

**Kramer Electronics, Ltd.**



# **USER MANUAL**

**Model:**

**VS-2DVA**

*2x1 DVI / XGA / 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 500-plus different models now appear in eight groups<sup>1</sup> that are clearly defined by function.

Congratulations on purchasing your **VS-2DVA 2x1 DVI / XGA<sup>2</sup> / Audio Switcher**. This product is ideal for:

- Presentation and multimedia applications
- Preview and monitoring graphics and audio signals

The package includes the following items:

- **VS-2DVA 2x1 DVI / XGA<sup>2</sup> / Audio Switcher**
- Power adapter (12V DC Input)
- This user manual<sup>3</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>4</sup>

### 2.1 Quick Start

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

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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 Sealers; and GROUP 8: Cables and Connectors

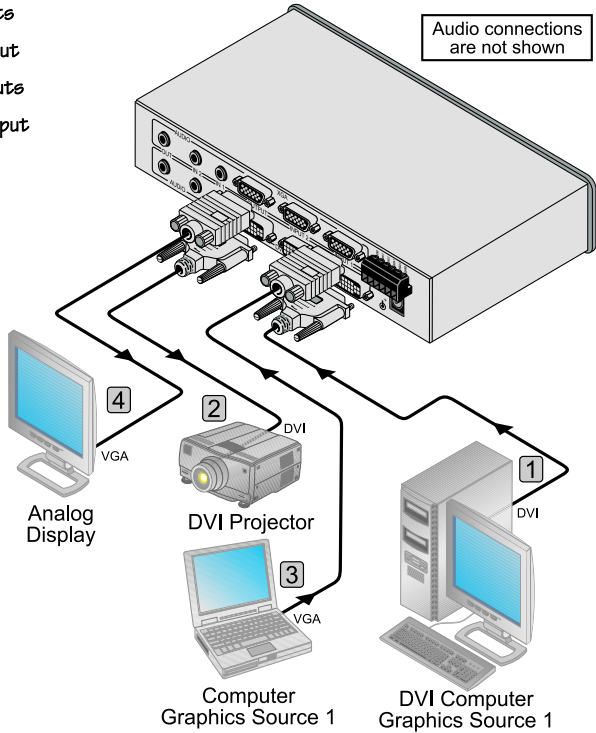
2 Handles all known computer video resolutions (VGA to UXGA)

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

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

**Step 1: Connect the inputs and the outputs - see section 5**

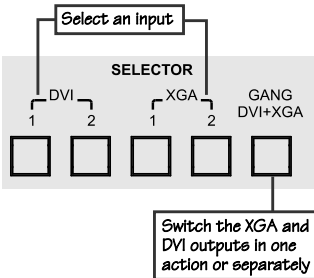
- 1 Connect the DVI inputs
- 2 Connect the DVI output
- 3 Connect the XGA inputs
- 4 Connect the XGA output



**Step 2: Connect the power**

**Step 3: Operate the machine - see section 6**

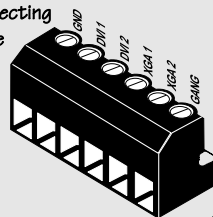
VIA THE FRONT PANEL BUTTONS



VIA THE REMOTE PINS

By momentarily connecting the appropriate input PIN (DVI or XGA) to the GND (Ground) PIN

By momentarily connecting the GANG PIN to the GND PIN to switch the XGA and DVI outputs in one action or separately



### 3 Overview

The **VS-2DVA** is an all-in-one 2x1 switcher for DVI, XGA/UXGA<sup>1</sup>, and unbalanced audio signals.

In particular, the **VS-2DVA**:

- Equalizes and reclocks the DVI input, effectively reconstructing and retransmitting the DVI signal
- Has an XGA/UXGA<sup>1</sup> video bandwidth of 340MHz, that ensures transparent operation is achieved at the highest resolutions
- Comes with contact closure remote control for forced operation
- Is housed in a half 19" rack size and is 12VDC fed

In addition, with the high quality **VS-2DVA**, both:

- DVI inputs have their own corresponding audio inputs, and the DVI output has its own audio output
- XGA/UXGA<sup>1</sup> inputs have their own corresponding audio inputs, and the XGA/UXGA output has its own audio output
- DVI and XGA/UXGA<sup>1</sup> signals can be switched separately or ganged (switched together)

Achieving the best performance means:

- Connecting 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)
- Avoiding interference from neighboring electrical appliances and positioning your **VS-2DVA** 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 this unit<sup>2</sup>.

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

### 4 Your VS-2DVA 2x1 DVI / XGA / Audio Switcher

Figure 1 and Table 1 define the **VS-2DVA**:

<sup>1</sup> Handles all known computer video resolutions (VGA to UXGA)

<sup>2</sup> For example: model number AD2512C, part number 2535-000251

## Your VS-2DVA 2x1 DVI / XGA / Audio Switcher

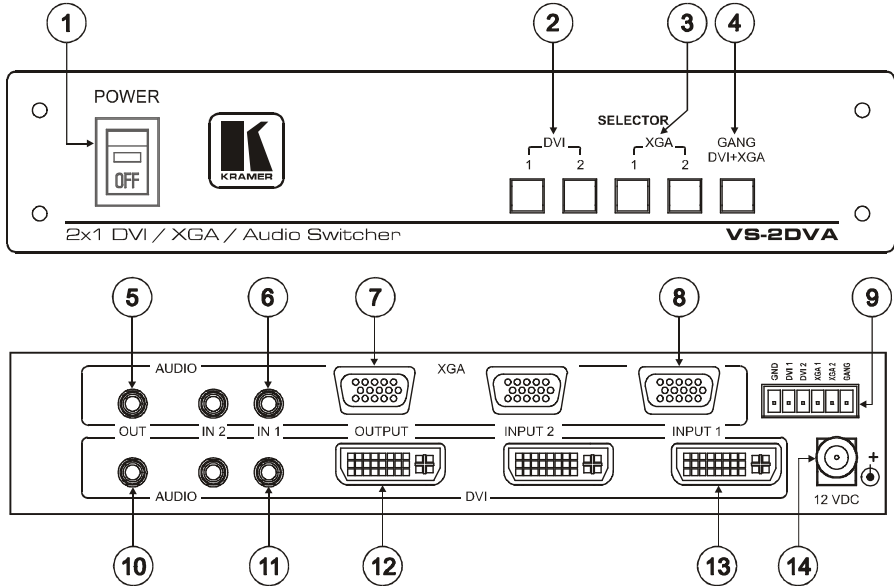


Figure 1: VS-2DVA 2x1 DVI / XGA / Audio Switcher

Table 1: Front Panel VS-2DVA 2x1 DVI / XGA<sup>1</sup> / Audio Switcher Features

#	Feature	Function	
1	POWER Switch	Illuminated switch for turning the unit ON or OFF	
2	SELECTOR Buttons	DVI	Press to select the DVI source (from 1 to 2)
3		XGA <sup>1</sup>	Press to select the XGA <sup>1</sup> source (from 1 to 2)
4		GANG DVI+XGA <sup>1</sup>	Press to toggle between switching the DVI and the XGA <sup>1</sup> signals in one action or separately
5	AUDIO-XGA 3.5mm Mini Jack Connectors	OUT	Connects to the unbalanced stereo audio acceptor that corresponds to the XGA <sup>1</sup> output
6		IN	Connects to the unbalanced stereo audio source that corresponds to the XGA <sup>1</sup> source (from 1 to 2)
7	XGA 15-pin HD Connectors	OUTPUT	Connects to the XGA <sup>1</sup> acceptor
8		INPUT	Connects to the XGA <sup>1</sup> source (from 1 to 2)
9	REMOTE Terminal Block Connector	Connects to dry contact switches	
10	AUDIO-DVI 3.5mm Mini Jack Connectors	OUT	Connects to the unbalanced stereo audio acceptor that corresponds to the DVI output
11		IN	Connects to the unbalanced stereo audio source that corresponds to the DVI source (from 1 to 2)
12	DVI Connector	OUTPUT	Connects to the DVI acceptor
13		INPUT <sup>2</sup>	Connects to the DVI source (from 1 to 2)
14	12V DC	+12V DC connector for powering the unit	

<sup>1</sup> Handles all known computer video resolutions (VGA to UXGA)

<sup>2</sup> Does not support High bandwidth Digital Content Protection (HDCP)

## 5 Connecting the VS-2DVA 2x1 DVI / XGA / Audio Switcher

To connect<sup>1</sup> your **VS-2DVA 2x1 DVI / XGA / Audio Switcher**, as the example in Figure 2 illustrates, do the following<sup>2</sup>:

1. Connect an XGA source (for example, a laptop's digital graphics card) to the INPUT 1 XGA 15-pin HD connector, and connect its audio to the IN 1 3.5mm mini jack<sup>3</sup> (using a separate cable or the Kramer C-GMA/GMA cable<sup>4</sup>: VGA HD15M +Audio jack to VGA HD15M +Audio jack).
2. Connect a DVI source (for example, a DVI computer graphics source) to the DVI INPUT 1 connector, and connect an unbalanced stereo audio source to the corresponding AUDIO input 3.5mm mini jack<sup>3</sup>.
3. Connect the XGA 15-pin HD output connector<sup>5</sup> to the XGA acceptor (for example, an analog display) and connect the corresponding AUDIO output 3.5mm mini jack to an unbalanced stereo audio acceptor<sup>3</sup>.
4. Connect the DVI output connector<sup>5</sup> to the DVI acceptor (for example, a projector) and connect the corresponding AUDIO output 3.5mm mini jack to an unbalanced stereo audio acceptor<sup>3</sup> (for example, the Kramer **903 Personal Stereo Amplifier**).
5. Connect<sup>6</sup> the contact closure remote control PINS (optional), see section 5.1.
6. Connect<sup>6</sup> the 12V DC power adapter (wall transformer) to the 12V DC socket and connect the transformer to the mains electricity.

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1 You do not have to connect all the inputs

2 Switch OFF the power on each device before connecting it to your VS-2DVA. After powering up your VS-2DVA, switch on the power on each device

3 The audio connections are not illustrated in Figure 2

4 Not supplied. The complete list of Kramer cables is on our Web site at <http://www.kramerelectronics.com>

5 You do not have to connect both outputs. For example, if you only want to switch DVI, connect only that output of the VS-2DVA, and leave the XGA output unconnected

6 The connection is not illustrated in Figure 2

Audio connections  
are not shown

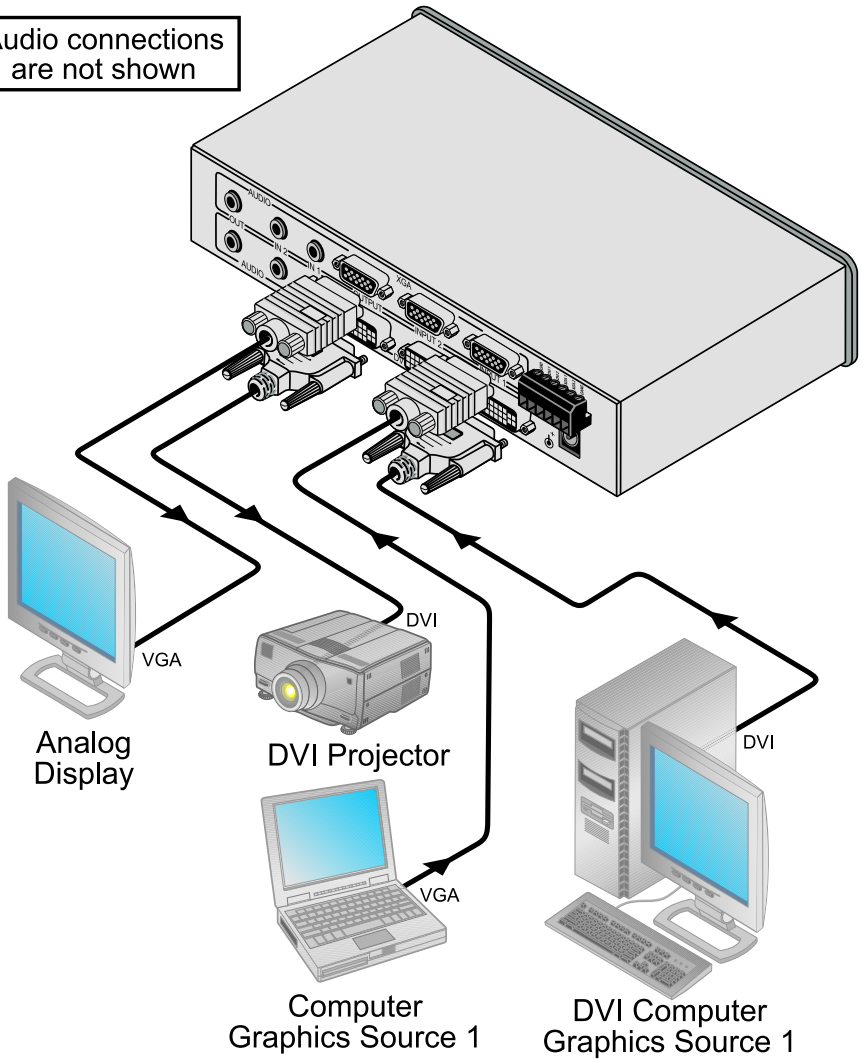


Figure 2: Connecting the VS-2DVA 2x1 DVI / XGA / Audio Switcher



## 5.1 Connecting the Contact Closure Remote Control PINS

You can use the contact closure remote control PINS to:

- Route an input, and its corresponding unbalanced stereo audio output, by remote control
- Toggle the GANG selection, that is, switching the DVI and XGA inputs in a combined action or separately. (By default, at the moment that the GANG function is selected, the DVI selection takes priority over the XGA selection), see section 6.2

To do so, **momentarily** connect the appropriate<sup>1</sup> REMOTE terminal block connector PIN to the REMOTE terminal block connector Ground PIN (see the illustration in Figure 3). The appropriate front panel push button(s) illuminate(s) as the selected input(s) routes to the appropriate output(s).

Do not interconnect PIN DVI 1, PIN DVI 2, PIN XGA 1, PIN XGA 2, or PIN GANG

Do not connect more than one PIN to the Ground PIN at the same time

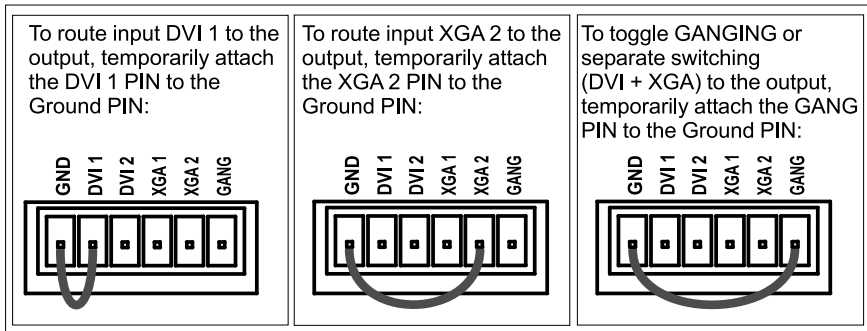


Figure 3: Connecting the Contact Closure Remote Control PINS

<sup>1</sup> To route DVI Input 1, connect PIN DVI 1 to the Ground PIN; to route DVI Input 2, connect PIN DVI 2 to the Ground PIN. To route XGA Input 1, connect PIN XGA 1 to the Ground PIN; to route XGA Input 2, connect PIN XGA 2 to the Ground PIN. To route the GANG, connect PIN GANG to the Ground PIN

## 6 Operating the VS-2DVA 2x1 DVI / XGA / Audio Switcher

The **VS-2DVA** automatically selects DVI INPUT 1 and XGA INPUT 1 when the **VS-2DVA** is turned ON (see Figure 4):

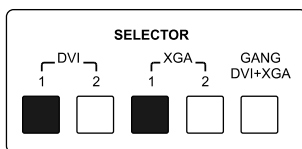


Figure 4: Initial Status of the *SELECTOR* Buttons

You can switch one of the two DVI inputs<sup>1</sup> to the corresponding DVI output<sup>2</sup>, and one of the two XGA inputs<sup>1</sup> to the corresponding XGA output<sup>2</sup>, either:

- Separately, see section 6.1
- Together (Ganged), see section 6.2

### 6.1 Switching DVI and XGA Signals Separately

To switch a DVI input and an XGA input in two separate actions:

- If the GANG (DVI + XGA) button is illuminated, press to toggle for separate selection. The button no longer illuminates
- Press one of the two DVI *SELECTOR* buttons  
The pressed button illuminates, indicating selection and outputting of that video and audio source
- Press one of the two XGA *Selector* buttons  
The pressed button illuminates, indicating selection and outputting of that video and audio source

### 6.2 Switching DVI and XGA Signals Together (Ganged)

To switch a DVI input and an XGA input in a combined action:

- If the GANG (DVI + XGA) button is not illuminated, then press to toggle for GANGED operation  
The button is now illuminated
- Press one of the two DVI or XGA *SELECTOR* buttons  
The pressed button illuminates, together with the XGA or DVI *SELECTOR* button corresponding to the same input number, indicating selection and outputting of those video and audio sources

<sup>1</sup> With its unbalanced stereo audio input

<sup>2</sup> Together with the unbalanced stereo audio output

## 7 Technical Specifications

Table 2 includes the technical specifications:

*Table 2: Technical Specifications<sup>1</sup> of the VS-2DVA 2x1 DVI / XGA / Audio Switcher*

INPUTS:	2 XGA/UXGA <sup>2</sup> on 15-pin HD connectors; with corresponding 2 unbalanced stereo audio 4dBm/50k on 3.5mm mini jacks 2 DVI <sup>3</sup> , 1.2Vpp on DVI Molex 24pin female connectors; DDC signal 5Vpp (TTL); with corresponding 2 unbalanced stereo audio 4dBm/50k on 3.5mm mini jacks	
OUTPUTS:	1 XGA/UXGA <sup>2</sup> on an 15-pin HD connector; with corresponding 1 unbalanced stereo audio 4dBm/50k on a 3.5mm mini jack 1 DVI <sup>3</sup> , 1.2Vpp on a DVI Molex 24pin female connector; DDC signal 5Vpp (TTL); with corresponding 1 unbalanced stereo audio 4dBm/50Ω on a 3.5mm mini jack	
MAX. OUTPUT LEVEL:	VIDEO: 1.6Vpp	AUDIO: 14.2dBm
BANDWIDTH (-3dB):	VIDEO: 340MHz, Fully Loaded	AUDIO: >100kHz
DIFF. GAIN:	0.03%	
DIFF. PHASE:	0.02 deg	
K-FACTOR:	<0.05%	
S/N RATIO:	VIDEO: 74.2dB	AUDIO: 87.3dB
CROSSTALK (all hostile):	VIDEO: -55.9dB	AUDIO: -59dB
COUPLING:	VIDEO: DC	AUDIO: DC
AUDIO THD + NOISE:	0.019%	
AUDIO 2nd HARMONIC:	0.003%	
POWER SOURCE:	12 VDC 280mA	
DIMENSIONS:	21.6cm x 18cm x 4.5cm (8.5" x 7" x 1.7") W, D, H.	
WEIGHT:	1.3kg (2.9lbs.) approx.	
ACCESSORIES:	Power supply (12V, 500mA)	
OPTIONS:	RK-1 19" rack kit	

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

<sup>2</sup> Handles all known computer video resolutions (VGA to UXGA)

<sup>3</sup> On a DVI-I connector. Note that only the digital signal (DVI-D) is available on the DVI connector

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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 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](http://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 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.



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**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.**



**Caution**

**Safety Warning:**

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



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**Kramer Electronics, Ltd.**

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

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