

Kramer Electronics, Ltd.



USER MANUAL

Model:

VS-311H

Automatic HDMI / Audio Switcher

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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 groups¹ that are clearly defined by function.

Congratulations on purchasing your Kramer **VS-311H** *Automatic HDMI / Audio Switcher*, which is ideal for:

- Systems requiring automatic HDMI routing
- Presentation and multimedia applications

Note, that the Kramer VS-311H is identical to the VS-311HDMI; just the name has changed replacing the suffix “HDMI” by “H” (according to the HDMI Guideline).

Each package includes the following items:

- **VS-311H** *Automatic HDMI / Audio Switcher*
- Windows®-based Kramer control software²
- Windows®-based Ethernet Configuration Manager and Virtual Serial Port Manager
- Kramer **RC-IR3** Infrared Remote Control Transmitter (including the required battery and a separate user manual³)
- Power adapter, null-modem adapter and 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 HDMI cables⁴

1 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

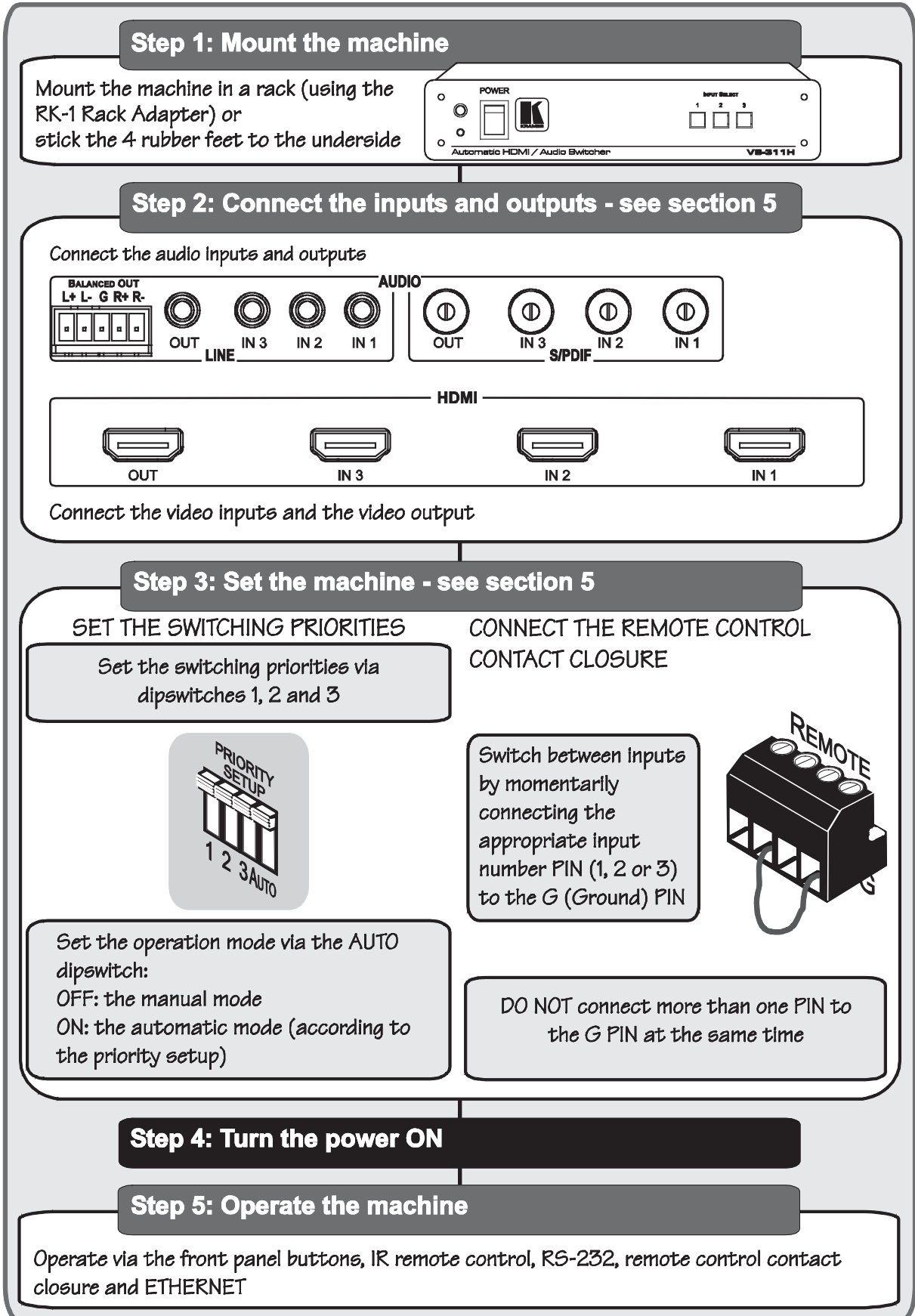
2 Downloadable from our Web site at <http://www.kramerelectronics.com>

3 Download up-to-date Kramer user manuals from our Web site at <http://www.kramerelectronics.com>

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

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.



3 Overview

The Kramer **VS-311H** is a high performance 3x1 HDCP (high definition digital content protection) compatible¹ automatic switcher for HDMI signals, digital audio (S/PDIF) signals, and stereo audio signals.

The **VS-311H** switches any one of three HDMI HDCP compliant¹ sources to a single display device, on HDMI connectors with the corresponding:

- Digital audio (S/PDIF) input signals switched to an S/PDIF output, on RCA connectors **and/or**
- Unbalanced stereo audio input signals on 3.5 mini-jack connectors switched to an unbalanced stereo audio output on a 3.5 mini-jack connector, as well as to a balanced stereo audio output on a 5-pin terminal block connector

The **VS-311H** can operate either in the manual mode or in the auto mode.

In the manual mode, the **VS-311H** acts as a regular switcher, switching the input video and audio signals to the output via the three front panel INPUT SELECT buttons.

In the auto mode, you can switch any input to the output via the three front panel INPUT SELECT buttons, but once the selected video signal is lost, the machine automatically switches to the highest priority input, according to the input priority setup². The **VS-311H** will switch back to the primary input when an HDMI signal is detected on that input.

When selecting an INPUT SELECT button, via the manual or auto mode, that button illuminates. Pressing an illuminated button deselects that input and that button no longer illuminates.

The **VS-311H** is housed in a desktop-sized enclosure and is 12V DC fed.

Control the **VS-311H** using the front panel buttons, or remotely via:

- RS-232 serial commands transmitted by a touch screen system, PC, or other serial controller
- The Kramer infrared remote control transmitter
- The ETHERNET
- Remote control contact closure

¹ HDCP is a standard, developed by Intel, to protect copyright holders (movie studios, and so on) from having their programs copied and shared. The HDCP standard provides for the secure, encrypted transmission of digital signals over HDMI or DVI connections between two HDCP-enabled devices. The source device (such as a DVD player or HDTV tuner) encrypts the digital signal using the HDCP standard, and then sends that signal over the HDMI or DVI connection to the receiving device (for example, an HDTV). The receiving device decodes the signal using HDCP and uses the signal as it is allowed

² As described in section [5.1](#)

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, HDMI²:

- Provides a simple³ interface between any audio/video source, such as a set-top box, DVD player, or A/V receiver and video monitor, such as a digital flat LCD / plasma television (DTV), over a single lengthy⁴ cable
- Supports standard, enhanced, high-definition video, and multi-channel digital audio⁵ on a single cable
- Transmits all ATSC HDTV standards and supports 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 cable⁶, 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 digital television, 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

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

2 HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI licensing LLC

3 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

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


5 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

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

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-311H away from moisture, excessive sunlight and dust



Caution: No operator serviceable parts inside unit

Warning: Use only the Kramer Electronics input power wall adapter that is provided with the unit

Warning: Disconnect power and unplug unit from wall before installing or removing the device or servicing unit

3.3 Terminology Used in this User Manual

[Table 1](#) defines some terms that are used in this user manual.

Table 1: Terminology Used in this User Manual

Term	Definition
802.3	The standard specification for ETHERNET that is maintained by the Institute of Electrical and Electronics Engineers (IEEE).
Dynamic Host Configuration Protocol (DHCP)	Allows the network administrator to distribute IP addresses from a central point and automatically send a new IP address when an Ethernet point is plugged into a different network location.
Gateway	A network position serving as an entry to another network. On the Internet, a node or stopping point can be either a gateway node or a host (end-point) node.
IP Address	A 32-binary digit number that identifies each sender or receiver (within a network via a particular server or workstation) of data (HTML pages or e-mails) that is sent in packets across the Internet. Every device connected to an IP network must have a unique IP address. This address is used to reference the specific unit.
Local Area Network (LAN)	Computers sharing a common communications line or wireless link, which often share a server within a defined geographic area.
Media Access Control (MAC) Address	A computer's unique hardware number (or address) in a LAN or other network. On an Ethernet LAN, the (MAC) address is identical to the Ethernet address.
Transmission Control Protocol/Internet Protocol (TCP/IP)	The basic communication language or protocol of the Internet that breaks the message into appropriately sized packets for the network, and can be used as a communications protocol in an intranet or an extranet.

4 Your VS-311H Automatic HDMI / Audio Switcher

[Figure 1](#) illustrates the front and rear panels of the VS-311H. [Table 2](#) defines the front and rear panels of the VS-311H.

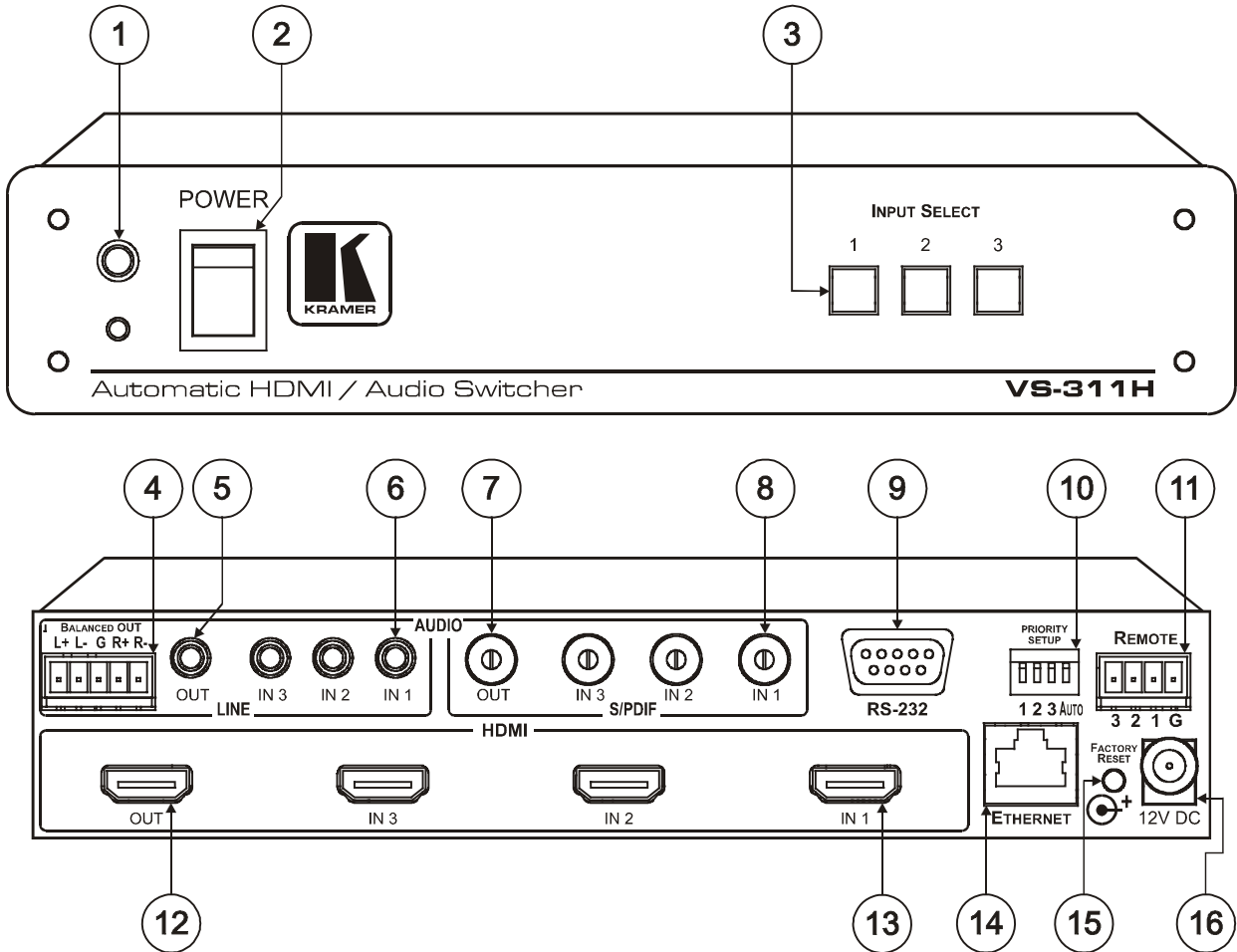


Figure 1: VS-311H Automatic HDMI / Audio Switcher

Your VS-311H Automatic HDMI / Audio Switcher

Table 2: VS-311H Automatic HDMI / Audio Switcher Features

#	Feature		Function	
1	IR Receiver		The red LED lights when receiving signals from the Infra-red remote control transmitter	
2	POWER Switch		Illuminated switch for turning the unit ON or OFF	
3	INPUT SELECT Buttons		Press the INPUT button to select the input to switch to the output (from 1 to 3). The selected input button illuminates	
4	AUDIO	LINE	BALANCED OUT Terminal Block Connector	Connect the balanced stereo audio output to a balanced stereo audio acceptor
5			OUT 3.5mm Mini Jack	Connect to an unbalanced stereo audio output
6			IN 3.5mm Mini Jack	Connect to the unbalanced stereo audio inputs (from 1 to 3)
7	AUDIO	S/PDIF	OUT RCA Connector	Connect to a digital audio (S/PDIF) output
8			IN RCA Connectors	Connect to the digital audio (S/PDIF) inputs (from 1 to 3)
9	RS-232 DB 9F Port		Connect to the PC or the Remote Controller	
10	PRIORITY SETUP DIP-switches		DIP-switches for setup of the machine: DIPs 1, 2 and 3 are for setting the signal priorities; DIP 4 is for setting to the manual or the AUTO mode (see section 5.1)	
11	REMOTE Terminal Block		Connects to a dry contact switch (see section 5.2)	
12	OUT HDMI Connector		Connect to the HDMI acceptor	
13	IN HDMI Connectors		Connect to the HDMI sources (from 1 to 3)	
14	ETHERNET Connector		Connect to the PC or other Serial Controller through computer networking	
15	FACTORY RESET Button		Press the ETHERNET factory reset button to reset to the factory default definitions ¹ : IP number – 192.168.1.39 Mask – 255.255.255.0 Gateway – 192.168.1.1	
16	12V DC		+12V DC connector for powering the unit	

¹ First, disconnect the power and then connect it again while pressing the RESET button. The unit will power up and load its memory with the factory default definitions

5 Connecting the VS-311H Automatic HDMI / Audio Switcher

To connect¹ the **VS-311H Automatic HDMI / Audio Switcher**, as illustrated in the example in [Figure 2](#), do the following²:

1. Connect an HDMI source (for example, an HDMI DVD player³) to the IN 1 HDMI connector and connect the digital audio input⁴ to the IN 1 S/PDIF RCA connector.
2. Connect an HDMI source (for example, an HDMI set top box source) to the IN 3 HDMI connector and connect the digital audio input⁵ to the IN 3 3.5 mini-jack connector.
3. Connect the OUT HDMI connector to the HDMI acceptor (for example, an HDMI plasma display).
4. Connect the AUDIO OUT S/PDIF RCA connector⁶ and the AUDIO OUT 3.5 mini-jack connector to a digital audio acceptor (for example, an AV receiver).
5. Set the PRIORITY SETUP DIP-switches (see section [5.1](#))
6. If required, connect a PC and/or controller to the RS-232 port (see section [5.3](#)) and/or the ETHERNET port (see section [5.4](#)).
7. If required, connect⁷ the contact closure remote control PINs (see section [5.2](#)).
8. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in [Figure 2](#)).

1 You do not need to connect all the inputs

2 Switch OFF the power on each device before connecting it to your VS-311H. After connecting your VS-311H, switch on its power and then switch on the power on each device

3 You can also connect a DVD player with a DVD connector, using an DVI-HDMI adapter to transfer video signals

4 Alternatively you can connect it to the 3.5 mini-jack connector

5 Alternatively you can connect it to the S/PDIF RCA connector

6 If the inputs are connected only to the 3.5 mini-jack connectors, connect the AUDIO OUT 3.5 mini-jack connector and/or the BALANCED OUT terminal block connector only

7 The connection is not illustrated in [Figure 2](#)

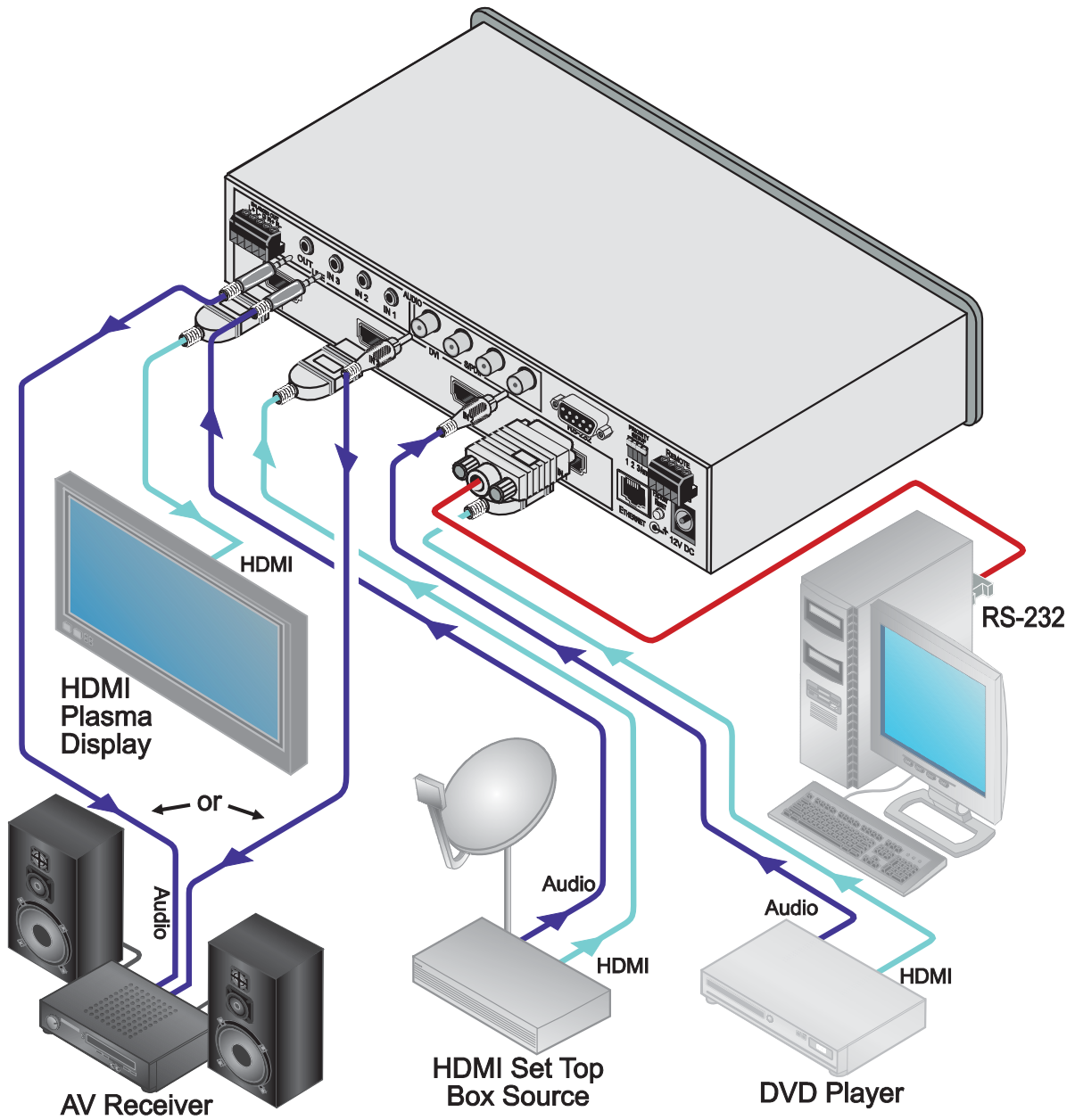


Figure 2: Connecting the VS-311H Automatic HDMI / Audio Switcher

5.1 Setting the DIP-switches

This section describes the machine set-up and DIP-switch selection.

By default, all the **VS-311H** DIP-switches are set to OFF.

[Figure 3](#) and [Table 3](#) describe the **VS-311H** unit DIP-switches.

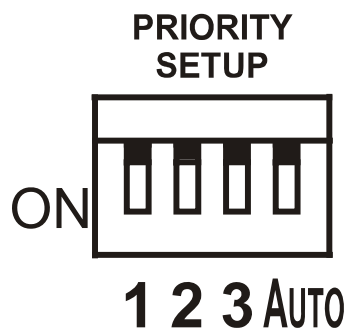


Figure 3: DIP-switches

Table 3: DIP-switch Settings

DIPS	Function	Description
1, 2, 3	Priority setup	Set the inputs priority (see Table 4)
4	AUTO	OFF: manual mode, switch between channels manually; ON: automatic mode, inputs switch automatically to the output according to the priority setup

Inputs 1, 2 and 3 can be set in priority according to your needs. The **VS-311H** will switch to the secondary input upon loss of the primary input signal, and back to the primary input when a signal is detected.

[Table 4](#) describes the priority setup:

Table 4: DIP-switch Priority Setup

Priority	Dip Position		
1, 2, 3	OFF	OFF	OFF
3, 2, 1	OFF	OFF	ON
2, 3, 1	OFF	ON	OFF
1, 3, 2	ON	OFF	OFF
3, 1, 2	ON	OFF	ON
2, 1, 3	ON	ON	OFF

5.1.1 Priority Switching Applications

In the following example, DIP-switches 1, 2, and 3 are set to OFF, OFF and OFF respectively, meaning that the highest priority input is IN 1; IN 2 is the secondary input; and IN 3 the third. DIP-switch 4 is set ON, enabling AUTO mode operation.

If all the inputs are connected, you can, for example, press the INPUT SELECTOR 2 button to switch IN 2 to OUT. The plasma display shows the IN 2 signal.

If the HDMI signal on IN 2 is cut off, the switcher automatically switches IN 1 to the output, and if that fails too, IN 3 is automatically switched to the output. If, in the meantime, the IN 2 signal is restored, IN 2 will take priority once again.

5.2 Connecting the Contact Closure Remote Control PINs

The contact closure remote control pins operate in a similar way to the input buttons.

For example, you may override¹ the presently routed input by using the remote control contact closure. To do so², connect the appropriate input number³ pin on the REMOTE terminal block connector to the G (Ground) pin⁴, as [Figure 4](#) illustrates.

DO NOT Connect more than one PIN to the Ground PIN at the same time

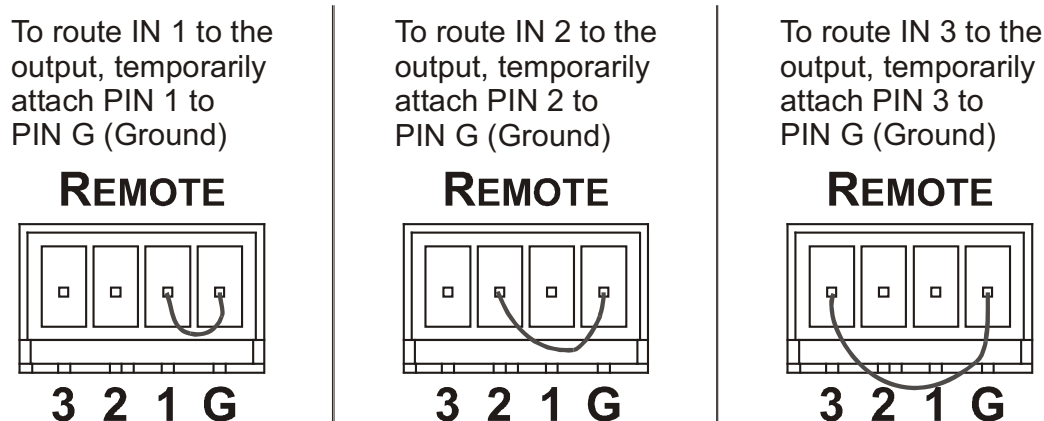


Figure 4: Connecting the Contact Closure Remote Control PINS

1 Equivalent to pressing a different input button

2 When in the manual mode (DIP-switch 4 set to OFF), you can switch an input to the output using the front panel INPUT SELECT buttons

3 Input 1, 2 or 3

4 Note that unless the connection is permanent, the VS-311H will revert to an automatic switcher when the connection is removed

5.3 Connecting to the VS-311H via RS-232

You can connect to the unit via a crossed RS-232 connection, using for example, a PC. A crossed cable or null-modem is required as shown in method A and B respectively. If a shielded cable is used, connect the shield to pin 5.

Method A ([Figure 5](#))—Connect the RS-232 9-pin D-sub port on the unit via a crossed cable (only pin 2 to pin 3, pin 3 to pin 2, and pin 5 to pin 5 need be connected) to the RS-232 9-pin D-sub port on the PC.

Note: There is no need to connect any other pins.

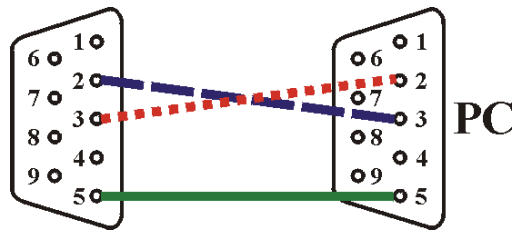


Figure 5: Crossed Cable RS-232 Connection

Hardware flow control is not required for this unit. In the rare case where a controller requires hardware flow control, short pin 1 to 7 and 8, and pin 4 to 6 on the controller side.

Method B ([Figure 6](#))—Connect the RS-232 9-pin D-sub port on the unit via a straight (flat) cable to the null-modem adapter, and connect the null-modem adapter to the RS-232 9-pin D-sub port on the PC. The straight cable usually contains all nine wires for a full connection of the D-sub connector. Because the null-modem adapter (which already includes the flow control jumpering described in Method A above) only requires pins 2, 3 and 5 to be connected, you are free to decide whether to connect only these 3 pins or all 9 pins.

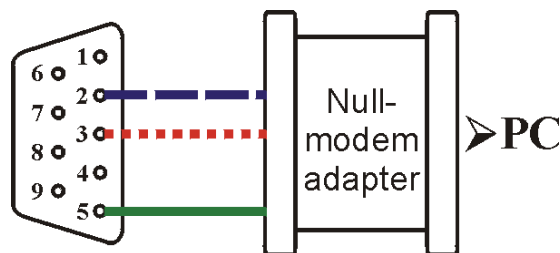


Figure 6: Straight Cable RS-232 Connection with a Null Modem Adapter

5.4 Controlling via ETHERNET

You can connect the **VS-311H** via the Ethernet, using a crossover cable (see section [5.4.1](#)) for direct connection to the PC or a straight-through cable (see section [5.4.2](#)) for connection via a network hub or network router¹.

5.4.1 Connecting the ETHERNET Port directly to a PC (Crossover Cable)

You can connect the Ethernet port of the **VS-311H** to the Ethernet port on your PC, via a crossover cable with RJ-45 connectors.

This type of connection is recommended for identifying the **VS-311H** with the factory configured default IP address

After connecting the Ethernet port, configure your PC as follows:

1. Right-click the My Network Places icon on your desktop.
2. Select **Properties**.
3. Right-click Local Area Connection Properties.
4. Select **Properties**.
The Local Area Connection Properties window appears.
5. Select the Internet Protocol (TCP/IP) and click the **Properties** Button (see [Figure 7](#)).

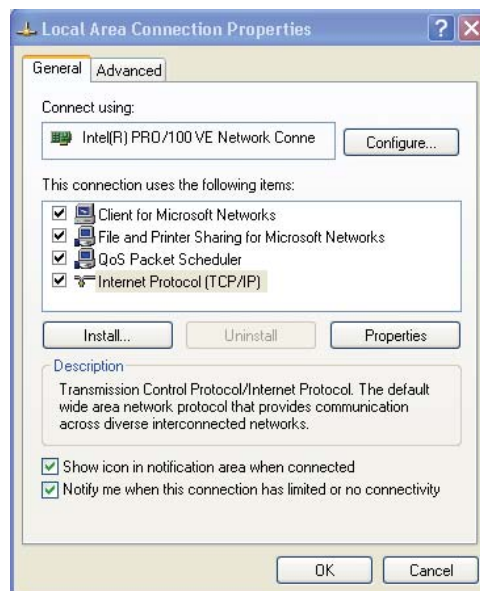


Figure 7: Local Area Connection Properties Window

¹ After connecting the Ethernet port, you have to install and configure your Ethernet Port. For detailed instructions, see the “Ethernet Configuration (FC-11) guide.pdf” file in the technical support section on our Web site:

<http://www.kramerelectronics.com>

6. Select Use the following IP Address, and fill in the details as shown in [Figure 8](#).
7. Click **OK**.

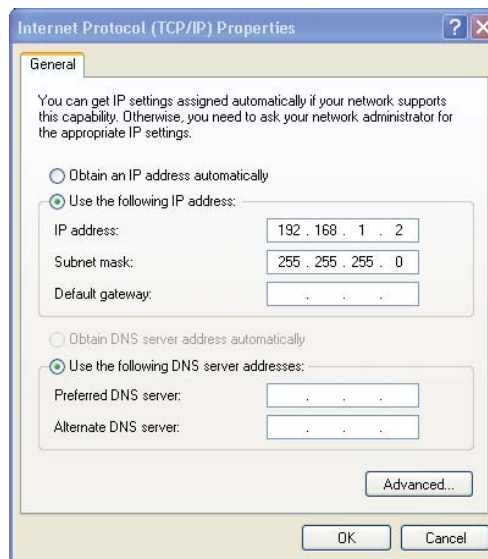


Figure 8: Internet Protocol (TCP/IP) Properties Window

5.4.2 Connecting the ETHERNET Port via a Network Hub (Straight-Through Cable)

You can connect the Ethernet port of the **VS-311H** to the Ethernet port on a network hub or network router, via a straight-through cable with RJ-45 connectors.

5.4.3 Control Configuration via the Ethernet Port

To control several units via the Ethernet, connect the unit via the Ethernet port to the LAN port of your PC. Use your PC initially to configure the settings (see section [5.4](#)).

6 Technical Specifications

[Table 5](#) includes the technical specifications:

Table 5: Technical Specifications¹ of the VS-311H

INPUTS:	3 HDMI connectors 3 S/PDIF digital audio on RCA connectors 3 unbalanced stereo audio +4dBm on 3.5mm mini jacks
OUTPUT:	1HDMI connector 1 S/PDIF digital audio on an RCA connector 1 unbalanced stereo audio + 4dBm on a 3.5mm mini jack, with 1 balanced stereo audio on a 5-pin detachable terminal block
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI, HDCP compliant
DATA RATE:	Up to 2.25Gbps
POWER SOURCE:	12 VDC, 270mA
CONTROLS:	Front panel buttons, infrared remote control transmitter, RS-232, Ethernet
DIMENSIONS:	21.6cm x 16.1cm x 4.4cm (8.5" x 6.3" x 1.7", W, D, H)
WEIGHT:	1.2kg (2.6lbs) approx.
ACCESSORIES:	Power supply
OPTIONS:	Rack adapter RK-1

¹ Specifications are subject to change without notice

7 Kramer Protocol 2000

The VS-311H is compatible with Kramer’s Protocol 2000¹ (version 0.46) (below). This RS-232/RS-485 communication protocol uses four bytes of information as defined below. For RS-232, a null-modem connection between the machine and controller is used. The default data rate is 9600 baud, with no parity, 8 data bits and 1 stop bit.

Table 6: Protocol Definitions

MSB								LSB
	DESTINATION	INSTRUCTION						
0	D	N5	N4	N3	N2	N1	N0	
7	6	5	4	3	2	1	0	
1st byte								
	INPUT							
1	I6	I5	I4	I3	I2	I1	I0	
7	6	5	4	3	2	1	0	
2nd byte								
	OUTPUT							
1	O6	O5	O4	O3	O2	O1	O0	
7	6	5	4	3	2	1	0	
3rd byte								
	MACHINE NUMBER							
1	OVR	X	M4	M3	M2	M1	M0	
7	6	5	4	3	2	1	0	
4th byte								

1st BYTE: Bit 7 – Defined as 0.

D – “DESTINATION”: 0 - for sending information to the switchers (from the PC);

1 - for sending to the PC (from the switcher).

N5...N0 – “INSTRUCTION”

The function that is to be performed by the switcher(s) is defined by the INSTRUCTION (6 bits). Similarly, if a function is performed via the machine’s keyboard, then these bits are set with the INSTRUCTION NO., which was performed. The instruction codes are defined according to the table below (INSTRUCTION NO. is the value to be set for N5...N0).

2nd BYTE: Bit 7 – Defined as 1.

I6...I0 – “INPUT”.

When switching (ie. instruction codes 1 and 2), the INPUT (7 bits) is set as the input number which is to be switched. Similarly, if switching is done via the machine’s front-panel, then these bits are set with the INPUT NUMBER which was switched. For other operations, these bits are defined according to the table.

3rd BYTE: Bit 7 – Defined as 1.

O6...O0 – “OUTPUT”.

When switching (ie. instruction codes 1 and 2), the OUTPUT (7 bits) is set as the output number which is to be switched. Similarly, if switching is done via the machine’s front-panel, then these bits are set with the OUTPUT NUMBER which was switched. For other operations, these bits are defined according to the table.

4th BYTE: Bit 7 – Defined as 1.

Bit 5 – Don’t care.

OVR – Machine number override.

M4...M0 – MACHINE NUMBER.

Used to address machines in a system via their machine numbers. When several machines are controlled from a single serial port, they are usually configured together with each machine having an individual machine number. If the OVR bit is set, then all machine numbers will accept (implement) the command, and the addressed machine will reply.

¹ You can download our user-friendly “Software for Calculating Hex Codes for Protocol 2000” from our Web site:

<http://www.kramerelectronics.com>

Kramer Protocol 2000

For a single machine controlled via the serial port, always set M4...M0 = 1, and make sure that the machine itself is configured as MACHINE NUMBER = 1.

Table 7: Instruction Codes for Protocol 2000

Note: All values in the table are decimal, unless otherwise stated.

INSTRUCTION		DEFINITION FOR SPECIFIC INSTRUCTION		NOTE
#	DESCRIPTION	INPUT	OUTPUT	
1	SWITCH VIDEO	Set equal to video input which is to be switched (0 = disconnect)	Set equal to video output which is to be switched (0 = to all the outputs)	2, 15

NOTES on the above table:

NOTE 2 - These are bi-directional definitions. That is, if the switcher receives the code, it will perform the instruction; and if the instruction is performed (due to a keystroke operation on the front panel), then these codes are sent. For example, if the HEX code

01 85 88 83

was sent from the PC, then the switcher (machine 3) will switch input 5 to output 8. If the user switched input 1 to output 7 via the front panel keypad, then the switcher will send HEX codes:

41 81 87 83

to the PC.

When the PC sends one of the commands in this group to the switcher, then, if the instruction is valid, the switcher replies by sending to the PC the same four bytes that it was sent (except for the first byte, where the DESTINATION bit is set high).

NOTE 15 – When the OVR bit (4th byte) is set, then the “video” commands have universal meaning. For example, instruction 1 (SWITCH VIDEO) will cause all units (including audio, data, etc.) to switch. Similarly, if a machine is in “FOLLOW” mode, it will perform any “video” instruction.

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 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 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, 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: 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.



Kramer Electronics, Ltd.

Web site: www.kramerelectronics.com

E-mail: info@kramerel.com

P/N: 2900-000666 REV 2

Kramer Electronics, Ltd.



USER MANUAL

Model:

RC-IR2

Infrared Remote Control Device

Remote Control Transmitter

Remote Receiver

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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 groups¹ that are clearly defined by function.

Congratulations on purchasing your Kramer **RC-IR2** or *Infrared Remote Control Device*, which is ideal for remote control of Kramer switchers, matrices and scalars.

The package includes the following items:

- **RC-IR2 Remote Control Transmitter**²
- This user manual³

Most Kramer switchers include a built-in front panel infrared receiver. When there is no built-in remote receiver, use⁴ an external remote receiver⁵.

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

1 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 Scalars; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Two AAA size regular batteries are supplied

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

4 For example, when ordering an RC-IR2 remote control transmitter, order an external remote receiver to control Kramer switchers such as the VP-4x4 that has no built-in remote receiver

5 It includes an attached RS-232 cable with a 9-pin D-sub connector, and comes with a 12V DC power adapter

3 Overview

The high performance Kramer **RC-IR2** is an upgrade of the popular **RC-IR1**, with additional functionality that lets you control Kramer scalars as well as switchers.

The **RC-IR2**:

- Is a hand held infrared remote control transmitter¹ that includes the protocols of all Kramer devices and is programmable to control any Kramer machine (see Figure 1)
- Transmits to a compatible remote receiver, either built-in (see Figure 2) or external (see Figure 3). The transmitter includes non-volatile memory that retains the last setting, even after the power supply is interrupted

To achieve the best performance:

- Point the remote control transmitter directly at the remote receiver (whether built-in or external)
- Make sure that nothing blocks the path of the infrared beam²
- 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 that may adversely influence signal quality and position your Kramer **RC-IR2** away from moisture, excessive sunlight and dust

¹ Delivers instantaneous results and has a range of up to 15 meters

² For example, do not place a group of switchers in front of the remote receiver. This may prevent it from receiving signals from the remote control transmitter

4 Your RC-IR2 Remote Control Transmitter

Figure 1 and Table 1 define the **RC-IR2** remote control transmitter:

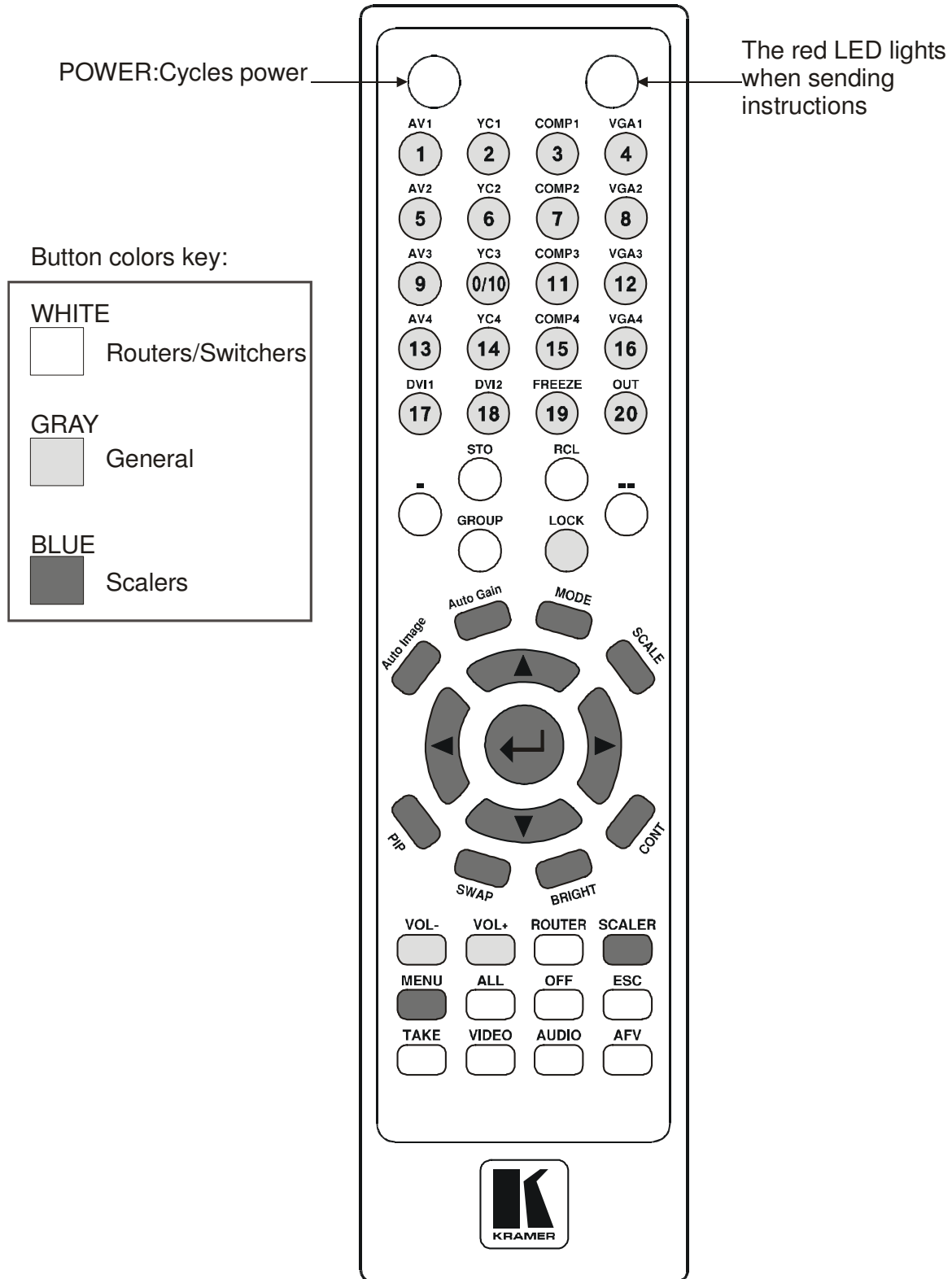


Figure 1: RC-IR2 Remote Control Transmitter

Your RC-IR2 Remote Control Transmitter

Table 1: RC-IR2 Remote Control Transmitter Features

Keys		Function
Selector Buttons	ROUTER Mode	
	SCALER Mode	Source Selector
		FREEZE
		OUT
20 buttons for selecting the channels, the group, the machine number, machine type and so on (see section 7)		
18 source selector keys: AV1, AV2, AV3, AV4, YC1, YC2, YC3, YC4, COMP1, COMP2, COMP3, COMP4, VGA1, VGA2, VGA3, VGA4, DVI1 and DVI2		
Pauses the output video		
Selects the output resolution		
STO		Stores the current setting
RCL		Recalls the stored data
- Single Digit Mode		Press the - key to select the single digit mode (the 0/10 key is designated as 10)
-- Double Digit Mode		Press the - - key to select the double digit mode (the 0/10 key is designated as 0)
GROUP		Selects the # of a specific group (see section 7.2.2)
LOCK		Locks a unit or all the units
Auto Image		Assesses the image and automatically improves its quality via phase, frequency and position adjustment
Auto Gain		Automatically adjusts the brightness and contrast
MODE		For the VP-719xl , VP-720xl , VP-723xl and VP-724xl : Toggle between each of the following modes: Normal, Presentation, Cinema, Nature, User 1 and User 2 For the VP-725DS and VP-725DSA : Toggle between each of the following groups: video, audio, video and audio, scaler, master, and scaler and master
SCALE		Toggles between each of the following Aspect Ratios: Normal, Wide Screen, Pan & Scan, 4:3 Output, and 16:9 Output
Navigation Control (5 keys)		Allows maneuvering within an OSD screen (all keys); adjusts the zoom position (4 keys); moves the PIP location when the Source Prompt is OFF (4 keys); resizes the PIP when the Source Prompt is ON (2 keys)
PIP		Toggles the picture-in-picture function
SWAP		Toggles between the PIP content and the screen source content
BRIGHT		Displays the brightness status (adjust using the ▲ / ▼ keys)
CONT		Displays the contrast status (adjust using the ▲ / ▼ keys)
VOL-		Decreases the volume ¹ . When in the SCALER mode, see section 8.1
VOL+		Increases the volume ¹ . When in the SCALER mode, see section 8.1
ROUTER		Enables the switcher functions (keys are colored white)
SCALER		Enables the scaler functions (keys are colored blue)
MENU		Displays the OSD Menu screen and locks/unlocks the front panel
ALL		Pressing ALL before pressing an INPUT key, connects that input to all outputs ² (ALL= All Outputs)
OFF		Pressing OFF after pressing an OUTPUT key disconnects that output from the input. To disconnect all the outputs, press the ALL key and then the OFF key
ESC		Press ESC to cancel the last key(s) pressed (when the action requires another key)
TAKE		Press TAKE, key-in several actions and then press TAKE once again to simultaneously activate the multiple switches
VIDEO		Affects video (the default)
AUDIO		Affects audio
AFV		Audio-follow-video

¹ See section 7.4.1.2 when adjusting the volume for the VP-23N and the VP-23RC

² For example, press ALL and then Input key # 2 to connect that input to all outputs

5 Your Remote Receiver

This section includes details of:

- The built-in front panel remote receiver (see section 5.1)
- How to connect the external remote receiver (see section 5.2)

5.1 Identifying the Built-in Infrared Receiver

Most Kramer switchers¹ include a built-in front panel remote receiver that is located to the left of the power switch, as Figure 2 illustrates:

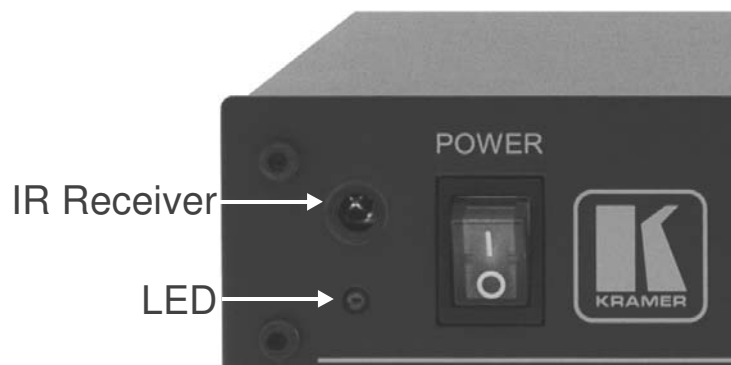


Figure 2: Built-in Remote Receiver

5.2 Connecting the External Infrared Receiver

When your RS-232 controlled Kramer switcher has no built-in front panel remote receiver, you can use the external remote receiver¹ (see Figure 3). The external remote receiver includes an attached RS-232 cable with a 9-pin D-sub connector, and a 12V DC power socket.



Caution – No operator-serviceable parts inside unit.

Warning – Use only the Kramer Electronics input power wall adapter that is provided with this unit².

Warning – Disconnect power and unplug unit from wall before installing or removing device or servicing unit.

¹ Some switchers do not have a built-in remote receiver. For these units, an external remote receiver may be connected to the switcher. When ordering an RC-IR2 remote control transmitter, a separate order must be made for an external remote receiver

² For example: model number AD2512C, part number 2535-000251

To connect the external remote receiver, as the example in Figure 3 illustrates, do the following:

1. Connect the external remote receiver to the RS-232 port on the Kramer switcher, via **one** of the following methods:
 - A direct one-to-one connection, by simply connecting the attached RS-232 cable's 9-pin D-sub connector to the RS-232 9-pin D-sub port on the switcher
 - An extended (up to about 25 meters) one-to-one connection, by connecting a flat cable, or by just connecting PIN # 2 to PIN # 2, PIN # 3 to PIN # 3, and PIN # 5 to PIN # 5 (ground) between the attached RS-232 cable's 9-pin D-sub connector and the RS-232 9-pin D-sub port on the switcher
 - A cross connection (or Null-modem adapter) when required. For the cross connection, connect PIN # 2 to PIN # 3, PIN # 3 to PIN # 2, and PIN # 5 to PIN # 5
2. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.

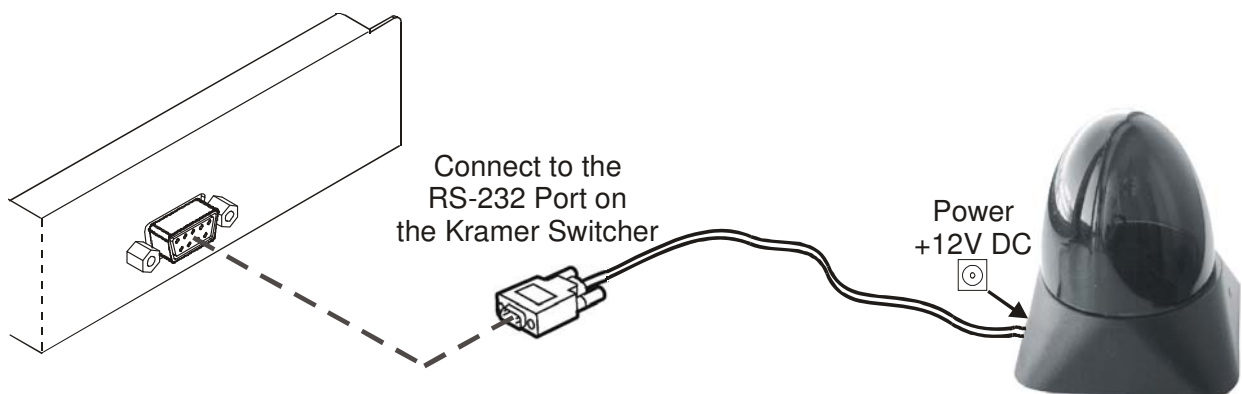


Figure 3: Connecting the External Remote Receiver

When using more than one unit, connect the RS-485 detachable terminal block connectors between the different switchers. The units must belong to the same group and the same series¹ but can be different models².

¹ For example, vertical interval matrix switchers for composite video and stereo audio signals

² For example, the VS-808x1 and the VS-606x1

5.3 Using the RC-IR2 Remote Control Transmitter

The **RC-IR2** Remote Control Transmitter includes three types of keys: the General keys¹, the ROUTER² keys and the SCALER keys.

The following sections describe how to use the:

- General keys (see section 6)
- ROUTER keys (see section 7)
- SCALER keys (see section 8)

By design, every keypad operation is subject to a 10 second timeout. Failure to fully execute an action within 10 seconds will necessitate restarting that action.

6 The General (Gray) Keys

The **RC-IR2** includes a power ON button, a red transmission LED, which illuminates when pressing any key, as well as:

- Selector buttons, which operate differently for the ROUTER mode and the SCALER mode (see section 7 and section 8 respectively)
- A LOCK button, for locking the front panel, and
- VOL- and VOL+ buttons for decreasing or increasing the volume level respectively³

1 Which are applied in the ROUTER mode as well as in the SCALER Mode

2 For controlling switchers

3 For the volume adjustment in scalers, see section 8.1. For the volume adjustment in the VP-23N and VP-23RC, see section 7.4.1.2

7 The Router Mode Keys

This section describes how to:

- Configure the **RC-IR2** (see section 7.1)
- Initialize the **RC-IR2** (see section 7.2)
- Use the ROUTER Mode keys (see section 7.3)

7.1 Configuration

For the **RC-IR2** to identify the switcher that it has to control, a ROUTER number (see section 7.2.1) and a GROUP number¹ (see section 7.2.2) need to be assigned for specific identification of each switcher.

Older Kramer products were arranged in several groups according to several criteria, such as the protocol type and version, the baud rate, the number of units that can be controlled per group and so on, as defined in Table 3, which applies to older Kramer machines.

Table 3 defines 16 different groups, numbered 1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 14, 15, 16, 17, 18, and 20 (there are no groups numbered 8, 13, or 19). Groups numbered 1, 2, 3, 4, 14, 15 and 16 include units with only a single output. In some cases, you will need to allocate different versions of the same unit to different groups. For example, the **VS-4x4YC** vertical interval matrix switcher appears in Groups 5 and 12. Group 5 works with the old protocol (at the time that the **VS-4x4YC** was initially manufactured) and Group 12 works with the new protocol².

Newer Kramer products are allocated to either group 12 (communication protocol 2000) or group 11 (if they have one output only³).

¹ In cases where the machine does not have a built-in IR receiver it still has to be allocated to a group and can be controlled via the external IR receiver (see section 5.2)

² Kramer Protocol-2000 (version 3.1 or higher)

³ The group 11 machines are protocol 2000 switchers that have only one output, so that the output is preset to 1 and you only have to press the input number digit on the selector buttons

7.2 Initializing the RC-IR2

Table 2 describes the initializing sequence:

Table 2: RC-IR2 Initializing Sequence

Press	To	IR LED Behavior on the Switcher Front Panel	See Section
<->	Select single digit	ON and then OFF	7.3.1
ROUTER	Select the machine number	ON	7.2.1
1 or other	Set the machine number	OFF	
Group	Select the Group number	ON	7.2.2
12 or 11 (if the switcher has one output only ¹) or other for old protocols	Set the Group number	OFF	
AFV/VIDEO/AUDIO	Select AFV to control both video and audio Select VIDEO to control only video Select AUDIO to control only audio	Briefly blinks	
<- ->	If the controlled switcher has more than 20 inputs/outputs select double digit	ON and then OFF	7.3.1

7.2.1 Assigning the ROUTER Number

To assign the switcher's machine number to the **RC-IR2**, do the following:

1. Point the remote control transmitter at the remote receiver and press the ROUTER key.
2. Press the digit corresponding to the machine number².
This sets and saves the ROUTER number on the **RC-IR2**.

The assigned machine number must always be identical to the setting on the machine

7.2.2 Assigning the GROUP Number

After assigning the ROUTER number, you have to assign the GROUP number

To assign the GROUP number to a unit, do the following:

1. Point the remote control transmitter at the remote receiver and press the GROUP key.
2. Press the digit corresponding to the number of the Group³.
This sets and saves the group number.

¹ The group 11 machines are protocol 2000 switchers that have only one output, so that the output is preset to 1 and you only have to press the input number digit on the selector buttons

² The machine number set up on the unit (for example, via the DIP-switches)

³ According to the specifications in Table 3

Table 2 defines the allocation of machines to groups, and Table 4 defines the group criteria:

Table 3: Group Definition Specifications for Older Machines

Group 1	Products
	SD-7308; VP-61xl/N; 2031n; VS-401, VS-601, VS-801; VS-401N, VS-601N, VS-801N
Group 2	Products
	VS-402, VS-602, VS-802, VS-1202 (BUS A)
Group 3	Products
	VS-402, VS-602, VS-802, VS-1202 (BUS B)
Group 4	Products
	2081; VS-2481, 2016; VS-2053
Group 5¹	Products
	VS-4x4YC
Group 6¹	Products
	VS-5x4
Group 7	Products
	2088; 2288
Group 9	Products
	2066; 2466
Group 10¹	Products
	2516; 2216, 2616
Group 12²	Products
	2516, 2216, 2616; VP-24; VP-4x4, VS-4x4YC; VS-5x4; VP-813; VS-812; VS-804xl; VS-848; VS-12114; VS-1616; VS-162; VS-4228; VS-1604; SD-7316; SD-7388; VP-88, VP-84, VP-82, VP-66, VP-64; VS-1602xl, VS-1202xl, VS-1002xl; VS-804YC, VS-806YC, VS-808xl; VS-606xl, VS-646; VS-402, VS-602; VS-401xlm, VS-601xlm, VS-801xlm, VS-1001xl, VS-1201xl; VS-411, VS-611, VS-811, VS-1011, VS-1211; SD-7588A, SD-7588V, VS-88A, VS-88V, VP-108, VP-23xl, VP-25xl, VP-1608
Group 14	Products
	VS-120
Group 15¹	Products
	VS-401xl, VS-601xl, VS-801xl, VS-1001xl, VS-1201xl; VS-411, VS-611, VS-811, VS-1011, VS-1211
Group 16	Products
	VS-2042
Group 17	Products
	VP-23; VP-25
Group 18	Products
	VS-606, VS-808
Group 20	Products
	VS-1616A, VS-1616V, VS-1616AD, VS-162V, VS-1616SDI, VS-162AV; VP-81N, VP-161, VP-321; VS-1002, VS-1202; VS-1602, VS-1604, VS-1604YC

1 Old protocol

2 New Kramer Protocol-2000 (version 3.1)

3 Use a cross connection (or Null-modem adapter), as section 5.2 of the user manual: IR-1 and IR-1-01 describes

4 When operating the VS-1211 unit, in group 12 (but not group 15), press the (input) # key twice

Table 2 is valid as per January 2004. Newer machines (using Protocol 2000) may be programmed for Group 12 or 11.

Table 4: Group Definition Criteria for Older Machines

Group	Speed ¹
1, 2, and 3	1200
4, 5, 6, 7, 9, 10 12, 14, 15, 16, 17, 18 and 20	9600

Group	Maximum # of Units per Group
Groups 7 ² , 9 and 10	1
Groups 1, 2, 3, 5, 6, 15, 17, and 18	8
Groups 4, 12, 14, and 16	16

7.3 Using the RC-IR2 keys in the ROUTER Mode

The following sections describe how to:

- Use the <-> and <--> keys for selecting the single or the double digit modes (see section 7.3.1)
- Switch an input to an output (see section 7.3.2)
- Use the STO and RCL keys for storing and recalling switcher settings (see section 7.3.3)
- Use the TAKE key (see section 7.3.4)
- Use the VIDEO AUDIO and AFV keys (see section 7.3.5)

7.3.1 The <0/10> Selector Key

The <0/10> key represents either 0 or 10 depending on the digit mode:

- When the single-digit mode is selected, by pressing the <-> key, the selector button <0/10> represents 10 (in the sequence from 1 to 20)
- When the double-digit mode is selected, by pressing the <--> key, the selector button <0/10> represents 0 (in a sequence from 01 to 99)

For example, to select 5 in the single-digit mode, press <5> and when in the double-digit mode, press <0/10> and <5>.

¹ Baud (with no parity, 8 data bits and 1 stop bit)

² One video unit and one audio unit

7.3.2 Switching an Input to an Output

To switch an input to an output after assigning the machine number and group number, do the following:

1. Press a Selector key number for the output¹.
2. Press a Selector key number for the input.

For example, to switch INPUT 3 to OUTPUT 5 on a switcher, press <5> and then <3> (in the single digit mode).

In the double-digit mode, press the <--> key and then <0/10>, <5> and <0/10>, <3>.

7.3.3 The STO and RCL Keys

You can store and recall input/output configurations² using the selector keys.

7.3.3.1 Storing an Input/Output Configuration

To store the current status in memory, do the following:

1. Press the STO key.
2. Press one of the Selector keys (this will be the setup # in which the current status is stored).

The memory stores the data at that reference.

7.3.3.2 Recalling an Input/Output Configuration

To recall an input/output configuration, do the following:

1. Press the RCL key.
2. Press the appropriate Selector key (the key # corresponding to the setup #).
The memory recalls the stored data from that reference.

¹ When switching units categorized in group 11 and in groups 1, 2, 3, 4, 14, 15 and 16, ignore step 1 which is inapplicable to units with just one output

² Check the switcher's user manual to determine the number of configurations you can store. For example for the VP-66ETH, you can store up to six configurations

7.3.4 The TAKE Key

You can use the TAKE key to key-in several actions and then confirm them by pressing the TAKE key, to simultaneously activate the multiple switches.

Otherwise:

- OUT-IN combinations can be executed one at a time
- Pressing an OUT-IN combination implements the switch immediately
- No protection is offered to allow the correction of an erroneous action before it is implemented

The TAKE key on **RC-IR2** can be used regardless of the state of the TAKE button on the switcher.

7.3.4.1 Confirming a Switching Action

To confirm an action, using the TAKE key, point the remote control transmitter at the remote receiver and do the following:

1. Press the TAKE key
2. Press one or more OUT-IN combinations in sequence.
3. Press the TAKE key to confirm and implement the action.

7.3.5 The VIDEO, AUDIO and AFV Keys

You can switch stereo audio signals in one of two ways, either:

- Audio-follow-video (AFV), in which all operations relate to both the video and the audio channels; or
- Breakaway, in which video and audio channels switch independently

7.3.5.1 Setting the Audio-Follow-Video Option

To set the Audio-follow-video (AFV) option, press the AFV key:

- If the AUDIO and VIDEO configurations are the same, then the AFV button illuminates. The audio will follow the video
- If the AUDIO differs from the VIDEO, then Press the TAKE button to confirm the modification. The audio will follow the video

7.3.5.2 Setting the Breakaway Option

To set the Breakaway option:

- Press the VIDEO (for video control only) key. The VIDEO button on the machine illuminates, and switching operations relate to Video
- Press the AUDIO (for audio control only) key. The AUDIO button on the machine illuminates, following audio switching operations

7.4 Controlling a Presentation Switcher

This section describes how to control Presentation Switchers using the **RC-IR2**. To control the:

- **VP-23N** and the **VP-23RC**, see section 7.4.1
- **VP-26**, see section 7.4.2

7.4.1 Controlling the VP-23N¹ via the RC-IR2

You can control the **VP-23N Presentation Switcher** using the **RC-IR2** to do the following:

- Switch inputs to outputs (see section 7.4.1.1)
- Adjust the volume (see section 7.4.1.2)

7.4.1.1 Switching an Input to an Output

The **VP-23N Presentation Switcher** includes three independent switchers and one Master audio switcher. Each independent switcher has one output and the remote controller defines each group as illustrated in Figure 4.

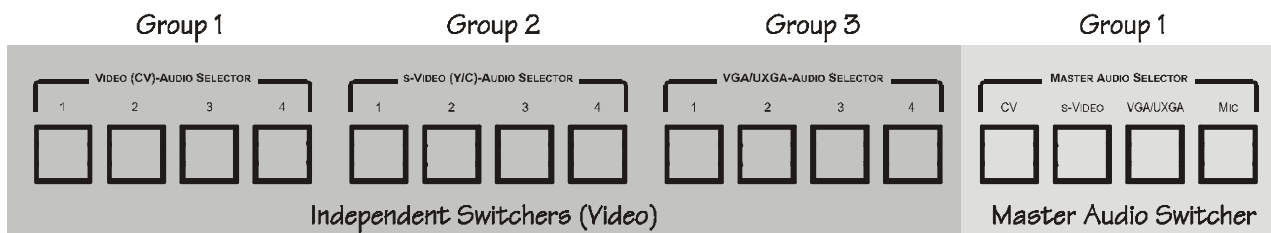


Figure 4: VP-23N Switcher Selector Buttons

The independent switchers are defined in groups, as described in Table 5. The Master Audio is defined as Group 1.

Table 5: Groups Definitions for the VP-23N / VP-23RC

The Switcher Group	Is defined as:
Video (CV)	1
s-Video (Y/C)	2
VGA/UXGA	3

¹ Also applies to the VP-23RC

To switch an input to an output, point the remote control transmitter at the remote receiver and do the following:

1. Press the VIDEO key.
2. Press the group number¹ and then press any key from <1> to <4> to switch an input to the output.

For example, to switch input 3 in the s-Video group to the output:

- Press the VIDEO key
- Press 2
- Press 3

To switch the master audio switcher, point the remote control transmitter at the remote receiver and do the following:

1. Press the AUDIO key.
2. Press <1> and then press any key from <1> to <4> to switch an input to the Master Audio Output.

7.4.1.2 Adjusting the Volume of the VP-23N

You can increase and/or decrease the volume² of the **VP-23N** using the **RC-IR2** remote control transmitter.

Increasing the Volume of the VP-23N

The volume level on the **VP-23N Presentation Switcher** can be adjusted separately for the audio output of each individual switcher, as well as for the microphone input and the Master audio output.

To increase the volume, point the remote control transmitter at the remote receiver and do the following:

1. Press the VOL+ key.
2. Press the numeral key defining the audio signal³ continuously until the volume increase is satisfactory.

1 From 1 to 3 according to Table 5

2 The volume adjustment procedure is slightly different for presentation switchers, for example, the VP-23N or the VP23RC

3 See Table 6. For example, to adjust the microphone audio level, press the <4> key

Table 6: Audio Output Type Key for the VP-23N/VP-23RC

Press key:	To adjust the audio level of the:
1	CV group
2	s-Video group
3	VGA group
4	Microphone
5	Master audio out

Decreasing the Volume of the VP-23N

To increase the volume, point the remote control transmitter at the remote receiver and do the following:

1. Press the VOL- key.
2. Press the numeral key defining the audio signal³ continuously until the volume decrease is satisfactory.

7.4.2 Controlling the VP-26 via the RC-IR2

You can control the **VP-26 Presentation Switcher** using the **RC-IR2** to do the following:

- Switch inputs to outputs (see section 7.4.2.1)
- Adjust the volume (see section 7.4.2.2)

7.4.2.1 Switching an Input to an Output

The **VP-26 Presentation Switcher** includes four independent switchers and one Master audio switcher. Each independent switcher has two outputs and the remote controller defines the groups as illustrated in Table 7.

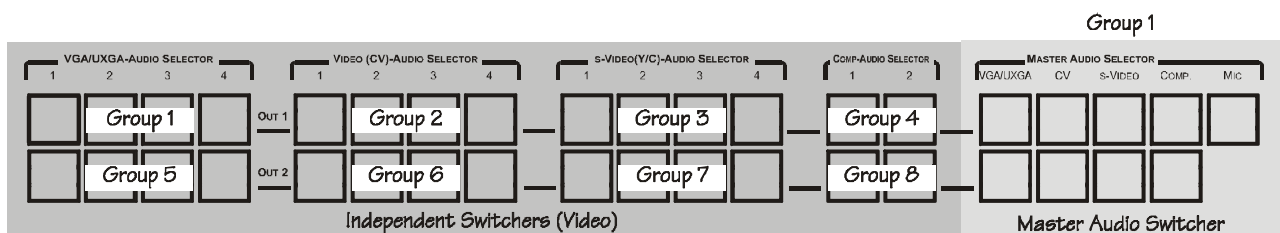


Figure 5: VP-26 Switcher Selector Buttons

The independent switchers are defined in groups, as described in Table 7. The Master audio is defined as Group 1.

Table 7: Groups Definitions for the VP-26

The Switcher Group	Is defined as:
VGA/UXGA 1	1
Video (CV) 1	2
s-Video (Y/C) 1	3
Comp 1	4
VGA/UXGA 2	5
Video (CV) 2	6
s-Video (Y/C) 2	7
Comp 2	8

To switch an input to an output, point the remote control transmitter at the remote receiver and do the following:

1. Press the VIDEO key.
2. Press the group number¹ and then press any key from <1> to <4>² to switch an input to the output.

For example, to switch input 3 in the s-Video group to OUTPUT 2:

- Press the VIDEO key
- Press 7
- Press 3

To switch the master audio switcher, point the remote control transmitter at the remote receiver and do the following:

1. Press the AUDIO key.
2. Press <1> and then press any key (according to the audio output type key in Table 8) to switch an input to the Master Audio Output.

7.4.2.2 Adjusting the Volume of the VP-26

You can increase and/or decrease the volume³ of the **VP-26** using the **RC-IR2** remote control transmitter.

Increasing the Volume of the VP-26

The volume level on the **VP-26 Presentation Switcher** can be adjusted separately for the audio output of each individual switcher, as well as for the microphone input and the Master audio output.

1 From 1 to 8 according to Table 5

2 Or from 1 to 2 for the component video groups

3 The volume adjustment procedure is slightly different for presentation switchers, for example, the VP-23N or the VP23-RC

To increase the volume, point the remote control transmitter at the remote receiver and do the following:

1. Press the VOL+ key.
2. Press the numeral key defining the audio signal¹ continuously until the volume increase is satisfactory.

Table 8: Audio Output Type Key for VP-26

Press key:	To adjust the audio level of the:
1	VGA/UXGA 1 group
2	Video (CV) 1 group
3	s-Video (Y/C) 1 group
4	Comp 1 group
5	VGA/UXGA 2 group
6	Video (CV) 2 group
7	s-Video (Y/C) 2 group
8	Comp 2 group
9	Master audio out
10	Microphone

Decreasing the Volume of the VP-26

To increase the volume, point the remote control transmitter at the remote receiver and do the following:

1. Press the VOL- key.
2. Press the numeral key defining the audio signal³ continuously until the volume decrease is satisfactory.

7.5 Controlling an Expanded Series 16x16 Matrix Switcher

You can control an expanded series 16x16 matrix switcher, using the **RC-IR2**. For example, when using two **VS-1616V** units to form a 32x16 switcher², set both **VS-1616V** units as MACHINE # 1³. Using the setup commands, on the first **VS-1616V** unit, set the IR REMOTE control to ON, and on the second **VS-1616V** unit, set the IR REMOTE control to OFF⁴.

When a switcher has no built-in front panel remote receiver, for example, when using 3 **VS-1604** units, set each **VS-1604** unit as MACHINE # 1 and connect an external remote receiver to the first **VS-1604** unit only.

¹ See Table 8. For example, to adjust the microphone audio level, press the <10> key

² See the VS-1616V user manual, section 6.3.1 on page 12

³ As Figure 9 illustrates on page 13 of the VS-1616V user manual

⁴ See the VS-1616V user manual, section 8.10 on page 51

8 Operating in the Scaler Mode

The **RC-IR2** includes the main¹ SCALER functions; other functions can only be accessed via the OSD menu keys.

To recognize a Kramer machine when operating in the Scaler Mode, using the **RC-IR2**, point the remote control transmitter at the remote receiver and do the following:

1. Press the SCALER key.
2. Press the appropriate # key (from 1 to 5), according to the following:
 - For **VP-720xl**, press 1
 - For **VP-719xl**, press 2
 - For **VP-723xl**, press 3
 - For **VP-724xl**, press 4
 - For **VP-725DS** and **VP-725DSA**, press 5

The LED lights once.

The **RC-IR2** is set to Scaler Mode and operates the appropriate machine.

Once the scaler model is selected (using the numeric keys from 1 to 5), you can use the selector buttons from 1 to 18 to select the source.

8.1 The Volume keys in the SCALER Mode

Use the VOL+ and VOL- keys to increase or decrease the volume. For the **VP-725DS** and **VP-725DSA**, the VOL+ and VOL- keys are used to adjust the MASTER AUDIO OUTPUT. You can adjust the volume of the other groups via the OSD menu.

9 Technical Specifications

Table 9 lists the technical specifications:

Table 9: Technical Specifications² of the RC-IR2

	Remote Control Transmitter RC-IR2	External Remote Receiver
Dimensions:	4.5 cm (W) x 2.2 cm (D) x 17.6 cm (H)	8.5 cm (W) x 8.5 cm (D) x 9.5 cm (H)
Power Source:	2 AAA size regular 1.5V alkaline batteries Remote current: 10mA maximum	Power adapter (12V DC Input) 28 mA maximum
Accessories:	Batteries	Attached RS-232 Cable and connector Power adapter

¹ The functions of the SCALER keys are detailed in Table 1

² Specifications are subject to change without notice

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, 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: 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.



Kramer Electronics, Ltd.

Web site: www.kramerelectronics.com

E-mail: info@kramerel.com

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