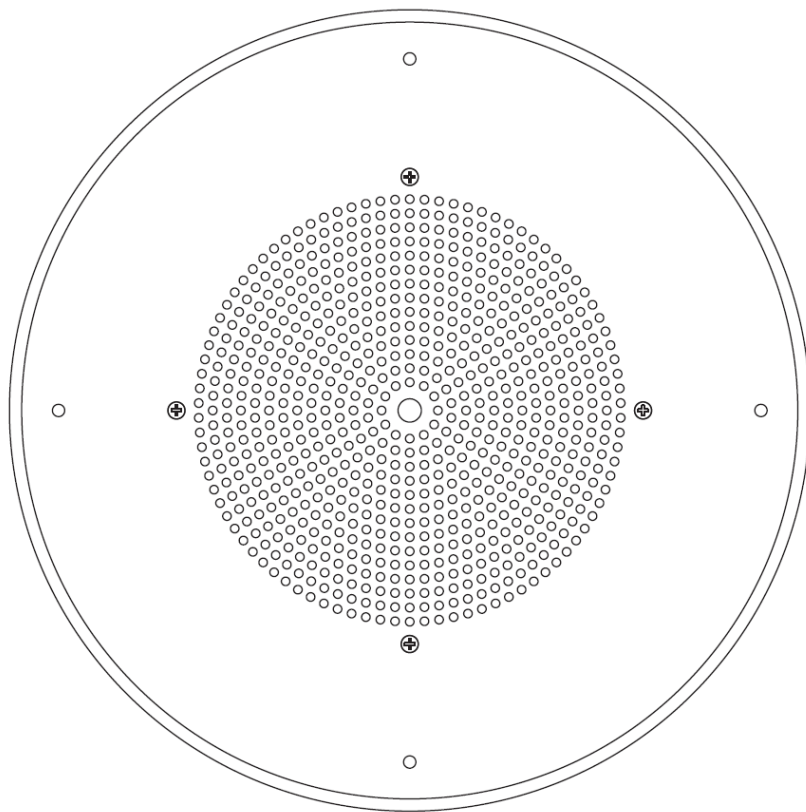




Monoprice™
70V MUSIC & PAGING SPEAKER WITH VOLUME CONTROL

P/N **44949**
User Manual

SAFETY WARNINGS AND GUIDELINES

Please read this entire manual before using the Monoprice™ Music & Paging Speaker with Volume Control, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

- This speaker is intended for indoor use only. Do not expose the unit to water or moisture of any kind.
- Before installation, make sure there is a room above the ceiling so that the housing does not come into contact with any plumbing or electrical lines.
- Make sure the speaker is secured to the ceiling using the safety hooks. Typical T-bar ceilings may not be able to support the weight of the speaker and may shake and deform in the event of an earthquake, causing potential injuries and/or damage if the speaker falls.
- Turn off and unplug all equipment before making electrical connections, including speaker wire connections.
- Do not expose this speaker to excessively high heat sources, like a furnace, boiler, radiator, etc.
- Do not place or install this speaker in an area where it can be exposed to excessive amounts of dust, humidity, oil, smoke, or combustible vapors.
- Reduce the volume before changing the audio input source (e.g., radio stations or CDs).
- When using this speaker as part of a constant voltage speaker system, make sure that the total power settings of the connected speakers are no more than 80% of the RMS output power of the amplifier.
- When using this speaker as part of a constant voltage speaker system, do not set the tap dial to the 8Ω position. Doing this can damage the speaker and/or the amplifier.
- Most speaker damage is caused by clipping, which leads to audio distortion. If this happens, reduce the volume until the audio becomes clear.
- Make sure that the speaker wire connections are properly polarized. Inverted polarization can result in unnatural or reduced loudness and quality, especially in the bass.
- Do not use chemical cleaners or solvents to clean this speaker. Use only a soft cloth moistened with warm water.
- This speaker has no user-serviceable parts. Do not attempt to open, service, or modify it.

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INTRODUCTION

Thank you for purchasing the Monoprice™ 70V Music & Paging Speaker with Volume Control. This speaker features a built-in step-down transformer, allowing it to be used as part of a 70V constant voltage speaker array. It can also be used with a standard 8Ω power amplifier by bypassing the transformer and connecting directly to the speaker terminals. It is designed for easy installation into standard 24" x 24" or 24" x 48" T-Bar drop ceilings. This speaker is heavy and needs to be anchored to a joist or suitable weight-bearing surface above the drop ceiling for safety. The volume control knob on the front panel can easily be used for attenuating the speaker volume after installation.

PACKAGE CONTENTS

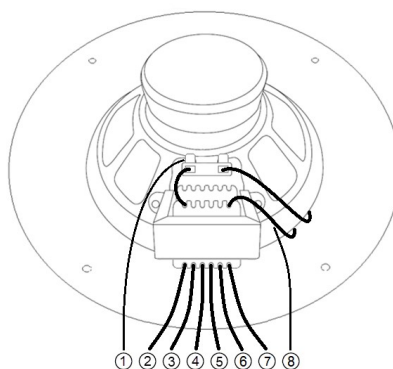
Take an inventory of the package contents to make sure you have all the items listed below.

Please contact Monoprice Customer Service for a replacement if anything is missing or damaged.

- 1x Speaker
- 1x User Manual

SPEAKER OVERVIEW

- ① COMMON TERMINAL - 8Ω
- ② BLACK - COMMON (70V)
- ③ BLUE - 5W (70V)
- ④ BROWN - 2.5W (70V)
- ⑤ YELLOW - 1.25W (70V)
- ⑥ WHITE - .63W (70V)
- ⑦ GRAY - .32W (70V)
- ⑧ ORANGE & BLACK - CUT & USE BLACK SIDE FOR 8Ω



CONSTANT VOLTAGE VS. 8Ω SPEAKER SYSTEMS

This speaker is designed to operate in either a constant voltage or an 8Ω speaker system, so it is very important to understand which type of system you have and set the switch on the back of the speaker to the correct setting.

Select the 8Ω setting for traditional stereo systems. For constant voltage systems, select the 70V setting that delivers the desired output volume for the rest of your installed speakers, making sure the wattage does not exceed your amplifier capability as explained below.

A constant voltage speaker system differs from a traditional 8Ω speaker system in that it uses a step-up transformer at the audio source to raise the voltage and lower the transmission line current. A step-down transformer returns the signal to a normal speaker-level voltage at the speaker end. This reduces power loss during transmission, which allows for the use of longer speaker wire runs using smaller gauge wires.

Additionally, a constant voltage speaker system allows for multiple speakers on each channel without the need for complicated impedance calculations and configurations. In a constant voltage system, all speakers on a given channel are connected in parallel and the complicated impedance calculations are replaced by simple wattage calculations.

For example, if you want to connect two speakers per channel in a traditional 8Ω speaker system, you must either connect them in series, which results in an overall 16Ω impedance, or in parallel, which results in an overall 4Ω impedance. In the first case, the 16Ω impedance effectively halves your amplifier's output power, resulting in lower overall volume levels. In the latter case, the 4Ω impedance means that your amplifier must work harder and be rated as stable at 4Ω. Adding a third speaker to the mix would complicate it further, producing either a 24Ω or 2.67Ω overall impedance. Note that very few amplifiers are stable under 2Ω loads, so that is usually not an option.

On the other hand, with a constant voltage system, you consider the RMS output wattage of the amplifier first. This should be reduced by 20% to compensate for insertion loss. For example, if using a 100W amplifier, the total load from the speakers should not exceed 80W.

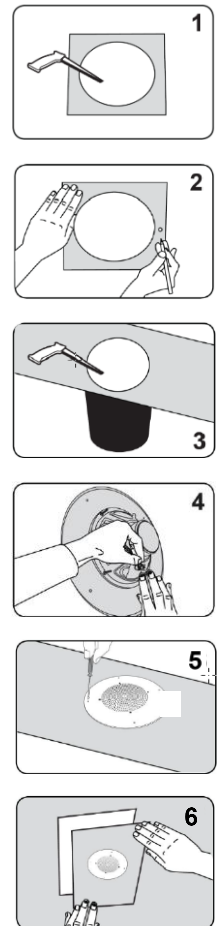
Each speaker on a given channel is set to a value such that the total does not exceed the rated power of less than 20%. You do not need to worry about making the total as close as possible to the limit; just ensure that the total does not exceed the limit.

If all speakers are set to the same wattage value, they will all have the same volume level. If one speaker is set to a higher wattage value, it will be louder than the others, while a speaker set to a smaller value will be quieter than the others. This allows you to compensate for the environment in which the speaker is placed. For example, a speaker placed outside would need to be louder than a speaker placed in a small room.

INSTALLATION

DROP CEILING TILE

1. With the ceiling tile facing up, place a tile bridge (not included) where you want the speaker positioned. Using a tile bridge is highly recommended as it supports the weight of the speakers and ensures it does not cause the tile to collapse, resulting in damage or injury. Using a sharp blade or drywall knife, score the speaker location in the ceiling tile. **NOTE:** Do not cut the tile yet.
2. Again, with the ceiling tile facing up, push through and mark each hole location for the speaker using a small screwdriver and a felt-tip pen.
3. Place the tile over a trashcan or a bin to catch any dust or fragments while cutting the tile. Carefully cut the hole for your speaker using a drywall knife.
4. Select the transformer wires you will be using in your installation. Before loading your speaker into the hole, make sure to cut unused transformer wires so that no wiring can short out after the speaker is installed.
5. Position the speaker over the holes previously marked on the tile. Insert the screws and install the speaker into the ceiling tile. Place the tile bridge under the ceiling tile and place the ceiling speaker into the hole.
6. Once the speaker is wired, install the tile with the speaker back into the ceiling slot.



SPEAKER WIRING

To wire your system, please use a good-quality, speaker-grade audio cable with polarization coding (usually identified with a marking on the cable) as per the gauge recommendation found below. The side of the cable that has the coding (a ridge, or "+" marking) usually denotes a positive polarity.

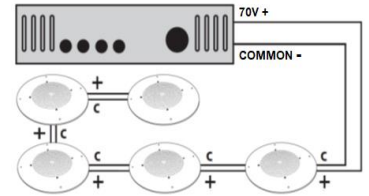
For 8Ω systems, make sure to use the proper gauge wire to match the distance you need to run the wire. For distances under 25 feet, an 18-gauge speaker wire is acceptable. For distances of 25 feet to 50 feet, increase the wire size to 16 gauges. For distances greater than 50 feet, be sure to use at least a 14-gauge or greater speaker wire. Because Constant Voltage systems are not subject to the same current drops over long runs of cable that can plague 8Ω systems, you can often run 18-gauge speaker wire for hundreds of feet without noticeable loss in a typical installation.

CONSTANT VOLTAGE (70V/100V) SPEAKER SYSTEM

Most constant voltage speaker installations will consist of multiple speakers per channel, with all speakers connected in parallel. These wiring instructions assume the use of a 70V constant voltage amplifier. Before making each speaker wire connection, strip about ¼" insulation from the end of each conductor, then twist the strands to prevent stray strands from causing a short.

1. Turn the power off, unplug all equipment to be connected, and determine the number of speakers your array will have.
2. Determine the RMS (not peak) output power of your amplifier, then multiply that value by 0.8. This is the Maximum Wattage Value (MWV) for each speaker array. (e.g., if the RMS output power of your amplifier is 100W, the MWV of each array is 80W. That is 100W x 0.8 = 80W)

3. Divide the MWV of each speaker array by the number of speakers to determine the Maximum Wattage Setting (MWS) for each speaker (e.g., if the MWV of each speaker array is 80W and each array has 5 speakers, the MWS for each speaker is 16W. That is $80W \div 5 = 16W$).
4. Choose the tap wire on the back of the speaker for a wattage value that is less than the calculated MWS for each speaker in Step 4, and connect it to the positive terminal of the amplifier.
5. Connect the common tap wire on the speaker (black) to the negative terminal of the amplifier.
6. Cap off the remaining tap wires.
7. If multiple speakers are being used, connect the common tap wire of the second speaker to the common tap wire of the first speaker, then connect the desired wattage tap wire of the second speaker to the chosen wattage tap wire on the first speaker. Repeat until all speakers are connected as shown in the diagram.



NOTE: Connecting a 70V amplifier to a speaker's 8Ω connection will damage the speaker. Select the proper 70V tap or 8Ω connection for your system type before connecting the speaker wires.

8 Ω SPEAKER SYSTEM

For standard 8Ω stereo speaker installations with only two speakers, connect as described below. When connecting more than two speakers to a standard 8Ω stereo amplifier, it is recommended to use an impedance-matching speaker selector to avoid complex series/parallel wiring.

Before making each speaker wire connection, strip about 1/4" insulation from each end of each conductor, then twist the strands to prevent stray strands from causing a short.

1. Power off and unplug all equipment to be connected, then link the wire running from the amplifier's negative terminal to the speaker's negative terminal directly.
2. If volume control is desired, cut the wire coming from the volume control (orange and black) on the speaker, then connect the black side to the wire running from the amplifier's positive terminal. If volume control is not needed, simply connect the wire running from the amplifier's positive terminal to the positive terminal directly on the speaker.
3. Repeat Steps 1 & 2 with the 2nd speaker (not included).

LISTENING TEST

1. Set the volume on your amplifier to the minimum setting.
2. Turn the volume knob on the front panel to the maximum setting.
3. Plug in and turn your amplifier on, then start audio playback from your audio source.
4. Slowly increase the volume until it is at a comfortable listening level.
5. Check speakers if the audio can be heard and if the relative volume is about the same.
6. Use the volume knob on the front panel to attenuate the volume if the sound is too loud.

NOTE: Anytime you note distortion, reduce the volume to a lower setting. Never allow your amplifier to be driven into "clipping". Otherwise, the speakers may get damaged. Damage caused by operating the speakers at distorted volume levels is not covered by the warranty.

Congratulations! Your speaker system is installed and ready for use.

TECHNICAL SPECIFICATIONS

P/N	44949
Frequency Response	126 Hz – 13 KHz
Sensitivity	93 dB
Impedance	8 Ω
RMS Power	5W
Transformer	25V: 0.32W – 0.63W – 1.25W – 2.5W – 5W – 8 Ω 70V: 0.32W – 0.63W – 1.25W – 2.5W – 5W – 8 Ω
Product Diameter	12.99" (330 mm)
Product Depth	3.07" (78 mm)

CUSTOMER SERVICE

The Monoprice Customer Service department is dedicated to ensuring that your ordering, purchasing, and delivery experience is second to none. If you have any problems with your order, please allow us to make it right. You can contact a Monoprice Customer Service representative through the Live Chat link on our website **www.monoprice.com** or via email at **support@monoprice.com**. Check the website for support times and links.

TECHNICAL SUPPORT

Monoprice™ is pleased to provide free, live, online technical support to assist you with any questions you may have about installation, setup, troubleshooting, or product recommendations. If you ever need assistance with your new product, please come online to talk to one of our friendly and knowledgeable Tech Support Associates. Technical support is available through the online chat button on our website **www.monoprice.com** or through email by sending a message to **tech@monoprice.com**. Check the website for support times and links.

To download the latest drivers, firmware, manuals, etc., go to **www.monoprice.com** and type **44949** into the search bar. Support files are linked at the bottom of the product page if available.

DISPOSAL AND RECYCLING INFORMATION



The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electrical and electronic products via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your unwanted product, please contact your local authorities, waste disposal service, or the shop where you purchased the product.

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