KRAMER ELECTRONICS LTD.

USER MANUAL
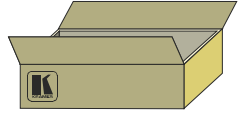
VM-2DP Quick Start Guide

This page guides you through a basic installation and first-time use of your **VM-2DP**.
For more detailed information, see the **VM-2DP** user manual. You can download the latest
Kramer user manuals at http://www.kramerelectronics.com for detailed instructions.

Step 1: Check what's in the box

☑ The **VM-2DP** 1:2 DisplayPort Distributor
☑ 1 power adapter (5V DC input)
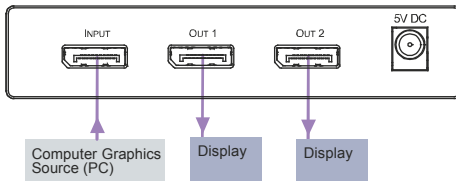☑ 4 rubber feet

☑ 1 Quick start sheet
☑ 1 User Manual

It's a good idea to 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-2DP

Mount the machine in a rack (using the RK-3T, RK-6T or RK-9T rack adapters) or place
on the table.

Step 3: Connect the inputs and outputs

Always switch OFF the power on each device before connecting it to your **VM-2DP**.

INPUT   OUT 1   OUT 2   5V DC

Computer Graphics Source (PC)   Display   Display

For best results, we recommend that you always use Kramer high-performance cables to connect your AV equipment to the VM-2DP.

Step 4: Connect the power

Connect the 5V DC power adapter to the power socket and connect the adapter to the mains
electricity.

After connecting your **VM-2DP**, connect its power and then switch on the power on
each device.

Step 5: Operate the VM-2DP

Acquire the EDID

1. Connect the power.
2. Connect the output(s) from which you want to acquire the EDID.
3. Press and hold the EDID SETUP button to select the desired EDID.
   The OUT LEDs illuminate in the following cycle: OUT 1, OUT 2 and both blink (default).
4. Release the button when reaching the desired set up.
   The EDID is now acquired.

To restore the default EDID, disconnect the outputs and repeat the above procedure

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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 11 groups that are clearly defined by function.

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 DigiTOOLS® **VM-2DP** *1:2 DisplayPort Distributor.* The **VM-2DP** is ideal for:

- Home theater, presentation and multimedia applications
- Rental and staging

The package includes the **VM-2DP** *1:2 DisplayPort Distributor* together with those items described in the check what's in the box section of the quick start and listed in the Accessories spec.

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

- Use only the power cord that is supplied with this machine

> Go to http://www.kramerelectronics.com to check for up-to-date user manuals, application programs (where appropriate), and to check if firmware upgrades are available.

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 and position your Kramer **VM-2DP** 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 high-quality **VM-2DP** *1:2 DisplayPort Distributor* takes a DisplayPort (DP) input signal and distributes it to two DisplayPort (DP) outputs. In particular, the **VM-2DP** features:

- One DisplayPort (DP) input, two DisplayPort (DP) outputs, two output status LEDs, an active input status LED, as well as an EDID select button
- Up to 2.7Gbps bandwidth per lane
- A maximum resolution of 2560x1600 pixels and a total maximum bandwidth of 10.8Gbps over four lanes
- I-EDIDPro™ Kramer Intelligent EDID Processing™, an intelligent EDID handling and processing algorithm that ensures Plug and Play operation for DisplayPort systems
- Compliance to HDCP
- High-resolution and rich colors and transports audio and multiple video streams
- 5V DC power

3.1   About DisplayPort

DisplayPort (DP) is a digital display interface standard for the PC industry. It delivers the highest resolutions and sound quality.

In addition, DisplayPort:

- Provides a simple interface between a PC and a display, projector or TV
- Supports 1 to 4 data pairs ("lanes") at a transfer rate of 1.62Gb or 2.7Gb per second
- Has a maximum length of 15 meters for video transmission, at a resolution of 1080p/60Hz and 3 meters for full bandwidth transmission
- Video specs include a video path that supports 6 to 16 bits per color channel, a maximum resolution of 2560x1600 pixels and a total maximum bandwidth of 10.8Gbps over four lanes
- Is backward-compatible with HDMI, DVI (Digital Visual Interface) and VGA, via an appropriate adapter

- Version 1.1 supports HDCP (see section 3.2)
- Supports two-way communication over its auxiliary channel between the video source (for example, a PC) and the digital display, enabling new functionality such as automatic configuration and one-button play
- Replaces the interface needed between the PC and an external display, as well as the low voltage differential signaling (LVDS) interface in notebook computers, monitors, to connect to LCD panels

3.2   About HDCP

The High-Bandwidth Digital Content Protection (HDCP) standard developed by Intel protects digital video and audio signals transmitted over DVI or HDMI connections between two HDCP-enabled devices to eliminate the reproduction of copyrighted material. To protect copyright holders (such as movie studios) from having their programs copied and shared, the HDCP standard provides for the secure and encrypted transmission of digital signals.

3.3   Defining EDID

The Extended Display Identification Data (EDID) is a data-structure provided by a display, to describe its capabilities to a graphics card (that is connected to the display's source). The EDID enables the **VM-2DP** to "know" what kind of monitor is connected to the output. The EDID includes the manufacturer's name, the product type, the timing data supported by the display, the display size, luminance data and (for digital displays only) the pixel mapping data.
EDID is defined by a standard published by the Video Electronics Standards Association (VESA).
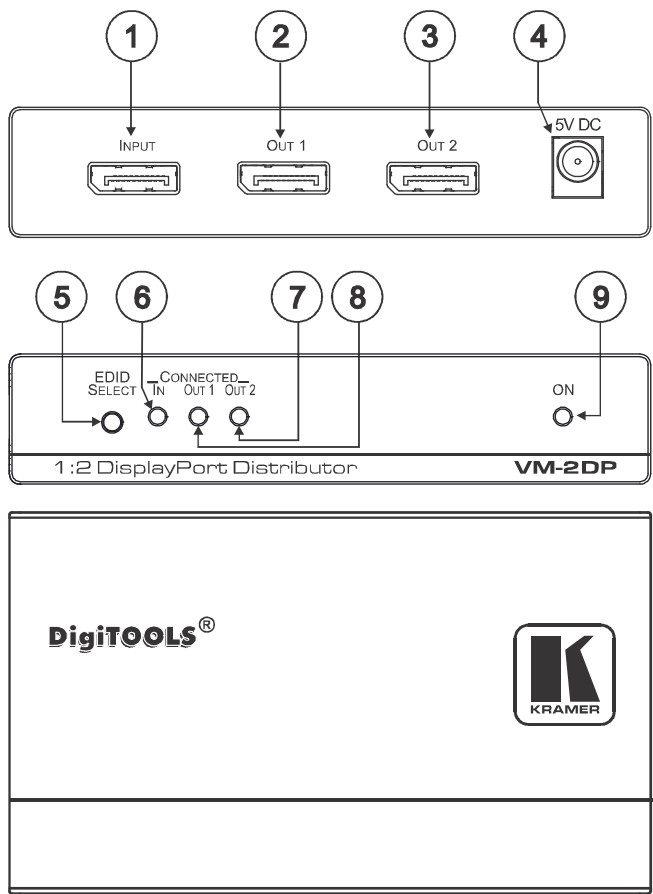
4 Your VM-2DP 1:2 DisplayPort Distributor

Figure 1: VM-2DP 1:2 DisplayPort Distributor

#	Feature	Function
1	*INPUT* DisplayPort Connector	Connects to the DP source
2	*OUT 1* DisplayPort Connector	Connects to the DP acceptor 1
3	*OUT 2* DisplayPort Connector	Connects to the DP acceptor 2
4	*5V DC*	+5V DC connector for powering the unit
5	*EDID SELECT* Button	Press to select the EDID
6	*IN* LED	Illuminates green when the input is selected
7	*OUT 2* LED	Illuminates green when output 2 is selected
8	*OUT 1* LED	Illuminates green when output 1 is selected
9	*ON* LED	Illuminates green when receiving power

5 Connecting the VM-2DP 1:2 DisplayPort Distributor

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

To connect the **VM-2DP**, as the example in Figure 2 shows, do the following:

1. Connect the DP source (for example, a PC with a DP output) to the INPUT DP connector.

2. Connect the DP OUT connectors to up to two acceptors, as follows:
   - DP OUT 1 connector to a display
   - DP OUT 2 connector to a display

3. Connect the 5V DC power adapter to the power socket and connect the adapter to the mains electricity.
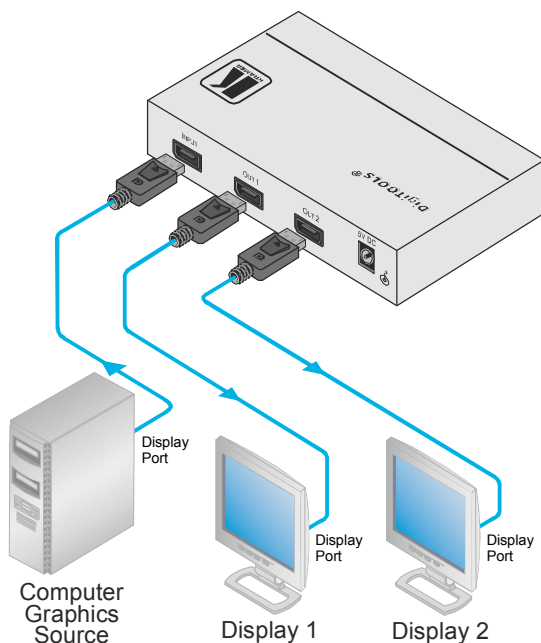

Figure 2: Connecting a VM-2DP 1:2 DisplayPort Distributor

5.1   Acquiring the EDID

Initially, the **VM-2DP** operates with the factory default EDID (the **VM-2DP** reads the EDID, which is stored in its non-volatile memory). This lets you connect the power before connecting one of the acceptors or sources.

The EDID is usually acquired once, when the machine is being set up in an installation. Once acquired, the EDID is saved in non-volatile memory and further acquisition is not necessary.

You can acquire the EDID from:

- One output (the relevant output blinks)
- The default EDID (both output LEDs blink)

When pressing the EDID SETUP button momentarily, the OUT LEDs indicate which type of EDID was last acquired. If the:

- OUT 1 LED illuminates, the OUT 1 EDID is stored in the non-volatile memory
- OUT 2 LED illuminates, the OUT 2 EDID is stored in the non-volatile memory
- OUT 1 and OUT 2 LEDs illuminate, the default EDID is stored in the non-volatile memory

To acquire the EDID, do the following:

1. Connect the power.

2. Connect the output or outputs from which you want to acquire the EDID.

3. Press and hold the EDID SELECT button to select the desired EDID.
   The OUT LEDs illuminate in the following cycle: OUT 1, OUT 2 and both OUT 1 and OUT 2 blink (default).

4. Release the button when reaching the desired set up.
   The EDID is now acquired.

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

6   Technical Specifications

INPUT:	1 DisplayPort Connector
OUTPUTS:	2 DisplayPort Connectors
BANDWIDTH:	Supports up to 2.7Gbps bandwidth per lane and a total of 10.8Gps for all four lanes
COMPLIANCE WITH HDMI STANDARD:	Supports: DisplayPort 1.1a and HDCP 1.3
CONTROLS:	Output select button and LEDs; EDID select button and LEDs
INDICATOR LEDs:	IN, OUT 1, OUT 2, and ON LEDs
POWER SOURCE:	5V DC, 90mA
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:	12cm x 7.15cm x 2.44cm (4.7" x 2.81" 0.96") W, D, H
WEIGHT:	0.3kg (0.67lbs) approx.
ACCESSORIES:	Power supply, bracket installation kit
OPTIONS:	Kramer DisplayPort cables Rack adapters: RK-3T, RK-6T or RK-9T
Specifications are subject to change without notice Go to our Web site at http://www.kramerelectronics.com to access the list of resolutions	

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 three 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 you 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

ISO 9001:2000
IQC
Institute of
Quality & Control
Certified Quality System