synthesizers, the Omega Studio hardware provides the professional-quality inputs and outputs, metering, and level controls that computer sound cards or built-in audio connections lack.

So you can make full use of the Omega Studio's analog, MIDI, and digital I/O right away, we've included Steinberg's Cubase LE® software for PCs and Macs. Cubase LE® offers integrated multi-track recording, editing and mixing of up to 48 audio tracks, 64 MIDI tracks, VST Instruments support, VST plug-in effects support, and an array of additional features. Lexicon's Pantheon™ reverb VST plug-in is a major feature of the Omega package, providing the lush Lexicon reverbs that have been used on professional recordings for over thirty years. Alternatively, the Lexicon Omega may be used as an interface with almost any other major audio recording software you may have, such as Steinberg's Nuendo®, Cubase SX®, or MOTU's Digital Performer®.

FEATURES

THE OMEGA™ DESKTOP RECORDING STUDIO
PROVIDES THE FOLLOWING:

- 7 analog audio inputs
- 2 - XLR mic inputs with extremely low noise dbx® preamps, 50 dB gain, 20 dB Mic Pads, and +48V phantom power *(switchable)*
- 1/4" TRS insert jack on each mic input
- 4 - 1/4" analog RF filtered TRS active-balanced line inputs
- 1 - 1/4" ultra-Hi-Z analog instrument input
- 2 - 1/4" analog TRS servo-balanced, active line outputs
- Tru-Reference™ headphone amplifier
- S/PDIF coaxial digital input and output
- MIDI In and Out
- 24-bit A/D and D/A converters, supporting sample rates of 44.1 kHz and 48 kHz
- Zero-latency analog record monitoring with adjustable balance between input and playback
- Stereo and Mono input source monitoring
- Power supply included

UNPACKING THE OMEGA™ STUDIO

The Omega™ Studio is shipped in one carton, containing the interface hardware, Cubase LE4 and Lexicon Pantheon plug-in software for Windows® and Macintosh® based systems. After unpacking, save all the packaging materials in case you ever have to ship the unit. Thoroughly inspect the Omega Studio and packing materials for signs of damage. Report any shipment damage to the carrier that delivered the product or dealer from whom you purchased the product at once.

THE FOLLOWING ITEMS ARE INCLUDED:
- Omega desktop audio interface
- Installer CD-ROM containing Cubase LE4 Recording Software and drivers and the Lexicon Pantheon™ Reverb Plug-in for Mac and Windows
- USB Connector Cable
- This Owner's Manual
- Lexicon Pantheon™ Reverb Plug-in User's Guide
- Omega Studio Software Installation Guide
- Lexicon Professional warranty registration
- NOTE: The full Cubase LE4 manual is located "on-line" on the software CD

COMPUTER MINIMUM REQUIREMENTS

Powerful software for audio recording requires a powerful computer with the right operating system software, processor, memory, and hard drive space. Most currently sold computers already meet these requirements, or can be upgraded to be compatible with the Lexicon Omega Desktop Recording Studio. As with all such systems, adding more RAM than the minimum will allow you to do more processing and improve performance, and more disk space will allow you to record more tracks for a longer time. See the Omega Software Installation Guide and the Cubase LE4 manual for more information.

WINDOWS® VISTA, XP HOME, OR XP PROFESSIONAL
- Pentium / Athlon 1.4 GHz
- 512 MB RAM
- Display Resolution 1024 x 768 pixels
- Windows DirectX compatible audio hardware; ASIO compatible audio hardware recommended for low latency performance
- DVD-ROM drive
- Internet access required for license activation

MACINTOSH®
- Power Mac G4 1 GHz or Core Solo 1.5 GHz
- 512 MB RAM
- OS X Version 10.4
- Display Resolution 1024 x 768 pixels
- CoreAudio compatible audio hardware
- DVD-ROM drive
- Internet access required for license activation

lexicon

Mic 1-2 Gain

Peak LEDs

Line 1 and 3 Gain

Monitor Assign

Monitor Mix Control

USB LED

Instrument Input Jack

S/PDIF Assign LED

USB Assign

Peak LEDs

Line 2 and 4 Gain

Meter Assign

Output Level

+48V LED

S/PDIF Assign

Headphone Output

S/PDIF Lock LED
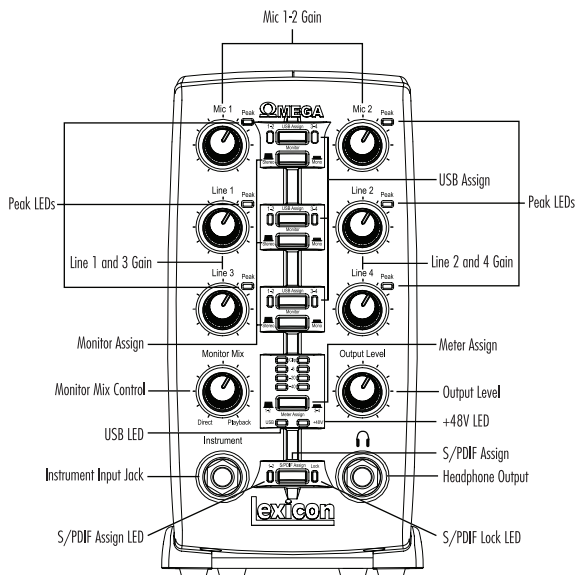
For the cleanest recording, adjust the Gain knob so the microphone level reaches at least "-6" on the meter, but never hits "Clip", on the loudest sound you'll be recording. If you see the PEAK LED on constantly, turn the Gain knob down until it flashes only occasionally, on the peaks.

Don't turn down a Gain control simply to get the right mix in your headphones or monitors while recording. Use the MONITOR MIX control to do that.

THE FRONT PANEL

The Omega's front panel offers the following features:

MIC 1-2 GAIN
These knobs adjust the input gain levels of the Mic 1 and Mic 2 inputs.

LINE 1-4 GAIN
These knobs adjust the input gain levels of the Line 1 through Line 4 inputs.

PEAK LEDS
These LEDs will light when the input signal is within 5dB of analog clipping. If the Peak LEDs flicker occasionally, the signal is approaching clipping levels, but does not necessarily indicate distortion or actual clipping.

USB ASSIGN
These buttons and LED indicators select which USB audio bus *(USB 1-2 (red), USB 3-4 (green), or OFF)* that pair of signals is streaming up to the computer on. For example, you can record four separate channels at once: Mic 1 and Mic 2 via USB 1-2, and Line 1 and Line 2 via USB 3-4. On playback, each of the four sources will be on its own, separate track and can be panned anywhere in the mix that you want.

MONITOR ASSIGN
These buttons select whether a pair of analog audio sources will be heard in stereo or mono in the Direct Monitor Mix. In Stereo mode, the left inputs *(Mic 1, Line 1, Line 3)* are routed to the left monitor and even numbered inputs are routed to the right monitor. In Mono mode, you'll hear any inputs in the center of the Direct Monitor Mix through the Omega's headphones or outputs.

When a Monitor switch is in Mono, it does not change the signal going to the computer via the USB bus in any way—they will still be separate and stereo in the computer.

MONITOR MIX CONTROL

The Omega gives you the ability to hear your analog input signals directly and immediately while recording without having to adjust levels in software and before the delay caused by digital converters and computer recording latency. This zero-latency analog monitoring is controlled by the Monitor Mix knob, which you can use to adjust the blend between the Omega's live analog inputs *(called "Direct")* and any sounds coming back from the computer via USB *("Playback")*. To adjust the playback mix coming back from the computer (previous tracks, effect returns etc.), use the faders on the Mixer screen of the software. To hear only the live source input signals plugged into the Omega, turn the Mix knob fully left to Direct. To hear only the mix from the computer, turn the Mix knob fully right to Playback. Any signal coming in on the S/PDIF input is converted to analog and sent to the mix control so that you can monitor this input directly just like an analog input. The output from the Monitor Mix control is routed directly to the Line and Headphone outputs. This ability to easily control the relative levels of computer audio playback and latency-free live analog inputs is very useful when overdubbing.

OUTPUT LEVEL

This knob controls the overall output level of the Omega's Line and Headphone outputs.

METER ASSIGN

This switch selects which signals *(signals assigned to USB 1-2 bus or USB 3-4 bus)* are being assigned to the Omega's meter ladder. This LED Meter shows the signal level into the A/D converters. When the Meter's Clip LEDs light, analog input signals are clipping the A/D converter. Adjust the Mic and Line gain knobs so that the -6 dB LED flashes only occasionally.

USB LED

When the blue USB LED is on, it shows the Omega Studio is communicating with your computer via USB and audio and MIDI signals can pass in and out of the system. If the USB LED is blinking, the Omega is not communicating with your computer.

+48V LED

This LED indicates that 48 Volt phantom power is active on the Mic 1 and 2 inputs, providing phantom power for condenser microphones that require it to operate. Turn Phantom Power on or off as needed by the switch labeled +48V Phantom on the bottom right of the rear panel.

S/PDIF ASSIGN

This button assigns the S/PDIF digital input to the USB 1-2 audio bus. When S/PDIF is enabled, only the external digital input will be sent to the computer via the USB 1-2 bus and any analog inputs that were assigned to USB 1-2 are not sent to the computer, although they still may be heard in the Direct Monitor Mix. Analog inputs can still be assigned to the USB 3-4 bus while the S/PDIF Assign is enabled, allowing both digital and analog audio to be recorded simultaneously.

S/PDIF ASSIGN LED
This LED lights when the S/PDIF input is assigned to the USB 1-2 bus.

S/PDIF LOCK LED
The LED lights when the S/PDIF input has locked in with the Omega. If this LED is not lit, digital signal can not be received from external devices via the S/PDIF input, and the hookup or setting of the external device, or the computer software's clock source, must be changed.

HEADPHONE OUTPUT
The Headphone Output accommodates stereo headphones with a 1/4" stereo plug.

INSTRUMENT INPUT JACK
This 1/4" jack accepts unbalanced, low-level high impedance instrument sources such as electric guitar, acoustic guitar with a pickup, and electric bass. The input gain is adjusted using the Line 3 knob on the front panel. When an instrument is plugged in, it disables the Line 3 audio input on the rear panel.

THE REAR PANEL
The Omega Studio's rear panel offers the following features:
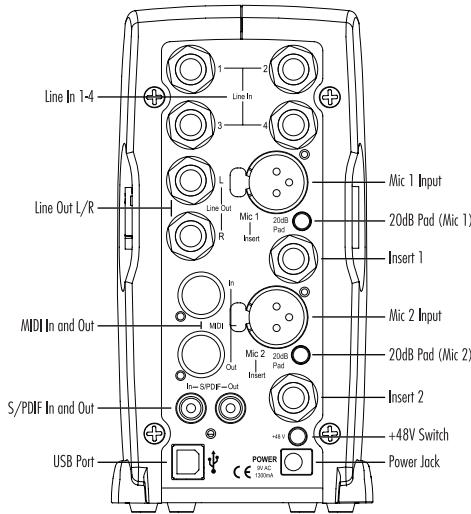
LINE IN 1-4
These 1/4" inputs can accept both balanced *(3-conductor TRS plug)* and unbalanced *(2-conductor)* audio sources. Each input gain is adjusted individually using the Line 1-4 knobs on the front panel.

LINE OUT L/R
These outputs support balanced TRS or unbalanced TS 1/4" connections. These outputs can be connected to a mixing board, power amplifier, powered studio monitors, recorder, or another line level input.

MIC 1-2 INPUTS

These balanced XLR inputs feature high quality dbx® Silver Series™ mic preamps designed specifically for low-impedance professional microphones. The input gain is adjusted using the Mic 1-2 knobs on the front panel respectively, with 50 dB of gain at the maximum setting.

-20dB PAD

The -20dB pad is a resistive attenuator that drops the level coming from the mic input jacks. Press this switch in to prevent overload of the preamp when incoming signals are too hot to avoid clipping, even when the front panel control is set to minimum. Normally, this will only happen if you have plugged a line-level input into the Mic In jack. When the -20dB switch is in, the XLR input can handle a maximum input of +18 dBu, compared to a maximum +22 dBu at any Line In jack.

INSERT 1-2

Each mic input is equipped with a TRS insert point. Inserts provide a send and return of the input channel's signal directly after the mic preamp and before the A/D converter. You can insert any line level analog processor *(such as a compressor or equalizer)* to pre-process the mic signal before it is recorded, using a standard "stereo splitter" *(single TRS to two TS)* cable. The tip is send and the ring is return.

S/PDIF IN AND OUT

The S/PDIF in and out ports are unbalanced phono *(RCA)* connectors that transmit and receive either a 16-bit or 24-bit two-channel audio stream. S/PDIF ports may be found on many professional and consumer CD and digital audio recorders. It is recommended to use 75-Ohm coaxial cable for S/PDIF transfers and keep the cable length to a maximum of 10 meters to minimize interference and data dropout. The S/PDIF output sends only the stereo signal that is returned from the computer. Thus it is not affected by the setting of the Monitor Mix or Output Level controls.

+48V SWITCH

This enables the phantom power to the Mic 1 and Mic 2 inputs. Dynamic microphones do not require phantom power to operate, but are not harmed by it. Most condenser microphones do require phantom power to operate. If you are unsure about the phantom power requirements for your microphone, consult your microphone's documentation or contact the manufacturer. This switch should be OFF if you are connecting any line-level source to the Mic In jacks.

USB PORT

The USB Port is used to connect the Omega to your computer. A standard USB cable is included. The Omega is compatible with USB 2.0 ports, but the USB 2.0 bus will switch to the slower USB v1.1 speed to work with the Omega.

MIDI IN AND OUT

The MIDI jacks provide MIDI input and MIDI output to and from your computer. Connect your MIDI keyboards, sound modules, and external controllers here.

POWER JACK

Use only the supplied PS0913-B power supply to power the Omega.

> **IMPORTANT:**
> **Do not plug a line output into the MIC IN jacks unless the +48 V (phantom) switch is turned OFF to avoid damage.**

> **IMPORTANT:**
> **This switch should be OFF if you are connecting any line-level source to the Mic In jacks.**

MAKING CONNECTIONS

The Omega Studio is both an 8 x 4 x 2 mixer and a USB audio interface that can be used in a variety of audio setups. This section describes how to make basic connections for the following applications:

- Monitoring Audio
- Recording Audio
- Connecting a Recorder for Mixdown

MONITORING AUDIO

Omega Line Outputs play the audio that is routed in the software *(Steinberg Cubase LE4 or other software)* to Analog Outputs 1-2, and can provide left and right outputs to a control room monitor amplifier, headphones, or to another stereo destination such as a mixdown recorder.

Omega Line Outputs offer 24-bit digital-to-analog converters with a nominal output of +4 dBu/+2 dBV *(balanced or unbalanced signal)* with 15 db of headroom before clipping *(0 dBFS = +19 dBu)*. The connectors are TRS jacks; unbalanced TS connectors are also supported.

CONNECTING HEADPHONES:

1. Connect headphones to the Headphone jack located on the front panel of the Omega Studio. The Headphone Output accepts a 1/4" TRS connector.
2. Adjust headphone volume via the Output Level knob.

CONNECTING TO MONITOR SPEAKERS WITH A POWER AMP OR SELF-POWERED MONITOR SPEAKERS:

1. Using 1/4" cables, connect the Line Outputs on the rear panel of the Omega Studio to the appropriate inputs on your mixer, power amp, or powered speakers.
2. Adjust output volume via the Output Level knob. If using both headphones and monitor speakers, adjust the level of the external power amp or speakers using their gain controls after you've gotten the desired level in your headphones.

CONNECTING TO A HOME STEREO:

1. Using 1/4" cables, connect the Line Outputs on the rear panel of the Omega Studio to the appropriate inputs on your stereo, typically the **TAPE IN** or **AUX IN** jacks, with a 1/4" to male phono *(RCA)* connector or adapter. Keep the **OUTPUT LEVEL** control of the Omega low to start, raising it slowly to match the level of other units connected to the stereo.

RECORDING AUDIO

Digital and analog audio sources can be connected directly to the Omega.

ANALOG AUDIO:

Analog audio signals are created by microphones, synthesizers, mixers, and instruments with magnetic pickups.

Of these sources, microphones and magnetic pickup instruments output the quietest signals, and generally require the most amplification. Keyboards, preamps, and mixers output "line level" audio, which varies with each device between the -10 dBV and +4 dBu standards.

TO CONNECT AN ANALOG AUDIO SOURCE:
1. Plug an XLR or TRS 1/4" phone cable directly into the desired Mic/Line Input on the Omega Studio. The Mic Inputs accept XLR connectors, the Line Inputs accept TS or TRS connectors.

TO ACTIVATE PHANTOM POWER:
If your microphone requires phantom power, first make sure the microphone is connected, then press the Phantom Power switch *(labeled +48V)*. The +48V LED on the front panel indicates the phantom power is active. If your mics don't need phantom power, it is best to turn it off.

USING THE ANALOG INSERTS:
The analog inserts require a 1/4" TRS to 2 x 1/4" TS adapter cable. The signal from the tip should be routed to the input of your outboard processor and the output of your processor should be routed to the ring.

DIGITAL AUDIO:
Digital audio represents analog waveforms using thousands of digital samples of the analog waveforms each second. All audio on your hard drive in a Cubase LE4 session is digital audio.

The Omega provides digital inputs and outputs for S/PDIF format digital audio.

CONNECTING A S/PDIF DEVICE TO THE OMEGA:
1. Use two 75 Ohm coaxial cables with male RCA connectors on both ends.
2. Connect the device's S/PDIF output to the Omega Studio's S/PDIF input jack, and the device's S/PDIF input to the Omega Studio's S/PDIF output jack.
3. To transfer S/PDIF digital audio to the computer, press the S/PDIF ASSIGN switch on the front panel, and set the Cubase LE4 software to record from USB inputs 1 and 2.

CONNECTING A RECORDER FOR MIXDOWN

After you record and mix your sessions in either Cubase LE® or other recording software, you may want to mix them down to a DAT, audio cassette, or other stereo 2-track recording device.

CONNECTING AN ANALOG DECK:
Connect your recorder *(cassette deck or other analog device)* to the Line Outputs on the back of the Omega. The Left and Right Line Outputs should be routed to the left and right inputs, respectively, on your recorder. These outputs are TRS jacks. You may need adapter cables if your mixdown deck has RCA jack inputs.

To hear the mix through control room speakers, connect the outputs of the analog deck to the inputs of the amplifier. Adjust the control room level using the output level of the analog deck or the input level of the control room amplifier.

CONNECTING A DIGITAL DECK:
If you have a DAT, CD recorder, or other device that accepts S/PDIF connections, connect it to the S/PDIF In and S/PDIF Out RCA jacks on the back of the Omega.

CONNECTIONS DIAGRAM
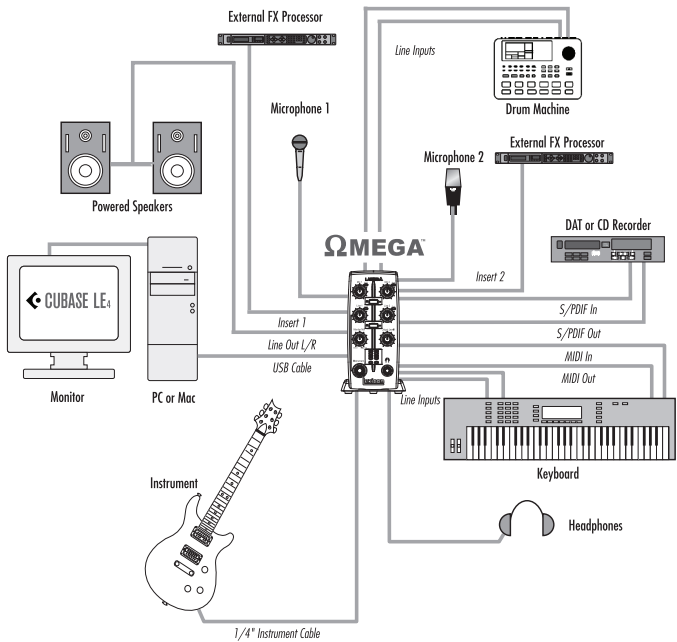
External FX Processor

Line Inputs

Microphone 1

Drum Machine

Microphone 2

External FX Processor

Powered Speakers

DAT or CD Recorder

ΩMEGA

Insert 2

CUBASE LE₄

Insert 1

S/PDIF In

Line Out L/R

S/PDIF Out

USB Cable

MIDI In

MIDI Out

Monitor   PC or Mac

Line Inputs

Keyboard

Instrument

Headphones

1/4" Instrument Cable

SOFTWARE SETUP

You must consult the Software Installation Guide packaged with the software CD-ROM inside the Omega Studio box to ensure the successful installation of the recording software and USB drivers.

If you haven't already installed the Cubase LE4 and Lexicon Pantheon plug-in software, please do so before continuing on to the next section. Also, consider the following information as it pertains to your computer's operating system prior to installing the USB drivers.

WINDOWS VISTA AND XP

You must install the USB drivers after you've made the connection between your computer's USB port and the USB port of the Omega.

USING CUBASE LE4 WITH THE LEXICON OMEGA STUDIO

WINDOWS® VISTA AND XP SOFTWARE SETUP

1. Start Cubase LE4. The first time you use Cubase LE4 with the Lexicon Omega Studio you may be asked to run the Multimedia test as shown below. Select **NO**.
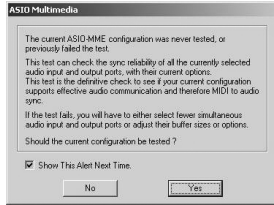
2. Cubase LE4 will display the following warning that configuration has not been tested. Click **OK**.

3. Once you are into Cubase, go to **DEVICES>DEVICE SETUP**.
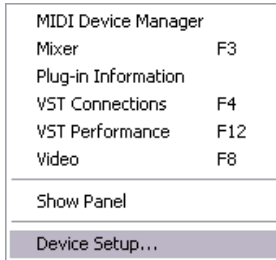
4. Under **DEVICES**, click on **VST MULTITRACK** and select **LEXICON USB ASIO** if it is not already selected. Click on **SWITCH** to switch the driver and click **OK**. You are now ready to begin recording using your Omega Studio and Cubase LE4.
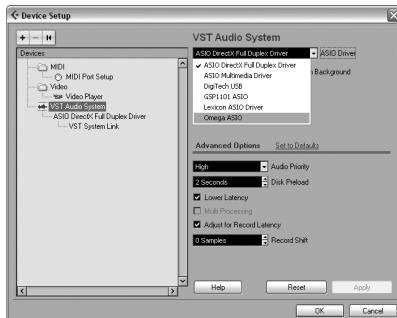
MACINTOSH® SOFTWARE SETUP

You must consult the Software Installation Guide packaged with the software CD-ROM inside the Omega box to ensure the successful installation of the recording software and USB setup.

If you haven't already installed the Cubase LE4 and Lexicon Pantheon plug-in software, please do so before continuing on to the next section.

MAC OS

A USB device must initialize itself with the host computer to operate correctly. The Omega Studio comprises several devices *(audio and MIDI)* and each of those must be initialized. Some Apple® Mac computers will not recognize all of these devices if the Omega Studio is powered on *(and connected to the USB port)* before the computer is turned on. The simplest way to avoid problems is to either turn on the Omega Studio or connect it to the USB port after the computer is booted. However, there is a way to force a reinitialization after the computer is running.

1.   Make sure you close any applications which are using the Omega Studio.

2.   Press the Mic 1-2 USB Assign button and the Line 3-4 USB Assign button at the same time and then release them simultaneously. The blue USB light will flash and after three seconds the Omega Studio will be properly initialized.

OMEGA™

USING THE LEXICON OMEGA™ STUDIO

SECTION I – RECORDING WITH THE OMEGA

Now that we've covered the operation of the Omega hardware, let's see how to use the Omega Studio in some typical recording situations. The diagram below shows how the Omega Studio is connected for this particular setup.
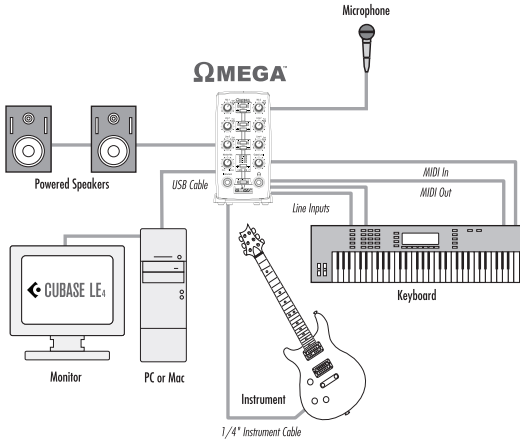
A. RECORDING A MICROPHONE INPUT

1. Plug your microphone cable into the Mic 1 XLR jack on the back of the Omega. If the mic needs phantom power, push the +48 V switch *(located just above the POWER input)* in.

XLR Jack
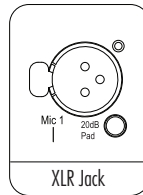
2. Now we need to setup the Omega to record from the Mic 1 input. On the front of the Omega locate the **USB ASSIGN** button between the Mic 1 and Mic 2 Gain knobs. Press the USB Assign button until the 1-2 led is lit red. This means we are now streaming audio to the computer via the USB 1-2 input drivers from the Microphone Jacks. Next, press in the **MONITOR** button between Mic 1 and Mic 2 so it is in the **MONO** position. Since we are recording only one microphone right now we will want to be able to hear it on both sides of our headphones.

USB Assign Button   Monitor Button

17
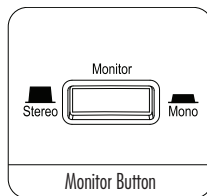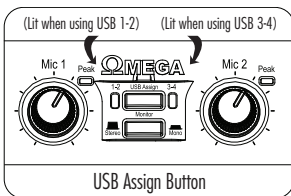
3. Now we will setup our software to record. Open Cubase, go to **FILE** and select **NEW PROJECT**, then select **DEFAULT**. Select a location to store the project and click on **OK**. To add an audio track, right click in the dark gray column and select Add Audio Track. In the Add Audio Track dialog, set the configuration to Mono and click OK. Now we need to set the input of the track so we can record from the 1-2 USB assign. Click on the **SHOW INSPECTOR** button so that it's lit. You will now see the Track Inspector window to the left. Click on the **LEFT - STEREO IN:** box and select **STEREO IN > LEFT** for the track input source. *(LEFT relates to Mic 1 and RIGHT relates to Mic 2 now that we are using the 1-2 USB assign for the Mic Inputs)*. Next, click on the **RECORD ENABLE** button so that it is red. Click on the **INPUT MONITORING** button so that it is not lit.
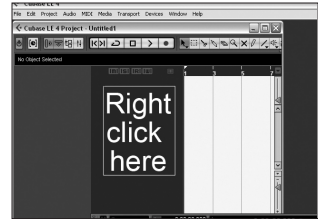
4. Now that the software is ready to record let's check our level from the microphone. If you've connected the Omega to some monitors and they are nearby, turn them down or off to avoid feedback. On the front of the Omega make sure the **METER ASSIGN** button is in the **1-2** position *(button is out)*. Now speak into the microphone while gradually turning up the Mic 1 knob *(gain)* until you see the peak light next to Mic 1 flash occasionally.

Meter Assign (Button is out to meter USB 1-2)
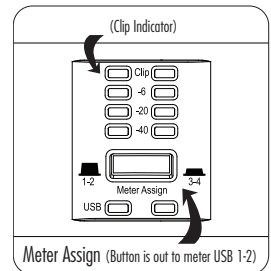
Now check the meter on the front of the Omega to make sure you are not clipping. If you want to hear the mic in headphones, turn up the Omega's Output Level control and turn the Monitor Mix control left *(towards the Direct side)*.

5. Now let's start recording. Click on the **RECORD BUTTON** on Cubase's Transport control. Speak or play an instrument into the Microphone. When you are finished recording press the **STOP BUTTON**. Press **REWIND** and press the **PLAY BACK** button to listen to the track you have just recorded. Turn the Omega Output Level knob to adjust the listening volume, and make sure the Monitor Mix control is somewhere in the middle between "Direct" and "Playback".

Cubase Transport
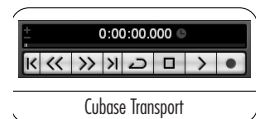
6. Now let's overdub a second track. Right click in the dark gray column and select Add Audio Track. In the Add Audio Track dialog, set the configuration to Mono and click OK. Under the Track Inspector select **STEREO IN > LEFT** for track 2's input. Click on the **RECORD ENABLE** ● button so that it is red. Click on the **INPUT MONITORING** ○◄ button so that it is not lit. Click on Track 1's **RECORD ENABLE** ● button so that it turns off.

7. Now we will set our monitor levels so we get a comfortable monitor mix level. On the front of the Omega locate the **MONITOR MIX** Knob. While playing back the previous recording listen to the input of the microphone. To make the Microphone louder than the recording, turn the **MONITOR MIX** knob towards the **DIRECT** side. To make the recorded track louder turn the **MONITOR MIX** knob towards the **PLAYBACK** side.
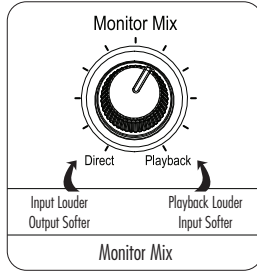
    NOTE: This does not change the recorded volume, only what you hear while you are recording. You can also adjust the playback level and pan position of the original track in your monitor by adjusting the contols for Channel 1 on Cubase's Mixer window.

8. Now click on **RECORD** ● and record the second track.

B. RECORDING A GUITAR INTO THE INSTRUMENT JACK

Now let's record a new basic track starting with a guitar

1. Plug your guitar into the instrument jack on the front of the Omega Studio.
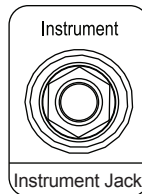
    NOTE: this jack is intended for passive guitar pickups, not line inputs such as the output of a keyboard or a direct out from a guitar amplifier. For those, use the Line In jacks on the back of the Omega Studio.

2. The instrument jack uses Line 3, so press the **USB ASSIGN** button between Line 3 and 4 until the red 1-2 USB Assign LED is lit.

    Press the **MONITOR** button between line 3 and 4 so that it is in the **MONO** position.
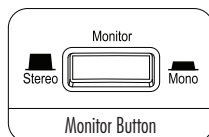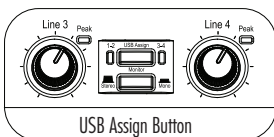
3. Open Cubase, go to **FILE** and select **NEW PROJECT**, **DEFAULT**, and a project location. To add an audio track, right click in the dark gray column and select Add Audio Track. In the Add Audio Track dialog, set the configuration to Mono and click OK. Now, let's set the input of the track so we can record from the 1-2 USB assign. Click on the **SHOW INSPECTOR** button so that it's lit. You will now see the Track Inspector window to the left. Click on the **LEFT - STEREO IN:** box and select **STEREO IN > LEFT** for the track input source.

Next, click on the **RECORD ENABLE** button so that it is red. Click on the **INPUT MONITORING** button so that it is not lit.

4. Next, we need to adjust the input gain of the instrument input on the front of the Omega make sure the **METER ASSIGN** button is in the 1-2 position *(button is out)*. Now strum the guitar while gradually turning up the **LINE 3** Gain until you are seeing its Peak light come on occasionally. Now check the meter on the front of the Omega to make sure you are not clipping.

Meter Assign Button
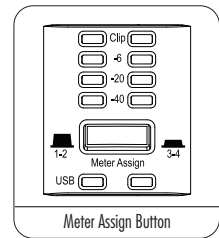
5. Now let's start recording. Click on the **RECORD BUTTON** on the Transport control. Play some chords or notes on the guitar. When you are finished recording press **STOP** and Rewind.
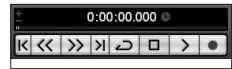
Now press the **PLAYBACK** button to listen back to the track you have just recorded.

The above is just one possible routing. With the Omega Studio and Cubase, remember that you can record from any input to any track *(or even to multiple tracks at once)*. Line 3 of the Omega can travel to Cubase via USB bus 1 or USB bus 3, and be recorded onto Cubase tracks 1, 2, 3, 4, 5…any track when STEREO IN > LEFT or STEREO IN 2 > LEFT *(depending on which USB bus Line 3 is assigned to)* is selected as the track input source.

C. RECORDING MULTIPLE CHANNELS AT ONE TIME

In this example we will record two microphones, a guitar and a keyboard into the Omega all at one time.

1. Plug one microphone into each of the two microphone jacks on the back of the Omega. Plug the line output of the keyboard into the Line In 4 jack on the back of the Omega. Plug the guitar into the Instrument jack on the front of the Omega.

2. Now we need to assign the USB streams to the inputs. Press the **USB ASSIGN** between Mic 1 and Mic 2 until the red 1-2 LED is lit. Next, press the **USB ASSIGN** between Line 3 and Line 4 until the green 3-4 LED is lit.


USB Assign Button 1-2   USB Assign Button 3-4
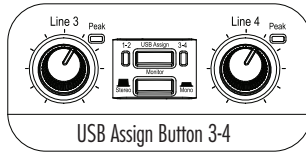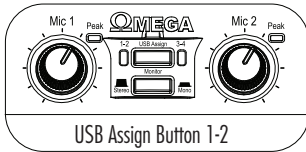
3. Open Cubase, go to **FILE** and start a new default project . Now let's set the inputs of the tracks in Cubase so we can record from the four different inputs of the Omega, each onto its own separate track. Click the Devices menu and select VST Connections. The VST Connections dialog appears. Click the Add Bus button, then click OK. Close the VST Connections dialog. To add an audio track, right click in the dark gray column and select Add Audio Track. In the Add Audio Track dialog, set the configuration to Mono and click OK. Click on the **LEFT - STEREO IN** box and select **STEREO IN > LEFT** as the track input source. Next, click the **RECORD ENABLE** ⬤ button so that it is red. Click on the **INPUT MONITORING** button so that it is not lit. This track will record microphone 1. Add a second track (right click in the gray area, select Add Audio Track). Click this track's **LEFT - STEREO IN** box and select **STEREO IN > RIGHT** as the track input source. Next, click on the **RECORD ENABLE** ⬤ button so that it is red. Click on the **INPUT MONITORING** button so that it is not lit. This track will record microphone 2. Add a third track. Click this track's **LEFT - STEREO IN** box and select **STEREO IN 2 > LEFT** as the track input source. Next, click on the **RECORD ENABLE** ⬤ button so that it is red. Click on the **INPUT MONITORING** button so that it is not lit. This track will now record the guitar. Add a fourth track and click its **LEFT - STEREO IN** box and select **STEREO IN 2 > RIGHT** as the track input source. Next, click on the **RECORD ENABLE** ⬤ button so that it is red. Click on the **INPUT MONITORING** button so that it is not lit. This track will now record Line 4 *(keyboard)*.


4. On the front of the Omega make sure the **METER ASSIGN** button is in the **1-2** position *(button is out)*. Now speak into the microphone while gradually turning up the Mic 1 gain until you are seeing the peak light come on occasionally. Now check the meter on the front of the Omega to make sure you are not clipping. Repeat this procedure for microphone 2 using the Mic

(Meter 1-2 and 3-4)
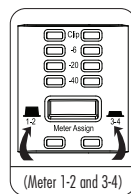
2 gain knob. Now let's set the level of the keyboard and the guitar. On the front of the Omega make sure the **METER ASSIGN** button is in the **3-4** position *(Button is in)*. Now play some loud notes on the keyboard and bring the level up on line 4 until you are near clipping. Strum some chords of the guitar and bring up the line 3 gain until you are just below clipping.

5. Turn Omega's Monitor Mix control all the way to Direct, since you're not over-dubbing. Adjust headphone level with the Output Level control. Mic 1 and the guitar will be in the left headphone, and Mic 2 and the keyboard will be in the right. If you would rather hear everything in the center, press the Monitor switches *(beneath the USB Assign switches)* in to the Mono position. But resist the temptation to turn down levels on the front of the Omega to get a headphone mix — Levels have been properly adjusted for the best signal-to-noise ratio on the tracks.

6. Now let's start recording. Click on the **RECORD BUTTON** ⏺ on Cubase's Transport Control. Speak or play an instrument into the microphone. When you are finished recording press the **STOP BUTTON** ⏹.

7. Turn the Omega's Monitor Mix control clockwise to the Playback position. Now press Cubase's **PLAYBACK** ▷ button to listen back to the tracks you have just recorded. Adjust the overall listening volume with the Output level knob, and the playback levels and pan positions of individual tracks with Cubase's Mixer window.

D. RECORDING FROM S/PDIF

One of the key features of the Lexicon Omega Studio is its ability to monitor S/PDIF in real time with no latency. This allows you to record directly from a device with the S/PDIF digital output and listen while you are recording. S/PDIF is a digital signal that carries a stereo signal on a single cable for left and right.
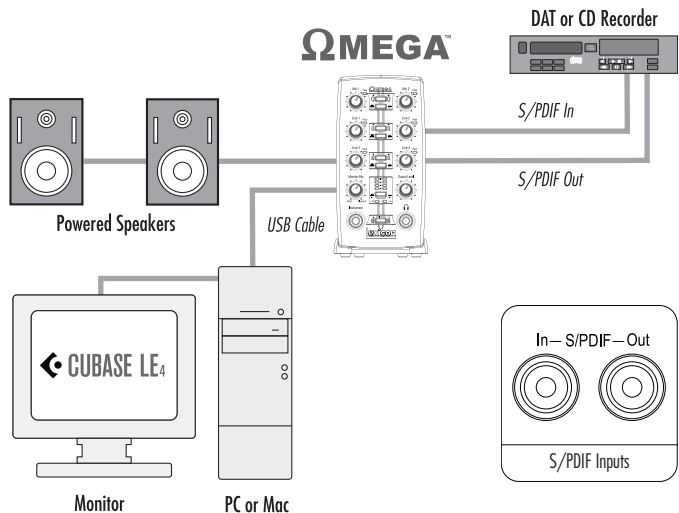
In this example we will show you how to record from a DAT player connected to the Omega's S/PDIF In directly into the software. Simply connect a 75 Ohm coaxial RCA cable from the DAT player's S/PDIF output to the Omega Studio's S/PDIF input.

1. Plug the S/PDIF output of your device into the S/PDIF input of the Lexicon Omega.

2. Press the **S/PDIF** assign on the front of the Omega. You will now see the **S/PDIF LOCK** LED light on the front of the Omega.

3. Open Cubase and start a new project. Right click in the center gray column and select Add Audio Track. Set the configuration to Stereo and click OK. Click on **RECORD ENABLE** [●]. You are now ready to record using the S/PDIF input.
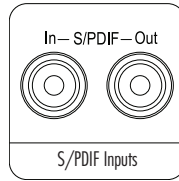
SECTION II - SUBMIXING ON THE OMEGA

The Lexicon Omega Studio has a total of 9 inputs *(2 mic, 4 line, 1 instrument and 2 digital)* and 6 channels of USB audio *(4 in and 2 out)*. This allows you to record 4 separate simultaneous tracks at one time. In some cases you may want to use more than 4 inputs. To do this you will need to mix some of the inputs together on one USB bus. This is called submixing since the audio is mixed before it is recorded.
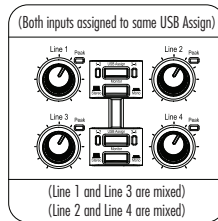
Here is how this technique works on the Omega. When two sets of inputs are assigned to the same USB bus assign, the 2 inputs on the right mix together and the 2 inputs on the left mix together.

So if the USB Assigns for the Line inputs are all set to USB 1-2 *(red LEDs on)*, Line 1 and Line 3 would get recorded to the first track, and Line 2 and Line 4 would get recorded to the second track. Inputs that are not assigned to USB 1-2 assign would be recorded separately – for example, Mic 1 and Mic 2 could be assigned to USB 3-4.

SECTION III - RECORDING MIDI

The Lexicon Omega Studio also functions as a MIDI USB interface. This allows you to record MIDI data from a keyboard's MIDI output into a MIDI track of Cubase, and to play that MIDI data back from the computer into a keyboard, sound module or effects processor.
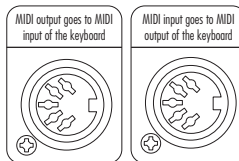
1. Here is an example of using a MIDI keyboard. To record MIDI data into the computer, connect the MIDI output of the keyboard to the MIDI input of the Lexicon Omega. Connect the MIDI output of the Omega to the MIDI input of the keyboard.

2. You will need to run the line output of the keyboard to one *(mono)* or two *(stereo)* line inputs on the back of the Omega to hear your keyboard.

3. Open Cubase and start a new default project. Right click in the middle gray column and select Add MIDI Track.

   Click the **ALL MIDI INPUTS** box and select **LEXICON USB MIDI**.

   Click the output box (just below the box that now says **LEXICON USB MIDI)** and select **LEXICON USB MIDI** for the MIDI outputs. Click the **RECORD ENABLE** [●] button on MIDI track 1.
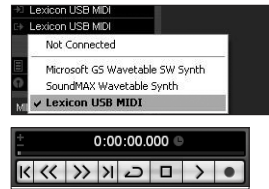
   Click on the **RECORD** [●] button on the transport and play your keyboard. You are now recording MIDI data from the keyboard. If you don't see data in the track, check the settings of the keyboard to make sure it's set to transmit on the same MIDI channel that Cubase is set to receive on. In some cases, you may want to set the keyboard to "LOCAL OFF" and set Cubase to "Echo" mode. For more information, consult the Cubase manual and your keyboard's manual.

SECTION IV - USING SOFTWARE INPUT MONITORING

In previous examples we have turned off Cubase's input monitoring software switches when we have recorded tracks. We have used the monitor mix knob on the front of the Omega to directly monitor an input without latency. Software monitoring allows you to listen to software based effects in real time and to adjust the monitor mix independently of the recording levels, but also introduces some latency *(delay)* into the input signal. The amount of latency depends on the amount of buffers assigned in the ASIO control panel.

1. When using Cubase's input software monitoring with the Omega you will want to set the **MONITOR MIX** knob all the way to the Playback side.

2. Click on the **INPUT MONITORING** [◄] button on the track you are recording to. You will now be able to hear your input. Now you can try assigning an effect on the input. In this example we will assign a Pantheon reverb.
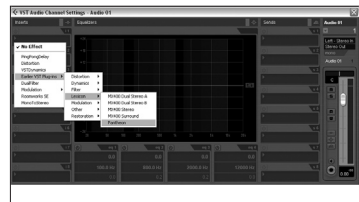
3. Click on the **TRACK EDIT** e button. Click on an **EARLIER VST PLUGINS** and select **LEXICON** and **PANTHEON**.

Choose **LARGE HALL** from the drop down menu at the top of the Pantheon Window. Because this is an insert effect, move the **MIX** slider to 50% *(see the Pantheon manual for more details)*. Change the level to about -52dB. Now you will record with the Lexicon Pantheon Reverb on your track.

SECTION V - ADJUSTING THE BUFFER SETTINGS

The buffers were automatically set at safe setting for your computer when you installed the software. If you are using input monitoring, you may wish to adjust the amount of buffers on you computer. Lowering the buffers will lower the amount of latency using input monitoring. Setting the buffers too low will result in crackling and possibly audio drop out. The faster the computer *(Hard Disk, CPU)* the lower you will be able to adjust the buffer setting without negatively impacting the audio. For more information, consult the Cubase manual.

A. ADJUSTING THE BUFFERS ON PC

Open Cubase and go to **DEVICES/DEVICE SETUP**. Click on **VST MULTITRACK**. Click on the control panel button. You will now see the ASIO control panel. The top slider is the buffer size this number gets multiplied by the bottom slider which is Number of Buffers. When you are finished adjusting the buffer size click the **OK** button and return to your project to test the results.
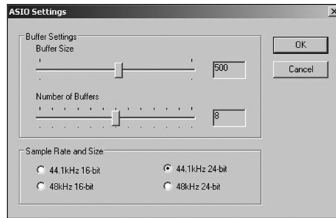
B. ADJUSTING THE BUFFERS ON MAC

Open Cubase and go to **DEVICES/DEVICE SETUP**. Click on **VST MULTITRACK**. Click on **AUDIO BUFFER SIZE** and Select the number of Samples. When you are finished click **OK**.
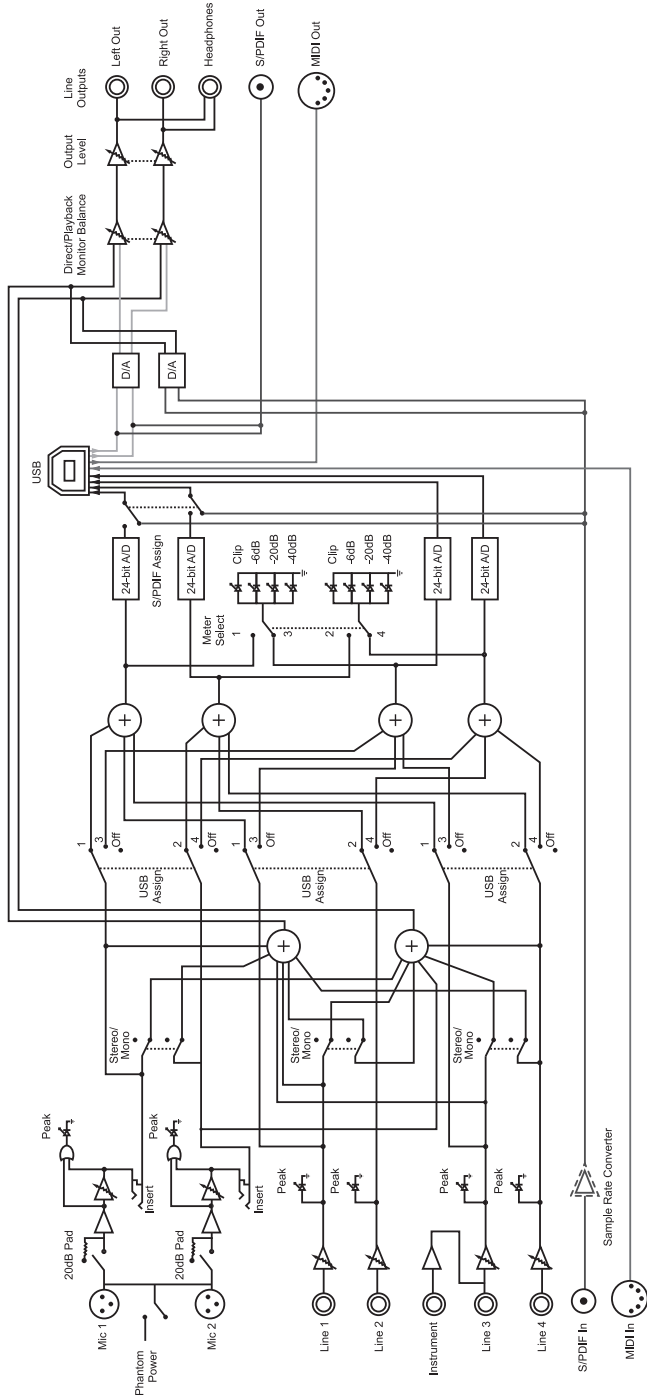
SPECIFICATIONS

Microphone Inputs:	*(2)* Female XLR Pin 2 Hot
Input Impedance:	600 Ohms balanced
Phantom Power:	+48 Volt
GAIN:	+50 dB
EIN:	-120 dB A-weighted @ 50dB gain *(150 Ohm source impedance)*
Maximum Input Level:	+18 dBu
Frequency Response:	+0, -0.2 dB 20 Hz - 20 kHz, ref. 1 kHz
THD+N:	<.005%, 20 Hz - 20 kHz
Insert Inputs:	*(2)* 1/4" TRS
Send Level *(tip)*:	+19 dBu maximum
Maximum Return Level (ring):	+19 dBu maximum
Line Inputs:	*(4)* 1/4" TRS balanced or unbalanced
Input Impedance:	20 kOhm balanced, 10 kOhm unbalanced
Maximum Input Level:	+22 dBu
Frequency Response:	+0, -0.2 dB 20 Hz - 20 kHz, ref. 1kHz
THD+N:	<.009% A/D, 20 Hz - 20 kHz,
Instrument Input:	*(1)* 1/4" mono jack
Input Impedance:	1 MOhm unbalanced
Maximum Input Level:	+19 dBu
Frequency Response:	+0, -0.25 dB 20 Hz - 20 kHz, ref. 1 kHz
THD+N:	<.0125% A/D
Crosstalk:	<-74dB any input or output to any recording channel, 20 Hz-20 kHz
	<-95dB at 1 kHz typical
Line Outputs:	*(2)* 1/4" TRS balanced or unbalanced
Level:	+19 dBu maximum *(+4 dBu nominal input = -15 dbFS)*
Impedance:	110 Ohms
Headphone Output:	*(1)* 1/4" stereo jack
	100 mW per channel at 50 Ohms
MIDI Interface:	5 pin DIN connectors for MIDI in and MIDI out
Digital Audio Input:	Coaxial RCA *(S/PDIF format)*
Digital Audio Output:	Coaxial RCA *(S/PDIF format)* always transmits
	the audio data from the USB stream
	D/A and A/D Conversion
Sample Rate:	44.1 kHz or 48 kHz *(determined by computer application)*
Dynamic Range:	
A/D (24 Bit)	104 dB typical, A-weighted, 20 Hz - 20 kHz
D/A (24 Bit)	109 dB typical, A-weighted, 20 Hz - 20 kHz
A/D/A (24 Bit)	103 dB typical, A-weighted, 20 Hz - 20 kHz
Analog Path:	118 dB typical, A-weighted, 20 Hz - 20 kHz
USB Type B Socket:	Version 1.1, Version 1.1 hubs are not supported
Power Requirements:	PS0913-B adapter supplied.
	delivers 9V AC at 1300 milliamps, Class 2 transformer,
	draws 18W at 120 V
Dimensions:	4.625"W x 7.25"H x 7.75" D (118mm x 184mm x 197mm)
Weight:	2.65 lbs.

Lexicon engineers are constantly working to improve the quality of our products.
Specifications are, therefore subject to change without notice.

Omega Signal Routing Diagram

Lexicon®

H A Harman International Company