

**Kramer Electronics, Ltd.**



# **USER MANUAL**

**Model:**

**VS-21A**

*2x1 Component Video / Digital Audio 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 350-plus different models now appear in 8 Groups<sup>1</sup>, which are clearly defined by function.

Congratulations on purchasing your **VS-21A 2x1 Component Video / Digital Audio Switcher**. The Kramer **VS-21A** is ideal for:

- Broadcast, presentation and production facilities
- Home cinema switching
- Ultra high bandwidth signal switching

The package includes the following items:

- **VS-21A 2x1 Component Video / Digital Audio Switcher**
- This user manual<sup>2</sup>

## 2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables<sup>3</sup>

## 3 Overview

The high resolution **VS-21A 2x1 Component Video / Digital Audio Switcher** is a mechanical switcher that can be used for component video and digital audio signals. In particular, the **VS-21A**:

- Uses an “RF” PCB design with 3 ultra high bandwidth channels, providing bandwidth exceeding 1000 MHz (1 GHz), and is therefore suitable for use with almost any common signal

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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 Scalers; and GROUP 8: Cables and Connectors

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

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

- Is housed in a desktop enclosure
- Provides a simple solution for many switching needs and as the design is passive, it does not need power, thus increasing its versatility

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 Kramer VS-21A away from moisture, excessive sunlight and dust

#### 4 Your VS-21A 2x1 Component Video / Digital Audio Switcher

Figure 1, Table 1 and Table 2 define the front and rear panels of the VS-21A:

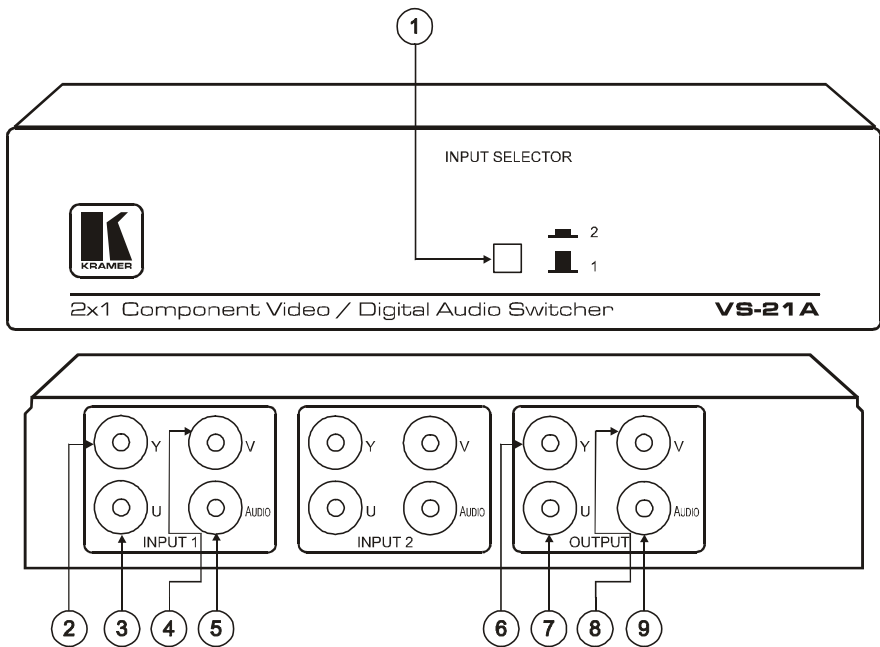


Figure 1: VS-21A 2x1 Component Video / Digital Audio Switcher

Table 1: Front Panel VS-21A 2x1 Component Video / Digital Audio Switcher Features

#	Feature	Function
1	INPUT SELECTOR Switch	Push in to select INPUT 2; release to select INPUT 1

Table 2: Rear Panel VS-21A 2x1 Component Video / Digital Audio Switcher Features

#	Feature			Function
2	INPUT 1 <sup>1</sup>	Component Video	Y RCA Connector	Connects to the component source <sup>1</sup>
3			U RCA Connector	
4			V RCA Connector	
5	AUDIO RCA Connector			Connects to the digital audio source <sup>1</sup>
6	OUTPUT	Component Video	Y RCA Connector	Connects to the component acceptor
7			U RCA Connector	
8			V RCA Connector	
9	AUDIO RCA Connector			Connects to the digital audio acceptor

## 5 Connecting the VS-21A

To connect your **VS-21A**, as illustrated in Figure 2, do the following<sup>2</sup>:

1. Connect the INPUT 1 channels as follows:
  - Connect a component source (for example, a set top box source) to the three YUV<sup>3</sup> RCA connectors
  - Connect a digital audio source to the AUDIO RCA Connector<sup>4</sup> (not illustrated in Figure 2)
2. Connect the INPUT 2 channels as follows:
  - Connect a component source (for example, a Betacam video player) to the three YUV<sup>3</sup> RCA connectors
  - Connect a digital audio source to the AUDIO RCA Connector
3. Connect the OUTPUT channels as follows:
  - Connect the three YUV<sup>5</sup> OUTPUT RCA connectors to a component acceptor (for example, a plasma display)
  - Connect the AUDIO RCA connector to a digital audio acceptor (not illustrated in Figure 2)
4. Push in the front panel *INPUT SELECTOR* switch to route input 2, or release it to route input 1.

1 Same for INPUT 2

2 Switch OFF the power on each device before connecting it to your VS-21A. After connecting your VS-21A, switch on the power on each device

3 Connect the Y component video channel to RCA connector Y; Connect the B-Y component video channel to RCA connector U; Connect the R-Y component video channel to RCA connector V

4 Or an analog mono unbalanced source

5 Connect the Y RCA connector to the Y component video channel; Connect the U RCA connector to the B-Y component video channel; Connect the V RCA connector to the R-Y component video channel

## Connecting the VS-21A

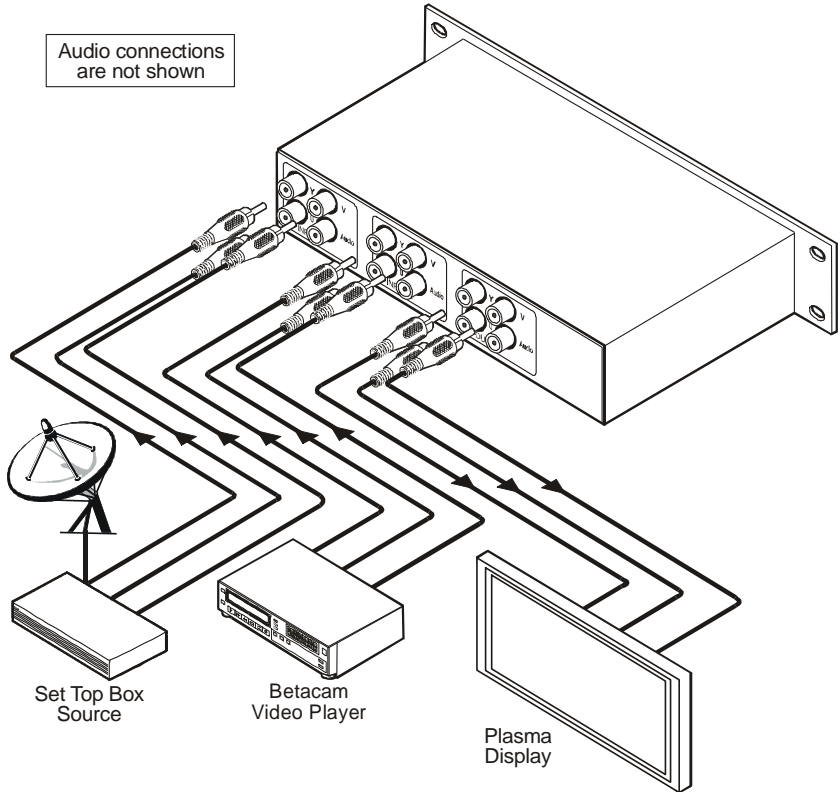


Figure 2: Connecting the VS-21A

## 6 Technical Specifications

Table 3 includes the technical specifications:

*Table 3: Technical Specifications<sup>1</sup> of the VS-21A*

INPUTS:	2 sets of component video (YUV) and audio mono unbalanced, on RCA female connectors	
OUTPUTS:	1 set of component video (YUV) and audio mono unbalanced, on RCA female connectors	
BANDWIDTH (-3dB):	VIDEO: YUV, 700MHz	AUDIO: 700MHz
DIFF. GAIN:	0.01%	
DIFF. PHASE:	0.01Deg.	
K-FACTOR:	<0.05%	
S/N RATIO:	VIDEO: 81.4dB, 5MHz	AUDIO: 57dB
VIDEO CROSSTALK (all hostile):	51dB, 5MHz	
CONTROLS:	Channel selector via push button on front panel	
SWITCHING SYSTEM:	Mechanical, "Break-before-make"	
COUPLING:	VIDEO: DC	AUDIO: DC
AUDIO THD + NOISE:	0.085%	
AUDIO 2nd HARMONIC:	0.005%	
POWER SOURCE:	Not fed - mechanical	
DIMENSIONS:	18.8 cm x 10.2 cm x 4.4 cm (7.4" x 4" x 1.7"), W, D, H	
WEIGHT:	0.64 kg. (1.4 lbs.) approx.	

<sup>1</sup> Specifications are subject to change without notice

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## 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](http://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](http://www.kramerelectronics.com), where updates to this user manual may be found. We welcome your questions, comments and feedback.**



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**Kramer Electronics, Ltd.**

Web site: [www.kramerelectronics.com](http://www.kramerelectronics.com)

E-mail: [info@kramerel.com](mailto:info@kramerel.com)

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