



KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

VM-4HDxi
3G HD/SD – SDI Distributor

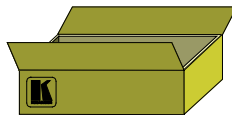
P/N: 2900-000327 Rev 3

VM-4HDxl Quick Start Guide

This page guides you through a basic installation and first-time use of your **VM-4HDxl**. For more detailed information, see the **VM-4HDxl** user manual. You can download the latest manual at <http://www.kramerelectronics.com>.

Step 1: Check what's in the box

- ✓ The **VM-4HDxl** 3G HD/SD-SD Distributor
- ✓ 1 power adapter (5V DC input)
- ✓ 1 Quick Start Guide
- ✓ 1 User Manual



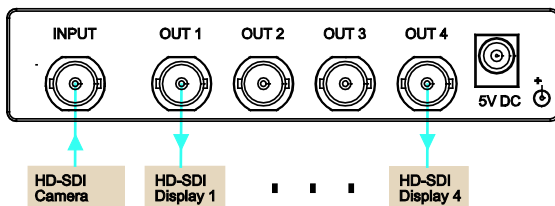
Save the original box and packaging materials in case your Kramer product needs to be returned to the factory for service.

Step 2: Install the VM-4HDxl

Place on a table or mount the machine in a rack (using the 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-4HDxl**.



For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the **VM-4HDxl**.

Step 4: Connect the power

Connect the 5V DC power adapter to the **VM-4HDxl** and plug the adapter into the mains electricity. Switch on the power to each device.



Step 5: Operate the VM-4HDxl

The source signal is equalized, reclocked and distributed to the four outputs.

Contents

1	Introduction	1
2	Getting Started	2
2.1	Achieving the Best Performance	2
3	Overview	3
3.1	Defining the VM-4HDxl 3G HD/SD – SDI Distributor	4
4	Connecting the VM-4HDxl 3G HD/SD – SDI Distributor	5
5	Technical Specifications	6

Figures

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

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 that are clearly defined by function:

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.

Congratulations on purchasing your Kramer **VM-4HDxl** 3G HD/SD – SDI Distributor, 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

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> 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)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **VM-4HDxI** away from moisture, excessive sunlight and dust



Caution: 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

3 Overview

The Kramer **VM-4HDxI** is a high performance 1:4 distributor for all SDI video signals. It accepts one input, equalizes and reclocks it, and distributes the signal to four identical outputs using BNC connectors.

The **VM-4HDxI**:

- Operates at 2.97Gbps, for use at standard definition, high definition and the new 3G high definition serial digital video signals (3G HD-SDI)
- Passes ancillary digital information, such as embedded audio, Teletext, and time code) during the blanking period
- Complies with SMPTE 292M, 259M and 424M and supports data rates of 270Mbps, 1483.5Mbps, 1485Mbps and 2970Mbps
- Provides automatic, multi-rate equalization and reclocking for losses typical with long runs of 75Ω co-axial cable up to 300m
300m for SD signals; 200m for 1.5GHz HD signals; 100m for 3GHz HD signals
- Features LEDs to indicate the SDI resolution (SD or HD)

The **VM-4HDxI** is housed in a Kramer DigiTOOLS® enclosure and is 5V DC fed.

3.1 Defining the VM-4HDxl 3G HD/SD – SDI Distributor

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

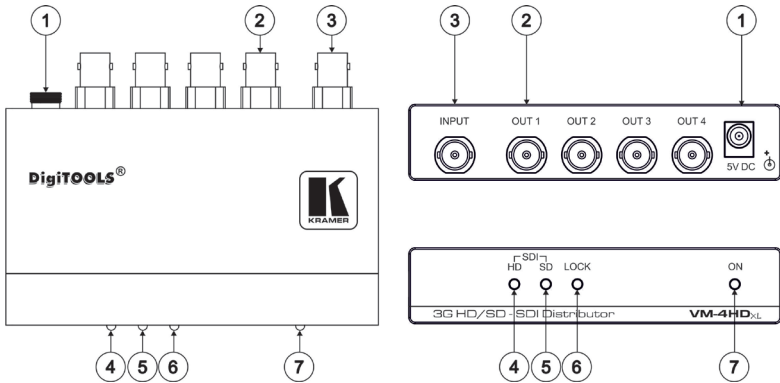


Figure 1: VM-4HDxl 3G HD/SD – SDI Distributor

#	Feature	Function
1	5V DC	+5V DC connector for powering the unit
2	OUT BNC connectors	Connect to the SDI acceptors (from 1 to 4)
3	INPUT BNC connector	Connect to the SDI source
4	HD LED (Blue)	Lights when the SDI signal is HD High Definition (HD) means a video format, consisting of 720 active lines of progressive video or 1080 lines of progressive or interlaced video
5	SD LED (Green)	Lights when the SDI signal is SD Standard Definition (SD) means an NTSC or PAL compatible video format, consisting of 480 (for NTSC) or 576 (for PAL) lines of interlaced video
6	LOCK LED	Lights when the VM-4HDxl has detected the input signal and was able to lock on that signal
7	ON LED	Lights when receiving power

4 Connecting the VM-4HDxI 3G HD/SD – SDI Distributor



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

To connect the **VM-4HDxI** as illustrated in the example in [Figure 2](#), do the following:

1. Connect an HD/SD-SDI video source (for example, an HD/SD SDI camera) to the INPUT BNC connector.
2. Connect up to four video OUT BNC connectors to the appropriate HD/SD-SDI video acceptors (for example, HD/SD SDI displays).
You do not have to connect all outputs.
3. Connect the 5V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in [Figure 2](#)).

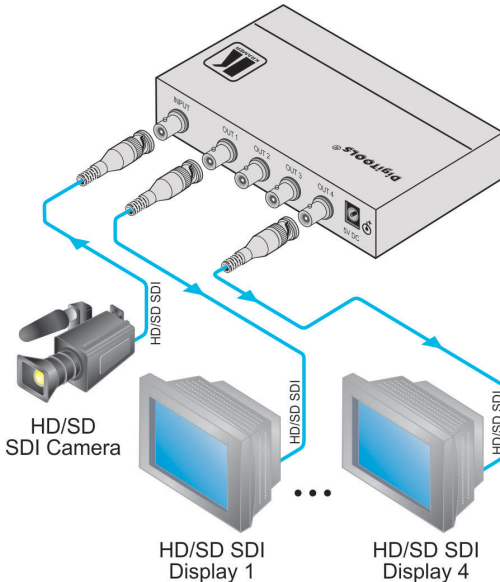


Figure 2: Connecting to the VM-4HDxI

5 Technical Specifications

INPUT:	1 SMPTE-259M / 292M / 424M serial video, 75Ω on a BNC connector
OUTPUTS:	4 equalized and reclocked SMPTE-259M / 292M / 424M outputs, 75Ω on BNC connectors
MAXIMUM DATA RATE (-3dB):	3Gbps
MAX. OUTPUT LEVEL:	800mVpp /75Ω
COUPLING:	AC
POWER SOURCE:	5V DC, 330mA
OPERATING TEMPERATURE:	0° to +55°C (32° to 131°F)
STORAGE TEMPERATURE:	-45° to +72°C (-49° to 162°F)
HUMIDITY:	10% to 90%, RHL non-condensing
DIMENSIONS:	12.0cm x 7.1cm x 2.4cm (4.7" x 2.8" x 1.0") W, D, H.
WEIGHT:	0.3kg (0.31lbs) approx.
ACCESSORIES:	Power supply, mounting bracket
OPTIONS:	RK-3T 19" rack adapter
Specifications are subject to change without notice For the most updated resolution list, go to our Web site at http://www.kramerelectronics.com	

LIMITED WARRANTY

We warrant this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven 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 us 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 your 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 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

CE



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing



P/N: 2900-000327



Rev: 3