

IN-CEILING

Concealed Flat Panel Speakers



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

The In-Ceiling speakers you have purchased are engineered to lay into a standard ceiling grid system that holds 24" x 24" ceiling tiles. If you want to install in-ceiling speakers in a drywall ceiling, you must use the Onsia In-Wall speakers which are designed to be integrated into a drywall surface. Installing your own Onsia In-Ceiling 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.

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.

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.

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 speakers 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.

ACP AND ITS AFFILIATES DO NOT MAKE ANY WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR PURPOSE, WITH RESPECT TO ANY SAID SUGGESTIONS.

In no event shall Acoustic Ceiling Products LLC have any liability in any way related to or arising out of said suggestions and product data for direct, special, consequential or any other damages of any kind regardless whether such liability is based on breach of contract, negligence or other tort, or breach of any warranty, expressed or implied.

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.
- Only use accessories specified by the manufacturer.
- Do not block any ventilation openings, install in accordance with the manufacturer's instructions.

Safety tips:

- Only use accessories specified by the manufacturer. 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 receivers 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



Onsia speaker panels install into your existing ceiling easily.

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-CEILING INSTALLATION GUIDE

Recommended tool list:

- Utility knife
- Wire cutter or stripper
- Rolling pin
- Ladder

Unpacking

Packaging contents: package should contain one In-Ceiling flat panel speaker and one photo-realistic ceiling tile print with adhesive backing.

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 THE PANEL TO RAIN OR EXCESSIVE MOISTURE. DO NOT OPEN THE PANEL.** 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 (-, -).

In-Ceiling speaker requirements

The In-Ceiling concealed flat panel speaker is designed to look like an acoustical ceiling tile and provides easy installation into any standard ceiling grid system. No special brackets or fittings are required. Perfect for your basement, office or commercial space, these speakers provide a truly invisible sound solution.

In the home environment, Onsia's In-Ceiling flat panel speaker is designed to be easily installed in standard suspended ceiling systems, completely replacing a standard 24-inch x 24-inch ceiling tile. It is suitable for most 24-inch x 24-inch ceiling grids, flush (lay-in) or non-flush mounting. The minimum height above the ceiling grid is 2 inches.

Speaker placement

Using the “operation” guidelines below, determine the location, number and placement of your In-Ceiling 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 2 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 3 or more speakers. Stagger them across the space for good sound dispersion.
- For narrow, long rooms try to 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.

Choosing the right speaker wire

Getting the right kind of speaker wire is important not only to the performance of your speakers, but 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 joists, 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. You must get wire to each speaker from your audio/video equipment. Here are some common options:

- above the ceiling grid
- inside a 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.

Route speaker wire

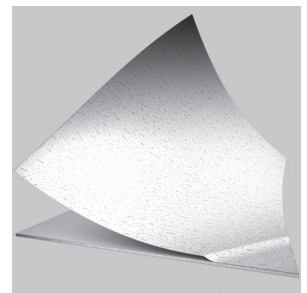
Run your speaker wire from each speaker location to your audio/video equipment. Leave a few feet of extra wire for each route. You can trim it later if necessary.

Mount photo-realistic ceiling tile print to speaker panel

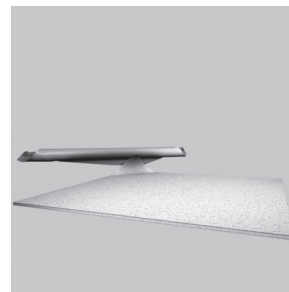
The ceiling tile print that is included in the box is a photo-realistic replica of one of the most popular ceiling tiles. If this pattern does not match your existing ceiling tiles, we have a large selection of photo-realistic ceiling tile prints that should match your existing ceiling tile pattern. Please contact ACP at 800-434-3750 or visit www.onsiaideas.com for more information about our Special Order selection of replica ceiling tile prints.

The bond to the panel surface is immediate and not repositionable. **DO NOT REMOVE** the protective liner until you thoroughly read all instructions and are ready to customize the panel. Prepare the work area, materials and tools in advance and take your time.

Step 1: Begin by placing the speaker in the styrofoam tray. Lift a corner of the release liner with your fingernail or a blade, and peel the liner back about one inch across the width of the board, exposing an area of adhesive. Crease or fold back the release liner from this area.



Carefully align print on one edge and begin to pull off liner



Gradually release liner while smoothing print onto panel.

Step 2: Lay the ceiling tile print on the speaker panel and align the edges with the panel. When the print is properly aligned, apply light pressure on the exposed corner to the print, tacking it into place.

Smooth the print in place by hand to assure alignment. Do not attempt to remove the print after it contacts the adhesive surface.

Step 3: Gradually pull the release liner from under the print while pressing the print into place. Pressure must be applied uniformly across the full width of the board. This can be done by hand, with a rolling pin or with a cylindrical tube. Be careful to avoid trapped air or misalignment. The bond is immediate and increases in strength over time.



Insert speaker wire into wire harness.

Attach speaker wire to speakers

Position your ladder under the tile you are replacing. Remove the old ceiling tile and discard according to local disposal ordinances. Place the In-Ceiling speaker panel in the grid opening where it will go. Attach speaker wire to the In-Ceiling speaker by inserting about ¼ inch of exposed wire into the corresponding spring-loaded harness. Be sure the polarity (+, -) matches. Repeat this procedure with each speaker.

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.

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.

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 assure the grid and wire connections are tight. If the rattle persists, remove the panel from the ceiling grid 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. If buzz or rattle is caused by the grid system itself, taping or gluing may solve the problem.

Care and maintenance

Very little maintenance is required. The grid and surface of the panel can be occasionally wiped clean with a soft damp cloth. Do not use detergents or solvents.

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 Theater system, remember that such systems can be quite complex and there is often a variety of factors involved. 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 you're audio/video 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 is set too high. Objects placed on sub woofer. Objects too close to subwoofer.
Indistinct sound, poor effects	One or more speakers are out of phase. Be sure the speaker polarity is correct. Match speaker and wire positive to positive (+, +) and negative to negative (-, -).

Enjoy!

ON SIA™ is proudly presented by ACP, LLC.

PO Box 1581, Appleton, WI 54912-1581

Product Info: 800.434.3750 / Technical Support: 800.558.0615