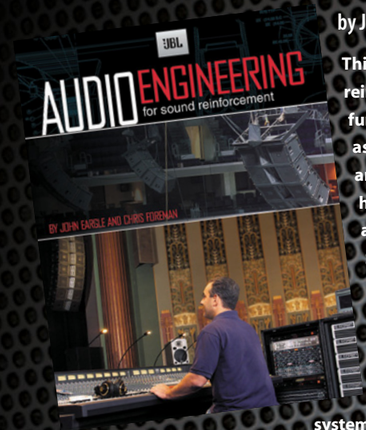
JBL AUDIO ENGINEERING FOR SOUND REINFORCEMENT

by John Eargle and Chris Foreman



This book comprehensively covers all aspects of speech and music sound reinforcement. It is divided into four sections: Section 1 provides the tutorial fundamentals that all audio engineers will need, discussing subjects such as fundamentals of acoustics, psychoacoustics, basic electrical theory and digital processing. Section 2 deals with the fundamental classes of hardware that the modern engineer will use, such as loudspeaker systems and components, microphones, mixers, amplifiers and signal processors. Special attention is given to digital techniques for system control and to audio signal analysis. Section 3 deals with the basics of system design, from concept to final realization. It covers topics such as basic system type and speech intelligibility, site survey, user needs analysis and project management. Section 4 discusses individual design areas, such as sports facilities, large-scale tour sound systems, high-level music playback, systems for the theater, religious facilities, and other meeting spaces. The book is written in an accessible style, but does not lack for ample amounts of technical information. JBL and HPro brand products are prominently featured as examples to illustrate the principles and applications. Available at bookstores and on line.

JBL LIMITED WARRANTY

The JBL Warranty on professional loudspeaker products (except for enclosures) remains in effect for five years from the date of the first consumer purchase. JBL amplifiers are warranted for three years from the date of the original purchase. Enclosures and all other JBL products are warranted for two years from the date of the original purchase.

Your JBL Warranty protects the original owner and all subsequent owners as long as: A.) Your JBL product has been purchased in the Continental United States, Hawaii or Alaska. (This Warranty does not apply to JBL products purchased elsewhere except for purchases by military outlets. Other purchasers should contact the local JBL distributor for warranty information.) and B.) The original dated bill of sale is presented whenever warranty service is required.

Except as specified below, your JBL Warranty covers all defects in material and workmanship. The following are not covered: Damage caused by accident, misuse, abuse, product modification or neglect; damage occurring during shipment; damage resulting from failure to follow instructions contained in your Instruction Manual; damage resulting from the performance of repairs by someone not authorized by JBL; claims based upon any misrepresentations by the seller; any JBL product on which the serial number has been defaced, modified or removed. JBL will pay all labor and material expenses for all repairs covered by this warranty.

JBL continually engages in research related to product improvement. New materials, production methods and design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current JBL product may differ in some respect from its published description but will always equal or exceed the original design specifications unless otherwise stated.

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RECORDING INTERFACES
REVERB/EFFECTS PROCESSORS

PRODUCT GUIDE 2012

lexicon by HARMAN

Touchstone Heritage

Lexicon® occupies a unique position as a leading innovator in both professional and consumer audio industries. Since the release of the first digital reverb in 1971, Lexicon has stood at the forefront of digital audio with a reputation as a manufacturer of exceptional professional audio and home theater products and an inventor of new technologies. Years of research, development, and experience allow us to continue expanding the boundaries of the listening experience.

Our professional products are prominent in the creation of worldwide music, television and film productions. These products have won numerous awards, including an Emmy® and numerous TEC awards, most recently a TEC Hall of Fame award for the Lexicon Delta T-101, the world's first digital delay. Lexicon processors have been embraced as the standard in professional signal processing since the introduction of the 480L Digital Effects Processor, which has retained tremendous popularity for the past 22 years. It has since been replaced as the standard in professional signal processing by the 960L Multi-channel Digital Effects System, which has itself garnered an impressive following of producers, artists, and engineers.

Growing demand for proprietary Lexicon technologies has led to its appearance in numerous applications – with dramatic results. Our processing is relied upon to enhance the sound of prestigious live halls and venues. Our critically acclaimed LOGIC7® technologies have been successfully incorporated in several world-renowned automobiles, including select models from BMW® and Mercedes®. LOGIC7 technologies have also been licensed to other audio companies such as harman/kardon® and AKG®.

Knowingly or unknowingly – you experience Lexicon products and technologies on a daily basis. Chances are that Lexicon processing was involved in the television program you watch at home, the film you see at the cinema, or the song you listen to on the radio. From the initial tracks to your listening room or automobile, Lexicon is part of the process that brings these recordings to life. Our commitment to the audio professional and content delivery ensures an unbroken chain between the artist and the audience. Now hear this…

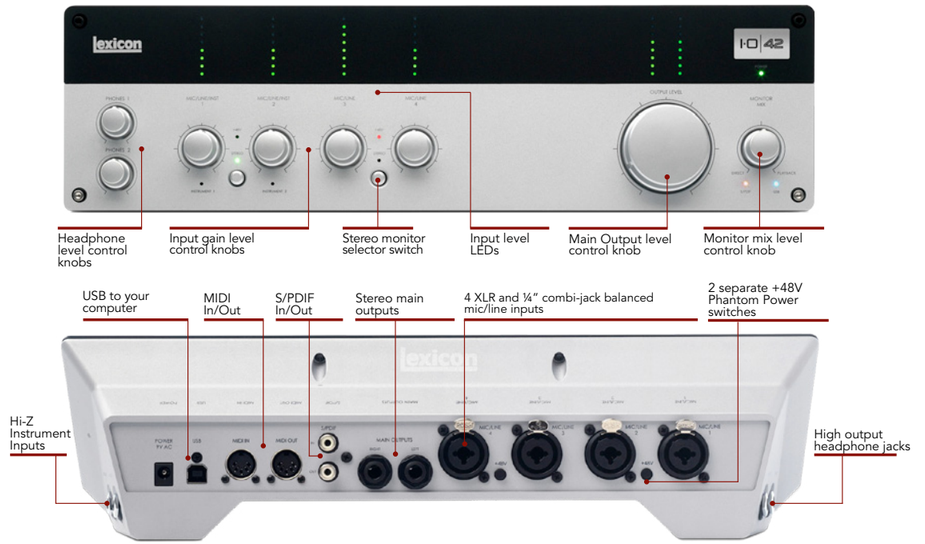
Content

RECORDING INTERFACE STUDIOS

A complete recording solution in a small, streamlined package. Each recording interface is a hardware mixer that connects to your DAW via FireWire or USB, each with it's own I/O configuration to fit your personal needs. Front panel controls let you adjust Direct/Playback mix and input levels, toggle monitoring between stereo and mono, plug in an instrument directly and monitor with headphones. Also included is a software suite that has all the tools necessary to complete your mix and compete with the major labels.

I·O 42

Brilliantly designed to fit between your keyboard and monitor, the I·O U42S features dbx® 60V high-voltage ultra-low noise microphone preamps on every channel to provide professional recordings that keep your music sounding its best. The preamps run on a 60V supply to guarantee stability and provide you optimal headroom and extremely low distortion. Ultra high-definition converters ensure pristine 24-bit/96kHz audio to capture every subtle detail of your performance. Bundled with Lexicon's own Pantheon™ II VST/AU reverb plug-in, Cubase® LE recording software, and Toontrack® EZDrummer™ Lite, XILS3 SE, the I·O 42 provides all the tools you need to create professional quality recordings without sacrificing your desktop.



	22	42	82
Pro Tools® 9 & 10 Compatible	Yes	Yes	Yes
Combi-jack Analog Inputs	2	4	8
Simult. Recording Sources	2	6	10
dbx® 60V Mic Preamps	2	4	8
Hi-Z Instrument Inputs	1	2	2
S/PDIF	No	Yes	Yes
MIDI I/O	Yes	Yes	Yes
Headphone Connections	1	2	2
¼" TRS Analog Outputs	2	2	2

I·O 82

Say hello to the big brother of the I·O Desktop Series. In addition to all the features found on the I·O 42 we've added just a few inches to the sides and doubled your inputs! Now you've got eight ¼" TRS or XLR combi-jacks, all equipped with dbx® 60V high-voltage, ultra-low noise mic preamp's. You still have S/PDIF digital I/O to sync up some of your other high-end gear, plus MIDI capabilities, 2 seperate headphone amps and all the front panel controls to stay on top of your mix. The I·O 82 has all the I/O you need to record drums or your band without sacrificing any more of your desktop.

I·O 22

With the I·O 22 we've made no compromise in quality, it simply takes up less room between your keyboard and monitor, which is typically unused dead space. Equipped with one side panel instrument input and two dbx® 60V high-voltage, ultra-low noise microphone preamps that are accessed via rear panel combi-jacks. The I·O 22 is a great fit for songwriting and home recording so compact you'll want to take it everywhere you go. If you get a moment of inspiration and want to capture something new, or you're a producer on the run, then the I·O 22 has all the tools you need for high-quality recording without all the hassle.

I·O™ 82 Specifications		I·O™ 42 Specifications		I·O™ 22 Specifications	
MICROPHONE INPUTS		**MICROPHONE INPUTS**		**MICROPHONE INPUTS**	
Connectors	(8) Female XLR Pin 2 Hot	Connectors	(4) Female XLR Pin 2 Hot	Connectors	(2) Female XLR Pin 2 Hot
Impedance	3k Ohms balanced	Impedance	3k Ohms balanced	Impedance	3k Ohms balanced
Phantom Power	+48 Volts	Phantom Power	+48 Volts	Phantom Power	+48 Volts
Max Gain	+58 dB	Max Gain	+58 dB	Max Gain	+58 dB
EIN (150Ωsource)	-125 dB @ 58 dB gain typical -128 dB @ 58 dB gain typical A-weighted	EIN (150Ωsource)	-125 dB @ 58 dB gain typical -128 dB @ 58 dB gain typical A-weighted	EIN (150Ωsource)	-125 dB @ 58 dB gain typical -128 dB @ 58 dB gain typical A-weighted
Max Input Level	+20 dBu	Max Input Level	+20 dBu	Max Input Level	+20 dBu
Frequency Response	+/–1.0 dB, 20Hz - 20kHz	Frequency Response	+/–1.0 dB, 20Hz - 20kHz	Frequency Response	+/–1.0 dB, 20Hz - 20kHz
THD+N	<0.01%, 20Hz - 20kHz, +4dBu output (mic input to main output) <0.008%, 1kHz, +4 dBu (mic input to main output)	THD+N	<0.01%, 20Hz - 20kHz, +4dBu output (mic input to main output) <0.008%, 1kHz, +4 dBu (mic input to main output)	THD+N	<0.01%, 20Hz - 20kHz, +4dBu output (mic input to main output) <0.008%, 1kHz, +4 dBu (mic input to main output)
LINE INPUTS		**LINE INPUTS**		**LINE INPUTS**	
Connectors	(8) ¼" TRS balanced or unbalanced	Connectors	(4) ¼" TRS balanced or unbalanced	Connectors	(2) ¼" TRS balanced or unbalanced
Impedance	20k Ohms balanced 13k Ohms unbalanced	Impedance	20k Ohms balanced 13k Ohms unbalanced	Impedance	20k Ohms balanced 13k Ohms unbalanced
Max Input Level	+32 dBu	Max Input Level	+32 dBu	Max Input Level	+32 dBu
Frequency Response	+0/–1.0 dB, 20Hz - 20kHz	Frequency Response	+0/–1.0 dB, 20Hz - 20kHz	Frequency Response	+0/–1.0 dB, 20Hz - 20kHz
THD+N	<0.015%, 20Hz - 20kHz, +4dBu (line in to main out) <0.005%, 1kHz, +4 dBu	THD+N	<0.015%, 20Hz - 20kHz, +4dBu (line in to main out) <0.005%, 1kHz, +4 dBu	THD+N	<0.015%, 20Hz - 20kHz, +4dBu (line in to main out) <0.005%, 1kHz, +4 dBu
INSTRUMENT INPUT		**INSTRUMENT INPUT**		**INSTRUMENT INPUT**	
Connectors	(2) ¼" TS unbalanced	Connectors	(2) ¼" TS unbalanced	Connectors	(1) ¼" TS unbalanced
Impedance	1M Ohms	Impedance	1M Ohms	Impedance	1M Ohms
Max Input Level	+13 dBu	Max Input Level	+13 dBu	Max Input Level	+13 dBu
Frequency Response	+0/–1.0 dB, 20Hz - 20kHz	Frequency Response	+0/–1.0 dB, 20Hz - 20kHz	Frequency Response	+0/–1.0 dB, 20Hz - 20kHz
THD+N	<0.05%, 20Hz - 20kHz, +4 dBu (instrument in to main out) <0.007%, 1kHz, +4dBu	THD+N	<0.05%, 20Hz - 20kHz, +4 dBu (instrument in to main out) <0.007%, 1kHz, +4dBu	THD+N	<0.05%, 20Hz - 20kHz, +4 dBu (instrument in to main out) <0.007%, 1kHz, +4dBu
LINE OUTPUTS		**LINE OUTPUTS**		**LINE OUTPUTS**	
Connectors	(2) ¼" TRS balanced or unbalanced	Connectors	(2) ¼" TRS balanced or unbalanced	Connectors	(2) ¼" TRS balanced or unbalanced
Level	>+18 dBu maximum	Level	>+18 dBu maximum	Level	>+18 dBu maximum
Impedance	32 Ohms bal, 16 Ohms unbal.	Impedance	32 Ohms bal, 16 Ohms unbal.	Impedance	32 Ohms bal, 16 Ohms unbal.
Headphone Output	(2) ¼" stereo jack 350mW per channel @ 50 Ohms	Headphone Output	(2) ¼" stereo jack 350mW per channel @ 50 Ohms	Headphone Output	(1) ¼" stereo jack 350mW per channel @ 50 Ohms
DIGITAL INPUT AND OUTPUT		**DIGITAL INPUT AND OUTPUT**		**DIGITAL INPUT AND OUTPUT**	
Connectors	Dual RCA phono	Connectors	Dual RCA phono	Connectors	N/A
Format	S/PDIF 24-bit	Format	S/PDIF 24-bit	Format	N/A
D/A - A/D Sample Rate	44.1kHz, 48kHz, 88.2kHz, or 96kHz determined by DAW	D/A - A/D Sample Rate	44.1kHz, 48kHz, 88.2kHz, or 96kHz determined by DAW	D/A - A/D Sample Rate	44.1kHz, 48kHz, 88.2kHz, or 96kHz determined by DAW
DYNAMIC RANGE 20Hz-20kHz		**DYNAMIC RANGE 20Hz-20kHz**		**DYNAMIC RANGE 20Hz-20kHz**	
A/D (24-Bit)	102 dB typical, A-weighted	A/D (24-Bit)	102 dB typical, A-weighted	A/D (24-Bit)	102 dB typical, A-weighted
D/A (24 Bit)	106 dB typical, A-weighted	D/A (24 Bit)	106 dB typical, A-weighted	D/A (24 Bit)	106 dB typical, A-weighted
A/D/A (24 Bit)	101 dB typical, A-weighted	A/D/A (24 Bit)	101 dB typical, A-weighted	A/D/A (24 Bit)	101 dB typical, A-weighted
CONTROL INTERFACE		**CONTROL INTERFACE**		**CONTROL INTERFACE**	
USB	Version 2.0, Type B socket;	USB	Version 2.0, Type B socket;	USB	Version 2.0, Type B socket;
MIDI	In/Out 5-pin DIN	MIDI	In/Out 5-pin DIN	MIDI	In/Out 5-pin DIN
GENERAL		**GENERAL**		**GENERAL**	
Power	Power adaptors available for 100–240 VAC, 50/60 Hz, 24 Watts	Power	Power adaptors available for 100–240 VAC, 50/60 Hz, 18 Watts	Power	Power adaptors available for 100–240 VAC, 50/60 Hz, 12 Watts
Size (W/H/D)	18" W x 4.25" H x 4" D (46cm x 11cm x 10cm)	Size (W/H/D)	15" W x 4.25" H x 4" D (38cm x 11cm x 10cm)	Size (W/H/D)	12" W x 4.25" H x 4" D (31cm x 11cm x 10cm)
Weight	Packaged approx. 6 lbs. Unit alone approx. 4 lbs.	Weight	Packaged approx. 5 lbs. Unit alone approx. 3.1 lbs.	Weight	Packaged approx. 3.5 lbs. Unit alone approx. 2.5 lbs.

All specifications subject to change

Alpha

The smallest and simplest of the three, the Alpha Studio™ is perfect for solo artists. The Alpha is USB-powered so you can record anywhere you take your laptop. Alpha also features a ⅛" headphone monitoring jack and two unbalanced RCA line level outputs (in addition to its ¼" balanced/unbalanced outputs). Alpha, Lambda and Omega all come packaged with a software suite that includes Lexicon's own Pantheon™ VST reverb plug-in and Cubase® LE.

Lambda

With four inputs and two outputs, Lambda is the perfect medium. The Lambda Studio™ can record two tracks at once, and features phantom power for condenser mics, MIDI In/Out, and a ⅛" headphone monitoring jack. Lambda is USB-powered, so it works wherever you and your computer happen to go.

Omega

The heavy hitter of the three, the Omega Studio™ features eight inputs and can record up to four tracks at once. Omega is also the only unit in the family that includes S/PDIF digital I/O as well as the standard TRS and XLR. Phantom power is available for condenser mics and Omega is powered with an included AC power adaptor.

Now you can record high quality audio with your iPad™ and the Lexicon Omega.

Omega Studio™ Specifications

MICROPHONE INPUTS	
Connectors	Two female XLR Pin 2 Hot
Impedance	600 Ohms balanced
Phantom Power	+48 Volt DC
Gain	+50 dB
EIN (150Ω source)	-120 dB A-weighted @ 50 dB gain
Frequency Response	+0, –0.2 dB 20 Hz - 20kHz, ref. 1kHz
THD+N	<.005%, 20Hz - 20kHz
INSERT INPUTS	
Connectors	Two ¼" TRS balanced or unbalanced
Send Level (tip)	+19 dBu maximum
Max Rtrn Level (ring)	+19 dBu maximum
LINE INPUTS	
Connectors	Four ¼" TRS balanced or unbalanced
Impedance	20k Ohms balanced 10k Ohms unbalanced
Max Input Level	+22 dBu
Frequency Response	+0, –0.2 dB 20 Hz - 20kHz, ref. 1kHz
THD+N	<.009% A/D, 20Hz - 20kHz
INSTRUMENT INPUT	
Connectors	One ¼" mono jack
Impedance	1 MΩ unbalanced
Max Input Level	+19 dBu
Frequency Response	+0, –0.25 dB 20 Hz - 20kHz, ref. 1kHz
THD+N	<.0125% A/D
Crosstalk	<–74dB any input or output to any recording channel, 20Hz-20kHz <–95dB at 1kHz typical
LINE OUTPUTS	
Connectors	Two ¼" TRS balanced or unbalanced
Level	+19 dBu maximum
Impedance	110 Ohms
Headphone Output	One ¼" stereo jack 100mW per channel @ 50 Ohms
DIGITAL INPUT AND OUTPUT	
Connectors	Dual RCA phono
Format	S/PDIF 24-bit
D/A - A/D Sample Rate	44.1kHz or 48kHz, determined by DAW
DYNAMIC RANGE 20Hz-20kHz	
A/D (24 Bit)	104 dB typical, A-weighted
D/A (24 Bit)	105 dB typical, A-weighted
A/D/A (24 Bit)	103 dB typical, A-weighted
Analog Path	118 dB typical, A-weighted
CONTROL INTERFACE	
USB	Version 1.1, Type B socket; 1.1 hubs are not supported
MIDI	In/Out 5-pin DIN
GENERAL	
Power	PS0913-B 9VAC adapter requires 18 Watts @ 120V
Size (W/H/D)	4.625" W x 7.25" H x 7.75" D (118mm x 184mm x 197mm)
Weight	2.65 lbs. (1.2 kg)

Lambda Studio™ Specifications

MICROPHONE INPUTS	
Connectors	Two female XLR Pin 2 Hot
Impedance	600 Ohms balanced
Phantom Power	+48 Volt DC
Gain	+44 dB
EIN (150Ω source)	-120 dB A-weighted @ 44 dB gain
Frequency Response	+0, –0.5 dB 20 Hz - 20kHz, ref. 1kHz
THD+N	<.005%, 20Hz - 20kHz
INSERT INPUTS	
Connectors	Two ¼" TRS balanced or unbalanced
Send Level (tip)	+19 dBu maximum
Max Rtrn Level (ring)	+19 dBu maximum
LINE INPUTS	
Connectors	Two ¼" TRS balanced or unbalanced
Impedance	20k Ohms balanced 10k Ohms unbalanced
Max Input Level	+13 dBu
Frequency Response	+0, –0.5 dB 20 Hz - 20kHz, ref. 1kHz
THD+N	<.009% A/D, 20Hz - 20kHz
INSTRUMENT INPUT	
Connectors	One ¼" mono jack
Impedance	1 MΩ unbalanced
Max Input Level	+8.5 dBu
Frequency Response	+0, –0.25 dB 20 Hz - 20kHz, ref. 1kHz
THD+N	<.0125% A/D
Crosstalk	<–74dB any input or output to any recording channel, 20Hz-20kHz <–95dB at 1kHz typical
LINE OUTPUTS	
Connectors	Two ¼" TRS balanced or unbalanced
Level	+16 dBu maximum
Impedance	1k Ohms bal, 500 Ohms unbal.
Headphone Output	One ⅛" stereo jack 25mW per channel @ 50 Ohms
DIGITAL INPUT AND OUTPUT	
Connectors	N/A
Format	N/A
D/A - A/D Sample Rate	44.1kHz or 48kHz, determined by DAW
DYNAMIC RANGE 20Hz-20kHz	
A/D (24 Bit)	96 dB typical, A-weighted
D/A (24 Bit)	100 dB typical, A-weighted
A/D/A (24 Bit)	95 dB typical, A-weighted
Analog Path	109 dB typical, A-weighted
CONTROL INTERFACE	
USB	Version 1.1, Type B socket; 1.1 hubs are not supported
MIDI	In/Out 5-pin DIN
GENERAL	
Power	USB Bus-powered
Size (W/H/D)	3.4" W x 6.5" H x 6.5" D (86mm x 165mm x 165mm)
Weight	1.92 lbs. (0.86 kg)

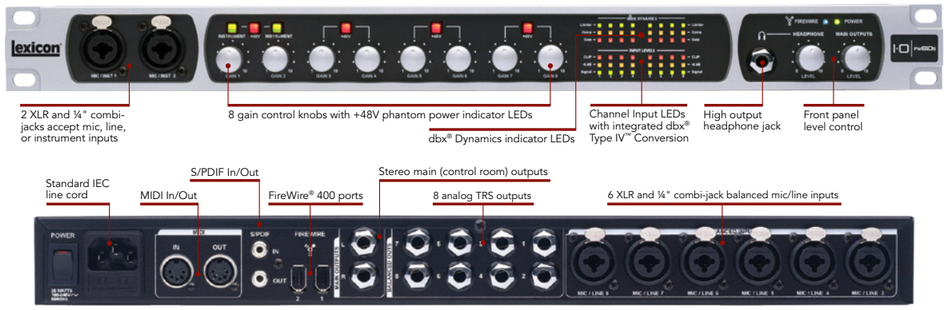
Alpha Studio™ Specifications

MICROPHONE INPUTS	
Connectors	One female XLR Pin 2 Hot
Impedance	600 Ohms balanced
Phantom Power	N/A
Gain	+44 dB
EIN (150Ω source)	-115 dB A-weighted @ 50 dB gain
Frequency Response	+0, –0.5 dB 20 Hz - 20kHz, ref. 1kHz
THD+N	<.005%, 20Hz - 20kHz
INSERT INPUTS	
Connectors	N/A
Send Level (tip)	N/A
Max Rtrn Level (ring)	N/A
LINE INPUTS	
Connectors	Two ¼" TRS balanced or unbalanced
Impedance	20k Ohms balanced 10k Ohms unbalanced
Max Input Level	+12 dBu
Frequency Response	+0, –0.5 dB 20 Hz - 20kHz, ref. 1kHz
THD+N	<.009% A/D, 20Hz - 20kHz
INSTRUMENT INPUT	
Connectors	One ¼" mono jack
Impedance	1 MΩ unbalanced
Max Input Level	+8.5 dBu
Frequency Response	+0, –0.25 dB 20 Hz - 20kHz, ref. 1kHz
THD+N	<.0125% A/D
Crosstalk	<–74dB any input or output to any recording channel, 20Hz-20kHz <–95dB at 1kHz typical
LINE OUTPUTS	
Connectors	Two ¼" TRS balanced or unbalanced, Two RCA jacks
Level	+16 dBu maximum
Impedance	1k Ohms bal, 500 Ohms unbal.
Headphone Output	One ⅛" stereo jack 20mW per channel @ 50 Ohms
DIGITAL INPUT AND OUTPUT	
Connectors	N/A
Format	N/A
D/A - A/D Sample Rate	44.1kHz or 48kHz, determined by DAW
DYNAMIC RANGE 20Hz-20kHz	
A/D (24 Bit)	96 dB typical, A-weighted
D/A (24 Bit)	100 dB typical, A-weighted
A/D/A (24 Bit)	95 dB typical, A-weighted
Analog Path	109 dB typical, A-weighted
CONTROL INTERFACE	
USB	Version 1.1, Type B socket; 1.1 hubs are not supported
MIDI	In/Out 5-pin DIN
GENERAL	
Power	USB Bus-powered
Size (W/H/D)	6.75" W x 1.6" H x 6.5" D (171mm x 40mm x 165mm)
Weight	1.1 lbs. (0.49 kg)

All specifications subject to change

I·O FW810S

With a wealth of features – including dbx® 63V high-voltage, ultra-low noise mic preamp's, Pantheon™ II reverbs, and a powerful hardware mixing console with integrated dbx dynamics (compressor, gate, limiter) – the Lexicon® I·O FW810S is more than just an 8-in, 10-out FireWire™ audio interface. It's a pro recording studio contained in a single rack unit. With built-in dbx Type IV™ conversion, your digital recordings will preserve their dynamic range even when levels get too high. Select one of nine hardware monitor reverb types to dial in the sound of your sub-mix. You can even save and load up to five monitor mixes – one for the main control mix, and up to four for individual band members. This FW810S does all the processing, so when you're finished recording you can mix and fine tune your productions in real time with zero latency.



You also get the benefit of Lexicon's world-class reverbs with the Pantheon II VST/AU reverb plug-in. Featuring many of the same algorithms that can be found on legendary recorded music and movie soundtracks, Pantheon II delivers mega-studio quality signal processing to your home, with 6 reverb types and 35 factory presets. Each reverb type has 16 editable parameters to let you create your own variations on the legendary "Lexicon Sound."

I•O FW810S KEY FEATURES

- FireWire 400 connection to DAW
- 44.1 to 96kHz sample rates, 24-bit resolution
- 6 analog combi-jack inputs on the rear panel for mic/line inputs
- 2 front panel combi-jacks accept mic, line, or instrument signals
- 8 analog TRS outputs (7.1 surround capable) and stereo main (control room) outs
- dbx® Type IV™ conversion feature emulates tape saturation at high levels
- Zero latency hardware mixer
- 5 unique stereo monitor mixes using all 10 analog channels
- 9 monitor reverb types with up to 4 adjustable parameters
- dbx 63V high-voltage, ultra-low noise mic pre's on all 8 channels
- dbx dynamics (compressor, limiter, gate) and EQ on all 8 channels
- Software suite includes Steinberg® Cubase® LE, Toontrack® EZdrummer® Lite, XILS3 SE Software and Lexicon Pantheon II VST/AU reverb plug-in
- Supports Windows® and Mac® platforms
- Pro Tools® 9 & 10 Compatible

The powerful hardware mixer lets you easily route signal paths and apply real-time dynamics (compressor, limiter, gate) and EQ adjustments. Create your sub-mixes, choose your monitor reverb type, and start tracking.

Mixer Window

Dynamics Window

EQ Window

Steinberg® is a world leader in computer-based recording. From the first idea to complete compositions, Cubase® is the production suite of choice for musicians and producers looking for a creative way to realize their projects. Steinberg's intuitive cross-platform Cubase LE features 48 audio and 64 MIDI tracks with full automation, 2 inserts and 4 aux sends per channel, up to 8 VST instruments, and supports VST System Link and ReWire 2.

Cubase LE communicates seamlessly with the Lexicon USB I/O mixers through our custom-written ASIO drivers to achieve a completely integrated, easy-to-use recording solution that includes all of the modules that you need to track, edit and mix your masterpiece.

I·O™ FW810S Specifications

MICROPHONE INPUTS	
Connectors	Female XLR Pin 2 Hot
Impedance	3k Ohms balanced
Phantom Power	+48 Volt
Gain	+55 dB
EIN (150Ω source)	-127 dB @ 55 dB gain typical -130 dB @ 55 dB gain typical A-weighted
Max Input Level	+8 dBu
Frequency Response	+/−1.5 dB, 20Hz - 20kHz
THD+N	<0.02%, 20Hz - 20kHz <0.002%, 1kHz, -6 dBu
LINE INPUTS	
Connectors	¼" TRS balanced or unbalanced
Impedance	20k Ohms balanced 13k Ohms unbalanced
Max Input Level	+22 dBu
Frequency Response	+/−1.5 dB, 20Hz - 20kHz
THD+N	<0.02%, 20Hz - 20kHz <0.002%, 1kHz, +18 dBu
INSTRUMENT INPUT	
Connectors	¼" TS unbalanced
Impedance	500k Ohms
Max Input Level	+10 dBu
Frequency Response	+/−2.5 dB, 20Hz - 20kHz
THD+N	<0.08%, 1kHz, +4 dBu
LINE OUTPUTS	
Connectors	¼" TRS balanced or unbalanced
Level	+20 dBu maximum
Impedance	32 Ohms balanced 16 Ohms unbalanced
Headphone Output	¼" stereo jack, 250mW per channel @ 50 Ohms
DIGITAL INPUT AND OUTPUT	
Connectors	Dual RCA phono
Format	S/PDIF 24-bit
D/A - A/D Sample Rate	44.1kHz, 48kHz, 88.2kHz, or 96kHz determined by DAW
DYNAMIC RANGE 20Hz-20kHz	
A/D (24-Bit)	110 dB typical, A-weighted
D/A (24-Bit)	110 dB typical, A-weighted
A/D/A (24-Bit)	108 dB typical, A-weighted
CONTROL INTERFACE	
FireWire	2 IEEE 1394 FireWire 400 ports
MIDI	In/Out 5-pin DIN
GENERAL	
Power	Power adaptors available for 100–240 VAC, 50/60 Hz, 15 Watts
Size (W/H/D)	19" W x 1.7" H x 10.5" D
Weight	7.7 lbs.

All specifications subject to change