

HOME TECHNOLOGY EMAGAZINE ARTICLE

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Interview - Jon Herron, Wisdom Audio - Sage Series Speakers

As Vice President - Sales for Wisdom Audio, Jon Herron is responsible for managing the company's domestic sales efforts. Jon's past experience in firms large and small, in retail and in manufacturing, gives him a unique ability to help Wisdom Audio's business partners succeed around the world.

As a national training director at Tweeter Home Entertainment Group, Jon Herron led enterprise-level training and technology initiatives directed at both salespeople and installers. At Madrigal Audio Laboratories, Jon was the product development manager for Mark Levinson, Proceed, and other brands. As the director of sales and marketing of Snell Acoustics, Jon directed the company's efforts into the home theater business in the early 1990s. Jon, who has an economics degree from Dartmouth College, has also authored a book that is used as the core product training program for two industry trade groups in the United States, and is the most comprehensive textbook of its kind.

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So how does this thing work? I've never seen anything like it.

We have a detailed discussion of planar magnetic technology available on our web site if you want more information, but here is an abbreviated version:

Our planar magnetic drivers use an advanced thin film membrane to move the air. This film is actually lighter than the air that it is responsible for moving, so it can respond instantly to the smallest detail in the signal. It has vastly less inertia than traditional "cone & dome" drivers, so the signal is never blurred or inhibited in any way.

The motive force is provided by a "voice coil" that is printed on the film (in a manner similar to how circuit boards are manufactured), which is suspended in a strong magnetic field provided by "rare earth" neodymium magnets behind and in front of the film. The ratio of available force to the moving mass is huge, which means that the diaphragm does exactly what it is told; nothing more, nothing less. The dynamics and detail are remarkable.

Because the conductor is essentially a long, thin wire, it presents a purely resistive load to the amplifier. This is comparable to the simple test loads that amplifier companies use when measuring their amplifiers to show how terrific they are. As such, you can be assured that your amplifiers will sound and work their best.

Lastly, the "voice coil" is spread out over a large, flat area that is exposed to the open air. As such, when a huge transient comes along, any heat that is generated is immediately dissipated, avoiding thermal compression. This compares quite favorably to other designs in which the voice coil is buried inside a massive chunk of metal, where the heat has effectively no place to go. The freedom from compression seen in planar magnetic drivers makes everything seem more vividly alive.

What kind of amplifier do I need to drive the planar magnetic parts of your speakers?

Actually, the planar sections are almost purely resistive 4Ω loads, so any amplifier will work and sound its best. However, these planar magnetic drivers are extremely detailed and revealing, so it is well worth mating them to a great-sounding amplifier.

Is planar magnetic technology new?

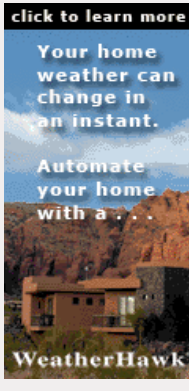
Not really — planar magnetic speakers have been available for decades. But recent advances in materials technology, adhesives, manufacturing processes, and the like have given planar magnetic devices huge advantages over other technologies.

If you're a speaker company, why all the electronics?

Since the founding of Wisdom Audio in 1996, virtually all of our speaker systems have incorporated electronic (rather than passive) crossovers and have included room correction capabilities. Both of these tasks are accomplished in our Sage system controller, the SC-1. In addition, like almost every subwoofer available today, we are putting big woofers in tiny boxes. We achieve deep bass despite this big woofer/little box situation by using equalization and a lot of extra power. Our SC-1 takes care of this



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ing room correction by using equalization and a lot of other things. Our system-specific EQ, and our amplifiers were designed to provide the muscle needed for our woofers to produce deep bass out of their small enclosures.

Every Sage system comes with room correction?

Yes. More specifically, we have chosen Audyssey MultEQ® XT Pro. Audyssey is the brainchild of Tomlinson Holman, whose credits include being the Technical Director of Skywalker Ranch (George Lucas' movie production facility) and the creator of THX. We have implemented the most sophisticated form of the Audyssey room correction system on all 17 output channels of our SC-1.

Even if you had an absolutely perfect loudspeaker, the room in which you place it would alter its response dramatically — often by 20 dB or more. Room correction seeks to minimize the adverse effects of the room on the performance of the speaker. (For more detailed information, see our Room Optimization white paper.)

While room correction cannot improve upon many of the basic characteristics of the speaker (dynamic range, low distortion, ability to resolve fine details, etc.), it *can* minimize the damage to the tonal balance and imaging that rooms cause. For this reason, virtually every Wisdom Audio speaker system ever sold has included some form of room correction as part of its design. We want to ensure that the room in which they are placed does not compromise the extraordinary performance of our speakers. Without excellent room correction, you are not receiving the full value of your speaker investment — no matter which speaker you select.

Is there really no difference between in-wall, on-wall and freestanding versions of your speakers?



For any given model, the driver complement and target response curve in the room is identical. So, yes, the speakers can easily be mixed and matched as needed to meet the needs of the installation.

In addition, the target response curve in the room for various models is essentially identical as well, once you take into account the perceptual differences in radiation patterns between point sources and line sources (which, of course, we have). So you can use large speakers in the front of the room and smaller speakers in the rear (where space constraints are often more restrictive) and retain a perfectly seamless front-to-back soundfield.

There is one small difference between the freestanding and the on-wall or in-wall products. As with any speaker, moving it out into the room yields both advantages and disadvantages. The advantages include the ability to easily fine-tune its placement within the room to achieve optimal imaging and soundstaging depth, as well as the best possible bass performance prior to room correction. The disadvantage is that by moving the speaker away from the wall, you also lose some boundary reinforcement at low

frequencies, forcing the woofers to work harder in order to achieve the same audible result. (This is not a problem unique to Wisdom Audio; it's just in the nature of acoustics.)

There are some genuine advantages to in-wall and on-wall loudspeakers, particularly when they exist as no-compromise, high performance solutions that include room correction.

What do you get as you move up from smaller Sage speakers to larger ones?

There is a great similarity in overall performance between all the Wisdom Audio Sage series speakers, particularly in terms of dynamics, detail and timbre (tonal balance). However, there are three specific benefits from selecting larger Sage series loudspeakers.

Dynamic range. It should not come as a surprise that the larger loudspeakers can play more loudly, and are better choices in larger rooms. Planar magnetic speakers sound more “alive” at low volumes than other designs in part due to their intrinsic low distortion, lack of compression and extraordinary detail. They are also remarkably rugged, and can be pushed hard. Nonetheless, there is something to be said for having more square inches of radiating area with which to work, especially in larger rooms.

More Sound From the Planar Device. The larger planar devices can comfortably play to lower frequencies than the smaller ones. As a result, more of what you hear comes from the planar magnetic drivers in the larger speakers. The P20 planar magnetic driver covers from about 600 Hz to beyond 50 kHz; by comparison, the planar magnetic drivers in the L75 and L95 extend down to about 200 Hz. In either case, most of what you hear is from the planar magnetic driver; but you get even more of the planars' benefits in the larger speakers.

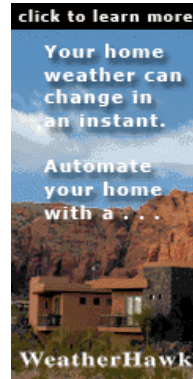
Line Source Radiation. The Sage models with the “L” prefix exhibit “line source” behavior through most of the audible range. In short, this means that most of what you hear radiates outward from the speaker as an expanding cylinder (*as though from a vertical line in space*), rather than as an expanding sphere (*as though from a single point in space*). A line source radiation pattern minimizes reflections from the floor and the ceiling, enhancing clarity and adding to a sense of realism that results from the lack of vertical reflections in the listening space. It keeps the sound where your ears are likely to be, allowing you to hear more of the speaker and less of your room. It is particularly helpful in rooms with unusual architecture (e.g., cathedral ceilings, coffered ceilings).

There is one other benefit to line source behavior: the sound level (volume) appears to be almost constant throughout even a large room. This means that people sitting near the speakers are not “blasted” with too much sound, while folks at the rear of the room can still hear things as well as those in the “sweet spot.” (One must hear this effect to fully appreciate it... but it is a wonderful luxury.)

What does the SC-1 do for my system?

The SC-1 System Controller performs three important functions.

1. **It is a 7.3 channel in/14.3 channel out electronic (active) crossover, using balanced XLR connections on all channels. (In other words, it supports anything from a 2.0 to a 7.3 channel system.)**



2. It provides system-specific equalization to address things like the big-woofer-in-a-small-box issue.
3. It provides Audyssey MultEQ® XT room correction, set up using the MultEQ Pro software on a laptop by your trained Wisdom Audio installer.

Every Wisdom Audio Sage system must include an SC-1, since it is an essential part of the system's overall design.

Why do you need system-specific EQ for the speakers?

A little-known fact: all loudspeakers invariably include some equalization. No matter how good the transducers are, they can always be improved with judicious use of some EQ.

In most speakers, the EQ options are quite limited, since it must be incorporated into the crossover network using only passive parts (resistors, capacitors, and inductors). In Wisdom Audio speakers, our use of active crossovers gives us vastly improved options and precision since we have the full range of active circuitry from which to choose.

But the single biggest reason for our use of system-specific EQ is simple: we are putting the equivalent of large woofer in a small box. As with almost every subwoofer on the market, this approach requires making up for the small enclosure with EQ and more power. The SC-1 provides the appropriate EQ, and our SA-series amplifiers provide the necessary power (500 or 1000 watts per channel, depending on the application.)

Why do I need "room correction"?

Everyone does.

If you were to take a "perfect" loudspeaker and put it in a room, it would immediately cease being perfect. Rooms — even good ones — commonly introduce huge variations in the sound due to various reflections, standing waves, and other problems.

Room correction does not completely eliminate these problems, but it can *significantly* reduce them. Ideally, one would do what can be done to make the room as neutral as possible, and then address the remaining problems with sophisticated room correction. Your dealer/installer can give you valuable advice on this subject. We also have a short Room Optimization white paper to help you get started. We have selected the Audyssey room correction system because it is the most advanced and sophisticated room correction solution available on the market today. It includes the ability to take up to 32 separate measurements in the room, and then analyzes all the response curves for patterns and similarities. Logically enough, the problems that are most characteristic of the room receive priority treatment, while problems that might exist at only a single location in the room receive less attention. In this way, the sound is improved everywhere in the room — something simpler systems usually fail to do.

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