Kramer Electronics, Ltd.

USER MANUAL

Model:

VP-730

Presentation Switcher / 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.

Congratulations on purchasing your Kramer **VP-730** *Presentation Switcher / Scaler*, which is ideal for the following typical applications:

- Projection systems in conference rooms, boardrooms, auditoriums, hotels and houses of worship
- Production studios, rental and staging and where high quality conversion and switching of multiple and different video signals to graphical data signals is required for projection purposes

The package includes the following items:

- **VP-730** *Presentation Switcher / Scaler*
- Infrared remote control transmitter
- Power cord[2] and null-modem adapter
- This user manual[3]

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[4]

2.1 Quick Start

The quick start charts summarize the basic setup and operation steps of the **VP-730**.

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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 We recommend that you use only the power cord that is supplied with this machine

3 Download up-to-date Kramer user manuals from our Web site at http://www.kramerelectronics.com

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

Step 1: Mount the machine - see section 5

Mount the machine in
a rack or stick the 4
rubber feet to the
Underside

Step 2: Connect the inputs/outputs - see section 6

1 Connect the inputs

2 Connect the outputs

Audio
connections
are not shown

YUV

1

DVD Player
(Component)

Y/C

1

DVD Player
(Composite)

1

Computer
Graphics
Source

VGA

1

HDMI

DVD Player
(HDMI)

2

HDMI

Plasma
Display

2

VGA

Analog
Display 1

2

VGA

Analog
Display 2
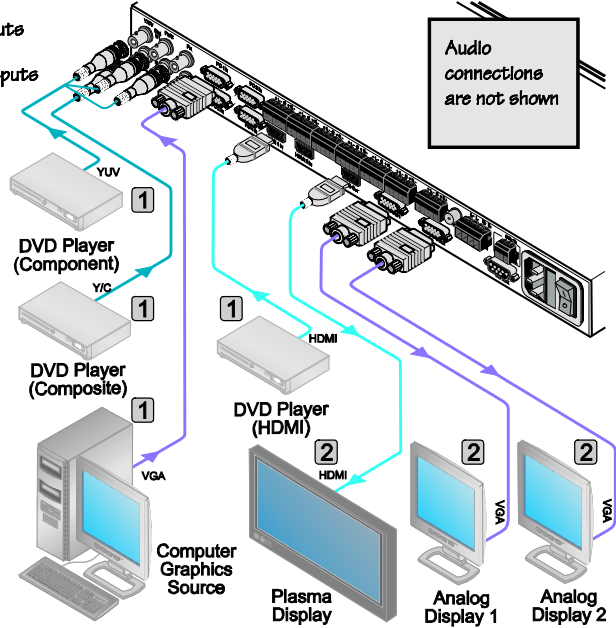
Step 3: Connect the control ports - see section 6.1

If required, connect an RS-232 optional control port

Step 4: Turn the power ON

Step 5: Set and operate the machine - see sections 7 and 8

Select an input

Select the PIP function

BLANK the display
FREEZE the video image

UNIVERSAL INPUTS IN 1 IN 2 INPUTS PC 1 PC 2 PC 3 PC 4 HDMI 1 HDMI 2 USB PIP BLANK FREEZE MENU ENTER RESET TO XGA/720P PANEL LOCK

Operate via the OSD menu

Input Picture Output PIP Audio Geometry Setup Info

Use the OSD
Menu buttons

RESET the
resolution
LOCK the
PANEL

3   Overview

The Kramer **VP-730** is a 9-input Proscale™ *Presentation Switcher / Scaler*. Each audio input can accept balanced stereo audio or digital S/PDIF audio. The **VP-730** has a balanced stereo audio output and a digital S/PDIF audio output.

The **VP-730** scales any composite, s-Video (Y/C), component video (YPbPr), HDMI or computer graphics video signal, as well as jpeg files (via USB) up or down to a selectable graphics or HDTV output resolution and provides glitch-free switching between sources through FTB™ (fade-thru-black) switching technology. The output signal is available simultaneously on two 15-pin HD computer graphics video (PC) connectors and on an HDMI connector.

The **VP-730** features include:

- Silicon Optix HQV® Video Processing - HQV (Hollywood Quality Video) processing represents the state-of-the-art in video processing technology, with the highest quality de-interlacing, noise reduction, and scaling performance for both standard-definition and high-definition signals
- Fade-Thru-Black (FTB™) Switching - the video fades to black and then the new input fades from black for glitch-free and smooth switching. The output signal provides constant sync so the display never glitches
- K-IIT XL™ Picture-in-Picture Image Insertion Technology - ultra stable picture-in-picture, picture-and-picture, and split screen capability. A video source can be inserted into or positioned next to a computer graphics video source or vice versa with window positioning and sizing controls
- Two user definable (universal) video inputs (each can be set as composite video, s-Video (Y/C) or component video), four computer graphics video inputs (each can be set as RGBHV or YPbPr), two HDMI inputs and 1 USB input (for reading JPEG picture files[1])
- HDTV compatible component input
- HDTV output resolutions - 480p, 576p, 720p, 1080i, and 1080p
- Scaled video outputs - HDMI and computer graphics video
- HDMI supports up to 2.25Gbps bandwidth per graphic channel[2]
- Multiple computer graphics output resolutions - including a user-defined output resolution with selectable refresh rates
- Multiple aspect ratio selections
- Companion AFV (audio-follow-video) for every analog video input - supports

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embedded audio on the two HDMI inputs and output

- Built-in noise reduction and picture enhancement features
- Audio inputs – selectable S/PDIF or balanced audio input for each of the two universal video inputs, for each of the four PC video inputs on 5-pin terminal blocks; and embedded audio on the two HDMI inputs
- Audio outputs - S/PDIF (RCA connector) and balanced stereo audio (5-pin terminal block). Transcodes stereo or S/PDIF audio to both stereo and S/PDIF audio and embeds audio onto the HDMI output
- Built-in Time Base Corrector - stabilizes video sources with unstable sync
- Built-in video Proc-Amp - color, hue, sharpness, contrast, and brightness are set individually for each input
- A BLANK button, a FREEZE button, a RESET TO XGA/720P button (to hardware-reset the output resolution); and a PANEL LOCK button[1]
- Built-in audio Proc-Amp - with bass, treble, balance and loudness control, as well as audio delay
- Supports firmware upgrade[2] via the USB port
- Firmware upgrade for audio via the designated 3-pin RS-232 AUDIO PROG. connector
- A slideshow feature, letting you run a slideshow via the USB port
- A user-friendly OSD (On-Screen Display) that can be centered on the screen or in one of the four corners

In addition, the **VP-730**:

- Includes non-volatile memory that retains the last settings, after switching the power off and then on again
- Digitally reprocesses the signal to correct mastering errors, and regenerates the video at the appropriate higher (or lower) line and pixel rate format, providing native-resolution video for LCD, DLP and plasma displays
- Is specifically designed to improve video quality by reducing chroma noise
- Includes numerous filters and algorithms for eliminating picture artifacts
- Scales and zooms (to up to 400% of the original size)
- Can provide non-linear scaling for 4:3, 16:9 transformation

Control your **VP-730** directly via the front panel push buttons, or:

- By RS-232 serial commands transmitted by a touch screen system, PC, or other serial controller
- Remotely, from the infrared remote control transmitter (with on-screen menus)

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1 The front panel blank, freeze and lock buttons can be programmed via the OSD menu (see Table 15)

2 To check if firmware upgrades are available, go to our Web site at http://www.kramerelectronics.com

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The **VP-730** is housed in a 19" 1U rack mountable enclosure, with rack "ears" included, and is fed from a 100-240 VAC universal switching power supply.

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 maximum high-definition image and sound quality in use today. Note that Kramer Electronics Limited is an HDMI Adopter and an HDCP Licensee.

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

- Has the capacity to support existing high-definition video formats (720p, 1080i, and 1080p/60), standard definition formats such as NTSC or PAL, as well as 480p and 576p

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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

3.2 Recommendations for Best Performance

To achieve the best performance:

- Connect 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)
- Avoid interference from neighboring electrical appliances and position your Kramer **VP-730** away from moisture, excessive sunlight and dust

4 Your Presentation Switcher / Scaler

Figure 1 and Table 1 define the front panel of the **VP-730**; Figure 2 and Table 2 define the rear panel.
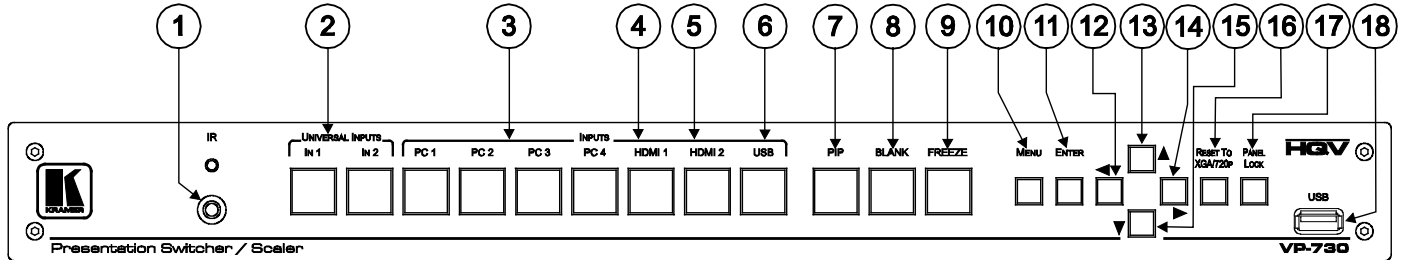
Figure 1: VP-730 Presentation Switcher / Scaler Front Panel
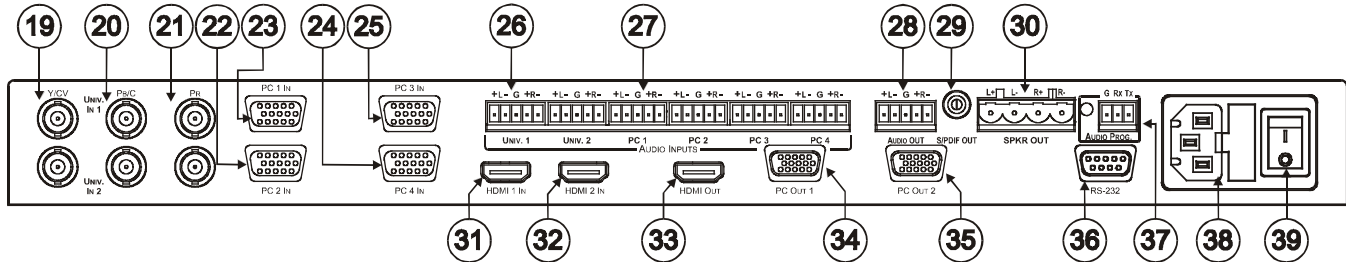
Figure 2: VP-730 Presentation Switcher / Scaler Rear Panel

Table 1: Front Panel VP-730 Presentation Switcher / Scaler Features

#	Feature		Function
1	*IR* Receiver / LED		Red when the unit accepts IR remote commands
2	*UNIVERSAL INPUT* [1] Selector Buttons		Press to select the composite video / s-Video / component video source[2] (from 1 to 2)
3	*INPUT* Selector Buttons[3]	*PC* [1]	Press to select the computer graphics[2] source (from 1 to 4)
4		*HDMI 1*	Press to select the HDMI source 1
5		*HDMI 2*	Press to select the HDMI source 2
6		*USB*	Press to select the USB[4] source and also run/stop the slideshow (see section 8.7.1)
7	*PIP* Button		Toggles the picture-in-picture function (see section 7.2)
8	*BLANK* Button		Press to toggle between a blank screen (blue or black screen)[5] and the display
9	*FREEZE* Button		Press to freeze/unfreeze the output video image[5], as well as pause the slideshow (see section 8.7.1)
10	*MENU* Button		Displays the OSD menu screen (toggle)
11	*ENTER* Button		Moves to the next level in the OSD screen, or accepts a new parameter
12	◄ Button		Decreases the range by one step in the OSD screen or moves to the previous level in the OSD screen Decreases the volume level, when not in the OSD menu
13	▲ Button		Moves up one step (in the same level) in the OSD screen or moves to the previous slide when running a slideshow (see section 8.7.1)
14	► Button		Increases the range by one step in the OSD screen Increases the volume level, when not in the OSD menu
15	▼ Button		Moves down one step (in the same level) in the OSD screen, or moves to the next slide when running a slideshow (see section 8.7.1)
16	*RESET TO XGA/720p* Button		Press and hold to reset to the default resolution[6]
17	*PANEL LOCK* Button		Press to lock/unlock the front panel to prevent unintentional operation
18	*USB* Connector		Connect to a USB drive to read JPEG files, and also to download new firmware

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1 The front panel UNIVERSAL INPUT selector buttons IN 1 and IN 2 are named Input 1 and Input 2, respectively, on the IR remote control transmitter. Similarly, the front panel INPUT selector buttons PC 1, PC 2, PC 3 and PC 4, are named VGA 1, VGA 2, VGA 3 and VGA 4, respectively, on the IR remote control transmitter (see section 7.4)

2 And the appropriate audio source

3 When selected, button illuminates. See section 7.1 for details of how to program the INPUT SELECTOR buttons

4 JPEG files in EXIF format on a USB memory stick

5 Can be programmed to mute the audio signal at the same time (see Table 15)

6 Toggles between reset to XGA and reset to 720p

Table 2: Rear Panel VP-730 Presentation Switcher / Scaler Features

#	Feature		Function
19	*UNIV. IN* BNC Connectors	*Y/CV*	Connect to the video acceptor which can be either composite video (*Y/CV*), s-Video (*Y/CV*, *PB/C*) or component video (*Y/CV*, *PB/C*, *PR*) (from 1 to 2)
20		*PB/C*	
21		*PR*	
22	*PC 2 IN* 15-pin HD Connector		Connects to the computer graphics source 2
23	*PC 1 IN* 15-pin HD Connector		Connects to the computer graphics source 1
24	*PC 4 IN* 15-pin HD Connector		Connects to the computer graphics source 4
25	*PC 3 IN* 15-pin HD Connector		Connects to the computer graphics source 3
26	*UNIV. AUDIO INPUT* 5-pin Terminal Block		Connect to the balanced stereo analog or digital S/PDIF[1] audio sources from 1 to 2
27	*PC AUDIO INPUT* 5-pin Terminal Block		Connect to the balanced stereo analog or digital S/PDIF[1] audio sources from 1 to 4
28	*AUDIO OUT* 5-pin Terminal Block		Connect to the balanced stereo analog audio acceptor
29	*S/PDIF* RCA Connector		Connect to a digital audio source
30	*SPKR OUT* 4-pin Terminal Block		Connect to a pair of loudspeakers
31	*HDMI 1 IN* Connector		Connect to the HDMI 1 source
32	*HDMI 2 IN* Connector		Connect to the HDMI 2 source
33	*HDMI OUT* Connector		Connect to the HDMI acceptor
34	*PC OUT* 1 15-pin HD Connector		Connects to the video acceptor 1 that displays the scaled output In the default HDTV mode, the signal goes out via 3 PINS: PIN 1 is P_R, PIN 2 is Y, PIN 3 is P_B
35	*PC OUT* 2 15-pin HD Connector		Connects to the video acceptor 2 that displays the scaled output In the default HDTV mode, the signal goes out via 3 PINS: PIN 1 is P_R, PIN 2 is Y, PIN 3 is P_B
36	*RS-232* 9-pin D-sub Connector		Connects to PC or Serial Controller
37	*AUDIO PROG*	Program Button	Push to upgrade to the latest audio firmware Release for normal operation
		Terminal Block Connector	Connect to a PC for audio firmware upgrade
38	Power Connector with Fuse		AC connector enabling power supply to the unit
39	POWER Switch		Illuminated switch for turning the machine ON or OFF

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1 See section 6.3

5   Installing in a Rack

This section describes what to do before installing in a rack and how to rack mount.

Before Installing in a Rack

Before installing in a rack, be sure that the environment is within the recommended range:	
Operating temperature range	+5° to +45° C (41° to 113° F)
Operating humidity range	10 to 90% RHL, non-condensing
Storage temperature range	-20° to +70° C (-4° to 158° F)
Storage humidity range	5 to 95% RHL, non-condensing

⚠️ **CAUTION!!**

When installing on a 19" rack, avoid hazards by taking care that:

1. It is located within the recommended environmental conditions, as the operating ambient temperature of a closed or multi unit rack assembly may exceed the room ambient temperature.

2. Once rack mounted, enough air will still flow around the machine.

3. The machine is placed straight in the correct horizontal position.

4. You do not overload the circuit(s). When connecting the machine to the supply circuit, overloading the circuits might have a detrimental effect on overcurrent protection and supply wiring. Refer to the appropriate nameplate ratings for information. For example, for fuse replacement, see the value printed on the product label.

5. The machine is earthed (grounded) in a reliable way and is connected only to an electricity socket with grounding. Pay particular attention to situations where electricity is supplied indirectly (when the power cord is not plugged directly into the socket in the wall), for example, when using an extension cable or a power strip, and that you use only the power cord that is supplied with the machine.

How to Rack Mount

To rack-mount a machine:

1. Attach both ear brackets to the machine. To do so, remove the screws from each side of the machine (3 on each side), and replace those screws through the ear brackets.
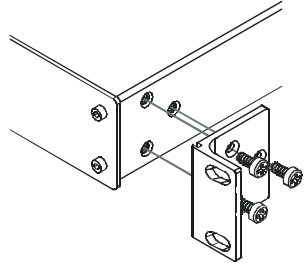
2. Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.

Note that:

• **In some models, the front panel may feature built-in rack ears**

• Detachable rack ears can be removed for desktop use

• Always mount the machine in the rack before you attach any cables or connect the machine to the power

• If you are using a Kramer rack adapter kit (for a machine that is not 19"), see the Rack Adapters user manual for installation instructions (you can download it at: http://www.kramerelectronics.com)

6 Connecting Your VP-730 Presentation Switcher / Scaler

To connect[1] the **VP-730** as illustrated in the example in <u>Figure 3</u>, do the following[2]:

1. Connect the following video sources[3]:
   - A component video[4] source (for example, a DVD player) to the UNIV. IN 1 RCA connectors, Y/CV, PB/C and PR
   - A composite video source (for example, a DVD player) to the UNIV. IN 2 RCA connector Y/CV
   - A computer graphics source to the PC 1 IN 15-pin HD computer graphics video connector
   - An HDMI source (for example, a DVD player) to the HDMI 1 IN connector
   - A graphics data source (for example, JPEG files from a PC or a USB flash drive) to the USB connector on the front panel of the machine[5]
2. Connect the balanced stereo audio sources[5,6] that is, the audio of the:
   - Component video source 1 to the AUDIO UNIV. IN 1 terminal block
   - Composite video source to the AUDIO UNIV. IN 2 terminal block
   - Computer graphics source to the AUDIO PC 1 terminal block
3. Connect the video output:
   - HDMI OUT connector to an HDMI acceptor (for example, a plasma display)
   - PC OUT 1 15-pin HD computer graphics video connector[7] to a video acceptor (for example, an analog display 1)
   - PC OUT 2 15-pin HD computer graphics video connector[7] to a video acceptor (for example, an analog display 2)
4. Connect[5] the AUDIO OUT 5-pin terminal block and/or the S/PDIF digital audio output to audio acceptors.
5. Connect the SPKR OUT block connector to a pair of loudspeakers, by connecting the left loudspeaker to the "L+" and the "L-" terminal block connectors, and the right loudspeaker to the "R+" and the "R-" terminal block connectors. **Do not Ground the loudspeakers**.
6. Connect the power cord[5,8].
7. If required, connect a PC via RS-232, see section <u>6.1</u>.

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1 Although this example shows only several inputs that are connected, you can connect all the inputs simultaneously

2 Switch OFF the power on each device before connecting it to your VP-730. After connecting your VP-730, switch on its power and then switch on the power on each device

3 You do not have to connect all the inputs

4 Sometimes called YUV, or Y, B-Y, R-Y, or Y, Pb, Pr

5 Not illustrated in <u>Figure 3</u>

6 As required. Not all devices need to be connected

7 In the HDTV mode, the signal goes out via three PINS: PIN 1 is Red or Pr, PIN 2 is Green or Y, PIN 3 is Blue or Pb

8 We recommend that you use only the power cord that is supplied with this machine
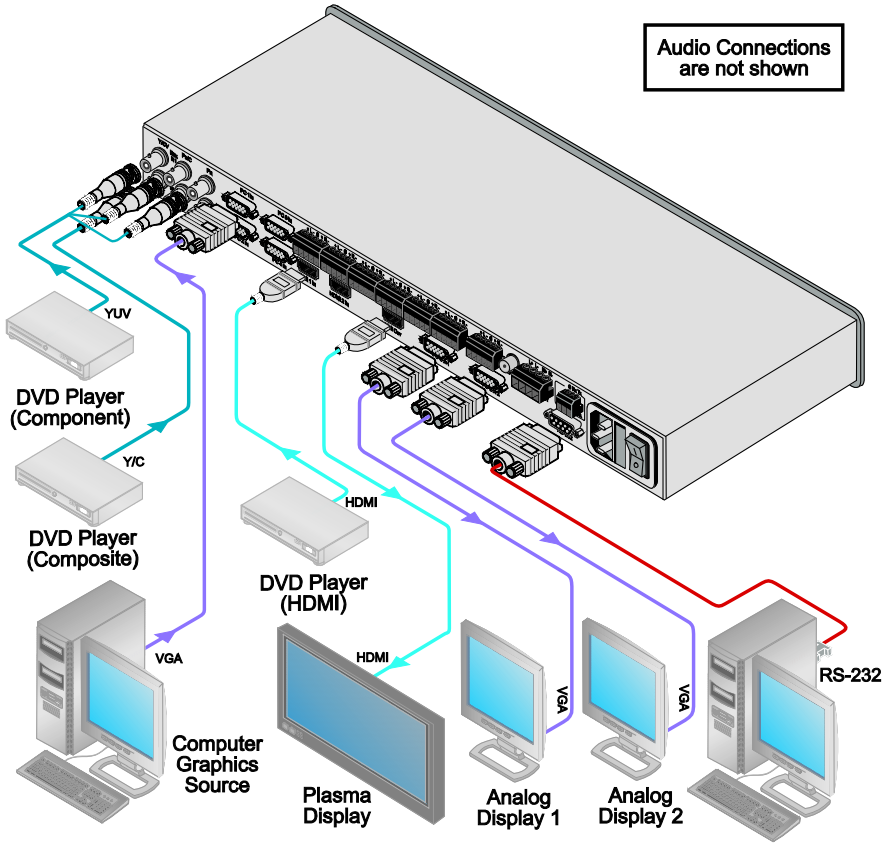
Figure 3: Connecting the VP-730 Rear Panel

6.1 Connecting a PC

You can connect a PC (or other controller) to the **VP-730** via the RS-232 port for remote control.

To connect a PC to a **VP-730** unit, using the Null-modem adapter provided with the machine (recommended):

- Connect the RS-232 9-pin D-sub rear panel port on the **VP-730** unit to the Null-modem adapter and connect the Null-modem adapter with a 9-wire flat cable to the RS-232 9-pin D-sub port on your PC

To connect a PC to a **VP-730** unit, without using a Null-modem adapter:

- Connect the RS-232 9-pin D-sub port on your PC to the RS-232 9-pin D-sub rear panel port on the **VP-730** unit, forming a cross-connection[1], as Figure 4 illustrates
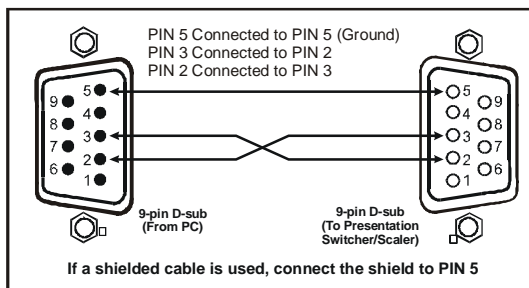
Figure 4: Connecting the PC

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1 Also known as a Null-modem connection

6.2 Connecting the Balanced/Unbalanced Stereo Audio Input/Output

Figure 5 illustrates how to wire a balanced input/output connection:
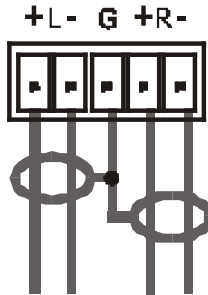
Figure 5: Connecting the Balanced Stereo Audio Input/Output

Figure 6 illustrates how to wire an unbalanced input:
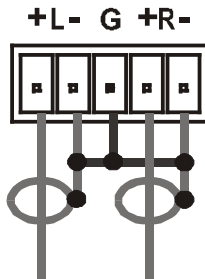
Figure 6: Connecting the Unbalanced Stereo Audio Input

Figure 7 illustrates how to wire an unbalanced acceptor to the balanced output of the unit:
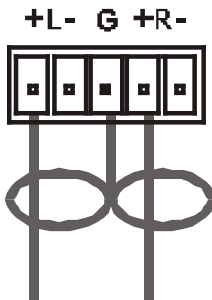
Figure 7: Connecting the Unbalanced Stereo Audio Output

6.3 Connecting the Digital S/PDIF Audio Input

Figure 8 illustrates how to connect a digital S/PDIF audio source to the terminal block by wiring the first two terminal block PINs to an RCA connector using two wires; PIN L+ to S/PDIF, and PIN L– to GND:
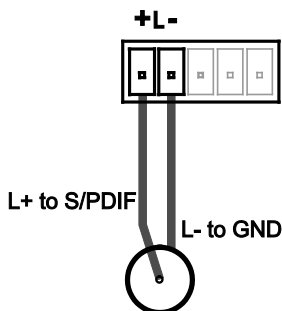
Figure 8: Connecting the Digital S/PDIF Audio Input

7 Presentation Switcher / Scaler Buttons

The **VP-730** includes the following front panel buttons:

- Nine INPUT selector buttons, see section 7.1
- A PIP button, see section 7.2
- BLANK and FREEZE buttons
- Six OSD navigation buttons
- A RESET TO XGA/720p button
- A PANEL LOCK button, see section 7.3

7.1 Switching an Input

Each INPUT SELECTOR button can be used to select the source.

You can switch seamlessly between each input that is connected to a source, by pressing the appropriate INPUT SELECTOR button.

7.2 The PIP Button Feature

The Picture-in-Picture inserter (PIP) uses K-IIT XL™ image insertion technology to present video and graphic sources simultaneously[1]. You can display:

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[1] If the HDMI signal is HDCP protected, it cannot appear on a display that is not HDCP compliant, and the machine will not output a picture on the PC output

- An inserted video source[1] PIP over a graphic source[2]
- An inserted graphic source[2] PIP over a video source[1]

Three types of PIP insertions are available:

- Picture-in-Picture – the PIP image appears over the background image
- Picture + Picture – the video source and the graphic source are placed side by side and the aspect ratio is maintained for each image (two small images with the correct proportions)
- Split – the video source and the graphic source are placed side by side, filling the screen (squeezed horizontally, but not vertically)

7.2.1 Activating the PIP Feature

You can activate the PIP by:

- Pressing the PIP button
- Pressing the PIP key on the infrared remote control transmitter (see section 7.4, Figure 11)
- Switching on the PIP functionality via the OSD Menu (see Figure 16 and Table 8)

7.2.2 Selecting the PIP Source

To use the PIP feature, set the PIP source via the OSD menu (see Figure 16 and Table 8) or the remote-transmitter keys.

To set the PIP source via the OSD menu, do the following:

1. Press the MENU button to enter the OSD menu.
2. Press the ► button to move to the PIP icon.
3. Scroll down to select Source and press ENTER.
4. Use the ▲ or ▼ buttons to select the PIP Source from the drop-down list box, and press ENTER (see Figure 16).
5. To exit the OSD menu, press the MENU button.

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1 That is, composite, s-Video

2 That is, HDMI or PC or component

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Figure 9: PIP Source Over Background

7.2.3 Toggling between the PIP and the Screen Source (Swap)

To toggle between the PIP source and the main display, as Figure 10 illustrates, press the Swap key on the infrared remote control transmitter (see Figure 11).

Figure 10: OSD SWAP Status

7.2.4   Quick Selection of the PIP Source via the Front Panel Buttons

For quick selection of the PIP source, press and hold the PIP front panel button while pressing the input button of the required PIP source. For example, to select PC 2 as the graphic PIP source over a video background, press and hold the PIP front panel button and press the PC 2 front panel button.

> When attempting to select a PIP source of the same category as the background source (for example, video on video, which is not compliant to Table 3), a message appears: "unavailable operation"

To replace a PIP in the same category (for example, changing the PIP source from PC 1 to HDMI 2), press the required PIP Source on the remote control transmitter[1] and the PIP display will change accordingly.

You can swap the PIP source category with the main source category via the:

* Remote control keys, by selecting a new main source and then a new PIP source
* OSD menu, by selecting a new Input source through the Input menu and a new PIP source through the PIP menu

When selecting one PIP source, the **VP-730** automatically recognizes and displays the selected graphic PIP source on all the video displays[2] and the selected video source on all the graphic[2] displays, compliant to Table 3.

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1 The front panel UNIVERSAL INPUT selector buttons IN 1 and IN 2 are named Input 1 and Input 2, respectively, on the IR remote control transmitter. Similarly, the front panel INPUT selector buttons PC 1, PC 2, PC 3 and PC 4, are named VGA 1, VGA 2, VGA 3 and VGA 4, respectively, on the IR remote control transmitter (see section 7.4)

2 Even if the input signal is not connected. In this case the PIP appears over a blank screen

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Table 3: PIP Source Appearance Availability

Main Source		PIP Source						VGA 1	VGA 2	VGA 3	VGA 4	HDMI 1	HDMI 2	USB
		Input 1			Input 2									
		Video	YC	Comp.	Video	YC	Comp.							
Input 1	Video	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Input 1	YC	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Input 1	Comp.	No	No	No	Yes	Yes	No	No	No	No	No	No	No	No
Input 2	Video	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Input 2	YC	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Input 2	Comp.	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No
VGA 1		Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No
VGA 2		Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No
VGA 3		Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No
VGA 4		Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No
HDMI 1		Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No
HDMI 2		Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No
USB[1]		Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No

1 For a USB source with the PIP enabled, the output image size is limited to 960 horizontal pixels

7.3 Locking and Unlocking the Front Panel

To prevent changing the settings accidentally or tampering with the unit via the front panel buttons, lock your **VP-730**. Unlocking releases the protection mechanism. When the front panel is locked, control is still available via RS-232.

To lock the **VP-730**:

- Press and hold the PANEL LOCK button on the front panel for about 2 seconds.
  The front panel is locked and the PANEL LOCK button is illuminated. Pressing a button will have no effect

To unlock the **VP-730**:

- Press the illuminated PANEL LOCK button on the front panel for about 2 seconds
  The front panel unlocks and the PANEL LOCK button is no longer illuminated

For a description of the Save Lock and Input Lock OSD functions, see Table 15.

7.4 The Infrared Remote Control Transmitter

You can control the **VP-730** remotely, from the infrared remote control transmitter, which:

- Is a hand held instrument with a convenient keypad that receives its power from 2 AAA size 1.5V DC batteries
- Has a range of up to 15 meters
- Delivers instantaneous results

Figure 11 and Table 4 define the infrared remote control transmitter:
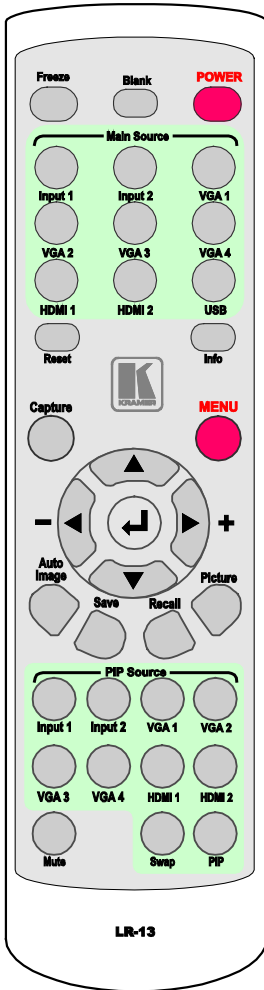
Table 4: Infrared Remote Control Transmitter Functions

Figure 11: Remote Transmitter

Key	Function
Freeze	Pauses the output video[1]
Blank	Toggles between a blank screen (blue or black screen) and the display
POWER	Cycles power
Main Source[2]	Nine separate keys for selecting these sources: Input 1, Input 2, VGA 1, VGA2, VGA 3, VGA 4, HDMI 1, HDMI 2 and USB
Reset	Press and hold to reset to the default resolution[3]
Info	Press to toggle the Info OSD menu
Capture	Capture an image to place as a logo or background (see Table 15)
MENU	Shows the main OSD Menu
Navigation arrows	Allows maneuvering within an OSD screen (left, right, up and down, as well as the ENTER arrow at the center) The + and - buttons increase and decrease the volume level, respectively (when not in the OSD menu)
Auto Image	Assesses the image and improves the quality accordingly, by automatically adjusting the phase, frequency and position
Save	Saves a profile
Recall	Recalls a profile
Picture	Shows the Picture OSD menu
PIP source	Nine separate keys for selecting these PIP sources: Input 1, Input 2, VGA 1, VGA2, VGA 3, VGA 4, HDMI 1, and HDMI 2
Mute	Mutes the audio signal
Swap	Toggles between the PIP content and the parent screen content
PIP	Selects the picture-in-picture function and illuminates the PIP button[4]

---

1 Can be programmed to mute the audio signal at the same time (see Table 15)

2 The front panel UNIVERSAL INPUT selector buttons IN 1 and IN 2 are named Input 1 and Input 2, respectively, on the IR remote control transmitter. Similarly, the front panel INPUT selector buttons PC 1, PC 2, PC 3 and PC 4, are named VGA 1, VGA 2, VGA 3 and VGA 4, respectively, on the IR remote control transmitter

3 Toggles between reset to XGA and reset to 720p

4 See section 7.2

8   Configuring the VP-730 via the OSD MENU Screens

The OSD superimposes a menu on the screen from which you can configure and control each input signal on your **VP-730**, using the MENU, ENTER, ◄, ►, ▲ and ▼ OSD buttons on the front panel and the remote transmitter.

To use the OSD menus:

1.   Select the desired input signal.

2.   Use the menu buttons as follows:

   ▪   Press the MENU front panel OSD button or the MENU key on the infrared remote control transmitter (see Figure 11) to display the main MENU screen[1], which displays eight interactive icons (see Figure 12)

   ▪   Press the MENU front panel OSD button or the MENU key on the infrared remote control transmitter to move to the previous level in the OSD screen (Esc)

   ▪   Press the ◄ or ► buttons to select menu icons and then press ENTER

   ▪   Press the ▲ or ▼ buttons to select the item to be set or adjusted and then press ENTER

   ▪   Press the ▲ or ▼ buttons to set the item and then press ENTER, or

   ▪   Press the ◄ or ► buttons to increase or decrease the (numerical) rate respectively
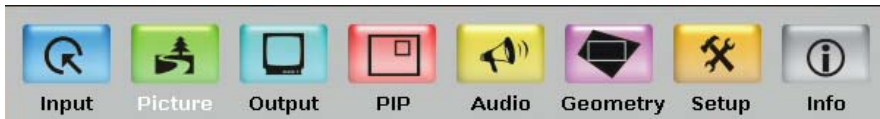
Figure 12: MENU Items

---

1 Each icon represents a Level 1 function. In addition to Level 1, the OSD structure includes Level 2 (a subset of level 1), Level 3 (a subset of level 2), Level 4 (a subset of level 3) and a numerical range

8.1 The Input Screen

Figure 13 and Table 5 define the Input screen.

Figure 13: Input Screen

Table 5: Input Screen Functions[1]

Setting	Function	Selection	Default
Source[2]	Select the source[3]	Input 1, Input 2, VGA 1, VGA 2, VGA 3, VGA 4, HDMI 1, HDMI 2 or USB	
Input (1 to 4) Source Type	Select the source type	Component, YC or video (CV)	Video
Image Name	Shows the file name[4] of the image displayed when the USB port is selected as an input		
Color Format	Select the color format for the HDMI inputs	Auto, RGB or YUV	Auto
Video Standard	Select the video standard	Auto, NTSC, PAL, PAL-M, PAL-N, NTSC 4.43, SECAM or PAL-60	Auto
H-Position	Set the horizontal position[5]	Set according to the input resolution	
V-Position	Set the vertical position	Set according to the input resolution	
Frequency	Adjust the frequency[6]	0 to 50	0
Phase	Adjust the phase	0 to 31	0
Auto image	Assesses the image and improves the quality accordingly, by automatically adjusting the phase, frequency and position		

1 Values may change according to the firmware version (you can download the up-to-date firmware version from our Web site at http://www.kramerelectronics.com)

2 When switching sources, the image fades through black

3 Automatically updated when pressing an input front panel button on the machine

4 Supports JPEG format only. The JPEG file should not exceed a resolution of 2048x1536. If the image file is not within the definition, the machine displays the message: "Size Too Big"

5 For UXGA and component video inputs

6 For UXGA inputs

8.2 The Picture Screen

The Brightness, Contrast, Color and Hue picture settings are saved individually for each input (except USB). Figure 14 and Table 6 define the Picture screen.
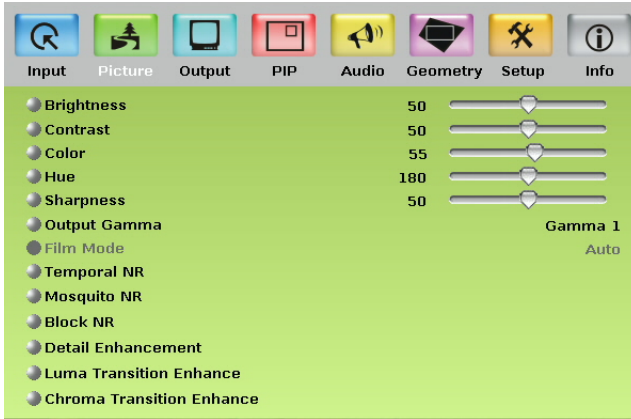
Figure 14: Picture Screen

Table 6: Picture Screen Functions[1]

Setting	Function	Selection/Range	Default
Brightness	Adjust the brightness	0 to 100	50
Contrast	Adjust the contrast	0 to 100	50
Color	Adjust the color	0 to 100	55
Hue	Adjust the hue	0 to 360	180
Sharpness	Adjust the sharpness	0 to 100	50
Output Gamma	Adjust the gamma	Gamma 1 to Gamma 5	Gamma 1
Film Mode	Set the film mode	Auto, Video, Film	Auto
Temporal NR	Set the temporal noise reduction level	Off, Low, Medium, High	High
Mosquito NR	Set the Mosquito noise reduction level	Off, Low, Medium, High	Low
Block NR	Set the block noise reduction level	Off, On	Off
Detail Enhancement	Set the detail enhancement	Off, Low, Medium, High	Medium[2]
Luma Transition Enhance	Set the luminance transition enhance level	Off, Low, High	Low
Chroma Transition Enhance	Set the chrominance transition enhance level	Off, Low, High	Low

---

1 Values may change according to the firmware version (you can download the up-to-date firmware version from our Web site at http://www.kramerelectronics.com)

2 If the USB input is selected, Detail Enhancement is set to Off

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8.3 The Output Screen

Figure 15 and Table 7 define the Output screen.
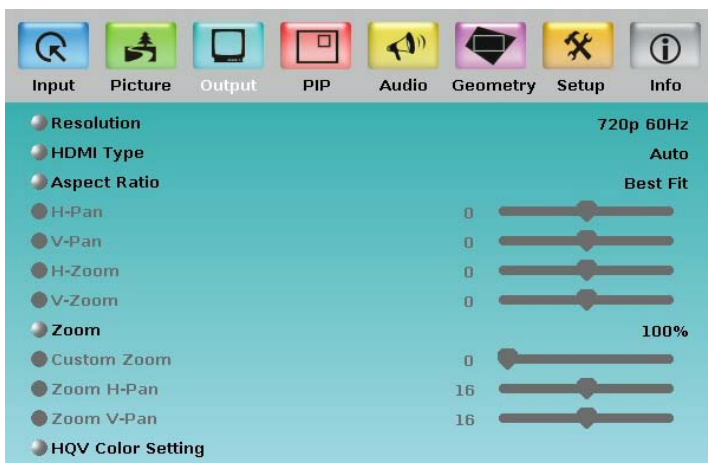
Figure 15: Output Screen

Table 7: Output Screen Functions[1]

Setting	Function	Selection/Range	Default
Resolution[2]	Set the resolution[3]	Native HDMI, 640x480x60Hz, 640x480x75Hz, 800x600x50Hz, 800x600x60Hz, 800x600x75Hz, 1024x768x50Hz, 1024x768x60Hz, 1024x768x75Hz, 1280x768x50Hz, 1280x768x60Hz, 1280x720x60Hz, 1280x800x60Hz, 1280x1024x50Hz, 1280x1024x60Hz, 1280x1024x75Hz, 1366x768x50Hz, 1366x768x60Hz, 1400x1050x50Hz, 1400x1050x60Hz, 1600x1200x50Hz, 1600x1200x60Hz, 1680x1050x60Hz, 1920x1080x60Hz, 1920x1200x60Hz, 480px60Hz, 576px60Hz, 720px50Hz, 720px60Hz, 1080ix50Hz, 1080ix60Hz, 1080px50Hz, 1080px60Hz, 1080p@24Hz or Custom[4]	1024x768@60Hz
HDMI Type	Set the HDMI type	Auto, HDMI, DVI	auto
Aspect Ratio	Set the aspect ratio	Best Fit[5], Letterbox, Follow Output[6], Virtual Wide, Follow Input[7], or Custom	Best Fit

---

1 Values may change according to the firmware version (you can download the up-to-date firmware version from our Web site at http://www.kramerelectronics.com)

2 For the most updated resolution list, go to our Web site at http://www.kramerelectronics.com

3 Any change in the resolution must be confirmed via the count-down message that appears on the screen

4 From Custom 1 to Custom 4

5 The best possible compromise between the input and the output aspect ratios

6 If the input $\leq$ output, scale up the picture. If the input $\geq$ output, scale down the picture

7 If the input $\leq$ output, display with a blank border. If the input $\geq$ output, crop the image

Setting	Function	Selection/Range	Default
H-Pan[1]	Horizontal pan	-16 to 16	0
V-Pan[1]	Vertical pan	-16 to 16	0
H-Zoom[1]	Horizontal zoom	-8 to 8	0
V-Zoom[1]	Vertical zoom	-8 to 8	0
Zoom	Set the Zoom	100%, 150%, 200%, 225%, 250%, 275%, 300%, 325%, 350%, 375%, 400%, Custom	100%
Custom Zoom	Set the Zoom	From 100% to 400%	
Zoom H-Pan		0 to 32	16
Zoom V-Pan		0 to 32	16
HQV Color Setting	Color saturation	Adjust RGB and CMY[2] individually (-100 to 100)	

1 Available when selecting Custom aspect ratio

2 CMY means Cyan, Magenta and Yellow

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8.4 The PIP Screen

Figure 16 and Table 8 define the PIP screen.
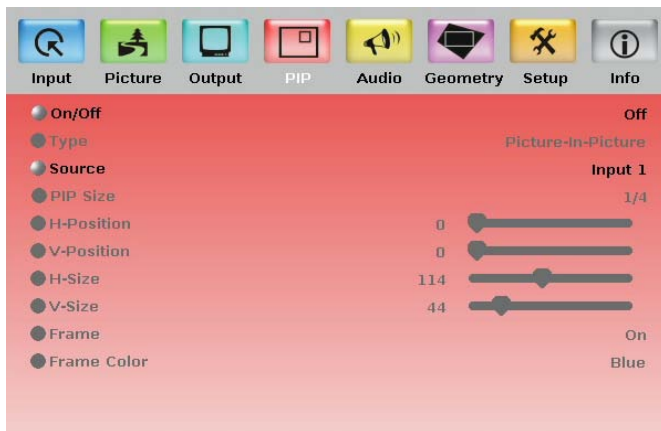
Figure 16: PIP Screen

Table 8: PIP Screen Functions[1]

Setting	Function	Selection/Range	Default
On/Off	Activate/deactivate the PIP feature[2]	On/Off	Off
Type	Select the PIP type	Picture-In-Picture, Picture + Picture[3] or Split	Picture-In-Picture
Source	Select the PIP source[4]	See Table 3	
PIP Size	Select the PIP size[5]	1/25, 1/16, 1/9, 1/4, or Custom	1/4
H-Position	Set the horizontal position of the PIP on the display	0 – 128	3
V-Position	Set the vertical position of the PIP on the display	0 – 128	0
H-Size	Set custom size[6]	1 – 255	
V-Size	Set custom size[6]	1 – 255	
Frame	Turn the PIP frame on or off	On/Off	On
Frame Color	Select the color of the PIP frame	Red, Green or Blue	Blue

---

1 Values may change according to the firmware version (you can download the up-to-date firmware version from our Web site at http://www.kramerelectronics.com)

2 For a USB source with the PIP enabled, the maximum output image size is 960 horizontal pixels

3 Maintains the aspect ratio

4 When changing the PIP source, the display fades through black

5 The PIP size can be set up to the full height and up to half the width of the screen

6 The actual range depends upon the input resolution

8.5 The Audio Screen

Figure 17 and Table 9 define the Audio screen.
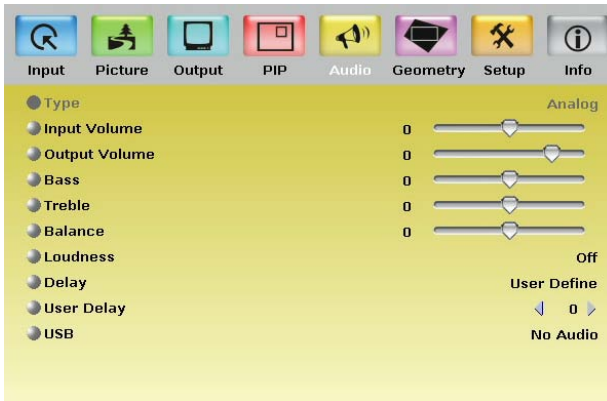
Figure 17: Audio Screen

Table 9: Audio Screen Functions[1]

Setting	Function	Selection/Range	Default
Type	Select the audio input type[2]	Analog or S/PDIF	Analog
Input Volume	Adjust the input volume	-22 to 22	0
Output Volume	Adjust the output volume	-100 to 24	0
Bass	Adjust the bass	-36 to 36	0
Treble	Adjust the treble	-36 to 36	0
Balance	Adjust the balance	-10 to 10	0
Loudness	Set the loudness	On/Off	Off
Delay	Define the delay type	Dynamic or User Define	Dynamic[3]
User Delay	Available when selecting the User Defined delay	0 to 340[4] (msec)	0
USB	Select the audio signal to follow the USB signal	No Audio, Input 1, Input 2, VGA 1, VGA 2, VGA 3 or VGA 4	No Audio

---

1 Values may change according to the firmware version (you can download the up-to-date firmware version from our Web site at http://www.kramerelectronics.com)

2 Available for IN 1, IN 2, PC1, PC2, PC3 and PC4

3 Dynamic means that the audio delay is equal to the pipeline video delay

4 In 2msec steps

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8.6 The Geometry Screen

Figure 18 and Table 10 define the Geometry screen, allowing the user flexibility in positioning his projector relative to the screening surface.

Figure 18: Geometry Screen

Table 10: Geometry Screen Functions[1]

Setting	Function	Selection/Range	Default
Application	Select the output application	Keystone, Anyplace or Rotation	Keystone
Location	Select the location of the display	Front, Rear, Ceiling or Rear ceiling	Front
Horizontal Keystone	Adjust the horizontal keystone[2]	-40 to 40	0
Vertical Keystone	Adjust the vertical keystone[3]	-30 to 30	0
Diagonal Projection	Move the location of each corner of the display separately	Top Left[4], Top Right[4], Bottom Left[4], Bottom Right[4] or Reset (to reset diagonal projections settings)	Top Left
Pincushion/Barrel	Adjust the pincushion or barrel appearance of the screen	-20 to 20	0
Rotation	Rotate the display by 360° (180° clockwise or counterclockwise)	-180 to 180	0
Reset all	Resets the geometry values to their default value		

Table 11 defines the settings available for each application:

---

1 Values may change according to the firmware version (you can download the up-to-date firmware version from our Web site at http://www.kramerelectronics.com)

2 If the projector is located at an angle to the left or right of the screen

3 If the projector is located at an angle above or below the screen

4 Horizontal and vertical

Table 11: Available Settings for Each Application

Application	Available Settings
Keystone	Location, horizontal keystone, vertical keystone, pincushion/barrel and Reset all
Anyplace	Location, Diagonal Projection and Reset all
Rotation	Location, pincushion/barrel, Rotation and Reset all

8.7 The Setup Screen

Figure 19 and Table 12 define the Setup screen.
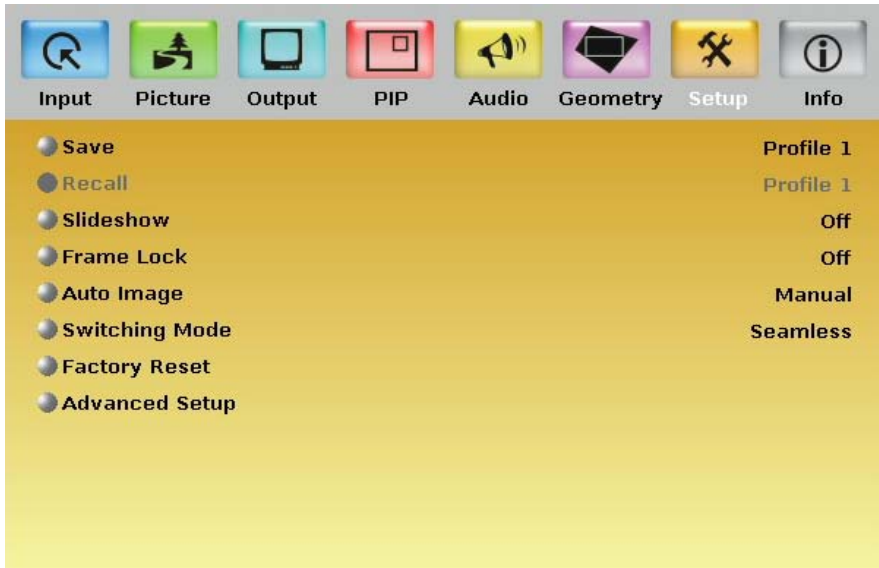
Figure 19: Setup Screen

Table 12: Setup Screen Functions

Setting	Function	Selection/Range	Default
Save	Save a profile	From Profile 1 to Profile 8	
Recall	Recall a profile	From Profile 1 to Profile 8	
Slideshow	Set speed for slide show (see section 8.7.1)	Min, Low, Mid, Long, Max, Off	Slideshow
Frame Lock	Locks the vertical refresh rate of the output to that of the input[1,2]	On/Off	Off

---

1 Note that seamless switching is not possible when working in the Frame Lock mode unless all sources are frame synchronized

2 In cases where the output resolution can support the vertical refresh rate of the input, the output refresh rate will change according to the input refresh rate

---

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Setting	Function	Selection/Range	Default
Auto Image	Automatically adjust and align the picture each time one of the UXGA inputs is selected or if the UXGA input resolution has changed	Manual, Auto	Manual
Switching Mode	Select seamless switching (fade-through-Black) or fast switching which is faster but may cause glitches on the output (applies when switching between analog inputs)	Seamless, Fast	Seamless
Factory Reset	Reset your **VP-730** to its preset default settings	Yes/No	
Advanced Setup:	Open the advanced setups (see Figure 20)	Mode Set (see Table 13) OSD (see Table 14) Misc (see Table 15) Input (see Table 16) Output (see Table 17)	

8.7.1 The Slideshow Feature

The **VP-730** lets you run a slideshow via the USB input and set the slideshow speed via the slideshow feature.

To prepare a slideshow:

1. Load the slideshow JPEG[1] images to a USB memory stick.
   The slides will appear in alphabetical order.

2. Open the Setup menu and set the desired speed in the slideshow item and then close the menu.

3. Connect the Memory stick to the USB connector on the front panel.

4. Select the USB INPUT button on the front panel.
   The slideshow begins at the set speed.

You have to set the slideshow parameters before you run the slideshow

You can control the slide show by pressing the:

- FREEZE button to pause
- USB button to play and stop the slideshow
- ▲ (up arrow) button to go to the previous slide
- ▼ (down arrow) button to go to the next slide

---

1 JPEG files are recognized up to 2048x1536

8.7.2 The Advanced Setup Screen

Figure 20 and Table 14 to Table 17 (inclusive) define the Advanced Setup screen.
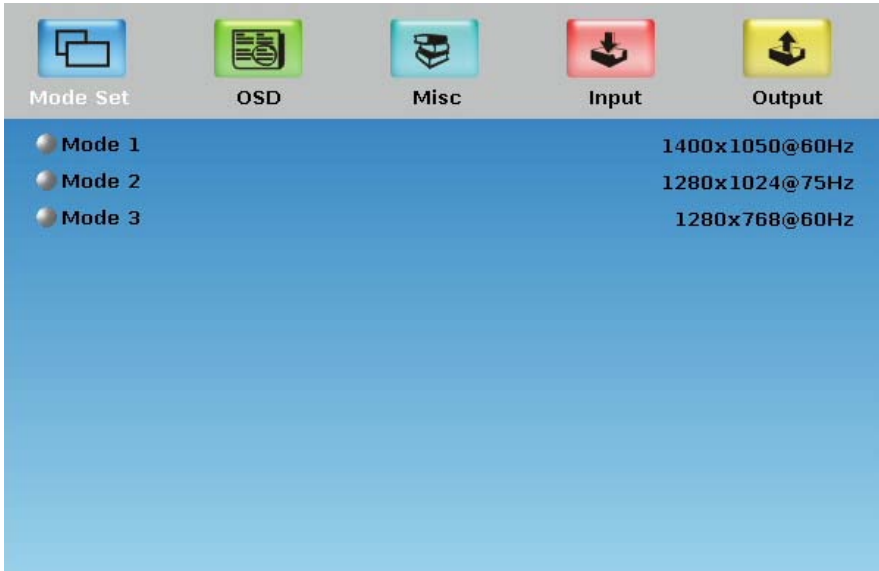
Figure 20: Advanced Setup Screen

The Mode Set functions define the desired working resolution and refresh rate when the system cannot distinguish between similar resolutions and refresh rate values (see Table 13).

Table 13: Mode Set Functions

Setting	Function	Selection/Range	Default
Mode 1[1]	Set mode 1	1400x1050x60Hz 1680x1050x60Hz	1400x1050x60Hz
Mode 2	Set mode 2	1280x1024x75Hz 1280x1024x76Hz	1280x1024x75Hz
Mode 3	Set mode 3	1280x768x60Hz 1366x768x60Hz	1280x768x60Hz

Table 14: OSD Functions

Setting	Function	Selection/Range	Default
Menu Position	Set the location of the OSD menu	Center, Top Left, Top Right, Bottom Left, Bottom Right	Center
Time Out (sec)	Set the OSD menu timeout	5, 10, 20, 30, 60, 90 or Off	30

---

1 Since both resolutions have the same number of lines, we can define for the unit to identify the above resolutions as 1400x1050 or as 1680x1050

Figure 21 and Table 15 define the Misc Setup screen.

Figure 21: Misc Setup Screen

Table 15: Misc Functions

Setting	Function	Selection/Range	Default
Logo	Choose ON for the start up logo to appear on the screen OFF for it not to appear Set to Custom to download a custom Logo[1] (Flash ROM)	On, Off or Custom	Kramer Logo
Blank Color	Set the blank color (the color that appears on the screen when the blank button is pressed)	Black or Blue	Blue
Capture	Press to capture the currently displayed image. This captured image can be used as a logo, or as the background if the Background setting is set to Custom, or when no input is connected and the output sync is ON. Note: 1. The unit can capture the image for an input source with a resolution up to 1920x1200 2. The output resolution must be <1400 horizontal pixels in order to capture 3. The PIP must be off in order to use the capture feature	Prompts "Capture" If PIP is on, prompts "Cannot Capture with PIP If the output resolution is too high, prompts "Output resolution too high for Capture"	
Background	Set the background screen color if an input without a signal is selected	Blue, Black, Custom[1] or Disable Analog Sync[2]	Default

---

1 Obtained via the Capture function or downloaded via USB

2 When selected, if an input is not connected for over 2 minutes, will cause the output SYNC to turn Off

Setting	Function	Selection/Range	Default
Save Lock	Set the Save Lock option to ON to save the lock status when the machine is powered down	On/Off	Off
Input Lock	Set the Input Lock to OFF so you can still use the SOURCE buttons on the front panel even when the lock button is on	On/Off	On
Firmware Download	Download the firmware via the USB connection	Confirmation	
Logo Download	Download a new logo via the USB connection		
Blank	Define the function of the BLANK front panel button	Blank & Mute, Blank, Mute	Blank & Mute
Freeze	Define the function of the FREEZE front panel button	Freeze & Mute, Freeze, Mute	Freeze & Mute
HDCP Setting	Define whether the HDCP will follow the input or the output	Follow Input[1], Follow Output[2]	Monitor
Overscan	Allows stretching of the outputted	On, Off	Off

Table 16: Input Functions

Setting	Function	Range	Default
Custom Input	Custom Input	Custom 1 to custom 4	Custom 1
HT	Horizontal Total		1344
HW	Horizontal sync pulse width		136
HS	Horizontal active start point		296
HA	Horizontal active region		1024
HP	Horizontal polarity		
VT	Vertical Total		806
VW	Vertical sync pulse width		6
VS	Vertical active start point		35
VA	Vertical active region		768
VP	Vertical polarity		
OCLK	Output clock		65
Enable	Set to On to enable parameter change		Off
Save	Apply settings		N/A

---

1 When Follow Input is selected, the Scaler changes its HDCP output setting (for the HDMI output) according to the HDCP of the input. This option is recommended when the HDMI Scaler output is connected to a splitter/switcher (in this mode, switching may not be glitch-free)

2 When Follow Output is selected, the Scaler matches its HDCP output to the HDCP setting of the HDMI acceptor to which it is connected. This ensures smooth switching, regardless of the input

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Table 17: Output Functions

Setting	Function	Range	Default
Custom Output	Custom 1 to Custom 4	Custom 1	
HT	Horizontal total		1344
HW	Horizontal sync pulse width		136
HS	Horizontal active start point		296
HA	Horizontal active region		1024
HP	Horizontal polarity		
VT	Vertical total		806
VW	Vertical sync pulse width		6
VS	Vertical active start point		35
VA	Vertical active region		768
VP	Vertical polarity		
OCLK	Output clock		65
Apply	Press to apply the settings		
Save	Save setup		
Set Current	Import the values of the currently selected output resolution into the User Mode Setting		N/A

8.8 Verifying Configuration Details via the Info Screen

From the Information screen (see Figure 22), you can verify the main source, PIP source, the output resolution, the SYNC mode, as well as the firmware revision and the audio board firmware version (for example, 1.0 in Figure 22):
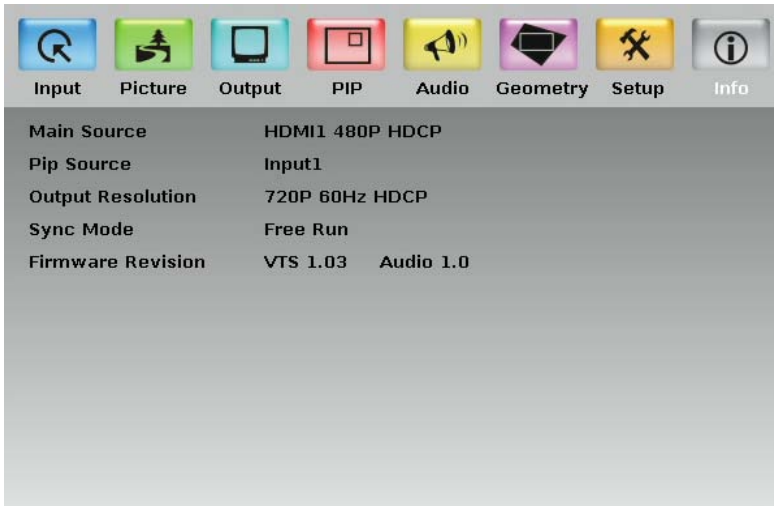
Figure 22: Information Screen

9 Using Text Overlay

The text overlay feature is accessed via the Application Program (AP)[1].

Running this AP with the PC connected to the **VP-730** lets you display text over the screen, with features including text color and speed, transparency, text position and repetition. Current text overlay settings can be saved and loaded to the AP.

Figure 23 and Table 18 define the Text Overlay Application Screen:
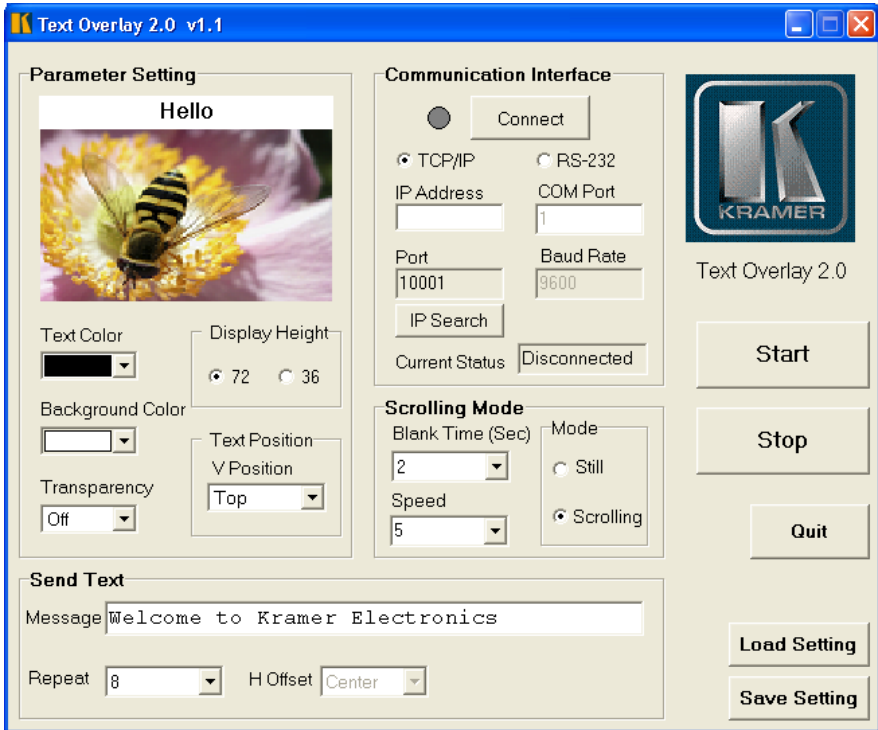
Figure 23: TextOverlay Application Screen

---

1 You can download the latest software from our Web site: http://www.kramerelectronics.com

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Table 18: Features and Functions of the TextOverlay Application

| Feature	Function
Parameter Setting Area	
Text Color Dropdown Box	Select the Text color
Background Color Dropdown Box	Set the text background color
Transparency Dropdown Box	Select On for a transparent background or Off for a non-transparent background
Display Height Check Box	Set the thickness of the background stripe (72 or 36)
Text Position – V-Position	Set the vertical position of the text background on the display screen (Top, Center or Bottom)
Communication Interface Area	
Connect/Disconnect	Connect the machine or disconnect
TCP/IP Check box	When selected, set the *IP Address*[1] and *Port* to connect via Ethernet[2]
RS-232 Check box	When selected, set the *COM port* and *Baud Rate* (9600) to connect via the RS-232 connector[2]
Scrolling Mode Area	
Blank Time (Sec) Dropdown Box	Set the blank delay time (from 1 to 5)
Speed Dropdown Box	Set the speed at which the text moves on the display (from 1 to 5)
Mode	Set to *Still* (fixed text) or *Scrolling* (text moves across the display)
Send Text Area	
Message	Type the desired text in the *Message* box
Repeat Dropdown Box	Set the number of times that the text message will scroll across the screen[3] (1 to 20), or set to *Forever* to repeat the text message continuously
H-Offset Dropdown Box	After selecting the *Static* mode, use the *H-Offset* box to select the horizontal position of the text (Left Center or Right)
Start Button	Click to display the text on screen
Stop Button	Click to stop scrolling on screen
Quit Button	Click to quit the program
Load Setting Button	Click to load a previously saved setting
Save Setting Button	Click to save the current setting

---

1 Or search the IP address

2 You have to select the connection type before connecting the software to the machine

3 For example, set to 2 to repeat the text twice

10 Audio Flash Memory Upgrade

The **VP-730** audio firmware is located in FLASH memory, which lets you upgrade[1] to the latest Kramer firmware version in minutes! The process involves:

- Downloading from the Internet (see section 10.1)
- Connecting the PC to the AUDIO PROG. terminal block connector (see section 10.2)
- Upgrading Firmware (see section 10.3)

10.1 Downloading from the Internet

You can download the up-to-date file[2] from the Internet. To do so:

1. Go to our Web site at www.kramerelectronics.com and download the file: "*FLIP_VP730.zip*" from the Technical Support section.

2. Extract the file: "*FLIP_VP730.zip*" to a folder (for example, C:\Program Files\Kramer Flash).

3. Create a shortcut on your desktop to the file: "*FLIP.EXE*".

10.2 Connecting the PC to the RS-232 Port

Before installing the latest Kramer audio firmware version on a **VP-730** unit, do the following:

1. Connect the PC to the AUDIO PROG. terminal block connector, as defined in Figure 24 and Table 19:
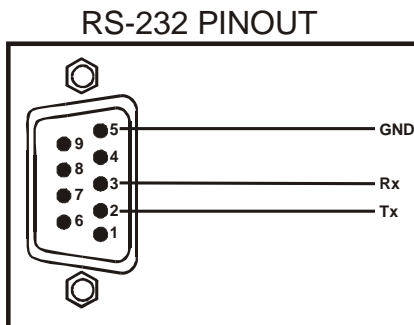
Figure 24: RS-232 PINOUT Connection

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1 Upgrade should be carried out by skilled technical personnel. Failure to upgrade correctly will result in the malfunction of the machine

2 The files indicated in this section are given as an example only. File names are liable to change from time to time

Table 19: RS-232 PINOUT Connection

Connect this PIN on the Terminal Block Connector:	To this PIN on the 9-pin D-sub Connector
Tx	PIN 2
Rx	PIN 3
GND	PIN 5

2. Push the AUDIO PROG. button using a small screwdriver.

3. Switch the unit ON.

Note: this sequence is critical – first push the AUDIO PROG button and then turn on the unit

10.3   Upgrading the Audio Firmware

Follow these steps to upgrade the audio firmware:

1. Double click the desktop icon: "*Shortcut to FLIP.EXE*".
   The Splash screen appears as follows:

Figure 25: Splash Screen

2. After a few seconds, the Splash screen is replaced by the "*Atmel – Flip*" window:

Figure 26: Atmel – Flip Window

3. Press the keyboard shortcut key *F2* (or select the "*Select*" command from the *Device* menu, or press the integrated circuit icon in the upper right corner of the window).
    The "*Device Selection*" window appears:

Figure 27: Device Selection Window

4. Click the button next to the name of the device and select from the list: AT89C51RD2:
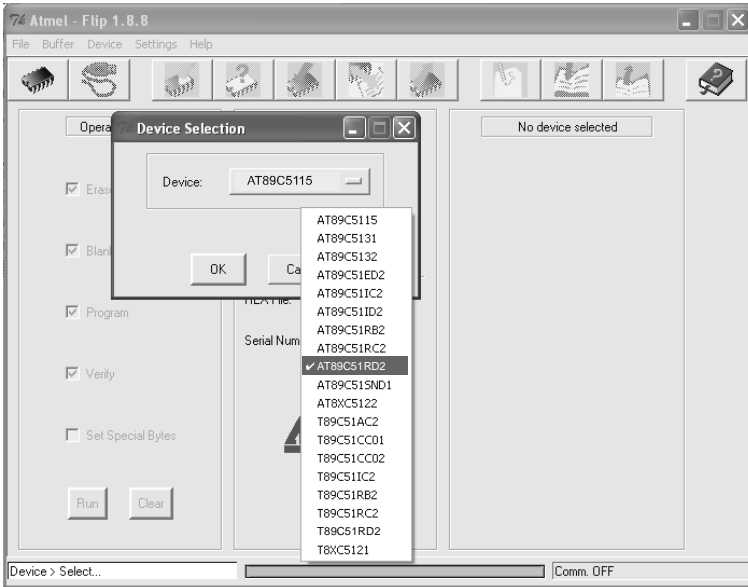
Figure 28: Selecting the Device Window

5. Click OK and select "*Load Hex*" from the *File* menu.
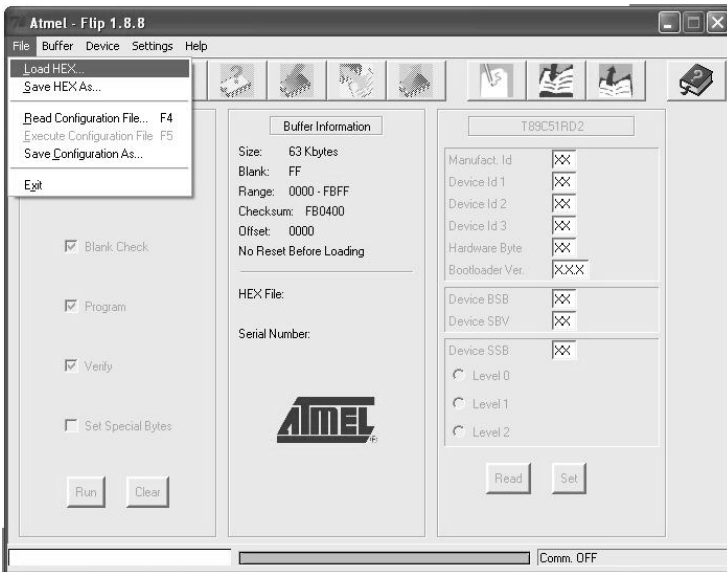
Figure 29: Loading the Hex

6. The Open File window opens. Select the correct HEX file that contains the updated version of the firmware for **VP-730** (for example *44M_V1p2.hex*) and click Open.

7. Press the keyboard shortcut key *F3* (or select the "*Communication / RS232*" command from the *Settings* menu, or press the keys: *Alt SCR*).
    The "*RS232*" window appears. Change the COM port according to the configuration of your computer and select the 9600 baud rate:
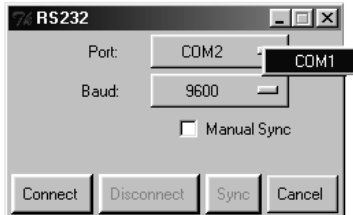
Figure 30: RS-232 Window

8. Click Connect.
    In the "*Atmel – Flip*" window, in the *Operations Flow* column, the *Run* button is active, and the name of the chip appears as the name of the third column: *AT89C51RD2*.
    Verify that in the *Buffer Information* column, the "*HEX File: VP730.hex*" appears.
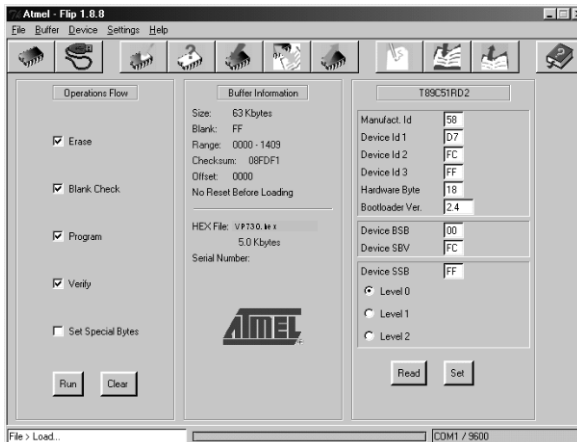
Figure 31: Atmel – Flip Window (Connected)

9. Click *Run*.
    After each stage of the operation is completed, the check-box for that stage

becomes colored green[1].

When the operation is completed, all 4 check-boxes will be colored green and the status bar message: *Memory Verify Pass* appears[2]:
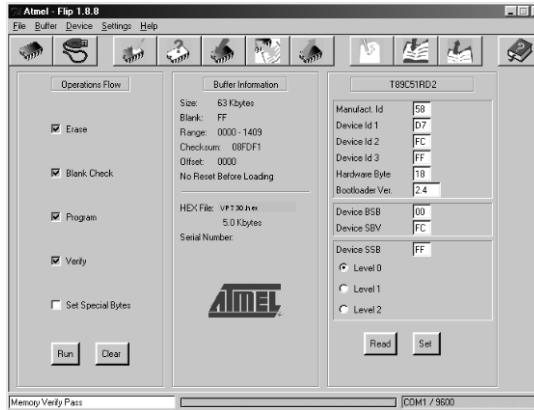
Figure 32: Atmel – Flip Window (Operation Completed)

10. Close the "*Atmel – Flip*" window.

11. Disconnect the power on the **VP-730**.

12. If required, disconnect the rear panel AUDIO PROG. terminal block connector on the **VP-730**.

13. Release the rear panel AUDIO PROG. button, using a small screwdriver.

14. Connect the power to the **VP-730**.
    Upon initialization, the new **VP-730** audio software version shows in the Information menu (see section 8.8).

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1 See also the blue progress indicator on the status bar

2 If an error message: "Not Finished" shows, click Run again

11 Technical Specifications

Table 20 includes the technical specifications:

Table 20: Technical Specifications[1] of the VP-730 Presentation Switchers / Scaler

INPUTS:	2 x universal Y/CV, Pb/C, Pr (composite, s-Video and component) 1 Vpp/75Ω on BNC connectors; 4 x PC (computer graphics) on 15-pin HD connectors (VGA through UXGA) 2 x HDMI connectors 1 x USB connector For each universal and PC input there is a corresponding balanced stereo audio or digital S/PDIF input on 5-pin terminal blocks
OUTPUTS:	1 HDMI connector 2 x PC (computer graphics) on 15-pin HD connectors 1 balanced audio stereo output on a 5-pin terminal block 1 digital S/PDIF output on an RCA connector
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI 1.3 and HDCP
OUTPUT RESOLUTIONS[2]:	Native HDMI, 640x480x60Hz, 640x480x75Hz, 800x600x50Hz, 800x600x60Hz, 800x600x75Hz, 1024x768x50Hz, 1024x768x60Hz, 1024x768x75Hz, 1280x768x50Hz, 1280x768x60Hz, 1280x720x60Hz, 1280x800x60Hz, 1280x1024x50Hz, 1280x1024x60Hz, 1280x1024x75Hz, 1366x768x50Hz, 1366x768x60Hz, 1400x1050x50Hz, 1400x1050x60Hz, 1600x1200x50Hz, 1600x1200x60Hz, 1680x1050x60Hz, 1920x1080x60Hz, 1920x1200x60Hz, 480px60Hz, 576px60Hz, 720px50Hz, 720px60Hz, 1080ix50Hz, 1080ix60Hz, 1080px50Hz, 1080px60Hz, 1080p@24Hz or Custom[3]
CONTROL:	Front panel buttons / OSD, IR remote control, RS-232 on a 9-pin D-sub connector, Picture-In-Picture: Video in Graphics (or vice versa) in any size and at any location, PIP or Split Screen (2 images side-by-side)
ADDITIONAL CONTROLS:	Freeze, zoom, different selectable vertical refresh rates, Video and Audio ProcAmp control, output image scaling and aspect ratio change
POWER SOURCE:	100-240 VAC, 50/60 Hz, 58VA automatic power supply
DIMENSIONS:	19" (W), 9.3" (D) 1U (H) rack mountable
WEIGHT:	3kg (6.6lbs.) approx.
ACCESSORIES:	Null modem adapter, IR remote control, and power cord

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1 Specifications are subject to change without notice

2 For the most updated resolution list, go to our Web site at http://www.kramerelectronics.com

3 From Custom 1 to Custom 4

Table 21: Technical Specifications of the RGBHV / RGBS (PC) / RGsB (PC) Input Signal[1]

Resolution	Vertical Frequency (Hz)	Notes	Resolution	Vertical Frequency (Hz)	Notes
640x480	60		1152x870	75	Mac21
640x480	67	Mac13	1152x900	66	Sun
640x480	72		1152x900	76	Sun
640x480	75		1280x720	60	
640x480	85		1280x800	60	
720x400	70		1280x960	60	
720x400	85		1280x960	85	
800x600	56		1280x768	60	
800x600	60		1280x1024	60	
800x600	72		1280x1024	75	
800x600	75		1280x1024	76	Sun
800x600	85		1280x1024	85	
832x624	75	Mac16	1366x768	60	
1024x768	60		1400x1050	60	
1024x768	70		1400x1050	75	
1024x768	75		1440x900	60	
1024x768	75	Mac19	1600x1200	60	
1024x768	85		1680x1050	60	
1024x800	84	Sun	1920x1080	60	
1152x864	75		1920x1200	60	

Table 22: Technical Specifications of the HDMI Input Signal (for RGB Colorspace)

Resolution	Vertical Frequency (Hz)	Notes	Resolution	Vertical Frequency (Hz)	Notes
640x480	60		1152x870	75	Mac21
640x480	67	Mac13	1152x900	66	Sun
640x480	72		1152x900	76	Sun
640x480	75		1280x720	60	
640x480	85		1280x800	60	
720x400	70		1280x960	60	
720x400	85		1280x960	85	
800x600	56		1280x768	60	
800x600	60		1280x1024	60	
800x600	72		1280x1024	75	
800x600	75		1280x1024	76	Sun
800x600	85		1280x1024	85	
832x624	75	Mac16	1366x768	60	
1024x768	60		1400x1050	60	
1024x768	70		1400x1050	75	
1024x768	75		1440x900	60	
1024x768	75	Mac19	1600x1200	60	
1024x768	85		1680x1050	60	
1024x800	84	Sun	1920x1200	60	
1152x864	75				

---

1 For the most updated resolution list, go to our Web site at http://www.kramerelectronics.com

Table 23: Technical Specifications of the Y/C, Video Signal

Standard	NTSC, NTSC4.43, PAL, PAL-M, PAL-N, SECAM, PAL-60

Table 24: Technical Specifications of the HDMI Input Signal (for RGB or YUV Colorspace)

Resolution	Vertical Frequency (Hz)	Remark
1080i	60	YPbPr
1080i	50	YPbPr
1080p	60	YPbPr
1080p	50	YPbPr
1080P	24fps	YPbPr
720p	60	YPbPr
720p	50	YPbPr
480i	60	YPbPr
480p	60	YPbPr
576i	50	YPbPr
576p	50	YPbPr

Table 25: Technical Specifications of the Component Input Signal

Resolution	Vertical Frequency (Hz)	Remark
1080i	60	YPbPr
1080i	50	YPbPr
1080p	60	YPbPr
1080p	50	YPbPr
720p	60	YPbPr
720p	50	YPbPr
480i	60	YPbPr
480p	60	YPbPr
576i	50	YPbPr
576p	50	YPbPr

Table 26: Technical Specifications of the RGBHV/Comp/YPbPr Output Signal

Resolution	Vertical Frequency (Hz)
640x480	60
640x480	75
800x600	50
800x600	60
800x600	75
1024x768	50
1024x768	60
1024x768	75
1280x720	60
1280x768	50
1280x768	60
1280x800	60
1280x1024	50
1280x1024	60
1280x1024	75
1366x768	50
1366x768	60
1400x1050	50
1400x1050	60
1600x1200	50
1600x1200	60
1920x1080	60
1920x1200	60
1680x1050	60
1080i	60
1080i	50
720p	60
720p	50
480p	60
576p	50
1080p	50
1080p	60

Table 27: Technical Specifications of the HDMI/RGB Output Signal

Resolution	Vertical Frequency (Hz)
640x480	60
640x480	75
800x600	50
800x600	60
800x600	75
1024x768	50
1024x768	60
1024x768	75
1280x720	60
1280x768	50
1280x768	60
1280x800	60
1280x1024	50
1280x1024	60
1280x1024	75
1366x768	50
1366x768	60
1400x1050	50
1400x1050	60
1600x1200	50
1600x1200	60
1920x1080	60
1920x1200	60
1680x1050	60
1080i	60
1080i	50
720p	60
720p	50
480p	60
576p	50
1080p	50
1080p	60
1080p	24

12 VP-730 Communication Protocol

Serial Configuration:

Baud rate: 9600 (Bits per second)

Data bits: 8bits

Parity: None

Stop bits: 1bit

Communication confirmation:

Send: CR

Reply: CR>

Set Command:

Send: Y■Control_Type■Function■Param■CR

Reply: Z■Control_Type■Function■Param■CR>

Get Command:

Send: Y■Control_Type■Function■CR

Reply: Z■Control_Type■Function■Param■CR>

Example: set Input 1 Source Type to Component

Send: Y■0■0■0■CR

Reply: Z■0■0■0■CR>

Example: get current Input 1 Source Type

Send: Y■1■0■CR

Reply: Z■1■0■0■CR >

Definition:

■: ASCII Code 0x20

CR: Ascii Code 0x0D

Go to our Web site at http://www.kramerelectronics.com to check for the
latest **VP-730** communication protocol

| Control Type | | Function | Parameter | Description |
Set	Get			
0	1	0	0: Input 1 1: Input 2 2: Input 3 3: Input 4 4: VGA 1 5: VGA 2 6: HDMI 1 7: HDMI 2 8: USB	Input Source
0	1	1	0: Component 1: YC 2: Video	Input 1 Source Type
0	1	2	0: Component 1: YC 2: Video	Input 2 Source Type
0	1	3	N/A	N/A
0	1	4	N/A	N/A
0	1	5	0: Auto 1: RGB 2: YUV	Input Color Format
0	1	6	0: Auto 1: NTSC 2: PAL 3: PAL-M 4: PAL-N 5: NTSC 4.43 6: SECAM 7: PAL-60	Input Video Standard
0	1	7	0 ~ N	Input H-Position, N: changed with different input mode
0	1	8	0 ~ N	Input H-Position, N: changed with different input mode
0	1	9	0 ~ N	Input H-Position, N: changed with different input mode
0	1	10	0 ~ 31	Input Phase
0	-	11	N/A	Input Auto Image
0	1	12	0~100	Picture Brightness
0	1	13	0~100	Picture Contrast
0	1	14	0~100	Picture Color
0	1	15	0~360	Picture Hue
0	1	16	0~100	Picture Sharpness
0	1	17	0: Gamma 1 1: Gamma 2 2: Gamma 3 3: Gamma 4 4: Gamma 5	Picture Output Gamma
0	1	18	0: Auto 1: Video 2: Film	Picture Film Mode
0	1	19	0: Off	Picture Temporal NR

Control Type		Function	Parameter	Description
Set	Get			
			1: Low 2: Medium 3: High	
0	1	20	0: Off 1: Low 2: Medium 3: High	Picture Mosquito NR
0	1	21	0: Off 1: On	Picture Block NR
0	1	22	0: Off 1: Low 2: Medium 3: High	Picture Detail Enhancement
0	1	23	0: Off 1: Low 2: High	Picture Luma Transition Enhance
0	1	24	0: Off 1: Low 2: High	Picture Chroma Transition Enhance
0	1	25	0 : Native HDMI 1 : 640x480@60Hz 2 : 640x480@75Hz 3 : 800x600@50Hz 4 : 800x600@60Hz 5 : 800x600@75Hz 6 : 1024x768@50Hz 7 : 1024x768@60Hz 8 : 1024x768@75Hz 9 : 1280x768@50Hz 10: 1280x768@60Hz 11: 1280x720@60Hz 12: 1280x800@60Hz 13: 1280x1024@50Hz 14: 1280x1024@60Hz 15: 1280x1024@75Hz 16: 1366x768@50Hz 17: 1366x768@60Hz 18: 1400x1050@50Hz 19: 1400x1050@60Hz 20: 1600x1200@50Hz 21: 1600x1200@60Hz 22: 1680x1050@60Hz 23: 1920x1080@60Hz 24: 1920x1200@60Hz 25: 480p@60Hz 26: 576p@60Hz 27: 720p@50Hz 28: 720p@60Hz 29: 1080i@50Hz 30: 1080i@60Hz 31: 1080p@50Hz 32: 1080p@60Hz	Output Resolution

| Control Type | | Function | Parameter | Description |
Set	Get			
			33: 1080p@24Hz 96: Custom1 97: Custom2 98: Custom3 99: Custom4	
0	1	26	0: Auto 1: HDMI 2: DVI	Output HDMI Type
0	1	27	0: Best Fit 1: Letterbox 2: Follow Output 3: Virtual Wide 4: Follow Input 5: Custom	Aspect Ratio
0	1	28	-16 ~ 16	H-Pan
0	1	29	-16 ~ 16	V-Pan
0	1	30	-8 ~ 8	H-Zoom
0	1	31	-8 ~ 8	V-Zoom
0	1	32	0: 100% 1: 150% 2: 200% 3: 225% 4: 250% 5: 275% 6: 300% 7: 325% 8: 350% 9: 375% 10: 400% 11: Custom	Zoom
0	1	33	0 ~ 32	Custom Zoom
0	1	34	0 ~ 32	Zoom H-Pan
0	1	35	0 ~ 32	Zoom V-Pan
0	1	36	0: Off 1: On	PIP On/Off
0	1	37	0: Picture-In-Picture 1: Picture + Picture 2: Split	PIP Type
0	1	38	0: Input 1 1: Input 2 2: Input 3 3: Input 4 4: VGA 1 5: VGA 2 6: HDMI 1 7: HDMI 2	PIP Source
0	1	39	0: 1/25 1: 1/16 2: 1/9 3: 1/4 4: Custom	PIP Size
0	1	40	0 ~ 128	PIP H-Position
0	1	41	0 ~ 128	PIP V-Position

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Control Type		Function	Parameter	Description
Set	Get			
0	1	42	1 ~ 255	PIP H-Size
0	1	43	1 ~ 255	PIP V-Size
0	1	44	0: Off 1: On	PIP Frame
0	1	45	0: Red 1: Green 2: Blue	PIP Frame Color
0	1	46	0: Analog 1: S/PDIF	Audio Input Type
0	1	47	-22~0~+22	Audio Input Volume
0	1	48	-100~24	Audio Output Volume
0	1	49	-36~0~+36	Audio Bass
0	1	50	-36~0~+36	Audio Treble
0	1	51	-10~10	Audio Balance
0	1	52	0: Off 1: On	Audio Loudness
0	1	53	0: Dynamic 1: User Define	Audio Delay
	1	54	0~340 (step 2)	User Delay
0	1	55	0: No audio 1: Input 1 2: Input 2 3: VGA1 4: VGA2 5: VGA3 6: VGA4	Audio Input For USB
0	1	56	0: Keystone 1: Anyplace 2: Rotation	Geometry Application
0	1	57	0: Front 1: Ceiling 2: Rear 3: Rear ceiling	Geometry Location
0	1	58	-40 ~ 40	Geometry Horizontal Keystone
0	1	59	-30~30	Geometry Vertical Keystone
0	1	60	-2000~2000	Geometry Diagonal Projection – Top Left H
0	1	61	-2000~2000	Geometry Diagonal Projection – Top Left V
0	1	62	-2000~2000	Geometry Diagonal Projection – Top Right H
0	1	63	-2000~2000	Geometry Diagonal Projection – Top Right V
0	1	64	-2000~2000	Geometry Diagonal Projection – Bottom Left H
0	1	65	-2000~2000	Geometry Diagonal Projection – Bottom Left V
0	1	66	-2000~2000	Geometry Diagonal Projection – Bottom Right H
0	1	67	-2000~2000	Geometry Diagonal Projection – Bottom Right V
0	-	68	N/A	Geometry Diagonal Projection – Reset
0	1	69	-20 ~ 20	Geometry Pincushion/Barrel
0	1	70	-180 ~ 180	Geometry Rotation
0	-	71	N/A	Geometry Reset all
0	-	72	0: Profile 1 1: Profile 2 2: Profile 3	Save Setting

Control Type		Function	Parameter	Description
Set	Get			
			3: Profile 4 4: Profile 5 5: Profile 6 6: Profile 7 7: Profile 8	
0	-	73	0: Profile 1 1: Profile 2 2: Profile 3 3: Profile 4 4: Profile 5 5: Profile 6 6: Profile 7 7: Profile 8	Recall Setting
0	1	74	0: Off 1: On	Frame Lock
0	-	75	N/A	Factory Reset
-	1	76	N/A	Firmware Revision
0	1	77	0: 1400x1050x60 1: 1680x1050x60	Mode Set – Mode 1
0	1	78	0: 1280x1024x75 1: 1280x1024x76	Mode Set – Mode 2
0	1	79	0: Center 1: Top Left 2: Top Right 3: Bottom Left 4: Bottom Right	OSD Menu Position
0	1	80	0: 5 sec 1: 10 sec 2: 20 sec 3: 30 sec 4: 60 sec 5: 90 sec 6: Off	OSD Time Out
0	1	81	0: Off 1: On 2: Custom	Logo
0	1	82	0: Black 1: Blue	Blank Color
0	-	83	N/A	Capture
0	1	84	0: Black 1: Blue 2: Custom 3: Disable Analog Sync	Background
0	1	85	0: Off 1: On	Save Lock
0	1	86	0: Off 1: On	Input Lock
0	1	87	0: Blank & Mute 1: Blank 2: Mute	Blank key function

| Control Type | | Function | Parameter | Description |
Set	Get			
0	1	88	0: Freeze & Mute 1: Freeze 2: Mute	Freeze key function
0	1	89	0: Off 1: On	Freeze
0	1	90	0: Off 1: On	Blank
0	1	91	0: Off 1: On	Power
0	-	92	N/A	Info
0	-	93	N/A	Menu
0	-	94	N/A	Top
0	-	95	N/A	Down
0	-	96	N/A	Left
0	-	97	N/A	Right
0	-	98	N/A	Enter
0	-	99	N/A	Picture
0	-	100	N/A	Swap
0	1	101	0: Off 1: On	Mute
0	1	102	0: Off 1: On	Lock
-	1	103	0: 640x480 60 1: 640x480 67 Mac13 2: 640x480 72 3: 640x480 75 4: 640x480 85 5: 720x400 70 6: 720x400 85 7: 800x600 56 8: 800x600 60 9: 800x600 72 10: 800x600 75 11: 800x600 85 12: 832x624 75 Mac16 13: 1024x768 60 14: 1024x768 70 15: 1024x768 75 16: 1024x768 75 Mac19 17: 1024x768 85 18: 1024x800 84 Sun 19: 1152x864 75 20: 1152x870 75 Mac21 21: 1152x900 66 Sun 22: 1152x900 76 Sun 23: 1280x960 60 24: 1280x960 85 25: 1280x768 60 26: 1280x1024 60 27: 1280x1024 75 28: 1280x1024 76 Sun	Main Input status

Control Type		Function	Parameter	Description
Set	Get			
			29: 1280x1024 85	
			30: 1400x1050 60	
			31: 1400x1050 75	
			32: 1600x1200 60	
			33: 1680x1050 60	
			34: 1080i 60	
			35: 1080i 50	
			36: 1080p 60	
			37: 1080p 50	
			38: 720p 60	
			39: 720p 50	
			40: 480i	
			41: 480p	
			42: 576i	
			43: 576p	
			44: 1280x800 60 (RB)	
			45: 1920x1200 60	
			46: 1920x1080 60	
			47: 1280x720 60	
			48: 1080p 24	
			49: 1280x800 60	
			50: 1440x900 60	
			51: 1440x900 60 (RB)	
			52: 1280x768_60 (RB)	
			53: 1680x1050_60 (RB)	
			54: 1366x768_60	
			55: 1366x768_60 (RB)	
			94: Custom1	
			95: Custom2	
			96: Custom3	
			97: Custom4	
			98: No Input detected	
			99: Other	
			101: NTSC	
			102: PAL	
			103: PAL-M	
			104: PAL-N	
			105: NTSC 4.43	
			106: SECAM	
			107: PAL-60	
-	1	104	0: 640x480 60 1: 640x480 67 Mac13 2: 640x480 72 3: 640x480 75 4: 640x480 85 5: 720x400 70 6: 720x400 85 7: 800x600 56 8: 800x600 60 9: 800x600 72 10: 800x600 75 11: 800x600 85 12: 832x624 75 Mac16	PIP Input status

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Control Type		Function	Parameter	Description
Set	Get			
			13: 1024x768 60	
			14: 1024x768 70	
			15: 1024x768 75	
			16: 1024x768 75 Mac19	
			17: 1024x768 85	
			18: 1024x800 84 Sun	
			19: 1152x864 75	
			20: 1152x870 75 Mac21	
			21: 1152x900 66 Sun	
			22: 1152x900 76 Sun	
			23: 1280x960 60	
			24: 1280x960 85	
			25: 1280x768 60	
			26: 1280x1024 60	
			27: 1280x1024 75	
			28: 1280x1024 76 Sun	
			29: 1280x1024 85	
			30: 1400x1050 60	
			31: 1400x1050 75	
			32: 1600x1200 60	
			33: 1680x1050 60	
			34: 1080i 60	
			35: 1080i 50	
			36: 1080p 60	
			37: 1080p 50	
			38: 720p 60	
			39: 720p 50	
			40: 480i	
			41: 480p	
			42: 576i	
			43: 576p	
			44: 1280x800 60 (Reduce blank)	
			45: 1920x1200 60	
			46: 1920x1080 60	
			47: 1280x720 60	
			48: 1080p 24	
			49: 1280x800 60	
			50: 1440x900 60	
			51: 1440x900 60 RB	
			52: 1280x768_60 RB	
			53: 1680x1050_60 RB	
			54: 1366x768_60	
			55: 1366x768_60 RB	
			94: Custom1	
			95: Custom2	
			96: Custom3	
			97: Custom4	
			98: No Input detected	
			99: Other	
			97: Custom	
			98: other	
			99: No Input detected	

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| Control Type | | Function | Parameter | Description |
Set	Get			
			101: NTSC 102: PAL 103: PAL-M 104: PAL-N 105: NTSC 4.43 106: SECAM 107: PAL-60	
0	1	105	512~3071	Advance Input Mode: HT
0	1	106	32~(HS-48)	Advance Input Mode: HW
0	1	107	80~(HT-HA-12)	Advance Input Mode: HS
0	1	108	640~1920 <= (HT-92)	Advance Input Mode: HA
0	1	109	0: Negative polarity 1: Positive polarity	Advance Input Mode: HP
0	1	110	384~2047	Advance Input Mode: VT
0	1	111	2~(HS-13)	Advance Input Mode: VW
0	1	112	15~(VT-VA-1)	Advance Input Mode: VS
0	1	113	480~1200 <= (VT-16)	Advance Input Mode: VA
0	1	114	0: Negative polarity 1: Positive polarity	Advance Input Mode: VP
0	1	115	25 < OCLK < 165	Advance Input Mode: OCLK(Integer)
0	1	116	25 < OCLK < 165	Advance Input Mode: OCLK(Decimal)
0	1	117	0: Off 1: On	Advance Input Mode: Enable
0	-	118	N/A	Advance Input Mode: Save
0	1	119	512~3071	Advance Output Mode: HT
0	1	120	32~(HS-48)	Advance Output Mode: HW
0	1	121	80~(HT-HA-12)	Advance Output Mode: HS
0	1	122	640~1920 <= (HT-92)	Advance Output Mode: HA
0	1	123	0: Negative polarity 1: Positive polarity	Advance Output Mode: HP
0	1	124	384~2047	Advance Output Mode: VT
0	1	125	2~(HS-13)	Advance Output Mode: VW
0	1	126	15~(VT-VA-1)	Advance Output Mode: VS
0	1	127	480~1200 <= (VT-16)	Advance Output Mode: VA
0	1	128	0: Negative polarity 1: Positive polarity	Advance Output Mode: VP
0	1	129	25 < OCLK < 165	Advance Output Mode: OCLK(Integer)
0	1	130	25 < OCLK < 165	Advance Output Mode: OCLK(Decimal)
0	-	131	N/A	Advance Output Mode: Save
0	-	132	N/A	Advance Output Mode: Set Current
0	-	133	N/A	Volume Up
0	-	134	n/a	Volume Down
0	1	135	0: Follow Output 1: Follow Input	HDCP Setting

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| Control Type | | Function | Parameter | Description |
Set	Get			
0	1	136	0:Custom1 1:Custom2 2:Custom3 3:Custom4	Advance Input Mode: Custom Input
0	1	137	0:Custom1 1:Custom2 2:Custom3 3:Custom4	Advance Output Mode: Custom Output
0	1	138	0: Off 1: On	Overscan
0	1	139	0: Seamless 1: Fast	Switching Mode
0	1	140	0: Manual 1: Auto	Auto Image
0	-	141	n/a	Slideshow Start
0	-	142	n/a	Slideshow Stop
0	-	143	n/a	Slideshow Pause
0	-	144	n/a	Slideshow Next
0	-	145	n/a	Slideshow Previous
0	1	146	0: Min 1: Low 2: Mid 3: Long 4: Max 5: Off	Slideshow
0	1	147	0: 1280x768x60Hz 1: 1366x768x60Hz	Mode Set – Mode 3
0	1	148	-100 ~ 100	Red Saturation
0	1	149	-100 ~ 100	Green Saturation
0	1	150	-100 ~ 100	Blue Saturation
0	1	151	-100 ~ 100	Cyan Saturation
0	1	152	-100 ~ 100	Magenta Saturation
0	1	153	-100 ~ 100	Yellow Saturation
0	1	180	0: VGA 1: Component	VGA1 Source Type
0	1	181	0: VGA 1: Component	VGA2 Source Type
0	1	182	0: VGA 1: Component	VGA3 Source Type
0	1	183	0: VGA 1: Component	VGA4 Source Type

12.1 Error Codes Description

Error code	Description
ERR 1	Unknown command
ERR 2	Unknown function
ERR 3	Unavailable function
ERR 4	Unknown control type
ERR 5	Unavailable get function
ERR 6	Unavailable set function
ERR 7	Unavailable parameter
ERR 8	Too few arguments

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.
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.**

C E

Kramer Electronics, Ltd.
Web site: www.kramerelectronics.com
E-mail: info@kramerel.com
P/N: 2900–000545 REV 2