Installation and Owner's Manual

Sage Series ICS3

Sage Series SUB1

Minimal Appearance Point Source Loudspeaker

Solid Surface Mounting Kit

For 3" and 4" square and round solid surface mounting with ICS3 or SUB1 loudspeakers

Table of Contents

Document Conventions

This document contains general safety, installation and operation instructions for the Wisdom Audio Sage Series Minimal Appearance 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.

**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" (12.5mm)	• 1/2" round 3" Platform • 1/2" square 3" Platform • 1/2" round 4" Platform • 1/2" square 4" Platform	• ICS3-BackBox • SUB1	ICS3-SPMD	• 3" round • 3" square • 4" round • 4" square
Gypsum, 5/8" (15mm)	• 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 3/8" to 1-1/4" (9.5mm – 31.75mm)	• Solid Surface Mounting Kit • Solid Surface Installation Tool Kit	[same as above]	[same as above]	• 3" round Solid Surface • 3" square Solid Surface • 4" round (same as gypsum) • 4" square (same as gypsum)

Installation Overview:

1. Identify speaker locations and pre-wire
2. Install SUB1 Band-pass enclosure into ceiling (SUB1 locations only)
3. Calculate total finished ceiling thickness and select correct shims.
4. Assemble Solid Surface Mounting Plate with shims and joist mounting bracket
5. Attach ICS3-backbox (for ICS3 locations) to Mounting Plate
6. Attach temporary support stud to ceiling joist
7. Attach Mounting Plate to ceiling joists using temporary support stud as guide
8. Remove temporary stud support
9. Connect speaker wires to ICS3 and/or SUB1 and connect SUB1 port tube
10. If using sub-ceiling or backer board, cut hole in location using 3.5" hole saw or drywall routing tool.
11. Cut/Route hole through solid surface using router template and toolkit and install the finish material surface
12. Install grille and adjust grille depth (SUB1) or install ICS3-PMD and adjust grille depth

Solid Surface Mounting Kit Parts
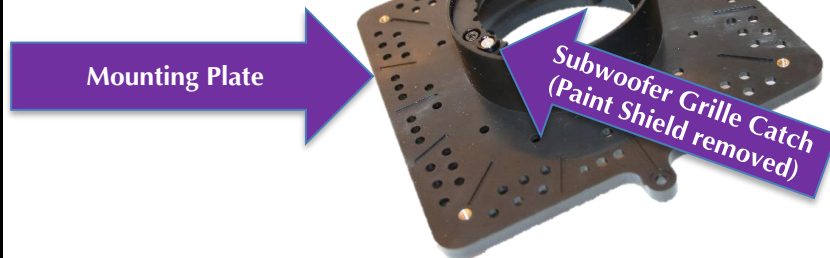
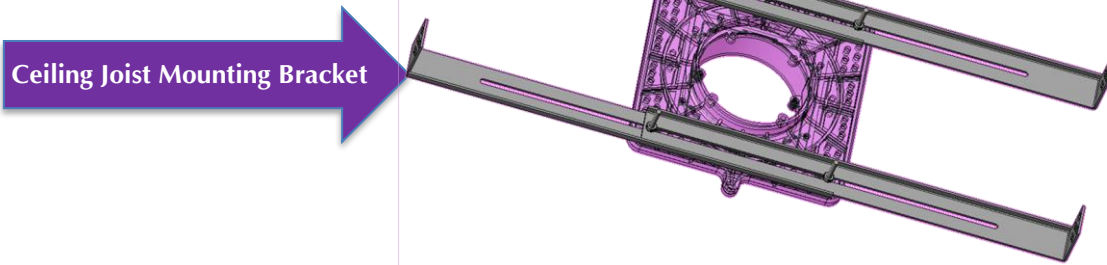| Mounting Plate - (1/ea)	1/4" (6.35mm) Shim - (2/ea)
	1/8" (3.175mm) Shim - (3/ea)

Mounting Plate

Subwoofer Grille Catch (Paint Shield removed)
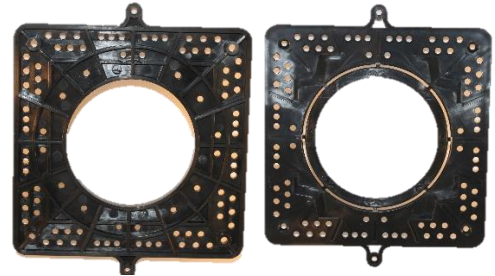
Stud Mounting Bracket - (2/ea)

Short Screw Set (1/set)

Long Screw Set (1/set)

Ceiling Joist Mounting Bracket

Preparing for Solid Surface Mounting

Included Parts

Depending on the size and shape of the cutout the dimensions of the mounting shims and accessories will change, but the instructions to install are the same. There are several parts to allow proper adjustment for a fully flush mount speaker to be properly installed.

- ICS3-Backbox Mounting Plate / Subwoofer Port Tube and Grille Catch
- Mounting Ring Shim 1/4" (6.35mm) Shim - (2 included)
- Mounting Ring Shim 1/8" (3.175mm) Shim - (3 included)
- Ceiling Joist Mounting Brackets
- Screw and Locking Nut Set (4x long screws, 4x short screws)

Note: The Mounting Plate comes with the SUB1 grille catch with Magnetic Recoil Fastener (Pat. Pend) installed. This allows for grille adjusted up or down to for a flush fit with the ceiling and is also the grille catch for the SUB1. For the ICS3 installations, the grille catch is removed and the ICS3-SPMD has the Magnetic Recoil Fastener (Pat. Pend) built-in.

Accessories and Supported Options

The solid surface mounting kit can be used with both ICS3 and SUB1 installations. Make sure you have the correct speaker pre-construction and final assembly parts for the installation.

- ICS3-Backbox with mid-bass driver (pre-construction) and ICS3-SPMD "Spiral Planar Magnetic Driver" (final assembly)
- SUB1 band-pass box (pre-construction)
- Grille Options (final assembly)
    - 3" (76mm) Round Solid Surface Grill
    - 3" (76mm) Square Solid Surface Grill
    - 4" (102mm) Square Grill (same as gypsum grille)
   - 4" (102mm) Round Grill (same as gypsum grille)

Tools Needed

One router with the ability to install a template bushing in the base is required. A plunge cut router is recommended for easiest cutting of the opening but is not required. The Solid Surface Installation Tool Kit (pn# 921160) is recommended for all installers, but only one (1) is needed and can be re-used on future installations.

Solid Surface Installation Tool Kit (pn# 921160)

Tools needed for customized cutting of the mounting material have been combined into one complete toolkit and includes all configurations:

- 3" (76mm) Round and 3" (76mm) Square Routing Template
- 4" (102mm) Round and 4" (102mm) Square Routing Template
- Router Collar: 5/8"
- Router Bits: 1/4"
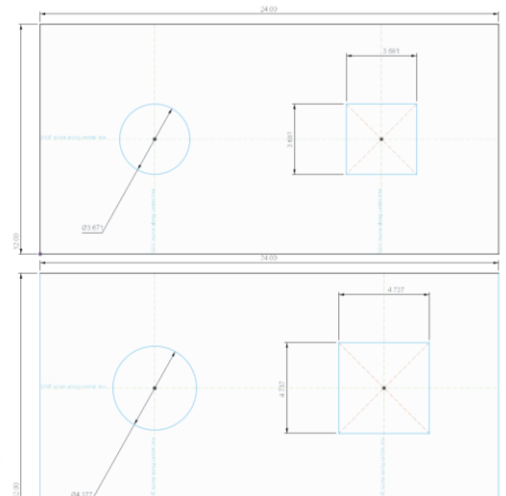
Step 1 – Preconstruction/Rough-in Installation

ICS3 Prewire and Pre-Construction Preparation

- For ICS3 the only preparation before mounting the speakers is to pre-wire as you normally would. Identify where the speaker grilles will be located with the client. This position is where the mounting platform will be installed.

## SUB1 Prewire and Pre-Construction Preparation

Before mounting the SUB1, identify where the speaker grilles will be located with the client. This position is where the mounting platform will be installed. The band pass box must be installed between 12" and 24" from where the grill location cutout will be. Pre-wire to this location as you normally would.

Mounting the SUB1 Cabinet into the Ceiling Joists:

The SUB1 comes shipped with four (4) L brackets, wood screws, and neoprene rubber strips.

- The brackets should be located at the front and rear of the cabinet with the long edge into the SUB1.
- The rubber should be between the bracket and ceiling joists.
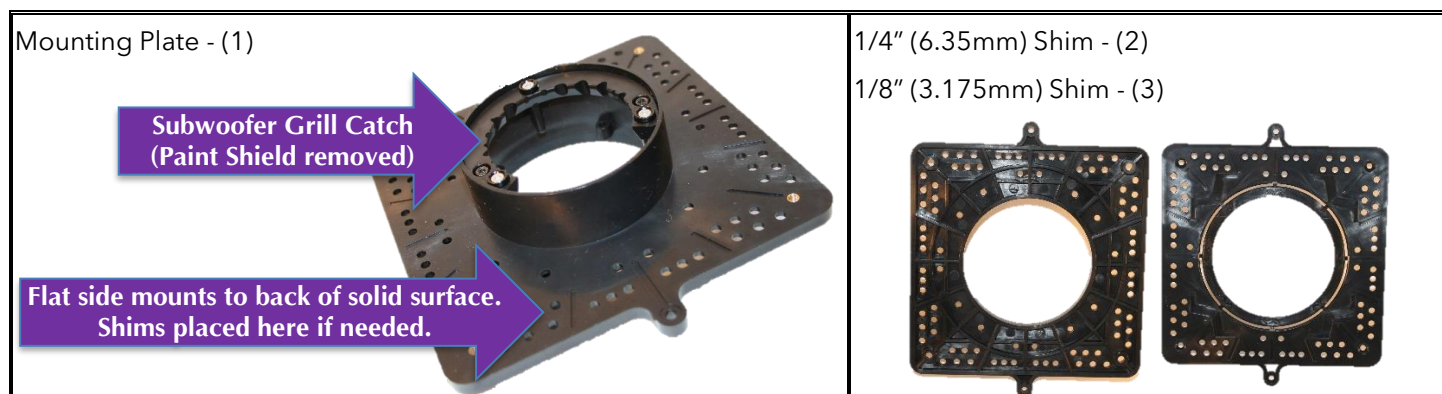- The bracket has a slot to allow for adjustment to allow for a tight fit to the joists.

NOTE: The bottom of the cabinet should not touch the finished ceiling to reduce unwanted rattles and resonances.

Screw into Cabinet

Neoprene Rubber Strip
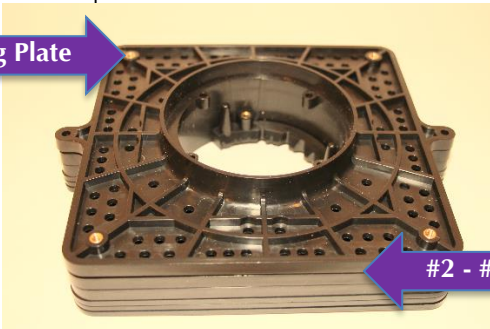Between bracket and ceiling joist
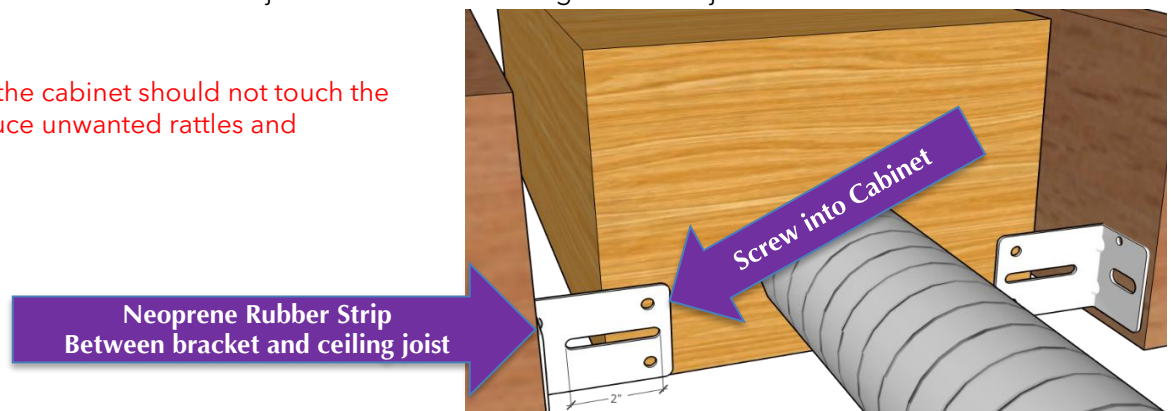
Step 2 – Select Shims and Attach to the Mounting Plate

Determine the total finished thickness of the ceiling surface. This must include both the solid surface and any sub-ceiling or backer board.

For Example: One layer of 1/2" gypsum behind one layer of 3/4" tongue and groove wood panel = 1-1/4" Total and would not need any shims.

Mounting Plate - (1)	1/4" (6.35mm) Shim - (2)
	1/8" (3.175mm) Shim - (3)

Subwoofer Grill Catch (Paint Shield removed)

Flat side mounts to back of solid surface. Shims placed here if needed.

Material Thickness	Shims Used	
3/8" (9.5mm)	(2) 1/4" + (3) 1/8	Example below for 3/8" thick surface
1/2" (13mm)	(2) 1/4" + (2) 1/8"	#1: Mounting Plate
5/8" (16mm)	(2) 1/4" + (1) 1/8"	
3/4" (19mm)	(2) 1/4"	
7/8" (22mm)	(1) 1/4" + (1) 1/8"	
1" (25.5mm)	(1) 1/4"	#2 - #3: 1/4 Shim
1-1/8" (28.5mm)	(1) 1/8"	Mounting Plate and Shims ready to be installed (looking from rear of surface material)
1-1/4" (32mm) up to max 1-3/8" (34.925mm)	No Shims	1. Mounting Plate 2. 1/4" Shim (6.35mm) 3. 1/4" Shim (6.35mm) 4. 1/8" Shim (3.175mm) 5. 1/8" Shim (3.175mm) 6. 1/8" Shim (3.175mm)

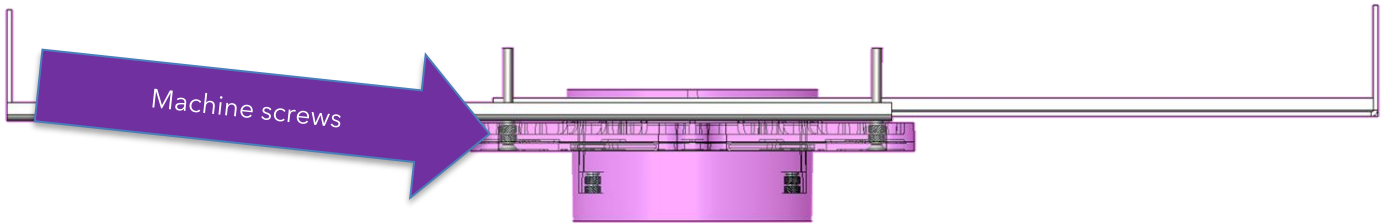# Step 3 - Attach the Mounting Bracket to the Mounting Plate with Shims

1. Place brackets on rear of the Mounting Plate. Brackets will overlap for support.

Threaded screw inserts x4
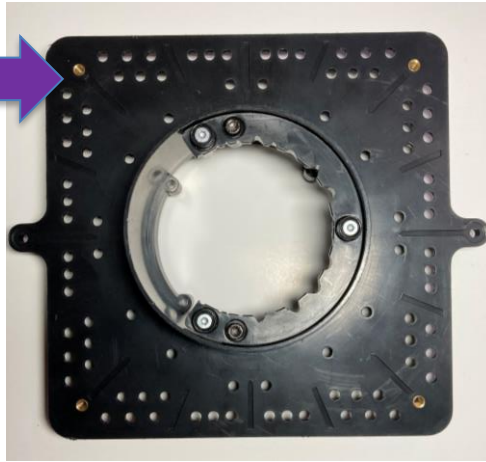
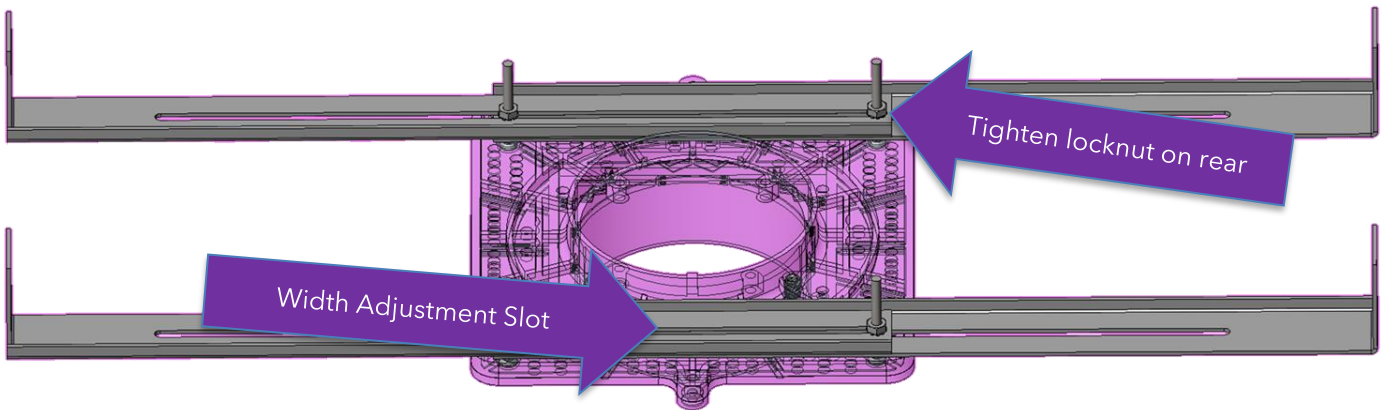2. Machine screws through the shims into threaded mount in plate.

Machine screws

3. Lock nut on rear to keep bracket tight.

Tighten locknut on rear

Width Adjustment Slot

Step 4 – Install the ICS3-backbox onto the Mounting Plate

NOTE: This is only for ICS3 locations. For SUB1 skip this step.
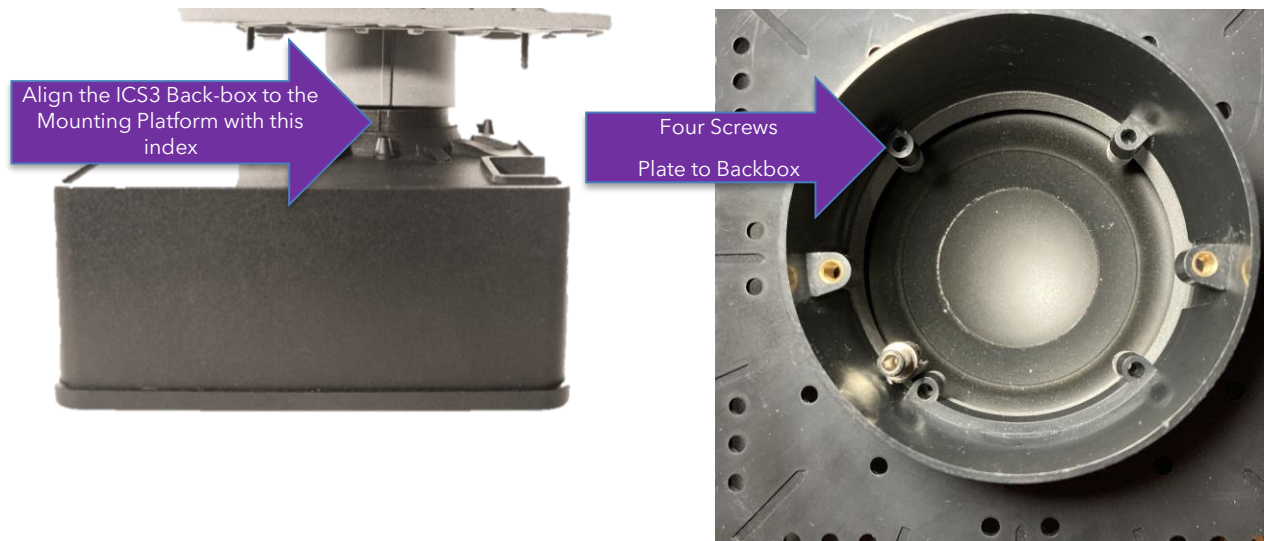
ICS3 Back-box Attachment to Platform

The ICS3 back-box attaches to the Plate using 4 screws. The back-box and the Plate have a keyed connection and can only fit one way.

Remove the Paint Shield, do not throw away!

It may be easier to remove the SUB1 Grill Catch from the Mounting Platform to gain access to all 4 screws, but it is not necessary if you are careful!

Locate the four screw locations on the mounting plate and line them up to the four screw holes on the back box. Once in place, secure with the screws included in the ICS3 Back-box.

Replace the Grill Catch, Sanding Guide and Paint Shield. At this time, you can install the complete assembly into the ceiling joists.

Align the ICS3 Back-box to the Mounting Platform with this index

Four Screws

Plate to Backbox

Step 5 – Install the Solid Surface Mounting Platform into Ceiling

1. Cut a couple of scrap wood pieces that are the same thickness as the final ceiling* (including any underlayment), a few inches wider than the ceiling joists. Then with a couple of drywall screws, mount the temporary holders to the joists. (Drywall screws not included). *For example, a ½" tongue and groove ceiling with a ½" gypsum backer would be a 1" total thickness	
2. These will help you hold the speaker up and make the speaker mount flush to the future finished ceiling.	
3. Place the assembled mounting plate on top of the temporary holders	
4. Fix the brackets to the joists. Adjust width of bracket if needed for a tight fit. Screw into joists.	
5. Remove the temporary holders from the joists	
NOTE: If you are using a backerboard or sub-surface under the solid surface finish material, rough-cut a 3.5" round hole for the Mounting Plate. A standard recessed lighting hole saw can be used.	

Step 6 – Attach SUB1 Port Tube

SUB1 Port Tube Connection

Attach to the rear of the Clamping Plate using the screw down collar. Tighten the clamps on both ends of the port tube. Take care not to kink the tube. The minimum distance needed to make a 90-degree bend is 4-1/2 inches (115mm).

The clamp should fit snug before being tightened. If not, flip the clamp and check again.

Tighten the single clamp on the band-pass cabinet outlet.

NOTE: Bass Snorkel Tube length is not to be altered as it will severely impact the operation of the subwoofer.

Two Clamps at Platform (5/16 or 8mm socket)

One Clamp at SUB1 (7/16 or 11mm socket)
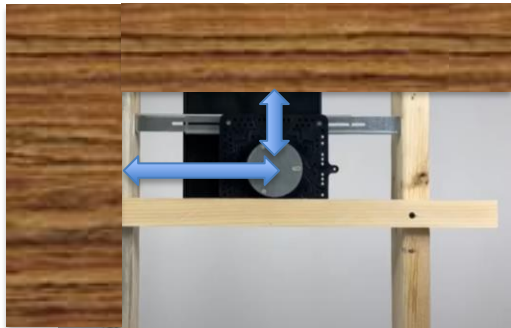
Step 7 - Cutting the Solid Surface

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 water jet machine is required. For softer materials, such as wood, a CNC table or a router template accessory can be used. 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, therefore leaving zero tolerance for uneven, or unclean cuts in the opening.

Below are instructions for the two options, (1) Water Jet / CNC and (2) Router Template. The router template can be purchased from Wisdom Audio.
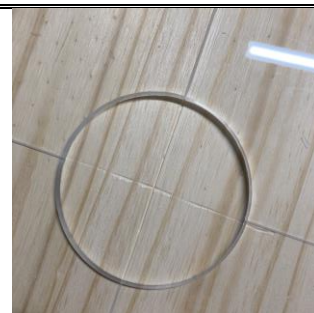
Method 1: Water Jet / CNC Using CAD

Water Jet / CNC Step 1: Send File	Water Jet / CNC Step 2: Cut
Most stone suppliers will have access to a water jet machine. Locate a water jet machine at a local stone supplier, or contact the stone supplier for the job, and send the Minimal Appearance water jet files. The water jet files are a .DXF file that contains the tool path needed for a precise and consistent grille opening. These files can be found at www.wisdomaudio.com.	Using CNC, the cutting portion of the process will be done offsite by another tradesperson. Once the completed piece is returned to the jobsite, continue with the final installation of the solid surface shims as shown in the next section.

Method 2: Using the Optional Router Template

Step 1: Measure Measure the center point of the grill opening in the finished location using the Mounting Plate as a guide. This is a critical measurement as the center of the grill opening and all alignment if the placement is based on this measurement.	
Step 2: Mark With ***the material laying FACE DOWN*** on a sturdy work surface, mark the center point of the grille opening on the material based on the measurement in Step 1	

|	
3: Place Template Place the router template on the surface of the material and center it on the center point. Secure it to the material with clamps.	
Setup Router The following tools will be needed to route the opening: 1. Router 1: 1/4" Bit with 5/8" Bushing 2. Appropriate clamps to secure wood and template. 3. Drill to start the opening for the router and Jig Saw to rough cut are options you may want to use but are not necessary.	(Bottom of the Router with bushing and bit installed)
4: Grill Opening Cut Using the 1/4" router bit with 5/8" bushing, route around the opening in the router template. Make sure the depth of the bit is set to clear the material being cut. Making two passes may be needed for thicker material. **Do not remove template until final cut is completed!!!** A second pass with a 1/8" Bit with 3/8" Bushing for can be completed if needed (bit and bushing not included).	**Cut for Grille Opening (template removed for clarity)**
5: Check Fit Check the fit of the mounting plate and grille into the opening and adjust the cutout opening as needed!!!	
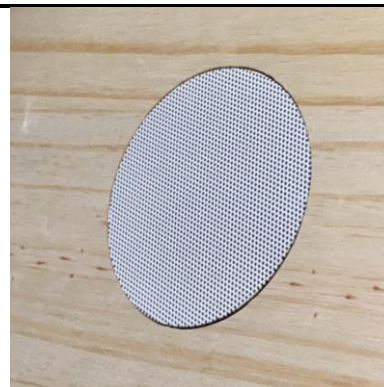
6: Install into Finish Panel

Install solid surface panel into ceiling. The panel should fit around the mounting plate with the lip of the plate just shy of the face of the finished solid surface.

Step 8 - ICS3-SPMD Installation Into ICS3-Backbox:

NOTE: The ICS3-SPMD should be protected from dust and paint during construction.
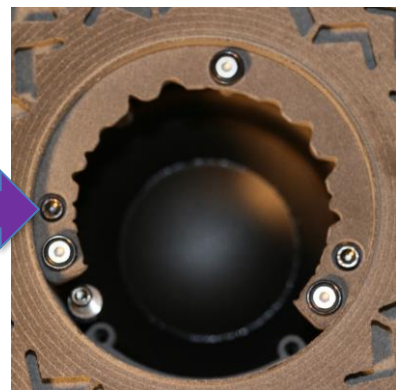
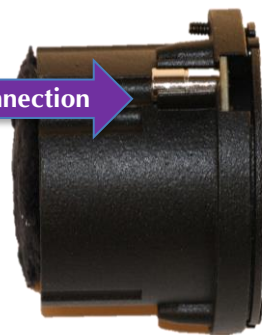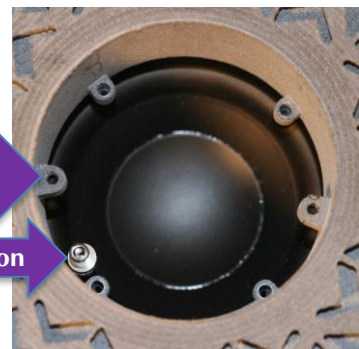|	
1: Remove the Paint Shield by inserting a pick tool into the cut out of the steel Paint Shield and gently pulling the Paint Shield away from the assembly, it is held on magnetically. **NOTE: Keep the paint shield to use during the grille depth adjustment at the end.** 	**2**: This will expose the Subwoofer Grille. Remove the Subwoofer Grille Catch by removing the (2) #6-32 cap screws using a 7/64" hex head screwdriver bit. The Subwoofer Grille Catch should be free to remove from the Mud Plate.
3: Install the Spiral Planar Magnetic Driver (ICS-SPMD). The ICS3-SPMD can only be inserted in one way to make the electrical connection. 	**4**: Secure the ICS3-SPMD to the ICS3-Backbox. Insert the (2) #6-32 hex drive cap screws through the ICS3-SPMD and into the mounting bosses of the Mounting Platform.
5: Check for tight fit (hand tighten only!) **NOTE: There is a protective plastic film on the ICS3-SPMD. Do not remove it unil after you have completed installation.** 	**6**: Replace Paint Shield for setting the grille depth (next section)

# Step 9 - Using Paint Shield to Adjust Grille Flush and Level

The paint shield is held in place with magnets and has access holes for three (3) adjustment screws as part of the Magnetic Recoil Fastener (Patent Pending). The paint shield is the same thickness as the speaker grille that will be installed at the end of the installation. Use the paint shield to adjust the three screws for a perfectly level and flush installation. For the SUB1 this can be done as soon as the painting is completed.

NOTE For ICS3: The paint shield and Sub1 grille catch will be removed for the ICS3-SPMD to be installed. The paint shield *must* be kept for adjustment of the grille depth. The ICS3-SPMD is installed *after* painting is completed. To install the SPMD the SUB1 Grill Catch must be removed first.

NOTE For SUB1: The paint shield is used to set the final grille depth. Do not throw away until after grille depth is set. For the SUB1, grille adjustment can be made once painting is completed as the SUB1 Grill Catch is pre-installed and has the Magnetic Recoil Fastener (Pat. Pend).

Adjust Grill Mounting Depth: ICS3

The paint shield is held in place with magnets and has three holes that allow access to the three set screws. Save the metal paint shield while installing the ICS3-SPMD. *After* installing the ICS3-SPMD and *before* installing the grille, use the paint shield to set the depth of the 3 set screws of the Magnetic Recoil Fastener (Pat. Pend) so that the paint shield is flush with the surface. Remove the paint shield and replace with the grille.
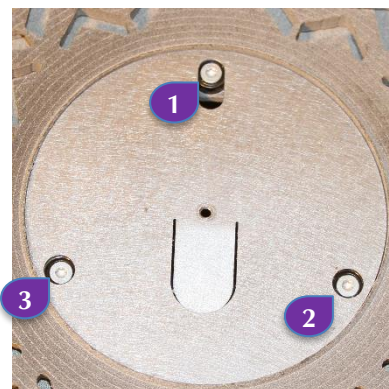
Adjust Grill Mounting Depth: SUB1

The paint shield is held in place with magnets and has three holes that allow access to the three set screws Magnetic Recoil Fastener (Pat. Pend). Use the paint shield to set the depth of the 3 set screws so that the paint shield is flush with the surface. Remove the paint shield and replace with the grille.

Remove the Paint Shield using a pick tool or screwdriver. It is held in magnetically. This will expose the Subwoofer Grill Catch (for SUB1) or the ICS3-SPMD (for ICS3) .

Place the grille on the magnetic Grille Catch.
Done!
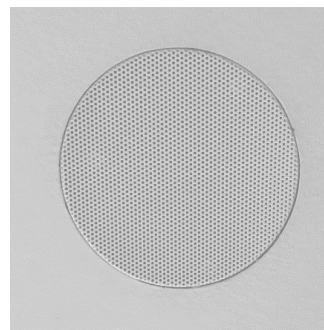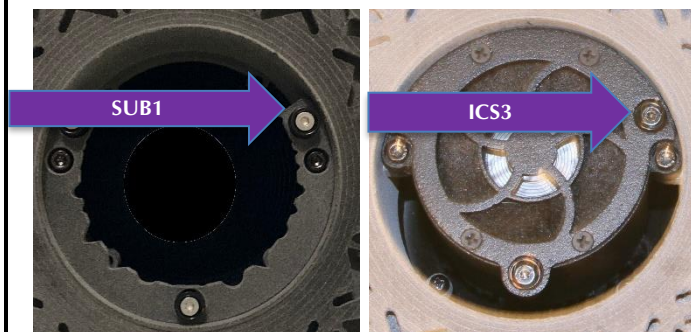
Caution!

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.

WISDOM and the stylized W are registered trademarks of Wisdom Audio.

Magnetic Recoil Fastener (Pat. Pend)

Wisdom Audio 1572 College Parkway, Suite 164
Carson City, Nevada 89706 USA
Telephone: 775.887.8850
Fax: 775.887.8820
www.wisdomaudio.com

W I S D O M ®