

**RK Series**

# **In-Wall Speaker**

**Owner's Manual**

→→ RK-650-IW-B/RK-830-IW-B/RK-555-LCR-IW-B



**rave**  
TECHNOLOGY

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## Introduction

# Rave Technology

Thank you for your purchase and welcome to the growing community of satisfied Rave Technology listeners. Please read the following installation and operation guidelines carefully to ensure enjoyment of your custom installed home audio system, for years to come. All Rave Technology speakers should be set-up and installed by authorized and duly licensed technicians.

Your Rave Technology custom installation speakers are designed to blend seamlessly into your home interior while providing superior sound quality.

At Rave Technology, we continuously strive to improve our products. For this reason, we reserve the right to change product specifications without notice. The information concerning product specifications and instructions in this manual do not necessarily set forth all technical or other specifications of Rave Technology Products.

**For more information about our company and our products, please visit our website at [www.ravetechnology.com](http://www.ravetechnology.com).**

# Features and Benefits

Your Rave Technology custom installation speakers are designed to blend seamlessly into your home interior while providing superior sound quality.

## **Installation**

All Rave Technology custom installed products feature a self-engaging mounting system that does not require brackets. Simply cut a hole in the mounting surface, remove the grille from the speaker, connect the wires and place the speaker in the hole. Then tighten the four or six mounting “dogs” using the front panel screws. The dogs will automatically rotate 90 degrees then clamp the speaker frame to the mounting surface as you tighten the screws. **Do not over tighten.**

## **Pre-Construction Bracket**

Rave Technology offers pre-construction brackets with all its custom installed speakers. The pre-construction brackets can be installed where the speakers will be mounted before the drywall goes up. The drywall contractor will cut the corresponding holes as the drywall is installed. This reduces the installation time and allows for pre-planned wiring.

## **Cut-Out Template and Paint Mask**

All speaker or pair of speakers includes a Cut-out template and Paint mask. The Cut-out template allows the installer to accurately measure the hole to be cut in the dry wall. The Paint mask provides protection for the woofer and tweeter while painting the speaker baffle.

## **Stable Tweeter Housing**

The two-piece baffle design allows the tweeter to be directly mounted on the bridge itself rather than the pole mounting found in most current designs. This setup allows the speaker to handle more power with increased cone stability, resulting in decreased harmonic distortion.

# Installation

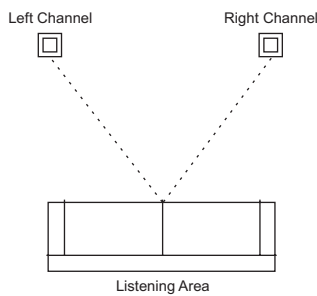
## Important Safety Instructions

- **Do not** use this or other electrical equipment near water or other liquids.
- **Clean only** with dry cloth.
- **Do not** block any ventilation openings. Install in accordance with all safety standards and regulations.
- **Do not** install near any heat sources such as stoves, radiators, heat registers, amplifiers or any other apparatus producing heat.
- **Use** attachments and accessories as indicated by the manufacturer.
- **Refer all servicing** to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- **No user-serviceable parts inside.** Refer all servicing to qualified service personnel.
- **Warning:** To reduce the risk of fire or electrical shock, do not expose this apparatus to rain, other liquids or moisture.
- **Warning:** To prevent injury, this apparatus must be securely attached to the wall/ceiling in accordance with the installation instructions. No naked flame sources such as candles should be placed close to the product.
- **Caution:** Changes or modifications not expressly approved by the manufacturer could void the user's warranty to operate this device.



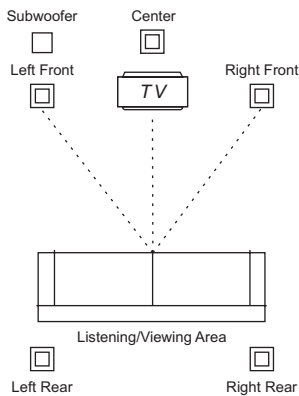
# RK Series Speaker Installation Guide

Fig.1 Stereo Sound Layout



To ensure the best stereo effect, place speakers along a common wall at equal distances from the intended listening area.

Fig.2 Home Theater Layout



The same principle applies for surround effect in a Home Theater System. A Rave Technology Subwoofer completes the 5.1 Home Theater sound.

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## **RS Series Speaker Placement**

With Rave Technology, realizing maximum sound performance is always the goal. The pivoting tweeters in Rave Technology speakers are able to compensate for unusual placements. However, placing speakers at equal distance from the intended listening area and along a common wall is generally recommended as the ideal acoustical set-up. This helps to ensure the best stereo effect. Where the intended listening position may vary widely, speaker placement may be wherever is most convenient.

Rave Technology custom install speakers are designed to function in any standard wall, ceiling or drop ceiling.

## **2 CHANNEL AUDIO PLACEMENT**

In a standard two channel audio system, the speakers should be separated approximately 6 - 10 feet apart. If possible, the left and right speakers should be located at the same distance from the listening position.

## **HOME THEATER PLACEMENT**

When using the speakers as a rear channel speaker, the speakers should be located from 2 to 6 feet behind the main listening position. The speakers should be separated approximately 6 to 10 feet apart.

## **WIRE GAUGE AND QUALITY**

The total wire resistance should be less than 10% of the speaker impedance.  
If using an 8ohm speaker, your total wire resistance should be no more than 0.8ohms.

In simple terms, the extra resistance from the wire will have a very negative effect on the sound quality of the speaker. The sound can be less dynamic, definition of bass frequencies can be reduced, and in extreme cases, the high frequencies can be attenuated. Amplifier power is also wasted in the wire, reducing the maximum output level of the system.

Please refer to the following chart when deciding on the appropriate wire gauge for your installations.

<b>Wire resistance in ohms vs. Length of cable run</b>						
<b>Distance in Feet</b>	<b>50'</b>	<b>100'</b>	<b>150'</b>	<b>200'</b>	<b>250'</b>	<b>300'</b>
<b>20 gauge</b>	.86	1.73	2.59	3.45	4.32	5.18
<b>18 gauge</b>	.65	1.30	1.94	2.59	3.24	3.89
<b>16 gauge</b>	.43	.85	1.28	1.71	2.14	2.56
<b>14 gauge</b>	.27	.54	.81	1.08	1.35	1.62
<b>12 gauge</b>	.17	.34	.51	.68	.85	1.02
<b>10 gauge</b>	.11	.22	.33	.44	.56	.67

# New Construction

## **Drywall Installations**

Drywall or other mounting surfaces should be at least 3/8" thick to ensure safety and speaker stability. Speaker placement should be planned to accommodate practical considerations such as wiring path and installation surfaces. Your professional installer will be able to advise you of the best layout.

## **Contents Description Quantity**

- Speaker Modules -2 (SIS Models -1)                      - Grilles -2 (SIS Models -1)
- Paint Mask -1
- Cut-out Template -1

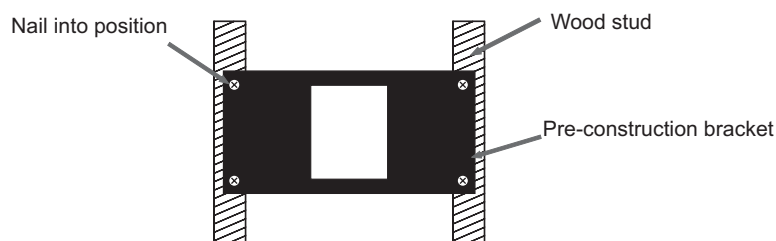
## **Tools Required**

- #2 Phillips Screwdriver
- Hole Saw

## **Pre-Construction Brackets**

Pre-construction brackets are available with all Rave Technology custom installed speakers. These brackets are measured to fit standard 16"/24" wood stud intervals.

1. Nail or Staple the pre-construction brackets to the stud in the planned speaker position. With the flange of the speaker cut out facing out.



2. As the drywall installer is working, they can accurately cut-out the necessary hole for your speaker reducing installation time and debris when the speakers are being installed.

## **PAINING THE SPEAKERS AND GRILLES**

Speaker baffle and grilles 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 installation, but before the grilles are attached. All speakers come from the factory with paint mask included. Use the paint mask to protect the drivers while the baffle is being painted with the wall.

Rave Technology suggests always painting the grills separate from the speaker. The grilles may be lightly sprayed with thin paint (5 parts thinning agent to 1 part paint), but be careful not to plug the holes. Too much paint will adversely affect the sound of the speaker.

Once the grilles and baffle are painted and dry, remove the paint mask from the baffle and install the grilles.

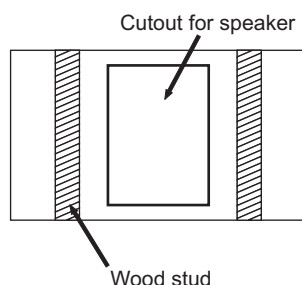
Rave Technology in-wall frames and grilles are designed to accept most types of paint. Care should be taken to avoid excessive paint build-up in the grille perforations.

3. Once the hole is cut, clean all edges and debris from the area. Attach the wire from your amplifier to the terminals on the back of the speaker. Double check the polarity of the speaker wires, amplifier + to speaker + and amplifier - to speaker - proper polarity is critical in home theater installation.
4. Insert the frame into the wall opening and attach to the mounting surface by tightening the screws to engage the swinging “dog” connectors. The frame's mounting dogs will “sandwich” the wall and frame together.
5. Install the module and press the grille in place. Start the insertion of the grille on one edge and slowly work your fingers around the grille edges. Make sure all edges are in the groove before you apply pressure. Do not push hard. If the grille is not going in, this means not all edges are in the groove. Ease off grille and start over.



Rave Technology In-wall speakers feature swiveling tweeters to aim sound directly at the listening area, simply remove the grille and gently adjust the tweeter to the desired position.

## Existing Construction



1. Cut the appropriate size opening in the wall using the cutout template provided. Be careful not to cut through any existing wiring or plumbing.  
Note: Avoid compromising any fire stops between studs.

2. Run wiring to the wall opening(s). Be sure to comply with any codes that may apply in your area.

### PAINTING THE SPEAKERS AND GRILLES

Speaker baffle and grilles 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 installation, but before the grilles are attached. All speakers come from the factory with paint mask included. Use the paint mask to protect the drivers while the flange is being painted with the wall.

Rave Technology suggests always painting the grilles separate from the speaker. The grilles may be lightly sprayed with thin paint (5 parts thinning agent to 1 part paint), but be careful not to plug the holes. Too much paint will adversely affect the sound of the speaker.

Once the grilles and baffle are painted and dry, remove the paint mask from the baffle and install the grilles.

3. Attach the wire from your amplifier to the terminals on the back of the speaker. Double check the polarity of the speaker wires, amplifier + to speaker + and amplifier - to speaker - proper polarity is critical in home theater installation.
4. Insert the frame into the wall opening and attach to the mounting surface by tightening the screws to engage the swinging “dog” connectors. **Do not overtighten.** The frame’s mounting dogs will “sandwich” the wall and frame together. The module is installed with the screws and the grille is pressed into place.
5. Install the module and press the grille in place. Start the insertion of the grill on one edge and slowly work your fingers around the grille edges. Make sure all edges are in the groove before you apply pressure. Do not push hard. If the grille is not going in, this means not all edges are in the groove. Ease off grille and start over



When using the supplied cutout template, take care not to cut through any existing wiring or plumbing.

Rave Technology in-wall frames and grilles are designed to accept most types of paint. Care should be taken to avoid excessive paint build-up in the grille perforations.

6. If you want to paint the decorative frame and the wall together, insert the frame and attach with the dogs.
7. If you will not be re-painting, you may immediately install the frame and speaker assembly. The frame's mounting dogs will "sandwich" the wall and frame together. The module is installed with the screws and the grille is pressed into place.

### **ADJUSTING YOUR SPEAKERS**

Note: Do not apply pressure to the tweeter dome.

The pivoting tweeter can direct sound toward or away from the listening area. To pivot the tweeter, apply light pressure to the plastic ring around the outside edge of the tweeter.

Here are some suggestions:

Orient the pivoting 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.

If you are using the speakers as channels in a home theater you can point the pivoting tweeter towards a wall or window to create a diffuse surround effect.

If you have any questions about how the pivoting tweeter should be adjusted, consult your authorized Rave Technology dealer.

# RK Line Specifications

## RK Series In-Wall Speaker Specifications

### RK-650-IW-B 6.5" 2-Way In-Wall Speaker



**Woofer:** 6.5" Woven Kevlar cone, rubber surround, 22 oz Magnet, 1" voice coil, Bumped back plate, vented pole piece

**Tweeter:** 1" Titanium Dome tweeter, Ferro-fluid cooled, Neodymium magnet, Swivel 30 degrees

**Crossover:** Phonic PCB board, 12dB woofer section, 12dB tweeter section, polyimide auto protective reset switch for tweeter  
16AWG wire connection to woofer section

Gold plated terminal posts will accept 14AWG wire

**Attenuation switches:** +/- 3dB On woofer and tweeter

**Frequency Response:** 48Hz- 22KHz

**Sensitivity:** 88dB

**Recommended amplifier power:** 10-150 watts

**Impedance:** 4 / 8 ohm switchable on PCB

**Cut out size:** 11" X 7.55"

**Weight (pair pack):** 13.5 LBS

**Dimensions (pair pack):** 15" (H) X14.25" (W) X13" (L)

SHIPPED WITH GRILLES,  
PAINTMASK, CUTOUT TEMPLATES AND  
PRE-CONSTRUCTION BRACKETS

### RK-830-IW-B 8" 3-Way In-Wall Speaker



**Woofer:** 8" Woven Kevlar cone, rubber surround, 25oz Magnet, 1.25" voice coil, Bumped back plate, vented pole piece

**Midrange:** 3" Woven Kevlar cone, rubber surround

**Tweeter:** 1" Titanium Dome tweeter, Ferro-fluid cooled, Neodymium magnet. Swivel 30 degrees

**Crossover:** Phonic PCB board, 12 dB woofer section, 24dB midrange section,

12dB tweeter section, separate polyimide auto protective reset switch for tweeter and midrange  
16AWG wire connection to woofer section

Gold plated terminal posts will accept 14AWG wire

**Attenuation switches:** +/- 3dB On woofer, tweeter and Midrange

**Frequency response:** 45Hz- 22KHz

**Sensitivity:** 89 dB

**Recommended amplifier power:** 10-150 watts

**Impedance:** 4 / 8 ohm Switchable on PCB

**Cut out size:** 13" X 9"

**Weight (pair pack):** 16.75 LBS

**Dimensions (pair pack):** 17.75 (H) X13(W) X13.75 (L)

SHIPPED WITH GRILLES, PAINTMASK, CUTOUT TEMPLATES AND  
PRE-CONSTRUCTION BRACKETS

**RK-555-LCR-IW-B**  
**5.25" Left-Center-Right In-Wall Speaker**



**Woofers** : Dual 5.25" Woven Kevlar cones, rubber surround, 20 oz Magnet, 1.25" voice coil,  
Bumped back plate, vented pole piece, magnetically shielded

**Dual Tweeter**: Dual 1" Titanium domes, Ferro-fluid cooled, Neodymium magnet Swivel 30 degrees,

**Midrange**: 3" Woven Kevlar cone, rubber surround

**Crossover**: FR4 PCB board, 12dB woofer section, 36dB tweeter section, 24dB midrange section.

Separate polyimide auto protective reset switch for each tweeter and midrange.

16AWG wire connection to woofer section

Gold plated terminal posts will accept 14AWG wire

**Attenuation switches**: +/- 3dB On woofer, midrange and tweeter

**Frequency response**: 45Hz- 16KHz

**Sensitivity**: 88dB

**Recommended amplifier power**: 10-150 watts

**Impedance**: 4/8 ohm Switchable on PCB

**Cut out size**: 13" X 9"

**Weight (single pack)**: 12 LBS.

**Dimensions (single pack)**: 10.5" (H)X 7"(W) X8" (L)

**SHIPPED WITH GRILLES, PAINTMASK, CUTOUT TEMPLATES AND  
PRE-CONSTRUCTION BRACKETS**

# Warranty

## Limited Life Time Warranty:

Rave Technology offers a Limited Lifetime Warranty on most Speaker products sold by Authorized Dealers. Product found to be defective will be repaired or replaced with equivalent product.

## Warranty Exclusions:

1. Damage caused by courier shipping, accident, abuse, improper installation, improper operation, water and theft.
2. Any cost or expense related to removal or reinstallation of the defective product.
3. Service performed by anyone other than an Authorized Rave Technology service depot.
4. Any product purchased from an unauthorized dealer, proof of purchase from an Authorized dealer is a MUST.

Name: \_\_\_\_\_

Street Address: \_\_\_\_\_ Zip: \_\_\_\_\_

City/State: \_\_\_\_\_

Home Phone: \_\_\_\_\_

Work Phone: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Model and Serial Number: \_\_\_\_\_

Model and Serial Number: \_\_\_\_\_

Model and Serial Number: \_\_\_\_\_

Model and Serial Number: \_\_\_\_\_

Model and Serial Number: \_\_\_\_\_

Model and Serial Number: \_\_\_\_\_

## Purchased from:

Store Name: \_\_\_\_\_ State: \_\_\_\_\_

stamp



Rave Technology  
G6434 South Dort Highway, Suite 2  
Grand Blanc, Michigan 48439  
Tel: 1-810-953-3918  
[www.ravetechnology.com](http://www.ravetechnology.com)

The background of the warranty card is a white rectangle with rounded corners, set against a dark, textured, speckled border. On either side of the central text, there is a faint, grayscale image of a washing machine's interior drum, showing the agitator and the circular structure of the drum.

**Warranty Card**  
Rave Technology