

Kramer Electronics, Ltd.



USER MANUAL

Models:

VM-8H, 1:8 HDMI Distributor

VM-16H, 1:16 HDMI 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 your Kramer **VM-8H 1:8 HDMI Distributor** and/or **VM-16H 1:16 HDMI Distributor**. The HDMI distributor is ideal for:

- Home theater, presentation and multimedia applications
- Rental and staging
- Retail store displays

Note, that the Kramer VM-8H/VM-16H is identical to the VM-8HDMI/VM-16HDMI; just the name has changed replacing the suffix “HDMI” by “H” (according to the HDMI Guideline).

The package includes the following items:

- **VM-8H 1:8 HDMI Distributor** and/or **VM-16H 1:16 HDMI Distributor**
- Power cord and rack “ears”
- This user manual²

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 cables³

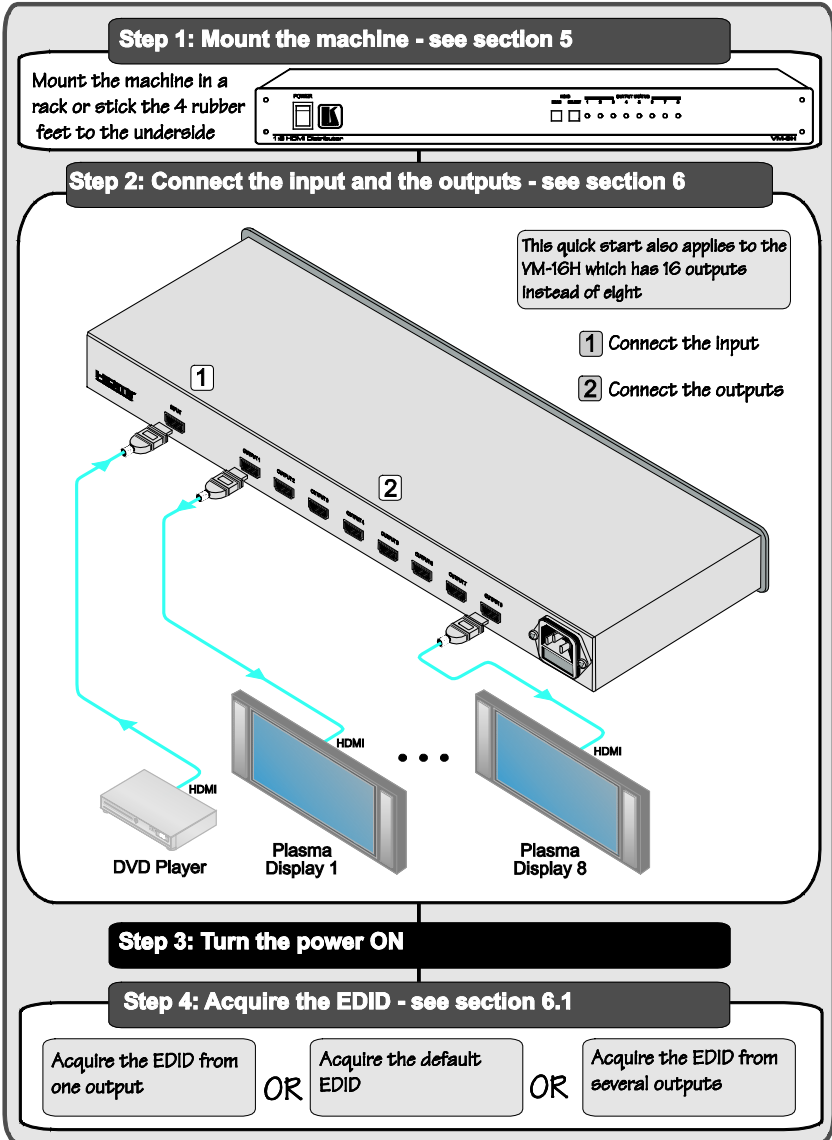
¹ GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

² Download up-to-date Kramer user manuals from our Web site at <http://www.kramerelectronics.com>

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

2.1 Quick Start

This section provides instructions for rack mounting the unit¹.



¹ This quick start also applies to the VM-16H which has 16 outputs instead of eight

3 Overview

The Kramer **VM-8H 1:8 HDMI Distributor** and the **VM-16H 1:16 HDMI Distributor** are high quality distributors that accept an HDMI input and distribute the signal to 8/16 outputs respectively, allowing one or more of the outputs to be connected to receiving devices, thus making them a versatile, reliable component in a video system. The **VM-8H/VM-16H** distribute signals having resolutions up to and including UXGA, and all HDTV formats.

In particular, the HDMI distributors feature:

- Up to 2.25Gbps bandwidth per graphic channel¹
- Data reclocking and equalization
- A default EDID² for fast and efficient connection of the unit³
- I-EDIDPro™ Kramer Intelligent EDID Processing™, an intelligent EDID handling and processing algorithm that ensures Plug and Play operation for HDMI systems
- 3D pass-through
- HDMI Support – HDMI (V.1.4 with Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD, CEC)
- HDMI connectors⁴, output status LEDs⁴, and EDID read and select buttons

The HDMI distributors are housed in a 19" 1U rack-mountable enclosure, and are fed from a 100-264V AC universal switching power supply.

1 Suitable for resolutions up to UXGA at 60Hz, and for all HD resolutions

2 EDID is Extended Display Identification Data

3 The default EDID feature lets you connect the VM-8H/VM-16H without having to connect a display to the output

4 Eight for the VM-8H and 16 for the VM-16H

3.1 About HDMI

High-Definition Multimedia Interface (HDMI) is an uncompressed all-digital¹ audio/video interface, widely supported in the entertainment and home cinema industry. It delivers the highest high-definition image and sound quality.

In particular, HDMI²:

- Provides a simple³ interface between any audio/video source, such as a set-top box, DVD player, or A/V receiver and video monitor, such as a digital flat LCD/plasma television (DTV), over a single lengthy⁴ cable
- Supports standard, enhanced, high-definition video, and multi-channel digital audio⁵ on a single cable
- Transmits all ATSC HDTV standards and supports 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements
- Benefits consumers by providing superior, uncompressed digital video quality via a single cable⁶, and user-friendly connector
- Is backward-compatible with DVI (Digital Visual Interface)
- Supports two-way communication between the video source (such as a DVD player) and the digital television, enabling new functionality such as automatic configuration and one-button play

HDMI has the capacity to support:

- Existing high-definition video formats (720p, 1080i, and 1080p/60), as well as standard definition formats such as NTSC or PAL

1 Ensuring an all-digital rendering of video without the losses associated with analog interfaces and their unnecessary digital-to-analog conversions

2 HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI licensing LLC

3 With video and multi-channel audio combined into a single cable, the cost, complexity, and confusion of multiple cables currently used in A/V systems is reduced

4 HDMI technology has been designed to use standard copper cable construction at up to 15m

5 HDMI supports multiple audio formats, from standard stereo to multi-channel surround-sound HDMI has the capacity to support Dolby 5.1 audio and high-resolution audio formats

6 HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner

3.2 Defining EDID

The Extended Display Identification Data (EDID¹) is a data-structure, provided by a display, to describe its capabilities to a graphics card (that is connected to the display's source). The EDID enables the **VM-8H/VM-16H** to "know" what kind of monitor is connected to the output. The EDID includes the manufacturer's name, the product type, the timing data supported by the display, the display size, luminance data and (for digital displays only) the pixel mapping data.

3.3 Recommendations for Best Performance

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 HDMI distributors away from moisture, excessive sunlight and dust

4 Your HDMI Distributors

[Figure 1](#) illustrates the **VM-8H 1:8 HDMI Distributor**, [Figure 2](#) illustrates the **VM-16H 1:16 HDMI Distributor**, and [Table 1](#) defines both the **VM-8H** and the **VM-16H**.

¹ Defined by a standard published by the Video Electronics Standards Association (VESA)

Your HDMI Distributors

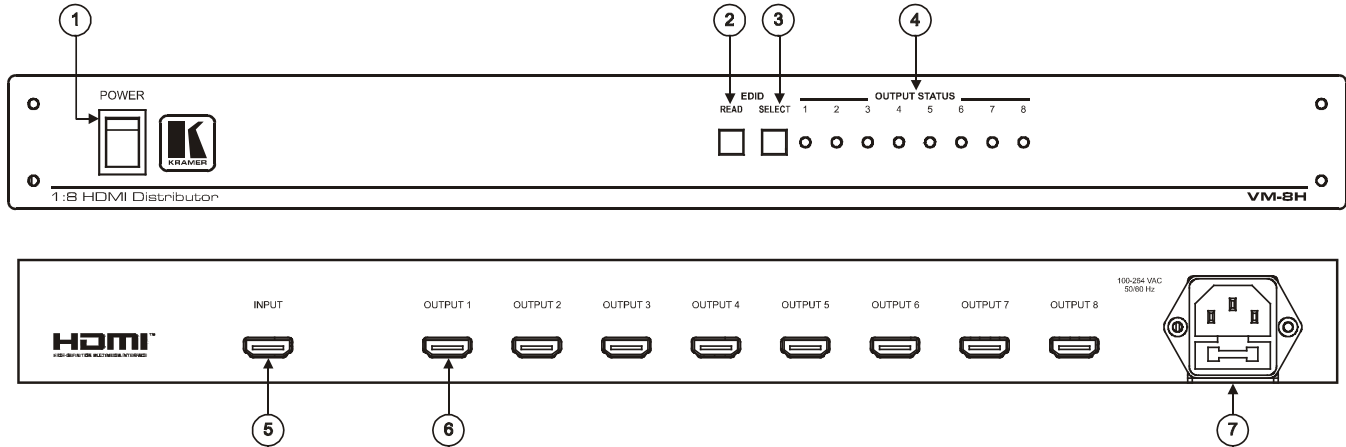


Figure 1: VM-8H 1:8 HDMI Distributor

Your HDMI Distributors

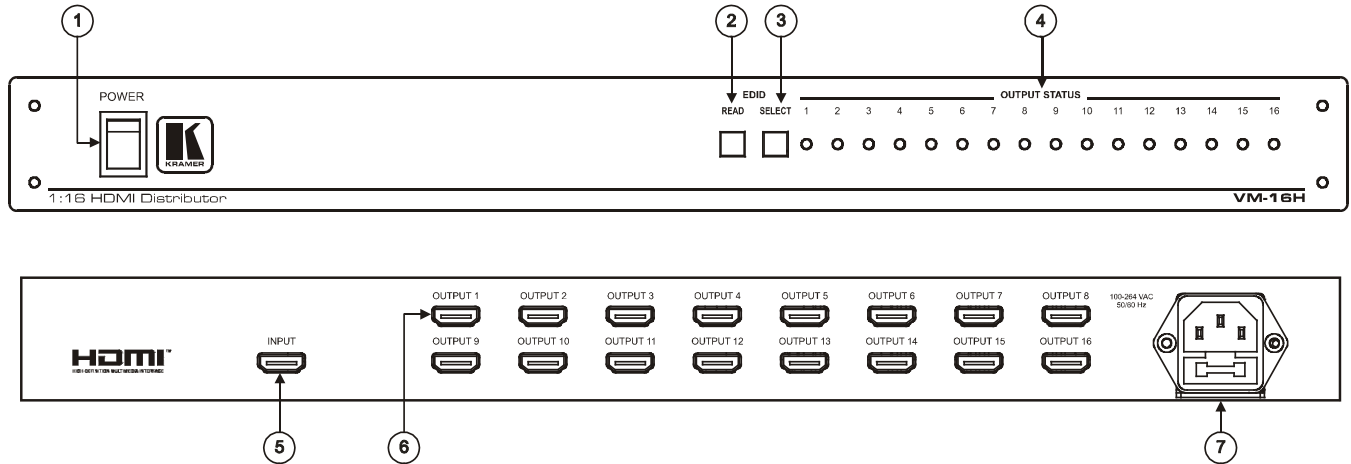


Figure 2: VM-16H 1:16 H Distributor

Table 1: HDMI Distributor Features

| # | Feature | Function | |
|---|---------------------------|---|---|
| 1 | POWER Switch | Illuminated switch for turning the unit ON or OFF | |
| 2 | EDID | READ Button | Press to read the EDID of the selected display |
| 3 | | SELECT Button | Select the desired display for EDID information |
| 4 | OUTPUT STATUS LEDs | LEDs light when an output(s) is connected and active; LEDs flash when selecting the EDID (see Section 6.1) | |
| 5 | INPUT HDMI Connector | Connects to the HDMI source | |
| 6 | OUTPUT HDMI Connectors | Connect to the HDMI acceptors ¹ | |
| 7 | Power Connector with Fuse | AC connector enabling power supply to the unit | |

¹ For the VM-8H, from 1 to 8; for the VM-16H, from 1 to 16

5 Installing the VM-8H/VM-16H on a Rack

This section provides instructions for rack mounting the unit.

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!

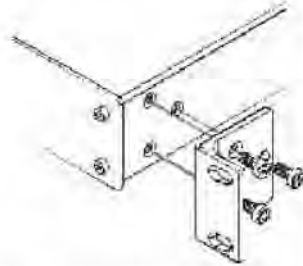
When installing on a 19" rack, avoid hazards by taking care that:

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:

- 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 available from: <http://www.kramerelectronics.com>

6 Connecting the VM-8H 1:8 HDMI Distributor

To connect the **VM-8H 1:8 HDMI distributor**¹, do the following:

1. Connect an HDMI source (for example, a DVD player) to the INPUT connector.
2. Connect the eight OUTPUT connectors to eight² HDMI acceptors (for example, plasma displays).
3. Connect the power cord to the mains electricity.
4. Turn ON the POWER.
5. Acquire the EDID (see [Section 6.1](#)).

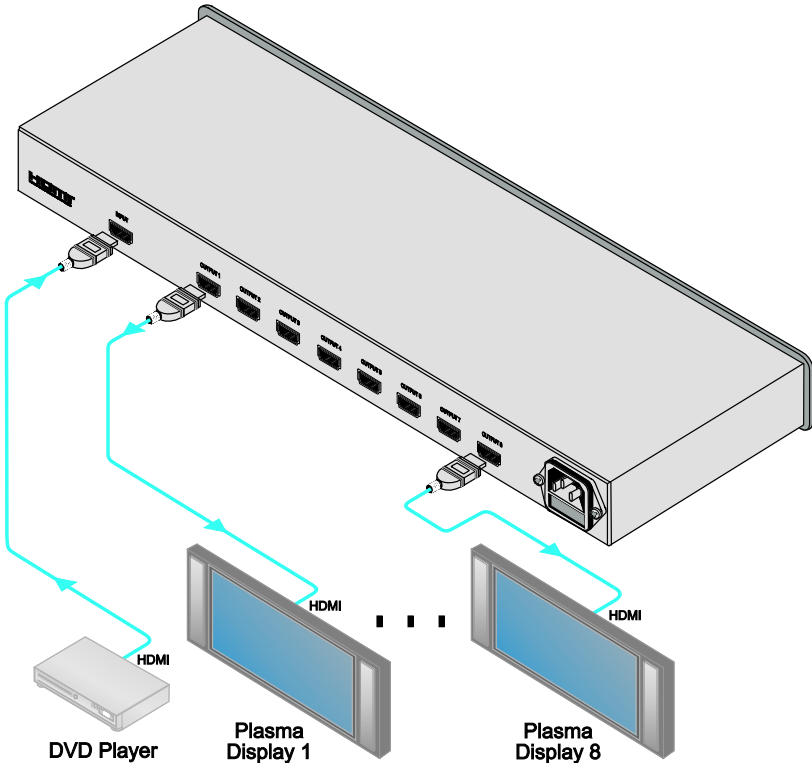


Figure 3: Connecting a VM-8H 1:8 HDMI Distributor

¹ From this section on, all the information is relevant to both the VM-8H and the VM-16H, unless noted otherwise

² As required Up to 8 outputs can be connected on the VM-8H and up to 16 outputs can be connected on the VM-16H Not all outputs need to be connected

6.1 Acquiring the EDID

The **VM-8H** initially operates with the default EDID. This means that you can turn ON the power before connecting any of the acceptors or the source.

You can acquire the EDID from:

- One Output (the selected output LED flashes)
- The Default EDID (all the output LEDs flash)
- Several connected outputs, the Auto-mix Mode¹, (the output LEDs flash in sequence)

To cycle between the different modes (One Output, Default and Auto-mix), press the SELECT button, as defined in [Table 2](#).

Table 2: The EDID Modes

| Current EDID Mode | Appearance | To cycle to the Default EDID | To cycle to the Auto-mix EDID | To cycle to the One output EDID |
|-------------------|-----------------------------------|--|-------------------------------|--|
| One output | The selected output LED flashes | Press the SELECT button once again after selecting output 8 (for VM-8H) or output 16 (for VM-16H). The output LEDs flash | | |
| Default | The output LEDs flash | | Press the SELECT button once | |
| Auto-mix | The output LEDs flash in sequence | | | Press the SELECT button to select the required output. The selected output flashes |

To acquire or change the EDID of a new output display from:

- One output, see [Section 6.1.1](#)
- The default EDID, see [Section 6.1.2](#)
- Several connected outputs, see [Section 6.1.3](#)

6.1.1 Acquiring the EDID from one Output

To acquire the EDID of a new output display, do the following:

1. Press the SELECT button.
The currently selected OUTPUT LED flashes.
2. Press the SELECT button again to cycle from one output to another until reaching the desired output.
3. Press the READ button.
The flashing ceases and the button illuminates. The **VM-8H** accesses the

¹ The EDID acquired is a weighted average of all the connected outputs. For example, if several displays with different resolutions are connected to the outputs, the acquired EDID supports all the resolutions, as well as other parameters included in the EDID

EDID of the connected output.

The EDID of the selected output is stored in the non-volatile memory when the READ button no longer illuminates.

6.1.2 Acquiring the Default EDID

To acquire the default EDID, do the following:

1. Press the SELECT button.
The OUTPUT LEDs flash simultaneously.
2. Press the READ button.
The flashing ceases and the button illuminates. The **VM-8H** accesses the default EDID.
The EDID of the selected output is stored in the non-volatile memory when the READ button no longer illuminates.

6.1.3 Acquiring the EDID from Several Outputs

To acquire or change the EDID via several connected outputs, do the following:

1. Press the SELECT button.
The OUTPUT LEDs flash in sequence.
2. Press the READ button.
The flashing ceases and the button illuminates. The **VM-8H** accesses the EDID of the connected outputs.
The EDID is stored in the non-volatile memory when the READ button no longer illuminates.

7 Technical Specifications

[Table 3](#) includes the technical specifications:

Table 3: Technical Specifications¹ of the VM-8H and the VM-16H

| | VM-8H | VM-16H |
|--------------------------------|--|------------------------|
| INPUT: | HDMI connector | |
| OUTPUTS: | 8 HDMI connectors | 16 HDMI connectors |
| BANDWIDTH: | Supports up to 2.25Gbps per graphic channel | |
| COMPLIANCE WITH HDMI STANDARD: | Supports HDMI and HDCP | |
| CONTROLS: | SELECT and READ buttons for selecting and storing EDID information | |
| INDICATOR LEDs: | OUTPUT STATUS 1 to 8 | OUTPUT STATUS 1 to 16 |
| POWER SOURCE: | 100-264V AC, 50/60Hz, 25VA | |
| DIMENSIONS: | 19" x 7" x 1U W, D, H rack mountable | |
| WEIGHT: | 3.5kg (7.7lbs) approx. | 4.5kg (9.9lbs) approx. |
| ACCESSORIES: | Power cord, rack "ears" | |
| OPTIONS: | HDMI/HDMI male-to-male cables | |

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 three 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 installation 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: 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.



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P/N: 2900-000661 REV 2