KRAMER ELECTRONICS LTD.

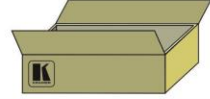# USER MANUAL

MODEL:

VM-2HN
1:2 HDMI DA

P/N: 2900-300381 Rev 5

VM-2HN Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to http://www.kramerav.com/manual/VM-2HN to download the latest manual or scan the QR code on the left.

Step 1: Check what's in the box

- ☑ **VM-2HN** 1:2 HDMI DA
- ☑ 1 Power supply (5V DC)
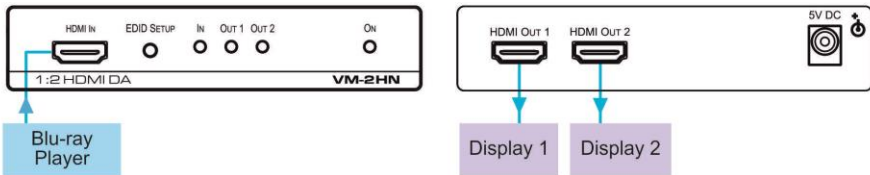- ☑ 4 Rubber feet
- ☑ 1 Quick Start sheet

Save the original box and packaging materials in case you need to return your **VM-2HN** for service.

Step 2: Install the VM-2HN

Attach the rubber feet and place on a table or mount the **VM-2HN** in a rack (using an optional **RK-3T** rack adapter).

Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **VM-2HN**.

Always use Kramer high-performance cables for connecting AV equipment to the **VM-2HN.**

Step 4: Connect the power

Connect the 5V DC power adapter to the **VM-2HN** and plug the adapter into the mains electricity.

Step 5: Acquire the EDID

1. The first press of the EDID SETUP button displays the present EDID status similar to that shown in the next step.
2. The second press of EDID SETUP enters the read mode and each additional press cycles through the source options:
   OUT 1 -> OUT 2 -> all LEDS flash slowly for auto-mix -> all LEDs flash quickly for a default EDID.
3. When the desired EDID source is reached, release the EDID SETUP button.
   The **VM-2HN** reads the EDID for a few seconds. When finished, all LEDS return to display the present output connection status.

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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 14 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 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 Video Products; GROUP 12: Digital Signage; GROUP 13: Audio; and GROUP 14: Collaboration.

Congratulations on purchasing your Kramer **VM-2HN** *1:2 HDMI DA*, which is ideal for the following typical applications:

- Boardrooms and meeting rooms
- Presentation and multimedia applications
- Home theater
- Rental and staging

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

  Go to http://www.kramerAV.com/downloads/VM-2HN to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

2.1 Achieving the Best Performance

To achieve 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 **VM-2HN** 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.

2.2 Safety Instructions

Caution: There are no operator serviceable parts inside the unit

Warning: Use only the Kramer Electronics power supply that is provided with the unit

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

2.3 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 *http://www.kramerAV.com/support/recycling/*.

3   Overview

The Kramer DigiTOOLS® **VM-2HN** is a high-quality 1:2 HDMI distributor that takes one HDMI input, equalizes and reclocks the signal and distributes it to two identical outputs. The **VM-2HN** distributes signals having resolutions up to 4Kx2K and including WUXGA and 1080p.

In particular, the **VM-2HN** features:

- A maximum data rate of 10.2Gbps (3.4Gbps per graphic channel)

- HDMI support for Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD, CEC

- HDCP compliance

- Kramer Equalization & re-Klocking™ Technology that rebuilds the digital signal integrity to travel longer distances

- 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
  The default EDID feature lets you connect the VM-2HN without having to connect a display to the output

- 3D pass-through

- A compact DigiTOOLS® enclosure with a 5V DC power source

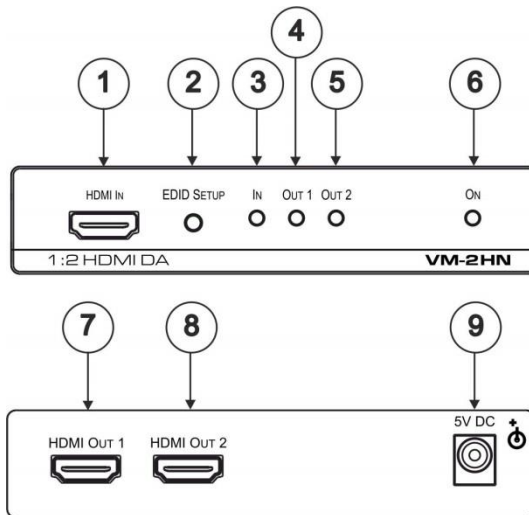## 3.1 Defining the VM-2HN 1:2 HDMI DA

Figure 1 defines the **VM-2HN**.

Figure 1: VM-2HN 1:2 HDMI DA

#	Feature	Function
1	*HDMI IN* Connector	Connects to the HDMI source
2	*EDID SETUP* Button	Press to capture the input EDID or select the default EDID (see Section 4.1)
3	*IN* LED	Lights when an active input signal is detected
4	*OUT 1* LED	Lights when output 1 acceptor is detected
5	*OUT 2* LED	Lights when output 2 acceptor is detected
6	*ON* LED	Lights when the device is powered on
7	*HDMI OUT 1* Connector	Connects to HDMI acceptor 1
8	*HDMI OUT 2* Connector	Connects to HDMI acceptor 2
9	*5V DC* Connector	Connects to the 5V DC power supply

4   Connecting the VM-2HN

Always switch off the power to each device before connecting it to your **VM-2HN**. After connecting your **VM-2HN**, connect its power and then switch on the power to each device.

Connect the **VM-2HN** as illustrated in the example in Figure 2:

1. Connect an HDMI input source (for example, a Blu-ray player) to the HDMI IN connector.

2. Connect the two OUTPUT connectors to up to two HDMI acceptors, as follows:
   Not all outputs need to be connected.

   - HDMI OUT 1 connector to HDMI acceptor 1 (for example, display 1)

   - HDMI OUT 2 connector to HDMI acceptor 2 (for example, display 2)

3. Connect the 5V DC power adapter to the power socket unit and then connect the adapter to the mains electricity (not shown in Figure 2).
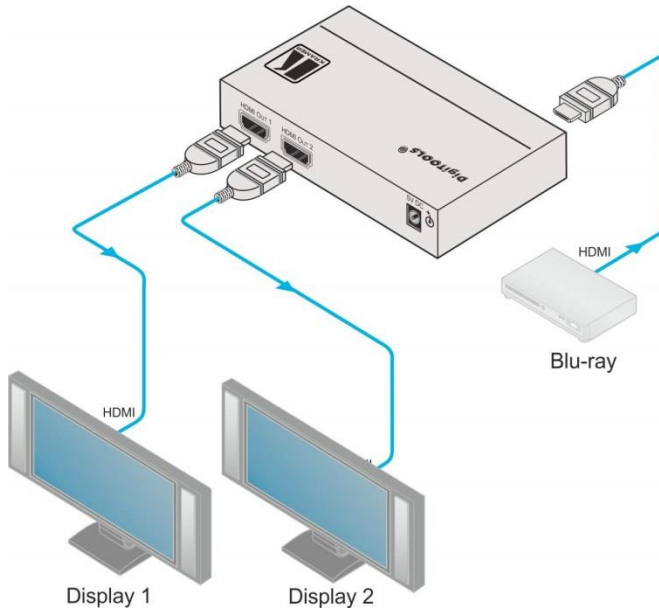   The ON LED lights.

Figure 2: Connecting the VM-2HN 1:2 HDMI DA

4.1 Acquiring an EDID

To acquire an EDID, press the EDID SETUP button as follows:

1. The first press of the EDID SETUP button displays the present EDID status similar to that shown in the next step.

2. The second press of EDID SETUP enters the read mode and each additional press cycles through the source options:
   OUT 1 -> OUT 2 -> all LEDS flash slowly for auto-mix -> all LEDs flash quickly for a default EDID.

3. When the desired EDID source is reached, release the EDID SETUP button. The **VM-2HN** reads the EDID for a few seconds. When finished, all LEDS return to display the present output connection status.
   If an unconnected output is chosen or the EDID cannot be read, the **VM-2HN** loads the default EDID.

4.2   Force RGB Mode

The **VM-2HN** toggles between "Normal" and "Force RGB" modes.

To toggle:

- Press the EDID button for three seconds
  All input and outputs LEDs flash depending on the selected mode:

    - In "Normal mode" (not forcing RGB), the LEDs flash once

    - In "Force RGB mode", the LEDS flash four times

Note: After setting the Force RGB mode you must re-read the EDID from the display to update the Force RGB change.

Powering on the device identifies the mode as follows:

- In "Normal mode" (not forcing RGB), the LEDs flash once

- In "Force RGB mode", the LEDS flash four times.

The default mode is "Normal".

5 Default EDID

Model name............... VM-2HN
 Manufacturer............. KMR
 Plug and Play ID......... KMR0672
 Data string.............. Default-EDID
 Serial number............ 2
 Manufacture date........ 2012, ISO week 255
 Filter driver............ None

 EDID revision............ 1.3
 Input signal type........ Digital
 Color bit depth.......... Undefined
 Display type............. RGB color
 Screen size.............. 520 x 320 mm (24.0 in)
 Power management......... Standby, Suspend, Active off/sleep
 Extension blocs.......... 1 (CEA-EXT)

 DDC/CI................... Not supported

Color characteristics
 Default color space...... Non-sRGB
 Display gamma............ 2.20
 Red chromaticity......... Rx 0.674 - Ry 0.319
 Green chromaticity....... Gx 0.188 - Gy 0.706
 Blue chromaticity........ Bx 0.148 - By 0.064
 White point (default).... Wx 0.313 - Wy 0.329
 Additional descriptors... None

Timing characteristics
 Horizontal scan range.... 30-83kHz
 Vertical scan range...... 56-76Hz
 Video bandwidth.......... 170MHz
 CVT standard............. Not supported
 GTF standard............. Not supported
 Additional descriptors... None
 Preferred timing......... Yes
 Native/preferred timing.. 1280x720p at 60Hz (16:10)
   Modeline............... "1280x720" 74.250 1280 1390 1430 1650 720 725 730 750 +hsync +vsync

Standard timings supported
    720 x 400p at 70Hz - IBM VGA
    640 x 480p at 60Hz - IBM VGA
    640 x 480p at 75Hz - VESA
    800 x 600p at 60Hz - VESA
    800 x 600p at 75Hz - VESA
   1024 x 768p at 60Hz - VESA
   1024 x 768p at 75Hz - VESA
   1280 x 1024p at 75Hz - VESA
   1280 x 1024p at 60Hz - VESA STD
   1600 x 1200p at 60Hz - VESA STD
   1152 x 864p at 75Hz - VESA STD

EIA/CEA-861 Information
 Revision number.......... 3
 IT underscan............. Supported
 Basic audio.............. Supported
 YCbCr 4:4:4.............. Supported
 YCbCr 4:2:2.............. Supported
 Native formats........... 1
 Detailed timing #1....... 1920x1080p at 60Hz (16:10)
   Modeline............... "1920x1080" 148.500 1920 2008 2052 2200 1080 1084 1089 1125 +hsync +vsync
 Detailed timing #2....... 1920x1080i at 60Hz (16:10)

Modeline............... "1920x1080" 74.250 1920 2008 2052 2200 1080 1084 1094 1124 interlace +hsync +vsync
  Detailed timing #3....... 1280x720p at 60Hz (16:10)
    Modeline............... "1280x720" 74.250 1280 1390 1430 1650 720 725 730 750 +hsync +vsync
  Detailed timing #4....... 720x480p at 60Hz (16:10)
    Modeline............... "720x480" 27.000 720 736 798 858 480 489 495 525 -hsync -vsync

CE video identifiers (VICs) - timing/formats supported
    1920 x 1080p at 60Hz - HDTV (16:9, 1:1)
    1920 x 1080i at 60Hz - HDTV (16:9, 1:1)
    1280 x 720p at 60Hz - HDTV (16:9, 1:1) [Native]
     720 x 480p at 60Hz - EDTV (16:9, 32:27)
     720 x 480p at 60Hz - EDTV (4:3, 8:9)
     720 x 480i at 60Hz - Doublescan (16:9, 32:27)
     720 x 576i at 50Hz - Doublescan (16:9, 64:45)
     640 x 480p at 60Hz - Default (4:3, 1:1)
    NB: NTSC refresh rate = (Hz*1000)/1001

CE audio data (formats supported)
  LPCM   2-channel, 16/20/24 bit depths at 32/44/48 kHz

CE vendor specific data (VSDB)
  IEEE registration number. 0x000C03
  CEC physical address..... 1.0.0.0
  Maximum TMDS clock....... 165MHz

CE speaker allocation data
  Channel configuration.... 2.0
  Front left/right......... Yes
  Front LFE................ No
  Front center............. No
  Rear left/right.......... No
  Rear center.............. No
  Front left/right center.. No
  Rear left/right center... No
  Rear LFE................. No

Report information
  Date generated........... 11/11/2014
  Software revision........ 2.60.0.972
  Data source.............. Real-time 0x0032
  Operating system......... 6.1.7601.2.Service Pack 1

6 Technical Specifications

INPUT:	1 HDMI connector
OUTPUTS:	2 HDMI connectors
MAX. DATA RATE:	10.2Gbps (3.4Gbps per graphic channel)
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI and HDCP
CONTROLS:	EDID Setup button
INDICATOR LEDs:	OUTPUTS 1 to 4, and ACTIVE LED
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
POWER CONSUMPTION:	5V DC, 800mA
DIMENSIONS:	12cm x 7.2cm x 2.4cm (4.7" x 2.8" x 0.9") W, D, H
WEIGHT:	0.3kg (0.67lb)
INCLUDED ACCESSORIES:	Power supply
Specifications are subject to change without notice at http://www.kramerAV.com	

LIMITED WARRANTY

The warranty obligations of 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.

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Seven years as of this printing; please check our Web site for the most current and accurate warranty information.

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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, please visit our web site at www.kramerelectronics.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. 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.

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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.

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