



KRAMER ELECTRONICS LTD.

# USER MANUAL

MODEL:

**VM-3HN**  
1:3 HDMI DA

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P/N: 2900-300382 Rev 3



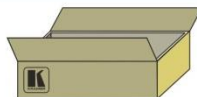
## VM-3HN Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to <http://bit.ly/k-prod-downloads> to download the latest manual or scan the QR code on the left.

### Step 1: Check what's in the box

- ✓ VM-3HN 1:3 HDMI DA
- ✓ 1 Power supply (5V DC)

- ✓ 4 Rubber feet
- ✓ 1 Quick Start sheet



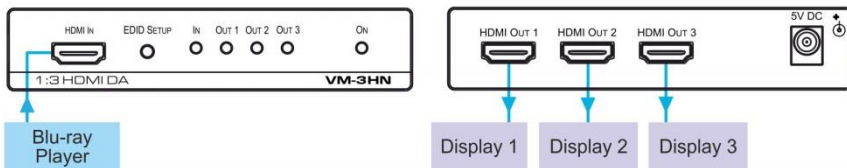
Save the original box and packaging materials in case you need to return your **VM-3HN** for service.

### Step 2: Install the VM-3HN

Attach the rubber feet and place on a table or mount the **VM-3HN** 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-3HN**.



Always use Kramer high-performance cables for connecting AV equipment to the **VM-3HN**.

### Step 4: Connect the power

Connect the 5V DC power adapter to the **VM-3HN** and plug the adapter into the mains electricity.



### Step 5: Operate the VM-3HN

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 -> OUT 3 -> 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-3HN** 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-3HN 1:3 HDMI DA**, which is ideal for the following typical applications:

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

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## 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.kramerelectronics.com/support/product\\_downloads.asp](http://www.kramerelectronics.com/support/product_downloads.asp) 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-3HN** 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 input power wall adapter 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.kramerelectronics.com/support/recycling/>.

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## 3 Overview

The Kramer DigiTOOLS® **VM-3HN** is a high-quality 1:3 HDMI distributor that takes one HDMI input, equalizes and reclocks the signal and distributes it to three identical outputs. The **VM-3HN** distributes signals having resolutions up to 4Kx2K and including WUXGA and 1080p.

In particular, the **VM-3HN** 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-3HN 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-3HN 1:3 HDMI DA

Figure 1 defines the **VM-3HN**.

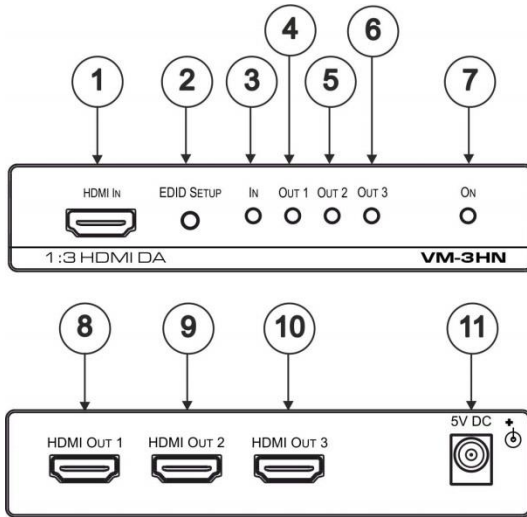


Figure 1: VM-3HN 1:3 HDMI DA

#	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 <a href="#">Section 4.1</a> )
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	OUT 3 LED	Lights when output 3 acceptor is detected
7	ON LED	Lights when the device is powered on
8	HDMI OUT 1 Connector	Connects to HDMI acceptor 1
9	HDMI OUT 2 Connector	Connects to HDMI acceptor 2
10	HDMI OUT 3 Connector	Connects to HDMI acceptor 3
11	5V DC Connector	Connects to the 5V DC power supply



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## 4 Connecting the VM-3HN



Always switch off the power to each device before connecting it to your **VM-3HN**. After connecting your **VM-3HN**, connect its power and then switch on the power to each device.

Connect the **VM-3HN** 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 three OUTPUT connectors to up to three 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)
  - HDMI OUT 3 connector to HDMI acceptor 3 (for example, display 3)
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.

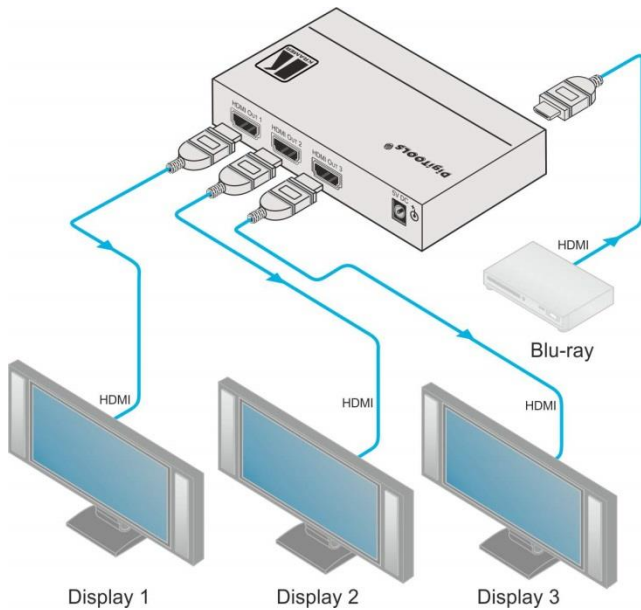


Figure 2: Connecting the VM-3HN 1:3 HDMI DA

## 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 -> OUT 3 -> 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-3HN** 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-3HN** loads the default EDID.

## 5 Default EDID

Model name..... VM-3HN  
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:	3 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 3, 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, 700mA
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 <a href="http://www.kramerelectronics.com">http://www.kramerelectronics.com</a>	

## 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.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

### How Long Does this Coverage Last

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

### Who is Covered

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](http://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.

### Limitation on Liability

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

### Exclusive Remedy

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS LIMITED WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF KRAMER ELECTRONICS CANNOT LAWFULLY DISCLAIM OR EXCLUDE IMPLIED WARRANTIES UNDER APPLICABLE LAW, THEN ALL IMPLIED WARRANTIES COVERING THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY TO THIS PRODUCT AS PROVIDED UNDER APPLICABLE LAW.

IF ANY PRODUCT TO WHICH THIS LIMITED WARRANTY APPLIES IS A "CONSUMER PRODUCT" UNDER THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C.A. §2301, ET SEQ.) OR OTHER APPLICABLE LAW, THE FOREGOING DISCLAIMER OF IMPLIED WARRANTIES SHALL NOT APPLY TO YOU, AND ALL IMPLIED WARRANTIES ON THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE, SHALL APPLY AS PROVIDED UNDER APPLICABLE LAW.

### Other Conditions

This limited warranty gives you specific legal rights, and you may have other rights which vary from country to country or state to state.

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer Electronics reseller, please visit our Web site at [www.kramerelectronics.com](http://www.kramerelectronics.com) or contact a Kramer Electronics office from the list at the end of this document.

Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction.



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.**

Web site: [www.kramerelectronics.com](http://www.kramerelectronics.com)

E-mail: [info@kramereel.com](mailto:info@kramereel.com)



### SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing



P/N: 2900-300382



Rev: 3