

USER MANUAL

MODEL:

VP-440H2

4K Presentation Switcher/Scaler



Contents

| | |
|----------------------------------------------------------|-----------|
| Introduction | 1 |
| Getting Started | 1 |
| Overview | 2 |
| Typical Applications | 3 |
| Defining VP-440H2 4K Presentation Switcher/Scaler | 4 |
| Installing in a Rack | 6 |
| Connecting VP-440H2 | 7 |
| Connecting to the VP-440H2 via RS-232 | 8 |
| Microphone Pinout | 8 |
| Controlling External Devices via HDBT | 9 |
| Operating VP-440H2 | 10 |
| Using the Front Panel Controls | 10 |
| Using the OSD Menu | 11 |
| Operating via Ethernet | 15 |
| Using the Embedded Web Pages | 18 |
| Technical Specifications | 33 |
| Input Resolutions | 34 |
| Output Resolutions | 35 |
| Default Communication Parameters | 35 |
| Protocol 3000 | 36 |
| Understanding Protocol 3000 | 37 |
| Kramer Protocol 3000 Syntax | 37 |
| Protocol 3000 Commands | 39 |
| Parameters | 58 |
| Video Resolutions | 58 |

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 14 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format & Standards Converters; GROUP 5: Range Extenders & 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.

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-440H2 to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

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-440H2** 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.

Safety Instructions (DC)



- Caution: There are no operator serviceable parts inside the unit
- Warning: Use only the Kramer Electronics power supply that is provided with the unit
- Warning: Disconnect the power and unplug the unit from the wall before installing

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-440H2** 4K Presentation Switcher/Scaler. **VP-440H2** is a high-performance 4K@60Hz (4:4:4) presentation scaler/switcher with one HDBaseT/POE, three HDMI and one computer graphics (VGA) inputs. The unit scales the video, embeds the audio and outputs the signal to an HDMI output and an HDBaseT output simultaneously. The unit includes analog and embedded audio inputs and outputs.

- PixPerfect™ Scaling Technology – Kramer's precision pixel mapping and high-quality scaling technology.
- HDTV Compatible.
- HDCP Compliant.
- HDBaseT Certified.
- System Range – For the HDBT inputs and outputs, extended reach of up to 100m (330ft) using Kramer recommended cables.



For optimum range and performance using HDBaseT™, use recommended Kramer cables, available at www.kramerav.com/product/VP-440H2.

- Supports Input PoE (Power over Ethernet) for powering the transmitter
- Max. HDMI Resolution – 4K@60Hz (4:4:4).
- Max. HDBaseT Resolutions – 4K@30Hz / 4K@60 (4:2:0)
- Max. VGA Resolution – 1920 x 1200 @60Hz.
- Multiple Aspect Ratio Selections – Full, best fit, overscan, underscan, letter box and panscan.
- Built-in ProcAmp – Color, hue, sharpness, noise, contrast and brightness.
- Constant Output Sync – No output disruption while switching between inputs when no video is detected.

- Auto Input Switching – Last connected & auto-scan, selectable.
- Powerful Audio Features – Via DSP technology including audio equalization, mixing, delay, etc.
- Audio –With individual input and output level controls.
- Audio embedding and de-embedding
- Companion AFV (Audio-Follow-Video) – Stereo audio for HDMI and PC inputs, on 3.5mm mini jacks.
- Microphone Input – For mixing, switching or talk-over.
- HDBaseT Tunnelling – Supports full HDBT tunnelling of Ethernet and RS-232 data.
- Front Panel Lockout.
- Non-Volatile Memory – Saves final settings.
- Flexible Control Options – Front panel push buttons, RS-232, OSD (on-screen display) menu with front panel navigation buttons, Ethernet with built-in Web pages.

Control your **VP-440H2**:

- Directly, via the front panel push buttons
- By RS-232 serial commands transmitted by a touch screen system, PC, or other serial controller
- Via the OSD (on-screen display)
- Via the Ethernet with built-in Web pages

The **VP-440H2** is housed in a 1/2 19" 1U enclosure, enabling 2 units to be rack mounted side-by-side in a 1U rack space with the optional **RK-1** universal rack adapter.



For optimum range and performance use the recommended Kramer cables available at www.kramerav.com/product/VP-440H2.

Typical Applications

VP-440H2 is ideal for the following typical applications:

- Educational – classrooms, lecture theaters
- Projection systems in conference rooms, boardrooms, hotels and churches
- Home theater up-scaling

Defining VP-440H2 4K Presentation Switcher/Scaler

This section defines VP-440H2.

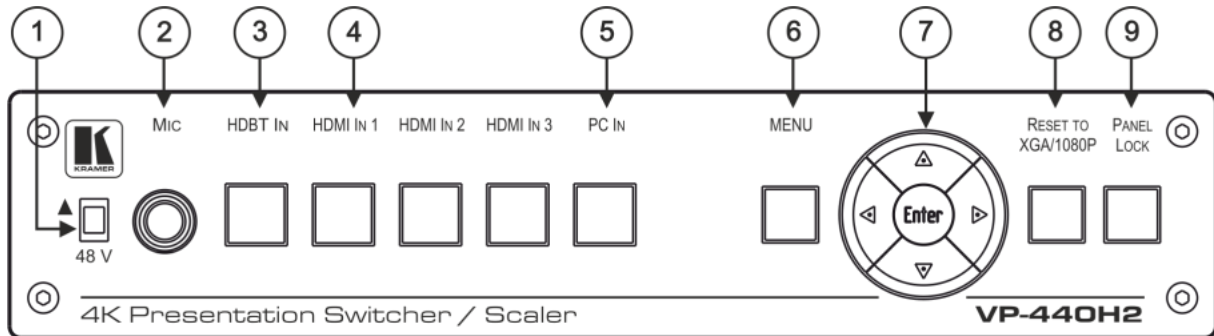


Figure 1: VP-440H2 4K Presentation Switcher/Scaler Front Panel

| # | Feature | Function | |
|---|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| ① | 48 V (▲) Slide Switch | Slide up (48V) to select a condenser type microphone; slide down to select a dynamic type microphone (we recommend that you slide down if a microphone is not connected to the VP-440H2). | |
| ② | MIC 6.3mm Jack | Connect to the microphone. | |
| ③ | Input Selector Buttons | HDBT IN | Press to select the HDBT input. |
| ④ | | HDMI IN | Press to select the HDMI input (from 1 to 3). |
| ⑤ | | PC IN | Press to select the computer graphics input. |
| ⑥ | MENU Button | Displays the OSD menu. | |
| ⑦ | Navigation Buttons | ◀ | Press to decrease numerical values or select from several definitions. When not in the OSD menu, press to reduce the output volume. |
| | | ▲ | Press to move up the menu list values. |
| | | ▶ | Press to increase numerical values or select from several definitions. When not in the OSD menu, press to increase the output volume. |
| | | ▼ | Press to move down the menu list. |
| | ENTER | Press to accept changes and change the SETUP parameters. | |
| ⑧ | RESET TO XGA/1080p Button | Press and hold for about 5 seconds to toggle the output resolution between XGA and 1080p, alternatively. | |
| ⑨ | PANEL LOCK Button | Press and hold for about 5 seconds to lock/unlock the front panel buttons. | |

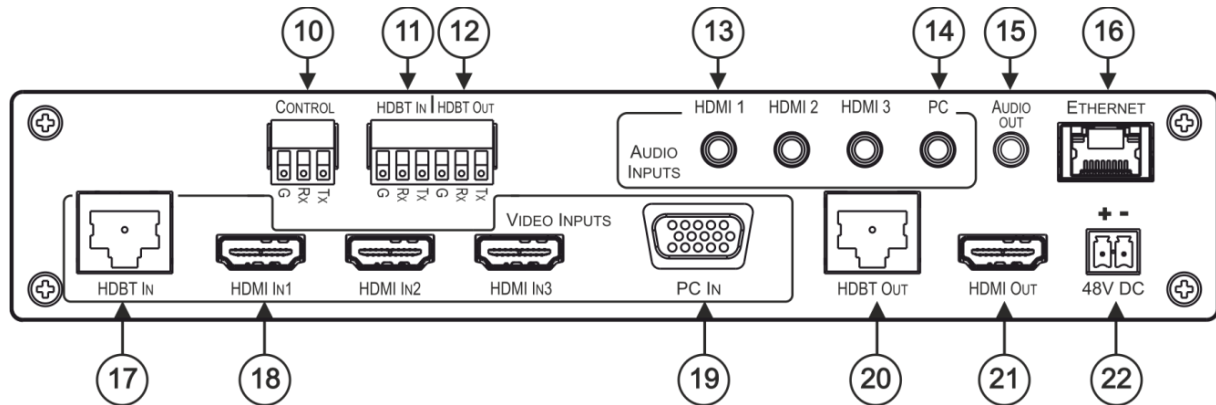


Figure 2: VP-440H2 4K Presentation Switcher/Scaler Rear Panel

| # | Feature | Function | |
|----|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| 10 | CONTROL (Tx, Rx, GND) Terminal Block Connectors | Connect to the PC or the serial controller to control the device. | |
| 11 | HDBT IN RS-232 Terminal Block Connectors | Connect to an RS-232 controller to control peripheral devices that are connected to the HDBT transmitter (for example, a Blu-ray player connected to WP-20) or connect to a device to control from a controller at the HDBT transmitter (see Controlling External Devices via HDBT on page 9). | |
| 12 | HDBT OUT RS-232 Terminal Block Connectors | Connect to an RS-232 controller to control peripheral devices that are connected to the HDBT receiver (for example, a projector connected to TP-580Rxr) or connect to a device to control from a controller at the HDBT receiver (see Controlling External Devices via HDBT on page 9). | |
| 13 | AUDIO INPUT | HDMI | Connect to the analog audio HDMI source (from 1 to 3). |
| 14 | Unbalanced Stereo 3.5 Mini Jack | PC | Connect to the analog audio computer graphics source. |
| 15 | AUDIO OUT 3.5 Mini Jack | | Connect to an unbalanced stereo audio acceptor. |
| 16 | ETHERNET Connector | | Connects to the PC or other controller through computer networking. |
| 17 | VIDEO INPUT | HDBT IN RJ-45 | Connect to an HDBT transmitter (for example, WP-20). Can supply PoE (up to 13W) to the transmitter. |
| 18 | Connectors | HDMI IN | Connect to the HDMI source (from 1 to 3). |
| 19 | | PC IN on 15-pin HD | Connect to the computer graphics source. |
| 20 | HDBT OUT RJ-45 Connector | | Connect to an HDBT receiver (for example, TP-580Rxr). |
| 21 | HDMI OUT Connector | | Connect to the HDMI acceptor. |
| 22 | 48V DC Power Terminal Block | | +48V DC connector for powering the unit. |

Installing in a Rack

This section provides instructions for rack mounting **VP-440H2**. Before installing in a rack, 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.



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

- It is located within recommended environmental conditions. Operating ambient temperature of a closed or multi-unit rack assembly may exceed ambient room temperature.
- Once rack mounted, there is enough air still flow around VP-440H2.
- VP-440H2 is placed upright in the correct horizontal position.
- You do not overload the circuit(s). When connecting VP-440H2 to the supply circuit, overloading the circuits may 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.
- VP-440H2 is earthed (grounded) and connected only to an electricity socket with grounding. Pay particular attention when electricity is supplied indirectly (for example, when the power cord is not plugged directly into the wall socket but to an extension cable or power strip). Use only the supplied power cord.

To rack-mount VP-440H2:

- Use an optional **RK-T2B** rack adapter.



Some models, may feature built-in rack ears:

- Detachable rack ears can be removed for desktop use.
- Always mount **VP-440H2** in the rack before connecting any cables or 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 www.kramerav.com/downloads/VP-440H2.

Connecting VP-440H2



Always switch off the power to each device before connecting it to your VP-440H2. After connecting your VP-440H2, connect its power and then switch on the power to each device.

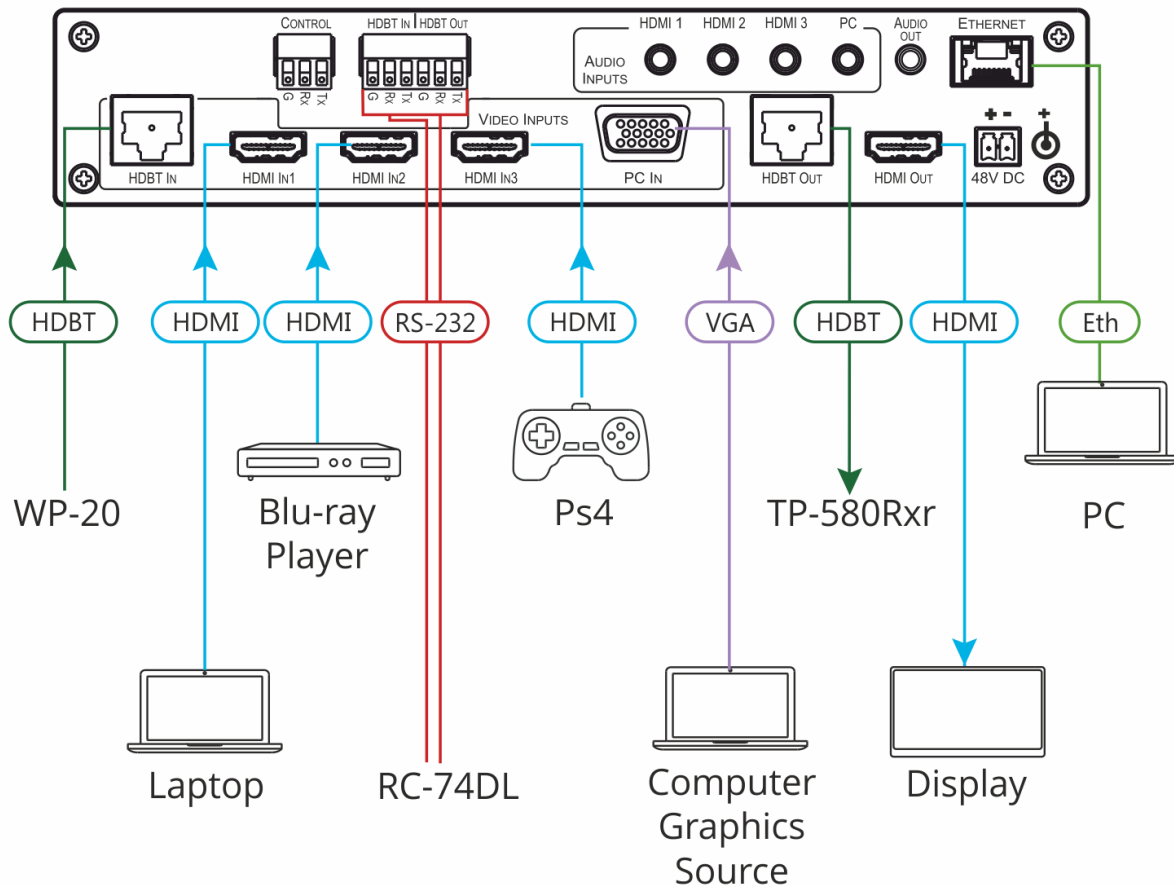


Figure 3: Connecting to the VP-440H2 Rear Panel

To connect VP-440H2 as illustrated in the example in [Figure 3](#), do the following:

1. Connect the video sources
 - A computer graphics source to the PC IN 15-pin HD connector (19).
 - An HDBaseT transmitter (for example, Kramer **WP-20** Wall Plate Transmitter) to the HDBT IN RJ-45 connector (17).
 - HDMI sources (for example, a laptop, a blue-ray player, and a gaming console) to the three HDMI IN connectors (18).
2. Connect an analog stereo audio source (not shown in [Figure 3](#)) for each of the three HDMI inputs and for the PC input to the 3.5mm mini jack connectors (15).

3. Connect the video outputs:
 - An HDBaseT receiver (for example, Kramer **TP-580Rxr**) to the HDBT IN RJ-45 connector (20).
 - An HDMI acceptor to the HDMI OUT connector (21).
4. Connect an unbalanced stereo audio acceptor (for example, active speakers, not shown in [Figure 3](#)) to the AUDIO OUT 3.5mm mini jack (15).
5. Connect a laptop to the Ethernet RJ-45 connector (16).
6. Connect an RS-232 controller (for example, Kramer **RC-74DL**) to the HDBT IN (11) and HDBT OUT (12) terminal block connectors.
7. Connect the 48V power supply to the 48V DC power terminal block (22).
8. If required, connect a PC or serial controller (not shown in [Figure 3](#)) to the CONTROL (Tx, Rx, G) terminal block connector, to control the unit via serial control (15).

Connecting to the VP-440H2 via RS-232

To control VP-440H2 via RS-232:

- Connect the RS-232 Terminal block connector on **VP-440H2** to the RS-232 9-pin D-sub port on your PC/controlled device as shown in the PIN table below:

| Terminal Block PIN | 9-pin D-sub PIN |
|--------------------|-----------------|
| Tx | PIN 2 |
| Rx | PIN 3 |
| GND | PIN 5 |

Microphone Pinout

Microphone 6.3mm jack pinout for a condenser microphone:

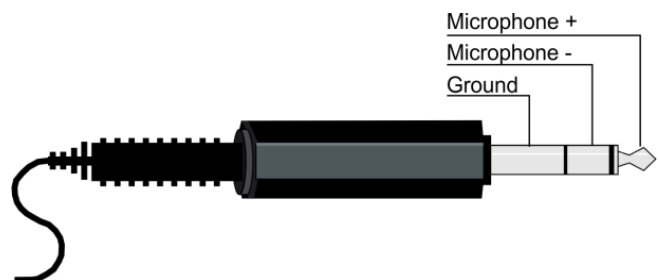


Figure 4: Condenser Microphone Pinout

Microphone 6.3mm jack pinout for a Dynamic microphone:

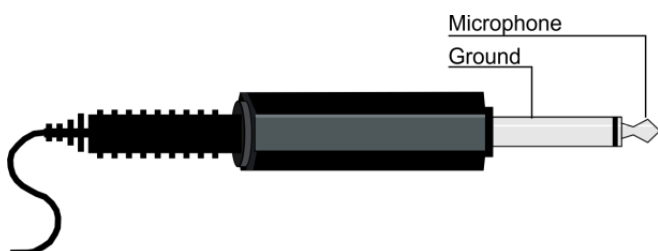


Figure 5: Dynamic Microphone Pinout

Controlling External Devices via HDBT

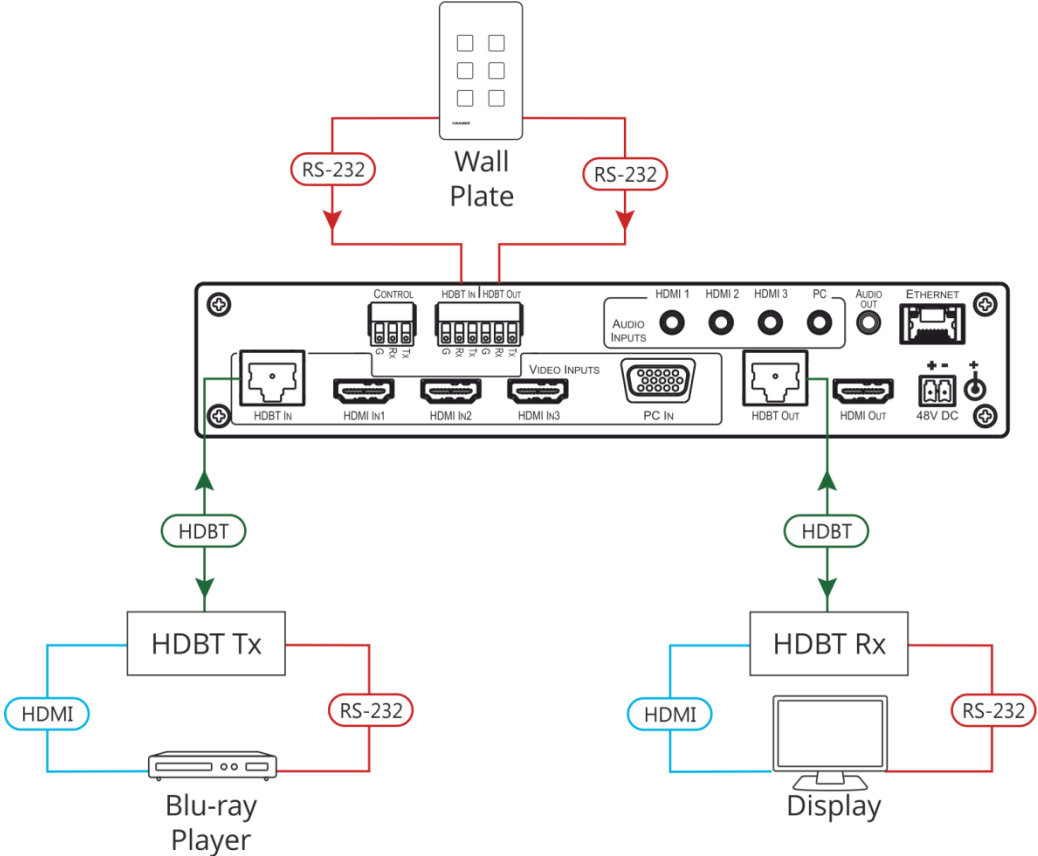


Figure 6: Controlling External Devices via HDBT

Operating VP-440H2

VP-440H2 can be controlled using any of the following methods:

- Front panel controls (see [Using the Front Panel Controls](#) on page 10)
- OSD Menu, using the front panel buttons (see [Using the OSD Menu](#) on page 11)
- Embedded web pages (see [Using the Embedded Web Pages](#) on page 18).
- Protocol 3000 commands via RS-232 and / or TCP control (see [Protocol 3000 Commands](#) on page 39).

Using the Front Panel Controls

Selecting the Input to be Switched to the Outputs

VP-440H2 enables selecting one of five inputs to be switched to the two outputs.

To select the input to be routed to the outputs:

- Press the one of the input selector buttons ③, ④, or ⑤.

OR do one of the following:

- Go to the Input Select page of the embedded web pages (see [Selecting the Input to be Switched to the Outputs](#) on page 22).
- Use the Protocol 3000 ROUTE command (see [ROUTE](#) on page 48).

Selecting the Microphone Type

To select the microphone type:

- Move the 48 V ① button up to select a condenser type microphone or down to select a dynamic type microphone.

We recommend keeping the switch down if a microphone is not connected to the VP-440H2.

Setting the Resolution to XGA/1080p


To set the resolution from the front panel:

- Press the RESET TO XGA/1080p button ⑧ to reset the video resolution to XGA or 1080p.
- Press and hold the RESET TO XGA/1080p button ⑧ for about 5 seconds to toggle between switching to XGA or 1080p.


Locking the Front Panel Buttons

The front panel buttons can be locked (disabled) to prevent unintentional button pressing.


To lock the front panel buttons:

- Press and hold the Panel Lock button  for about 5 seconds.
The Panel Lock button lights red and the front panel buttons are locked.



To unlock the front panel buttons:

- Press and hold the Panel Lock button  for about 5 seconds.
The Panel Lock button light goes out and the front panel buttons are unlocked.

Using the OSD Menu

The front panel navigation buttons  enable you to control **VP-440H2** via the OSD menu.

To use the OSD menu:

1. Press the MENU button  to enter the menu.
The OSD menu appears on the video output display.
2. Use the navigation buttons :
 - Press the ENTER button to accept changes or to change the parameters.
 - Press the arrow buttons to move through the OSD menu.
3. On the OSD menu, select EXIT to exit the menu.



If there is no button activity for the defined timeout period while within the OSD menu, the menu disappears from the display.

OSD Menus and Submenus

| Menu | Sub menu | Parameter | Parameters Description | |
|---------|----------------------|----------------------|---------------------------|---------------------------------------------------------|
| Picture | CONTRAST | | Set the contrast level. | |
| | BRIGHTNESS | | Set the brightness level. | |
| | FINETUNE (HDMI/HDBT) | HUE | | Set these parameters for the HDMI and HDBT inputs only. |
| | | SATURATION | | |
| | | SHARPNESS | | |
| | | NR (NOISE REDUCTION) | | |
| | FINETUNE (PC) | PHASE | | Set these parameters for the PC input only. |
| | | CLOCK | | |
| | | H_POSITION | | |
| | | V_POSITION | | |
| | COLOR | RED | | Set the color levels. |
| | | GREEN | | |
| | | BLUE | | |

| Menu | Sub menu | Parameter | Parameters Description |
|--------|---------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input | SOURCE | | Select the input to be switched to the output. |
| Output | SIZE | | Select the image size: FULL, OVERSCAN, UNDER1, UNDER2, LETTERBOX, PANSCAN or BEST FIT |
| | 4KIN > 4KOUT | | Select BYPASS to avoid scaling when the input resolution is 4K and the output is set to 4K. Select SCALER to enable 4K to 4K scaling. See 4K In to 4K Out Bypassing on page 14. |
| | RESOLUTION | | Select the required resolution for the output. |
| AUDIO | OUTPUT VOLUME | | Set the volume for the outputs. |
| | SOURCE | HDMI1 | Select EMBEDDED for the embedded HDMI audio ANALOG for the analog audio that corresponds to the output, or AUTOMATIC. |
| | | HDMI2 | |
| | | HDMI3 | |
| | SETTING | DELAY | Select the audio delay time, 40ms–200ms. |
| | | DRC (Dynamic Range Compression) | Set to ON to dynamically create a sound range according to the volume level. For example, in a movie, the volume is high enough to hear dialogue and at the same time loud, sudden noises are toned down. |
| | | BASS | Set the bass level. |
| | | TREBLE | Set the treble level. |
| | | LOUDNESS | Enable / disable the loudness function. |
| | | MIC MODE | Select the microphone mode from the following: OFF / MIXER / TALKOVER / MIC ONLY. |
| | MIC SETTINGS | IN TALKOVER MIC MODE, SET THE FOLLOWING (see Microphone Talkover on page 15 for details): | |
| | | DEPTH | Set the decrease of the audio level during microphone talkover. |
| | | TRIGGER | Set the microphone threshold level that triggers the audio output-level decrease. |
| | | ATTACK TIME | Set the transition time of the audio level reduction after the signal rises above the threshold level. |
| | | HOLD TIME | Set the time period that talkover remains active after the signal falls below the threshold level. |
| | | RELEASE TIME | Set the transition time for the audio level to return from its reduced level to its normal level after the Hold Time period. |
| | MIC VOLUME | MIC | Set the microphone input volume. |
| | INPUT VOLUME | HDBT | Set the volume for each video input. |
| | | HDMI1 | |
| | | HDMI2 | |
| HDMI3 | | | |
| PC | | | |
| MUTE | | Mute the audio output. | |

| Menu | Sub menu | Parameter | Parameters Description |
|----------|-------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OSD | H POSITION | | Adjust the OSD horizontal/vertical position on the video display. |
| | V POSITION | | |
| | TIMER | | Set the timeout for the OSD to disappear from the display when not in use. |
| | TRANSPARENCY | | Set the OSD background between 100 (transparent) and 0 (opaque). |
| | DISPLAY | | Select how information is shown on the display during operation: INFO: the information is shown for 10 seconds ON: the information is shown constantly OFF: the information is not shown |
| ADVANCED | HDCP ON INPUT | HDBT | Enable/disable HDCP for each of the inputs. |
| | | HDMI1 | |
| | | HDMI2 | |
| | | HDMI3 | |
| | HDCP ON OUTPUT | HDMI OUT | Enable/disable HDCP for each of the outputs. |
| | | HDBT OUT | |
| | AUTO-SYNC OFF | | This feature shuts down VP-440H2 when there are no active inputs. Select one of the following: OFF – disable the AUTO SYNC OFF feature FAST – shuts down after about 10 seconds SLOW – shuts down after about 2 minutes |
| | AUTO SWITCHING | | Select one of the following to set the input with the highest scan priority, to select “Last connected” operation, or to disable auto switching: Off: Disables auto switching Scan from HDMI / HDBT / PC: Set auto-scanning, and select from which input to begin the scanning Last connected: When detecting that a source is connected to an input (which previously had no signal), automatically switch to that input |
| | EDID MANAGE | HDMI 1 EDID | Set the EDID for each input. |
| | | HDMI 2 EDID | |
| | | HDMI 3 EDID | |
| | | HDBT EDID | |
| | | PC EDID | |
| ETHERNET | IP MODE | Set the IP mode to DHCP or Static. | |
| | STATIC IP ADDRESS | Define the IP address. | |
| | SUBNET MASK | Define the Subnet Mask. | |
| | DEFAULT GATEWAY | Define the Default Gateway. | |
| | CONTROL PORT | Enter the control port. | |
| | IP | View the IP address. | |

| Menu | Sub menu | Parameter | Parameters Description |
|---------|-------------|-------------|------------------------------------------------------------------------------------|
| | | MAC ADDRESS | View the MAC address. |
| INFO | SOURCE | | View the selected video input. |
| | INPUT | | View the in input resolution. |
| | OUTPUT HDMI | | View the HDMI output resolution. |
| | OUTPUT HDBT | | View the HDBT output resolution. |
| | VERSION: | | Displays the FW version. |
| FACTORY | RESET | | Resets all system settings to factory default and erases any saved configurations. |
| | SOFT RESET | | Power cycles the unit. |

4K In to 4K Out Bypassing

VP-440H2 can upscale to any resolution (up to 4K), or downscale (from up to 4K) to any resolution. Although the **VP-440H2** enables “cross-scaling” (that is, scaling the output to the same resolution as the input), this may result in picture quality deterioration – especially when the output refresh rate is different to the input refresh rate.

To overcome the artifacts of 4K to 4K scaling:

- In the OSD menu, select Output > 4K in->4K out > ByPass
–OR–
On the Output Settings page of the embedded web pages select 4Kin->4Kout > ByPass.

When set to ByPass, all 4K resolutions can be processed to the same refresh rate without scaling, and conversion from 4:4:4 to/from 4:2:0 color space can be performed.



BYPASS must be selected in order to support 4K HDR functionality.

The following table displays the resolutions that can be bypassed:

| | Input Resolution | Selected Output Resolution |
|-------------|------------------|----------------------------|
| Bypass Path | 4K@24 | 4K@24 |
| | 4K@25 | 4K@25 |
| | 4K@30 | 4K@30 |
| | 4K@50 4:4:4 | 4K@50 4:4:4 |
| | 4K@50 4:4:4 | 4K@50 4:2:0 |
| | 4K@50 4:2:0 | 4K@50 4:4:4 |
| | 4K@60 4:4:4 | 4K@60 4:4:4 |
| | 4K@60 4:4:4 | 4K@60 4:2:0 |
| | 4K@60 4:2:0 | 4K@60 4:4:4 |

Microphone Talkover

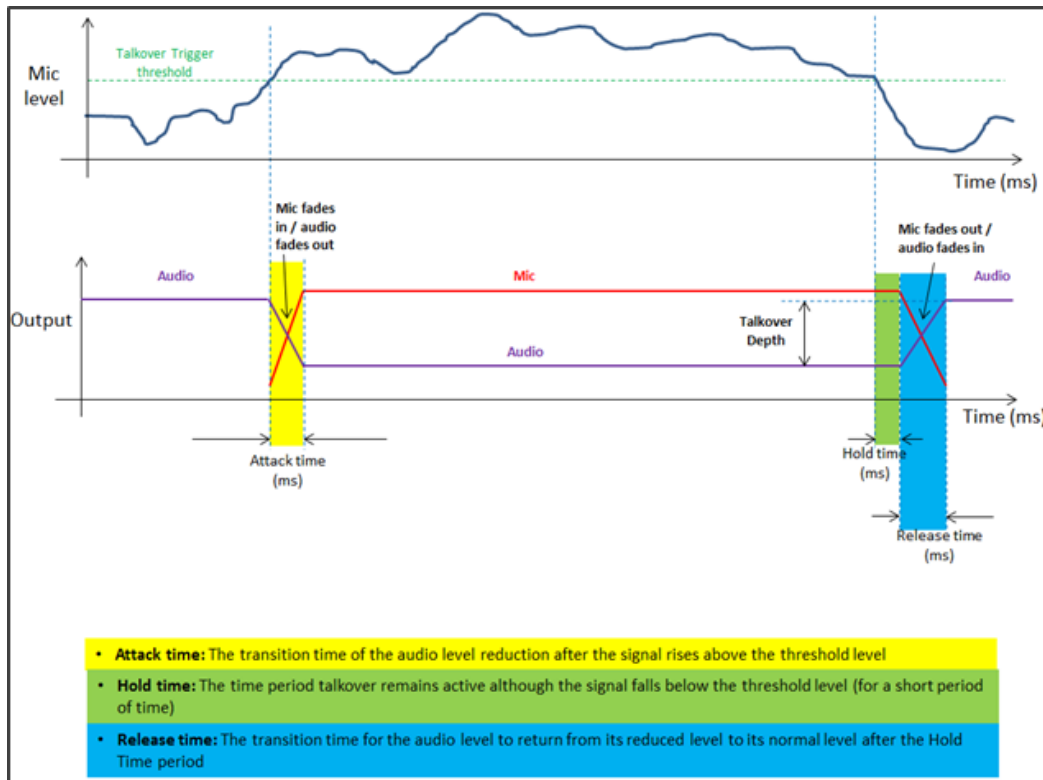


Figure 7: Microphone Talkover Mode

Operating via Ethernet

You can connect to the **VP-440H2** via Ethernet using either of the following methods:

- Directly to the PC using a crossover cable (see [Connecting the Ethernet Port Directly to a PC](#) on page [15](#))
- Via a network hub, switch, or router, using a straight-through cable (see [Connecting the Ethernet Port via a Network Hub or Switch](#) on page [17](#))

Connecting the Ethernet Port Directly to a PC

You can connect the Ethernet port of the **VP-440H2** 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-440H2** with the factory configured default IP address.

After connecting the **VP-440H2** 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 [Figure 8](#).

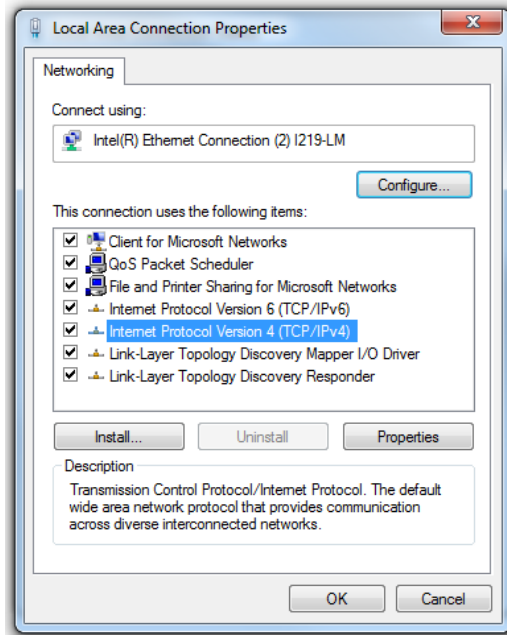


Figure 8: Local Area Connection Properties Window

4. Highlight **Internet Protocol Version 4 (TCP/IPv4)**.

5. Click **Properties**.

The Internet Protocol Properties window relevant to your IT system appears.

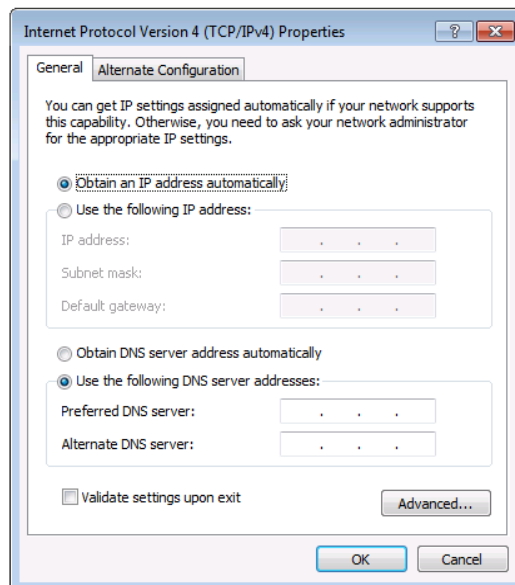


Figure 9: Internet Protocol Version 4 Properties Window

6. Select **Use the following IP Address** for static IP addressing and fill in the details as shown in [Figure 10](#).

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.

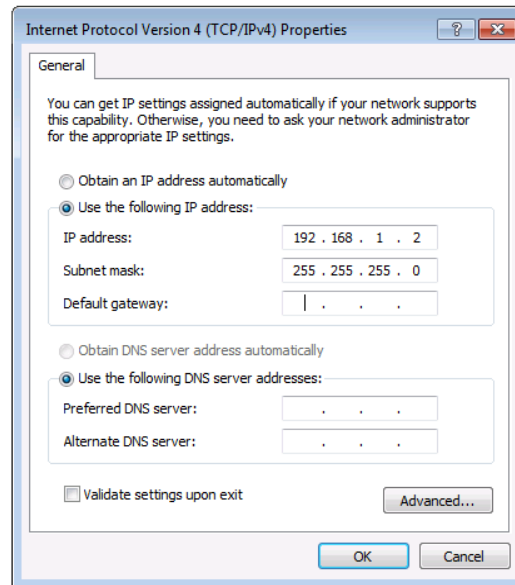


Figure 10: Internet Protocol Properties Window

7. Click **OK**.
8. Click **Close**.

Connecting the Ethernet Port via a Network Hub or Switch

You can connect the Ethernet port of the **VP-440H2** to the Ethernet port on a network hub or using a straight-through cable with RJ-45 connectors.

Configuring the Ethernet Port

You can set the Ethernet parameters via the embedded Web pages ([Configuring Network Settings](#) on page [23](#)).

Using the Embedded Web Pages

The web pages let you control the **VP-440H2** via the Ethernet. They are accessed using a web browser and an Ethernet connection.

- Before attempting to connect, ensure that your browser is supported. See [Technical Specifications](#) on page [33](#) for a list of supported browsers.

The **VP-440H2** web pages enable performing the following:

- [Loading and Saving Configurations](#) on page [19](#)
- [Entering Standby Mode](#) on page [20](#)
- [Configuring Video Input Settings](#) on page [21](#)
- [Selecting the Input to be Switched to the Outputs](#) on page [22](#)
- [Freezing or Clearing the Video Output](#) on page [22](#)
- [Adjusting Microphone and Output Volume](#) on page [22](#)
- [Configuring Network Settings](#) on page [23](#)
- [Upgrading the Firmware](#) on page [24](#)
- [Configuring Video Output Settings](#) on page [25](#)
- [Configuring HDCP per Input/Output](#) on page [27](#)
- [Managing EDID](#) on page [28](#)
- [Adjusting Audio Input Settings](#) on page [29](#)
- [Adjusting Microphone Settings](#) on page [30](#)
- [Configuring Automatic Switching Settings](#) on page [31](#)
- [Defining Freeze Button](#) on page [32](#)

To browse the VP-440H2 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:



The Controller application page appears.

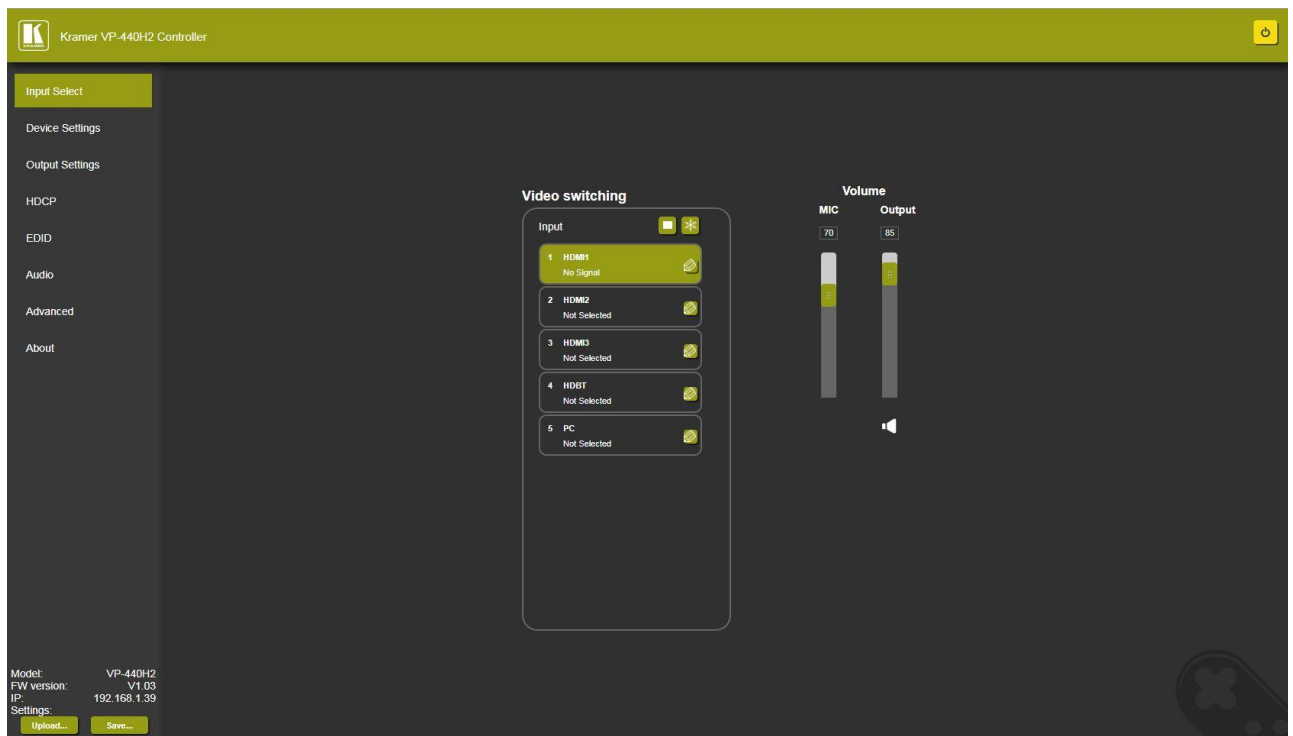


Figure 11: Controller Application Page with Navigation List on Left

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

Loading and Saving Configurations

VP-440H2 web pages enable you to save a configuration for easy recall in the future.

At the bottom left hand side of all web pages there is an Upload and a Save button. These enable you to save the current configuration and load any pre-saved configurations.

To save the current configuration:

1. Configure the device as required.
2. Click **Save**.
The Save File window appears.
3. Browse to the required location to which to save the file.
4. Enter the required name for the saved preset.

5. Click **OK**.
The current configuration is saved.



When using Chrome, the file is automatically saved in the Downloads folder.

To load a configuration:

1. Click **Upload**.
An Explorer window opens.
2. Select the required file and click **Open**.
The device is configured according to the saved preset.

Entering Standby Mode

Standby mode puts the device in a low power consumption mode without turning it off.

To toggle between standby mode and normal operation:

- Click the power icon on the right-hand side of the web pages header.
When in standby mode, the icon appears dim:



Figure 12: The VP-440H2 Standby Mode

Configuring Video Input Settings

VP-440H2 web pages enable you to individually configure settings for each of the video inputs.

To configure video input settings:

1. Click **Input Select** on the left side of the web page ([Figure 11](#)).
The Input Select page appears.

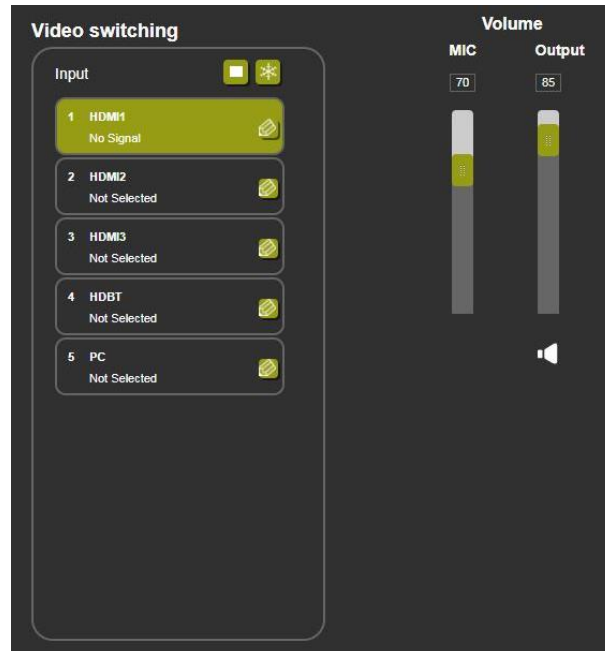


Figure 13: Web Pages – Input Select Page

2. In the Video Switching area, click the edit icon on the right side of the relevant video input.
The settings window appears for the selected input.

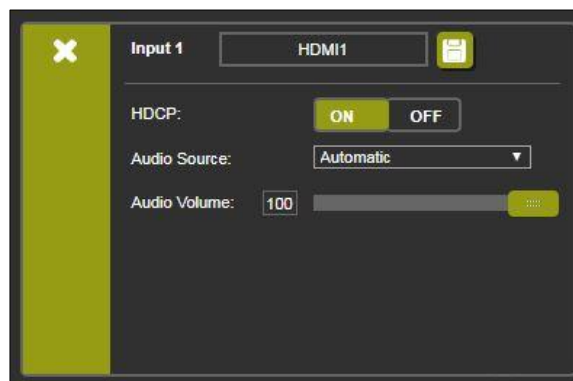


Figure 14: Setting Window for Input 1

3. If required, type a new name in the top field and click the save icon to change the name of the input that appears in the web pages.
4. Click **ON/OFF** to enable/disable the HDCP decryption on the selected input.



If HDCP is disabled on an input, an HDCP encrypted source will not pass through the unit.

5. For Audio Source, select one of the following:
 - Automatic – the embedded audio on the HDMI input is selected for an HDMI signal, or the analog audio input is selected if the input is not HDMI (for example, for a DVI input signal)
 - Analog – the analog audio input is selected
 - Embedded – the embedded audio in the HDMI signal is selected
6. Adjust the audio volume for this input by typing a number in the box or using the slider control.
7. Click the **X** to exit the input settings window.


Selecting the Input to be Switched to the Outputs

To select the input to be switched to the outputs using the web pages:

1. Click **Input Select** on the left side of the web page ([Figure 11](#)).
The Input Select page appears ([Figure 13](#)).
2. In the Video Switching area, click the required input button.
The input button turns green, the corresponding INPUT LED on the front panel lights and the selected input is switched to the output.


Freezing or Clearing the Video Output

To freeze or clear the video output, do one of the following:

1. Click **Input Select** on the left side of the web page ([Figure 11](#)).
The Input Select page appears ([Figure 13](#)).
2. In the Video Switching area, click on of the following:
 -  – Freezes the currently displayed video frame.



To define what happens when you press the Freeze button, see [Defining Freeze Button](#) on page [32](#)).


-  – Clears the video output from the display; the display goes blank.

Adjusting Microphone and Output Volume



The microphone and output volume can also be adjusted from the Audio web page.

To adjust the microphone and output volume:

1. Click **Input Select** on the left side of the web page ([Figure 11](#)).
The Input Select page appears ([Figure 13](#)).
2. Use the slider controls in the Volume area of the web page.
3. Click  to mute the output.

Configuring Network Settings

VP-440H2 web pages enable you to use DHCP mode or to turn DHCP mode off and change Network Settings.

To configure network settings:

1. Click **Device Settings** on the left side of the web page ([Figure 11](#)). The Device Settings page appears.

Figure 15: Device Settings Page

2. Change the network settings as required and click **Set changes**.

–OR–

Select the **DHCP On** check box and click **Set changes**.

A message appears asking you to confirm the setting change.

Figure 16: Device Settings Page – Setting Change Confirmation

3. Click **OK** to confirm the change.
The current web page session is disconnected. To access the web pages, reload with the new setting.
4. Click **Soft Factory Reset** to restart the unit.

Upgrading the Firmware

To upgrade the VP-440H2 firmware:

1. Click **Device Settings** on the left side of the web page ([Figure 11](#)).
The Device Settings page appears ([Figure 15](#)).
2. Under Firmware Update, click **Choose File**.
A file browser appears.
3. Open the required upgrade file.
The file name appears on the web page.
4. Click **Upgrade**.

The new firmware is uploaded:



Figure 17: Device Settings Page – Uploading the New Firmware File

5. Once the file is uploaded follow the instructions on the Web page:
The new firmware is uploaded:

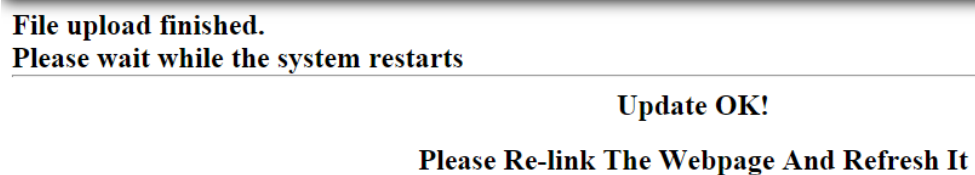


Figure 18: Device Settings Page – New Firmware File Uploading Complete

6. Restart the device, re-enter the IP address, and refresh the web page.
7. Make sure that the new version appears on the lower left side of the web page.

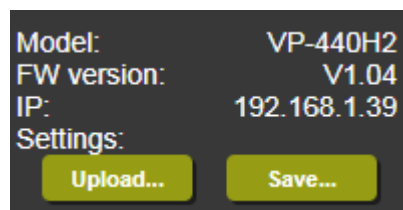


Figure 19: Current Firmware Information Display

Configuring Video Output Settings

VP-440H2 web pages enable you to configure settings for the video that is passed through the HDBT and HDMI outputs.

To configure video output settings:

1. Click **Output Settings** on the left side of the web page ([Figure 11](#)).
The Output Settings page appears ([Figure 15](#)).

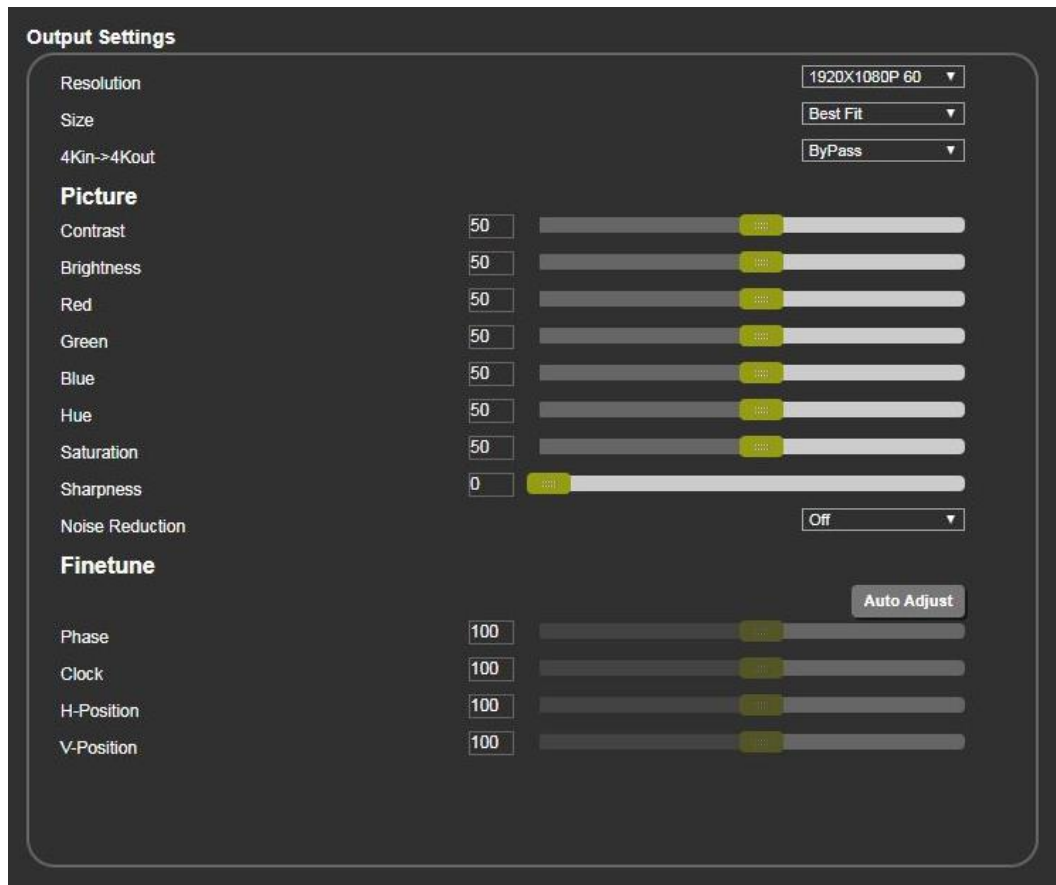


Figure 20: Output Settings Page

2. Under Resolution, select the required output resolution or select one of the following:
 - Native HDBT – sets the output resolution to match the native resolution of the device connected to HDBT OUT.
 - Native HDMI – sets the output resolution to match the native resolution of the device connected to HDMI OUT.

3. Under Size, select one of the following to configure how the video fits on the display:
 - Best Fit
 - Full
 - Pan Scan
 - Letter Box
 - Under Scan
 - Follow In
4. Under 4Kin->4Kout, select one of the following (see [4K In to 4K Out Bypassing](#) on page [14](#)):
 - ByPass
 - Scaler
5. In the Picture area, use the slider controls to adjust the display picture quality.
6. Under Noise Reduction, select the level of noise reduction or select Auto.
7. When the active input is VGA, in the Finetune area, click **Auto Adjust** to automatically adjust the video output or use the slider controls to adjust the following:
 - Phase
 - Clock
 - H-Position – horizontal position of the video on the display screen
 - V-Position – vertical position of the video on the display screen

Configuring HDCP per Input/Output

VP-440H2 web pages enable you to configure HDCP individually for each input/output.

To configure HDCP:

1. Click **HDCP** on the left side of the web page ([Figure 11](#)).
The HDCP page appears ([Figure 15](#)).

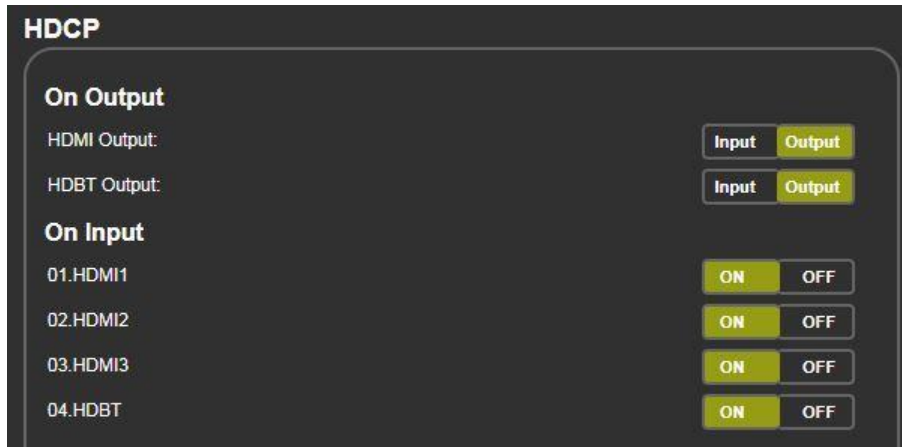


Figure 21: HDCP Page

2. In the On Output area, click one of the following for each of the outputs:
 - **Input** – signal only sent with HDCP encryption when the input includes HDCP encryption
 - **Output** – signal is always sent with HDCP encryption when the output supports it, even if the input does not include encryption
3. In the On Input area, click **ON** or **OFF** for each of the four inputs to turn on or off the HDCP encryption for that input.

Managing EDID

VP-440H2 web pages enable you to individually configure and manage EDID settings for each of the 5 inputs.

To manage EDID:

1. Click **EDID** on the left side of the web page ([Figure 11](#)).
The EDID page appears.

Figure 22: EDID Page

2. Under Read from, click the required EDID source or click **Browse** to use an EDID configuration File.
3. Under Copy to, click the inputs to copy the selected EDID to.
The Copy button is enabled.
4. Click **Copy**.

The selected EDID is copied to the selected inputs and the Copy EDID Results message appears.



Figure 23: Copy EDID Results Message

5. Click **Close**.

Adjusting Audio Input Settings

VP-440H2 web pages enable you to individually define the audio volume and source for each of the inputs.

To adjust audio input settings:

1. Click **Audio** on the left side of the web page ([Figure 11](#)). The Audio page appears.

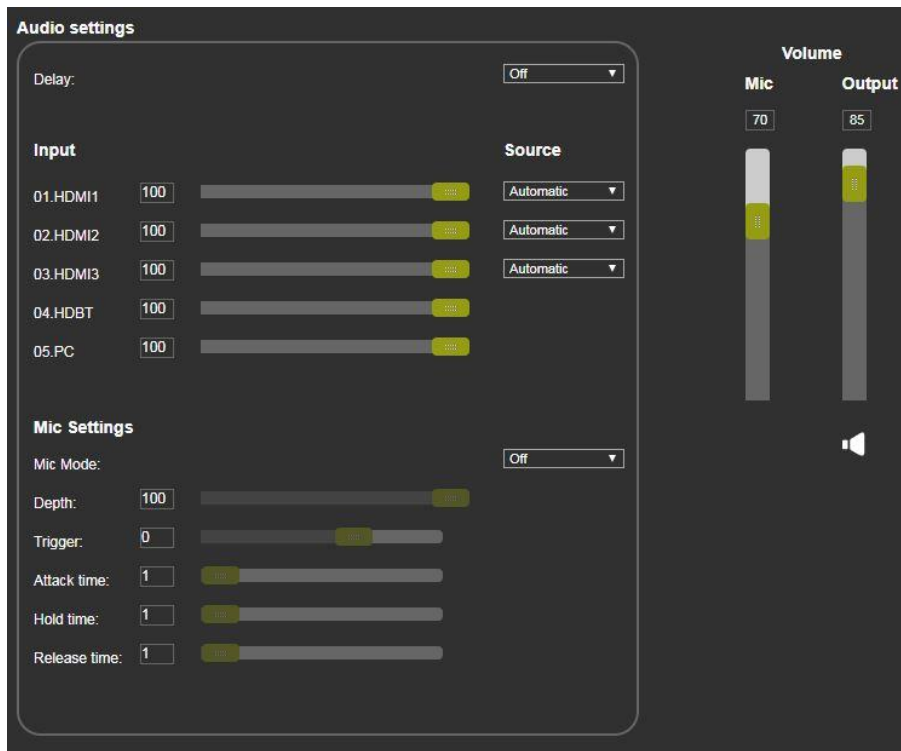


Figure 24: Audio Page

2. For Delay, select a time value in milliseconds.

3. In the Source area, select an audio source option for each of the HDMI inputs:
 - Automatic – the embedded audio on the HDMI input ⁽¹³⁾ is selected for an HDMI signal, or the analog audio input is selected if the input is not HDMI (for example, for a DVI input signal)
 - Analog – the analog audio input is selected
 - Embedded – the embedded audio in the HDMI signal is selected
4. In the Input area, use the slider controls or enter a number from 0–100 in the field to adjust the volume of each of the inputs.

Adjusting Microphone Settings

VP-440H2 web pages enable you to define settings for a microphone connected to the MIC jack ⁽²⁾ such as talkover/mixer mode, Depth and Trigger.

To adjust microphone settings:

1. Click **Audio** on the left side of the web page ([Figure 11](#)). The Audio page appears ([Figure 24](#)).
2. In the Mic Settings area, under Mic Mode, select one of the following:
 - Mixer –Microphone audio plays together with the main output audio
 - Talkover – Decreases the main output audio volume when the microphone is active
 - Mic only – Microphone audio overrides the main output audio
 - Off – Microphone is disabled
3. When Talkover mode is selected, use the slider controls or enter a number in the fields to adjust the microphone settings.

Configuring Automatic Switching Settings

To configure automatic switching settings:

1. Click **Advanced** on the left side of the web page ([Figure 11](#)).
The Advanced page appears.

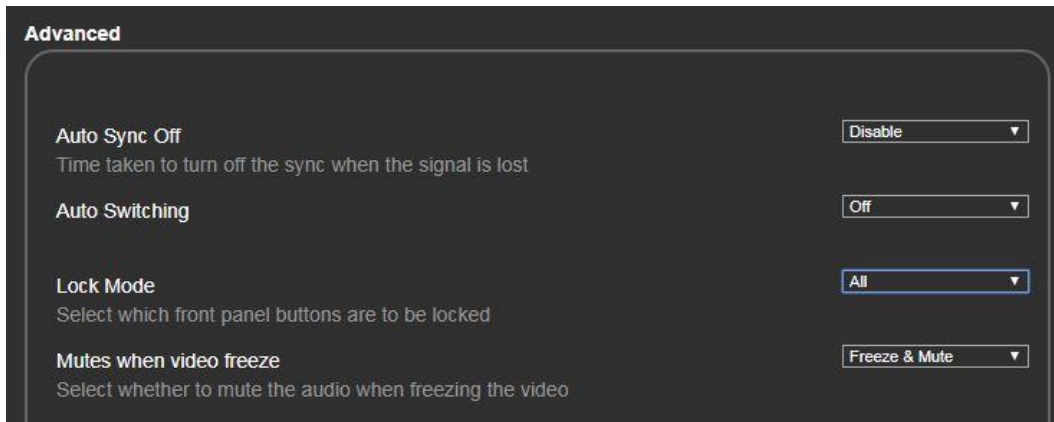


Figure 25: Advanced Page

2. For Auto Sync Off, select one of the following:
 - Disable – disable the Auto Sync Off feature
 - Fast – shuts down after about 10 seconds
 - Slow – shuts down after about 2 minutes
3. Auto Switching
 - Off – Disable auto switching
 - Scan from HDMI / HDBT / PC – Set auto-scanning, and select from which input to begin the scanning
 - Last connected – When detecting that a source is connected to an input (which previously had no signal), automatically switch to that input

Defining Panel Lock Button

VP-440H2 web pages enable you to define which buttons are disabled when you click the PANEL LOCK button (9) on the front panel.

To define the PANEL LOCK button:

1. Click **Advanced** on the left side of the web page ([Figure 11](#)).
The Advanced page appears ([Figure 25](#)).
2. For Lock Mode, select All, Menu Only, All & Save, or Menu Only & Save.

Defining Freeze Button

VP-440H2 web pages enable you to define what happens when you click the Freeze button on the Input Select page (see [Freezing or Clearing the Video Output](#) on page 22).

To define the Freeze button:

1. Click **Advanced** on the left side of the web page ([Figure 11](#)).
The Advanced page appears ([Figure 25](#)).
2. For Mutes when video freeze, select one of the following:
 - Freeze Only
 - Freeze + Mute
 - Mute Only

The About Page

The **VP-440H2** About page lets you view the Web page version and Kramer Electronics Ltd details.



Figure 26: The About Page

Technical Specifications

| | | |
|---------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------|
| Inputs | 3 HDMI | On female HDMI connectors |
| | 1 VGA | On a 15-pin HD connector |
| | 1 HDBT | On an RJ-45 connector |
| | 1 Stereo Analog Unbalanced Audio | On a 3.5mm mini jack |
| | 1 microphone | On a 6.3mm jack connector (with selectable 48V phantom power) |
| Outputs | 1 HDMI | On a female HDMI connector |
| | 1 HDBT | On an RJ-45 connector |
| | 1 unbalanced stereo audio | On a 3.5mm mini jack |
| Video | Max Resolution | 4K@60Hz (4:4:4) |
| | Switching Time Between Inputs | 2 to 3 seconds |
| | HDMI Compliance | HDMI 2.0 |
| | HDCP Compliance | HDCP 2.2 |
| Supported PC Web Browsers | Windows 7 and Higher | Internet Explorer (32/64 bit) version 10 Firefox version 30 Chrome version 35 |
| | MAC | Chrome version 35 Firefox version 30 Safari version 7 |
| | Minimum Browser Window Size | 1024 x 768 |
| Power | Source | 48V DC |
| | Consumption | 850mA |
| Cooling | Convection Ventilation | |
| 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%, RHL non-condensing |
| Enclosure | Size | Half 19" 1U |
| | Type | Aluminum |
| General | Net Dimensions (W, D, H) | 21.46cm x 16.30cm x 4.36cm (8.45" x 6.42" x 1.72") |
| | Shipping Dimensions (W, D, H) | 40.50cm x 29.70cm x 9.00cm (15.94" x 11.69" x 3.54") |
| | Net Weight | 1.5kg (3.3lbs) approx |
| | Shipping Weight | 2.6kg (5.7lbs) approx |
| Accessories | Included | Power supply (48V) |
| | Optional | RK-1 rack adapter |
| Specifications are subject to change without notice at www.kramerav.com | | |

Input Resolutions

| Resolution/Refresh Rate | HDMI | HDBT | PC |
|--------------------------|------|------|-----|
| 480i | Yes | Yes | No |
| 480p | Yes | Yes | No |
| 576i | Yes | Yes | No |
| 576p | Yes | Yes | No |
| 720p@50/60Hz | Yes | Yes | No |
| 1080i@50/60Hz | Yes | Yes | No |
| 1080p@24/25/30/50/60Hz | Yes | Yes | No |
| 640x480@60/67/72/75/85Hz | Yes | Yes | Yes |
| 800x600@56/60/72/75Hz | Yes | Yes | Yes |
| 1024x768@60/70/75Hz | Yes | Yes | Yes |
| 1280x1024@60/75Hz | Yes | Yes | Yes |
| 1280x720@60Hz | Yes | Yes | Yes |
| 1280x768@60Hz | Yes | Yes | Yes |
| 1280x800@60Hz | Yes | Yes | Yes |
| 1280x960@60Hz | Yes | Yes | Yes |
| 1920x1080@60Hz | Yes | Yes | Yes |
| 1600x1200@60Hz | Yes | Yes | Yes |
| 1360x768@60Hz | Yes | Yes | Yes |
| 1366x768@60Hz | Yes | Yes | Yes |
| 1400x1050@60Hz | Yes | Yes | Yes |
| 1600x900RB@60Hz | Yes | Yes | Yes |
| 1680x1050@60Hz | Yes | Yes | Yes |
| 1920x1200RB@60Hz | Yes | Yes | Yes |
| 4K@24/25/30Hz | Yes | Yes | No |
| 4K(4:2:0)@50/60Hz | Yes | Yes | No |
| 4K(4:4:4)@50/60Hz | Yes | No | No |

Output Resolutions

| Resolution/Refresh Rate | HDMI | HDBT |
|-------------------------|------|----------------------|
| 480p | Yes | Yes |
| 576p | Yes | Yes |
| 720p@50/60Hz | Yes | Yes |
| 1080p@24/25/30/50/60Hz | Yes | Yes |
| 640x480@60Hz | Yes | Yes |
| 800x600@60Hz | Yes | Yes |
| 1024x768@60Hz | Yes | Yes |
| 1280x768@60Hz | Yes | Yes |
| 1280x720@60Hz | Yes | Yes |
| 1280x800@60Hz | Yes | Yes |
| 1360x768@60Hz | Yes | Yes |
| 1280x1024@60Hz | Yes | Yes |
| 1440x900@60Hz | Yes | Yes |
| 1400x1050@60Hz | Yes | Yes |
| 1680x1050@60Hz | Yes | Yes |
| 1600x1200@60Hz | Yes | Yes |
| 1920x1080@60Hz | Yes | Yes |
| 1920x1200RB@60Hz | Yes | Yes |
| 4K@24/25/30Hz | Yes | Yes |
| 4K(4:2:0)@50/60Hz | Yes | Yes |
| 4K(4:4:4)@50/60Hz | Yes | Downsampled to 4:2:0 |



When outputting HDMI 4K 4:4:4@50/60Hz, the color sampling on the HDBT output is set to 4:2:0.

Default Communication Parameters

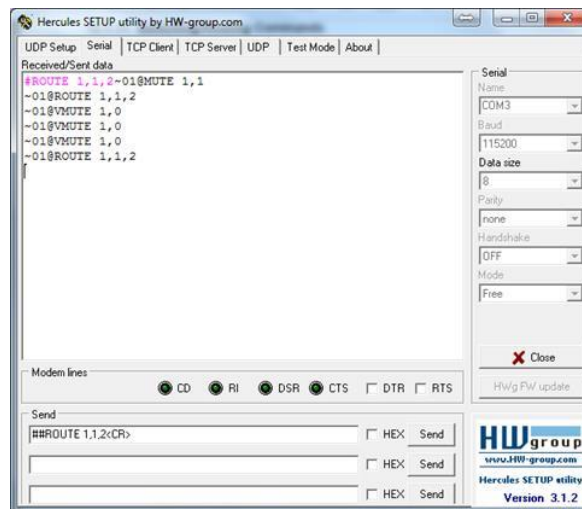
| RS-232 | |
|-----------------------------------------------------------------------|--------------------------------------------------|
| Baud Rate: | 9600 |
| Data Bits: | 8 |
| Stop Bits: | 1 |
| Parity: | None |
| Command Format: | ASCII |
| Example (Route the video from HDMI IN 3 to HDMI OUT): ROUTE 1,1,2<CR> | |
| Ethernet | |
| IP Address: | 192.168.1.39 |
| Subnet mask: | 255.255.0.0 |
| Default gateway: | 192.168.0.1 |
| TCP Port #: | 5000 |
| Maximum TCP Ports: | 1 |
| Full Factory Reset | |
| OSD | Go to : Factory > Reset-> press Enter to confirm |

Protocol 3000

The **VP-440H2 4K Presentation Switcher/Scaler** can be operated using the Kramer Protocol 3000 serial commands. The command framing varies according to how you interface with **VP-440H2**.

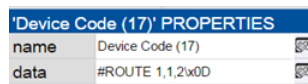
Generally, a basic video input switching command that routes a layer 1 video signal to HDMI out 1 from HDMI input 2 (`ROUTE 1, 1, 2`), is entered as follows:

- Terminal communication software, such as Hercules:

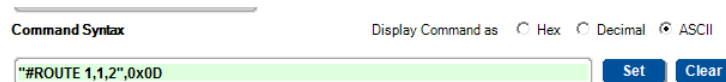


The framing of the command varies according to the terminal communication software.

- 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 **VP-440H2**. 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](#) on page [37](#)
- [Kramer Protocol 3000 Syntax](#) on page [37](#)
- [Protocol 3000 Commands](#) on page [39](#)

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:**
 - CR – Carriage return for host messages (ASCII 13)
 - 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.

Kramer Protocol 3000 Syntax

The Kramer Protocol 3000 syntax uses the following delimiters:

- CR = Carriage return (ASCII 13 = 0x0D)
- LF = Line feed (ASCII 10 = 0x0A)
- 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 |
|-------|--------------------|----------------|-----------|
| # | <i>Device_id@</i> | Message | CR |

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

| Start | Body | Delimiter |
|-------|----------------------------------------------------------------|-----------|
| # | Command SP <i>Parameter_1,Parameter_2,...</i> | CR |

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

| Start | Address | Body | Delimiter |
|-------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| # | <i>Device_id@</i> | Command_1 <i>Parameter1_1,Parameter1_2,... </i> Command_2 <i>Parameter2_1,Parameter2_2,... </i> Command_3 <i>Parameter3_1,Parameter3_2,... ...</i> | CR |

- **Device Message Format:**

| Start | Address (optional) | Body | Delimiter |
|-------|--------------------|----------------|---------------------|
| ~ | <i>Device_id@</i> | Message | CR LF |

- **Device Long Response** – Echoing command:

| Start | Address (optional) | Body | Delimiter |
|-------|--------------------|---------------------------------------------------------------------|---------------------|
| ~ | <i>Device_id@</i> | Command SP [<i>Param1,Param2 ...</i>] result | CR LF |

Protocol 3000 Commands

This section includes the following commands:

- [System Commands](#) (page 39)
- [Communication Commands](#) (page 45)
- [Switching/Routing Commands](#) (page 48)
- [Video Commands](#) (page 49)
- [Audio Commands](#) (page 51)
- [Multiviewer/Scaler Commands](#) (page 55)

System Commands

| Command | Description |
|------------|------------------------------------------------|
| # | Protocol handshaking (system mandatory) |
| BUILD-DATE | Get device build date (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 | Get device firmware version (system mandatory) |
| DISPLAY | Get output HPD status (system) |
| HDCP-MOD | Set/get HDCP mode (system) |
| LOCK-FP | Get front panel lock state (system) |

#

| Functions | Permission | Transparency |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------|
| Set: # | End User | Public |
| Get: - | - | - |
| Description | Syntax | |
| Set: Protocol handshaking | # <input type="checkbox"/> CR | |
| Get: - | - | |
| Response | | |
| ~nn@ <input type="checkbox"/> SPOK <input type="checkbox"/> CR LF | | |
| Notes | | |
| Validates the Protocol 3000 connection and gets the machine number. Used to identify the availability of the device. | | |
| K-Config Example | | |
| `#`, 0x0D | | |

BUILD-DATE

| Functions | | Permission | Transparency |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------|--------------|
| Set: | - | - | - |
| Get: | BUILD-DATE? | End User | Public |
| Description | | Syntax | |
| Set: | - | - | |
| Get: | Get device build date | # BUILD-DATE? <input type="checkbox"/> CR | |
| Response | | | |
| ~nn@ BUILD-DATE <input type="checkbox"/> SPdate <input type="checkbox"/> SPtime <input type="checkbox"/> CR LF | | | |
| Parameters | | | |
| date – Format: <i>YYYY/MM/DD</i> where <i>YYYY</i> = Year, <i>MM</i> = Month, <i>DD</i> = Day | | | |
| time – Format: <i>hh:mm:ss</i> where <i>hh</i> = hours, <i>mm</i> = minutes, <i>ss</i> = seconds | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| `#BUILD-DATE?`, 0x0D | | | |

FACTORY

| Functions | | Permission | Transparency |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------|--------------|
| Set: | FACTORY | End User | Public |
| Get: | - | - | - |
| Description | | Syntax | |
| Set: | Reset device to factory default configuration | # FACTORY <input type="checkbox"/> CR | |
| Get: | - | - | |
| Response | | | |
| ~nn@ FACTORY <input type="checkbox"/> SPOK <input type="checkbox"/> CR LF | | | |
| Parameters | | | |
| | | | |
| Response Triggers | | | |
| | | | |
| 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 | | | |

PROT-VER

| Functions | | Permission | Transparency |
|---------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------|--------------|
| Set: | - | - | - |
| Get: | PROT-VER? | End User | Public |
| Description | | Syntax | |
| Set: | - | - | |
| Get: | Get device protocol version | # PROT-VER? <input type="checkbox"/> CR | |
| Response | | | |
| ~nn@ PROT-VER <input type="checkbox"/> SP3000:version <input type="checkbox"/> CR LF | | | |
| Parameters | | | |
| version – XX.XX where X is a decimal digit | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| `#PROT-VER?`, 0x0D | | | |

RESET

| Functions | | Permission | Transparency |
|--------------------------------------------------------------------------------|--------------|--------------------------------------------|--------------|
| Set: | RESET | Administrator | Public |
| Get: | - | - | - |
| Description | | Syntax | |
| Set: | Reset device | # RESET <input type="checkbox"/> CR | |
| Get: | - | - | |
| Response | | | |
| ~nn@ RESET <input type="checkbox"/> SPOK <input type="checkbox"/> CR LF | | | |
| Parameters | | | |
| | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| `#RESET<CR>`, 0x0D | | | |

SN

| Functions | | Permission | Transparency |
|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------|--------------|
| Set: | - | - | - |
| Get: | SN? | End User | Public |
| Description | | Syntax | |
| Set: | - | - | - |
| Get: | Get device serial number | # SN? <input type="checkbox"/> CR | |
| Response | | | |
| ~ <input type="checkbox"/> <input type="checkbox"/> @ SN <input type="checkbox"/> <i>serial_number</i> <input type="checkbox"/> CR LF | | | |
| Parameters | | | |
| <i>serial_number</i> – 11 decimal digits, factory assigned | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| This device has a 14 digit serial number, only the last 11 digits are displayed | | | |
| K-Config Example | | | |
| `#SN?`, 0x0D | | | |

VERSION

| Functions | | Permission | Transparency |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------|--------------|
| Set: | - | - | - |
| Get: | VERSION? | End User | Public |
| Description | | Syntax | |
| Set: | - | - | - |
| Get: | Get firmware version number | # VERSION? <input type="checkbox"/> CR | |
| Response | | | |
| ~ <input type="checkbox"/> <input type="checkbox"/> @ VERSION <input type="checkbox"/> <i>firmware_version</i> <input type="checkbox"/> CR LF | | | |
| Parameters | | | |
| <i>firmware_version</i> – XX.XX.XXXX where the digit groups are: major.minor.build version | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| `#VERSION?`, 0x0D | | | |

DISPLAY

| Functions | | Permission | Transparency |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------|--------------|
| Set: | - | - | - |
| Get | DISPLAY? | End User | Public |
| Description | | Syntax | |
| Set: | - | - | |
| Get: | Get output HPD status | # DISPLAY? _[SP] <i>out_id</i> _[CR] | |
| Response | | | |
| ~ _[nn] @ DISPLAY _[SP] <i>out_id,status</i> _[CR LF] | | | |
| Parameters | | | |
| <i>out_id</i> – output number: 0 (HDMI OUT), 1 (HDBT OUT) <i>status</i> – HPD status according to signal validation: 0 (Off), 1 (On), 2 (On and all parameters are stable and valid) | | | |
| Response Triggers | | | |
| A response is sent to the com port from which the Get was received, after command execution and: After every change in output HPD status from On to Off (0) After every change in output HPD status from Off to On (1) After every change in output HPD status from Off to On and all parameters (new EDID, etc.) are stable and valid (2) | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| Get the output HPD status of HDBT OUT: `#DISPLAY? 1",0x0D | | | |

HDCP-MOD

| Functions | | Permission | Transparency |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------|--------------|
| Set: | HDCP-MOD | Administrator | Public |
| Get: | HDCP-MOD? | End User | Public |
| Description | | Syntax | |
| Set: | Set HDCP mode | # HDCP-MOD _[SP] <i>stage_id,mode</i> _[CR] | |
| Get: | Get HDCP mode | # HDCP-MOD? _[SP] <i>stage_id</i> _[CR] | |
| Response | | | |
| Set / Get: ~ _[nn] @ HDCP-MOD _[SP] <i>inp_id,mode</i> _[CR LF] | | | |
| Parameters | | | |
| <i>stage_id</i> – input number: 0 (HDBT IN), 1 (HDMI IN 1), 2 (HDMI IN 2), 3 (HDMI IN 3); output <i>mode</i> – HDCP mode, for input: 0 (HDCP disabled), 1 (HDCP enabled); for output: 2 (follow IN), 3 (follow OUT) | | | |
| Response Triggers | | | |
| A response is sent to the com port from which the set (before execution) / get command was received A response is sent to all com ports after command execution if HDCP-MOD was set by any other external control device (device button, device menu or other) or if the HDCP mode changed | | | |
| Notes | | | |
| When you define 3 as the mode, the HDCP status is defined according to the connected output in the following priority: HDMI OUT, HDBT OUT. If the connected display on HDBT OUT supports HDCP, but HDMI OUT does not, then HDCP is defined as not supported. If HDMI OUT is not connected, then HDCP is defined by HDMI OUT. | | | |
| K-Config Example | | | |
| Disable HDCP mode on HDMI IN 2: `#HDCP-MOD 2,0",0x0D | | | |

LOCK-FP

| Command Name | | Permission | Transparency |
|-----------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------|--------------|
| Set: | LOCK-FP | End User | Public |
| Get: | LOCK-FP? | End User | Public |
| Description | | Syntax | |
| Set: | Lock the front panel | # LOCK-FP _{SP} Lock/Unlock _{CR} | |
| Get: | Get the front panel lock state | # LOCK-FP? _{CR} | |
| Response | | | |
| ~ _{nn} @ LOCK-FP _{SP} Lock/Unlock _{CR LF} | | | |
| Parameters | | | |
| Lock/Unlock – 0 (unlock), 1 (lock) | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| Lock the front panel buttons: `#LOCK-FP 1", 0x0D | | | |

Communication Commands

| Command | Description |
|----------|---------------------|
| 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 |

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) | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| Connecting Ethernet to devices with DHCP may take more time in some networks. | | | |
| K-Config Example | | | |
| Enable DHCP mode, if available: `#NET-DHCP 1", 0x0D | | | |

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] <i>ip_address</i> _[CR] | |
| Get: | Get gateway IP | # NET-GATE? _[CR] | |
| Response | | | |
| ~ _[nn] @ NET-GATE _[SP] <i>ip_address</i> _[CR LF] | | | |
| Parameters | | | |
| <i>ip_address</i> – gateway IP address, in the following format: xxx.xxx.xxx.xxx | | | |
| Response Triggers | | | |
| | | | |
| 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 | | | |

NET-IP

| Functions | | Permission | Transparency |
|----------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------|--------------|
| Set: | NET-IP | Administrator | Public |
| Get: | NET-IP? | End User | Public |
| Description | | Syntax | |
| Set: | Set IP address | # NET-IP _[SP] <i>ip_address</i> _[CR] | |
| Get: | Get IP address | # NET-IP? _[CR] | |
| Response | | | |
| ~ _[nn] @ NET-IP _[SP] <i>ip_address</i> _[CR LF] | | | |
| Parameters | | | |
| <i>ip_address</i> – IP address, in the following format: xxx.xxx.xxx.xxx | | | |
| Response Triggers | | | |
| | | | |
| 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 | | | |

Switching/Routing Commands

| Command | Description |
|---------|-----------------------|
| ROUTE | Set/get layer routing |

ROUTE

| Command Name | | Permission | Transparency |
|------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------|--------------|
| Set: | ROUTE | End User | Public |
| Get: | ROUTE? | End User | Public |
| Description | | Syntax | |
| Set: | Set layer routing | # ROUTE _{SP} <i>layer,dest,src</i> _{CR} | |
| Get: | Get layer routing | # ROUTE? _{SP} <i>layer,src</i> _{CR} | |
| Response | | | |
| - _{nn} @ ROUTE _{SP} <i>layer,dest,src</i> _{CR LF} | | | |
| Parameters | | | |
| <i>layer</i> – 1 (video + audio) | | | |
| <i>dest</i> – 1 (HDMI OUT) | | | |
| <i>src</i> – input number: 0 (HDMI IN 1), 1 (HDMI IN 2), 2 (HDMI IN 3), 3 (HDBT IN), 4 (PC IN) | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| Route the video from HDMI IN 3 to HDMI OUT: "ROUTE 1,1,2",0x0D | | | |

Video Commands

| Command | Description |
|---------|-----------------------------------------------|
| VFRZ | Set/get output freeze status |
| VMUTE | Set/get enable/disable video on output status |
| VID-RES | Set/get output resolution |

VFRZ

| Command Name | | Permission | Transparency |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------|--------------|
| Set: | VFRZ | End User | Public |
| Get | VFRZ? | End User | Public |
| Description | | Syntax | |
| Set: | Set freeze on selected output | #VFRZ <input type="text"/> out_id, freeze_flag <input type="text"/> | |
| Get: | Get output freeze status | #VFRZ? <input type="text"/> out_id <input type="text"/> | |
| Response | | | |
| ~nn@VFRZ <input type="text"/> win_num, freeze_flag <input type="text"/> LF | | | |
| Parameters | | | |
| out_id -output number: 1 (HDMI OUT) freeze_flag - 0 (unfreeze), 1 (freeze) | | | |
| 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) | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| Freeze the video on the HDMI OUT output: `#VFRZ 1,1",0x0D` | | | |

VMUTE

| Functions | | Permission | Transparency |
|-----------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------|--------------|
| Set: | VMUTE | End User | Public |
| Get: | VMUTE? | End User | Public |
| Description | | Syntax | |
| Set: | Set enable/disable video on output | #VMUTE[SP]output_id,flag[CR] | |
| Get: | Get video on output status | #VMUTE?[SP]output_id[SP][CR] | |
| Response | | | |
| Set / Get: ~[nn]@VMUTE[SP]output_id,flag[CR LF] | | | |
| Parameters | | | |
| out_id – output number: 1 (HDMI OUT+HDBT OUT) flag – 0 (enable video on output), 1 (disable video on output) | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| Disable the video output on HDMI OUT: `#VMUTE 1,1",0x0D` | | | |

VID-RES

| Command Name | | Permission | Transparency |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------|--------------|
| Set: | VID-RES | End User | Public |
| Get: | VID-RES? | End User | Public |
| Description | | Syntax | |
| Set: | Set output resolution | #VID-RES [SP]stage,stage_id,is_native,resolution[CR] | |
| Get: | Get input/output resolution | #VID-RES?[SP]stage,stage_id,is_native[CR] | |
| Response | | | |
| ~[nn]@VID-RES[SP]stage,stage_id,is_native,resolution[CR LF] | | | |
| Parameters | | | |
| stage – 0 (input), 1 (output) stage_id – output number: 1 (HDMI OUT) is_native – 0 (OFF, do not use native resolution) resolution – number that represents the required resolution: 200–231 (640x480–Native OUT2) | | | |
| 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 VID-RES was set by any other external control device (button press, device menu and similar). | | | |
| Notes | | | |
| "Set" command is only applicable for stage=output. "Set" command with is_native=ON sets native resolution on selected output (resolution index sent = 0). Device sends as a response, the actual VIC ID of the native resolution. "Get" command with is_native=ON returns native resolution VIC ID, with is_native=OFF returns current resolution. | | | |
| K-Config Example | | | |
| Set the output resolution to 640x480: `#VID-RES 1,1,0,200",0x0D` | | | |

Audio Commands

| Command | Description |
|----------|-----------------------------------------|
| AUD-EMB | Set/get audio in video embedding status |
| AUD-LVL | Set/get volume level |
| MUTE | Set/get audio mute status |
| MIC-GAIN | Set/get the microphone gain level |
| MIC-TLK | Set/get mic talkover parameters |
| TLK | Set/get audio talkover mode status |

AUD-EMB

| Command Name | | Permission | Transparency |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------|--------------|
| Set: | AUD-EMB | End User | Public |
| Get: | AUD-EMB? | End User | Public |
| Description | | Syntax | |
| Set: | Set audio in video embedding status | #AUD-EMB _{SP} inp_id,out_id,status _{CR} | |
| Get: | Get audio in video embedding status | #AUD-EMB? _{SP} inp_id,out_id _{CR} | |
| Response | | | |
| Set/Get: ~nn@AUD-EMB _{SP} inp_id,out,status _{CR LF} | | | |
| Parameters | | | |
| inp_id – input number: 0 (HDMI IN 1), 1 (HDMI IN 2), 2 (HDMI IN 3) | | | |
| out_id – 0 (HDMI OUT) | | | |
| status – 0 (Analog), 1 (Embedded), 2 (Auto) | | | |
| Response Triggers | | | |
| Response is sent to the com port from which the Set (before execution)/Get command was received After execution, response is sent to all com ports if AUD-EMB was set by any other external control device (button press, device menu and similar) | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| Set the audio embedding status for HDMI IN 3 to Analog: #AUD-EMB 2,0,0",0x0D | | | |

AUD-LVL

| Command Name | | Permission | Transparency |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------|--------------|
| Set: | AUD-LVL | End User | Public |
| Get: | AUD-LVL? | End User | Public |
| Description | | Syntax | |
| Set: | Set volume level | #AUD-LVL [SP]stage,channel,volume[CR] | |
| Get: | Get volume level | #AUD-LVL?[SP]stage,channel[CR] | |
| Response | | | |
| ~nn@AUD-LVL[SP]stage,channel,volume[CR LF] | | | |
| Parameters | | | |
| <i>stage</i> – 0 (input processing), 1 (output processing) <i>channel</i> – inputs: 0 (HDBT IN), 1 (HDMI IN 1), 2 (HDMI IN 2), 3 (HDMI IN 3), 4 (PC IN); output: 0 <i>volume</i> – volume level: 0 to 100 | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| Set the volume on the output to 75: `#AUD-LVL 1,0,75",0x0D` | | | |

MUTE

| Command Name | | Permission | Transparency |
|-------------------------------------------------------------------------------------|-----------------------|--------------------------------|--------------|
| Set: | MUTE | End User | Public |
| Get: | MUTE? | End User | Public |
| Description | | Syntax | |
| Set: | Set audio mute status | #MUTE[SP]channel,mute_mode[CR] | |
| Get: | Get audio mute status | #MUTE?[SP]channel[CR] | |
| Response | | | |
| ~nn@MUTE[SP]channel,mute_mode[CR LF] | | | |
| Parameters | | | |
| <i>channel</i> – 1 (HDMI OUT) <i>mute_mode</i> – 0 (OFF, unmuted), 1 (ON, muted) | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| Mute the audio on the outputs: `#MUTE 1,1",0x0D` | | | |

MIC-GAIN

| Command Name | | Permission | Transparency |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------|--------------|
| Set: | MIC-GAIN | End User | Public |
| Get: | MIC-GAIN? | End User | Public |
| Description | | Syntax | |
| Set: | Set the microphone gain level | #MIC-GAIN _{SP} P1,P2 _{CR} | |
| Get : | Get the microphone gain level | #MIC-GAIN? _{SP} P1 _{CR} | |
| Response | | | |
| Set / Get : ~ _{nn} @MIC-GAIN _{SP} P1,P2 _{CR LF} | | | |
| Parameters | | | |
| P1 – 0 P2 – gain level:0 to 100 | | | |
| Response Triggers | | | |
| Response is sent to the com port from which the Set (before execution) / Get command was received. After execution, response is sent to all com ports if MIC-GAIN was set any other external control device (button press, device menu and similar). | | | |
| Notes | | | |
| Sets the microphone input audio gain. | | | |
| K-Config Example | | | |
| Set the microphone audio gain to 50: `#MIC-GAIN 0,50",0x0D | | | |

MIC-TLK

| Command Name | | Permission | Transparency |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------|--------------|
| Set: | MIC-TLK | End User | Public |
| Get: | MIC-TLK? | End User | Public |
| Description | | Syntax | |
| Set: | Set mic talkover parameters | #MIC-TLK _{SP} channel,P1,value _{CR} | |
| Get: | Get mic talkover parameters | #MIC-TLK? _{SP} channel,P1 _{CR} | |
| Response | | | |
| ~ _{nn} @MIC-TLK _{SP} channel,P1,value _{CR LF} | | | |
| Parameters | | | |
| channel – 0 P1 – talkover setting: 0 (Depth), 1 (Trigger), 2 (Attack time), 3 (Hold time), 4 (Release time) value – 0–100 for Depth, 0–100 (-60dB–40dB) for Trigger, 0–200 (0–2 seconds) for Attack/Hold/Release time | | | |
| Response Triggers | | | |
| Notes | | | |
| K-Config Example | | | |
| Set the mic talkover Trigger to -50dB: `MIC-TLK 0,1,31",0x0D | | | |

TLK

| Command Name | | Permission | Transparency |
|------------------------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------|--------------|
| Set: | TLK | End User | Public |
| Get: | TLK? | End User | Public |
| Description | | Syntax | |
| Set: | Set audio talkover mode status | # TLK _{SP} <i>channel,talkover_mode</i> _{CR} | |
| Get: | Get audio talkover mode status | # TLK? _{SP} <i>channel</i> _{CR} | |
| Response | | | |
| ~ _{nn} @ TLK _{SP} <i>channel,talkover_mode</i> _{CR LF} | | | |
| Parameters | | | |
| <i>channel</i> – 1 (HDMI OUT) | | | |
| <i>talkover_mode</i> – 0 (off), 1 (mixer), 2 (talkover), 3 (mic only) | | | |
| Response Triggers | | | |
| | | | |
| Notes | | | |
| | | | |
| K-Config Example | | | |
| Set the talkover mode on HDMI OUT to talkover: `#TLK 1,2",0x0D | | | |

Multiviewer/Scaler Commands

| Command | Description |
|-----------------|----------------------------------------|
| IMAGE-PROP | Set/get the image size |
| SCL-AS | Set/get the image size |
| SCL-AUDIO-DELAY | Set/get the scaler audio delay setting |
| SCL-PCAUTO | Set PC auto sync of scaler |

IMAGE-PROP

| Command Name | | Permission | Transparency |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------|--------------|
| Set: | IMAGE-PROP | End User | Public |
| Get: | IMAGE-PROP? | End User | Public |
| Description | | Syntax | |
| Set: | Set the image size | # IMAGE-PROP <input type="checkbox"/> <i>P1</i> , <i>image_size</i> <input type="checkbox"/> | |
| Get : | Get the image size | # IMAGE-PROP? <input type="checkbox"/> <i>P1</i> , <i>image_size</i> <input type="checkbox"/> | |
| Response | | | |
| Set / Get : ~ <input type="checkbox"/> <input type="checkbox"/> @ IMAGE-PROP <input type="checkbox"/> <i>P1</i> , <i>image_size</i> ... <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | |
| Parameters | | | |
| <i>P1</i> – 1 (output) | | | |
| <i>image_size</i> – 0 (Overscan), 1 (Full), 2 (Best fit), 3 (Panscan), 4 (Letterbox), 5 (Underscan), 6 (Follow In) | | | |
| Response Triggers | | | |
| Response is sent to the com port from which the Set (before execution) / Get command was received After execution, response is sent to all com ports if IMAGE-PROP was set any other external control device (button press, device menu and similar). | | | |
| Notes | | | |
| Sets the image properties of the selected scaler | | | |
| K-Config Example | | | |
| Set the image size to Panscan: `#IMAGE-PROP 1, 3", 0x0D | | | |

SCLR-AS

| Command Name | | Permission | Transparency |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------|--------------|
| Set: | SCLR-AS | End User | Public |
| Get: | SCLR-AS? | End User | Public |
| Description | | Syntax | |
| Set: | Set auto-sync feature setting | #SCLR-AS _{SP} P1,auto-sync _{CR} | |
| Get : | Get auto-sync feature setting | #SCLR-AS? _{SP} P1 _{CR} | |
| Response | | | |
| Set / Get : ~ _{nn} @SCLR-AS _{SP} P1,auto-sync _{LF} | | | |
| Parameters | | | |
| P1 – 1 (Scaler) auto-sync – Auto-sync setting: 0 (off), 1 (fast), 2 (slow) | | | |
| Response Triggers | | | |
| The auto-sync feature determines whether the outputs are turned off when no video is detected on the selected input | | | |
| Notes | | | |
| Sets the auto sync features for the selected scaler | | | |
| K-Config Example | | | |
| Set the auto-sync feature for the outputs to fast: `#SCLR-AS 1,1",0x0D | | | |

SCLR-AUDIO-DELAY

| Command Name | | Permission | Transparency |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------------------------------------------|--------------|
| Set: | SCLR-AUDIO-DELAY | End User | Public |
| Get: | SCLR-AUDIO-DELAY? | End User | Public |
| Description | | Syntax | |
| Set: | Set the scaler audio delay setting | #SCLR-AUDIO-DELAY _{SP} P1,audio_delay _{CR} | |
| Get : | Get the scaler audio delay setting | #SCLR-AUDIO-DELAY? _{SP} P1,audio_delay _{CR} | |
| Response | | | |
| Set / Get : ~ _{nn} @SCLR-AUDIO-DELAY _{SP} P1,audio_delay _{CR LF} | | | |
| Parameters | | | |
| P1 – 1 (Scaler) audio_delay – 0 (Off), 1 (40ms), 2 (50ms), 3 (60ms), 4 (70ms), 5 (80ms), 6 (90ms), 7 (100ms), 8 (110ms), 9 (110ms), 10 (120ms), 11 (130ms), 12 (140ms), 13 (150ms), 14 (160ms), 15 (170ms), 16 (180ms), 17 (190ms) | | | |
| Response Triggers | | | |
| Response is sent to the com port from which the Set (before execution) / Get command was received After execution, response is sent to all com ports if SCLR-AUDIO-DEL was set any other external control device (button press, device menu and similar). | | | |
| Notes | | | |
| Sets the audio delay for the audio output | | | |
| K-Config Example | | | |
| Set the audio delay for the outputs to 80ms: `#SCLR-AUDIO-DELAY 1,5",0x0D | | | |

SCLR-PCAUTO

| Command Name | | Permission | Transparency |
|--------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------|--------------|
| Set: | SCLR-PCAUTO | End User | Public |
| Get: | - | - | - |
| Description | | Syntax | |
| Set: | Set PC auto-adjust of scaler | #SCLR-PCAUTO <input type="checkbox"/> P1, P2 <input type="checkbox"/> | |
| Get : | - | - | |
| Response | | | |
| ~ <input type="checkbox"/> @SCLR-PCAUTO <input type="checkbox"/> P1, P2 <input type="checkbox"/> | | | |
| Parameters | | | |
| P1 – 1 (scaler) P2 – 1 (initiates the auto-adjust function) | | | |
| Response Triggers | | | |
| The auto-adjust feature is implemented every time P2 is set to “Yes”. | | | |
| Notes | | | |
| Trigger the auto-adjust feature of PC input. | | | |
| K-Config Example | | | |
| Initiate the PC auto-adjust feature: `#SCLR-PCAUTO 1,1",0x0D | | | |

Parameters

Video Resolutions

| VIC Number | Video Resolution |
|------------|---------------------|
| 200 | Native out 1 |
| 201 | 640x480 |
| 202 | 800x600 |
| 203 | 1024x768 |
| 204 | 1280x768 |
| 205 | 1360x768 |
| 206 | 1280x720 |
| 207 | 1280x800 |
| 208 | 1280x1024 |
| 209 | 1440x900 |
| 210 | 1400x1050 |
| 211 | 1680x1050 |
| 212 | 1600x1200 |
| 213 | 1920x1080 |
| 214 | 1920x1200 |
| 215 | 480p |
| 216 | 576p |
| 217 | 720p@50Hz |
| 218 | 720p@60Hz |
| 219 | 1080p@24Hz |
| 220 | 1080p@25Hz |
| 221 | 1080p@30Hz |
| 222 | 1080p@50Hz |
| 223 | 1080p@60Hz |
| 224 | 4K@24Hz |
| 225 | 4K@25Hz |
| 226 | 4K@30Hz |
| 227 | 4K@50Hz (HDMI Only) |
| 228 | 4K@60Hz (HDMI Only) |
| 229 | 4K@50Hz (4:2:0) |
| 230 | 4K@60Hz (4:2:0) |
| 231 | Native out 2 |

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.

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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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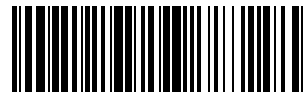
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P/N: 2900-300644



Rev: 2



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing

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

We welcome your questions, comments, and feedback.