

## USER MANUAL

### MODEL:

PA-50HZ

50W Power Amplifier



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# 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 15 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format & Standards Converters; GROUP 5: Range Extenders & Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scalars; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Mounting and Rack Adapters; GROUP 11: Sierra Video; GROUP 12: Digital Signage; GROUP 13: Audio; GROUP 14: Collaboration; and GROUP 15: KM & KVM Switches.

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## 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.



Go to [www.kramerav.com/downloads/PA-50HZ](http://www.kramerav.com/downloads/PA-50HZ) to check for up-to-date user manuals, application programs, and firmware upgrades (where appropriate).

## Achieving the Best Performance

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables).
- Do not secure the cables in tight bundles or roll the slack into tight coils.
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality.
- Position your Kramer **PA-50HZ** away from moisture, excessive sunlight and dust.



This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

## Safety Instructions



**Caution:** There are no operator serviceable parts inside the unit.

**Warning:** Use only the power cord that is supplied with the unit.

**Warning:** Do not open the unit. High voltages can cause electrical shock! Servicing by qualified personnel only.

**Warning:** Disconnect the power and unplug the unit from the wall before installing.

## Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at [www.kramerav.com/support/recycling](http://www.kramerav.com/support/recycling).

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## Overview

### Congratulations on purchasing your Kramer PA-50HZ 50W Power Amplifier

**PA-50HZ** is a compact Hi-Z (70V/100V) power amplifier with line-level output, ideal for small to medium-size meeting spaces and classrooms.

- Simple and flexible speaker array installation.
  - Line level output for cascading, recording or conferencing scenarios.
  - Small form factor and convection cooling for simple installation.
  - 50W of power into a 70V or 100V line.
  - Over-current, and over-heat protection – The PROTECT LED lights, and the device shuts down until correct operational conditions are regained.
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## Typical Applications

The **PA-50HZ** is ideal for the following typical applications:

- Small to medium-size meeting spaces.
- Lecture halls.
- Multipurpose rooms.
- City halls and courtrooms.
- Retail stores.

# Defining the PA-50HZ

This section defines the PA-50HZ.

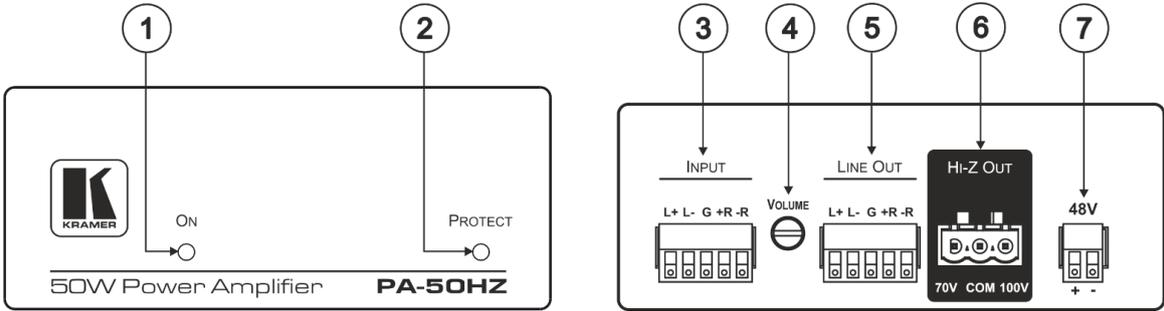


Figure 1: PA-50HZ Front and Back Panel

#	Feature	Function
1	ON LED	Lights green when powered on.
2	PROTECT LED	Lights red in case of over-current / over-heat. The device powers down until operational conditions are corrected and automatically powers up.
3	INPUT 5-pin Terminal Block Connector	Connect to a line-level, balanced, stereo audio source.
4	VOLUME Attenuator	Volume for speaker output.
5	LINE OUT 5-pin Terminal Block Connector	Connect to a balanced, stereo audio acceptor (for example, amplified speakers).
6	Hi-Z OUT 3-pin Large Terminal Block Connectors	Connect Hi-Z (70V or 100V) and COM to mono Hi-Z speakers. Speaker can output a mono signal.
7	48V DC Power Terminal Block Connector	Connect to the Kramer power adapter.

# Connecting the PA-50HZ



Always switch off the power to each device before connecting it to your **PA-50HZ**. After connecting your **PA-50HZ**, connect its power and then switch on the power to each device.

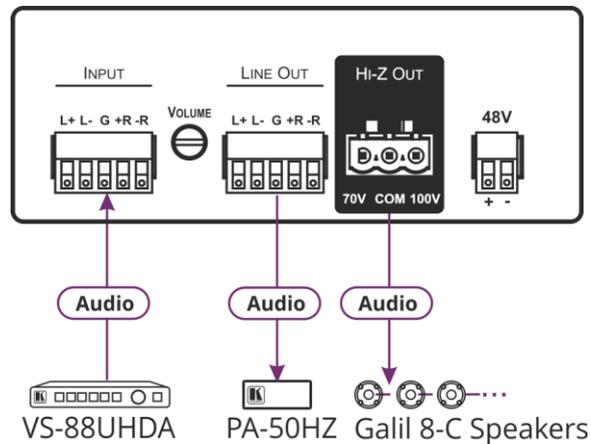


Figure 2: Connecting the PA-50HZ

To connect the PA-50HZ as illustrated in the example in [Figure 2](#):

1. Connect the audio source (for example, a balanced stereo audio source, such as the Kramer **VS-88UHDA** matrix switcher) to the INPUT 5 pin terminal block connector (3).
2. Connect the LINE OUT 5 pin terminal block connector (5) to a balanced stereo input (for example, an additional **PA-50HZ** device).
3. Connect the Hi-Z OUT 3-pin large terminal block connectors (6) (70V and COM) to the + and – terminals of a passive speaker (for example, the **Galil 8-C** ceiling speakers, daisy chained). The speakers will output the audio after summing the stereo signal to a mono signal.



Do not ground the loudspeakers.

4. Connect the power cord (not shown).

## Connecting the Output to a Balanced/Unbalanced Stereo Audio Acceptor

The following are the pinouts for connecting the output to a balanced or unbalanced stereo audio acceptor:

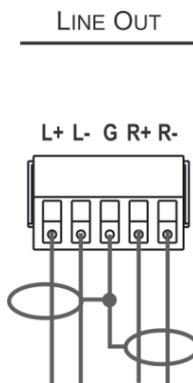


Figure 3: Connecting to a Balanced Stereo Audio Acceptor



Figure 4: Connecting to an Unbalanced Stereo Audio Acceptor

## Connecting a Balanced/Unbalanced Stereo Audio Source to the Balanced Input

The following are the pinouts for connecting a balanced or unbalanced stereo audio source to the balanced input:

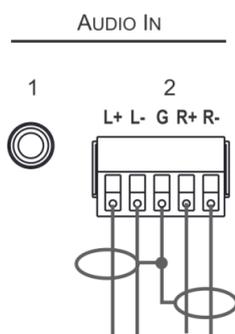


Figure 5: Connecting a Balanced Stereo Audio Source to the Balanced Input

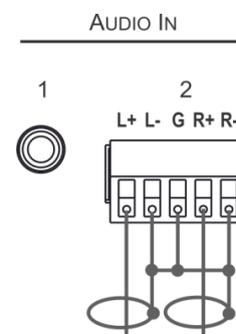


Figure 6: Connecting an Unbalanced Stereo Audio Source to the Balanced Input

## Adjusting the Master Volume

Use the VOLUME Attenuator (4) on the rear panel to set the maximum level for the speaker output.

# Technical Specifications

Inputs	1 Stereo Balanced Audio	On a 5-pin terminal block (up to +4dBu/10kΩ)
Outputs	1 Stereo Balanced Line Level	On a 5-pin terminal block connector (up to +4dBu/600Ω)
	1 Mono Speaker	On a 3-pin large terminal block
Input Sensitivity		Full power @1.5V (+5dBV)
Amplifier	Class	D
	Output Power	1 x 50W @ 70V or 100V
	Maximum Voltage Gain	37dB BTL
	Dynamic Range	>120dB
	Frequency Response	Speaker output 50Hz to 20kHz @ +/-3dB
	Frequency Response	Line level output 20Hz to 20kHz @ +/-0.3dB
	S/N Ratio	90dB, 20 Hz – 20 kHz
	Audio THD + Noise	Speaker output THD+N (1kHz @ 1W) 0.01 %
	Audio 2nd Harmonic	0.00006%
	Controls	Screw trimmer input volume attenuator
Power	Consumption	48V DC, 1.2A
	Source	48V DC, 1.36A
Environmental Conditions	Operating Temperature	0° to +40°C (32° to 104°F)
	Storage Temperature	-40° to +70°C (-40° to 158°F)
	Humidity	10% to 90%, RHL non-condensing
Regulatory Compliance (Standards Compliance)	Safety	CE, UL
	Environmental	RoHs, WEEE
Enclosure	Size	1/4 19" 1U
	Type	Aluminum
	Cooling	Convection ventilation
Accessories	Included	Power adapter, power cord
Specifications are subject to change without notice at <a href="http://www.kramerav.com">www.kramerav.com</a>		

The warranty obligations of Kramer Electronics Inc. ("Kramer Electronics") for this product are limited to the terms set forth below:

#### **What is Covered**

This limited warranty covers defects in materials and workmanship in this product.

#### **What is Not Covered**

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

#### **How Long this Coverage Lasts**

The standard limited warranty for Kramer products is seven (7) years from the date of original purchase, with the following exceptions:

1. All Kramer VIA hardware products are covered by a standard three (3) year warranty for the VIA hardware and a standard three (3) year warranty for firmware and software updates.
2. All Kramer fiber optic cables, adapter-size fiber optic extenders, active cables, cable retractors, all Kramer speakers and Kramer touch panels are covered by a standard one (1) year warranty.
3. All Kramer Cobra products, all Kramer Calibre products, all Kramer Minicom digital signage products, all HighSecLabs products, all streaming, and all wireless products are covered by a standard three (3) year warranty.
4. All Sierra Video MultiViewers are covered by a standard five (5) year warranty.
5. Sierra switchers & control panels are covered by a standard seven (7) year warranty (excluding power supplies and fans that are covered for three (3) years).
6. K-Touch software is covered by a standard one (1) year warranty for software updates.
7. All Kramer passive cables are covered by a ten (10) year warranty.

#### **Who is Covered**

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

#### **What Kramer Electronics Will Do**

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

#### **What Kramer Electronics Will Not Do Under This Limited Warranty**

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

#### **How to Obtain a Remedy Under This Limited Warranty**

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, visit our web site at [www.kramerav.com](http://www.kramerav.com) or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required (RMA number). You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

#### **Limitation of Liability**

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

#### **Exclusive Remedy**

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS LIMITED WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF KRAMER ELECTRONICS CANNOT LAWFULLY DISCLAIM OR EXCLUDE IMPLIED WARRANTIES UNDER APPLICABLE LAW, THEN ALL IMPLIED WARRANTIES COVERING THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY TO THIS PRODUCT AS PROVIDED UNDER APPLICABLE LAW. IF ANY PRODUCT TO WHICH THIS LIMITED WARRANTY APPLIES IS A "CONSUMER PRODUCT" UNDER THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C.A. §2301, ET SEQ.) OR OTHER APPLICABLE LAW, THE FOREGOING DISCLAIMER OF IMPLIED WARRANTIES SHALL NOT APPLY TO YOU, AND ALL IMPLIED WARRANTIES ON THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE, SHALL APPLY AS PROVIDED UNDER APPLICABLE LAW.

#### **Other Conditions**

This limited warranty gives you specific legal rights, and you may have other rights which vary from country to country or state to state.

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer Electronics reseller, visit our web site at [www.kramerav.com](http://www.kramerav.com) or contact a Kramer Electronics office from the list at the end of this document.

Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction.



P/N: 2900-301013



Rev: 1



## SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing

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.