

Logic 7® Explained.

A new era in surround sound decoding has arrived, and Harman Kardon has once again led the way. Every new Harman Kardon audio/video receiver includes Logic 7® processing, which makes your television programs, videotapes and older two-channel music recordings sound like you've never heard them before.

What is Logic 7?

Logic 7 decoding is a sophisticated surround sound process that creates a 7.1- or 5.1-channel sound field from two-channel recordings, making movies, music and TV programs sound more realistic.

Historically, TV sound was played through small speakers built into the set. Sound quality suffered, and was only two-dimensional. Stereo videocassettes and TV broadcasts offered improved realism, but fell short of delivering a multichannel experience.

Dolby® Pro Logic® processing brought surround sound to the movies and home theater so that dialogue was locked in the center of the screen, and effects such as flyovers were more realistic.

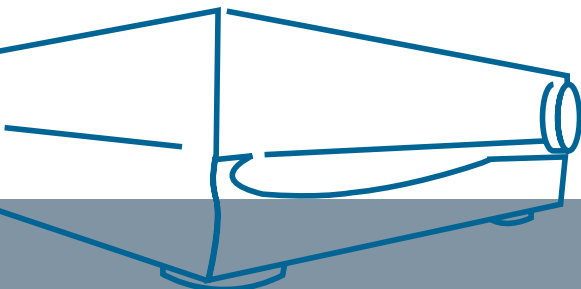
Today's digital surround sound formats deliver up to eight speaker positions, enabling both precise localization of "point source" effects and enveloping sound for musical programs. The center channel does most of the work, reproducing dialogue, while front left and right speakers position off-screen action and provide the main source of music. Separate surround left, surround right and rear surround speakers provide the anchor points for effects. Completing the picture, the subwoofer is the ".1" channel you hear about when digital surround formats are described. It reproduces low-frequency, or bass, information.

As good as the digital formats are, tens of thousands of older movies and TV shows still require processing to deliver surround sound. But the older decoders cannot deliver five or seven discrete channels or the smooth pans and precise localization possible with digital formats.

Logic 7 processing changes all of that. Originally developed for high-end processors and available exclusively in A/V receivers from Harman Kardon, the Logic 7 modes use proprietary processing techniques to create discrete 5.1 or 7.1 sound fields from stereo and surround-encoded programs. With Logic 7 decoding, high-speed car chases, and airplanes flying overhead sound more accurate than ever before. Even if you don't have a 7.1-channel system, Logic 7 processing will make these effects sound better on your 5.1-channel system.

The Logic 7 Cinema mode is designed to optimize stereo or surround-encoded television programs, making them sound more true to life.

Logic 7 processing isn't just for movies. The Music mode brings new clarity and fullness to most two-channel music recordings. Vocals can be heard clearly, and aren't lost behind the instruments. Recordings with wide soundstages benefit even more from playback using the Logic 7 Music mode. Your favorite selections will sound better than ever.



How does Logic 7 work?

Logic 7 processes analog or digital sources in the digital domain, producing a multichannel mix. First developed in an era when even the most advanced digital surround processors recognized only 5.1 output channels, and conventional analog decoders had only four outputs (front left, front right, center and a mono signal sent to rear left and right), Logic 7 conceptualized discrete rear channels, and two additional side channels between the front and rear. The additional outputs in the processing algorithm enable Logic 7 to more precisely steer sounds to the rear channels. The benefits are clear:

- Logic 7 is able to re-create the “.1” low-frequency effects channel.
- With its separately programmed Music mode, older two-channel recordings can be played with an improved wider soundstage, more closely preserving the benefits of two-channel playback, while reproducing the ambience and envelopment inherent in the two-channel recording, which creates the realistic effect of being present at a live performance.
- In Cinema mode, Logic 7 enhances the intelligibility of center channel dialogue.
- Even when only 5.1 channels are in use, the conceptual presence of the additional side channels improves pans and flyovers.
- Since the five channels outputted by Logic 7 are discrete, Logic 7 can re-create pans not only from front to rear and side to side, but diagonally.

How can consumers benefit from Logic 7, a technology that was developed for use by the professional recording industry?

Logic 7 was originally developed and introduced by Lexicon, Harman Kardon's sister company. Logic 7 is a proprietary technology; therefore, it can be found only in Harman International products.

Harman Kardon incorporates Logic 7 decoding in all of its audio/video receivers, including models AVR 125, AVR 225, AVR 325, AVR 525, AVR 7200, DPR 1001 and DPR 2001.

Models with 7.1 channels (AVR 325, AVR 525, AVR 7200, DPR 1001 and DPR 2001) offer a choice of the 5.1 or 7.1 versions of Logic 7, depending on the number of speakers the user has actually connected to his or her system. An even more exciting development is the adaptation of Logic 7 for 96kHz processing, preserving the high resolution and astonishing sound quality of the latest audiophile recordings.

Logic 7 Cinema mode is designed for use with matrix-encoded (e.g., Dolby Surround) sources, including video cassettes, television broadcasts, cable and satellite programs, and many DVDs. Compared to other matrix decoders, Logic 7 provides improved center channel intelligibility, a wider soundstage, improved steering and pans, and dynamic low-frequency effects.

Logic 7 Music mode is designed especially for use with two-channel audio sources, and is optimized for accurate reproduction of lead and background vocals and instrumentals. These sources include most CDs, concerts, FM radio broadcasts and older two-channel sources. Logic 7 produces a wider soundstage and improved rear ambience, as well as a low-frequency effects channel, re-creating the best of the original two-channel recording while adding new realism.

Whether you're enjoying music or movies, your favorite TV show, a CD or a video, Harman Kardon and Logic 7 processing will deliver superior surround sound from any source.

For an interactive demonstration of Logic 7, and to learn more about Harman Kardon's advanced home theater products, visit www.harmankardon.com.