



Owner's Manual

Sage Cinema Series Line 2
Bi-amplified
Coaxial Planar Magnetic Loudspeaker

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DOCUMENT CONVENTIONS

This document contains general safety, installation and operation instructions for the Wisdom Audio Sage Cinema Series Line 2 loudspeakers. It is important to read this document before attempting to use this product. Pay particular attention to:

WARNING: Calls attention to a procedure, practice, condition or the like that, if not correctly performed or adhered to, could result in injury or death.

CAUTION: Calls attention to a procedure, practice, condition or the like that, if not correctly performed or adhered to, could result in damage to or destruction of part of or the entire product.

Note: Calls attention to information that aids in the installation or operation of the product.

Introduction

Congratulations on purchasing your Wisdom Audio system. It incorporates many design features designed to give you decades of pleasure and performance. Many of these design choices are uncommon among loudspeaker manufacturers, and bear some explanation. See the following section entitled “Overview” for more information.

Our unique driver designs and our emphasis on achieving real-world performance account for the “system” approach taken. These are not speakers that are simply connected to speaker wires and promptly forgotten. We recognize that setting up a Wisdom Audio system is a bit more involved than connecting a common set of loudspeakers, which is why we insist that our dealers perform the installation and calibration of the systems. We know that the extra effort (particularly as regards setting up the SC-2 and SC-3 System Controller) yields vastly improved results.

This manual focuses on the loudspeakers themselves. In order to fully understand the system, we recommend you also review the manual for the SC-2/SC-3 System Controller, without which these speakers will not perform correctly.

While we expect your local Wisdom Audio dealer to take care of the setup and calibration of the system, we still recommend that you at least briefly review this and the other manuals (SC-2/SC-3, RTL subwoofers) to understand the system’s full capabilities.

Your Sage Cinema Series Line 2 loudspeakers are specifically designed to avoid the compromises inherent in conventional speaker designs. The active crossover and room correction circuitry in the SC-2 & SC-3 is essential to the speakers’ proper operation. It is truly a “system” design, and not merely a collection of loudspeaker drivers in a box.

Overview

Your Sage Cinema Series Line 2 loudspeakers take advantage of several critical technologies to deliver a level of performance that has never been available in a loudspeaker that intruded so modestly on your living space. In fact, this level of performance has rarely been attained, regardless of the space and budget at one's disposal.

Since several of these technologies cannot readily be found elsewhere, we will take the time to describe them in more detail than would be necessary for more conventional designs.

Our planar magnetic drivers use an advanced, thin film membrane to move the air. This film 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 in any way.

One of the most remarkable things about the sound of well-designed planar magnetic speakers is their lack of thermal or dynamic compression. There are several reasons for this:

- The lightweight diaphragm responds quickly to even the smallest signals, yet is robust enough to handle a great deal of power.
- The voice coil is laid out flat and is exposed to the air on both sides; the large resulting surface area dissipates heat extremely quickly and efficiently.
- Since heat does not build up in the voice coil (as it does in conventional dynamic drivers), the load seen by the amplifier does not change at high power levels.

When you become accustomed to the sound of your new Sage Cinema Series Line 2 speakers, conventional speakers sound a bit bland and lifeless. You may also discover yourself hearing details at even modest levels on the Line 2 that were previously inaudible even at loud volumes on more conventional speakers.

The "voice coil" in the planar magnetic driver 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. This compares quite favorably to other designs in which the voice coil is buried inside a massive piece of metal, where the heat has effectively no place to go.

The excellent heat dissipation of these drivers makes them remarkably reliable. Planar magnetic speakers can handle a great deal of power without undue stress or audible strain. In fact, for a given size, they can handle *many times* the power of a traditional dynamic driver.

Overview *(continued)*

Because the conductor of a planar magnetic driver 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.

Authoritative, deep bass requires that you move a lot of air. We have chosen to use dynamic woofers for the bass because they can provide excellent performance at lower frequencies.

In order to get comparable bass performance from a planar magnetic design, you would need to have a huge speaker that would be impractical in most domestic living spaces. It simply makes more sense to use the best transducer technology in each area of the reproduced spectrum. One of Wisdom Audio's strengths is in seamlessly blending these technologies — particularly important given the high standards set by our planar magnetic drivers.

Of course, the dynamic woofers themselves must be rather extraordinary in order to “keep up” with the planar magnetic drivers right up to the crossover frequency.

Our woofers are different because they must be in order to do their job. Specifically, we need highly dynamic, uncompressed bass (to keep up with the planar magnetic drivers) that does not depend on a critical amount of enclosure volume (since these speakers are mounted in your wall, and use the space inside the wall as their “enclosure”). These two design goals require rather extraordinary attention to myriad details.

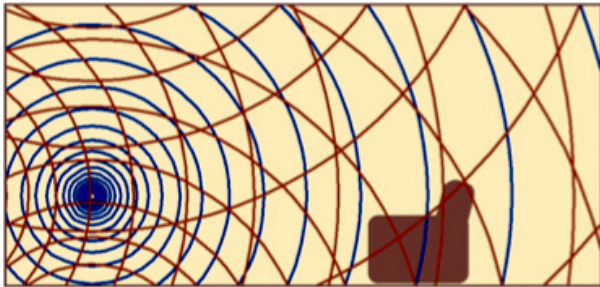
The motor and suspension system of these woofers therefore includes all the critical damping required for optimal operation. (In most speakers, the woofers depend on the air trapped inside their enclosures as an additional “spring” to help them behave properly.) Technically, this approach is known as an “infinite baffle” design. In practice, the volume of air behind the speaker does not have to be infinite, of course. It just needs to be large enough to not act like an acoustic “spring”. Recommended and minimum enclosure volumes for the speaker are listed in the Specifications section, and repeated on the Dimensions page.

Many speakers include a mid-bass “bump” in their response to give the illusion of going deeper in the bass than they actually do. Unfortunately, this “bump” makes blending them seamlessly with a high quality subwoofer almost impossible.

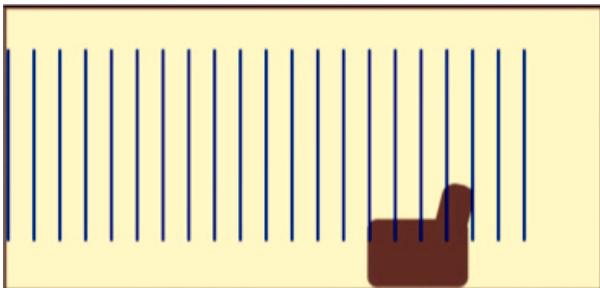
All Sage Cinema Series speakers have been designed for optimally at response to 80 Hz, which is the most-common crossover frequency used with subwoofers.

Line Source Speakers

Almost all loudspeakers radiate sound into the room as imperfect “point sources”. This means that most of the energy they put into the room expands as an ever-enlarging sphere, as though emerging from a single point in space. This results in a multitude of reflections from the ceiling and floor that can degrade sound quality.



By contrast, the Sage Cinema Series Line 2 speakers radiate sound as a “line source”. The sound moves into the room as an expanding cylinder, rather than as an expanding sphere — as though from a vertical line suspended in space.



Line source speakers provide two significant advantages:

- Ceiling and floor reflections are minimized, resulting in greatly reduced interference, letting you hear more of the speaker and less of the room;
- The sound pressure level (SPL) throughout the room is much more evenly distributed, making it much easier to set the “right” volume, no matter where the audience is seated.

To achieve this highly desirable line source behavior, it is essential to have a tall and slim driver. (Simply stacking multiple “cone & dome” high frequency drivers does not create a proper line source. Instead, it creates a *series* of point sources, which end up interfering with each other). With Wisdom Audio’s planar magnetic technology, it becomes possible to have drivers that are *extremely* tall and slim.

Because of this shape, the sound (even at high frequencies) is distributed uniformly across the width of the room from a driver that “looks” only less than an inch wide

acoustically. However, the sound is launched in a much more directional way vertically. By minimizing early reflections from the ceiling and the floor, the clarity of the system is greatly enhanced. This is heard in both tremendous musical detail and in much-improved dialog intelligibility.

For more detailed information on planar magnetic drivers and the difference between point source and line source speakers please visit www.wisdomaudio.com.

Unpacking & Installing the Line 2

Each module of the Wisdom Audio Sage Cinema Line 2 speaker is a substantial piece of equipment. Please exercise caution when unpacking your Sage Cinema speakers to ensure that you do not strain yourself from its (perhaps un-expected) weight.

CAUTION: Do not attempt to lift your Line 2 modules while bending or twisting from the waist. Use your legs for lifting, not your back. Always stand as straight as possible and keep the Line 2 close to your body to reduce strain on your back.

After unpacking your Line 2 modules, keep all packing materials for future transport. In the event that you need to ship your speaker, only the original, purpose-designed shipping carton is acceptable. Any other method of shipping this product runs a significant risk of damage to the speaker —damage that would not be covered by the warranty. (If you lose your packaging and need to ship your speakers, replacement packaging can be purchased from Wisdom Audio.)

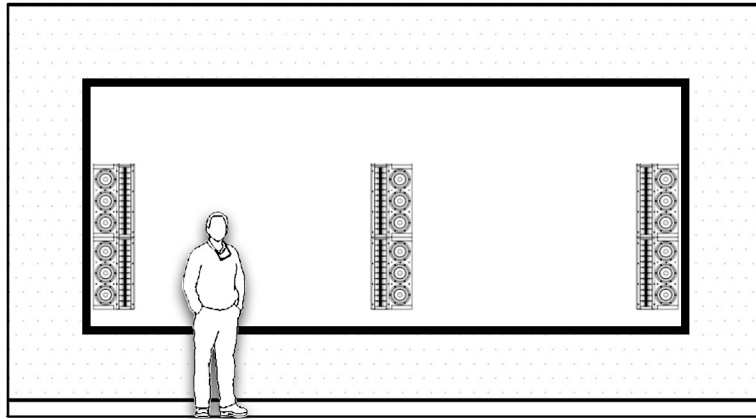
Mounting the Line 2

The Sage Cinema Line 2 is designed to take advantage of hidden installations in which it will be located either behind an acoustically transparent screen or behind stretched fabric. It may be mounted either as an in-wall or as an on-wall speaker, or in/on the ceiling.

The flexible mounting brackets provided with the Line 2 allow many possible mounting options, depending on what you choose to use as your reference surface. The beveled back edges of the speakers also may be used as a wire chase in situations where space is tight.

Proper Planar Placement for front L&R and Rear Surrounds

When using the Line 2 for front L&R and or Rear Surrounds the planar drivers should always be placed on the inside as shown below in a front screen wall LCR example.



The Importance of a Baffle Wall

Whether used as an in-wall or as an on-wall speaker, the Line 2 is optimized for use on a solidly constructed surface. It should not be mounted in open framing, as this results in improper low frequency loading and many early reflection and diffraction effects that adversely affect performance.

When used in an in-wall configuration, the framing must be 2"x 6" or deeper, as the Line 2 is designed to take full advantage of the 5.5" depth found in such framing. Ideally, each loudspeaker is "framed in" much as a window would be framed in. This approach provides the most solid support of the loudspeaker, and surrounding the face of the speaker with either the drywall or plywood wall surface provides both bass reinforcement and the fewest reflection and diffraction problems.

Wall Construction Suggestions

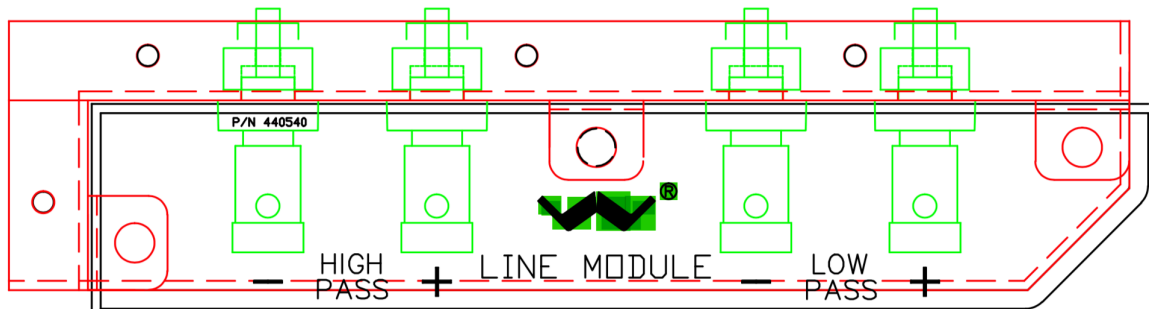
Having a solidly-built wall is essential for getting the best performance out of any wall-mounted speaker. After all, the wall may not move as much as the speaker diaphragms, but it has *vastly* more surface area. If it resonates even a bit, it can and will color the sound greatly.

Hence, some suggestions:

- 1. Using the supplied “ears”, screw the speakers to the surrounding framing rather than to the wall surface (sheet rock, plywood, whatever).** The simplest way to do this is to frame in around the speaker locations so there is only an inch or two of space between the speakers and the surrounding studs. If you are building the walls anyway, the incremental cost of a few extra studs is small. But it will pay off in quieter walls.
- 2. Use specially designed drywall, such as Quiet Rock.** Quiet Rock is a specialized form of sheet rock which has some constrained-layer damping built into each sheet. More information at <http://www.quietrock.com>
- 3. Consider using double-wall construction with a flexible adhesive layer.** The best-known of these products is Green Glue; more information is at <http://www.greengluecompany.com>. Plan on using it between the two layers of a double-layered wall.
- 4. Always create a smooth Baffle Wall from which the sound of the speaker can emanate with as little interference as possible.** You can and probably *should* plan on applying acoustic treatments to some of the room surfaces. But make sure that the area around each of the speakers is absorptive rather than diffusive or reflective. And do not simply leave the studs bare and wide open, figuring that the stretched fabric will make it all better. Cut a hole in the wall’s surface just large enough for the face of the speaker itself, and adjust the mounting brackets so that the face of the speaker is flush with the face of the wall.
- 5. If you are doing a front projection system, choose an acoustically transparent screen material, and cover everything except the speakers themselves with absorption on that front wall.** Other parts of the room’s décor may or may not lend themselves to being covered with fabric. But the front wall will be largely covered, so take advantage of the ease with which you can reduce early reflections from the front wall, and back-and-forth slap echoes along the length of the room.

Making the Line 2 Connections

As with any system, you should make changes to the connections only when the power is turned off to avoid any chance of inadvertently causing a problem (such as a short-circuit).



Active (Bi-Amped) Design

The Sage Cinema Line 2 is designed to be bi-amplified. There are no passive crossover components inside the speaker; instead, there are direct connections from the amplifiers to their respective drivers.

When using an external active crossover like the Wisdom Audio SC-2/3, two sets of speaker wires are required for each Sage Cinema Line 2 loudspeaker: one pair for the woofer (low pass) section, and a separate pair for the planar magnetic (high pass) section that handles the midrange and treble.

We recommend using heavy-gauge speaker wire, particularly when the installation forces you to use longer wires than you might otherwise. A good rule of thumb is to keep the “loop resistance” below 0.07 ohms.

There are many online wire gauge calculators and tables, such as http://www.powerstream.com/Wire_Size.htm

For example, using this table you can estimate that 50 feet of AWG 8 speaker wire (and thus 100 feet of “loop” would have a loop resistance of about 0.063Ω, which would be ne.

Alternatively, the loop resistance can be easily measured with an inexpensive volt-ohm meter. Simply twist the two conductors at one end of the cable together, and then measure the DC resistance across the two conductors at the other end of the speaker wire. Doing this measures the total resistance going down one side and back the other, hence the term “loop resistance.” If this figure is at or below 0.07 ohms, you are in good shape. When in doubt, more copper never hurts.

For the purposes of this manual, we will assume that you have already connected the SC-2/3 System Controller as per the instructions found in its manual. As such, you should have signal coming from your source component(s) to a preamp/processor, and then on to the SC-2/3; following the SC-2/3, the signal is split into low and high sections, with the low section going to one or more Wisdom Audio SA Series amplifiers, and the high section going to additional SA Series amplifiers, which will drive the planar magnetic panels.

Connect the outputs of your Wisdom Audio SA Series amplifier to the first woofer section (either top or bottom), taking care to get both the channel assignments and the polarity correct. Connect the positive (+) terminal on the woofer amplifier to the positive (+) terminal for the Low Pass on the loudspeaker; likewise, connect the negative (-) terminal on the woofer amplifier to the Low Pass terminal on the loudspeaker, respectively.

Repeat this process for the High Pass section of the first Line module.

The subsequent, multiple Line modules are wired in parallel, using the supplied jumpers to connect the top set of connections of one module to the bottom set of connections on the next.

Your Line 2 and Subwoofers

All Sage Cinema Series loudspeakers are optimized for use with subwoofers, with a crossover of 80 Hz. (This is the most common frequency below which subwoofers are used.)

When properly installed in the wall, your Line 2 has inherently a response to 80 Hz, without the common “bass bump” that characterizes most in-wall speakers and is placed there to yield the impression of “more bass” than there really is. This makes it easy to blend seamlessly with a high quality subwoofer such as one of Wisdom Audio’s Regenerative Transmission Line™ (RTL™) subwoofers.

You should set up your surround processor for a crossover of 80 Hz and set the Line 2 speakers as “Small” in the speaker setup portion of your processor’s setup menu. Doing so ensures that all content below 80 Hz is directed to the subwoofer(s) for reproduction.

Care & Maintenance

To remove dust from the front of your Line 2, use a feather duster or a lint-free soft cloth.

To remove stubborn dirt and fingerprints from the grille, we recommend isopropyl alcohol and a soft cloth. Lightly dampen the cloth with alcohol first and then clean the grille of the Line 2 with the cloth. Do not use excessive amounts of alcohol—there is no need for the cloth to be wet; merely damp is better.

Never attempt to clean the drivers themselves.

Caution!

Do not touch the surface of the planar magnetic drivers, under any circumstances. The thin film has been carefully pre-tensioned at the factory; any subsequent contact can only damage it.

North American Warranty

Standard Warranty

When purchased from and installed by an authorized Wisdom Audio dealer, Wisdom Audio loudspeakers are warranted to be free from defects in material and workmanship under normal use for a period of ten years from the original date of purchase.

Furthermore, the transducers (“drivers”) in your Wisdom Audio speakers are warranted to be free from defects in material and workmanship under normal use for a period of ten years from the original date of purchase.

Harsh Conditions Use

Wisdom Audio loudspeakers are designed for installation and operation in environmentally controlled conditions, such as are found in normal residential environments. When used in harsh conditions such as outdoors or in marine applications, the warranty is three years from the original date of purchase.

During the warranty period, any Wisdom Audio products exhibiting defects in materials and/or workmanship will be repaired or replaced, at our option, without charge for either parts or labor, at our factory. The warranty will not apply to any Wisdom Audio products that has been misused, abused, altered, or installed and calibrated by anyone other than an authorized Wisdom Audio dealer.

Any Wisdom Audio product not performing satisfactorily may be returned to the factory for evaluation. Return authorization must first be obtained by either calling or writing the factory prior to shipping the component. The factory will pay for return shipping charges only in the event that the component is found to be defective as mentioned above. There are other stipulations that may apply to shipping charges.

There is no other express warranty on Wisdom Audio products. Neither this warranty nor any other warranty, express or implied, including any implied warranties of merchantability or fitness, shall extend beyond the warranty period. No responsibility is assumed for any incidental or consequential damages. Some states do not allow limitations on how long an implied warranty lasts and other states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. This warranty is applicable in the United States and Canada only. Outside of the U.S. and Canada, please contact your local, authorized Wisdom Audio distributor for warranty and service information.

Obtaining Service

We take great pride in our dealers. Experience, dedication, and integrity make these professionals ideally suited to assist with our customers' service needs.

If your Wisdom Audio loudspeaker must be serviced, please contact your dealer. Your dealer will then decide whether the problem can be remedied locally, or whether to contact Wisdom Audio for further service information or parts, or to obtain a Return Authorization. The Wisdom Audio Service Department works closely with your dealer to solve your service needs expediently.

IMPORTANT: Return authorization must be obtained from Wisdom Audio's Service Department BEFORE a unit is shipped for service.

It is extremely important that information about a problem be explicit and complete. A specific, comprehensive description of the problem helps your dealer and the Wisdom Audio Service Department locate and repair the difficulty as quickly as possible.

A copy of the original bill of sale will serve to verify warranty status. Please include it with the unit when it is brought in for warranty service.

WARNING: All returned units must be packaged in their original packaging, and the proper return authorization numbers must be marked on the outer carton for identification. Shipping the unit in improper packaging may void the warranty, as Wisdom Audio cannot be responsible for the resulting shipping damage.

Your dealer can order a new set of shipping materials for you if you need to ship your loudspeaker and no longer have the original materials. There will be a charge for this service. We strongly recommend saving all packing materials in case you need to ship your unit some day.

If the packaging to protect the unit is, in our opinion or that of our dealer, inadequate to protect the unit, we reserve the right to repackage it for return shipment at the owner's expense. Neither Wisdom Audio nor your dealer can be responsible for shipping damage due to improper (that is, non-original) packaging.

Specifications

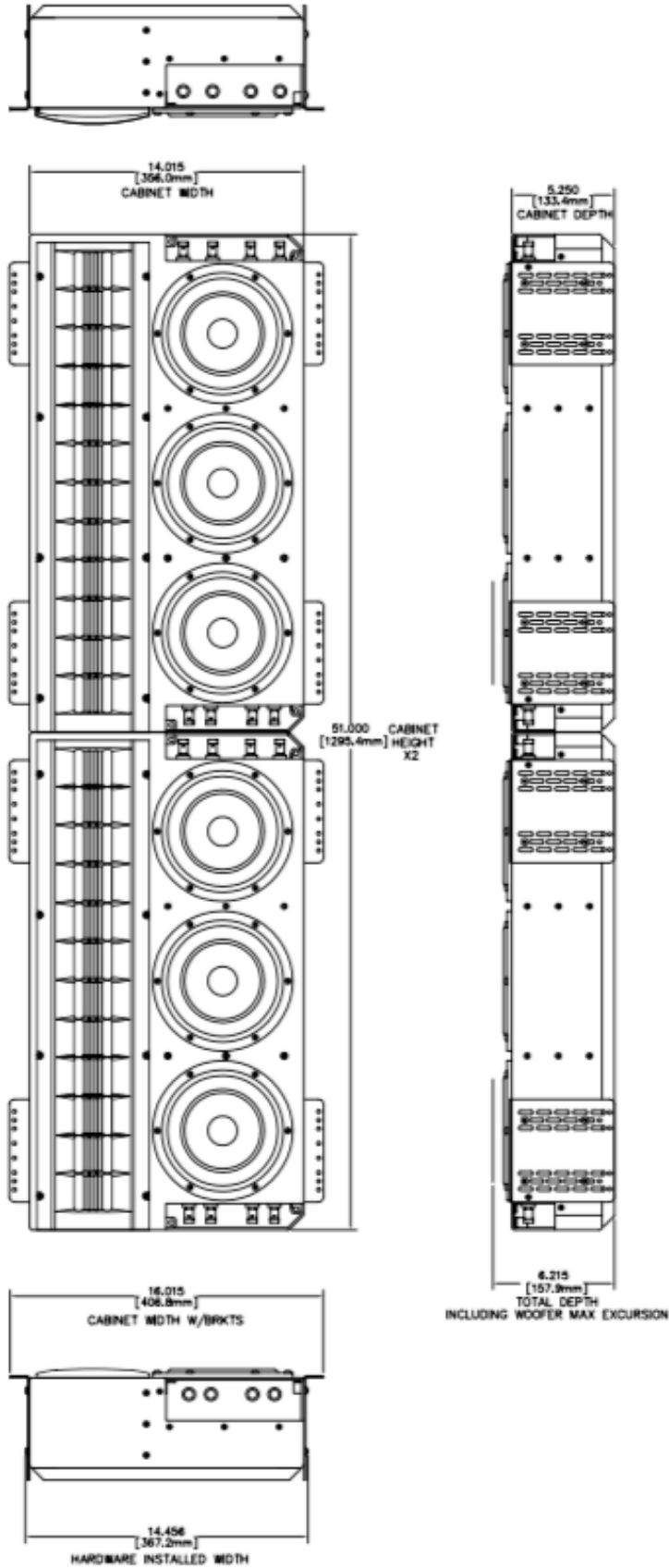
All specifications are subject to change at any time, in order to improve the product.

- **Number of required amplifier channels:** 2
- **Frequency response:** 60Hz – 20 kHz \pm 2dB relative to the target curve
- **Impedance, planar section:** 5 Ω
- **Impedance, woofer section:** 8 Ω
- **Sensitivity:** 92 dB/2.83V/1m
- **Power handling, peak:** >1000w
- **Dimensions:** see appropriate dimensions drawings on next page
- **Shipping weight, each:** 84 lbs. (38 kg)
- **Net weight, each:** 74 lbs. (34 kg)

For more information, see your Wisdom Audio dealer, or contact:

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Line 2 Dimensions





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