



KRAMER ELECTRONICS LTD.

# USER MANUAL

MODEL:

**VS-21H-IR**  
2x1 HDMI Switcher

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P/N: 2900-000671 Rev 6

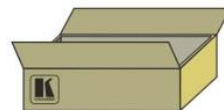


## VS-21H-IR Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to <http://bit.ly/k-prod-downloads> to download the latest manual or scan the QR code on the left.

### Step 1: Check what's in the box

- ☒ **VS-21H-IR** 2x1 HDMI Switcher
- ☒ 1 Power supply (12V DC)
- ☒ 4 Rubber feet
- ☒ 1 Quick Start sheet
- ☒ Kramer **RC-IR3** Infrared Remote Control Transmitter with batteries and user manual



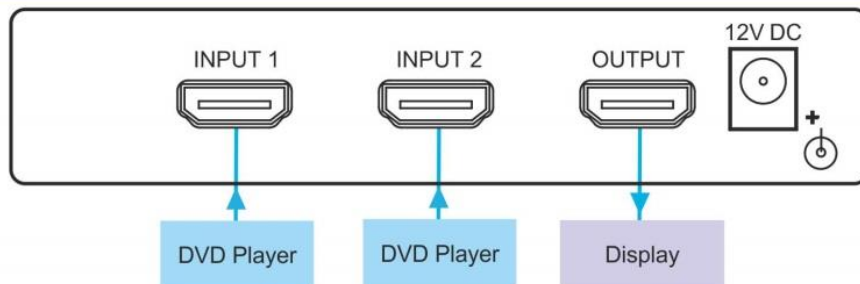
Save the original box and packaging materials in case you need to return your **VS-21H-IR** for service.

### Step 2: Install the VS-21H-IR

Attach the rubber feet and place on a table or mount the **VS-21H-IR** in a rack (using an optional **RK-1** rack adapter).

### Step 3: Connect the inputs and outputs

Always switch off the power on each device before connecting it to your **VS-21H-IR**.



Always use Kramer high-performance cables for connecting AV equipment to the **VS-21H-IR**.

### Step 4: Connect the power

Connect the 12V DC power adapter to the **VS-21H-IR** and plug the adapter into the mains electricity.



### Step 5: Operate the VS-21H-IR

*Acquire/select EDID:*

For device EDID - (PC mode) Connect device  
For default EDID - Disconnect device

- Press and hold SELECT button.
- Connect power, LEDS flash.
- Release SELECT to acquire EDID to both inputs.

Note: In DVD mode an unselected input does receive any EDID data. The detected input receives EDID data from the display device.

*Set PC Mode or DVD Mode*

*From DVD to PC:*

- Press the SELECT button until input LEDs flash.
- Release.

*From PC to DVD:*

- Press and hold the SELECT button until input LEDs light continuously.
- Release.

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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 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 **VS-21H-IR** 2x1 HDMI Switcher, which is ideal for the following typical applications:

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

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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



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 (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 neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **VS-21H-IR** 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 input power wall adapter 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 <http://www.kramerelectronics.com/support/recycling/>.

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## 3 Overview

The **VS-21H-IR** 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-21H-IR** features:

- Maximum data rate of 6.75Gbps (2.25Gbps bandwidth per graphic channel)
- HDTV compatibility
- HDCP compliance
- Kramer Equalization & re-Klocking™ Technology that rebuilds the digital signal to travel longer distances
- HDMI support for Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD, CEC
- EDID PassThru that passes EDID/HDCP signals from source to display
- Active input & output LED indicators.
- 12V DC power
- Front panel and IR remote control capability

## 3.1 Defining the VS-21H-IR 2x1 HDMI Switcher

This section defines the **VS-21H-IR**.

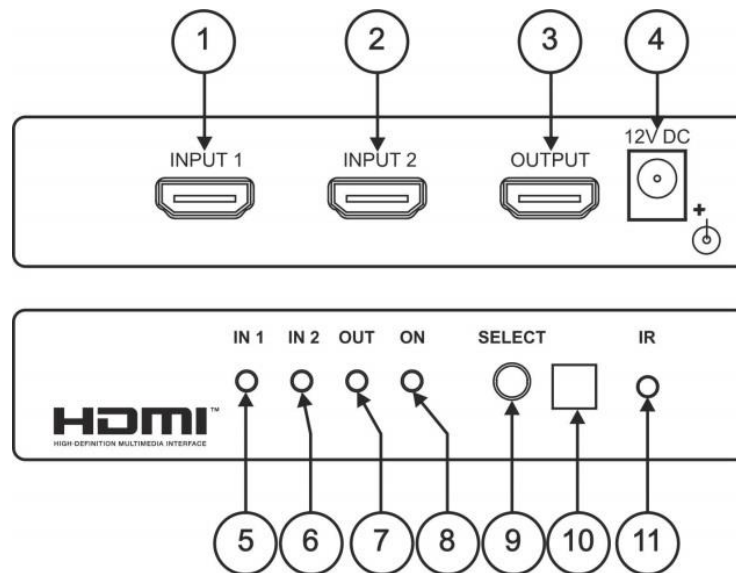


Figure 1: VS-21H-IR 2x1 HDMI Switcher

#	Feature	Function
1	INPUT 1 HDMI Connector	Connects to the HDMI source 1
2	INPUT 2 HDMI Connector	Connects to the HDMI source 2
3	OUTPUT HDMI Connector	Connects to the HDMI acceptor
4	12V DC	+12V DC connector for powering the unit
5	IN 1 LED	Lights when source 1 is selected Flashes when selected but no input is connected
6	IN 2 LED	Lights when source 2 is selected (flashes when selected but no input is connected)
7	OUT LED	Lights when the output is connected
8	ON LED	Lights when receiving power
9	SELECT Button	Toggles between IN 1 and IN 2 IN 1 LED lights when INPUT 1 is selected, or the IN 2 LED lights when IN 2 is selected
10	IR Receiver Window	Receives signals from the infrared remote control transmitter
11	IR LED	The red LED lights when receiving signals from the Infrared remote control transmitter

## 4 Connecting the VS-21H-IR



Always switch off the power to each device before connecting it to your **VS-21H-IR**. After connecting your **VS-21H-IR**, connect its power and then switch on the power to each device.

To connect the **VS-21H-IR** as illustrated in the example in [Figure 2](#):

1. Connect up to two HDMI sources to the INPUT connectors, using the Kramer HDMI 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 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 (or press key 1 or 2 on the remote transmitter, once setup (see [Section 4.1](#))) 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.

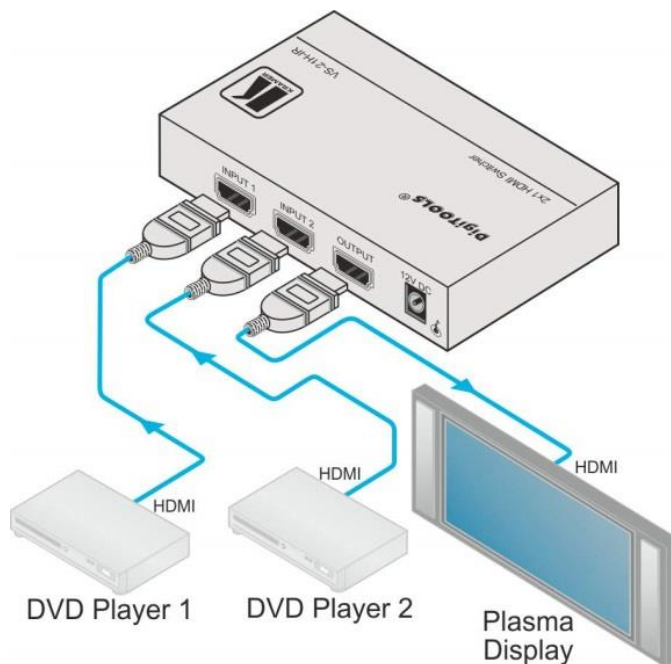


Figure 2: Connecting the VS-21H-IR 2x1 HDMI Switcher

## 4.1 Using the Remote Control Transmitter

You can use the remote control transmitter to switch INPUT 1 or 2 to the output. Before doing so, set it to work with the **VS-21H-IR** by assigning a GROUP number.

The setup parameters for the remote control transmitter are as follows: router number = 1 (default); group number = 11, single digit mode (default), video (default). For further details, see the RC-IR3 user manual

To assign the GROUP number on the remote control transmitter, do the following:

1. Point the remote control transmitter at the remote receiver (item 10 in [Figure 1](#)) and press the GROUP key.

2. Press key 11.

This sets and saves the group number.

To switch INPUT 1 or 2 to the output via the remote control transmitter, press key 1 or 2.

## 5 Operating the VS-21H-IR 2x1 HDMI Switcher

This section describes how to operate the **VS-21H-IR**, using the SELECT button. The **VS-21H-IR** functions in two modes: the PC mode (default) (see [Section 5.1](#)) and the DVD mode (see [Section 5.2](#)).

### 5.1 Working in the PC Mode

This section describes how to acquire / change the EDID (see [Section 5.1.1](#)) and how to reset the default EDID (see [Section 5.1.2](#)) when working in the PC mode.



Note that if a PC is connected to the input, and the EDID is acquired while running video on-screen, the video stops running and then either restarts automatically or needs to be restarted via the graphics card display definitions, depending on the type of graphics card installed in the PC.

#### 5.1.1 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 is stored in the non-volatile memory.
2. Connect the power while keeping the SELECT button pressed until the LEDs start to flash.
3. Release the SELECT button while the IN 1, IN 2 and OUT LEDs flash.  
The EDID of both INPUT 1 and 2 is altered and stored in the non-volatile memory.

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-21H-IR** uses the virtual EDID stored in the non-volatile memory.

### 5.1.2 Resetting to 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 IN 1, IN 2 and OUT LEDs flash.

## 5.2 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 directly from the display device.

### 5.2.1 Toggling from the DVD mode to the PC mode

To toggle from the DVD mode to the PC mode:

1. Press and hold the SELECT button for a few seconds until both INPUT LEDs flash, while the device is powered on.
2. Release the SELECT button.  
The **VS-21H-IR** switches to the PC mode.

### 5.2.2 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 flashing, while the device is powered on.
2. Release the SELECT button.  
The **VS-21HDMI-IR** switches to DVD mode.

## 5.3 VS-21H-IR Factory Reset Procedure

To reset the **VS-21H-IR** to its factory default values:

1. Connect the power to the **VS-21H-IR** while pressing the SELECT button.
2. Wait until LEDs IN 1 and IN 2 flash and OUT LED lights and then release the SELECT button.
3. Disconnect the power.
4. Reconnect the power while pressing the SELECT button.
5. Wait until LEDs IN 1, IN 2 and OUT flash and then release the SELECT button.

## 6 Technical Specifications

INPUTS:	2 HDMI connectors
OUTPUT:	HDMI connector
BANDWIDTH:	6.75Gbps (2.25Gbps per graphic channel)
STANDARDS COMPLIANCE:	HDMI and HDCP
CONTROLS:	Input Select button, IR remote control
INDICATOR LEDs:	IN 1, IN 2, OUT, and ON LEDs
POWER CONSUMPTION:	12V DC, 180mA
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:	12cm x 7.15cm x 2.76cm (4.7" x 2.8" x 1.08") W, D, H
WEIGHT:	0.3kg (0.67lbs) approx.
INCLUDED ACCESSORIES:	Power supply, bracket installation kit, IR remote control
OPTIONS:	RK-3T 19" rack adapter
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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