



KRAMER ELECTRONICS LTD.

USER MANUAL

MODELS:

SPK-C612

Closed-back Ceiling Speakers

SPK-C412

Closed-back Ceiling Speakers

SPK-C411

Closed-back Ceiling Speakers

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **SPK-C612**, **SPK-C412** and **SPK-C411** Closed-back Ceiling Speakers, which are ideal for the following typical applications:

- Boardrooms
- Conference Rooms
- Educational classrooms
- Presentation venues
- Training Rooms
- Hotel lobbies

The package includes the following items:

- A pair of **SPK-C612** and/or **SPK-C412** and/or **SPK-C411** speakers
- Mounting kit
- This user manual

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high-performance high-resolution cables



Go to <http://www.kramerelectronics.com> to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables (such as the Kramer **BC-2S**) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **Closed-back Ceiling Speakers** away from moisture, excessive sunlight and dust



To ensure that you obtain the best sound results, do not open the housing of the passive speaker or the active speaker.

3 Overview

The Closed-back Ceiling speakers consist of a pair of high performance closed back speakers. The pair can be mounted on the ceiling, as well as via a ceiling mounting kit used to safely secure the speakers to the ceiling. The speakers are defined in the following table:

Name	Diameter ["]	Resistance [Ω]	Closed-back Depth ["]
SPK-C612	6.5	8	7
SPK-C412	4	8	4
SPK-C411	4	4	4

[Figure 1](#) shows an example of how the Closed-back Ceiling speakers can be installed in a boardroom setup:

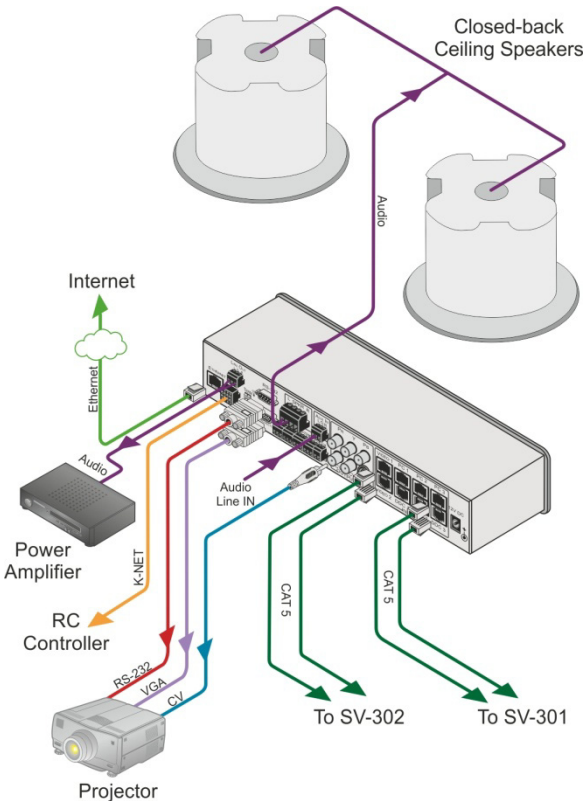


Figure 1: Closed-back Ceiling Speakers in a Boardroom Setup

4 Your Closed-back Ceiling Speakers

[Figure 2](#) and [Figure 3](#) define the **SPK-C612** and the **SPK-C412** and **SPK-C411**, respectively.






Figure 2: SPK-C612 Closed-back Ceiling Speaker



Figure 3: SPK-C412 / SPK-C411 Closed-back Ceiling Speaker

The following table defines the Closed-back Ceiling speaker hardware items (per speaker pair) for each model in the series:

Description				
A pair of ceiling speakers (one shown)		Two grilles (one shown)		Cutout template 

This table defines the ceiling mounting kit items:

Four support ring screws 	Two ceiling support rings (C-ring) – one shown 	Two pairs of tile rails – one of a pair shown 
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Each Closed-back Ceiling speaker is supported by a C-ring and two tile rails. The tile rails prevent the speakers from falling if the tile itself comes out or falls apart, as their ends catch onto the T-grid. When mounting onto the ceiling tiles, use both supports. When mounting onto a sheetrock ceiling, the C-ring alone is used to reinforce the ceiling material.



Be sure that the tiles can support the speaker. Smaller sized tiles or fiberglass-type tiles cannot support the weight of the speakers. When this is the case, the speakers will need additional support.

[Figure 4](#) shows a schematic diagram of the Closed-back Ceiling speaker:

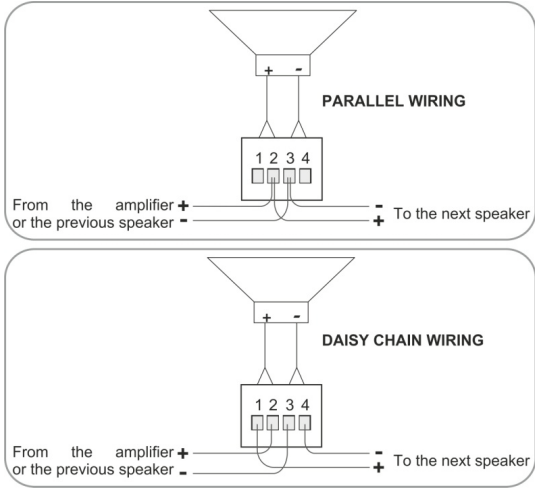


Figure 4: Closed-back Ceiling Speaker Schematic Diagram

5 Installing the Closed-back Ceiling Speakers

This section explains how to install the closed-back ceiling speakers, that is:

- Choosing the best place to locate your speakers (see [Section 5.1](#))
- Cutting the ceiling tile (see [Section 5.2](#))
- Mounting the Speakers (see [Section 5.3](#))
- Painting the speakers (see [Section 5.4](#))

5.1 Choosing the Best Location

Ideally, locate the speakers above the main listening area. Before doing so, be sure that:

- The desired location is free of obstructions, such as electrical piping, AC ducts or water lines, and so on
- There is enough space behind the mounting surface for the speakers
- The rear side of the speaker is not blocked by wall studs or other objects

5.2 Cutting the Ceiling Tile

To cut the ceiling tile, do the following:

1. Remove the circle in the supplied template.
Keep this template for later use as a mask, as you may want to paint the speakers (see [Section 5.4](#))
2. Mark the opening in the correct location by tracing the hole in the template.
3. Cut out the hole according to the template or with a circular cutter set to the appropriate cutout size.
Initially, you can cut a smaller area inside the marked hole just to be sure that the space above the speakers is clear
4. Route the wiring from the amplifier to the speakers' cutout holes, taking care not to place them next to electrical wires or at least at a distance of about two feet from an AC line.



Do not nail or staple the speaker wires.

If you are mounting the speakers onto a ceiling tile, remove the ceiling tiles where you plan to install the speakers. Use the template to trace and then cutout the speaker hole over an empty box.

The closed-back ceiling speakers are supported by the ceiling mounting kit (two C-rings and two pairs of tile rails; the tile rails prevent the speakers from falling if the tile itself comes out or falls apart, as their ends catch onto the T-grid). When mounting onto the ceiling tiles, use both supports.



Be sure that the tiles can support the speaker. Smaller sized tiles or fiberglass-type tiles cannot support the weight of the speakers. When this is the case, the speakers will need additional support.

When mounting onto a sheetrock ceiling, the C-ring alone is used to reinforce the ceiling material.

5.3 Mounting the Speakers

To install the closed-back ceiling speakers, do the following:

1. Place the C-ring over the hole cut in the ceiling tile (on the “ceiling” side). Place it around the hole so that the tabs are located in parallel to the tile edges.

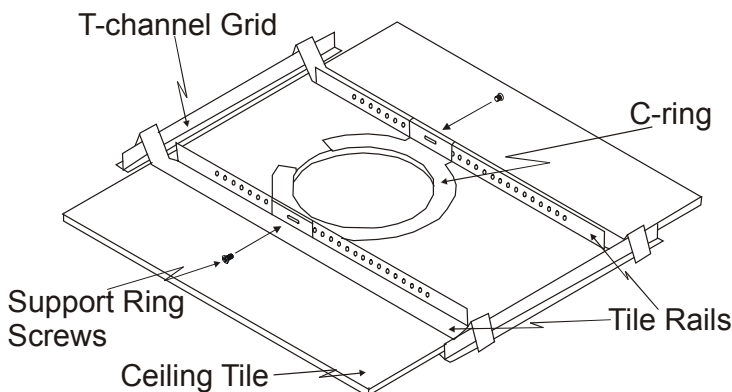


Figure 5: Installing the Closed-back Ceiling Speakers

2. Place the tile rails on the tile and snap them into the two tabs on the C-ring. Align the rails so that the ends extend over the T-channel grid.
3. Insert a screw through each tab on the C-ring to secure the rails.
4. Connect the speaker wires to the appropriate connector terminals:
 - PIN 1 and PIN 2 are connected internally and are positive (+)
 - PIN 3 and PIN 4 are connected internally and are negative (-)

Screw the hold-down screws on the connector until tight, using a small screwdriver.

You can connect the speakers in the two following possible layouts:

- **Wiring in parallel:** connect the wire pair of the subsequent speaker to PIN 2 and PIN 3. When one input connector is removed, subsequent speakers will remain connected (see [Figure 4](#))
 - **Daisy-chaining:** connect the wire pair of the subsequent speaker to PIN 1 and PIN 4. When one input connector is removed, subsequent speakers will be disconnected (see [Figure 4](#))
5. Plug the connector into the socket in the terminal cup of the speaker (see [Figure 6](#)).
 6. Run the wires through the wires' opening in the input terminal cover plug and then into the terminal block connector of the speaker.

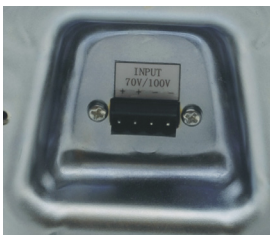
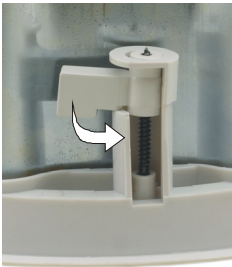


Figure 6: Plugging and Securing the Cable

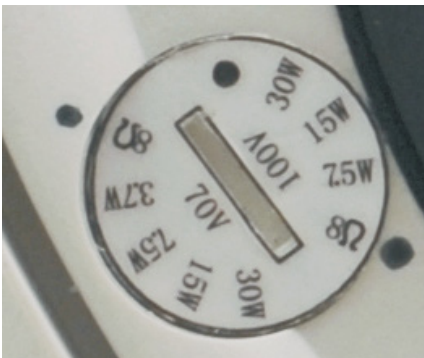
7. Push the speaker into the ceiling hole until the front baffle rim is leveled with the ceiling.

- The first quarter turn, rotates the tab outwards, and the following turns tighten the tabs to the rear side of the ceiling surface

Note: Do not over-tighten the screws. It may cause damage to both the speakers and the surface.



9. If required, you can further secure the speaker by connecting the speaker support ring to an independent secure anchor point.
10. Adjust each speaker to the appropriate tap setting before installing the grille (see [Figure 8](#)).



Closed-back Ceiling Speakers - Installing the Closed-back Ceiling Speakers

11. Install the grilles to the speakers:

- Push the grille fastener into the hole in front of the baffle
- Press the grille into place until the front of the grille is flush with the rim of the baffle
- Check that the grille is securely seated



To remove the grille, insert two bent paper clips into the holes in the grille and carefully pull it down. Repeat this around the perimeter of the grille until it is completely removed.

5.4 Painting the Speaker

You can paint the speakers before or after they are installed.

When painting before installation:

- Clean the rim and grille with mineral spirits or other light solvent that is unlikely to damage the surface
- Spray with color by holding the spray can at an angle of 45°



When spraying the grille, take care not to clog the holes in the grille as this will greatly reduce the sound quality of the speakers.

When painting after installation:

- Use the circle that you cut out of the template as a paint mask
- After you finish painting, remove the paint mask

6 Technical Specifications

SPK-C612	
DESCRIPTION:	2-way co-axial speaker
HIGH FREQUENCY DRIVER:	1" MYLAR dome tweeter
LOW FREQUENCY DRIVER:	6.5" Polypropylene cone with rubber edge woofer
IMPEDANCE:	8Ω
CROSSOVER FREQUENCY:	8kHz
SENSITIVITY:	87dB
FREQUENCY RESPONSE:	55Hz to 20kHz
POWER RATING:	30W nominal, 60W Max.
RECOMMENDED AMPLIFIER POWER:	30W
WEIGHT PER SINGLE SPEAKER:	2.85kg (6.28lbs) approx.
SHIPPING WEIGHT (FOR PAIR):	8kg (17.64lbs) approx.
DIMENSIONS (OD):	25.2cm (9.92")
CUT OUT SIZE (MOUNT DIMENSION):	22.3cm (8.78")
MOUNT DEPTH:	19.5cm (7.68")
ACCESSORIES:	Ceiling mounting kit
Specifications are subject to change without notice at http://www.kramerelectronics.com	

	SPK-C412		SPK-C411
DESCRIPTION:	2-way co-axial speaker		
HIGH FREQUENCY DRIVER:	1" MYLAR tweeter		
LOW FREQUENCY DRIVER:	4" Polypropylene cone with rubber edge woofer		
IMPEDANCE:	4Ω	8Ω	
CROSSOVER FREQUENCY:	10kHz	10kHz	
SENSITIVITY:	85 dB	85dB	
FREQUENCY RESPONSE:	85-20kHz	95-20kHz	
POWER RATING:	20W nominal, 40W Max.	20W nominal, 40W Max.	
RECOMMENDED AMPLIFIER POWER:	20W	20W	
WEIGHT PER SINGLE SPEAKER:	2.2kg (4.85lbs) approx.		
SHIPPING WEIGHT (FOR PAIR):	6kg (13.23lbs) approx.		
DIMENSIONS (OD):	25.2cm (9.92")		
CUT OUT SIZE (MOUNT DIMENSION):	22.3cm (8.78")		
MOUNT DEPTH:	10.8cm (4.25")		
ACCESSORIES:	Ceiling mounting kit		
Specifications are subject to change without notice at http://www.kramerelectronics.com			

LIMITED WARRANTY

We warrant this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for one year from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by us or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
 - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
 - ii) Product modification, or failure to follow instructions supplied with the product
 - iii) Repair or attempted repair by anyone not authorized by Kramer
 - iv) Any shipment of the product (claims must be presented to the carrier)
 - v) Removal or installation of the product
 - vi) Any other cause, which does not relate to a product defect
 - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on your product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

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

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

- EN-50081: "Electromagnetic compatibility (EMC);
generic emission standard."
Part 1: Residential, commercial and light industry"
- EN-50082: "Electromagnetic compatibility (EMC) generic immunity standard."
Part 1: Residential, commercial and light industry environment".
- CFR-47: FCC* Rules and Regulations:
Part 15: "Radio frequency devices
Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

* FCC and CE approved using STP cable (for twisted pair products)



For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

Web site: www.kramerelectronics.com

E-mail: info@kramereel.com



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing