

Kramer Electronics, Ltd.



USER MANUAL

Models:

VM-1610, 1:10 Balanced Audio-Stereo Distributor

VM-80A, 1:8 Audio Distributor

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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 groups¹ that are clearly defined by function.

Thank you for purchasing the Kramer **VM-1610** *1:10 Balanced Audio-Stereo Distributor* and/or the **VM-80A** *1:8 Audio Distributor*, which are ideal for:

- Any professional A/V system requiring high quality signal distribution
- Recording studios and live sound reinforcement systems
- Rental and staging applications

Each package includes the following items:

- The **VM-1610** and/or the **VM-80A**
- Power cord²
- This user manual³

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 cables⁴

1 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; GROUP 11: Sierra Products

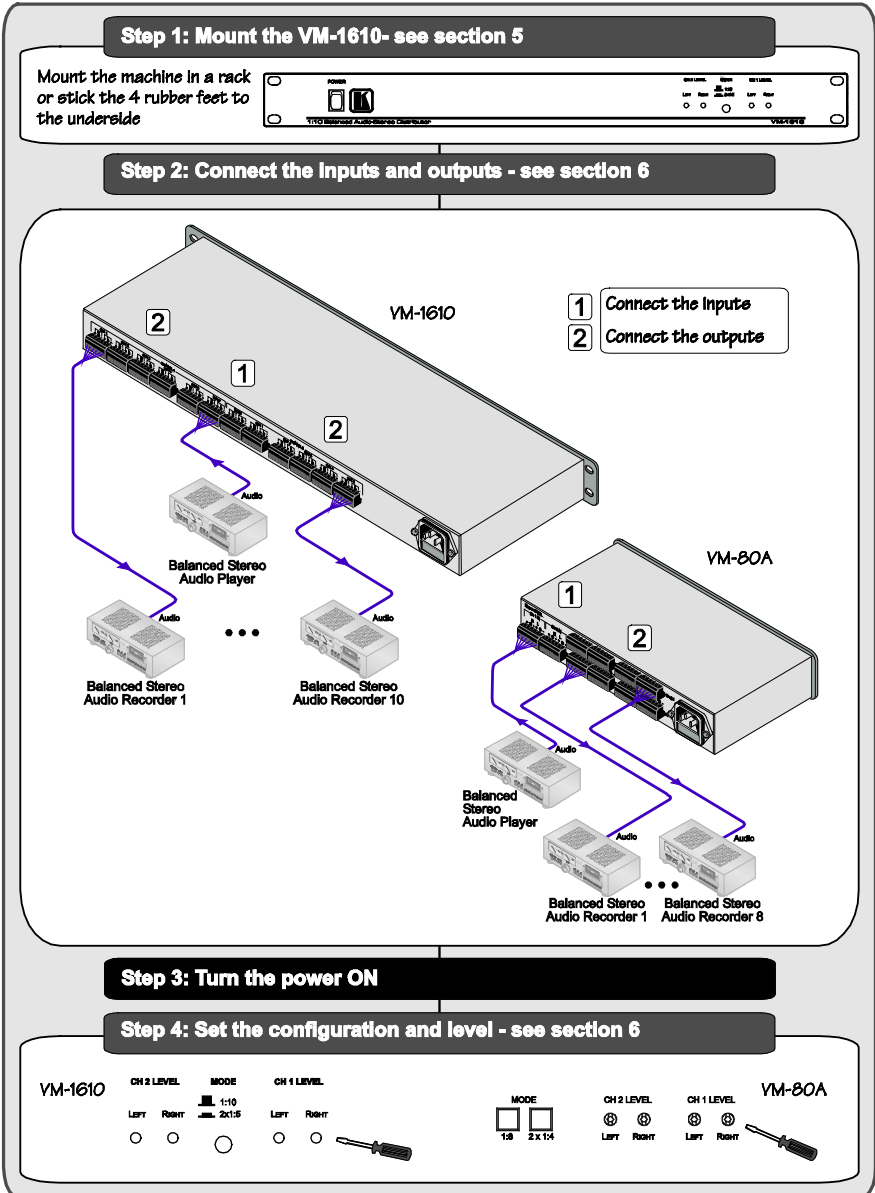
2 We recommend that you use only the power cord supplied with this device

3 Download up-to-date Kramer user manuals from our Web site at <http://www.kramerelectronics.com>

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

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.



3 Overview

The **VM-1610** is a high-performance distribution amplifier for balanced stereo signals. It can also be configured as one 1:10 or two 1:5 balanced stereo audio distribution amplifiers.

The **VM-1610** features:

- Grouped audio level controls
- Configuration as a 1:10 or 2x1:5 DA
- A signal to noise ratio of 92dB @1Vpp
- A standard 1U 19" rack mount size

The **VM-80A** is a high-performance distribution amplifier for balanced stereo audio signals. It can be configured as one 1:8 or two 1:4 balanced stereo audio distribution amplifiers.

The **VM-80A** features:

- Grouped audio level controls
- Configuration as a 1:8 or 2x1:4 DA
- A signal to noise ratio of 100dB @1Vpp
- Compact desktop size. Two units can be rack mounted side-by-side in a 1U rack space with the optional RK-1 adapter

To achieve the best performance:

- Use only good quality connection cables¹ 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 and position your Kramer products away from moisture, excessive sunlight and dust

4 Your VM-1610 and VM-80A Distribution Amplifiers

Section [4.1](#) defines the **VM-1610** and section [4.2](#) defines the **VM-80A** distribution amplifiers.

4.1 Your VM-1610 1:10 Balanced Audio-Stereo Distributor

[Figure 1](#) and [Table 1](#) define the **VM-1610**.

¹ Available from Kramer Electronics on our Web site at <http://www.kramerelectronics.com>

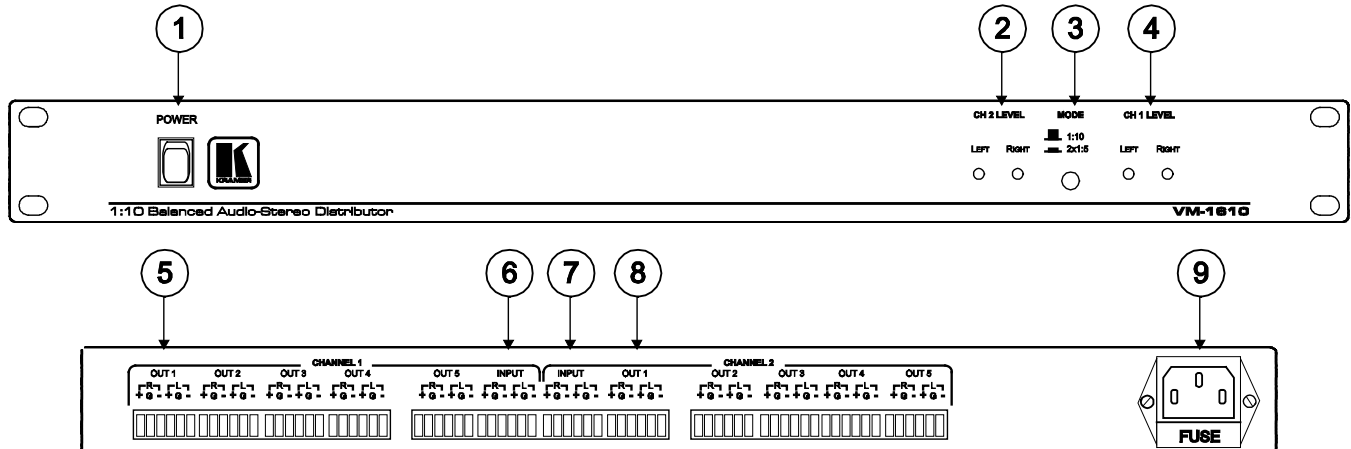


Figure 1: VM-1610 1:10 Balanced Audio-Stereo Distributor

Table 1: VM-1610 1:10 Balanced Audio-Stereo Distributor Functions

#	Feature	Function
1	POWER Switch	Illuminated power switch to turn the unit on and off
2	CH 2 LEVEL (LEFT, RIGHT) Trimmers	Controls the left and right audio gains of channel 2
3	MODE (1:10, 2x1:5) Button	Press to choose 2x1:5 output, release to choose 1:10 output
4	CH 1 LEVEL (LEFT, RIGHT) Trimmers	Controls the left and right audio gains of channel 1
5	CHANNEL 1 OUT Terminal Blocks	Connect to the channel 1 balanced stereo acceptors (1 to 5)
6	CHANNEL 1 INPUT Terminal Block	Connects the a balanced stereo source 1
7	CHANNEL 2 INPUT Terminal Block	Connects the a balanced stereo source 2
8	CHANNEL 2 OUT Terminal Blocks	Connect to the channel 1 balanced stereo acceptors (6 to 10) or connect to the channel 2 balanced stereo acceptors (1 to 5)
9	Power Connector with Fuse	AC connector enabling power supply to the unit

4.2 Your VM-80A 1:8 Audio Distributor

Figure 2 and Table 2 define the VM-80A.

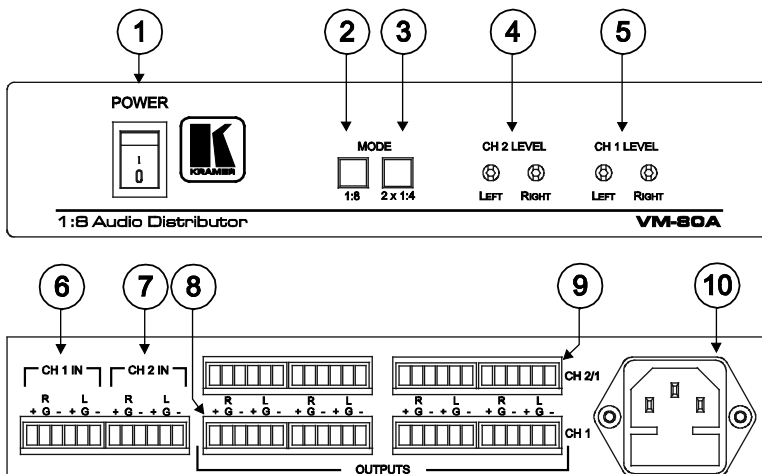


Figure 2: VM-80A 1:8 Audio Distributor Functions

Table 2: VM-80A 1:8 Audio Distributor Functions

#	Feature	Function
1	POWER Switch	Illuminated power switch to turn the unit on and off
2	MODE 1:8 Button	Press to choose the 1:8 output
3	MODE 2x1:4 Button	Press to choose the 2x1:4 output
4	CH 2 LEVEL (LEFT, RIGHT) Trimmers	Controls the left and right audio gains of channel 2
5	CH 1 LEVEL (LEFT, RIGHT) Trimmers	Controls the left and right audio gains of channel 1
6	CHANNEL 1 INPUT Terminal Block	Connects to the balanced stereo source 1

Installing the VM-1610 in a Rack

#	Feature	Function
7	CHANNEL 2 INPUT Terminal Block	Connects to the balanced stereo source 2
8	CHANNEL 1 OUT Terminal Blocks	Connect to the channel 1 balanced stereo acceptors (1 to 4)
9	CHANNEL 2/1 OUT Terminal Blocks	Connect to the channel 1 balanced stereo acceptors (5 to 8) or channel 2 balanced stereo acceptors (1 to 4)
10	Power Connector with Fuse	AC connector enabling power supply to the unit

5 Installing the VM-1610 in a Rack

This section describes how to install the **VM-1610** in a rack.

Before Installing in a rack

Before installing in a rack, be sure that the environment is within the recommended range:	
Operating temperature range	+5° to +45° C (41° to 113° F)
Operating humidity range	10 to 90% RHL, non-condensing
Storage temperature range	-20° to +70° C (-4° to 158° F)
Storage humidity range	5 to 95% RHL, non-condensing



CAUTION!!

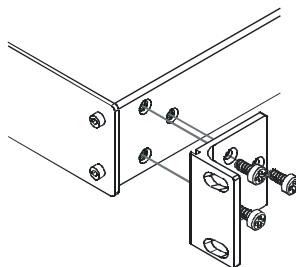
When installing on a 19" rack, avoid hazards by taking care that:

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 situations where electricity is supplied indirectly (when the power cord is not plugged directly into the socket in the wall), for example, when using an extension cable or a power strip, and that you use only the power cord that is supplied with the machine.

How to Rack Mount

To rack-mount a 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 the VM-1610 and VM-80A

Section [6.1](#) describes how to connect the **VM-1610** and section [6.2](#) describes how to connect **VM-80A**.

6.1 Connecting the VM-1610 Distribution Amplifier

To connect the **VM-1610** in a 1:10 configuration, as shown in [Figure 3](#), do the following¹:

1. Connect the input source (for example, a balanced stereo audio player) to the Channel 1 INPUT terminal block connector.
2. Connect the OUT terminal block connectors to up to 10 acceptors (for example, balanced stereo audio recorders).
3. Release the MODE button to the 1:10 position.
4. Switch on the **VM-1610**.
The audio input is distributed to the audio outputs.

Note: The Channel 2 INPUT cannot be distributed to the 10 outputs, only the Channel 1 INPUT.

5. Adjust the right and left audio levels by turning the CH1 and CH2 LEVEL trimmers with a small screwdriver.

To connect the **VM-1610** in a 2x1:5 configuration, do the following¹:

1. Connect input source 1 (for example, a balanced stereo audio player) to the Channel 1 INPUT terminal block connector.
2. Connect input source 2 (for example, a balanced stereo audio player) to the Channel 2 INPUT terminal block connector.
3. Connect the Channel 1 OUT terminal block connectors to up to 5 acceptors (for example, balanced stereo audio recorders).
4. Connect the Channel 2 OUT terminal block connectors to up to 5 acceptors (for example, balanced stereo audio recorders).
5. Press in the MODE button to the 2x1:5 position.
6. Switch on the **VM-1610**.
The Channel 1 audio inputs are distributed to the Channel 1 audio outputs.
The Channel 2 audio inputs are distributed to the Channel 2 audio outputs.

¹ Switch OFF the power on each device before connecting it to your **VM-1610**. After connecting your **VM-1610**, switch on its power and then switch on the power on each device

7. Adjust the right and left audio levels by turning the CH1 and CH2 LEVEL trimmers with a small screwdriver.

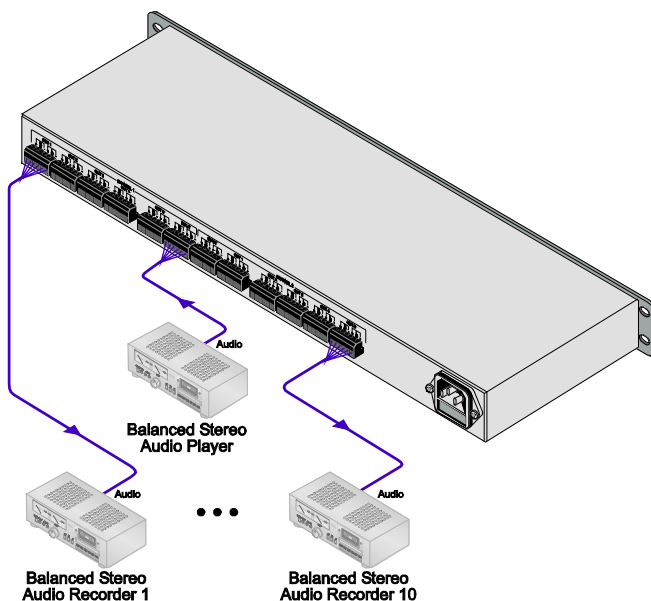


Figure 3: Connecting the VM-1610 in a 1:10 Configuration

6.2 Connecting the VM-80A Distribution Amplifier

To connect the **VM-80A** in a 1:8 configuration, as shown in [Figure 4](#), do the following¹:

1. Connect the input source (for example, a balanced stereo audio player) to the CH 1 INPUT terminal block connector.
2. Connect the OUT terminal block connectors to up to 8 acceptors (for example, balanced stereo audio recorders).
3. Press the 1:8 MODE button.
4. Switch on the **VM-80A**.
The audio input is distributed to the audio outputs.

Note: CH 2 INPUT cannot be distributed to all 8 outputs, only the CH 1 INPUT can.

¹ Switch OFF the power on each device before connecting it to your **VM-80A**. After connecting your **VM-80A**, switch on its power and then switch on the power on each device

5. Adjust the right and left audio levels by turning the CH1 and CH2 LEVEL trimmers with a small screwdriver.

To connect the **VM-80A** in a 2x1:4 configuration, do the following¹:

1. Connect input source 1 (for example, a balanced stereo audio player) to the CH 1 INPUT terminal block connector.
2. Connect input source 2 (for example, a balanced stereo audio player) to the CH 2 INPUT terminal block connector.
3. Connect the CH 1 OUT terminal block connectors to up to 4 acceptors (for example, balanced stereo audio recorders).
4. Connect the CH 2 OUT terminal block connectors to up to 4 acceptors (for example, balanced stereo audio recorders).
5. Switch on the **VM-80A**.
6. Press the 2x1:4 MODE button.
The Channel 1 audio inputs are distributed to the Channel 1 audio outputs.
The Channel 2 audio inputs are distributed to the Channel 2/1 audio outputs.
7. Adjust the right and left audio levels by turning the CH1 and CH2 LEVEL trimmers with a small screwdriver.

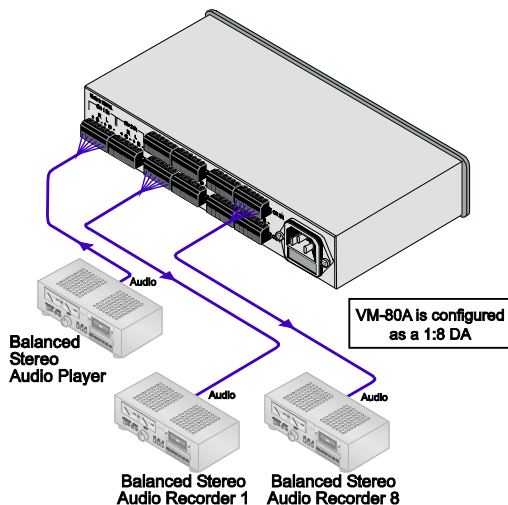


Figure 4: Connecting the VM-80A in a 1:8 Configuration

¹ Switch OFF the power on each device before connecting it to your **VM-80A**. After connecting your **VM-80A**, switch on its power and then switch on the power on each device

6.2.1 Changing the VM-80A Default Mode

By factory default, the **VM-80A** starts in 1:8 mode.

To change the default mode to 2x1:4:

1. Disconnect the device from its power source.
2. Open the top cover of the device.
3. Move the jumper on the main board from JP1 to JP2.

This operation must be performed by a qualified technician.

7 Technical Specifications

The **VM-1610** and **VM-80A** technical specifications are shown in [Table 3](#):

Table 3: Technical Specifications¹

	VM-1610	VM-80A
INPUT:	2 balanced audio stereo +4dBu, 50kΩ on detachable terminal blocks	2 balanced audio stereo +4dBu, 100kΩ on terminal block connectors
OUTPUT:	10 (or 2x5) balanced audio stereo +4dBu, 50Ω on detachable terminal blocks	8 (or 2 x 4) balanced audio stereo, +4dBu, 50Ω on terminal block connectors
AUDIO BANDWIDTH (-3dB):	>100kHz	20kHz
MAX. AUDIO OUTPUT:	18Vpp	20Vpp
GAIN RANGE:	0.5dB to +9.5dB (four trimmers - two for each input channel)	0.2 to 5.8dB (four trimmers - two for each input channel)
AUDIO S/N RATIO:	92dB @1Vpp	100dB @1Vpp
CROSSTALK:	-84.5dB	-60dB @1kHz
CONTROL:	Front selector switch for 1:10 or 2x1:5 operation, 4 front accessible gain trimmers	Front selector switches for 1:8 or 2x1:4 operation, 4 front accessible gain trimmers
COUPLING:	AC (input), DC (output)	AC (input); DC (output)
THD:	0.011% at 1kHz	0.02%
2 ND HARMONIC:	0.003%	0.006%
POWER SOURCE:	230V AC, (115V AC U.S.A.), 21VA	230V AC, 50/60Hz (115V AC U.S.A.) 6.7VA
DIMENSIONS:	19" x 7" x 1U W, D, H, rack mountable	22cm x 18cm x 4.5cm (8.7" x 7" x 1.8") W, D, H (half 19")
WEIGHT:	2.6kg (5.7lbs) approx	1.2kg (2.7lbs) approx
ACCESSORIES:	Power cord	Detachable AC power cord
OPTIONS:		RK-1 19" rack adapter

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, 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 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.

* 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: www.kramerelectronics.com where updates to this user manual may be found. We welcome your questions, comments and feedback.



Caution

Safety Warning:

Disconnect the unit from the power supply before opening/servicing.



P/N:



2900-001002

Rev:



3

Kramer Electronics, Ltd.

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P/N: 2900-001002 REV 3