

Owner's Manual

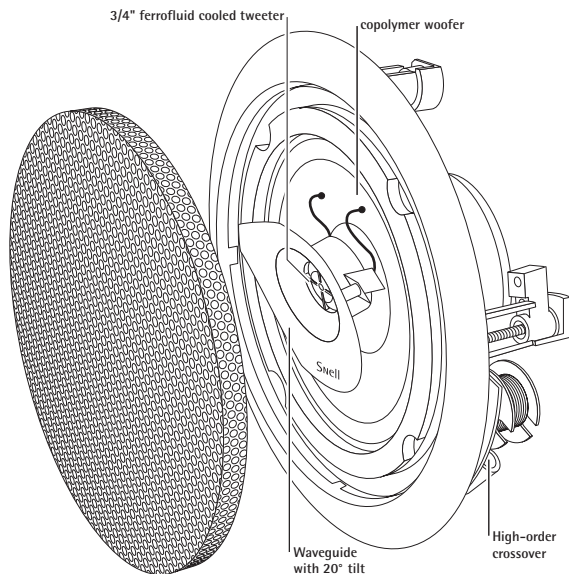
**AMC**

650r

680r

Snell

SPECIFICATIONS	AMC650r	AMC680r
Frequency Response ( $\pm 3$ dB)	65Hz–20kHz	60Hz–20kHz
Frequency Range (-6dB)	55Hz–22kHz	50Hz–22kHz
Recommended Amplifier Power	15–85 watts	15–85 watts
Nominal Impedance	8 ohms	8 ohms
Sensitivity [1 watt (2.83v) at 1m]	88dB SPL	89dB SPL
Tweeter	$\frac{3}{4}$ -inch (19mm) ferrofluid-cooled titanium dome tweeter with neodymium magnet structure	$\frac{3}{4}$ -inch (19mm) ferrofluid-cooled titanium dome tweeter with neodymium magnet structure
Bass Unit	$6\frac{1}{2}$ -inch (165mm) woofer with polypropylene cone	8-inch (203mm) woofer with polypropylene cone
Grille	Perforated steel 0.02-inch (0.5mm) thick, painted white	Perforated steel 0.02-inch (0.5mm) thick, painted white
Dimensions		
Overall Diameter	9" (227mm)	$10\frac{3}{4}$ " (273mm)
Mounting Hole Diameter	$7\frac{3}{4}$ " (197mm)	$9\frac{1}{2}$ - $9\frac{3}{4}$ " (241–248mm)
Weight/each	3 lbs (1.4kg)	4.5 lbs (2.0kg)
Finish	White (paintable)	White (paintable)



## PRODUCT DESCRIPTION

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The AMC650r and AMC680r in-wall loudspeakers deliver outstanding performance. They incorporate a unique waveguide tweeter that has a large mounting area to extend its response. This allows a lower crossover point which produces a more integrated sound. The painstakingly developed shape and profile of this waveguide guarantees much smoother and wider response than with post or "eye socket" mounted tweeters. In addition the tweeter is mounted on a 20-degree angle which provides a natural "toe in" to focus the sound when the AMC650/680r are used as front speakers. Alternatively the sound of the tweeters can be directed away from the listening area, producing a more diffuse sound when used as surround speakers. Complex high-order crossovers ensure seamless blending between woofer and tweeter and a perfectly balanced sonic character. In production, Snell's unique hand tuning of each crossover gives an incredibly tight  $\pm 1$ dB match to the Master Reference. The AMC650r is perfect for any application—main speakers, surround use, or background music.

- ▶  $3/4$ -inch dome ferrofluid-cooled tweeter provides detailed, articulate sound and wide dispersion.
- ▶ Waveguide tweeter mounting for smoother high frequency response.
- ▶ Tweeter and waveguide are angled at 20 degrees for optimum coverage of the listening area.
- ▶ Copolymer woofer with NBR rubber surround offers smooth, natural performance.

### This Package Contains:

- 2 Model AMC650r or AMC680 loudspeakers
- 2 White metal grilles
- 2 Paint masks
- 1 Hole-cutting template

Examine the contents of the package and confirm that you have all the items.

## INTRODUCTION

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**Note:** This manual is written with the assumption that the installer possesses skill in the proper use of hand and power tools, a knowledge of local fire and building codes, and a familiarity with the environment behind the surface of the wall or ceiling in which the speakers will be installed.

### Where to Place Your Speaker Systems

#### Effects of the Installation Location

The wall or ceiling into which the AMC650r or AMC680r is installed becomes its acoustical enclosure. A large part of the system's acoustical performance is dependent on that enclosure. Generally, larger volumes will ensure full bass response. Whenever possible, avoid placing the speakers at either end of a long column such as that created between wall studs, the footer, and the header. Placement at the ends of such a tunnel will create a "closed-end tuned pipe" that can adversely effect bass response. Hard surfaces behind the speaker installation location will cause reflections that also will adversely effect bass response. To avoid this loosely fill the volume behind the speaker with fiberglass or other sound-absorptive material.

- ▶ Be sure the area behind the speaker mounting location is large enough - 0.5 cu. ft. or more.
- ▶ Avoid installing the speaker near the ends of the chamber behind the mounting that is formed by 2x4 framing. (Typically at ceiling or floor).
- ▶ Fill the chamber behind the speaker mounting location with acoustically absorbent material.

## STEREO IMAGE

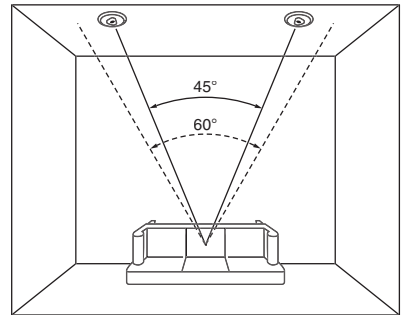
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The distance between the speakers determines the width of the stereo image. If the speakers are placed too close together, the image will be too narrow; too far apart and the blend will suffer, creating a "hole in the middle."

We recommend an angular separation between 45 degrees and 60 degrees (when viewed from above). This is equivalent to a separation between the speaker systems that is about 75% to 100% of the distance from the listener to either of the speakers.

Creating the illusion of sound coming from the area between the speakers requires careful selection of the speaker installation locations. The distance from the left speaker to the listener location should equal the distance from the right speaker to the listener location.

Use a tape measure to be sure that the distances from the primary listening position to the speakers are equal. When properly placed, your speakers will create a continuum of "virtual images" from left to right, with a convincing illusion of sound outside, in front, and behind the speaker systems.



- ▶ Separate the speakers by 45 degrees to 60 degrees.
- ▶ Equalize the distance between each speaker and the listening area.

### Aiming the Speakers

Floor-standing and bookshelf speakers are often angled inward to create a more solid stereo image and to broaden the acceptable listening area. Typical wall or ceiling mounted speakers do not provide this flexibility.

The AMC650r and AMC680r address this issue with a tweeter that is angle-mounted at 20 degrees. Our studies show this to be the optimum angling for wall or ceiling mounted speakers. When installing the speakers, they should be oriented such that the tweeters are symmetrically angled toward the central listening area. The exact angle is not crucial, however, because the response of the system is excellent from 0 degrees (straight out on its center line) to about 50 degrees off-axis in the direction of the waveguide.

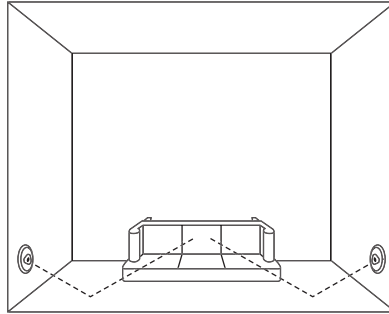
If the AMC650r or AMC680r is used as a wall-mounted center channel speaker, aim the tweeter up or down as appropriate. If its position is above normal seated ear level, orient the system with the waveguide angling downward. Conversely, if the system is centrally mounted just at or below ear level, orient the system to angle the waveguide upward. For use as a surround, see the following section.

- ▶ Aim the center of the speaker to your ear level while listening in a seated position.

## Using As a Surround Speaker

The compact size and neutral tonal quality of the AMC650r and AMC680r make them perfect for the surround channel speakers of a home theater system. Place the speakers toward the back of the room, to the sides of, or behind the listening position.

An indirect sound path from the speakers to the listening position results in a more diffuse and convincing surround sound effect. This can be achieved by taking advantage of the angled waveguide tweeter. Orient (rotate) the speakers so that the tweeters point away from the listening area. Mounting speakers fairly far back, and fairly high, on the side walls, with the tweeter aimed toward the rear wall of the listening area, will give excellent results.



## PAINTING THE SPEAKERS

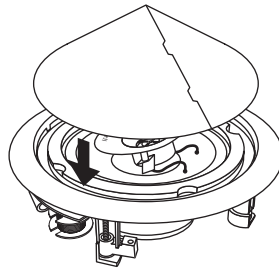
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If you intend to paint the speakers, it's best to do so before you install them. Typically, a primer coat is not necessary.

1. *Remove the speaker grille. Carefully pry on one edge with an awl or small screwdriver. If you choose to paint the metal grille, do so after detaching it from the speaker.*

*Note: You may find it helpful to thin the paint to be used on the grille. This prevents the paint from filling the holes.*

2. *Use the form-fitting painting mask provided to paint the housing. Shape it into a cone and insert the two tabs into their adjacent slots.*
3. *After the paint has dried, remove the mask by carefully inserting a screwdriver into the slots and prying upward.*



## PREPARING FOR INSTALLATION

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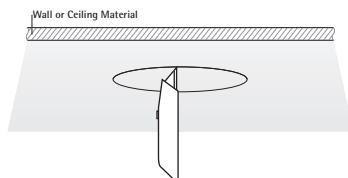
Take the following steps to prepare for installation:

- ▶ Map out the wiring paths from the speakers to the amplifier. We recommend 16-gauge cable or thicker for runs up to 25 feet (8m) and 12-gauge wire or thicker for longer runs.
- ▶ Be sure the speaker wire does not rest or rub against any sharp or pointed objects.
- ▶ Each speaker is 8 ohms nominal. When connecting more than two speakers per amplifier channel, you should use series wiring or an impedance protection device, such as a line transformer.
- ▶ Make sure that the total system's impedance does not fall below the amplifier's minimum rating. If you are not certain, consult your Snell Acoustics dealer.

## INSTALLATION

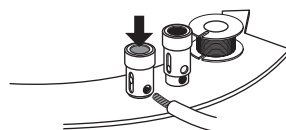
**Note:** The speakers should be mounted on a flat surface to form a good seal between the speaker flange and the mounting surface.

1. Make a 7<sup>5</sup>/<sub>8</sub>-inch (194mm) cutout using the supplied template. It is not necessary to remove fiberglass insulation that may be behind the wall.
2. Run wire from amplifier to cutout. Allow an extra foot of wire at the cutout.
3. Remove the speaker grille. Carefully pry up one side with an awl or small screwdriver.



The AMC650r and AMC680r have heavy-duty spring-loaded push terminals for their input connections. The terminals will accept wire or pins up to <sup>5</sup>/<sub>32</sub>-inch in diameter.

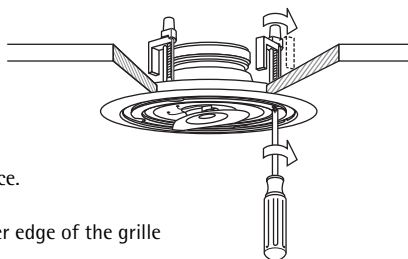
4. If connecting with bare wire, strip the wire so that approximately <sup>1</sup>/<sub>2</sub>-inch is exposed. Twist the wire into a bundle so that there are no stray strands. Push the end of the terminal to expose the hole in the side of the terminal. Then insert bare wire into the hole and release.



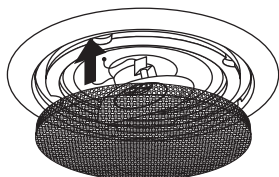
5. The insulation of the wire will have a stripe or ribs on one side. Use this marking to ensure the + (red) terminal of the speaker is connected to the + terminal of the amplifier and the - terminal of the speaker is connected to the - terminal of the amplifier.

**Warning!** To prevent electrical shock, always switch off the amplifier or receiver when making connections to the speaker system.

6. Place the speaker in the hole. Rotate the speaker until the tweeter waveguide is aimed in the desired direction. Use a Phillips screwdriver to tighten the four pivoting mounting arms. Avoid overtightening, as this could break the mounting arms or damage the ceiling surface.



7. Install the grille. Press firmly around the outer edge of the grille to seat it firmly in place.



## LISTENING LEVELS AND POWER HANDLING

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The power recommendation for the system assumes you will operate the amplifier in a way that will not produce distortion. All speakers can be damaged by a modest amplifier that is producing distortion. If you hear a gritty noise or other signs of strain, turn down the volume. Prolonged or repeated operation of your speakers with a distorted signal can cause damage that is not covered by the warranty.

When turning on the system from a remote location, it is hard to judge how loud the speakers are being driven. Be careful not to overdrive the system.

- ▶ If it sounds strained, turn it down!

## HOW TO CARE FOR YOUR SPEAKERS

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- ▶ Use a soft cloth slightly dampened with water or a mild detergent. The cloth should be just damp enough to wipe the surface clean without leaving a trail of moisture.
- ▶ Alternatively, vacuum the grille and frame with a vacuum cleaner and brush attachment.
- ▶ Do not use abrasive cleaners or any cleaner containing chemicals harsher than those found in glass cleaner.

## LIMITED WARRANTY

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For five years from the date of purchase, Snell Acoustics will repair for the original owner any defect in materials or workmanship that occurs in normal use of the speaker system, without charge for parts and labor.

Your responsibilities are to use the product according to the instructions supplied, to provide safe and secure transportation to an authorized Snell Acoustics service representative, and to present proof of purchase from an authorized Snell dealer in the form of your sales slip when requesting service.

Excluded from this warranty is damage that results from abuse, misuse, accidents, shipping, repairs, or modifications by anyone other than an authorized Snell Acoustics service representative. This warranty is void if the serial number has been removed or defaced.

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

### If Service Seems Necessary

Contact the dealer from whom you purchased the speaker system. If that is not possible, call us at 978-373-6114, or write to:

Snell Acoustics  
143 Essex Street  
Haverhill, MA 01832

We will promptly advise you of what action to take. If it is necessary to return your speaker system to the factory, please ship it prepaid in the original factory packaging. Please note that Snell Acoustics will not be held liable for shipping damage due to improper packaging. After it has been repaired, we will return it freight prepaid in the U.S. or Canada.

# Snell

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