



KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

VM-4HC
1:4 HDMI DA

P/N: 2900-000716 Rev 4



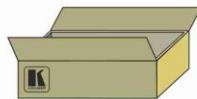
VM-4HC Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to http://www.kramerelectronics.com/support/product_downloads.asp to download the latest manual or scan the QR code on the left.

Step 1: Check what's in the box

- VM-4HC 1:4 HDMI DA
- 1 Power supply (5V DC)

- 4 Rubber feet
- 1 Quick Start sheet



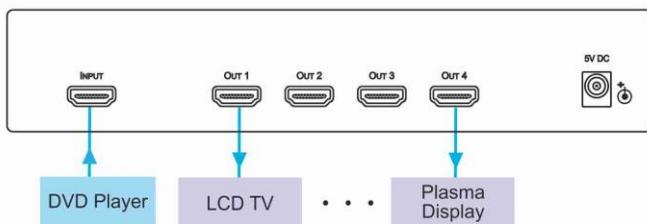
Save the original box and packaging materials in case you need to return your VM-4HC for service.

Step 2: Install the VM-4HC

Attach the rubber feet and place on a table or mount the VM-4HC in a rack (using an optional RK-1 rack mount).

Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your VM-4HC.



Always use Kramer high-performance cables for connecting AV equipment to the VM-4HC.

Step 4: Connect the power

Connect the 5V DC power adapter to the VM-4HC and plug the adapter into the mains electricity.



Step 5: Operate the VM-4HC

Acquire the EDID from a connected output.

1. Press the EDID SELECT button to cycle through the EDID sources in the following order:
 - Output 1 (Output 1 LED lights)
 - Output 2 (Output 2 LED lights)
 - Output 3 (Output 3 LED lights)
 - Output 4 (Output 4 LED lights)
 - Default EDID (all LEDs light)
 - Auto-Mix EDID (the LEDs flash in a running sequence)
2. To store the EDID, press EDID READ and the EDID is acquired.

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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 video, audio, presentation, and broadcasting professionals 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 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 and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **VM-4HC 1:4 HDMI DA**, which is ideal for the following typical applications:

- Home theater, presentation and multimedia applications
- 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.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-4HC** 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/>.

3 Overview

The Kramer **VM-4HC** is a high quality 1:4 HDMI distributor that accepts an HDMI input and distributes the signal to up to four outputs simultaneously, thus making it a versatile, reliable component in a video system. The **VM-4HC** distributes signals having resolutions up to UXGA, including all HDTV formats.

In particular, the **VM-4HC** features:

- A maximum data rate of 6.75Gbps (2.25Gbps per graphic channel)
- HDTV compatibility and HDCP compliance
- Simultaneous display of the video output on all of the four outputs (once they are ready to display the output) upon power up
- Kramer Equalization & re-Klocking™ Technology that rebuilds the digital signal to travel longer distances
- I-EDIDPro™ Kramer Intelligent EDID Processing™, an intelligent EDID handling & processing algorithm ensures Plug and Play operation for HDMI systems
- EDID acquisition from a single output, all connected outputs (auto-mix) or a default EDID
- HDMI support for Deep Color, x.v.Color™, up to 7.1 Uncompressed Audio Channels
- 3D pass thru
- Active input & output LED Indicators
- Compact size where 2 units can be rack mounted side-by-side in a 1U rack space with the optional RK-1 adapter and a 5V DC mains power adapter

3.1 Defining the VM-4HC 1:4 HDMI DA

This section defines the **VM-4HC**.

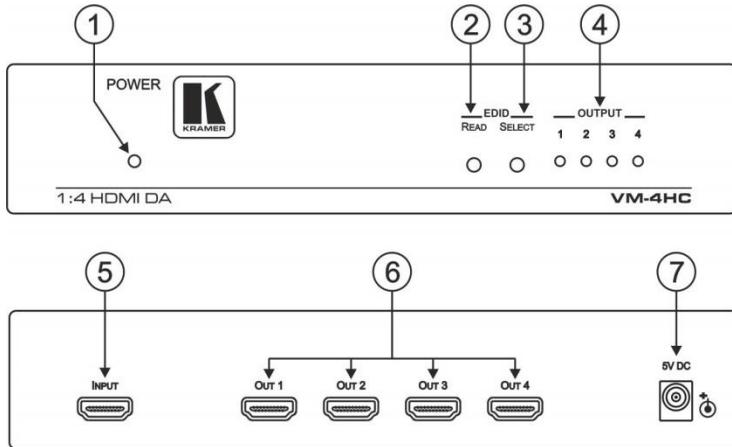


Figure 1: VM-4HC 1:4 HDMI DA

#	Feature	Function
1	POWER LED	Lights red when the unit receives power
2	EDID READ Button	Press to read the EDID of the selected output
3	EDID SELECT Button	Press to cycle through the output EDID sources
4	OUTPUT 1-4 LEDs	Lights green when an output(s) is connected and active; LEDs flash when selecting EDID (see Section 4.1)
5	INPUT HDMI Connector	Connect to the HDMI source
6	OUT 1-4 HDMI Connectors	Connect to the HDMI acceptors 1 to 4
7	5V DC Power Connector	Connect to the power adapter, center pin positive

4 Connecting the VM-4HC



Always switch off the power to each device before connecting it to your **VM-4HC**. After connecting your **VM-4HC**, connect its power and then switch on the power to each device.

To connect the **VM-4HC** as illustrated in the example in [Figure 2](#):

1. Connect the HDMI source, for example, a DVD player to the INPUT connector.
2. Connect the HDMI OUTPUT connectors to up to 4 HDMI acceptors as follows:
As required. Up to four outputs can be connected. Not all outputs need to be connected.
 - OUTPUT 1 to display device 1 (for example, a plasma display)
 - OUTPUT 2 to display device 2 (for example, a plasma or LCD display)
 - OUTPUT 3 to display device 3 (for example, an LCD TV)
 - OUTPUT 4 to display device 4 (for example, a plasma display)
3. Connect the power adapter to the device and to the mains electricity (not shown in [Figure 2](#)).
4. If required, acquire the EDID (see [Section 4.1](#)).

4.1 Acquiring the EDID

Initially the **VM-4HC** operates with the factory default EDID stored in the non-volatile memory. The source reads the EDID from the device when the device is plugged in or powered on.

The EDID can be acquired from:

- One of the outputs
- The default EDID
- Up to four connected outputs using the Auto-mix Mode

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

Repeatedly pressing the EDID SELECT button cycles through the EDID sources in the following order:

If you attempt to acquire the EDID from an output that is not connected the default EDID is acquired.

- Output 1 (Output 1 LED lights)
- Output 2 (Output 2 LED lights)
- Output 3 (Output 3 LED lights)
- Output 4 (Output 4 LED lights)
- Default EDID (all LEDs light)
- Auto-Mix EDID (the LEDs flash in a running sequence)

To store the selected EDID, press EDID READ as described in the following example.

To cancel the EDID modification wait for a few seconds without touching any button.

Select the EDID from Output 3:

1. Press the EDID SELECT button repeatedly until OUTPUT 3 LED lights.
2. Press the EDID READ button.

When the LED stops flashing the EDID from Output 3 is stored at the input.

Pressing the EDID SELECT button briefly once causes the relevant LEDs to indicate which EDID is stored at the input, as follows:

- OUTPUT 1 LED flashes—the EDID from OUTPUT 1 was the last acquired
- OUTPUT 2 LED flashes—the EDID from OUTPUT 2 was the last acquired, and so on
- All OUTPUT LEDs flash—the default EDID was the last acquired
- All OUTPUT LEDs flash sequentially—the Auto-Mix EDID was the last acquired

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

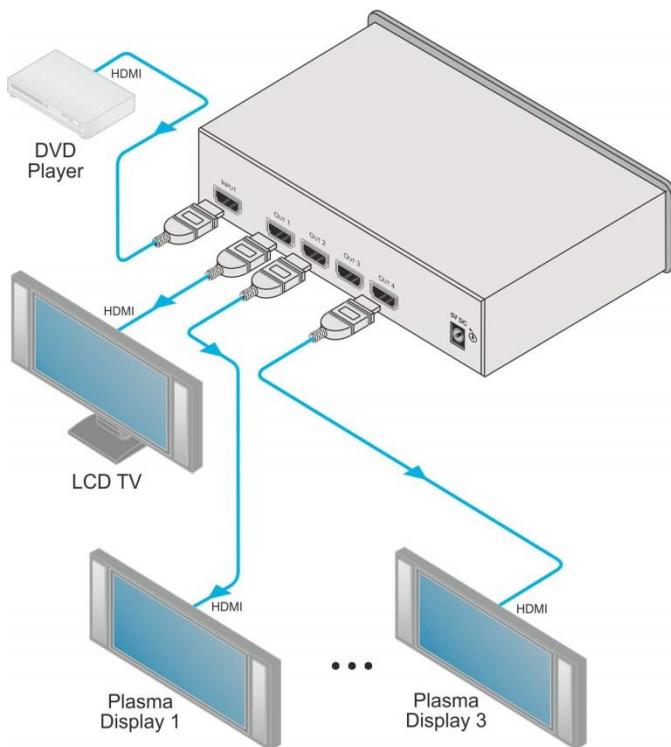


Figure 2: Connecting the VM-4HC 1:4 HDMI DA

5 Technical Specifications

INPUT:	1 HDMI connector
OUTPUTS:	4 HDMI connectors
MAX. DATA RATE:	6.75Gbps (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:	POWER, OUTPUTS 1-4
POWER CONSUMPTION:	5V DC, 1.1A
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
DIMENSIONS:	21.5cm x 16.3cm x 4.4cm (8.5" x 6.4" x 1.7") W, D, H
WEIGHT:	0.6kg (1.32lbs) approx.
ACCESSORIES:	Power supply
OPTIONS:	RK-1 19" rack adapter
Specifications are subject to change without notice at http://www.kramerelectronics.com	

6 Default EDID

Monitor

Model name VM-4HC
Manufacturer KRM
Plug and Play ID KRM0023
Serial number 505-707455010
Manufacture date 2009, ISO week 10
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 n/a

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

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 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.

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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 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

E-mail: info@kramerel.com



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing



P/N: 2900-000716



Rev: 4