Kramer Electronics, Ltd.

USER MANUAL

Model:

VM-2Hxl

1:2 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 groups[1] that are clearly defined by function.

Congratulations on purchasing your Kramer DigiTOOLS® **VM-2Hxl** *1:2 HDMI[2] Distributor.* The **VM-2Hxl** is ideal for:

- Home theater, presentation and multimedia applications
- Rental and staging

Note, that the Kramer VM-2Hxl is identical to the VM-2HDMIxl; just the name has changed replacing the suffix "HDMI" by "H" (according to the HDMI Guideline).

The package includes the following items:

- **VM-2Hxl** *1:2 HDMI Distributor*
- Power adapter (5V DC input)
- This user manual[3]

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[4]

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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
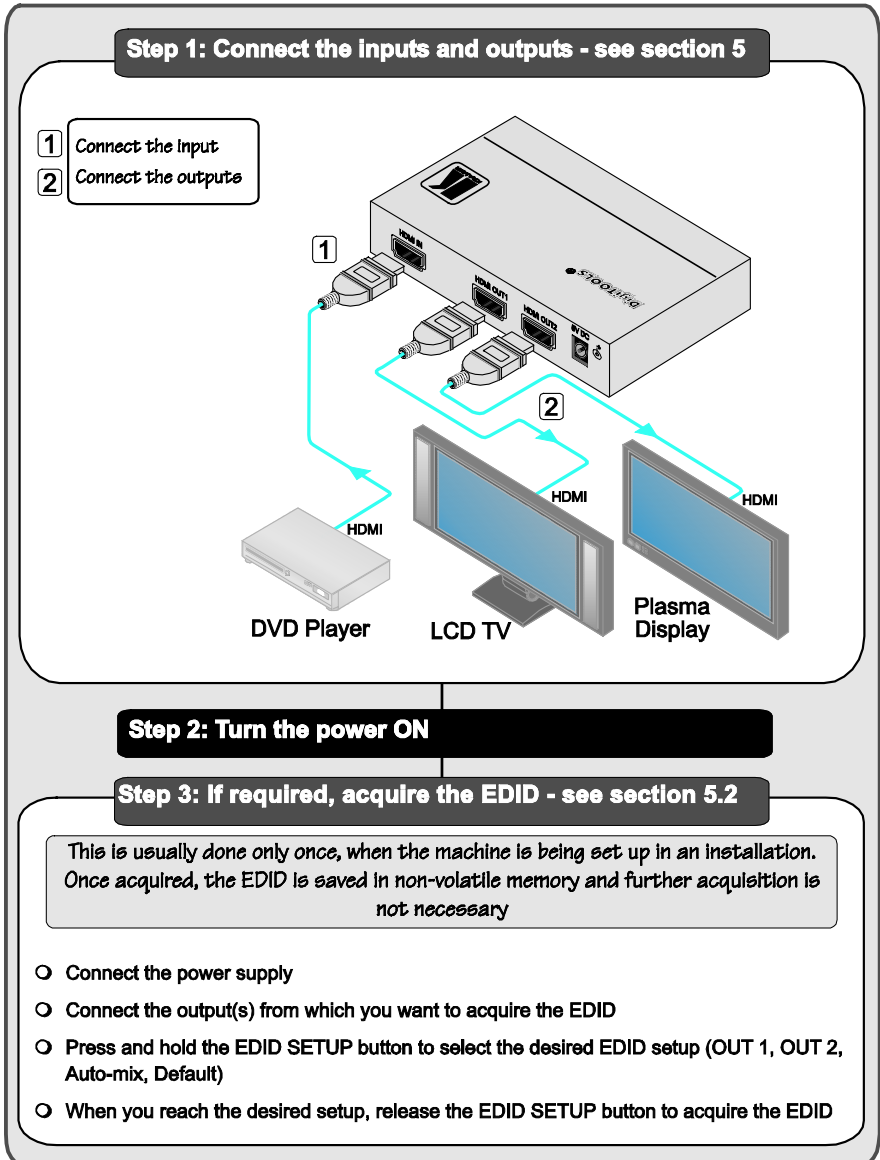
2 High-Definition Multimedia Interface

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 of the **VM-2Hxl**.

Step 1: Connect the inputs and outputs - see section 5

1 Connect the input
2 Connect the outputs

DVD Player   LCD TV   Plasma Display

Step 2: Turn the power ON

Step 3: If required, acquire the EDID - see section 5.2

This is usually done only once, when the machine is being set up in an installation. Once acquired, the EDID is saved in non-volatile memory and further acquisition is not necessary

○ Connect the power supply

○ Connect the output(s) from which you want to acquire the EDID

○ Press and hold the EDID SETUP button to select the desired EDID setup (OUT 1, OUT 2, Auto-mix, Default)

○ When you reach the desired setup, release the EDID SETUP button to acquire the EDID

3 Overview

The high-quality **VM-2Hxl** accepts an HDMI input and distributes the signal to two outputs. In particular, the **VM-2Hxl** features:

- Up to 2.25Gbps bandwidth per graphic channel[1]
- HDMI Support – HDMI (V.1.4 with Deep Color, x.v.Color™, Lip Sync, CEC)
- 3D pass-through
- I-EDIDPro™ Kramer Intelligent EDID Processing™, an intelligent EDID handling and processing algorithm that ensures Plug and Play operation for HDMI systems
- A default EDID for fast and efficient connection of the unit[2]
- 5V DC power

3.1 About HDMI

High-Definition Multimedia Interface (HDMI) is an uncompressed all-digital[3] audio/video interface, widely supported in the entertainment and home cinema industry. It delivers the highest high-definition image and sound quality.

In particular, HDMI[4]:

- Provides a simple[5] 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 lengthy[6] cable
- Supports standard, enhanced, high-definition video, and multi-channel digital audio[7] 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

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

2 Lets you use the EDID default value when no display from which to read the EDID is connected

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

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

5 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

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

7 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

- Benefits consumers by providing superior, uncompressed digital video quality via a single cable[1], 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
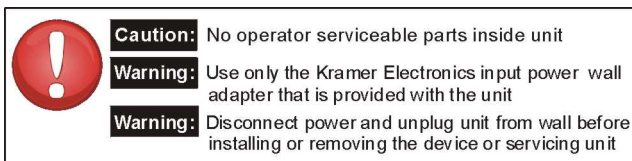
3.2 Defining EDID

The Extended Display Identification Data (EDID[2]) 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-2Hxl** 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:
- Use only good quality connection cables[3] 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 **VM-2Hxl** away from moisture, excessive sunlight and dust

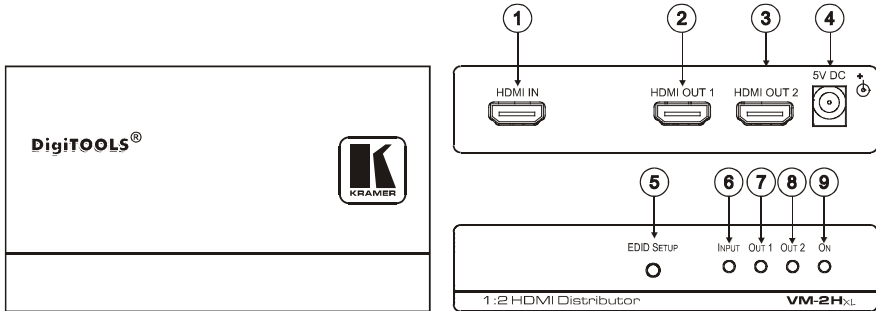|	
Caution:	No operator serviceable parts inside unit
Warning:	Use only the Kramer Electronics input power wall adapter that is provided with the unit
Warning:	Disconnect power and unplug unit from wall before installing or removing the device or servicing unit

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

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

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

KRAMER: SIMPLE CREATIVE TECHNOLOGY

4   Your VM-2Hxl 1:2 HDMI Distributor

Figure 1 and Table 1 define the **VM-2Hxl** *1:2 HDMI Distributor*:

Figure 1: VM-2Hxl 1:2 HDMI Distributor

Table 1: VM-2Hxl 1:2 HDMI Distributor Features

#	Feature	Function
1	*HDMI IN*	Connects to the HDMI source
2	*HDMI OUT1*	Connects to the HDMI acceptor 1
3	*HDMI OUT2*	Connects to the HDMI acceptor 2
4	*5V DC*	+5V DC connector for powering the unit
5	*EDID SETUP Button*	Press for more than 3 seconds to acquire the EDID information from the display
6	*INPUT* LED	Flashes when the stored EDID does not match the display device EDID; illuminates when the EDID corresponds to the display device and that HDMI source is active
7	*OUT1* LED	Flashes during the EDID setup; illuminates when output 1 is connected
8	*OUT2* LED	Flashes during the EDID setup; illuminates when output 2 is connected
9	*ON* LED	Illuminates when receiving power

5   Using the VM-2Hxl 1:2 HDMI Distributor

This section describes how to:

- Connect the **VM-2Hxl** (see Section 5.1)
- Use the EDID SETUP button (see Section 5.2)

5.1 Connecting the VM-2Hxl 1:2 HDMI Distributor

To connect the **VM-2Hxl**, as the example in Figure 2 shows, do the following[1]:

1. Connect the HDMI source (for example, a DVD player) to the HDMI IN connector.

2. Connect the HDMI OUT connectors to up to two HDMI acceptors, as follows:
   - HDMI OUT 1 connector to an LCD TV
   - HDMI OUT 2 connector to a plasma display

3. Connect the 5V DC power adapter to the power socket and connect the adapter to the mains electricity.

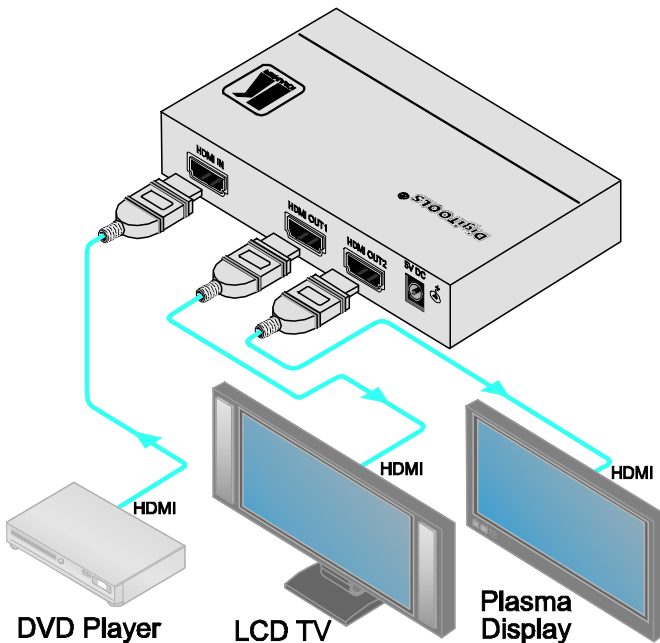4. Press the EDID SETUP button to acquire or change the EDID information (see Section 5.2).

Figure 2: Connecting a VM-2Hxl 1:2 HDMI Distributor

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1 Switch OFF the power on each device before connecting it to your VM-2Hxl. After connecting your VM-2Hxl, switch on its power and then switch on the power on each device

5.2 Acquiring the EDID

Initially, the **VM-2Hxl** operates with the factory default EDID[1]. This lets you connect the power before connecting one of the acceptors or sources.

You can acquire the EDID[2] from:

- One output (the relevant output illuminates)
- The default EDID (both output LEDs blink)
- Two connected outputs, the auto-mix mode[3] (both output LEDs illuminate)

When pressing the EDID SETUP button briefly, the OUT LEDs indicate which type of EDID was last acquired. If the:

- OUT 1 LED illuminates, the OUT 1 EDID is stored in the non-volatile memory
- OUT 2 LED illuminates, the OUT 2 EDID is stored in the non-volatile memory
- OUT 1 and OUT 2 LEDs illuminate, the Auto-Mix[3] EDID is stored in the non-volatile memory
- OUT 1 and OUT 2 LEDs blink, the Default EDID is stored in the non-volatile memory

To acquire the EDID, do the following:

1. Connect the power.

2. Connect the output or outputs from which you want to acquire the EDID.

3. Press and hold the EDID SETUP button to select the desired EDID. The OUT LEDs illuminate in the following cycle: OUT 1, OUT 2, both illuminate (auto-mix[3]) and both blink (default).

4. Release the button when reaching the desired set up[4]. The EDID is now acquired.

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1 The VM-2Hxl reads the EDID, which is stored in the non-volatile memory

2 This is usually done only once, when the machine is being set up in an installation. Once acquired, the EDID is saved in non-volatile memory and further acquisition is not necessary

3 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

4 If you set the machine to acquire the EDID from an output that is not connected, the default EDID is acquired

6   Technical Specifications

Table 2 includes the technical specifications[1] of the **VM-2Hxl**:

Table 2: Technical Specifications of the VM-2Hxl

INPUT:	1 HDMI connector
OUTPUTS:	2 HDMI connectors
BANDWIDTH:	Supports up to 2.25Gbps bandwidth per graphic channel
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI and HDCP
CONTROLS:	EDID SETUP button, input select button
INDICATOR LEDs:	IN 1, IN 2, OUT 1, OUT 2, and ON LEDs
POWER SOURCE:	5V DC, 910mA
DIMENSIONS:	12cm x 7.2cm x 2.4cm (4.7" x 2.8" 1.0") W, D, H
WEIGHT:	0.3kg (0.67lbs) approx.
ACCESSORIES:	Power supply, bracket installation kit
OPTIONS:	HDMI/HDMI male-to-male cables

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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 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 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.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

Caution