PCM91

- World-class Lexicon reverb
- Dual proprietary LexiChip DSP engines
- 24-bit A/D, D/A, and internal processing
- 450 presets; 100 User programs
- Lexicon's "Greatest Hits" reverb algorithms, including Chamber, Concert Hall, Random Ambience, Random Hall, Rich Plate, and Split Chamber
- Keyword search for quick, intelligent sorting of presets by alphabetical order or application
- Front panel Adjust knob automatically attaches to one or more parameters in each factory tailored preset
- PCMCIA card slot for program storage
- Pro and Go Modes: Go mode allows access to as many as 10 handpicked parameters for any particular preset; Pro Mode allows full access to an Edit matrix of as many as 100 parameters
- Balanced analog inputs and outputs (XLR and 1/4")
- S/PDIF and AES/EBU digital inputs and outputs
- Tap Tempo for instant setting of delay and modulation times
- Full MIDI control

For over 30 years, Lexicon has been considered a pioneer in digital audio. With more experience than any other manufacturer, it's no surprise that the PCM 81 Digital Effects Processor and the PCM 91 Digital Reverberator represent the most advanced systems in their class. Lexicon's unique dual DSP platform enables the PCM 91 to offer the highest quality reverb, and allows the PCM 81 to combine reverb with powerful, flexible effects. Professional digital inputs and outputs (AES/EBU and S/PDIF) on both units, coupled with the legendary "Lexicon Sound", makes the PCM 81 and PCM 91 an essential combination.

Easy Operation

The PCM 81 and PCM 91 are as simple to operate as they are pleasurable to listen to. Just load a preset and a useful parameter will become instantly available on the Adjust knob. The next level was designed for professionals who want to further customize programs, but lack the time to wade through the myriad of available controls. In this mode, as many as 10 of the most logical parameters in a given effect are easily accessible for customization. For the sound designer, another mode allows access to the full Editing matrix available in both units, as well as a user-assignable Soft Row in which to store favorite parameters. It also provides access to the extensive modulation capabilities of the PCM 81 and the dynamic reverb aspects of the PCM 91.

Dynamic Patching

The PCM 81 and PCM 91 raise Dynamic Patching to a new level, providing unprecedented control over the effects. Dynamic Patching gives these processors a truly unique set of capabilities, from modulating sounds, to producing unusual and ethereal spaces, to altering the attack and decay characteristics of the sounds. The Dynamic Patching matrix maps data from 143 possible control sources to any effect parameter. These sources include 126 different MIDI controllers, as well as external sources such as footswitches and footpedals. Internal controllers include Tempo (both internal Tap and external MIDI clock), LFOs (Sine, Cosine, Square, Triangle, Pulse, and Sawtooth), Time Switches, Latch, AR Generator, and Left and Right Envelope Followers. Up to 10 patches can be created per effect. In the Dynamic Patching matrix, eight pivot points can be established to create complex and interesting modulation paths.

Tempo Control

The PCM 81 and PCM 91 offer Tap Tempo control of delay lines as well as several rhythmic variations on the tap. Tempo can be "dialed-in" in beats-per-minute, MIDI clock can be generated from tap, or received via MIDI from an external sequencer or drum machine. Tempo can also control LFO speeds and time switches, allowing modulations to be synchronized with music. Independent rhythmic values can be set for each parameter within the same program. The PCM 81 also offers more than 20 seconds of stereo delay.

PCM 81 Effects

The PCM 81 has everything that made the PCM 80 the top choice among studio effects processors. In addition, it offers more effects, more algorithms, and full AES/EBU input and output. Two digital signal processors; Lexicon's proprietary LexiChip for reverb, and a second DSP engine to handle other effects, create versatile effect combinations without compromising sonic clarity. The PCM 81 offers more than all other processors in its class with; 24-bit internal processing, a true stereo signal path, balanced analog inputs and outputs, AES/EBU and S/PDIF digital inputs and outputs, the power to combine analog and digital outputs, extensive modulation capabilities, and 300 presets. The PCM 81 and PCM 91 are both equipped with an industry-standard PCMCIA card slot, allowing users to store personal programs and setups on cards. For the PCM 81, adding Lexicon's Dual FX algorithm and specially designed preset cards for the PCM 80 (compatible with the PCM 81) increases its number of algorithms to more than 40 and presets to nearly 800.

PCM 81 Sounds

The PCM 81 boasts an enormous selection of sounds. Each combines uncompromised stereo reverb with several voices of additional effects. A full complement of **Pitch Shifters** provides unique special FX as well as doubling, quadruple tracking, **Chorus**, and **Pitch Correction** within a range of three octaves up or down. With 300 presets, the PCM 81 allows instant access to **Pitch, Reverb, Ambience, Modulators, up to 20-second stereo Delays,** and **Dynamic Spatialization** effects for 2-channel or surround applications.

Its presets were designed to accommodate a wide range of applications, from effects designed for musical uses and recordings to effects designed specifically for pitch correction, sound effects, and video post-production.

PCM 81 Algorithms

The PCM 81 utilizes 4-voice, 6-voice, and Pitch algorithms to create effects. The 4-voice algorithms; **Chamber, Concert Hall, Infinite, Inverse,** and **Plate**. Each combine a specific reverb type with a 4-voice stereo "effect toolbox" called the Reverb Shell, which provides post-processing for the reverb. For example, it is possible to produce a Ghost Flange by assigning a Modulated Delay to an Inverse Reverb (to Detune it). The 6-voice algorithms; **Chorus + Reverb, Glide, Hall, Multiband + Reverb, Res 1 > Plate,** and **Res 2 > Plate**, combine a specific reverb type with a specialized 6-voice stereo effect. In these algorithms, it is possible to combine the shimmer of a multi-voice chorus with a lush reverb tail (as in Wet Chorus). Seven algorithms include **Pitch Correct** for correction of monophonic sources, and **Stereo Chamber** for full stereo pitch-shifting with Chamber reverb. A powerful submixer is built into the **Dual Chamber, Dual Inverse**, and **Dual Plate** algorithms for flexible ordering and routing of two independent voices of pitch-shifting with reverb. A 4-voice **Quad > Hall** algorithm provides four independent pitch-shift voices with full stereo reverb, and a **VSO-Chamber** algorithm provides stereo time and pitch correction with Chamber reverb and variable speed pitch control (in percent). Two independent spatial processors accommodate the placement of effects virtually anywhere between or beyond the loudspeakers. Effects can also be located dynamically, creating different spaces that change with the music.

PCM 91 Presets

The PCM 91 includes 450 presets which provide sounds for real-world applications. The most useful parameters of each sound are located in a user-definable Soft Row, allowing users to make quick and simple adjustments. Navigation is further simplified with labeled banks and rows. A unique KeyWord Search function in the PCM 91 enables users to locate a group of programs designed for a given application. There are 50 keywords in total, including four user-definable groups of effects.

PCM 91 Reverb

Lexicon's research into the physics of acoustics is embodied in the **Random Hall** algorithm. Echograms of real halls have dispelled the myth of pre-delay and early reflections. In actual spaces, there is no empty interval between the arrival of direct sound and the maximum reverb density filled by early reflections. Instead, ambience builds gradually, with diffuse and complex reflections that do not color the timbre of sound like fixed-delay taps. Random Hall's unique Shape, Size, and Spread parameters control the build-up and decay of the ambient envelope. Size determines how large the space will be. Shape controls the contour of the ambient build. Spread controls the duration of Shape, setting the build-up and sustain. Precision filters provide spectral control of reverberation time, and unique Spin and Wander parameters add random movement ensuring smooth reverberant decay. In the PCM 91, Lexicon's classic **Concert Hall** algorithm has been enhanced with Spatial EQ and a Compressor to increase its versatility. The **Rich Plate** algorithm provides simulated plate reverberation, as well as new variations on this classic effect. The **Ambience** algorithm provides effects tailored specifically to the post-production environment, permitting accurate matching of previously recorded ambience. This allows new elements to blend seamlessly, and sound effects, dialog, or music to be placed realistically at different positions in the "space." Each of the PCM 91 algorithms include selected tools for ambience, post-processing, and compression/expansion, as well as modulation and patching parameters common to each. Ten Dual Reverb algorithms are built-in to the PCM 91. These algorithms contain two independent reverb blocks to create superb Dual and Cascade-configured stereo reverbs, each with all the control features of the single effects.

PCM 91 Custom Controllers

Control in the PCM 91 has been increased with the addition of four Custom Controllers placed on the Soft Row. These controllers consist of one or more parameters patched together, each with individual scaling values. Custom controllers effectively add four more Adjust knobs to each program.

PCM 81

PCM 91

Analog Audio Input: XLR and 1/4" balanced (T/R/S)
Input Level: -2dBu to +20dBu, balanced;
-22dBu to 0dBu, unbalanced
Input Impedance: 100kΩ, balanced; 50kΩ, unbalanced

Analog Audio Output: XLR and 1/4" T/R/S balanced
Output Level: +18dBm, balanced; +4dBm, unbalanced
Output Impedance: 125Ω, balanced

Digital Audio Input: XLR, AES/EBU;
Coaxial RCA, S/PDIF
Format: AES/EBU, balanced;
S/PDIF, unbalanced
Sample Rate: 44.1kHz and 48kHz

Digital Audio Output: XLR, AES/EBU;
Coaxial RCA, S/PDIF
Format: AES/EBU, balanced;
S/PDIF, unbalanced
Sample Rate: 44.1kHz and 48kHz

Conversion: 24-bit A/D; 24-bit D/A
Internal Audio DSP: 24-bit (PCM 81); 20-bit (PCM 91)

Frequency Response: 10Hz - 20kHz ±.5dB
Crosstalk: -55dB 10Hz to 20kHz
THD: <0.006%, 10Hz - 20kHz

Dynamic Range: D/A: >98dB typical, 10Hz - 20kHz
A/D: >105dB typical, 10Hz- 20kHz
A/A: >96dB typical, 10Hz - 20kHz

MIDI Interface: 5-pin DIN connectors for
MIDI IN, THRU and OUT
Footswitch: 1/4" T/R/S connector for two independent momentary footswitches (system detects normal-open, or normal-closed on power up)
Foot Controller: 1/4" T/R/S connector for foot pedal (100Ω - 10kΩ impedance)

Memory Card
Connector: PCMCIA type I cards, 68 pins
Standards: PCMCIA 2.0 and JEIDA 4.0
Card Format: Up to 1MB of SRAM
(attribute memory not required)

Power Requirements: 100 - 240 volts AC; 50 - 60Hz; 35 watts
Automatic switching (3-pin IEC connector)
Remote Power In: 2.5 mm 9 volts AC (not included)

Dimensions: 19" W x 1.75" H (1U) x 12" D
(483 x 45 x 305 mm), rack mount standard
Weight: 6.4 lbs. (2.9 kg)

Operating Temperature: 32° to 104°F (0° to 40°C)
Maximum Humidity: 95% without condensation

The PCM 81 and PCM 91 are each equipped with an industry-standard PCMCIA card slot, allowing users to store personal programs and setups on RAM cards. For the PCM 81, adding Lexicon's Dual FX algorithm and specially designed preset cards for the PCM 80 (all of which are compatible with the PCM 81) increases its number of algorithms to more than 40 and its number of presets to nearly 800.

All specifications subject to change without notice.