



NILES®



INSTALLATION GUIDE



FOR USE IN DISTRIBUTED AUDIO OR HOME THEATER SYSTEMS
INDOOR/OUTDOOR WEATHERPROOF LOUDSPEAKERS

OS6.3Si OS5.3Si

CONGRATULATIONS!

Thank you for choosing a Niles **OS Indoor/Outdoor Loudspeaker**. With proper installation and operation, you'll enjoy years of trouble-free use.

Niles manufactures the industry's most complete line of custom installation components and accessories for audio/video systems. To see the complete Niles product assortment, visit us on the Internet at: www.nilesaudio.com

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INTRODUCTION

Niles once again raises the bar. With our first OS Indoor/Outdoor models, we revealed a radical new understanding of loudspeaker capabilities. Niles original OS Indoor/Outdoor Loudspeakers are constantly praised for their ability to deliver exemplary reliability and outstanding sound quality. These attributes have made Niles OS Indoor/Outdoor Loudspeakers the bestselling loudspeakers in their class.

The goal of our new OS Indoor/Outdoor line-up is to raise this bar with refined appearance and superior sonic performance, once again establishing a benchmark by which all others are judged. The new Niles OS Indoor/Outdoor Loudspeakers owe much of their performance and sound quality advantage to design elements pioneered in the award-winning Niles DS Directed Soundfield™ Loudspeakers. Their engineering advances come from our integrated approach to driver and cabinet design. By integrating the woofer basket into the baffle of the cabinet, we are able to increase the woofer cone-area to cabinet-width ratio, thus enabling OS Indoor/Outdoor Loudspeakers to provide levels of bass performance that substantially exceed their physical size. However, deeper and more powerful bass isn't the only refinement in the new OS Indoor/Outdoor line-up. A new and modern style enables OS Indoor/Outdoor Loudspeakers to blend seamlessly with architectural elements, both indoors and out. After the installation is complete, you will be astonished by the experience of hearing such clean and powerful sound coming from such an elegant-appearing loudspeaker.



FEATURES AND BENEFITS

STEREO INPUT “SI” DESIGN

Plays both left and right channels to provide broad sound coverage and a stereo effect from a single loudspeaker

PATENT-PENDING INTEGRATED WOOFER/BAFFLE ASSEMBLY

Increases the woofer cone-area to cabinet-width ratio for enhanced bass output

MICA-FILLED POLYPROPYLENE WOOFER CONE

Reduces breakup and lowers distortion

BUTYL-RUBBER WOOFER CONE SURROUND

Damps resonance and provides exceptional durability

DUAL-VOICE-COIL WOOFER

Delivers both left and right channels from one loudspeaker

DUAL ULTRASILK® DOME TWEETERS

One-inch fluid-cooled tweeters provide ultra-wide dispersion for clear, detailed, and extended high frequencies

STEREO-IMAGING TWEETER ARRAY

Directs the high-frequency sounds from both the right and left channels from one loudspeaker

WEATHERPROOF ENGINEERING

Enables OS loudspeakers to handle extreme hot, cold, and moist environments, exceeding the military's strict anti-corrosion specification MIL-STD-883D

ADVANCED MATERIAL SCIENCE

Elevates appearance and longevity of the cabinet and grille, plus enhances the performance of the woofers, tweeters, and crossovers



ARCHITECTURALLY-FRIENDLY DESIGN

Delivers stellar acoustical performance, yet tucks discreetly away into corners and under eaves

LOW-DIFFRACTION GRILLE AND FRONT BAFFLE

Ensures that the sound waves emanating from the woofer and tweeter are not reflected by the surrounding parts of the loudspeaker for precise imaging and acoustical accuracy

RIGID, ACOUSTICALLY-INERT CABINET

Prevents transmission of unwanted vibrations for clean and dynamic bass response

ALL-WEATHER VERSATILITY

Reduces installation limitations to provide great sound from the beaches of Miami to the harsh winters of Minneapolis

HOME THEATER APPLICABILITY

Enables OS loudspeakers to be used as left, center, right, or surround speakers in home theater systems

INTEGRATED MOUNTING BRACKET AND SHELF STAND

Provide a variety of secure, quick and easy mounting solutions

TAPERED SHAPE

Facilitates mounting in corners and under eaves

INVERTED GOLD-PLATED 5-WAY BINDING POSTS

Repel moisture and ensure positive connections in virtually any conditions over long periods of time

PARTS GUIDE

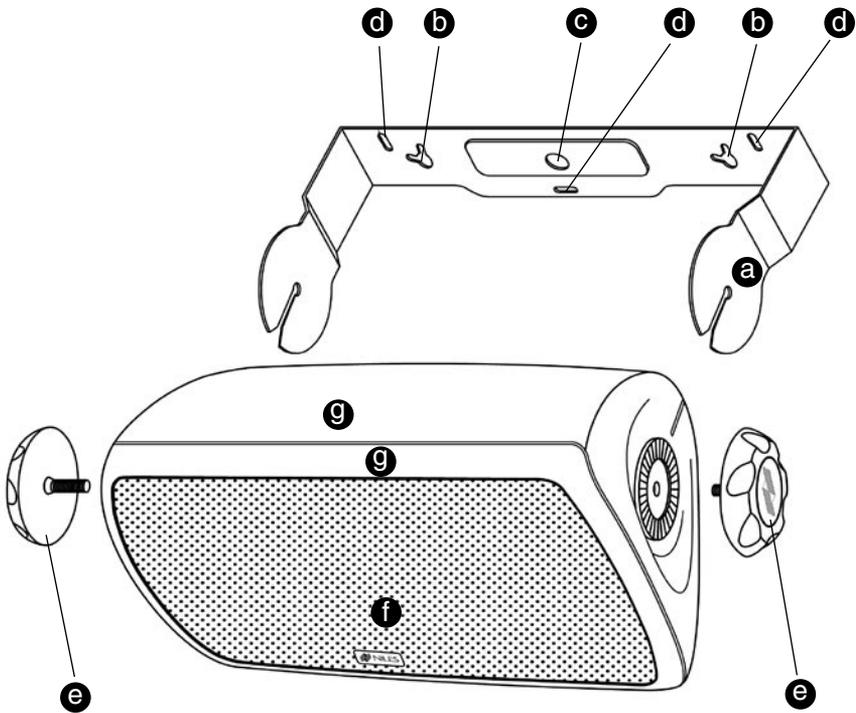


Figure 1. OS6.3Si or OS5.3Si parts:

- a. Bracket
- b. Nail Hole
- c. Wire Hole
- d. Screw Hole
- e. Bracket Knob
- f. Grille
- g. Cabinet

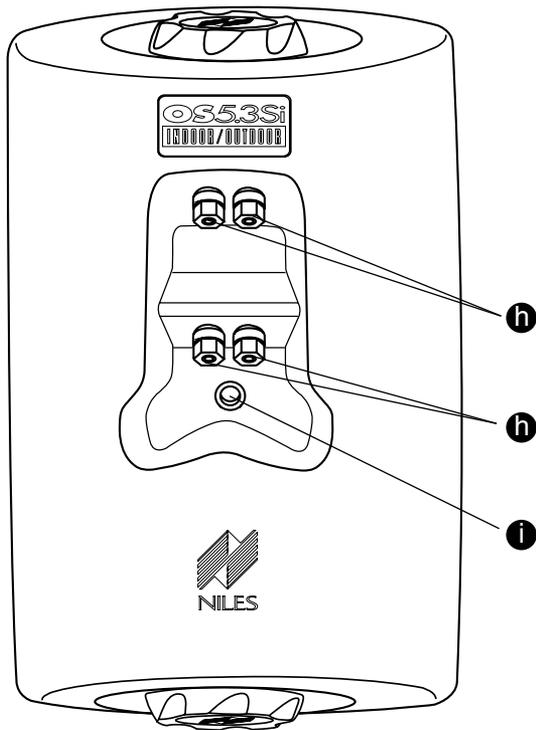


Figure 2. OS6.3Si or OS5.3Si Parts (continued):

h. Binding Posts

i. Threaded Insert (1/4"-20 thread size)

INSTALLATION CONSIDERATIONS

TOOLS AND MATERIALS REQUIRED

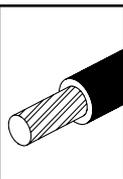
- *Electric drill with 1/4- and 1/2-inch drill bits, and a 1-inch flat drill bit for drilling through studs)*
- *Three screws or bolts suitable for the mounting surface*
- *The proper screwdriver for the mounting hardware*
- *Safety cable (optional)*
- *Cable ties*
- *Wire stripper*
- *Pencil*
- *Level*
- *Rubber gloves and protective eyewear*

WIRING

The OS loudspeakers connect to your receiver or amplifier using 2-conductor loudspeaker wire (see **Figure 3** on the next page). For most applications, we recommend using 16- or 18-gauge wire. For wiring runs longer than 80 feet, we recommend 14-gauge wire. The binding posts on OS loudspeakers accommodate up to 12-gauge wire directly. Larger sizes can be accommodated using spade, banana, or pin connectors.

TECH TIP

Wire size is expressed by its AWG (American Wire Gauge) number – the lower the number, the larger the wire. For example, 12 AWG is physically larger than 14 AWG.



When you run wire inside walls, outdoors or in marine installations, special jacketing or conduit is required for a trouble-free installation and conformation to the local and national building codes. If you are not sure of the correct wire jacket or type of conduit to use, consult a professional audio/video installer, building contractor, or the local building and inspection department.

INCORPORATING A VOLUME CONTROL

It's possible to control the volume of the sound at the loudspeaker location. Plan to wire the system so the loudspeaker has its own volume control. Niles makes a wide range of indoor and outdoor volume controls with and without muting capabilities. Consult your local Niles dealer for more information. The volume control is connected in line with the loudspeaker, so you must connect the wire from the amplifier to the volume control and then from the volume control to the loudspeaker (see **Figure 4** on the next page).



Figure 3. Wiring directly from a receiver or amplifier

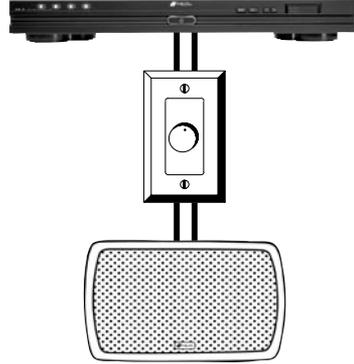


Figure 4. Incorporating a volume control

RECOMMENDED AMPLIFIER POWER

For optimum performance, we recommend amplifiers with the following power ratings:

- For the OS 5.3Si loudspeaker, 5 to 100 W per channel
- For the OS 6.3Si loudspeaker, 5 to 125 W per channel

Ironically, most speakers are not damaged by large amplifiers but by small amplifiers. If you are playing at high volume, a small amplifier will run out of power very quickly. When an amplifier runs out of power it creates damaging “clipping” distortion. A large amplifier will play at the same volume without distorting. See **OPERATION** on page 17 for more information about clipping distortion.

PLACING THE LOUDSPEAKER FOR THE BEST SOUND QUALITY

Traditionally, when using a pair of stereo loudspeakers, the listener will be positioned directly between the left and right loudspeakers to achieve optimum stereo sound. However, in some applications this is not possible, especially when a large area of coverage is required. It was for these types of applications that the OS “Si” loudspeaker was created. With its ultra-wide dispersion pattern, a single OS “Si” loudspeaker is able to project quality summed-stereo sound over a larger area. No matter where you are—you are always in the sweet spot. (See **Figure 5** on the next page).

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PLACING THE LOUDSPEAKER FOR THE BEST SOUND QUALITY (CONTINUED)

Make sure furniture or other objects will not block or reflect sound from the loudspeaker. You should have a direct line of sight with the front of the loudspeaker.

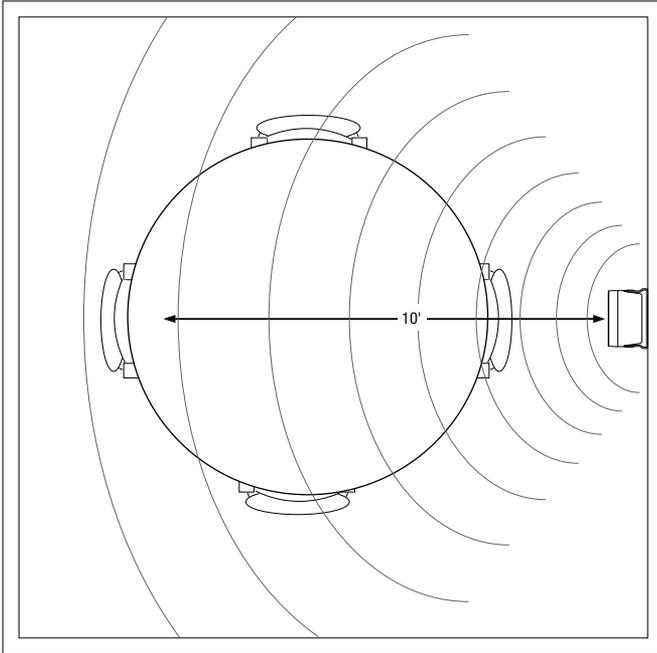


Figure 5. Illustration depicts the optimum placement zone for a listening distance of 10 feet.

You can control the loudspeaker's bass output by placement. This is called the boundary effect. You will get more bass response by mounting the OS loudspeaker directly to a wall or other flat surface (any boundary close to the loudspeaker will reinforce the bass frequencies). You can increase the bass output even more by mounting the OS loudspeaker in a corner or under an eave (see **Figure 6** on the next page). This type of placement gives the loudspeaker two boundaries, both reinforcing the bass sounds. Of course, if you wish to hear less bass, try moving the loudspeaker away from the boundary (see **Figure 7** on the next page).

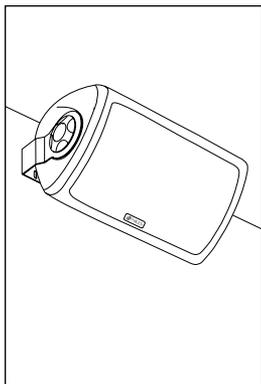


Figure 6. Placement for more bass output

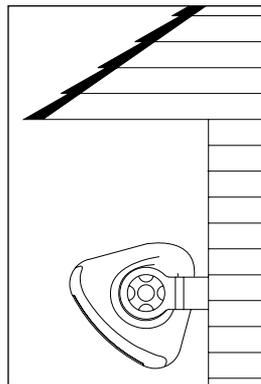
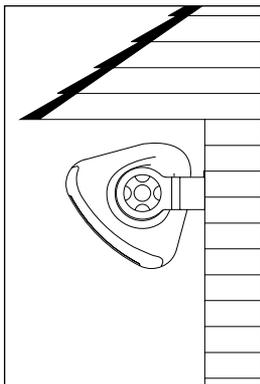


Figure 7. Placement for less bass output

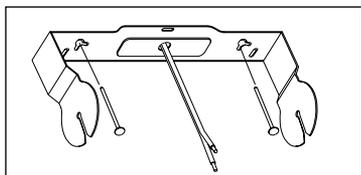
MOUNTING METHODS

The OS loudspeaker should be mounted horizontally. The bracket knobs will keep the loudspeaker angled correctly in any position once they are tightened. You can choose from three mounting methods to attach the OS loudspeaker to the wall, ceiling, or other mounting surface.

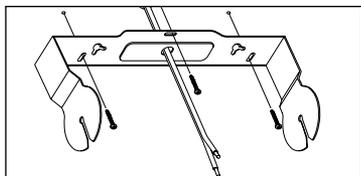
- 1. If the loudspeaker is never going to be exposed to sudden accidental impacts, wind, waves, or earthquakes, you can simply hang it on a nail using the nail hole(s) on the bracket (see **Figure 8** on the next page).*
- 2. The safest and most secure way to mount the loudspeaker is by screwing it to the mounting surface using your own hardware (suitable for the surface you are mounting to) and the bracket supplied with the loudspeaker (see **Figure 8**).*
- 3. There is a threaded brass insert (1/4" – 20) on the back of the OS loudspeakers for attaching a custom bracket (see **Figure 8**). This allows you to position the loudspeaker at unusual angles or varying distances from the mounting surface.*

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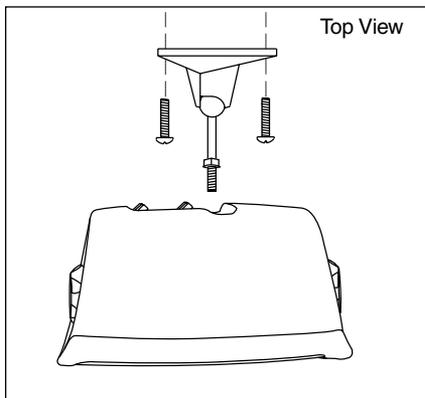
MOUNTING METHODS (CONTINUED)



Nail Mounting



Screw Mounting



Custom Bracket Mounting

Figure 8. The OS loudspeakers can be mounted three ways

SAFETY FIRST!

Be careful to use hardware that is designed for the surface you are mounting to. The OS 5.3Si loudspeaker (including bracket) weighs 9 pounds. The OS 6.3Si loudspeaker (including bracket) weighs 11 pounds. We recommend using attachment methods capable of supporting ten times the weight of the loudspeaker and bracket. If you are not sure of a safe way to mount a loudspeaker, consult a professional installer or a building contractor.

You will maximize the useful life of the loudspeaker by placing the loudspeaker so that it receives less exposure to the elements. Look for the best overall compromise between sound quality, convenience, and exposure. Do not compromise safety.



PAINTING THE LOUDSPEAKER

The enclosure, the brackets, and the grilles of the OS loudspeaker can all be painted to match the surroundings. Because we want you to preserve the acoustic qualities of the grille, please paint the grille according to the grille painting instructions. Make sure you pick a paint that is appropriate for the mounting location. There are interior and exterior varieties, and even paint for marine uses. If you are not sure what paint to use, consult a paint store professional or a painter.

TOOLS REQUIRED

- *Spray can of primer paint*
- *The correct paint for the environment/use (oil- or water-based paint is fine)*
- *Paint brush or applicator (if the paint is not in a spray can)*
- *Awl (for removing the grille)*
- *Masking tape*
- *Paint mask (supplied)*
- *A damp cloth and a dry cloth*

PREPARING TO PAINT

1. *Separate the parts of the loudspeaker. You should remove the brackets and the bracket knobs. Remove the grille by hooking it with the tip of an awl and pulling it away from the cabinet (see **Figure 9** on the next page).*
2. *Wipe off the sides of the cabinet, the bracket, bracket knobs, and grille with a damp cloth. Do not touch or rub the loudspeakers on the front baffle. Make sure everything is dry before masking.*
3. *Mask off the binding posts and the brass threaded inserts on the back panel with masking tape.*

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PREPARING TO PAINT (CONTINUED)

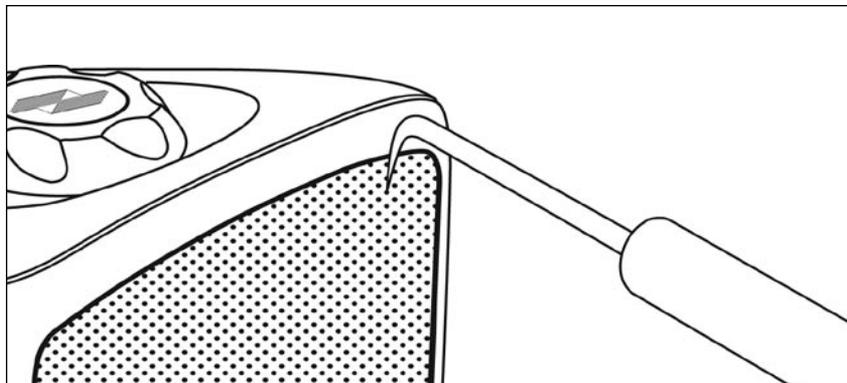


Figure 9. Removing the grille using an awl

4. *Mask off the threaded inserts on the top and bottom with masking tape.*
5. *Protect the front of the loudspeaker by inserting the supplied paint mask in place of the grille.*

PAINTING THE CABINET, BRACKET KNOBS, AND BRACKET

1. *Apply two thin coats of a sandable spray primer to the cabinet and knobs. The bracket doesn't require a coat of primer.*
2. *Allow the primer to dry completely.*
3. *Apply the finish color.*
4. *Allow the paint to dry completely.*
5. *Carefully remove the masking material.*
6. *Do not reattach the loudspeaker to the bracket until the bracket is mounted. Try to keep all handling of the freshly-painted parts to a minimum.*



PAINTING THE GRILLE

The grille is important to the sound of the loudspeaker. Do not fill the holes of the grille with paint. The grille is constructed of aluminum with a perfectly-even powder coat overall. This powder coat is an ideal primer.

If you are using a spray paint, use two thin coats without any primer. If you are using a compressor and a spray gun, use the finest, most diffuse setting. Practice on paper if you are not experienced in painting with spray paint.

If you are using an applicator or brush and a can of paint, thin the paint first. Thick paint will tend to clog the grille holes. To ensure a uniform appearance, paint the front and back of the grille.

REPLACING THE GRILLE

Carefully fit the grille into its recess so that it is barely in place. Starting with one corner, go around the speaker, pushing in the grille a little bit each time, and making sure not to bend the grille out of shape. You will feel a positive “snap” when it is in place.

INSTALLATION

MOUNTING THE BRACKET (IF ATTACHING THE LOUDSPEAKER TO A WALL, CEILING, BEAM, OR OTHER SOLID STRUCTURE)

1. Loosen the bracket knobs and remove the bracket from the loudspeaker.
2. Hold the bracket up to the mounting surface horizontally, so that the loudspeaker wire fits through the large, circular wire hole in the middle of the bracket. Align the bracket so it is square with the surroundings (use a level for accuracy).
3. Mark the locations of the three oval-shaped screw holes (see **Figure 10**). Be sure to use all of the holes.

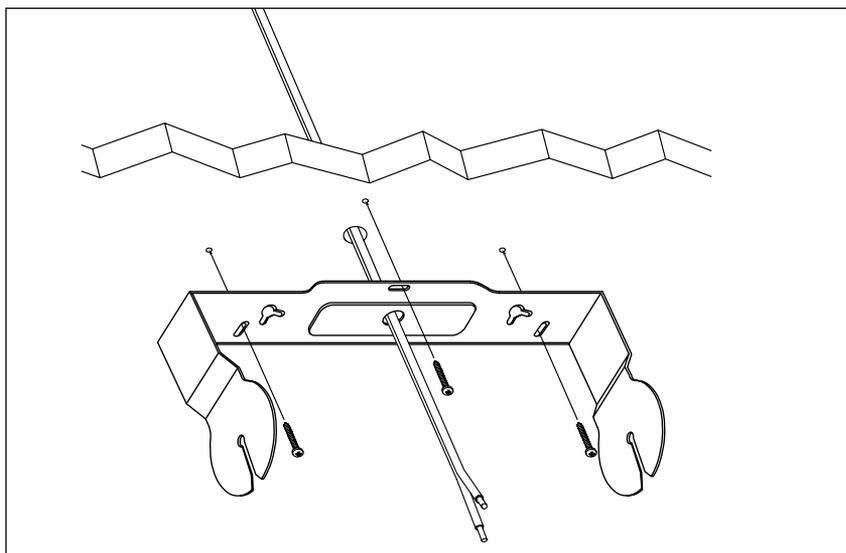


Figure 10. Mounting the bracket

4. Drill pilot holes into the mounting surface.
5. Pull the loudspeaker wire through the wire hole in the center of the mounting bracket. Align the bracket so that the holes all line up.
6. Use your hardware to attach the bracket to the mounting surface.

CONNECTING THE LOUDSPEAKER

1. For each loudspeaker wire, separate the two conductors on each end so that at least 2 inches are free.
2. Strip away 1/2 inch of insulation from each conductor on each end.
3. If you have any connectors (gold pins or bananas) which you prefer to use, affix them to the stripped wire ends now. Only gold-plated connectors should be used outside, as they will not tarnish or corrode.
4. If using the bracket to attach to a solid surface, slide the loudspeaker onto the bracket. Do not tighten the knobs completely. Angle the loudspeaker so that the rear terminals are accessible.
5. Using correct polarity at the loudspeaker, connect left- and right-channel wires to the two sets of five-way binding posts, as shown in **Figure 11**. Connect the other end of each loudspeaker wire to the receiver (or amplifier) in the same way.

NOTE: OBSERVE CORRECT POLARITY: POSITIVE (+) GOES TO THE RED POST AND NEGATIVE (-) GOES TO THE BLACK POST. IF YOU ARE UNSURE OF WIRE POLARITY, SEE THE SECTION **CHECKING LOUDSPEAKER PHASE** ON THE NEXT PAGE.

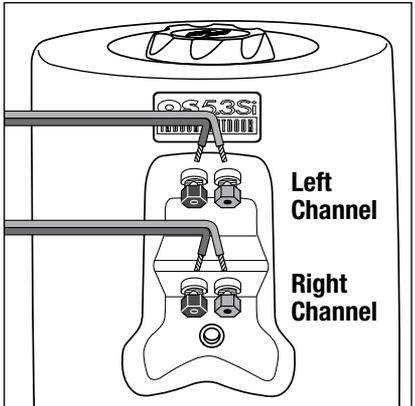


Figure 11. Loudspeaker wire connections.

6. If required, attach the safety cable to the loudspeaker enclosure. See **Safety First** on page 10 for details.
7. Verify that the loudspeaker is in-phase (see **Checking Loudspeaker Phase** on the next page).
8. Angle the loudspeaker for the best sound possible.
9. Tighten the bracket knobs by hand only.

NOTE: DO NOT USE ANY TOOLS FOR TIGHTENING. DOING SO MAY STRIP THE INSERT THREADS.

10. Check that the entire installation is safe and secure.

CHECKING LOUDSPEAKER PHASE

Loudspeaker wire has two conductors. On both your receiver (or amplifier) and each set of loudspeaker binding posts, one conductor is attached to the negative (-) terminals, while the other is attached to the positive (+) terminals. Usually, the wire is marked for your convenience, but the marking can be done in the following different ways:

- *Stripe on one wire*
- *Ribbed area you can feel on one conductor*
- *Different colors of metal wire on each conductor*
- *Fabric strand or string wound into one of the conductors*

Of course, there are some wires that appear completely identical. So be careful, or you might make a connection mistake. If you do, the woofer on the OS loudspeaker will not sound as loud or will lack bass. If you suspect the sound is not right, or you cannot see any markings on the wire, try this simple test:

1. *Play some music with the receiver or amplifier set to Mono.*
2. *Listen to the richness of the bass and the loudness of the sound.*
3. *Turn off the receiver or amplifier and reverse the connections on one loudspeaker terminal only.*
4. *Repeat the listening test with the same setting of the volume control:*
 - *If the music is louder now, use the new connections.*
 - *If the music is softer now, revert to the original connections.*



OPERATION

LISTENING AT HIGHER VOLUMES

Outdoors there are no walls to reflect and contain the sound. It requires more power to achieve a reasonable volume of sound outside than it does indoors. You also frequently find yourself very far from the loudspeaker. It is possible to turn the volume so high that the amplifier runs out of power. This creates “clipping” distortion.

Clipping distortion makes treble sound very harsh and unmusical. When you hear harsh sounding treble from any good loudspeaker indoors or outdoors, turn the volume down immediately! Those harsh sounds are masking some much more powerful ultra-high-frequency sound spikes which will quickly damage any fine loudspeaker.

CLEANING

Clean the OS loudspeaker with a dampened soft cloth or paper towel. If the loudspeaker is mounted high up on a wall or ceiling, use a broom to gently brush it off. Hosing off the loudspeaker is not recommended, as the tweeter is a precise mechanism which might be damaged by a high-pressure stream of water.

SPECIFICATIONS

OS6.3Si Loudspeaker

Driver Complement

- 6" summing woofer
- Two independent 1" Ultrasilk dome tweeters with fluid cooling

Recommended Amplifier Power

5 to 125 watts per channel

Nominal Impedance

8 ohm per channel, wired in stereo or 4 ohm with both channels wired together

Frequency Response

75 Hz to 21 kHz, +/- 3 dB

Sensitivity

90 dB with 2.83 V pink noise input, measured at 1 meter on axis

Wiring Requirements

We recommend using 16- to 18-gauge speaker wire for runs up to 80 feet and 14-gauge speaker wire for runs up to 200 feet. The connectors will accommodate 12- to 22-gauge wire.

Dimensions (Loudspeaker with U-Bracket)

8-3/16" wide x 13-5/16" high x 9-3/16" deep (20.79 cm wide x 33.81 cm high x 23.33 cm deep)

Weight (Loudspeaker and Bracket)

11 lb

OS5.3Si Loudspeaker

Driver Complement

- 5" summing woofer
- Two independent 1" Ultrasilk dome tweeters with fluid cooling

Recommended Amplifier Power

5 to 100 watts per channel

Nominal Impedance

8 ohm per channel, wired in stereo or 4 ohm with both channels wired together

Frequency Response

85 Hz to 21 kHz, +/- 3 dB

Sensitivity

90 dB with 2.83 V pink noise input, measured at 1 meter on axis

Wiring Requirements

We recommend using 16- to 18-gauge speaker wire for runs up to 80 feet and 14-gauge speaker wire for runs up to 200 feet. The connectors will accommodate 12- to 22-gauge wire.

Dimensions (Loudspeaker with U-Bracket)

7-7/16" wide x 12" high x 7-3/4" deep (18.89 cm wide x 30.48 cm high x 19.68 cm deep)

Weight (Loudspeaker and Bracket)

9 lb

NOTES



BLENDING HIGH FIDELITY AND ARCHITECTURE®

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