

One Home Theater System Sets the Pace
 With the increasing popularity of home theater systems, and the new level of quality offered by distribution media such as DVD, many new companies have appeared in the fast moving stream of digital innovation,

and many have been left behind, unable to keep up with the increasing complexity of systems, and the real-world requirements of the home theater listener.

In the midst of these exciting times, Lexicon competes in a class of its own,

leading the home theater revolution and setting the trends – creating new technology rather than simply attempting to implement it. Our unique position at the center of both the professional and home audio industries allows us to bring you products with unmatched performance and features. Our position as an industry leader for thirty years demands that we bring you products of lasting value and uncompromising quality.

In the end, words and pictures are inadequate to describe the single most compelling virtue of the MC-1 – the stunning sound quality for which we're known. To experience it for yourself, contact your home theater installer or consultant, or visit your Lexicon dealer.



Lexicon signal processing has been a standard within the professional audio production industry for over 25 years. At SSI, a major Los Angeles post-production facility, a Lexicon 700T Media System Controller is used to reference the quality of surround-sound mixes for major motion pictures.

Cover Photo: Curb Records, Nashville, TN
 Courtesy of Euphonix, Inc. Photographer: Tom Gallin
 Back Cover Inset Photo: SSI Studios, Los Angeles, CA
 Courtesy of Otari Corp., Canoga Park, CA

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MC-1 Digital Controller



The Lexicon Story

Nearly thirty years ago, Lexicon released the first commercial digital audio product. Ever since, Lexicon has been in the forefront of digital audio development. So much so that most major movies and albums made today use Lexicon digital audio processing. Thus, the owner of a Lexicon home theater system can be assured that they are listening at home via



Lexicon has won many awards – including an Emmy and an impressive six TEC Awards, the pro-audio industry's highest accolade.

the same technology used in the making of their favorite recordings. Lexicon's commitment to both the digital recording professional and to the home listener ensures an unbroken chain between the artist in the studio, concert hall or sound stage and the audience in the home audio environment – a unique link, and the closest you can get to the original master recording.

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HEARD IN ALL THE RIGHT PLACES

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The MC-1 Digital Controller

Over a decade ago, Lexicon astounded the home theater market with the release of the CP-1 Digital Processor, setting the standard for surround audio systems. Since that time, each new Lexicon processor has established a new benchmark and won acclaim for superb enhancement of the listening experience.

How do we do it? Lexicon is a different kind of home electronics company. With its roots firmly in the world of professional recording, Lexicon processors are in use throughout the world on virtually every hit album and major motion picture soundtrack. This direct involvement in audio production gives us an unparalleled advantage when it comes to home theater.

We know how a master is intended to sound, because we were there when it was made.

Now, the benefit of this experience can be yours in our most comprehensive home theater controller – the MC-1 Digital Controller. This processor incorporates not only the best of our home theater and surround technologies, it includes as standard, every conceivable feature. Complete, fully-integrated, state-of-the-art digital home theater processing – and the magic of Lexicon performance.

From Stereo to Digital Surround

The MC-1's digital signal processing capability is prodigious. Its eight-channel

architecture includes no less than five DSP engines dedicated to surround processing and the primary audio functions featured in every one of the MC-1's more than two dozen surround and ambience programs. Dolby Digital AC-3® 5.1 channel digital surround decoding and DTS® decoding are included – with completely digital implementation to the most up-to-date specifications. An auto-sensing feature automatically selects the optimum surround processing mode for the selected program material, with full capability for manual selection as well.

In addition to standard surround processing, the MC-1 includes the latest version of Lexicon's proprietary Logic 7

surround decoding scheme. This exclusive process develops a complete, enveloping 7.1-channel surround experience with discrete side and rear channels that, in many cases, surpasses the performance of conventional discrete 5.1 channel replay. Even new film formats like Dolby Digital Surround EX and DTS ES are enhanced with MC-1 decoding. While these formats add a monaural rear channel to the stereo surrounds found in 5.1 systems to create three channels of surround information, the MC-1 adds full stereo rears to give you four channels of surround. Logic 7 also provides the capability of matrixing digital 5.1 recordings for 2-channel recording media such as MiniDisc®, CD-R or video cassette, in

such a way that the entire 7.1-channel surround experience is recreated accurately and consistently upon replay. Logic 7 has won wide acclaim as the finest surround process for playback of both two-channel matrix-encoded surround recordings (like Dolby Pro-Logic®) and conventional stereo program material.

Total Performance in All Environments

The MC-1 is designed for real listening environments, giving you maximum fidelity even in sub-optimal conditions. For example, not everyone can physically accommodate the 7.1 loudspeakers for which the MC-1 is designed. In this case, the MC-1's Virtual Surround capability

can be used in a conventional 5.1 speaker array, using sophisticated HRTF (Head-Related Transfer Functions) to generate a pair of "virtual rear" speakers to complete the soundfield. In other situations, sophisticated digital signal processing allows maximum flexibility in the placement of front, center and surround speakers.

It is the responsibility of a home theater processor to ensure that all the bass present in a recording is audible, whether it is contained in the front, surround or in the Low Frequency Effects channel. The MC-1 bass management feature feeds bass to the correct speakers, whatever the combination of front, center and surround speakers, and whether or not a subwoofer is present. For example, if the





surround speakers are small satellite types, or large full-range systems, low frequencies will be handled correctly. Even when there are faults in the original recording (such as some bass signals appearing only in the LFE) the MC-1 will correctly redirect them, providing the smoothest, most enveloping bass possible.

Even the most sophisticated control system is only useful if it conforms to established standards designed to maximize continuity between theatrical movie presentations and the home theater experience. In accordance with the THX® Certification Program, the MC-1 incorporates the full range of THX 5.1 enhancements and is THX Ultra® certified. In addition to the THX-specified 80Hz crossovers, 120Hz and 40Hz double-precision crossovers are included on all eight channels to enable the

MC-1 to optimize almost any combination of loudspeaker size and type. Special implementations of the Lucasfilm® Home THX Cinema processing system deliver maximum accuracy in home film presentation: clear dialog, precise sound localization, enveloping surround-sound, smooth frequency response and wide dynamic range.

The Lexicon Music Experience

The MC-1 is designed to deliver the very best recreation of original performances, drawing on extensive research into concert-hall acoustics, psychoacoustics and ambience recreation. For recordings that capture the original acoustic space, ambience extraction can be used to recreate that space in your living room, whether the original acoustics were

recorded in a concert hall or synthesized with a Lexicon processor in a recording studio. For recordings lacking in retention of natural ambience, the MC-1's sophisticated DSP modeling can recreate an authentic acoustic environment – such as a Nightclub, Concert Hall, Church or Cathedral – and transform your listening room into a new acoustic space with recording studio-quality realism. At the other end of the processing spectrum, a direct 2-channel mode allows a direct path from input to output for the purest in stereo listening. Mono Logic and TV Matrix programs enhance mono movie soundtracks and regular TV programs.

In short, the MC-1 transparently delivers the best possible playback of any signal, from analog mono to 7.1 digital surround sound.

Digital Quality and Upgradability

The MC-1 is a sophisticated digital processor, and all its operations are carried out in the digital domain. Yet today's amplifiers and speakers are virtually all analog, and a great many legacy audio components provide only analog signals. This makes the performance of the MC-1's on-board analog-to-digital (A/D) and digital-to-analog (D/A) converters critical. Fortunately, like digital processing itself, quality digital conversion has been a part of Lexicon's vocabulary since the very beginning. It is no surprise that the MC-1's A/D and D/A converters exceed the performance of the off-the-shelf converters included in the majority of digital audio products.

For analog inputs, the MC-1 incorporates the latest technology: enhanced dual-bit delta-sigma A/D converters with 24-bit precision, capable of audio performance

well beyond that required by current standards. This technology delivers maximum dynamic range, the noise floor limited only by mechanical component considerations, while maintaining low distortion characteristics and minimizing filtering-related phase errors.

On the output side, a totally new multi-bit delta-sigma design with 24-bit, 96kHz capability is employed for all eight channels, delivering stunning audio performance at the highest level available today. Individual digitally-controlled precision attenuators, coupled with the high-performance D/A converters and their 8X/24-bit digital interpolation filters, combine with carefully selected analog components, impeccable design, and powerful jitter removal circuitry to produce a D/A section that bears favorable comparison with the most esoteric stand-alone converters.

Along with traditional analog recording outputs, the MC-1 incorporates a digital output that allows direct copying to a digital recorder such as MiniDisc, DAT or CD. A Zone 2 and two A/V Record outputs provide simultaneous multi-room, multi-zone capability and flexible media dubbing.

To protect your investment, Lexicon's digital system architecture is designed to allow upgrading of the MC-1 as new industry standards emerge. In addition to providing easy software upgrades, a 6-channel digital input array gives future replay media direct access to the MC-1's high-performance D/A converters.

Total Customization, Total Control

Sophisticated systems are only useful if they can be controlled easily. The

MC-1's operating modes and settings are extensively customizable by the owner, designer or installer for room acoustics, system configuration, and adjustments for personal preferences. Extensive memory options allow instant recall of favorite settings, which can be associated with specific input selections or listening modes, while custom labeling ensures that your selected settings are remembered.

To complete the home theater multi-media experience, the MC-1 integrates state-of-the-art video control with seamless, broadcast-quality switching for loss-free image routing. Eight video inputs are provided in composite or S-Video formats. There are also eight stereo analog audio inputs and eight digital inputs (five coax and three optical S/PDIF),



each of which can be linked to a video input for simultaneous selection.

The MC-1 features a powerful, yet simple to operate on-screen menu system and remote control, endowing the unit with unparalleled control capabilities beneath a simple and elegant exterior. The remote handset features cool blue illumination of all its controls, while a concise menu structure allows rapid access to each MC-1 function, option, parameter and feature. The front panel incorporates a clearly readable blue vacuum fluorescent display for easy viewing at any angle and under any lighting conditions. Two 12-volt trigger blocks, direct infrared data input, and dual RS-232 serial ports allow complete integration with home automation and whole-house media control systems.

MC-1 SPECIFICATIONS

Inputs

Analog Audio: 8 stereo (RCA) pairs
Digital: 8; 5 coaxial (RCA), 3 optical (TosLink™), conforms to S/PDIF standard
Video: 8 composite (RCA), 8 S-video, NTSC M, PAL standards (SECAM compatible)
Infrared: 1 mini-phone type direct in parallel with front panel receiver
RS-232: D-9 type connectors (2)

Outputs

Analog Audio: 8 outputs: Left, Center, Right, L&R Sides, L&R Rears, Subwoofer (RCA)
Digital: 1 coaxial conforms to S/PDIF standard (direct out for digital inputs)
Video: 3 composite (RCA): 1 Monitor, 2 Record
 3 S-video: 1 Monitor, 2 Record

General Audio Specifications

A/D Conversion: Enhanced Dual-Bit Delta-Sigma 24-Bit

D/A Conversion: Multi-Bit Delta-Sigma 24-Bit
Frequency Response: 10Hz to 20kHz, ±0.3dB, Ref. 1kHz
THD+Noise: Less than 0.005%
Dynamic Range: 105dB minimum, 110dB typical with digital source, Ref. 1kHz @ -60dB below maximum output level
Signal-to-Noise Ratio: 105dB minimum, 110dB typical with digital source, 22kHz bandwidth, Ref. 1kHz @ max. output level
Max. Output Level: 6 Vrms
Input Level (w/ Input Gain =0dB): 2 Vrms for maximum output; 200 mVrms for Dolby level
Input Impedance: 100kΩ, in parallel with 150pF
Output Impedance: 100Ω, in parallel with 150pF

Video
 NTSC M, PAL and SECAM compatible
Differential Gain: < 0.5%
Differential Phase: < 0.5°
Frequency Response: ±0.1dB 10Hz to 10MHz
K Factor: < 0.3%

Specifications subject to change without notice.

Gain: ±0.15dB
Signal-to-Noise Ratio: > 70dB; 10Hz to 10MHz
Input Impedance: 75 Ω, ±0.1%
Output Impedance: 75 Ω, ±0.1%
Input Return Loss: 40dB
Bandwidth: > 25MHz

Physical Specifications

Power Requirements: 90-250 VAC, 50-60Hz, 35 Watts (universal input); IEC detachable power cord
Dimensions: 17.3" W x 11.5" D x 3.6" H (440 x 292 x 92mm); with rack mounting brackets (2U): 19.0" W x 11.5" D x 3.5" H (483 x 292 x 89mm) approx. 10.8 lbs. (4.9kg)
Weight:

Environment

Operating Temp.: 32° to 95°F (0° to 35°C)
Storage Temp.: -22° to 167°F (-30° to 75°C)
Relative Humidity: 95% max without condensation
Remote Control: Hand-held infrared remote control unit requires (2) AA batteries

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