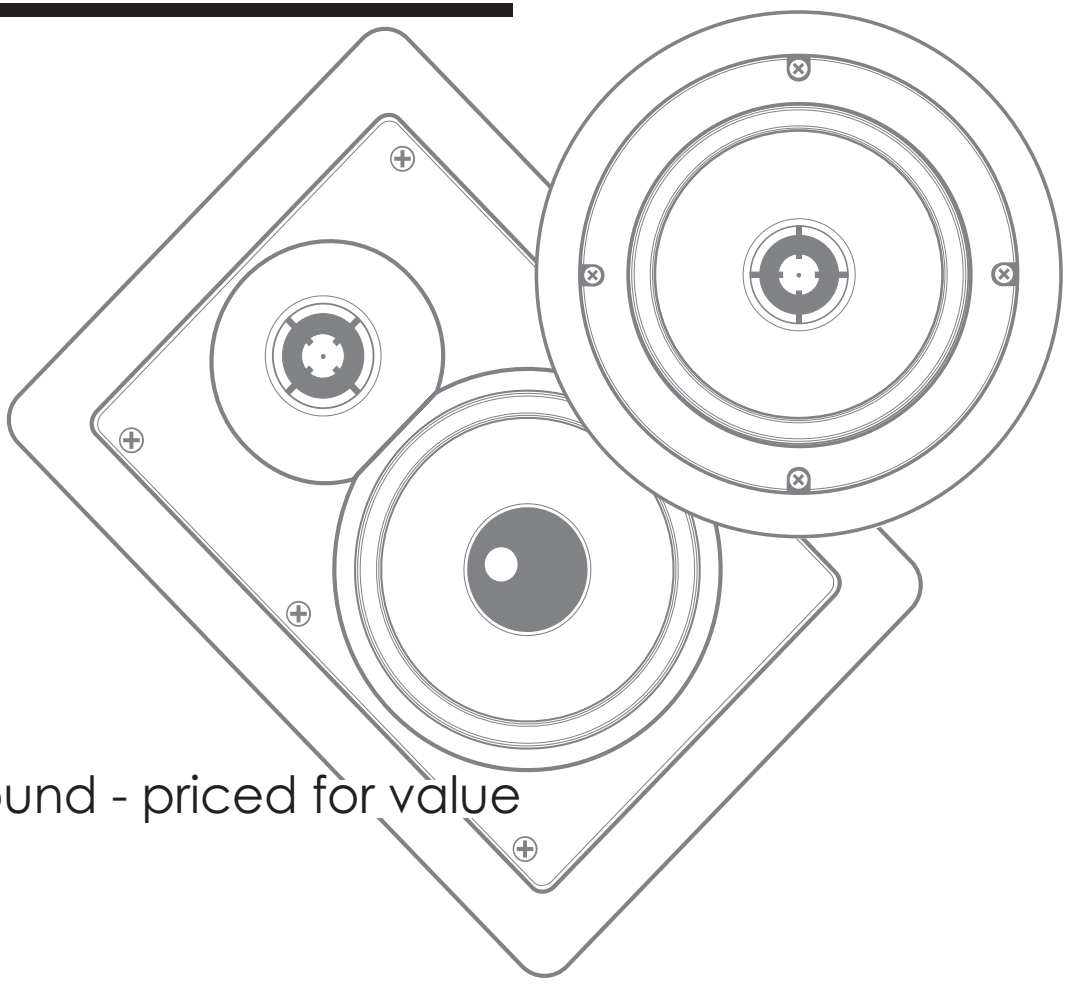
contractor
Series Speakers



built for sound - priced for value

Russound®

INTRODUCTION

Thank you for selecting the Russound Contractor Series In-wall/In-ceiling Speakers. Like all Russound speakers, they combine acoustic technology with durability and will provide years of musical enjoyment. An added feature of models SP-C503, SP-C522 and SP-C622 is the dual voice coil design. This is unique in that both left and right signals can function in one speaker, which is ideal for smaller installations or where there is no preferred listening position.

Russound Contractor Series speakers should only be installed by authorized personnel.

SPEAKER WIRE

The amount of wire you're going to need will of course vary with speaker placement. We recommend labeling speaker wires with "left" and "right" and room location. This takes the guesswork out of which wires go where when installing speakers later.

What kind to use:

We recommend using Russound AW series speaker cable or any reputable brand of 16 to 12 gauge multi-stranded wiring for amplifier-to-speaker connections.

Selecting the proper gauge:

Wire is measured in gauges: the bigger the number, the smaller the wire. For example, 18-gauge is thinner than 14-gauge. The gauge of wire you need is determined by the distance between your amplifier/receiver and the in-wall speakers. Remember, the longer the run, the heavier the gauge needed. Use the following chart as a guide:

Length	Minimum Gauge
0 to 100 ft.	16
50 to 150 ft.	14
100 to 200 ft.	12

WHERE TO PLACE YOUR CEILING SPEAKERS

Placement can make all the difference in how your Russound speaker system sounds. There are at least four factors to consider for your layout:

- How you intend to use the ceiling speakers
- Where they'll sound best (stereo imaging and acoustic considerations)
- Where they can be installed (wall and ceiling surfaces)
- Where speaker wire can be run

STEREO IMAGING

If your Russound Ceiling Speakers are going to be your primary listening source in a room, you need to consider some other factors to insure proper imaging. The term "stereo imaging" refers to a speaker system's ability to project music so that it sounds like the performers are in a three-dimensional space between the speakers. It's the whole point of having stereo instead of monophonic sound.

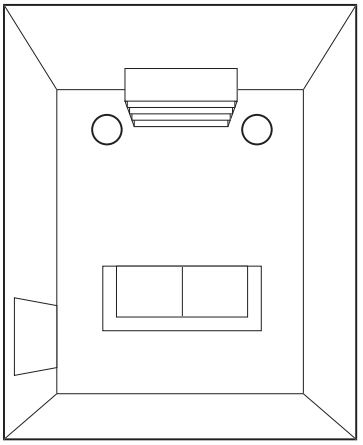


Figure 1

GOOD
for stereo imaging

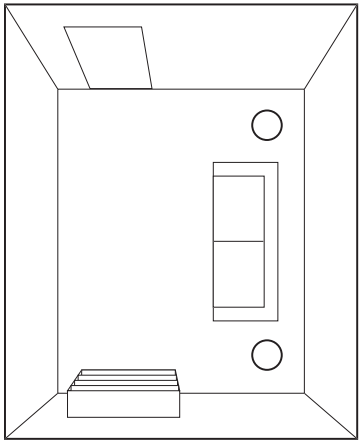


Figure 2

FINE for background music; ACCEPTABLE for stereo effect

OTHER ACOUSTIC CONSIDERATIONS

For best fidelity, there are several other factors to keep in mind before you start actual installation.

Corners and Reflections:

When a ceiling speaker is placed close to the corner of a room, bass frequencies are emphasized. This is fine if both speakers are mounted near corners (while maintaining stereo imaging), but try to avoid placing just one speaker in a corner and another on a long flat surface. In general, the best acoustic performance will result if both speakers face a similar type of surface and are placed in similar positions on the same type of wall or ceiling.

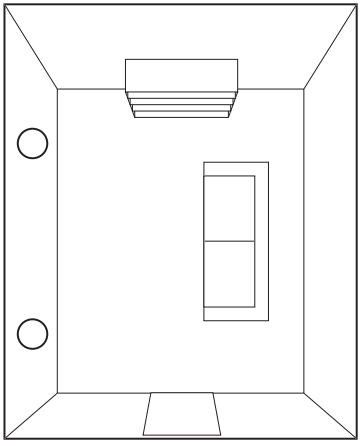


Figure 3

EXCELLENT
for stereo
imaging

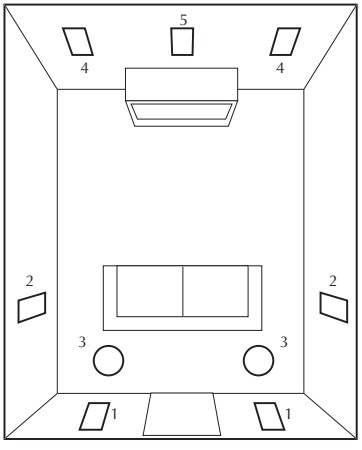


Figure 4

5-CHANNEL
Listening

Russound ceiling-mount speakers may be used for rear surround sound channels by placing them (1) behind, (2) on each side of the viewing position or (3) in the ceiling just behind the viewers. The available SP-C550 and SP-C650 speakers also make excellent, unobtrusive front channel home theater speakers for 5-channel listening (4,5).

Figure 5

Optimally, Russound wall-mount speakers should be located with the tweeters at ear level when the listener is seated.

Installation:

When installing the speakers, avoid:

- T-bar "drop ceilings" with very thin fiberboard panels which can buzz and vibrate. If you suspect this will happen, reinforce the drop-in panel with wood or particle board.
- Any wall which can't provide proper depth (clearance) for the back of the Russound speaker. This includes brick or concrete walls where the wallboard or paneling is attached to thin furring strips.
- Inside wall space less than 10" wide and 24" in height
- Ceilings and walls where you know that there are pipes, heating ducts and ESPECIALLY AC wiring in the general vicinity. For example, if there is an outlet along the baseboard, there is often a live wire running partly up the wall at that point. The same applies for ceiling fans, overhead lighting, etc.

SPEAKER WIRE PATHS

In general, you should pay particular attention to the following areas:

- Avoid running speaker wires close to house electrical wiring for any distance. If you have to run them parallel, make sure to space the speaker wires at least two feet from the AC line. It is permissible for speaker wires to cross paths with AC lines or go through the same hole together with house wiring if they separate before and after.
- Make sure that the entire path between speakers and amplifier is clear and not obstructed by a floor or ceiling joist or masonry wall which you won't be able to drill through.
- Remember that the other end of the wires has to come out somewhere to connect with the amplifier. Confirm ahead of time that you can drill an outlet hole easily and in an unobtrusive spot.

PAINTING THE SPEAKERS

If you like the designer white finish which is a part of your Russound Contractor speakers, then you are ready to install. But if you want your speakers to completely blend in with a colored wall or accent the surface, now is the time to paint the speakers' outer frames and perforated grilles.

The speaker's outer surfaces are ready to accept ordinary latex wall paint or aerosol spray paint. Because the speaker baffle surface behind the perforated grille should remain black, you will need to mask this area off before you begin painting, or use the included template cover.

1. Remove the speaker grilles. From the back of the speaker, push the clamp (dog-ear) towards the grille to loosen it so you can pull it off.
2. Attach masking tape to the cardboard masking template which has been included with your speakers.
3. Press the template onto each speaker's surface to cover the woofer and tweeter.
4. Paint the outer speaker frame and grille separately. A roller with a short or medium nap will work much better than a brush. If you're using spray paint, make sure that you achieve the same coverage on both grille and frame.
5. After the paint has thoroughly dried, remove the template and/or masking tape.

There's no need to replace the grille at this time since you will need access to the inner speaker surface during installation.

CUTTING HOLES FOR THE SPEAKERS

Wallboard is an easy surface in which to make a relatively neat hole. Make sure you don't make it any bigger than the template.

1. Determine the location of your joists/studs so that the speaker can be approximately centered between them.
2. When you're reasonably sure of where the joists or studs are (and are TOTALLY sure that there isn't an electrical cable, water pipe or heating duct in that vicinity of wall), position one of the cardboard mounting templates and draw an outline with a pencil.
3. Score the outline of the template with a utility knife to prevent chipping or wall paper from tearing. Then use a keyhole/drywall saw or motorized spiral-cut tool to make the opening.

- If you're dealing with lath and plaster or thick paneling, you need to use a different technique. Drill 1-inch holes at the corners of the pencil outline. Then use a fine-toothed keyhole saw or even a hacksaw blade with VERY slow strokes to saw through and remove the inner surface.

HOOKING UP YOUR SPEAKERS

IDENTIFYING "+" AND "-"

You need to be able to discriminate between the two conductors of the speaker wire. If your wire has transparent insulation, this is easy: one conductor will be copper-colored and the other silver-colored. Generally, professionals denote the copper one as POSITIVE (+) and the silver one as NEGATIVE (-).

If you've used wire which has an opaque insulation, there are still differentiating markings. Examine the wire closely and look for:

1. A series of ribs or grooves on one conductor
2. A painted stripe or dotted line

Denote any of these as the POSITIVE (+) conductor for similar connections on both ends.

NOTE: It is important that you label your wires left and right when you run them to eliminate future confusion.

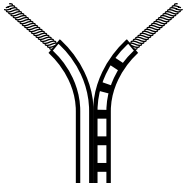


Figure 6
Typical indicator of positive (+)(striped) and negative (-)(solid) speaker wire conductors

AT THE SPEAKER END

1. Cut off excess wire, leaving about 2 feet extending through the speaker cut-out hole.
2. Pull the conductors apart so they're separated for the first two inches from their ends.
3. Using a wire stripper, diagonal pliers or a knife, remove 1/2 inch of insulation from each conductor.
4. Twist the tiny strands in each conductor into tight spirals.
5. IMPORTANT: Route the speaker wire THROUGH the sheetrock.
6. Attach the speaker wires to the red and black speaker terminals. Press down on the protruding levers while inserting the wire. Make sure that no stray strands of wire have gotten detached and are touching the other main wire.

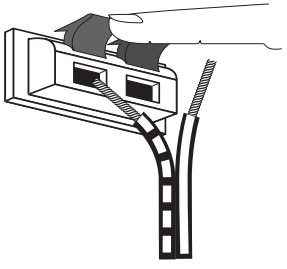


Figure 7
Insertion of speaker wire on back of speaker baffle

AT THE AMPLIFIER END

1. Cut off excess wire, leaving enough to comfortably reach from the hole in the wall to your stereo system. If there's a possibility that you're going to move the amplifier to another part of the room, consider leaving some excess wire coiled up. If you've used sufficiently thick wire, this extra length will not affect speaker performance and could make re-routing easier if the room is rearranged later.
2. Pull the conductors on both speaker wires apart so they're separated for the last two inches.
3. Using wire strippers, diagonal pliers or a knife, remove 1/2 inch of insulation from each conductor.
4. Twist the tiny strands in each conductor into tight spirals.
5. Attach the speaker wires to the red and black speaker terminals on the amplifier or receiver.

* Connect the POSITIVE (+) conductor to the RED terminal and the NEGATIVE (-) conductor to the BLACK speaker terminal of the receiver/amplifier. Make sure that no stray strands of wire have gotten detached and are touching the other main wire.

Repeat Steps 1 through 5 for the other speaker.

FINAL ASSEMBLY

1. If you haven't done so already during painting, remove the perforated grilles from both Russound speakers. Use the clamp (dog-ear) to push the grille out from the back side.
2. Center the speaker in the cut-out hole and tighten the screws until the clamps are drawn up snugly from behind, clamping the speaker in place. Try to tighten each screw equally but do not over tighten.
3. Insert the Russound speaker grille by gently pressing it into place.

In most installations, the grilles will fit tightly without causing vibration. If any audible vibration does occur, or if your Russound speakers are ceiling mounted, use the pre-cut lengths of special damping/adhesive material.

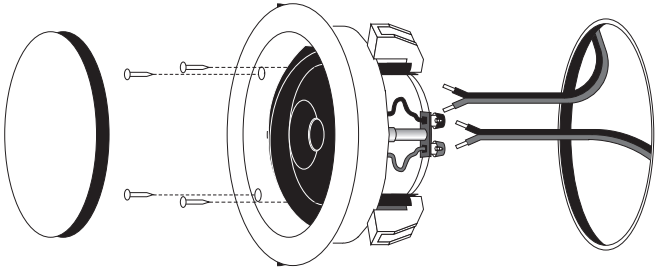


Figure 8
Final assembly of SP-C503 speaker baffle and grille

LISTENING TEST

It's a good idea to test everything at this point.

1. Turn on your stereo system. Make sure that the VOLUME control is turned down and that the BALANCE control is set to center.
2. Activate a musical source such as FM or CD player.
3. Gently turn up the volume. You should hear music coming out of your new Russound Speakers! (If you don't, refer to the troubleshooting guide below.)
4. Now rotate the stereo's BALANCE control all the way to the LEFT. Sound should only come out of your left speaker. If it comes out of the RIGHT speaker, skip to Step 6.
5. Rotate the BALANCE control all the way to the RIGHT. Sound should only come out of the right speaker.
6. If sound comes from the right speaker when the stereo's balance control is turned to the LEFT, you'll need to change the connections on the back of the amplifier/receiver.

6a. FIRST TURN OFF THE AMPLIFIER!

Swap the wires attached to the left and right speaker terminals.

A QUICK TROUBLESHOOTING GUIDE

Before returning your Russound speakers for service, it is a good idea to check out these simple remedies first.

No sound from either speaker:

1. Incorrect source selected on receiver or preamplifier.
2. Mute button pressed on receiver.
3. Wrong speaker output selected; many receivers have an "A" and "B" speaker switch. Make sure it's in the correct position.
4. In-Wall Volume control not turned up or wired incorrectly.
5. If using a "speaker selector," room/station not turned on or improperly connected.

No sound from one speaker:

1. Unsecured connection at either the speaker or amplifier - double-check them.
2. Balance control turned all the way left or right-return it to center.
3. Bad connecting cable between sound source and amplifier - try a new cable.
4. Defective speaker - contact your Russound dealer or call Russound Tech Support at 603.659.5170.

Any other problems not listed, discuss with your dealer or call Russound.

TAKING CARE OF YOUR NEW CEILING SPEAKERS

Russound Contractor speakers are designed to last the life of your home if you follow a few simple rules.

The main "killers" of any loudspeaker system are:

- overdriving an underpowered amplifier
- too much power at high volumes
- transients (immediate loud passages, thumps, etc.)

Too little power:

It's a surprising fact but far more speakers are damaged by too little power than by too much. When an amplifier runs out of power while trying to re-create musical peaks, it causes a form of high frequency distortion called clipping. Clipping simply makes the music sound distorted. In greater quantities over a period of time, it can damage or destroy the tweeters (high frequency speakers) in any speaker system. If you like your music LOUD, consider getting an amplifier with at least 50 watts per channel.

Too much power:

There's nothing wrong with driving your Russound speakers with as much as 80 watts per channel—the extra power helps them achieve quick musical transients found in digital recordings. However, you must remember to restrain yourself and not get too heavy-handed with the volume control (or remote buttons). If the music begins to sound distorted or you hear a "clacking" sound during bass notes, back off! The clacking is caused by the woofer's voice coil trying to come out of its socket.

Transients:

Loud, deep THUMPS, caused when your system is turned on/off, or when the tonearm is dropped too hard on a record (if you still use those great classics), can seriously damage any loudspeaker including your Russound Contractor models. Also remember to turn your system off before disconnecting any hook-up cables. When they're pulled out, a huge burst of low frequency hum often occurs if the system is still on.

MORE ON SPEAKER WIRES AND AMPLIFIER IMPEDANCE

Not all amplifiers or receivers can safely operate two sets of speakers at once. If you intend to use your Russound Contractor speakers at the same time as your main speakers or if you intend to hook up two pairs of speakers and use both at the same time, it's important to consider both the impedance of the speakers and the capabilities of the amplifier you're using. Russound makes a complete line of products from Impedance-Matching Volume Controls to Impedance-Matching Speaker Selectors. Ask you Russound dealer for details or contact Russound Sales at 603-659-5170.

First, consult the owner's manual that came with the amp or receiver. It should tell you the minimum speaker impedance during simultaneous operation. On some models the manual will recommend that only two pairs of 8-ohm speakers be used at the same time. Others might allow one set of 8-ohm speakers and one set of 4-ohm impedance speakers. A few extremely powerful receivers and power amplifiers may even allow two sets of 4-ohm speakers.

If you can't readily determine this information, consult the dealer where you purchased the amplifier, or call the manufacturer of the product in question. Next, determine the impedance of your other speakers. It's often printed on the back of the enclosure near the connection terminals, or you can consult the speaker's owner's manual.

If your other speakers are rated at 4 ohms, some amplifiers may experience difficulty driving both 4-ohm sets at once and shut off intermittently when the volume control is turned up. In this case, you should operate only one set of speakers at a time or keep the volume extremely low.

Another option is to purchase a speaker selector such as the Russound SS-4.2 and SS-6.2 series or a PRO series speaker selector. These are designed to maintain impedance control allowing your amplifier to work efficiently.

INSTALLING DURING NEW CONSTRUCTION

Installing speakers when a house is being built is far easier than doing it later. Russound offers Speaker Rough-In Brackets for round and rectangular speakers . The bracket is designed to provide the drywall installers with a cut-out for the In-Walls. Each kit comes with two brackets, (one is required per speaker). The brackets are nailed/screwed onto the wall studs. Once the house/room is completed, you can install the speaker.

- When it comes time to put up the dry wall, make sure the speaker cut-out hole doesn't extend farther than 1/4" from the sides of the mounting frame.
- After the wallboard is put up, install the speakers as previously detailed in this manual.

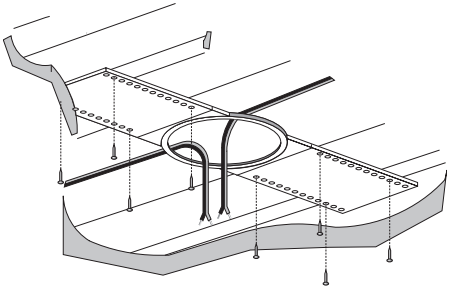


Figure 9
New construction rough-in bracket placement for ceiling speaker

SPEAKER SPECIFICATIONS

Model:	**SP-C503**
Description:	Round Dual Voice Coil In-wall/In-ceiling loudspeaker
Woofer:	5.25" (13.3 cm) poly-mica with enhanced high-frequency
Cut-Out:	6.5" (16.5 cm)
Mounting Depth:	3.25" (9.5 cm)
Recommended Power:	5 - 50 watts
Efficiency:	88 dB (1W @ 1M w/1kHz)
Frequency Response:	65Hz - 16kHz +/- 3 dB
Nominal Impedance:	8/8 ohms per channel

Model:	**SP-C522**
Description:	Round Single-Point Stereo In-wall/In-ceiling loudspeaker
Woofer:	5.25" (13.3 cm) poly-mica
Tweeter:	Dual 1/2" (1.3 cm) Neodymium Mylar
Cut-Out:	6.5" (16.5 cm)
Mounting Depth:	3.25" (9.5 cm)
Recommended Power:	5 - 50 watts
Efficiency:	89 dB (1W @ 1M w/1kHz)
Frequency Response:	65Hz - 20kHz +/- 3 dB
Nominal Impedance:	8/8 ohms per channel

Model:	**SP-C622**
Description:	Round Single-Point Stereo In-wall/In-ceiling loudspeaker
Woofer:	6.5" (16.5 cm) poly-mica
Tweeter:	Dual 3/4" (1.9 cm) Neodymium Mylar
Cut-Out:	7.375"(18.7 cm)
Mounting Depth:	3.75" (9.5 cm)
Recommended Power:	5 - 60 watts
Efficiency:	90 dB (1W @ 1M w/1kHz)
Frequency Response:	60Hz - 20kHz +/- 3 dB
Nominal Impedance:	8/8 ohms per channel

SPEAKER SPECIFICATIONS

Model:	**SP-C523**
Description:	Round 2-Way In-wall/In-ceiling loudspeaker pair
Woofer:	5.25" (13.3 cm) poly-mica
Tweeter:	Pivoting 1/2" (1.3 cm) Neodymium Mylar
Cut-Out:	6.5" (16.5 cm)
Mounting Depth:	3.25" (9.5 cm)
Recommended Power:	5 - 60 watts
Efficiency:	88 dB (1W @ 1M w/1kHz)
Frequency Response:	60Hz - 20kHz +/- 3 dB
Nominal Impedance:	8 ohms

Model:	**SP-C623**
Description:	Round 2-Way In-wall/In-ceiling loudspeaker pair
Woofer:	6.5" (16.5 cm) poly-mica
Tweeter:	Pivoting 3/4" (1.9 cm) Neodymium Mylar
Cut-Out:	7.375" (18.7)
Mounting Depth:	3.75" (9.5 cm)
Recommended Power:	5 - 75 watts
Efficiency:	89 dB (1W @ 1M w/1kHz)
Frequency Response:	55Hz - 20kHz +/- 3 dB
Nominal Impedance:	8 ohms

Model:	**SP-C550**
Description:	Rectangular 2-Way In-wall/In-ceiling loudspeaker pair
Woofer:	5.25" (13.3 cm) poly-mica
Tweeter:	Pivoting 1/2" (1.3 cm) Neodymium Mylar
Cut-Out:	9.625" x 6.125" (24.5 cm x 15.6 cm)
Mounting Depth:	3.25" (9.5 cm)
Recommended Power:	5 - 60 watts
Efficiency:	88 dB (1W @ 1M w/1kHz)
Frequency Response:	60Hz - 20kHz +/- 3 dB
Nominal Impedance:	8 ohms

SPEAKER SPECIFICATIONS

Model:	**SP-C650**
Description:	Rectangular 2-Way In-wall/In-ceiling loudspeaker pair
Woofer:	6.5" (16.5 cm) poly-mica
Tweeter:	Pivoting 3/4" (1.9 cm) Neodymium Mylar
Cut-Out:	10.75" x 7.375" (27.3 cm x 18.7 cm)
Mounting Depth:	3.75" (9.5 cm)
Recommended Power:	5 - 75 watts
Efficiency:	89 dB (1W @ 1M w/1kHz)
Frequency Response:	55Hz - 20kHz +/- 3 dB
Nominal Impedance:	8 ohms

WARRANTY

All Russound Contractor Speaker products have a Five (5) year Limited Warranty against defects in materials and workmanship. Proof of Purchase must accompany all claims. During the warranty period Russound will replace any defective part and correct any defect in workmanship without charge for either parts or labor.

Russound may replace returned speakers with a product of equal value and performance. In such cases, some modifications to the mounting may be necessary and are not Russound's responsibility.

For this warranty to apply, the unit must be installed and used according to its written instructions. If necessary, repairs must be performed by Russound. The unit must be returned to Russound at the owner's expense and with prior written permission. Accidental damage and shipping damage are not considered defects, nor is damage resulting from abuse or from servicing performed by an agency or person not specifically authorized in writing by Russound.

Russound products are sold only through authorized Dealers and Distributors to ensure that customers obtain proper support and service. Russound reserves the right to limit the warranty of products purchased from an unauthorized dealer or other source, including retailers, mail order sellers, and online sellers, to ninety (90) days from the date of purchase.

Damage to or destruction of components due to application of excessive power voids the warranty on those parts. In these cases, repairs will be made on the basis of the retail value of the parts and labor. To return for repairs, the unit must be shipped to Russound at the owner's expense, along with a note explaining the nature of service required. Be sure to pack the speaker(s) in a corrugated container with at least 3 inches of resilient material to protect the unit from damage in transit.

This Warranty Does Not Cover:

- Damage caused by abuse, accident, misuse, negligence, or improper operation (installation).
- Products that have been altered or modified.
- Any product whose identifying number or decal, serial #, etc. has been altered, defaced or removed.
- Normal wear and maintenance.

Due to our continual efforts to improve product quality as new technology and techniques become available, Russound/FMP, Inc. reserves the right to revise speaker systems specifications without notice.

NOTES

NOTES

Russound®

A/V DISTRIBUTION & CONTROL SYSTEMS

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