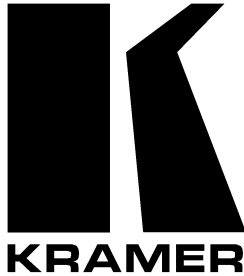


Kramer Electronics, Ltd.



USER MANUAL

Model:

VS-21HDMI

2x1 HDMI Switcher

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in 8 Groups¹, which are clearly defined by function. Congratulations on purchasing your Kramer DigiTOOLS® **VS-21HDMI 2x1 HDMI² Switcher**! The **VS-21HDMI** is ideal for:

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

The package includes the following items:

- **VS-21HDMI 2x1 HDMI Switcher**
- Power adapter (12V DC)
- This user manual³

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 cables⁴

3 Overview

The **VS-21HDMI** is a high quality switcher for HDMI signals that accepts two HDMI inputs—letting you select either HDMI input using a switch located on the panel—and routes the selected HDMI input signal to the HDMI output. In particular, the **VS-21HDMI**:

- Supports up to 1.65Gbps bandwidth per graphic channel⁵
- Is 12VDC fed

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Sealers; and GROUP 8: Cables and Connectors

2 High-Definition Multimedia Interface

3 Download up-to-date Kramer user manuals from the Internet at this URL: <http://www.kramerelectronics.com>

4 The complete list of Kramer cables is on our Web site at <http://www.kramerelectronics.com>

5 Suitable for resolutions up to UXGA at 60Hz, and for all HD resolutions

3.1 About HDMI

High-Definition Multimedia Interface (HDMI) is an uncompressed all-digital¹ audio/video interface, widely supported in the entertainment and home cinema industry. It delivers the highest high-definition image and sound quality.

In particular, HDMI:

- Provides a simple² interface between an audio/video source (such as a set-top box, DVD player, or A/V receiver) and a video monitor (such as a digital flat LCD / plasma television (DTV)), over a single lengthy³ cable
- Supports standard, enhanced, high-definition video, and multi-channel digital audio⁴ on a single cable
- Transmits 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements
- Benefits consumers by providing superior, uncompressed digital video quality via a single cable⁵, and user-friendly connector
- Is backward-compatible with DVI (Digital Visual Interface)
- Supports two-way communication between the video source (such as a DVD player) and the DTV, enabling new functionality such as automatic configuration and one-button play

HDMI has the capacity to support existing high-definition video formats (720p, 1080i, and 1080p/60), as well as standard definition formats such as NTSC or PAL.

3.2 Recommendations for Best Performance

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding 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 and position your **VS-21HDMI** away from moisture, excessive sunlight and dust

1 Ensuring an all-digital rendering of video without the losses associated with analog interfaces and their unnecessary digital-to-analog conversions

2 With video and multi-channel audio combined into a single cable, the cost, complexity, and confusion of multiple cables currently used in A/V systems is reduced

3 HDMI technology has been designed to use standard copper cable construction at up to 15m

4 HDMI supports multiple audio formats, from standard stereo to multi-channel surround-sound. HDMI has the capacity to support Dolby 5.1 audio and high-resolution audio formats

5 HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner

4 Your VS-21HDMI 2x1 HDMI Switcher

Figure 1 illustrates the **VS-21HDMI 2x1 HDMI Switcher**:

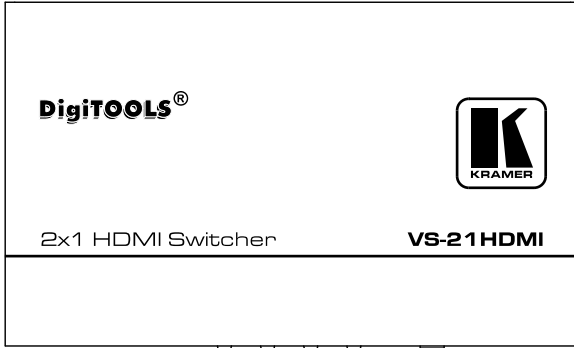


Figure 1: VS-21HDMI 2x1 HDMI Switcher

Figure 2 and Table 1 define the top side panel:

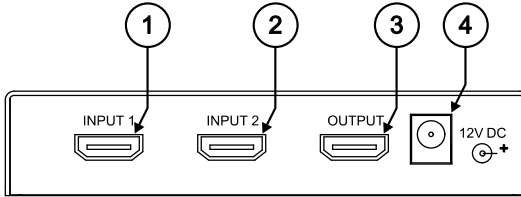


Figure 2: VS-21HDMI 2x1 HDMI Switcher (Top Side Panel)

Table 1: VS-21HDMI 2x1 HDMI Switcher (Top Side Panel) Features

#	Feature	Function
1	INPUT 1	Connects to the HDMI source 1
2	INPUT 2	Connects to the HDMI source 2
3	OUTPUT	Connects to the HDMI acceptor
4	12V DC	+12V DC connector for powering the unit

Figure 3 and Table 2 define the lower side panel:

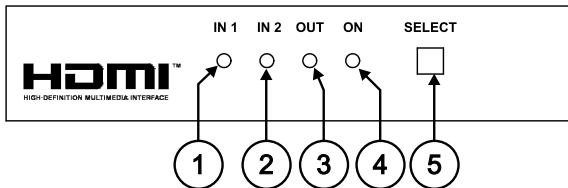


Figure 3: VS-21HDMI 2x1 HDMI Switcher (Lower Side Panel)

Table 2: VS-21HDMI 2x1 HDMI Switcher (Lower Side Panel) Features

#	Feature	Function
1	IN 1 LED	Lights when source 1 is selected ¹
2	IN 2 LED	Lights when source 2 is selected ¹
3	OUT LED	Lights when the output is connected
4	ON LED	Lights when receiving power
5	SELECT Button	Toggles ² between IN 1 and IN 2

¹ Blinks when selected but no input is connected

² IN 1 LED lights when INPUT 1 is selected, or the IN 2 LED lights when IN 2 is selected

5 Connecting the VS-21HDMI 2x1 HDMI Switcher

To connect the **VS-21HDMI**, as the example in Figure 4 shows, do the following¹:

1. Connect up to two HDMI sources to the **INPUT** connectors, using the Kramer HDMI copper cables: **INPUT 1** connector to HDMI source 1 (for example, DVD Player 1) and **INPUT 2** connector to HDMI source 2 (for example, DVD Player 2).
2. Connect the **OUTPUT** connector to the HDMI acceptor (for example, a plasma display), using the Kramer HDMI copper cable.
3. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.
4. Press the **SELECT** button to choose which HDMI input to route to the output. The **SELECT** button toggles between **INPUT 1** and **INPUT 2**, lighting the **IN 1 LED** when **INPUT 1** is selected, or the **IN 2 LED** when **IN 2** is selected.

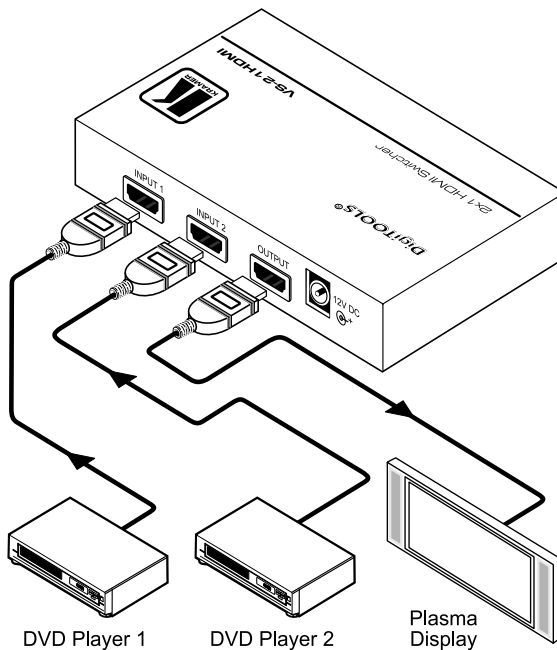


Figure 4: Connecting a VS-21HDMI 2x1 HDMI

¹ Switch OFF the power on each device before connecting it to your VS-21HDMI. After connecting your VS-21HDMI, switch on its power and then switch on the power on each device

6 Operating the VS-21HDMI 2x1 HDMI Switcher

This section describes how to operate the **VS-21HDMI**, using the **SELECT** button. The **VS-21HDMI** functions in two modes: the PC mode¹ (see section 6.1) and the DVD mode (see section 6.2).

6.1 Working in the PC Mode

This section describes how to acquire / change the EDID (see section 6.1.1) and how to reset the default EDID (see section 6.1.2) when working in the PC mode.

6.1.1 Acquiring / Changing the EDID

You can work with the default EDID or acquire / change the EDID.

To acquire or change the EDID:

1. Connect the new output display device.
If no output display device is connected to the output, the default EDID will be stored in the non-volatile memory.
2. Connect the power while keeping the **SELECT** button pressed until the LEDs start to blink.
3. To change the EDID and store it in the non-volatile memory of:
 - **INPUT 1**, release the **SELECT** button while the **IN 1** LED blinks
 - **INPUT 2**, release the **SELECT** button while the **IN 2** LED blinks
 - Both **INPUT 1** and **2**, release the **SELECT** button while both the **IN 1** and the **IN 2** LEDs light
4. When a certain input—**INPUT 1** or **INPUT 2**—is selected the EDID information comes directly from the display. When the input is not selected, the **VS-21HDMI** uses the virtual EDID stored in the non-volatile memory.

6.1.2 Resetting the Default EDID

To reset the default EDID, do the following:

1. Disconnect the power.
2. Disconnect the output cable.
3. Connect the power while keeping the **SELECT** button pressed until the desired **INPUT** LED blinks.

¹ The default

6.2 Working in the DVD Mode

In the DVD mode, an unselected input will not receive any EDID data. The selected input will receive the EDID data from the display device.

6.2.1 Toggling from the DVD mode to the PC mode

To toggle from the DVD mode to the PC mode:

1. Press the SELECT button for a few seconds until both INPUT LEDs blink.
2. Release the SELECT button.

The new EDID data is stored in the non-volatile memory.

If an output display device is connected to the output, the EDID from that output display device will be stored in the non-volatile memory.

If no output display device is connected to the output, the default EDID will be stored in the non-volatile memory.

6.2.2 Toggling from the PC mode to the DVD mode

To toggle from the PC mode to the DVD mode:

1. Press and hold the SELECT button until both INPUT LEDs light continuously without blinking.
2. Release the SELECT button.

The **VS-21HDMI** switches to DVD mode.

7 Technical Specifications

Table 3 includes the technical specifications¹ of the **VS-21HDMI**:

Table 3: Technical Specifications² of the VS-21HDMI 2x1 HDMI

INPUTS:	2 HDMI Connectors
OUTPUT:	HDMI Connector
BANDWIDTH:	Supports up to 1.65Gbps bandwidth per channel
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI 1.2 and HDCP
CONTROLS:	Input Select button
INDICATOR LEDs:	IN 1, IN 2, OUT, and ON LEDs
POWER SOURCE:	12 VDC 160mA
DIMENSIONS:	12cm x 7.15cm x 2.76cm (4.7" x 2.8" x 1.08"), W, D, H
WEIGHT:	0.3 kg. (0.67 lbs.) approx.
ACCESSORIES:	Power supply, bracket installation kit
OPTIONS:	HDMI/HDMI male-to-male cables

¹ Specifications are subject to change without notice

² Environmental Specifications: Operating temperature: -10°C to 50°C; storage temperature: -30°C to 60°C

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants 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 Kramer, 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.
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.



For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found. We welcome your questions, comments and feedback.



Caution

Safety Warning:

Disconnect the unit from the power supply before opening/servicing.



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