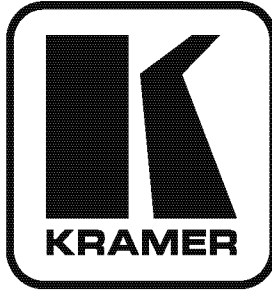


**Kramer Electronics, Ltd.**



# **USER MANUAL**

## **Models:**

**VP-200K, 1:2 High Resolution UXGA DA**

**VP-300K, 1:3 High Resolution UXGA DA**

**VP-400K, 1:4 High Resolution UXGA DA**

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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<sup>1</sup> that are clearly defined by function.

Congratulations on purchasing your Kramer TOOLS **VP-200K 1:2 High Resolution UXGA DA** and/or **VP-300K 1:3 High Resolution UXGA DA** and/or **VP-400K 1:4 High Resolution UXGA DA**, which are ideal for:

- Dual monitor systems, stores, and points of sale
- Presentation systems

The package includes the following items:

- **VP-200K 1:2 High Resolution UXGA DA** and/or **VP-300K 1:3 High Resolution UXGA DA** and/or **VP-400K 1:4 High Resolution UXGA DA**
- One 3' VGA Male/Male Cable<sup>2</sup>
- Power adapter (5V DC Input) and 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>

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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

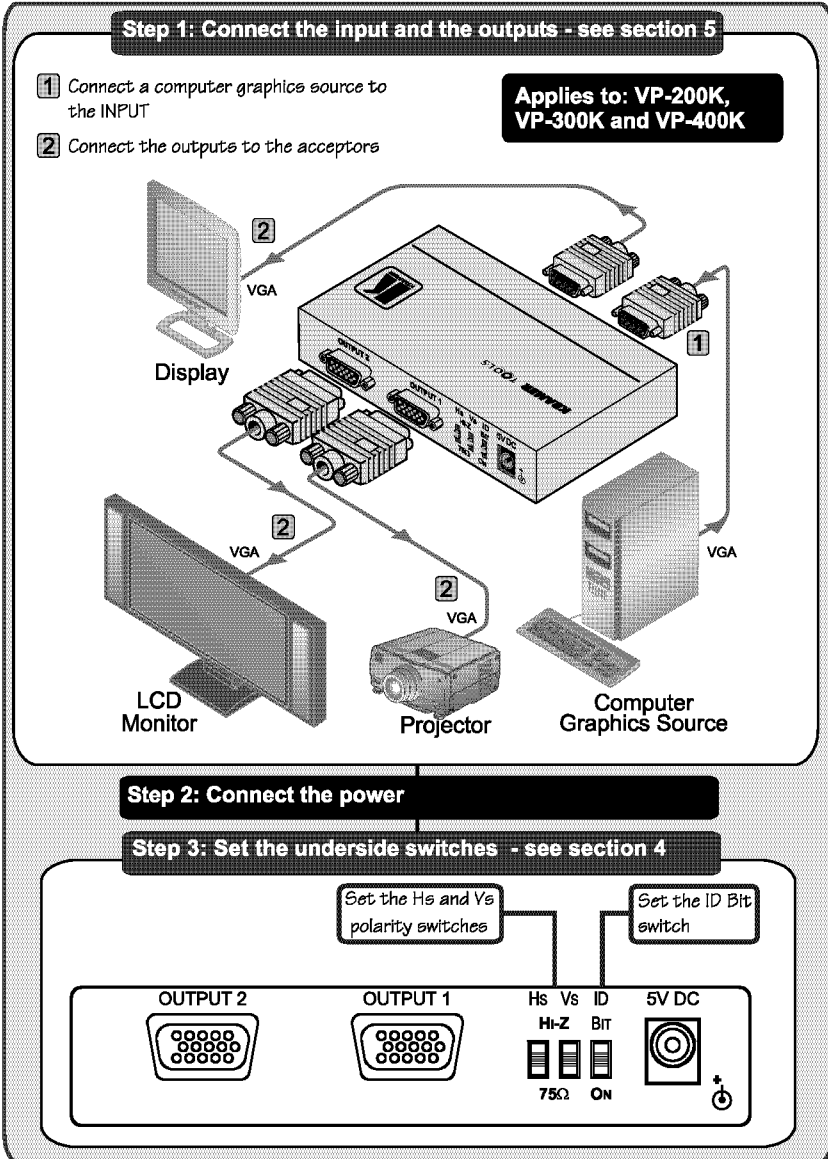
2 Model name: C-GM/GM-3

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>

## 2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps<sup>1</sup>.



### 3 Overview

The Kramer TOOLS **VP-200K**, **VP-300K** and **VP-400K** are 1:2, 1:3 and 1:4 (respectively) distribution amplifiers for UXGA and higher resolution signals.

The **VP-200K**, **VP-300K** and **VP-400K** accept one input, provide correct buffering and isolation, and then distribute the signal to two, three or four (respectively) identical outputs on high-density 15-pin HD connectors.

In particular, the *High Resolution UXGA DA*:

- Has a high video bandwidth exceeding 400MHz, ensuring that it remains transparent even at high-resolution graphics modes such as UXGA (1600x1200)
- Supports DDC (Display Data Channel) communication between the input and output 1 high-density 15-pin HD connectors on pins 11, 12 and 15
- Supports EDID PassThru that passes EDID signals from source to display
- Includes the Kramer innovative integrated sync processing; KR-ISP™ technology, which lets you achieve a sharp, stable image when the sync level is too low, by restoring the sync signal waveform
- Includes an ID Bit control switch as well as polarity switches
- Is 5V DC fed and is housed in a DigiTOOLS® enclosure

#### 3.1 DDC Support

When establishing a VGA connection between a PC or laptop and a display device, a set of parameters known as EDID is exchanged between them, which is carried over the DDC channel. In some PC graphic cards and laptops, this information exchange is essential for proper VGA OUT operation.

#### 3.2 Defining EDID

The Extended Display Identification Data (EDID<sup>1</sup>) is a data-structure, provided by a display, to describe its capabilities to a graphics card (that is connected to the display's source). The EDID enables the PC or laptop to "know" what kind of monitor is connected to the output. The EDID includes the manufacturer's name, the product type, the timing data supported by the display, the display size, luminance data and (for digital displays only) the pixel mapping data.

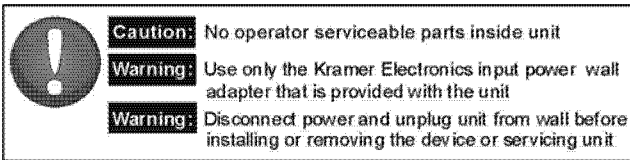
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<sup>1</sup> Defined by a standard published by the Video Electronics Standards Association (VESA)

### 3.3 Recommendations for Best Performance

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 **VP-200K**, **VP-300K** and **VP-400K** away from moisture, excessive sunlight and dust



## 4 Your High Resolution XGA DA

This section defines the:

- **VP-200K 1:2 High Resolution UXGA DA** (see section [4.1](#))
- **VP-300K 1:3 High Resolution UXGA DA** (see section [4.2](#))
- **VP-200K 1:4 High Resolution UXGA DA** (see section [4.3](#))

## 4.1 Your VP-200K 1:2 High Resolution UXGA DA

Figure 1 and Table 1 define the VP-200K:

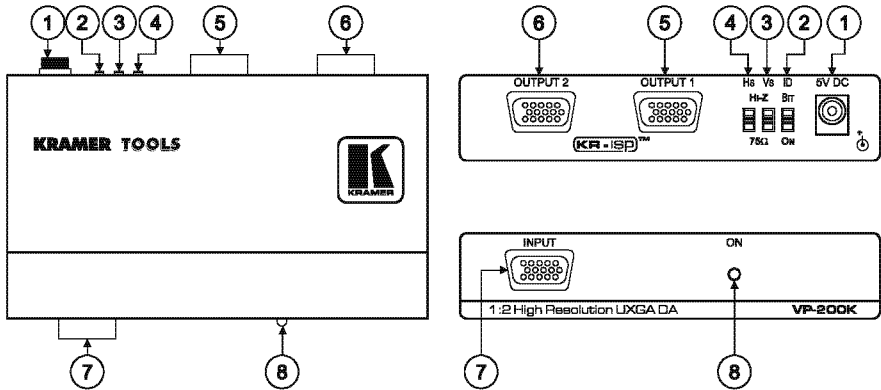


Figure 1: VP-200K 1:2 High Resolution UXGA DA

Table 1: VP-200K 1:2 High Resolution UXGA DA Features

#	Feature	Function
1	5V DC	+5V DC connector for powering the unit
2	ID Bit Switch	Slide down to set to ON <sup>1</sup> ; up to set to OFF <sup>2</sup>
3	Vs (Vertical Sync) Switch	Set both switches <sup>3</sup> to Hi-Z (TTL <sup>4</sup> ) if the source is, for example, a digital graphics card. Set both switches to 75Ω (ANALOG) if the source is analog based, for example, an RGBHV source with coaxial cable for sync
4	Hs (Horizontal Sync) Switch	
5	OUTPUT 1 15-pin HD Connector	Connect to the computer graphics acceptor 1
6	OUTPUT 2 15-pin HD Connector	Connect to the computer graphics acceptor 2
7	INPUT 15-pin HD Connector	Connect to the computer graphics source
8	ON LED	Illuminates when receiving power

1 Enabling the notebook or laptop to output a VGA signal to an external VGA monitor

2 When the source is not a laptop (for example, a PC)

3 Both the Hs and the Vs switches MUST be set identically (no harm will occur to the graphics source if the switches are set to the wrong direction)

4 “Transistor-Transistor Logic” is a term used in digital electronics describing the ability of a device or circuit to be connected directly to the input or output of digital equipment. Such compatibility eliminates the need for interfacing circuitry

## 4.2 Your VP-300K 1:3 High Resolution UXGA DA

Figure 2 and Table 2 define the VP-300K:

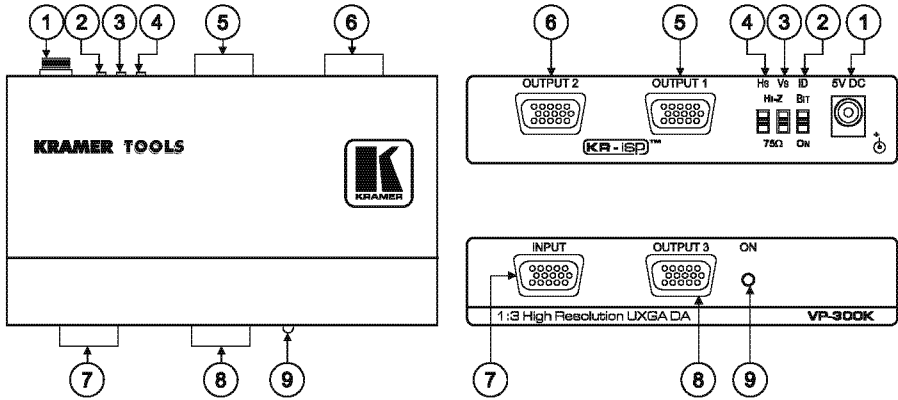


Figure 2: VP-300K 1:3 High Resolution UXGA DA

Table 2: VP-300K 1:3 High Resolution UXGA DA Features

#	Feature	Function
1	5V DC	+5V DC connector for powering the unit
2	ID Bit Switch	Slide down to set to ON <sup>1</sup> ; up to set to OFF <sup>2</sup>
3	Vs (Vertical Sync) Switch	Set both switches <sup>3</sup> to Hi-Z (TTL <sup>4</sup> ) if the source is, for example, a digital graphics card. Set both switches to 75Ω (ANALOG) if the source is analog based, for example, an RGBHV source with coaxial cable for sync
4	Hs (Horizontal Sync) Switch	
5	OUTPUT 1 15-pin HD Connector	Connect to the computer graphics acceptor 1
6	OUTPUT 2 15-pin HD Connector	Connect to the computer graphics acceptor 2
7	INPUT 15-pin HD Connector	Connect to the computer graphics source
8	OUTPUT 3 15-pin HD Connector	Connect to the computer graphics acceptor 3
9	ON LED	Illuminates when receiving power

1 Enabling the notebook or laptop to output a VGA signal to an external VGA monitor

2 When the source is not a laptop (for example, a PC)

3 Both the Hs and the Vs switches MUST be set identically (no harm will occur to the graphics source if the switches are set to the wrong direction)

4 “Transistor-Transistor Logic” is a term used in digital electronics describing the ability of a device or circuit to be connected directly to the input or output of digital equipment. Such compatibility eliminates the need for interfacing circuitry



### 4.3 Your VP-400K 1:4 High Resolution UXGA DA

Figure 3 and Table 3 define the VP-400K:

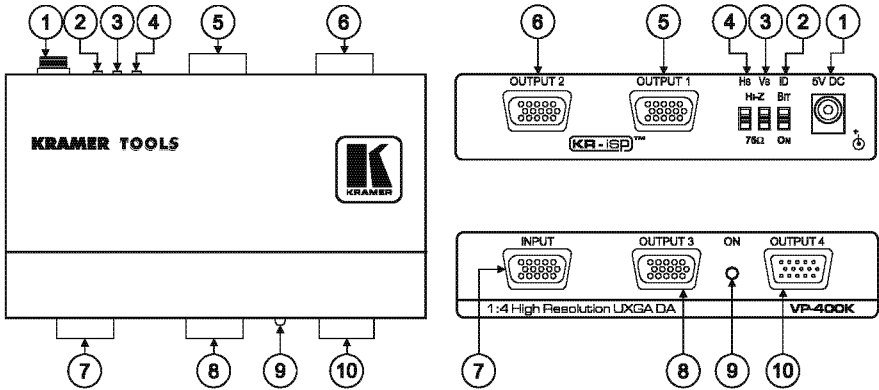


Figure 3: VP-400K 1:4 High Resolution UXGA DA

Table 3: VP-400K 1:4 High Resolution UXGA DA Features

#	Feature	Function
1	5V DC	+5V DC connector for powering the unit
2	ID Bit Switch	Slide down to set to ON <sup>1</sup> ; up to set to OFF <sup>2</sup>
3	Vs (Vertical Sync) Switch	Set both switches <sup>3</sup> to Hi-Z (TTL <sup>4</sup> ) if the source is, for example, a digital graphics card. Set both switches to 75Ω (ANALOG) if the source is analog based, for example, an RGBHV source with coaxial cable for sync
4	Hs (Horizontal Sync) Switch	
5	OUTPUT 1 15-pin HD Connector	Connect to the computer graphics acceptor 1
6	OUTPUT 2 15-pin HD Connector	Connect to the computer graphics acceptor 2
7	INPUT 15-pin HD Connector	Connect to the computer graphics source
8	OUTPUT 3 15-pin HD Connector	Connect to the computer graphics acceptor 3
9	ON LED	Illuminates when receiving power
10	OUTPUT 4 15-pin HD Connector	Connect to the computer graphics acceptor 4

1 Enabling the notebook or laptop to output a VGA signal to an external VGA monitor

2 When the source is not a laptop (for example, a PC)

3 Both the Hs and the Vs switches MUST be set identically (no harm will occur to the graphics source if the switches are set to the wrong direction)

4 “Transistor-Transistor Logic” is a term used in digital electronics describing the ability of a device or circuit to be connected directly to the input or output of digital equipment. Such compatibility eliminates the need for interfacing circuitry

## 5 Connecting the VP-300K 1:3 High Resolution UXGA DA

To connect your **VP-300K 1:3 High Resolution UXGA DA**<sup>1</sup>, as the example in [Figure 4](#) illustrates, do the following<sup>2</sup>:

1. Connect a computer graphics source to the INPUT 15-pin HD connector.
2. Connect the OUTPUT 15-pin HD connectors to up to three<sup>3</sup> acceptors, as follows:
  - Connect the OUTPUT 1 connector to acceptor 1 (for example, a projector)
  - Connect the OUTPUT 2 connector to acceptor 2 (for example, an LCD monitor)
  - Connect the OUTPUT 3 connector to acceptor 3 (for example, a display)
3. Connect the 5V DC power adapter (wall transformer) to the 5V DC socket and connect the transformer to the mains electricity.
4. If required, set the:
  - Hs and Vs switches
  - ID Bit switch to ON

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<sup>1</sup> From this section on, all the information is relevant to the VP-200K, VP-300K and VP-400K, unless noted otherwise

<sup>2</sup> Switch OFF the power on each device before connecting it to your VP-300K. After powering up your VP-300K, switch on the power on each device

<sup>3</sup> Two for the VP-200K and four for the VP-400K

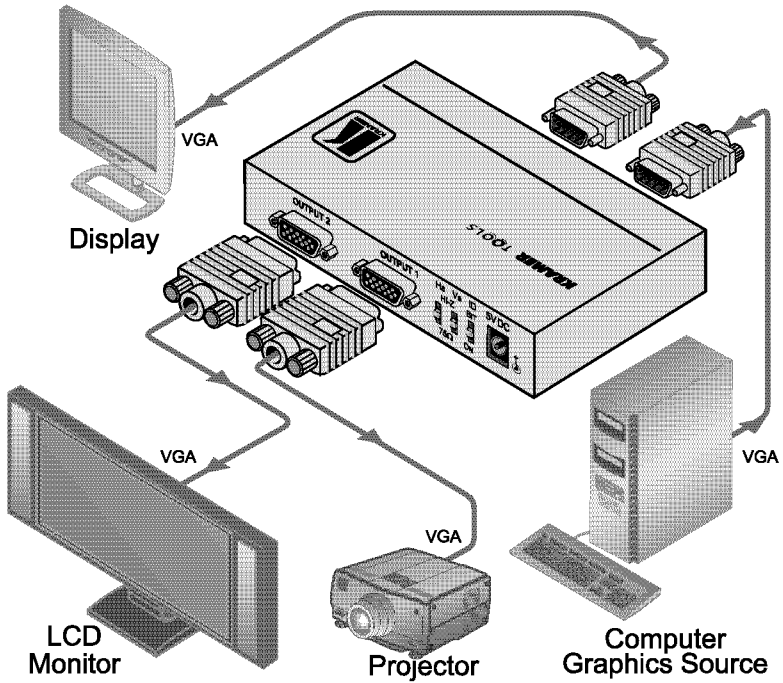


Figure 4: Connecting the VP-300K 1:3 High Resolution UXGA DA

## 6 Technical Specifications

Table 4 includes the technical specifications:

Table 4: Technical Specifications<sup>1</sup> of the High Resolution UXGA DA

	VP-200K	VP-300K	VP-400K
INPUT:	1 UXGA on an 15-pin HD connector		
OUTPUTS:	2 UXGA on 15-pin HD connectors	3 UXGA on 15-pin HD connectors	4 UXGA on 15-pin HD connectors
MAX. OUTPUT LEVEL:	2.2Vpp		
BANDWIDTH (-3dB):	400MHz		
DIFF. GAIN:	0.03%		
DIFF. PHASE:	0.03 Deg		
K-FACTOR:	<0.05%		
S/N RATIO:	72dB @5MHz		
CONTROLS:	Internal ID BIT switch; internal analog/TTL switches for setting the sync		
COUPLING:	DC		
POWER SOURCE:	5V DC, 130mA		
DIMENSIONS:	12.1cm x 7.18cm x 2.42cm (4.76" x 2.83" x 0.95", W, D, H)		
WEIGHT:	0.3kg (0.67lbs) approx.		
ACCESSORIES:	Power supply, one 3' VGA male/male cable <sup>2</sup> , mounting bracket		
OPTIONS:	RK-3T 19" rack adapter		

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

<sup>2</sup> Model name: C-GM/GM-3

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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.

\* FCC and CE approved using STP cable (for twisted pair products)



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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)

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

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