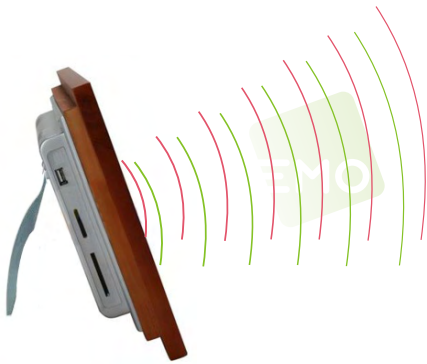




## Photo Frame Audio Solutions

An EMO™ speaker system can convert a streamlined digital photo frame or desktop media center into a true multimedia powerhouse. *Edge Motion™* audio technology invisibly adds full-range stereo that is unified with the display and delivers the sound quality consumers demand for a true multimedia presentation.



### Overview

An invisible EMO™ brand Audio Solution can attract new customers and add significant incremental value to digital photo frames and other multimedia desktop display products. Consumer demand has increased dramatically for products that provide a convenient way to display photos and to playback stored and online media. At the same time, consumers have demonstrated their preference for multi-function products that offer many or all of these capabilities in a single, streamlined device.

Due to a highly constrained form factor, the speakers found in digital photo frames typically provide extremely poor quality acoustic output. And, for most purchasers of these products, it would be unacceptable to use external speakers or headphones to improve the sound. However, the demand for good quality, built-in stereo speaker systems has increased as the functionality of many digital photo display products has expanded to include audio accompaniment to photo slide shows, playback of stored audio and video files, wireless PC connectivity, and full internet browser functionality.

### Audio with a Clear Difference

Emo Labs invisible, "zero footprint" EMO™ speaker systems provide an ideal solution to this challenge. Patented *Edge Motion™* speaker solutions disappear into the photo frame enclosure and generate full-range stereo sound from the front surface of the display. This unified playback of audio and video content provides a more realistic and enjoyable multimedia experience and turns any product into a high quality stereo speaker system.

### Features

*Edge Motion™* audio solutions create value by delivering excellent audio performance in an attractive form factor that provides tremendous design freedom:

- ◆ The invisible speaker system wraps tightly around the display panel, taking up minimal space while preserving a clean, streamlined look
- ◆ A single, optically transparent membrane is two separate speakers (left and right), and provides full-range, natural sounding stereo reproduction
- ◆ Audio is directed at the listener from the front of the display, unifying the sources of audio and video content for a more pleasing and realistic multimedia experience



*An EMO™ speaker system provides separate left and right stereo speakers that blend in seamlessly with the display. By directing full-range stereo sound at the user from the front of the display, the sources of audio and video content are "unified".*

### Consumer Benefits

- ✓ Realistic stereo sound quality
- ✓ Naturally unified audio and video
- ✓ Enhanced multimedia playback
- ✓ Can be used as extension speakers



*With a built-in EMO™ speaker system, digital photo frames and desktop display products are perfect for multimedia playback and can be used as PC speakers or extensions for an audio system.*

### OEM Benefits

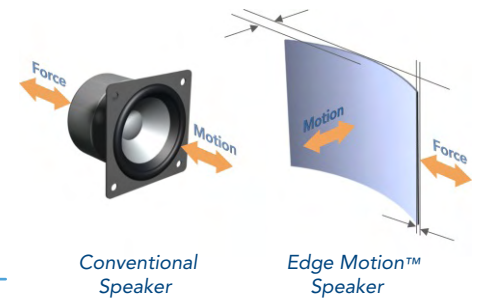
- ✓ Addresses critical market need
- ✓ Distinctive competitive advantage
- ✓ Improved audio performance
- ✓ Smaller, more streamlined products
- ✓ Better overall value

### Applications

- ✓ Multimedia picture frames
- ✓ Internet-connected photo frames
- ✓ Photo Frames with HD TV input
- ✓ Wireless photo frame speakers

## Edge Motion™ Audio Technology

Edge Motion™ technology fundamentally changes the way that sound is generated. The resulting speaker systems are capable of amazing audio quality and make it possible to design a better class of multimedia CE products.



### A Breakthrough in Speaker Technology

The speaker systems developed by Emo Labs use a revolutionary new technology that fundamentally changes how loudspeakers work. Our patented Edge Motion™ speaker systems generate sound based on a unique mechanical principle. Instead of a motor that pushes from behind, like a traditional cone speaker, Edge Motion™ speakers actuate a thin membrane along the side in a manner that creates an efficient, piston-like motion in front. The resultant speaker system is thin and lightweight, yet it produces full, natural sound across the audio range.

### Ideal for Integration with Displays

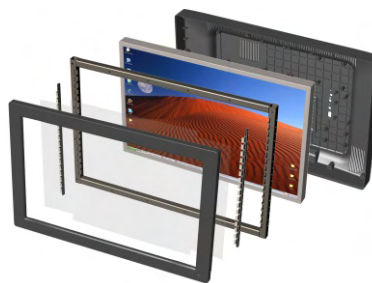
Edge Motion™ audio systems do more than simply produce exceptional sound in a completely new way. They also enable manufacturers to transform the screen of a flat panel display product into a fully-integrated, high-fidelity stereo loudspeaker. Using optically transparent materials for the membrane (the radiating part of the speaker), the entire speaker system can be made invisible by building it around a display panel.



With Edge Motion™ technology, highly controlled pressure is applied along the side of a transparent membrane. This force generates sound waves that radiate perpendicular to the plane of that surface.

### Small Footprint, Big Sound

Although these thin and lightweight EMO™ loudspeaker systems produce rich, full-range audio, the sound-producing motion of the "micro-flexing" membrane is not visible. This unique ability to effectively integrate a zero-footprint, high-quality audio solution with flat panel displays also unifies the source of both the video content and the stereo audio content. This "unification" of sound and image dramatically enhances the multimedia user experience; this is a significant benefit since consumers of all ages have access to more high-quality audio and video content than ever before.



Each EMO™ stereo speaker assembly consists of a membrane, a frame and arrays of miniature motors. As a single unit, this assembly is designed to fit tightly around the display panel, enabling it to virtually disappear into the enclosure.

### Advantages

The unique benefits of Edge Motion™ audio technology include:

- ☑ True "zero footprint" form factor means smaller, more streamlined products
- ☑ Speakers oriented towards the listener produce a more natural, full-range, high-fidelity sound and stereo imaging
- ☑ "Unifying" the sound and images provides the optimal integration of audio and video for multimedia
- ☑ Products are simpler and easier to use, with no set-up required and no additional boxes or wires

Emo Labs is a leader in the development of innovative audio technologies designed to change the way people look at speakers.

For more information on Emo Labs embedded audio solutions for display-based products, please visit our website:

[www.emolabs.com](http://www.emolabs.com)

Product inquiries may be directed to:

[BusinessDevelopment@emolabs.com](mailto:BusinessDevelopment@emolabs.com)