KRAMER

USER MANUAL

VP-733
Presentation Switcher/Dual Scaler
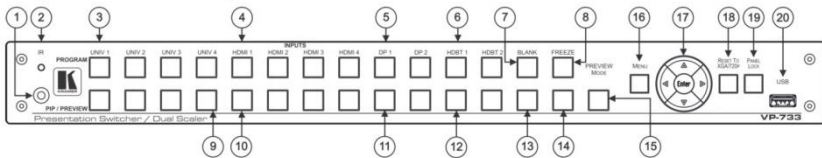
VP-733 Quick Start Guide

This guide helps you install and use your **VP-733** for the first time.

Go to **www.kramerav.com/downloads/VP-733** to download the latest user manual and check if firmware upgrades are available.

Scan for full manual

Step 1: Check what's in the box

☑ **VP-733** Presentation Switcher/Dual Scaler   ☑ 1 Set of rack ears   ☑ 4 Rubber feet

☑ IR remote control transmitter with batteries   ☑ 1 Power cord   ☑ 1 Quick start guide

☑ 2 15-pin HD (M) to 3 RCA (F) breakout cables (C-GM/3RVF-1)

Step 2: Get to know your VP-733

#	Feature		Function
1	IR Receiver		Receives signals from the remote control transmitter.
2	LED		Lights red when the unit accepts IR remote commands.
3	PROGRAM INPUT Selector Buttons (Illuminated green when selected)	UNIV	Press to select the computer graphics/composite video / s-Video / component video source. The video source type is configured via the OSD menu (from 1 to 4).
4		HDMI	Press to select the HDMI source (from 1 to 4).
5		DP	Press to select the DP source (from 1 to 2).
6		HDBT	Press to select the HDBT source (from 1 to 2).
7	Program BLANK Button		Press to toggle between a blank screen (blue or black) and the program display. The BLANK button can be programmed to mute the audio signal when the blank screen is toggled.
8	Program FREEZE Button		Press to freeze/unfreeze the program output video image. The FREEZE button can be programmed to mute the audio signal when the image is frozen.
9	PIP / PREVIEW INPUT Selector Buttons (Illuminated yellow when selected)	UNIV	Press to select the computer graphics/composite video / s-Video / component video source; the video source type is configured via the OSD menu (from 1 to 4).
10		HDMI	Press to select the HDMI source (from 1 to 4).
11		DP	Press to select the DP source (from 1 to 2)...
12		HDBT	Press to select the HDBT source (from 1 to 2)
13	Preview BLANK Button		Press to toggle between a blank screen (blue or black) and the preview display. The BLANK button can be programmed to mute the audio signal when the blank screen is toggled.
14	Preview FREEZE Button		Press to freeze/unfreeze the preview output video image. The FREEZE button can be programmed to mute the audio signal when the image is frozen.
15	PREVIEW MODE Button		Press to toggle between PIP and Preview Mode operation.
16	MENU Button		Press to display the OSD menu on screen. Press again to return to normal operation.

| #	Feature	Function
17	ENTER Button	Press to move to the next level in the OSD menu or to accept a new parameter.
	◁ Button	Decreases the range by one step in the OSD menu or moves to the previous level in the OSD. Decreases the volume level when not in the OSD menu.
	△ Button	Moves up one step (in the same level) in the OSD menu. Moves to the previous slide when running a slideshow.
	▷ Button	Increases the range by one step in the OSD menu. Increases the volume level when not in the OSD menu.
	▽ Button	Moves down one step (in the same level) in the OSD menu. Moves to the next slide when running a slideshow.
18	RESET TO XGA/720p Button	Press and hold to reset to the default resolution (toggles between RESET TO XGA and 720p).
19	PANEL LOCK Button	Press and hold to lock/unlock the front panel buttons to prevent unintentional operation.
20	USB Connector	Connects to a USB drive to download a logo and save settings.
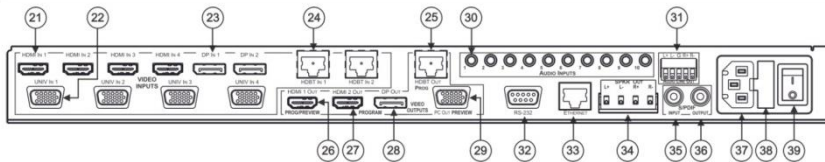
#	Feature	Function
21	HDMI IN 1 Connector	Connect to an HDMI source (from 1 to 4).
22	UNIV IN 1 15-pin HD Connector	Connect to a computer graphics/composite video/s-Video (Y/C)/component video source (from 1 to 4).
23	DP IN 1 DisplayPort Connector	Connect to a DP source (from 1 to 2).
24	HDBT IN 1 Connector	Connect to an HDBT transmitter (for example, the Kramer **TP-580Txr**) to pass audio and video signals as well as serial commands (from 1 to 2).
25	PROG HDBT OUT Connector	Connect to an HDBT receiver (for example, the Kramer **TP-580Rxr**).
26	PROG/PREVIEW HDMI 1 OUT Connector	Connect to an HDMI acceptor (selectable PREVIEW or PROGRAM).
27	PROGRAM HDMI 2 OUT Connector	Connect to an HDMI acceptor.
28	PROGRAM DP OUT Connector	Connect to a DP acceptor.
29	PREVIEW PC OUT 15-pin HD Connector	Connect to a computer graphics acceptor.
30	AUDIO INPUTS 3.5 Mini Jack Connectors	Connect to the unbalanced stereo analog audio sources from 1 to 10.
31	AUDIO LINE OUT 5-pin Terminal Block	Connect to a balanced stereo analog audio acceptor.
32	RS-232 9-pin D-sub Connector	Connect to a PC or serial controller.
33	ETHERNET Port	Connect to your Local Area Network.
34	SPKR OUT 4-pin Terminal Block	Connect to a pair of loudspeakers.
35	S/PDIF INPUT 3.5 Mini Jack Connector	Connect to a digital audio source.
36	S/PDIF OUTPUT 3.5 Mini Jack Connector	Connect to a digital audio acceptor.
37	Mains Power Connector	Connect to the mains power.
38	Mains Power Fuse	Fuse for protecting the device.
39	Mains Power Switch	Switch for turning the unit ON or OFF.

(Items 25–29 are grouped under VIDEO OUTPUTS)

Step 3: Install VP-733

Install **VP-733** using one of the following methods:

- Remove the three screws from each side of the unit, reinsert those screws through the rack ears and mount on a 19" rack.
- Attach the rubber feet and place the unit on a flat surface.
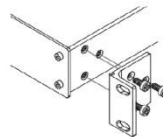
Step 4: Connect the inputs and outputs

Always switch OFF the power on each device before connecting it to your **VP-733**. For best results, we recommend that you always use Kramer high-performance cables to connect AV equipment to the **VP-733**.
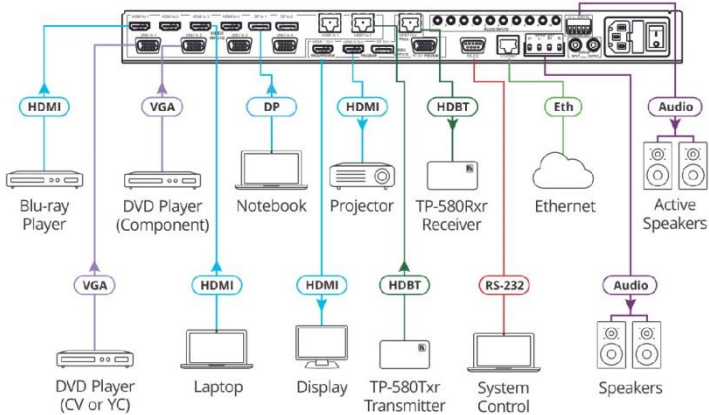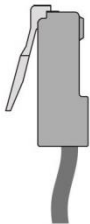

RJ-45 Pinout:

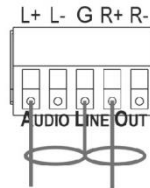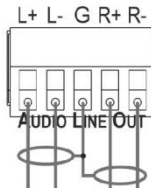For the Ethernet and HDBaseT connectors, see the proper wiring diagram below

Connect the audio output:

To a balanced stereo audio acceptor

To an unbalanced stereo audio acceptor

PIN EIA /TIA 568B	
PIN	Wire Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown

L+ L- G R+ R-

AUDIO LINE OUT

L+ L- G R+ R-

AUDIO LINE OUT

Step 5: Connect the power

Connect the power cord to **VP-733** and plug it into the mains electricity.

Safety Instructions

Caution: There are no operator serviceable parts inside the unit.
Warning: Use only the power cord that is supplied with the unit.
Warning: Do not open the unit. High voltages can cause electrical shock! Servicing by qualified personnel only.
Warning: Disconnect the power and unplug the unit from the wall before installing.
See www.KramerAV.com for updated safety information.

Step 6: Set operation parameters via OSD menu

Enter the OSD menu via the MENU button on the front panel or the IR remote control transmitter. Select a menu item and set parameters as required.

Menu	Function
Input	Program and preview output selection, auto switching on or off, source type for universal inputs, color format, fine tune and auto image setup.
Picture	Brightness, contrast, color, hue, sharpness and noise reduction setup.
Output	Program/preview resolution, aspect ratio, zoom and positioning; HDMI 1 to follow program or preview; HDMI 1/2 type setup; and test pattern.
PIP	PIP on or off; PIP type and source setup; PIP size and position; custom setup.
Audio	Program/preview input and output volume; bass, treble, balance, loudness and audio delay setup; select audio input source; AFV mode.
Setup	Save and recall up to 8 setups or erase them; set frame lock, auto image, switching mode and frame latency; set the auto-switch priority, hot-plug handshaking, input HDCP and Ethernet settings; factory reset and other advanced settings.
Info	Program/preview-PIP source, program/preview output, HDMI1 output status, sync mode, FW revision and IP address.

If you cannot see any video output, verify that the display, TV, or projector is in good working order and is connected to the **VP-733**. Verify that the **VP-733** is selected as the source. If you still cannot see any video output, press and hold the RESET TO XGA/720P button for 3 seconds to reset the output to XGA or 720p resolution.

Step 7: Operate via the front panel buttons, IR remote controller and via:

RS-232 and Ethernet:

RS-232			
Baud Rate:	115,200	Stop Bits:	1
Data Bits:	8	Parity:	None
Example (switch input to UNIV2):		Y 0 92 1<CR>	
TCP/IP Parameters			
IP Address:	192.168.1.39	UDP Port #:	50000
Subnet mask:	255.255.255.000	Max. UDP Connections:	Unlimited
Default gateway:	192.168.1.254	Max. TCP Connections:	Unlimited
TCP Port #:	80		
Full Factory Reset			
OSD:	Go to : Menu-> Setup -> Factory Reset -> press Enter to confirm		
Web pages:	In the Device Settings page click Factory reset.		
RS-232 Commands	Including ETH: use "#FACTORY" command or #Y 0,154<CR>.		
	Excluding ETH: use "#FACTORY" command or #Y 0,155<CR>.		
Front panel buttons:	Including ETH: power up the device with the "RESET TO XGA/720P" key pressed.		

Web pages:

KRAMER VP-733 CONTROLL

Program Routing & Scaling

Preview Routing & Scaling

Device Settings

Input Settings

Output Settings

Audio Settings

Miscellaneous Video Settings

EDID Management

Advanced Settings

Custom Resolutions

RS-232

Security

About

Model:	VP-733
FW Version:	1.27
IP:	192.168.1.39
Time:	15:44:55 PM
Settings:	

Load   Save

Contents

Figures

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 15 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format & Standards Converters; GROUP 5: Range Extenders & Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Mounting and Rack Adapters; GROUP 11: Sierra Video; GROUP 12: Digital Signage; GROUP 13: Audio; GROUP 14: Collaboration; and GROUP 15: KM & KVM Switches.

Congratulations on purchasing your Kramer **VP-733** Presentation Switcher/Dual Scaler, which is ideal for the following typical applications:

- Presentation applications that require a preview option
- Projection systems in conference rooms, boardrooms, auditoriums, hotels and churches, production studios, rental and staging
- Any application where high quality conversion and switching of multiple and different video signals to graphical data signals is required for display or projection purposes

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment

- Review the contents of this user manual

> Go to www.kramerav.com/downloads/VP-733 to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

2.1 Achieving the Best Performance

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)

- Do not secure the cables in tight bundles or roll the slack into tight coils

- Avoid interference from neighbouring electrical appliances that may adversely influence signal quality

- Position your Kramer **VP-733** away from moisture, excessive sunlight and dust

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

2.2 Safety Instructions

> **Caution:**   There are no operator serviceable parts inside the unit
>
> **Warning:**   Use only the power cord that is supplied with the unit
>
> **Warning:**   Do not open the unit. High voltages can cause electrical shock! Servicing by qualified personnel only
>
> **Warning:**   Disconnect the power and unplug the unit from the wall before installing

2.3 Recycling Kramer Products

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

3   Overview

The Kramer **VP-733** is a 12-input Presentation Switcher/Dual Scaler for a wide variety of presentation and multimedia applications. The **VP-733** has four HDMI, two DisplayPort, two HDBT and four user-definable (universal) analog video inputs (each can be set as computer graphics, composite video, s-Video (Y/C) or component video). It up- or down scales to selectable output resolutions up to 4K, and provides glitch-free switching between sources through fast FTB™ (fade-thru-black) switching technology. Independent Program and Preview outputs are available simultaneously: one HDBT port, one DP and one HDMI connector show the Program Output; a 15-pin HD computer graphics video connector shows the Preview Output; while an additional HDMI connector can show either of the 2 outputs. Alternatively, all 5 outputs are identical, and can include a PIP window showing any one of the input sources. Rich audio support is also included, with digital audio embedding and de-embedding, as well as 10 analog stereo inputs; and analog, S/PDIF, and speaker outputs.

The **VP-733** features:

- PixPerfect™ Scaling Technology – Kramer's precision pixel mapping and high-quality scaling technology

- Fast Fade-Thru-Black (FTB™) Switching – Video switching transitions are clean and fast. The video fades to black and the new input fades from black for smooth, glitch-free 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. Any video source can be inserted into or positioned next to any other video source with window positioning and sizing controls

- Dual scalers – With independent outputs

- A PREVIEW MODE button that toggles between the PIP mode and the PREVIEW mode. When pressed (button is illuminated), the selected PREVIEW input is scaled to the PREVIEW outputs. When in the PIP mode, it can be inserted in a picture-in-picture window on all the outputs

- Features 12 PREVIEW input buttons for switching a selected input to the PREVIEW output (in PREVIEW mode) and 12 PROGRAM input buttons for switching a selected input to the PROGRAM output. In PIP mode, the 12 PREVIEW input buttons select the PIP source. There is no limitation on the PIP and main window source combinations

- Output resolutions – supports up to 4K@30Hz on the Program output and up to 720P on the Preview output

- Scaled video outputs – 2xHDMI, DP, HDBaseT and 15-pin HD computer graphics video

- 12 video inputs – 4x HDMI, 4x Universal analog, 2x Display Port, 2x HDBaseT

- Multiple computer graphics output resolutions – including a user-defined output resolution

- Multiple aspect ratio selections

- Audio breakaway and AFV (audio-follow-video) operation support

- Embedded audio on the HDMI, HDBaseT and DisplayPort inputs and outputs

- Built-in noise reduction and picture enhancement features

- Powerful audio features via DSP technology including audio equalization, mixing, delay and so on

- One stereo speaker output, 10W per channel into 8Ω, on a 4-pin terminal block connector

- Auto-switching and auto-scanning of inputs

- Efficient power-saving features

- 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

- BLANK and FREEZE buttons for the preview and program modes, a RESET TO XGA/720P button (to hardware-reset the output resolution); and a PANEL LOCK button

- User-friendly AP for Text Overlay support

- Firmware Upgrade – Ethernet-based, via a user-friendly software upgrade tool

- An OSD (On-Screen Display) – for adjusting device parameters

- A USB port – for downloading splash-screen logo; and for storing / downloading the machine configurations via a flash drive

In addition, the **VP-733**:

- Includes non-volatile memory that retains the last settings, after switching the power off and then on again

- Includes numerous filters and algorithms for eliminating picture artifacts

- Scales and zooms (to up to 400% of the original size)

- Features advanced EDID management per input

Control your **VP-733** directly via the front panel push buttons (with on-screen menus), or:

- By RS-232 serial commands transmitted by a touch screen system, PC, or other serial controller

- Remotely, from the infrared remote control transmitter

- Via the Ethernet using built-in user-friendly Web pages

The **VP-733** 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 Defining the VP-733 Presentation Switcher/Dual Scaler

This section defines the **VP-733**.
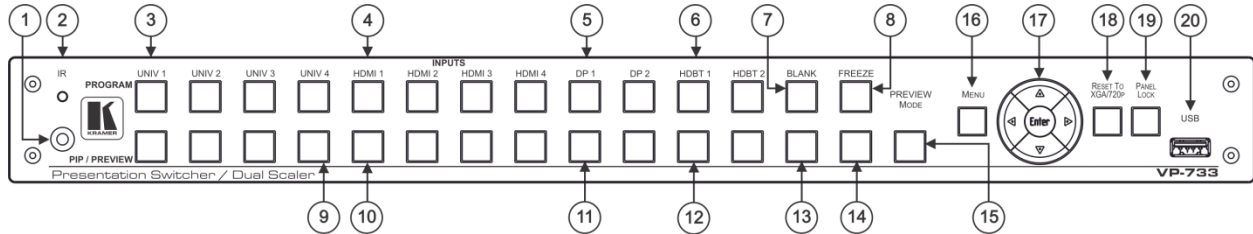
Figure 1: VP-733 Presentation Switcher/Dual Scaler Front Panel

#	Feature		Function
1	IR Receiver		Receives signals from the remote control transmitter
2	LED		Lights red when the unit accepts IR remote commands
3	PROGRAM INPUT Selector Buttons (illuminated green when selected)	UNIV 1	Press to select the computer graphics/composite video / s-Video / component video source (configured via the OSD menu, see Section 7.1) and the appropriate audio source (from 1 to 4)
4		HDMI 1	Press to select the HDMI source (from 1 to 4)
5		DP 1	Press to select the DP source (from 1 to 2)
6		HDBT 1	Press to select the HDBT input (from 1 to 2)
7	Program BLANK Button		Press to toggle between a blank screen (blue or black) and the program display. The BLANK button can be programmed to mute the audio signal at the same time (see Section 7.6.3)
8	Program FREEZE Button		Press to freeze/unfreeze the program output video image, The FREEZE button can be programmed to mute the audio signal at the same time (see Section 7.6.3)
9	PIP / PREVIEW INPUT Selector Buttons illuminated yellow when selected)	UNIV 4	Press to select the computer graphics/composite video / s-Video / component video source (configured via the OSD menu, see Section 7.1) and the appropriate audio source (from 1 to 4)
10		HDMI 1	Press to select the HDMI source (from 1 to 4)
11		DP 1	Press to select the HDMI source (from 1 to 2)
12		HDBT 1	Press to select the HDBT input (from 1 to 2)
13	Preview BLANK Button		Press to toggle between a blank screen (blue or black) and the preview display. The BLANK button can be programmed to mute the audio signal at the same time (see Section 7.6.3)
14	Preview FREEZE Button		Press to freeze/unfreeze the preview output video image, The FREEZE button can be programmed to mute the audio signal at the same time (see Section 7.6.3)
15	PREVIEW MODE Button		Press to toggle between PIP and Preview Mode operation

#	Feature	Function
16	*MENU* Button	Press to display the OSD menu screen. Press again to return to normal operation
17	*ENTER* Button	Press to move to the next level in the OSD screen or to accept a new parameter
	◀ 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
	▲ 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 7.6.1)
	▶ Button	Increases the range by one step in the OSD screen Increases the volume level, when not in the OSD menu
	▼ 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 7.6.1)
18	RESET TO XGA/720p Button	Press and hold to reset to the default resolution (toggles between RESET TO XGA and 720p)
19	PANEL LOCK Button	Press and hold to lock/unlock the front panel to prevent unintentional operation
20	USB Connector	Connects to a USB drive to download a Logo and save settings (see Section 7.6.3)
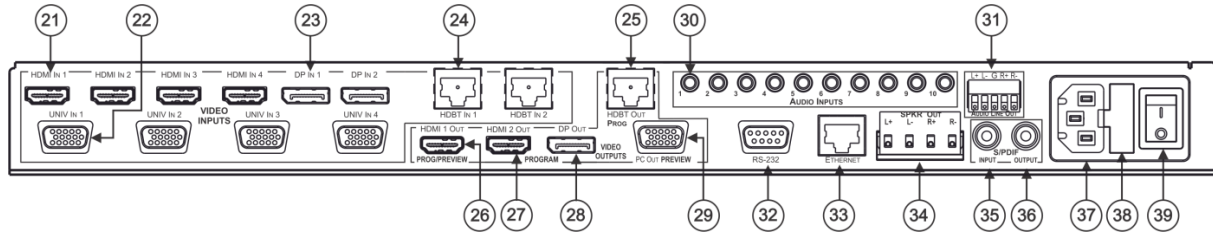
Figure 2: VP-733 Presentation Switcher/Dual Scaler Rear Panel

#	Feature		Function
21	HDMI IN 1 Connector		Connect to the HDMI 1 source (from 1 to 4)
22	UNIV IN 1 15-pin HD Connector		Connects to the video source that can be computer graphics, composite video, s-Video (Y/C) or component video (from 1 to 4)
23	DP IN 1 DisplayPort Connector		Connect to the DP 1 source (from 1 to 2)
24	HDBT IN 1 Connector		Connect to an HDBT Transmitter (for example, the Kramer **TP-580Txr**) to pass audio and video signals as well as serial commands (from 1 to 2)
25	VIDEO OUTPUTS	PROG HDBT OUT	Connect to an HDBT Receiver (for example, the Kramer **TP-580Rxr**)
26		PROG/PREVIEW HDMI 1 OUT Connector	Connect to an HDMI acceptor (selectable PREVIEW or PROGRAM)
27		PROGRAM HDMI 2 OUT Connector	Connect to a PROGRAM HDMI 2 acceptor
28		PROGRAM DP OUT Connector	Connect to a PROGRAM DP acceptor
29		PREVIEW PC OUT 15-pin HD Connector	Connect to a PREVIEW computer graphics acceptor
30	AUDIO INPUTS 3.5 Mini Jack Connectors		Connect to the unbalanced stereo analog audio sources from 1 to 10
31	AUDIO LINE OUT 5-pin Terminal Block		Connect to the balanced stereo analog audio acceptor (see Section 5.3)
32	RS-232 9-pin D-sub Connector		Connect to PC or Serial Controller
33	ETHERNET Port		Connect to your LAN Local Area Network – that is computers sharing a common communications line or wireless link, which often share a server within a defined geographic area
34	SPKR OUT 4-pin Terminal Block		Connect to a pair of loudspeakers
35	S/PDIF INPUT 3.5 Mini Jack Connector		Connect to a digital audio source
36	S/PDIF OUTPUT 3.5 Mini Jack Connector		Connect to a digital audio acceptor
37	Mains Power Connector		Connect to the mains power
38	Mains Power Fuse		Fuse for protecting the device
39	Mains power switch		Switch for turning the unit ON or OFF

4 Installing in a Rack

This section provides instructions for rack mounting the unit.

Before installing in a rack, be sure that the environment is within the recommended range:

OPERATING TEMPERATURE:	0º to +40ºC (32º to 104ºF)
STORAGE TEMPERATURE:	-40º to +70ºC (-40º to 158ºF)
HUMIDITY:	10% to 90%, 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.

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.
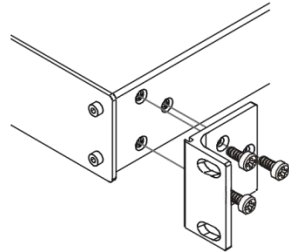
2. Place the ears of the machine against the rack rails, and insert the proper screws (not provided) through each of the four holes in the rack ears.
Note:
• In some models, the front panel may feature built-in rack ears
• Detachable rack ears can be removed for desktop use
• Always mount the machine 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 available from our Web site

5 Connecting the VP-733

Always switch off the power to each device before connecting it to your **VP-733**. After connecting your **VP-733**, connect its power and then switch on the power to each device.

To connect the **VP-733** as illustrated in the example in Figure 3, do the following:

1. Connect the video sources:

   - A CV or YC video source (for example, a DVD Player) to the UNIV IN 1 15-pin HD connector

   - A component video source (for example, a DVD player) to the UNIV IN 2 15-pin HD connector

   Note that the UNIV IN 15-pin HD connector pinout is defined in Section 5.1).

   - An HDMI source (for example, a Blu-ray player) to the HDMI IN 1 connector

   - An HDMI source (for example, a Blu-ray player) to the HDMI IN 3 connector

   Alternatively, you can connect the DVI connector on the DVD player to the HDMI connector on the **VP-733** via a DVI-HDMI adapter.

   - A DisplayPort video source (for example, a notebook) to the DP IN 1 connector

   - An HDBT transmitter (for example, **TP-580Txr**) to the HDBT IN 2 RJ-45 connector

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

2. Connect audio sources to the analog stereo audio inputs (from 1 to 10), not shown in Figure 3.

3. Connect the video outputs:

- The HDMI 1 OUT PROG/PREVIEW connector (can be configured via the OSD menu, Section 7.3) to an HDMI acceptor (for example, a display)

- The HDMI 2 OUT PROGRAM connector to an HDMI acceptor (for example, a projector)

Note that the HDMI 1 and HDMI 2 can be set to output HDMI, DVI or can be set to Auto, see Section 7.3.

- The HDBT OUT PROG to an HDBT receiver (for example, the output of **TP-580Rxr** connected to HDBT)

- The DP OUT program connector to an HDMI acceptor (for example, a display), not shown in Figure 3

- The PC OUT PREVIEW 15-pin HD computer graphics video connector to a video acceptor (for example, an analog display), not shown in Figure 3

4. Connect the S/PDIF INPUT RCA connector to a digital audio source and the S/PDIF OUTPUT RCA connector to a digital audio acceptor, not shown in Figure 3.

5. Connect the AUDIO LINE OUT terminal block connector to a balanced audio acceptor (for example, active speakers).

6. 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**.

7. Connect the power cord.

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

8. If required, connect:

   ▪ A PC via RS-232, see Section 5.2

   ▪ The ETHERNET port, see Section 5.4
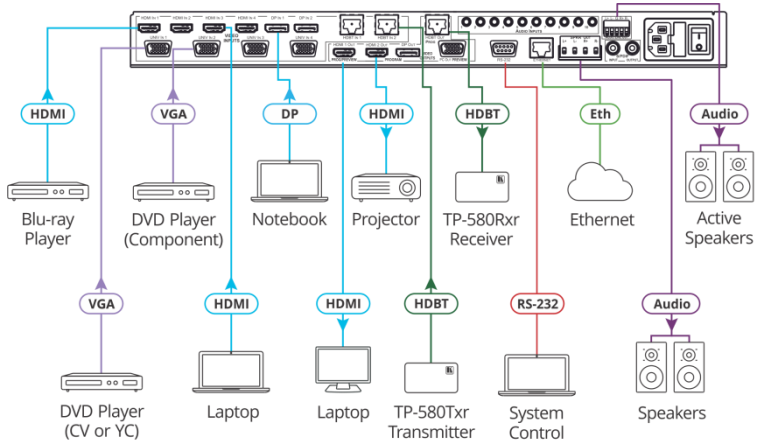
Figure 3: Connecting to the VP-733 Rear Panel

5.1 Universal Connector Pinout

This section describes the UNIV connectors from 1 to 4. Each connector can be set as computer graphics, composite video, s-Video (Y/C) or component video.

Figure 4 and the table below define the connector pinout:
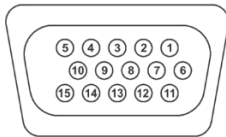
Figure 4: UNIV 15-pin HD Connector Pinout

PIN #	VGA	COMP	s-Video	CV
1	R	Pr		
2	G	Y	S_Y	Composite video
3	B	Pb	S_C	
9	+5VD			
12	EDID_SDA			
13	H_Sync			
14	V_Sync			
15	EDID_SCL			
Note that PINs 5, 6, 7, 8 and 10 are GND				

5.2 Connecting to the VP-733 via RS-232

You can connect to the **VP-733** via an RS-232 connection using, for example, a PC. Note that a null-modem adapter/connection is not required.

To connect to the **VP-733** via RS-232:

- Connect the RS-232 9-pin D-sub rear panel port on the **VP-733** unit via a 9-wire straight cable (only pin 2 to pin 2, pin 3 to pin 3, and pin 5 to pin 5 need to be connected) to the RS-232 9-pin D-sub port on your PC

5.3 Connecting the Balanced/Unbalanced Stereo Audio Output
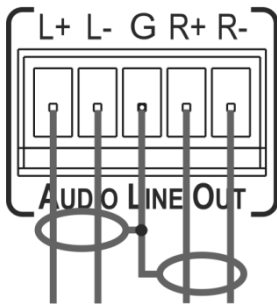
Figure 5: Connecting the Balanced Stereo Audio Output
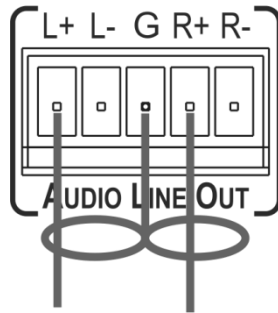
Figure 6: Connecting an Unbalanced Stereo Audio Acceptor to the Balanced Output

5.4 Connecting the VP-733 via the ETHERNET Port

You can connect to the **VP-733** via Ethernet using either of the following methods:

- Directly to the PC using a crossover cable (see Section 5.4.1)

- Via a network hub, switch, or router, using a straight-through cable (see Section 5.4.2)

If you want to connect via a router and your IT system is based on IPv6, speak to your IT department for specific installation instructions.

5.4.1 Connecting the Ethernet Port Directly to a PC

You can connect the Ethernet port of the **VP-733** directly to the Ethernet port on your PC using a crossover cable with RJ-45 connectors.

> This type of connection is recommended for identifying the **VP-733** with the factory configured default IP address.

After connecting the **VP-733** to the Ethernet port, configure your PC as follows:

1. Click **Start** > **Control Panel** > **Network and Sharing Center**.

2. Click **Change Adapter Settings**.

3. Highlight the network adapter you want to use to connect to the device and click **Change settings of this connection**.
   The Local Area Connection Properties window for the selected network adapter appears as shown in <u>Figure 7</u>.
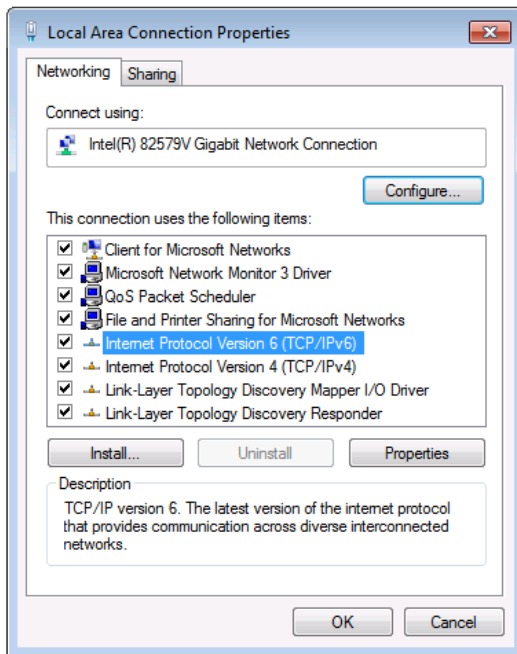
Figure 7: Local Area Connection Properties Window

4. Highlight either **Internet Protocol Version 6 (TCP/IPv6)** or **Internet Protocol Version 4 (TCP/IPv4)** depending on the requirements of your IT system.

5. Click **Properties**.

The Internet Protocol Properties window relevant to your IT system appears as shown in Figure 8 or Figure 9.
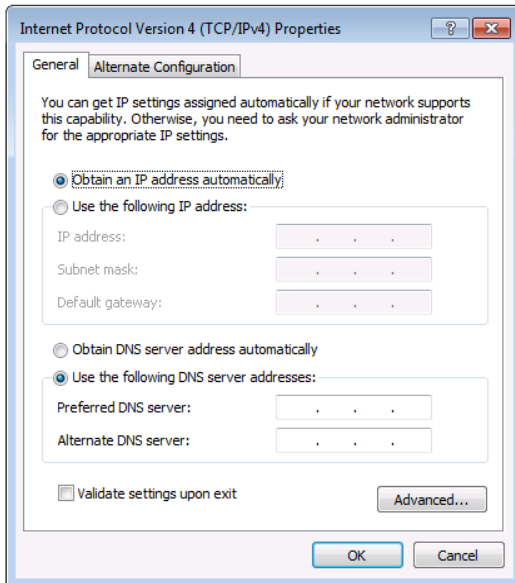
Figure 8: Internet Protocol Version 4 Properties Window
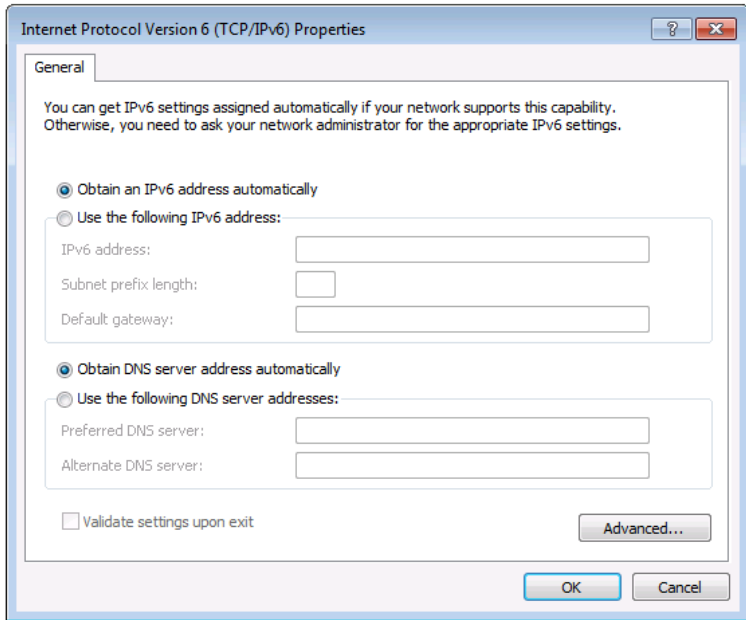
Figure 9: Internet Protocol Version 6 Properties Window

6. Select **Use the following IP Address** for static IP addressing and fill in the
    details as shown in <u>Figure 10</u>.
    For TCP/IPv4 you can use any IP address in the range 192.168.1.1 to
    192.168.1.255 (excluding 192.168.1.39) that is provided by your IT
    department.
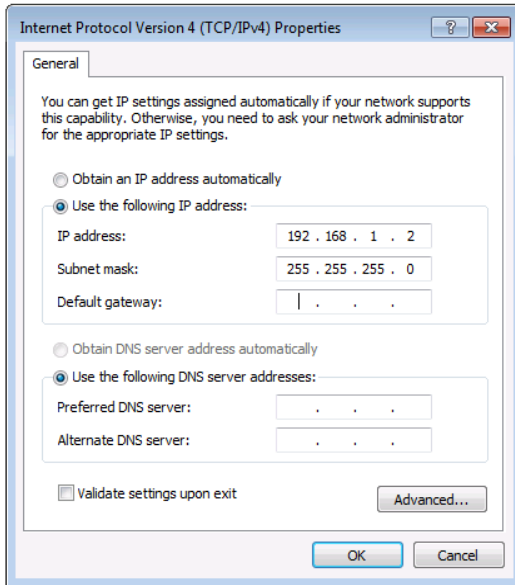
Figure 10: Internet Protocol Properties Window

7. Click **OK**.

8. Click **Close**.

5.4.2 Connecting the Ethernet Port via a Network Hub or Switch

You can connect the Ethernet port of the **VP-733** to the Ethernet port on a network hub or using a straight-through cable with RJ-45 connectors.

5.4.3 Control Configuration via the Ethernet Port

To control several units via Ethernet, connect the Master unit (Device 1) via the Ethernet port to the Ethernet port of your PC. Use your PC provide initial configuration of the settings (see Section 5.4).

6 Presentation Switcher / Scaler Buttons

The **VP-733** includes the following front panel buttons:

- 12 PROGRAM INPUT selector buttons

- 12 PIP/PREVIEW INPUT selector buttons

- A PREVIEW MODE button to toggle between the PIP and PREVIEW modes

- PROGRAM and PREVIEW separate BLANK and FREEZE buttons

- Menu navigation buttons

- A RESET TO XGA/720p button

- A PANEL LOCK button

6.1 Switching the Inputs

This section defines the PROGRAM and PREVIEW buttons.

6.1.1 Program Buttons

You can switch an input to the program outputs by pressing the relevant PROGRAM INPUT front panel button. The PROGRAM BLANK and FREEZE buttons are dedicated to the PROGRAM outputs only.

6.1.2 PIP / Preview Buttons

To toggle the PIP / Preview operation mode, press the PREVIEW MODE button:

- When in the PREVIEW operation mode, the PREVIEW MODE button illuminates

- When in the PIP operation mode, the PREVIEW MODE button does not illuminate

The PIP / PREVIEW BLANK and FREEZE buttons are dedicated to the PREVIEW/PIP outputs only.

6.2   Preview/Program Operation Mode

The PREVIEW input buttons can be used to output scaled images (up to 720p) when the PREVIEW MODE button is illuminated. The selected PREVIEW input is routed to the PREVIEW output(s) in this case. When not illuminated, the selected PIP input appears as an insert over the program display when the PIP is ON (see Section 6.3).

The **VP-733** has several outputs: two PROGRAM outputs (HDMI 2 and DP) one PREVIEW output (PC) and HDMI 1 which can be assigned to be either PROGRAM or PREVIEW (see Section 7.3).

> The HDMI signal is usually HDCP protected. We recommend using an HDCP compliant display, otherwise the HDMI output may not appear on the screen

6.3   The PIP Operation Mode

The Picture-in-Picture inserter (PIP) uses K-IIT XL™ image insertion technology to present any input image over any other main image. The main and PIP images appear simultaneously on all outputs (both PREVIEW and PROGRAM outputs).

The **VP-733** supports four PIP layouts:

- Picture-in-Picture, with a smaller window superimposed over a full screen image

- Picture + Picture, where both images are placed side-by-side with the same height

- Split, where both images appear side-by-side and the aspect ratios of both images are maintained

- A single window showing the Program image only

6.3.1 Activating the PIP Feature

Activate the PIP feature in any of the following ways:

- Press the PREVIEW MODE front panel button until it no longer illuminates and then select the PIP input by pressing a PIP/PREVIEW input button

- Press the PREV key on the IR remote control transmitter (see Section 6.5) and then select the PIP input by pressing a PIP/Preview Source input button - check

- Access the OSD PIP menu (see Figure 17) and select PIP On

6.3.2 Selecting the PIP Source

To easily select the PIP source, press a PREVIEW INPUT front panel button.
For example, to select DP 2 as the graphic PIP source over an HDMI background, make sure that the PREVIEW MODE button is not illuminated and press the DP 2 PIP/PREVIEW front panel button.

To select the PIP source using the IR remote controller, press the desired PIP source on the remote controller.
For example, if you want to select HDMI 2 as the PIP source, press the HDMI 2 button in the PIP/Preview Source area on the IR remote controller.

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 (see Figure 17).

3. Select On/Off and set the PIP to ON.

4. Select Source and press ENTER.

5. Use the ▲ or ▼ buttons to select the PIP Source from the drop-down list box, and press ENTER.

6. To exit the OSD menu, press the MENU button.

Figure 11: PIP Source over Background

To replace a PIP source, press the required PIP Source on the remote control transmitter and the PIP display will change accordingly.

6.4 Locking and Unlocking the Front Panel

To prevent changing the settings accidentally or tampering with the unit via the front panel buttons or the remote control transmitter, lock your **VP-733**. Unlocking releases the protection mechanism. When the front panel is locked, control is still available via RS-232 and/or the Ethernet.

To lock the **VP-733**:

- Press and hold the PANEL LOCK button on the front panel.
  The front panel is locked and the PANEL LOCK button is illuminated.
  Pressing any button other than the PANEL LOCK button has no effect

To unlock the **VP-733**:

- Press and hold the illuminated PANEL LOCK button on the front panel
  The front panel unlocks and the PANEL LOCK button is no longer illuminated

The Save Lock and Input Lock OSD functions are defined in the table in Section 7.6.3.

VP-733 - Presentation Switcher / Scaler Buttons

6.5 The Infrared Remote Control Transmitter

You can control the **VP-733** remotely from the infrared remote control transmitter which is powered by two AAA size 1.5V DC batteries. The IR remote control transmitter has a range of up to 15 meters and delivers instantaneous results.

Key	Function
Prev	Toggle between the Preview/PIP modes
POWER	Toggle the **VP-733** ON or OFF (standby)
Save	Press to save a profile
Recall	Press to recall a profile
Logo	Press to display the logo
Info	Press to toggle the Info OSD menu
PROG Source	12 keys for selecting one of the following PROG sources: HDMI 1, HDMI 2, HDMI 3, HDMI 4, UNIV 1, UNIV 2, UNIV 3, UNIV 4, DP 1, DP 2 HDBT 1 and HDBT 2
PROG Freeze	Pauses the PROGRAM output video and can be programmed to mute the audio signal at the same time (see Section 7.6.3)
PROG Blank	Toggles between a PROGRAM blank screen (blue or black) and the display
PROG Mute	Press to mute the PROGRAM audio signal
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)
Reset	Press and hold to reset to the default resolution (toggles between RESET TO XGA and 720p)
Auto Image	Press to assess the image and improve the quality accordingly, by automatically adjusting the phase, frequency and position
Picture	Press to display the Picture OSD menu
Audio	Press to display the Audio OSD menu
PIP/Preview Freeze	Pauses the Preview output video and can be programmed to mute the audio signal at the same time (see Section 7.6.3)
PIP/Preview Blank	Toggles between a Preview blank screen (blue or black) and the display
PIP/Preview source	12 keys for selecting one of the following PIP/Preview sources: HDMI 1, HDMI 2, HDMI 3, HDMI 4, UNIV 1, UNIV 2, UNIV 3, UNIV 4, DP 1, DP 2 HDBT 1 and HDBT 2
PIP/Preview Mute	Press to mute the PREVIEW audio signal

Figure 12: IR Remote Control Transmitter

7 Configuring the VP-733 via the OSD MENU Screens

The **VP-733** uses an on-screen display (OSD) menu for system configuration. The menu appears as an overlay over any images that are output from the **VP-733**.

There are seven sub-menus that are used to configure the **VP-733**. You can activate and navigate these menus from the front panel buttons, or from the IR remote control.

Figure 13: MENU Items

To access and use the OSD menus, push the button for the desired input signal, then press the MENU front panel OSD button or the MENU key on the infrared remote control transmitter to display the main MENU screen which shows the eight interactive icons.

- Press the ◄ or ► buttons to select the desired sub-menu, and then press ENTER

- Press the ▲ or ▼ buttons to select the menu item to be adjusted, and then press ENTER

- Press the ▲ or ▼ buttons to make the adjustment and then press ENTER, or

- Press the ◄ or ► buttons to increase or decrease the (numerical) value as needed

To return to the previous menu level, press the front panel MENU button or the MENU key on the remote control. All settings and adjustments are automatically saved in non-volatile memory for each of the inputs (except USB).

> The values defined in the different menus may change according to the firmware version (you can download the up-to-date firmware version from our Web site at www.kramerav.com/downloads/VP-733).

7.1 The Input Screen
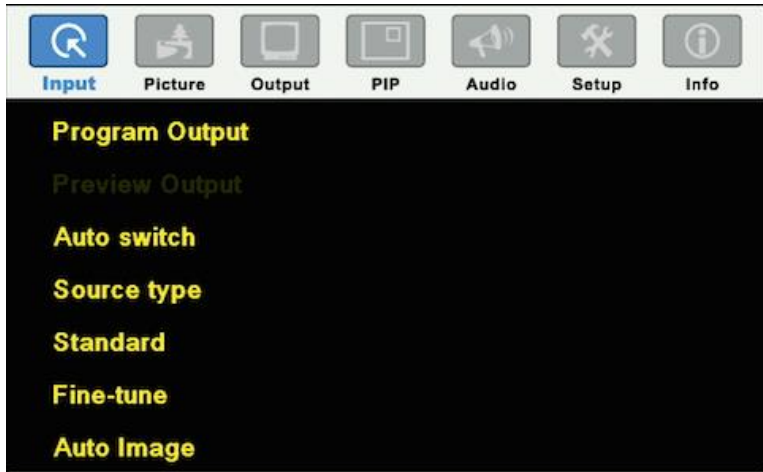
Figure 14: Input Screen

Setting	Function	Default
Program Output	Select the input to switch to the Program output: UNIV 1 to UNIV 4, HDMI 1 to HDMI 4, DP 1, DP 2, HDBT 1 or HDBT 2	UNIV 1
Preview Output	Select the input to switch to the Preview output: Follow Program, UNIV 1 to UNIV 4, HDMI 1 to HDMI 4, DP 1, DP 2, HDBT 1 or HDBT 2 Note that if the preview output resolution is set to Single Picture, this function will be grayed and set to Follow Program	Follow Program
Auto switching	Set auto switching to Off or On Set to On to have the system scan for a valid input in accordance with the Auto-switch priority setup (see Section 7.6)	Off
Source type	Set the source type for each universal input: VGA, Component, YC or Video	VGA
Standard	Select the color format to Auto/RGB/YUV (for HDMI and DP inputs) and the video standard to Auto/NTSC/PAL/PAL-M/PAL-N/NTSC 4.43/SECAM/PAL-60 (for YC and composite video inputs)	Auto
Fine-Tune	Set the H-Position, V-Position, Frequency and Phase for VGA inputs only We recommend that you update the Hpos, Vpos, Frequency and Phase values (in the Fine-tune OSD menu) only after Auto Image is complete (if necessary).	
Auto Image	Assesses the image and improves the quality accordingly, by automatically adjusting the phase, frequency and position We recommend that you update the Hpos, Vpos, Frequency and Phase values (in the Fine-tune OSD menu) only after Auto Image is complete (if necessary). Enabled for VGA	

7.2 The Picture Screen

The Brightness, Contrast, Color and Hue picture settings are saved individually for each input (except USB).
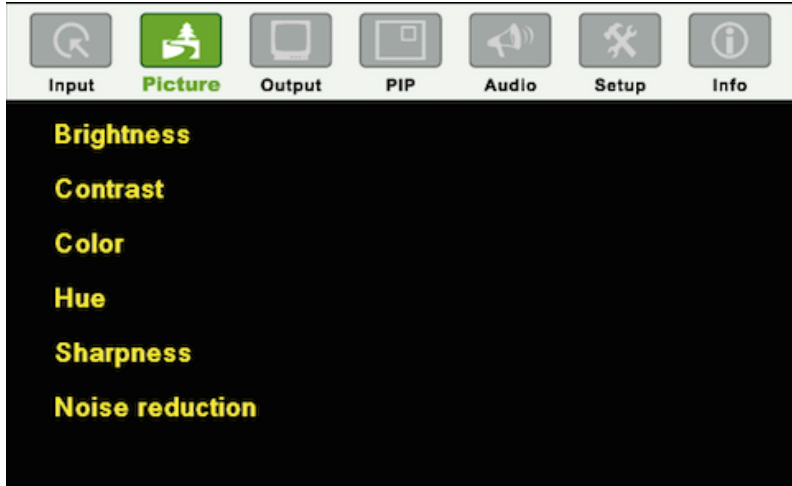
Figure 15: Picture Screen

Setting	Function	Default
Brightness	Adjust the brightness: 0 to 100	50
Contrast	Adjust the contrast: 0 to 100	47/50
Color	Adjust the color: 0 to 100	50
Hue	Adjust the hue: 0 to 360 (for CV and YC) or 0 to 240 for (HDMI, VGA, component)	180/0
Sharpness	Adjust the sharpness: 0 to 100	50
Noise reduction	Temporal NR – Set the temporal noise reduction level: Off, Low, Medium, High Enabled for analog inputs only	High
	Mosquito NR – Set the Mosquito noise reduction level: Off, Low, Medium, High Enabled for analog inputs only	Low
	Set the block noise reduction level: Off, On Enabled for analog inputs only	Off

7.3 The Output Screen

Figure 16: Output Screen

Setting	Function		Default
Program	Define the program settings:		
	Resolution	Native HDMI1, Native HDMI2, Native DP, Native VGA, Native HDBT 640x480x60Hz, 640x480x75Hz, 800x600x50Hz, 800x600x60Hz, 800x600x75Hz, 1024x768x50Hz, 1024x768x60Hz, 1024x768x75Hz, 1280x768x50Hz, 1280x768x60Hz, 1280x720x60Hz, 1280x800x60Hz, 1280x1024x50Hz, 1280x1024x60Hz, 1280x1024x75Hz, 1366x768x50Hz, 1366x768x60Hz, 1400x1050x50Hz, 1400x1050x60Hz, 1600x900x60Hz (R), 1600x1200x50Hz, 1600x1200x60Hz, 1680x1050x60Hz, 1920x1080x60Hz, 1920x1200x60Hz (R), 2048x1080x50Hz, 2048x1080x60Hz, 3840x2160@24Hz, 3840x2160@25Hz, 3840x2160@29.97Hz, 3840x2160@30Hz, 4096x2160@24Hz, 480px60Hz, 576px50Hz, 720px50Hz, 720px60Hz, 1080i/1080px50Hz, 1080i/1080px60Hz, 1080px50Hz, 1080px60Hz, 1080px24Hz, 480px59.94Hz, 720px59.94Hz, 1080i/1080px59.94Hz, 1080px23.98, 1080px29.97, 1080px59.94, Custom 1 to Custom 4	1024x768x60Hz
	Aspect Ratio	Set the aspect ratio (also see Section 7.3.1): **Best Fit** **Letterbox** **Follow Output** – If input resolution ≤ output resolution it scales up picture and fills the display (with warp); if input resolution ≥ than output resolution, scales down the picture and fills the display (with warp) **Virtual Wide** **Follow Input** – If input resolution ≤ output resolution, displays with a blank border. If the input resolution ≥ output resolution, crops the image **Custom** – Click to enable custom aspect ratio **Custom Aspect Ratio** – Set H-Pan, V-Pan, H-Zoom and V-Zoom	Follow Output
	Zoom	Set zoom to 100% 150%, 200%, 225%, 250%, 275%, 300%, 325%, 350%, 375%, 400% or click custom to set the custom zoom and enable Zoom H-Pan and Zoom V-Pan	100%

Setting	Function		Default
	Positioning	Set H_Start, H_End, H_Position, H_Size, V_Start, V_End, V_Position, V_Size Note that positioning is disabled when custom or native resolutions are selected Available in the follow output mode and 100% zoom	
Preview	Define the preview settings:		
	Resolution	Single Picture, 640x480x60Hz, 640x480x75Hz, 800x600x50Hz, 800x600x60Hz, 800x600x75Hz, 1024x768x50Hz, 1024x768x60Hz, 1024x768x75Hz, 1280x768x50Hz, 1280x768x60Hz, 1280x720x60Hz, 1280x800x60Hz, 1280x1024x50Hz, 1280x1024x60Hz, 1280x1024x75Hz, 480px60Hz, 576px50Hz, 720px50Hz, 720px60Hz, 480px59.94Hz, 720px59.94Hz, Custom 1 to Custom 4 Setting the Preview resolution to Single Picture means that the PREVIEW mode is disabled. In the PIP mode the preview resolution will automatically be set to Single Picture and when changing it to a different resolution, a message will appear to confirm that PIP will be closed.	Single Picture
	Aspect Ratio	Set the aspect ratio (also see Section 7.3.1): **Best Fit** **Letterbox** **Follow Output** – If input resolution ≤ output resolution it scales up picture and fills the display (with warp); if input resolution ≥ than output resolution, scales down the picture and fills the display (with warp) **Virtual Wide** **Follow Input** – If input resolution ≤ output resolution, displays with a blank border. If the input resolution ≥ output resolution, crops the image **Custom** – Click to enable custom aspect ratio **Custom Aspect Ratio** – Set H-Pan, V-Pan, H-Zoom and V-Zoom	
	Zoom	Zoom the image up to 400% or select custom and use Zoom H-Pan and Zoom V-Pan to set a custom image size	100%
	Positioning	Set H_Start, H_End, H_Position, H_Size, V_Start, V_End, V_Position, V_Size Note that positioning is disabled when custom or single picture resolutions are selected Available in the follow output mode and 100% zoom	
HDMI1	Select the output for HDMI 1 to Follow Program or Follow Preview		Follow Program
HDMI1 Type	Set the HDMI1 output type to Auto, HDMI or DVI		Auto
HDMI2 Type	Set the HDMI 2 output type to Auto, HDMI or DVI		
Test Pattern	Set the test pattern to Colorbar, SMPTE, Greyscale, Picture Border, Multiburst, Ramps, H-pattern, Setup, or set to Off		Off

7.3.1   Selecting the Correct Aspect Ratio

You can configure the aspect ratio of any output image to fit your application. The **VP-733** offers six different aspect ratio settings: Best Fit, Letterbox, Follow Output, Virtual Wide, Follow Input, and Custom. Here is how each of these settings works.

BEST FIT – This setting re-sizes the video or graphics input signal to "best fit" the output resolution while maintaining the aspect ratio of the input signal. For example, a composite video signal (4:3 aspect ratio) will "best fit" to the top and bottom of a widescreen output image, resulting in black pillars on either side.

LETTERBOX – This setting compresses the top and bottom edges of the input signal, but fills the width of the screen. For example, to preserve a widescreen film image on a 4:3 display.

FOLLOW OUTPUT – The aspect ratio and resolution of the input signal is re-sized to precisely match the aspect ratio and resolution of the **VP-733** output signal. This may result in some distortion to the input signal images
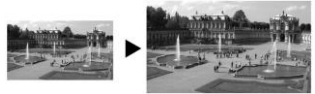
VIRTUAL WIDE – The input signal is stretched horizontally to fit the width of a widescreen output image from the **VP-733**. This setting is used to expand anamorphic (horizontally compressed) video images from DVDs

FOLLOW INPUT – The aspect ratio and resolution of the input video or graphics signal are both preserved. For example, a composite video image with a 4:3 aspect ratio will appear with the same aspect ratio on a 1080p (16:9) output image, surrounded by black bars

CUSTOM – Use this menu to define a custom aspect ratio by adjusting the output image horizontal size (width) and vertical size (height)

7.4 The PIP Screen
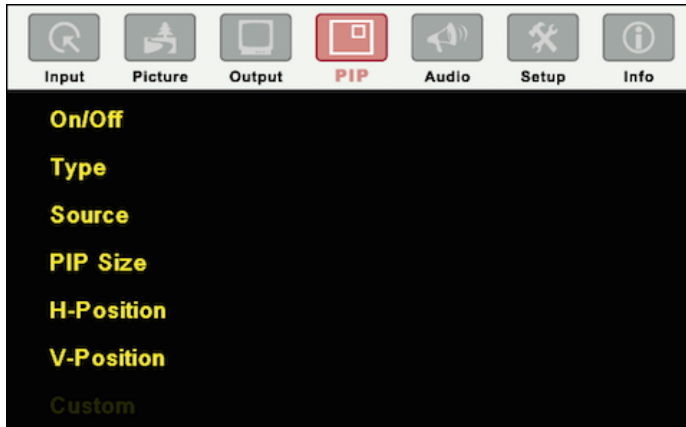
Figure 17: PIP Screen

Setting	Function	Default
On/Off	Activate/deactivate the PIP feature: On/Off	Off
Type	Select the PIP type: PIP (Picture-In-Picture), P+P (Picture + Picture) or Split (see Section 6.3)	Picture-In-Picture
Source	Select the PIP source: UNIV 1 to UNIV 4, HDMI 1 to HDMI 4, DP1, DP 2, HDBT 1 or HDBT 2 When changing the PIP source, the display fades through black	UNIV 1
PIP Size	Select the PIP size: 1/25, 1/16, 1/9, 1/4, or select Custom to enable the Custom item in the PIP OSD menu	1/4
H-Position	Set the horizontal position of the PIP on the display: 0 – 128	0
V-Position	Set the vertical position of the PIP on the display: 0 – 128	0
Custom	**H-Size** – Set custom size: 1 – 255 (up to 960 pixels) **V-Size** – Set custom size: 1 – 255 (up to 540 pixels)	

7.5 The Audio Screen
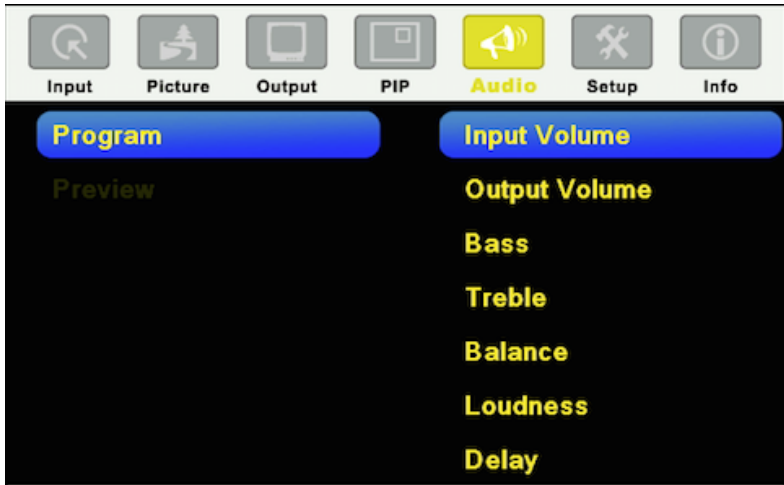
Figure 18: Audio Screen

Setting	Function	Default
Program/Preview		
Input Volume	Adjust the input volume: -22 to 22	0
Output Volume	Adjust the output volume: -100 to 24	0
Bass	Adjust the bass: -24 to 24	0
Treble	Adjust the treble: -24 to 24	0
Balance	Adjust the balance: -10 to 10	0
Loudness	Set loudness Off or On	Off
Delay	Select Dynamic (the audio delay equals the pipeline video delay), User Define or Off If User Define is selected, set the delay time: Program: 0 to 170ms Preview: 0 to 70ms	Dynamic
Input Source	Select the audio input: Analog 1 to Analog 10, S/PDIF or Embedded (for HDMI DP and HDBT inputs). For each video input you can assign an analog audio source, the digital audio source or embedded this input will be switched along with the video input. For example, Analog 1 is assigned to UNIV 3, then whenever UNIV 3 is selected, Analog 1 will be selected too	Analog 1
Audio-Follow-Video	Set to Off or On. When on, the audio will follow the video, as set in the Input Source menu. When Off selecting a different video signal will not change the audio setting and it can be selected via the Input Source menu separately	On

7.6 The Setup Screen
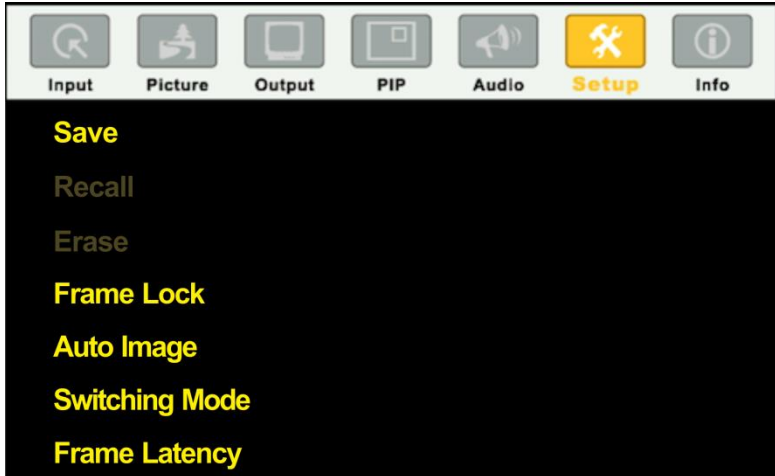
Figure 19: Setup Screen

Setting	Function	Default
Save	Save setup to Profile 1 to Profile 8 or via USB to a memory stick	
Recall	Recall setup from Profile 1 to Profile 8 or from a memory stick via USB port	
Erase	Erase a setup from Profile 1 to Profile 8	
Frame Lock	Set to On or Off. Frame Lock locks the vertical refresh rate of the output to that of the input. Frame Lock only locks 50Hz or 60Hz 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 Note that: • Seamless switching is not possible when working in the Frame Lock mode unless all sources are frame synchronized • If **VP-733** can lock the input then the output will follow • If **VP-733** cannot lock the input, then the output will not change. The info menu will display one of the following: Sync Mode: Free Run (Frame Lock Off) or Sync Mode: Frame Lock (Frame Lock On) • When resetting the resolution to XGA or 720p, Frame Lock will be turned off automatically and if required you will need to turn Frame Lock on When changing the output resolution (not including Native HDMI and Custom 1 to 4), if the new output resolution can be locked, **VP-733** locks it. If not, it will be unlocked When changing the output resolution to Native, HDMI or Custom1 to 4, Frame Lock turns off and is disabled (grayed out)	Off

VP-733 - Configuring the VP-733 via the OSD MENU Screens

Setting	Function	Default
Auto Image	Set to Manual or Auto Set to **Manual** to adjust and align the picture. Set to **Auto** to automatically adjust and align the picture each time one of the UXGA inputs is selected or if the UXGA input resolution has changed	Manual
Switching Mode	Selects **Seamless** switching (fade-through-Black) or **Fast** switching which is faster but may cause glitches on the output	Seamless
Frame Latency	Select: **Best Quality** – Does not consider the latency; all the options (and filters) are allowed in order to achieve the highest quality picture. **Fast** – disables most of the filters, but allows some of the more important processing, such as frame rate conversion and cropping	Best Quality
Auto-switch priority	Auto-Switch Priority lets you set the order of inputs to be scanned when searching for a new active source, 5 seconds after losing the input signal. Set the scanning order of the following inputs from Priority 1 to Priority 12: UNIV 1, UNIV 2, UNIV 3, UNIV 4, HDMI 1, HDMI 2, HDMI 3, HDMI 4, DP1, DP2, HDBT 1 and HDBT 2. You can also set the priority to Off Set the priority list from First priority to the 12th priority. For example, select First Priority and then select the input that will be first in priority from the list of inputs. Set the second input you want scanned into the Second Priority, and so on. By default, the priority order is as follows: HDMI 1 (First Priority 1) HDMI 2 (Second Priority 2), HDMI 3 (Third Priority 3), HDMI 4 (4th Priority), DP 1 (5th Priority 5), DP 2 (6th Priority), UNIV 1 (7th Priority), UNIV 2 (8th Priority), UNIV 3 (9th Priority), UNIV 4 (10th Priority), HDBT 1 (11th Priority) and HDBT (12th Priority)	
Hot Plug Handshaking	Set Hot Plug On or Off for the following inputs: HDMI1, HDMI 2, HDMI 3, HDMI 4, DP 1, DP 2, HDBT 1 and HDBT 2 **On** – Sends a hot plug handshake to the source when switching to an HDMI or DP input. **Off** – No hot plug handshake is sent when switching to an input	Off
Input HDCP	Set to On or Off for each of the HDMI inputs as well as HDBT inputs, DP1 and DP2 HDCP support can be enabled (On) or disabled (Off) for each of the HDMI/DP inputs, allowing the source to transmit a non-HDCP signal if required (for example, when working with a Mac computer)	On
Ethernet Setting	Set the following Ethernet settings: DHCP (DHCP will automatically assign an IP address) On or Off, IP Address, Subnet Mask and Gateway	
Factory Reset	Select Yes to reset your **VP-733** to its preset default settings	
Advanced Setup	Opens the advanced setup menu screen, which includes the: Mode Set (Section 7.6.1), OSD (Section 7.6.2), Misc (Section 7.6.3), Input (Section 7.6.3.1)and Output (Section 7.6.5), Input EDID Setup (Section 7.6.6) and the Max Volume Limit (Section 7.6.7)	

7.6.1 The Mode Set Screen

The Mode Set functions define the desired working resolution and refresh rate when the system cannot distinguish between similar resolutions (for example, resolutions that have the same number of lines can be defined to identify refresh rate values).

Setting	Function	Selection/Range	Default
Mode 1	Set mode 1	1400x1050x60Hz 1680x1050x60Hz	1680x1050x60Hz
Mode 2	Set mode 2	1280x1024x75Hz 1280x1024x76Hz	1280x1024x75Hz
Mode 3	Set mode 3	1280x768x60Hz 1366x768x60Hz	1280x768x60Hz
Mode 4	Set mode 4	1024x768x75Hz 1024x768x75Hz-Mac	1024x768x75Hz
Mode 5	Set mode 5	1280x960x60Hz 1600x900x60Hz(R)	1280x960x60Hz

For example, if two resolutions have the same number of lines (for example, 1050), we can define them so that the unit identifies the resolution as 1400x1050 or as 1680x1050.

7.6.2 The OSD Screen Functions

Setting	Function	Selection/Range	Default
OSD Position	Select the location of the OSD	Program or Preview	Preview
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

7.6.3 The Misc Screen Functions

Setting	Function	Default
Splash-Screen	Select ON, OFF or Custom Choose ON for the start-up logo to appear on the screen Choose OFF for it not to appear Custom – to select a custom logo (a BMP file with a resolution of up to 640x400) downloaded via the item below	Kramer Logo
Splash-Screen Download	Shows NA unless a memory stick is connected to the USB port. To download a logo: 1. Load the BMP image (or images) to the root folder of the USB (note that the file should not exceed a resolution of 640x400) 2. Connect the Memory stick to the USB connector on the front panel. 3. Click Logo Download item. The BMP image appears 4. Select the BMP file and press the Enter button When Custom is selected in the Logo item menu this logo will appear after powering up the device	

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Setting	Function	Default
Blank Color	Select Black or Blue Set the blank color (the color that appears on the screen when the blank button is pressed)	Blue
Background	Select a Blue or Black background if no signal is detected or a file cannot be displayed	Black
Low Power Saving	Select Off, Sleep or Powerdown; will be activated after an input signal is not detected for 5 minutes When set to **Sleep**, press any key to reactivate the machine. When set to **Powerdown**, press any key to reboot the machine	On
Lock Save	Select On or Off Set to **On** to save the lock status when the machine is powered down	
Lock Mode	Select All or Menu Only Set to **All** to lock all the front panel buttons or to **Menu Only** to lock the MENU (and navigation) front panel buttons only so you can still use the SOURCE buttons on the front panel even when the lock button is on	
Blank	Select Blank & Mute, Blank or Mute to determine the behavior of the BLANK front panel button Set to **Blank & Mute** to blank the output image and mute the audio Set to **Blank** to blank the output Set to **Mute** to mute the audio	Blank & Mute
Freeze	Select Freeze & Mute, Freeze or Mute to determine the behavior of the FREEZE front panel button Set to **Freeze & Mute** to Freeze the output image and mute the audio Set to **Freeze** to freeze the output Set to **Mute** to mute the audio	Freeze & Mute
HDCP Setting	Select Follow Input or Follow Output to define whether the HDCP will follow the input or the output 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) 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	Follow Output
Over Scan	Select On or Off Set to On to Allow stretching of the outputted picture This feature is enabled only for CV, Y/C and component video inputs	Off
Overlay	Text overlay can be accessed directly by downloading the text overlay and connecting to the machine via RS-232 (See Section 7.6.3.1)	Off
HDBT Tunneling	Set the port for data tunneling: HDBT IN1, HDBT IN2 or HDBT OUT	Off
HDBT Tunneling Port	Select the port tunneling port number (00000 to 65535)	05050
Firmware Download Path	For factory use	Default

7.6.3.1 Using Text Overlay

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

Running this AP with the PC connected to the **VP-733** 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.

Note that currently you can connect to the machine via RS-232 only.
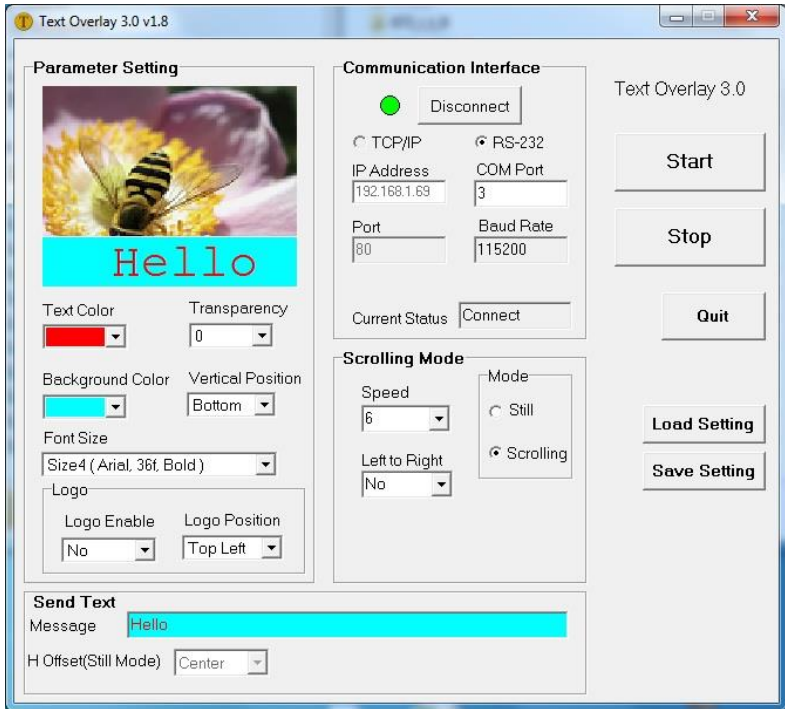
Figure 20: Text Overlay Application Screen

Feature	Function
Parameter Setting Area	
Text Color Dropdown Box	Select the Text color
Transparency Dropdown Box	Select the transparency level (0 to 7)
Background Color Dropdown Box	Set the text background color
Vertical Position	Set the vertical position of the text background on the display screen (Top, Center or Bottom)

Feature		Function
Font Size		Select the text overlay font size
Logo	Logo Enable	Enable the logo to appear on screen
	Logo Position	Set the position of the logo
Communication Interface Area		
Connect/Disconnect		Connect the machine or disconnect
RS-232 Check box		When selected, set the *COM port* and *Baud Rate* (9600) to connect via the RS-232 connector
Current Status		Indicates whether there is a valid connection to the **VP-733**
Scrolling Mode Area		
Speed Dropdown Box		Set the speed at which the text moves on the display
Mode		Set to Still (fixed text) or Scrolling (text moves across the display)
Left to Right		Set direction of the scrolling text
Send Text Area		
Message		Type the desired text in the *Message* box
H-Offset (Still Mode) Dropdown Box		After selecting the Still mode, use the *H-Offset* box to select the horizontal position of the text (Left Center or Right)
Operation Buttons		
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

7.6.4   The Input Functions

The following table defines the input settings:

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

7.6.5 The Output Functions Screen

The following table defines the output settings:

Setting	Function	Default
Custom Output	Custom 1 to Custom 4	
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
Save	Save setup	
Get Current	Import the values of the currently selected output resolution into the User Mode Setting	
Read HDMI1 EDID	Reads the EDID file from the acceptor that is connected to the HDMI 1 output. The EDID is stored as a custom output resolution. This allows, for example, automatic handling of LED screens that support very low non-standard resolutions	N/A
Read HDMI2 EDID	Reads the EDID file from the acceptor that is connected to the HDMI 2 output. The EDID is stored as a custom output resolution. This allows, for example, automatic handling of LED screens that support very low non-standard resolutions	N/A
Read DP EDID	Reads the EDID file from the acceptor that is connected to the DP output. The EDID is stored as a custom output resolution. This allows, for example, automatic handling of LED screens that support very low non-standard resolutions	N/A
Read VGA EDID	Reads the EDID file from the acceptor that is connected to the VGA output. The EDID is stored as a custom output resolution. This allows, for example, automatic handling of LED screens that support very low non-standard resolutions	N/A

Figure 21 illustrates horizontal and vertical sync pulse width, timing and active video area for a typical frame of video.
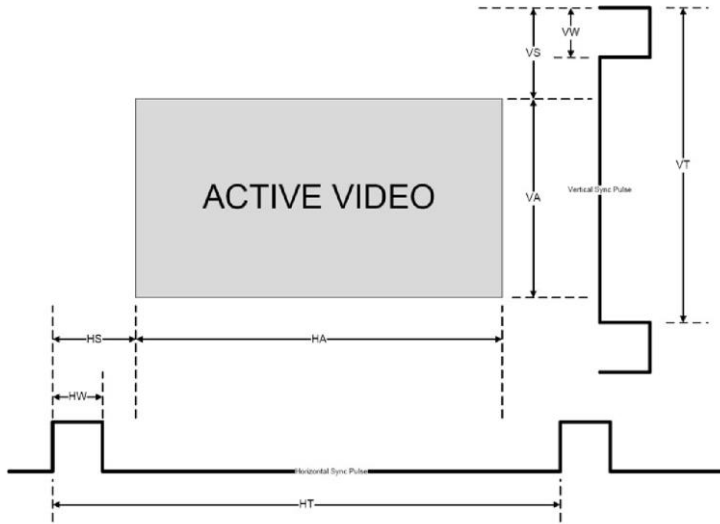
Figure 21: Active Video Functions

7.6.6 The Input EDID Setup Screen

The following table defines the input EDID settings:

Setting	Function	Default
For HDMI 1, HDMI 2, HDMI 3, HDMI 4, DP 1, DP 2, HDBT 1, HDBT 2		
Default	Set to the factory default configuration	Default
Copy HDMI 1 Out	Copy the EDID from the HDMI 1 output to the input	
Copy HDMI 2 Out	Copy the EDID from the HDMI 2 output to the input	
Copy DP Out	Copy the EDID from the DP output to the input	
Copy HDBT OUT	Copy the EDID from the HDBT output to the input	
User Define	Select a previously stored EDID (see Read HDMI EDID in Section 7.6.5 above)	
Select Modeline	This feature is available only if Default is selected. Otherwise it is disabled. Select the native resolution: Default 1024x768@60, 1280x800@60, 1280x1024@60, 1366x768@60, 1440x900@60, 1400x1050@60, 1600x900@60 (R), 1600x1200@60, 1680x1050@60, 1920x1080@60, 1920x1200@60Hz (R), 720p50, 720p60, 1080p50, 1080p60, 2048x1080@50Hz, 2048x1080@60Hz, 3840x2160x30Hz	Default

Setting	Function	Default
For UNIV 1, UNIV 2, UNIV 3, UNIV 4		
Default	Set the default EDIDs on the inputs	Default
Copy VGA Out	Copy the EDID from the sink on the PC output to the input	
User Define	Setup a user defined EDID Select a previously stored EDID (see Read VGA EDID in Section 7.6.5 above)	
Select Modeline	Select the native resolution: Default (1920x1080@60), 1024x768@60, 1280x800@60, 1280x1024@60, 1366x768@60, 1440x900@60, 1400x1050@60, 1600x900@60 (R), 1600x1200@60, 1680x1050@60, 1920x1080@60, 1920x1200@60Hz (R)	Default

7.6.7 The Maximum Volume Limit Screen

Set the maximum Program Output volume and the maximum Preview Output volume from -100 to 24 (default = 24). Doing this allows you to limit the maximum volume level that the user can set.

7.7 The Info Screen

From the Information screen (see Figure 22), you can verify the Program Source, Preview Source, PIP Source, Program Output, Preview Output, HDMI Output, Sync Mode, MCU Version, OSD Version, FPGA Version, Slave Version CPLD IO Version, CPLD KPD Version, Dynamic IP/Static IP.

Figure 22: Information Screen

8 Firmware Upgrade

> The latest firmware version as well as the VP-Download Tool, can be downloaded from the Kramer Web site at kramerav.com/support/downloads.asp

You can upgrade the **VP-733** via the VP Download tool, which can be downloaded from our Web site. After downloading this upgrade tool:

1. Connect the **VP-733** to your PC via the Ethernet.

2. Open VP Download Tool. The Download screen appears:
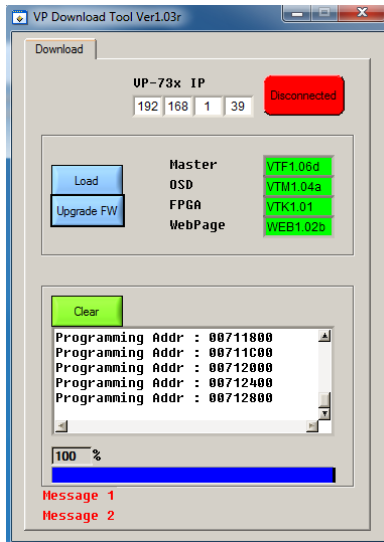
Figure 23: Firmware Upgrade – the VP Download Tool

3. Type in the IP number of the machine.

4. Click the Disconnected button.

5. Click the Load button and select the latest firmware file.

6. Click the Upgrade FW button and wait for the completion of the procedure.

7. Turn off the power on the **VP-733** and then turn it on again.

9 Using the Embedded Web Pages

The Web pages let you control the **VP-733** via the Ethernet. The Web pages include all the OSD items and more, and are accessed using a Web browser and an Ethernet connection.

> Note that the Web page features are described in more detail in the OSD Menu, Section 7.

Before attempting to connect:

- Perform the procedures in Section 5.4.

- Ensure that your browser is supported

The following operating systems and Web browsers are supported:

OS	Version	Browser
Windows	7	IE
		Firefox
		Chrome
		Safari
	10	IE
		Edge
		Firefox
		Chrome
Mac	10.11	Safari
iOS	10.3.2	Safari
Android	N/A	N/A

9.1 Browsing the VP-733 Web Pages

To browse the **VP-733** Web pages:

1. Open your Internet browser.

2. Type the IP number of the device in the Address bar of your browser. For example, the default IP number:

http://192.168.1.39

The Authentication window appears.

3. Enter the password and click OK.

    The Routing & Scaling (first) page loads.

There are 11 Web pages:

- The Routing & Scaling (Program and Preview) page (see Section 9.2)

- The Device settings page (See Section 9.3)

- The Input Settings page (see Section 9.4)

- The Output settings page (see Section 9.5)

- The Audio Settings page (see Section 9.6)

- The Miscellaneous Video Settings page (see Section 9.7)

- The EDID management page (see Section 9.8)

- The Advanced Settings page (see Section 9.9)

- The Custom Resolutions page (see Section 9.10)

- The Security page (see Section 9.11)

- The About page (see Section 9.12)

9.2   The Routing & Scaling Page

The Routing & Scaling page includes Program and Preview tabs.

The main area shows the size of the image and its location. The list of available inputs appears on the right side of the main area. The selected input appears green when its image is selected. For example, in Figure 25 the UNIV 1 input is selected and appears green on the list. On the far right side in the Program tab you can use the slider to set the output volume (see Section 9.2.9).

9.2.1   The Program Routing and Scaling Page

Figure 24 shows the Program Routing & Scaling page that is also the first page that appears following the loading page. The column on the left shows the Program

Routing & Scaling page selected and below a list of all the other available Web pages.
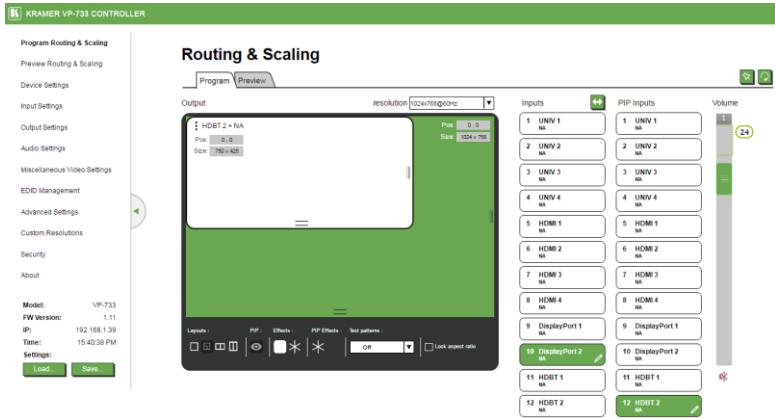
Figure 24: The Routing & Scaling Page with Web page list on the left

Note that the Web pages list on the left automatically hides itself when the page is accessed:
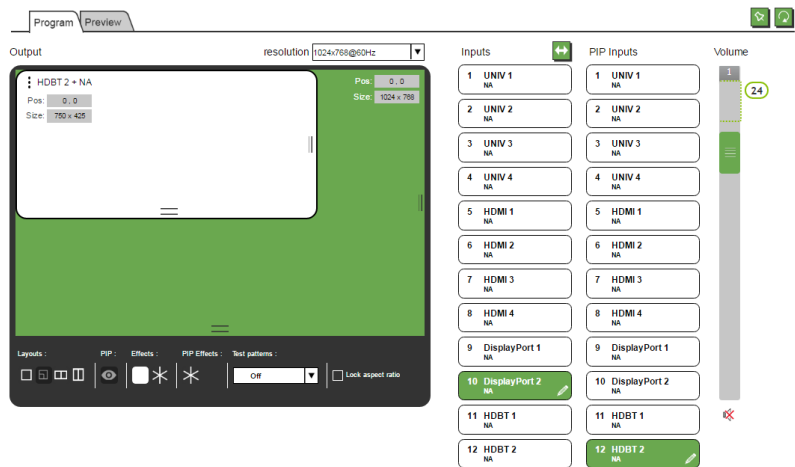
Figure 25: The Routing & Scaling Page – Program Window

When in the PIP mode, the Program tab shows the various PIP options (see Figure 26) or a single page with no PIP displaying (see Figure 25). In the PIP mode the preview output resolution will always be Single Picture.
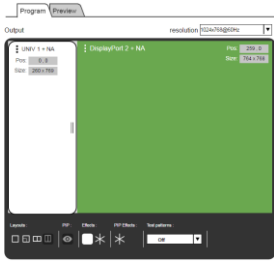
Split

Picture + Picture
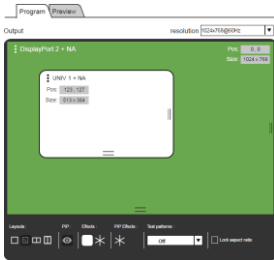
Picture in Picture

Figure 26: The Routing & Scaling Page – Main and PIP Windows

9.2.2 The Preview Routing and Scaling Page

The Preview Router & Scaling page is enabled when resolution is other than Single Picture, meaning that the program and preview outputs can show different outputs.
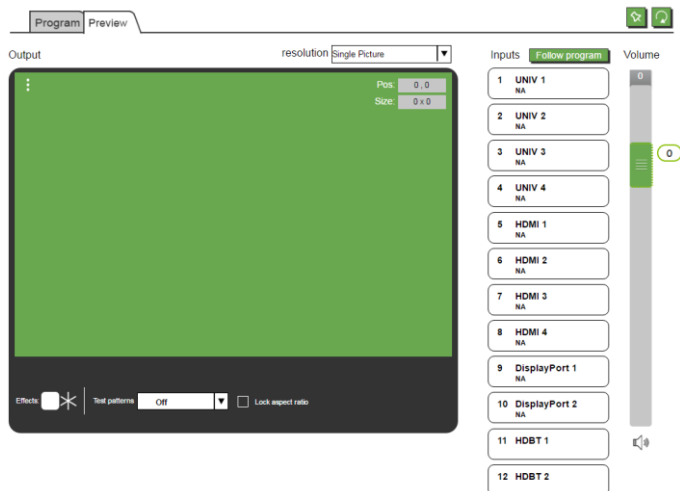
Figure 27: The Preview Routing & Scaling Page – Disabled in PIP Mode
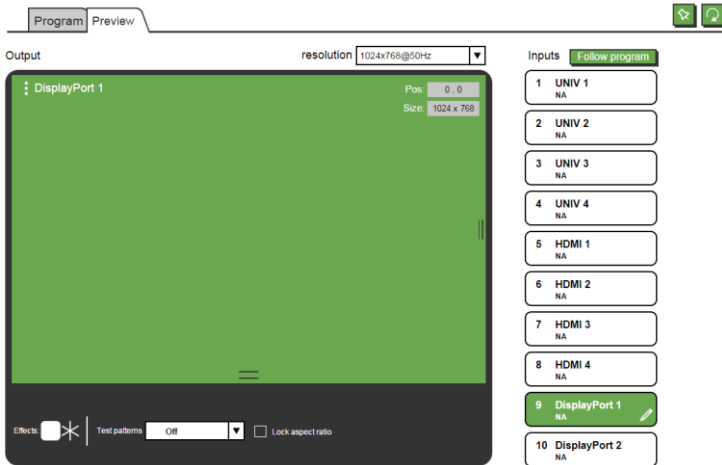
Figure 28: The Preview Routing & Scaling Page – Preview Mode

Click the Follow program button to have the preview follow the program input.

9.2.3 Switching between PIP and Preview modes

To switch from the Preview to the PIP mode via the Web pages:

1. In the Program Routing & Scaling page, click the PIP button and select the desired layout (split, picture + picture, picture in picture or single window).

2. The machine is now in the PIP mode and the PREVIEW front panel button no longer illuminates.

To switch from the PIP mode back to the Preview mode:

1. In the Preview Routing & Scaling page, select a resolution other than Single Picture.
   The preview and program outputs can now show separate images.

9.2.4 Setting the Image Size

You can set the size of the Program/Preview window by moving the right and bottom edges of the image while pressing the mouse button. You can also move the image by pressing the mouse button and moving the image about. The image size and position are indicated at the image top right and for each window, the top

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left side area shows the selected input.

When checking Lock aspect ratio, the image aspect ratio is kept when setting to different sizes.

The Routing & Scaling main area shows a depiction of the display which can show a single window (shown in Figure 25) or some variation of a MAIN window and a PIP window (one image over another), as illustrated in Figure 30.

Figure 29: The Routing & Scaling Page – Single Program/Preview Window

When in the PIP mode, the PIP image can be moved in any direction by clicking and moving the mouse and sized by moving the right and bottom edges of the image.
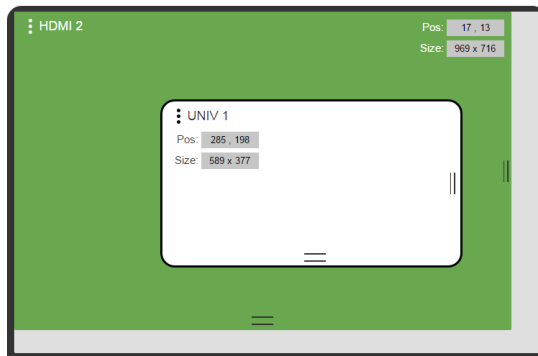
Figure 30: The Routing & Scaling Page – Moving the PIP Window

9.2.5   Setting the Output Resolution

The output resolution can be selected from the Resolution drop-down box:

Routing & Scaling
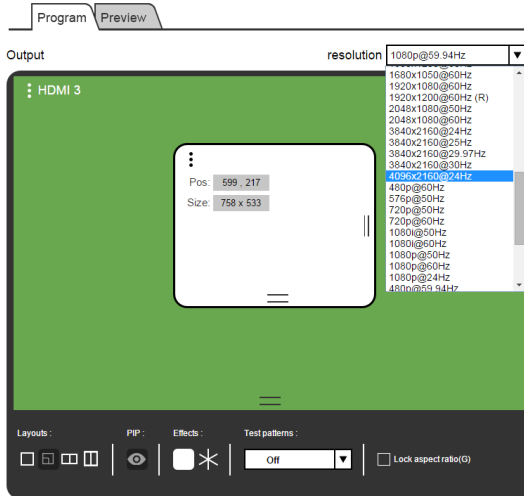
Figure 31: The Routing & Scaling Page – Selecting the output Resolution

> The Preview tab shows the list of resolutions available for the Preview output (including Single Picture to set the PIP mode, see Section 7.3).

9.2.6 Swapping Inputs

Press the Swap **Inputs** button to swap between MAIN and PIP inputs (in the PIP mode). For example, if the MAIN window displays HDMI 3 and the PIP window displays HDMI 1, these inputs swap places when clicking the Swap Inputs button, so the MAIN window will now show HDMI 1 and the PIP window will show HDMI 3.

Figure 32: The Routing & Scaling Page – The Swap Inputs

9.2.7 The Lower Buttons Bar

The lower buttons bar lets you perform quick and easy setups:
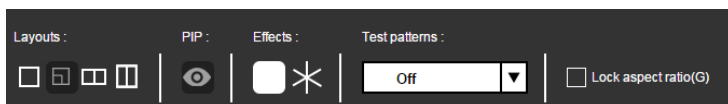
Figure 33: The Routing & Scaling Page – Program Lower Buttons Bar

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The Preview buttons bar includes effects and test patterns only:
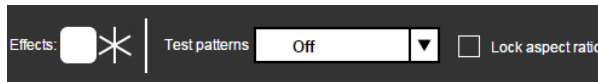
Figure 34: The Routing & Scaling Page – Preview Lower Buttons Bar

Button	Function
	Select one of the four standard setups. You can customize the size of each window by using the arrows.
	Click to toggle between PIP and single window
	Select freeze and/or blank effects
	Select a test pattern

9.2.8   Store and Recall a Setup

You can store or recall a setup via the store and recall buttons:

Store button   Recall button

To save a preset:.

Click the preset button. the save preset window appears:	Click a preset button (1 to 8), for example, click 1.	Click the Recall button to recall a preset. Only the buttons with stored presets appear. Click the button to recall the settings.
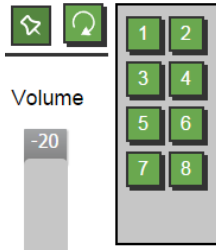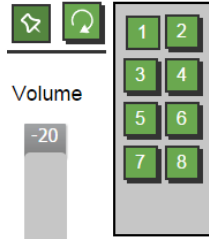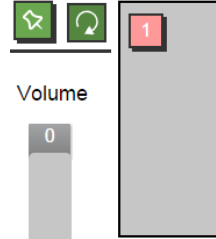
Figure 35: The Routing & Scaling Page – Storing and Recalling a Preset

9.2.9 Audio Level Slider

The volume audio slider appears on the right side of the page and can be toggled to mute and unmute, if required (see Section 9.6).

or
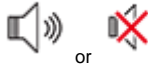
Figure 36: The Routing & Scaling Page – Muting the Audio Level

9.2.10 Editing an Input

Click the pen icon on the input label to edit the input. The Web page moves to the Input Settings page (see Section 9.4).

Figure 37: The Routing & Scaling Page – Editing an Input

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9.3 The Device Settings Page

The Device Settings window (in Figure 38) lets you set the device name, change the Ethernet parameters, perform factory reset and view the information data.

Figure 38: The Device Settings Page

9.3.1 Changing the Ethernet Settings

You can change the Ethernet parameters (DHCP box needs to be checked) by typing the change and clicking the Apply button. Note that:

- After changing the IP number, you need to reload the Web page with the new IP number

9.3.2 The Information Window

To access the information window, click the ⓘ icon on the lower right side of the page. Click it once more to close the INFO window.

INFO	
Program Source	UNIV1_NoSignal
Preview Source	Follow_Program
PIP Source	NA
Program Output	1024x768@60Hz
Preview Output	800x600@60Hz
HDMI1 Output	Follow_Program
Sync Mode	Free_Run(Frame_Lock_Off)
MCU Version	VTF1.06d
OSD Version	VTM1.04a
FPGA Version	VTK1.01
Slave Version	VTI1.02
CPLD IO Version	VTO1.00
CPLD KPD Version	VTN1.00
Dynamic IP/Static IP	Static_IP:192.168.1.39

Figure 39: The Device Settings Page – the Information Window

9.3.3 Factory Reset

Click the Factory reset button to reset the device. The following window appears:

The page at 192.168.1.39 says:

Factory reset

OK   Cancel
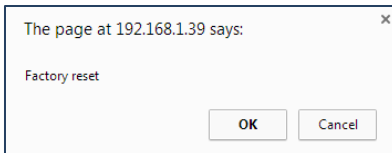
Figure 40: The Device Settings Page – Factory Reset

Click OK to start factory reset.

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9.4 The Input Settings Page

The Input Settings page lets you setup the Program and PIP/Preview inputs and can also be accessed via the edit icon in the Scaling & Routing page, see Section 9.2.10.

Figure 41: The Input Settings Page

The following table defines the Input Settings page items:

Button	Function
Source	Select the input source (appears with the label), see Section 7.1
Label	Label the input
Priority	Set the priority (for auto switching)
Source type (UNIV)	Set the type of the analog source (VGA/Component/YC/Video), disabled if the selected input is not UNIV, see Section 7.1
HDCP (HDMI & DisplayPort)	Set to ON or OFF
Fine-Tune	Adjust the image parameters Horizontal and Vertical Position, Frequency and Phase, for VGA images, see Section 7.2

Button	Function
Brightness	See Section 7.2
Contrast	
Color	
Hue	
Sharpness	
Noise Reduction	
Standard Color Format	Select the color format to Auto/RGB/YUV (for HDMI and DP inputs), see Section 7.1
Video Standard	Select the video standard to Auto/NTSC/PAL/PAL-M/PAL-N/NTSC 4.43/SECAM/PAL-60 (for YC and video inputs), see Section 7.1
Auto Image	See Section 7.6
Program Volume	Set the input program volume
Preview Volume	Set the input preview volume

You can set the source label by typing the label name and saving it:

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9.5 The Output Settings Page

Figure 42 shows the Program and Preview Output Settings page.

Figure 42: The Output Settings Page

Button	Function
Resolution	Define the Program and Preview resolutions (setting to single picture sets the PIP mode)
Aspect ratio	Set the Program and Preview aspect ratios (see Section 7.3.1)
Zoom	Set the Program and Preview zoom from 100% to 400% or click custom to set the custom zoom and enable Zoom Horizontal Pan and Zoom Vertical Pan
Overscan	Select On or Off; set to On to stretch the output picture
HDCP	Select Follow Input or Follow Output to define whether the HDCP will follow the input or the output
HDMI 1 Out Mode	Select the output for HDMI 1 to Follow Program or Follow Preview
HDMI 1 Type	Set the HDMI1 output type to Auto, HDMI or DVI
HDMI 2 Type	Set the HDMI 2 output type to Auto, HDMI or DVI
Test Patterns	Set the test pattern to Colorbar, SMPTE, Greyscale, Picture Border, Multiburst, Ramps, H-pattern, Setup, or set to Off
Program audio slider	Use to set the Program output volume

9.6 The Audio Settings Page

Figure 43 shows the Program and Preview Output Settings page.
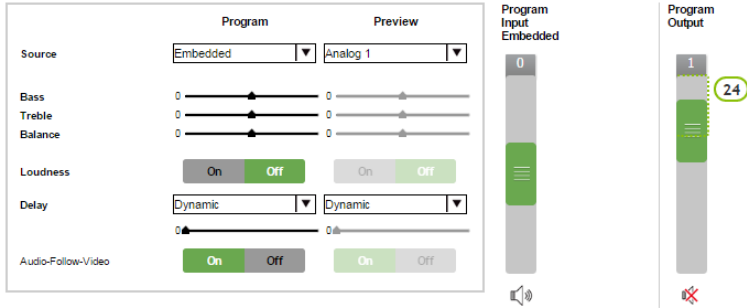
Figure 43: The Audio Settings Page

Button	Function
Source	Set the Program and Preview audio sources (Analog 1 to Analog 10, S/PDIF or Embedded – for HDMI and DP inputs)
Bass	Adjust the bass
Treble	Adjust the treble
Balance	Adjust the balance
Loudness	Set loudness OFF or ON
Delay	Select the Program and Preview delay to dynamic, User Define or Off. Set the delay time (in ms)
Audio Follow Video	Set to Off or On
Program input Volume	Set the program input volume (analog, S/PDIF or embedded)
Program Output Volume	Set the program output volume

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9.7 The Miscellaneous Video Settings Page

Figure 44 shows the Miscellaneous Video Settings page.

Figure 44: The Miscellaneous Video Settings Page

Button	Function
Frame Lock	Set to On or Off to lock the vertical refresh rate of the output to that of the input (locks only 50Hz or 60Hz/59.94Hz), see Section 7.6
Auto Image	Set to Manual or Auto, see Section 7.6
Switching Mode	Select Seamless switching or Fast switching, see Section 7.6
Frame Latency	Set to Best Quality or Fast, see Section 7.6
Hot Plugs	Set Hot Plug On or Off for HDMI1 to HDMI 4, DisplayPort 1 and DisplayPort 2, see Section 7.6

9.8 The EDID Management Page

The EDID page lets you read the EDID from any of the outputs (HDMI 1, HDMI 2, DP and VGA), from a list of default resolutions or from a file in your PC (Browse). The selected EDID can be copied to a selected input.

Figure 45: The EDID Page

[Figure 46](#) shows how to select a resolution from the list and select an input:
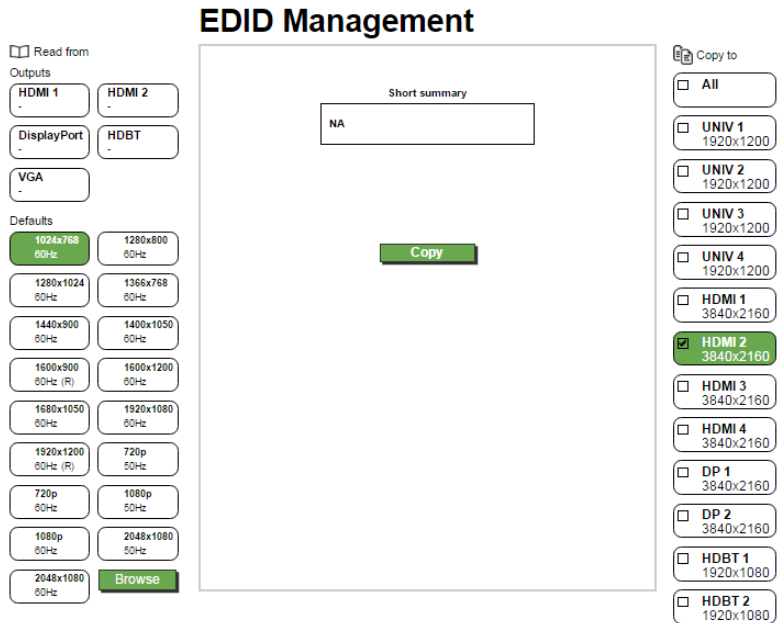
Figure 46: The EDID Page – Selecting a Resolution to copy to an Input

To copy, click the **Copy** button.

[Figure 46](#) shows how to select one of the outputs from the list and select an input.
To copy, click the **Copy** button:

9.9 The Advanced Settings Page

The HDCP settings page summarizes additional machine settings and lets you change them.

Figure 47: The Advanced Settings Page

Button	Function
Default Input Resolution	Define the desired input resolution modes and refresh rate when the system cannot distinguish between similar resolutions, see Section 7.6.1
Logo	Select On, Off or Custom, see Section 7.6.3
Overlay	Select to Off, Text or Logo, see Section 7.6.3
Blank mode	Select Blank & Mute, Blank or Mute to determine the behavior of the BLANK front panel button

Button	Function
Freeze mode	Select Freeze & Mute, Freeze or Mute to determine the behavior of the FREEZE front panel button
No signal color	Select a Blue or Black background
Low power saving	Select Off, Sleep or Power-down, see Section 7.6.3
Lock panel status saved on power down	Select ON (to save the lock status when the machine is powered down) or Off
Lock panel status disables input selection	Select ON or OFF (to use the SOURCE buttons on the front panel even when the lock button is on)

9.10 The Custom Resolutions Page

The Custom Resolutions page lets you set the parameters from different sources (see Figure 49) or type it in manually. You can save up to four custom settings each for the input and the output (see Sections 7.6.4 and 7.6.5).

Figure 48: The Custom Resolutions Page
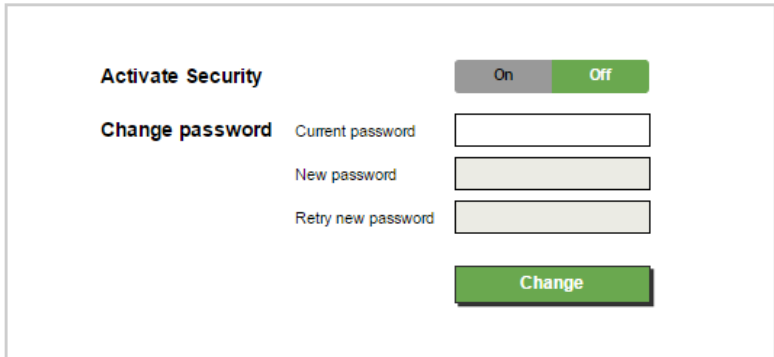
Figure 49: The Custom Resolutions Page – Current Parameters

9.11   The Security Page

Use the Security page to activate/deactivate the security measures as well as change the password.

Figure 50: The Security Page

9.12   The About Page

The **VP-733** About page lets you view the Web page version and Kramer Electronics Ltd details.

Figure 51: The About Page

10 Technical Specifications

Inputs:	4 HDMI connectors; 4 universal (composite, s-Video, computer graphics and component) on 15-pin HD connectors; 2 DP connectors; 2 HDBT on RJ-45 connectors, 1 S/PDIF on an RCA connector; 10 unbalanced stereo audio on 3.5mm mini jacks
Outputs:	2xHDMI connectors; 1 DP connector; 1 PC (computer graphics) on a 15-pin HD connector; 1 HDBT on an RJ-45 connector, 1 balanced audio stereo output on a 5-pin terminal block (+4dBu nominal); 1 stereo speaker output, 10W per channel into 8Ω, on a 4-pin terminal block connector; 1 digital S/PDIF output on an RCA connector
Ports	1 USB connector; 1 RS-232 on a 9-pin D-sub connector; 1 Ethernet on an RJ-45 connector
Compliance with HDMI Standard:	Supports HDMI and HDCP
Output Resolutions:	PROGRAM: Native HDMI1, Native HDMI2, Native DP, Native VGA, 640x480x60Hz/75Hz, 800x600x50Hz/60Hz/75Hz, 1024x768x50Hz/60Hz/75Hz, 1280x768x50Hz/60Hz, 1280x720x60Hz, 1280x800x60Hz, 1280x1024x50Hz/60Hz/75Hz, 1366x768x50Hz/60Hz, 1400x1050x50Hz/60Hz, 1600x900x60Hz (R), 1600x1200x50Hz/60Hz, 1680x1050x60Hz, 1920x1080x60Hz, 1920x1200x60Hz (R), 2048x1080x50Hz/60Hz, 3840x2160@24Hz/25Hz/29.97Hz/30Hz, 4096x2160@24Hz, 480px60Hz, 576px50Hz, 720px50Hz/60Hz, 1080i/1080px50Hz, 1080i/1080px60Hz, 1080px24Hz, 720px59.94Hz, 1080i/1080px59.94Hz, 1080px23.98Hz/29.97Hz, Custom 1 to 4 PREVIEW: Single Picture, 640x480x60Hz/75Hz, 800x600x50Hz/60Hz/75Hz, 1024x768x50Hz/60Hz/75Hz, 1280x768x50Hz/60Hz, 1280x720x60Hz, 1280x800x60Hz, 1280x1024x50Hz/60Hz/75Hz, 480px60Hz/59.94Hz, 576px50Hz, 720px50Hz/60Hz/59.94Hz, Custom 1 to 4
Control:	Front panel buttons / OSD, IR remote control, RS-232 on a 9-pin D-sub connector, Ethernet
Additional Controls:	Picture-In-Picture, Picture-and-Picture or Split Screen (two images side-by-side); separate program/preview freeze and zoom, different selectable vertical refresh rates, Video and Audio ProcAmp control, output image scaling and aspect ratio change, EDID capture
Power Source:	100-240V AC, 50/60Hz, 60VA

Operating Temperature:	0° to +40°C (32° to 104°F)	Storage Temperature:	-40° to +70°C (-40° to 158°F)
		Humidity:	10% to 90%, RH (non-condensing)
Dimensions:	19" (W), 9.3" (D) 1U (H) rack mountable	Shipping Dimensions:	52.5cm x 33cm x 10.7cm (20.7" x 13" x 4.7") W, D, H
Weight:	2.72kg (6.0lbs) approx.	Shipping weight:	3.56 kg (7.85lbs) approx.

Included Accessories:	rack ears, IR remote control, 2 sets of C-GM/3RVF-1 cables, power cord

Specifications are subject to change without notice
For the most updated resolution list, go to our Web site at www.kramerav.com

10.1 Default Communication Parameters

RS-232			
Baud Rate:	115,200	Stop Bits:	1
Data Bits:	8	Parity:	None
Example (route UNIV 3 video source to program output):		# ROUTE 1,1,2<cr>	
TCP/IP Parameters			
IP Address:	192.168.1.39	UDP Port #:	50000
Subnet mask:	255.255.255.000	Max. UDP Connections:	Unlimited
Default gateway:	192.168.1.254	Max. TCP Connections:	Unlimited
TCP Port #:	80		
Full Factory Reset			
OSD:	Go to : Menu-> Setup -> Factory Reset -> press Enter to confirm		
Web pages:	In the Device Settings page click Factory reset.		
RS-232 Commands	Including ETH: use "#FACTORY" command or #Y 0,154<CR>.		
	Excluding ETH: use "#FACTORY" command or #Y 0,155<CR>.		
Front panel buttons:	Including ETH: power up the device with the "RESET TO XGA/720P" key pressed.		

10.2 Tables of Supported Input Resolutions

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

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Technical Specifications of the Y/C, Video Signal

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

Technical Specifications of the RGB/YUV Input Signal (HDMI)

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

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

Technical Specifications of the DVI Input Signal (for RGB Colorspace)					
Resolution	Vertical Frequency (Hz)	Notes	Resolution	Vertical Frequency (Hz)	Notes
640x480	60	VESA	1280x800	60	VESA
640x480	67	Mac13	1280x800	60	VESA
640x480	72	VESA	1280x960	60	VESA
640x480	75	VESA	1280x960	85	VESA
640x480	85	VESA	1280x768	60	VESA
720x400	70		1280x768	60	VESA
720x400	85	VESA	1280x1024	60	VESA
800x600	56	VESA	1280x1024	75	VESA
800x600	60	VESA	1280x1024	76	Sun
800x600	72	VESA	1280x1024	85	VESA
800x600	75	VESA	1366x768	60	VESA
800x600	85	VESA	1366x768	60	VESA
832x624	75	Mac16	1440x900	60	VESA
1024x768	60	VESA	1440x900	60	VESA
1024x768	70	VESA	1400x1050	60	VESA
1024x768	75	VESA	1400x1050	75	VESA
1024x768	75	Mac19	1600x900	60	VESA
1024x768	85	VESA	1600x1200	60	VESA
1024x800	84	Sun	1680x1050	60	VESA
1152x864	75	VESA	1680x1050	60	VESA
1152x870	75	Mac21	1920x1080	60	VESA
1152x900	66	Sun	1920x1200	60	VESA
1152x900	76	Sun	2048x1080	50	
1280x720	60	VESA	2048x1080	60	

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10.3 Tables of Supported Output Resolutions

Technical Specifications of the RGBHV/Comp/YPbPr Output Signal					
Resolution	Vertical Frequency [Hz]	Notes	Resolution	Vertical Frequency [Hz]	Notes
640x480	60	VESA	1600x1200	50	
640x480	75	VESA	1600x1200	60	VESA
800x600	50		1920x1080	60	VESA
800x600	60	VESA	1920x1200	60	VESA
800x600	75	VESA	1680x1050	60	VESA
1024x768	50		1080i	60	
1024x768	60	VESA	1080i	50	
1024x768	75	VESA	720p	60	
1280x720	60	VESA	720p	50	
1280x768	50		480p	60	
1280x768	60	VESA	576p	50	
1280x800	60	VESA	1080p	50	
1280x1024	50		1080p	60	Comp/YPbPr
1280x1024	60	VESA	480p	59.94	
1280x1024	75	VESA	720p	59.94	
1366x768	50		1080i	59.94	
1366x768	60	VESA	1080p	23.98	
1400x1050	50		1080p	24	
1400x1050	60	VESA	1080p	29.97	
1600x900	60	VESA	1080p	59.94	

Technical Specifications of the HDMI/DVI/RGB/HDBT Output Signal

Resolution	Vertical Frequency [Hz]	Notes	Resolution	Vertical Frequency [Hz]	Notes
640x480	60	VESA	1680x1050	60	VESA
640x480	75	VESA	2048x1080	50	
800x600	50		2048x1080	60	
800x600	60	VESA	3840x2160	24	
800x600	75	VESA	3840x2160	25	
1024x768	50		3840x2160	29.97	
1024x768	60	VESA	3840x2160	30	
1024x768	75	VESA	4096x2160	24	
1280x720	60	VESA	1080i	60	
1280x768	50		1080i	50	
1280x768	60	VESA	720p	60	
1280x800	60	VESA	720p	50	
1280x1024	50		480p	60	
1280x1024	60	VESA	576p	50	
1280x1024	75	VESA	1080p	50	
1366x768	50		1080p	60	
1366x768	60	VESA	480p	59.94	HDMI
1400x1050	50		720p	59.94	
1400x1050	60	VESA	1080i	59.94	
1600x900	60	VESA	1080p	23.98	
1600x1200	50		1080p	24	
1600x1200	60	VESA	1080p	29.97	
1920x1080	60	VESA	1080p	59.94	
1920x1200	60	VESA			

11 VP-733 Communication Protocol

Serial Configuration:

Baud rate: 115200 (Bits per second)

Data bits: 8bits

Parity: None

Stop bits: 1bit

Communication confirmation:

Send: CR

Reply: CRLF>

Set Command:

Send: Y■Control_Type■Function■Param■ChkSumCR

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

Get Command:

Send: Y■Control_Type■Function■ChkSumCR

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

Example: set Input 1 Source Type to Component

Send: Y■0■1■0■2CR

Reply: Z■0■1■0■CRLF>

Example: get current Input 1 Source Type

Send: Y■1■1■3CR

Reply: Z■1■1■0■3CRLF >

Definition:

■: ASCII Code 0x20

CR: Ascii Code 0x0D

CRLF : Ascii Code 0x0D+0x0A

Go to www.kramerav.com/downloads/VP-733 to check for the latest **VP-733** communication protocol.

11.1 Command list

| Control Type | | Function | Parameter1 | Description |
Set	Get			
0	-	0	N/A	Menu
0	-	1	N/A	Top
0	-	2	N/A	Down
0	-	3	N/A	Left
0	-	4	N/A	Right
0	-	5	N/A	Enter
0	-	6	0: Reset 720P 1: Reset XGA 2: Factory Reset	Reset program output resolution to XGA / 720P /Factory reset
0	1	7	0: Off 1: On	Panel lock key function
0	1	8	0: UNIV 1 1: UNIV 2 2: UNIV 3 3: UNIV 4 4: HDMI 1 5: HDMI 2 6: HDMI 3 7: HDMI 4 8: DP 1 9: DP 2 10: HDBT 1 11: HDBT 2	Program source
0	1	9	N/A	Program Blank key function 1. PIP mode: only blank the Program source (PIP still turned on) 2. Dual resolution mode: lank the Program source
0	1	10	N/A	Program Freeze key function 1. PIP mode: only freeze the Program source (PIP still turned on) 2. Dual resolution mode: freeze the Program source
0	1	11	0: UNIV 1 1: UNIV 2 2: UNIV 3 3: UNIV 4 4: HDMI 1 5: HDMI 2 6: HDMI 3 7: HDMI 4 8: DP 1 9: DP 2 10: HDBT 1 11: HDBT 2	Preview/PIP Key function (Keypad) PIP Off 1. Turn on PIP and change PIP source PIP On 2. Change PIP source Preview On 3. Change Preview source
0	1	12	N/A	Preview Blank key function 1. PIP mode: turn off PIP 2. Dual resolution mode: blank the Preview source
0	1	13	N/A	Preview Freeze key function 1. PIP mode: only freeze the PIP source 2. Dual resolution mode: freeze the Preview source
0	1	14	N/A	Preview Mute key function
0	1	15	0: Off 1: On	Preview key function If PIP is On, Preview will turn off PIP
0	-	16	0: Off 1: On	Power

Control Type		Function	Parameter1	Description
Set	Get			
0	1	17	N/A	Program Mute key function
0	-	18	N/A	Save key - Open / Close Setup page
0	-	19	N/A	Recall key - Open / Close Setup page
0	1	20	N/A	Logo key
0	-	21	N/A	Info key - Open / Close Info page
0	-	22	N/A	Picture key - Open / Close Picture page
0	-	23	N/A	Audio key - Open / Close Audio page
0	-	24	N/A	Auto image key
0	1	32	0: Off 1: On	Input Auto Switch
0	1	33	0: VGA 1: Component 2: YC 3: Video	UNIV 1 Source Type
0	1	34	0: VGA 1: Component 2: YC 3: Video	UNIV 2 Source Type
0	1	35	0: VGA 1: Component 2: YC 3: Video	UNIV 3 Source Type
0	1	36	0: VGA 1: Component 2: YC 3: Video	UNIV 4 Source Type
0	1	37	0: Auto 1: RGB 2: YUV	Input Color Format
0	1	38	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	40	1 ~ N	Input H-Position (Enabled for VGA Input) N: Unfixed, changed with Input Mode
0	1	41	2 ~ N	Input V-Position (Enabled for VGA Input) N: Unfixed, changed with Input Mode
0	1	42	0 ~ N	Input Frequency (Enabled for VGA Input) N: Unfixed, changed with Input Mode
0	1	43	0 ~ 63	Input Phase (Enabled for VGA Input)
0	-	44	N/A	Input Auto Image (Enabled for VGA Input)
0	1	50	0~100	Picture Brightness
0	1	51	0~100	Picture Contrast
0	1	52	0~100	Picture Color
0	1	53	0~360 CVBS/YC 0~240 HDMI/VGA/Component	Picture Hue
0	1	54	0~100	Picture Sharpness
0	1	55	0: Off 1: Low	Picture Temporal NR HDMI input is disabled.

Control Type		Function	Parameter1	Description
Set	Get			
			2: Medium 3: High	Analog input, if pixel output > 74.25MHz will be disabled
0	1	56	0: Off 1: Low 2: Medium 3: High	Picture Mosquito NR
0	1	57	0: Off 1: On	Picture Block NR
0	1	65	0: Native HDMI1 1: Native HDMI2 2: Native DP 3: Native VGA 4: 640x480@60Hz 5: 640x480@75Hz 6: 800x600@50Hz 7: 800x600@60Hz 8: 800x600@75Hz 9: 1024x768@50Hz 10: 1024x768@60Hz 11: 1024x768@75Hz 12: 1280x768@50Hz 13: 1280x768@60Hz 14: 1280x720@60Hz 15: 1280x800@60Hz 16: 1280x1024@50Hz 17: 1280x1024@60Hz 18: 1280x1024@75Hz 19: 1366x768@50Hz 20: 1366x768@60Hz 21: 1400x1050@50Hz 22: 1400x1050@60Hz 23: 1600x900@60Hz(R) 24: 1600x1200@50Hz 25: 1600x1200@60Hz 26: 1680x1050@60Hz 27: 1920x1080@60Hz 28: 1920x1200@60Hz(R) 29: 2048x1080@50Hz 30: 2048x1080@60Hz 31: 3840x2160@24Hz 32: 3840x2160@25Hz 33: 3840x2160@29_97Hz 34: 3840x2160@30Hz 35: 4096x2160@24Hz 36: 480p@60Hz 37: 576p@50Hz 38: 720p@50Hz 39: 720p@60Hz 40: 1080i@50Hz 41: 1080i@60Hz 42: 1080p@50Hz 43: 1080p@60Hz 44: 1080p@24Hz 45: 480P@59.94Hz	Program Output Resolution

Control Type		Function	Parameter1	Description
Set	Get			
			46: 720P@59.94Hz 47: 1080i@59.94Hz 48: 1080P@23.98Hz 49: 1080P@29.97Hz 50: 1080P@59.94Hz 51: Custom1 52: Custom2 53: Custom3 54: Custom4 55: Native HDBT	
0	1	66	0: Single Picture 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: 480p@60Hz 17: 576p@50Hz 18: 720p@50Hz 19: 720p@60Hz 20: 480P@59.94Hz 21: 720P@59.94Hz 22: Custom1 23: Custom2 24: Custom3 25: Custom4	Preview(VGA) Output Resolution
0	1	67	0: Follow Program 1: Follow Preview	HDMI1 output
0	1	68	0: Auto 1: HDMI 2: DVI	Output HDMI Type
0	1	69	0: Best Fit 1: Letterbox 2: Follow Output 3: Virtual Wide 4: Follow Input 5: Custom	Aspect Ratio Zoom ! = 100% is disabled P+P or Split ON is disabled
0	1	70	-16 ~ 16	Aspect Ratio Custom H-Pan Zoom ! = 100% is disabled Aspect Ratio should be Custom Aspect Ratio Custom H-Zoom can't be 0
0	1	71	-16 ~ 16	Aspect Ratio Custom V-Pan Zoom ! = 100% is disabled

Control Type		Function	Parameter1	Description
Set	Get			
				Aspect Ratio should be Custom Aspect Ratio Custom H-Zoom can't be 0
0	1	72	-8 ~ 8	Aspect Ratio Custom H-Zoom Zoom ! = 100% is disabled Aspect Ratio should be Custom
0	1	73	-8 ~ 8	Aspect Ratio Custom V-Zoom Zoom ! = 100% is disabled Aspect Ratio should be Custom
0	1	74	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 (Aspect ratio = Custom is disabled)
0	1	75	0 ~ 32	Custom Zoom Aspect ratio = Custom is disabled Zoom = Custom is disabled
0	1	76	0 ~ 32	Zoom H-Pan (Aspect ratio = Custom is disabled)
0	1	77	0 ~ 32	Zoom V-Pan (Aspect ratio = Custom is disabled)
0	1	78	0: Off 1: Color bar 2: SMPTE 3: Grey scale 4: Picture Border 5: Multiburst 6: Ramps 7: H-pattern 8: Setup	Test Pattern
0	1	79	0: Auto 1: HDMI 2: DVI	Output HDMI2 Type
0	1	80	0 ~ A	Program Output Positioning – H Start
0	1	81	A ~ B	Program Output Positioning – H End
0	1	82	0 ~ A	Program Output Positioning – H Position
0	1	83	A ~ B	Program Output Positioning – H Size
0	1	84	0 ~ A	Program Output Positioning – V Start
0	1	85	A ~ B	Program Output Positioning – V End
0	1	86	0 ~ A	Program Output Positioning – V Position
0	1	87	A ~ B	Program Output Positioning – V Size
0	1	90	0: Off 1: On	PIP On/Off
0	1	91	0: PIP 1: P+P 2: Split	PIP Type (Enabled as PIP On)
0	1	92	0: UNIV 1 1: UNIV 2 2: UNIV 3 3: UNIV 4 4: HDMI 1 5: HDMI 2	PIP Source (Enabled as PIP On)

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Control Type		Function	Parameter1	Description
Set	Get			
			6: HDMI 3 7: HDMI 4 8: DP 1 9: DP 2 10: HDBT 1 11: HDBT 2	
0	1	93	0: 1/25 1: 1/16 2: 1/9 3: 1/4 4: Custom	PIP Size PIP On is enabled Pip Type = PIP is enabled
0	1	94	0 ~ 128	PIP H-Position (available when PiP is On and PIP Type=PIP)
0	1	95	0 ~ 128	PIP V-Position (available when PiP is On and PIP Type=PIP)
0	1	96	1 ~ 255	PIP H-Size is available when : PIP Type = PIP, and PIP Size = Custom PIP Type = P+P or PIP Type = Split
0	1	97	1 ~ 255	PIP V-Size Enabled when: PIP is On PIP Type = PIP Pip Size = Custom
0	1	100	-22~0~+22	Audio Program Input Volume
0	1	101	-100~24	Audio Program Output Volume
0	1	102	-24~0~+24	Audio Program Bass
0	1	103	-24~0~+24	Audio Program Treble
0	1	104	-10~10	Audio Program Balance
0	1	105	0: Off 1: On	Audio Program Loudness
0	1	106	0: Dynamic 1: User Define 2: Off	Audio Program Delay
	1	107	0~170 (step 2)	Program User Delay (when User Define is selected in Audio Program Delay)
0	1	108	0: Analog1 1: Analog2 2: Analog3 3: Analog4 4: Analog5 5: Analog6 6: Analog7 7: Analog8 8: Analog9 9: Analog10 10: S/PDIF 11: Embedded	Audio Program Input Source (Universal 1~4 video inputs cannot select an Embedded audio source)
0	1	109	0: Off 1: On	Program Audio Follow-Video
0	1	111	-22~0~+22	Audio Preview Input Volume is available when the: Preview (VGA) output resolution is NOT set to Single Picture. HDMI1 output is set to Follow Preview
0	1	112	-100~24	Audio Preview Input Volume is available when the: Preview (VGA) output resolution is NOT set to Single Picture. HDMI1 output is set to Follow Preview

Control Type		Function	Parameter1	Description
Set	Get			
0	1	113	-24~0~+24	Audio Preview Input Volume is available when the: Preview (VGA) output resolution is NOT set to Single Picture. HDMI1 output is set to Follow Preview
0	1	114	-24~0~+24	Audio Preview Input Volume is available when the: Preview (VGA) output resolution is NOT set to Single Picture. HDMI1 output is set to Follow Preview
0	1	115	-10~10	Audio Preview Input Volume is available when the: Preview (VGA) output resolution is NOT set to Single Picture. HDMI1 output is set to Follow Preview
0	1	116	0: Off 1: On	Audio Preview Input Volume is available when the: Preview (VGA) output resolution is NOT set to Single Picture. HDMI1 output is set to Follow Preview
0	1	117	0: Dynamic 1: User Define 2: Off	Audio Preview Delay is available when the: Preview (VGA) output resolution is NOT set to Single Picture. HDMI1 output is set to Follow Preview
	1	118	0~70(step 2)	Preview User Delay is available when the: Preview (VGA) output resolution is NOT set to Single Picture. HDMI1 output is set to Follow Preview. Audio Preview Delay is set to User Define.
0	1	119	0: Analog1 1: Analog2 2: Analog3 3: Analog4 4: Analog5 5: Analog6 6: Analog7 7: Analog8 8: Analog9 9: Analog10 10: S/PDIF 11: Embedded	Audio Preview Delay is available when the: Preview (VGA) output resolution is NOT set to Single Picture. HDMI1 output is set to Follow Preview Note that Universal1~4 video inputs cannot select embedded audio source
0	1	120	0: Off 1: On	Audio Preview Delay is available when the: Preview (VGA) output resolution is NOT set to Single Picture. HDMI1 output is set to Follow Preview
0	-	122	0: Profile 1 1: Profile 2 2: Profile 3 3: Profile 4 4: Profile 5 5: Profile 6 6: Profile 7 7: Profile 8 8: USB	Setup - Save Setting
0	-	123	0: Profile 1 1: Profile 2 2: Profile 3 3: Profile 4 4: Profile 5 5: Profile 6	Setup - Recall Setting

Control Type		Function	Parameter1	Description
Set	Get			
			6: Profile 7 7: Profile 8 8: USB	
0	1	124	0: Off 1: On	Setup - Frame Lock
0	1	125	0: Manual 1: Auto	Setup - Auto Image
0	1	126	0: Seamless 1: Fast	Setup - Switching Mode
0	1	127	0: Best Quality 1: Fast	Setup - Frame Latency

Control Type		Function	Parameter1	Parameter2	Description
Set	Get				
0	1	128	0: First Priority 1: Second Priority 2: Third Priority 3:4th Priority 4:5th Priority 5:6th Priority 6:7th Priority 7:8th Priority 8:9th Priority 9:10th Priority 10: 11th Priority 11: 12th Priority	0: UNIV 1 1: UNIV 2 2: UNIV 3 3: UNIV 4 4: HDMI 1 5: HDMI 2 6: HDMI 3 7: HDMI 4 8: DP 1 9: DP 2 10: HDBT1 11: HDBT2 12: Off	Auto switch Priority (Parameter *5)
0	1	129	0: Off 1: On	N/A	Setup - Hot Plug HDMI1
0	1	130	0: Off 1: On	N/A	Setup - Hot Plug HDMI2
0	1	131	0: Off 1: On	N/A	Setup - Hot Plug HDMI3
0	1	132	0: Off 1: On	N/A	Setup - Hot Plug HDMI4
0	1	133	0: Off 1: On	N/A	Setup - Hot Plug DP1
0	1	134	0: Off 1: On	N/A	Setup - Hot Plug DP2
0	1	135	0: Off 1: On	N/A	Setup - HDMI1 Input HDCP
0	1	136	0: Off 1: On	N/A	Setup - HDMI2 Input HDCP
0	1	137	0: Off 1: On	N/A	Setup - HDMI3 Input HDCP
0	1	138	0: Off 1: On	N/A	Setup - HDMI4 Input HDCP
0	1	139	0: Off 1: On	N/A	Setup - DP1 Input HDCP
0	1	140	0: Off 1: On	N/A	Setup - DP2 Input HDCP
0	-	141	0: Profile 1 1: Profile 2 2: Profile 3	N/A	Setup - Erase

Control Type		Function	Parameter1	Parameter2	Description
Set	Get				
			3: Profile 4 4: Profile 5 5: Profile 6 6: Profile 7 7: Profile 8		
0	1	150	0: Off 1: On	N/A	Setup - DHCP

Set	Get	Function	IP1	IP2	IP3	IP4	Parameter *7, Reboot after setting IP Address / Subnet /Gateway
0	1	151	0~255	0~255	0~255	0~255	Setup – IP Address (DHCP = Off)
0	1	152	0~255	0~255	0~255	0~255	Setup – Subnet Mask (DHCP = Off)
0	1	153	0~255	0~255	0~255	0~255	Setup – Gateway (DHCP = Off)

Set	Get	Function	Parameter1	Description Control Type
0	-	154	N/A	Setup - Factory Reset
0	-	155	N/A	Factory Reset (Ethernet related settings are not included)
0	1	160	0: Off 1: On	Setup – Hot Plug HDBT 1
0	1	161	0: Off 1: On	Setup – Hot Plug HDBT 2
0	1	165	0: Off 1: On	Setup – HDBT1 Input HDCP
0	1	166	0: Off 1: On	Setup – HDBT2 Input HDCP
0	1	200	0: 1400x1050x60 1: 1680x1050x60	Advanced: Mode Set – Mode 1
0	1	201	0: 1280x1024x75 1: 1280x1024x76	Advanced: Mode Set – Mode 2
0	1	202	0: 1280x768x60 1: 1366x768x60 2: 1366x768x60(R)	Advanced: Mode Set – Mode 3
0	1	203	0: 1024x768x75 1: 1024x768x75-Mac	Advanced: Mode Set – Mode 4
0	1	204	0: 1280x960x60 1: 1600x900x60(R)	Advanced: Mode Set – Mode 5
0	1	266	0: Program 1: Preview	Advanced: OSD – OSD Position
0	1	267	0: Center 1: Top Left 2: Top Right 3: Bottom Left 4: Bottom Right	Advanced: OSD – Menu Position
0	1	268	0: 5 sec 1: 10 sec 2: 20 sec 3: 30 sec 4: 60 sec 5: 90 sec 6: Off	Advanced: OSD – Time Out(sec.)

Set	Get	Function	Parameter1	Description Control Type
0	1	270	0: Off 1: On 2: Custom	Advanced: Misc – Logo
0	1	271	0: Blue 1: Black	Advanced: Misc –Blank Color
0	1	272	0: Blue 1: Black	Advanced: Misc – Background
0	1	273	0: Off 1: Sleep 2: Power down	Advanced: Misc –Low Power Saving
0	1	274	0: Off 1: On	Advanced: Misc – Save Lock
0	1	275	0: Off 1: On	Advanced: Misc – Input Lock
0	1	276	0: Blank & Mute 1: Blank 2: Mute	Advanced: Misc –Blank
0	1	277	0: Freeze & Mute 1: Freeze 2: Mute	Advanced: Misc – Freeze
0	1	281	0: Follow Output 1: Follow Input	Advanced: Misc – HDCP
0	1	282	0: Off 1: On	Advanced: Misc – Overscan
0	1	283	0: Off 1: Text 2: Logo	Advanced: Misc – Overlay text and logo should follow these below: Text: you need to have a "TextOvl.ini" file in the USB flash drive and ensure it is connected. Logo: you need to have a "Txtlogo.bmp" file in the USB flash drive and ensure it is connected.
0	1	285	0: Off 1: HDBT IN1 2: HDBT IN2 3: HDBT OUT	Advanced: Misc – HDBT Tunneling. RS-232 Switching path You can only switch between HDBT tunneling paths by switching first to Off and then switch to a different tunneling path (HDBT IN1, HDBT IN2 or HDBT OUT).
0	1	286	0: Off 1: On	Last Connected
0	1	287	0~65535	HDBT Tunneling Port
0	1	300	0: Custom1 1: Custom2 2: Custom3 3: Custom4	Advanced: Input Mode: Custom Input
0	1	301	512~3071	Advanced: Input Mode: HT (temp value, unless to run the Input mode save)
0	1	302	32~(HS-48)	Advanced: Input Mode: HW (temp value, unless to run the Input mode save)
0	1	303	80~(HT-HA-12)	Advanced: Input Mode: HS (temp value, unless to run the Input mode save)
0	1	304	640~1920 <= (HT-92)	Advanced: Input Mode: HA (temp value, unless to run the Input mode save)
0	1	305	0: Negative polarity 1: Positive polarity	Advanced: Input Mode: HP (temp value, unless to run the Input mode save)

Set	Get	Function	Parameter1	Description Control Type
0	1	306	384~2047	Advanced: Input Mode: VT (temp value, unless to run the Input mode save)
0	1	307	2~(HS-13)	Advanced: Input Mode: VW (temp value, unless to run the Input mode save)
0	1	308	15~(VT-VA-1)	Advanced: Input Mode: VS (temp value, unless to run the Input mode save)
0	1	309	480~1200 <= (VT-16)	Advanced: Input Mode: VA (temp value, unless to run the Input mode save)
0	1	310	0: Negative polarity 1: Positive polarity	Advanced: Input Mode: VP (temp value, unless to run the Input mode save)
0	1	311	25000 < OCLK <= 297000	Advanced: Input Mode: OCLK Temp value, unless to run the Input mode save The three bytes of high byte is integer; the three bytes of low byte is the decimal place. The unit is KHz
0	1	312	0: Off 1: On	Advanced: Input Mode: Enable
0	-	313	N/A	Advanced: Input Mode: Save
0	1	320	0: Custom1 1: Custom2 2: Custom3 3: Custom4	Advanced: Output Mode: Custom Output
0	1	321	512~3071	Advanced: Output Mode: HT (temp value, unless to run the Output mode save)
0	1	322	32~(HS-48)	Advanced: Output Mode: HW (temp value, unless to run the Output mode save)
0	1	323	80~(HT-HA-12)	Advanced: Output Mode: HS (temp value, unless to run the Output mode save)
0	1	324	640~1920 <= (HT-92)	Advanced: Output Mode: HA (temp value, unless to run the Output mode save)
0	1	325	0: Negative polarity 1: Positive polarity	Advanced: Output Mode: HP (temp value, unless to run the Output mode save)
0	1	326	384~2047	Advanced: Output Mode: VT (temp value, unless to run the Output mode save)
0	1	327	2~(HS-13)	Advanced: Output Mode: VW (temp value, unless to run the Output mode save)
0	1	328	15~(VT-VA-1)	Advanced: Output Mode: VS (temp value, unless to run the Output mode save)
0	1	329	480~1200 <= (VT-16)	Advanced: Output Mode: VA (temp value, unless to run the Output mode save)
0	1	330	0: Negative polarity 1: Positive polarity	Advanced: Output Mode: VP (temp value, unless to run the Output mode save)
0	1	331	25000 < OCLK <= 297000	Advanced: Output Mode: OCLK Temp value, unless to run the Output mode save The three bytes of high byte is integer; the three bytes of low byte is the decimal place. The unit is KHz
0	-	332	N/A	Advanced: Output Mode: Save
0	-	333	N/A	Advanced: Output Mode: Set Current (temp value, unless to run the Output mode save)
0	-	334	N/A	Advanced: Output Mode: Read HDMI1 EDID
0	-	335	N/A	Advanced: Output Mode: Read HDMI2 EDID
0	-	336	N/A	Advanced: Output Mode: Read DP EDID
0	-	337	N/A	Advanced: Output Mode: Read VGA EDID

Set	Get	Function	Parameter1	Description Control Type
0		338	N/A	Advanced: Output Mode: Read HDBT EDID
0	-	400	0: Advanced: Input EDID: HDMI1 Default 1: Advanced: Input EDID: HDMI1 Copy HDMI1 Out 2: Advanced: Input EDID: HDMI1 Copy HDMI2 Out 3: Advanced: Input EDID: HDMI1 Copy DP Out 4: Advanced: Input EDID: HDMI1 Copy HDBT Out	Advanced: Input EDID: HDMI1
0	-	401	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x102 60 4: 1366x4768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB) 12: 720P 50 13:720P 60 14:1080P 50 15:1080p 60 16:2K 50 17:2K 60	Advanced: Input EDID: HDMI1 Select Modeline
0	-	405	0: Advanced: Input EDID: HDMI2 Default 1: Advanced: Input EDID: HDMI2 Copy HDMI1 Out 2: Advanced: Input EDID: HDMI2 Copy HDMI2 Out 3: Advanced: Input EDID: HDMI2 Copy DP Out 4: Advanced: Input EDID: HDMI2 Copy HDBT Out	Advanced: Input EDID: HDMI2
0	-	406	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x4768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB) 12: 720P 50 13:720P 60 14:1080P 50 15:1080p 60 16:2K 50 17:2K 60	Advanced: Input EDID: HDMI2 Select Modeline

Set	Get	Function	Parameter1	Description Control Type
0	-	410	0: Advanced: Input EDID: HDMI3 Default 1: Advanced: Input EDID: HDMI3 Copy HDMI1 Out 2: Advanced: Input EDID: HDMI3 Copy HDMI2 Out 3: Advanced: Input EDID: HDMI3 Copy DP Out 4: Advanced: Input EDID: HDMI3 Copy HDBT Out	Advanced: Input EDID: HDMI3
0	-	411	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x4768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB) 12: 720P 50 13:720P 60 14:1080P 50 15:1080p 60 16:2K 50 17:2K 60	Advanced: Input EDID: HDMI3 Select Modeline
0	-	415	0: Advanced: Input EDID: HDMI4 Default 1: Advanced: Input EDID: HDMI4 Copy HDMI1 Out 2: Advanced: Input EDID: HDMI4 Copy HDMI2 Out 3: Advanced: Input EDID: HDMI4 Copy DP Out 4: Advanced: Input EDID: HDMI4 Copy HDBT Out	Advanced: Input EDID: HDMI4
0	-	416	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x4768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB) 12: 720P 50 13:720P 60 14:1080P 50 15:1080p 60 16:2K 50 17:2K 60	Advanced: Input EDID: HDMI4 Select Modeline
0	-	420	0: Advanced: Input EDID: DP1 Default	Advanced: Input EDID: DP1

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Set	Get	Function	Parameter1	Description Control Type
			1: Advanced: Input EDID: DP1 Copy HDMI1 Out 2: Advanced: Input EDID: DP1 Copy HDMI2 Out 3: Advanced: Input EDID: DP1 Copy DP Out 4: Advanced: Input EDID: DP1 Copy HDBT Out	
0	-	421	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x4768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB) 12: 720P 50 13:720P 60 14:1080P 50 15:1080p 60 16:2K 50 17:2K 60	Advanced: Input EDID: DP1 Select Modeline
0	-	425	0: Advanced: Input EDID: DP2 Default 1: Advanced: Input EDID: DP2 Copy HDMI1 Out 2: Advanced: Input EDID: DP2 Copy HDMI2 Out 3: Advanced: Input EDID: DP2 Copy DP Out 4: Advanced: Input EDID: DP2 Copy HDBT Out	Advanced: Input EDID: DP2
0	-	426	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x4768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB) 12: 720P 50 13:720P 60 14:1080P 50 15:1080p 60 16:2K 50 17:2K 60	Advanced: Input EDID: DP2 Select Modeline
0	-	430	0: Advanced: Input EDID: UNIV1 Default 1: Advanced: Input EDID: UNIV1 Copy PC output	Advanced: Input EDID: UNIV1

Set	Get	Function	Parameter1	Description Control Type
0	-	431	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x4768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB)	Advanced: Input EDID: UNIV1 Select Modeline
0	-	435	0: Advanced: Input EDID: UNIV2 Default 1: Advanced: Input EDID: UNIV2 Copy PC output	Advanced: Input EDID: UNIV2
0	-	436	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x4768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB)	Advanced: Input EDID: UNIV2 Select Modeline
0	-	440	0: Advanced: Input EDID: UNIV3 Default 1: Advanced: Input EDID: UNIV3 Copy PC output	Advanced: Input EDID: UNIV3
0	-	441	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x4768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB)	Advanced: Input EDID: UNIV3 Select Modeline
0	-	445	0: Advanced: Input EDID: UNIV4 Default 1: Advanced: Input EDID: UNIV4 Copy PC output	Advanced: Input EDID: UNIV4
0	-	446	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x4768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60 8: 1600x1200 60	Advanced: Input EDID: UNIV4 Select Modeline

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Set	Get	Function	Parameter1	Description Control Type
			9: 1680x1050 60	
			10: 1920x1080 60	
			11: 1920x1200 60(RB)	
0	1	450	-100 ~ 24	Program Max Volume Limit
0	1	451	-100 ~ 24	Preview Max Volume Limit
-	1	460	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: 1280x720 60 24: 1280x800 60 R 25: 1280x800 60 26: 1280x960 60 27: 1280x960 85 28: 1280x768 60 R 29: 1280x768 60 30: 1280x1024 60 31: 1280x1024 75 32: 1280x1024 76 Sun 33: 1280x1024 85 34: 1366x768 60 R 35: 1366x768 60 36: 1440x900 60 R 37: 1440x900 60 38: 1400x1050 60 39: 1400x1050 75 40: 1600x900 60 R 41: 1600x1200 60 42: 1680x1050 60 R 43: 1680x1050 60 44: 1920x1080 60 45: 1920x1200 60 R 46: 2048x1080 50 47: 2048x1080 60 48: 3840x2160@24Hz 49: 3840x2160@25Hz 50: 3840x2160@29_97Hz 51: 3840x2160@30Hz	Program Input status

Set	Get	Function	Parameter1	Description Control Type
			52: 4096x2160@24Hz	
			100: Custom1	
			101: Custom2	
			102: Custom3	
			103: Custom4	
			150: 480i 60	
			151: 480p 60	
			152: 576i 50	
			153: 576p 50	
			154: 720p 50	
			155: 720p 60	
			156: 1080i 50	
			157: 1080i 60	
			158: 1080p 24	
			159: 1080p 50	
			160: 1080p 60	
			200: NTSC	
			201: PAL	
			202: PAL-M	
			203: PAL-N	
			204: NTSC 4.43	
			205: SECAM	
			206: PAL-60	
			250: No Input detected	
			251: Not supported	
-	1	461	0: 640x480 60	Preview Input status
			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: 1280x720 60	
			24: 1280x800 60 R	
			25: 1280x800 60	
			26: 1280x960 60	
			27: 1280x960 85	
			28: 1280x768 60 R	

Set	Get	Function	Parameter1	Description Control Type
			29: 1280x768 60	
			30: 1280x1024 60	
			31: 1280x1024 75	
			32: 1280x1024 76 Sun	
			33: 1280x1024 85	
			34: 1366x768 60 R	
			35: 1366x768 60	
			36: 1440x900 60 R	
			37: 1440x900 60	
			38: 1400x1050 60	
			39: 1400x1050 75	
			40: 1600x900 60 R	
			41: 1600x1200 60	
			42: 1680x1050 60 R	
			43: 1680x1050 60	
			44: 1920x1080 60	
			45: 1920x1200 60 R	
			46: 2048x1080@50Hz	
			47: 2048x1080@60Hz	
			100: Custom1	
			101: Custom2	
			102: Custom3	
			103: Custom4	
			150: 480i 60	
			151: 480p 60	
			152: 576i 50	
			153: 576p 50	
			154: 720p 50	
			155: 720p 60	
			156: 1080i 50	
			157: 1080i 60	
			158: 1080p 24	
			159: 1080p 50	
			160: 1080p 60	
			200: NTSC	
			201: PAL	
			202: PAL-M	
			203: PAL-N	
			204: NTSC 4.43	
			205: SECAM	
			206: PAL-60	
			250: No Input detected	
			251: Not supported	
-	1	462	0: 640x480 60	PIP Input status
			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	

Set	Get	Function	Parameter1	Description Control Type
			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: 1280x720 60	
			24: 1280x800 60 R	
			25: 1280x800 60	
			26: 1280x960 60	
			27: 1280x960 85	
			28: 1280x768 60 R	
			29: 1280x768 60	
			30: 1280x1024 60	
			31: 1280x1024 75	
			32: 1280x1024 76 Sun	
			33: 1280x1024 85	
			34: 1366x768 60 R	
			35: 1366x768 60	
			36: 1440x900 60 R	
			37: 1440x900 60	
			38: 1400x1050 60	
			39: 1400x1050 75	
			40: 1600x900 60 R	
			41: 1600x1200 60	
			42: 1680x1050 60 R	
			43: 1680x1050 60	
			44: 1920x1080 60	
			45: 1920x1200 60 R	
			46: 2048x1080@50Hz	
			47: 2048x1080@60Hz	
			100: Custom1	
			101: Custom2	
			102: Custom3	
			103: Custom4	
			150: 480i 60	
			151: 480p 60	
			152: 576i 50	
			153: 576p 50	
			154: 720p 50	
			155: 720p 60	
			156: 1080i 50	
			157: 1080i 60	
			158: 1080p 24	
			159: 1080p 50	
			160: 1080p 60	
			200: NTSC	
			201: PAL	
			202: PAL-M	

Set	Get	Function	Parameter1	Description Control Type
			203: PAL-N 204: NTSC 4.43 205: SECAM 206: PAL-60 250: No Input detected 251: Not supported	
-	1	463	0: Native HDMI1 1: Native HDMI2 2: Native DP 3: Native VGA 4: 640x480 60 5: 640x480 75 6: 800x600 50 7: 800x600 60 8: 800x600 75 9: 1024x768 50 10: 1024x768 60 11: 1024x768 75 12: 1280x768 50 13: 1280x768 60 14: 1280x720 60 15: 1280x800 60 16: 1280x1024 50 17: 1280x1024 60 18: 1280x1024 75 19: 1366x768 50 20: 1366x768 60 21: 1400x1050 50 22: 1400x1050 60 23: 1600x900 60 R 24: 1600x1200 50 25: 1600x1200 60 26: 1680x1050 60 27: 1920x1080 60 28: 1920x1200 60 R 29: 2048x1080 50 30: 2048x1080 60 31: 3840x2160@24Hz 32: 3840x2160@25Hz 33: 3840x2160@29_97Hz 34: 3840x2160@30Hz 35: 4096x2160@24Hz 100: 480P 60 101: 576P 50 102: 720P 50 103: 720P 60 104: 1080i 50 105: 1080i 60 106: 1080P 50 107: 1080P 60 108: 1080P 24 109: 480P 59.94 110: 720P 59.94 111: 1080i 59.94 112: 1080P 23.98 113: 1080P 29.97	Program output status

Set	Get	Function	Parameter1	Description Control Type
			114: 1080P 59.94 150: Custom1 151: Custom2 152: Custom3 153: Custom4 160: Native HDBT	
-	1	464	0: Single Picture 1: 640x480 60 2: 640x480 75 3: 800x600 50 4: 800x600 60 5: 800x600 75 6: 1024x768 50 7: 1024x768 60 8: 1024x768 75 9: 1280x768 50 10: 1280x768 60 11: 1280x720 60 12: 1280x800 60 13: 1280x1024 50 14: 1280x1024 60 15:1280x1024 75 60: 480P 60 61: 576P 50 62: 720P 50 63: 720P 60 64: 480P 59.94 65: 720P 59.94 90: Custom1 91: Custom2 92: Custom3 93: Custom4	Preview output status
-	1	465	0: Follow Program 1: Follow Preview	HDMI1 output status
-	1	466	0: Free Run 1: Frame Lock	Sync Mode status
-	1	467	N/A	Firmware Revision
-	1	500	N/A	Program blank / freeze / blank status 0: Program off 1: Program Blank & Mute 2: Program Blank 3: Program Mute 4: Program Freeze & Mute 5: Program Freeze 6: Program Blank & Freeze & Mute 7: Program Blank & Freeze
-	1	501	N/A	Preview blank / freeze/ blank status 0: Preview off 1: Preview Blank & Mute 2: Preview Blank 3: Preview Mute 4: Preview Freeze & Mute

Set	Get	Function	Parameter1	Description Control Type
				5: Preview Freeze
				6: Preview Blank & Freeze & Mute
				7: Preview Blank & Freeze
0	1	520	0: Best Fit 1: Letterbox 2: Follow Output 3: Virtual Wide 4: Follow Input 5: Custom	Preview Aspect Ratio
0	1	521	-16 ~ 16	Preview ASPECT RATIO CUSTOM H-Pan
0	1	522	-16 ~ 16	Preview Aspect Ratio Custom V-Pan
0	1	523	-8 ~ 8	Preview Aspect Ratio Custom H-Zoom
0	1	524	-8 ~ 8	Preview Aspect Ratio Custom V-Zoom
0	1	525	0: 100% 1: 150% 2: 200% 3: 225% 4: 250% 11: Custom	Preview Zoom
0	1	526	0 ~ 24	Preview Custom Zoom
0	1	527	0 ~ 32	Zoom H-Pan (disabled when aspect ratio = Custom)
0	1	528	0 ~ 32	Zoom V-Pan (disabled when aspect ratio = Custom)
0	1	529	0 ~ A	Preview Output Positioning – H Start
0	1	530	A ~ B	Preview Output Positioning – H End
0	1	531	0 ~ A	Preview Output Positioning – H Position
0	1	532	A ~ B	Preview Output Positioning – H Size
0	1	533	0 ~ A	Preview Output Positioning – V Start
0	1	534	A ~ B	Preview Output Positioning – V End
0	1	535	0 ~ A	Preview Output Positioning – V Position
0	1	536	A ~ B	Preview Output Positioning – V Size
0	-	540	0: Advanced: Input EDID: HDBT1 Default 1: Advanced: Input EDID: HDBT1 Copy HDMI1 Out 2: Advanced: Input EDID: HDBT1 Copy HDMI2 Out 3: Advanced: Input EDID: HDBT1 Copy DP Out 4: Advanced: Input EDID: HDBT1 Copy HDBT Out	Advanced: Input EDID: HDBT1
0	-	541	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60(RB) 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB) 12: 720P 50 13:720P 60 14:1080P 50	Advanced: Input EDID: HDBT1 Select Modeline

Set	Get	Function	Parameter1	Description Control Type
			15:1080p 60 16:2K 50 17:2K 60	
0	-	545	0: Advanced: Input EDID: HDBT2 Default 1: Advanced: Input EDID: HDBT2 Copy HDMI1 Out 2: Advanced: Input EDID: HDBT2 Copy HDMI2 Out 3: Advanced: Input EDID: HDBT2 Copy DP Out 4: Advanced: Input EDID: HDBT2 Copy HDBT Out	Advanced: Input EDID: HDBT2
0	-	546	0: Default 1: 1024x768 60 2: 1280x800 60 3: 1280x1024 60 4: 1366x768 60 5: 1440x900 60 6: 1400x1050 60 7: 1600x900 60(RB) 8: 1600x1200 60 9: 1680x1050 60 10: 1920x1080 60 11: 1920x1200 60(RB) 12: 720P 50 13: 720P 60 14: 1080P 50 15: 1080p 60 16: 2K 50 17: 2K 60	Advanced: Input EDID: HDBT2 Select Modeline

12   Protocol 3000

The **VP-733 Presentation Switcher/Dual Scaler** can be operated using the Kramer Protocol 3000 serial commands. The command framing varies according to how you interface with the **VP-733**.

Generally, a basic video input switching command that routes a layer 1 video signal to HDMI out 1 from HDMI input 2 (`ROUTE 1,1,2`), is entered as follows:

- Terminal communication software, such as Hercules:
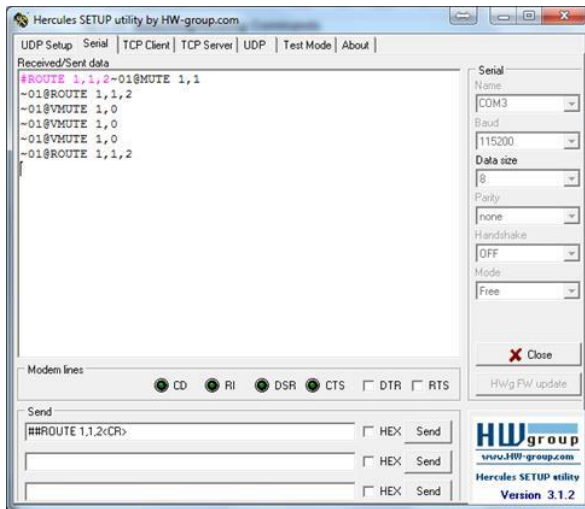
 The framing of the command varies according to the terminal communication software..

- K-Touch Builder (Kramer software):

- K-Config (Kramer configuration software):
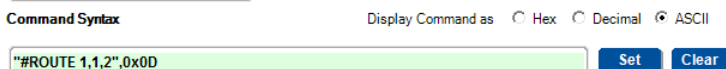
All the examples provided in this section are based on using the K-Config software.

You can enter commands directly using terminal communication software (e.g., Hercules) by connecting a PC to the serial or Ethernet port on your device. To enter `CR` press the Enter key (`LF` is also sent but is ignored by the command parser).

Commands sent from various non-Kramer controllers (e.g., Crestron) may require special coding for some characters (such as, `/X##`). For more information, refer to your controller's documentation.

For more information about Protocol 3000 commands, see:

- Understanding Protocol 3000, Section 12.1.

- Kramer Protocol 3000 Syntax, Section 12.2.

- Protocol 3000 Commands, Section 12.3.

12.1 Understanding Protocol 3000

Protocol 3000 commands are structured according to the following:

- **Command –** A sequence of ASCII letters (A-Z, a-z and -). A command and its parameters must be separated by at least one space.

- **Parameters –** A sequence of alphanumeric ASCII characters (0-9, A-Z, a-z and some special characters for specific commands). Parameters are separated by commas.

- **Message string –** Every command entered as part of a message string begins with a message starting character and ends with a message closing character.

    A string can contain more than one command. Commands are separated by a pipe (|) character.

- **Message starting character:**

    - `#` – For host command/query

    - `~` – For device response

- **Device address** – K-NET Device ID followed by `@` (optional, K-NET only)

- **Query sign** – ? follows some commands to define a query request

- **Message closing character:**

  - $\boxed{\text{CR}}$ – Carriage return for host messages (ASCII 13)

  - $\boxed{\text{CR LF}}$ – Carriage return for device messages (ASCII 13) and line-feed (ASCII 10)

- **Command chain separator character –** Multiple commands can be chained in the same string. Each command is delimited by a pipe character (|). When chaining commands, enter the message starting character and the message closing character only at the beginning and end of the string.

  Spaces between parameters or command terms are ignored. Commands in the string do not execute until the closing character is entered. A separate response is sent for every command in the chain.

12.2 Kramer Protocol 3000 Syntax

The Kramer Protocol 3000 syntax uses the following delimiters:

- $\boxed{\text{CR}}$ = Carriage return (ASCII 13 = 0x0D)

- $\boxed{\text{LF}}$ = Line feed (ASCII 10 = 0x0A)

- $\boxed{\text{SP}}$ = Space (ASCII 32 = 0x20)

Some commands have short name syntax in addition to long name syntax to enable faster typing. The response is always in long syntax.

The Protocol 3000 syntax is in the following format:

- Host Message Format:

Start	Address (optional)	Body	Delimiter
#	*Device_id@*	**Message**	$\boxed{\text{CR}}$

- **Simple Command** – Command string with only one command without addressing:

Start	Body	Delimiter
#	**Command** $\boxed{\text{SP}}$ *Parameter_1,Parameter_2,…*	$\boxed{\text{CR}}$

- **Command String** – Formal syntax with command concatenation and addressing:

Start	Address	Body	Delimiter
#	*Device_id@*	**Command_1** *Parameter1_1,Parameter1_2,…|* **Command_2** *Parameter2_1,Parameter2_2,…|* **Command_3** *Parameter3_1,Parameter3_2,…|…*	CR

- Device Message Format:

Start	Address (optional)	Body	Delimiter
~	*Device_id@*	**Message**	CR LF

- Device Long Response – Echoing command:

Start	Address (optional)	Body	Delimiter
~	*Device_id@*	**Command** SP *[Param1 ,Param2 …]* result	CR LF

12.3 Protocol 3000 Commands

This section includes the following commands:

- Common Commands, .

- Communication Commands, .

- Routing Commands, .

- System Commands, .

- Video Commands, .

- Audio Commands, .

12.3.1 Common Commands

Command	Description
#	Protocol handshaking (system mandatory)
FACTORY	Reset to factory default configuration
HELP	Get command list (system mandatory)
MODEL?	Get device model (system mandatory)
PROT-VER?	Get device protocol version (system mandatory)
RESET	Reset device (system mandatory)
SN?	Get device serial number (system mandatory)
VERSION?	Read device firmware version

12.3.1.1

Functions		Permission	Transparency
Set:	#	End User	Public
Get:	-	-	-
Description		**Syntax**	
Set:	Protocol handshaking	#CR	
Get:	-	-	

Response

~nn@SP**OK**CR LF

Notes

Validates the Protocol 3000 connection and gets the machine number.
Step-in master products use this command to identify the availability of a device.

K-Config Example

"#",0x0D

12.3.1.2 FACTORY

Functions		Permission	Transparency
Set:	FACTORY	End User	Public
Get:	-	-	-
Description		**Syntax**	
Set:	Reset device to factory default configuration	#**FACTORY**CR	
Get:	-	-	

Response

~nn@**FACTORY**SP OKCR LF

Notes

This command deletes all user data from the device. The deletion can take some time.
Your device may require powering off and powering on for the changes to take effect.

K-Config Example

"#FACTORY",0x0D

12.3.1.3 HELP

Functions		Permission	Transparency
Set:	-	-	-
Get:	`HELP`	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get command list or help for specific command	`#HELP`CR	
Response			
Multi-line: ~nn@Device available protocol 3000 commands:CR LF**command,**SP **command...**CR LF			
Parameters			
COMMAND_NAME – name of a specific command			
Notes			
To get help for a specific command use: **HELP**SP`COMMAND_NAME`CR LF			
K-Config Example			
"#HELP",0x0D			

12.3.1.4 MODEL

Functions		Permission	Transparency
Set:	-	-	-
Get:	`MODEL?`	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get device model	`#MODEL?`CR	
Response			
~nn@**MODEL**SP**model_name**CR LF			
Parameters			
model_name – String of up to 19 printable ASCII chars			
Notes			
This command identifies equipment connected to Step-in master products and notifies of identity changes to the connected equipment. The Matrix saves this data in memory to answer REMOTE-INFO requests.			
K-Config Example			
"#MODEL?",0x0D			

12.3.1.5 PROT-VER

Functions		Permission	Transparency
Set:	**-**	-	-
Get:	**PROT-VER?**	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get device protocol version	#**PROT-VER?**CR	
Response			
~nn@**PROT-VER**SP**3000:version**CR LF			
Parameters			
version - XX.XX where X is a decimal digit			
K-Config Example			
"#PROT-VER?",0x0D			

12.3.1.6 RESET

Functions		Permission	Transparency
Set:	**RESET**	Administrator	Public
Get:	**-**	-	-
Description		**Syntax**	
Set:	Reset device	#**RESET**CR	
Get:	-	-	
Response			
~nn@**RESET**SP**OK**CR LF			
Notes			
To avoid locking the port due to a USB bug in Windows, disconnect USB connections immediately after running this command. If the port was locked, disconnect and reconnect the cable to reopen the port.			
K-Config Example			
"#RESET",0x0D			

12.3.1.7 SN?

Functions		Permission	Transparency
Set:	**–**	-	-
Get:	SN?	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get device serial number	#**SN?**CR	
Response			
~nn@**SN**SP**serial_number**CR LF			
Parameters			
serial_number – 11 decimal digits, factory assigned			
Notes			
This device has a 14-digit serial number, only the last 11 digits are displayed.			
K-Config Example			
"#SN?",0x0D			

12.3.1.8 VERSION?

Functions		Permission	Transparency
Set:	**-**	-	-
Get:	**VERSION?**	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get firmware version number	#**VERSION?**CR	
Response			
~nn@**VERSION**SP**firmware_version**CR LF			
Parameters			
firmware_version – XX.XX.XXXX where the digit groups are: major.minor.build version			
K-Config Example			
"#VERSION?",0x0D			

12.3.2 Communication Commands

Command	Description
ETH-PORT	Set/get Ethernet port protocol
NET-DHCP	Set/get DHCP mode
NET-GATE	Set/get gateway IP
NET-IP	Set/get IP address
NET-MAC	Get MAC address
NET-MASK	Set/get subnet mask

12.3.2.1 ETH-PORT

Functions		Permission	Transparency
Set:	**ETH-PORT**	Administrator	Public
Get:	**ETH-PORT?**	End User	Public
Description		**Syntax**	
Set:	Set Ethernet port protocol	#**ETH-PORT**SPportType,ETHPortCR	
Get:	Get Ethernet port protocol	#**ETH-PORT?**SPportTypeCR	
Response			
~nn@**ETH-PORT**SPportType,ETHPortCR LF			
Parameters			
portType – 0 (TCP), 1 (UDP) ETHPort – 0-65534 (TCP / UDP port number)			
Notes			
If the port number you enter is already in use, an error is returned. The port number must be within the following range: 2000-(2^16-1).			
K-Config Example			
Set the Ethernet port protocol for TCP to port 12457: "#ETH-PORT 0,12457",0x0D			

12.3.2.2 NET-DHCP

Functions		Permission	Transparency
Set:	`NET-DHCP`	Administrator	Public
Get:	`NET-DHCP?`	End User	Public
Description		**Syntax**	
Set:	Set DHCP mode	#**NET-DHCP**`SP`mode`CR`	
Get:	Get DHCP mode	#**NET-DHCP?**`CR`	
Response			
~`nn`@**NET-DHCP**`SP`mode`CR LF`			
Parameters			
mode – 0 (do not use DHCP. Use the IP address set by the factory or the `NET-IP` command), 1 (try to use DHCP. If unavailable, use the IP address set by the factory or the `NET-IP` command)			
Notes			
Connecting Ethernet to devices with DHCP may take more time in some networks. To connect with a randomly assigned IP by DHCP, specify the device DNS name (if available) using the `NAME` command. You can also get an assigned IP by direct connection to USB or RS-232 protocol port if available. Consult your network administrator for correct settings.			
K-Config Example			
Enable DHCP mode, if available: "#NET-DHCP 1",0x0D			

12.3.2.3 NET-GATE

Functions		Permission	Transparency
Set:	`NET-GATE`	Administrator	Public
Get:	`NET-GATE?`	End User	Public
Description		**Syntax**	
Set:	Set gateway IP	#**NET-GATE**`SP`ip_address`CR`	
Get:	Get gateway IP	#**NET-GATE?**`CR`	
Response			
~`nn`@**NET-GATE**`SP`ip_address`CR LF`			
Parameters			
ip_address – gateway IP address, in the following format: xxx.xxx.xxx.xxx			
Notes			
A network gateway connects the device via another network, possibly over the Internet. Be careful of security problems. Consult your network administrator for correct settings.			
K-Config Example			
Set the gateway IP address to 192.168.0.1: "#NET-GATE 192.168.000.001",0x0D			

12.3.2.4 NET-IP

Functions		Permission	Transparency
Set:	**NET-IP**	Administrator	Public
Get:	**NET-IP?**	End User	Public
Description		**Syntax**	
Set:	Set IP address	#**NET-IP**SPip_address CR
Get:	Get IP address	#**NET-IP?**CR
Response			
~nn@**NET-IP**SPip_address CR LF			
Parameters			
ip_address – IP address, in the following format: xxx.xxx.xxx.xxx			
Notes			
Consult your network administrator for correct settings.			
K-Config Example			
Set the IP address to 192.168.1.39: "#NET-IP 192.168.001.039",0x0D			

12.3.2.5 NET-MAC

Functions		Permission	Transparency
Set:	-	-	-
Get:	**NET-MAC?**	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get MAC address	#**NET-MAC?**CR
Response			
~nn@**NET-MAC**SPmac_address CR LF			
Parameters			
mac_address – unique MAC address. Format: XX-XX-XX-XX-XX-XX where X is hex digit			
K-Config Example			
"#NET-MAC?",0x0D			

12.3.2.6 NET-MASK

Functions			Permission	Transparency
Set:	**NET-MASK**		Administrator	Public
Get:	**NET-MASK?**		End User	Public
Description			Syntax	
Set:	Set subnet mask		#**NET-MASK**SP net_mask CR	
Get:	Get subnet mask		#**NET-MASK?** CR	
Response				
~ nn @**NET-MASK**SP net_mask CR LF				
Parameters				
net_mask – format: xxx.xxx.xxx.xxx				
Response Triggers				
The subnet mask limits the Ethernet connection within the local network Consult your network administrator for correct settings				
K-Config Example				
Set the subnet mask to 255.255.0.0: "#NET-MASK 255.255.000.000",0x0D				

12.3.3 Routing Commands

Command	Description
ROUTE	Set/get layer routing

12.3.3.1 ROUTE

Command Name			Permission	Transparency
Set:	**ROUTE**		End User	-
Get:	**ROUTE?**		End User	Switching
Description			Syntax	
Set:	Set layer routing		#**ROUTE**SP layer,dest,src CR	
Get:	Get layer routing		#**ROUTE?**SP layer,src CR	
Response				
~ nn @ROUTE SP layer,dest,src CR LF				
Parameters				
layer – **1** (Video), **2** (Audio) **dest** – **1** (Program), **2** (Preview) **src** – Program: 0 (UNIV1), 1 (UNIV2), 2 (UNIV3), 3 (UNIV4), 4 (HDMI1), 5 (HDMI2), 6 (HDMI3), 7 (HDMI4), 8 (DP1), 9 (DP2), 10 (HDBT1), 11 (HDBT2); Preview: 0 (UNIV1), 1 (UNIV2), 2 (UNIV3), 3 (UNIV4), 4 (HDMI1), 5 (HDMI2), 6 (HDMI3), 7 (HDMI4), 8 (DP1), 9 (DP2), 10 (HDBT1), 11 (HDBT2); Analog Program: 0 (Analog1), 1 (Analog2), 2 (Analog3), 3 (Analog4), 4 (Analog5), 5 (Analog6), 6 (Analog7), 7 (Analog8), 8 (Analog9), 9 (Analog10), 10 (S/PDIF), 11 (Embedded); Analog Preview: 0 (Analog1), 1 (Analog2), 2 (Analog3), 3 (Analog4), 4 (Analog5), 5 (Analog6), 6 (Analog7), 7 (Analog8), 8 (Analog9), 9 (Analog10), 10 (S/PDIF), 11 (Embedded)				
Notes				
This command replaces all other routing commands.				
K-Config Example				
Route Program HDBT1 input to the outputs: "#ROUTE 1,0,10",0x0D				

12.3.1 System Commands

Command	Description
SIGNAL?	Get input signal lock status

12.3.1.1 SIGNAL?

Functions		Permission	Transparency
Set:	-	-	-
Get:	**SIGNAL**?	End User	Public
Description		**Syntax**	
Set:	-	-	
Get:	Get input signal lock status	**#**SIGNAL**?** SP inp_id CR	
Response			
~ nn @**SIGNAL** SP inp_id,status CR LF			
Parameters			
inp_id – 1 (Program), 2 (Preview) status – 0 (Signal is not valid), 1 (Signal is valid)			
Notes			
After execution, a response is sent to the com port from which the Get was received A response is sent after every change in input signal status from On to Off or from Off to On			
K-Config Example			
Get the signal lock status of input Program: "#SIGNAL? 1",0x0D			

12.3.2 Video Commands

Command	Description
VFRZ	Set/get freeze video on output
VMUTE	Set/get enable/disable video on the output

12.3.2.1 VFRZ

Command Name		Permission	Transparency
Set:	**VFRZ**	End User	-
Get:	**VFRZ?**	End User	
Description		**Syntax**	
Set:	Set video freeze on selected output	**#ROUTE** SP out_id,freeze_flag CR	
Get:	Get video freeze output status	**#ROUTE?** SP out_id CR	
Response			
~ nn @**VFRZ** SP out_id,freeze_flag CR LF			
Parameters			
Out_id – 1 (Program), 2 (Preview) Freeze_flag – 0 (OFF), 1 (ON)			
Response Triggers			
After execution, response is sent to the com port from which the Set/Get was received. After execution, response is sent to all com ports if VFRZ was set by any other external control device (button press, device menu and similar).			
K-Config Example			
Freeze Program outputs: "#ROUTE 1,0",0x0D			

12.3.2.2 VMUTE

Command Name		Permission	Transparency
Set:	`VMUTE`	End User	-
Get:	`VMUTE?`	End User	
Description		**Syntax**	
Set:	Set enable/disable video on output	`#ROUTE`SP`output_id,flag`CR	
Get:	Get video on output status	`#ROUTE?`SP`output_id`CR	
Response			
~ nn`@`**`VFRZ`**SP`out_id,flag`CR LF			
Parameters			
`Out_id` – 1 (Program), 2 (Preview) `Freeze_flag` – 0 (Disable video on output) Get only, **1** (Enable video on output), 2 (Blank video)			
K-Config Example			
Enable video on program outputs: "`#ROUTE 1,1`",0x0D			

12.3.2.3 VIEW-MOD

Functions		Permission	Transparency
Set:	`VIEW-MOD`	End User	Public
Get:	`VIEW-MOD?`	End User	Public
Description		**Syntax**	
Set:	Set view mode	`#VIEW-MOD`SP`out_id,mode`CR	
Get:	Get view mode	`#VIEW-MOD?`SP`out_id`CR	
Response			
~nn`@`**`VIEW-MOD`**SP`out_id,mode`CR LF			
Parameters			
`out_id` – 1 `mode` – 0 (PIP mode) main mode, 1 (PIP on), 2 (Preview)			
K-Config Example			
Set view mode to PIP on: "`#VIEW-MOD 1,1`",0x0D			

12.3.3 Audio Commands

Command	Description
AUD-LVL	Set/get input/output volume
MUTE	Mute the output

12.3.3.1 AUD-LVL

Functions		Permission	Transparency
Set:	**AUD-LVL**	End User	-
Get:	**AUD-LVL?**	End User	Audio
Description		**Syntax**	
Set:	Set audio level in specific amplifier stage	**#AUD-LVL**SP stage,channel,volume CR	
Get:	Get audio level in specific amplifier stage	**#AUD-LVL?**SP stage,channel CR	
Response			
~nn@**AUD-LVL**SP stage,channel CR LF			
Parameters			
stage – 0 (Input), 1 (Output) channel – Input: 1 (Program), 2 (Preview), Output: 1 (Program), 2 (Preview) volume – –22~22 (Input audio level), –100~24 (Output audio level) minus sign precedes negative values. ++ (Increase current value) -- (Decrease current value)			
K-Config Example			
Set Input program audio level to 18: "#AUD-LVL 0,1,18",0x0D			

12.3.3.2 MUTE

Functions		Permission	Transparency
Set:	**MUTE**	End User	Public
Get:	**MUTE?**	End User	Audio
Description		**Syntax**	
Set:	Mute the selected output	**#MUTE**SP channel,mute_mode CR	
Get:	Mute the selected output	**#MUTE?**SP channel CR	
Response			
Set / Get: ~ nn@**MUTE**SP channel,mute_mode CR LF			
Parameters			
channel – 1 (Program), 2 (Preview) mute_mode –0 (Off, unmute), 1 (On, mute)			
K-Config Example			
Mute the preview outputs: "#MUTE 2,1",0x0D			

Limited Warranty

The warranty obligations of Kramer Electronics Inc. ("Kramer Electronics") for this product are limited to the terms set forth below:

What is Covered

This limited warranty covers defects in materials and workmanship in this product.

What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

How Long this Coverage Lasts

The standard limited warranty for Kramer products is seven (7) years from the date of original purchase, with the following exceptions:

1. All Kramer VIA hardware products are covered by a standard three (3) year warranty for the VIA hardware and a standard three (3) year warranty for firmware and software updates.
2. All Kramer fiber optic cables and adapters, active cables, cable retractors, all Kramer speakers and Kramer touch panels are covered by a standard one (1) year warranty.
3. All Kramer Cobra products, all Kramer Calibre products, all Kramer Minicom digital signage products, all HighSecLabs products, all streaming, and all wireless products are covered by a standard three (3) year warranty.
4. All Sierra Video MultiViewers are covered by a standard five (5) year warranty.
5. Sierra switchers & control panels are covered by a standard seven (7) year warranty (excluding power supplies and fans that are covered for three (3) years).
6. K-Touch software is covered by a standard one (1) year warranty for software updates.
7. All Kramer passive cables are covered by a ten (10) year warranty.

Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

What Kramer Electronics Will Do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

What Kramer Electronics Will Not Do Under This Limited Warranty

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

How to Obtain a Remedy Under This Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, visit our web site at www.kramerav.com or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required (RMA number). You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

Limitation of Liability

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

Exclusive Remedy

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS LIMITED WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF KRAMER ELECTRONICS CANNOT LAWFULLY DISCLAIM OR EXCLUDE IMPLIED WARRANTIES UNDER APPLICABLE LAW, THEN ALL IMPLIED WARRANTIES COVERING THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY TO THIS PRODUCT AS PROVIDED UNDER APPICABLE LAW.

IF ANY PRODUCT TO WHICH THIS LIMITED WARRANTY APPLIES IS A "CONSUMER PRODUCT" UNDER THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C.A. §2301, ET SEQ.) OR OTHER APPICABLE LAW, THE FOREGOING DISCLAIMER OF IMPLIED WARRANTIES SHALL NOT APPLY TO YOU, AND ALL IMPLIED WARRANTIES ON THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE, SHALL APPLY AS PROVIDED UNDER APPLICABLE LAW.

Other Conditions

This limited warranty gives you specific legal rights, and you may have other rights which vary from country to country or state to state.

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer Electronics reseller, visit our web site at www.kramerav.com or contact a Kramer Electronics office from the list at the end of this document.

Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction

KRAMER

⚠ **SAFETY WARNING**
Disconnect the unit from the power supply before opening and servicing

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For the latest information on our products and a list of Kramer distributors, visit our Web site where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

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