Kramer Electronics, Ltd.

USER MANUAL

Model:

904

Power Amplifier

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 350-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer **904** *Power Amplifier*. This product is ideal for:

- Presentation rooms and multimedia applications for quick, local audio amplification
- Public address systems

The package includes the following items:

- **904** *Power Amplifier*
- Power cord
- This user manual[2]

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[3]

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1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com

3 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

3   Overview

The high performance **904** *Power Amplifier* is a power amplifier for stereo audio balanced signals. It can output up to 75 Watts RMS per channel, as it uses the latest Class "T" technology for highly efficient conversion[1] to the pair of loudspeakers with the absolute minimum power loss.

The **904** includes:

- An OUTPUT LEVEL control knob to adjust the output signal
- OUTPUT LEVEL multi-color LED[2] indications for left and right speakers
- Outputs for a headphone set and for a pair of loudspeakers[3]
- Easy-to-connect detachable terminal block connectors
- A MUTE button to block out the sound

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding 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 and position your Kramer **904** away from moisture, excessive sunlight and dust

4   Your 904 Power Amplifier

Figure 1 and Table 1 define the **904** *Power Amplifier*.

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1 Preventing the 904 from over-heating

2 Green, yellow and red

3 Plugging in the headphone set automatically disconnects the loudspeakers

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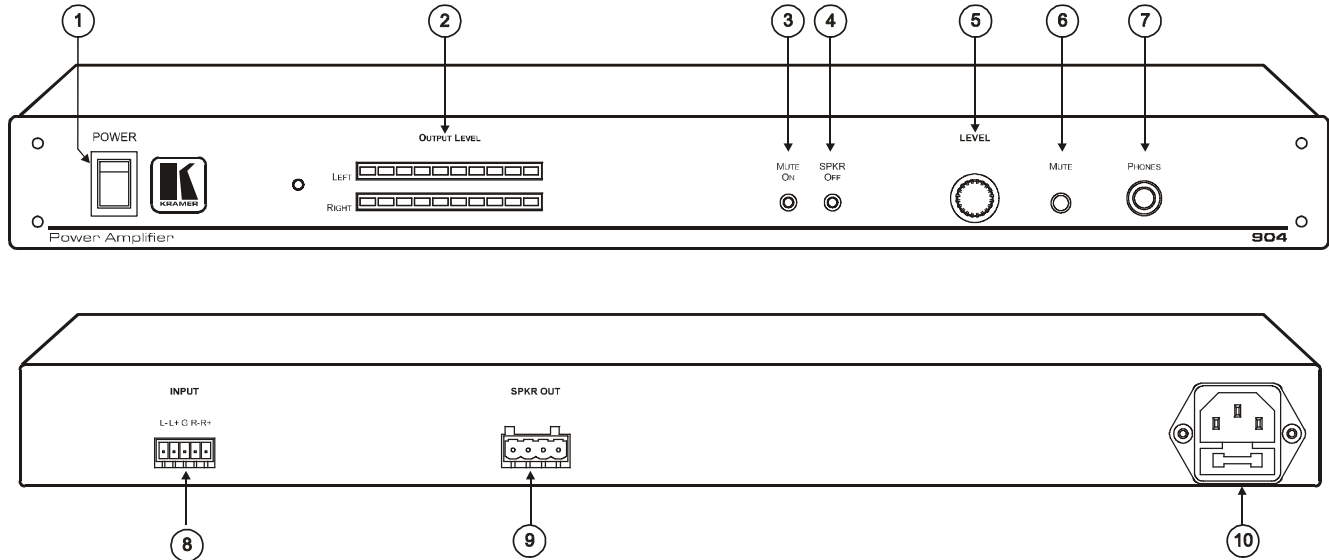
Figure 1: 904 Power Amplifier – Front and Rear View

Table 1: Features and Functions of the 904 Power Amplifier

#	Feature		Function
1	*POWER* Switch		Illuminated switch for turning the unit ON or OFF
2	*OUTPUT LEVEL*	*LEFT*	LED output-signal level indication for the LEFT speaker[1]
		RIGHT	LED output–signal level indication for the RIGHT speaker[1]
3	*MUTE ON* LED		Lights when the MUTE button[2] is pressed
4	*SPKR OFF* LED		Lights when the headphone set is inserted, or the *MUTE* LED is ON[3]
5	*LEVEL* Control Knob		Adjusts the output signal level
6	*MUTE* Button		Press to block out the sound
7	*PHONES* connector		Connects to the headphone set
8	*INPUT* (*L-L+GR-R+*) Terminal Block		Connects the balanced stereo audio input to the audio source
9	*SPKR OUT* Terminal Block Connector		Connects to a pair of loudspeakers
10	Power Connector with Fuse		AC connector enabling power supply to the unit

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1 Green for normal output level, yellow for medium output level and red for high output level

2 Lights also when connecting the headphones

3 Also indicates power failure

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5 Installing the 904 on a Rack

This section describes what to do before installing on a rack and how to rack mount.

Before Installing on a Rack

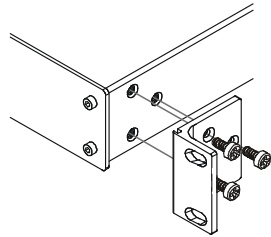| Before installing on a rack, be sure that the environment is within the recommended range:	
Operating temperature range	+5 to +45 Deg. Centigrade
Operating humidity range	5 to 65 % RHL, non-condensing
Storage temperature range	-20 to +70 Deg. Centigrade
Storage humidity range	5 to 95% RHL, non-condensing

CAUTION!!

When installing on a 19" rack, avoid hazards by taking care that:

1. It is located within the recommended environmental conditions, as the operating ambient temperature of a closed or multi unit rack assembly may exceed the room ambient temperature.

2. Once rack mounted, enough air will still flow around the machine.

3. The machine is placed straight in the correct horizontal position.

4. You do not overload the circuit(s). When connecting the machine to the supply circuit, overloading the circuits might have a detrimental effect on overcurrent protection and supply wiring. Refer to the appropriate nameplate ratings for information. For example, for fuse replacement, see the value printed on the product label.

5. The machine is earthed (grounded) in a reliable way and is connected only to an electricity socket with grounding. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, the use of power strips), and that you use only the power cord that is supplied with the machine.

How to Rack Mount

To rack-mount the machine:

1. Attach both ear brackets to the machine. To do so, remove the screws from each side of the machine (3 on each side), and replace those screws through the ear brackets.

2. Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.

Note that:

• In some models, the front panel may feature built-in rack ears

• Detachable rack ears can be removed for desktop use

• Always mount the machine in the rack before you attach any cables or connect the machine to the power

• If you are using a Kramer rack adapter kit (for a machine that is not 19"), see the Rack Adapters user manual for installation instructions (you can download it at: http://www.kramerelectronics.com)

6   Connecting your 904 Power Amplifier

Connect your **904**, as the example in Figure 2 illustrates:

1.   Connect a balanced stereo audio source (for example, a line level mixer) to the Left and Right INPUT terminal block connectors.

2.   Connect the SPKR OUT block connector to a pair of loudspeakers, by connecting the left loudspeaker to the "L+" and the "L-" terminal block connectors, and the right loudspeaker to the "R+" and the "R-" terminal block connectors. **Do not Ground the loudspeakers**.

3.   If required, connect the PHONES connector to a headphone set (plugging-in a headphone-set to the PHONES connector will disconnect the loudspeakers).

4.   Connect the power cord[1] (not shown in this illustration).

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1 We recommend that you use only the power cord that is supplied with this machine
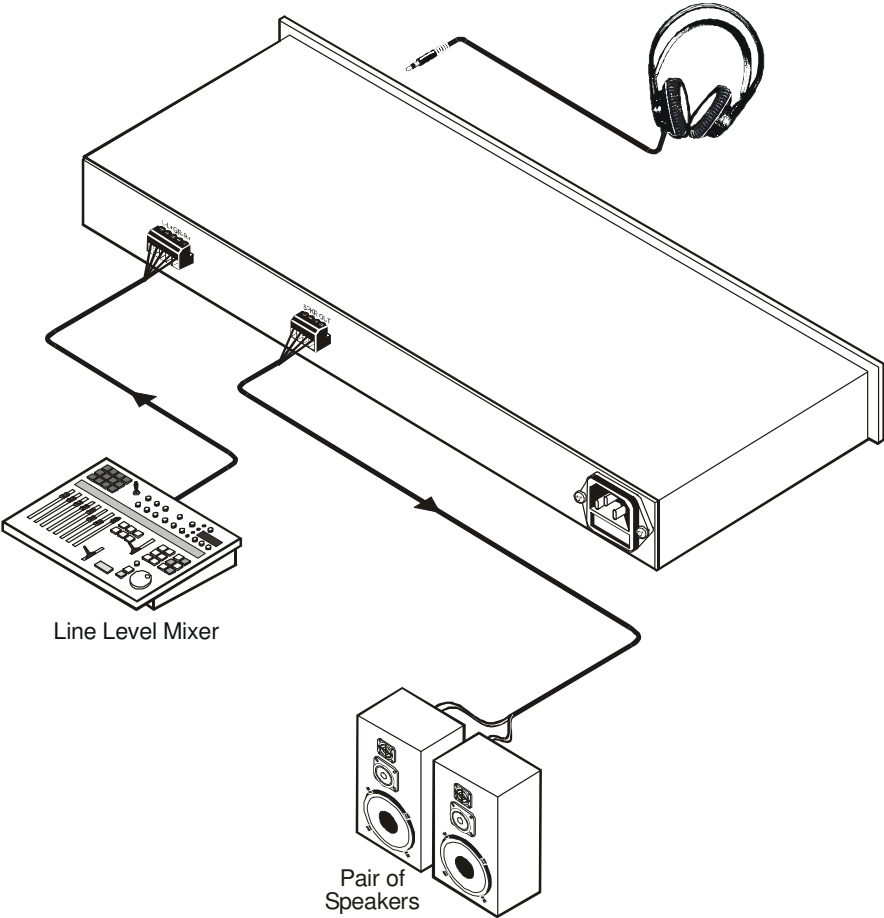
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Figure 2: Connecting the 904 Power Amplifier

Line Level Mixer

Pair of
Speakers

7 Technical Specifications

Table 2: Technical Specifications[1] *of the 904 Power Amplifier*

INPUTS:	1 balanced stereo on a 5-pin detachable terminal block
OUTPUTS:	1 differential Stereo loudspeakers output on a terminal block; 1 Headphone output
MAX. OUTPUT LEVEL:	Speakers: 52Vpp on 4Ω loads Headphones: 8.4Vpp
BANDWIDTH:	>20 kHz
S/N RATIO:	60dB
CONTROLS:	Speakers out: <0 to 30dB; Headphones: <-26 to 12dB (level for both) DC offset adjustment for speakers (internal trimmers)
COUPLING:	Input: AC; Speakers out: DC; Headphones out: AC
AUDIO THD + NOISE:	Speakers: 0.06%; Headphones: 0.05%
AUDIO 2nd HARMONIC:	Speakers: 0.04%; Headphones: 0.007%
OUTPUT POWER:	Up to 75 Watts RMS per channel
POWER SOURCE:	253VA, 230VAC
DIMENSIONS:	19" (W), 7" (D), 1U (H) rack mountable (with ear brackets)
WEIGHT:	2.8kg (6.2lbs.) approx.
ACCESSORIES:	Power cord, removable ear brackets and screws for attaching

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1 Specifications are subject to change without notice

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years 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 Kramer, 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.
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 you 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.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

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