

## In-Ceiling Speakers



SD652

SE650

SE800

### Introduction

Congratulations and thank you for purchasing Knoll in-ceiling speakers. When installed correctly, these speakers will give years of enjoyment. Their very flat grill and frame design will appeal to the most critical eye. The SD652 has two speakers in one chassis for single point stereo. This is ideal for hallways and other places that are not suitable for separate stereo speakers. To obtain the full potential of your new speakers, please read all instructions before starting the installation. If you do not have the necessary skills to install the speakers yourself, contact your Authorized Knoll Dealer for installation options.

### Parts List

Each SE650 and SE800 speaker includes the following:

- (2) Knoll in-ceiling speakers
- (2) Paintable grills
- (2) Paint shield (protects speakers during painting)
- (1) Mounting cutout template (in packaging)

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- (1) Paint shield (protects speakers during painting)
- (1) Mounting cutout template (in packaging)

You'll appreciate Knoll's speakers as they provide top-of-the line performance and enjoyment value especially when installed by skilled professionals. Custom installers can help design the system you've been looking for by coordinating their efforts with architects, interior designers, and electricians to ensure perfect engineering and performance in your home theater.

In the capable hands of a custom installer, special devices like those supplied by Knoll can make the most sophisticated audio/video systems easy-to-use and practically invisible.

## Speaker Placement

The location of the speakers should be determined by considering your primary listening location and aesthetic values. For best results, contact your Authorized Knoll Dealer for advice.

### Distributed Audio Placement

Round speakers are able to perform in any orientation (horizontally or vertically) without effect to the sound presence of the source signal. The hemispherical dispersion pattern allows the installer and user to configure the speaker in any position without performance penalty. Locate the speakers above the primary listening area and angle the tweeter(s) toward the listening area. If there are "hot spots" in the room, consider adding additional speakers for more uniform sound dispersion.

### Surround Speaker Placement

Your Knoll speakers can be used as surround and front speakers in your home theater. Surround speakers can be located in the ceiling of your home theater. The proper placement of surround speakers is very room dependent. If you are unsure about where to locate your surround speakers for best performance, contact your Knoll Dealer for advice.

When mounting your surround speakers in the ceiling, locate the speakers 2 to 6 feet behind your listening position. The speakers should be separated anywhere from 6 to 10 feet apart center to center. Adjust the level controls on your receiver or processor so that all the speakers produce the same SPL reading.

## Wire Sizes

We always advise using fire-rated speaker wire when installing wires inside the wall (check with local authorities). As a general rule, the wire cable impedance should never be more than 10 percent of the speaker impedance. For runs less than 50 feet use minimum size 18-gauge wire. For runs 50 to 100 feet use minimum size 16-gauge wire. For longer size runs use 12 or 14 gauge wire.

In general the larger wire size used will result in better sound quality. While using insufficient gauge wire may be acceptable to some people, the resulting sound will be less dynamic than if better, larger cable (smaller gauge numbers) is used.

## Mount the Speakers

### Insulate the Cavity

If the speaker is installed in a ceiling, it is best to lay a sheet of unfaced fiberglass insulation over the speaker. If it is installed in a wall, use the following insulation instructions:

After the wallboard, or sheetrock, is installed, and before installing the speakers, line the inside back of the wall cavity by pushing unfaced fiberglass insulation through the cutout hole. Use enough to adequately fill the cavity; even a couple of square feet of insulation is better than none. If the insulation is paper or foil faced, position the paper or foil away from the speaker.

### Brace the Cavity

If possible, ask the drywaller to use extra screws and to glue the drywall to the studs around the cavity into which the speaker is being installed. An additional bead of glue along the interior junction where the drywall meets the studs will help reinforce the enclosure. The idea is to make the enclosure as rigid as possible. If you are doing the work yourself and are retrofitting, reach inside the hole cut for the speaker and put a bead of glue everywhere the drywall meets the studs. Wood glue works well for this.

### Unfinished Walls (New Construction)

Your new Knoll in-ceiling speakers feature an integral mounting system for mounting into ceilings and walls. An optional (not supplied) BBC6 or BBC8 pre-installation bracket will serve as a guide for the drywaller when cutting holes for in-wall speakers in new construction installations. Since Knoll in-ceiling speakers feature an integral mounting system, a separate bracket is not necessary. The pre-installation bracket provides a hole pattern for the speaker in the drywall. It is stapled or screwed to studs or joists so that the hole opening is in the desired speaker location after the drywall is installed.

### Finished Walls (Retrofit)

With the integral mounting system, the speaker can be installed directly into existing walls or ceilings. Once the hole is cut and the wire is installed, the speakers can be installed very quickly.

First determine that the area is free of obstructions such as pipes, conduit, or heating and air returns. Next locate the studs/joists nearest to your desired speaker location. We always suggest using a good stud-finding tool to locate studs.

### Cutting the Hole

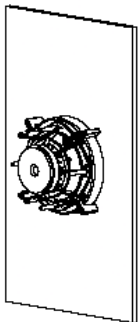
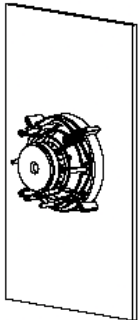
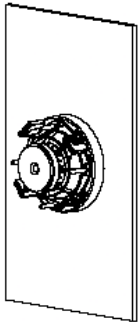
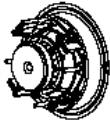
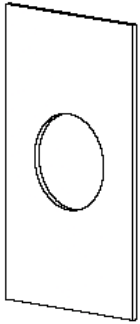
The SD652 and SE650 speakers require a round hole cut out diameter of 8-1/4". The SE800 requires a cut out diameter of 9-3/4". **There must also be enough clear space within the wall to house the speaker (See SPEAKER SPECIFICATIONS for mounting depth).** There must be enough drywall around the hole for the integral mounting system feet to grab onto (1/2" to 1-1/4" is needed). A punch out template for cutting the hole is provided with speaker packaging. Position the template where the speaker is to be located and pencil an outline on the wall or ceiling. In the center of the circle, make a small hole with a drywall saw. It is always best to start with a very small hole just to make sure there are no obstructions behind the wallboard. Cutting the wallboard, at first, at a 45-degree angle will allow you to make a fairly simple repair with drywall patch if your earlier obstruction survey was wrong. This way, if repairs are necessary, the cutout piece of wallboard will not fall through the hole. Instead, it will be held flush with the wallboard by the 45-degree cut, and repair can be made easily. After checking for obstructions, carefully cut the retrofit hole into the wall/ceiling at the location where the speaker is to be mounted, cutting at a 90-degree angle to the wall surface.

### Paint the Speakers

Always paint the grills and flange separately. Speaker flanges and grills can be painted before installation, which will eliminate the "paint scar" if the speaker needs to be removed for service. Speakers may also be painted after the speaker is mounted into the wall, but before the grills have been attached. Knoll speakers come from the factory with a paint shield. This should be installed over the speaker drivers when painting the frame or flange to protect the drivers and removed after painting.

### Paint the Grills

The grills may be lightly sprayed with thin paint (five parts thinning agent to one part paint), but be careful not to plug the holes. Too much paint will adversely affect the sound of the speaker. Knoll suggests all grills be painted separately from the speakers.



## Install the Speakers

Remove the grill by pushing each of the integral mounting system clamps toward the front of the speaker. They should lie in the full clockwise position so that all clamps are tucked within the cutout border. Observing the proper polarity with your amplifier, (+) to (+) and (-) to (-) attach the speaker wires. Make sure the left channel of the amplifier is connected to the left speaker, and the right channel is connected to the right speaker. Make sure the bared wires are making good contact with the gold speaker connectors.

Install the speaker by bringing the outer edge flush with the wall. You will notice the four Philips screw heads in four corners on the front baffle of the Knoll speaker (with the grill off). Use a screwdriver to tighten these screws evenly. This will automatically rotate your integral mounting system clamps over the drywall surface and securely clamp the speaker flange to the wall.

When the tightening resistance of all four screws is firm the speaker has been successfully sandwiched between the drywall and the speaker flange. The flange is designed to flex and conform to any small imperfections in the wall surface.

The screws should not be tightened so far that the flange bows out. If this occurs, reduce the tension on the screws a little. Finally, if painting is not required, reinsert the grill into the speaker baffle.

## Pivoting Tweeters

The pivoting tweeter directs sound toward or away from the listening area to achieve a desired effect. To direct sound toward a listening area, the pivoting tweeter may be angled by applying pressure on the tweeter frame, which surrounds the dome tweeter. If there is any question about how the tweeter should be adjusted, consult your Authorized Knoll Dealer. Here are some additional suggestions:

- Orient the tweeter toward the listening area if the speakers are widely separated and the music fails to blend into a central image when the system is operated in stereo.
- Orient the tweeter toward the listening area when additional brightness is desired.
- Orient the tweeter away from the listening area if the music or video soundstage seems too narrow or restricted.
- Orient the tweeter away from the listening area if it sounds too bright.

## Adjust Tweeter Level Controls

Before the speaker is installed, adjustments are available by adjusting the switch(es) located on the crossover assembly on the back of the speaker. Independent settings make it possible to fine-tune the sound to the room's particular nuances, the system's demands, or your own listening tastes. The switches allow three levels of tweeter output attenuation 0dB, -3dB or -6dB. We believe you will find the 0dB setting works well in a majority of listening situations with no additional adjustments being necessary.

## Accessories

Optional Accessories for your Knoll speakers:

VE650TR Pre-construction plastic bracket for new construction, can be stapled or screwed to studs. For SD652 and SE650 6.5" in-ceiling speakers, one pair.

VE800TR Pre-construction plastic bracket for new construction, can be stapled or screwed to studs. For SE800 8" in-ceiling speakers only, one pair.

## Speaker Specifications

### SD652

Stereo sound from a single speaker!

Speaker Design: Dual channel, in-wall, infinite baffle.  
Super flat grill and frame.

Tweeter: 1"(25mm) silk dome, pivoting tweeter with neodymium magnet.

Woofer: 6-1/2"(165mm) kevlar cone with rubber surround.

Frequency Response: 46Hz to 20kHz  $\pm$  3dB

Impedance : 8 $\Omega$

Power Handling: 5 to 125 watts

Efficiency: 90dB @ 1W/m

Grills: Powder coated aluminum

Dimensions: 9-9/16" x 3-15/16"

Cutout Dimensions (D): 8-1/4" (208mm)

Weight (each): 3.90 lbs (1.8Kg)

### SE650

Speaker Design: Single channel, in-wall, infinite baffle.  
Super flat grill and frame.

Tweeter: 1"(25mm) silk dome, pivoting tweeter with neodymium magnet.

Woofer: 6-1/2"(165mm) kevlar cone with rubber surround.

Frequency Response: 46Hz to 20kHz  $\pm$  3dB

Impedance : 8 $\Omega$

Power Handling: 5 to 125 watts

Efficiency: 90dB @ 1W/m

Grills: Powder coated aluminum

Dimensions: 9-9/16" x 3-15/16"

Cutout Dimensions (D): 8-1/4" (208mm)

Weight (each): 3.70 lbs (1.7Kg)

### SE800

Speaker Design: Single channel, in-wall, infinite baffle.  
Super flat grill and frame.

Tweeter: 1" (25mm) silk dome, pivoting tweeter with neodymium magnet.

Woofer: 8" (203mm) kevlar cone with rubber surround.

Frequency Response: 36 Hz to 20kHz  $\pm$  3dB

Impedance : 8 $\Omega$

Power Handling: 5 to 150 watts

Efficiency: 91dB @ 1W/m

Grills: Powder coated aluminum

Dimensions: 11-1/8" x 4-3/8"

Cutout Dimensions (D): 9-3/4" (248mm)

Weight (each): 5.05 lbs (2.3Kg)

**\* This product may contain lead that some states have determined are harmful.**

**Wash your hands after touching this product.**



## Technical Assistance and Service

The Technical Assistance Department at Knoll is available at 604 272-4555 to answer any questions concerning the operation and installation of your speakers, between the hours of 9 a.m. and 5 p.m. Pacific time, Monday through Friday, except holidays. In the event that your unit should need repair or service you may return the unit to your authorized dealer or use the following guidelines:

- 1) Be prepared to state the model number and or serial number, date of purchase and dealers name and address when calling.
- 2) Contact Knoll directly at 604 272-4555 for a return authorization number (**YOU MUST HAVE PRIOR AUTHORIZATION TO RETURN YOUR UNIT**).
- 4) The original packaging must be used. If the original packaging is not available, replacements can be obtained from Knoll for a small fee or you can use other packaging so long as product damage from shipping will not occur.
- 5) Ship the product via United Parcel Service, Federal Express.
- 6) **Write the return authorization number on the outside of the box.**
- 7) Ship to:  
Attn: Technical Assistance Department  
Knoll Systems  
145 Tyee Drive  
Point Roberts WA 98281  
Or  
Knoll Systems  
11791 Machrina Way, #110  
Richmond BC Canada V7A 4V3
- 8) **FREIGHT COLLECT SHIPMENTS WILL BE REFUSED!** You are **responsible** for the freight charges when returning product. If the unit is found to have a warranty problem we will pay the return freight charges.

### Speaker Warranty

Knoll Systems warrants its speakers sold in the USA and Canada by authorized Knoll dealers to be free of defects in materials and workmanship. This warranty extends for five full years from the date of purchase by the original consumer. Any products returned to Knoll Systems and found to be defective by Knoll Systems within the warranty period will be repaired or replaced at Knoll Systems option, at no charge. Knoll Systems will not be responsible for the actual cost of installation or removal of the product, nor for any incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights. You may have additional legal rights that vary from state-to-state.