KRAMER



USER MANUAL

MODEL:

VP-426

HDMI-PC Scaler



VP-426 Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to http://www.kramerav.com/manual/VP-426 to download the latest manual or scan the QR code on the left.

Step 1: Check what's in the box

▼ The VP-426 HDMI-PC Scaler

Mounting brackets

✓ 1 Power supply (5V DC)

1 Quick start guide

Step 2: Install the VP-426

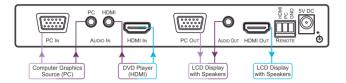
Attach the rubber feet and place on a table or mount the VP-426 in a rack (using an optional RK-T2B rack mount).



Step 3: Connect inputs and outputs

Always switch OFF the power on each device before connecting it to your VP-426.

For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the VP-426.



Step 4: Connect the power

Connect the 5V DC power adapter to the VP-426, and plug the adapter into the mains electricity.



Step 5: Operate the VP-426

Choose an input.

MENU ENTER - FREZE

O O O O O

Use the menu, reset the resolution or freeze the frame.

Choose parameters from the OSD.

PICTURE
INPUT
OUTPUT
AUDIO
OSD
ADVANCED
ABOUT
FACTORY
EXIT

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VP-426 - Contents

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 video, audio, presentation, and broadcasting professionals 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 14 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; 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 Video Products; GROUP 12: Digital Signage; and GROUP 13: Audio, and GROUP 14: Collaboration.

Congratulations on purchasing your Kramer **VP-426** *HDMI-PC Scaler*, which is ideal for the following typical applications:

- Projection systems in conference rooms, boardrooms, auditoriums, hotels and churches, production studios, rental and staging
- Home theater up-scaling

VP-426 - Introduction

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



Go to http://www.kramerav.com/downloads/VP-426 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 (we recommend Kramer highperformance, high-resolution 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 VP-426 away from moisture, excessive sunlight and dust



This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

2.2 Safety Instructions



Caution: There are no operator serviceable parts inside the unit

Warning: Use only the Kramer Electronics input power wall

adapter that is provided with the unit

Warning: Disconnect the power and unplug the unit from the wall

before installing

2.3 Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at http://www.kramerelectronics.com/support/recycling/.

3 Overview

The Kramer **VP-426** is a high-performance digital scaler for computer graphics/HDTV and HDMI signals. The unit up- or down-scales computer graphics and HDTV signals to resolutions up to WUXGA and 1080p. 22 output resolutions and Native are supported. The user can choose the input – computer graphics/HDTV or HDMI – and the scaled output is sent to both the computer graphics and HDMI outputs.

The VP-426 also features:

- HDCP compliance
- Reading and storage of acceptor's EDID
- Component (RGBHV, YPBPR) or HDMI inputs
- RGBHV and HDMI simultaneous outputs
- · Input auto-scanning
- Analog/embedded audio support for inputs and outputs
- A built-in ProcAmp for convenient signal adjustment
- An On-Screen Display (OSD) for easy setup and adjustment, accessible via the front-panel buttons
- A non-volatile memory that retains the last settings used
- A freeze button
- Contact closure inputs for remote switching of sources
- A USB port for upgrading firmware

The machine is fed from an external 5V DC source, making it suitable for field operation.

3.1 Defining the VP-426 HDMI-PC Scaler

This section defines the VP-426.

VP-426 - Overview

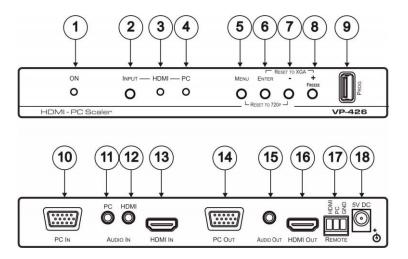


Figure 1: VP-426 HDMI-PC Scaler

#	Feature	Function
1	ON LED	Lights green when the unit is powered on
2	INPUT Button	Press to toggle the input between HDMI and PC
3	HDMI LED	Lights when the HDMI input is selected
4	PC LED	Lights when the PC input is selected
5	MENU Button	Press to enter/escape the on-screen display (OSD) menu. Press together with the – button to reset to 720p
6	ENTER Button	In OSD, press to choose the highlighted menu item. Press together with the + button to reset to XGA
7	- Button	In OSD, press to move backward through the list or to decrement the parameter value
8	+/FREEZE Button	In OSD, press to move forward through the list or to increment the parameter value. When not in OSD, press to freeze the display
9	PROG USB Connector	Connects to a PC for programming upgrade
10	PC IN 15-pin HD Connector	Connects to a PC computer graphics source
11	AUDIO IN PC 3.5mm Mini Jack	Connects to an unbalanced stereo PC source
12	AUDIO IN HDMI 3.5mm Mini Jack	Connects to an unbalanced stereo HDMI source
13	HDMI IN Connector	Connects to an HDMI source (if there is no video input, audio is disabled)
14	PC OUT 15-pin HD Connector	Connects to a PC computer graphics acceptor
15	AUDIO OUT 3.5mm Mini Jack	Connects to an unbalanced stereo audio acceptor
16	HDMI OUT Connector	Connects to an HDMI acceptor
17	REMOTE Terminal Block	Connects to remote contact closure switches
18	5V DC	+5V DC connector for powering the unit

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4 Connecting the VP-426



Always switch off the power to each device before connecting it to your **VP-426**. After connecting your **VP-426**, connect its power and then switch on the power to each device.

To connect the **VP-426** as illustrated in the example in Figure 2:

- Connect a computer graphics video source to the PC IN 15-pin HD connector and a PC audio source to the PC AUDIO IN 3.5mm mini jack (both for example, from a PC).
 - When connecting to a component source (YPbPr), connect as shown here:

PIN#	Signal
1	PR
2	Υ
3	Рв
6, 7, 8	Ground

- Connect an HDMI video source to the HDMI IN connector (for example, from a DVD player).
- Connect the PC OUT 15-pin HD connector and the AUDIO OUT 3.5mm mini jack to a computer graphics with audio acceptor (for example, an analog display and an unbalanced amplifier).
 - When connecting to an XGA acceptor (RGBHV), connect to the acceptor's XGA connector
- Connect the HDMI OUT connector to an HDMI acceptor (for example, an LCD display with speakers).
- If desired, connect the REMOTE terminal block connector to contact closure switches (see <u>Section 4.1</u>).
- 6. Connect the 5V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in Figure 2).

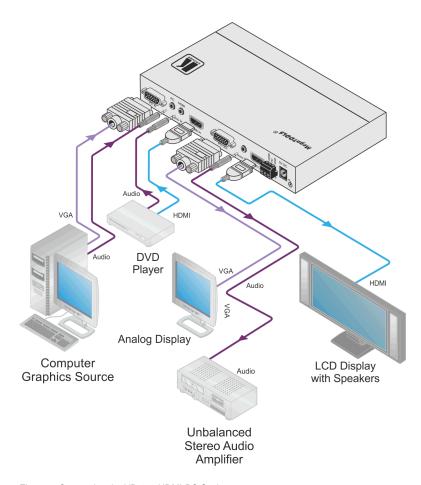


Figure 2: Connecting the VP-426 HDMI-PC Scaler

4.1 Connecting the Remote Terminal Block

The contact closure remote control pins operate in a similar way to the INPUT SELECT button. Using the contact closure remote control (also known as push-to-make momentary contact) you can select the PC or the HDMI input. To do so, momentarily connect the required input pin (HDMI or PC) on the REMOTE terminal block connector to the G (ground) pin, as shown in Figure 3.



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

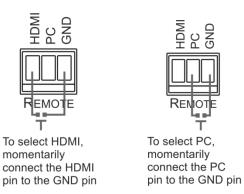


Figure 3: Connecting the Remote Contact Closure Switches

5 Operating the VP-426

The **VP-426** is operated directly using the front panel buttons and the OSD menu (see Section 5.2).

5.1 Operating the VP-426 from the Front Panel Buttons

During normal operation (without the OSD), the front panel buttons perform the following functions:

- Pressing MENU opens the on-screen display (OSD) main menu (see Section 5.2), the next press closes the OSD
- Pressing +/FREEZE freezes the display, the next press unfreezes the display
- Pressing MENU and –/AUTO ADJUST together resets the display to 720p
- Pressing ENTER and +/FREEZE together resets the display to XGA

5.2 Using the OSD

You can use the OSD to set a wide variety of parameters. When the MENU button is pressed, the main menu opens (see <u>Section 5.2.2</u>) allowing access to all the device settings.

5.2.1 Operating the OSD from the Front Panel Buttons

While the OSD is open, the front panel buttons perform the following functions:

- Pressing and + move forward and backward through the menu items and decrement or increment the parameter values
- Pressing ENTER selects and activates a menu item or accepts the parameter value set
- · Pressing MENU closes the OSD menu

The menu times out by default after 10 seconds. To change the OSD display time, adjust the OSD/TIMER parameter.

As an example of setting parameters, to increase the contrast on the display:

From normal operation, press MENU.

The OSD main menu appears on the screen.

Press the + or – button to highlight CONTRAST.
 CONTRAST changes to green when highlighted.

3. Press ENTER.

The contrast value parameter changes to red.

 Press the + button to increase the value (increase the contrast) or the – button to decrease the value (decrease the contrast).
 The value ranges from 0 to 100.

5. Press ENTER to set the value.

The contrast value parameter changes back to white.

To return to normal operation, highlight EXIT and press ENTER, press MENU, or wait until the menu times out.

5.2.2 The OSD Menu Structure

Main Menu	Submenu	Values	Notes	
Picture	Contrast	0-100	Adjusts the contrast	
	Brightness	0-100	Adjusts the brightness	
	Finetune	COMPONENT		
		Hue (0-100)	Sets the color hue	
		Saturation (0-100)	Sets the color saturation	
		Sharpness (0-100)	Sets the sharpness of the picture	
		Noise Reduction Off-Low-Middle-High	Selects the noise reduction level: OFF, HI, LOW and MID (middle)	
		VGA		
		PHASE	Sets the clock phase	
		CLOCK	Sets the clock frequency	
		H-POSITION	Sets the horizontal position of the picture	
		V-POSITION	Sets the vertical position of the picture	
		Exit	Select to exit to the Main Menu	
	Color	Red 0-100	Adjusts the individual color	
		Green 0-100	components of the display	
		Blue 0-100		
		Exit	Select to exit to the Main Menu	

Main Menu	Submenu	Val	ues	No	otes
Input	Source	PC/YPbPr S		Select for PC source	
				Select for HDMI source	
	Exit			Select to exit to the Main Menu	
Output	Size	Full		Select the size of the display	
		Overscan		1	
		Underscan		1	
		Letterbox		1	
		Pan scan		1	
		Best fit			
	Resolution	Select the outp	out resolution fro	m the menu:	
		Resolution: Appears as:		Resolution: Appears as:	
		480i	480I	800x600	SVGA
		480p	480P	1024x768	XGA
		720p@60Hz	720P60	1280x1024	SXGA
		1080i@60Hz	1080160	1600x1200	UXGA
		1080p@60Hz	1080P60	1366x768	WXGA
		576i	5761	1680x1050	WSXGA
		576p	576P	1920x1200	WUXGA
		720p@50Hz	720P50	1280x800	1280x800
		1080i@50Hz	1080 50	1440x900	1440x900
		1080p@50Hz	1080P50	1400x1050	1400x1050
			NATIVE	1600x900	1600x900
		640x480	VGA		
	Exit			Select to exit to	the Main Menu
Audio	Input Volume	0-100		Sets input volun	ne
	Output Volume	0-100		Sets output volume	
	Delay	Off, 40ms, 110ms, 150ms		Sets delay	
	Input	Embedded Automatic		Select to use the analog audio input when the HDMI input is selected	
				Select to use the embedded audio when the HDMI input is selected	
				Auto-select: DVI input on the HDMI connector uses analog audio, HDMI input uses embedded audio	
	Exit			Select to exit to the Main Menu	
OSD	H-position	0-100 (50)		Adjusts the horizontal position of the OSD on the screen	
	V-position	0-100 (50)		Adjusts the vertical position of the OSD on the screen	
	Timer	5-100 (10)		Adjusts the length of time in seconds the OSD appears on the screen before timing out	
	Background	0-100 (50)		Adjusts the shade of the OSD background from black to transparent	
Oneretine	1				44

Main Menu	Submenu	Values	Notes
mail mella	Display	Info/On/Off	Select the information shown on the screen during operation: ON - the information is shown permanently OFF - the information is not shown INFO - the information is shown for the time period set in INFO
	Exit		Select to exit to the Main Menu
Advanced	HDCP on input	On/Off	Selects the HDCP option for the HDMI input: either ON (the default) or OFF. Setting HDCP support to disabled (OFF) on the HDMI input allows the source to transmit a non-HDCP signal if required (for example, when working with a Mac computer)
	Auto sync off	Off/Fast/Slow	Turns the auto sync OFF/FAST/SLOW. When ON, a short period after not detecting a valid video signal on the selected input, the unit will disable the H and V syncs on the analog outputs until a valid input is again detected or any keypad is pressed. When set to 'Fast' state - sync is
			off after 17 seconds
	Auto input scan	On/Off	Automatically scans the inputs and selects the first live one found (default OFF)
	Auto image	On/Off	The auto image feature may be implemented every time the input is switched to VGA or when the input resolution changes
	Freeze	Freeze only/mute only/freeze+mute	Select to freeze and/or mute the display
	EDID Manage	Set to Default or Custom	For each input (VGA and HDMI), select Default to use the factory default EDID. Select Custom to read the EDID on the output of the VP-426, and use that as the input EDID.
	TIMING SHIFT	Set to ON (Default):	Implements a small shift on the horizontal sync to improve output picture stability. Set to OFF if the display shows an instability at the selected output resolution
	Exit		Select to exit to the Main Menu
About	Source Input Output Version		Displays the source, input and output resolutions and the software version

Main Menu	Submenu	Values	Notes
Factory Reset			Resets the device to its factory default parameters and automatically senses the input and output devices
	Exit		Select to exit to the Main Menu
Exit			Select to exit the OSD

5.3 Upgrading the Firmware

- 1. To perform the upgrade, the firmware file must be named *VP-426.bin* with no additional characters or numbers. If necessary rename the file.
- 2. Save the *VP-426.bin* file to a memory stick (upgrading from a PC is not available).
- 3. Disconnect power from the VP-426.
- Plug the memory stick into the USB connector on the VP-426.
- 5. Press and hold the Menu button while reconnecting power to the VP-426.
- 6. When three LEDs light at the same time, release the MENU button (meaning the device is in the FW upgrading mode).
- 7. When the upgrade is complete, the LED goes from solid on to flashing.
- 8. Disconnect and reconnect the power cable.
- 9. Check that the Info screen shows the latest FW version.

6 Technical Specifications

INPUTS:	1 PC/HD (RGBHV/YPbPr) on a 15-pin HD connector, 1 HDMI connector, 2 unbalanced stereo audio connectors on 3.5mm mini jacks
OUTPUTS:	1 PC (RGBHV) on a 15-pin HD connector, 1 HDMI connector, 1 unbalanced stereo audio connector on a 3.5mm mini jack
OUTPUT RESOLUTIONS:	NATIVE, 480i, 480p, 720p@60Hz, 1080i@60Hz, 1080p@60Hz, 576i, 576p, 720p@50Hz, 1080i@50Hz, 1080p@50Hz, 640x480, 800x600, 1024x768, 1280x1024, 1600x1200, 1366x768, 1680x1050, 1920x1200, 1280x800, 1440x900, 1400x1050, 1600x900
OUTPUT REFRESH RATE:	60Hz for computer graphics resolutions, 50/60Hz for HDTV resolutions
VIDEO LATENCY:	Progressive input: 30ms (approx.); interlaced input: 50ms (approx.)
CONTROLS:	Front panel buttons,1 remote contact closure on a 3-pin terminal block connector, 1 USB for programming
INDICATORS:	ON, HDMI and PC LEDs
POWER CONSUMPTION:	5V DC, 1.1A
OPERATING TEMPERATURE:	0° to +40°C (32° to 104°F)
STORAGE TEMPERATURE:	-40° to +70°C (-40° to 158°F)
HUMIDITY:	10% to 90%, RHL non-condensing
DIMENSIONS:	18.8cm x 11.4cm x 2.5cm (7.4" x 4.5" x 1.0") W, D, H
WEIGHT:	0.45kg (1.0lb)
INCLUDED ACCESSORIES:	Power supply
OPTIONS:	RK-T2B 19" rack adapter
Specifications are subject to change	e without notice at http://www.kramerelectronics.com

6.1 Input Resolutions and Refresh Rate

Resolution/Refresh Rate	Component	PC	HDMI
480i/576i	V	Х	V
480p/576p	V	Х	V
720p @(60/50)	V	Х	V
1080i @(60/50)	V	Х	V
1080p @(60/50)	V	Х	V
1080p @(24/25/30)	V	Х	V
VGA @(60/67/72/75/85)		V	V
SVGA @(56/60/72/75)		V	V
XGA @(60/70/75)		V	V
SXGA @(60/75)		V	V
1280X960		V	V
1600X900 @60		V	V
UXGA @60 (1600X1200)		V	V
WXGA @60(1280x800)		V	V
WXGA+ @60(1440x900)		V	V

Resolution/Refresh Rate	Component	PC	HDMI
WXGA @60(1366x768)		V	V
SXGA+ @60(1400x1050)		V	V
WSXGA @60(1680x1050)		V	V
WUXGA @60(1920x1200)		V	V

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

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 oblete 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:

- 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.
- 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.
- 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 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.

Limitation on Liability

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

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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 5EQ.) OR OTHER APPICABLE 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 I AND

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 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.

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SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing

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.

www.kramerAV.com info@kramerel.com