



KRAMER ELECTRONICS LTD.

# USER MANUAL

MODELS:

**VS-41AV**

4x1 Audio-Video Switcher

**VS-101AV**

10x1 Video/Audio-Stereo  
Switcher

**VS-4X**

4x1 Balanced Audio Switcher

## VS-41AV, VS-101AV, VS-4X Quick Start Guide

This page guides you through a basic installation and first-time use of your products. For more detailed information, see the **VS-41AV, VS-101AV, VS-4X** User Manual. You can download the latest manual at <http://www.kramerelectronics.com>.

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

- VS-41AV or VS-101AV or VS-4X
- 4 Rubber feet
- 1 Quick Start sheet
- 1 User Manual

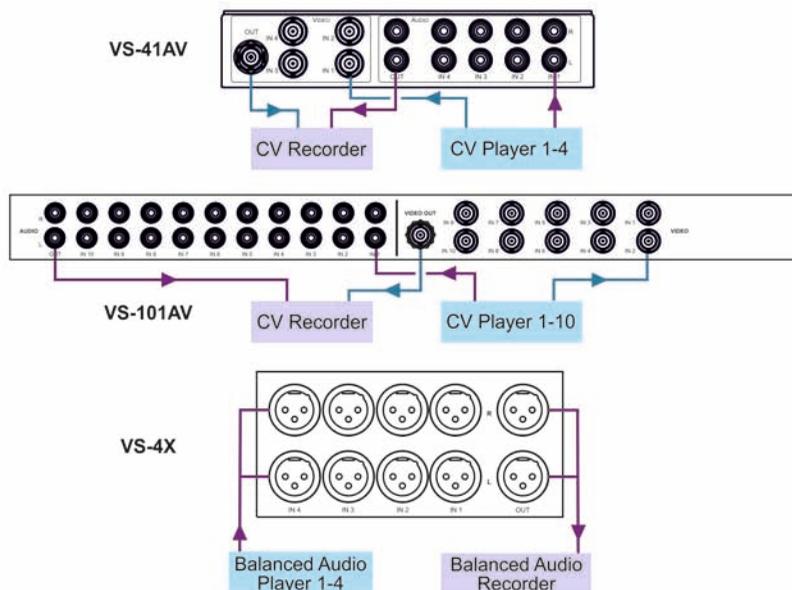


Save the original box and packaging in case your product needs to be returned to the factory for service.

### Step 2: Install the VS-41AV, VS-101AV, VS-4X

Mount the **VS-41AV** in a rack (using the **RK-81** rack adapter),  
mount the **VS-4X** in a rack (using the **RK-4X** rack adapter),  
mount the **VS-101AV** in a 19" rack, or place the unit on a table.

### Step 3: Connect the inputs and outputs



Always use Kramer high-performance cables for connecting AV equipment to your products.

### Step 4: Operate the Product

Press the **INPUT SELECTOR** button to switch the selected input to the output.

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Getting Started</b>	<b>2</b>
2.1	Achieving the Best Performance	2
<b>3</b>	<b>Overview</b>	<b>3</b>
3.1	Defining the VS-41AV 4x1 Audio-Video Switcher	4
3.2	Defining the VS-101AV 10x1 Video/Audio-Stereo Switcher	5
3.3	Defining the VS-4X 4x1 Balanced Audio Switcher	6
<b>4</b>	<b>Connecting and Operating the Switchers</b>	<b>7</b>
4.1	Connecting the VS-41AV 4x1 Audio-Video Switcher	8
4.2	Connecting the VS-101AV 10x1 Video/Audio-Stereo Switcher	9
4.3	Connecting the VS-4X 4x1 Balanced Audio Switcher	10
4.4	Operating the Switchers	10
<b>5</b>	<b>Technical Specifications</b>	<b>11</b>

## Figures

Figure 1: VS-41AV 4x1 Audio-Video Switcher	4
Figure 2: VS-101AV 10x1 Video/Audio-Stereo Switcher	5
Figure 3: VS-4X 4x1 Balanced Audio Switcher	6
Figure 4: Connecting the VS-41AV	8
Figure 5: Connecting the VS-101AV	9
Figure 6: Connecting the VS-4X	10

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# 1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: 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 and GROUP 11: Sierra Products.

Congratulations on purchasing your Kramer **VS-41AV, VS101AV, VS-4X** switchers that are ideal for the following typical applications:

- Small editing systems
- Security, CCTV, and home theater systems
- Any application where a passive “hard-wired” signal path is preferred

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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
- Use Kramer high-performance, high-resolution cables



Go to <http://www.kramerelectronics.com> 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 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 products away from moisture, excessive sunlight and dust

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## 3 Overview

This section defines the three mechanical Kramer switchers:

- **VS-41AV** *4x1 Audio-Video Switcher* (see [Section 3.1](#))
- **VS-101AV** *10x1 Video/Audio-Stereo Switcher* (see [Section 3.2](#))
- **VS-4X** *4x1 Balanced Audio Switcher* (see [Section 3.3](#))

### 3.1 Defining the VS-41AV 4x1 Audio-Video Switcher

The **VS-41AV** is a high-performance mechanical switcher for composite video and unbalanced stereo audio signals. It switches any one of four inputs to a single output.

The **VS-41AV** features:

- High bandwidth of 520MHz (-3dB)
- Mechanical (passive) switching that requires no power
- Compact desktop size. Two units can be rack mounted side-by-side in a 1U rack space with the optional **RK-81** adapter

[Figure 1](#) defines the **VS-41AV**.

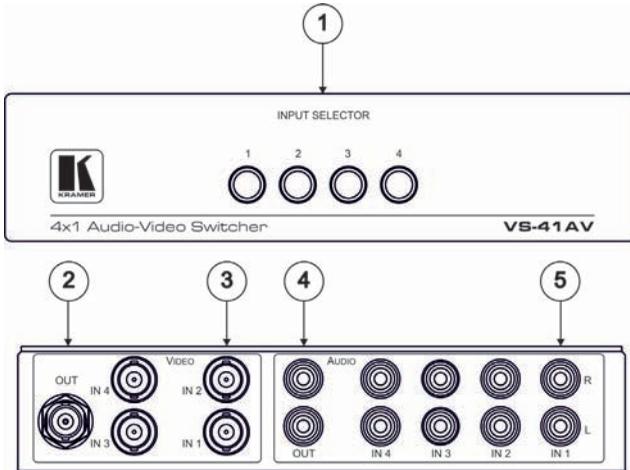


Figure 1: VS-41AV 4x1 Audio-Video Switcher

#	Feature	Function
1	<i>INPUT SELECTOR</i> Buttons (1-4)	Press to choose which input to switch to the output
2	<i>VIDEO OUT</i> BNC Connector	Connect to a composite video acceptor
3	<i>VIDEO IN (1-4)</i> RCA Connectors	Connect to up to 4 composite video sources
4	<i>AUDIO OUT</i> RCA Connectors	Connect the right and left channels to an unbalanced stereo audio acceptor
5	<i>AUDIO IN (1-4)</i> RCA Connectors	Connect the right and left channels to up to 4 unbalanced stereo audio sources

### 3.2 Defining the VS-101AV 10x1 Video/Audio-Stereo Switcher

The **VS-101AV** is a high-performance switcher for composite video and unbalanced audio signals. It switches any one of 10 composite video and unbalanced stereo audio signals to a single composite output.

The **VS-101AV** features:

- High bandwidth of 500MHz (-3dB)
- Mechanical (passive) switching that requires no power
- A standard 19" rack mount size of 1U.

[Figure 2](#) defines the **VS-101AV**.

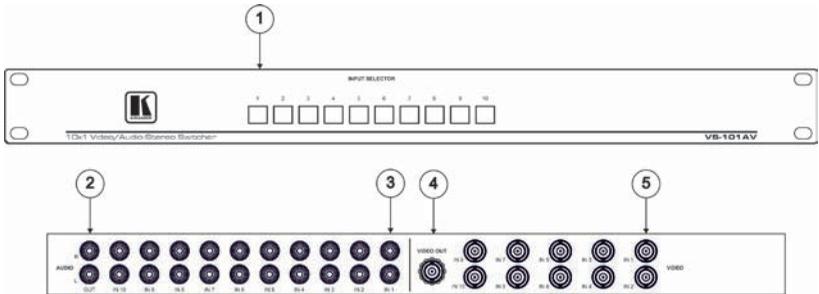


Figure 2: VS-101AV 10x1 Video/Audio-Stereo Switcher

#	Feature	Function
1	INPUT SELECTOR Buttons (1-10)	Press to choose which input to switch to the output
2	AUDIO OUT RCA Connectors	Connect the right and left channels to an unbalanced stereo audio acceptor
3	AUDIO IN (1-10) RCA Connectors	Connect the right and left channels to up to 10 unbalanced stereo audio sources
4	VIDEO OUT BNC Connector	Connect to a composite video acceptor
5	VIDEO IN (1-10) RCA Connectors	Connect to up to 10 composite video sources

### 3.3 Defining the VS-4X 4x1 Balanced Audio Switcher

The **VS-4X** is a high-performance switcher for balanced stereo audio signals on XLR connectors. It switches any one of four stereo signals to a single stereo output.

- Mechanical (passive) switching that requires no power
- Compact desktop size. Two units can be rack mounted side-by-side in a 1U rack space with the optional **RK-4X** adapter

[Figure 3](#) defines the **VS-4X**.

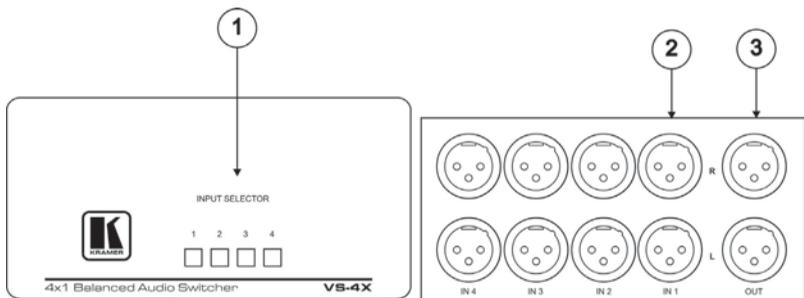


Figure 3: VS-4X 4x1 Balanced Audio Switcher

#	Feature	Function
1	<i>INPUT SELECTOR</i> Buttons (1-4)	Press to choose which input to switch to the output
2	<i>IN</i> (1-4) XLR Connectors	Connect the right and left channels to up to 4 balanced stereo audio sources
3	<i>OUT</i> XLR Connectors	Connect the right and left channels to a balanced stereo audio acceptor

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## 4 Connecting and Operating the Switchers

This section describes how to connect and operate the three mechanical Kramer switchers:

- **VS-41AV** *4x1 Audio-Video Switcher* (see [Section 4.1](#))
- **VS-101AV** *10x1 Video/Audio-Stereo Switcher* (see [Section 4.2](#))
- **VS-4X** *4x1 Balanced Audio Switcher* (see [Section 4.3](#))

## 4.1 Connecting the VS-41AV 4x1 Audio-Video Switcher

To connect the **VS-41AV** as illustrated in the example in [Figure 4](#):

1. Connect up to 4 CV sources (for example, composite video players 1-4) to the VIDEO IN BNC connectors.
2. Connect up to 4 unbalanced stereo audio sources (for example, the audio output from composite video players 1-4) to the right and left channels of the AUDIO IN RCA connectors.
3. Connect the VIDEO OUT BNC connector to a CV acceptor (for example, a composite video recorder).
4. Connect the right and left channels of the AUDIO OUT RCA connectors to an audio acceptor (for example, the audio input to the composite video recorder).

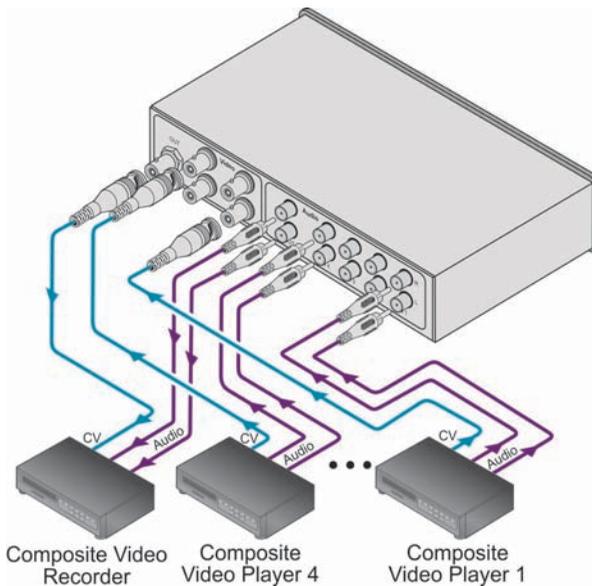


Figure 4: Connecting the VS-41AV

## 4.2 Connecting the VS-101AV 10x1 Video/Audio-Stereo Switcher

To connect the **VS-101AV** as illustrated in the example in [Figure 5](#):

1. Connect up to 10 CV sources (for example, composite video players 1-10) to the VIDEO IN BNC connectors.
2. Connect up to 10 unbalanced stereo audio sources (for example, the audio output from composite video players 1-10) to the right and left channels of the AUDIO IN RCA connectors.
3. Connect the VIDEO OUT BNC connector to a CV acceptor (for example, a composite video recorder).
4. Connect the right and left channels of the AUDIO OUT RCA connectors to an audio acceptor (for example, the audio input to the composite video recorder).

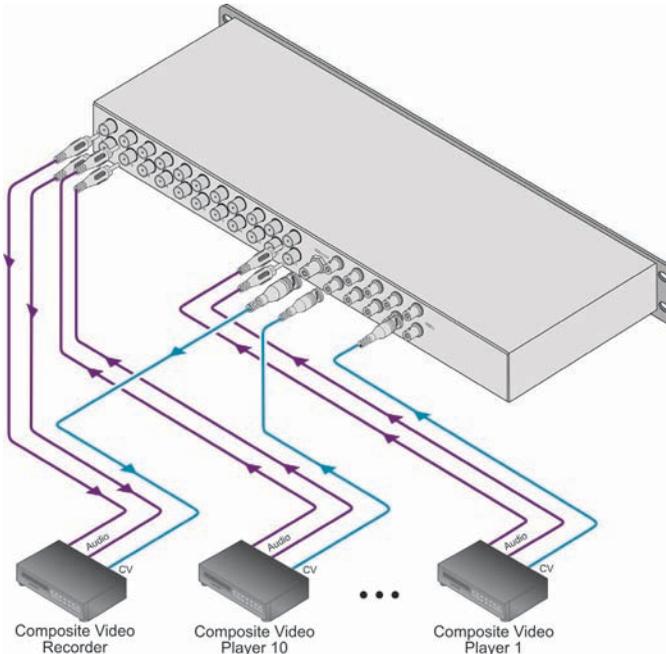


Figure 5: Connecting the VS-101AV

## 4.3 Connecting the VS-4X 4x1 Balanced Audio Switcher

To connect the **VS-4X** as illustrated in the example in [Figure 6](#):

1. Connect up to 4 balanced stereo audio sources (for example, balanced audio players 1-4) to the right and left channels of the IN XLR connectors.
2. Connect the right and left channels of the OUT XLR connectors to an audio acceptor (for example, a balanced stereo audio recorder).

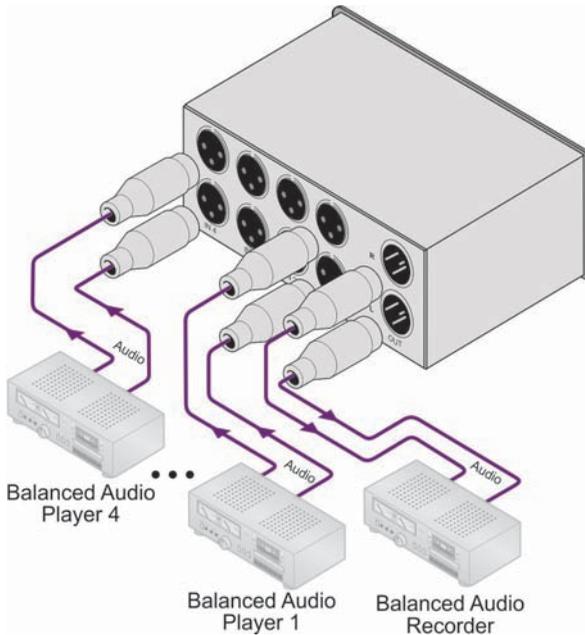


Figure 6: Connecting the VS-4X

## 4.4 Operating the Switchers

To switch the desired input to the output, press the appropriate INPUT SELECTOR button. In the **VS-41AV** or **VS-101AV** switchers, audio and video inputs switch at the same time in audio-follow-video mode.

## 5 Technical Specifications

	VS-41AV	VS-101AV	VS-4X
INPUTS:	4 video, 1Vpp/75Ω on BNC connectors, 4 stereo audio, +4dBu typical, on RCA connectors	10 video, 1Vpp/75Ω on BNC connectors, 10 unbalanced stereo audio, +4dBu typical, on RCA connectors	4 balanced stereo audio, +4dBu typical, on XLR connectors
OUTPUTS:	1 video, 1Vpp/75Ω on a BNC connector, 1 stereo audio, +4dBu typical, on an RCA connector	1 video, 1Vpp/75Ω on a BNC connector, 1 unbalanced stereo audio, +4dBu typical, on an RCA connector	1 balanced stereo audio, +4dBu typical, on an XLR connector
SWITCHING SYSTEM:	Mechanical, "Break-before-make", Audio- Follow-Video mode	Mechanical, "Break-before-make", Audio- Follow-Video mode	Mechanical, "Break-before-make"
BANDWIDTH:	Video: 520MHz (-3dB) Audio: 100kHz (-3dB)	Video: 500MHz (-3dB) Audio: 100kHz (-3dB)	Audio: 100kHz (-3dB)
CROSSPOINTS:	4 for video, 4x2 for audio, 1 set active at any given time	10 for video, 10x2 for audio, 1 set active at any given time	4x2 for stereo audio
SIGNAL LEVELS:	Video: Up to 3Vpp Audio: +30dBu	Video: Up to 3Vpp Audio: +30dBu	Up to +30dBu
DIMENSIONS (W, D, H):	18.8cmx10.2cmx4.4cm (7.4" x 4" x 1.7")	48.3cmx10.2cmx4.4cm (19" x 4" x 1U)	15.3cmx6.6cmx7.6cm (6" x 2.6" x 3")
WEIGHT:	0.65kg(1.44lbs) approx	1.5kg (3.3lbs) approx	0.57kg (1.27lbs) approx
OPTIONS:	RK-81 19" rack adapter		RK-4X 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.

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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