



KRAMER ELECTRONICS LTD.

# USER MANUAL

MODEL:

**VM-2HDxI**  
3G HD/SD – SDI DA

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P/N: 2900-000318 Rev 4

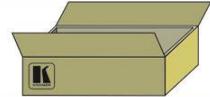


## VM-2HDxI Quick Start Guide

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](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-2HDxI 3G HD/SD – SDI DA
- 1 Power supply (12V DC)
- 1 Quick Start sheet
- 4 Rubber feet



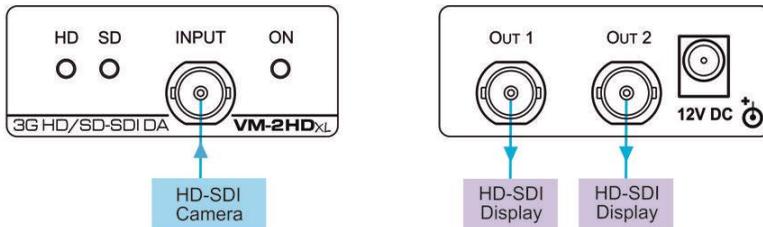
Save the original box and packaging in case your product needs to be returned to the factory for service.

### Step 2: Install the VM-2HDxI

Mount the machine in a rack (using the RK-4PT rack adapter) or place on a table.

### Step 3: Connect the inputs and outputs

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



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

### Step 4: Connect the power

Connect the power adapter to the VM-2HDxI and plug the adapter into the mains electricity.



# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Getting Started</b>	<b>2</b>
2.1	Achieving the Best Performance	2
<b>3</b>	<b>Overview</b>	<b>3</b>
3.1	Defining the VM-2HDxl	3
<b>4</b>	<b>Connecting the VM-2HDxl</b>	<b>5</b>
<b>5</b>	<b>Technical Specifications</b>	<b>6</b>

## Figures

Figure 1:	VM-2HDxl 3G HD/SD – SDI DA	4
Figure 2:	Connecting to the VM-2HDxl	5

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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 Video Products.

Congratulations on purchasing your Kramer **VM-2HDxl 3G HD/SD – SDI DA**, which is ideal for the following typical applications:

- SDI production studios for signal distribution and equalizations
- Broadcast studios for on-air operation and SDI field production
- Using with SDI video sources such as professional digital cameras

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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
- Use Kramer high-performance, high-resolution cables



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 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-2HDxI** away from moisture, excessive sunlight and dust



**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

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## 3 Overview

The **VM-2HDxI** is a high-performance distribution amplifier for 3G HD-SDI signals. The unit takes one input, provides reclocking and equalization and distributes the signal to two identical outputs.

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

- Cable equalization up to 300m  
300m for SD signals; 200m for 1.5GHz HD signals; 100m for 3GHz HD signals (measured with Kramer BC-1X 1 Coax RG-6 Super High-Resolution Cable).
- One input and two identical outputs on BNC connectors
- A data rate of up to 3Gbps, that enables it to be used for standard definition, high definition and the 3G high definition serial digital video signals (SDI, HD-SDI and 3G HD-SDI)
- HDTV compatibility
- Passing of digital information (embedded audio, Teletext, time code and so on) during the blanking period
- SMPTE 292M, 259M, 344M and 424M compliant with data rates of 270Mbps, 540Mbps, 1483.5Mbps, 1485Mbps and 2970Mbps
- Automatic, multi-rate, equalization and reclocking for losses typical with long runs of 75Ω co-axial cable up to 300m
- LEDs indicating the SDI resolution (SD or HD)

### 3.1 Defining the VM-2HDxI

This section defines the **VM-2HDxI**.

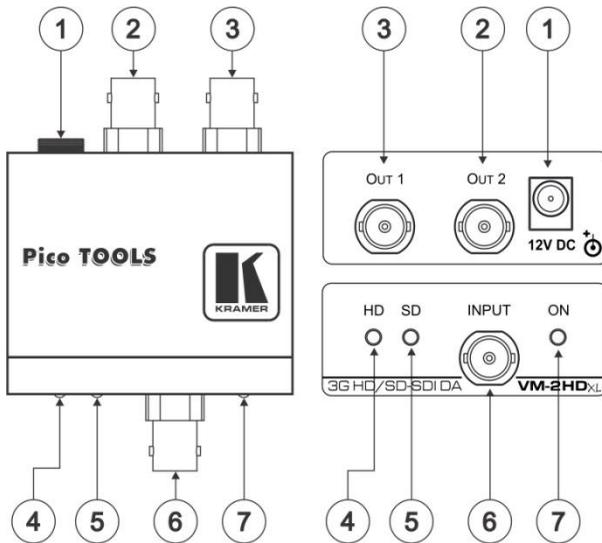


Figure 1: VM-2HDxL 3G HD/SD – SDI DA

#	Feature	Function
1	12V DC	+12V DC connector for powering the unit
2	OUT 2 BNC connector	Connects to the SDI acceptor 2
3	OUT 1 BNC connector	Connects to the SDI acceptor 1
4	HD LED	Lights when the SDI signal is HD
5	SD LED	Lights when the SDI signal is SD
6	INPUT BNC connector	Connects to the SDI source
7	ON LED	Lights when receiving power

High Definition (HD) means a video format, consisting of 720 active lines of progressive video or 1080 lines of progressive or interlaced video.

Standard Definition (SD) means an NTSC or PAL compatible video format, consisting of 480 (for NTSC) or 576 (for PAL) lines of interlaced video.

## 4 Connecting the VM-2HDxI



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

To connect the **VM-2HDxI**, as the example in [Figure 2](#) illustrates, do the following:

1. Connect an HD-SDI video source (for example, a camera) to the INPUT BNC connector.
2. Connect up to two video OUT BNC connectors to the appropriate HD-SDI video acceptors (for example, displays).  
You do not have to connect both outputs.
3. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in [Figure 2](#)).

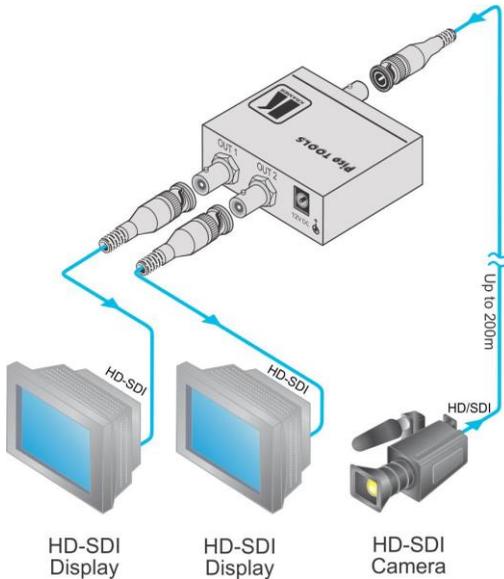


Figure 2: Connecting to the VM-2HDxI

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## 5 Technical Specifications

INPUT:	1 SMPTE-259M / 292M / 344M / 424M serial video, 75Ω on a BNC connector
OUTPUTS:	2 equalized and reclocked SMPTE-259M / 292M / 344M / 424M outputs 75Ω on BNC connectors
MAXIMUM DATA RATE (-3dB):	2.97Gbps
MAX. OUTPUT LEVEL:	800mVpp /75Ω
COUPLING:	AC
POWER CONSUMPTION:	12V, 160mA. (Up to 25V may be used to power the machine). A 12V power supply is provided with the VM-2HDxl
DIMENSIONS:	6.22cm x 5.24cm x 2.41 cm (2.45" x 2.06" x 0.95") W, D, H.
WEIGHT:	0.14kg (0.31lbs) approx.
ACCESSORIES:	Power supply, mounting bracket
OPTIONS:	RK-4PT 19" rack adapter, BC-1X cable
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.

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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](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@kramerel.com](mailto:info@kramerel.com)



**SAFETY WARNING**

Disconnect the unit from the power supply before opening and servicing



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Rev: 4