KRAMER

USER MANUAL

MODEL:

VM-2UX

12G SDI 1:2 DA

P/N: 2900-300711 Rev 3

Scan for full manual

VM-2UX Quick Start Guide

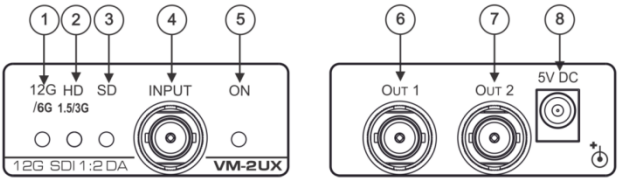
This guide helps you install and use your **VM-2UX** for the first time.

Go to www.kramerav.com/downloads/VM-2UX to download the latest user manual and check if firmware upgrades are available.

Step 1: Check what's in the box

- ☑ **VM-2UX** 12G SDI 1:2 DA
- ☑ 1 Power supply (5V DC)
- ☑ 1 Bracket set
- ☑ 4 Rubber feet
- ☑ 1 Quick start guide

Step 2: Get to know your VM-2UX

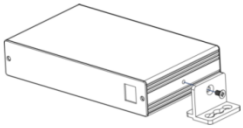


#	Feature	Function
1	12G/6G LED (Blue)	Lights when the SDI signal is 12G or 6G 12G means a 2160p60 progressive video format and 6G means a 2160p30 progressive video format
2	HD 1.5/3G LED (Yellow)	Lights when the SDI signal is HD 1.5G or 3G High Definition (HD) 1.5G means a 720p progressive or 1080i interlaced video format and 3G means 1080p progressive video format
3	SD LED (Red)	Lights when the SDI signal is SD Standard Definition (SD) means an NTSC or PAL compatible video format, consisting of 480i or 480p (for NTSC), or 576i or 576p (for PAL) of interlaced or progressive video format
4	INPUT BNC Connector	Connect to an SDI source
5	ON LED (Green)	Lights when receiving power
6	OUT 1 BNC Connector	Connect to an SDI acceptor
7	OUT 2 BNC Connector	Connect to an SDI acceptor
8	5V DC	+5V DC connector for powering the unit

Step 3: Install VM-2UX

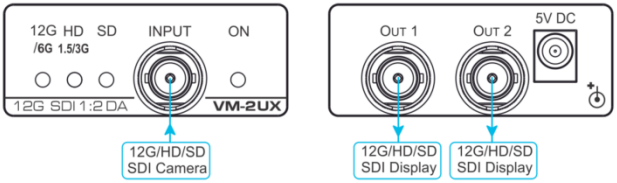
Install **VM-2UX** using one of the following methods:

- Attach the rubber feet and place the unit on a flat surface.
- Fasten a bracket (included) on each side of the unit and attach it to a flat surface. For more information go to **www.kramerav.com/downloads/VM-2UX**.
- Mount the unit in a rack using an optional **RK-4PT** rack adapter.



Step 4: Connect the inputs and outputs

Always switch OFF the power on each device before connecting it to your **VM-2UX**. For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the **VM-2UX**.



Step 5: Connect the power

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

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.
See www.KramerAV.com for updated safety information.

Contents

1	**Introduction**	**1**
2	**Getting Started**	**2**
2.1	Achieving the Best Performance	2
2.2	Safety Instructions	2
2.3	Recycling Kramer Products	3
3	**Overview**	**4**
4	**Connecting the VM-2UX**	**6**
5	**Technical Specifications**	**7**

Figures

Figure 1: VM-2UX 12G SDI 1:2 DA 5
Figure 2: Connecting to the VM-2UX 6

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 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-2UX** 12G SDI 1:2 DA, which is ideal for the following typical applications:

- SDI video production studios
- Broadcast studio and field SDI video production events
- Staging and rental deployments
- Medical facilities with highly reliable video deployments

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 www.kramerav.com/downloads/VM-2UX 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 neighbouring electrical appliances that may adversely influence signal quality
- Position your **VM-2UX** 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 *www.kramerav.com/support/recycling/*.

3 Overview

The **VM-2UX** is a compact and high performance 1:2 4K distributor for standard broadcast-grade SDI signals of up to 12G transmitted data rate. It auto-adapts to the data rate of the SDI input signal, equalizes and re-clocks the signal to improve transmitted signal reach, and distributes the signal to two identical SDI outputs.

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

- Reliable Connectivity – Coaxial broadcast-grade cables are reliably connected via lockable BNC connectors, preventing unintentional disconnection and resulting in fast and highly professional uncompressed SDI signal distribution deployments.
- Extended-reach Input Extension – Input signal equalization and output signal reclocking to gain extended-reach signal extension. Using Kramer high-quality coaxial SDI cables, supports extension of up to 80m (260ft) for 12G 4K signals.

Reach depends on signal resolution, and quality of copper cable used. For further details, go to our website at www.kramerav.com/product/VM-2UX. Reach extension performance may vary while using non−Kramer coaxial cables.

- SDI Signal Transmission – Auto-adapts to SDI, HD-SDI, 3G HD-SDI, 6G and 12G SDI compliant signals, supporting pass-through of standard embedded audio channels with ancillary ID and metadata information.
- Easy Installation and Maintenance – Compact Pico TOOLS™ fan-less enclosure for small footprint spaces and over-ceiling mounting, or side-by-side mounting of 4 units in a 1U rack space with the optional **RK−4PT** rack adapter. Status indicators for transmitted SDI data rate of input and output connected signals, and power indicator, for ease of maintenance and troubleshooting.

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

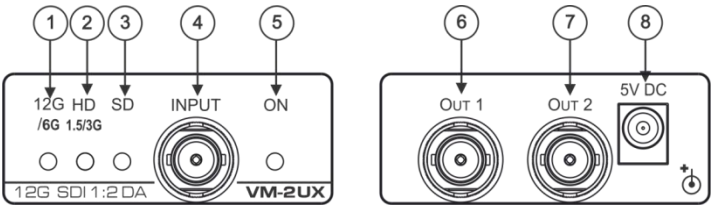


Figure 1: VM-2UX 12G SDI 1:2 DA

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4 Connecting the VM-2UX

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

You do not have to connect all the inputs and outputs, connect only those that are required.

1. Connect a 12G SDI video source (for example, a 12G SDI camera) to the INPUT BNC connector.

2. Connect up to two video OUT BNC connectors to the appropriate HD-SDI video acceptors (for example, 12G SDI displays).
   You do not have to connect both 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).

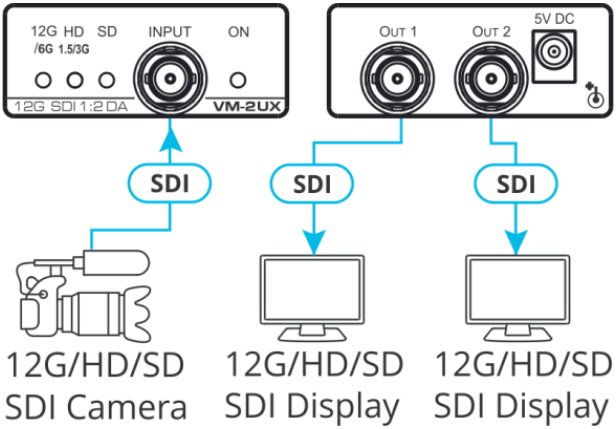

Figure 2: Connecting to the VM-2UX

5 Technical Specifications

Input:	1 SMPTE 259M (SD-SDI), 292M (HD-SDI), 344M (ED-SDI), 424M (3G HD-SDI), ST-2081 (6G-SDI) and ST-2082 (12G-SDI) compliant serial video input on a 75Ω BNC connector
Outputs:	2 equalized and reclocked SMPTE 259M (SD-SDI), 292M (HD-SDI), 344M (ED-SDI), 424M (3G HD-SDI), ST-2081 (6G-SDI) and ST-2082 (12G-SDI), outputs on 75Ω BNC connectors
Cable Equalization Reach:	12Gbps: Up to 80m (260ft) 3Gbps and 6Gbps: Up to 100m (330ft) 1.5Gbps: Up to 200m (660ft) SD: Up to 300m (980ft) **Note:** The above specs apply when using Kramer cables.
Video:	Up to 4K@60Hz (4:2:2) 30bpp resolution 270Mbps up to12Gbps data rate
Maximum Output Level:	800mVpp /75Ω
Coupling:	AC
Standards Compliance	SMPTE 259M (SD-SDI), 292M (HD-SDI), 344M (ED-SDI), 424M (3G HD-SDI), ST-2081 (6G-SDI), ST-2082 (12G-SDI)
Power Consumption:	5V DC, 250mA
Power Source:	5.2V/4A
Enclosure:	Pico Tool, aluminum type
Cooling:	Convection ventilation
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:	6.2cm x 5.2cm x 2.4cm (2.4" x 2.05" x 0.9") W, D, H.
Weight:	0.093kg (0.205lbs) approx.
Shipping dimensions:	15.7cm x 12cm x 8.7cm (6.18” x 4.7” x 3.42”) W, D, H
Shipping weight:	0.52kg (1.15lbs) approx.
Included Accessories:	Power supply, mounting bracket
Options:	RK-4PT 19” rack adapter
Specifications are subject to change without notice at www.kramerav.com For optimum range and performance use the recommended Kramer cables available at www.kramerav.com/product/VM-2UX	

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.

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 APPICABLE 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 APPICABLE 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.

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P/N: 2900-300711 Rev: 3

SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing

For the latest information on our products and a list of Kramer distributors, visit our Web site to find updates to this user manual.

We welcome your questions, comments, and feedback.

www.KramerAV.com
info@kramerel.com