



Installation Manual

Solid Surface Mounting Kit for Minimal Appearance

Sage Series ICS3

Sage Series SUB1

For 3" and 4" square and round solid surface mounting

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DOCUMENT CONVENTIONS

This document contains general safety, installation, and operation instructions for the Wisdom Audio Sage Series Minimum Appearance Solid Surface Kit. 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 Wisdom Audio’s Minimal Appearance Products. We trust that you will receive many years of enjoyment from Wisdom Audio’s Minimal Appearance Speakers.

This manual focuses on the installation of the Solid Surface (SS) kit, an accessory component to the Sage ICS3 and the Sub1 speaker products. This manual is to be used in conjunction with the Sage ICS3 and Sub1 Minimal Appearance Owner’s Manuals. More detailed accessory information is available at WisdomAudio.com.

System Overview

1. The **Solid Surface Kit** allows for installation through solid finished surfaces, (wood, stone, tile, etc.), where the edge of the cutout transitions to the grille. Depending on the chosen grille option, a 3.25" or 4" round or square hole is cut into the surface into which the grille is inserted and adjusted to fit flush with the surrounding surface. The grille can be custom finished to match the surface, minimizing its appearance.
2. The Solid Surface Mount Kit can pass through materials from 1/4" to 1-3/8" (6.5mm to 35mm) in total thickness. A Solid Surface Installation Tool Kit (routing tools) is also available to aid in routing the correct size hole.

Sage Series Minimal Appearance System Ordering and Planning

1. Planning Stage	2. Pre-construction / Pre-wire Stage		3. Finishing Stage	
Surface	Platform (Size & Shape)	Speaker	Tweeter	Grille
Gypsum, 1/2" (12.7mm)	<ul style="list-style-type: none"> • 1/2" round 3" Platform • 1/2" square 3" Platform • 1/2" round 4" Platform • 1/2" square 4" Platform 	<ul style="list-style-type: none"> • ICS3-BackBox • SUB1 	ICS3-SPMD	<ul style="list-style-type: none"> • 3" round • 3" square • 4" round • 4" square
Gypsum, 5/8" (15.9mm)	<ul style="list-style-type: none"> • 5/8" round 3" Platform • 5/8" square 3" Platform • 5/8" round 4" Platform • 5/8" square 4" Platform 	[same as above]	[same as above]	[same as above]
Solid Surface Depth from 1/4" to 1-3/8" (6.5mm - 35mm)	<ul style="list-style-type: none"> • Solid Surface Mounting Kit • Solid Surface Installation Tool Kit 	[same as above]	[same as above]	<ul style="list-style-type: none"> • 3" round Solid Surface • 3" square Solid Surface • 4" round (same as gypsum) • 4" square (same as gypsum)
Cabinet toe kick, ceiling, floor, wall, etc.	<ul style="list-style-type: none"> • Side entrance 4" x 16" Slot 	Sub1 Only	N/A	<ul style="list-style-type: none"> • 4" x 16" Register-style (supplied)

Important Information (BEFORE YOU BEGIN!)

Before you begin the installation, familiarize yourself with the installation procedure by reading through all the information. Take time to preassemble the parts before installation so that you have a clear understanding of how they fit together and how they integrate with the other construction materials that will be used.

The installation procedure is separated into 3 parts; common component assembly, Sub1 assembly, and ICS3 assembly. Should you have any questions after reading through the material, please contact a Wisdom Audio sales representative.

What is Included with the Solid Surface Kit

1. Mounting Bracket (X4)
2. Mounting Platform (X1)
3. 0.25" Shim 3in Round (X2)
4. 0.125" Shim 3in Round/3in Square (X1)
5. 0.125" Shim 3in Round/4in Square (X1)
6. 0.125" Shim 3in Round/4in Round (X1)
7. Paint Sheild (X1) (**Grille Sold Separately**)
8. 6-32 x 1-1/2" Flat Head Machine Screw (X4) #121860
9. 6-32 x 1" Flat Head Machine Screw (X4) #122000
10. 6-32 x 3/8" Truss Head Machine Screw (X4) #121880
11. 6-32 x Nut w/Lock Washer (X4) #120200



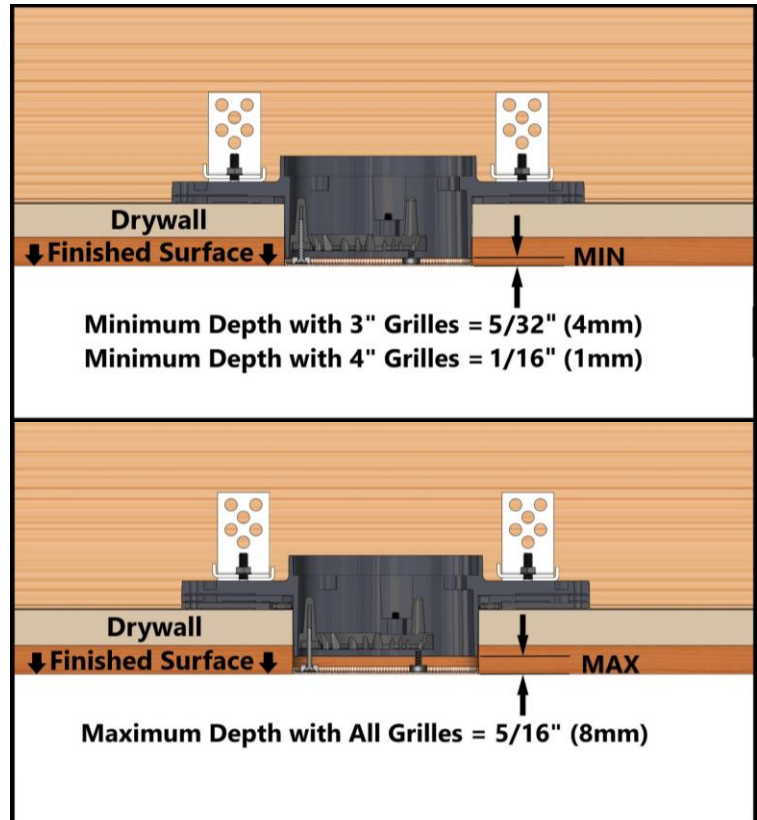
NOTE: Due to the unique requirements of each installation, it is left to the installer to provide the necessary hardware to attach the platform brackets to the framing. The minimum recommended screw size is: #8 x 3/4" (4mm x 20mm) for wood.

Solid Surface Kit Installation (Common Assembly)

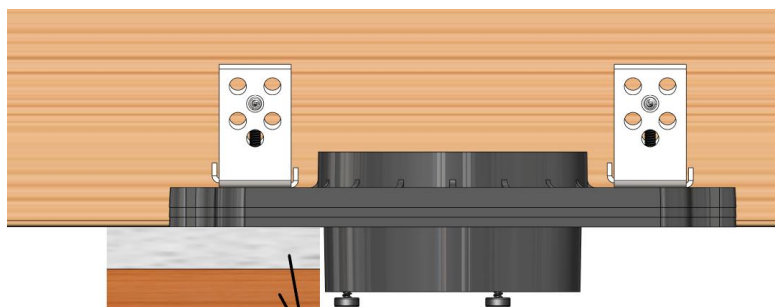
Establish Mounting Platform Position (Shim Stack Adjustment)

One of the most important steps in the installation of the SS kit is positioning the mouth of the mounting platform. The opening must be positioned within a narrow range to ensure that the final position of the grille can be made flush with the ceiling or solid surface.

The adjacent two images show the minimum and maximum distance allowable between the finished surface and the mouth of the mounting platform necessary to achieve a flush finish. **Note: The minimum distance varies depending on whether a 3" or 4" grille is used.**








This distance is adjusted by adding or removing shims to the face of the mounting platform. Since every installation is unique, the number and thickness of the shims will vary. The following steps describe the shim installation. For quick reference, a [Shim Stack-up Table](#) is provided






If Available, Use Material Samples for Setting Shim Stack.

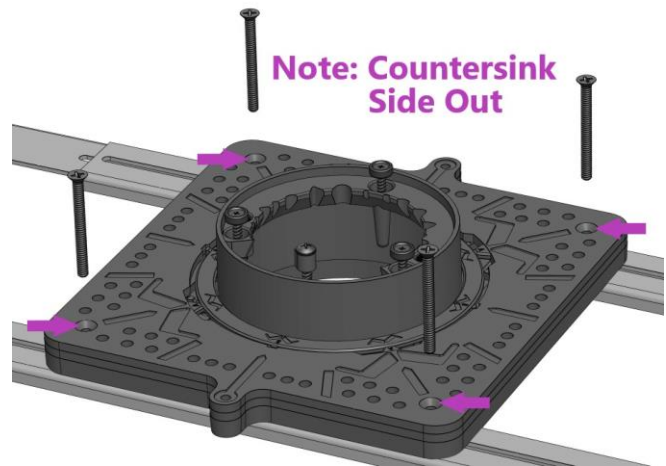
below and in the [Appendix](#) at the end of this manual. Also included below is a Hardware Assembly selection table for the 3 hardware options that are shipped with the SS Kit. Use this to determine which screws to use and how to assemble the pieces.

Shim Stack-up Table		
Shims Used	Material Thickness	Hardware
No Shims	1-1/4" (32mm) up to max 1-3/8" (35mm)	6-32 x 3/8" panhead screws  PN: 121880
(1) 1/8"	1-1/8" (28.5mm)	6-32 x 1" flathead screws  PN: 122000 6-32 nuts  PN: 120200
(1) 1/4"	1" (25.5mm)	
(1) 1/4" + (1) 1/8"	7/8" (22mm)	6-32 x 1-1/2" flathead screws  PN: 121860 6-32 nuts  PN: 120200
(2) 1/4"	3/4" (19mm)	
(2) 1/4" + (1) 1/8"	5/8" (16mm)	
(2) 1/4" + (2) 1/8"	1/2" (13mm)	
(2) 1/4" + (3) 1/8"	3/8" (9.5mm) [1/4" Minimum for 4" grilles]	

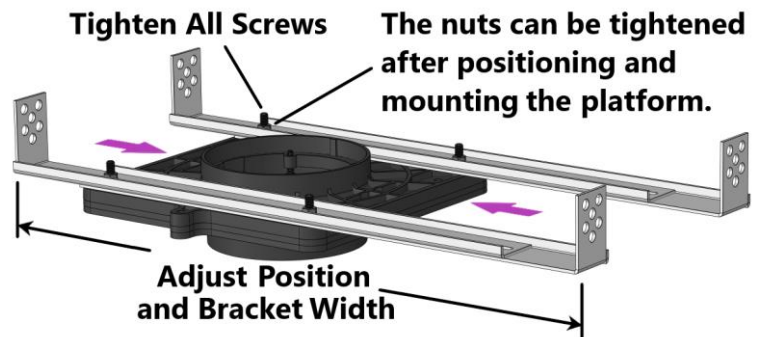
Hardware Assembly

Shims	Hardware	Assembly
When Using No shims	6-32 x 3/8" panhead screws. Screw through two bracket assemblies and into top side of mounting platform.	
When Using 1/8" (3.2mm) to 3/8" (9.5mm) thick shim stack	6-32 x 1" flathead screws with 6-32 nuts. Attach shims to bottom side of mounting platform using four 6-32 x 1" flathead screws. After tightening screws, attach brackets using 6-32 nuts on topside of brackets.	
When Using 1/2" (13mm) to 7/8" (22mm) thick shim stack.	6-32 x 1-1/2" flathead screws with 6-32 nuts. Attach shims to bottom side of mounting platform using four 6-32 x 1-1/2" flathead screws. After tightening screws, attach brackets using 6-32 nuts on topside of brackets.	

1. Determine the total surface thickness through which the mounting platform will pass. This includes the wallboard thickness plus any surface finish or treatment, such as wood, masonry, etc. The maximum thickness possible for a flush grille finish is 1-3/8" (35mm). If you have access to sample materials that will be used in the final construction, use these to validate the adjustment. See images on previous page.
2. Assemble the mounting platform, mounting brackets, and any shims needed for the proper positioning of the grille. The two 1/4" shims are identical, and the three 1/8" shims are unique but they can all be used in any position of the stack-up.
3. Select the correct hardware for your assembly. The tables on the previous page and in the **Appendix** show what shims to use for various material thicknesses.
4. When using shims, install the shims so the screw holes have the countersink-side out. Tighten the screws securely using a #2 Phillips screwdriver.

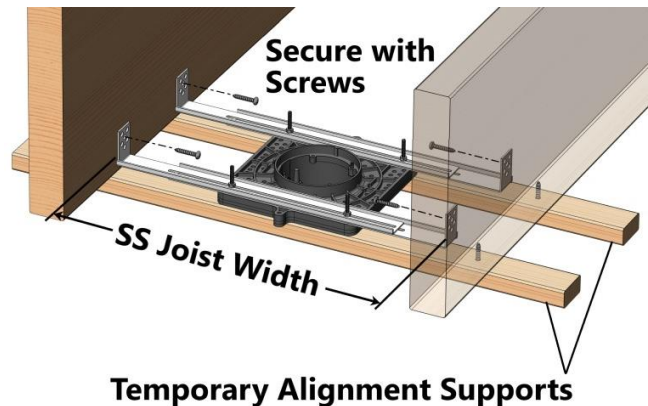


5. Attach the mounting brackets to the backside of the mounting platform using the supplied hex nuts. The nuts can be tightened using a 1/4" wrench or socket after attaching the brackets and mounting to the joists.

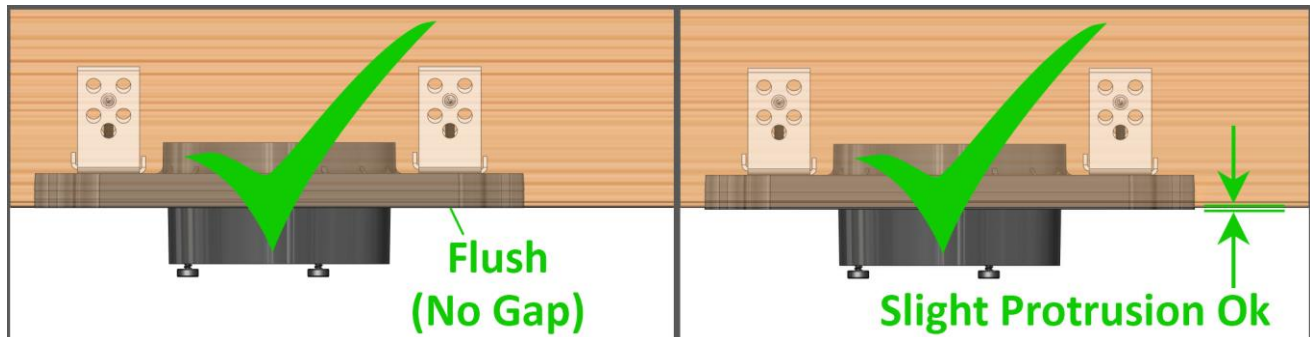


Mounting the Solid Surface Kit to the Ceiling Joists

6. Install a pair of temporary supports to align the face of the mounting platform. This will help to ensure the platform will be in contact with the drywall. Position the mounting platform on top of the temporary alignment supports. Ensure you plan for any additional material that may offset the drywall surface, such as Z-channel, Furring channel, Hat channel, etc.



7. Secure the brackets using screws of your choice. #8 pan head screws of 3/4" (20mm) minimum length are recommended. The brackets have an adjustable span from 12" to 18.5" (30.5cm to 47cm). It may be necessary to shorten the brackets if the joist spacing is less than 12" (30.5cm). For spans longer than 18.5" blocking may need to be added to bridge the span.



Note, when attaching the brackets to the joists, a little downward pressure can be used to pretension the brackets to ensure the mounting platform will be in firm contact with the drywall when it is installed. Avoid having a gap between the SS mounting platform and the drywall.

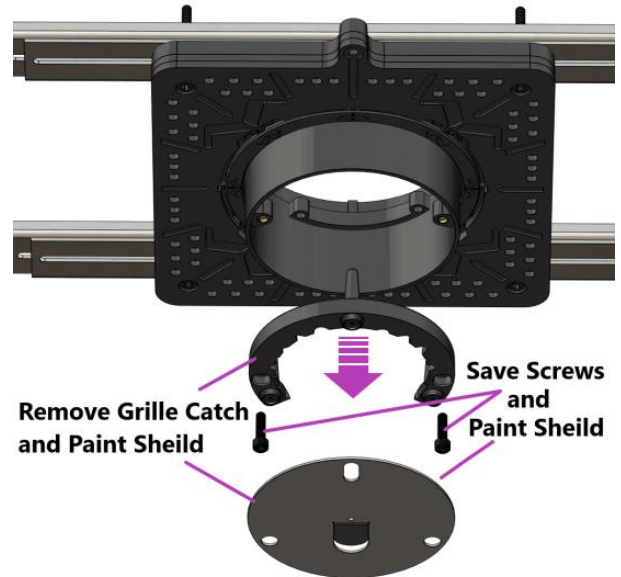
8. Once positioned along the brackets, tighten the 4 nuts or 4 screws on top of the mounting platforms. **Ensure all hardware is tightened, including the SUB1 port tube clamps, since these items may not be accessible after the drywall is finished.**

ICS3 Assembly

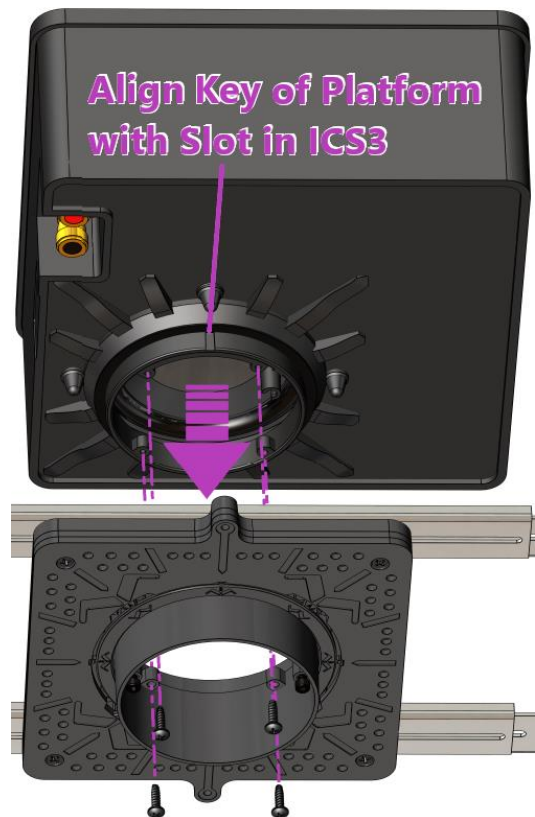
Skip to the next section if installing the SUB1.

NOTE: The ICS3 is shipped ready to install. The tweeter is installed after the ICS3 is attached to the mounting platform.

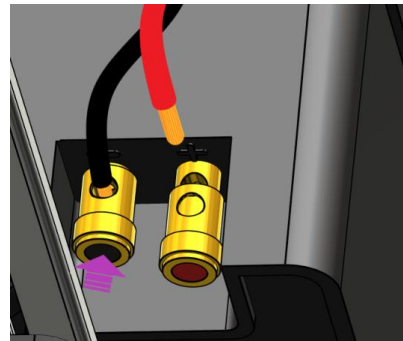
1. Begin by removing the grille catch from the front side of the mounting platform using the provided **7/64" hex wrench**. **Save the Paint Shield and the Socket Head Screws for later use.**



2. Insert the ICS3 output into the top of the mounting platform, aligning the **slot** in the ICS3 with the **key** of the platform.
3. Secure the ICS3 using the four #4x1/2" screws that came with the ICS3. Screw from the bottom side of the platform into the ICS3 as shown.



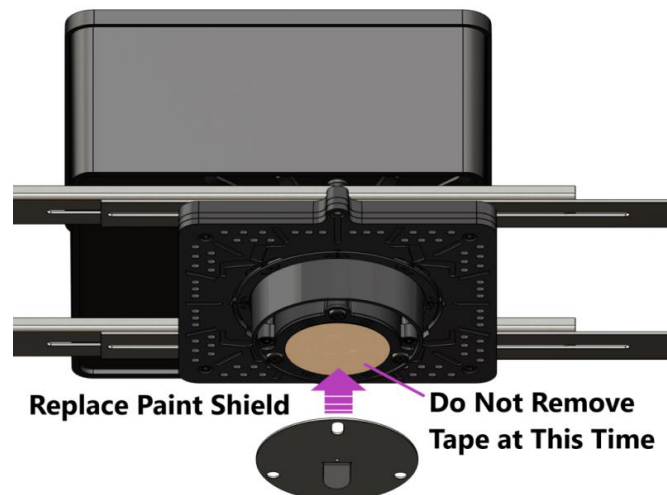
4. Connect the speaker wires to the input terminals on the side of the enclosure. Press each terminal, insert the bare conductor, and release the terminal. Observe the polarity of the connections and double check that it is correct. The red-colored input terminal is positive (+).



5. Insert the tweeter assembly into the mouth of the mounting platform, aligning the tweeter electrical connectors.
6. Using the **2 socket head screws** from earlier that were used to hold the grille catch, secure the tweeter to the ICS3. Use the supplied **7/64" hex key**.

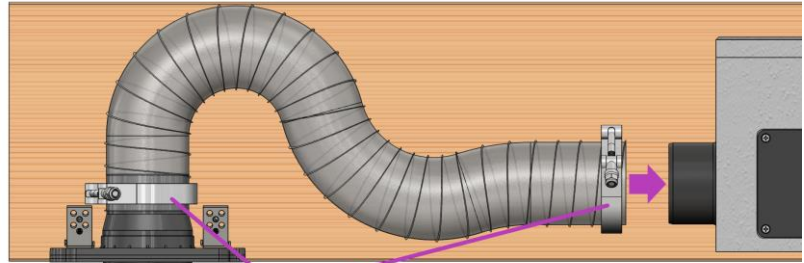


7. Replace Paint Shield to protect the speaker during the finishing work. The tape will be removed after the installation of the solid surface or after it has been finished and or painted.



The remainder of the installation takes place during and/or after the solid surface is installed. This is covered in a later section of the manual.

4. Reinstall grille catch, if previously removed, and place the paint shield back on the platform output.
5. Slide two steel **Band Clamps** over the end of the port tube. These will be placed at each end in the next step.
6. Slide the port tube over the subwoofer output, position the band clamps at each end, and tighten them securely using a **7/16" wrench or deep socket**.



Install Band Clamps at each end, slide port tube over sub output, and tighten clamps.

NOTE: Remove all temporary supports and ensure all hardware is tightened, including the band clamps, since these items may not be accessible after the drywall is finished. The remainder of the installation will take place when the ceiling surface is installed.

Cutting the Solid Surface

The final surface must be carefully measured and cut to align with the opening of the Solid Surface output port. Depending on what type of material the speaker is being mounted into, there are a variety of different methods that can be used to cut the grille opening. For harder, dense materials, such as stone or tile, the use of a specialized water jet machine may be required. For softer materials, such as wood, a CNC table or a router template accessory can be used. Wisdom Audio offers a reusable template and routing kit specifically for this purpose.

Whichever method is used, the opening must be cut very precise. Unlike traditional speaker grilles, Minimal Appearance grilles do NOT cover the opening that is cut into the material — they install flush to the material surface, leaving zero tolerance for uneven or rough cuts of the opening.

Below are instructions for cutting materials with a Water Jet or CNC table, and with Wisdom's Router Template. The router template can be purchased from Wisdom Audio.

Water Jet / CNC

1. Locate a stone supplier or tradesperson that can provide water jet or CNC cutting services. Download the Minimal Appearance water jet files. The water jet files are a .DXF file that contain the tool path needed for a precise and consistent grille opening. These files can be found at www.wisdomaudio.com.
2. Provide the files along with the surface materials to the tradesperson with precise instructions for the position of the cut. Once the completed piece is returned to the jobsite, continue with the final installation.

Router

Note: When using the Router Template Toolkit, you must use the included bit and collar, or equivalent, to ensure that the correct finished size opening is created. Failure to use the correct bit and collar will result in a failed process.

NOTE: The Wisdom template included in the Toolkit uses an oversized router hole for use with the included collar and bit size only!

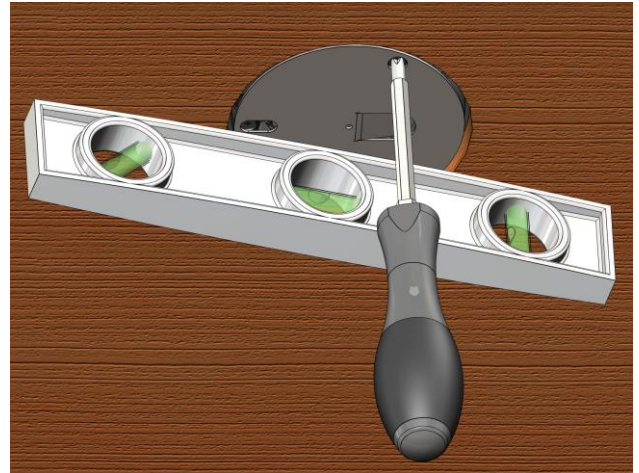
CHECK AT LEAST ONE SAMPLE BEFORE CONTINUING TO ENSURE PROPER FIT!

All grille options require a minimum 3-1/4" diameter round hole be cut through the entire depth of the layered surfaces for the SS output port. All grille options will require custom cutting of the finished surface. A table showing the cut-out dimensions is provided in the [Appendix](#). A [dimensioned drawing](#) of the various grille sizes is also included in the Appendix.

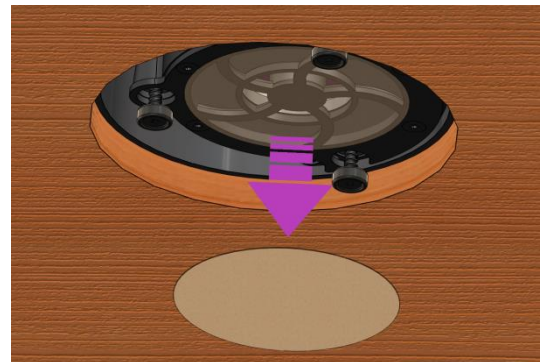
Finalizing Installation (Grille Installation)

Once the surface has been prepared for the grille, the system is now ready to have the grille plane set using the Patented Magnetic Recoil Fastener. The Paint Shield is the same thickness as the grilles and is designed to make this task easy.

1. Start by removing the tape that covers the 3 holes at the perimeter of the paint shield and place the shield on the magnets, aligning the holes with the 3 screws. There is only one orientation where all three are visible.
2. Place a straight edge across of the opening of the Sub1 output port and adjust the height of the 3 screws until the paint shield is flush with the face of the finished surface.



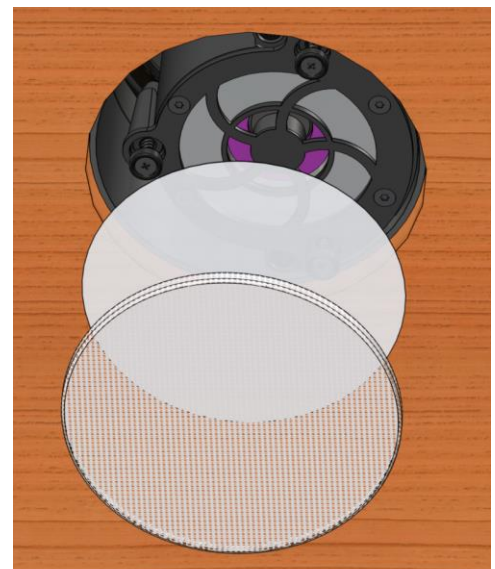
3. Remove the paint shield. If installing an ICS3, remove the tape that protects the tweeter.



Remove Tape from ICS3 Tweeter

4. Place the grille inside the solid surface cut out, placing the scrim fabric behind the grille.

Connect your electronics, set up the recommended filters as described in the Owner's Manual, and enjoy.



Attach Grille and Scrim

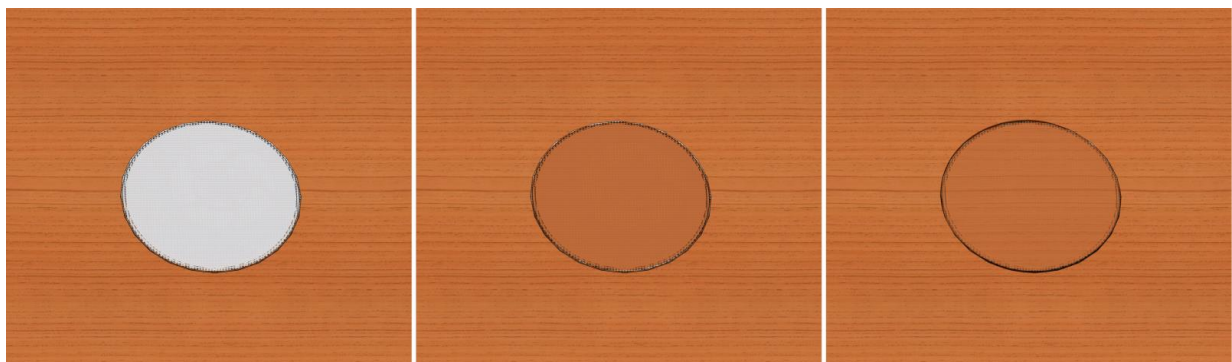
Grille Painting (Optional)

For custom-colored paints, we recommend using a paint supplier like [My Perfect Color](#), that can provide custom-colored aerosol paints. These are more expensive than latex but are more durable and can provide solutions that are easier to work with. Otherwise, we recommend using water or oil-based paint. If you choose to have a painting professional perform the task with specialized equipment, here is the process we recommend.

1. Thin the paint with a proper thinning agent to a ratio of 1:1, paint-to-thinner, and strain it through a standard mesh strainer to remove any lumps. **IMPORTANT:** Due to its increased durability, oil-based paint should be considered for any installation where the grilles may be exposed to moisture.
2. Use a small touch-up gun or cap-spray gun with a #3 tip for painting.
 - a. Set the nozzle with a medium to wide fan
 - b. Set the pressure regulator to 60psi
 - c. Lightly spray the front of the grille from an angle in three quick strokes from approximately 10 inches away
 - d. Let the paint set for a minute, then rotate the grille 90° and lightly spray the grille again in three quick strokes. Repeat this step until the grille has been lightly painted from 4 directions.
 - e. Repeat the last couple steps as needed until the grille is adequately coated.
3. While the paint is still wet, inspect the grille and make sure that excess paint has not collected underneath the grille frame, and that none of the grille perforations are filled with paint. If any are, use compressed air to blow the paint out of the perforations.

NOTE: If you find any grille perforations that are plugged with paint after the paint has dried, use a straight pin or sewing needle to carefully remove the paint.

4. Once the paint has thoroughly dried, attach the grille to the speaker.



Unpainted

Painted

Custom Painted






To remove stubborn dirt and fingerprints from the grille, we recommend isopropyl alcohol and a soft cloth, except where the grille was painted with latex paint. Lightly dampen the cloth with alcohol first and then clean the grille of the Sub1 with the cloth. Do not use excessive amounts of alcohol –there is no need for the cloth to be wet. For latex paint, use a cloth moistened with water or a mild soap solution.

Never attempt to clean the drivers themselves.

Caution!

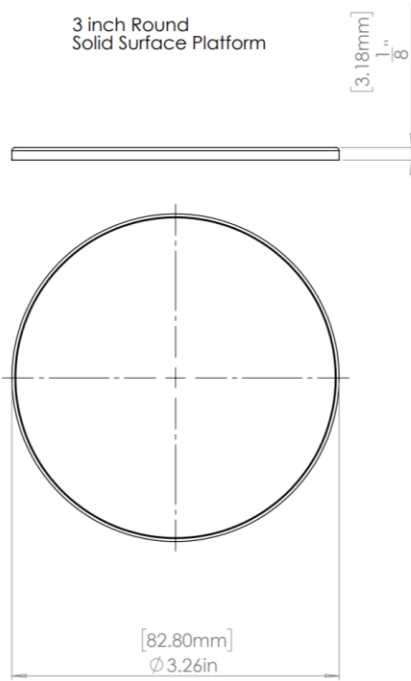
Do not touch the surface of the planar magnetic drivers, under any circumstances. The thin film has been carefully pre-tensioned at the factory; any subsequent contact can only damage it.

Appendix

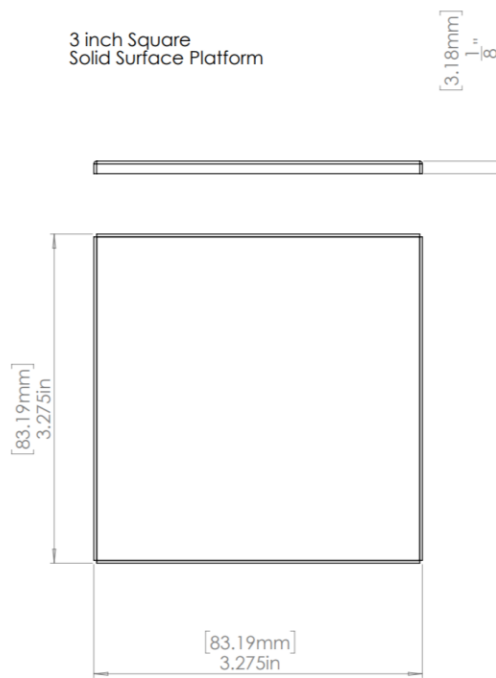
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(1) 1/8"	1-1/8" (28.5mm)	6-32 x 1" flathead screws  PN: 122000
(1) 1/4"	1" (25.5mm)	
(1) 1/4" + (1) 1/8"	7/8" (22mm)	6-32 nuts  PN: 120200
(2) 1/4"	3/4" (19mm)	6-32 x 1-1/2" flathead screws  PN: 121860 6-32 nuts  PN: 120200
(2) 1/4" + (1) 1/8"	5/8" (16mm)	
(2) 1/4" + (2) 1/8"	1/2" (13mm)	
(2) 1/4" + (3) 1/8"	3/8" (9.5mm) [1/4" Minimum for 4" grilles]	

Grille Cut-out Table		
Grille Type	Grille Dimensions	Grille Depth Min
3" Round	3.27" (83mm) Diameter	0.13" (3.3mm)
3" Square	3.28" (83mm) Square	0.13" (3.3mm)
4" Round	3.98" (100.1mm) Diameter	0.4" (1mm)
4" Square	4" (100.6mm) Square	0.4" (1mm)

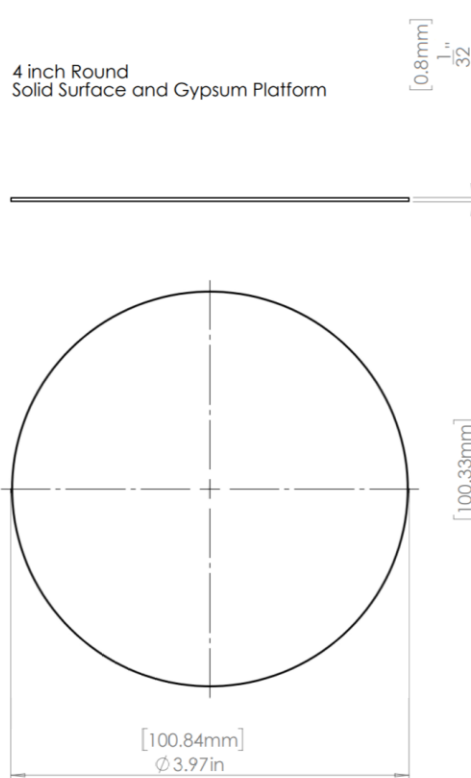
3 inch Round
Solid Surface Platform



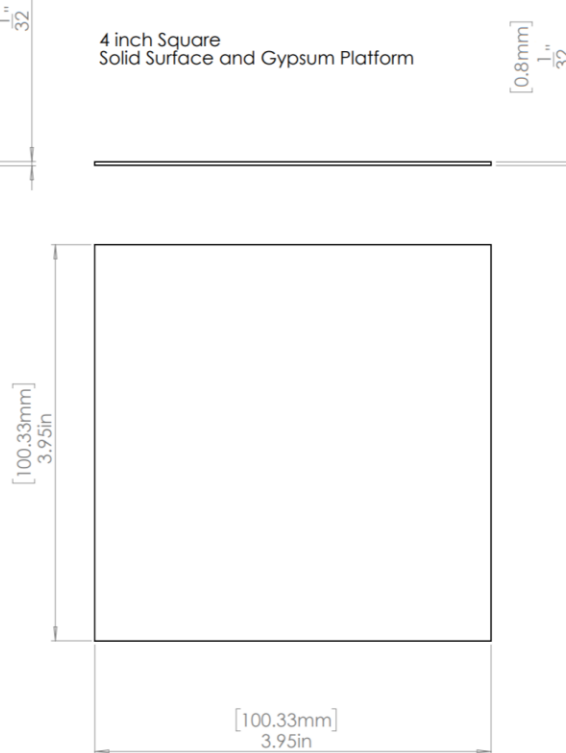
3 inch Square
Solid Surface Platform



4 inch Round
Solid Surface and Gypsum Platform



4 inch Square
Solid Surface and Gypsum Platform



Wisdom Audio
ICS3 and Sub1 In-Ceiling Minimal Appearance
Grille Sizes for use with Solid Surface Platform Installation
ALL TOLERANCES ARE ±0.01 INCHES (0.25MM)



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