



# Owner's Manual

Sage Cinema Series VCA16  
Vertical Column Array  
On-Wall Planar Magnetic Loudspeaker

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### DOCUMENT CONVENTIONS

This document contains general safety, installation, and operation instructions for the Wisdom Audio Sage Cinema VCA16 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, which are further detailed in the following section entitled “Overview.”

Your **Sage Cinema VCA16 series** loudspeakers are specifically designed to avoid compromises inherent in conventional speaker designs. Utilizing a vertically arrayed planar magnetic driver (PMD) and woofer column, the VCA covers a multi-seat theater audience with a more consistent sound level than is found in conventional speakers.

Our unique driver designs and emphasis on achieving real-world performance account for the “system” approach taken. These are not speakers to be simply connected to wires and promptly forgotten. Rather, they are designed to utilize the Digital Signal Processing (DSP) power of our amplifiers that incorporate both IIR and FIR filters to optimize the performance of not only the speaker, but the entire system. 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.

## Overview (THE STORY)

We enter our place of comfort, reclining with our family and friends to escape for a moment our daily routines. As the cinematics begin, we are immediately drawn into the theatrics of the movie, consumed, not by the images, but by the enveloping sound field that delivers that sense of realism that connects us emotionally. We close our eyes, and we find we’re still connected to the scene, pulled in by the enveloping sound. We take a moment to feel a sense of gratitude for the sound delivery of our Wisdom Audio Sage Cinema VCA16 loudspeakers.

Had this been a single monophonic speaker under our screen, the level of engagement and dimensional detail would have been muted, like a black and white image. Just as one ear isn’t enough for us to localize the direction of a sound source, a single point of sound is insufficient for recreating a complex spatial environment. This is the reason that we have multi-speaker surround systems.

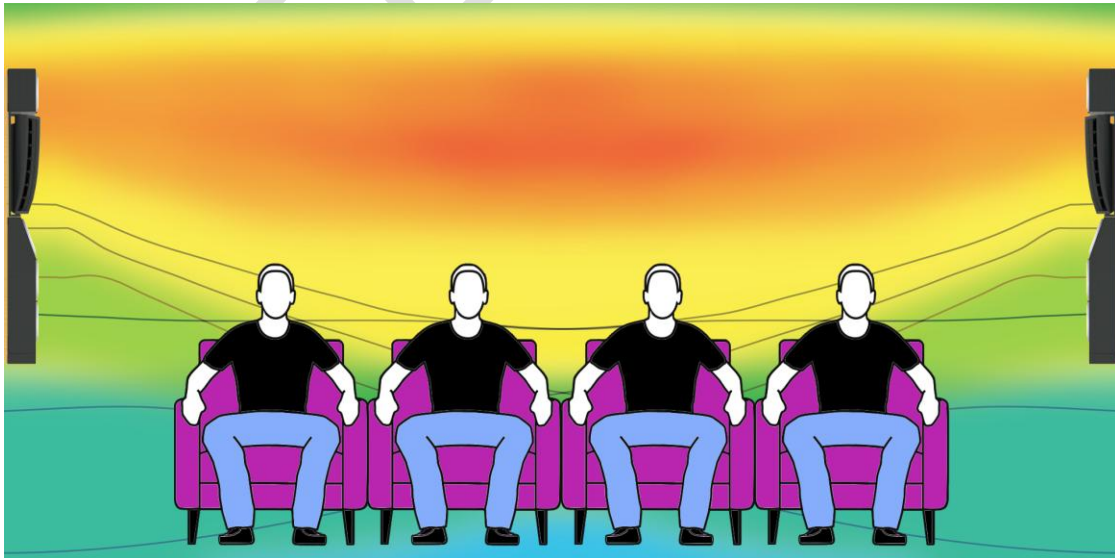
But is it enough to have multiple speakers? Perhaps, if we are the only person in our theater and we are sitting in an optimal location. Consider, for a moment, that a primary component of creating acoustic envelopment is balanced sound levels. If one speaker becomes dominant in output, the sound field can collapse into this speaker, reducing realism and pushing us out of the story. When multiple people share a theatrical experience, most will not have an optimal seat. As we move toward the extremes of our

theater we will, inevitably, become close to some speakers, and far away from others. How does this affect the sound?

As we know, the acoustic power level decreases by 50% (6dB) for every doubling of distance away from a single point of sound. This means that a nearby surround speaker, that would ordinarily draw us into the show, may now be so prominent as to not only thrust us out of the experience, but to also become a distraction or even an annoyance. Imagine, for a moment, that the surround speaker at your side is the only sound source in the room blaring in an ear. It would certainly make it difficult to engage in the action happening on-screen in a different part of the room. Closing our eyes now would yield a much different experience than previously.

Ideally, we need balanced acoustic levels with little variance throughout the listening space to maintain immersion. Wisdom Audio's traditional "line-source" speakers excel at this, which makes them exceptional theater speakers. This is because their output only decreases by 3dB for every doubling in distance. While this is great for theaters, our line source speakers can be costly when deployed in large numbers. The latest solution developed by Wisdom Audio is the unique Sage Cinema VCA16, which solves these issues of cost and acoustic variance.

By utilizing our "Perfect Array™," a patent pending, acoustically shaded, curved, vertically arrayed, planar magnetic, high frequency driver, along with our uniquely arrayed high-performance woofers, the VCA16 controls the sound field so that the output delivered to the furthest seating positions is higher than those nearest. This balances the acoustic levels and retains the immersive and captivating experience in your theater for all your family and friends.



*By controlling the output at every angle, the sound level at each seating position is optimized so that everyone achieves a balanced enveloping experience.*

Additional benefits include:

- Ceiling and floor reflections are minimized, resulting in greatly reduced interference, letting you hear more of the speaker and less of the room. This improves musical detail and dialog intelligibility.
- 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.

Achieving this highly desirable behavior requires a tall, highly specialized, driver assembly. Simply stacking multiple “cone & dome” high frequency drivers does not create a proper line source. Instead, it creates a *series* of point sources, which interfere with each other leading to erratic behavior across the seating area.

In addition to the unique sound delivery of your **Sage Cinema VCA16** loudspeakers, several other critical technologies are used to deliver a level of performance that has never been available. Since several of these technologies cannot readily be found elsewhere, we will take the time to describe them in more detail.

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 spread out across the diaphragm and is exposed to the air on both sides; the large resulting surface area dissipates heat extremely quickly and efficiently. As such, when a huge transient comes along, any heat that is generated is immediately dissipated.
- 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.
- Because the conductor of a planar magnetic driver is spread out, it provides a resistive load to the amplifier, just like the simple test loads that amplifier companies use for measuring their amplifiers to show how terrific they are. As such, you can be assured that your amplifiers will sound at their best.

The “voice coil” in the planar magnetic driver is spread out over a large area that is exposed to the open air. 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.

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. Getting comparable bass performance from a planar magnetic design would require 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. Specifically, we need powerful, highly dynamic, articulate, uncompressed bass from an enclosure of extremely limited volume that retains a narrow aspect. These design goals require rather extraordinary attention to myriad details.

Many speakers include a mid-bass “bump” in their response to give the illusion of reproducing deeper bass than they actually do. Unfortunately, this “bump” makes blending them seamlessly with a high-quality subwoofer almost impossible. All our **Sage Cinema Series** speakers have been designed to optimally crossover at 80 Hz, the most common crossover frequency used with subwoofers.

The culmination of Wisdom technologies and design yields some of the finest loudspeakers in the world. You will hear detail inaudible on more conventional speakers, which will now sound a bit bland and lifeless. We trust you will enjoy your Wisdom speakers for years to come.

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 the VCA16

Please exercise caution when unpacking your VCA16. The high frequency PMD array is a moveable component that does not provide a secure place for lifting. Only lift the speaker by the backplane or the woofer housings.

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 VCA16, 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.)

## What's Included



VCA16 Speaker



AngleLock Cleat



Mounting Screws

## Installing the VCA16

The VCA 16 uses a 2-piece mounting system the consists of our Angle Lock Cleat and the VCA16 speaker. The Angle Lock Cleat is attached to the wall, the speaker is hung from the cleat, and then the speaker is screwed to the wall. This attachment method allows the speakers to be easily installed in the correctly rotated orientation for each installation. The concept is described in more detail throughout this section. Please take the time to read this section in its entirety before installing your speakers.

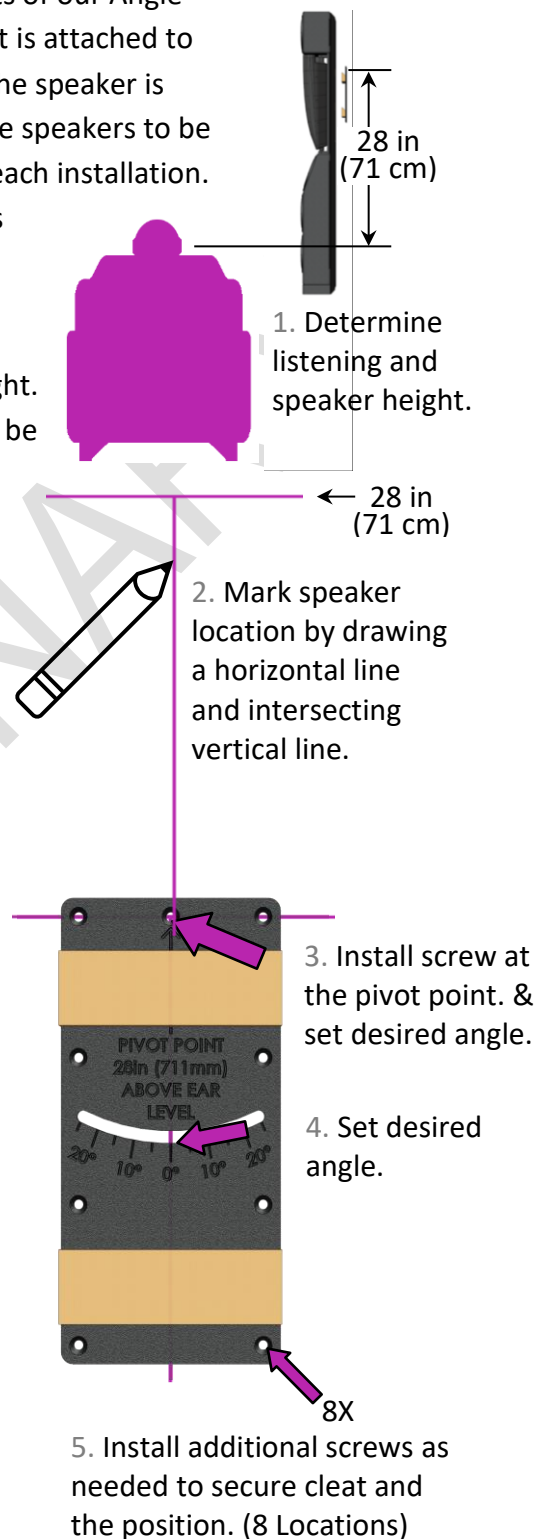
1. Determine the speaker mounting location and height. The pivot point of the AngleLock Cleat should be approximately **28 inches (71 cm)** above ear level. **Draw a horizontal line at this height.**

2. Draw an intersecting vertical line below this height to mark the horizontal location of the speaker. Ensure the line is vertical since it is used as a reference to set the speaker angle.

3. Screw the "Pivot Point" of the AngleLock Cleat onto the wall surface at the intersection of these two lines. If the supplied hardware is not appropriate for your installation, it is left to the installer to source suitable hardware.

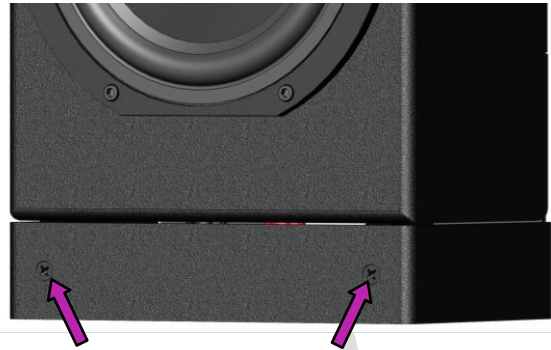
4. Set the angle of the AngleLock Cleat. The vertical line that was drawn will be visible in the window of the cleat. The angle would typically be set the slope of the seating in the theater, but it could be different depending on other factors. This is described in more detail later in this section.

5. Use a sufficient number of screws to secure the cleat to the wall surface. The cleat will accept up to #10 (5mm) diameter flathead screws. The minimum recommended screw diameter is #8 (4mm). Use hardware appropriate for your installation.



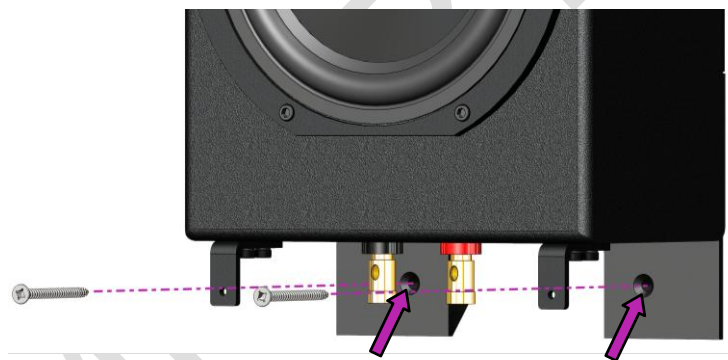


- Remove the cover from the bottom of the speaker by removing the 2 Phillips head screws on the front of the cover. This will expose the speaker connections and the speaker attachment points.



6. Remove 2 screws and the cover.

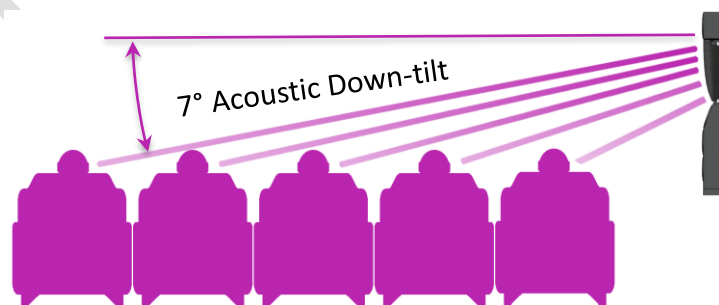
- Hang the speaker from the AngleLock Cleat. The AngleLock Cleat fits in a pocket in the back of the speaker allowing it to sit flush against the wall surface. Install the two 1-3/4in (45mm) flathead screws or other appropriate hardware to lock the speaker in place.



7. Install 2 screws to lock-in the speaker position.

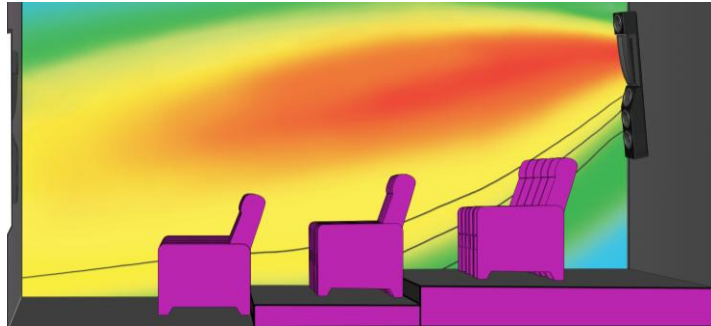
### Alignment of Side and Rear Channels

The VCA16 utilizes vertical acoustic shading and an acoustic down-tilt of  $7^\circ$  to balance the energy across multiple seats. This down-tilt allows the speaker to be placed above the listener's ear level and drive the acoustic energy to the furthest seat, while the acoustic shading reduces energy for the nearest seats, balancing the levels for everyone.



For multi-row theaters where the seating is tiered (on a slope), the rear speakers can be tilted forward to match the slope of the seating. As an example, if the theater seating is at a 10° angle, the rear speakers can be tilted at this same angle.

This would translate to a forward offset of 8.3 inches (211mm), at the top of the speaker. The speakers would then have a total acoustic down-tilt of 17° allowing it to reach the front row with similar acoustic energy as the back row.



**NOTE:** It is left to the installer to provide suitable structures and hardware to tilt the speakers forward.

**Warning: DO NOT tilt the speaker forward more than 15° using the stock mounting hardware. This tilt translates to an offset of 12" (315mm) at the top of the speaker. Any installation requiring a forward tilt of more than 15° will need custom fabricated hardware. It is left to the installer to ensure this is performed in a safe manner.**

### Side Surrounds

For the side surrounds, the speakers can be rotated to match the plane of the theater's seating. As described earlier, this is performed using the AngleLock Cleat. Below are images that show what typical single and multiple row installations might look like.

Typical single-row and multi-row theaters might be setup as shown.



## Making the VCA16 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).

A single set of speaker wires is required for each **Sage Cinema VCA16** loudspeaker since it includes a high-performance passive crossover. This deviates from some of our other designs that require multiple amplifier channels for each speaker. This intentional feature is a cost-saving measure that gives up little in performance.

We recommend using heavy-gauge speaker wire, the type and gauge is dependent on the path, the distance, and the regional electrical codes. Please consult an authorized dealer to determine what gauge and type of cable is best for your application.

The input terminals are located approximately **37.5" (953mm)** below the pivot point of the AngleLock Cleat.

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



1. Connect the input wires to the terminals, observing proper polarity.
2. Replace the input cover

## Adjusting the Vertically Arrayed PMD

The PMD can be rotated 30° in each direction in 15° increments. This allows further optimization of the radiated energy, directing it to the audience and reducing reflected energy from nearby surfaces. It also aids to more optimally distribute the acoustic energy when the speaker can't be placed in an ideal location or when covering more than a single row of seating with only a single pair of speakers.

## Rotating the PMD

1. Loosen the four #2 Phillips head screws of the PMD support clamps, (2 on the top and 2 on the bottom).
2. Rotate the PMD to the desired angle. There are detents every 15° to aid in repeatable and uniform alignment.
3. Tighten the 4 screws. Note: There is no need to apply a lot of torque, as the clamps are very effective at securing the PMD.



**Important!** Do not use the VCA16 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.

## Care & Maintenance

To remove dust from the front of your VCA16, use a feather duster or a lint-free soft cloth. Never attempt to clean the drivers themselves.

## **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 have 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:** 1
- **Frequency response:** 80Hz – 20kHz  $\pm$  3dB
- **Impedance:** 6 $\Omega$
- **Sensitivity:** 91dB 2.83V/1m
- **Power handling, continuous:** 400W
- **Max SPL:** 117dB Continuous / 123dB Peak
- **Dimensions:** See dimensioned drawings on next page
- **Net Weight:** 32 lbs. (14.5 kg)
- **Shipping weight, each:** 42 lbs (19 kg)

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

### **Wisdom Audio**

1572 College Parkway, Suite 164

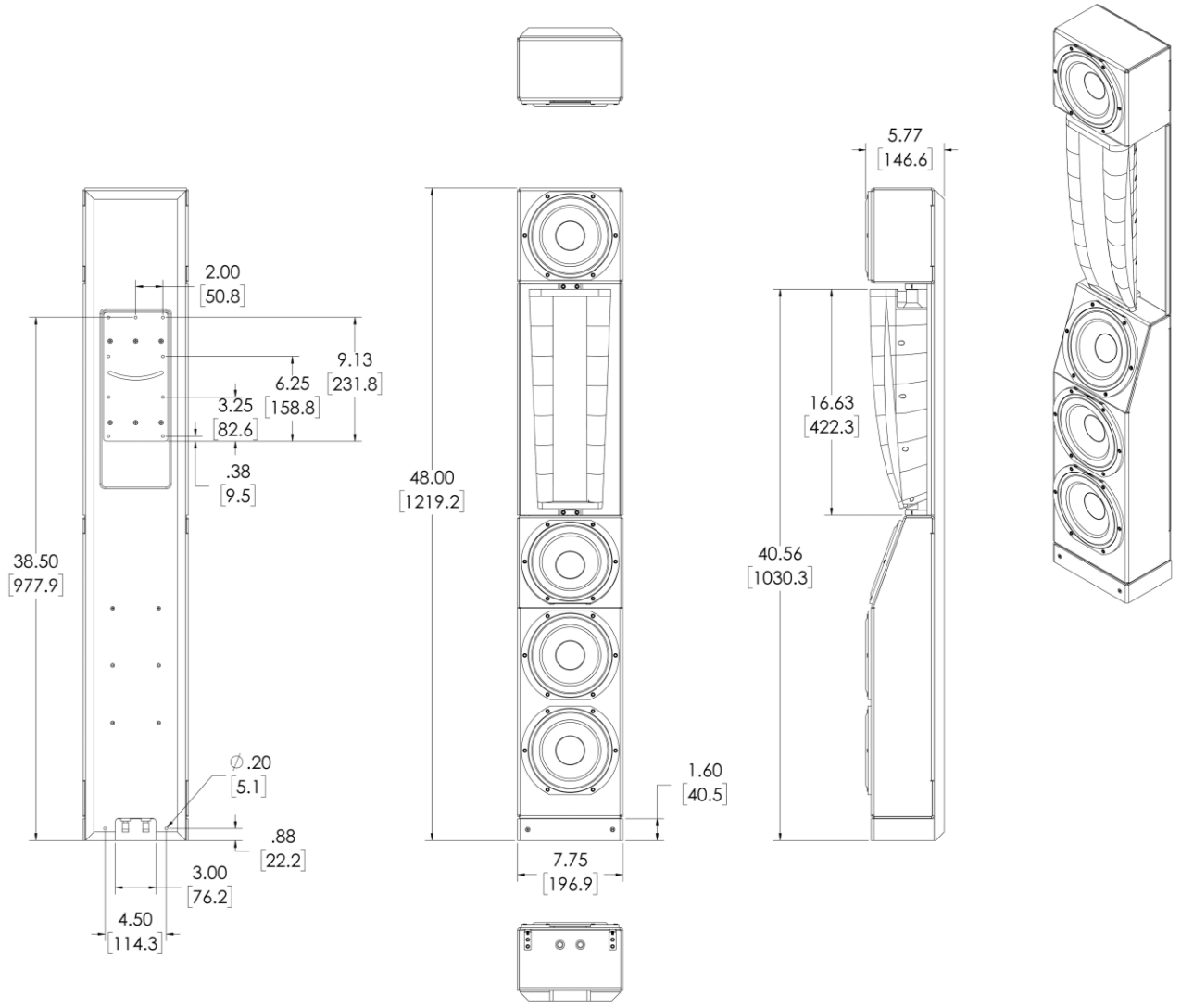
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# VCA16 Dimensions







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