

I-O | FW810S

FireWire Audio Interface
with integrated channel strip processing



Owner's Manual

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 SHALL BE CONNECTED TO A MAINS SOCKET OUTLET WITH A PROTECTIVE EARTHING CONNECTION.

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.

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.

WARNING FOR YOUR PROTECTION READ THE FOLLOWING:

KEEP THESE INSTRUCTIONS

HEED ALL WARNINGS

FOLLOW ALL INSTRUCTIONS

THE APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING LIQUID AND NO OBJECT FILLED WITH LIQUID, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.

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 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: The Power switch used in this piece of equipment 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.

If connected to 240V supply, a suitable CSA/UL certified power cord shall be used for this supply.

IMPORTANT SAFETY INSTRUCTIONS

DECLARATION OF CONFORMITY

Manufacturer's Name: Lexicon Professional
Manufacturer's Address: 8760 S. Sandy Parkway
Sandy, Utah 84070, USA

declares that the product:

Product name: Lexicon IO FW810S
Note: Product name may be suffixed by the EU.

Product option: None

conforms to the following Product Specifications:

Safety: IEC 60065 -01+Amd 1

EMC: EN 55022:2006
EN 55024:1998
FCC Part 15

Supplementary Information:

The product herewith complies with the requirements of the:
Low Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC.
RoHS Directive 2002/95/EC
WEEE Directive 2002/96/EC

With regard to Directive 2005/32/EC and EC Regulation 1275/2008 of 17 December 2008, this product is designed, produced, and classified as Professional Audio Equipment and thus is exempt from this Directive.

Roger Johnsen
Director, Engineering
Signal Processing
8760 S. Sandy Parkway
Sandy, Utah 84070, USA
Date: February 23, 2011

European Contact: Your local Lexicon Sales and Service Office or

Harman Signal Processing
8760 South Sandy Parkway
Sandy, Utah
84070 USA
Ph: (801) 566-8800
Fax: (801) 568-7583

ELECTROMAGNETIC COMPATIBILITY

This device complies with part 15 of the FCC Rules and 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.



If you want to dispose this product, do not mix it with general household waste. There is a separate collection system for used electronic products in accordance with legislation that requires proper treatment, recovery and recycling.

Private household in the 25 member states of the EU, in Switzerland and Norway may return their used electronic products free of charge to designated collection facilities or to a retailer (if you purchase a similar new one).

For Countries not mentioned above, please contact your local authorities for a correct method of disposal.

By doing so you will ensure that your disposed product undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health.

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, found on a sticker attached to the bottom of the IO FW810S. 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 (or online registration must be completed at www.lexiconpro.com) 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.

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Introduction

Congratulations and thank you for purchasing the Lexicon® IO FW810S!

With a wealth of features – including dbx® high-voltage, ultra low noise mic pre's, Pantheon II reverbs, and a powerful hardware mixing board with dbx dynamics and hardware monitor reverb – the Lexicon IO FW810S is more than just an 10-in, 12-out FireWire™ audio interface. It's a pro recording studio contained in a single rack unit.

Featuring newly designed dbx® 60V high-voltage, ultra-low noise microphone preamps on every channel, the IO FW810S is more than equipped to provide professional recordings that keep your music sounding its best. The preamps run on a 60V supply to guarantee stability and provide you with a superior recording across a wide dynamic range. Performance driven A/D - D/A converters ensure pristine 24bit/96kHz audio to capture every subtle detail of your performance. And the newly updated Pantheon II plug-in provides smooth, lush Lexicon reverbs for creating ideal sonic spaces.

With built-in dbx Type IV™ conversion, your digital recordings will preserve their dynamic range even when levels get too high. They'll acquire that forgiving, oversaturated quality once only found on big analog recorders. Conversion actually gives you more headroom, capturing subtle details in higher level signals instead of hard clipping them.

Plus, the Lexicon IO FW810S adds onboard dbx processing (compressor, gate, limiter, and EQ) to the front end of your digital audio workstation along with a powerful hardware Mixer. The Mixer's true-to-life interface design feels familiar from the second you start using it, making it easy to adjust levels and route signals. The mixer allows you to save and load snapshots of mixer settings, and store your own power-on default snapshot; and with it's 12 outputs you can create up to five unique monitor mixes or mix 7.1 surround projects. When you apply the onboard dbx processing and Lexicon monitoring reverb to your input signals, the IO FW810S does the processing in real-time without taxing your CPU.

With so many powerful and useful recording studio tools, it's more than just a FireWire interface. It's the Lexicon IO FW810S.

Features

- 8 dbx® high-voltage, ultra-low noise microphone preamps
- 2 front panel input combi-jacks accept mic, line, or instrument signals
- 6 rear panel input combi-jack accept mic or line signals
- 8 analog TRS outputs (for sub-mixes) and 2 analog TRS L/R main outputs
- Stereo S/PDIF digital I/O
- MIDI in and out
- dbx compressor, limiter, gate, EQ, Type IV conversion processing available on all 8 analog input channels
- Lexicon monitor reverb; reverb sends available on all 18 software mixer channels
- Onboard signal processing occurs inside the FW810S, without taxing your CPU
- Fire Wire 400 (IEEE 1394) Audio Interface
- 44.1 to 96KHz sample rates, 24 bit conversion

Unpacking the IO FW810S

The IO FW810S is shipped in one carton, containing the IO FW810S unit and a software DVD for Windows® and Macintosh® systems. After unpacking, save all the packaging materials in case you ever have to ship the unit. Thoroughly inspect the IO FW810S 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:

- IO FW810S
- Installer DVD containing FireWire™ drivers, this Owner's Manual, Cubase LE Owner's manual, the FW810S Mixer software, the Lexicon Pantheon II reverb plug-in, the XILS3 SE plug-in, Cubase LE Recording Software, and ToonTrack EZ Drummer Lite for Mac® and Windows®
- FireWire Connector Cable
- Lexicon Professional warranty registration

System Requirements

Powerful software for audio recording requires a powerful computer with the right operating system software, processor and memory. Most computers currently sold already meet these requirements, or can be upgraded to be compatible with the Lexicon IO FW810S. As with all such systems, adding more RAM than the minimum will allow you to do more processing and improve performance.

Windows® Vista, XP, 7 (Minimum System Requirements)

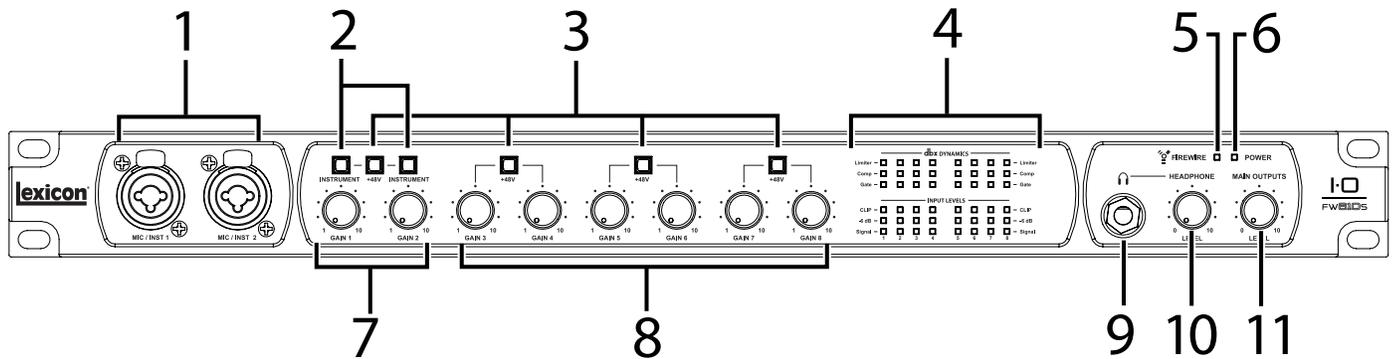
- Multicore processor
- 1GB RAM
- Display Resolution 1024 x 768 pixels
- DVD-ROM drive
- Internet access required for software license activation

Mac® (Minimum System Requirements)

- Intel® Multicore processor
- 1 GB RAM
- OS X Version 10.4.9 or higher
- Display Resolution 1024 x 768 pixels
- DVD-ROM drive
- Internet access required for software license activation

Note: Adobe Reader is required to view the pdf documents on the DVD.

Front Panel



1. INPUTS 1 AND 2 (MIC/INST 1 AND MIC/INST 2)

These balanced inputs accept XLR or 1/4" connectors, and support mic, line, and instrument level sources (including guitars).

2. INSTRUMENT BUTTON/LED

Press when an instrument level source (such as a guitar) is connected to the corresponding input (1 or 2). The button illuminates when activated.

3. +48V BUTTON/LED

Each of these buttons enables the phantom power to the corresponding inputs pairs. Dynamic microphones do not require phantom power to operate. 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/Inst or Mic Pre jacks.

4. DYNAMICS LEDS AND INPUT LEVEL LEDS

The top three rows indicate what dynamics are active for each input. The bottom three rows indicate signal presence (green) and level (yellow and red) for each input.

5. FIREWIRE™ LED

Indicates when a FireWire™ connection is present.

6. POWER LED

Indicates when the IO FW810S is turned on.

7. GAIN KNOBS 1 AND 2

These knobs adjust the input gain levels for Mic/Inst 1 and Mic/Inst 2.

8. GAIN KNOBS 3 – 8

These knobs adjust the input gain levels for Mic Pre 3 – 8 (the inputs located on the back panel).

9. HEADPHONE OUTPUT JACK

Connect headphones here.

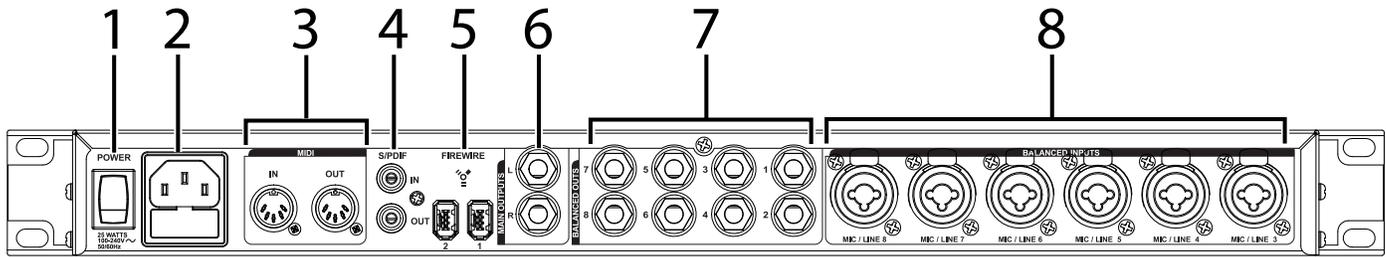
10. HEADPHONE LEVEL KNOB

Adjust headphone output signal level here.

11. MAIN OUTPUTS LEVEL KNOB

Adjust the main output signal level here.

Rear Panel



1. POWER SWITCH

Turn the IO FW810S on or off here.

2. POWER JACK

Standard 3-pin IEC power connector. 100-240V, 50-60Hz automatic switching to correct voltage range.

3. 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.

4. 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.

5. FIREWIRE™ PORTS

Connect FireWire™ cables here. Either port can be used, with the other acting as Thru.

Note: When daisy chaining devices, connect other IO FW810S units only. Do not connect other FireWire devices to the IO FW810S.

6. BALANCED OUTS 1-8

These outputs support balanced TRS or unbalanced TS ¼" connections. These outputs can be connected to a mixing board, power amplifier, powered studio monitors, recorder, or another line level input.

7. MAIN OUTPUTS

These outputs support balanced TRS or unbalanced TS ¼" connections. These outputs can be connected to a mixing board, power amplifier, powered studio monitors, recorder, or another line level input.

8. MIC/LINE INPUTS 3-8

These balanced inputs accept XLR or 1/4" connectors, and support mic and line level sources.

Connecting the IO FW810S

For a step-by-step example project, refer to the Tutorial at the back of this manual.

Microphones

Plug an XLR cable directly from a microphone into the desired Mic/Inst or Mic Pre input on the FW810S front or rear panel. If you connect a microphone to a front panel input, make sure the Instrument button/LED above the corresponding Gain knob is not lit. For example, if a microphone is connected to Mic/Inst 1, then the Instrument button/LED above the Gain 1 knob should not be lit.

If your microphone requires phantom power, first make sure the microphone is connected, then press the +48V button/LED above that input pair's Gain knob. If your mics don't need phantom power, it is best to leave it off.

Note: Some microphones can be damaged by +48V phantom power. Consult your microphone's documentation before enabling +48V phantom power.

Line Level Sources

Line level sources include keyboards, drum machines, CD players, and external microphone preamps and effects. Plug a 1/4" TS (unbalanced) or TRS (balanced) cable directly from the line level source into the desired Mic/Inst or Mic Pre input on the FW810S front or rear panel.

If you connect a line level source to a front panel input, make sure the Instrument button/LED above the corresponding Gain knob is not lit. For example, if a line level source is connected to Mic/Inst 1, then the Instrument button/LED above the Gain 1 knob should not be lit.

Instruments

Front panel Mic/Inst jacks accept signals from instruments like electric guitars and basses. Plug a standard 1/4" TS (instrument) cable directly from the instrument into one of the Mic/Inst input jacks on the front panel of FW810S. Press the Instrument button/LED above the corresponding Gain knob (Gain 1 for Mic/Inst 1, Gain 2 for Mic/Inst 2).

Computer/Digital Audio Workstation (DAW)

Connect your computer's FireWire™ port to the FireWire port on the IO FW810S rear panel using a standard FireWire cable (included).

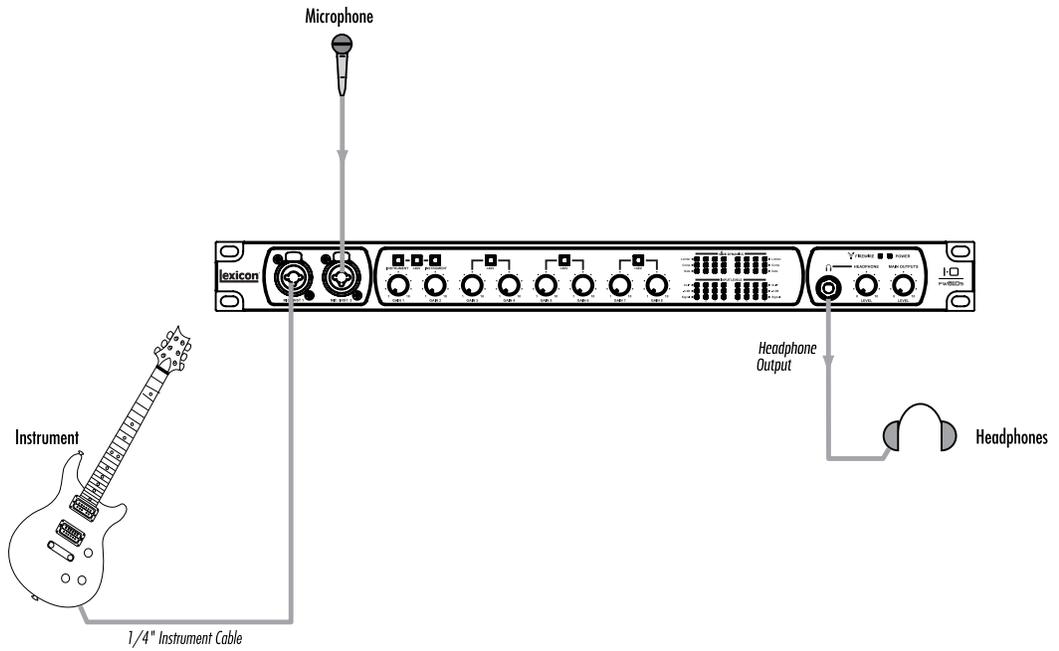
Headphones

Connect headphones to the Headphone jack located on the front panel. The Headphone jack accepts a 1/4" TRS connector. Adjust headphone volume with the Headphone Level knob.

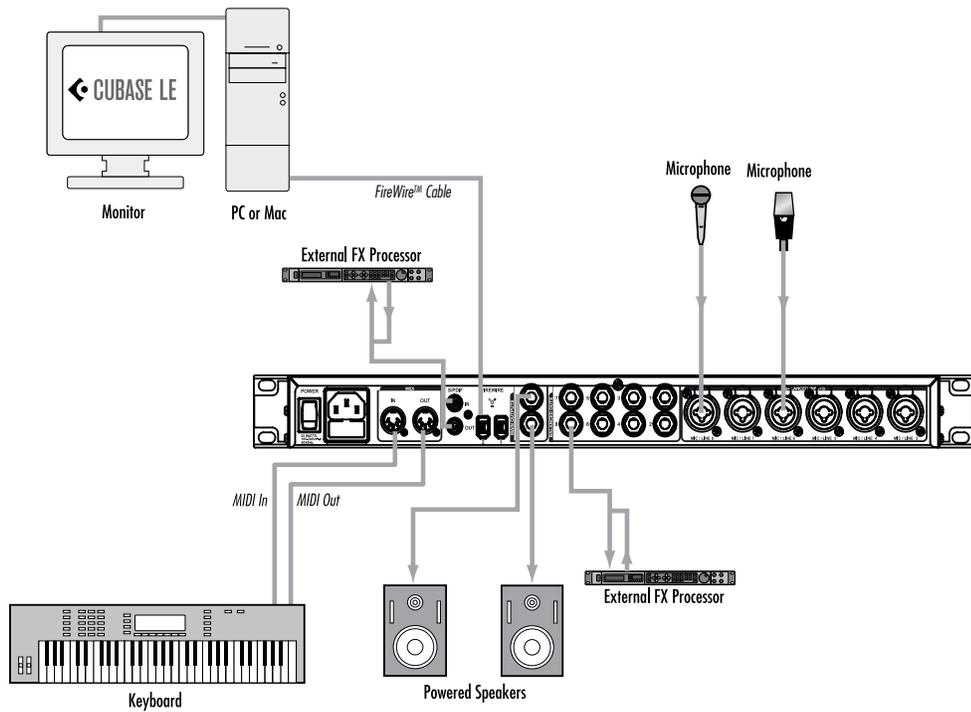
Monitor Speakers

Using 1/4" cables, connect the L/R Main Output jacks on the rear panel to the appropriate inputs on your mixer, power amp, or powered monitors. Adjust the output volume with the Output Level knob. Additional monitor mixes may be created on outputs 1-8 using the integrated hardware digital mixer.

Example Front Panel Connections



Example Rear Panel Connections



The IO FW810S Mixer - Overview



The IO FW810S includes a powerful hardware Mixer with a software control panel and built-in EQ, dynamics, and monitor reverbs. When open, the Mixer controls the IO FW810S hardware. The controls are described in more detail on the following pages, and a step-by-step example project can be found in the Tutorial at the back of this manual.

To turn a knob in the mixer, click and hold on a knob and move the cursor up to increase or down to decrease the parameter's value. To move a fader, click and hold on the fader and move the cursor up or down to move the fader up or down.

To return a knob to its default position, double click the knob. Ctrl-click to fine adjust.

Installation

1. Insert the DVD into your DVD-ROM drive.
2. The Installer should start automatically. Follow the on-screen instructions to install the software you wish to use. The Mixer is included with the Drivers and Control Software.

Note: You must install the IO FW810S Drivers and Control Software to use the FW810S.

If the Installer doesn't start automatically, you can start it manually by opening the appropriate file on the DVD:

For Mac: Open Me
 For Windows: InstallationMenu.exe

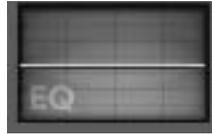
The Mixer – Input 1-8 Strips

Gain Reduction Meter/Button



Indicates the amount of gain reduction being applied. Click to open or close the Dynamics Control Panel (described on page 13).

EQ Indicator/Button



Shows the EQ line for the corresponding channel. Click to open or close the EQ (described on page 16).

Stereo button



Links two adjacent channels together in stereo. When linked, each strip's controls function as a pair; when you turn one strip's Level knob, for example, the other strip's Level knob automatically moves as well.

Pan

Positions the audio in the stereo field. The top four Pan knobs control their corresponding Aux pairs. The bottom Pan knob controls the Main outs.

Level

Adjusts the loudness of the signal for stereo aux bus outs 1&2, 3&4, 5&6, and 7&8.

Send

Sends the channel's signal to the monitor reverb (described on page 11).

Mute button

Silences the signal in the main mix for the selected channel (the aux and reverb levels are unaffected by this mute button).

Solo button

Silences all channels except this one. Note that multiple channels can be "soloed" simultaneously.

Pre-Fader Input Level Meter

Indicates the signal level for this channel.

Fader

Attenuates or adds gain to the signal in the main mix.

Label (Scribble Strip)

Double-click to enter a name for the channel here.



Monitor Reverbs

The Mixer includes monitor reverb feature (also known as a "courtesy" reverb) which can be applied to and mixed in with signals passing through the Mixer. The result can be heard through the Main outs as well as through the Aux outs.

Power button

Turns the reverb effect on or off.

Type knob

Selects the desired reverb: Ambience, Chamber, SmallHall, LargeHall, Room, SmallPlate, LargePlate, VocalHall, or VocalPlate.

Return knobs – Aux 1 through Aux 4

Adjusts the amount of reverb heard in the corresponding Aux out pair (when the reverb is turned on). For example, the Aux 1 Return knob increases or decreases the amount of reverb heard in Balanced Outs 1 and 2.

Parameters

These adjust various aspects of the reverb. Use the parameters to fine-tune reverbs to meet your needs.

Pre-Delay

This is a delay that's added to the diffused signal before it enters the main part of the reverb. For all intents, it may be considered as delay that is added to the reverberated signal. It is used to temporally separate the reverb from the dry signal.

Mid-RT

MidRT is the mid frequency reverb time. As such, it is one of the primary controls affecting the length of the reverb tail. At low values, it models a space with absorbent walls—a signal won't bounce many times before it dissipates. At high values, the walls are flat and extremely reflective. A signal lives a long time before dying away.

Size

Room Size corresponds roughly to the length of the longest wall of a rectangular room. When the room size is small, the "walls" of this space are closer together and the resultant reflection density increases. When the room size is large, that density decreases.

High-Cut

This parameter is a low-pass filter in the recirculating part of the reverb. It represents a frequency above which the tail dies away more quickly.

Main Outs

Adjusts the amount of reverb heard in the main outputs.





The Mixer - Balanced Out (Aux Out) Controls

These controls correlate to Balanced Outs 1-8 (located on the back panel). Outs 1-2 control Balanced Outs 1 and 2, Outs 3-4 control Balanced outs 3 and 4, and so on.

Labels (Scribble Strips)

Double-click to assign a name to an aux pair.

Level knobs

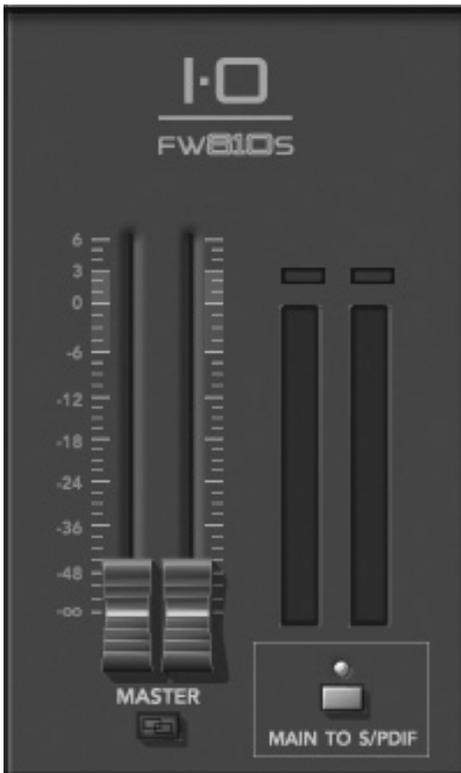
Adjusts the aux pair master signal level.

Meters

Indicate aux pair signal level.

Direct Outs buttons

Enable the DAW playback streams to go directly out the corresponding outputs. For example, when Direct Out is on for Outs 1-2, only playback 1-2 will be heard on Outs 1-2.



The Mixer – Master Faders

Meters

Indicate post-fader signal level.

Master faders

Attenuate or add gain to the main signal.

Stereo button

Links the two master faders together so their settings are always the same.

Main to S/PDIF button

Controls what signal is streamed out the SPDIF jack. When lit (on), the main mix is mirrored on the SPDIF jack. When not lit (off), the DAW SPDIF Out stream is sent to the SPDIF jack.

Channel Strip Dynamics



Inputs 1-8 in the Mixer feature Channel Strip Dynamics, including a gate, compressor, limiter, and a gain fader. To open the Channel Strip Dynamics, click the Gain Reduction meter/button at the top of the channel's "strip" in the Mixer.

The gate, compressor, limiter, and gain fader are described in detail on the following pages.

Channel Strip Dynamics – Gate



On/Off button

Turns the Gate on or off.

Threshold knob

Sets the Threshold level. If there is any signal above the Threshold, the Gate is Open, while a signal that is lower than the Threshold is attenuated. Beware of setting the Threshold too high as it can cut off the tail end of signals as they fade out (the sustain of a guitar note, a held piano chord, a reverb tail, etc.). The Threshold is adjustable between -60 and 18 dB.

Attack knob

The Attack parameter sets the speed at which the Gate opens once the Threshold has been crossed. It is recommended that very fast attack times be used to catch the fronts of transient signals. The Attack parameter is adjustable between 0.1 to 200 mSec.

Release knob

The Release sets the rate at which the gate “closes” or attenuates once the end of the Hold time is reached. Release can be adjusted between 350 and 5 dB/Sec.

Ratio knob

This control determines how much the signal will be attenuated once it drops below the Threshold. This ratio works opposite from that of the compressor or limiter. If a Ratio of $1:4$ is selected, a signal that is 1 dB below the threshold will be reduced in gain so that it becomes 4 dB below the threshold. The Ratio is adjustable between $1:1$ and $1:100$.

Channel Strip Dynamics – Compressor



On/Off button

Turns the Compressor on or off.

Ratio knob

The Ratio is the rate at which the signal is reduced once the threshold is crossed. A $2:1$ ratio means that if the incoming signal is 2 dB over the threshold, the unit will compress the signal, and output a signal that only goes 1 dB over the threshold. Setting the Ratio at $Inf:1$ makes the compressor act as a limiter. The range of the Ratio parameter is from $1:1$ to $100:1$.

Over Easy knob

OverEasy is a characteristic of dbx® Compressors and is essentially a “soft-knee” function that occurs at about the compression threshold. On analog dbx Compressors, OverEasy could only be turned on or off, but in the digital domain this parameter can have a range. This parameter can be adjusted between 0 and 10 where 0 corresponds to no OverEasy, and 10 corresponds to a very wide soft-knee region. To match the response of the classic dbx 160, an OverEasy of 6 is recommended.

Threshold knob

The Threshold is the signal level at which the unit begins to compress the signal. If the level is set to -10 dBFS, then any signal larger than -10 dBFS is compressed, and any signal that has a level that is lower than -10 dBFS is

not. For most signals the most natural sound is achieved when most of the signal content remains just below the Threshold and only the peaks cross the Threshold. The range of the Threshold fader is -60 to +18dBFS.

Auto button

Auto mode dynamically sets the Attack, Hold, and Release parameters in real time, based on the incoming signal. This switch turns the Auto mode on and off.

Attack knob

The Attack parameter sets how quickly the compressor starts to compress the signal after it passes the threshold. The Attack can range between 0.1 mSec to 200 mSec. The Attack time is dynamically set while in Auto mode.

Release knob

The Release parameter is the rate at which the Compressor comes out of compression once the signal is back below the threshold and the Hold time has elapsed. Release is measured in dB per second. For example, if Release is set to 5 dB/Sec, and the signal has 10dB of gain reduction, the release time is 2 Seconds. The Release range is from 350 dB/Sec to 5 dB/Sec. The Release rate is dynamically set while in Auto mode.

Hold knob

The Hold parameter is the time the IO FW810S remains in compression after the signal has dropped back below the threshold. Hold is adjustable between 0 to 500 mSec and is dynamically set while in Auto mode.

Channel Strip Dynamics – Limiter

On/Off button

Turns the Limiter on or off.

Threshold knob

The Threshold is the signal level at which the unit begins to limit the signal. If the level is set to -10 dBFS, then any signal larger than -10 dBFS is reduced in gain. The range of the Threshold fader is -60 to +18dBFS.

Auto button

This button turns Auto mode for the Limiter on and off. Auto mode dynamically sets the Limiter Attack and Release based on the input signal.

Attack knob

The Attack parameter sets how quickly the Limiter starts to reduce the gain of the signal after it passes the Threshold. The Attack can range between 0.1 mSec and 200 mSec. The Attack time is dynamically set while in Auto mode.

Release knob

The Release parameter is the rate at which the Limiter comes out of gain reduction once the signal is back below the threshold and the Hold time has elapsed. Release is measured in dB per second. For example, if Release is set to 5 dB/Sec, and the signal has 10dB of gain reduction, the release time is 2 Seconds. The Release range is from 350 dB/Sec to 5 dB/Sec. The Release rate is dynamically set while in Auto mode.



Hold knob

The Hold parameter is the time the IO FW810S continues to reduce gain after the signal has dropped back below the threshold. Hold is adjustable between 0 and 500 mSec and is dynamically set while in Auto mode.

Channel Strip Dynamics – Gain Fader

This boosts or cuts the signal's gain level, and is adjustable between 20 and -30 dB. This is a digital trim designed to be used to compensate for the gain or reduction created by the Dynamics or EQ.

For example, if your compressor or limiter settings are reducing your signal level, you could increase the Gain fader to bring the level back up. Conversely, if your EQ settings are pushing levels into clipping territory, you could decrease the gain fader to lower the level.



EQ



Inputs 1-8 in the Mixer feature a parametric EQ where you can cut or boost selected frequency bands. You can edit parameters with the control knobs (described below), or you can click and drag the anchor points in the EQ's display (shown above). To open or close the EQ for a specific channel, click the EQ indicator/button just below the Gain Reduction meter/button for that channel.

Note: To return to flat, set all knobs to 12 o'clock (double-click a knob to return it to 12 o'clock).

Lo Shelf – top knob (-12 dB to 12 dB)

Sets the overall gain of the low shelf frequency.

Lo Shelf – bottom knob (40 Hz to 320 KHz)

Selects the frequency of the low shelf.

Lo Mid – top knob (-12 dB to 12 dB)
Sets the overall gain of the low mid frequency.

Lo Mid – middle knob (160 Hz to 1280 Hz)
Selects the frequency of the low mid.

Lo Mid – bottom knob (.5 to 4.0)
Sets the "Q" or width of the band.

Hi Mid – top knob (-12 dB to 12 dB)
Sets the overall gain of the high mid frequency.

Hi Mid – middle knob (640 Hz to 5120 Hz)
Selects the frequency of the high mid.

Hi Mid – bottom knob (.5 to 4.0)
Sets the "Q" or width of the band.

Hi Shelf – top knob (-12 dB to 12 dB)
Sets the overall gain of the high shelf frequency.

Hi Shelf – bottom knob (2500 Hz to 20 KHz)
Selects the frequency of the high shelf.

On/Off button
Turns the EQ on or off.

File Menu

The File menu lets you save and load *snapshots*. Snapshots are files (with the extension .mix) that contain settings for the Dynamics, EQ, Aux buses, pans, reverb, and levels.

Open Snapshot
Opens a previously saved snapshot.

Save Snapshot
Saves the current settings as a snapshot. If the snapshot already has been saved and named, this command will overwrite the existing snapshot.

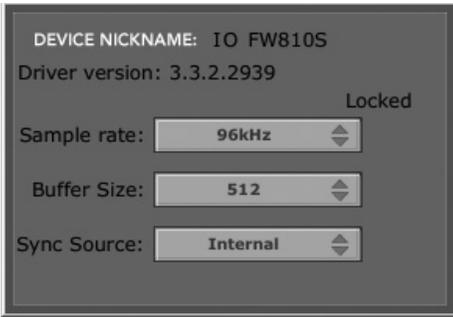
Save Snapshot As
Saves the current settings as a snapshot and prompts you for a file name.

Load Power-On Defaults
Applies the stored power-on defaults (settings) to the IO FW810S unit.

Store Power-On Defaults
Saves the current snapshot settings and applies them to the IO FW810S unit each time it is turned on. You can use this to make a custom snapshot, save it as the default, and use the FW810S as a stand-alone digital mixer without a computer.

Quit
Closes the Mixer.

Open Snapshot	⌘O
Save Snapshot	⌘S
Save Snapshot As...	
Load Power-On Defaults	
Store Power-On Defaults	
Quit	⌘Q



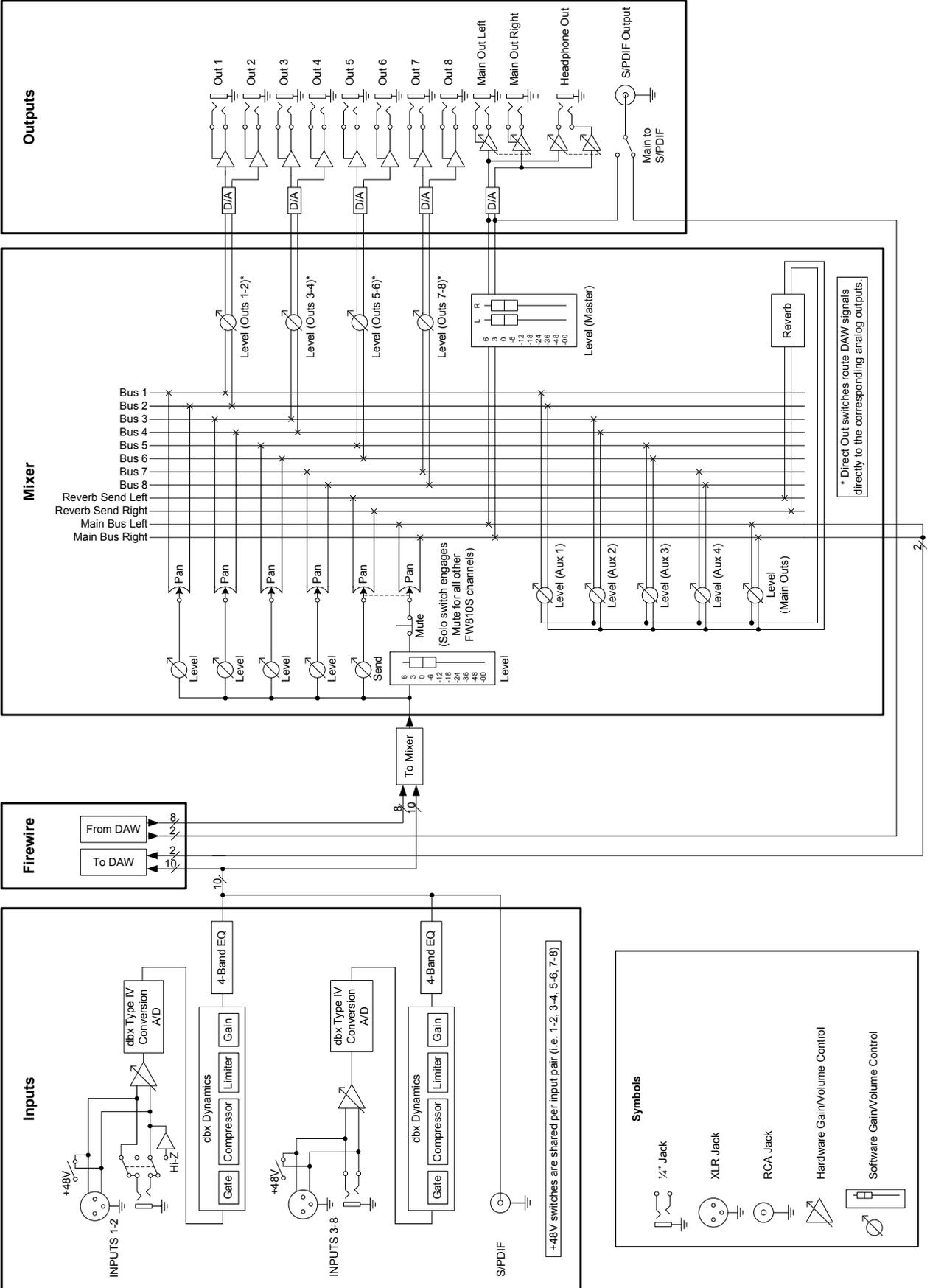
Control Panel - Windows

IO FW810S Control Panel

If you're using a Mac®, you can set the Sample Rate (44.1 kHz, 48kHz, 88.2kHz, or 96kHz) and the Sync Source (Internal or SPDIF) using the Audio MIDI Setup application (located in Applications/Utilities) and your DAW.

In Windows®, you can adjust these settings via the Driver Control Panel, accessed through the Start menu. In addition to the Sample Rate and Sync Source parameters, the Driver Control Panel in Windows includes a Buffer Size setting, which controls the size of audio buffers used to stream audio between the FW810S and your computer. Larger settings give you additional latency and stability. If you experience pops and clicks in the audio, try larger buffer settings.

Lexicon FW810S Signal Flow Diagram



Symbols

- 1/4" Jack
- XLR Jack
- RCA Jack
- Hardware Gain/Volume Control
- Software Gain/Volume Control

Specifications

Microphone Inputs:	Female XLR Pin 2 Hot
Input Impedance:	3k Ω balanced
Phantom Power:	+48 Volts
Maximum gain:	+55 dB
E.I.N. (at max gain):	-127 dB @ 55dB gain typical (150 Ω source) -130 dB @ 55dB gain typical A-weighted (150 Ω source)
Maximum Input Level:	+8 dBu
Frequency Response:	+/-1.5 dB, 20Hz - 20kHz
THD+N:	<0.02%, 20Hz - 20kHz <0.002%, 1kHz, -6 dBu
Line Inputs:	1/4" TRS balanced or unbalanced
Input Impedance:	20k Ω balanced, 13k Ω unbalanced
Maximum Input Level:	+22 dBu
Frequency Response:	+/-1.5 dB, 20Hz - 20kHz
THD+N:	<0.02%, 20Hz - 20kHz <0.002%, 1kHz, +18 dBu
Instrument Input:	1/4" TS unbalanced
Input Impedance:	500k Ω
Maximum Input Level:	+10 dBu
Frequency Response:	+/-2.5 dB, 20Hz - 20kHz
THD+N:	<0.08%, 1kHz, +4 dBu
Line Outputs:	1/4" TRS balanced or unbalanced
Level:	+20 dBu maximum
Impedance:	32 Ω Balanced, 16 Ω Unbalanced
Headphone Output:	1/4" stereo jack 250mW per channel at 50 Ω
MIDI Interface:	5 pin DIN connectors for MIDI in and MIDI out
Sample Rate:	44.1, 48, 88.2, or 96 kHz (determined by computer application)
Dynamic Range:	A/D (24 Bit) 110 dB typical, A-weighted, 20Hz - 20kHz D/A (24 Bit) 110 dB typical, A-weighted, 20Hz - 20kHz A/D/A (24 Bit) 108 dB typical, A-weighted, 20Hz - 20kHz
Power Requirements:	100 – 240 VAC, 50/60 Hz, 30 Watts
Dimensions:	19"W x 1.7"H x 10.5"D
Weight:	7.7 lbs.

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

I-O | FW810S

FireWire Audio Interface
with integrated channel strip processing



TUTORIAL – RECORDING A GUITAR

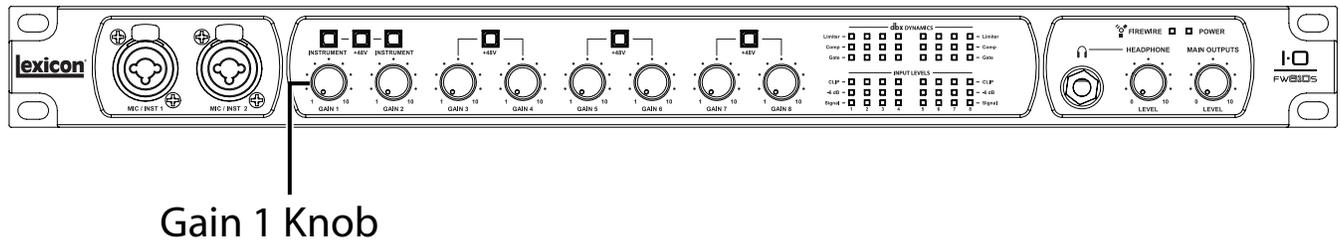
EXAMPLE PROJECT - RECORDING A GUITAR

Welcome to the IO FW810S Tutorial. This tutorial shows you how to set up the FW810S and Cubase® LE to record a single guitar track. Follow the proceeding steps sequentially for best results. The FW810S works with many DAW applications, however this tutorial is written for use with Cubase® LE – the recording application which ships with the FW810S. Start with all cables disconnected. Enjoy.

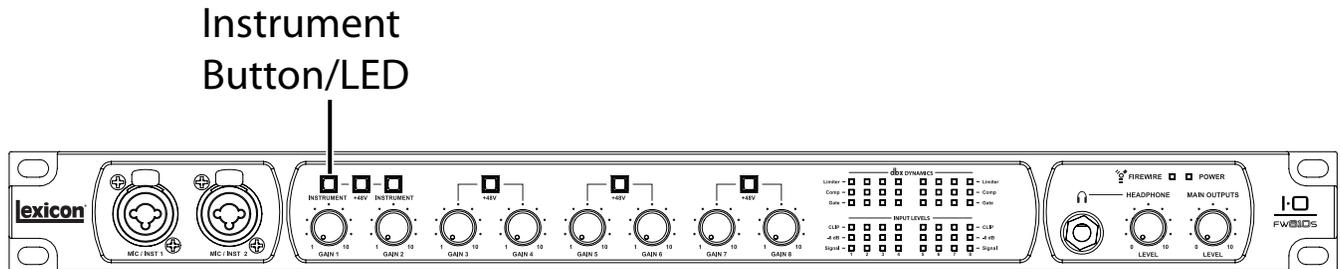
Make Your Connections

Connect the Guitar

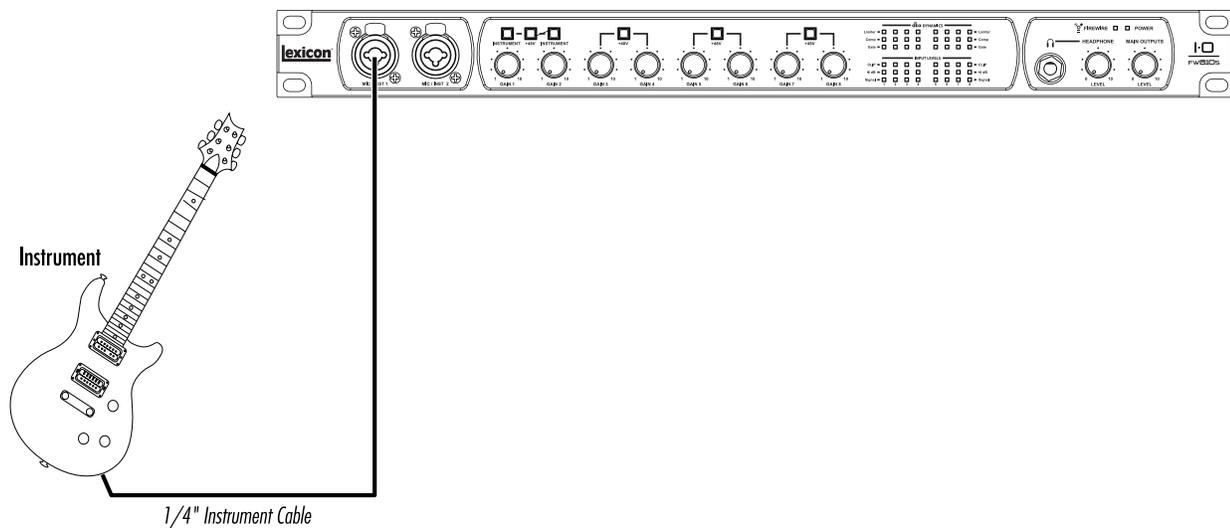
1. Turn the **Gain 1** knob all the way down.



2. Press the **Instrument** button, located over the **Gain 1** knob, to the in position.

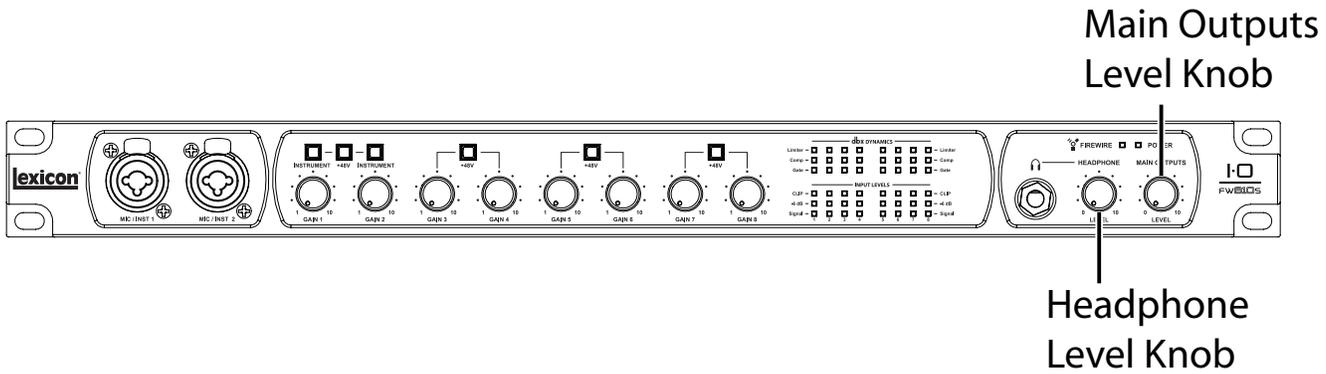


3. Connect your guitar to the **Mic/Inst 1** input on the front panel.

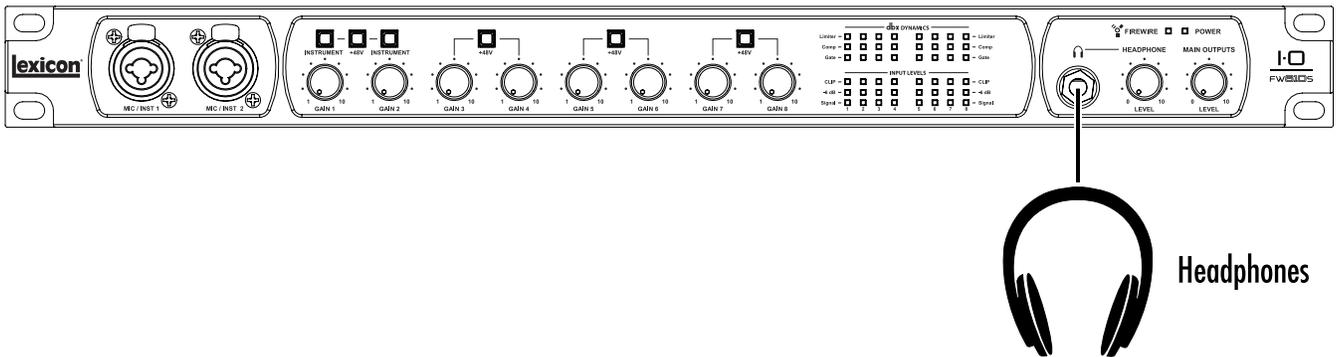


Connect the Headphones and/or Speakers

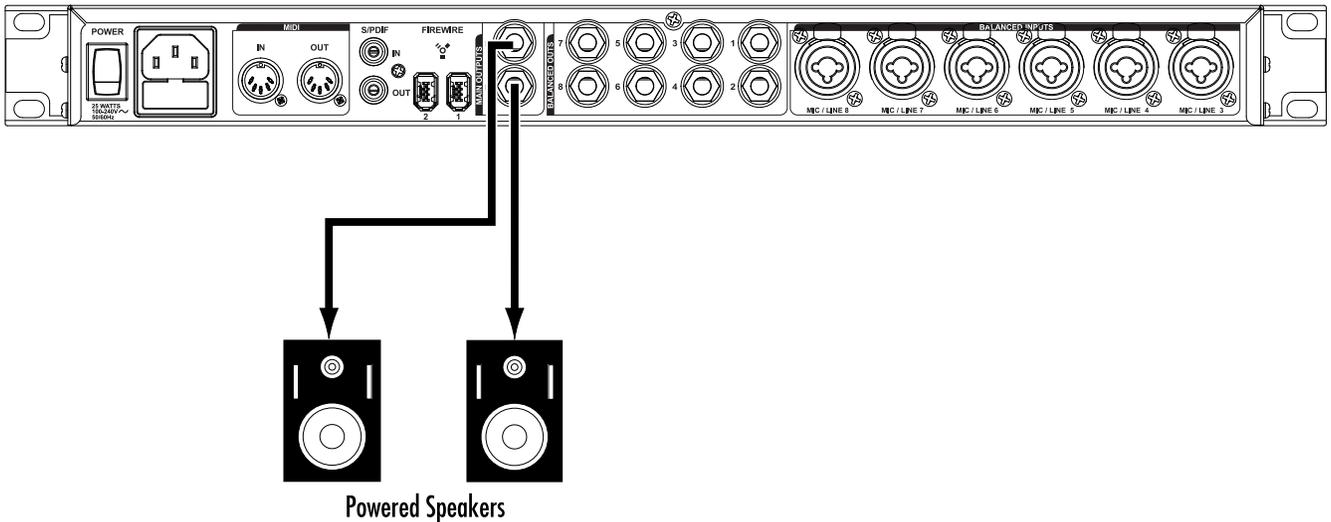
1. Turn the **Headphone Level** knob and **Main Outputs Level** knob all the way down.



2. If using headphones, connect your headphones to the **Headphone** jack.

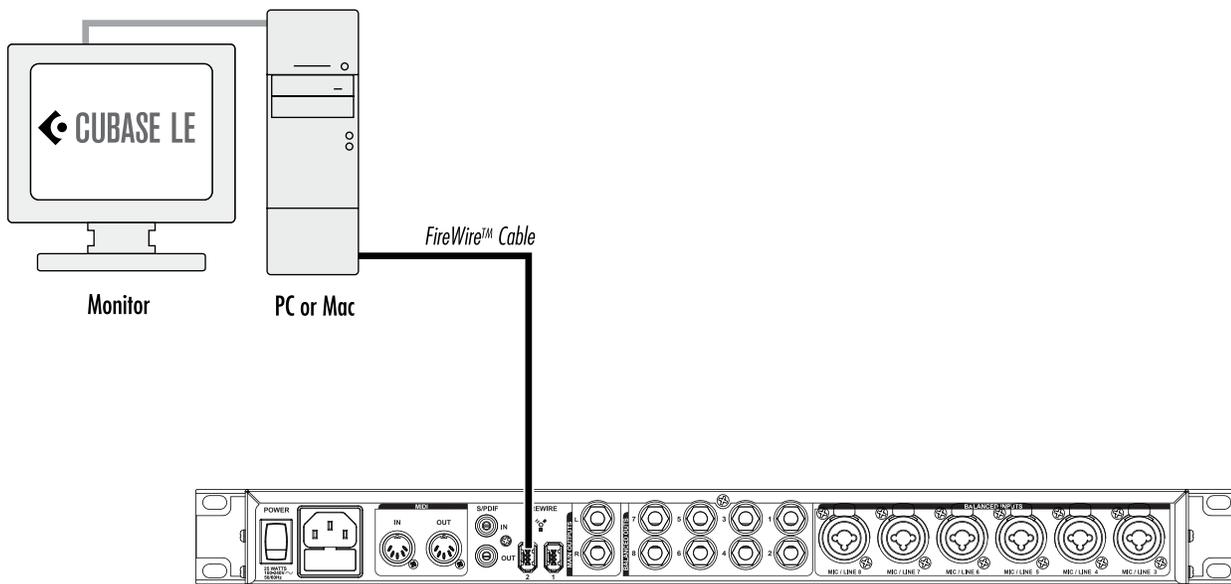


3. If using monitor speakers, plug the speaker's amplifier or powered speakers into the **Main Left and Right Outputs**.



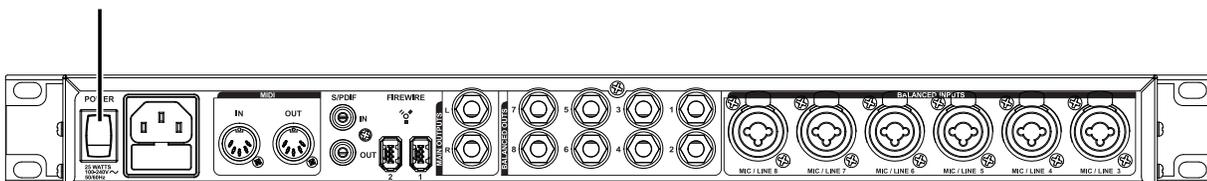
Connect the Computer

- Using the provided FireWire™ cable (or equivalent), connect the FW810S to the computer's FireWire™ port.



- Plug in the power cable and turn on the FW810S. The power switch is located on the back panel.

Power Switch



Install Drivers, Control Software, and Cubase® LE

1. Insert the DVD into your DVD-ROM drive. The Installer should start automatically.

If the Installer doesn't start automatically, you can start it manually by opening the appropriate file on the DVD:

Mac®:	Open Me
Windows®:	InstallationMenu.exe

2. Once the Installer is open, follow the on-screen instructions to install the software you wish to use.

Note: You must install the IO FW810S Drivers and Control Software to use the FW810S. You must also install Cubase® LE to follow the steps in this tutorial.

The latest drivers can also be downloaded from www.lexiconpro.com.

Set Up Windows® Audio and MIDI (Optional)

When the Drivers and Control Software were installed, Windows may have automatically selected them as your default audio and MIDI outputs. This means that your Windows sounds will be sent to the FW810S rather than your computer's sound card. If this is not desired, you can check if these have been changed and return the settings to what they were before.

Windows® XP:

Select **Start > Control Panel > Sounds and Audio Devices > Audio Tab**. Set the default recording and default playback device to your PC'S onboard sound card and click apply.

Under **MIDI Music Playback > Default Device**, open the pull-down menu and make sure Microsoft GS Wavetable Synth is selected as the default device (XP only).

Windows® Vista/7

Select **Start > Control Panel > Sounds**. Set the playback and record device to your PC'S onboard sound card, to do this, highlight the PC'S onboard sound card and click use default.

The Software Mixer

Launch the Mixer Application

1. Make sure the FW810S is turned on and connected to your computer via FireWire™. The blue FireWire LED lights when a valid FireWire™ connection is present.

2. Open the Mixer:

Mac® OS: In the Applications folder, double-click IO FW810S Mixer.

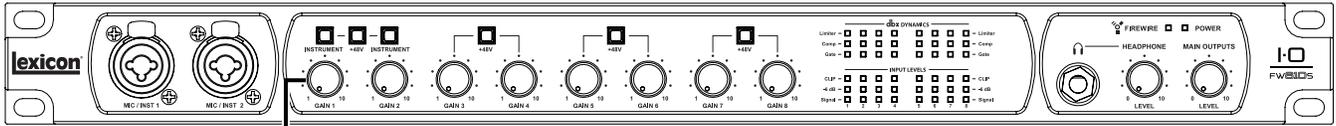
Windows® OS: Go to Start > All Programs > Lexicon > IO FW810S > FW810S Mixer.

3. In the Mixer, make sure the **Master Faders** are all the way down.



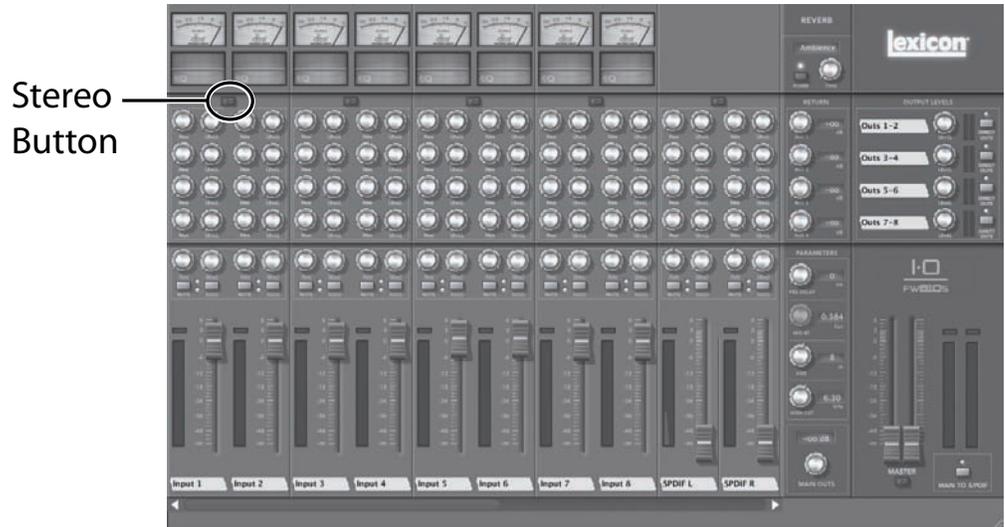
Set Levels

1. Make sure the **Headphone Level knob** and **Main Outputs Level knob** are still turned all the way down on the front panel of the FW810S.
2. On the IO FW810S, turn up the **Gain 1 knob** to the 12 o'clock position.

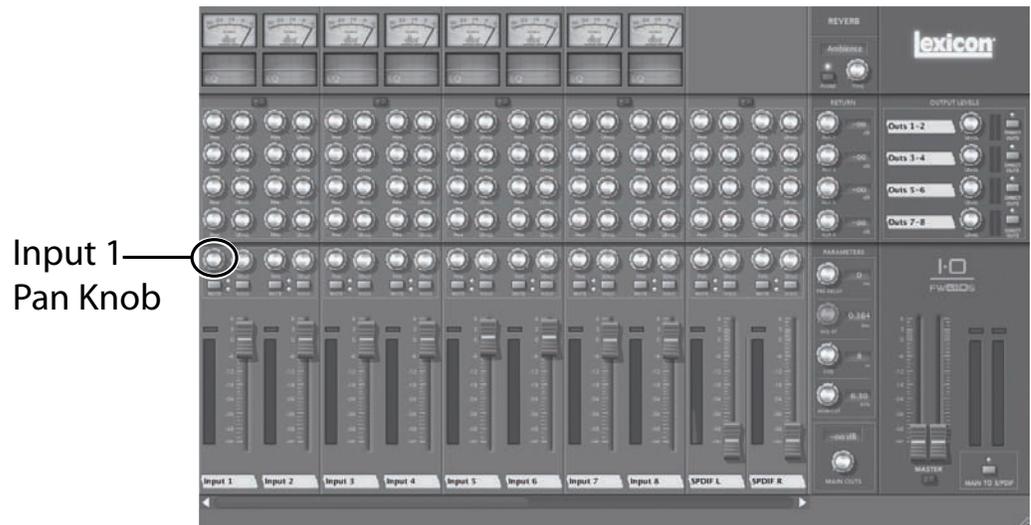


Gain 1 Knob

3. In the Mixer, click the **Stereo** button at the top of the Mixer's **Input 1** and **Input 2** channel strips so it is in the "out" position (light gray instead of dark gray).



4. Turn the **Input 1 Pan knob** (just above the **Mute** button) to the 12 o'clock position (C).



5. Make sure the **Input 1** fader is set to 0. If it is not, set it to 0.



6. Play the guitar and note the meter in the Mixer's **Input 1** strip; it should be moving, indicating a signal is present. If the meter isn't indicating a signal while you play the guitar, turn up the **Gain 1** knob on the IO FW810S until it does. Aim for a peak signal level which does not exceed -6 dB on the meter when the guitar is strummed.

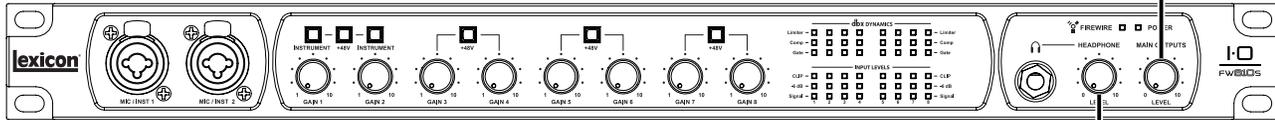


7. Slide the **Master Faders** up to 0.



- Put on the headphones. While playing the guitar, gradually turn up the **Headphone Level** knob until you reach a comfortable listening level. If you would rather monitor the signal through the monitor speakers, turn on the powered speakers or amplifier. While playing the guitar, gradually turn up the **Main Outputs Level** knob until you reach the desired listening level. Do not to turn it up to the point of feedback.

Main Outputs
Level Knob

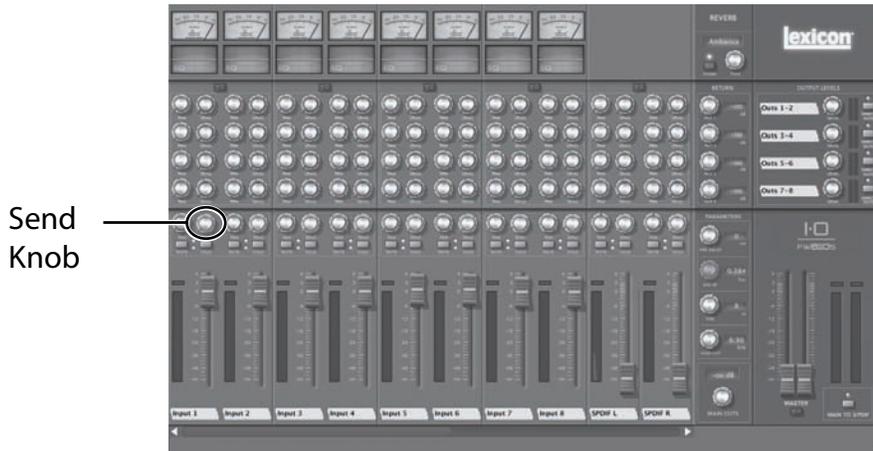


Headphone
Level Knob

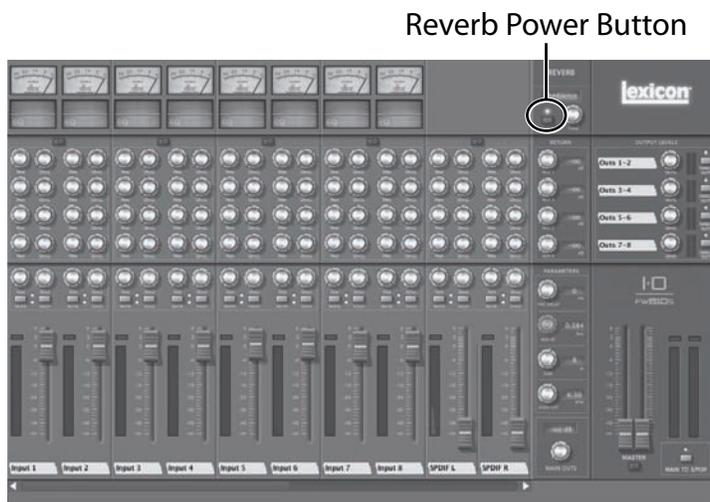
Add Monitor Reverb (Optional)

This will allow you to monitor the signal with reverb applied, but will not actually record the reverb to the audio track.

1. In the Mixer, in the **Input 1** strip, turn up the **Send** knob to 0.00 dB.



2. In the **Reverb** section, click the **Power** button to turn on the reverb.



3. While playing the guitar, turn up the **Main Outs** knob until the desired amount of reverb is reached.



Set Up Cubase® LE for Use with the IO FW810S (Windows®)

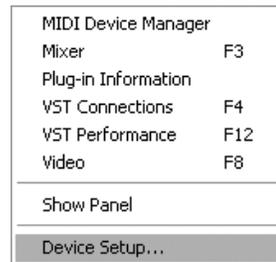
Make sure the included FireWire™ cable is connected between your computer and FW810S, the Mixer is open, and the FW810S is turned on.

Start Cubase® LE (from the Start menu under Lexicon®).

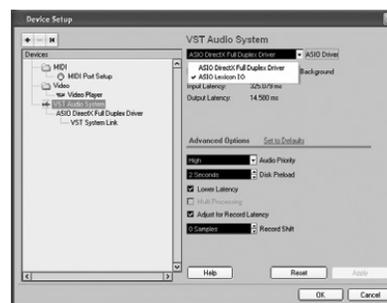
If you see the warning shown below, click **OK**.



Once you are in Cubase LE, go to **Devices > Device Setup**.



Under Devices, click on **VST Audio System** and select **ASIO Lexicon IO** from the ASIO Driver pull-down menu if it is not already selected. Click on **Switch** to switch the driver, then click **OK** in the Device Setup dialog. You are now ready to begin recording using your FW810S and Cubase LE.



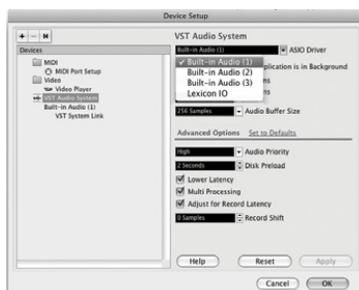
Set Up Cubase LE® for Use with the IO FW810S (Mac®)

Make sure the included FireWire™ cable is connected between your computer and FW810S, the Mixer is open, and the FW810S is turned on.

Open Cubase LE (located in the Applications folder), and go to **Devices > Device Setup** as shown below.



Click **VST Audio System**, then select **Lexicon IO** as the ASIO Driver if it is not already selected.



4. Cubase® LE will now ask you if you would like to switch the driver. Select **Switch** then **OK**.



Mac® OS 10.4.x users only: After selecting Lexicon® FW810S as the ASIO Driver, you may need to verify that your device inputs are active. To do this, follow these steps:

1. Select **Device > VST Connections** from the menu bar.
2. When the VST Connections panel appears, click the **Inputs** tab.
3. The box under the Audio Device column may say "**Not Connected**". If it does, click in this box and select **Lexicon IO** to enable the FW810S inputs.
4. Close the VST Connections window.

You are now ready to start recording with Cubase LE, described in the next section, Using the IO FW810S.

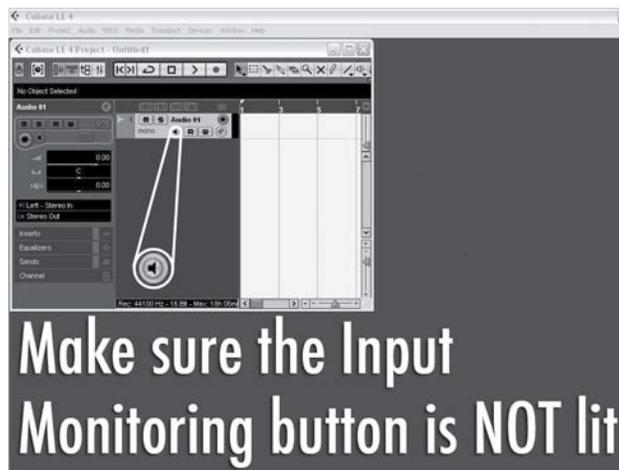
Record a Track in Cubase® LE

Create a new project

1. In Cubase, Click **File > New Project**. The **New Project** dialog opens.
2. Select **Lexicon IO FW810S** and click **OK**.
3. Select a project folder and click **Choose**.
4. Add a mono track by clicking **Project > Add Track > Audio**. Choose the **Mono** configuration and click **OK**.
5. In the **Track 1** window, the Record Enable button should already be red. If it isn't, click it so that it turns red.



6. In the **Track 1** window, click the Input Monitoring button so that it is not lit.



Start Recording

1. Click the **Record** button on Cubase® LE's Transport control.



2. Play the guitar.
3. When you are finished recording press the **Stop** button.

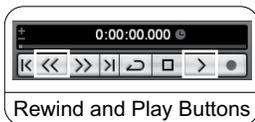


Listen to the Track You Just Recorded

1. In the Cubase® Mixer, make sure the **Playback 1** fader is set to **0 dB**.

Note: You may need to click and hold the scrollbar at the bottom of the Mixer and slide it to the right in order to see the **Playback 1** strip.

2. Press **Rewind** and press the **Play** button to listen to the track you have just recorded.



APPENDIX

Busses and Device Ports in Cubase® LE

In Cubase® LE, and in most Digital Audio Workstations (DAW's), the *busses* (the signal paths in and out of the DAW) can correspond to any of the FW810S' physical inputs and outputs (referred to as *device ports* in Cubase®). You can assign busses to device ports with the VST Connections dialog in Cubase® LE (Devices > VST Connections). This process is performed automatically when you create a new project using the Lexicon IO FW810S template in Cubase® LE. Also, the following general overview may be useful as well.

Busses General Overview

Assigning busses to device ports involves these steps:

1. In Cubase®, click Devices > VST Connections.
2. Create a bus in Cubase® (or use an existing one).
3. Select a channel within the bus (Left, Right, or Mono).
4. In the Device Port column, select a device port for the bus.

Let's say, for example, that you select the bus in Cubase® LE named **Stereo In - Left**, and assign it to the device port named **Lexicon IO 3**. When you create a project and add an audio track, and you want that track to record vocals sung into a microphone (for example), you should connect the microphone to the FW810S input named **Mic/Line 3**.

In Cubase® LE, you should set the track's input routing to **Stereo In - Left**. Thus, the device port (physical connection on the FW810S) is assigned to the bus (in Cubase® LE). The bus is now routed to the audio track, and the audio going to the physical connection is recorded on the audio track.

The output busses work in basically the same way. Suppose you assign a device port named Lexicon IO 5 to a bus named Stereo Out - Left, and you route an audio track to that bus. The audio track's signal will be sent through the Mixer (described below) to the FW810S' Main Outs, as well as to the Balanced Out 5 on the FW810S rear panel.

The Mixer

In between the IO FW810S and your DAW is the IO FW810S' software Mixer, a mixing console with a graphic user interface that functions like a physical mixing console. The Mixer lets you adjust levels for individual channels, apply reverbs, dynamics and EQ to aux sends and monitor mixes – almost anything a physical mixer would allow you to do.

The Mixer's controls and components are described earlier in this Owner's Manual. The following general overview may also be useful.

Mixer General Overview

The Mixer includes 8 Input channels (for the FW810S Mic/Inst and Mic/Line inputs), 2 SPDIF channels (for the FW810S SPDIF In and Out), and 8 Playback channels (for signals coming from your DAW).



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IO FW810S

Questions or comments?
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or visit us online at www.lexiconpro.com