



# lexicon MC-12 HD Digital Controller



Harman International

"Dolby", "Pro Logic IIx", "Surround EX", "Digital EX", and the double-D symbol are trademarks of Dolby Laboratories. "Surround EX", "Ultra2" and "THX" are trademarks or registered trademarks of THX Ltd. "DTS", "DTS-ES", "Neo:6", and "DTS 96/24" are trademarks of Digital Theater Systems, Inc. "HDMI" is a registered trademark of HDMI Licensing L.L.C.

©2006 Harman International Industries, Incorporated. "Lexicon", "LOGIC 7", and the L7 logo are registered trademarks of Harman International Industries, Incorporated. All rights reserved. U.S. Patent Nos. D454,553; D454,860; 5,796,844; 5,870,480 and other worldwide patents issued and pending.

Other company and product names may be trademarks of the respective companies with which they are associated. Front Cover Photo: Home Theater by Genesis Audio & Video, Irvine Ca. [www.genesis-audio.com](http://www.genesis-audio.com)

Printed in U.S.A.  
Part # 072-17298  
Not responsible for any typographical errors

harman specialty group

3 Oak Park, Bedford, MA 01730-1413 USA | Tel: 781-280-0300 | Fax: 781-280-0490 | [www.lexicon.com](http://www.lexicon.com).

# MC-12 HD Specifications

## HDMI Input & Output Connectors

HDMI Inputs	6 HDMI Type A (19-pin) connectors
HDMI Output	1 HDMI Type A (19-pin) connector

## HDMI Performance

Video Resolutions	480i, 480p, 576i, 576p, 720p, 1080i (resolutions dependent on the capability of the HDMI display connected to the MC12HD HDMI output connector)
Audio Sample Rates	44.1kHz, 48kHz, 88.2kHz, 96kHz

## Audio Inputs and Outputs

Analog Audio Inputs	Eight stereo pairs (RCA) or five stereo pairs and one 5.1-channel analog input
Digital Audio Inputs	Six S/PDIF coaxial (RCA), six S/PDIF optical (including one optical mini jack), one AES/EBU (XLR); coaxial and optical inputs conform to IEC-958, S/PDIF standards
Sample Rates:	44.1, 48, 88.2, 96kHz
Accepts:	16-24 bits PCM audio, Dolby Digital, Dolby Digital EX, DTS & DTS-ES discrete data formats
Main Audio Outputs	Twelve unbalanced (RCA) and twelve balanced (XLR, MC-12HD Balanced only) connectors for Front L/R, Center, LFE, Subwoofer L/R, Side L/R, Rear L/R, Auxiliary L/R
Zone 2 Audio Outputs	2 unbalanced (RCA, 1 fixed and 1 variable output level) stereo connectors and 1 balanced stereo connector (XLR, variable output level, MC-12HD Balanced only)
Record Audio Outputs	2 unbalanced (RCA, 1 fixed and 1 variable output level) stereo connectors • 1 S/PDIF coaxial (RCA) and 1 S/PDIF optical connector (in parallel)

## Performance (Main Zone)

Analog-to-Digital Conversion	24-bit, 96kHz, dual-bit $\Delta\Sigma$ architecture
Digital-to-Analog Conversion	24-bit, 44.1 to 192kHz, multi-bit $\Delta\Sigma$ architecture, operating in dual-mono mode
Frequency Response	10Hz to 20kHz, +0.1dB/-0.25dB, -0.75dB at 40kHz, reference 1kHz
THD + Noise	Below 0.003% at 1kHz, maximum output level
Dynamic Range	108dB minimum, 111dB typical, 22kHz bandwidth

Signal-to-Noise Ratio	108dB minimum, 111dB typical, 22kHz bandwidth
Input Sensitivity	200mVrms (2Vrms for maximum output level) at 0dB input gain
Input Impedance	100k $\Omega$ in parallel with 150pF
Output Level	150mVrms typical, 6Vrms maximum (RCA connectors) 300mVrms typical, 12Vrms maximum (XLR connectors, MC-12HD Balanced only) Maximum value with full-scale input signal and volume at +12dB
Output Impedance	100 $\Omega$ in parallel with 150pF (RCA outputs); 50 $\Omega$ in parallel with 150pF (XLR outputs, MC-12 Balanced only)

## Performance (Zone 2 and Record Zone)

Analog-to-Digital Conversion	24-bit, 44.1 to 96kHz, dual-bit $\Delta\Sigma$ architecture (Record Zone only)
Digital-to-Analog Conversion	24-bit, 44.1 to 192kHz, multi-bit $\Delta\Sigma$ architecture
Frequency Response	10Hz to 20kHz, +0.1dB/-0.25dB, -0.75dB at 40kHz, reference 1kHz
THD + Noise	Below 0.005% at 1kHz, maximum output level
Dynamic Range	105dB minimum, 108dB typical, 22kHz bandwidth
Signal-to-Noise Ratio	105dB minimum, 108dB typical, 22kHz bandwidth
Input Sensitivity	200mVrms (4Vrms for maximum output level)
Input Impedance	100k $\Omega$ in parallel with 150pF
Output Level	200mVrms typical, 4Vrms maximum (RCA connectors) 400mVrms typical, 8Vrms maximum (XLR connectors, Zone 2 only, MC-12HD Balanced only) Maximum value with full-scale input signal and volume at 0dB
Output Impedance	100 $\Omega$ in parallel with 150pF (RCA outputs); 50 $\Omega$ in parallel with 150pF (XLR outputs, Zone 2 only, MC-12 HD Balanced only)

## Video Inputs and Outputs

Video Inputs	Two composite (RCA), three S-video, and four component video (three RCA, one BNC)
Video Outputs	Four composite (RCA, two monitor and two record), four S-video (two monitor and two record), and one component (BNC)



Logic 7 technology is a proprietary suite of surround algorithms developed by Lexicon. Unlike other surround decoders, Logic 7 is compatible with all input sources and requires no special encoding for playback. Applied to music recordings, it increases the sense of spaciousness in the listening area without altering the front soundstage, resulting in a more realistic recreation of the original recording. Applied to film soundtracks, it expands stereo sources to 7.1 channels for performance that rivals that of discrete multi-channel sources. Playback of discrete multi-channel recordings also benefits from Logic 7 as it derives two additional channels from 5.1-channel sources to create more envelopment at the listening position. Logic 7 employs proprietary techniques to provide a superior sense of spaciousness without sacrificing detail. Music or film, stereo or discrete multi-channel – Logic 7 delivers an unrivaled listening experience.



# MC-12 HD Digital Controller

**NEW**

- ▶ Six HDMI inputs and one HDMI output with on-screen display
- ▶ Up-conversion of composite and S-video inputs to component video output

- ▶ Twelve channels, twelve configurable inputs, and three zones
- ▶ Automatic speaker distance and output level calibration
- ▶ Lexicon Digital EQ – standard with EQ model and available via upgrade
- ▶ 5.1-channel analog audio input
- ▶ Analog bypass for stereo and 5.1-channel analog audio inputs
- ▶ Two 24-bit/192kHz digital-to-analog converters for each main audio output channel
- ▶ Balanced main and second zone audio outputs (balanced version only)
- ▶ Thirteen digital audio inputs
- ▶ Two digital audio outputs
- ▶ Automatic switching between analog and digital audio inputs
- ▶ Broadcast-quality analog video switchers with up-conversion to component video
- ▶ Four component video inputs with full HDTV compatibility
- ▶ RCA and professional-grade BNC component video inputs/outputs
- ▶ Three S-video and two composite video inputs
- ▶ Logic 7 technology
- ▶ Lexicon LIVE technology
- ▶ Dolby Digital Surround EX and Dolby Pro Logic IIx decoding
- ▶ DTS 96/24, DTS Neo:6, and DTS-ES (matrix and discrete) decoding
- ▶ THX Ultra2 and THX Surround EX decoding
- ▶ Three trigger outputs, one rear panel IR input, and RS-232 control
- ▶ Four microphone inputs
- ▶ Rack-mount option

Most impressive about the MC-12 HD is its extensive custom processing capabilities. Four 32-bit floating-point DSP engines provide vast resources for such proprietary features as Logic 7, Auto Azimuth correction, five-speaker enhancement, bass enhancement, and dialog enhancement. Lexicon's bass management system, digital crossovers and tone controls are also powered by these DSP engines. This processing is performed at sample rates up to 96kHz with 24-bit resolution to retain top performance from all input sources. A fifth DSP engine is dedicated to decoding Dolby Digital and DTS sources. Inside and out, the MC-12 HD is designed to accommodate potential hardware and software advancements with internal expansion, a removable rear panel access plate, and two RS-232 connectors.



## MC-12 HD Digital Controller

is a paragon of home theater processing. Immense power, leading-edge technological sophistication, and proprietary advancements make it the obvious choice for the world's best home theaters.

# MC-12 HD Digital Controller

The MC-12 HD is the industry standard for multi-channel processors for film and music reproduction. The culmination of years of research and design, it combines the best elements of performance, flexibility, and elegance. Sophisticated and powerful, it is exceptionally well equipped to control the most elaborate home theaters. Three zones, twelve configurable inputs, HDMI switching, and automatic room calibration enable the MC-12 HD to easily meet the demands of discerning audio and video enthusiasts.

With the myriad features available in the MC-12 HD, the intuitive user interface provides complete adjustability without being confusing. Access to the listening modes, input & output settings, and speaker adjustments is only a few button pushes away.

The MC-12 HD provides seamless control of multi-room systems via its three completely separate zones. Because each zone is independent, it is possible to watch a DVD in the home theater while listening to a CD in the kitchen and recording a program from a satellite receiver to a digital video recorder.

A glance at the MC-12 HD rear panel reveals an impressive array of inputs and outputs. There are multiple analog inputs, including a 5.1-channel connector for DVD-A or SACD sources such as the RT-20 Disc Player. High resolution 24-bit/96kHz analog-to-digital converters can be used to bring these signals into the digital domain for processing or, for audio purists, a true analog bypass can be engaged which keeps the signals in the analog domain from input to output.

Digital audio input is available on one AES/EBU, six S/PDIF coaxial, and six S/PDIF optical connectors. In addition, there are six HDMI input connectors, which are also capable of accepting 5.1-channel, 24-bit/96kHz signals on a single connection. These signals are processed at their native sampling rates through a two-stage phase lock loop, achieving remarkably low intrinsic jitter and high jitter rejection. Lexicon's proprietary Auto Azimuth processing corrects timing and level imbalances in stereo signals, resulting in exceptional channel separation in matrix-encoded sources.

The MC-12 HD has an extensive array of audio outputs, including 7 main channels, stereo subwoofers, and a dedicated LFE channel. The MC-12 HD Balanced adds XLR connectors for the Main and Zone 2 audio outputs – useful for installations where long cable runs are required or where there is a high risk of interference.

Each output uses two 24-bit/192kHz digital-to-analog converters operating in dual-mono mode. This design provides an improved signal-to-noise ratio and extended dynamic range, resulting in superior sound quality. High precision digital crossovers and tone controls avoid the signal distortion their analog counterparts often introduce.

For maximum flexibility, each of the main audio outputs has independent crossover, speaker distance, and output level controls. The crossovers can be adjusted in 10Hz increments from 30 to 120Hz. The MC-12 HD is also THX Ultra2-certified and integrates the processing and enhancements of the THX Ultra2 standard.

Automatic calibration of speaker distances and output levels is available using the rear panel microphone inputs and the optional Lexicon microphone kit. The accurate adjustment of these settings ensures that signal arrival times and levels are optimal at the listening position.

An optional automatic digital room EQ system provides the ability to smooth low-frequency response and remove acoustic resonances that interfere with not only bass information, but affect frequency response across the entire audible spectrum.

To handle the increasing number of video sources that output high-definition video using HDMI connectors, the MC-12 HD features six HDMI inputs and one output. Complementing its HDMI switcher, the MC-12 HD includes a broadcast-quality analog video switcher with up-conversion to component video. The ultra-wide bandwidth component video switcher accepts analog component video signals, including all HDTV signals, while a composite and S-video switcher accepts high-quality NTSC, PAL, and SECAM video signals. The MC-12 HD has two composite video inputs, three S-video inputs, and four component video inputs.

Enhanced versions of Lexicon's popular Nightclub, Concert Hall, Church, Cathedral, and Panorama listening modes are available, along with an impressive collection of advanced decoders, including Dolby Digital EX, Dolby Pro Logic IIx, DTS 96/24, DTS Neo:6, DTS-ES (discrete and matrix), THX Ultra2, THX Surround EX, and the latest version of Lexicon's own critically acclaimed Logic 7.

## Performance (Composite & S-video)

Compatibility	NTSC, PAL, and SECAM
Switching	Active
Output Level	1.0V peak-to-peak
Impedance	75Ω
Input Return Loss	>40dB
Differential Gain	<0.3%
Differential Phase	<0.3°
Bandwidth	>25MHz
K Factor	<0.3%
Gain	±0.15dB
Signal/Noise Ratio	>70dB
Frequency Response	10Hz to 10MHz + 0.1/-0.3dB

## Performance (Component Video)

Compatibility	3-channel (Y, Pr, Pb), format-independent
Switching	Passive
Impedance	75Ω
Bandwidth	>300MHz
Insertion Loss	<3dB

## Other

Microphone Inputs	Four 3.5mm miniature phone jacks
Input sensitivity:	10mVrms (400mV maximum input level)
Input Impedance:	20kΩ (accepts balanced or unbalanced input signals)

Trigger Outputs	One power on/off trigger, two programmable triggers; +12 VDC, 0.5 amps each
RS-232 Serial Input/Output	Two 9-pin D-sub connectors
Power Requirements	90-250 VAC, 50-60Hz, 90W (universal line input), detachable power cord

## Dimensions

MC-12:	
Height (with feet)	5.65" (144mm) (three rack units without feet)
Width	17.3" (440mm)
Depth	14.85" (377mm)

MC-12 Balanced:	
Height (with feet)	6.73" (171mm) (~four rack units without feet)
Width	17.3" (440mm)
Depth	14.85" (377mm)

## Weight

MC-12:	36lbs (16.4kg)
MC-12 Balanced:	45lbs (20.5kg)

Rack Mounting	Optional brackets are available for installation in a standard 19" equipment rack (2 rack units required for MC12HD; 3 rack units required for MC-12HD Balanced.)
---------------	---

## Environment

Operating Temp:	0° to 35°C (32° to 95°F)
Storage Temp:	-30° to 75°C (-22° to 167°F)
Relative Humidity:	95% maximum without condensation

Remote Control	Hand-held, backlit infrared remote control unit
Batteries:	Requires 2 AA batteries (Alkaline batteries recommended)

Specifications subject to change without notice.

