

IN-WALL

Concealed Flat Panel Speakers



Thank you for choosing the Onsia™ Concealed Flat Panel Speaker system. These unique loudspeakers feature proven, reliable components and a proprietary design that will provide a truly enjoyable listening experience.

Installing your own Onsia In-Wall flat panel speakers can be very rewarding and is a great way to save money while getting a great sounding system that blends invisibly with your décor. **In a “free-air” environment (not installed), the sound quality will be compromised. Do not be alarmed. When installed, your Onsia speakers will sound great, as they are designed to be covered with drywall compound and integrated into your wall system. Optimum speaker performance and sound quality will be achieved after final finishing and installation.**

We've developed this installation guide to give you step-by-step instructions for a successful do-it-yourself install. Please read this owner's guide completely before you start and then carefully consider your experience using the tools and taking the precautions referred to herein.

If you have doubts about doing this installation, you should contact a qualified contractor, electrician, or a professional audio/video installer. If you have other installation or technical questions, call our toll-free customer support line at (800) 434-3750.

Introduction

Onsia Concealed Flat Panel Speakers are designed to be as versatile as possible by replacing conventional loudspeakers with the first truly concealed, flat panel speaker that is easy to install, stylish and above all, a superb sounding system. Onsia speakers have been designed to be compatible with the majority of audio-visual equipment currently available. For general background music listening and voice reproduction, this product is generally sufficient to be used alone. However for home theater applications, we recommend the use of a powered subwoofer to “lift” the bottom end of the frequency spectrum.

Allow approximately 40 hours of playback at low to moderate listening levels for the speaker to break-in. After break-in, you will notice a sonic improvement, especially in the low frequency performance. Onsia loudspeakers employ a protection mechanism that mutes the sound if the power input is too great. If the output is muted, turn down the main volume control on the system for a few seconds to reset the level. Before making connections to any part of your sound system, make sure the amplifier and all connected sources are switched off. When you switch on your system or change sources, set the volume control to minimum and turn up the level gradually. DO NOT use your amplifier at full volume. The position of the Volume Control is NOT a reliable guide to the maximum volume level or capabilities of your sound system. Playing the system with extreme high settings of volume and tone controls will result in distorted sound and may damage the amplifier and loudspeakers.

Ensure that all loudspeakers in the system are correctly wired with correct polarity (++, --). DO NOT subject your loudspeakers to excessive cold, heat, humidity or sunlight. DO NOT push objects into holes, slots or any other opening in the rear cover. DO NOT attempt to dismantle the units. There are no user-serviceable parts inside and dismantling will void your warranty. The customization suggestions contained herein are based on information which is in our opinion, reliable. However, since skill, judgment, and quality of equipment and tools are involved, and since conditions and methods of customizing the speaker are beyond our control, the suggestions contained in this manual are provided without guarantee. We recommend that prospective users determine

the suitability of both the material and suggestions before modifying any part of your house.

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IMPORTANT SAFETY INSTRUCTIONS:

- Read these instructions before using this product.
- Keep these instructions for future reference.
- Heed all warnings on the product and in this guide.
- Follow all instructions.
- Do not block any ventilation openings, install in accordance with the manufacturer's instructions.
- Only use accessories specified by the manufacturer.

Safety tips:

- Be sure to use UL-rated wire labeled CL2 or CL3 for In-Wall and In-Ceiling model installations.
- Turn off the power in areas you'll be drilling to avoid electric shock.
- Make sure the area behind your wall is clear before cutting.
- If you drill through a fire block or firebreak, patch it with comparable material.
- If you drill holes between floors, seal them with fire-resistant caulk per National Electric Code standards.
- Before connecting your speakers, be sure to unplug your receiver/ amplifier.

When working in the attic:

- If it's not a finished attic, be careful to walk only on ceiling joists.
- These areas are often poorly ventilated. Stay hydrated and use a fan to circulate air if you can.
- Make sure someone knows that you're up there.
- Remember to take breaks.

When working on a ladder:

- Place your ladder in a stable position close to where you're working. Don't reach.
- Always have one hand on the ladder.
- Face the ladder when ascending or descending.
- Don't carry heavy items up the ladder that could cause you to lose your balance and fall.

OPERATION

It is important to correctly configure your receiver or processor to operate effectively with the Onsia speaker system. The correct setup is determined by the number of speaker panels and the type of receiver/processor. Always follow the directions and instructions for wiring and setup for your particular brand and model of audio and visual equipment.

For general listening in a kitchen, bedroom, den, etc., two speakers will provide full stereo sound.

For Home Theater application: (subwoofer is not included, but recommended)

For a 2.1 system: consists of two front speaker panels (left, right) and a subwoofer. Set your receiver to STEREO mode. If your receiver has a simulated surround sound capability (such as Dolby® Virtual Speaker or SRS Labs TruSurround®), you'll be able to enjoy the benefits of surround sound from just two speaker panels.

For a 4.1 system: consists of two front speaker panels (left, right), two rear surround speaker panels (left, right), and a subwoofer. Set your receiver mode to match the source material (STEREO, 5 CH. STEREO, etc. for music, SURROUND, PRO LOGIC, etc., for movies and TV). It is important to note that, since there is no center channel speaker panel in the 4.1 setup, you must set your receiver's Center Channel mode to PHANTOM. This will route the center channel signal to the left and right front speaker panels.

For a 5.1 system: consists of two front speaker panels (left, right), two rear surround speaker panels (left, right), a center channel speaker panel, and a subwoofer. In this setup, set your receiver mode to match the source material (STEREO, 5 CH STEREO, etc., for music, SURROUND, PRO LOGIC, etc., for movies and TV). Since there is a center channel speaker panel in the 5.1 setup, you must set your receiver's Center Channel mode to NORMAL or WIDE. Please follow the instructions for your receiver/processor to ensure that the subwoofer output is turned on and that the speakers are set to "Small" in all of the operating modes for the receiver/processor.

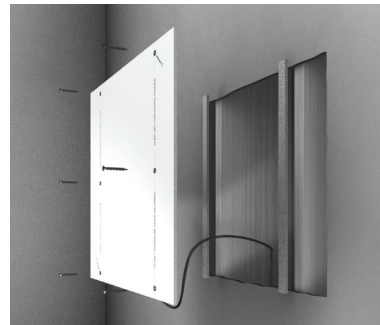
For a 7.1 system: Delivers seven audio channels and one subwoofer channel from an 8 channel source: consists of: two channels for speakers at the front—left (L) and right (R), one channel for speaker at the center—center (C), two channels for surround speakers at the sides—left surround (LS) and right surround (RS), two channels for surround speakers at the rear—left back (LB) and right back (RB), and one low-frequency effects channel (LFE) or subwoofer.

In this setup, set your receiver mode to match the source material (STEREO, 7 CH STEREO, etc., for music, SURROUND, PRO LOGIC, etc., for movies and TV). Since there is a center channel speaker panel in the 7.1 setup, you must set your receiver's Center Channel mode to NORMAL or WIDE. Please follow the instructions for your receiver/processor to ensure that the subwoofer output is turned on and that the speakers are set to "Small" in all of the operating modes for the receiver/processor.

IN-WALL SPEAKER INSTALLATION

Recommended tool list:

- Cordless drill
- Phillips screw driver
- Pliers
- Tape measure
- Utility knife
- Hammer
- Wire cutter/stripper
- Stud finder
- Drywall compound
- 12-inch mixing tray
- Drywall sanding block
- 1-inch putty knife
- 10-inch taping knife
- 2-inch paint brush
- Carpenters level
- Drywall sanding block
- 150-grit sandpaper
- Fish tape
- 2-foot level



Ideal for remodeling or new construction, the In-Wall concealed flat panel speaker is engineered to blend invisibly into any drywall surface, turning the entire wall into a sound source.

Unpacking

Packaging contents: package should contain one In-Wall flat panel speaker, four strips of self-adhering compression foam, self-adhering drywall mesh, and six drywall screws.

Carefully open the carton and remove all contents. Onsia loudspeakers utilize an asymmetrically laminated polystyrene panel material as the sound radiating surface. Although the panel is unaffected by minor cosmetic damage, care

should be observed during handling. Check each speaker; in the event of any damage or missing components, contact the retailer where you purchased the product.

To prevent fire or shock hazard, DO NOT EXPOSE THESE PANELS TO RAIN OR EXCESSIVE MOISTURE. DO NOT REMOVE REAR COVER. There are no user-serviceable parts inside. Be sure to save all of the packing materials, including the box and foam packing, in case the panels need to be shipped in the future.

Test each speaker

You should test each speaker before proceeding to be sure it is operating properly. At this point just verify sound signal. **In a "free-air" environment (not installed), the sound quality will be compromised. Do not be alarmed. When installed, your Onsia speakers will sound great. Optimum speaker performance and sound quality will be achieved after final finishing and installation.** When you switch on your system, set the volume control to minimum and turn up the level gradually. Do not use your amplifier at full volume. The position of the Volume

Control is not a reliable guide to the maximum volume level or capabilities of your sound system. Playing the system with extreme high settings of volume and tone controls will result in distorted sound and may damage your audio and/or video equipment. Be sure the speaker polarity is correct. Match speaker and wire positive to positive (+, +) and negative to negative (-, -).

Structure requirements

In the home environment, Onsia's In-Wall flat panel speaker is ideal for application within stud walls or plasterboard ceilings. It can also be set into solid wall structures, although this can involve considerable building work to create a suitable aperture in which to mount the product. The minimum depth of opening required in a stud wall, ceiling or solid wall, is 2 inches from the wall or ceiling front surface.

Speaker placement

Using the "operation" guidelines below, determine the location, number and placement of your In-Wall speaker system. Unlike conventional speakers, Onsia flat panel speakers have much more flexibility when determining their location. However, we have included some recommendations which will help you with your installation:

- Keep speakers at least 3 feet away from corners and other surfaces that might interfere with or reflect sound, such as tall or bulky furniture.
- For rectangular rooms of less than 300 square feet, two speakers should suffice. Place them near (but at least 3 feet away from) opposing walls.
- For L-shaped rooms, or for rectangular rooms larger than 300 square feet, use three or more speakers. Stagger them across the space for good sound dispersion.
- For narrow, long rooms, place left and right stereo speakers near (but at least 3 feet away from) the corners, or at opposite ends of the room to better disperse the sound.
- Locate the speakers about 66" off the ground.

Choosing the right speaker wire

Getting the right kind of speaker wire is important not only to the performance of your speakers, but also to the safety of your home. The type of speaker wire you use will depend on where you're going to route the wire and how far the signal will have to travel from your receiver or amplifier, to the speaker. Be sure to check your local building and fire code and buy wire accordingly. If you're going to run cable inside your walls, you'll need UL-rated speaker wire labeled CL2 or CL3.

Keep in mind that the gauge, or thickness, of your speaker wire should depend on how far the wire has to travel from the receiver to the speaker. The lower wire gauge (awg) number, the thicker the wire. Significant power losses can occur over long runs, resulting in lower performance. While this probably won't be a problem in most single-room setups, it could be an issue for multi-room systems. Use the chart below as a guideline for wire gauge selection.

Distance from Speaker to Amplifier Recommended Wire Gauge (AWG)

1-10 ft	20 awg
10-50 ft	18 awg
50-100 ft	16 awg
100-200 ft	14 awg
200 ft or more	12 awg

Planning the wire route

Once you've chosen your speaker locations, the next thing to figure out is where you're going to run the wire. Here are some common options:

- inside the wall
- under your carpet
- behind a baseboard, door jamb, or crown molding
- through a heating or air conditioning vent*
- inside cabinetry, bookshelves, drawers, or closets
- through a crawl space, or unfinished basement or attic

Note: Use wire that meets local building and fire code. If running wire in heating/AC vents, use "plenum-rated" wire — CLP2 or CLP3.

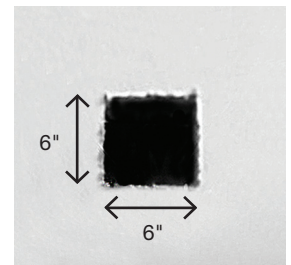
Cutting into your wall or ceiling

Onsia's In-Wall model speakers, whether placed in the wall or in the ceiling, need to fit between two studs or joists (preferably in the middle of that space for the best performance). Always inspect as much as possible without making a hole. Explore your crawlspace or ceiling in an unfinished segment of your basement.

Try to detect which way joists run and where empty wall space between studs might be. By inspecting from your crawlspace or attic, you can identify which wall locations don't contain water pipes and electrical wires. However, you still can't know what's behind the wall with absolute certainty.

To determine if each of your In-Wall speaker locations will work, follow this procedure with each speaker location:

- Using a stud finder, determine the location of the framing behind the dry wall.
- With a keyhole saw, carefully cut an access hole between two studs that is approximately 6 inches square. Be careful not to puncture pipes or cut through electrical wiring.
- Reach inside the cavity and determine the locality of the left and right stud framing, also verify that a minimum of 24-inches of unobstructed vertical space is available.
- Once you know that each of your speaker locations will work, trace the speaker dimension on the wall by scribing with a pencil around the In-Wall speaker. Use a level to make sure it's positioned properly. Ensure that your speaker locations are located in-between and centered within existing framing. Do not cut into supporting joists or studs.
- After you've checked all of your speaker locations and traced the templates, you can begin cutting drywall. Use a hand-held drywall or keyhole saw (not an electric one) and cut slowly. Cut the drywall in one piece and remove. Repeat this procedure for each speaker.



Cut access hole 6-inches square to verify unobstructed speaker placement

Note: If your house has plaster and lath walls or ceilings, installing your own In-Wall speakers will be more complicated. Plaster tends to crack and crumble easily, so you should be prepared to do some touch-up work. Running hidden, In-Wall

wire could be particularly challenging—consider running out-of-wall wire, and using carpets, trim, cabinetry, etc. to hide it.

Route and attach speaker wire

Run the speaker wire from each speaker location to your audio/video equipment. Leave a few feet of extra wire for each route. You can trim it later if necessary. Attach speaker wire to the In-Wall speaker by inserting about ¼ inch of exposed wire (use wire strippers) into the corresponding spring-loaded harness. Be sure the polarity (+, -) matches. Carefully lay the newly wired speaker in a convenient location.

Insulate cavity

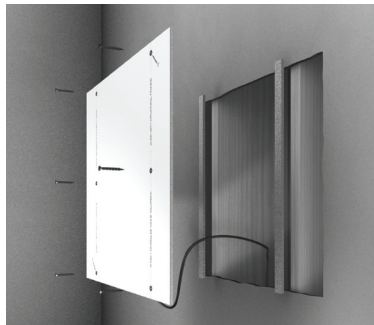
To prevent sound leakage, you may find it appropriate to add insulation to reduce sound transmission behind the speaker. Foam board, standard non-backed fiberglass or rock-wool insulation will suffice.

Install depth controllers

Attach the self-adhering compression foam strips (included) along the exposed length of each stud. The purpose of these strips is to allow you to control the depth that you will set the speaker into the wall cavity. Depending on the thickness of your drywall, either one or two foam compression strips can be used to achieve the proper depth. Generally, one strip is needed for 3/8" drywall and two strips for 1/2" to 5/8" drywall.

Attach speakers to framing

Using the six screws included, attach the speaker panel to the studs or joists where indicated on the panel's face. Be careful not to damage speaker by over-tightening the screws. Tighten each screw until the head makes solid contact with the speaker panel.



Self-adhering compression foam strips

Test each speaker to be sure it's connected properly

It is imperative that once the speaker is located in the wall or ceiling, and prior to plastering over, it is electrically tested to avoid time-consuming repairs or modifications at a later stage. At this point just verify sound signal. Optimum speaker performance and sound quality will be achieved after final finishing and installation. When you switch on your system, set the volume control to minimum and turn up the level gradually. Do not use your amplifier at full volume. The position of the Volume Control is not a reliable guide as to the maximum volume level or capabilities of your sound system. Playing the system with extreme high settings of volume and tone controls will result in distorted sound and may damage your audio and/or video equipment. Be sure the speaker polarity is correct. Match speaker and wire positive to positive (+, +) and negative to negative (-, -).

The following guide is designed to help determine possible problem areas:

No sound output: Check that your audio system has power, is turned on and is working. Check that all cables and connections are intact, and

made in the proper manner. Check for continuity over cable lengths. Take your system back to the bare minimum (e.g. amplifier, source and speakers) to eliminate faults in other components such as filters, crossovers and equalizers. If the problem persists, consult your supplier or a qualified audio/video contractor.

Distortion, buzzing or rattling sounds at modest volume levels:

Try to identify the location of the buzz or rattle. It may be caused by a loose screw or other mechanical part. Check the assembly and ensure screws and connections are tight. If the rattle persists, remove the panel from the wall and without any audio playing through the panel, shake the loudspeaker gently. If the rattle is evident while doing this, check for foreign objects (screws etc.) which may have fallen into the rear of the product and might be resting against the panel or frame. Similarly check your wiring to the product. Ensure that wires are not resting against the back of the panel.

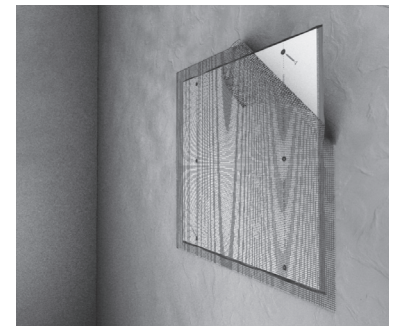
Attach speaker panels at proper depth

When you have determined that each speaker is connected and working properly, lay a straight edge over the panel and adjust the screw tension, either in or out on each screw, to establish the proper depth at which your speakers will set.

The depth should be set at about 1/8 to 3/16-inch, recessed inside the existing wallboard.

Attach self-adhering drywall mesh

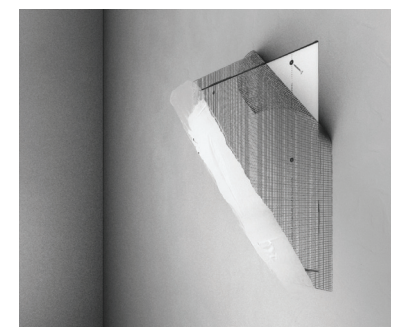
Center and apply mesh over speaker so that it overlaps the opening evenly. After the mesh is positioned, press it lightly, from the center outwards, over the entire opening. Remove any wrinkles.



Apply mesh evenly over speaker.

Patch the drywall

Using a 10-inch drywall taping knife, apply the drywall compound. Skim the wall area about eight inches past each edge of the mesh, and over the speaker panel itself, with a coat of drywall compound. Allow compound to dry. Sand the work area with 150-grit sandpaper and sanding block to smooth-out rough spots. Repeat skim coat and sand again as many times as needed to obtain desired results. Decorate with paint or wall paper.



Patch work area with drywall compound, sand smooth and paint.

TROUBLESHOOTING GUIDE

If your sound system appears not to be working, the following notes may help. Before investigating the cause of a problem, always switch off the system at sound source (amplifier). If you are using a Home Theatre system, remember that such systems can be quite complex and there is often a variety of factors involved.

IN-WALL

Concealed Flat Panel Speakers



Please read this manual together with all the manuals concerning the rest of your system. If, having attempted to resolve the problem, the trouble still persists, consult your dealer for assistance. Do NOT try to remove any covers on the products or attempt to dismantle them in any way. There are no user serviceable parts inside and you will invalidate any warranty.

Symptom	Possible Cause
No sound at all	Check that your hi-fi system is turned on and working okay. Check all connections and cables. Ensure there are no short circuits across terminals. Check that cables are not broken along their length.
Sound lacks bass content	Check the connections between the subwoofer and the amplifier.
Distortion at high volume levels	System level set too high. Objects placed on sub woofer. Objects too close to subwoofer.
Indistinct sound, poor effects	One or more speakers is out of phase. Be sure the speaker polarity is correct. Match speaker and wire positive to positive (+, +) and negative to negative (-, -).

Enjoy!

ONSIA™ is proudly presented by ACP, LLC.

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Product Info: 800.434.3750 / Technical Support: 800.558.0615