KRAMER

USER MANUAL
MODEL:

VP-475UX
12G SDI to HDMI Scaler/Converter

Contents

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!

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-475UX to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

Achieving 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 neighboring electrical appliances that may adversely influence signal quality.

- Position your Kramer **VP-475UX** away from moisture, excessive sunlight and dust.

Safety Instructions

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

- For products with relay terminals and GPI\O ports, please refer to the permitted rating for an external connection, located next to the terminal or in the User Manual.

- There are no operator serviceable parts inside the device.

Warning:
- Use only the power cord that is supplied with the device.

- Disconnect the power and unplug the device from the wall before installing.

- Do not open the device. High voltages can cause electrical shock! Servicing by qualified personnel only.

- To ensure continuous risk protection, replace fuses only according to the rating specified on the product label which located on the bottom of the device.

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.

Overview

Congratulations on purchasing your Kramer **VP-475UX 12G SDI to HDMI Scaler/Converter**.

VP-475UX is a high-performance, dual channel scaler and format converter for SDI video signals of up to 12G data rate. With its integrated dual scaler, it converts the 12G SDI video signals from its two input channels (with embedded audio) to two 4K@60Hz (4:4:4) HDMI™ outputs, along with de-embedding the audio signals and sending them to the analog audio output ports.

Exceptional Quality

- High Performance, Scaled Video Conversion – A high performance, low latency video processing SDI to HDMI converter, with integrated signal resolution scaler, that converts up to 12G multi-rate SDI signals to HDMI signals, flexibly scaling to a maximum resolution of 4K@60 (4:4:4) 18G data rate signals, independent per each channel.

- SDI Multi Rate Signals – Auto-adapts from 270Mbps to 12Gbps data rates, accepts SDI, HD-SDI, 3G HD-SDI, 6G and 12G SDI compliant input signals with video resolutions of up to 4K@60Hz (4:2:2) 30bpp. Complying with SMPTE 259M (SD-SDI), 292M (HD-SDI), 344M (ED-SDI), 424M (3G HD-SDI), ST-2081 (6G-SDI) and ST-2082 (12G-SDI) standards, it supports pass-through of standard embedded audio channels with ancillary ID and metadata information.

- Adaptable HDMI Data Rates – Flexibly scales to a wide variety of HDMI data rates, from low 480p to as high as 4K@60Hz (4:4:4) video resolution, adapting to any market-available AV acceptor device, such as displays and projectors.

- Flexible Audio De-embedding – The user selects to de-embed 2 or 4 of the 16 audio channels embedded within each SDI input signal. The de-embedded audio is then embedded in the corresponding converted HDMI output signal, and, in parallel, is de-embedded and sent to a corresponding device audio output port, either as 2-channel balanced analog or 4-channel AES/EBU-compliant stereo audio signal. This enables high-quality audio playback by routing the audio to external speakers in parallel to routing the audio to the local speakers found on the connected AV acceptor device (such as a TV or laptop).

- Extended-Reach Input Extension – Input signal equalization and output signals reclocking to gain extended-reach signal extension. Using high-quality coaxial SDI cables, supports extension of up to 500m (1640ft) for SD signals; 260m (850ft) for 1.5G HD signals; 220m (720ft) for 3G; 100m (330ft) for 6G HD signals; 70m (230ft) for 12G 4K signals.

(i) For optimal performance, Kramer recommends using Kramer high-performance cables. Reach extension performance may vary while using coaxial cables that are not high-quality.

Advanced and User-friendly Operation

- Cost-Effective Maintenance – Indicators for SDI input signals status and data rate, and power status, for easy local maintenance and troubleshooting. Remote device management via built-in web UI. Local and remote firmware upgrade via mini-USB or Ethernet connection ensure lasting, field-proven deployment.

Flexible Connectivity

- Reliable Wire Connectivity – Coaxial broadcast-grade cables are reliably connected via lockable BNC connectors, preventing unintentional wire disconnections, to gain fast and highly professional uncompressed SDI signals distribution deployments.

- Easy Installation – 19" enclosure for rack mounting a device in a 1U rack space with included rack ears and universal 100-240V AC power connection.

Typical Applications

VP-475UX is ideal for the following typical applications:

- SDI video production studios.

- Broadcast studio and field SDI video production events.

- Easy integration of SDI cameras and sources to HDMI-based system in any Pro-AV application.

- Staging and rental deployments.

- Medical facilities with highly reliable video deployments.

Controlling your VP-475UX

Control your **VP-475UX** via:

- Embedded web pages via a browsing device that is connected to LAN (see Using the Embedded Web Pages on page 7).

- USB serial port, by Protocol 3000 serial commands transmitted by a computer (see Protocol 3000 on page 21).

# Defining VP-475UX 12G SDI to HDMI Scaler/Converter

This section defines **VP-475UX**.
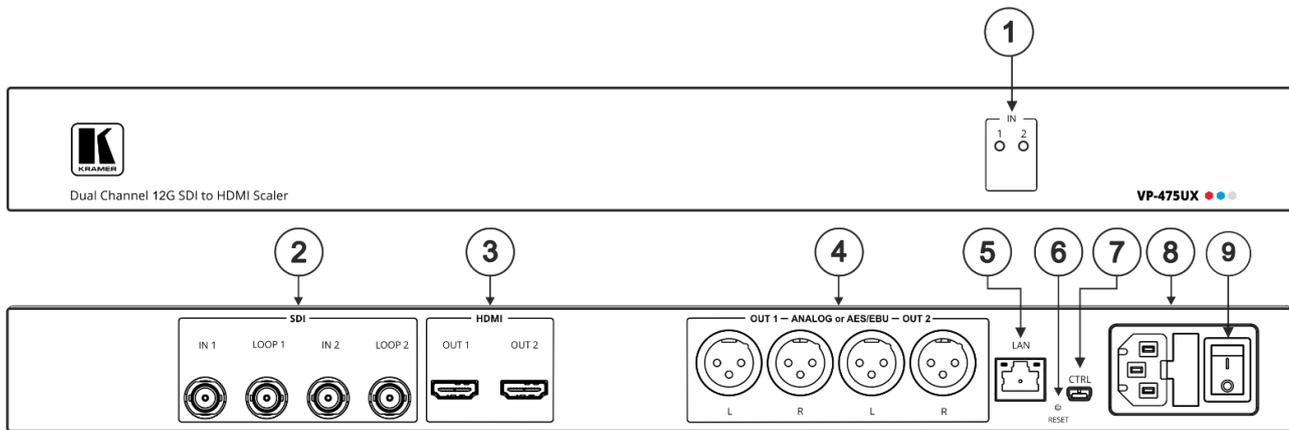
Figure 1: **VP-475UX 12G SDI to HDMI Scaler/Converter**

#	Feature		Function	
1	IN LEDs		Illuminate to indicate the input resolutions (1 and 2):	
			Red – SDI input signal is SD:	**NTSC** – 480i or 480p Interlaced or progressive video formats. **PAL** – 576i or 576p Interlaced or progressive video formats.
			Yellow – SDI input signal is HD:	**1.5G** – 720p progressive or 1080i interlaced video format. **3G** – 1080p progressive video format.
			Blue – SDI input signal is UHD:	**6G** – 2160p30 progressive video format. **12G** – 2160p60 progressive video format
			Off – no input signal.	
2	SDI BNC Connectors	IN	Connect to SDI sources (1 and 2).	
		LOOP	Connect to the IN connector of the next device in the daisy chain or connect to a local display (1 and 2). ⓘ For best results, when an input is connected and it's corresponding LOOP is not used, connect a 75Ω terminator (supplied) to the unused LOOP connector. For example, if IN 1 is connected and LOOP 1 is not in use, connect a terminator plug to LOOP 1.	
3	HDMI OUT Connectors		Connect to HDMI acceptors (1 and 2).	
4	ANALOG OR AES/EBU XLR (L, R) Connectors		Connect to a balanced stereo audio acceptor or to a digital AES/EBU receiver (OUT 1 and OUT 2).	
5	LAN RJ-45 Connector		Connect to a browser device via LAN and also use for firmware upgrade.	
6	RESET Button		Press for ≥10 seconds to reset to factory default values. The device power cycles and loads the factory default values.	
7	CTRL Mini USB Connector		Connect to a computer for device control and firmware upgrade.	
8	Power Socket		AC connector enabling power supply to the **VP-475UX**.	
9	Power Switch		Switch to turn the device ON and OFF.	

Mounting VP-475UX

This section provides instructions for mounting **VP-475UX**. Before installing, verify that the environment is within the recommended range:

- Operation temperature – 0° to 40°C (32 to 104°F).
- Storage temperature – -40° to +70°C (-40 to +158°F).
- Humidity – 10% to 90%, RHL non-condensing.

- **VP-475UX** must be placed upright in the correct horizontal position.

Caution:
- Mount **VP-475UX** before connecting any cables or power.

Warning:
- Ensure that the environment (e.g., maximum ambient temperature & air flow) is compatible for the device.
- Avoid uneven mechanical loading.
- Appropriate consideration of equipment nameplate ratings should be used for avoiding overloading of the circuits.
- Reliable earthing of rack-mounted equipment should be maintained.

To mount the VP-475UX on a rack

Attach both ear brackets by removing the screws from each side of the machine and replacing those screws through the ear brackets or place the machine on a table.
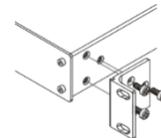
For more information go to www.kramerav.com/downloads/VP-475UX

Connecting VP-475UX

(i) Always switch off the power to each device before connecting it to your **VP-475UX**. After connecting your **VP-475UX**, connect its power and then switch on the power to each device.
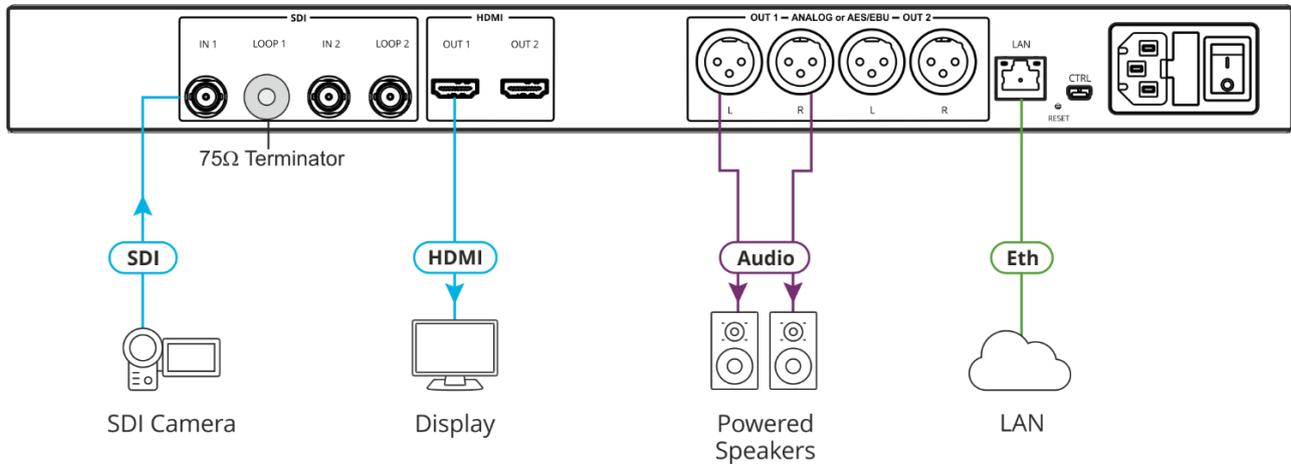

Figure 2: Connecting to the **VP-475UX** Rear Panel

To connect the VP-475UX as illustrated in the example in Figure 2:

1. Connect an SDI source (for example, an SDI camera) to the SDI BNC Connector ②.

2. Connect an HDMI acceptor (for example, a display) to the HDMI OUT Connector ③.

3. Connect powered speakers to the ANALOG OR AES/EBU XLR (L, R) Connectors ④.

4. Connect a Local Area Network (LAN) cable to the LAN RJ-45 Connector ⑤ for connection to your network.

5. Connect the power cord to the Power Socket ⑧ and to the mains electricity.

(i) The power cord is not shown in .

(i) You can daisy-chain the **VP-475UX** by looping the LOOP source to the next machine.

Using the Embedded Web Pages

VP-475UX enables you to configure settings via Ethernet using built-in, user-friendly web pages.

ⓘ You can also configure **VP-475UX** via Protocol 3000 commands (see Protocol 3000 Commands on page 22).

VP-475UX web pages enable performing the following:

- Configuring Output Settings on page 9.
- Changing Device Name on page 12.
- Enabling/Disabling Web Page Password Security on page 13.
- Configuring Network Settings on page 15.
- Resetting Device on page 16.
- Upgrading Firmware on page 17.

Browsing VP-475UX Web Pages

ⓘ If a web page does not update correctly, clear your Web browser's cache.

1. Type the IP address of the device in the address bar of your internet browser (default = 192.168.1.39).

   If security is enabled, the Login window appears.
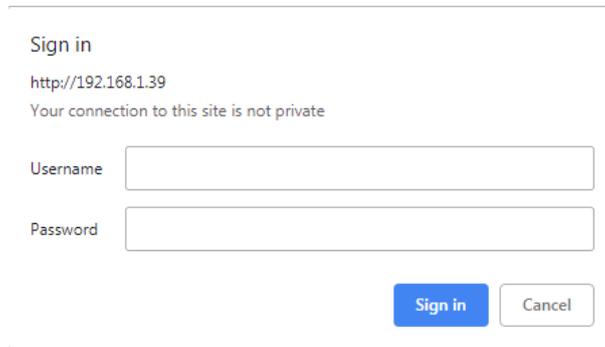
Figure 3: Embedded Web Pages Login Window

2. Enter the Username (default = Admin) and Password (default = Admin) and click **Sign in**.

   The default web page appears.
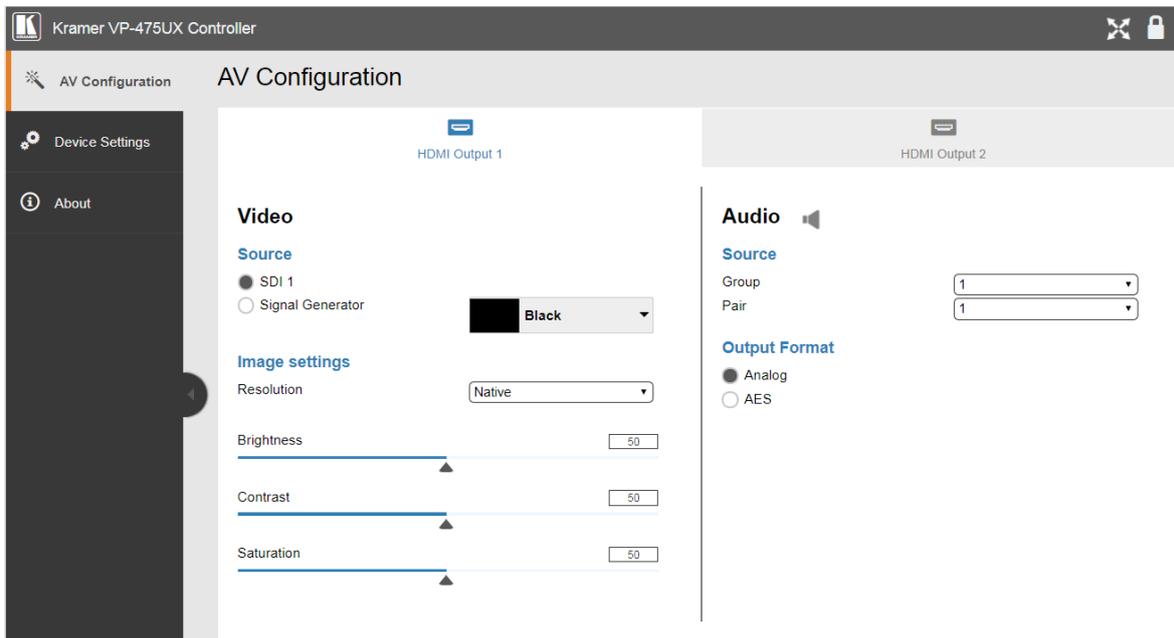
Figure 4: Default Web Page

3. Click the Navigation Pane on the left side of the screen to access the relevant web page.

ⓘ Click the arrow next to the navigation pane to hide/show the names of the pages.

Configuring Output Settings

VP-475UX enables you to configure video and audio settings for each of the two HDMI Outputs.

> To restore all factory settings and discard your manual configurations, perform a factory reset (see Resetting Device on page 16).

Configuring Video Settings

To configure image settings:

1. Click **AV Configuration** from the Navigation Pane.

   The AV Configuration page appears.
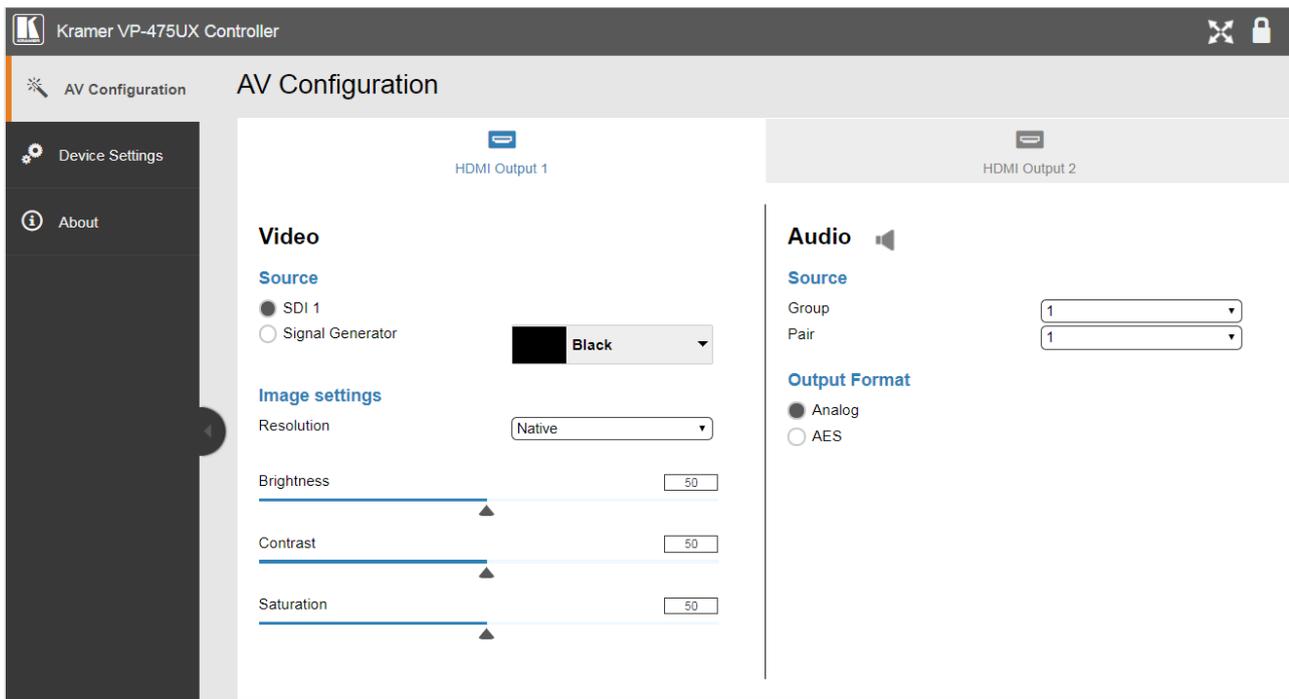
Figure 5: Embedded Web Pages – AV Configuration Page

2. Click **HDMI Output 1** tab or **HDMI Output 2** tab.

3. Select the desired resolution. For a complete list of supported resolutions, see Technical Specifications, on page 18).

> When choosing a resolution, make sure the output video resolution frame rate matches the input video resolution frame rate.

4. Adjust the percentages of Brightness, Contrast and Saturation by dragging the arrow or by entering a new value in the box.
   Changes are reflected immediately in the image on the display.

Generating Test Signal

VP-475UX automatically routes SDI Input 1 to HDMI Output 1 and SDI Input 2 to HDMI Output 2. **VP-475UX** enables you to generate a test signal for each of the HDMI outputs that replaces the input signal, in order to test the output quality.

To generate a test signal:

1. Click **AV Configuration** from the Navigation Pane.

   The AV Configuration page appears (see <u>Figure 5</u>).

2. Click **HDMI Output 1** tab or **HDMI Output 2** tab.

3. Click **Signal Generator**.

4. Select the type of test signal from the drop-down:

Black	White	Checkerboard
Crosshatch	Horizontal Ramp	Vertical Ramp
Diagonal Ramp	Vertical Lines	Blue
Green	Red	Color Sweep
Test Pattern	TV Snow	Tartan
Color Ramp	Colored Squares	
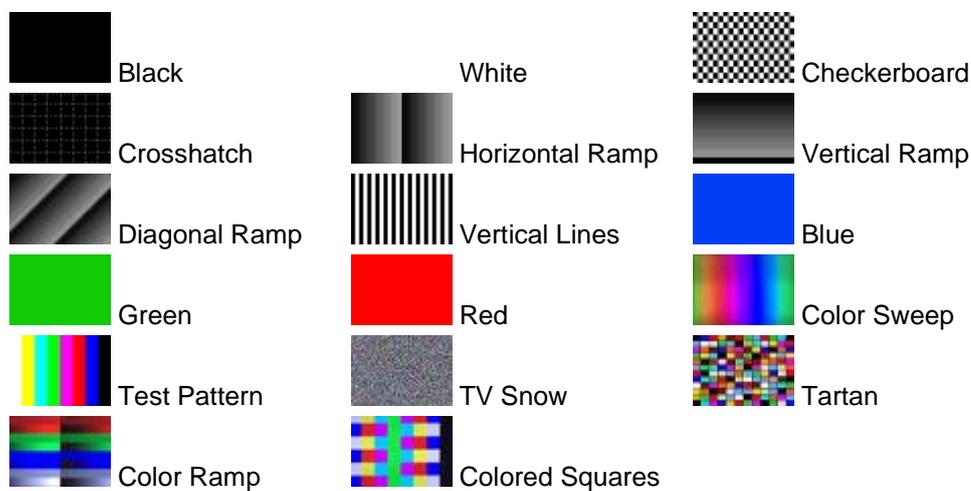
   The test signal appears immediately on the connected display.

Muting Audio

VP-475UX enables you to mute each audio output individually.

To mute the audio on an output:

1. Click **AV Configuration** from the Navigation Pane.

   The AV Configuration page appears.

2. Click **HDMI Output 1** tab or **HDMI Output 2** tab.

3. Click the speaker icon 🔈 .

   A red X appears on the speaker 🔈✗ and the audio on the selected output is muted.

Configuring Audio

VP-475UX enables you to configure how the SDI audio is handled by the system. You can select which of the SDI audio channels to de-embed for output to the HDMI and XLR audio outputs and define the output format for the XLR connectors. One selected pair of SDI channels is output through the HDMI output and, when configured as analog, through the XLR outputs. When the XLR outputs are configured as AES/EBU, both pairs of the selected group are output.

To configure the audio:

1. Click **AV Configuration** from the Navigation Pane.

   The AV Configuration page appears.

2. Click **HDMI Output 1** tab or **HDMI Output 2** tab.

3. Under Audio - Source, select 1 of the 8 pairs of audio signals by selecting the **Group** number (1-4) and **Pair** number (1, 2).

4. Under Audio - Output Format, Click **Analog** or **AES**.
   The audio is configured.

Changing Device Name

Customizing device name can help identify where the device is located in your installation.

To change the device name:

1. Click **Device Settings** from the Navigation Pane.

   The Device Settings page appears.

Figure 6: Device Settings Page – General Tab

2. Click the **General** tab.

3. Enter the new name of the device in the Device Name text box.

   > The device name cannot include any spaces, can be up to 63 characters and can include only letters, digits, hyphens and underscores.

4. Click **Save**.
   The device name is changed.

Enabling/Disabling Web Page Password Security

VP-475UX enables you to require a password for logging into the web pages or to disable this feature and allow login without a password.

To enable web page security:

1. Click **Device Settings** from the Navigation Pane.

   The Device Settings page appears (Figure 6).

2. Click the **General** tab.

3. Click **ON**.

   A confirmation message appears.
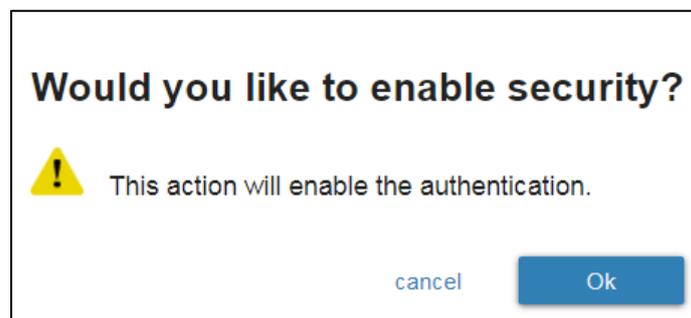
Figure 7: Enable Security Confirmation

4. Click **OK**.

5. Under Security, enter the current password (or leave blank if there is no current password), new password, and retype the new password.

ⓘ A password must contain 5 to 15 alphanumeric characters and no spaces.

6. Click **Save**.

   The device reboots and web page security is enabled with the new username and password.

To disable security:

1. Click **Device Settings** from the Navigation Pane.

   The Device Settings page appears (Figure 6).

2. Click the **General** tab.

3. Click **OFF**.

A confirmation message appears.


Figure 8: Disable Security Confirmation

4. Click **OK**.

Web page security is disabled.

Configuring Network Settings

VP-475UX enables you to configure network settings for your device.

ⓘ For proper settings and before changing to DHCP, consult your network administrator.

To configure network settings:

1. Click **Device Settings** from the Navigation Pane.

    The Device Settings page appears ([Figure 6](#)).

2. Click the **Communication** tab.

    The **Communication** tab appears.

Figure 9: Device Settings Page – Communication Tab

3. Change the network settings as required.

    –OR–
    If you want the device to obtain an IP address via DHCP server, click DHCP **ON**.

4. Verify that the TCP port is correct.

5. Click **Save**.

    The web page logs out and the browser reloads with the new network information.

Resetting Device

Two types of reset can be performed:

- Restart – Reboots your device and keeps all your device settings, including the IP address and password.

- Factory reset – Reboots your device and restores all factory settings including input/output definitions, switching configuration, IP address and password.

Resetting the device can be accomplished by using:

- Back panel RESET button.

- Protocol 3000 FACTORY command (see Protocol 3000 Commands on page 22).

- Web pages.

To perform a factory reset on the device using the back panel*:*

- Press and hold the **RESET** Button ⑥ on power up.

  The device automatically resets, loading factory default values.

To reset a device using the web pages:

1. Click **Device Settings** from the Navigation Pane.

   The Device Settings page appears (Figure 6).

2. Click **Restart** to reboot the device and keep all your settings.

   -OR-

   Click **Factory reset** to reset the device to factory settings.

Upgrading Firmware

Perform a power cycle to the **VP-475UX** before upgrading the firmware.

To upgrade the device firmware:

1. Click **Device Settings** from the Navigation Pane.

   The Device Settings page appears (Figure 6).

2. Click the **Upgrade** tab.

   The Upgrade tab appears.
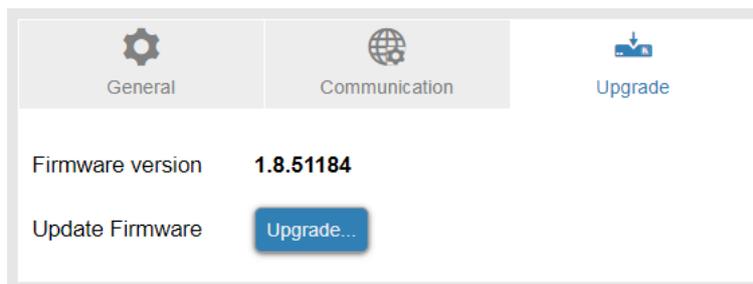
Figure 10: Device Settings – Upgrade Tab

3. Click **Upgrade**.

   A file browser appears.

4. Open the relevant firmware file.

   The firmware uploads to the device.

   Caution: Do not power cycle or operate the device during firmware upgrade.

Technical Specifications

Inputs	2 SDI Auto−sensing 12G/6G/HD−SDI/HD−SDI/SDI Video Signal	On 75Ω BNC connectors
Outputs	2 HDMI	On female HDMI connectors
	2 SDI (Input Loop)	On 75Ω female BNC connectors
	2 XLR Balanced Stereo Audio or AES/EBU Digital Audio	On XLR connectors
Ports	1 Ethernet	On an RJ-45 female connector
	1 USB	On a female mini USB connector
Video	Standards	12G-SDI – SMPTE ST-2082-1, 3G HD-SDI – SMPTE 424M, 6G – SMPTE ST-2081, HD-SDI – SMPTE 292M/344M, SDI – SMPTE 259M
	Max SDI Input Resolution	4K@60Hz (4:2:2)
	SDI Input Data Rate	259Mbps up to 12Gbps
	Max HDMI Resolution	4K@60Hz (4:4:4)
	HDMI Output Resolutions	Progressive, Native, 640x480@60Hz, 720x480@60Hz, 720x576@50Hz, 800x600@60Hz, 1024x768@60Hz, 1280x720@50/60Hz, 1280x720@50/60Hz, 1280x768@60Hz, 1280x1024@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@24/25/30/50/60Hz, 1920x1200@60Hz, 3840x2160@24/25/30/50/60Hz
	Conversion Latency	2 frames, i.e. 35ms@60Hz and 70ms@30Hz (approx.)
Max SDI Input Reach	12G-SDI Signals	70m (230ft)
	6G HD-SDI Signals	100m (330ft)
	3G HD-SDI Signals	220m (720ft)
	HD-SDI Signals	260m (850ft)
	SD Signals	500m (1640ft)
User Interface	Indicators	IN LEDs
	Controls	Mini USB, LAN, web UI
Power	Source	100-240V AC
	Consumption	58VA max
Environmental Conditions	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

Enclosure	Size	19", 1U
	Type	Aluminum
	Cooling	Fan Ventilation
Standards Compliance	Safety	CE
	Environmental	RoHs, WEEE
Accessories	Included	Power cord, rack ears, rubber feet, 2 male 75Ω terminators
Physical	Product Dimension	43.64cm x 23.72cm x 4.36cm (17.18" x 9.34" x 1.72") W, D, H
	Product Weight	1.8kg (3.9lbs) approx.
	Shipping Dimension	52.50cm x 23.00cm x 10.70cm (20.67" x 9.06" x 4.21") W, D, H
	Shipping Weight	2.6kg (5.8lbs) approx.

The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

Default Communication Parameters

RS-232 / Protocol 3000			
Baud Rate:	115200	Stop Bits:	1
Data Bits:	8	Parity:	None
Command format example (set pattern 13 on HDMI OUT 1): #VID-PATTERN 1,13			
TCP/IP Parameters			
IP Address:	192.168.1.39	UDP Port #:	50000
Subnet Mask:	255.255.0.0	Maximum UDP Connections:	10
Default Gateway:	192.168.0.1	Maximum TCP Connections:	10
TCP Port #:	5000		
Factory Settings:	DHCP disabled	Default Hostname:	VP-475UX-xxxx (xxxx = last 4 digits of serial ID)
Security			
Username:	Admin		
Default Password:	Admin		

Protocol 3000

Kramer devices can be operated using Kramer Protocol 3000 commands sent via serial or Ethernet ports.

Understanding Protocol 3000

Protocol 3000 commands are a sequence of ASCII letters, structured according to the following.

- **Command format**:

Prefix	Command Name	Constant (Space)	Parameter(s)	Suffix
#	Command	␣	Parameter	**<CR>**

- **Feedback format**:

Prefix	Device ID	Constant	Command Name	Parameter(s)	Suffix
~	nn	@	Command	Parameter	**<CR><LF>**

- **Command parameters** – Multiple parameters must be separated by a comma (,). In addition, multiple parameters can be grouped as a single parameter using brackets ([and]).

- **Command chain separator character** – Multiple commands can be chained in the same string. Each command is delimited by a pipe character (|).

- **Parameters attributes** – Parameters may contain multiple attributes. Attributes are indicated with pointy brackets (<…>) and must be separated by a period (.).

The command framing varies according to how you interface with the **VS-88UT**. The following figure displays how the # command is framed using terminal communication software (such as Hercules):
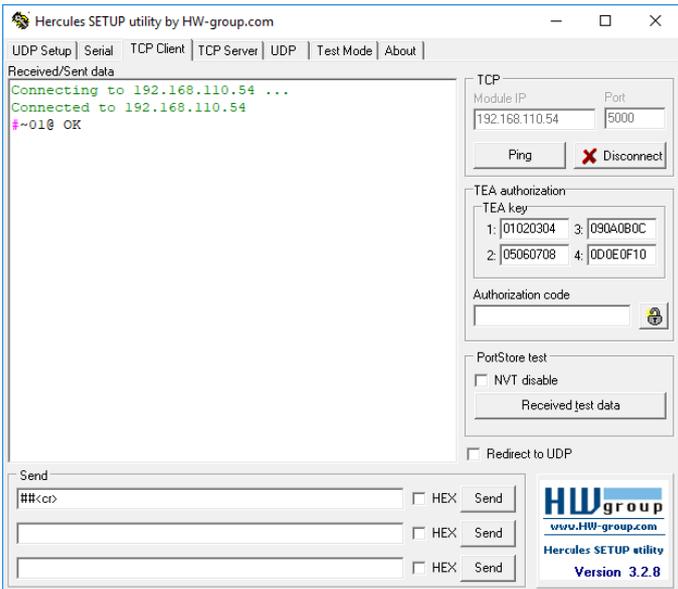
Protocol 3000 Commands

Function	Description	Syntax	Parameters/Attributes	Example
#	Protocol handshaking. ⓘ Validates the Protocol 3000 connection and gets the machine number. Step-in master products use this command to identify the availability of a device.	**COMMAND** **#<CR>** **FEEDBACK** **~nn@␣OK<CR><LF>**		**#<CR>**
AUD-SDI-SELECT	Set the SDI audio state.	**COMMAND** **#AUD-SDI-SELECT?␣io_mode,io_index,group,pair<CR>** **FEEDBACK** **~nn@AUD-SDI-SELECT␣io_mode,io_index,group,pair<CR><LF>**	**io_mode** – 0 – input **io_index** – Number that indicates the specific input or output port: 1-N (N= the total number of input or output ports) **group** – Group number: 1–4 **pair** – Pair number: 1–2	Set the SDI audio for SDI IN 1 to group 2 and pair 1: **#AUD-SDI-SELECT␣0,1,2,1<CR>**
AUD-SDI-SELECT?	Get the SDI audio state.	**COMMAND** **#AUD-SDI-SELECT?␣io_mode,io_index <CR>** **FEEDBACK** **~nn@AUD-SDI-SELECT␣io_mode,io_index,group,pair<CR><LF>**	**io_mode** – 0 – input **io_index** – Number that indicates the specific input or output port: 1-N (N= the total number of input or output ports) **group** – Group number: 1–4 **pair** – Pair number: 1–2	Get the SDI audio state for SDI IN 1: **#AUD-SDI-SELECT?␣0,1<CR>**
AUD-SIG-TYPE	Set audio signal type.	**COMMAND** **#AUD-SIG-TYPE␣io_mode,io_index,signal_type<CR>** **FEEDBACK** **~nn@AUD-SIG-TYPE␣io_mode,io_index,signal_type<CR><LF>**	**io_mode** – 1 –output **io_index** – Number that indicates the specific input or output port: 1-N (N= the total number of input or output ports) **signal_type** – 0 – AES 1 – analog	Set ANALOG/AES OUT 1 signal type to analog: **#AUD-SIG-TYPE␣1,1,1<CR>**
AUD-SIG-TYPE?	Get audio signal type.	**COMMAND** **#AUD-SIG-TYPE?␣io_mode,io_index<CR>** **FEEDBACK** **~nn@AUD-SIG-TYPE␣io_mode,io_index,signal_type<CR><LF>**	**io_mode** – 1 –output **io_index** – Number that indicates the specific input or output port: 1-N (N= the total number of input or output ports) **signal_type** – 0 – AES 1 – analog	Get the ANALOG/AES OUT 1 signal type: **#AUD-SIG-TYPE?␣1,1<CR>**
BEACON-INFO?	Get beacon information, including IP address, UDP control port, TCP control port, MAC address, model, name. ⓘ There is no Set command. Get command initiates a notification.	**COMMAND** **#BEACON-INFO?␣port_id<CR>** **FEEDBACK** **~nn@BEACON-INFO␣port_id,ip_string,udp_port,tcp_port,mac_address,model,name<CR><LF>**	**port_id** – ID of the Ethernet port **ip_string** – Dot-separated representation of the IP address **udp_port** – UDP control port **tcp_port** – TCP control port **mac_address** – Dash-separated mac address **model** – Device model **name** – Device name	Get beacon information: **#BEACON-INFO?␣<CR>**
BRIGHTNESS	Set image brightness per output. ⓘ Value limits can vary for different devices. Value is a property of input connected to current output. Changing input source might cause changes in this value (refer device definitions). In devices that enable showing multiple outputs on one display – each in a separate window – this command relates only to the window associated with the output indicated in the out-index parameter.	**COMMAND** **#BRIGHTNESS␣out_index,value<CR>** **FEEDBACK** **~nn@BRIGHTNESS␣out_index,value<CR><LF>**	**out_index** – Number that indicates the specific output: 1-N (N= the total number of outputs) **value** – Brightness value	Set brightness for output 1 to 50: **#BRIGHTNESS␣1,50<CR>**

Function	Description	Syntax	Parameters/Attributes	Example
BRIGHTNESS?	Get image brightness per output. ⓘ Value limits can vary for different devices. Value is a property of input connected to current output. Changing input source might cause changes in this value (refer device definitions). In devices that enable showing multiple outputs on one display – each in a separate window – this command relates only to the window associated with the output indicated in the out-index parameter.	**COMMAND** #BRIGHTNESS?␣out_index<CR> **FEEDBACK** ~nn@BRIGHTNESS␣out_index,value<CR><LF>	out_index – Number that indicates the specific output: 1-N (N= the total number of outputs) value – Brightness value	Get brightness for output 1: #BRIGHTNESS?␣1<CR>

BUILD-DATE?	Get device build date.	**COMMAND**
		#BUILD-DATE?␣<CR>
		FEEDBACK
		~nn@BUILD-DATE␣date,time<CR><LF>
			date – Format: YYYY/MM/DD where
			   YYYY = Year
			   MM = Month
			   DD = Day
			time – Format: hh:mm:ss where
			   hh = hours
			   mm = minutes
			   ss = seconds
				Get the device build date:
				#BUILD-DATE?<CR>

CONTRAST	Set image contrast per output. ⓘ Value limits can vary for different devices. Value is a property of input connected to current output. Changing the input source might cause changes in this value (refer to device definitions). In devices that enable showing multiple outputs on one display – each in a separate window – this command relates only to the window associated with the output indicated in the out-index parameter.	**COMMAND** #CONTRAST␣out_index,value<CR> **FEEDBACK** ~nn@CONTRAST␣out_index,value<CR><LF>	out_index – Number that indicates the specific output: 1-N (N= the total number of outputs) value – Contrast value	Set contrast for output 1 to 40: #CONTRAST␣1,40<CR>
CONTRAST?	Get image contrast per output. ⓘ Value limits can vary for different devices. Value is a property of input connected to current window. Changing the window input source might cause changes in this value (refer to device definitions). In devices that enable showing multiple outputs on one display – each in a separate window – this command relates only to the window associated with the output indicated in the out-index parameter.	**COMMAND** #CONTRAST?␣out_index<CR> **FEEDBACK** ~nn@CONTRAST␣out_index,value<CR><LF>	out_index – Number that indicates the specific output: 1-N (N= the total number of outputs) value – Contrast value	Get contrast for output 1: #CONTRAST?␣1<CR>
ETH-PORT	Set Ethernet port protocol. ⓘ If the port number you enter is already in use, an error is returned. The port number must be within the following range: 0-(2^16-1).	**COMMAND** #ETH-PORT␣portType,ETHPort<CR> **FEEDBACK** ~nn@ETH-PORT␣portType,ETHPort<CR><LF>	portType – TCP/UDP ETHPort – TCP/UDP port number (0 – 65535)	Set the Ethernet port protocol for TCP to port 12457: #ETH-PORT␣0,12457<CR>

ETH-PORT?	Get Ethernet port protocol.	**COMMAND**
		#ETH-PORT?␣portType<CR>
		FEEDBACK
		~nn@ETH-PORT␣portType,ETHPort<CR><LF>
			portType – TCP/UDP
			   0 – TCP
			   1 – UDP
			ETHPort – TCP / UDP port number (0 – 65535)
				Get the Ethernet port protocol for UDP:
				#ETH-PORT?␣1<CR>

Function	Description	Syntax	Parameters/Attributes	Example
FACTORY	Reset device to factory default configuration. ⓘ 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.	**COMMAND** #FACTORY**<CR>** **FEEDBACK** ~nn@FACTORY␣OK**<CR><LF>**		Reset the device to factory default configuration: #FACTORY**<CR>**
HELP	Get command list or help for specific command.	**COMMAND** #HELP**<CR>** #HELP␣command_name**<CR>** **FEEDBACK** 1. Multi-line: ~nn@Device␣command,␣command…**<CR><LF>** To get help for command use: HELP (COMMAND_NAME)**<CR><LF>** ~nn@HELP␣command:**<CR><LF>** description**<CR><LF>** USAGE:usage**<CR><LF>**	command – Name of a specific command	Get the command list: #HELP**<CR>** To get help for AV-SW-TIMEOUT: HELP␣AV-SW-TIMEOUT**<CR>**
MODEL?	Get device model.	**COMMAND** #MODEL?␣**<CR>** **FEEDBACK** ~nn@MODEL␣model_name**<CR><LF>**	model_name – String of up to 19 printable ASCII chars	Get the device model: #MODEL?␣**<CR>**
MUTE	Set audio mute.	**COMMAND** #MUTE␣out_index,mute_mode**<CR>** **FEEDBACK** ~nn@MUTE␣out_index,mute_mode**<CR><LF>**	out_index – Number that indicates the specific output: 1-N (N= the total number of outputs) mute_mode – On/Off 0 – Off 1 – On	Set OUT 1 to mute: #MUTE␣1,1**<CR>**
MUTE?	Get audio mute.	**COMMAND** #MUTE?␣out_index**<CR>** **FEEDBACK** ~nn@MUTE␣out_index,mute_mode**<CR><LF>**	out_index – Number that indicates the specific output: 1-N (N= the total number of outputs) mute_mode – On/Off 0 – Off 1 – On	Get mute status of output 1 #MUTE␣1?**<CR>**
NAME	Set machine (DNS) name. ⓘ The machine name is not the same as the model name. The machine name is used to identify a specific machine or a network in use (with DNS feature on).	**COMMAND** #NAME␣machine_name**<CR>** **FEEDBACK** ~nn@NAME␣machine_name**<CR><LF>**	machine_name – String of up to 15 alpha-numeric chars (can include hyphen, not at the beginning or end)	Set the DNS name of the device to room-442: #NAME␣room-442**<CR>**
NAME?	Get machine (DNS) name. ⓘ The machine name is not the same as the model name. The machine name is used to identify a specific machine or a network in use (with DNS feature on).	**COMMAND** #NAME?␣**<CR>** **FEEDBACK** ~nn@NAME␣machine_name**<CR><LF>**	machine_name – String of up to 15 alpha-numeric chars (can include hyphen, not at the beginning or end)	Get the DNS name of the device: #NAME?␣**<CR>**
NAME-RST	Reset machine (DNS) name to factory default. ⓘ Factory default of machine (DNS) name is "KRAMER_" + 4 last digits of device serial number.	**COMMAND** #NAME-RST**<CR>** **FEEDBACK** ~nn@NAME-RST␣OK**<CR><LF>**		Reset the machine name (S/N last digits are 0102): #NAME-RST␣KRAMER_0102**<CR>**
NET-CONFIG	Set a network configuration. ⓘ Parameters [DNS1] and [DNS2] are optional. ⓘ For Backward compatibility, the id parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port. ⓘ If the gateway address is not compliant to the subnet mask used for the host IP, the command will return an error. Subnet and gateway compliancy specified by RFC950.	**COMMAND** #NET-CONFIG␣id,ip,net_mask,gateway,[DNS1],[DNS2]**<CR>** **FEEDBACK** ~nn@NET-CONFIG␣id,ip,net_mask,gateway**<CR><LF>**	id – Network ID–the device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3…. ip – Network IP net_mask – Network mask gateway – Network gateway	Set the device network parameters to IP address 192.168.113.10, net mask 255.255.0.0, and gateway 192.168.0.1: #NET-CONFIG␣0,192.168.113.10,255.255.0.0,192.168.0.1**<CR>**

Function	Description	Syntax	Parameters/Attributes	Example

NET-CONFIG?	Get a network configuration.	**COMMAND**
		`#NET-CONFIG?␣id<CR>`
		FEEDBACK
		`~nn@NET-CONFIG␣id,ip,net_mask,gateway<CR><LF>`
			id – Network ID–the device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3….
			ip – Network IP
			net_mask – Network mask
			gateway – Network gateway
				Get network configuration:
				`#NET-CONFIG?␣id<CR>`

NET-DHCP	Set DHCP mode.
	ⓘ Only 1 is relevant for the mode value. To disable DHCP, the user must configure a static IP address for the device.
	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.
	For proper settings consult your network administrator.
	ⓘ For Backward compatibility, the **id** parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.
	P3K NET-IP is the standard IP address settings/change command, while following NET-DHCP user must manually set the static IP address via NET-IP
		COMMAND
		`#NET-DHCP␣id,mode<CR>`
		FEEDBACK
		`~nn@NET-DHCP␣id,mode<CR><LF>`
			id – Network ID–the device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3….
			mode –
			1 – Try to use DHCP. (If unavailable, use the IP address set by the factory or the NET-IP command).
				Enable DHCP mode for port 1, if available:
				`#NET-DHCP␣1,1<CR>`

NET-DHCP?	Get DHCP mode.
	ⓘ For Backward compatibility, the **id** parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.
		COMMAND
		`#NET-DHCP?␣id<CR>`
		FEEDBACK
		`~nn@NET-DHCP␣id,mode<CR><LF>`
			id – Network ID–the device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3….
			mode –
			0 – Do not use DHCP. Use the IP set by the factory or using the NET-IP or NET-CONFIG command.
			1 – Try to use DHCP. If unavailable, use the IP set by the factory or using the NET-IP or NET-CONFIG command.
				Get DHCP mode for port 1:
				`#NET-DHCP?␣1<CR>`

NET-GATE	Set gateway IP.
	ⓘ A network gateway connects the device via another network and maybe over the Internet. Be careful of security issues. For proper settings consult your network administrator.
		COMMAND
		`#NET-GATE␣ip_address<CR>`
		FEEDBACK
		`~nn@NET-GATE␣ip_address<CR><LF>`
			ip_address – Format: xxx.xxx.xxx.xxx	Set the gateway IP address to 192.168.0.1:
				`#NET-GATE␣192.168.000.001<CR>`

NET-GATE?	Get gateway IP.
	ⓘ A network gateway connects the device via another network and maybe over the Internet. Be aware of security problems.
		COMMAND
		`#NET-GATE?␣<CR>`
		FEEDBACK
		`~nn@NET-GATE␣ip_address<CR><LF>`
			ip_address – Format: xxx.xxx.xxx.xxx	Get the gateway IP address:
				`#NET-GATE?␣<CR>`

NET-IP	Set IP address.
	ⓘ For proper settings consult your network administrator.
	P3K NET-IP is the standard IP address settings/change command, while following NET-DHCP user must manually set the static IP address via NET-IP
		COMMAND
		`#NET-IP␣ip_address<CR>`
		FEEDBACK
		`~nn@NET-IP␣ip_address<CR><LF>`
			ip_address – Format: xxx.xxx.xxx.xxx	Set the IP address to 192.168.1.39:
				`#NET-IP␣192.168.001.039<CR>`

NET-IP?	Get IP address.	**COMMAND**
		`#NET-IP?␣<CR>`
		FEEDBACK
		`~nn@NET-IP␣ip_address<CR><LF>`
			ip_address – Format: xxx.xxx.xxx.xxx	Get the IP address:
				`#NET-IP?␣<CR>`

Function	Description	Syntax	Parameters/Attributes	Example
NET-MAC?	Get MAC address. ⓘ For backward compatibility, the **id** parameter can be omitted. In this case, the Network ID, by default, is 0, which is the Ethernet control port.	**COMMAND** #NET-MAC?␣id**<CR>** **FEEDBACK** ~nn@**NET-MAC**␣id,mac_address**<CR><LF>**	**id** – Network ID–the device network interface (if there are more than one). Counting is 0 based, meaning the control port is '0', additional ports are 1,2,3…. **mac_address** – Unique MAC address. Format: XX-XX-XX-XX-XX-XX where X is hex digit	#NET-MAC?␣id**<CR>**
NET-MASK	Set subnet mask. ⓘ For proper settings consult your network administrator.	**COMMAND** #NET-MASK␣net_mask**<CR>** **FEEDBACK** ~nn@**NET-MASK**␣net_mask**<CR><LF>**	**net_mask** – Format: xxx.xxx.xxx.xxx	Set the subnet mask to 255.255.0.0: #NET-MASK␣255.255.000.000**<CR>**
NET-MASK?	Get subnet mask.	**COMMAND** #NET-MASK?␣**<CR>** **FEEDBACK** ~nn@**NET-MASK**␣net_mask**<CR><LF>**	**net_mask** – Format: xxx.xxx.xxx.xxx	Get the subnet mask: #NET-MASK?**<CR>**
PROT-VER?	Get device protocol version.	**COMMAND** #PROT-VER?␣**<CR>** **FEEDBACK** ~nn@**PROT-VER**␣3000:version**<CR><LF>**	**version** – XX.XX where X is a decimal digit	Get the device protocol version: #PROT-VER?␣**<CR>**
RESET	Reset device.	**COMMAND** #RESET**<CR>** **FEEDBACK** ~nn@**RESET**␣OK**<CR><LF>**		Reset the device: #RESET**<CR>**
SN?	Get device serial number.	COMMAND #SN?␣**<CR>** FEEDBACK ~nn@**SN**␣serial_number**<CR><LF>**	**serial_number** – 14 decimal digits, factory assigned	Get the device serial number: #SN?␣**<CR>**
VERSION?	Get firmware version number.	**COMMAND** #VERSION?␣**<CR>** **FEEDBACK** ~nn@**VERSION**␣firmware_version**<CR><LF>**	**firmware_version** – XX.XX.XXXX where the digit groups are: major.minor.build version	Get the device firmware version number: #VERSION?␣**<CR>**
VID-PATTERN	Set test pattern on output.	**COMMAND** #VID-PATTERN␣out_index,pattern_id**<CR>** **FEEDBACK** ~nn@**VID-PATTERN**␣out_index,pattern_id**<CR><LF>**	**out_index** – Number that indicates the specific output: 1-N (N= the total number of outputs) **pattern_id** – 1 - N (N= the total number of system patterns)	Switch PATTERN 1 to OUT 2: #VID-PATTERN␣2,1**<CR>**
VID-PATTERN?	Get test pattern on output.	**COMMAND** #VID-PATTERN?␣out_index**<CR>** **FEEDBACK** ~nn@**VID-PATTERN**␣out_index,pattern_id**<CR><LF>**	**out_index** – Number that indicates the specific output: 1-N (N= the total number of outputs) **pattern_id** – 1 - N (N = the total number of system patterns)	Get test pattern on OUT 2: #VID-PATTERN?␣2**<CR>**
VID-RES	Set output resolution. ⓘ "Set" command with is_native=ON sets native resolution on selected output (resolution index sent = 0). Device sends as answer actual VIC ID of native resolution. To use "custom resolutions" (entries 100-105 In View Modes), define them using the DEF-RES command.	**COMMAND** #VID-RES␣io_mode,io_index,is_native,resolution**<CR>** **FEEDBACK** ~nn@**VID-RES**␣io_mode,io_index,is_native,resolution**<CR><LF>**	**io_mode** – 1– Output **io_index** – Number that indicates the specific input or output port: 1-N (N= the total number of output ports) **is_native** – Native resolution flag 0– Off 1– On **resolution** – Resolution index **0**=No Signal (for input) / Native - EDID (for output) **1**=640x480p@59.94Hz/60Hz **2**=720x480p@59.94Hz/60Hz **3**=720x480p@59.94Hz/60Hz **4**=1280x720p@59.94Hz/60Hz **16**=1920x1080p@59.94Hz/60Hz **17**=720x576p@50Hz **18**=720x576p@50Hz **19**=1280x720p@50Hz **31**=1920x1080p@50Hz **32**=1920x1080p@23.97Hz/24Hz **33**=1920x1080p@25Hz **34**=1920x1080p@29.97Hz/30Hz **65**=800x600p@60Hz **66**=1024x768@60Hz **67**=1280x768p@60Hz **68**=1280x1024p@60Hz **69**=1600x1200p@60Hz **70**=1680x1050p@60Hz **71**=1920x1200@60Hz **72**=3840x2160p@24Hz **73**=3840x2160p@25Hz **74**=3840x2160p@30Hz **75**=3840x2160p@50Hz	Set output resolution: #VID-RES␣1,1,1,1**<CR>**

Function	Description	Syntax	Parameters/Attributes	Example

VID-RES?	Get output resolution.
	
	ⓘ "Get" command with is_native=ON returns native resolution VIC, with is_native=OFF returns current resolution.
	To use "custom resolutions" (entries 100-105 In View Modes), define them using the DEF-RES command.
		COMMAND
		#VID-RES?␣io_mode,io_index,is_native**<CR>**
		FEEDBACK
		~nn@VID-RES?␣io_mode,io_index,is_native,resolution**<CR><LF>**
			io_mode –
			  1– Output
			io_index – Number that indicates the specific input or output port:
			  1-N (N= the total number of input or output ports)
			is_native – Native resolution flag
			  0– Off
			  1– On
			resolution – Resolution index
			  0=No Signal (for input) / Native - EDID (for output)
			  1=640x480p@59.94Hz/60Hz
			  2=720x480p@59.94Hz/60Hz
			  3=720x480p@59.94Hz/60Hz
			  4=1280x720p@59.94Hz/60Hz
			  16=1920x1080p@59.94Hz/60Hz
			  17=720x576p@50Hz
			  18=720x576p@50Hz
			  19=1280x720p@50Hz
			  31=1920x1080p@50Hz
			  32=1920x1080p@23.97Hz/24Hz
			  33=1920x1080p@25Hz
			  34=1920x1080p@29.97Hz/30Hz
			  65=800x600p@60Hz
			  66=1024x768@60Hz
			  67=1280x768p@60Hz
			  68=1280x1024p@60Hz
			  69=1600x1200p@60Hz
			  70=1680x1050p@60Hz
			  71=1920x1200@60Hz
			  72=3840x2160p@24Hz
			  73=3840x2160p@25Hz
			  74=3840x2160p@30Hz
			  75=3840x2160p@50Hz
				Set output resolution:
				#VID-RES?␣1,1,1**<CR>**

W-SATURATION	Set image saturation per output. ⓘ Value limits can vary for different devices. Value is a property of input connected to current output. Changing input source might cause changes in this value (refer device definitions). In devices that enable showing multiple outputs on one display – each in a separate window – this command relates only to the window associated with the output indicated in the out-index parameter.	**COMMAND** **#W-SATURATION**␣out_index,value**<CR>** **FEEDBACK** **~nn@W-SATURATION**␣out_index,value**<CR><LF>**	**out_index** – Number that indicates the specific output: 1-N (N= the total number of outputs) **value** – Saturation value (0-100)	Set saturation for output 1 to 50: **#W-SATURATION**␣1,50**<CR>**
W-SATURATION?	Get image saturation per output. ⓘ Value limits can vary for different devices. Value is a property of input connected to current output. Changing input source might cause changes in this value (refer device definitions). In devices that enable showing multiple outputs on one display – each in a separate window – this command relates only to the window associated with the output indicated in the out-index parameter.	**COMMAND** **#W-SATURATION?**␣out_index**<CR>** **FEEDBACK** **~nn@W-SATURATION**␣out_index,value**<CR><LF>**	**out_index** – Number that indicates the specific output: 1-N (N= the total number of outputs) **value** – Saturation value (0-100)	Get saturation for output 1: **#W-SATURATION?**␣1**<CR>**

Result and Error Codes

Syntax

In case of an error, the device responds with an error message. The error message syntax:

- **~NN@ERR XXX<CR><LF>** – when general error, no specific command

- **~NN@CMD ERR XXX<CR><LF>** – for specific command

- **NN** – machine number of device, default = 01

- **XXX** – error code

Error Codes

Error Name	Error Code	Description
P3K_NO_ERROR	0	No error
ERR_PROTOCOL_SYNTAX	1	Protocol syntax
ERR_COMMAND_NOT_AVAILABLE	2	Command not available
ERR_PARAMETER_OUT_OF_RANGE	3	Parameter out of range
ERR_UNAUTHORIZED_ACCESS	4	Unauthorized access
ERR_INTERNAL_FW_ERROR	5	Internal FW error
ERR_BUSY	6	Protocol busy
ERR_WRONG_CRC	7	Wrong CRC
ERR_TIMEDOUT	8	Timeout
ERR_RESERVED	9	(Reserved)
ERR_FW_NOT_ENOUGH_SPACE	10	Not enough space for data (firmware, FPGA…)
ERR_FS_NOT_ENOUGH_SPACE	11	Not enough space – file system
ERR_FS_FILE_NOT_EXISTS	12	File does not exist
ERR_FS_FILE_CANT_CREATED	13	File can't be created
ERR_FS_FILE_CANT_OPEN	14	File can't open
ERR_FEATURE_NOT_SUPPORTED	15	Feature is not supported
ERR_RESERVED_2	16	(Reserved)
ERR_RESERVED_3	17	(Reserved)
ERR_RESERVED_4	18	(Reserved)
ERR_RESERVED_5	19	(Reserved)
ERR_RESERVED_6	20	(Reserved)
ERR_PACKET_CRC	21	Packet CRC error
ERR_PACKET_MISSED	22	Packet number isn't expected (missing packet)
ERR_PACKET_SIZE	23	Packet size is wrong
ERR_RESERVED_7	24	(Reserved)
ERR_RESERVED_8	25	(Reserved)
ERR_RESERVED_9	26	(Reserved)
ERR_RESERVED_10	27	(Reserved)
ERR_RESERVED_11	28	(Reserved)
ERR_RESERVED_12	29	(Reserved)
ERR_EDID_CORRUPTED	30	EDID corrupted
ERR_NON_LISTED	31	Device specific errors
ERR_SAME_CRC	32	File has the same CRC – no changed
ERR_WRONG_MODE	33	Wrong operation mode
ERR_NOT_CONFIGURED	34	Device/chip was not initialized

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; all Kramer VIA accessories, adapters, tags, and dongles are covered by a standard one (1) year warranty.
2. All Kramer fiber optic cables, adapter-size fiber optic extenders, pluggable optical modules, active cables, cable retractors, all ring mounted adapters, 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.

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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.

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⚠ SAFETY WARNING
Disconnect the device 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.