Kramer Electronics, Ltd.

USER MANUAL

Model:

VP-422

HDMI to PC Scaler

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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[1] that are clearly defined by function.

Thank you for purchasing your Kramer **VP-422** *HDMI to PC Scaler*. These products are ideal for:

- Projection systems in conference rooms, boardrooms, hotels and houses of worship
- Home theater up-scaling

The package includes the following items:

- **VP-422** *HDMI to PC Scaler*
- Power adapter (5V DC input)
- This user manual[2]

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[3]

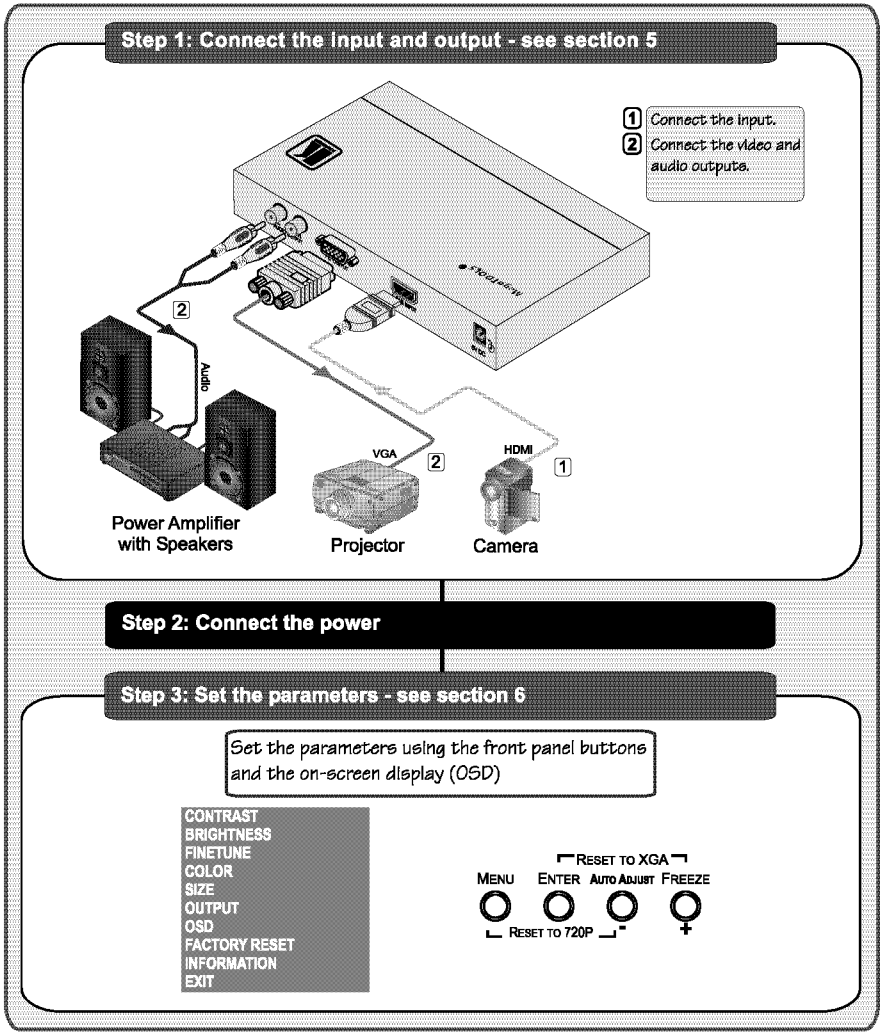
1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

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

3 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.



3 Overview

The Kramer **VP-422** *HDMI to PC Scaler* is a high-performance digital scaler for computer graphics and HDTV signals. It up- or down-scales HDMI signals to resolutions up to WUXGA and 1080p and de-embeds the stereo audio to output as unbalanced analog stereo signals. The following output resolutions are supported: **PC**: VGA, SVGA, XGA, 1280x800, SXGA, UXGA, WXGA, SXGA+, WXGA+, WSXGA, WUXGA; **HDTV**: 480p, 576p, 720p @50/60Hz, 1080p @50/60Hz, 1080i @50/60Hz.

The **VP-422** *HDMI to PC Scaler* also features:

- An On-Screen Display (OSD) for easy setup and adjustment, accessible via the front-panel buttons
- A built-in ProcAmp for convenient signal adjustment
- A non-volatile memory that retains the last settings used
- Quick auto-adjust
- Freeze button
- RGBHV or component video output
- An external 5V DC power source, making it suitable for field operation

Operate your **VP-422** directly via the front panel push buttons and the on-screen display (OSD).

To achieve the best performance:

- Use only good quality connection cables[1] to avoid 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 that may adversely influence signal quality and position your Kramer **VP-422** 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[2].

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

1 Available from Kramer Electronics on our Web site at http://www.kramerelectronics.com

2 For example, part number 2535-052002

3.1 About HDMI

High-Definition Multimedia Interface (HDMI) is an uncompressed all-digital[1] audio/video interface, widely supported in the entertainment and home cinema industry. It delivers the highest high-definition image and sound quality.

In particular, HDMI[2]:

- Provides a simple[3] interface between any audio/video source, such as a set-top box, DVD player, or A/V receiver and video monitor, such as a digital flat LCD / plasma television (DTV), over a single lengthy[4] cable
- Supports standard, enhanced, high-definition video, and multi-channel digital audio[5] on a single cable
- Transmits all ATSC HDTV standards and supports 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements
- Benefits consumers by providing superior, uncompressed digital video quality via a single cable[6], and user-friendly connector
- Is backward-compatible with DVI (Digital Visual Interface)
- Supports two-way communication between the video source (such as a DVD player) and the digital television, enabling new functionality such as automatic configuration and one-button play

HDMI has the capacity to support:

- Existing high-definition video formats (720p, 1080i, and 1080p/60), as well as standard definition formats such as NTSC or PAL

1 Ensuring an all-digital rendering of video without the losses associated with analog interfaces and their unnecessary digital-to-analog conversions

2 HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI licensing LLC

3 With video and multi-channel audio combined into a single cable, the cost, complexity, and confusion of multiple cables currently used in A/V systems is reduced

4 HDMI technology has been designed to use standard copper cable construction at up to 15m

5 HDMI supports multiple audio formats, from standard stereo to multi-channel surround-sound. HDMI has the capacity to support Dolby 5.1 audio and high-resolution audio formats

6 HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner

4 Your VP-422 HDMI to PC Scaler

Figure 1 and Table 1 define the **VP-422** *HDMI to PC Scaler*:

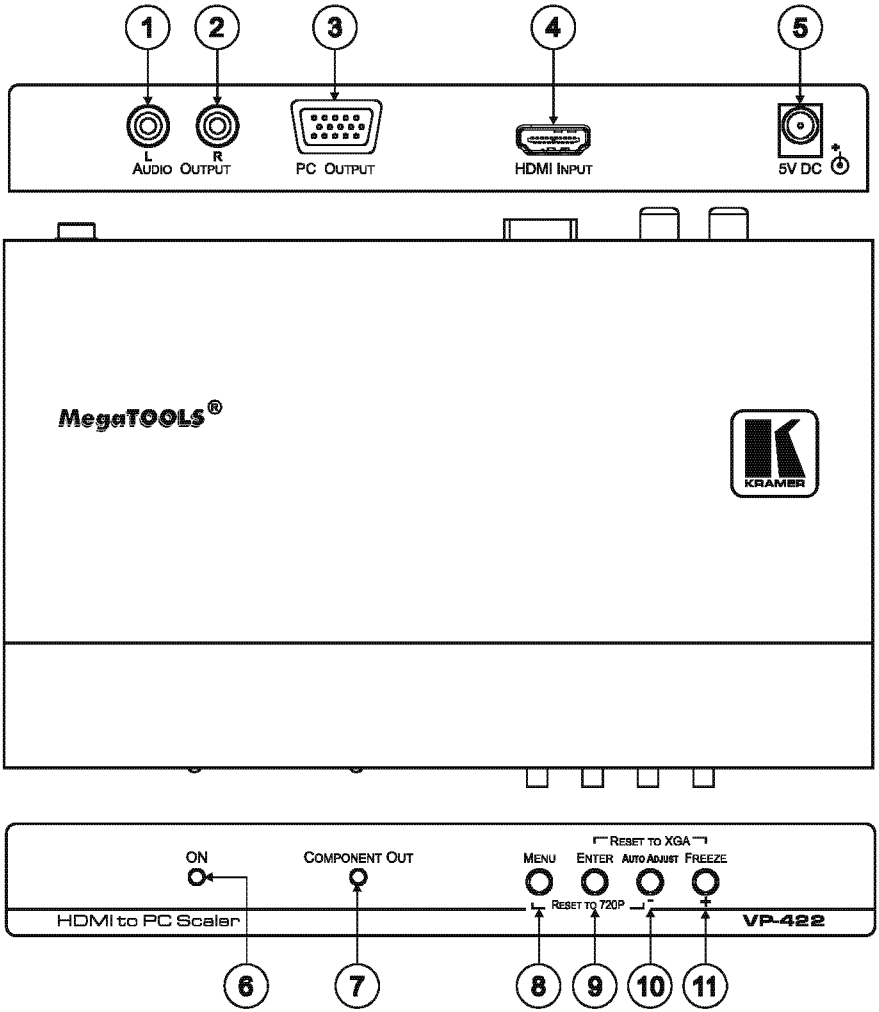


Figure 1: VP-422 HDMI to PC Scaler – Front and Rear View

Table 1: VP-422 HDMI to PC Scaler Front Panel Features

#	Feature		Function
1	*AUDIO OUTPUT* RCA Connectors	*L*	Connect to an unbalanced analog stereo acceptor
2		*R*	
3	*PC OUTPUT* 15-pin HD connector		Connect to computer graphics or HDTV acceptor
4	*HDMI INPUT* Connector		Connect to an HDMI source[1]
5	*5V DC*		+5V DC connector for powering the unit
6	*ON* LED		Lights green when the unit is powered on
7	*COMPONENT OUT* LED		Lights blue when component video is output and also during factory reset
8	*MENU* button		Press to enter/escape the on-screen display (OSD) menu. Press together with the – button to reset to 720p
9	*ENTER* button		In the OSD, press to choose the highlighted menu item. Press together with the + button to reset to XGA
10	– */AUTO ADJUST* button		In the OSD, press to move down through the list or to decrement the parameter value. When not in the OSD, press to automatically adjust the picture to fit the display
11	*+/FREEZE* button		In the OSD, press to move up through the list or to increment the parameter value. When not in the OSD, press to freeze the display

5 Connecting the VP-422 HDMI to PC Scaler

To connect the **VP-422**, as illustrated in the example in Figure 2 do the following:

1. Connect an HDMI source[1] (for example, a camera) to the HDMI INPUT connector.
2. Connect the PC OUTPUT 15-pin HD connector to a computer graphics or HDTV acceptor as follows:
   - When connecting to an XGA acceptor (RGBHV), then connect to the acceptor's XGA connector
   - When connecting to a component acceptor (YPbPr), then connect as shown in Table 2

Table 2: 15-pin HD PINOUT for HD

PIN #	Signal
1	Pr
2	Y
3	Pb
6, 7, 8	Ground

3. Connect the L and R audio OUTPUT RCA connectors to an analog stereo audio acceptor (for example, a power amplifier with speakers).

1 The HDMI source must not have HDCP encryption – when copy protection is detected, the unit's outputs will be switched off

4. Connect the 5V DC power adapter to the power socket and connect the adapter to the mains electricity (not shown in Figure 2).

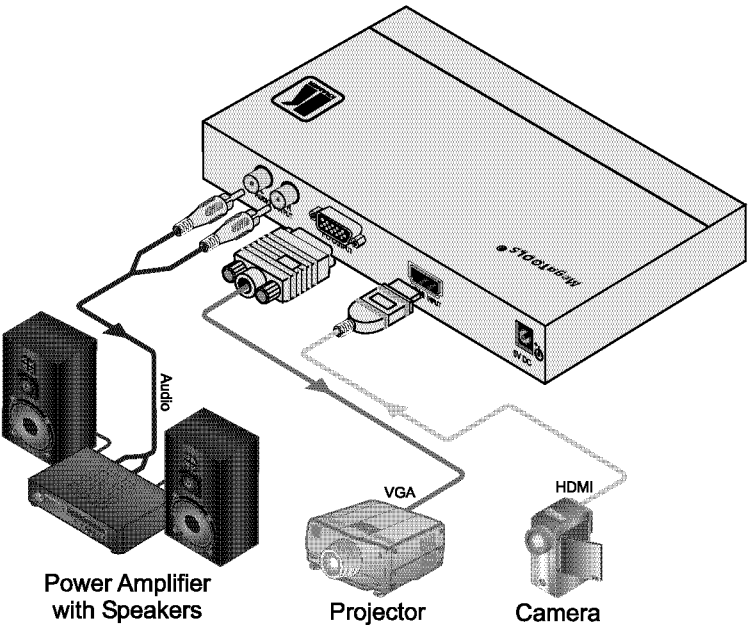


Figure 2: Connecting the VP-422 HDMI to PC Scaler

6 Operating the VP-422 HDMI to PC Scaler

The **VP-422** is operated directly via the front panel buttons and via the OSD menu (see Section 6.2).

6.1 Using the Front Panel Buttons During Normal Operation

During normal operation (without the OSD), using the front panel buttons performs the following functions. Pressing:

- MENU opens the on-screen display (OSD) main menu (see Section 6.2), the next press closes the OSD
- +/FREEZE freezes the display, the next press unfreezes the display
- – /AUTO ADJUST automatically centers the display
- MENU and –/AUTO ADJUST together resets the display to 720p and the COMPONENT OUT LED lights
- +/FREEZE and ENTER together resets the display to XGA and the COMPONENT OUT LED turns off

6.2 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 allowing access to all the device settings (see Table 3).

When setting FINETUNE, COLOR, SIZE, OUTPUT (see Table 4), and OSD (see Table 5) a submenu opens with the applicable parameters.

6.2.1 Using the Front Panel Buttons While the OSD is Open

While the OSD is open, using the front panel buttons performs the following functions. Pressing:

- + and – moves up and down through the menu items and increments or decrements the parameter values
- ENTER selects and activates a menu item or accepts the parameter value set
- MENU closes the OSD menu[1]

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

1. From normal operation, press MENU.
   The OSD main menu appears on the screen.
2. Press the + or – button to highlight CONTRAST.
   CONTRAST changes to green when highlighted.
3. Press ENTER.
   The contrast value parameter changes to red.
4. 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.
6. To return to normal operation, highlight EXIT and press ENTER; press MENU; or wait until the menu times out.

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

6.2.2 The MAIN MENU

Table 3 defines the MAIN MENU parameters and functions[1].

Table 3: The MAIN MENU Parameters and Functions

Parameter	Function
CONTRAST	Adjusts the contrast
BRIGHTNESS	Adjusts the brightness
FINETUNE	Adjusts the other ProcAmp parameters: PHASE, HUE, SATURATION and SHARPNESS
COLOR	Adjusts the color of the display – RED, GREEN, BLUE
SIZE	Select the size of the display: LETTER BOX, PANSCAN, FULL, OVERSCAN, and two underscan settings: UNDER 1 and UNDER 2
OUTPUT	Sets the output resolution (see Table 4)
OSD	Adjusts parameters of the on-screen display (see Table 5)
FACTORY RESET[2]	Resets the device to its factory default parameters and automatically senses the input and output devices
INFORMATION	Displays the source, input and output resolutions and the software version
EXIT	Select to exit the OSD

6.2.3 The "OUTPUT" Submenu

The "OUTPUT" submenu allows you to choose the output resolution sent to the display. Press the + and/or – button to cycle through the list of resolutions.

Table 4 defines the resolutions available on the "OUTPUT" submenu and how they appear on the display.

Table 4: The "OUTPUT" Submenu – Available Resolutions

Parameter	Appears As	Parameter	Appears As
VGA	640x480	WUXGA	1920x1200
SVGA	800x600	480P	480p
XGA	1024x768	576P	576p
1280x800	1280x800	720P50	720p @50Hz
SXGA	1280x1024	720P60	720p @60Hz
UXGA	1600x1200	1080P50	1080p @50Hz
WXGA	1366x768	1080P60	1080p @60Hz
SXGA+	1400x1050	1080I50	1080i @50Hz
WXGA+	1440x900	1080I60	1080i @60Hz
WSXGA	1680x1050		

1 the default value appears in brackets

2 The COMPONENT OUT LED lights blue

6.2.4 The "OSD" Submenu

The "OSD" submenu allows you to adjust the location of the OSD, the length of time it is displayed, and the transparency of its background (see Table 5).

Table 5: The "OSD" Submenu – Available Adjustments

Parameter	Function
H-POSITION	Adjusts the horizontal position of the OSD on the screen
V-POSITION	Adjusts the vertical position of the OSD on the screen
TIMER	Adjusts the length of time in seconds the OSD appears on the screen
BACKGROUND	Adjusts the shade of the OSD background from black to transparent
EXIT	Select to exit to the Main Menu

7 Technical Specifications

Table 6 lists the technical specifications:

Table 6: Technical Specifications[1] of the VP-422 HDMI to PC Scaler

INPUT:	1 HDMI
OUTPUTS:	1 HDMI; 1 analog stereo audio on RCA connectors
OUTPUT RESOLUTIONS[2]:	PC: VGA, SVGA, XGA, 1280x800, UXGA, SXGA, WXGA, SXGA+, WXGA+, WSXGA, WUXGA HDTV: 480p, 576p, 720p @50/60Hz, 1080p @50/60Hz, 1080i @50/60Hz
OUTPUT REFRESH RATE:	60Hz for computer graphics resolutions, 50/60Hz for HDTV resolutions
PROCESSING DELAY:	20ms
CONTROLS:	Front panel buttons, ON and COMPONENT OUTPUT LEDs
POWER SOURCE:	5V DC, 860mA
DIMENSIONS:	18.8cm x 11.4cm x 2.45cm (7.4" x 4.5" x 0.98") W, D, H
WEIGHT:	0.66kg (1.45lbs) approx.
ACCESSORIES:	Power supply
OPTIONS	19" rack adapter

1 Specifications are subject to change without notice

2 All resolutions are outputted @ 60Hz, except where noted

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.
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)

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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