



# **Owner's Manual**

Sage L100m

Tri-amplified On-Wall

Coaxial Planar Magnetic Loudspeaker

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## DOCUMENT CONVENTIONS

This document contains general safety, installation, and operation instructions for the Wisdom Audio Sage L100m Loudspeaker. 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 engineered 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 can be a bit more involved than connecting a common set of loudspeakers, which is why we recommend that our systems be engineered and calibrated by Factory Personnel

Your **Sage L100m series** loudspeaker is specifically designed to avoid the compromises inherent in conventional speaker designs. There are no passive crossover components inside the speaker. Instead, there are direct connections from the amplifiers to their respective High-Pass and Low-Pass drivers and an external active crossover is used, such as the ones inside of our Wisdom SA-DSP (Digital Signal Processing) Amplifiers. It is truly a “system” design, and not merely a collection of loudspeaker drivers in a box. Please contact us to learn which products/amplifiers/ surround processors outside of our DSP Amplifiers will work with our speakers and subwoofers. [Info@wisdomaudio.com](mailto:Info@wisdomaudio.com)

## Overview

Your **Sage L100m** 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 L100m** speakers, conventional speakers sound a bit bland and lifeless. You may also discover yourself hearing details at even modest levels on the **Sage L100m** 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.

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.

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 to “keep up” with the planar magnetic drivers right up to the crossover frequency.

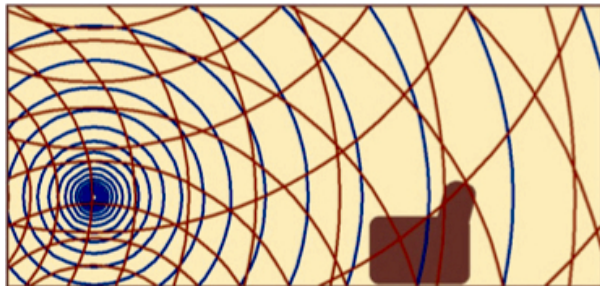
Our woofers are different because they must be to do their job. Specifically, we need highly dynamic, uncompressed bass (to keep up with the planar magnetic drivers) that does not depend on a critical amount of enclosure volume (since these speakers are mounted in your wall and use the space inside the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

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.

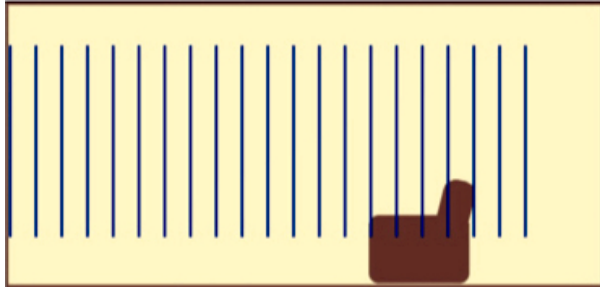
All **Sage Series** speakers have been designed to optimally crossover at 80 Hz, which is the most-common crossover frequency used with subwoofers.

### **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 **Wisdom Sage Series L100m** 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 [wisdomaudio.com](http://wisdomaudio.com).

## Unpacking and Installing the L100m

The **Wisdom Audio Sage L100m** on-wall speaker is a substantial piece of equipment. Please exercise caution when unpacking your L100m to ensure that you do not strain yourself from its (perhaps unexpected) weight.

**CAUTION:** Do not attempt to lift your L100m while bending or twisting from the waist. Use your legs for lifting, not your back. Always stand as straight as possible and keep the L100m close to your body to reduce strain on your back.

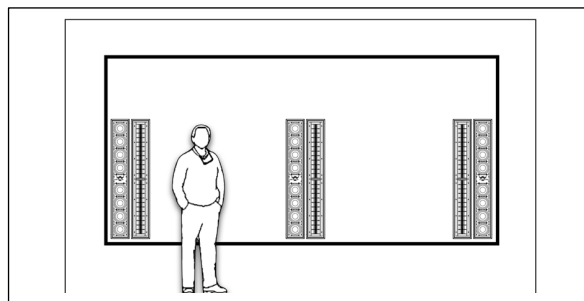
The speaker is shipped in a “telescoping” box (two five-sided boxes, one of which fits snugly inside the other). Gently roll the box over so that its bottom is facing up. Then carefully cut the tape along the bottom of the box on all four sides. Roll the box over again so the bottom is on the floor and lift off the top. With one person at each end, carefully lift the speaker out of the box and lay it on a soft surface (carpet or similar).

We do not recommend removing the grille on your new loudspeakers. The grille is an integral part of the design; moreover, the planar magnetic film should never be touched, as it is tensioned precisely at the factory. The grille plays an important protective role as well as an aesthetic one.

**After unpacking your L100m, keep all packing materials for future transport.** If 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.)

## Proper Planar Placement

When using the L100m 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 middle between the two columns is the acoustical center

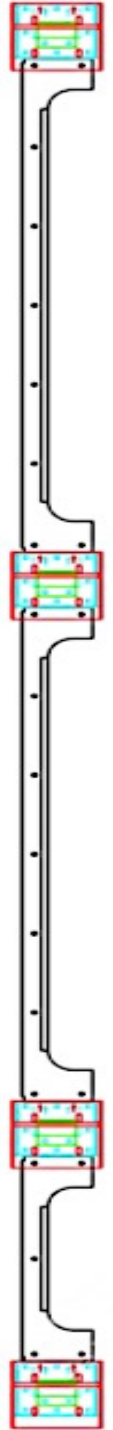


## Mounting the L100m on the Wall

The mounting bracket that mounts to the wall is shipped attached to the back of the loudspeaker. It is removed by pulling “down” on it relative to the end of the speaker that will be “up” when installed on the wall. (Note that for horizontal center channel speakers, this means the bracket is pulled *across* the narrow dimension of the speaker.) *It is recommended to place a screw into every open mounting hole so to avoid the bracket possibility resonating once the speaker is mounted to the wall.*

Please note that this guide assumes the wall surface is flat. If not, shims must be applied to the rear of the mounting bracket so that the mounting bracket is uniformly secured to the wall and flat (not distorted). The mounting steps are as follows:

1. Locate the area with the two sets of high- and low-pass speaker cables coming out of the wall.
2. The inside face of the bracket assembly has arrows stamped into it indicating which direction must be “up” when it is mounted on the wall. Align the center screw hole in the mounting bracket next to the speaker cables and attach somewhat loosely using a dry-wall screw (or similar), so you can adjust the bracket for plumb.
3. Using a bubble level to ensure that the mounting bracket is plumb, mark screw holes for EZ-Toggle screws in end clips, using the bracket itself as your template. You can use any opposing (diagonal) set of holes for mounting of the two EZ-Toggle screws in each end clip.
4. Rotate the bracket out of the way and install two of the supplied EZ-Toggle screws in each mounting bracket end clip as follows:
  - a. Using a #2 Phillips bit in your cordless drill, spin the E-Z Toggle Anchor into the drywall until the head of the anchor is seated flush and the arrows on the head of the anchor point up and down. Repeat this process for each anchor location.
  - b. To “set” the clamp behind the drywall, place the mounting screw into the anchor and push or tap firmly until approximately 1" (2.5 cm) of screw is protruding (do not rotate). Then remove the screw. Repeat for each anchor location.
  - c. Rotate the mounting bracket back over the E-Z Toggles, insert the screw and continue to turn until fastened tightly. The screw stops when the





toggle bar secures itself against the opposite side of the drywall (*inside* the wall). Repeat for each anchor location.

5. Install screws suitable for the specific wall material (e.g., sheetrock, brick, concrete, etc.) in all the remaining holes in the mounting bracket to ensure secure attachment to wall and avoid any resonance from mounting bracket. Snug down the center screw as well.
6. Using assistance, while holding the speaker away from the wall, connect both high- and low-pass speaker cables to the rear mounted connectors. Pay close attention to connect the correct wires (high- and low-pass) to their respective speaker connectors while attending to proper polarity.
7. Fix the speaker into the mounting bracket end clips and press down until you hear the speaker lock into the mounting bracket clips. When properly in place, it will snap into position and remain held quite firmly.
8. Install the security set screw in the end cap, snugging down to the mounting clip with the supplied Allen driver. This setscrew prevents the speaker from coming loose by eliminating the vertical movement required to free the speaker from the bracket.

If you need to remove the speaker from the bracket for any reason, first remove the security screw using the supplied Allen wrench. A sharp upward rap with the base of one hand or even a non-marring, dead blow hammer will help jar it loose. (Make sure the speaker itself is being supported by an assistant so it does not come free from the wall unexpectedly.)

**Important!** Do not use the L100m as a shelf! While its mounting system is quite rugged, it is designed to securely support the weight of the speaker itself. Do not place additional objects on it, and do not climb on it.

## Making the L100m 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).

**Note:** The Wisdom Audio L100m is a tri-amplified speaker that requires *three* sets of speaker wire to each location rather than the usual two. One pair of connections is for the planar magnetic module, whereas the woofer module uses two sets of connections, one each for six of the 12 woofers.

We recommend using heavy-gauge speaker wire, the gauge will vary dependent on your speaker run length. Please consult an authorized dealer to determine what gauge would be best for your application.

Connect the outputs of your Wisdom Audio SA-series amplifier to the appropriate woofer sections, taking care to get both the channel assignments and the polarity correct. Connect the positive (+) terminals on the SA Series amplifier to the positive (+) terminals for the woofer on the loudspeaker; likewise, connect the negative (-) terminals on the amplifier and the speaker, respectively.

Next, connect the outputs of your chosen amplifier for the midrange/treble to the Sage L100m planar sections in a similar fashion, taking care with all three channel assignments and polarity.

## Care & Maintenance

To remove dust from the front of your L100m, use a feather duster or a lint-free soft cloth.

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 10 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 10 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 if 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 someday.

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 to improve the product.

- **Number of required amplifier channels:** 3
- **Frequency response:** 40Hz – 20 kHz  $\pm$  2dB relative to the target curve
- **Impedance, planar section:** 4.5 $\Omega$
- **Impedance, woofer section:** 4 $\Omega$
- **Sensitivity, planar section:** 95 dB/2.83V/1m
- **System impedance:** 4.2 $\Omega$
- **System sensitivity:** 95 dB
- **Power handling, peak:** >1000w
- **Dimensions:** See appropriate dimensions drawings on next page
- **Shipping weight, each HF Planar:** 32 lbs. (14.5 kg)
- **Shipping weight, each LF Woofer:** 62 lbs. (28 kg)

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

### **Wisdom Audio**

1572 College Parkway, Suite 164

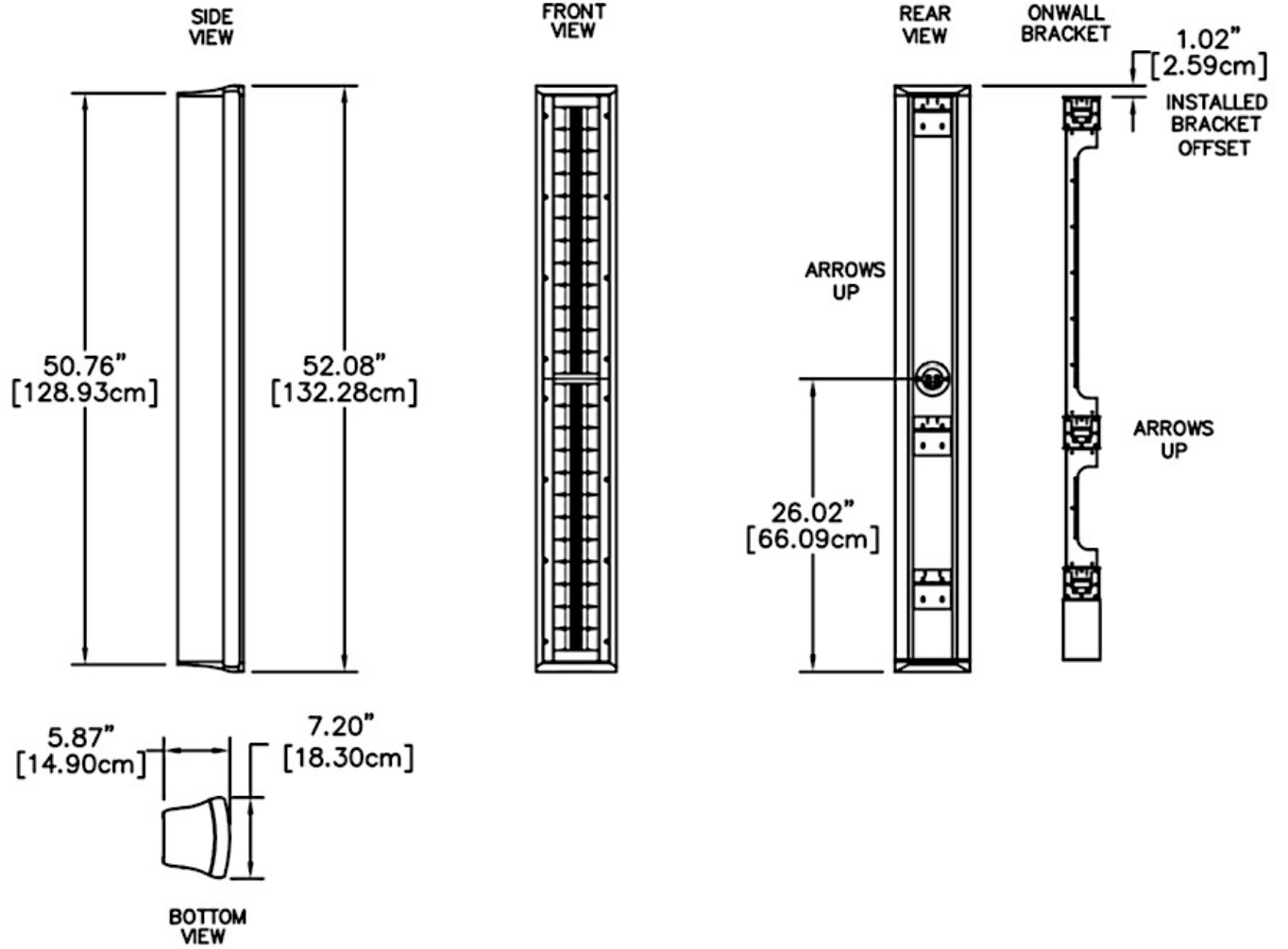
Carson City, NV 89706

wisdomaudio.com

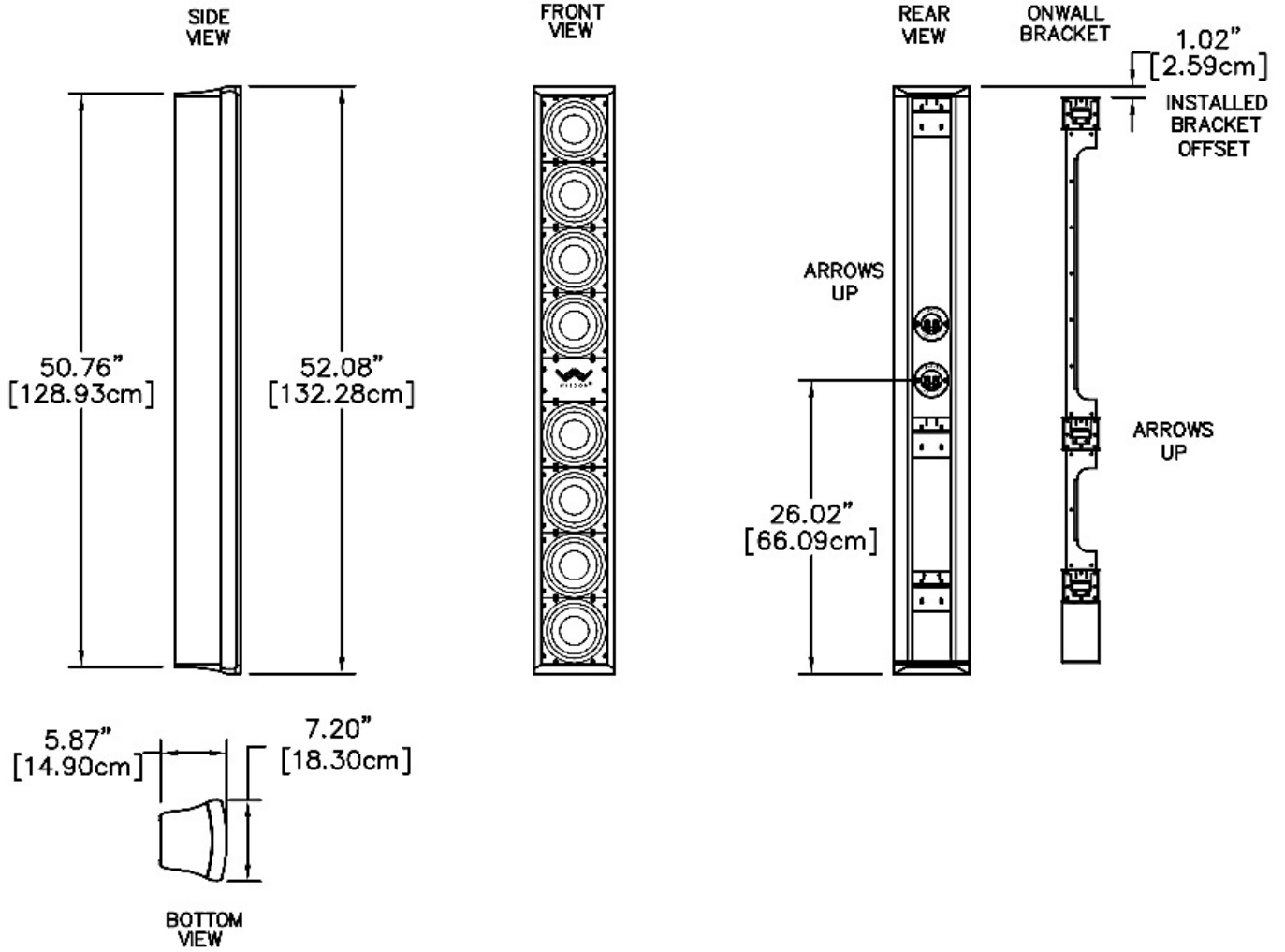
information@wisdomaudio.com

(775) 887-8850

# L100m Dimensions HF Planar Section



# L100m Dimensions LF Woofer Section





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Wisdom Audio 1572 College Parkway, Suite 164  
Carson City, Nevada 89706 USA  
TEL (775) 887-8850  
FAX (775) 887-8820  
[wisdomaudio.com](http://wisdomaudio.com)